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DETS Report No: 20-07301

Site Reference: Acrefair, Wrexham

Project / Job Ref: A3341

Order No: A3341

Sample Receipt Date: 06/07/2020

Sample Scheduled Date: 06/07/2020

Report Issue Number: 1

Reporting Date: 13/07/2020

Authorised by:

[Redacted signature]

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Soil Analysis Certificate					
DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP1	TP1	TP2	TP3
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.75	1.20	0.80	0.30
Reporting Date: 13/07/2020	DETS Sample No	484887	484888	484889	484890

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	8.3	7.4	8.1	8.2	7.9
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Total Sulphate as SO ₄	mg/kg	< 200	NONE	2402	2895	4234	2810	2751
Total Sulphate as SO ₄	%	< 0.02	NONE	0.24	0.29	0.42	0.28	0.28
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	99	605	103	116	120
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.10	0.60	0.10	0.12	0.12
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Organic Matter	%	< 0.1	MCERTS	0.8	8.6	3.5	5.4	4.8
Arsenic (As)	mg/kg	< 2	MCERTS	11	18	29	21	25
Barium (Ba)	mg/kg	< 2.5	MCERTS	226	191	503	330	312
Beryllium (Be)	mg/kg	< 0.5	MCERTS	1.1	1.4	1.6	1.7	2.8
W/S Boron	mg/kg	< 1	NONE	< 1	1.4	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.2	0.7	0.8	0.4	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	22	20	28	25	48
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	33	71	115	90	90
Lead (Pb)	mg/kg	< 3	MCERTS	24	307	196	128	80
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	1.5	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	19	23	28	26	33
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 1	MCERTS	28	42	53	59	99
Zinc (Zn)	mg/kg	< 3	MCERTS	54	1050	375	127	127
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
EPH (C10 - C40)	mg/kg	< 6	MCERTS	13	133	142	615	81

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)



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Soil Analysis Certificate					
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Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP4	TP5	TP6	TP6
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.50	0.40	0.30	0.90
Reporting Date: 13/07/2020	DETS Sample No	484892	484893	484894	484895

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.5	7.8	8.1	8.3	8.1
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Total Sulphate as SO ₄	mg/kg	< 200	NONE	1036	1450	2339	2266	3173
Total Sulphate as SO ₄	%	< 0.02	NONE	0.10	0.15	0.23	0.23	0.32
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	58	41	64	50	75
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.06	0.04	0.06	0.05	0.08
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Organic Matter	%	< 0.1	MCERTS	5.3	9.7	3	3	3.1
Arsenic (As)	mg/kg	< 2	MCERTS	14	13	14	16	13
Barium (Ba)	mg/kg	< 2.5	MCERTS	198	333	221	210	222
Beryllium (Be)	mg/kg	< 0.5	MCERTS	1.6	2.2	2.7	1.2	2
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.3	0.3	< 0.2	0.2	0.3
Chromium (Cr)	mg/kg	< 2	MCERTS	27	29	30	27	36
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	67	32	57	84	86
Lead (Pb)	mg/kg	< 3	MCERTS	110	39	88	96	54
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	26	15	20	27	59
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 1	MCERTS	50	61	54	51	56
Zinc (Zn)	mg/kg	< 3	MCERTS	111	89	75	127	99
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
EPH (C10 - C40)	mg/kg	< 6	MCERTS	81	164	998	118	268

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Soil Analysis Certificate					
DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP8	TP9	TP10	TP11
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.70	0.50	0.40	0.60
Reporting Date: 13/07/2020	DETS Sample No	484897	484898	484899	484900

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	8.1	8.1	7.8	7.9	8.1
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Total Sulphate as SO ₄	mg/kg	< 200	NONE	1862	948	19210	2578	2602
Total Sulphate as SO ₄	%	< 0.02	NONE	0.19	0.09	1.92	0.26	0.26
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	73	27	1430	437	163
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.07	0.03	1.43	0.44	0.16
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Organic Matter	%	< 0.1	MCERTS	1.8	4.2	2.4	2.1	4.2
Arsenic (As)	mg/kg	< 2	MCERTS	7	14	8	7	27
Barium (Ba)	mg/kg	< 2.5	MCERTS	180	202	306	147	149
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.7	1.3	0.7	0.9	1.2
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.2	0.3	0.3	< 0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	10	20	20	16	38
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	22	33	26	22	107
Lead (Pb)	mg/kg	< 3	MCERTS	108	68	113	19	162
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	11	24	16	18	24
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 1	MCERTS	16	31	25	23	82
Zinc (Zn)	mg/kg	< 3	MCERTS	144	115	708	111	128
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
EPH (C10 - C40)	mg/kg	< 6	MCERTS	42	34	80	230	125

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Soil Analysis Certificate - Speciated PAHs

DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP1	TP1	TP2	TP3	TP3
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.75	1.20	0.80	0.30	1.00
Reporting Date: 13/07/2020	DETS Sample No	484887	484888	484889	484890	484891

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	0.51	0.11	0.19	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	0.14	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	0.14	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	0.22	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	2.40	0.50	0.55	0.23
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.52	0.16	0.18	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	3.52	2.71	1.81	0.50
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	3.25	3.46	2.06	0.49
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	1.85	1.82	1.10	0.32
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	1.87	1.76	1.17	0.38
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.16	1.99	3.21	1.97	0.43
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.71	1.25	0.90	0.18
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.12	1.15	2.81	1.64	0.27
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.12	0.52	1.63	1.02	0.16
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.16	0.30	0.19	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.12	0.47	1.49	0.89	0.16
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	19.4	21.2	13.7	3.1



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Soil Analysis Certificate - Speciated PAHs

DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP4	TP5	TP6	TP6	TP7
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.50	0.40	0.30	0.90	0.20
Reporting Date: 13/07/2020	DETS Sample No	484892	484893	484894	484895	484896

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	0.13	0.17	0.86	0.22	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	1.58	0.26	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	1.06	0.23	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	5.58	0.26	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.67	0.69	44.60	2.72	0.37
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	23	0.69	0.15
Fluoranthene	mg/kg	< 0.1	MCERTS	0.47	0.17	55.10	2.75	2.61
Pyrene	mg/kg	< 0.1	MCERTS	0.46	0.22	42.90	2.31	2.82
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.23	0.16	24.30	1.67	2.98
Chrysene	mg/kg	< 0.1	MCERTS	0.30	0.16	21.70	1.48	2.60
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.53	< 0.1	16.40	1.51	5.37
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.20	< 0.1	6.65	0.67	2.44
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.36	< 0.1	13.30	1.28	5.46
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.27	< 0.1	4.43	0.56	2.75
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	1.14	0.19	0.48
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.27	< 0.1	3	0.50	2.32
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	3.9	< 1.6	266	17.3	30.4



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Soil Analysis Certificate - Speciated PAHs

DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP8	TP9	TP10	TP11	TP12
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.70	0.50	0.40	0.60	1.00
Reporting Date: 13/07/2020	DETS Sample No	484897	484898	484899	484900	484901

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	0.20	0.42
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	2.75	0.29
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	1.53	0.17
Phenanthrene	mg/kg	< 0.1	MCERTS	0.32	0.20	0.75	14.70	2.80
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	4.07	0.50
Fluoranthene	mg/kg	< 0.1	MCERTS	0.19	< 0.1	1.07	16.90	3.53
Pyrene	mg/kg	< 0.1	MCERTS	0.18	< 0.1	0.78	13.60	3
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.32	5.04	1.24
Chrysene	mg/kg	< 0.1	MCERTS	0.13	< 0.1	0.57	4.14	1.27
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.13	< 0.1	0.52	4.04	1.27
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.24	1.84	0.37
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.33	3.72	0.85
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.20	1.93	0.42
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	0.30	0.15
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.18	1.83	0.40
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	5	76.6	16.7



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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP1	TP1	TP2	TP3	TP3
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.75	1.20	0.80	0.30	1.00
Reporting Date: 13/07/2020	DETS Sample No	484887	484888	484889	484890	484891

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	15	< 3
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	141	< 10
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	156	< 21
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	7	3	3	< 2
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	18	15	23	< 3
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	14	49	163	< 10
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	39	67	188	< 21
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	67	344	< 42



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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP4	TP5	TP6	TP6	TP7
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.50	0.40	0.30	0.90	0.20
Reporting Date: 13/07/2020	DETS Sample No	484892	484893	484894	484895	484896

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	8	< 2	< 2	< 2
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	6	< 2	< 2	< 2
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	12	< 3	< 3	< 3
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	7	< 3	< 3	< 3
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	33	< 21	< 21	< 21
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	20	67	8	< 2
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	26	327	21	16
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10	353	26	94
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	46	747	55	109
Total >C5 - C35	mg/kg	< 42	NONE	< 42	78	747	55	109



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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP8	TP9	TP10	TP11	TP12
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.70	0.50	0.40	0.60	1.00
Reporting Date: 13/07/2020	DETS Sample No	484897	484898	484899	484900	484901

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2	< 2	11	9
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	13	44	22
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10	< 10	44	36
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	< 21	< 21	99	67
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	< 42	99	67



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP1	TP1	TP2	TP3	TP3
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.75	1.20	0.80	0.30	1.00
Reporting Date: 13/07/2020	DETS Sample No	484887	484888	484889	484890	484891

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5



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Soil Analysis Certificate - BTEX / MTBE					
DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP4	TP5	TP6	TP7
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.50	0.40	0.30	0.90
Reporting Date: 13/07/2020	DETS Sample No	484892	484893	484894	484895

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene	ug/kg	< 2	MCERTS	5	< 2	< 2	< 2	< 2
o-xylene	ug/kg	< 2	MCERTS	3	< 2	< 2	< 2	< 2
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-07301	Date Sampled	29/06/20	29/06/20	29/06/20	29/06/20	29/06/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Acrefair, Wrexham	TP / BH No	TP8	TP9	TP10	TP11	TP12
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3341	Depth (m)	0.70	0.50	0.40	0.60	1.00
Reporting Date: 13/07/2020	DETS Sample No	484897	484898	484899	484900	484901

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5



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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 20-07301	
Earth Environmental & Geotechnical Ltd	
Site Reference: Acrefair, Wrexham	
Project / Job Ref: A3341	
Order No: A3341	
Reporting Date: 13/07/2020	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
484887	TP1	None Supplied	0.75	8.2	Light brown sandy gravel with stones
484888	TP1	None Supplied	1.20	19.9	Black loamy sand with stones
484889	TP2	None Supplied	0.80	10.3	Black loamy sand with stones and concrete
484890	TP3	None Supplied	0.30	11	Black loamy sand with brick and concrete
484891	TP3	None Supplied	1.00	17.9	Black loamy sand with brick and concrete
484892	TP4	None Supplied	0.50	10.1	Black loamy sand with brick and concrete
484893	TP5	None Supplied	0.40	11.1	Black loamy sand with brick and concrete
484894	TP6	None Supplied	0.30	9.3	Black loamy sand with brick and concrete
484895	TP6	None Supplied	0.90	9.2	Brown loamy sand with brick and concrete
484896	TP7	None Supplied	0.20	8.1	Brown loamy sand with brick and concrete
484897	TP8	None Supplied	0.70	15.7	Brown loamy sand with brick and concrete
484898	TP9	None Supplied	0.50	14.4	Brown loamy clay with brick
484899	TP10	None Supplied	0.40	7.1	Brown loamy sand with brick and concrete
484900	TP11	None Supplied	0.60	6.2	Brown loamy sand with vegetation and concrete
484901	TP12	None Supplied	1.00	12.9	Black loamy sand with brick and concrete

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/5}

Unsuitable Sample ^{1/5}



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Soil Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 20-07301	
Earth Environmental & Geotechnical Ltd	
Site Reference: Acrefair, Wrexham	
Project / Job Ref: A3341	
Order No: A3341	
Reporting Date: 13/07/2020	

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphencylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received



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t: 01622 850410

DETS Report No: 20-08542

Site Reference: Acrefair, Wrexham

Project / Job Ref: A3341

Order No: A3341

Sample Receipt Date: 31/07/2020

Sample Scheduled Date: 31/07/2020

Report Issue Number: 1

Reporting Date: 06/08/2020

Authorised by:



Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Water Analysis Certificate						
DETS Report No: 20-08542	Date Sampled	29/07/20	29/07/20	29/07/20		
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Acrefair, Wrexham	TP / BH No	RH1	RH4	RH5		
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: A3341	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 06/08/2020	DETS Sample No	490380	490381	490382		

Determinand	Unit	RL	Accreditation				
pH	pH Units	N/a	ISO17025	7.9	7.8	7.8	
Total Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	
Complex Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	
Free Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	
Sulphate as SO ₄	mg/l	< 1	ISO17025	74	87	168	
Sulphide	mg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
Total Organic Carbon (TOC)	mg/l	< 0.1	NONE	4	4.1	6	
Arsenic (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	
Barium (dissolved)	ug/l	< 5	ISO17025	35	52	63	
Beryllium (dissolved)	ug/l	< 3	ISO17025	< 3	< 3	< 3	
Boron (dissolved)	ug/l	< 5	ISO17025	30	126	174	
Cadmium (dissolved)	ug/l	< 0.4	ISO17025	< 0.4	< 0.4	< 0.4	
Chromium (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	
Chromium (hexavalent)	ug/l	< 20	NONE	< 20	< 20	< 20	
Copper (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	
Lead (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	
Mercury (dissolved)	ug/l	< 0.05	ISO17025	< 0.05	0.07	0.10	
Nickel (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	
Selenium (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	8	
Vanadium (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	
Zinc (dissolved)	ug/l	< 2	ISO17025	< 2	< 2	< 2	
Total Phenols (monohydric)	ug/l	< 10	NONE	< 10	< 10	< 10	
EPH (C10 - C40)	ug/l	< 10	NONE	< 10	< 10	< 10	

Subcontracted analysis ^(S)
 Insufficient sample ^{1/S}
 Unsuitable Sample ^{U/S}



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Water Analysis Certificate - Speciated PAH						
DETS Report No: 20-08542	Date Sampled	29/07/20	29/07/20	29/07/20		
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Acrefair, Wrexham	TP / BH No	RH1	RH4	RH5		
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: A3341	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 06/08/2020	DETS Sample No	490380	490381	490382		

Determinand	Unit	RL	Accreditation					
Naphthalene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Acenaphthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Fluorene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Phenanthrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Pyrene	ug/l	< 0.01	NONE	< 0.01	0.02	0.02		
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Chrysene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	ug/l	< 0.008	NONE	< 0.008	< 0.008	< 0.008		
Total EPA-16 PAHs	ug/l	< 0.01	NONE	< 0.01	0.02	0.02		



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Water Analysis Certificate - TPH CWG Banded

DETS Report No: 20-08542	Date Sampled	29/07/20	29/07/20	29/07/20		
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Acrefair, Wrexham	TP / BH No	RH1	RH4	RH5		
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: A3341	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 06/08/2020	DETS Sample No	490380	490381	490382		

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70	< 70	< 70		
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70	< 70	< 70		
Total >C5 - C35	ug/l	< 140	NONE	< 140	< 140	< 140		



DETS Ltd
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Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-08542	Date Sampled	29/07/20	29/07/20	29/07/20		
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Acrefair, Wrexham	TP / BH No	RH1	RH4	RH5		
Project / Job Ref: A3341	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: A3341	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 06/08/2020	DETS Sample No	490380	490381	490382		

Determinand	Unit	RL	Accreditation				
Benzene	ug/l	< 1	ISO17025	< 1	< 1	< 1	
Toluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	
Ethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	
p & m-xylene	ug/l	< 10	ISO17025	< 10	< 10	< 10	
o-xylene	ug/l	< 5	ISO17025	< 5	< 5	< 5	
MTBE	ug/l	< 10	ISO17025	< 10	< 10	< 10	



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Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 20-08542

Earth Environmental & Geotechnical Ltd

Site Reference: Acrefair, Wrexham

Project / Job Ref: A3341

Order No: A3341

Reporting Date: 06/08/2020

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered