Appendix V

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

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:			
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
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 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:	
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

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.:	23-33857-1
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	**Date Received:**	10-Oct-2023
Order No.:	SC14805	**Date Instructed:**	12-Oct-2023
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	18-Oct-2023
Date Approved:	23-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.:**		23-33857
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
Date Received:	10-Oct-2023
Order No.:	SC14805
Date Instructed:	10-Oct-2023
No. of Samples:	1
Turnaround (Wkdays):	7
Results Due:	18-Oct-2023
Date Approved:	18-Oct-2023
Approved By:	[redacted]
Details:	Stuart Henderson, Technical Manager

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

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 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
Order No.:	SC14805
No. of Samples:	2
Turnaround (Wkdays):	5
Date Approved:	03-Nov-2023
Approved By:	
Details:	Stuart Henderson, Technical Manager

Date Received:	27-Oct-2023
Date Instructed:	27-Oct-2023
Results Due:	02-Nov-2023

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

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

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: [redacted]

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

* can be provided on request *

Appendix VII

* can be provided on request *

Appendix VIII

* can be provided on request *

Appendix IX

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH04

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
00:00	0.1	<0.1	<0.1	18.9	0.2	<1	<1		4.65	1.80
00:15	0.1	<0.1	<0.1	19.2	0.2	<1	<1			
00:30	0.1	<0.1	<0.1	18.9	0.2	<1	<1			
00:45	0.1	<0.1	<0.1	18.9	0.2	<1	<1			
01:00	0.1	<0.1	<0.1	18.7	0.2	<1	<1			
01:15	0.1	<0.1	<0.1	18.7	0.3	<1	<1			
01:30	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
01:45	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
02:00	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
02:15	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
02:30	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
02:45	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
03:00	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
03:15	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
03:30	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
03:45	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
04:00	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
04:15	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
04:30	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
04:45	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
05:00	0.1	<0.1	<0.1	18.6	0.3	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**18.6**	**0.3**	**<1**	**<1**	**#####**	**4.65**	**1.80**
Peak	**0.1**	**0.0**	**0.0**	**19.2**	**0.3**	**0.0**	**0.0**	**0.0**	**4.65**	**1.80**

Date	Notes:			
06/11/2023	Engineer	NC	Barometric Pressure, mbar	1001
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	10

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH02

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
00:00	0.1	<0.1	<0.1	19.3	0	<1	<1		9.75	3.12
00:15	0.1	<0.1	<0.1	18.1	0.7	<1	<1			
00:30	0.1	<0.1	<0.1	17.5	0.8	<1	<1			
00:45	0.1	<0.1	<0.1	17.4	0.8	<1	<1			
01:00	0.1	<0.1	<0.1	17.2	0.8	<1	<1			
01:15	0.1	<0.1	<0.1	17.1	0.8	<1	<1			
01:30	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
01:45	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
02:00	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
02:15	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
02:30	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
02:45	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
03:00	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
03:15	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
03:30	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
03:45	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
04:00	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
04:15	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
04:30	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
04:45	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
05:00	0.1	<0.1	<0.1	17.0	0.8	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**17.0**	**0.8**	**<1**	**<1**	**#####**	**9.75**	**3.12**
Peak	**0.1**	**0.0**	**0.0**	**19.3**	**0.8**	**0.0**	**0.0**	**0.0**	**9.75**	**3.12**

Date	Notes:			
06/11/2023	Engineer	NC	Barometric Pressure, mbar	1001
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	10

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH03(A)

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl
00:00	0.1	<0.1	<0.1	19.4	0.1	<1	<1		6.00	2.21
00:15	0.1	<0.1	<0.1	20.2	0.1	<1	<1			
00:30	0.1	<0.1	<0.1	20.1	0.1	<1	<1			
00:45	0.1	<0.1	<0.1	20.1	0.1	<1	<1			
01:00	0.1	<0.1	<0.1	20.1	0.1	<1	<1			
01:15	0.1	<0.1	<0.1	20.0	0.2	<1	<1			
01:30	0.1	<0.1	<0.1	20.0	0.2	<1	<1			
01:45	0.1	<0.1	<0.1	20.0	0.2	<1	<1			
02:00	0.1	<0.1	<0.1	20.0	0.2	<1	<1			
02:15	0.1	<0.1	<0.1	20.0	0.2	<1	<1			
02:30	0.1	<0.1	<0.1	20.0	0.2	<1	<1			
02:45	0.1	<0.1	<0.1	20.0	0.2	<1	<1			
03:00	0.1	<0.1	<0.1	20.1	0.2	<1	<1			
03:15	0.1	<0.1	<0.1	20.1	0.2	<1	<1			
03:30	0.1	<0.1	<0.1	20.1	0.2	<1	<1			
03:45	0.1	<0.1	<0.1	20.1	0.2	<1	<1			
04:00	0.1	<0.1	<0.1	20.1	0.2	<1	<1			
04:15	0.1	<0.1	<0.1	20.1	0.2	<1	<1			
04:30	0.1	<0.1	<0.1	20.1	0.2	<1	<1			
04:45	0.1	<0.1	<0.1	20.1	0.2	<1	<1			
05:00	0.1	<0.1	<0.1	20.1	0.2	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**20.1**	**0.2**	**<1**	**<1**	#####	**6.00**	**2.21**
Peak	**0.1**	**0.0**	**0.0**	**20.2**	**0.2**	**0.0**	**0.0**	**0.0**	**6.00**	**2.21**

Date	Notes:			
06/11/2023	Engineer	NC	Barometric Pressure, mbar	1001
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	10

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH03(B)

Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl
Detection Limit		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
00:00										
00:15										
00:30										
00:45										
01:00										
01:15										
01:30										
01:45										
02:00										
02:15										
02:30										
02:45										
03:00										
03:15										
03:30										
03:45										
04:00										
04:15										
04:30										
04:45										
05:00										
Steady	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####
Peak	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.00**	**0.00**

Date	Notes:			
06/11/2023	Engineer	NC	Barometric Pressure, mbar	1001
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	10

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH04

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
00:00	0.1	<0.1	<0.1	19.6	0	<1	<1		4.65	1.97
00:15	0.1	<0.1	<0.1	20.1	0.1	<1	<1			
00:30	0.1	<0.1	<0.1	20.0	0.1	<1	<1			
00:45	0.1	<0.1	<0.1	19.9	0.1	<1	<1			
01:00	0.1	<0.1	<0.1	19.9	0.1	<1	<1			
01:15	0.1	<0.1	<0.1	19.8	0.1	<1	<1			
01:30	0.1	<0.1	<0.1	19.8	0.1	<1	<1			
01:45	0.1	<0.1	<0.1	19.8	0.1	<1	<1			
02:00	0.1	<0.1	<0.1	19.8	0.1	<1	<1			
02:15	0.1	<0.1	<0.1	19.8	0.2	<1	<1			
02:30	0.1	<0.1	<0.1	19.9	0.2	<1	<1			
02:45	0.1	<0.1	<0.1	19.8	0.2	<1	<1			
03:00	0.1	<0.1	<0.1	19.8	0.2	<1	<1			
03:15	0.1	<0.1	<0.1	19.8	0.1	<1	<1			
03:30	0.1	<0.1	<0.1	19.8	0.1	<1	<1			
03:45	0.1	<0.1	<0.1	19.8	0.1	<1	<1			
04:00	0.1	<0.1	<0.1	19.8	0.2	<1	<1			
04:15	0.1	<0.1	<0.1	19.9	0.2	<1	<1			
04:30	0.1	<0.1	<0.1	19.8	0.2	<1	<1			
04:45	0.1	<0.1	<0.1	19.8	0.2	<1	<1			
05:00	0.1	<0.1	<0.1	19.8	0.2	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**19.8**	**0.2**	**<1**	**<1**	**#####**	**4.65**	**1.97**
Peak	**0.1**	**0.0**	**0.0**	**20.1**	**0.2**	**0.0**	**0.0**	**0.0**	**4.65**	**1.97**

Date	Notes:			
21/11/2021	Engineer	NC	Barometric Pressure, mbar	1033
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	12

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH02

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
00:00	0.1	<0.1	<0.1	20.2	0.1	<1	<1		9.69	3.48
00:15	0.1	<0.1	<0.1	19.4	0.6	<1	<1			
00:30	0.1	<0.1	<0.1	19.3	0.6	<1	<1			
00:45	0.1	<0.1	<0.1	19.2	0.6	<1	<1			
01:00	0.1	<0.1	<0.1	19.1	0.6	<1	<1			
01:15	0.1	<0.1	<0.1	19.0	0.6	<1	<1			
01:30	0.1	<0.1	<0.1	18.9	0.7	<1	<1			
01:45	0.1	<0.1	<0.1	18.9	0.7	<1	<1			
02:00	0.1	<0.1	<0.1	18.8	0.8	<1	<1			
02:15	0.1	<0.1	<0.1	18.6	0.8	<1	<1			
02:30	0.1	<0.1	<0.1	18.3	1.0	<1	<1			
02:45	0.1	<0.1	<0.1	17.9	1.3	<1	<1			
03:00	0.1	<0.1	<0.1	17.4	1.5	<1	<1			
03:15	0.1	<0.1	<0.1	17.0	1.6	<1	<1			
03:30	0.1	<0.1	<0.1	17.0	1.6	<1	<1			
03:45	0.1	<0.1	<0.1	17.0	1.6	<1	<1			
04:00	0.1	<0.1	<0.1	17.0	1.6	<1	<1			
04:15	0.1	<0.1	<0.1	17.0	1.6	<1	<1			
04:30	0.1	<0.1	<0.1	17.0	1.6	<1	<1			
04:45	0.1	<0.1	<0.1	17.0	1.6	<1	<1			
05:00	0.1	<0.1	<0.1	17.0	1.6	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**17.0**	**1.6**	**<1**	**<1**	#####	**9.69**	**3.48**
Peak	**0.1**	**0.0**	**0.0**	**20.2**	**1.6**	**0.0**	**0.0**	**0.0**	**9.69**	**3.48**

Date	Notes:			
21/11/2021	Engineer	NC	Barometric Pressure, mbar	1033
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	12

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH03(A)

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl
00:00	0.1	<0.1	<0.1	19.7	0.1	<1	<1		6.00	2.43
00:15	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
00:30	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
00:45	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
01:00	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
01:15	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
01:30	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
01:45	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
02:00	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
02:15	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
02:30	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
02:45	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
03:00	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
03:15	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
03:30	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
03:45	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
04:00	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
04:15	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
04:30	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
04:45	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
05:00	0.1	<0.1	<0.1	19.6	0.8	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**19.6**	**0.8**	**<1**	**<1**	#####	**6.00**	**2.43**
Peak	**0.1**	**0.0**	**0.0**	**19.7**	**0.8**	**0.0**	**0.0**	**0.0**	**6.00**	**2.43**

Date	Notes:			
21/11/2021	Engineer	NC	Barometric Pressure, mbar	1033
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	12

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH03(B)

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl
00:00	0.1	<0.1	<0.1	19.4	0.8	<1	<1		2.05	1.95
00:15	0.1	<0.1	<0.1	4.0	2.5	<1	<1			
00:30	0.1	<0.1	<0.1	1.1	2.6	<1	<1			
00:45	0.1	<0.1	<0.1	0.8	2.6	<1	<1			
01:00	0.1	<0.1	<0.1	0.7	2.6	<1	<1			
01:15	0.1	<0.1	<0.1	0.7	2.6	<1	<1			
01:30	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
01:45	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
02:00	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
02:15	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
02:30	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
02:45	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
03:00	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
03:15	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
03:30	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
03:45	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
04:00	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
04:15	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
04:30	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
04:45	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
05:00	0.1	<0.1	<0.1	0.6	2.6	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**0.6**	**2.6**	**<1**	**<1**	**#####**	**2.05**	**1.95**
Peak	**0.1**	**0.0**	**0.0**	**19.4**	**2.6**	**0.0**	**0.0**	**0.0**	**2.05**	**1.95**

Date	Notes:			
21/11/2021	Engineer	NC	Barometric Pressure, mbar	1033
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	12

Gas Monitoring Certificate

Project Number	C3297
Project Name	Barry Waterfront
Client	WEPCo

BH04

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
00:00	0.1	<0.1	<0.1	20.3	0.0	<1	<1		3.60	1.93
00:15	0.1	<0.1	<0.1	20.1	0.6	<1	<1			
00:30	0.1	<0.1	<0.1	20.0	0.6	<1	<1			
00:45	0.1	<0.1	<0.1	19.9	0.6	<1	<1			
01:00	0.1	<0.1	<0.1	19.8	0.6	<1	<1			
01:15	0.1	<0.1	<0.1	19.8	0.6	<1	<1			
01:30	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
01:45	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
02:00	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
02:15	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
02:30	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
02:45	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
03:00	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
03:15	0.1	<0.1	<0.1	19.8	0.6	<1	<1			
03:30	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
03:45	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
04:00	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
04:15	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
04:30	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
04:45	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
05:00	0.1	<0.1	<0.1	19.7	0.7	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**19.7**	**0.7**	**<1**	**<1**	**#####**	**3.60**	**1.93**
Peak	**0.1**	**0.0**	**0.0**	**20.3**	**0.7**	**0.0**	**0.0**	**0.0**	**3.60**	**1.93**

Date	Notes:			
12/12/2023	Engineer	NC	Barometric Pressure, mbar	994
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	11

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH02

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm)	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl)
00:00	0.1	<0.1	<0.1	20.0	0.0	<1	<1		9.70	3.91
00:15	0.1	<0.1	<0.1	19.2	0.9	<1	<1			
00:30	0.1	<0.1	<0.1	18.6	0.9	<1	<1			
00:45	0.1	<0.1	<0.1	18.4	1.0	<1	<1			
01:00	0.1	<0.1	<0.1	18.2	1.1	<1	<1			
01:15	0.1	<0.1	<0.1	17.9	1.4	<1	<1			
01:30	0.1	<0.1	<0.1	17.4	1.7	<1	<1			
01:45	0.1	<0.1	<0.1	16.9	1.9	<1	<1			
02:00	0.1	<0.1	<0.1	16.2	2.2	<1	<1			
02:15	0.1	<0.1	<0.1	15.7	2.4	<1	<1			
02:30	0.1	<0.1	<0.1	15.4	2.5	<1	<1			
02:45	0.1	<0.1	<0.1	15.2	2.6	<1	<1			
03:00	0.1	<0.1	<0.1	15.1	2.7	<1	<1			
03:15	0.1	<0.1	<0.1	15.0	2.7	<1	<1			
03:30	0.1	<0.1	<0.1	15.0	2.7	<1	<1			
03:45	0.1	<0.1	<0.1	15.0	2.7	<1	<1			
04:00	0.1	<0.1	<0.1	15.1	2.7	<1	<1			
04:15	0.1	<0.1	<0.1	15.0	2.7	<1	<1			
04:30	0.1	<0.1	<0.1	15.0	2.7	<1	<1			
04:45	0.1	<0.1	<0.1	15.0	2.7	<1	<1			
05:00	0.1	<0.1	<0.1	15.0	2.7	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**15.0**	**2.7**	**<1**	**<1**	#####	**9.70**	**3.91**
Peak	**0.1**	**0.0**	**0.0**	**20.0**	**2.7**	**0.0**	**0.0**	**0.0**	**9.70**	**3.91**

Date	Notes:			
12/12/2023	Engineer	NC	Barometric Pressure, mbar	994
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	11

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH03(A)

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl
00:00	0.1	<0.1	<0.1	19.7	0.2	<1	<1		6.00	2.55
00:15	0.1	<0.1	<0.1	19.3	2.2	<1	<1			
00:30	0.1	<0.1	<0.1	18.9	2.4	<1	<1			
00:45	0.1	<0.1	<0.1	18.8	2.6	<1	<1			
01:00	0.1	<0.1	<0.1	18.7	2.7	<1	<1			
01:15	0.1	<0.1	<0.1	18.6	2.8	<1	<1			
01:30	0.1	<0.1	<0.1	18.5	2.9	<1	<1			
01:45	0.1	<0.1	<0.1	18.5	3.0	<1	<1			
02:00	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
02:15	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
02:30	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
02:45	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
03:00	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
03:15	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
03:30	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
03:45	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
04:00	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
04:15	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
04:30	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
04:45	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
05:00	0.1	<0.1	<0.1	18.4	3.1	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**18.4**	**3.1**	**<1**	**<1**	#####	**6.00**	**2.55**
Peak	**0.1**	**0.0**	**0.0**	**19.7**	**3.1**	**0.0**	**0.0**	**0.0**	**6.00**	**2.55**

Date	Notes:			
12/12/2023	Engineer	NC	Barometric Pressure, mbar	994
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	11

Gas Monitoring Certificate

Project Number C3297
Project Name Barry Waterfront
Client WEPCo

BH03(B)

		Detection Limit								
		<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1		
Time	Gas Flow Rate. (l/hr)	Methane. (%LEL)	Methane. (%vol)	Oxygen. (%vol)	Carbon Dioxide. (%vol)	Hydrogen Sulphide. (ppm)	Carbon Monoxide. (ppm)	Volatile Organic Carbon (ppm	Depth of Installation. (mbgl)	Depth of Groundwater (mbgl
00:00	0.1	<0.1	<0.1	20.0	0.1	<1	<1		2.05	2.05
00:15	0.1	<0.1	<0.1	4.0	1.9	<1	<1			
00:30	0.1	<0.1	<0.1	1.0	2.0	<1	<1			
00:45	0.1	<0.1	<0.1	0.4	2.0	<1	<1			
01:00	0.1	<0.1	<0.1	0.2	2.1	<1	<1			
01:15	0.1	<0.1	<0.1	0.1	2.1	<1	<1			
01:30	0.1	<0.1	<0.1	0.1	2.1	<1	<1			
01:45	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
02:00	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
02:15	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
02:30	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
02:45	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
03:00	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
03:15	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
03:30	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
03:45	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
04:00	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
04:15	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
04:30	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
04:45	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
05:00	0.1	<0.1	<0.1	0.0	2.1	<1	<1			
Steady	**0.1**	**<0.1**	**<0.1**	**0.0**	**2.1**	**<1**	**<1**	**#####**	**2.05**	**2.05**
Peak	**0.1**	**0.0**	**0.0**	**20.0**	**2.1**	**0.0**	**0.0**	**0.0**	**2.05**	**2.05**

Date	Notes:			
12/12/2023	Engineer	NC	Barometric Pressure, mbar	994
			Pressure Trend	STEADY
	Equipment	GFM436	Air Temp (˚C)	11

Gas Testing Summary

Project Number	C3297
Project Name	Barry Waterfront
Client	WEPCo

Methane. (%LEL)						
BH04	<0.1	<0.1	<0.1			
BH02	<0.1	<0.1	<0.1			
BH03(A)	<0.1	<0.1	<0.1			
BH03(B)		<0.1	<0.1			

Methane. (%vol)						
BH04	<0.1	<0.1	<0.1			
BH02	<0.1	<0.1	<0.1			
BH03(A)	<0.1	<0.1	<0.1			
BH03(B)		<0.1	<0.1			

Oxygen. (%vol)						
BH04	18.6	19.8	19.7			
BH02	17	17	15			
BH03(A)	20.1	19.6	18.4			
BH03(B)		0.6	0			

Gas Testing Summary

Project Number	C3297
Project Name	Barry Waterfront
Client	WEPCo

Carbon Dioxide. (%vol)						
BH04	0.3	0.2	0.7			
BH02	0.8	1.6	2.7			
BH03(A)	0.2	0.8	3.1			
BH03(B)		2.6	2.1			

Hydrogen Sulphide. (ppm)						
BH04	<1	<1	<1			
BH02	<1	<1	<1			
BH03(A)	<1	<1	<1			
BH03(B)		<1	<1			

Carbon Monoxide. (ppm)						
BH04	<1	<1	<1			
BH02	<1	<1	<1			
BH03(A)	<1	<1	<1			
BH03(B)		<1	<1			

Gas Testing Summary

Project Number	C3297
Project Name	Barry Waterfront
Client	WEPCo

Gas Flow Rate (l/hr)						
BH04	0.1	0.1	0.1			
BH02	0.1	0.1	0.1			
BH03(A)	0.1	0.1	0.1			
BH03(B)		0.1	0.1			

Volatile Organic Carbons (ppm)						

Atmospheric Pressure Range						
	1001	1033	994			

Max Methane Concentration (%vol)	0
Max Carbon Dioxide Concentration (%vol)	3.1
Max Carbon Monoxide Concentration (ppm)	0
Max Hydrogen Sulphide Concentration (ppm)	0
Max Flow Rate (l/hr)	0.1
Max Volatile Organic Carbon Concentration (ppm)	0
Methane Gas Screening Value	0
Carbon Dioxide Gas Screening Value	0.0031

Carbon Monoxide Gas Screening Value	0
Hydrogen Sulphide Gas Screening Value	0
Maximum Gas Screening Value	0.0031
Characteristic Situation 1	PASS
Characteristic Situation 2	PASS
Characteristic Situation 3	PASS
Characteristic Situation 4	PASS
Characteristic Situation 5	PASS
Characteristic Situation 6	PASS
Hydrocarbon Vapour Barrier Required?	NO

Appendix X

CORE PHOTOGRAPHS - BARRY

BH01: 18.00m – 21.00m

BH01: 21.00 – 24.00m

CORE PHOTOGRAPHS - BARRY

BH01: 24.00m – 27.00m

BH01: 27.0m – 30.00m

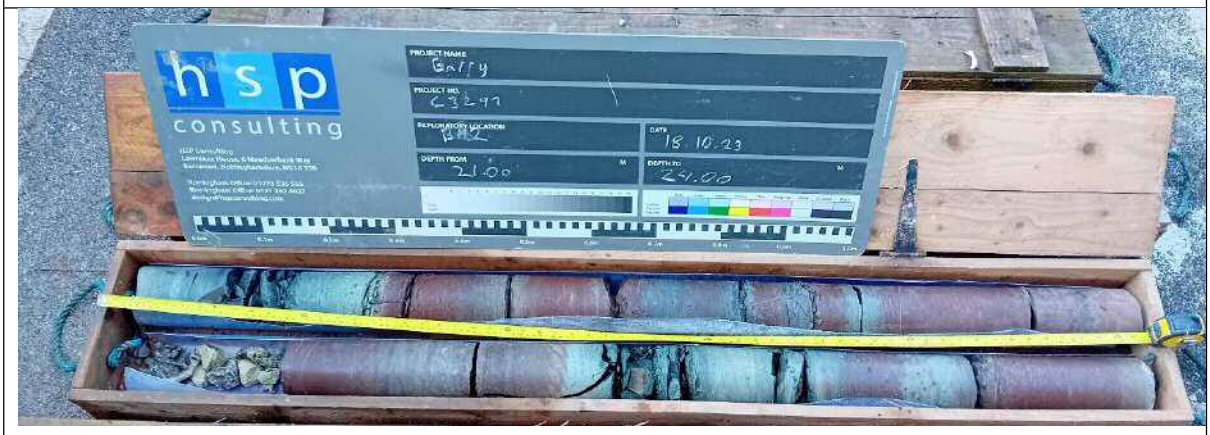
CORE PHOTOGRAPHS - BARRY

BH01: 30.00m – 33.00m

BH01: 33.00m – 34.50m

CORE PHOTOGRAPHS - BARRY

BH02: 18.00m – 21.00m



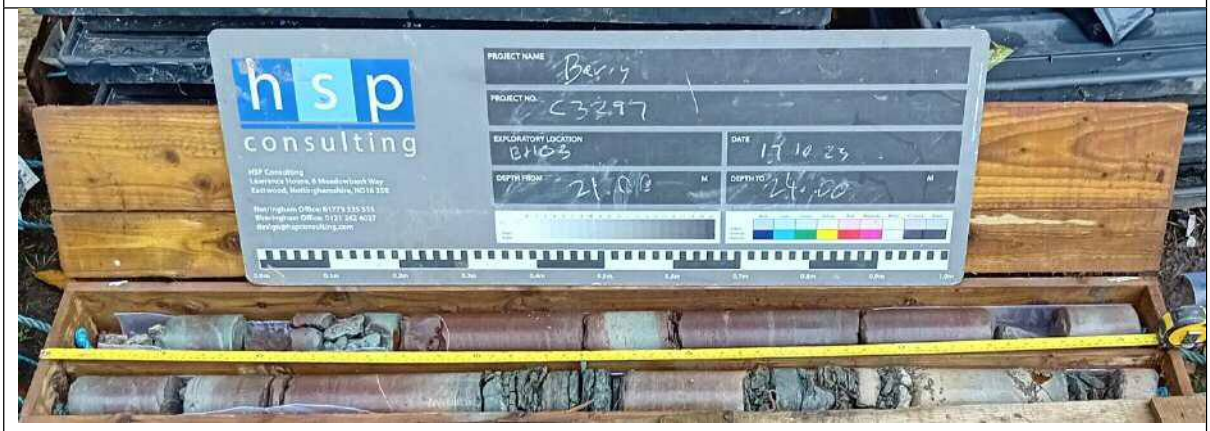
BH02: 21.00m – 24.00m

CORE PHOTOGRAPHS - BARRY

BH02: 24.00m – 25.50m

BH03: 15.50m – 18.00m

CORE PHOTOGRAPHS - BARRY

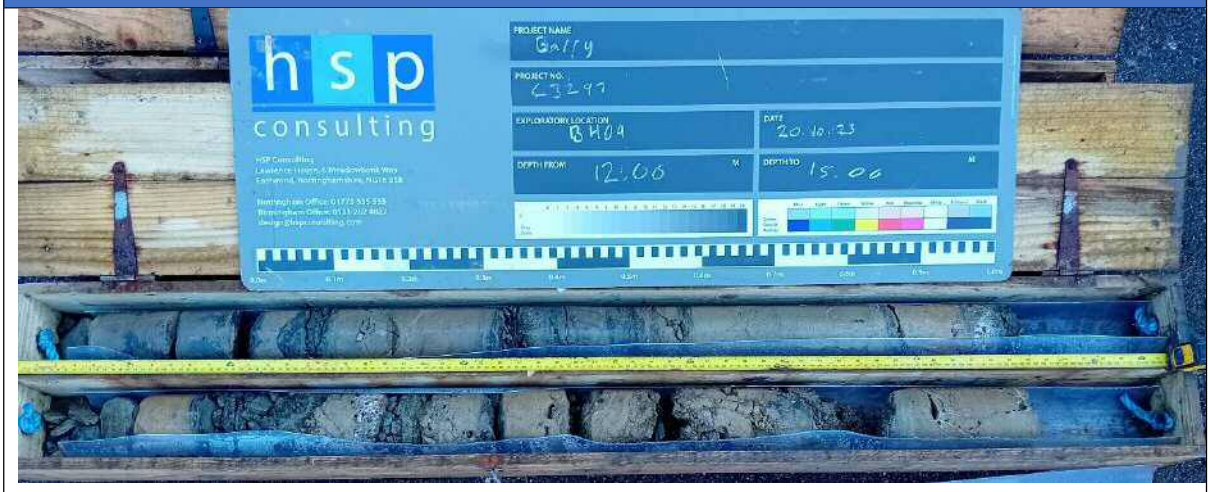
BH03: 18.00m – 21.00m

BH03: 21.00m – 24.00m

CORE PHOTOGRAPHS - BARRY

BH03: 24.00m – 25.50m

BH04: 09.00m – 12.00m

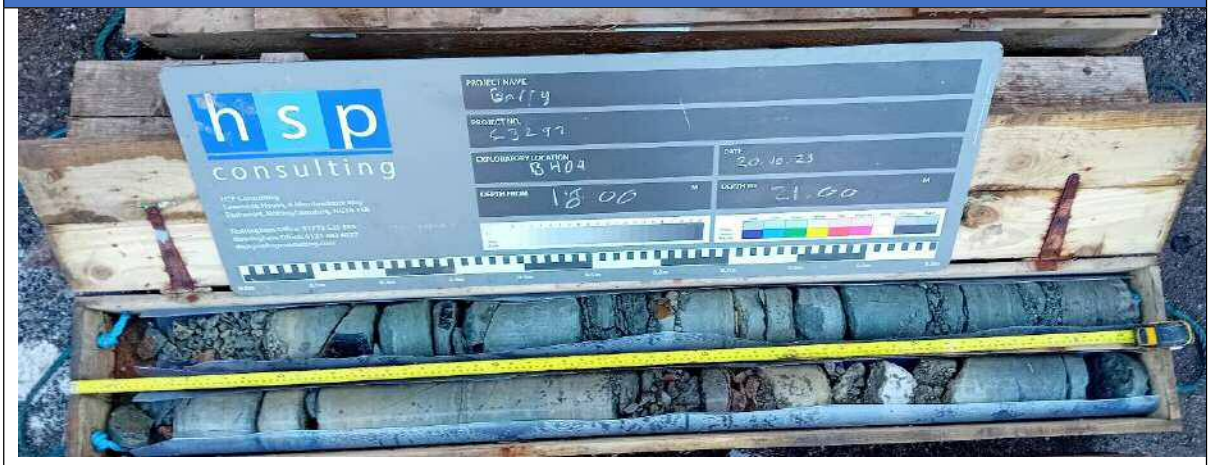
CORE PHOTOGRAPHS - BARRY



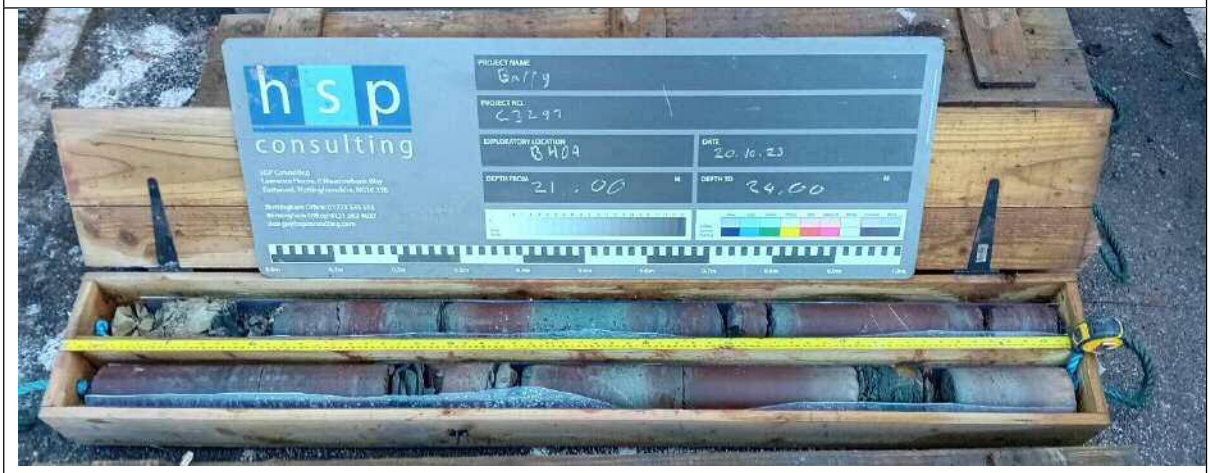
BH04: 12.00m – 15.00m

BH04: 15.00m – 18.00m

CORE PHOTOGRAPHS - BARRY



BH04: 18.00m – 21.00m



BH04: 21.00m – 24.00m

CORE PHOTOGRAPHS - BARRY

BH04: 24.00m – 25.50m

BH06: 22.50m – 25.50m

CORE PHOTOGRAPHS - BARRY

BH06: 25.50m – 28.50m

BH06: 28.5m – 31.50m

CORE PHOTOGRAPHS - BARRY

BH06: 31.50m – 34.50m

Appendix XI

* can be provided on request *

Appendix XII

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

2183

Final Report

Report No.:	23-41630-1
Initial Date of Issue:	03-Jan-2024
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 Campus

Quotation No.:		**Date Received:**	15-Dec-2023
Order No.:	SC14999	**Date Instructed:**	15-Dec-2023
No. of Samples:	3		
Turnaround (Wkdays):	5	**Results Due:**	21-Dec-2023
Date Approved:	03-Jan-2024		

Approved By:

[redacted]

Details: Stuart Henderson, Technical Manager

Results - Water

Project: C3297 Barry Waterfront Campus

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**			23-41630	23-41630	23-41630
Quotation No.:			**Chemtest Sample ID.:**			1746564	1746565	1746566
Order No.: SC14999			Client Sample Ref.:			BH02	BH03	BH04
			Sample Location:			BH02	BH03	BH04
			Sample Type:			WATER	WATER	WATER
			Top Depth (m):			7.00	4.50	4.50
			Bottom Depth (m):			7.50	5.00	5.00
			Date Sampled:			13-Dec-2023	13-Dec-2023	13-Dec-2023
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
pH at 20C		U	1010		4.0	8.1	8.1	8.7
Chloride		U	1220	mg/l	1.0	4700	92	87
Ammoniacal Nitrogen		U	1220	mg/l	0.050	0.59	0.93	0.34
Sulphate		U	1220	mg/l	1.0	1400	83	26
Cyanide (Total)		U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050
Calcium (Total)		N	1455	mg/l	5.0	260	250	87
Total Hardness as CaCO3		U	1270	mg/l	15	1700	470	130
Arsenic (Dissolved)		U	1455	µg/l	0.20	2.0	1.9	1.1
Boron (Dissolved)		U	1455	µg/l	10.0	1600	390	130
Beryllium (Dissolved)		U	1455	µg/l	1.00	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)		U	1455	µg/l	0.11	< 0.11	< 0.11	< 0.11
Chromium (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50
Copper (Dissolved)		U	1455	µg/l	0.50	0.90	0.79	1.8
Mercury (Dissolved)		U	1455	µg/l	0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)		U	1455	µg/l	0.50	0.62	4.2	1.1
Lead (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50
Antimony (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)		U	1455	µg/l	0.50	1.6	< 0.50	9.6
Vanadium (Dissolved)		U	1455	µg/l	0.50	0.88	< 0.50	1.4
Zinc (Dissolved)		U	1455	µg/l	2.5	12	< 2.5	26
Dissolved Organic Carbon		U	1610	mg/l	2.0	2.2	5.1	3.4
Florisil Cleanup		N		-	N/A	Done	Done	Done
Aliphatic TPH >C5-C6	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	EH_2D_AL_#1	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10

Results - Water

Project: C3297 Barry Waterfront Campus

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		23-41630	23-41630	23-41630
Quotation No.:				**Chemtest Sample ID.:**		1746564	1746565	1746566
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		13-Dec-2023	13-Dec-2023	13-Dec-2023
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Aromatic TPH >C21-C35	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	EH_2D_AR_#1	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	EH_2D_Total_#1	N	1675	µg/l	10	< 10	< 10	< 10
Dichlorodifluoromethane		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Chloromethane		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Vinyl Chloride		N	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Bromomethane		U	1760	µg/l	5	[C] < 5	[C] < 5	[C] < 5
Chloroethane		U	1760	µg/l	2.0	[C] < 2.0	[C] < 2.0	[C] < 2.0
Trichlorofluoromethane		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,1-Dichloroethene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Trans 1,2-Dichloroethene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,1-Dichloroethane		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
cis 1,2-Dichloroethene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Bromochloromethane		U	1760	µg/l	5	[C] < 5	[C] < 5	[C] < 5
Trichloromethane		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,1,1-Trichloroethane		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Tetrachloromethane		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,1-Dichloropropene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Benzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,2-Dichloroethane		U	1760	µg/l	2.0	[C] < 2.0	[C] < 2.0	[C] < 2.0
Trichloroethene		N	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,2-Dichloropropane		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Dibromomethane		U	1760	µg/l	10	[C] < 10	[C] < 10	[C] < 10
Bromodichloromethane		U	1760	µg/l	5	[C] < 5	[C] < 5	[C] < 5
cis-1,3-Dichloropropene		N	1760	µg/l	10	[C] < 10	[C] < 10	[C] < 10
Toluene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Trans-1,3-Dichloropropene		N	1760	µg/l	10	[C] < 10	[C] < 10	[C] < 10
1,1,2-Trichloroethane		U	1760	µg/l	10	[C] < 10	[C] < 10	[C] < 10
Tetrachloroethene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,3-Dichloropropane		U	1760	µg/l	2.0	[C] < 2.0	[C] < 2.0	[C] < 2.0
Dibromochloromethane		U	1760	µg/l	10	[C] < 10	[C] < 10	[C] < 10
1,2-Dibromoethane		U	1760	µg/l	5	[C] < 5	[C] < 5	[C] < 5
Chlorobenzene		N	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,1,1,2-Tetrachloroethane		U	1760	µg/l	2.0	[C] < 2.0	[C] < 2.0	[C] < 2.0
Ethylbenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
m & p-Xylene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0

Results - Water

Project: C3297 Barry Waterfront Campus

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		23-41630	23-41630	23-41630
Quotation No.:				**Chemtest Sample ID.:**		1746564	1746565	1746566
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		13-Dec-2023	13-Dec-2023	13-Dec-2023
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
o-Xylene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Styrene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Tribromomethane		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Isopropylbenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Bromobenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,2,3-Trichloropropane		N	1760	µg/l	50	[C] < 50	[C] < 50	[C] < 50
N-Propylbenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
2-Chlorotoluene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,3,5-Trimethylbenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
4-Chlorotoluene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Tert-Butylbenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,2,4-Trimethylbenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Sec-Butylbenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,3-Dichlorobenzene		N	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
4-Isopropyltoluene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,4-Dichlorobenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
N-Butylbenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,2-Dichlorobenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,2-Dibromo-3-Chloropropane		U	1760	µg/l	50	[C] < 50	[C] < 50	[C] < 50
1,2,4-Trichlorobenzene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
Hexachlorobutadiene		U	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
1,2,3-Trichlorobenzene		U	1760	µg/l	2.0	[C] < 2.0	[C] < 2.0	[C] < 2.0
Methyl Tert-Butyl Ether		N	1760	µg/l	1.0	[C] < 1.0	[C] < 1.0	[C] < 1.0
N-Nitrosodimethylamine		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Phenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Chlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis-(2-Chloroethyl)Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,4-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methylphenol (o-Cresol)		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachloroethane		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Methylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nitrobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Isophorone		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50

Results - Water

Project: C3297 Barry Waterfront Campus

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		23-41630	23-41630	23-41630
Quotation No.:				**Chemtest Sample ID.:**		1746564	1746565	1746566
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		13-Dec-2023	13-Dec-2023	13-Dec-2023
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
2-Nitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dimethylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Naphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chloroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methylnaphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorocyclopentadiene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Chloronaphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Acenaphthylene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dimethylphthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,6-Dinitrotoluene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Acenaphthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
3-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dibenzofuran		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chlorophenylphenylether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dinitrotoluene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Fluorene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Diethyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methyl-4,6-Dinitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Azobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Phenanthrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Anthracene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Carbazole		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Di-N-Butyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Fluoranthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Pyrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Butylbenzyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50

Results - Water

Project: C3297 Barry Waterfront Campus

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		23-41630	23-41630	23-41630
Quotation No.:				**Chemtest Sample ID.:**		1746564	1746565	1746566
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		13-Dec-2023	13-Dec-2023	13-Dec-2023
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Benzo[a]anthracene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Chrysene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[b]fluoranthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[k]fluoranthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[a]pyrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Indeno(1,2,3-c,d)Pyrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dibenz(a,h)Anthracene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[g,h,i]perylene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Nitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Naphthalene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluorene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Chrysene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's		U	1800	µg/l	2.0	< 2.0	< 2.0	< 2.0
PCB 28		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 52		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 101		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 118		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 153		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 138		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 180		N	1815	µg/l	0.010	< 0.010		< 0.010
Total PCBs (7 congeners)		N	1815	µg/l	0.010	< 0.010		< 0.010
Total Phenols		U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030

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:
1746564	BH02		BH02	13-Dec-2023	C	Coloured Winchester 1000ml
1746564	BH02		BH02	13-Dec-2023	C	Plastic Bottle 1000ml
1746565	BH03		BH03	13-Dec-2023	C	Coloured Winchester 1000ml
1746565	BH03		BH03	13-Dec-2023	C	Plastic Bottle 1000ml
1746566	BH04		BH04	13-Dec-2023	C	Coloured Winchester 1000ml
1746566	BH04		BH04	13-Dec-2023	C	Plastic Bottle 1000ml

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.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
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
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
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.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters 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	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
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.

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

Final Report

Report No.:	24-00791-1
Initial Date of Issue:	18-Jan-2024
Re-Issue Details:	
Client	HSP Consulting Engineers Limited
Client Address:	Lawrence House Meadowbank Way Eastwood Nottinghamshire NG16 3SB
Contact(s):	Laura Jones Harry Evans
Project	C3297 Barry Waterfront Campus

Quotation No.:		**Date Received:**	12-Jan-2024
Order No.:	SC14999	**Date Instructed:**	12-Jan-2024
No. of Samples:	3		
Turnaround (Wkdays):	5	**Results Due:**	18-Jan-2024
Date Approved:	18-Jan-2024		

Approved By:

[redacted]

Details: Stuart Henderson, Technical Manager

Results - Water

Project: C3297 Barry Waterfront Campus

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-00791	24-00791	24-00791
Quotation No.:				**Chemtest Sample ID.:**		1753161	1753162	1753163
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		10-Jan-2024	10-Jan-2024	10-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
pH at 20C		U	1010		4.0	8.4	7.9	8.4
Chloride		U	1220	mg/l	1.0	3200	38	590
Ammoniacal Nitrogen		U	1220	mg/l	0.050	0.35	0.068	2.0
Sulphate		U	1220	mg/l	1.0	540	22	54
Cyanide (Total)		U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050
Calcium (Total)		N	1455	mg/l	5.0	110	250	440
Total Hardness as CaCO3		U	1270	mg/l	15	1100	380	270
Arsenic (Dissolved)		U	1455	µg/l	0.20	14	0.28	1.2
Boron (Dissolved)		U	1455	µg/l	10.0	850	69	480
Beryllium (Dissolved)		U	1455	µg/l	1.00	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)		U	1455	µg/l	0.11	< 0.11	< 0.11	< 0.11
Chromium (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50
Copper (Dissolved)		U	1455	µg/l	0.50	0.84	1.0	< 0.50
Mercury (Dissolved)		U	1455	µg/l	0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	1.7
Lead (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50
Antimony (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)		U	1455	µg/l	0.50	2.4	< 0.50	0.98
Vanadium (Dissolved)		U	1455	µg/l	0.50	1.4	< 0.50	< 0.50
Zinc (Dissolved)		U	1455	µg/l	2.5	7.6	3.1	3.0
Dissolved Organic Carbon		U	1610	mg/l	2.0	2.2	2.1	2.9
Florisil Cleanup		N		-	N/A	Done	Done	Done
Aliphatic TPH >C5-C6	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	EH_2D_AL_#1	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10

Results - Water

Project: C3297 Barry Waterfront Campus

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-00791	24-00791	24-00791
Quotation No.:				**Chemtest Sample ID.:**		1753161	1753162	1753163
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		10-Jan-2024	10-Jan-2024	10-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Aromatic TPH >C21-C35	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	EH_2D_AR_#1	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	EH_2D_Total_#1	N	1675	µg/l	10	< 10	< 10	< 10
Dichlorodifluoromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Chloromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Bromomethane		U	1760	µg/l	5	< 5	< 5	< 5
Chloroethane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Trichlorofluoromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane		U	1760	µg/l	5	< 5	< 5	< 5
Trichloromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Benzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Trichloroethene		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Dibromomethane		U	1760	µg/l	10	< 10	< 10	< 10
Bromodichloromethane		U	1760	µg/l	5	< 5	< 5	< 5
cis-1,3-Dichloropropene		N	1760	µg/l	10	< 10	< 10	< 10
Toluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-Dichloropropene		N	1760	µg/l	10	< 10	< 10	< 10
1,1,2-Trichloroethane		U	1760	µg/l	10	< 10	< 10	< 10
Tetrachloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Dibromochloromethane		U	1760	µg/l	10	< 10	< 10	< 10
1,2-Dibromoethane		U	1760	µg/l	5	< 5	< 5	< 5
Chlorobenzene		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0

Results - Water

Project: C3297 Barry Waterfront Campus

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-00791	24-00791	24-00791
Quotation No.:				**Chemtest Sample ID.:**		1753161	1753162	1753163
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		10-Jan-2024	10-Jan-2024	10-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
o-Xylene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Styrene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Tribromomethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Bromobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane		N	1760	µg/l	50	< 50	< 50	< 50
N-Propylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
N-Butylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane		U	1760	µg/l	50	< 50	< 50	< 50
1,2,4-Trichlorobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
N-Nitrosodimethylamine		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Phenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Chlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis-(2-Chloroethyl)Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,4-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methylphenol (o-Cresol)		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachloroethane		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Methylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nitrobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Isophorone		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50

Results - Water

Project: C3297 Barry Waterfront Campus

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-00791	24-00791	24-00791
Quotation No.:				**Chemtest Sample ID.:**		1753161	1753162	1753163
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		10-Jan-2024	10-Jan-2024	10-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
2-Nitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dimethylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Naphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chloroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methylnaphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorocyclopentadiene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Chloronaphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Acenaphthylene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dimethylphthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,6-Dinitrotoluene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Acenaphthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
3-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dibenzofuran		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chlorophenylphenylether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dinitrotoluene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Fluorene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Diethyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methyl-4,6-Dinitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Azobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Phenanthrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Anthracene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Carbazole		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Di-N-Butyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Fluoranthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Pyrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Butylbenzyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50

Results - Water

Project: C3297 Barry Waterfront Campus

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-00791	24-00791	24-00791
Quotation No.:				**Chemtest Sample ID.:**		1753161	1753162	1753163
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		10-Jan-2024	10-Jan-2024	10-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Benzo[a]anthracene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Chrysene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[b]fluoranthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[k]fluoranthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[a]pyrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Indeno(1,2,3-c,d)Pyrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dibenz(a,h)Anthracene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[g,h,i]perylene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Nitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Naphthalene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluorene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Chrysene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's		U	1800	µg/l	2.0	< 2.0	< 2.0	< 2.0
PCB 28		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 52		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 101		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 118		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 153		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 138		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 180		N	1815	µg/l	0.010	< 0.010		< 0.010
Total PCBs (7 congeners)		N	1815	µg/l	0.010	< 0.010		< 0.010
Total Phenols		U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030

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.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
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
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
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.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters 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	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
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.

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.:	24-02180-1
Initial Date of Issue:	05-Feb-2024
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:	25-Jan-2024
Order No.:	SC14999
Date Instructed:	25-Jan-2024
No. of Samples:	3
Turnaround (Wkdays):	5
Results Due:	31-Jan-2024
Date Approved:	05-Feb-2024
Approved By:	[redacted]
Details:	Stuart Henderson, Technical Manager Nick Watson, Operations Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Water

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-02180	24-02180	24-02180
Quotation No.: Q23-31791				**Chemtest Sample ID.:**		1758104	1758105	1758106
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Sample Sub Type:		Ground Water	Ground Water	Ground Water
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		23-Jan-2024	23-Jan-2024	23-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Chromatogram (TPH)	EH_1D_Total	N			N/A	See Attached	See Attached	See Attached
pH at 20C		U	1010		4.0	8.0	7.7	7.6
Chloride		U	1220	mg/l	1.0	5900	89	910
Ammoniacal Nitrogen		U	1220	mg/l	0.050	0.44	0.52	2.6
Sulphate		U	1220	mg/l	1.0	820	93	68
Cyanide (Total)		U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050
Calcium (Total)		N	1455	mg/l	5.0	150	160	570
Total Hardness as CaCO3		U	1270	mg/l	15	2000	540	350
Arsenic (Dissolved)		U	1455	µg/l	0.20	1.9	4.6	2.6
Boron (Dissolved)		U	1455	µg/l	10.0	1800	370	710
Beryllium (Dissolved)		U	1455	µg/l	1.00	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)		U	1455	µg/l	0.11	< 0.11	< 0.11	< 0.11
Chromium (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50
Copper (Dissolved)		U	1455	µg/l	0.50	0.95	< 0.50	1.2
Mercury (Dissolved)		U	1455	µg/l	0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)		U	1455	µg/l	0.50	< 0.50	3.5	2.3
Lead (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50
Antimony (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)		U	1455	µg/l	0.50	1.2	< 0.50	0.91
Vanadium (Dissolved)		U	1455	µg/l	0.50	0.88	< 0.50	< 0.50
Zinc (Dissolved)		U	1455	µg/l	2.5	7.8	2.6	< 2.5
Dissolved Organic Carbon		U	1610	mg/l	2.0	< 2.0	4.2	6.0
Florisil Cleanup		N		-	N/A	Done	Done	Done
Aliphatic TPH >C5-C6	EH_AL_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	EH_AL_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	EH_AL_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	EH_AL_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	EH_AL_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	EH_AL_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	EH_AL_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	EH_AL_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	EH_AL_2D_#1	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	EH_AR_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	EH_AR_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	EH_AR_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	EH_AR_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10

Results - Water

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-02180	24-02180	24-02180
Quotation No.: Q23-31791				**Chemtest Sample ID.:**		1758104	1758105	1758106
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Sample Sub Type:		Ground Water	Ground Water	Ground Water
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		23-Jan-2024	23-Jan-2024	23-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Aromatic TPH >C12-C16	EH_AR_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	EH_AR_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	EH_AR_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	EH_AR_2D_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	EH_AR_2D_#1	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	EH_Total_2D_#1	N	1675	µg/l	10	< 10	< 10	< 10
Dichlorodifluoromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Chloromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Bromomethane		U	1760	µg/l	5	< 5	< 5	< 5
Chloroethane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Trichlorofluoromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane		U	1760	µg/l	5	< 5	< 5	< 5
Trichloromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Benzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Trichloroethene		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Dibromomethane		U	1760	µg/l	10	< 10	< 10	< 10
Bromodichloromethane		U	1760	µg/l	5	< 5	< 5	< 5
cis-1,3-Dichloropropene		N	1760	µg/l	10	< 10	< 10	< 10
Toluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-Dichloropropene		N	1760	µg/l	10	< 10	< 10	< 10
1,1,2-Trichloroethane		U	1760	µg/l	10	< 10	< 10	< 10
Tetrachloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Dibromochloromethane		U	1760	µg/l	10	< 10	< 10	< 10
1,2-Dibromoethane		U	1760	µg/l	5	< 5	< 5	< 5
Chlorobenzene		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0

Results - Water

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-02180	24-02180	24-02180
Quotation No.: Q23-31791				**Chemtest Sample ID.:**		1758104	1758105	1758106
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Sample Sub Type:		Ground Water	Ground Water	Ground Water
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		23-Jan-2024	23-Jan-2024	23-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
1,1,1,2-Tetrachloroethane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
o-Xylene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Styrene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Tribromomethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Bromobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane		N	1760	µg/l	50	< 50	< 50	< 50
N-Propylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
N-Butylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane		U	1760	µg/l	50	< 50	< 50	< 50
1,2,4-Trichlorobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0
N-Nitrosodimethylamine		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Phenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Chlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis-(2-Chloroethyl)Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,4-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methylphenol (o-Cresol)		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachloroethane		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50

Results - Water

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-02180	24-02180	24-02180
Quotation No.: Q23-31791				**Chemtest Sample ID.:**		1758104	1758105	1758106
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Sample Sub Type:		Ground Water	Ground Water	Ground Water
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		23-Jan-2024	23-Jan-2024	23-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
N-Nitrosodi-n-propylamine		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Methylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nitrobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Isophorone		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Nitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dimethylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Naphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chloroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methylnaphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorocyclopentadiene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Chloronaphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Acenaphthylene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dimethylphthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,6-Dinitrotoluene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Acenaphthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
3-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dibenzofuran		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Chlorophenylphenylether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2,4-Dinitrotoluene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Fluorene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Diethyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
2-Methyl-4,6-Dinitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Azobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Hexachlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Phenanthrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Anthracene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50

Results - Water

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-02180	24-02180	24-02180
Quotation No.: Q23-31791				**Chemtest Sample ID.:**		1758104	1758105	1758106
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Sample Sub Type:		Ground Water	Ground Water	Ground Water
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		23-Jan-2024	23-Jan-2024	23-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Carbazole		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Di-N-Butyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Fluoranthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Pyrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Butylbenzyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[a]anthracene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Chrysene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[b]fluoranthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[k]fluoranthene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[a]pyrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Indeno(1,2,3-c,d)Pyrene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Dibenz(a,h)Anthracene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Benzo[g,h,i]perylene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
4-Nitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50
Naphthalene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluorene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Chrysene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's		U	1800	µg/l	2.0	< 2.0	< 2.0	< 2.0
PCB 28		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 52		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 101		N	1815	µg/l	0.010	< 0.010		< 0.010

Results - Water

Project: C3297 Barry Waterfront College

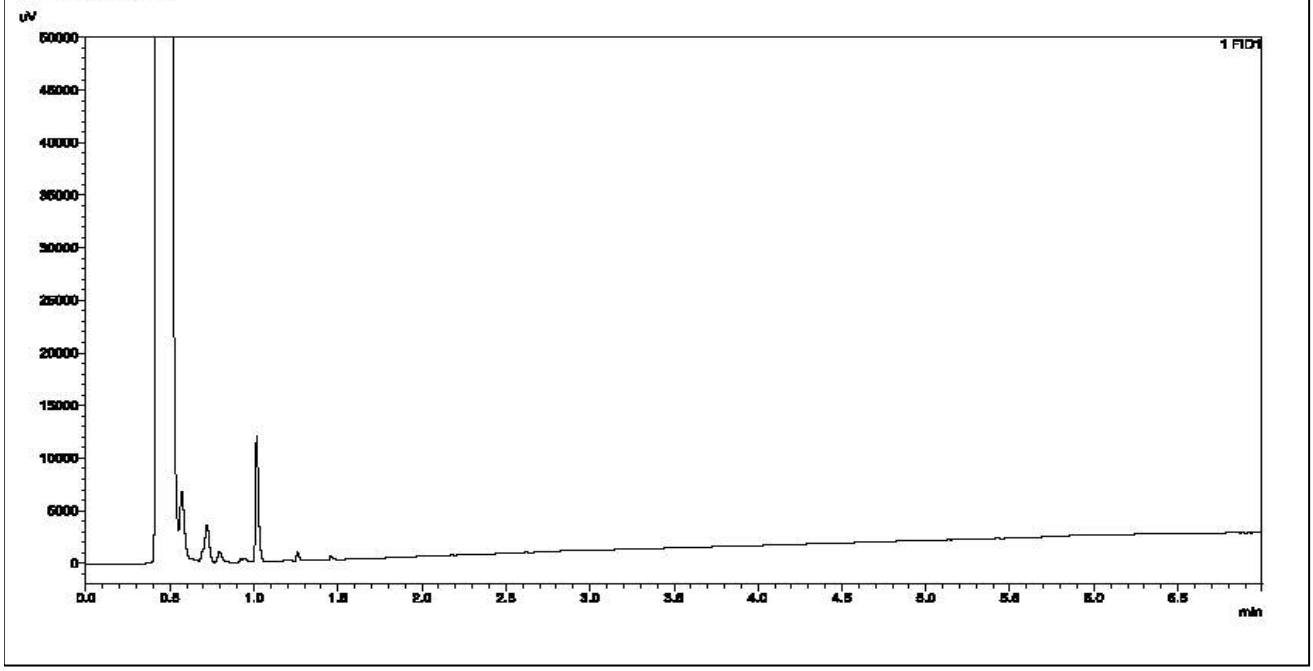
Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		24-02180	24-02180	24-02180
Quotation No.: Q23-31791				**Chemtest Sample ID.:**		1758104	1758105	1758106
Order No.: SC14999				Client Sample Ref.:		BH02	BH03	BH04
				Sample Location:		BH02	BH03	BH04
				Sample Type:		WATER	WATER	WATER
				Sample Sub Type:		Ground Water	Ground Water	Ground Water
				Top Depth (m):		7.00	4.50	4.50
				Bottom Depth (m):		7.50	5.00	5.00
				Date Sampled:		23-Jan-2024	23-Jan-2024	23-Jan-2024
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
PCB 118		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 153		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 138		N	1815	µg/l	0.010	< 0.010		< 0.010
PCB 180		N	1815	µg/l	0.010	< 0.010		< 0.010
Total PCBs (7 congeners)		N	1815	µg/l	0.010	< 0.010		< 0.010
Total Phenols		U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030

TPH Chromatogram on Water Sample: 1758104

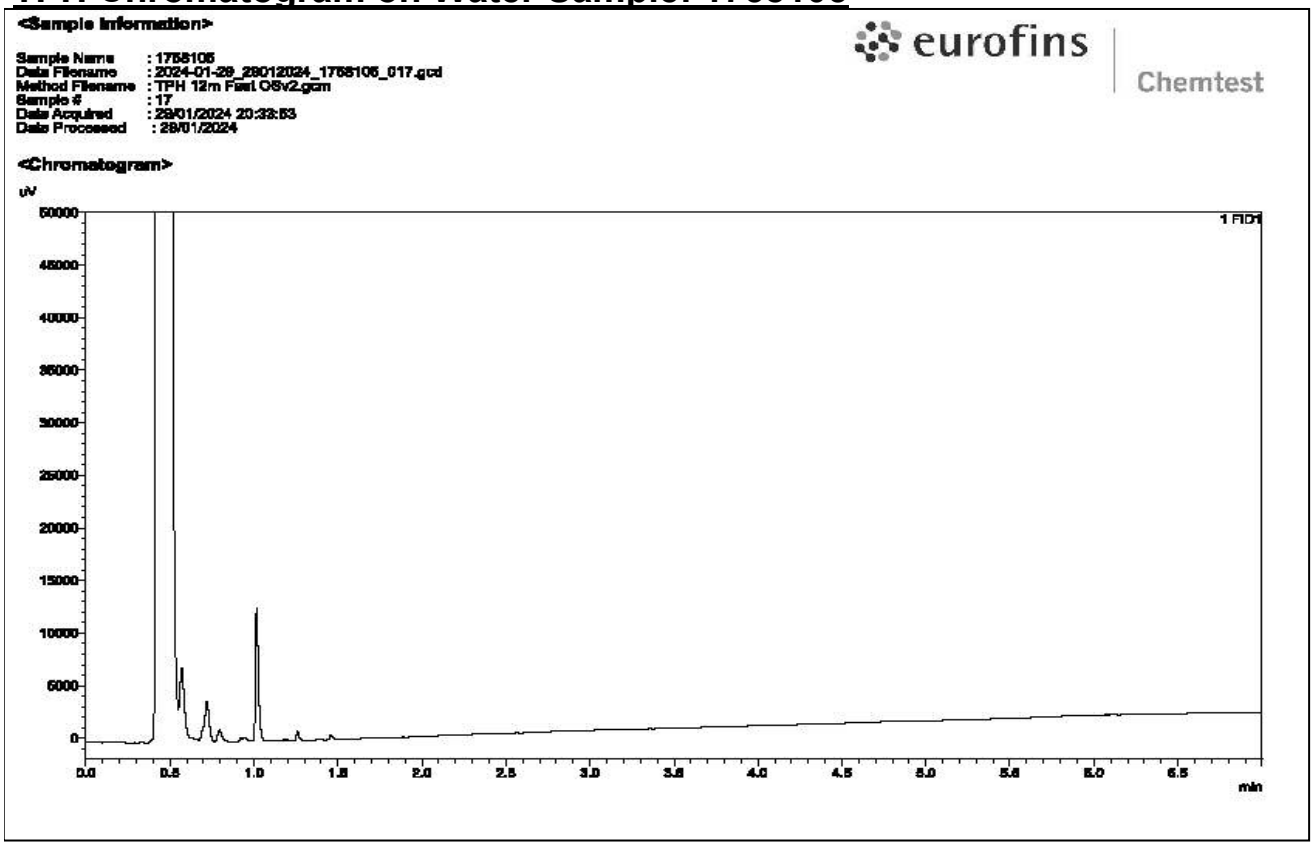
<Sample Information>

Sample Name : 24-02180 1758104
Data Filename : 2024-01-29_29012024_24-02180 1758104_015.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 15
Date Acquired : 29/01/2024 20:21:52
Date Processed : 29/01/2024

<Chromatogram>



TPH Chromatogram on Water Sample: 1758105

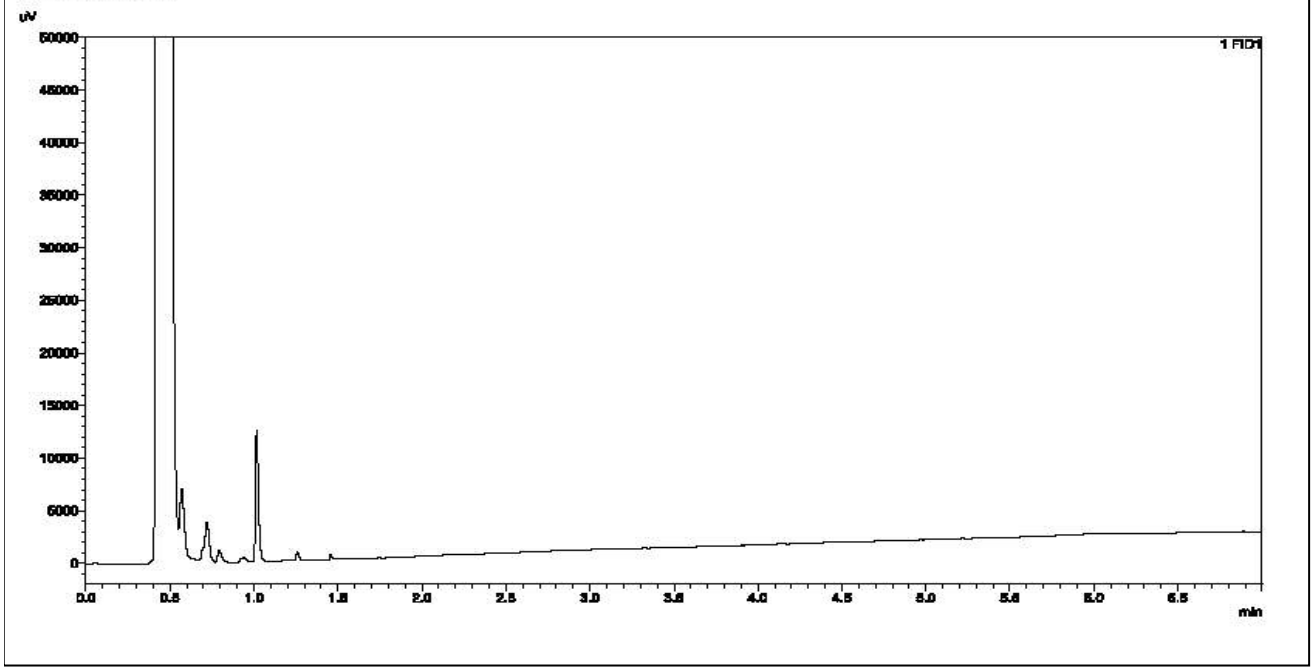


TPH Chromatogram on Water Sample: 1758106

<Sample Information>

Sample Name : 1758106
Data Filename : 2024-01-29_29012024_1758106_016.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 16
Date Acquired : 29/01/2024 20:45:55
Date Processed : 29/01/2024

<Chromatogram>



Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1010	pH Value of Waters	pH at 20°C	pH Meter	RE PW TE TS PL DW GW
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.	RE PW PL LE DW GW
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.	RE PW PL SW DW GW
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.	GW
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).	RE PW PL SW DW GW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW GW
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection	
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.	PL GW
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection	
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters 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	Pentane extraction / GCMS detection	PL GW
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection	
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.	

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

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water

Report Information

RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

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

SCHEDULE 1.19.5: TEST SUITES (derived from BRE Special Digest SD1)

CHEMICAL TESTS ON POTENTIALLY AGGRESSIVE GROUND AND GROUNDWATER

Sample type	Determinand	Recommended test methods	Method specified
SUITE A Greenfield site (pyrite absent)			
SOIL	pH in 2.5:1 soil/water extract	BR 279 Electrometric method	
		BS 1377-3 Section 9 Electrometric method	
	SO_4 in 2:1 water/soil extract WS (g/l SO4)	BR 279 Procedures for gravimetric method, cation exchange or ion chromatography.	
		BS 1377-3, Section 5 Gravimetric or ion exchange methods. (Values determined as g/l SO3 should be multiplied by 1.2.)	
		TRL Report 447, Test 1 Sulfate extraction procedure as BS 1377-1, but ICP-AES used to determine sulfur in solution.	
WATER	pH	BR 279 Electrometric method	
		BS 1377-3 Section 9 Electrometric method	
	Soluble sulfate GWS (SO_4)	BR 279 Procedures for gravimetric method, cation exchange or ion chromatography.	
		BS 1377-3, Section 5 Gravimetric or ion exchange methods. (Values determined as g/l SO3 should be multiplied by 1.2.)	
		Commercial test laboratory in-house procedure: Determination of sulfur by inductively coupled plasma atomic emission spectroscopy (ICP-AES)	
SUITE B Greenfield site (pyrite present)			
SOIL	pH in 2.5:1 soil/water extract	BR 279 Electrometric method	
		BS 1377-3 Section 9 Electrometric method	
	SO_4 in 2:1 water/soil extract WS (g/l SO4)	BR 279 Procedures for gravimetric method, cation exchange or ion chromatography.	
		BS 1377-3, Section 5Gravimetric or ion exchange methods. (Values determined as g/l SO3 should be multiplied by 1.2.)	
		TRL Report 447, Test 1 Sulfate extraction procedure as BS 1377-1, but ICP-AES used to determine sulfur in solution.	
	Acid soluble sulfate AS (% SO4)	BR 279 Gravimetric method	
		BS 1377-3, Section 5 Gravimetric methods. (Values determined as g/l SO3 should be multiplied by 1.2.)	
		TRL Report 447, Test 2 Preparation and extraction of sulfate as BS 1377-3, ICP-AES used to determine sulfur in solution.	
	Total sulfur TS (% S)	BR 279 Only Ignition in oxygen method recommended.	
		TRL Report 447, Test 4A Microwave digestion method.	
		TRL Report 447, Test 4B Ignition in oxygen method (e.g. with sulphur-carbon determinator).	
WATER	pH	BR 279 Electrometric method	

Sample type	Determinand	Recommended test methods	Method specified
		BS 1377-3 Section 9 Electrometric method	
	Soluble sulfate GWS (SO_4)	BR 279 Procedures for gravimetric method, cation exchange or ion chromatography.	
		BS 1377-3, Section 5 Gravimetric or ion exchange methods. (Values determined as g/l SO3 should be multiplied by 1.2.)	
		Commercial test laboratory in-house procedure: Determination of sulfur by inductively coupled plasma atomic emission spectroscopy (ICP-AES)	
SUITE C Brownfield site (pyrite absent)			
SOIL	pH in 2.5:1 soil/water extract	BR 279 Electrometric method	
		BS 1377-3 Section 9 Electrometric method	
	SO_4 in 2:1 water/soil extract WS (g/l SO4)	BR 279 Procedures for gravimetric method, cation exchange or ion chromatography.	
		BS 1377-3, Section 5Gravimetric or ion exchange methods. (Values determined as g/l SO3 should be multiplied by 1.2.)	
		TRL Report 447, Test 1 Sulfate extraction procedure as BS 1377-1, but ICP-AES used to determine sulfur in solution.	
	Magnesium in 2:1 soil/water extract (g/l Mg)	BR 279 Atomic absorption spectrometry (AAS) method recommended.	
		Commercial test laboratory in-house procedure. Sample preparation as BR 279; ICP-AES used to determine magnesium in solution.	
	Nitrate in 2:1 soil/water extract (g/l NO3)	BR 279	
	Chloride in 2:1 soil/water extract (g/l CI)	BR 279	
		BS 1377-3 Section 7	
WATER	pH	BR 279 Electrometric method	
		BS 1377-3 Section 9 Electrometric method	
	Soluble sulfate GWS (SO_4)	BR 279 Procedures for gravimetric method, cation exchange or ion chromatography.	
		BS 1377-3, Section 5 Gravimetric or ion exchange methods. (Values determined as g/l SO3 should be multiplied by 1.2.)	
		Commercial test laboratory in-house procedure: Determination of sulfur by inductively coupled plasma atomic emission spectroscopy (ICP-AES)	
	Soluble magnesium (g/l Mg)	BR 279 Atomic absorption spectrometry (AAS) method.	
		Commercial test laboratory in-house procedure: Determination of magnesium in solution by ICP-AES.	
	Nitrate (g/l NO3)	BR 279	
	Chloride (g/l CI)	BR 279	
		BS 1377-3 Section 7	

Sample type	Determinand	Recommended test methods	Method specified
SUITE D Brownfield site (pyrite present)			
SOIL	pH in 2.5:1 soil/water extract	BR 279 Electrometric method	✓
		BS 1377-3 Section 9 Electrometric method	✓
	SO_4 in 2:1 water/soil extract WS (g/l SO4)	BR 279 Procedures for gravimetric method, cation exchange or ion chromatography.	✓
		BS 1377-3, Section 5Gravimetric or ion exchange methods. (Values determined as g/l SO3 should be multiplied by 1.2.)	✓
		TRL Report 447, Test 1 Sulfate extraction procedure as BS 1377-1, but ICP-AES used to determine sulfur in solution.	✓
	Acid soluble sulfate AS (% SO4)	BR 279 Gravimetric method	✓
		BS 1377-3, Section 5 Gravimetric methods. (Values determined as g/l SO3 should be multiplied by 1.2.)	✓
		TRL Report 447, Test 2 Preparation and extraction of sulfate as BS 1377-3, ICP-AES used to determine sulfur in solution.	✓
	Total sulfur TS (% S)	BR 279 Only Ignition in oxygen method recommended.	✓
		TRL Report 447, Test 4A Microwave digestion method.	✓
		TRL Report 447, Test 4B Ignition in oxygen method (e.g. with sulphur-carbon determinator).	✓
	Soluble magnesium (g/l Mg)	BR 279 Atomic absorption spectrometry (AAS) method.	✓
		Commercial test laboratory in-house procedure: Determination of magnesium in solution by ICP-AES.	✓
	Nitrate (g/l NO3)	BR 279	✓
	Chloride (g/l CI)	BR 279	✓
		BS 1377-3 Section 7	✓
WATER	pH	BR 279 Electrometric method	✓
		BS 1377-3 Section 9 Electrometric method	✓
	Soluble sulfate GWS (SO_4)	BR 279 Procedures for gravimetric method, cation exchange or ion chromatography.	✓
		BS 1377-3, Section 5 Gravimetric or ion exchange methods. (Values determined as g/l SO3 should be multiplied by 1.2.)	✓
		Commercial test laboratory in-house procedure: Determination of sulfur by inductively coupled plasma atomic emission spectroscopy (ICP-AES)	✓
	Soluble magnesium (g/l Mg)	BR 279 Atomic absorption spectrometry (AAS) method.	✓
		Commercial test laboratory in-house procedure: Determination of magnesium in solution by ICP-AES.	✓
	Nitrate (g/l NO3)	BR 279	✓

Sample type	Determinand	Recommended test methods	Method specified
	Chloride (g/l Cl)	BR 279	✓
		BS 1377-3 Section 7	✓

S1.19.6 *Geotechnical laboratory testing on site (Clause 14.7)*

Not required.

S1.19.7 *Special geotechnical laboratory testing (Clause 14.8)*

Not required.

S1.20 Geoenvironmental laboratory testing (Clause 15) Particular restrictions/relaxations

S1.20.1 *Investigation Supervisor or Contractor to schedule geoenvironmental testing (Clause 15.1)*

Except where specified otherwise herein, the Investigation Supervisor will schedule the required geoenvironmental tests.

The Contractor shall prepare a blank geoenvironmental test schedule (Clause 15.1), listing on one axis the following information for each sample:

borehole number

sample number of each sample taken

sample type of the sample

sample depth of the sample

and on the other axis the following:

all suites of chemical tests that are identified with quantities in the Bill of Quantities, with separate sheets provided for solid, liquid and gas samples.

The Contractor shall provide each blank geoenvironmental schedule, along with the relevant draft logs, to the Investigation Supervisor within **24 hours** of the sampling for contamination testing.

Where sampling of water is specified, the Contractor shall agree the suite of tests with the Investigation Supervisor in advance of starting water sampling operations. The water sample(s) and the completed water test schedule shall be sent by the Contractor to the laboratory on the same day as the water sampling occurred. If water sample(s) have not been received by the laboratory by mid-day on the day following the water sample collection, the Contactor may be required to retake the samples at their own cost.

S1.20.2 *Accreditation required (Clause 15.2)*

Chemical laboratory testing shall be carried out to BS EN ISO/IEC 17025. Laboratory testing on soil samples shall conform to the Environment Agency MCERTS (Monitoring Certification Scheme), where applicable. MCERTS is required for, but not limited to, the analytes listed in Annex A of the Environment Agency publication *Performance Standard for Laboratories Undertaking Chemical Testing of Soil*, Version 4, March 2012.

For asbestos, the method of asbestos analysis used shall be accredited the UK Accreditation Service (UKAS); the use of non-accredited methods for asbestos analysis is not permitted. The quality control schemes used by the asbestos analysis laboratory shall comply with UKAS LAB 30 (*Application of ISO/IEC 17025 for asbestos sampling and testing*) and HSE HSG 248 (*Asbestos: the analyst's guide for sampling, analysis and clearance procedures*).

S1.20.3 *Chemical testing for contamination (Clause 15.3)*

Test Suites E to G are specified in the following tables. The Contractor shall confirm in its Tender return the test methods and shall detail what accreditation requirement shall be provided. Gas sampling is not required (Suite G).

SCHEDULE 1.20.3: TEST SUITES

CHEMICAL LABORATORY TESTING FOR CONTAMINANTS

Nominated test laboratory? *	
Required testing turnaround times? *	

* To be completed in the Tender return

Determinand	Detection level [required]/[offered]	Test method [required]/[offered]	Accreditation [required]/[offered]
SUITE E1 – Soil samples general			
Arsenic	1 mg/kg		
Cadmium	0.5 mg/kg		
Chromium - total	10 mg/kg		
Copper	10 mg/kg		
Lead	10 mg/kg		
Mercury	0.5 mg/kg		
Nickel	10 mg/kg		
Selenium	0.5 mg/kg		
Zinc	10 mg/kg		
Antimony	0.1 mg/kg		
Beryllium	1 mg/kg		
Vanadium	0.5mg/kg		
Cyanide - total	5 mg/kg		
pH	0.1 units		
Boron (water soluble)	0.5 mg/kg		
Phenols - total	1 mg/kg		
Total Organic Carbon	0.1% w/w	ASTM D2974-87	
SUITE E2 – Soil samples Asbestos			
Asbestos presence and identification	0.001% w/w	Note E2a	
Asbestos quantification HSG248	0.001%w/w	Note E2b	
SUITE E3 – Soil samples TPHCWG and BTEX			

Determinand	Detection level [required]/[offered]	Test method [required]/[offered]	Accreditation [required]/[offered]
TPHCWG	10 mg/kg	GC-FID Note E3a	
BTEX	0.05 mg/kg	GCMS	
SUITE E4 – Soil samples PAH			
USEPA 16 Polyaromatic Hydrocarbons	0.2 mg/kg	CGMS	
SUITE E5 – Soil samples VOC and SVOC			
Semi-Volatile Hydrocarbons	0.01 mg/kg	GC-MS US EPA Method 8270	
Volatile Hydrocarbons	0.01 mg/kg	GC-MS US EPA Method 8260	
SUITE E6 – Soil samples PCB			
Polychlorinated Biphenyls	0.005 mg/kg	WHO 12	
SUITE E7 – Soil samples hydrocarbon fuel identification			
Total Petroleum Hydrocarbons	50 mg/kg	C8 to C40 by GC FID	
SUITE E8 – Soil samples cyanide speciation – not required			
SUITE E9 – Soil samples hexavalent chromium			
Chromium - hexavalent	1 mg/kg		
SUITE E10 – Soil samples speciated phenols – not required			
SUITE E11 – Soil samples herbicides – not required			
SUITE E12 – Soil samples pesticides – not required			
SUITE E13 – Soil samples organotins– not required			
SUITE E14 – Soil samples dioxins, furans and dioxin-like PCBs– not required			
SUITE E15 – Soil samples for UKWIR water pipe selection I – not required			
SUITE E16 – Soil samples - other tests			
Free Sulphur	100 mg/kg		
Sulphides	10 mg/kg		
Chloride	5 mg/kg		
Loss on ignition	0.1% w/w		

Note E2a

Initial Stereo-binocular/PLM identification

Each sample is thoroughly mixed, spread across a clean plastic tray and examined visually for the presence of asbestos. Any obvious asbestos material (asbestos cement, pieces of loose lagging, etc.) is removed by hand picking and set aside for weighing.

Determinand	Detection level [required]/[offered]	Test method [required]/[offered]	Accreditation [required]/[offered]

The samples in which asbestos is detected are dried and weighed along with any materials removed to determine the proportion of asbestos in the original soil sample. The asbestos content of the asbestos containing materials (ACM) are determined by comparison with standard reference materials.

A representative sub-sample of approximately for each soil is selected by coning and quartering. These samples are analysed visually under stereo binocular microscope and by polarised light microscopy (PLM) using the method described in HSG 248 (HSE, 2005).

Note E2b

Approximately 1 gramme of each sample shall be transferred to a clean 500ml conical flask and 300ml of filtered distilled water added. The sample/water mixture shall be agitated for 20 seconds and allowed to stand for 10 seconds. After sedimentation time, aliquots shall be removed from just below the liquid surface and deposited onto a 0.8µm pore size blank tested membrane filter. The filter shall be carefully dried, cleared and fixed onto glass microscope slides using the acetone/triacetin method described in HSG 248 (2005).

Two microscope slides produced from each sample. The estimated mass percentage calculated as the mean of the two results for each sample.

Phase contrast microscopy shall be based closely on HSG 248 (2005) including reagents, equipment and filter clearing and mounting. A specific Walton-Beckett graticule shall be used for fibre sizing.

For the purposes of estimating the asbestos mass percentage, a countable fibre is defined as an amphibole asbestos or chrysotile fibre. Non-asbestos fibres should not be counted.

Fibre dimensions (length and diameter), number of ends falling in the graticule, and fibre identity shall be recorded for each individual countable fibre. Measurements shall be recorded to the nearest 5µm for length and to the nearest 0.5µm for diameter, up to a maximum of 5µm. The identity of each fibre shall be recorded as amphibole or chrysotile, where possible. Fibre identification shall be based on morphology and optical properties determined by polarised light microscopy.

The overall mass percentage of asbestos is given by: $A.W.(\Sigma V.p_A + \Sigma V.p_c) \times 100 / (a.N.q.S)$

p_A = average density of amphibole asbestos (3.0×10^{-6} µ g µ m^{-3})

p_c = density of chrysotile (2.5×10^{-6} µ g µ m^{-3})

A = area of filter (mm^2)

V = volume of fibre (µ m^3)

W = volume of water in suspension (ml)

a = area of graticule (mm^2)

N = number of graticules evaluated

S = mass of soil in suspension (µ g)

q = aliquot on filter (ml)

Note E3a

Aliphatic: EC5-EC6; >EC6-EC8; >EC8-EC10; >EC10-EC12; >EC12-EC16 ;>EC16-EC35;>EC35-EC44

Aromatic: >EC6-EC7; >EC7-EC8; >EC8-EC10; >EC10-EC12; >EC12-EC16; >EC16-EC21; >EC21-EC35; >EC35-EC44

Determinand	Detection level [required]/[offered]	Test method [required]/[offered]	Accreditation [required]/[offered]
SUITE F1 – Water samples general			
pH value	0.1 pH units		
Hardness	2 mg/l		
Arsenic	1 µg/l		
Cadmium	0.5 µg/l		
Chromium	5 µg/l		
Copper	0.5 µg/l		
Lead	1 µg/l		
Mercury	0.1 µg/l		
Nickel	1 µg/l		
Selenium	1 µg/l		
Zinc	1 µg/l		
Antimony	1 µg/l		
Beryllium	1 µg/l		
Vanadium	1 µg/l		
Ammoniacal nitrogen	0.02 mg/l		
Chloride	1 mg/l		
Cyanide - total	10 µg /l		
Phenols - total	10 µg/l		
Dissolved organic carbon (DOC)	10 µg/l		
Calcium	10 µg/l		
SUITE F2 – Water samples speciated TPH and BTEX			
TPH CWG	10 µg/l	Note F12a GC-FID	
BTEX	1 µg/l	GCMS	
SUITE F3 – Water samples PAH			
16 USEPA Polyaromatic Hydrocarbons	0.01 µg/l	GCMS	
SUITE F4 – Water samples VOC and SVOC			
Volatile Organic compounds	1 µg/l	GC-MS US EPA Method 8260	
Semi-Volatile Organic compounds	1 µg/l	GC-MS US EPA Method 8270	

Determinand	Detection level [required]/[offered]	Test method [required]/[offered]	Accreditation [required]/[offered]
SUITE F5 – Water samples PCB			
Polychlorinated biphenyls	0.001 µg/l		
SUITE F6 – Water samples hydrocarbon fuel identification			
Total Petroleum Hydrocarbons	50 µg/l	C8 to C40 by GC FID	
SUITE F7 – Water samples cyanide speciation – not required			
SUITE F8 – Water samples hexavalent chromium– not required			
SUITE F9 – Water samples speciated phenols– not required			
SUITE F10 – Water samples oxygen demand– not required			
SUITE F11 – Water samples herbicides– not required			
SUITE F12 – Water samples pesticides– not required			
SUITE F14 – Water samples other parameters– not required			
SUITE F15 – Water samples NAPL			
NAPL fractional and compositional hydrocarbon analysis	-	GCFID with MS	
NAPL density and viscosity	1 kg/m^3 and 0.5 mPa.s		
Note F12a Aliphatic: EC5-EC6; >EC6-EC8; >EC8-EC10; >EC10-EC12; >EC12-EC16 ;>EC16-EC35;>EC35-EC44 Aromatic: >EC6-EC7; >EC7-EC8; >EC8-EC10; >EC10-EC12; >EC12-EC16; >EC16-EC21; >EC21-EC35; >EC35-EC44			

S1.20.4 Waste characterisation (Clause 15.4)

Not required.

S1.20.5 Waste Acceptance Criteria (WAC) testing (Clause 15.5)

Test Suites H to I are specified in the following tables. The Contractor shall confirm the test methods and detail what accreditation requirement will be provided.

Leachate testing is to be undertaken as per the two stage BS EN 12457-3 method whereby the leachate 2:1 results are also reported.

SCHEDULE 1.20.5: TEST SUITES

CHEMICAL TESTING FOR WASTE ACCEPTANCE CRITERIA TESTING (from STWAPs 2003)

Nominated test laboratory? *	
Required testing turnaround times? *	

*** To be completed in the Tender return**

Determinand	Detection level [required]/[offered]	Test method [required]/[offered]	Accreditation [required]/[offered]
SUITE H – Waste acceptance total soils			
Total organic carbon	0.1%		
BTEX	0.1mg/kg		
PCBs (7 congeners)	0.1mg/kg		
Mineral oil (C10 – C40)	10 mg/kg		
Polyaromatic hydrocarbons	0.1 mg/kg		
Determinand	Detection level [required]/[offered]	Test method [required]/[offered]	Accreditation [required]/[offered]
SUITE I – Leachability			
Arsenic	0.5 mg/kg		
Barium	20 mg/kg		
Cadmium	0.04 mg/kg		
Chromium	0.5 mg/kg		
Copper	2 mg/kg		
Mercury	0.01 mg/kg		
Molybdenum	0.5 mg/kg		
Nickel	0.4 mg/kg		
Lead	0.5 mg/kg		
Antimony	0.06 mg/kg		

Determinand	Detection level [required]/[offered]	Test method [required]/[offered]	Accreditation [required]/[offered]
Selenium	0.1 mg/kg		
Zinc	4 mg/kg		
Chloride	800 mg/kg		
Fluoride	10 mg/kg		
Sulphate	1,000 mg/kg		
Total dissolved solids (TDS)	4,000 mg/kg		
Phenol Index	1 mg/kg		
Dissolved organic carbon at own pH or pH 7.5-8.05	500 mg/kg		

S1.20.6 Geoenvironmental laboratory testing on site (Clause 15.6)

Not required.

S1.20.7 Special geoenvironmental laboratory testing (Clause 15.7)

The following special geoenvironmental laboratory testing is required:

Soil leachability testing for purposes other than waste classification using method BS EN 12457-3 and testing for suites below. Results shall be reported in mg/l.

Determinand	Detection level [required]/[offered]	Test method [required]/[offered]	Accreditation [required]/[offered]
SUITE J1 – Soil leachability general			
pH value	0.1 pH units		
Arsenic	1 µg/l		
Cadmium	0.5 µg/l		
Chromium	5 µg/l		
Copper	0.5 µg/l		
Lead	1 µg/l		
Mercury	0.1 µg/l		
Nickel	1 µg/l		
Selenium	1 µg/l		
Zinc	1 µg/l		
Antimony	1 µg/l		
Beryllium	1 µg/l		
Vanadium	1 µg/l		

Determinand	Detection level [required]/[offered]	Test method [required]/[offered]	Accreditation [required]/[offered]
Ammoniacal nitrogen	0.02 mg/l		
Cyanide - total	10 µg /l		
Phenols - total	10 µg/l		
SUITE J2 – Soil leachability PAH and BTEX			
BTEX	1 µg/l	GCMS	
16 Polyaromatic Hydrocarbons	0.01 µg/l	GCMS	
SUITE J3 – Soil leachability PCB – not required			
SUITE J4 – Soil leachability cyanide speciation – not required			
SUITE J5 – Soil leachability hexavalent chromium – not required			
SUITE J6 – Soil leachability speciated phenols– not required			
SUITE J7 – Soil leachability other parameters – not required			

S1.21 Reporting (Clause 16) Particular restrictions/relaxations

S1.21.1 *Form of exploratory hole logs (Clauses 16.1 and 16.2.1)*

No project-specific format requirements apply.

S1.21.2 *Information on exploratory hole logs (Clause 16.2.2)*

The requirements of Clause 16.2.2 apply.

Exploratory hole locations shall be reported in National Grid coordinates and relative to Ordnance Datum (Clause 16.2.2).

Soil classification is required on exploratory hole logs and shall be in accordance with BS EN ISO 14688-2.

For rock strata, fracture spacings shall be reported.

S1.21.3 *Variations to final digital data supply requirements (Clause 16.5.1)*

Digital data of all fieldwork, monitoring and laboratory data (including contamination testing) are required (Clause 16.5).

The final digital data shall be issued at the same time as the final report.

Digital data shall be provided in AGS4 format (as specified in Association of Geotechnical and Geoenvironmental Specialists *Electronic transfer of geotechnical and geoenvironmental data* Version 4 and in the guidance documents and standard abbreviations published by AGS on www.ags.org.uk) and in accordance with the requirements specified in Schedule 5 Annex J and Schedules S1.21.3 and S1.21.4.

Attention is drawn to the requirement for any geoenvironmental testing to be included within the .ags file.

All geoenvironmental testing data shall additionally be provided in Excel and .hwol files.

awrence House | 6 Meadowbank Way | Nottingham | NG16 3SB

01773 535555 | design@hspconsulting.com | www.hspconsulting.com

Appendix B

Soils testing results and screening – Human Health

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH01	BH02	BH02	BH03	BH03	BH04	BH06	BH06	TP05
										Sample Ref						BH04			TP05
										Easting	311148	311145	311145	311196	311196	311099	311177	311177	311139
										Northing	167363	167423	167423	167435	167435	167403	167395	167395	167361
										Hole Elevation (mOD)	8.91	9.05	9.05	8.87	8.87	8.62	9.18	9.18	9.01
										Sample Depth (mbgl)	0.8 - 1	0.1 - 0.3	1 - 1.2	0.1 - 0.3	1.8 - 2	1 - 1.2	0.1 - 0.3	1.8 - 2	0.15 - 0.2
										Sample Date	04/10/23	04/10/23	04/10/23	05/10/23	05/10/23	12/10/23	05/10/23	05/10/23	18/09/23
										Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
										Geology	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1
Metal																				
Antimony	617.5682	AGAC	mg/kg	5 of 26	0	<2	6.4		0		2.3	<2	<2	2.1	<2	<2	<2	<2	<2
Arsenic	39.9	C4SL/S4UL	mg/kg	26 of 26	0	3.9	23		0		11	9.6	12	14	14	4.1	6.2	14	12
Beryllium	1.7	AGAC/S4UL	mg/kg	21 of 26	1	<0.5	5.5		0		0.8	0.6	0.9	0.8	0.7	<0.5	<0.5	0.7	0.8
Cadmium	85	AGAC/S4UL	mg/kg	23 of 26	0	<0.1	0.76		0		0.5	0.29	0.57	0.54	0.59	<0.1	0.29	0.59	0.62
Chromium	907	AGAC (Cr III)	mg/kg	26 of 26	0	7.2	240		0		31	16	22	27	16	7.2	14	15	240
Chromium (Hexavalent)	6	AGAC/S4UL	mg/kg	0 of 9	0	<0.5	<0.5		0					<0.5					<0.5
Copper	7130	AGAC	mg/kg	26 of 26	0	14	2300		0		120	14	74	62	89	21	40	140	67
Lead	310	C4SL	mg/kg	26 of 26	1	7.9	1300		0		140	31	160	130	140	7.9	77	180	72
Mercury	56	S4UL (inorganic)	mg/kg	24 of 26	0	<0.05	5.2		0		0.98	0.06	0.46	0.2	0.2	<0.05	1.1	0.44	0.14
Nickel	181.4	AGAC	mg/kg	26 of 26	1	8.4	260		0		22	13	26	31	26	16	13	24	28
Selenium	430	AGAC/S4UL	mg/kg	26 of 26	0	0.25	1.9		0		0.62	0.58	1	0.8	0.63	0.28	0.51	0.58	0.88
Vanadium	1200	S4UL (pentavalent)	mg/kg	26 of 26	0	8.4	60		0		29	20	24	27	21	13	15	17	60
Zinc	40400	AGAC	mg/kg	26 of 26	0	26	1700		0		460	69	320	170	140	26	130	240	240
Inorganic																			
pH (2.5:1) at 20C			-	No GAC	-	7.8	9.4		0		8.5	8	8.3	8.4	9.4	8.6	8.7	8.8	8.6
Cyanide (Total)	24	AGAC (free, acute)	mg/kg	6 of 26	0	<0.5	10		0		<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (Hot Water Soluble)	10775	AGAC	mg/kg	18 of 26	0	<0.4	4.5		0		0.43	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	1.3	2.1
Total Organic Carbon			%	No GAC	-	0.22	28		0		7.8	3.1	9.4	2.6	16	12	12	28	2.1
Sulphate (Acid Soluble)			%	No GAC	-	0.11	0.11		0										
Asbestos																			
Asbestos by Gravimetry			%	No GAC	-	<0.001	<0.001		0										
Asbestos Identification			-	No GAC	-				0		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Type			-	No GAC	-				0		-	-	-	-	-	-	-	-	-
Total Asbestos			%	No GAC	-	<0.001	<0.001		0										
TPH																			
Aliphatic VPH >C5-C6	161	AGAC/S4UL	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic VPH >C6-C8 (Sum)	529	AGAC	mg/kg	1 of 26	0	<0.1	0.14		0		<0.1	<0.1	<0.1	<0.1	0.14	<0.1	<0.1	<0.1	<0.1
Aliphatic VPH >C8-C10	155	AGAC/S4UL	mg/kg	3 of 26	0	<0.05	7.9		0		<0.05	<0.05	<0.05	0.11	<0.05	0.23	<0.05	<0.05	<0.05
Aliphatic EPH >C10-C12 MC	767	AGAC	mg/kg	9 of 26	0	<2	27	283.0	0		<2	6.2	2.4	8	<2	27	2.8	2.6	3.9
Aliphatic EPH >C12-C16 MC	4370	AGAC	mg/kg	8 of 26	0	<1	580	142.0	1		<1	24	<1	12	<1	580	<1	10	2.5
Aliphatic EPH >C16-C21 MC	48900	AGAC (Ali >C16-35)	mg/kg	10 of 26	0	<2	940	50.90	2		<2	17	<2	12	<2	940	8.9	23	<2
Aliphatic EPH >C21-C35 MC	48900	AGAC (Ali >C16-35)	mg/kg	14 of 26	0	<3	480	50.90	5		4.3	38	36	110	6.8	330	67	60	18
Aliphatic EPH >C35-C40 MC			mg/kg	No GAC	-	<10	130		0		14	12	<10	58	<10	36	110	51	13
Total Aliphatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	7.9		0		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Aliphatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1900		0		<5	86	41	140	11	1900	79	96	26
Aromatic VPH >C5-C7			mg/kg	No GAC	-	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C7-C8	3928	AGAC (toluene)	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C8-C10	269	AGAC	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic EPH >C10-C12 MC	1240	AGAC	mg/kg	7 of 26	0	<1	51		0		<1	51	2.8	6.9	1.1	9.3	2.4	2.5	<1
Aromatic EPH >C12-C16 MC	2480	AGAC	mg/kg	7 of 26	0	<1	380		0		<1	31	<1	5.3	<1	380	6	15	<1
Aromatic EPH >C16-C21 MC	1817	AGAC	mg/kg	26 of 26	0	3.4	680		0		16	19	5.9	18	3.6	680	28	48	6.9
Aromatic EPH >C21-C35 MC	1930	AGAC	mg/kg	21 of 26	0	<2	430		0		8.2	61	100	59	39	210	260	370	6.1
Aromatic EPH >C35-C40 MC			mg/kg	No GAC	-	<1	130		0		6.4	130	19	27	12	33	43	48	8.7
Total Aromatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	<0.25		0		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Aromatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1300		0		24	160	110	89	45	1300	290	440	13
Total VPH >C5-C10			mg/kg	No GAC	-	<0.5	7.9		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total EPH >C10-C35 MC			mg/kg	No GAC	-	<10	3200		0		28	250	150	230	55	3200	370	530	39
PAH																			
Acenaphthene	6040	AGAC	mg/kg	11 of 25	0	<0.1	0.75	336.0	0		0.21	<0.1	0.14	0.2	<0.1	<0.1	0.24	<0.1	<0.1
Dibenz(a,h)Anthracene	0.32	AGAC/S4UL	mg/kg	16 of 25	9	<0.1	1.1		0		0.56	<0.1	0.73	0.18	<0.1	<0.1	1.1	<0.1	<0.1
Fluoranthene	1580	AGAC	mg/kg	23 of 25	0	<0.1	11		0		5.3	0.64	3.6	1.9	2.9	1.3	6.6	7.4	0.94
Fluorene	4460	AGAC	mg/kg	11 of 25	0	<0.1	0.68	183.0	0		0.22	<0.1	0.15	0.14	<0.1	<0.1	0.31	<0.1	<0.1
Indeno(1,2,3-c,d)Pyrene	46	AGAC/S4UL	mg/kg	22 of 25	0	<0.1	4.3		0		2.3	0.31	2.6	0.8	1.3	0.49	4.3	1.8	0.46
Phenanthrene	1520	AGAC	mg/kg	23 of 25	0	<0.1	6.1		0		2	0.28	1.4	1.1	1.7	0.46	2.5	5.9	0.45
Pyrene	3790	AGAC	mg/kg	23 of 25	0	<0.1	9.4		0		4.4	0.5	3.1	1.5	2.6	1.1	5.8	5.6	0.74
Naphthalene	13.2	AGAC/S4UL	mg/kg	16 of 25	0	<0.1	1.2		0		0.31	<0.1	0.38	0.34	0.83	0.31	0.38	1.2	<0.1
Acenaphthylene	5970	AGAC	mg/kg	10 of 25	0	<0.1	0.25	506.0	0		0.13	<0.1	0.2	<0.1	<0.1	<0.1	0.23	<0.1	<0.1
Anthracene	36600	AGAC	mg/kg	18 of 25	0	<0.1	1.8		0		0.49	<0.1	0.38	0.27	0.51	<0.1	0.94	1.3	0.16
Benzo[a]anthracene	15	AGAC/S4UL	mg/kg	23 of 25	0	<0.1	6.3		0		3.1	0.37	2.2	0.99	1.5	0.76	4.7	3.6	0.6
Benzo[a]pyrene	3.23	AGAC/S4UL	mg/kg	22 of 25	6	<0.1	7.4		0		3.3	0.37	3.3	1	1.4	0.88	5.4	3.1	0.64
Benzo[g,h,i]perylene	359	AGAC	mg/kg	22 of 25	0	<0.1	4.3		0		2.3	0.31	2.7	0.8	1.4	0.63	4.1	1.8	0.38
Benzo[b]fluoranthene	4.06	AGAC	mg/kg	22 of 25	7	<0.1	9.1		0		5	0.59	5.3	1.7	2.7	1.2	8.2	3.9	0.83
Benzo[k]fluoranthene	107	AGAC	mg/kg	21 of 25	0	<0.1	3		0		1.7	<0.1	1.9	0.55	0.85	0.23	2.9	1.2	0.32
Chrysene	31.9	AGAC/S4UL	mg/kg	23 of 25	0	<0.1	6.3		0		3.1	0.37	3.1	1	2	0.7	5.7	3.7	0.55
Total (Of 17) PAH's			mg/kg	No GAC	-	<2	61		0		34	3.7	31	13	20	8.1	53	41	24
BTEX																			
Benzene	1.421879	AGAC/S4UL	mg/kg	2 of 26	0	<0.001	0.0068		0		<0.001	<0.001	<0.001	<0.001	0.0068	<0.001	<0.001	0.0052	<0.001
Toluene	3927.625	AGAC	mg/kg	2 of 26	0	<0.001	0.0074		0		<0.001	<0.001	<0.001	<0.001	0.0074	<0.001	<0.001	0.0051	<0.001
Ethylbenzene	439.718	AGAC/S4UL	mg/kg	0 of 26	0	<0.001	<0.001		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH01	BH02	BH02	BH03	BH03	BH04	BH06	BH06	TP05
										Sample Ref						BH04			TP05
										Easting	311148	311145	311145	311196	311196	311099	311177	311177	311139
										Northing	167363	167423	167423	167435	167435	167403	167395	167395	167361
										Hole Elevation (mOD)	8.91	9.05	9.05	8.87	8.87	8.62	9.18	9.18	9.01
										Sample Depth (mbgl)	0.8 - 1	0.1 - 0.3	1 - 1.2	0.1 - 0.3	1.8 - 2	1 - 1.2	0.1 - 0.3	1.8 - 2	0.15 - 0.2
										Sample Date	04/10/23	04/10/23	04/10/23	05/10/23	05/10/23	12/10/23	05/10/23	05/10/23	18/09/23
										Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
										Geology	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1
m & p-Xylene	428	AGAC (p-xylene)	mg/kg	2 of 26	0	<0.001	0.0048		0		<0.001	<0.001	<0.001	<0.001	0.0048	<0.001	<0.001	0.0028	<0.001
o-Xylene	475.7208	AGAC	mg/kg	0 of 26	0	<0.001	<0.001		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total BTEX			mg/kg	No GAC	-	<0.01	<0.01		0					<0.01					<0.01
PCBs																			
PCB 118	0.000171	Median UK urban concentration	mg/kg	0 of 11	0	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 138			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 153			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 180			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 101			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 28			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 52			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
Total PCBs (7 Congeners)			mg/kg	No GAC	-	<0.1	<0.1		0			<0.1		<0.1		<0.1	<0.1		<0.1
VOCs/SVOCs																			
1,1,1,2-Tetrachloroethane	8.2	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,1,1-Trichloroethane	40.4	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1,2-Trichloroethane	5.53	AGAC	mg/kg	0 of 1	0	<0.01	<0.01		0										
1,1-Dichloroethane	10.9	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1-Dichloroethene	1.17	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1-Dichloropropene			mg/kg	No GAC	-	<0.001	<0.001		0										
1,2,3-Trichlorobenzene	8.81	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,2,3-Trichloropropane			mg/kg	No GAC	-	<0.05	<0.05		0										
1,2,4-Trichlorobenzene	15.3	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2,4-Trimethylbenzene	3.31	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2-Dibromo-3-Chloropropane			mg/kg	No GAC	-	<0.05	<0.05		0										
1,2-Dibromoethane			mg/kg	No GAC	-	<0.005	<0.005		0										
1,2-Dichlorobenzene	133	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2-Dichloroethane	0.0227	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,2-Dichloropropane	0.121	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,3,5-Trimethylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
1,3-Dichlorobenzene	2.45	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,3-Dichloropropane			mg/kg	No GAC	-	<0.002	<0.002		0										
1,4-Dichlorobenzene	350	S4UL (inh)	mg/kg	0 of 1	0	<0.001	<0.001		0										
2-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
4-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
4-Isopropyltoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
Bromobenzene	7	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Bromochloromethane			mg/kg	No GAC	-	<0.005	<0.005		0										
Bromodichloromethane	0.096	AGAC	mg/kg	0 of 1	0	<0.005	<0.005		0										
Bromomethane			mg/kg	No GAC	-	<0.02	<0.02		0										
Chlorobenzene	2.41	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Chloroethane	26	AGAC	mg/kg	0 of 1	0	<0.002	<0.002		0										
Chloromethane	0.0188	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Dibromochloromethane			mg/kg	No GAC	-	<0.01	<0.01		0										
Dibromomethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Dichloromethane	6.37	AGAC	mg/kg	0 of 1	0	<0.05	<0.05		0										
Hexachlorobutadiene	1.79	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Isopropylbenzene	95.4	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Methyl Tert-Butyl Ether	319	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
N-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
N-Propylbenzene	323	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Sec-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
Styrene	236	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Tert-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
Tetrachloroethene	0.92	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Tetrachloromethane	0.128	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trans 1,2-Dichloroethene	1.02	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trans-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0										
Tribromomethane	32.4	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trichloroethene	0.0797	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trichlorofluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Trichloromethane	4.22	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Vinyl Chloride	0.00153	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
cis 1,2-Dichloroethene	0.559	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
cis-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0										
Dichlorodifluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Other																			
Sulphide (Easily Liberatable)			mg/kg	No GAC	-	1.8	5.5		0					3.3					3.6
Sulphur (Elemental)			mg/kg	No GAC	-	<1	8.6		0					<1					1.5
Total Phenols			mg/kg	No GAC	-	<0.1	0.91		0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.91	<0.1	<0.1
Total Sulphur			%	No GAC	-	0.1	0.17		0										

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP05	TP06	TP06	TP06	TP07	TP08	TP10	TP10	TP03
										Sample Ref	TP05	TP06	TP06	TP06	TP07	TP08	TP10	TP10	TP03
										Easting	311139	311126	311126	311126	311153	311062	311119	311119	311035
										Northing	167361	167387	167387	167387	167410	167385	167411	167411	167374
										Hole Elevation (mOD)	9.01	9.39	9.39	9.39	9.13	8.25	8.61	8.61	8.34
										Sample Depth (mbgl)	1.1 - 1.2	0.25 - 0.35	1 - 1.2	2 - 2.2	1.2 - 1.4	2.1 - 2.3	0.25 - 0.45	2.2 - 2.4	1 .2 - 1.4
										Sample Date	18/09/23	18/09/23	18/09/23	18/09/23	20/09/23	20/09/23	18/09/23	18/09/23	21/09/23
										Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
										Geology	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG2
Metal																				
Antimony	617.5682	AGAC	mg/kg	5 of 26	0	<2	6.4		0		<2	<2	6.4	<2	5.5	3.1	<2	<2	<2
Arsenic	39.9	C4SL/S4UL	mg/kg	26 of 26	0	3.9	23		0		10	15	11	17	16	23	8.2	6.3	3.9
Beryllium	1.7	AGAC/S4UL	mg/kg	21 of 26	1	<0.5	5.5		0		0.8	0.7	0.5	0.9	5.5	1.7	0.5	<0.5	0.9
Cadmium	85	AGAC/S4UL	mg/kg	23 of 26	0	<0.1	0.76		0		0.53	0.48	0.63	0.75	0.76	0.53	0.38	0.17	<0.1
Chromium	907	AGAC (Cr III)	mg/kg	26 of 26	0	7.2	240		0		61	30	35	25	79	30	16	8.9	24
Chromium (Hexavalent)	6	AGAC/S4UL	mg/kg	0 of 9	0	<0.5	<0.5		0				<0.5		<0.5	<0.5		<0.5	<0.5
Copper	7130	AGAC	mg/kg	26 of 26	0	14	2300		0		51	94	69	21	2300	370	44	57	26
Lead	310	C4SL	mg/kg	26 of 26	1	7.9	1300		0		82	110	250	58	1300	270	66	46	43
Mercury	56	S4UL (inorganic)	mg/kg	24 of 26	0	<0.05	5.2		0		0.3	0.73	0.32	<0.05	1.1	5.2	1.6	0.26	0.14
Nickel	181.4	AGAC	mg/kg	26 of 26	1	8.4	260		0		23	24	19	31	260	53	15	14	29
Selenium	430	AGAC/S4UL	mg/kg	26 of 26	0	0.25	1.9		0		0.78	0.76	0.58	0.59	1.9	0.97	0.59	0.4	0.66
Vanadium	1200	S4UL (pentavalent)	mg/kg	26 of 26	0	8.4	60		0		33	25	20	23	49	29	17	11	15
Zinc	40400	AGAC	mg/kg	26 of 26	0	26	1700		0		190	290	250	150	170	1700	160	74	67
Inorganic																			
pH (2.5:1) at 20C			-	No GAC	-	7.8	9.4		0		8.3	8.2	8.5	8.5	8.7	9	8.2	8.5	8.3
Cyanide (Total)	24	AGAC (free, acute)	mg/kg	6 of 26	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5	10	1.7	<0.5	<0.5	0.8
Boron (Hot Water Soluble)	10775	AGAC	mg/kg	18 of 26	0	<0.4	4.5		0		3.1	0.48	1.9	1.2	1.3	2	<0.4	0.92	0.46
Total Organic Carbon			%	No GAC	-	0.22	28		0		3.4	7.8	13	1.3	4.6	2.6	7.1	19	0.22
Sulphate (Acid Soluble)			%	No GAC	-	0.11	0.11		0						0.11				
Asbestos																			
Asbestos by Gravimetry			%	No GAC	-	<0.001	<0.001		0		0.001		0.001		<0.001	0.001			
Asbestos Identification			-	No GAC	-				0		Amosite	No Asbestos Detected	Chrysotile	No Asbestos Detected	Chrysotile	Chrysotile	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Type			-	No GAC	-				0		Fibres/Clumps	-	Fibres/Clumps	-	Fibres/Clumps	Fibres/Clumps	-	-	-
Total Asbestos			%	No GAC	-	<0.001	<0.001		0		0.001		0.001		<0.001	0.001			
TPH																			
Aliphatic VPH >C5-C6	161	AGAC/S4UL	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic VPH >C6-C8 (Sum)	529	AGAC	mg/kg	1 of 26	0	<0.1	0.14		0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aliphatic VPH >C8-C10	155	AGAC/S4UL	mg/kg	3 of 26	0	<0.05	7.9		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic EPH >C10-C12 MC	767	AGAC	mg/kg	9 of 26	0	<2	27	283.0	0		4	<2	<2	<2	<2	<2	<2	<2	<2
Aliphatic EPH >C12-C16 MC	4370	AGAC	mg/kg	8 of 26	0	<1	580	142.0	1		2.1	<1	<1	<1	<1	<1	<1	<1	<1
Aliphatic EPH >C16-C21 MC	48900	AGAC (Ali >C16-35)	mg/kg	10 of 26	0	<2	940	50.90	2		<2	<2	9.5	<2	<2	<2	<2	5.3	<2
Aliphatic EPH >C21-C35 MC	48900	AGAC (Ali >C16-35)	mg/kg	14 of 26	0	<3	480	50.90	5		<3	<3	<3	<3	20	<3	<3	6.3	<3
Aliphatic EPH >C35-C40 MC			mg/kg	No GAC	-	<10	130		0		<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aliphatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	7.9		0		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Aliphatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1900		0		8.4	<5	13	<5	21	<5	<5	12	<5
Aromatic VPH >C5-C7			mg/kg	No GAC	-	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C7-C8	3928	AGAC (toluene)	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C8-C10	269	AGAC	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic EPH >C10-C12 MC	1240	AGAC	mg/kg	7 of 26	0	<1	51		0		<1	<1	<1	<1	<1	<1	<1	<1	<1
Aromatic EPH >C12-C16 MC	2480	AGAC	mg/kg	7 of 26	0	<1	380		0		<1	<1	<1	<1	<1	<1	<1	12	<1
Aromatic EPH >C16-C21 MC	1817	AGAC	mg/kg	26 of 26	0	3.4	680		0		8	5.9	28	3.6	18	8.7	4	220	11
Aromatic EPH >C21-C35 MC	1930	AGAC	mg/kg	21 of 26	0	<2	430		0		220	15	97	2.4	120	4.8	17	380	<2
Aromatic EPH >C35-C40 MC			mg/kg	No GAC	-	<1	130		0		75	<1	35	<1	11	<1	<1	16	<1
Total Aromatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	<0.25		0		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Aromatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1300		0		230	21	120	6	140	14	21	610	11
Total VPH >C5-C10			mg/kg	No GAC	-	<0.5	7.9		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total EPH >C10-C35 MC			mg/kg	No GAC	-	<10	3200		0		240	21	140	<10	160	14	23	620	11
PAH																			
Acenaphthene	6040	AGAC	mg/kg	11 of 25	0	<0.1	0.75	336.0	0		0.3	0.11	<0.1	<0.1	0.26	0.1	0.13	<0.1	<0.1
Dibenz(a,h)Anthracene	0.32	AGAC/S4UL	mg/kg	16 of 25	9	<0.1	1.1		0		0.78	0.29	0.67	<0.1	1.1	0.28	0.57	0.26	0.1
Fluoranthene	1580	AGAC	mg/kg	23 of 25	0	<0.1	11		0		9	2	3.3	<0.1	11	2.1	3	1.6	0.2
Fluorene	4460	AGAC	mg/kg	11 of 25	0	<0.1	0.68	183.0	0		0.4	<0.1	<0.1	<0.1	0.23	0.19	0.12	<0.1	<0.1
Indeno(1,2,3-c,d)Pyrene	46	AGAC/S4UL	mg/kg	22 of 25	0	<0.1	4.3		0		3	1.1	2.2	<0.1	4.3	0.78	2.2	1.1	0.14
Phenanthrene	1520	AGAC	mg/kg	23 of 25	0	<0.1	6.1		0		6.1	1	1.1	<0.1	2.8	1.4	1.1	0.35	0.38
Pyrene	3790	AGAC	mg/kg	23 of 25	0	<0.1	9.4		0		6.8	1.5	2.9	<0.1	9.4	1.6	2.5	1.4	0.18
Naphthalene	13.2	AGAC/S4UL	mg/kg	16 of 25	0	<0.1	1.2		0		0.2	0.19	0.38	<0.1	0.19	0.41	0.31	<0.1	<0.1
Acenaphthylene	5970	AGAC	mg/kg	10 of 25	0	<0.1	0.25	506.0	0		0.21	<0.1	0.17	<0.1	0.19	0.25	0.14	<0.1	<0.1
Anthracene	36600	AGAC	mg/kg	18 of 25	0	<0.1	1.8		0		1.8	0.24	0.58	<0.1	1.1	0.43	0.3	0.11	<0.1
Benzo[a]anthracene	15	AGAC/S4UL	mg/kg	23 of 25	0	<0.1	6.3		0		4.4	1.1	2.4	<0.1	6.3	1.2	2	0.92	0.14
Benzo[a]pyrene	3.23	AGAC/S4UL	mg/kg	22 of 25	6	<0.1	7.4		0		4.8	1.4	3.5	<0.1	7.4	0.97	2.5	1.3	0.12
Benzo[g,h,i]perylene	359	AGAC	mg/kg	22 of 25	0	<0.1	4.3		0		2.9	1.1	2.1	<0.1	4.3	0.81	2.1	0.88	0.13
Benzo[b]fluoranthene	4.06	AGAC	mg/kg	22 of 25	7	<0.1	9.1		0		6.8	2	4.1	<0.1	9.1	1.4	4.1	1.8	0.16
Benzo[k]fluoranthene	107	AGAC	mg/kg	21 of 25	0	<0.1	3		0		2.5	0.65	1.4	<0.1	3	0.63	1.4	0.65	0.11
Chrysene	31.9	AGAC/S4UL	mg/kg	23 of 25	0	<0.1	6.3		0		4.8	1.4	2.3	<0.1	6.3	1.2	2.3	0.89	0.11
Total (Of 17) PAH's			mg/kg	No GAC	-	<2	61		0		55	14	27	<2	61	14	25	11	<2
BTEX																			
Benzene	1.421879	AGAC/S4UL	mg/kg	2 of 26	0	<0.001	0.0068		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	3927.625	AGAC	mg/kg	2 of 26	0	<0.001	0.0074		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	439.718	AGAC/S4UL	mg/kg	0 of 26	0	<0.001	<0.001		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP05	TP06	TP06	TP06	TP07	TP08	TP10	TP10	TP03
										Sample Ref	TP05	TP06	TP06	TP06	TP07	TP08	TP10	TP10	TP03
										Easting	311139	311126	311126	311126	311153	311062	311119	311119	311035
										Northing	167361	167387	167387	167387	167410	167385	167411	167411	167374
										Hole Elevation (mOD)	9.01	9.39	9.39	9.39	9.13	8.25	8.61	8.61	8.34
										Sample Depth (mbgl)	1.1 - 1.2	0.25 - 0.35	1 - 1.2	2 - 2.2	1.2 - 1.4	2.1 - 2.3	0.25 - 0.45	2.2 - 2.4	1 .2 - 1.4
										Sample Date	18/09/23	18/09/23	18/09/23	18/09/23	20/09/23	20/09/23	18/09/23	18/09/23	21/09/23
										Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
										Geology	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG2
m & p-Xylene	428	AGAC (p-xylene)	mg/kg	2 of 26	0	<0.001	0.0048		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o-Xylene	475.7208	AGAC	mg/kg	0 of 26	0	<0.001	<0.001		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total BTEX			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01		<0.01				<0.01
PCBs																			
PCB 118	0.000171	Median UK urban concentration	mg/kg	0 of 11	0	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 138			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 153			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 180			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 101			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 28			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 52			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
Total PCBs (7 Congeners)			mg/kg	No GAC	-	<0.1	<0.1		0		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1
VOCs/SVOCs																			
1,1,1,2-Tetrachloroethane	8.2	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,1,1-Trichloroethane	40.4	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1,2-Trichloroethane	5.53	AGAC	mg/kg	0 of 1	0	<0.01	<0.01		0										
1,1-Dichloroethane	10.9	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1-Dichloroethene	1.17	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1-Dichloropropene			mg/kg	No GAC	-	<0.001	<0.001		0										
1,2,3-Trichlorobenzene	8.81	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,2,3-Trichloropropane			mg/kg	No GAC	-	<0.05	<0.05		0										
1,2,4-Trichlorobenzene	15.3	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2,4-Trimethylbenzene	3.31	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2-Dibromo-3-Chloropropane			mg/kg	No GAC	-	<0.05	<0.05		0										
1,2-Dibromoethane			mg/kg	No GAC	-	<0.005	<0.005		0										
1,2-Dichlorobenzene	133	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2-Dichloroethane	0.0227	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,2-Dichloropropane	0.121	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,3,5-Trimethylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
1,3-Dichlorobenzene	2.45	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,3-Dichloropropane			mg/kg	No GAC	-	<0.002	<0.002		0										
1,4-Dichlorobenzene	350	S4UL (inh)	mg/kg	0 of 1	0	<0.001	<0.001		0										
2-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
4-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
4-Isopropyltoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
Bromobenzene	7	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Bromochloromethane			mg/kg	No GAC	-	<0.005	<0.005		0										
Bromodichloromethane	0.096	AGAC	mg/kg	0 of 1	0	<0.005	<0.005		0										
Bromomethane			mg/kg	No GAC	-	<0.02	<0.02		0										
Chlorobenzene	2.41	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Chloroethane	26	AGAC	mg/kg	0 of 1	0	<0.002	<0.002		0										
Chloromethane	0.0188	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Dibromochloromethane			mg/kg	No GAC	-	<0.01	<0.01		0										
Dibromomethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Dichloromethane	6.37	AGAC	mg/kg	0 of 1	0	<0.05	<0.05		0										
Hexachlorobutadiene	1.79	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Isopropylbenzene	95.4	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Methyl Tert-Butyl Ether	319	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
N-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
N-Propylbenzene	323	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Sec-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
Styrene	236	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Tert-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
Tetrachloroethene	0.92	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Tetrachloromethane	0.128	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trans 1,2-Dichloroethene	1.02	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trans-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0										
Tribromomethane	32.4	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trichloroethene	0.0797	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trichlorofluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Trichloromethane	4.22	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Vinyl Chloride	0.00153	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
cis 1,2-Dichloroethene	0.559	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
cis-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0										
Dichlorodifluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Other																			
Sulphide (Easily Liberatable)			mg/kg	No GAC	-	1.8	5.5		0				5.5		3.7			3	1.8
Sulphur (Elemental)			mg/kg	No GAC	-	<1	8.6		0				8.6		1.3			1.2	<1
Total Phenols			mg/kg	No GAC	-	<0.1	0.91		0		<0.1	<0.1	<0.1	<0.1	0.24	<0.1	<0.1	<0.1	<0.1
Total Sulphur			%	No GAC	-	0.1	0.17		0						0.17				

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP03	TP04	TP09	BH01	TP05	TP07	TP09	TP10
										Sample Ref	TP03	TP04	TP09		TP05	TP07	TP09	TP10
										Easting	311035	311021	311028	311148	311139	311153	311028	311119
										Northing	167374	167370	167400	167363	167361	167410	167400	167411
										Hole Elevation (mOD)	8.34	8.51	8.89	8.91	9.01	9.13	8.89	8.61
										Sample Depth (mbgl)	3 - 3.2	1.2 - 1.4	1.1 - 1.3	3 - 3.1	2.2 - 2.3	2.2 - 2.4	2.1 - 2.3	2.9 - 3
										Sample Date	21/09/23	21/09/23	18/09/23	04/10/23	18/09/23	20/09/23	18/09/23	18/09/23
										Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
										Geology	MG2	MG2	MG2	NAT	NAT	NAT	NAT	NAT
Metal																		
Antimony	617.5682	AGAC	mg/kg	5 of 26	0	<2	6.4		0		<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	39.9	C4SL/S4UL	mg/kg	26 of 26	0	3.9	23		0		6.4	11	6.5	4	5.4	13	7.7	13
Beryllium	1.7	AGAC/S4UL	mg/kg	21 of 26	1	<0.5	5.5		0		0.8	1.2	1	<0.5	<0.5	0.6	0.8	0.8
Cadmium	85	AGAC/S4UL	mg/kg	23 of 26	0	<0.1	0.76		0		<0.1	0.33	0.18	0.24	0.29	0.29	0.18	0.66
Chromium	907	AGAC (Cr III)	mg/kg	26 of 26	0	7.2	240		0		18	37	27	8.3	16	18	19	23
Chromium (Hexavalent)	6	AGAC/S4UL	mg/kg	0 of 9	0	<0.5	<0.5		0		<0.5						<0.5	
Copper	7130	AGAC	mg/kg	26 of 26	0	14	2300		0		24	53	29	14	30	35	31	26
Lead	310	C4SL	mg/kg	26 of 26	1	7.9	1300		0		71	220	11	30	73	71	50	56
Mercury	56	S4UL (inorganic)	mg/kg	24 of 26	0	<0.05	5.2		0		0.1	0.28	0.09	0.09	0.07	0.3	1.2	0.09
Nickel	181.4	AGAC	mg/kg	26 of 26	1	8.4	260		0		23	44	35	8.4	15	20	32	33
Selenium	430	AGAC/S4UL	mg/kg	26 of 26	0	0.25	1.9		0		0.64	1.1	0.75	0.25	0.46	0.7	0.73	0.72
Vanadium	1200	S4UL (pentavalent)	mg/kg	26 of 26	0	8.4	60		0		15	28	21	8.4	13	21	16	22
Zinc	40400	AGAC	mg/kg	26 of 26	0	26	1700		0		74	110	56	57	78	150	61	160
Inorganic																		
pH (2.5:1) at 20C			-	No GAC	-	7.8	9.4		0		7.8	8.3	8.4	9	8.4	8.5	8.2	8.6
Cyanide (Total)	24	AGAC (free, acute)	mg/kg	6 of 26	0	<0.5	10		0		8.1	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5
Boron (Hot Water Soluble)	10775	AGAC	mg/kg	18 of 26	0	<0.4	4.5		0		0.46	0.4	0.98	1.2	4.5	<0.4	0.82	2.9
Total Organic Carbon			%	No GAC	-	0.22	28		0		1.7	0.72	0.29	4.4	3.2	1.6	0.82	0.91
Sulphate (Acid Soluble)			%	No GAC	-	0.11	0.11		0			0.11						
Asbestos																		
Asbestos by Gravimetry			%	No GAC	-	<0.001	<0.001		0									
Asbestos Identification			-	No GAC	-				0		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected					
ACM Type			-	No GAC	-				0		-	-	-					
Total Asbestos			%	No GAC	-	<0.001	<0.001		0									
TPH																		
Aliphatic VPH >C5-C6	161	AGAC/S4UL	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic VPH >C6-C8 (Sum)	529	AGAC	mg/kg	1 of 26	0	<0.1	0.14		0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aliphatic VPH >C8-C10	155	AGAC/S4UL	mg/kg	3 of 26	0	<0.05	7.9		0		<0.05	<0.05	<0.05	<0.05	<0.05	7.9	<0.05	<0.05
Aliphatic EPH >C10-C12 MC	767	AGAC	mg/kg	9 of 26	0	<2	27	283.0	0		<2	<2	<2	16	<2	<2	<2	<2
Aliphatic EPH >C12-C16 MC	4370	AGAC	mg/kg	8 of 26	0	<1	580	142.0	1		<1	<1	<1	88	<1	<1	1.5	<1
Aliphatic EPH >C16-C21 MC	48900	AGAC (Ali >C16-35)	mg/kg	10 of 26	0	<2	940	50.90	2		<2	3.4	<2	190	<2	<2	2.6	<2
Aliphatic EPH >C21-C35 MC	48900	AGAC (Ali >C16-35)	mg/kg	14 of 26	0	<3	480	50.90	5		<3	5.7	<3	480	<3	<3	3.7	<3
Aliphatic EPH >C35-C40 MC			mg/kg	No GAC	-	<10	130		0		<10	<10	<10	130	<10	<10	<10	<10
Total Aliphatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	7.9		0		<0.25	<0.25	<0.25	<0.25	<0.25	7.9	<0.25	<0.25
Total Aliphatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1900		0		<5	9.1	<5	780	<5	<5	7.8	<5
Aromatic VPH >C5-C7			mg/kg	No GAC	-	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C7-C8	3928	AGAC (toluene)	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C8-C10	269	AGAC	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic EPH >C10-C12 MC	1240	AGAC	mg/kg	7 of 26	0	<1	51		0		<1	<1	<1	<1	<1	<1	<1	<1
Aromatic EPH >C12-C16 MC	2480	AGAC	mg/kg	7 of 26	0	<1	380		0		<1	<1	<1	19	<1	<1	<1	<1
Aromatic EPH >C16-C21 MC	1817	AGAC	mg/kg	26 of 26	0	3.4	680		0		6.7	6.3	3.4	81	4.8	8.6	12	3.5
Aromatic EPH >C21-C35 MC	1930	AGAC	mg/kg	21 of 26	0	<2	430		0		<2	<2	<2	430	4.3	63	70	<2
Aromatic EPH >C35-C40 MC			mg/kg	No GAC	-	<1	130		0		<1	<1	<1	4.7	<1	7.8	2.3	<1
Total Aromatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	<0.25		0		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Aromatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1300		0		6.7	7.9	5.1	530	9.1	72	82	<5
Total VPH >C5-C10			mg/kg	No GAC	-	<0.5	7.9		0		<0.5	<0.5	<0.5	<0.5	<0.5	7.9	<0.5	<0.5
Total EPH >C10-C35 MC			mg/kg	No GAC	-	<10	3200		0		<10	17	<10	1300	12	72	90	<10
PAH																		
Acenaphthene	6040	AGAC	mg/kg	11 of 25	0	<0.1	0.75	336.0	0			<0.1	<0.1	0.23	<0.1	<0.1	0.75	<0.1
Dibenz(a,h)Anthracene	0.32	AGAC/S4UL	mg/kg	16 of 25	9	<0.1	1.1		0			<0.1	<0.1	0.39	0.21	0.12	0.53	<0.1
Fluoranthene	1580	AGAC	mg/kg	23 of 25	0	<0.1	11		0			0.2	<0.1	3.9	1.4	0.71	4.9	0.6
Fluorene	4460	AGAC	mg/kg	11 of 25	0	<0.1	0.68	183.0	0			<0.1	<0.1	0.33	<0.1	0.11	0.68	<0.1
Indeno(1,2,3-c,d)Pyrene	46	AGAC/S4UL	mg/kg	22 of 25	0	<0.1	4.3		0			<0.1	<0.1	1.8	0.78	0.41	1.3	0.36
Phenanthrene	1520	AGAC	mg/kg	23 of 25	0	<0.1	6.1		0			0.33	<0.1	2.4	0.81	0.61	3.4	0.22
Pyrene	3790	AGAC	mg/kg	23 of 25	0	<0.1	9.4		0			0.19	<0.1	3	1.2	0.57	3.2	0.52
Naphthalene	13.2	AGAC/S4UL	mg/kg	16 of 25	0	<0.1	1.2		0			<0.1	<0.1	0.33	0.16	1.1	<0.1	<0.1
Acenaphthylene	5970	AGAC	mg/kg	10 of 25	0	<0.1	0.25	506.0	0			<0.1	<0.1	<0.1	0.16	<0.1	0.13	<0.1
Anthracene	36600	AGAC	mg/kg	18 of 25	0	<0.1	1.8		0			<0.1	<0.1	0.57	0.19	0.12	0.64	<0.1
Benzo[a]anthracene	15	AGAC/S4UL	mg/kg	23 of 25	0	<0.1	6.3		0			0.12	<0.1	2.1	0.71	0.44	2.5	0.37
Benzo[a]pyrene	3.23	AGAC/S4UL	mg/kg	22 of 25	6	<0.1	7.4		0			<0.1	<0.1	2.7	0.92	0.59	2.3	0.38
Benzo[g,h,i]perylene	359	AGAC	mg/kg	22 of 25	0	<0.1	4.3		0			<0.1	<0.1	1.5	0.8	0.41	1.5	0.41
Benzo[b]fluoranthene	4.06	AGAC	mg/kg	22 of 25	7	<0.1	9.1		0			<0.1	<0.1	3.3	1.5	0.75	3.6	0.66
Benzo[k]fluoranthene	107	AGAC	mg/kg	21 of 25	0	<0.1	3		0			<0.1	<0.1	1.1	0.6	0.27	0.94	0.18
Chrysene	31.9	AGAC/S4UL	mg/kg	23 of 25	0	<0.1	6.3		0			0.13	<0.1	2.3	0.99	0.46	2.5	0.39
Total (Of 17) PAH's			mg/kg	No GAC	-	<2	61		0			<2	<2	26	10	6.7	29	4.1
BTEX																		
Benzene	1.421879	AGAC/S4UL	mg/kg	2 of 26	0	<0.001	0.0068		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	3927.625	AGAC	mg/kg	2 of 26	0	<0.001	0.0074		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	439.718	AGAC/S4UL	mg/kg	0 of 26	0	<0.001	<0.001		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP03	TP04	TP09	BH01	TP05	TP07	TP09	TP10
										Sample Ref	TP03	TP04	TP09		TP05	TP07	TP09	TP10
										Easting	311035	311021	311028	311148	311139	311153	311028	311119
										Northing	167374	167370	167400	167363	167361	167410	167400	167411
										Hole Elevation (mOD)	8.34	8.51	8.89	8.91	9.01	9.13	8.89	8.61
										Sample Depth (mbgl)	3 - 3.2	1.2 - 1.4	1.1 - 1.3	3 - 3.1	2.2 - 2.3	2.2 - 2.4	2.1 - 2.3	2.9 - 3
										Sample Date	21/09/23	21/09/23	18/09/23	04/10/23	18/09/23	20/09/23	18/09/23	18/09/23
										Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
										Geology	MG2	MG2	MG2	NAT	NAT	NAT	NAT	NAT
m & p-Xylene	428	AGAC (p-xylene)	mg/kg	2 of 26	0	<0.001	0.0048		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o-Xylene	475.7208	AGAC	mg/kg	0 of 26	0	<0.001	<0.001		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total BTEX			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					<0.01
PCBs																		
PCB 118	0.000171	Median UK urban concentration	mg/kg	0 of 11	0	<0.01	<0.01		0				<0.01					
PCB 138			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
PCB 153			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
PCB 180			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
PCB 101			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
PCB 28			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
PCB 52			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
Total PCBs (7 Congeners)			mg/kg	No GAC	-	<0.1	<0.1		0				<0.1					<0.1
VOCs/SVOCs																		
1,1,1,2-Tetrachloroethane	8.2	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0		<0.002							
1,1,1-Trichloroethane	40.4	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,1,2-Trichloroethane	5.53	AGAC	mg/kg	0 of 1	0	<0.01	<0.01		0		<0.01							
1,1-Dichloroethane	10.9	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,1-Dichloroethene	1.17	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,1-Dichloropropene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
1,2,3-Trichlorobenzene	8.81	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0		<0.002							
1,2,3-Trichloropropane			mg/kg	No GAC	-	<0.05	<0.05		0		<0.05							
1,2,4-Trichlorobenzene	15.3	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,2,4-Trimethylbenzene	3.31	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,2-Dibromo-3-Chloropropane			mg/kg	No GAC	-	<0.05	<0.05		0		<0.05							
1,2-Dibromoethane			mg/kg	No GAC	-	<0.005	<0.005		0		<0.005							
1,2-Dichlorobenzene	133	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,2-Dichloroethane	0.0227	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0		<0.002							
1,2-Dichloropropane	0.121	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,3,5-Trimethylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
1,3-Dichlorobenzene	2.45	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,3-Dichloropropane			mg/kg	No GAC	-	<0.002	<0.002		0		<0.002							
1,4-Dichlorobenzene	350	S4UL (inh)	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
2-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
4-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
4-Isopropyltoluene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Bromobenzene	7	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Bromochloromethane			mg/kg	No GAC	-	<0.005	<0.005		0		<0.005							
Bromodichloromethane	0.096	AGAC	mg/kg	0 of 1	0	<0.005	<0.005		0		<0.005							
Bromomethane			mg/kg	No GAC	-	<0.02	<0.02		0		<0.02							
Chlorobenzene	2.41	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Chloroethane	26	AGAC	mg/kg	0 of 1	0	<0.002	<0.002		0		<0.002							
Chloromethane	0.0188	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Dibromochloromethane			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01							
Dibromomethane			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Dichloromethane	6.37	AGAC	mg/kg	0 of 1	0	<0.05	<0.05		0		<0.05							
Hexachlorobutadiene	1.79	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Isopropylbenzene	95.4	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Methyl Tert-Butyl Ether	319	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
N-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
N-Propylbenzene	323	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Sec-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Styrene	236	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Tert-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Tetrachloroethene	0.92	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Tetrachloromethane	0.128	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Trans 1,2-Dichloroethene	1.02	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Trans-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01							
Tribromomethane	32.4	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Trichloroethene	0.0797	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Trichlorofluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Trichloromethane	4.22	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Vinyl Chloride	0.00153	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
cis 1,2-Dichloroethene	0.559	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
cis-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01							
Dichlorodifluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Other																		
Sulphide (Easily Liberatable)			mg/kg	No GAC	-	1.8	5.5		0									
Sulphur (Elemental)			mg/kg	No GAC	-	<1	8.6		0									
Total Phenols			mg/kg	No GAC	-	<0.1	0.91		0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Sulphur			%	No GAC	-	0.1	0.17		0			0.1						

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	BH01	BH02	BH02	BH03	BH03	BH04	BH06	BH06	TP05
Hole Ref										BH01	BH02	BH02	BH03	BH03	BH04	BH06	BH06	TP05
Sample Ref																		TP05
Easting										311148	311145	311145	311196	311196	311099	311177	311177	311139
Northing										167363	167423	167423	167435	167435	167403	167395	167395	167361
Hole Elevation (mOD)										8.91	9.05	9.05	8.87	8.87	8.62	9.18	9.18	9.01
Sample Depth (mbgl)										0.8 - 1	0.1 - 0.3	1 - 1.2	0.1 - 0.3	1.8 - 2	1 - 1.2	0.1 - 0.3	1.8 - 2	0.15 - 0.2
Sample Date										04/10/23	04/10/23	04/10/23	05/10/23	05/10/23	12/10/23	05/10/23	05/10/23	18/09/23
Investigation										C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
Geology										MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1
Metal																		
Antimony	7350	AGAC	mg/kg	5 of 26	0	<2	6.4		0	2.3	<2	<2	2.1	<2	<2	<2	<2	<2
Arsenic	635	AGAC	mg/kg	26 of 26	0	3.9	23		0	11	9.6	12	14	14	4.1	6.2	14	12
Beryllium	11.7	AGAC	mg/kg	21 of 26	0	<0.5	5.5		0	0.8	0.6	0.9	0.8	0.7	<0.5	<0.5	0.7	0.8
Cadmium	190	AGAC/S4UL	mg/kg	23 of 26	0	<0.1	0.76		0	0.5	0.29	0.57	0.54	0.59	<0.1	0.29	0.59	0.62
Chromium	8570	AGAC (Cr III)	mg/kg	26 of 26	0	7.2	240		0	31	16	22	27	16	7.2	14	15	240
Chromium (Hexavalent)	33	AGAC/S4UL	mg/kg	0 of 9	0	<0.5	<0.5		0				<0.5					<0.5
Copper	68300	AGAC	mg/kg	26 of 26	0	14	2300		0	120	14	74	62	89	21	40	140	67
Lead	2300	C4SL	mg/kg	26 of 26	0	7.9	1300		0	140	31	160	130	140	7.9	77	180	72
Mercury	1100	AGAC (inorganic)	mg/kg	24 of 26	0	<0.05	5.2		0	0.98	0.06	0.46	0.2	0.2	<0.05	1.1	0.44	0.14
Nickel	983	AGAC	mg/kg	26 of 26	0	8.4	260		0	22	13	26	31	26	16	13	24	28
Selenium	12261	AGAC	mg/kg	26 of 26	0	0.25	1.9		0	0.62	0.58	1	0.8	0.63	0.28	0.51	0.58	0.88
Vanadium	9000	S4UL (pentavalent)	mg/kg	26 of 26	0	8.4	60		0	29	20	24	27	21	13	15	17	60
Zinc	730000	AGAC/S4UL	mg/kg	26 of 26	0	26	1700		0	460	69	320	170	140	26	130	240	240
Inorganic																		
pH (2.5:1) at 20C			-	No GAC	-	7.8	9.4		0	8.5	8	8.3	8.4	9.4	8.6	8.7	8.8	8.6
Cyanide (Total)	168	AGAC (free, acute)	mg/kg	6 of 26	0	<0.5	10		0	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (Hot Water Soluble)	236000	AGAC	mg/kg	18 of 26	0	<0.4	4.5		0	0.43	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	1.3	2.1
Total Organic Carbon			%	No GAC	-	0.22	28		0	7.8	3.1	9.4	2.6	16	12	12	28	2.1
Sulphate (Acid Soluble)			%	No GAC	-	0.11	0.11		0									
Asbestos																		
Asbestos by Gravimetry			%	No GAC	-	<0.001	<0.001		0									
Asbestos Identification			-	No GAC	-				0	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Type			-	No GAC	-				0	-	-	-	-	-	-	-	-	-
Total Asbestos			%	No GAC	-	<0.001	<0.001		0									
TPH																		
Aliphatic VPH >C5-C6	12100	AGAC	mg/kg	0 of 26	0	<0.05	<0.05		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic VPH >C6-C8 (Sum)	39600	AGAC	mg/kg	1 of 26	0	<0.1	0.14		0	<0.1	<0.1	<0.1	<0.1	0.14	<0.1	<0.1	<0.1	<0.1
Aliphatic VPH >C8-C10	11300	AGAC	mg/kg	3 of 26	0	<0.05	7.9		0	<0.05	<0.05	<0.05	0.11	<0.05	0.23	<0.05	<0.05	<0.05
Aliphatic EPH >C10-C12 MC	47300	AGAC	mg/kg	9 of 26	0	<2	27	283.0	0	<2	6.2	2.4	8	<2	27	2.8	2.6	3.9
Aliphatic EPH >C12-C16 MC	90200	AGAC	mg/kg	8 of 26	0	<1	580	142.0	1	<1	24	<1	12	<1	580	<1	10	2.5
Aliphatic EPH >C16-C21 MC	14300000	AGAC (Ali >C16-35)	mg/kg	10 of 26	0	<2	940	50.90	2	<2	17	<2	12	<2	940	8.9	23	<2
Aliphatic EPH >C21-C35 MC	14300000	AGAC (Ali >C16-35)	mg/kg	14 of 26	0	<3	480	50.90	5	4.3	38	36	110	6.8	330	67	60	18
Aliphatic EPH >C35-C40 MC	14300000	AGAC (Ali >C16-35)	mg/kg	8 of 26	0	<10	130		0	14	12	<10	58	<10	36	110	51	13
Total Aliphatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	7.9		0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Aliphatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1900		0	<5	86	41	140	11	1900	79	96	26
Aromatic VPH >C5-C7			mg/kg	No GAC	-	<0.05	<0.05		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C7-C8	183681	AGAC (toluene)	mg/kg	0 of 26	0	<0.05	<0.05		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C8-C10	17000	AGAC	mg/kg	0 of 26	0	<0.05	<0.05		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic EPH >C10-C12 MC	34200	AGAC	mg/kg	7 of 26	0	<1	51		0	<1	51	2.8	6.9	1.1	9.3	2.4	2.5	<1
Aromatic EPH >C12-C16 MC	37800	AGAC	mg/kg	7 of 26	0	<1	380		0	<1	31	<1	5.3	<1	380	6	15	<1
Aromatic EPH >C16-C21 MC	28100	AGAC	mg/kg	26 of 26	0	3.4	680		0	16	19	5.9	18	3.6	680	28	48	6.9
Aromatic EPH >C21-C35 MC	28400	AGAC	mg/kg	21 of 26	0	<2	430		0	8.2	61	100	59	39	210	260	370	6.1
Aromatic EPH >C35-C40 MC	28400	AGAC	mg/kg	16 of 26	0	<1	130		0	6.4	130	19	27	12	33	43	48	8.7
Total Aromatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	<0.25		0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Aromatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1300		0	24	160	110	89	45	1300	290	440	13
Total VPH >C5-C10			mg/kg	No GAC	-	<0.5	7.9		0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total EPH >C10-C35 MC			mg/kg	No GAC	-	<10	3200		0	28	250	150	230	55	3200	370	530	39
PAH																		
Acenaphthene	104000	AGAC	mg/kg	11 of 25	0	<0.1	0.75	336.0	0	0.21	<0.1	0.14	0.2	<0.1	<0.1	0.24	<0.1	<0.1
Dibenz(a,h)Anthracene	3.57	AGAC/S4UL	mg/kg	16 of 25	0	<0.1	1.1		0	0.56	<0.1	0.73	0.18	<0.1	<0.1	1.1	<0.1	<0.1
Fluoranthene	22700	AGAC	mg/kg	23 of 25	0	<0.1	11		0	5.3	0.64	3.6	1.9	2.9	1.3	6.6	7.4	0.94
Fluorene	70800	AGAC	mg/kg	11 of 25	0	<0.1	0.68	183.0	0	0.22	<0.1	0.15	0.14	<0.1	<0.1	0.31	<0.1	<0.1
Indeno(1,2,3-c,d)Pyrene	509	AGAC	mg/kg	22 of 25	0	<0.1	4.3		0	2.3	0.31	2.6	0.8	1.3	0.49	4.3	1.8	0.46
Phenanthrene	22500	AGAC	mg/kg	23 of 25	0	<0.1	6.1		0	2	0.28	1.4	1.1	1.7	0.46	2.5	5.9	0.45
Pyrene	54500	AGAC	mg/kg	23 of 25	0	<0.1	9.4		0	4.4	0.5	3.1	1.5	2.6	1.1	5.8	5.6	0.74
Naphthalene	1090	AGAC	mg/kg	16 of 25	0	<0.1	1.2		0	0.31	<0.1	0.38	0.34	0.83	0.31	0.38	1.2	<0.1
Acenaphthylene	104000	AGAC	mg/kg	10 of 25	0	<0.1	0.25	506.0	0	0.13	<0.1	0.2	<0.1	<0.1	<0.1	0.23	<0.1	<0.1
Anthracene	542000	AGAC	mg/kg	18 of 25	0	<0.1	1.8		0	0.49	<0.1	0.38	0.27	0.51	<0.1	0.94	1.3	0.16
Benzo[a]anthracene	176	AGAC	mg/kg	23 of 25	0	<0.1	6.3		0	3.1	0.37	2.2	0.99	1.5	0.76	4.7	3.6	0.6
Benzo[a]pyrene	35.7	AGAC	mg/kg	22 of 25	0	<0.1	7.4		0	3.3	0.37	3.3	1	1.4	0.88	5.4	3.1	0.64
Benzo[g,h,i]perylene	3960	AGAC	mg/kg	22 of 25	0	<0.1	4.3		0	2.3	0.31	2.7	0.8	1.4	0.63	4.1	1.8	0.38
Benzo[b]fluoranthene	44.9	AGAC	mg/kg	22 of 25	0	<0.1	9.1		0	5	0.59	5.3	1.7	2.7	1.2	8.2	3.9	0.83
Benzo[k]fluoranthene	1190	AGAC	mg/kg	21 of 25	0	<0.1	3		0	1.7	<0.1	1.9	0.55	0.85	0.23	2.9	1.2	0.32
Chrysene	355	AGAC	mg/kg	23 of 25	0	<0.1	6.3		0	3.1	0.37	3.1	1	2	0.7	5.7	3.7	0.55
Total (Of 17) PAH's			mg/kg	No GAC	-	<2	61		0	34	3.7	31	13	20	8.1	53	41	24
BTEX																		
Benzene	90.17828611	AGAC/S4UL	mg/kg	2 of 26	0	<0.001	0.0068		0	<0.001	<0.001	<0.001	<0.001	0.0068	<0.001	<0.001	0.0052	<0.001
Toluene	183681	AGAC	mg/kg	2 of 26	0	<0.001	0.0074		0	<0.001	<0.001	<0.001	<0.001	0.0074	<0.001	<0.001	0.0051	<0.001
Ethylbenzene	27424	AGAC	mg/kg	0 of 26	0	<0.001	<0.001		0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	BH01	BH02	BH02	BH03	BH03	BH04	BH06	BH06	TP05
										Sample Ref						BH04			TP05
										Easting	311148	311145	311145	311196	311196	311099	311177	311177	311139
										Northing	167363	167423	167423	167435	167435	167403	167395	167395	167361
										Hole Elevation (mOD)	8.91	9.05	9.05	8.87	8.87	8.62	9.18	9.18	9.01
										Sample Depth (mbgl)	0.8 - 1	0.1 - 0.3	1 - 1.2	0.1 - 0.3	1.8 - 2	1 - 1.2	0.1 - 0.3	1.8 - 2	0.15 - 0.2
										Sample Date	04/10/23	04/10/23	04/10/23	05/10/23	05/10/23	12/10/23	05/10/23	05/10/23	18/09/23
										Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
										Geology	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1
m & p-Xylene	29969	AGAC (p-xylene)	mg/kg	2 of 26	0	<0.001	0.0048		0		<0.001	<0.001	<0.001	<0.001	0.0048	<0.001	<0.001	0.0028	<0.001
o-Xylene	33027	AGAC	mg/kg	0 of 26	0	<0.001	<0.001		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total BTEX			mg/kg	No GAC	-	<0.01	<0.01		0					<0.01					<0.01
PCBs																			
PCB 118	0.000171	Median UK urban concentration	mg/kg	0 of 11	0	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 138			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 153			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 180			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 101			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 28			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
PCB 52			mg/kg	No GAC	-	<0.01	<0.01		0			<0.01		<0.01		<0.01	<0.01		<0.01
Total PCBs (7 Congeners)			mg/kg	No GAC	-	<0.1	<0.1		0			<0.1		<0.1		<0.1	<0.1		<0.1
VOCs/SVOCs																			
1,1,1,2-Tetrachloroethane	559	AGAC	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,1,1-Trichloroethane	2950	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1,2-Trichloroethane	382	AGAC	mg/kg	0 of 1	0	<0.01	<0.01		0										
1,1-Dichloroethane	803	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1-Dichloroethene	86.7	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1-Dichloropropene			mg/kg	No GAC	-	<0.001	<0.001		0										
1,2,3-Trichlorobenzene	589	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,2,3-Trichloropropane			mg/kg	No GAC	-	<0.05	<0.05		0										
1,2,4-Trichlorobenzene	1260	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2,4-Trimethylbenzene	208	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2-Dibromo-3-Chloropropane			mg/kg	No GAC	-	<0.05	<0.05		0										
1,2-Dibromoethane			mg/kg	No GAC	-	<0.005	<0.005		0										
1,2-Dichlorobenzene	11300	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2-Dichloroethane	1.65	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,2-Dichloropropane	11.1	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,3,5-Trimethylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
1,3-Dichlorobenzene	159	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,3-Dichloropropane			mg/kg	No GAC	-	<0.002	<0.002		0										
1,4-Dichlorobenzene	20800	S4UL (inh)	mg/kg	0 of 1	0	<0.001	<0.001		0										
2-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
4-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
4-Isopropyltoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
Bromobenzene	486	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Bromochloromethane			mg/kg	No GAC	-	<0.005	<0.005		0										
Bromodichloromethane	7.13	AGAC	mg/kg	0 of 1	0	<0.005	<0.005		0										
Bromomethane			mg/kg	No GAC	-	<0.02	<0.02		0										
Chlorobenzene	287	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Chloroethane	1980	AGAC	mg/kg	0 of 1	0	<0.002	<0.002		0										
Chloromethane	1.49	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Dibromochloromethane			mg/kg	No GAC	-	<0.01	<0.01		0										
Dibromomethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Dichloromethane	526	AGAC	mg/kg	0 of 1	0	<0.05	<0.05		0										
Hexachlorobutadiene	119	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Isopropylbenzene	7270	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Methyl Tert-Butyl Ether	22400	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
N-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
N-Propylbenzene	20400	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Sec-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
Styrene	10600	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Tert-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
Tetrachloroethene	130	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Tetrachloromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Trans 1,2-Dichloroethene	76.2	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trans-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0										
Tribromomethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Trichloroethene	3.4	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trichlorofluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Trichloromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Vinyl Chloride	2.2	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
cis 1,2-Dichloroethene	44.4	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
cis-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0										
Dichlorodifluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Other																			
Sulphide (Easily Liberatable)			mg/kg	No GAC	-	1.8	5.5		0					3.3					3.6
Sulphur (Elemental)			mg/kg	No GAC	-	<1	8.6		0					<1					1.5
Total Phenols			mg/kg	No GAC	-	<0.1	0.91		0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.91	<0.1	<0.1
Total Sulphur			%	No GAC	-	0.1	0.17		0										

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP05	TP06	TP06	TP06	TP07	TP08	TP10	TP10	TP03
										Sample Ref	TP05	TP06	TP06	TP06	TP07	TP08	TP10	TP10	TP03
										Easting	311139	311126	311126	311126	311153	311062	311119	311119	311035
										Northing	167361	167387	167387	167387	167410	167385	167411	167411	167374
										Hole Elevation (mOD)	9.01	9.39	9.39	9.39	9.13	8.25	8.61	8.61	8.34
										Sample Depth (mbgl)	1.1 - 1.2	0.25 - 0.35	1 - 1.2	2 - 2.2	1.2 - 1.4	2.1 - 2.3	0.25 - 0.45	2.2 - 2.4	1 .2 - 1.4
										Sample Date	18/09/23	18/09/23	18/09/23	18/09/23	20/09/23	20/09/23	18/09/23	18/09/23	21/09/23
										Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
										Geology	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG2
Metal																			
Antimony	7350	AGAC	mg/kg	5 of 26	0	<2	6.4		0		<2	<2	6.4	<2	5.5	3.1	<2	<2	<2
Arsenic	635	AGAC	mg/kg	26 of 26	0	3.9	23		0		10	15	11	17	16	23	8.2	6.3	3.9
Beryllium	11.7	AGAC	mg/kg	21 of 26	0	<0.5	5.5		0		0.8	0.7	0.5	0.9	5.5	1.7	0.5	<0.5	0.9
Cadmium	190	AGAC/S4UL	mg/kg	23 of 26	0	<0.1	0.76		0		0.53	0.48	0.63	0.75	0.76	0.53	0.38	0.17	<0.1
Chromium	8570	AGAC (Cr III)	mg/kg	26 of 26	0	7.2	240		0		61	30	35	25	79	30	16	8.9	24
Chromium (Hexavalent)	33	AGAC/S4UL	mg/kg	0 of 9	0	<0.5	<0.5		0				<0.5		<0.5	<0.5		<0.5	<0.5
Copper	68300	AGAC	mg/kg	26 of 26	0	14	2300		0		51	94	69	21	2300	370	44	57	26
Lead	2300	C4SL	mg/kg	26 of 26	0	7.9	1300		0		82	110	250	58	1300	270	66	46	43
Mercury	1100	AGAC (inorganic)	mg/kg	24 of 26	0	<0.05	5.2		0		0.3	0.73	0.32	<0.05	1.1	5.2	1.6	0.26	0.14
Nickel	983	AGAC	mg/kg	26 of 26	0	8.4	260		0		23	24	19	31	260	53	15	14	29
Selenium	12261	AGAC	mg/kg	26 of 26	0	0.25	1.9		0		0.78	0.76	0.58	0.59	1.9	0.97	0.59	0.4	0.66
Vanadium	9000	S4UL (pentavalent)	mg/kg	26 of 26	0	8.4	60		0		33	25	20	23	49	29	17	11	15
Zinc	730000	AGAC/S4UL	mg/kg	26 of 26	0	26	1700		0		190	290	250	150	170	1700	160	74	67
Inorganic																			
pH (2.5:1) at 20C			-	No GAC	-	7.8	9.4		0		8.3	8.2	8.5	8.5	8.7	9	8.2	8.5	8.3
Cyanide (Total)	168	AGAC (free, acute)	mg/kg	6 of 26	0	<0.5	10		0		<0.5	<0.5	<0.5	<0.5	10	1.7	<0.5	<0.5	0.8
Boron (Hot Water Soluble)	236000	AGAC	mg/kg	18 of 26	0	<0.4	4.5		0		3.1	0.48	1.9	1.2	1.3	2	<0.4	0.92	0.46
Total Organic Carbon			%	No GAC	-	0.22	28		0		3.4	7.8	13	1.3	4.6	2.6	7.1	19	0.22
Sulphate (Acid Soluble)			%	No GAC	-	0.11	0.11		0						0.11				
Asbestos																			
Asbestos by Gravimetry			%	No GAC	-	<0.001	<0.001		0		0.001		0.001		<0.001	0.001			
Asbestos Identification			-	No GAC	-				0		Amosite	No Asbestos Detected	Chrysotile	No Asbestos Detected	Chrysotile	Chrysotile	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Type			-	No GAC	-				0		Fibres/Clumps	-	Fibres/Clumps	-	Fibres/Clumps	Fibres/Clumps	-	-	-
Total Asbestos			%	No GAC	-	<0.001	<0.001		0		0.001		0.001		<0.001	0.001			
TPH																			
Aliphatic VPH >C5-C6	12100	AGAC	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic VPH >C6-C8 (Sum)	39600	AGAC	mg/kg	1 of 26	0	<0.1	0.14		0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aliphatic VPH >C8-C10	11300	AGAC	mg/kg	3 of 26	0	<0.05	7.9		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic EPH >C10-C12 MC	47300	AGAC	mg/kg	9 of 26	0	<2	27	283.0	0		4	<2	<2	<2	<2	<2	<2	<2	<2
Aliphatic EPH >C12-C16 MC	90200	AGAC	mg/kg	8 of 26	0	<1	580	142.0	1		2.1	<1	<1	<1	<1	<1	<1	<1	<1
Aliphatic EPH >C16-C21 MC	14300000	AGAC (Ali >C16-35)	mg/kg	10 of 26	0	<2	940	50.90	2		<2	<2	9.5	<2	<2	<2	<2	5.3	<2
Aliphatic EPH >C21-C35 MC	14300000	AGAC (Ali >C16-35)	mg/kg	14 of 26	0	<3	480	50.90	5		<3	<3	<3	<3	20	<3	<3	6.3	<3
Aliphatic EPH >C35-C40 MC	14300000	AGAC (Ali >C16-35)	mg/kg	8 of 26	0	<10	130		0		<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aliphatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	7.9		0		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Aliphatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1900		0		8.4	<5	13	<5	21	<5	<5	12	<5
Aromatic VPH >C5-C7			mg/kg	No GAC	-	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C7-C8	183681	AGAC (toluene)	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C8-C10	17000	AGAC	mg/kg	0 of 26	0	<0.05	<0.05		0		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic EPH >C10-C12 MC	34200	AGAC	mg/kg	7 of 26	0	<1	51		0		<1	<1	<1	<1	<1	<1	<1	<1	<1
Aromatic EPH >C12-C16 MC	37800	AGAC	mg/kg	7 of 26	0	<1	380		0		<1	<1	<1	<1	<1	<1	<1	12	<1
Aromatic EPH >C16-C21 MC	28100	AGAC	mg/kg	26 of 26	0	3.4	680		0		8	5.9	28	3.6	18	8.7	4	220	11
Aromatic EPH >C21-C35 MC	28400	AGAC	mg/kg	21 of 26	0	<2	430		0		220	15	97	2.4	120	4.8	17	380	<2
Aromatic EPH >C35-C40 MC	28400	AGAC	mg/kg	16 of 26	0	<1	130		0		75	<1	35	<1	11	<1	<1	16	<1
Total Aromatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	<0.25		0		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Aromatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1300		0		230	21	120	6	140	14	21	610	11
Total VPH >C5-C10			mg/kg	No GAC	-	<0.5	7.9		0		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total EPH >C10-C35 MC			mg/kg	No GAC	-	<10	3200		0		240	21	140	<10	160	14	23	620	11
PAH																			
Acenaphthene	104000	AGAC	mg/kg	11 of 25	0	<0.1	0.75	336.0	0		0.3	0.11	<0.1	<0.1	0.26	0.1	0.13	<0.1	<0.1
Dibenz(a,h)Anthracene	3.57	AGAC/S4UL	mg/kg	16 of 25	0	<0.1	1.1		0		0.78	0.29	0.67	<0.1	1.1	0.28	0.57	0.26	0.1
Fluoranthene	22700	AGAC	mg/kg	23 of 25	0	<0.1	11		0		9	2	3.3	<0.1	11	2.1	3	1.6	0.2
Fluorene	70800	AGAC	mg/kg	11 of 25	0	<0.1	0.68	183.0	0		0.4	<0.1	<0.1	<0.1	0.23	0.19	0.12	<0.1	<0.1
Indeno(1,2,3-c,d)Pyrene	509	AGAC	mg/kg	22 of 25	0	<0.1	4.3		0		3	1.1	2.2	<0.1	4.3	0.78	2.2	1.1	0.14
Phenanthrene	22500	AGAC	mg/kg	23 of 25	0	<0.1	6.1		0		6.1	1	1.1	<0.1	2.8	1.4	1.1	0.35	0.38
Pyrene	54500	AGAC	mg/kg	23 of 25	0	<0.1	9.4		0		6.8	1.5	2.9	<0.1	9.4	1.6	2.5	1.4	0.18
Naphthalene	1090	AGAC	mg/kg	16 of 25	0	<0.1	1.2		0		0.2	0.19	0.38	<0.1	0.19	0.41	0.31	<0.1	<0.1
Acenaphthylene	104000	AGAC	mg/kg	10 of 25	0	<0.1	0.25	506.0	0		0.21	<0.1	0.17	<0.1	0.19	0.25	0.14	<0.1	<0.1
Anthracene	542000	AGAC	mg/kg	18 of 25	0	<0.1	1.8		0		1.8	0.24	0.58	<0.1	1.1	0.43	0.3	0.11	<0.1
Benzo[a]anthracene	176	AGAC	mg/kg	23 of 25	0	<0.1	6.3		0		4.4	1.1	2.4	<0.1	6.3	1.2	2	0.92	0.14
Benzo[a]pyrene	35.7	AGAC	mg/kg	22 of 25	0	<0.1	7.4		0		4.8	1.4	3.5	<0.1	7.4	0.97	2.5	1.3	0.12
Benzo[g,h,i]perylene	3960	AGAC	mg/kg	22 of 25	0	<0.1	4.3		0		2.9	1.1	2.1	<0.1	4.3	0.81	2.1	0.88	0.13
Benzo[b]fluoranthene	44.9	AGAC	mg/kg	22 of 25	0	<0.1	9.1		0		6.8	2	4.1	<0.1	9.1	1.4	4.1	1.8	0.16
Benzo[k]fluoranthene	1190	AGAC	mg/kg	21 of 25	0	<0.1	3		0		2.5	0.65	1.4	<0.1	3	0.63	1.4	0.65	0.11
Chrysene	355	AGAC	mg/kg	23 of 25	0	<0.1	6.3		0		4.8	1.4	2.3	<0.1	6.3	1.2	2.3	0.89	0.11
Total (Of 17) PAH's			mg/kg	No GAC	-	<2	61		0		55	14	27	<2	61	14	25	11	<2
BTEX																			
Benzene	90.17828611	AGAC/S4UL	mg/kg	2 of 26	0	<0.001	0.0068		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	183681	AGAC	mg/kg	2 of 26	0	<0.001	0.0074		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	27424	AGAC	mg/kg	0 of 26	0	<0.001	<0.001		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP05	TP06	TP06	TP06	TP07	TP08	TP10	TP10	TP03
										Sample Ref	TP05	TP06	TP06	TP06	TP07	TP08	TP10	TP10	TP03
										Easting	311139	311126	311126	311126	311153	311062	311119	311119	311035
										Northing	167361	167387	167387	167387	167410	167385	167411	167411	167374
										Hole Elevation (mOD)	9.01	9.39	9.39	9.39	9.13	8.25	8.61	8.61	8.34
										Sample Depth (mbgl)	1.1 - 1.2	0.25 - 0.35	1 - 1.2	2 - 2.2	1.2 - 1.4	2.1 - 2.3	0.25 - 0.45	2.2 - 2.4	1 .2 - 1.4
										Sample Date	18/09/23	18/09/23	18/09/23	18/09/23	20/09/23	20/09/23	18/09/23	18/09/23	21/09/23
										Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
										Geology	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG2
m & p-Xylene	29969	AGAC (p-xylene)	mg/kg	2 of 26	0	<0.001	0.0048		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o-Xylene	33027	AGAC	mg/kg	0 of 26	0	<0.001	<0.001		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total BTEX			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01		<0.01				<0.01
PCBs																			
PCB 118	0.000171	Median UK urban concentration	mg/kg	0 of 11	0	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 138			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 153			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 180			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 101			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 28			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
PCB 52			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01	<0.01		<0.01			<0.01	<0.01	
Total PCBs (7 Congeners)			mg/kg	No GAC	-	<0.1	<0.1		0		<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1
VOCs/SVOCs																			
1,1,1,2-Tetrachloroethane	559	AGAC	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,1,1-Trichloroethane	2950	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1,2-Trichloroethane	382	AGAC	mg/kg	0 of 1	0	<0.01	<0.01		0										
1,1-Dichloroethane	803	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1-Dichloroethene	86.7	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,1-Dichloropropene			mg/kg	No GAC	-	<0.001	<0.001		0										
1,2,3-Trichlorobenzene	589	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,2,3-Trichloropropane			mg/kg	No GAC	-	<0.05	<0.05		0										
1,2,4-Trichlorobenzene	1260	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2,4-Trimethylbenzene	208	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2-Dibromo-3-Chloropropane			mg/kg	No GAC	-	<0.05	<0.05		0										
1,2-Dibromoethane			mg/kg	No GAC	-	<0.005	<0.005		0										
1,2-Dichlorobenzene	11300	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,2-Dichloroethane	1.65	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0										
1,2-Dichloropropane	11.1	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,3,5-Trimethylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
1,3-Dichlorobenzene	159	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
1,3-Dichloropropane			mg/kg	No GAC	-	<0.002	<0.002		0										
1,4-Dichlorobenzene	20800	S4UL (inh)	mg/kg	0 of 1	0	<0.001	<0.001		0										
2-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
4-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
4-Isopropyltoluene			mg/kg	No GAC	-	<0.001	<0.001		0										
Bromobenzene	486	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Bromochloromethane			mg/kg	No GAC	-	<0.005	<0.005		0										
Bromodichloromethane	7.13	AGAC	mg/kg	0 of 1	0	<0.005	<0.005		0										
Bromomethane			mg/kg	No GAC	-	<0.02	<0.02		0										
Chlorobenzene	287	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Chloroethane	1980	AGAC	mg/kg	0 of 1	0	<0.002	<0.002		0										
Chloromethane	1.49	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Dibromochloromethane			mg/kg	No GAC	-	<0.01	<0.01		0										
Dibromomethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Dichloromethane	526	AGAC	mg/kg	0 of 1	0	<0.05	<0.05		0										
Hexachlorobutadiene	119	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Isopropylbenzene	7270	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Methyl Tert-Butyl Ether	22400	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
N-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
N-Propylbenzene	20400	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Sec-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
Styrene	10600	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Tert-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0										
Tetrachloroethene	130	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Tetrachloromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Trans 1,2-Dichloroethene	76.2	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trans-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0										
Tribromomethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Trichloroethene	3.4	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
Trichlorofluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Trichloromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Vinyl Chloride	2.2	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0										
cis 1,2-Dichloroethene	44.4	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0										
cis-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0										
Dichlorodifluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0										
Other																			
Sulphide (Easily Liberatable)			mg/kg	No GAC	-	1.8	5.5		0				5.5		3.7			3	1.8
Sulphur (Elemental)			mg/kg	No GAC	-	<1	8.6		0				8.6		1.3			1.2	<1
Total Phenols			mg/kg	No GAC	-	<0.1	0.91		0		<0.1	<0.1	<0.1	<0.1	0.24	<0.1	<0.1	<0.1	<0.1
Total Sulphur			%	No GAC	-	0.1	0.17		0						0.17				

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	TP03	TP04	TP09	BH01	TP05	TP07	TP09	TP10
Hole Ref										TP03	TP04	TP09	BH01	TP05	TP07	TP09	TP10
Sample Ref										TP03	TP04	TP09		TP05	TP07	TP09	TP10
Easting										311035	311021	311028	311148	311139	311153	311028	311119
Northing										167374	167370	167400	167363	167361	167410	167400	167411
Hole Elevation (mOD)										8.34	8.51	8.89	8.91	9.01	9.13	8.89	8.61
Sample Depth (mbgl)										3 - 3.2	1.2 - 1.4	1.1 - 1.3	3 - 3.1	2.2 - 2.3	2.2 - 2.4	2.1 - 2.3	2.9 - 3
Sample Date										21/09/23	21/09/23	18/09/23	04/10/23	18/09/23	20/09/23	18/09/23	18/09/23
Investigation										C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
Geology										MG2	MG2	MG2	NAT	NAT	NAT	NAT	NAT
Metal																	
Antimony	7350	AGAC	mg/kg	5 of 26	0	<2	6.4		0	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	635	AGAC	mg/kg	26 of 26	0	3.9	23		0	6.4	11	6.5	4	5.4	13	7.7	13
Beryllium	11.7	AGAC	mg/kg	21 of 26	0	<0.5	5.5		0	0.8	1.2	1	<0.5	<0.5	0.6	0.8	0.8
Cadmium	190	AGAC/S4UL	mg/kg	23 of 26	0	<0.1	0.76		0	<0.1	0.33	0.18	0.24	0.29	0.29	0.18	0.66
Chromium	8570	AGAC (Cr III)	mg/kg	26 of 26	0	7.2	240		0	18	37	27	8.3	16	18	19	23
Chromium (Hexavalent)	33	AGAC/S4UL	mg/kg	0 of 9	0	<0.5	<0.5		0	<0.5						<0.5	
Copper	68300	AGAC	mg/kg	26 of 26	0	14	2300		0	24	53	29	14	30	35	31	26
Lead	2300	C4SL	mg/kg	26 of 26	0	7.9	1300		0	71	220	11	30	73	71	50	56
Mercury	1100	AGAC (inorganic)	mg/kg	24 of 26	0	<0.05	5.2		0	0.1	0.28	0.09	0.09	0.07	0.3	1.2	0.09
Nickel	983	AGAC	mg/kg	26 of 26	0	8.4	260		0	23	44	35	8.4	15	20	32	33
Selenium	12261	AGAC	mg/kg	26 of 26	0	0.25	1.9		0	0.64	1.1	0.75	0.25	0.46	0.7	0.73	0.72
Vanadium	9000	S4UL (pentavalent)	mg/kg	26 of 26	0	8.4	60		0	15	28	21	8.4	13	21	16	22
Zinc	730000	AGAC/S4UL	mg/kg	26 of 26	0	26	1700		0	74	110	56	57	78	150	61	160
Inorganic																	
pH (2.5:1) at 20C			-	No GAC	-	7.8	9.4		0	7.8	8.3	8.4	9	8.4	8.5	8.2	8.6
Cyanide (Total)	168	AGAC (free, acute)	mg/kg	6 of 26	0	<0.5	10		0	8.1	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5
Boron (Hot Water Soluble)	236000	AGAC	mg/kg	18 of 26	0	<0.4	4.5		0	0.46	0.4	0.98	1.2	4.5	<0.4	0.82	2.9
Total Organic Carbon			%	No GAC	-	0.22	28		0	1.7	0.72	0.29	4.4	3.2	1.6	0.82	0.91
Sulphate (Acid Soluble)			%	No GAC	-	0.11	0.11		0		0.11						
Asbestos																	
Asbestos by Gravimetry			%	No GAC	-	<0.001	<0.001		0								
Asbestos Identification			-	No GAC	-				0	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected					
ACM Type			-	No GAC	-				0	-	-	-					
Total Asbestos			%	No GAC	-	<0.001	<0.001		0								
TPH																	
Aliphatic VPH >C5-C6	12100	AGAC	mg/kg	0 of 26	0	<0.05	<0.05		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic VPH >C6-C8 (Sum)	39600	AGAC	mg/kg	1 of 26	0	<0.1	0.14		0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aliphatic VPH >C8-C10	11300	AGAC	mg/kg	3 of 26	0	<0.05	7.9		0	<0.05	<0.05	<0.05	<0.05	<0.05	7.9	<0.05	<0.05
Aliphatic EPH >C10-C12 MC	47300	AGAC	mg/kg	9 of 26	0	<2	27	283.0	0	<2	<2	<2	16	<2	<2	<2	<2
Aliphatic EPH >C12-C16 MC	90200	AGAC	mg/kg	8 of 26	0	<1	580	142.0	1	<1	<1	<1	88	<1	<1	1.5	<1
Aliphatic EPH >C16-C21 MC	14300000	AGAC (Ali >C16-35)	mg/kg	10 of 26	0	<2	940	50.90	2	<2	3.4	<2	190	<2	<2	2.6	<2
Aliphatic EPH >C21-C35 MC	14300000	AGAC (Ali >C16-35)	mg/kg	14 of 26	0	<3	480	50.90	5	<3	5.7	<3	480	<3	<3	3.7	<3
Aliphatic EPH >C35-C40 MC	14300000	AGAC (Ali >C16-35)	mg/kg	8 of 26	0	<10	130		0	<10	<10	<10	130	<10	<10	<10	<10
Total Aliphatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	7.9		0	<0.25	<0.25	<0.25	<0.25	<0.25	7.9	<0.25	<0.25
Total Aliphatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1900		0	<5	9.1	<5	780	<5	<5	7.8	<5
Aromatic VPH >C5-C7			mg/kg	No GAC	-	<0.05	<0.05		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C7-C8	183681	AGAC (toluene)	mg/kg	0 of 26	0	<0.05	<0.05		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic VPH >C8-C10	17000	AGAC	mg/kg	0 of 26	0	<0.05	<0.05		0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic EPH >C10-C12 MC	34200	AGAC	mg/kg	7 of 26	0	<1	51		0	<1	<1	<1	<1	<1	<1	<1	<1
Aromatic EPH >C12-C16 MC	37800	AGAC	mg/kg	7 of 26	0	<1	380		0	<1	<1	<1	19	<1	<1	<1	<1
Aromatic EPH >C16-C21 MC	28100	AGAC	mg/kg	26 of 26	0	3.4	680		0	6.7	6.3	3.4	81	4.8	8.6	12	3.5
Aromatic EPH >C21-C35 MC	28400	AGAC	mg/kg	21 of 26	0	<2	430		0	<2	<2	<2	430	4.3	63	70	<2
Aromatic EPH >C35-C40 MC	28400	AGAC	mg/kg	16 of 26	0	<1	130		0	<1	<1	<1	4.7	<1	7.8	2.3	<1
Total Aromatic VPH >C5-C10			mg/kg	No GAC	-	<0.25	<0.25		0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Aromatic EPH >C10-C35 MC			mg/kg	No GAC	-	<5	1300		0	6.7	7.9	5.1	530	9.1	72	82	<5
Total VPH >C5-C10			mg/kg	No GAC	-	<0.5	7.9		0	<0.5	<0.5	<0.5	<0.5	<0.5	7.9	<0.5	<0.5
Total EPH >C10-C35 MC			mg/kg	No GAC	-	<10	3200		0	<10	17	<10	1300	12	72	90	<10
PAH																	
Acenaphthene	104000	AGAC	mg/kg	11 of 25	0	<0.1	0.75	336.0	0		<0.1	<0.1	0.23	<0.1	<0.1	0.75	<0.1
Dibenz(a,h)Anthracene	3.57	AGAC/S4UL	mg/kg	16 of 25	0	<0.1	1.1		0		<0.1	<0.1	0.39	0.21	0.12	0.53	<0.1
Fluoranthene	22700	AGAC	mg/kg	23 of 25	0	<0.1	11		0		0.2	<0.1	3.9	1.4	0.71	4.9	0.6
Fluorene	70800	AGAC	mg/kg	11 of 25	0	<0.1	0.68	183.0	0		<0.1	<0.1	0.33	<0.1	0.11	0.68	<0.1
Indeno(1,2,3-c,d)Pyrene	509	AGAC	mg/kg	22 of 25	0	<0.1	4.3		0		<0.1	<0.1	1.8	0.78	0.41	1.3	0.36
Phenanthrene	22500	AGAC	mg/kg	23 of 25	0	<0.1	6.1		0		0.33	<0.1	2.4	0.81	0.61	3.4	0.22
Pyrene	54500	AGAC	mg/kg	23 of 25	0	<0.1	9.4		0		0.19	<0.1	3	1.2	0.57	3.2	0.52
Naphthalene	1090	AGAC	mg/kg	16 of 25	0	<0.1	1.2		0		<0.1	<0.1	0.33	0.16	1.1	<0.1	<0.1
Acenaphthylene	104000	AGAC	mg/kg	10 of 25	0	<0.1	0.25	506.0	0		<0.1	<0.1	<0.1	0.16	<0.1	0.13	<0.1
Anthracene	542000	AGAC	mg/kg	18 of 25	0	<0.1	1.8		0		<0.1	<0.1	0.57	0.19	0.12	0.64	<0.1
Benzo[a]anthracene	176	AGAC	mg/kg	23 of 25	0	<0.1	6.3		0		0.12	<0.1	2.1	0.71	0.44	2.5	0.37
Benzo[a]pyrene	35.7	AGAC	mg/kg	22 of 25	0	<0.1	7.4		0		<0.1	<0.1	2.7	0.92	0.59	2.3	0.38
Benzo[g,h,i]perylene	3960	AGAC	mg/kg	22 of 25	0	<0.1	4.3		0		<0.1	<0.1	1.5	0.8	0.41	1.5	0.41
Benzo[b]fluoranthene	44.9	AGAC	mg/kg	22 of 25	0	<0.1	9.1		0		<0.1	<0.1	3.3	1.5	0.75	3.6	0.66
Benzo[k]fluoranthene	1190	AGAC	mg/kg	21 of 25	0	<0.1	3		0		<0.1	<0.1	1.1	0.6	0.27	0.94	0.18
Chrysene	355	AGAC	mg/kg	23 of 25	0	<0.1	6.3		0		0.13	<0.1	2.3	0.99	0.46	2.5	0.39
Total (Of 17) PAH's			mg/kg	No GAC	-	<2	61		0		<2	<2	26	10	6.7	29	4.1
BTEX																	
Benzene	90.17828611	AGAC/S4UL	mg/kg	2 of 26	0	<0.001	0.0068		0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	183681	AGAC	mg/kg	2 of 26	0	<0.001	0.0074		0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	27424	AGAC	mg/kg	0 of 26	0	<0.001	<0.001		0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1
Concentration exceeds saturation value but not GAC	50

ARUP

Note: Arup GACs (AGACs) have usually been developed using the same chemical and toxicological assumptions as the LQM S4ULs. Typically, where AGACs differ from S4ULs this is because LQM rounded the S4ULs to two significant figures, whereas AGACs have not.

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	Saturation Value	Total > Saturation	Hole Ref	TP03	TP04	TP09	BH01	TP05	TP07	TP09	TP10
										Sample Ref	TP03	TP04	TP09		TP05	TP07	TP09	TP10
										Easting	311035	311021	311028	311148	311139	311153	311028	311119
										Northing	167374	167370	167400	167363	167361	167410	167400	167411
										Hole Elevation (mOD)	8.34	8.51	8.89	8.91	9.01	9.13	8.89	8.61
										Sample Depth (mbgl)	3 - 3.2	1.2 - 1.4	1.1 - 1.3	3 - 3.1	2.2 - 2.3	2.2 - 2.4	2.1 - 2.3	2.9 - 3
										Sample Date	21/09/23	21/09/23	18/09/23	04/10/23	18/09/23	20/09/23	18/09/23	18/09/23
										Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
										Geology	MG2	MG2	MG2	NAT	NAT	NAT	NAT	NAT
m & p-Xylene	29969	AGAC (p-xylene)	mg/kg	2 of 26	0	<0.001	0.0048		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o-Xylene	33027	AGAC	mg/kg	0 of 26	0	<0.001	<0.001		0		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total BTEX			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					<0.01
PCBs																		
PCB 118	0.000171	Median UK urban concentration	mg/kg	0 of 11	0	<0.01	<0.01		0				<0.01					
PCB 138			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
PCB 153			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
PCB 180			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
PCB 101			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
PCB 28			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
PCB 52			mg/kg	No GAC	-	<0.01	<0.01		0				<0.01					
Total PCBs (7 Congeners)			mg/kg	No GAC	-	<0.1	<0.1		0				<0.1					<0.1
VOCs/SVOCs																		
1,1,1,2-Tetrachloroethane	559	AGAC	mg/kg	0 of 1	0	<0.002	<0.002		0		<0.002							
1,1,1-Trichloroethane	2950	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,1,2-Trichloroethane	382	AGAC	mg/kg	0 of 1	0	<0.01	<0.01		0		<0.01							
1,1-Dichloroethane	803	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,1-Dichloroethene	86.7	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,1-Dichloropropene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
1,2,3-Trichlorobenzene	589	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0		<0.002							
1,2,3-Trichloropropane			mg/kg	No GAC	-	<0.05	<0.05		0		<0.05							
1,2,4-Trichlorobenzene	1260	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,2,4-Trimethylbenzene	208	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,2-Dibromo-3-Chloropropane			mg/kg	No GAC	-	<0.05	<0.05		0		<0.05							
1,2-Dibromoethane			mg/kg	No GAC	-	<0.005	<0.005		0		<0.005							
1,2-Dichlorobenzene	11300	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,2-Dichloroethane	1.65	AGAC/S4UL	mg/kg	0 of 1	0	<0.002	<0.002		0		<0.002							
1,2-Dichloropropane	11.1	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,3,5-Trimethylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
1,3-Dichlorobenzene	159	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
1,3-Dichloropropane			mg/kg	No GAC	-	<0.002	<0.002		0		<0.002							
1,4-Dichlorobenzene	20800	S4UL (inh)	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
2-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
4-Chlorotoluene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
4-Isopropyltoluene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Bromobenzene	486	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Bromochloromethane			mg/kg	No GAC	-	<0.005	<0.005		0		<0.005							
Bromodichloromethane	7.13	AGAC	mg/kg	0 of 1	0	<0.005	<0.005		0		<0.005							
Bromomethane			mg/kg	No GAC	-	<0.02	<0.02		0		<0.02							
Chlorobenzene	287	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Chloroethane	1980	AGAC	mg/kg	0 of 1	0	<0.002	<0.002		0		<0.002							
Chloromethane	1.49	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Dibromochloromethane			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01							
Dibromomethane			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Dichloromethane	526	AGAC	mg/kg	0 of 1	0	<0.05	<0.05		0		<0.05							
Hexachlorobutadiene	119	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Isopropylbenzene	7270	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Methyl Tert-Butyl Ether	22400	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
N-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
N-Propylbenzene	20400	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Sec-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Styrene	10600	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Tert-Butylbenzene			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Tetrachloroethene	130	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Tetrachloromethane			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Trans 1,2-Dichloroethene	76.2	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Trans-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01							
Tribromomethane			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Trichloroethene	3.4	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
Trichlorofluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Trichloromethane			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Vinyl Chloride	2.2	AGAC/S4UL	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
cis 1,2-Dichloroethene	44.4	AGAC	mg/kg	0 of 1	0	<0.001	<0.001		0		<0.001							
cis-1,3-Dichloropropene			mg/kg	No GAC	-	<0.01	<0.01		0		<0.01							
Dichlorodifluoromethane			mg/kg	No GAC	-	<0.001	<0.001		0		<0.001							
Other																		
Sulphide (Easily Liberatable)			mg/kg	No GAC	-	1.8	5.5		0									
Sulphur (Elemental)			mg/kg	No GAC	-	<1	8.6		0									
Total Phenols			mg/kg	No GAC	-	<0.1	0.91		0		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Sulphur			%	No GAC	-	0.1	0.17		0			0.1						

Appendix C

Soil leachate and groundwater testing results and screening – Controlled waters

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1

ARUP

EQS*: EQS not listed in WFD based on EA operational EQS and/or SEPA non-statutory EQS

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	95th %ile	Hole Ref	BH03	TP05	TP05	TP06	TP06	TP08	TP10	TP09	TP10
									Sample Ref		TP05	TP05	TP06	TP06	TP08	TP10	TP09	TP10
									Easting	311196	311139	311139	311126	311126	311062	311119	311028	311119
									Northing	167435	167361	167361	167387	167387	167385	167411	167400	167411
									Hole Elevation (mOD)	8.87	9.01	9.01	9.39	9.39	8.25	8.61	8.89	8.61
									Sample Depth (mbgl)	0.1 - 0.3	0.15 - 0.2	1.1 - 1.2	1 - 1.2	2 - 2.2	2.1 - 2.3	0.25 - 0.45	1.1 - 1.3	2.9 - 3
									Piezometer top (mbgl)									
									Piezometer base (mbgl)									
									Sample Date	05/10/23	18/09/23	18/09/23	18/09/23	18/09/23	20/09/23	18/09/23	18/09/23	18/09/23
									Investigation	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297	C3297
									Geology	MG1	MG1	MG1	MG1	MG1	MG1	MG1	MG2	NAT
Metal																		
Antimony	0.005	DWS	mg/l	9 of 9	2	0.00051	0.0096	0.00924		0.0016	0.0011	0.0018	**0.0087**	0.0009	0.0013	0.00051	**0.0096**	0.0006
Arsenic	0.05	EQS	mg/l	9 of 9	0	0.00049	0.0038	0.00292		0.0008	0.0006	0.0016	0.0014	0.00071	0.0038	0.00049	0.0012	0.0013
Beryllium (Dissolved)	0.004	USEPA	mg/l	0 of 5	0	<0.001	<0.001	0.001				<0.001		<0.001	<0.001	<0.001	<0.001	
Cadmium (Dissolved)	0.00025	EQS	mg/l	0 of 9	0	<0.00011	<0.00011	0.00011		<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011
Chromium (Dissolved)	0.0047	EQS	mg/l	7 of 9	1	<0.0005	0.0058	0.00472		0.001	0.0031	0.00082	0.003	0.0014	<0.0005	<0.0005	**0.0058**	0.0007
Copper (Dissolved)			mg/l	No GAC	-	0.00079	0.0076	0.00588		0.0021	0.0023	0.0033	0.0024	0.00079	0.0027	0.0076	0.0017	0.0011
Bioavailable Copper	0.001	EQS	mg/l	9 of 9	0	0.0001000	0.0009626	0.00074		0.000266008	0.000291343	0.000418013	0.00030401	0.00010007	0.000342011	0.000962697	0.00021534	0.000139338
Lead (Dissolved)	0.0012	EQS	mg/l	1 of 9	0	<0.0005	0.00083	0.0007		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00083	<0.0005	<0.0005	<0.0005
Mercury (Dissolved)	0.001	DWS	mg/l	1 of 9	1	<0.00005	0.0013	0.0008		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	**0.0013**	<0.00005	<0.00005	<0.00005
Nickel (Dissolved)			mg/l	No GAC	-	<0.0005	0.024	0.0146		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.024	<0.0005	<0.0005
Bioavailable nickel	0.004	EQS	mg/l	9 of 9	1	0.0001297	0.0124525	0.00752		0.000129714	0.000129714	0.000129714	0.000129714	0.000129714	0.000129714	0.012452535	0.000129714	0.000129714
Selenium (Dissolved)	0.01	DWS	mg/l	9 of 9	0	0.00075	0.002	0.002		0.0009	0.0008	0.0012	0.002	0.00094	0.002	0.00075	0.00077	0.0012
Vanadium (Dissolved)	0.02	EQS*	mg/l	4 of 5	0	<0.0005	0.017	0.01438				0.0026		0.0011	0.0039	<0.0005	0.017	
Zinc (Dissolved)			mg/l	No GAC	-	<0.0025	0.056	0.0376		0.01	<0.003	<0.0025	<0.003	<0.0025	<0.0025	0.056	<0.0025	<0.003
Bioavailable zinc	0.0123	EQS	mg/l	9 of 9	1	0.0005626	0.0252074	0.01692		0.0045	0.0007	0.0006	0.0007	0.0006	0.0006	**0.025**	0.0006	0.0007
Inorganic																		
pH at 20C	<6 - >9	EQS*	-	No GAC	-	8.1	10.1	9.660		8.4	8.8	8.7	8.7	8.1	8.3	9	10.1	8.8
Cyanide (Total)	0.001	EQS	mg/l	0 of 5	0	<0.05	<0.05	0.05				<0.05		<0.05	<0.05	<0.05	<0.05	
Chloride	250	EQS*	mg/l	4 of 5	0	<1	96	78.80		10	1.9		6.9				<1	96
Ammoniacal Nitrogen	0.3	EQS	mg/l	3 of 5	1	0.05	1.8	1.460				<0.050		<0.050	0.1	**1.8**	0.058	
Dissolved Organic Carbon		-	mg/l	No GAC	-	3	5.8	5.780		3.5	5.7		5.8				3	4.1
Sulphate	400	EQS*	mg/l	5 of 5	0	1.8	31	28.80		13	15		20				1.8	31
Phenol Index	0.0077	EQS	mg/l	0 of 5	0	<0.03	<0.03	0.03		<0.03	<0.03		<0.03				<0.03	<0.03
Total Phenols	0.0077	EQS	mg/l	0 of 5	0	<0.03	<0.03	0.03				<0.03		<0.03	<0.03	<0.03	<0.03	
PAH																		
C2 Acenaphthene	2	USEPA	mg/l	0 of 5	0	<0.0001	<0.0001	0.0001				<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	
C2 Dibenz(a,h)Anthracene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001				<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	
C2 Fluoranthene	6.30E-06	EQS	mg/l	1 of 5	1	<0.0001	0.01	0.00802				<0.0001		<0.0001	**0.01**	<0.0001	<0.0001	
C2 Fluorene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001				<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	
C2 Indeno(1,2,3-c,d)Pyrene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001				<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	
C2 Phenanthrene		-	mg/l	No GAC	-	<0.0001	0.0057	0.00458				<0.0001		<0.0001	0.0057	<0.0001	<0.0001	
C2 Pyrene		-	mg/l	No GAC	-	<0.0001	0.0089	0.00714				<0.0001		<0.0001	0.0089	<0.0001	<0.0001	
C2 Naphthalene	0.002	EQS	mg/l	0 of 5	0	<0.0001	<0.0001	0.0001				<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	
C2 Total Of 16 PAH's		-	mg/l	No GAC	-	<0.002	0.041	0.0332				<0.002		<0.002	0.041	<0.002	<0.002	
C2 Acenaphthylene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001				<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	
C2 Anthracene	0.0001	EQS	mg/l	1 of 5	1	<0.0001	0.0013	0.00106				<0.0001		<0.0001	**0.0013**	<0.0001	<0.0001	
C2 Benzo[a]anthracene		-	mg/l	No GAC	-	<0.0001	0.0065	0.00522				<0.0001		<0.0001	0.0065	<0.0001	<0.0001	
C2 Benzo[g,h,i]perylene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001				<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	
C8 Benzo[a]pyrene	1.70E-07	EQS	mg/l	0 of 5	0	<0.0001	<0.0001	0.0001				<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	
C2 Benzo[b]fluoranthene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001				<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	
C2 Benzo[k]fluoranthene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001				<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	
C2 Chrysene		-	mg/l	No GAC	-	<0.0001	0.0088	0.00706				<0.0001		<0.0001	0.0088	<0.0001	<0.0001	
BTEX																		
Benzene	0.01	EQS	mg/l	0 of 5	0	<0.001	<0.001	0.001				<0.001		<0.001	<0.001	<0.001	<0.001	
Toluene	0.074	EQS	mg/l	0 of 5	0	<0.001	<0.001	0.001				<0.001		<0.001	<0.001	<0.001	<0.001	
Ethylbenzene	0.02	EQS*	mg/l	0 of 5	0	<0.001	<0.001	0.001				<0.001		<0.001	<0.001	<0.001	<0.001	
m & p-Xylene	0.03	EQS*	mg/l	0 of 5	0	<0.001	<0.001	0.001				<0.001		<0.001	<0.001	<0.001	<0.001	
o-Xylene	0.03	EQS*	mg/l	0 of 5	0	<0.001	<0.001	0.001				<0.001		<0.001	<0.001	<0.001	<0.001	
Other																		
Barium	0.7	WHO	mg/l	5 of 5	0	0.01	0.11	0.1004		0.11	0.037		0.062				0.01	0.039
Boron (Dissolved)	2	EQS*	mg/l	5 of 5	0	0.013	0.046	0.0432				0.032		0.028	0.027	0.013	0.046	
Fluoride	1	EQS*	mg/l	5 of 5	0	0.14	0.65	0.608		0.32	0.65		0.29				0.14	0.44
Molybdenum			mg/l	No GAC	-	0.0006	0.012	0.0114		0.0069	0.012		0.009				0.0006	0.0085
Total Dissolved Solids			mg/l	No GAC	-	100	330	294.0		150	120		150				100	330
Volume Of C2 Leachant			l	No GAC	-	0.253	0.335	0.3282		0.335	0.263		0.301				0.292	0.253

Metal Bioavailability Assessment Tool (M-BAT)

Back

Calculate

Clear Data

INPUT DATA											RESULTS (Copper)				RESULTS (Zinc)				RESULTS (Mn)				RESULTS (Ni)			
ID	Location	Waterbody	Date	Measured Cu Concentration (dissolved) (µg l^{-1})	Measured Zn Concentration (dissolved) (µg l^{-1})	Measured Mn Concentration (dissolved) (µg l^{-1})	Measured Ni Concentration (dissolved) (µg l^{-1})	pH	DOC	Ca	Site-specific PNEC Dissolved Copper (µg l^{-1})	BioF	Bioavailable Copper Concentration (µg l^{-1})	Risk Characterisation Ratio	Site-specific PNEC Dissolved Zinc (µg l^{-1})	BioF	Bioavailable Zinc Concentration (µg l^{-1})	Risk Characterisation Ratio	Site-specific PNEC Dissolved Manganese (µg l^{-1})	BioF	Bioavailable Manganese Concentration (µg l^{-1})	Risk Characterisation Ratio	Site-specific PNEC Dissolved Nickel (µg l^{-1})	BioF	Bioavailable Nickel Concentration (µg l^{-1})	Risk Characterisation Ratio
1	BH03		05/10/23	2.1	10		0.25	8.1	3.3	253	7.89	0.13	0.27	0.27	24.22	0.45	4.50	0.41	180.91	0.68			7.71	0.52	0.13	0.03
2	TP05		18/09/23	2.3	1.5		0.25	8.1	3.3	253	7.89	0.13	0.29	0.29	24.22	0.45	0.68	0.06	180.91	0.68			7.71	0.52	0.13	0.03
3	TP05		18/09/23	3.3	1.25		0.25	8.1	3.3	253	7.89	0.13	0.42	0.42	24.22	0.45	0.56	0.05	180.91	0.68			7.71	0.52	0.13	0.03
4	TP06		18/09/23	2.4	1.5		0.25	8.1	3.3	253	7.89	0.13	0.30	0.30	24.22	0.45	0.68	0.06	180.91	0.68			7.71	0.52	0.13	0.03
5	TP06		18/09/23	0.79	1.25		0.25	8.1	3.3	253	7.89	0.13	0.10	0.10	24.22	0.45	0.56	0.05	180.91	0.68			7.71	0.52	0.13	0.03
6	TP08		20/09/23	2.7	1.25		0.25	8.1	3.3	253	7.89	0.13	0.34	0.34	24.22	0.45	0.56	0.05	180.91	0.68			7.71	0.52	0.13	0.03
7	TP10		18/09/23	7.6	56		24	8.1	3.3	253	7.89	0.13	0.96	0.96	24.22	0.45	25.21	2.31	180.91	0.68			7.71	0.52	12.48	3.11
8	TP09		18/09/23	1.7	1.25		0.25	8.1	3.3	253	7.89	0.13	0.22	0.22	24.22	0.45	0.56	0.05	180.91	0.68			7.71	0.52	0.13	0.03
9	TP10		18/09/23	1.1	1.5		0.25	8.1	3.3	253	7.89	0.13	0.14	0.14	24.22	0.45	0.68	0.06	180.91	0.68			7.71	0.52	0.13	0.03

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1

ARUP

EQS*: EQS not listed in WFD based on EA operational EQS and/or SEPA non-statutory EQS

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	95th %ile	BH02	BH02	BH02	BH03	BH03	BH03	BH04	BH04	BH04
Hole Ref									BH02	BH02	BH02	BH03	BH03	BH03	BH04	BH04	BH04
Sample Ref									BH02	BH02	BH02	BH03	BH03	BH03	BH04	BH04	BH04
Easting									311145	311145	311145	311196	311196	311196	311099	311099	311099
Northing									167423	167423	167423	167435	167435	167435	167403	167403	167403
Hole Elevation (mOD)									9.05	9.05	9.05	8.87	8.87	8.87	8.62	8.62	8.62
Sample Depth (mbgl)									7 - 7.5	7 - 7.5	7 - 7.5	4.5 - 5	4.5 - 5	4.5 - 5	4.5 - 5	4.5 - 5	4.5 - 5
Piezometer top (mbgl)									3	3	3	3	3	3	1	1	1
Piezometer base (mbgl)									10	10	10	6	6	6	4	4	4
Sample Date									13/12/23	10/01/24	23/01/24	13/12/23	10/01/24	23/01/24	13/12/23	10/01/24	23/01/24
Monitoring round									1	2	3	1	2	3	1	2	3
Aquifer									TFD	TFD	TFD	TFD	TFD	TFD	MG/TFD	MG/TFD	MG/TFD
Metal																	
Antimony (Dissolved)	0.005	DWS	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (Dissolved)	0.05	EQS	mg/l	9 of 9	0	0.00028	0.014	0.01024	0.002	0.014	0.0019	0.0019	0.00028	0.0046	0.0011	0.0012	0.0026
Beryllium (Dissolved)	0.004	USEPA	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron (Dissolved)	2	EQS*	mg/l	9 of 9	0	0.069	1.8	1.720	1.6	0.85	1.8	0.39	0.069	0.37	0.13	0.48	0.71
Cadmium (Dissolved)	0.00025	EQS	mg/l	0 of 9	0	<0.00011	<0.00011	0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011
Calcium (Total)		-	mg/l	No GAC	-	87	570	518.0	260	110	150	250	250	160	87	440	570
Chromium (Dissolved)	0.0047	EQS	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper (Dissolved)			mg/l	No GAC	-	<0.0005	0.0018	0.00156	0.0009	0.00084	0.00095	0.00079	0.001	<0.0005	0.0018	<0.0005	0.0012
Bioavailable Copper	0.001	EQS	mg/l	9 of 9	0	'678522466	280072853	0.0002	0.000114004	0.00010007	0.000228007	0.000106403	0.000126671	3.16677E-05	0.000120337	3.16677E-05	0.000152005
Lead (Dissolved)	0.0012	EQS	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Mercury (Dissolved)	0.001	DWS	mg/l	0 of 9	0	<0.00005	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Nickel (Dissolved)			mg/l	No GAC	-	<0.0005	0.0042	0.00392	0.00062	<0.0005	<0.0005	0.0042	<0.0005	0.0035	0.0011	0.0017	0.0023
Bioavailable nickel	0.004	EQS	mg/l	9 of 9	0	297139026	179193565	0.00203	0.00032169	0.002179194	0.000570741	0.000129714	0.000129714	0.000882055	0.000129714	0.001815995	0.001193368
Selenium (Dissolved)	0.01	DWS	mg/l	6 of 9	0	<0.0005	0.0096	0.00672	0.0016	0.0024	0.0012	<0.0005	<0.0005	<0.0005	0.0096	0.00098	0.00091
Vanadium (Dissolved)	0.02	EQS*	mg/l	4 of 9	0	<0.0005	0.0014	0.0014	0.00088	0.0014	0.00088	<0.0005	<0.0005	<0.0005	0.0014	<0.0005	<0.0005
Zinc (Dissolved)			mg/l	No GAC	-	<0.0025	0.026	0.0204	0.012	0.0076	0.0078	<0.0025	0.0031	0.0026	0.026	0.003	<0.0025
Bioavailable zinc	0.0123	EQS	mg/l	9 of 9	0	'62666208	70345714'	0.00918	0.005401596	0.000562666	0.011703457	0.003421011	0.001395412	0.001350399	0.003511037	0.001170346	0.000562666
Inorganic																	
pH at 20C	<6 - >9	EQS*	-	No GAC	-	7.6	8.7	8.580	8.1	8.4	8	8.1	7.7	7.7	8.7	8.4	7.6
Cyanide (Total)	0.001	EQS	mg/l	0 of 9	0	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloride	250	EQS*	mg/l	9 of 9	5	38	5900	5420.0	4700	3200	5900	92	38	89	87	590	910
Ammoniacal Nitrogen	0.3	EQS	mg/l	9 of 9	8	0.068	2.6	2.360	0.59	0.35	0.44	0.93	0.068	0.52	0.34	2	2.6
Dissolved Organic Carbon		-	mg/l	No GAC	-	<2	6	5.640	2.2	2.2	<2	5.1	2.1	4.2	3.4	2.9	6
Total Hardness as CaCO3		-	mg/l	No GAC	-	130	2000	1880.0	1700	1100	2000	470	380	540	130	270	350
Sulphate	400	EQS*	mg/l	9 of 9	3	22	1400	1168.0	1400	540	820	83	22	93	26	54	68
Phenol and mineral oils																	
Phenol	0.0077	EQS	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Total Phenols	0.0077	EQS	mg/l	0 of 9	0	<0.03	<0.03	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
TPH																	
Aliphatic TPH >C10-C12	0.3	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aliphatic TPH >C12-C16	0.3	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aliphatic TPH >C16-C21		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aliphatic TPH >C21-C35		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aliphatic TPH >C35-C44		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aliphatic TPH >C5-C6	15	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aliphatic TPH >C6-C8	15	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aliphatic TPH >C8-C10	0.3	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Aliphatic Hydrocarbons		-	mg/l	No GAC	-	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aromatic TPH >C10-C12	0.09	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aromatic TPH >C12-C16	0.09	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aromatic TPH >C16-C21	0.09	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aromatic TPH >C21-C35	0.09	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aromatic TPH >C35-C44		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aromatic TPH >C5-C7	0.01	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aromatic TPH >C7-C8	0.7	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aromatic TPH >C8-C10	0.3	WHO	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Aromatic Hydrocarbons		-	mg/l	No GAC	-	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Petroleum Hydrocarbons			mg/l	No GAC	-	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PAH																	
Acenaphthene	2	USEPA	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dibenz(a,h)Anthracene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoranthene	6.30E-06	EQS	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluorene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Indeno(1,2,3-c,d)Pyrene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Phenanthrene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Pyrene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Naphthalene	0.002	EQS	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Of 16 PAH's		-	mg/l	No GAC	-	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acenaphthylene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Anthracene	0.0001	EQS	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo[a]anthracene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo[a]pyrene	1.70E-07	EQS	mg/l	0 of 9	0	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo[g,h,i]perylene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo[b]fluoranthene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo[k]fluoranthene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chrysene		-	mg/l	No GAC	-	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
BTEX																	
Benzene	0.01	EQS	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	0.074	EQS	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1

ARUP

EQS*: EQS not listed in WFD based on EA operational EQS and/or SEPA non-statutory EQS

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	95th %ile	BH02	BH02	BH02	BH03	BH03	BH03	BH04	BH04	BH04
Hole Ref									BH02	BH02	BH02	BH03	BH03	BH03	BH04	BH04	BH04
Sample Ref									BH02	BH02	BH02	BH03	BH03	BH03	BH04	BH04	BH04
Easting									311145	311145	311145	311196	311196	311196	311099	311099	311099
Northing									167423	167423	167423	167435	167435	167435	167403	167403	167403
Hole Elevation (mOD)									9.05	9.05	9.05	8.87	8.87	8.87	8.62	8.62	8.62
Sample Depth (mbgl)									7 - 7.5	7 - 7.5	7 - 7.5	4.5 - 5	4.5 - 5	4.5 - 5	4.5 - 5	4.5 - 5	4.5 - 5
Piezometer top (mbgl)									3	3	3	3	3	3	1	1	1
Piezometer base (mbgl)									10	10	10	6	6	6	4	4	4
Sample Date									13/12/23	10/01/24	23/01/24	13/12/23	10/01/24	23/01/24	13/12/23	10/01/24	23/01/24
Monitoring round									1	2	3	1	2	3	1	2	3
Aquifer									TFD	TFD	TFD	TFD	TFD	TFD	MG/TFD	MG/TFD	MG/TFD
Ethylbenzene	0.02	EQS*	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m & p-Xylene	0.03	EQS*	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o-Xylene	0.03	EQS*	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
PCBs																	
PCB 101			mg/l	No GAC	-	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001				<0.00001	<0.00001	<0.00001
PCB 138			mg/l	No GAC	-	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001				<0.00001	<0.00001	<0.00001
PCB 153			mg/l	No GAC	-	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001				<0.00001	<0.00001	<0.00001
PCB 180			mg/l	No GAC	-	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001				<0.00001	<0.00001	<0.00001
PCB 28			mg/l	No GAC	-	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001				<0.00001	<0.00001	<0.00001
PCB 52			mg/l	No GAC	-	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001				<0.00001	<0.00001	<0.00001
PCB 118	0.025	EQS*	mg/l	0 of 6	0	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001				<0.00001	<0.00001	<0.00001
Total PCBs (7 congeners)			mg/l	No GAC	-	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001				<0.00001	<0.00001	<0.00001
VOC																	
1,1,1,2-Tetrachloroethane			mg/l	No GAC	-	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,1-Trichloroethane	0.1	EQS*	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.4	EQS*	mg/l	0 of 9	0	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,1-Dichloroethane			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene	0.05	WHO	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichlorobenzene	0.0004	EQS	mg/l	0 of 9	0	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,2,3-Trichloropropane			mg/l	No GAC	-	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	0.0004	EQS	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1,2,4-Trimethylbenzene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	0.001	WHO	mg/l	0 of 9	0	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dibromoethane	0.0004	WHO	mg/l	0 of 9	0	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichlorobenzene	0.02	EQS	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1,2-Dichloroethane	0.01	EQS	mg/l	0 of 9	0	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dichloropropane	0.04	WHO	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	0.02	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1,3-Dichloropropane			mg/l	No GAC	-	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,4-Dichlorobenzene	0.02	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2-Chlorotoluene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Chlorotoluene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromobenzene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane			mg/l	No GAC	-	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromodichloromethane	0.06	WHO	mg/l	0 of 9	0	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bromomethane			mg/l	No GAC	-	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane			mg/l	No GAC	-	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chloromethane			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromochloromethane	0.1	WHO	mg/l	0 of 9	0	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibromomethane	0.02	EQS	mg/l	0 of 9	0	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dichlorodifluoromethane			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Hexachlorobutadiene	0.0006	WHO	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Isopropylbenzene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Methyl Tert-Butyl Ether	0.015	WHO	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N-Butylbenzene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N-Propylbenzene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sec-Butylbenzene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Styrene	0.05	EQS*	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tert-Butylbenzene			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloroethene	0.01	DWS	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane	0.012	EQS	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trans 1,2-Dichloroethene	0.05	WHO	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trans-1,3-Dichloropropene	0.02	WHO	mg/l	0 of 9	0	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tribromomethane	0.1	WHO	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene	0.01	DWS	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorofluoromethane			mg/l	No GAC	-	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloromethane	0.0025	EQS	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride	0.0005	DWS	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis 1,2-Dichloroethene	0.05	WHO	mg/l	0 of 9	0	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,3-Dichloropropene	0.02	WHO	mg/l	0 of 9	0	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SVOC																	
2,4,5-Trichlorophenol			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2,4,6-Trichlorophenol	0.2	WHO	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	0.0042	EQS	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2,4-Dimethylphenol	0.1	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2,4-Dinitrotoluene	0.1	USEPA	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Concentration exceeds GAC	100.00
Limit of Detection value exceeds GAC	<0.1

ARUP

EQS*: EQS not listed in WFD based on EA operational EQS and/or SEPA non-statutory EQS

Contaminant Name	GAC	GAC Source	Units	Total > LOD	Total > GAC	Min	Max	95th %ile	BH02	BH02	BH02	BH03	BH03	BH03	BH04	BH04	BH04
Hole Ref									BH02	BH02	BH02	BH03	BH03	BH03	BH04	BH04	BH04
Sample Ref									BH02	BH02	BH02	BH03	BH03	BH03	BH04	BH04	BH04
Easting									311145	311145	311145	311196	311196	311196	311099	311099	311099
Northing									167423	167423	167423	167435	167435	167435	167403	167403	167403
Hole Elevation (mOD)									9.05	9.05	9.05	8.87	8.87	8.87	8.62	8.62	8.62
Sample Depth (mbgl)									7 - 7.5	7 - 7.5	7 - 7.5	4.5 - 5	4.5 - 5	4.5 - 5	4.5 - 5	4.5 - 5	4.5 - 5
Piezometer top (mbgl)									3	3	3	3	3	3	1	1	1
Piezometer base (mbgl)									10	10	10	6	6	6	4	4	4
Sample Date									13/12/23	10/01/24	23/01/24	13/12/23	10/01/24	23/01/24	13/12/23	10/01/24	23/01/24
Monitoring round									1	2	3	1	2	3	1	2	3
Aquifer									TFD	TFD	TFD	TFD	TFD	TFD	MG/TFD	MG/TFD	MG/TFD
2,6-Dinitrotoluene			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2-Chloronaphthalene			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2-Chlorophenol	0.05	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2-Methylnaphthalene			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2-Methylphenol (o-Cresol)	0.1	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2-Nitrophenol			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4-Bromophenylphenyl Ether			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4-Chloro-3-Methylphenol	0.04	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4-Methylphenol	0.1	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4-Nitrophenol			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Bis(2-Chloroethoxy)Methane			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Bis(2-Ethylhexyl)Phthalate	0.0013	EQS	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Bis-(2-Chloroethyl)Ether			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Butylbenzyl Phthalate	0.0075	EQS	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Carbazole			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Di-N-Butyl Phthalate	0.008	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Di-N-Octyl Phthalate	0.02	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dibenzofuran			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Diethyl Phthalate	0.2	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dimethylphthalate	0.8	EQS*	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Hexachlorobenzene	0.001	USEPA	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Hexachlorocyclopentadiene	0.05	USEPA	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Hexachloroethane	0.04	USEPA	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Isophorone	7	USEPA	mg/l	0 of 9	0	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Nitrosodi-n-propylamine			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Nitrosodimethylamine			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Nitrobenzene			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2-Methyl-4,6-Dinitrophenol			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
2-Nitroaniline			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
3-Nitroaniline			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4-Chloroaniline			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4-Chlorophenylphenylether			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4-Nitroaniline			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Azobenzene			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Bis(2-Chloroisopropyl)Ether			mg/l	No GAC	-	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Metal Bioavailability Assessment Tool (M-BAT)

Back

Calculate

Clear Data

INPUT DATA											RESULTS (Copper)				RESULTS (Zinc)				RESULTS (Mn)				RESULTS (Ni)			
ID	Location	Waterbody	Date	Measured Cu Concentration (dissolved) (µg l^{-1})	Measured Zn Concentration (dissolved) (µg l^{-1})	Measured Mn Concentration (dissolved) (µg l^{-1})	Measured Ni Concentration (dissolved) (µg l^{-1})	pH	DOC	Ca	Site-specific PNEC Dissolved Copper (µg l^{-1})	BioF	Bioavailable Copper Concentration (µg l^{-1})	Risk Characterisation Ratio	Site-specific PNEC Dissolved Zinc (µg l^{-1})	BioF	Bioavailable Zinc Concentration (µg l^{-1})	Risk Characterisation Ratio	Site-specific PNEC Dissolved Manganese (µg l^{-1})	BioF	Bioavailable Manganese Concentration (µg l^{-1})	Risk Characterisation Ratio	Site-specific PNEC Dissolved Nickel (µg l^{-1})	BioF	Bioavailable Nickel Concentration (µg l^{-1})	Risk Characterisation Ratio
1	BH02	7 - 7.5	13/12/23	0.9	12		0.62	8.1	3.3	253	7.89	0.13	0.11	0.11	24.22	0.45	5.40	0.50	180.91	0.68			7.71	0.52	0.32	0.08
2	BH03	4.5 - 5	13/12/23	0.79	1.25		4.2	8.1	3.3	253	7.89	0.13	0.10	0.10	24.22	0.45	0.56	0.05	180.91	0.68			7.71	0.52	2.18	0.54
3	BH04	4.5 - 5	13/12/23	1.8	26		1.1	8.1	3.3	253	7.89	0.13	0.23	0.23	24.22	0.45	11.76	1.07	180.91	0.68			7.71	0.52	0.57	0.14
4	BH02	7 - 7.5	10/01/24	0.84	7.6		0.25	8.1	3.3	253	7.89	0.13	0.11	0.11	24.22	0.45	3.42	0.31	180.91	0.68			7.71	0.52	0.13	0.03
5	BH03	4.5 - 5	10/01/24	1	3.1		0.25	8.1	3.3	253	7.89	0.13	0.13	0.13	24.22	0.45	1.40	0.13	180.91	0.68			7.71	0.52	0.13	0.03
6	BH04	4.5 - 5	10/01/24	0.25	3		1.7	8.1	3.3	253	7.89	0.13	0.03	0.03	24.22	0.45	1.35	0.12	180.91	0.68			7.71	0.52	0.88	0.22
7	BH02	7 - 7.5	23/01/24	0.95	7.8		0.25	8.1	3.3	253	7.89	0.13	0.12	0.12	24.22	0.45	3.51	0.32	180.91	0.68			7.71	0.52	0.13	0.03
8	BH03	4.5 - 5	23/01/24	0.25	2.6		3.5	8.1	3.3	253	7.89	0.13	0.03	0.03	24.22	0.45	1.17	0.11	180.91	0.68			7.71	0.52	1.82	0.45
9	BH04	4.5 - 5	23/01/24	1.2	1.25		2.3	8.1	3.3	253	7.89	0.13	0.15	0.15	24.22	0.45	0.56	0.05	180.91	0.68			7.71	0.52	1.19	0.30