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Sonic Borehole Log

ver. 1.3

Borehole No.

BH06

Sheet 1 of 2

Project Name: Hayes

Location: London

Client: Paragon Building Consultancy Ltd.

Co-ords: 510483E - 179189N

Level (m AOD): 29.90

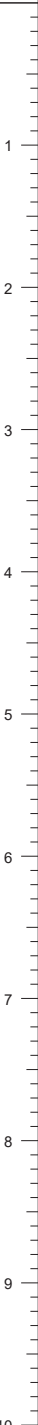
Date: 22/01/2020

Weather: Cold and dry

Project No. 3249

Logged By AJ

Checked By AL

Well / Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m AOD)		Stratum Description	
		Depth(m)	Type	Results					
					0.05	29.85		TARMACADAM.	
					0.30	29.60		MADE GROUND	
								Grey, sandy GRAVEL. Gravel is angular to subangular of fine to coarse mixed lithologies.	
								SUB-BASE	
								Dark brown to black SAND and GRAVEL with occasional brick fragments and pottery / ceramic fragments. Gravel is angular to subrounded of fine to coarse red brick (20%), glass (10%), suspected clinker (10%), concrete (10%), ceramic (10%) and mixed lithologies (40%).	
								MADE GROUND	
					1.80	28.10		Very soft to soft, brown mottled orangish brown and reddish brown, slightly gravelly, slightly sandy CLAY. Gravel is angular to subangular of fine to coarse red brick (30%) and mixed lithologies (70%).	
								MADE GROUND	
					3.00	26.90		Very soft to soft, grey, slightly gravelly, slightly sandy CLAY. Gravel is angular to subangular of fine to coarse red brick (10%) and mixed lithologies (90%).	
								MADE GROUND	
					4.80	25.15		Firm to stiff, brownish grey, slightly sandy, silty CLAY.	
					5.00			LONDON CLAY	
					5.20				
					5.40				
					5.60				
			6.00 - 6.45						
			6.00						
			6.20						
			6.40						
			6.60						
			6.80						
			7.00						
			7.30						
			7.50						
			7.80						
			8.10						
			8.50						
			8.70						
			9.00						
			9.10						
			9.90						

Remarks:

Borehole terminated at 15.00m bgl at target depth.
Where hand shear vane results show 120kPa, shear strength exceeds 120kPa limit of hand shear vane.
Ground level derived from 1m DTM LiDAR Data.

Casing Details

Depth Top (m)	Depth Base (m)	Diameter (mm)

Sample Sleeve Runs

Depth Top (m)	Depth Base (m)	Diameter (mm)

Water Strike

Depth Strike (m)	Remarks
6.00	



ver. 1.3

BH06

Sheet 2 of 2

Co-ords:	510483E - 179189N
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Level (m AOD):	29.90
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Date:	22/01/2020
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Weather:	Cold and dry
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Project No.
3249

Logged By
AJ

Checked By
AL

Client: Paragon Building Consultancy Ltd.

Remarks: Borehole terminated at 15.00m bgl at target depth. Where hand shear vane results show 120kPa, shear strength exceeds 120kPa limit of hand shear vane. Ground level derived from 1m DTM LiDAR Data.	Casing Details			Sample Sleeve Runs		
	Depth Top (m)	Depth Base (m)	Diameter (mm)	Depth Top (m)	Depth Base (m)	Diameter (mm)
	Water Strike					
	Depth Strike (m)	Remarks				
	6.00					

**Image 1. :**

Photo to be viewed from left to right, top to bottom:

1.20m - 1.50m bgl
1.50m - 3.00m bgl
3.00m - 4.50m bgl
4.50m - 6.00m bgl
6.50m - 7.50m bgl
7.50m - 9.00m bgl
9.00m - 10.50m bgl
10.50m - 12.00m bgl
12.00m - 13.50m bgl



APPENDIX 5: CHEMICAL TEST RESULTS



Leachate Analysis
Bulls Bridge, Hayes

TP / BH No	TP204	TP208	BH07	BH08
Depth (m)	0.6	2	5.80-6.00	5.50-6.00
Date Sampled	24/07/2019	24/07/2019	24/01/2020	24/01/2020
Report No:	19-51430	19-51431	20-83394	20-83394
Sample No	1275534	1275535	1424098	1424099

Determinand	Unit	LOD	Freshwater EQS				
pH	pH Units	N/A	6.0-9.0	10.1	7.8	7.7	7.3
Electrical Conductivity	µS/cm	10		400	290	99	39
Free Cyanide	µg/l	10	1	< 10	< 10	< 10	< 10
Sulphate as SO ₄	mg/l	0.1		147	114	12.3	3.8
Nitrate as N	mg/l	0.01		1.55	0.84	0.02	0.08
Hardness - Total	mgCaCO ₃ /l	1		219	137	38.4	14.3
Calcium (dissolved)	mg/l	0.012		87	48	11	3.8
Magnesium (dissolved)	mg/l	0.005		0.32	3.9	2.8	1.2
Arsenic (dissolved)	µg/l	1.1	50	6.5	3.7	< 1.1	< 1.1
Barium (dissolved)	µg/l	0.05		22	49	17	8.6
Beryllium (dissolved)	µg/l	0.2	15	< 0.2	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10		27	130	45	20
Cadmium (dissolved)	µg/l	0.08	0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	4.7	18	2.5	0.8	2.1
Copper (dissolved)	µg/l	0.7	1	14	8.7	3.3	2.8
Lead (dissolved)	µg/l	1	4	3.8	14	< 1.0	< 1.0
Mercury (dissolved)	µg/l	0.5	0.07	< 0.5	1	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	4	0.5	1.8	< 0.3	1
Selenium (dissolved)	µg/l	4		< 4.0	< 4.0	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7		40	10	2.4	7.1
Zinc (dissolved)	µg/l	0.4	10.9	3.4	10	7.3	9.4
Naphthalene	µg/l	0.01	2	< 0.01	0.61	250	4700
Acenaphthylene	µg/l	0.01		0.02	0.66	4.7	9
Acenaphthene	µg/l	0.01		< 0.01	7.5	81	170
Fluorene	µg/l	0.01		< 0.01	1.6	52	64
Phenanthrene	µg/l	0.01		< 0.01	< 0.01	41	41
Anthracene	µg/l	0.01	0.1	0.01	< 0.01	3	5.8
Fluoranthene	µg/l	0.01	0.1	0.03	0.75	2.1	4.8
Pyrene	µg/l	0.01		0.02	0.5	1.3	4.1
Benzo(a)anthracene	µg/l	0.01		0.02	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01		0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01		0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01		0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	0.02	0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01		0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01		< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01		0.01	< 0.01	< 0.01	< 0.01
Total EPA-16 PAHs	µg/l	0.2	LOD	< 0.2	12	430	5000
Benzene	µg/l	1	10	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	74	< 1.0	< 1.0	< 1.0	1.7
Ethylbenzene	µg/l	1		< 1.0	< 1.0	< 1.0	16
p & m-xylene	µg/l	1		< 1.0	< 1.0	< 1.0	29
o-xylene	µg/l	1		< 1.0	< 1.0	< 1.0	18
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10		< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C5 - C6	µg/l	1		< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1		< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1		< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10		< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10		< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10		< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10		< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44	µg/l	10		< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10		< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10		< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1		< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1		< 1.0	< 1.0	< 1.0	1.7
TPH-CWG - Aromatic >C8 - C10	µg/l	1		< 1.0	< 1.0	< 1.0	88
TPH-CWG - Aromatic >C10 - C12	µg/l	10		< 10	< 10	370	5600
TPH-CWG - Aromatic >C12 - C16	µg/l	10		< 10	< 10	600	2000
TPH-CWG - Aromatic >C16 - C21	µg/l	10		< 10	120	100	1000
TPH-CWG - Aromatic >C21 - C35	µg/l	10		< 10	58	< 10	< 10
TPH-CWG - Aromatic >C35 - C44	µg/l	10		< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10		< 10	180	1100	8700
TPH-CWG - Aromatic (C5 - C44)	µg/l	10		< 10	180	1100	8700
Total TPH (C5-C35)	µg/l	10	10	< 10	180	1100	8700

[illegible]



Soil Analysis Bulls Bridge, Hayes

TP / BH No		WS1	WS2	WS3	WS4	WS5	WS5	WS6A	WS7	WS8	WS9	WS10	TP4	TP6	WS202	WS202	WS203	WS203	TP201	TP205	TP208	BH03	BH02	BH07	BH07	BH08	BH08	
Depth (m)		0.75	0.5	0.75	0.8	0.5	0.5	3.5	0.8	2.5	0.3	2	0.5	0.8	10.60-0.90	2.10-2.40	0.40-0.70		3	0.3	0.5	0.4	3	1.5	2.55-3.00	5.80-6.00	2.50-3.00	5.50-6.00
Date Sampled		27/06/2019	27/06/2019	25/06/2019	27/06/2019	25/06/2019	25/06/2019	25/06/2019	26/06/2019	27/06/2019	26/06/2019	26/06/2019	26/06/2019	25/06/2019	25/06/2019	24/07/2019	24/07/2019	24/07/2019	24/07/2019	24/07/2019	24/07/2019	29/01/2020	29/01/2020	24/01/2020	24/01/2020	24/01/2020	24/01/2020	
Report No.		19-09356	19-09356	19-09356	19-09356	19-09356	19-09356	19-09356	19-09356	19-09356	19-09356	19-09356	19-09356	19-09356	19-09356	19-51430	19-51431	19-51432	19-51433	19-51434	19-51435	19-51436	20-83728	20-83728	20-83909	20-83909	20-83909	
Sample No		418781	418782	418783	418784	418785	418786	418787	418788	418789	418790	418791	418792	418793	1275527	1275528	1275529	1275530	1275531	1275532	1275533	1425656	1425657	1421299	1421300	1421301	1421302	
Determinand	Unit	LOD	GAC																									
Dichlorodifluoromethane	ug/kg	<5	LOD												<5	<5												
Vinyl Chloride	ug/kg	<5	LOD												<5	<5												
Chloromethane	ug/kg	<10	LOD												<10	<10												
Chloroethane	ug/kg	<5	LOD												<5	<5												
Bromomethane	ug/kg	<10	LOD												<10	<10												
Trichlorofluoromethane	ug/kg	<5	LOD												<5	<5												
1,1-Dichloroethene	ug/kg	<5	LOD												<5	<5												
MTBE	ug/kg	<5	LOD												<5	<5												
trans-1,2-Dichloroethene	ug/kg	<5	LOD												<5	<5												
1,1-Dichloroethane	ug/kg	<5	LOD												<5	<5												
cis-1,2-Dichloroethene	ug/kg	<5	LOD												<5	<5												
2,2-Dichloropropane	ug/kg	<5	LOD												<5	<5												
Chloroform	ug/kg	<5	LOD												<5	<5												
Bromochloromethane	ug/kg	<5	LOD												<5	<5												
1,1,1-Trichloroethane	ug/kg	<5	LOD												<5	<5												
1,1-Dichloropropene	ug/kg	<10	LOD												<10	<10												
Carbon Tetrachloride	ug/kg	<5	LOD												<5	<5												
1,2-Dichloroethane	ug/kg	<5	LOD												<5	<5												
Benzene	ug/kg	<2	LOD												<2	<2												
1,2-Dichloropropane	ug/kg	<5	LOD												<5	<5												
Trichloroethene	ug/kg	<5	LOD												<5	<5												
Bromodichloromethane	ug/kg	<5	LOD												<5	<5												
Dibromomethane	ug/kg	<5	LOD												<5	<5												
TAME	ug/kg	<5	LOD												<5	<5												
cis-1,3-Dichloropropene	ug/kg	<5	LOD												<5	<5												
Toluene	ug/kg	<5	LOD												<5	<5												
trans-1,3-Dichloropropene	ug/kg	<5	LOD												<5	<5												
1,1,2-Trichloroethane	ug/kg	<10	LOD												<10	<10												
1,3-Dichloropropane	ug/kg	<5	LOD												<5	<5												
Tetrachloroethene	ug/kg	<5	LOD												<5	<5												
Dibromochloromethane	ug/kg	<5	LOD												<5	<5												
1,2-Dibromoethane	ug/kg	<5	LOD												<5	<5												
Chlorobenzene	ug/kg	<5	LOD												<5	<5												
1,1,1,2-Tetrachloroethane	ug/kg	<5	LOD												<5	<5												
Ethyl Benzene	ug/kg	<2	LOD												<2	<2												
m,p-Xylene	ug/kg	<2	LOD												<2	<2												
o-Xylene	ug/kg	<2	LOD												<2	<2												
Styrene	ug/kg	<5	LOD												<5	<5												
Bromoform	ug/kg	<10	LOD												<10	<10												
Isopropylbenzene	ug/kg	<5	LOD												<5	<5												
1,1,2,2-Tetrachloroethane	ug/kg	<5	LOD												<5	<5												
1,2,3-Trichloropropane	ug/kg	<5	LOD												<5	<5												
n-Propylbenzene	ug/kg	<5	LOD												<5	<5												
Bromobenzene	ug/kg	<5	LOD												<5	<5												
2-Chlorotoluene	ug/kg	<5	LOD												<5	<5												
1,3,5-Trimethylbenzene	ug/kg	<5	LOD												<5	<5												
4-Chlorotoluene	ug/kg	<5	LOD												<5	<5												
tert-Butylbenzene	ug/kg	<5	LOD												<5	<5												
1,2,4-Trimethylbenzene	ug/kg	<5	LOD												<5	<5												
sec-Butylbenzene	ug/kg	<5	LOD												<5	<5												
p-Isopropyltoluene	ug/kg	<5	LOD												<5	<5												
1,3-Dichlorobenzene	ug/kg	<5	LOD												<5	<5												
1,4-Dichlorobenzene	ug/kg	<5	LOD												<5	<5												
n-Butylbenzene	ug/kg	<5	LOD												<5	<5												
1,2-Dichlorobenzene	ug/kg	<5	LOD												<5	<5												
1,2-Dibromo-3-chloropropane	ug/kg	<10	LOD												<10	<10												
Hexachlorobutadiene	ug/kg	<5	LOD												<5	<5												
Chloromethane	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
Chloroethane	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
Bromomethane	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
Vinyl Chloride	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
Trichlorofluoromethane	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
1,1-Dichloroethene	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
1,1,2-Trichloro 1,2,2-Trifluoroethane	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
Cis-1,2-dichloroethene	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
1,1-Dichloroethane	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
2,2-Dichloropropane	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
Trichloromethane	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
1,1,1-Trichloroethane	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
1,2-Dichloroethane	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
1,1-Dichloropropene	ug/kg	1	LOD																				<1.0	<1.0		<1.0	<1.0	
Trans-1,2-d																												

Water Analysis

Determinand	Unit	LOD	GAC Freshwater EQS (ug/l)									
pH	pH Units	N/a	6.0-9.0	8.3	8.3	8.3	7.9	7.8	7.8	8.2	8	7.9
Ammonia as NH ₃	µg/l	15	15	360	180	200	390	400	430	560	770	440
Dissolved Organic Carbon (DOC)	mg/l	0.1		5.49	5.44	5.47	6.7	6.98	6.36	8.38	9.17	7.05
Arsenic (dissolved)	ug/l	< 5	50	0.98	1.13	0.58	2.11	1.71	2.11	1.23	1.96	1.4
Cadmium (dissolved)	ug/l	< 0.4	0.08	< 0.02	< 0.02	0.05	< 0.02	0.05	< 0.02	< 0.02	0.02	0.02
Calcium (dissolved)	mg/l	0.012		110	110	100	120	120	120	46	38	36
Chromium (dissolved)	ug/l	< 5	4.7	0.7	< 0.2	0.6	< 0.2	0.3	< 0.2	< 0.2	< 0.2	< 0.2
Copper (dissolved)	ug/l	< 5	1	5.2	4.1	5	2.9	2.2	2.8	5.1	7.6	5
Lead (dissolved)	ug/l	< 5	1.2	0.6	0.5	0.7	1.1	2.5	0.7	1.3	1.1	1.1
Mercury (dissolved)	ug/l	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	ug/l	< 5	4	1.8	1.8	1.8	2	2.4	2	1.4	1.7	1.3
Selenium (dissolved)	ug/l	< 5		1.1	1.2	1.1	1.3	1.3	1.3	0.7	0.7	< 0.6
Zinc (dissolved)	ug/l	< 2	10.9	4.4	6.9	5.4	5.7	9.5	7.3	16	29	12
Total Phenols (monohydric)	ug/l	< 10	7.7	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5
Naphthalene	ug/l	< 0.01	2	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	< 0.01	0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	< 0.01	0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	ug/l	< 0.008		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total EPA-16 PAHs	ug/l	< 0.01		< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
Aliphatic >C5 - C6	ug/l	< 10		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic >C6 - C8	ug/l	< 10		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic >C8 - C10	ug/l	< 10		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic >C10 - C12	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C12 - C16	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C16 - C21	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C21 - C34	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	ug/l	< 70		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C5 - C7	ug/l	< 10		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic >C7 - C8	ug/l	< 10		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic >C8 - C10	ug/l	< 10		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic >C10 - C12	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C12 - C16	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C16 - C21	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C21 - C35	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C35)	ug/l	< 70		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total >C5 - C35	ug/l	< 140	10	<140	<140	<140	<140	<140	<140	<140	<140	<140
Benzene	ug/l	< 1	10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/l	< 5	74	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/l	< 5	300	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/l	< 10	30	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/l	< 5	30	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE	ug/l	< 10		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Water Analysis

Bulls Bridge, Hayes

TP / BH No	W55	W56	W57	BH01	BH07	BH08	BH01 (J)	BH08	BH02	W57	BH01(J)	BH08	W57
Depth (m)	2.88	3.86	3.25	2.82	4.85	4.8	3.70-5.93	3.37-6.00	2.00-5.62	3.26-5.00	3.66-5.91	3.34-5.99	3.18-4.99
Date Sampled	03/07/2019	03/07/2019	03/07/2019	29/01/2020	29/01/2020	29/01/2020	04/06/2020	04/06/2020	04/06/2020	04/06/2020	18/06/2020	18/06/2020	18/06/2020
Lab Report No.	19-09550	19-09550	19-09550	20-83728	20-83728	20-83728	20-12662	20-12662	20-12662	20-12662	20-14987	20-14987	20-14987
Lab Sample No.	4196161	4196117	4196118	1425653	1425654	1425655	1526053	1526054	1526055	1526056	1538545	1538546	1538547

Determinand	Unit	LOD	GAC Freshwater EQS (ug/l)													
pH	pH Units	N/a	6.0-9.0	7.1	7.4	6.6	7.5	7.5	7.3	7.2	6.9	7.1	7.2	8.2	7.1	7.2
Electrical Conductivity	uS/cm	< 5		1850	4840	2350	1600	1500	1300							
Total Cyanide	ug/l	< 5		< 5	7	7										
Free Cyanide	µg/l	<10	1				< 10	< 10	< 10							
Sulphate as SO4	mg/l	< 1		114	270	10	157	169	33.4	103	3.81	95.4	24.7	71.2	2.93	48.9
Total Sulphur	µg/l	15								34000	1300	32000	8200	24000	980	16000
Sulphide	µg/l	5								< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ammonia as NH3	µg/l	15	15							8900	2100	1600	17000	4200	1900	17000
Dissolved Organic Carbon (DOC)	mg/l	0.1								5.85	28.4	32.1	30.6	7.4	8.12	32.3
Nitrate as N	mg/l	0.01					1.14	0.67	1.57	6.11	0.34	0.3	0.28	1.45	0.27	0.18
Nitrate as NO3	mg/l	0.05								27	1.52	1.32	1.22	6.42	1.18	0.78
Nitrite as N	µg/l	1								87	11	7.8	8.4	130	31	17
Nitrite as NO2	µg/l	5								290	37	26	28	430	100	55
Chemical Oxygen Demand (Total)	mg/l	2					100	55	91	14	180	150	140	31	120	120
BOD (Biochemical Oxygen Demand)	mg/l	1					18	6.1	31	7.7	19	8	8.6	4.1	8.1	3.1
Carbonate	mgCaCO3/l	10								210	390	330	840	260	720	1400
Dissolved Carbon Dioxide	mg/l	1								30	96	58	100	3.7	110	200
Methane	mg/L	0.1								< 0.1	0.2	4.5	8.2	< 0.1	0.2	6.4
Total Organic Carbon (TOC)	mg/l	< 0.1			16.9	1.5										
Hardness - Total	mgCaCO3/l	< 1		1010	880	1330	626	618	813							
Redox Potential	mV	-800					65.7	71.2	84.7							
Iron (dissolved)	mg/l	0.004								0.3	2.8	0.39	2.6	0.13	0.18	0.75
Fe2+	mg/l	0.2								< 0.20	0.32	< 0.20	< 0.20	< 0.20	< 0.20	0.23
Fe3+	mg/l	0.2								0.3	2.43	0.29	2.52	< 0.20	< 0.20	0.51
Mn (II)	mg/l	0.02								0.14	4.32	7.34	1.84	0.06	0.26	0.49
Mn (IV)	mg/l	0.02								< 0.02	0.22	0.03	1.1	0.02	4.37	2.09
Arsenic (dissolved)	ug/l	< 5	50	21	< 5	12	1.95	1.39	2.96	1.35	7.71	3.16	8.84	1.79	7.63	1.79
Barium (dissolved)	ug/l	< 5		140	120	268	110	130	97							
Beryllium (dissolved)	ug/l	< 3	15	< 3	< 3	< 3	< 0.1	< 0.1	< 0.1							
Boron (dissolved)	ug/l	< 5		510	575	1300	420	370	220							
Cadmium (dissolved)	ug/l	< 0.4	0.08	< 0.4	< 0.4	< 0.4	0.03	< 0.02	< 0.02	0.22	< 0.02	< 0.02	0.06	0.09	< 0.02	< 0.02
Calcium (dissolved)	mg/l	0.012					170	160	210	120	170	240	170	86	150	320
Chromium (dissolved)	ug/l	< 5	4.7	< 5	< 5	< 5	0.5	0.3	0.3	0.2	1.8	1.3	0.5	< 0.2	0.3	< 0.2
Copper (dissolved)	ug/l	< 5	1	< 5	< 5	< 5	1.6	2	0.6	5.9	2	1.5	2.7	4.3	2.2	0.6
Lead (dissolved)	ug/l	< 5	1.2	< 5	< 5	< 5	0.4	0.7	0.3	0.8	3.7	5.3	52	1	0.9	< 0.2
Magnesium (dissolved)	mg/l	0.005					48	55	68							
Mercury (dissolved)	ug/l	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	ug/l	< 5	4	< 5	< 5	5	4.7	3.3	7.3	2.2	7.3	3.4	0.9	1.8	6.4	1
Selenium (dissolved)	ug/l	< 5		< 5	< 5	< 5	33	2.1	4.2	1.2	2.3	4.5	7.5	0.9	2.1	6.6
Vanadium (dissolved)	ug/l	< 5		< 5	< 5	< 5	0.5	0.3	< 0.2							
Zinc (dissolved)	ug/l	< 2	10.9	7	4	7	2.4	9.3	8.8	26	7.2	3.7	32	30	6.2	59
Total Phenols (monohydric)	ug/l	< 10	7.7	< 10	< 10	< 10	280	< 10	190	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	790	< 3.5
Naphthalene	ug/l	< 0.01	2	< 0.01	< 0.01	0.06	0.27	0.1	585	< 0.01	2480	65.8	1.93	1.86	5260	37.1
Acenaphthylene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	0.29	0.29	0.87	< 0.01	5.98	5.31	< 0.01	< 0.01	14.1	< 0.01
Acenaphthene	ug/l	< 0.01		0.03	< 0.01	0.11	6.01	11.2	13.7	< 0.01	105	110	< 0.01	< 0.01	234	1.43
Fluorene	ug/l	< 0.01		< 0.01	< 0.01	0.03	2.59	2.76	5.13	< 0.01	39.4	45.8	< 0.01	< 0.01	101	0.39
Phenanthrene	ug/l	< 0.01		< 0.01	< 0.01	0.04	2.22	< 0.01	5.04	< 0.01	19.4	24.8	< 0.01	< 0.01	56.5	< 0.01
Anthracene	ug/l	< 0.01	0.1	< 0.01	0.03	0.02	0.55	0.4	0.79	< 0.01	5.07	2.69	< 0.01	< 0.01	15.9	< 0.01
Fluoranthene	ug/l	< 0.01	0.1	< 0.01	0.03	0.03	0.5	0.9	0.75	< 0.01	1.26	2.06	< 0.01	< 0.01	3.09	< 0.01
Pyrene	ug/l	< 0.01		< 0.01	0.02	0.03	0.3	0.51	0.57	< 0.01	0.64	1.09	< 0.01	< 0.01	1.72	< 0.01
Benzo[a]anthracene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo[b]fluoranthene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo[k]fluoranthene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo[a]pyrene	ug/l	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno[1,2,3-cd]pyrene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz[a,h]anthracene	ug/l	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo[ghi]perylene	ug/l	< 0.008		< 0.008	< 0.008	< 0.008	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total EPA-16 PAHs	ug/l	< 0.01		0.03	0.08	0.32	12.7	16.1	612	< 0.16	2660	248	1.93	1.86	5680	39
Aliphatic >C5 - C6	ug/l	< 10		< 10	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic >C6 - C8	ug/l	< 10		< 10	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic >C8 - C10	ug/l	< 10		< 10	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic >C10 - C12	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C12 - C16	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C16 - C21	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C21 - C34	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	ug/l	< 70		< 70	< 70	< 70	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C5 - C7	ug/l	< 10		< 10	< 10	< 10	3.5	< 1.0	2.9	< 1.0	< 1.0	7.1	< 1.0	< 1.0	3.5	< 1.0
Aromatic >C7 - C8	ug/l	< 10		< 10	< 10	< 10	< 1.0	< 1.0	6.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	10	< 1.0
Aromatic >C8 - C10	ug/l	< 10		< 10	< 10	< 10	6.8	< 1.0	390	< 1.0	370	32	< 1.0	< 1.0	610	< 1.0
Aromatic >C10 - C12	ug/l	< 10		< 10	< 10	< 10	< 10	70	1500	< 10	2800	610	< 10	< 10	9600	38
Aromatic >C12 - C16	ug/l	< 10		< 10	< 10	< 10	820	150	1000	< 10	4600	1700	< 10	< 10	6000	< 10
Aromatic >C16 - C21	ug/l	< 10		< 10	< 10	< 10	400	70	500	< 10	4600	1100	< 10	< 10	1500	< 10
Aromatic >C21 - C35	ug/l	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	210	91	< 10	< 10	300	< 10
Aromatic (C5 - C35)	ug/l	< 70		< 70	< 70	< 70	1200	290	3400	< 10	13000	3500	< 10	< 10	18000	38
Total >C5 - C35	ug/l	< 140	10	< 140	< 140	< 140	1200	290	3400	< 140	13000	3500	< 140	< 140	18000	38
Toluene	ug/l	< 1	10	< 1	< 1	< 1	3.5	< 1.0	2.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3.5	< 1.0
Benzene	ug/l	< 5	74	< 5	< 5	< 5	< 1.0	< 1.0	6.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	10.4	< 1.0
Ethylbenzene	ug/l	< 5	300	< 5	< 5	< 5	2	< 1.0	81.1	< 1.0	72.7	6.6	< 1.0	< 1.0	222	< 1.0
p & m-xylene	ug/l	< 10	30	< 10	< 10	< 10	< 1.0	< 1.0	170	< 1.0	141	5.8	< 1.0	< 1.0	143	< 1.0
o-xylene	ug/l	< 5	30	< 5	< 5	< 5	3	< 1.0	76.7	< 1.0	76	11.1	< 1.0	< 1.0	117	< 1.0
MTBE	ug/l	< 10		< 10	< 10	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



TP / BH No	WS5	WS6	WS7	BH02	BH07	BH08
Depth (m)	2.88	3.86	3.25	2.8	4.85	4.8
Date Sampled	03/07/2019	03/07/2019	03/07/2019	29/01/2020	29/01/2020	29/01/2020
Lab Report No:	19-09550	19-09550	19-09550	20-83728	20-83728	20-83728
Lab Sample No	419616	419617	419618	1425653	1425654	1425655
Determinand	Unit	LOD	GAC (LOD)			
Chloromethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	LOD	3.5	< 1.0	2.9
Tetrachloromethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	LOD	< 1.0	< 1.0	6.9
1,1,2-Trichloroethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	LOD	2	< 1.0	81.1
p & m-Xylene	µg/l	1	LOD	< 1.0	< 1.0	170
Styrene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	LOD	3	< 1.0	76.7
1,1,2,2-Tetrachloroethane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	LOD	< 1.0	< 1.0	4.4
Bromobenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	LOD	< 1.0	< 1.0	19.1
tert-Butylbenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	LOD	1.8	< 1.0	41.9
sec-Butylbenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	LOD	< 1.0	< 1.0	< 1.0



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Analytical Report Number : 20-83728

Project / Site name:	Hayes	Samples received on:	29/01/2020
Your job number:	3249	Samples instructed on:	29/01/2020
Your order number:		Analysis completed by:	06/02/2020
Report Issue Number:	1	Report issued on:	06/02/2020
Samples Analysed:	2 soil samples - 3 water samples		


Signed:

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number	1425656	1425657			
Sample Reference	BH03	BH02			
Sample Number	None Supplied	None Supplied			
Depth (m)	3.00	1.50			
Date Sampled	29/01/2020	29/01/2020			
Time Taken	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	10	19
Total mass of sample received	kg	0.001	NONE	2.0	1.1

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected		
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	0.019		
Asbestos Quantification Total	%	0.001	ISO 17025	-	0.019		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.2	7.3		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1		
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1		
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1000	1400		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.51	0.70		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	509	698		
Organic Matter	%	0.1	MCERTS	2.5	5.8		
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	3.7	4.9		
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	3.9	1.6		
Acenaphthylene	mg/kg	0.05	MCERTS	3.4	1.1		
Acenaphthene	mg/kg	0.05	MCERTS	100	79		
Fluorene	mg/kg	0.05	MCERTS	270	62		
Phenanthrene	mg/kg	0.05	MCERTS	32	70		
Anthracene	mg/kg	0.05	MCERTS	76	83		
Fluoranthene	mg/kg	0.05	MCERTS	380	95		
Pyrene	mg/kg	0.05	MCERTS	230	64		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	61	14		
Chrysene	mg/kg	0.05	MCERTS	44	9.9		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	20	8.4		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	8.1	2.1		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	11	4.1		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.2	1.5		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.95	0.43		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.1	1.7		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	1250	499		
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Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number				1425656	1425657			
Sample Reference				BH03	BH02			
Sample Number				None Supplied	None Supplied			
Depth (m)				3.00	1.50			
Date Sampled				29/01/2020	29/01/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22	18			
Barium (aqua regia extractable)	mg/kg	1	MCERTS	50	380			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.7			
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	5.7			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.4			
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	30	42			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	360			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11	230			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	33	41			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	49	67			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	40	270			

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	8.7	13			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	41	250			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	27	340			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	260			
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	77	870			
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	77	870			

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	22	10			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	930	200			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	1900	490			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	480	210			
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	3300	900			
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	3300	900			

Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number				1425656	1425657			
Sample Reference				BH03	BH02			
Sample Number				None Supplied	None Supplied			
Depth (m)				3.00	1.50			
Date Sampled				29/01/2020	29/01/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0			
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0			
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0			
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0			
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			



Analytical Report Number: 20-83728
Project / Site name: Hayes
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1425657	BH02	1.50	144	Loose Fibrous Debris	Chrysotile	0.019	0.019

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



Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number	1425653	1425654	1425655		
Sample Reference	BH02	BH07	BH08		
Sample Number	None Supplied	None Supplied	None Supplied		
Depth (m)	2.80	4.85	4.80		
Date Sampled	29/01/2020	29/01/2020	29/01/2020		
Time Taken	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.5	7.5	7.3		
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	1600	1500	1300		
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10		
Sulphate as SO ₄	µg/l	45	ISO 17025	157000	169000	33400		
Sulphate as SO ₄	mg/l	0.045	ISO 17025	157	169	33.4		
Nitrate as N	mg/l	0.01	ISO 17025	1.14	0.67	1.57		
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	100	55	91		
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	18	6.1	31		
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	626	618	813		
Redox Potential	mV	-800	NONE	65.70	71.20	84.70		

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	280	< 10	190		
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	0.27	0.10	585		
Acenaphthylene	µg/l	0.01	ISO 17025	0.29	0.29	0.87		
Acenaphthene	µg/l	0.01	ISO 17025	6.01	11.2	13.7		
Fluorene	µg/l	0.01	ISO 17025	2.59	2.76	5.13		
Phenanthrene	µg/l	0.01	ISO 17025	2.22	< 0.01	5.04		
Anthracene	µg/l	0.01	ISO 17025	0.55	0.40	0.79		
Fluoranthene	µg/l	0.01	ISO 17025	0.50	0.90	0.75		
Pyrene	µg/l	0.01	ISO 17025	0.30	0.51	0.57		
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	12.7	16.1	612		
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.95	1.39	2.96		
Barium (dissolved)	µg/l	0.06	ISO 17025	110	130	97		
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1		
Boron (dissolved)	µg/l	10	ISO 17025	420	370	220		
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03	< 0.02	< 0.02		
Calcium (dissolved)	mg/l	0.012	ISO 17025	170	160	210		
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.5	0.3	0.3		
Copper (dissolved)	µg/l	0.5	ISO 17025	1.6	2.0	0.6		
Lead (dissolved)	µg/l	0.2	ISO 17025	0.4	0.7	0.3		
Magnesium (dissolved)	mg/l	0.005	ISO 17025	48	55	68		
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05		
Nickel (dissolved)	µg/l	0.5	ISO 17025	4.7	3.3	7.3		
Selenium (dissolved)	µg/l	0.6	ISO 17025	33	2.1	4.2		
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.5	0.3	< 0.2		
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.4	9.3	8.8		



Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number				1425653	1425654	1425655		
Sample Reference				BH02	BH07	BH08		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				2.80	4.85	4.80		
Date Sampled				29/01/2020	29/01/2020	29/01/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	3.5	< 1.0	2.9		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	6.9		
Ethylbenzene	µg/l	1	ISO 17025	2.0	< 1.0	81.1		
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	170		
o-xylene	µg/l	1	ISO 17025	3.0	< 1.0	76.7		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10	NONE	< 10	< 10	< 10		

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	3.5	< 1.0	2.9		
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	6.9		
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	6.8	< 1.0	390		
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	70	1500		
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	820	150	1000		
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	400	70	500		
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	1200	290	3400		
TPH-CWG - Aromatic (C5 - C44)	µg/l	10	NONE	1200	290	3400		



Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number				1425653	1425654	1425655		
Sample Reference				BH02	BH07	BH08		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				2.80	4.85	4.80		
Date Sampled				29/01/2020	29/01/2020	29/01/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)								
	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Benzene	µg/l	1	ISO 17025	3.5	< 1.0	2.9		
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	6.9		
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	2.0	< 1.0	81.1		
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	170		
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-Xylene	µg/l	1	ISO 17025	3.0	< 1.0	76.7		
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	4.4		
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	19.1		
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	1.8	< 1.0	41.9		
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

U/S = Unsuitable Sample I/S = Insufficient Sample

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Analytical Report Number : 20-83728

Project / Site name: Hayes

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1425656	BH03	None Supplied	3.00	Brown clay and sand with gravel and tar.
1425657	BH02	None Supplied	1.50	Brown clay and sand with gravel.

Analytical Report Number : 20-83728

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B.	L086-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Electrical conductivity at 20oC of water	Determination of electrical conductivity in water by electrometric measurement. Accredited Matrices SW, GW, PW	In-house method	L031-PL	W	ISO 17025
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Free cyanide in water	Determination of free cyanide by distillation followed by colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 20-83728

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In house method.	L084-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPH in (Water)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L070-PL	W	NONE

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Analytical Report Number : 20-83728

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Preliminary Report Number : 20-83728

Project / Site name:	Hayes	Samples received on:	29/01/2020
Your job number:	3249	Samples instructed on:	29/01/2020
Your order number:		Analysis completed by:	05/02/2020
Report Issue Number:	0	Report issued on:	05/02/2020
Samples Analysed:	2 soil samples - 3 water samples		

Signed: Karolina Marek

Karolina Marek
Technical Reviewer (Reporting Team)

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Preliminary reports provided at the request of the client should be considered as incomplete and have not been through the complete quality control procedure.

Results contained in preliminary reports may be subject to change and therefore should not be used as a basis for decision making, except at the risk of the client.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number				1425656	1425657			
Sample Reference				BH03	BH02			
Sample Number				None Supplied	None Supplied			
Depth (m)				3.00	1.50			
Date Sampled				29/01/2020	29/01/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	10	19			
Total mass of sample received	kg	0.001	NONE	2.0	1.1			

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected			
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	0.019			
Asbestos Quantification Total	%	0.001	ISO 17025	-	0.019			

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.2	7.3			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1000	1400			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.51	0.70			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	509	698			
Organic Matter	%	0.1	MCERTS	2.5	5.8			
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	3.7	4.9			
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0			

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	To follow	To follow			
Acenaphthylene	mg/kg	0.05	MCERTS	To follow	To follow			
Acenaphthene	mg/kg	0.05	MCERTS	To follow	To follow			
Fluorene	mg/kg	0.05	MCERTS	To follow	To follow			
Phenanthrene	mg/kg	0.05	MCERTS	To follow	To follow			
Anthracene	mg/kg	0.05	MCERTS	To follow	To follow			
Fluoranthene	mg/kg	0.05	MCERTS	To follow	To follow			
Pyrene	mg/kg	0.05	MCERTS	To follow	To follow			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	To follow	To follow			
Chrysene	mg/kg	0.05	MCERTS	To follow	To follow			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	To follow	To follow			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	To follow	To follow			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	To follow	To follow			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	To follow	To follow			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	To follow	To follow			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	To follow	To follow			

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	To follow	To follow			
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Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number				1425656	1425657			
Sample Reference				BH03	BH02			
Sample Number				None Supplied	None Supplied			
Depth (m)				3.00	1.50			
Date Sampled				29/01/2020	29/01/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22	18			
Barium (aqua regia extractable)	mg/kg	1	MCERTS	50	380			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.7			
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	5.7			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.4			
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	30	42			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	360			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11	230			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	33	41			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	49	67			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	40	270			

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	To follow	To follow			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	To follow	To follow			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	To follow	To follow			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	To follow	To follow			
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	To follow	To follow			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	To follow	To follow			
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	To follow	To follow			

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	To follow	To follow			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	To follow	To follow			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	To follow	To follow			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	To follow	To follow			
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	To follow	To follow			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	To follow	To follow			
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	To follow	To follow			

Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number				1425656	1425657			
Sample Reference				BH03	BH02			
Sample Number				None Supplied	None Supplied			
Depth (m)				3.00	1.50			
Date Sampled				29/01/2020	29/01/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0			
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0			
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0			
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0			
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			



Analytical Report Number: 20-83728

Project / Site name: Hayes

Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1425657	BH02	1.50	144	Loose Fibrous Debris	Chrysotile	0.019	0.019

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



Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number				1425653	1425654	1425655		
Sample Reference				BH02	BH07	BH08		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				2.80	4.85	4.80		
Date Sampled				29/01/2020	29/01/2020	29/01/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.5	7.5	7.3		
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	1600	1500	1300		
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10		
Sulphate as SO ₄	mg/l	0.045	ISO 17025	157	169	33.4		
Nitrate as N	mg/l	0.01	ISO 17025	1.14	0.67	1.57		
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	100	55	91		
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	18	6.1	31		
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	626	618	813		
Redox Potential	mV	-800	NONE	65.70	71.20	84.70		

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	280	< 10	190		
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	0.27	0.10	585		
Acenaphthylene	µg/l	0.01	ISO 17025	0.29	0.29	0.87		
Acenaphthene	µg/l	0.01	ISO 17025	6.01	11.2	13.7		
Fluorene	µg/l	0.01	ISO 17025	2.59	2.76	5.13		
Phenanthrene	µg/l	0.01	ISO 17025	2.22	< 0.01	5.04		
Anthracene	µg/l	0.01	ISO 17025	0.55	0.40	0.79		
Fluoranthene	µg/l	0.01	ISO 17025	0.50	0.90	0.75		
Pyrene	µg/l	0.01	ISO 17025	0.30	0.51	0.57		
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	12.7	16.1	612		
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.95	1.39	2.96		
Barium (dissolved)	µg/l	0.06	ISO 17025	110	130	97		
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1		
Boron (dissolved)	µg/l	10	ISO 17025	420	370	220		
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03	< 0.02	< 0.02		
Calcium (dissolved)	mg/l	0.012	ISO 17025	170	160	210		
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.5	0.3	0.3		
Copper (dissolved)	µg/l	0.5	ISO 17025	1.6	2.0	0.6		
Lead (dissolved)	µg/l	0.2	ISO 17025	0.4	0.7	0.3		
Magnesium (dissolved)	mg/l	0.005	ISO 17025	48	55	68		
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05		
Nickel (dissolved)	µg/l	0.5	ISO 17025	4.7	3.3	7.3		
Selenium (dissolved)	µg/l	0.6	ISO 17025	33	2.1	4.2		
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.5	0.3	< 0.2		
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.4	9.3	8.8		



Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number				1425653	1425654	1425655		
Sample Reference				BH02	BH07	BH08		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				2.80	4.85	4.80		
Date Sampled				29/01/2020	29/01/2020	29/01/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	3.5	< 1.0	2.9		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	6.9		
Ethylbenzene	µg/l	1	ISO 17025	2.0	< 1.0	81.1		
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	170		
o-xylene	µg/l	1	ISO 17025	3.0	< 1.0	76.7		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10	NONE	< 10	< 10	< 10		

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	3.5	< 1.0	2.9		
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	6.9		
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	6.8	< 1.0	390		
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	70	1500		
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	820	150	1000		
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	400	70	500		
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	1200	290	3400		
TPH-CWG - Aromatic (C5 - C44)	µg/l	10	NONE	1200	290	3400		



Analytical Report Number: 20-83728

Project / Site name: Hayes

Lab Sample Number				1425653	1425654	1425655		
Sample Reference				BH02	BH07	BH08		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				2.80	4.85	4.80		
Date Sampled				29/01/2020	29/01/2020	29/01/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Benzene	µg/l	1	ISO 17025	3.5	< 1.0	2.9		
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	6.9		
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	2.0	< 1.0	81.1		
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	170		
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-Xylene	µg/l	1	ISO 17025	3.0	< 1.0	76.7		
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	4.4		
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	19.1		
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	1.8	< 1.0	41.9		
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

U/S = Unsuitable Sample I/S = Insufficient Sample

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This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.



Preliminary Report Number : 20-83728

Project / Site name: Hayes

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1425656	BH03	None Supplied	3.00	Brown clay and sand with gravel and tar.
1425657	BH02	None Supplied	1.50	Brown clay and sand with gravel.

Preliminary Report Number : 20-83728

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B.	L086-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Electrical conductivity at 20oC of water	Determination of electrical conductivity in water by electrometric measurement. Accredited Matrices SW, GW, PW	In-house method	L031-PL	W	ISO 17025
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Free cyanide in water	Determination of free cyanide by distillation followed by colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE

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The results included within the report are representative of the samples submitted for analysis.

Page 10 of 12

Preliminary Report Number : 20-83728

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Redox Potential of waters	Determination of conductivity of water by conductivity meter	In house method.	L084-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPH in (Water)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L070-PL	W	NONE

Iss No 20-83728-0 Hayes 3249

Preliminary Report Number : 20-83728

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 20-83394

Project / Site name:	Hayes	Samples received on:	24/01/2020
Your job number:	3249	Samples instructed on:	28/01/2020
Your order number:		Analysis completed by:	03/02/2020
Report Issue Number:	1	Report issued on:	03/02/2020
Samples Analysed:	2 leachate samples		


Signed:

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-83394-1 Hayes 3249



Analytical Report Number: 20-83394

Project / Site name: Hayes

Lab Sample Number				1424098	1424099			
Sample Reference				BH07	BH08			
Sample Number				None Supplied	None Supplied			
Depth (m)				5.80-6.00	5.50-6.00			
Date Sampled				24/01/2020	24/01/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.7	7.3			
Electrical Conductivity	µS/cm	10	ISO 17025	99	39			
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10			
Sulphate as SO ₄	mg/l	0.1	ISO 17025	12.3	3.8			
Nitrate as N	mg/l	0.01	NONE	0.02	0.08			
Hardness - Total	mgCaCO ₃ /l	1	NONE	38.4	14.3			

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	250	4700			
Acenaphthylene	µg/l	0.01	ISO 17025	4.7	9.0			
Acenaphthene	µg/l	0.01	ISO 17025	81	170			
Fluorene	µg/l	0.01	ISO 17025	52	64			
Phenanthrene	µg/l	0.01	ISO 17025	41	41			
Anthracene	µg/l	0.01	ISO 17025	3.0	5.8			
Fluoranthene	µg/l	0.01	ISO 17025	2.1	4.8			
Pyrene	µg/l	0.01	ISO 17025	1.3	4.1			
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	430	5000			
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	< 1.1			
Barium (dissolved)	µg/l	0.05	ISO 17025	17	8.6			
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Boron (dissolved)	µg/l	10	ISO 17025	45	20			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.8	2.1			
Copper (dissolved)	µg/l	0.7	ISO 17025	3.3	2.8			
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3	1.0			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Vanadium (dissolved)	µg/l	1.7	ISO 17025	2.4	7.1			
Zinc (dissolved)	µg/l	0.4	ISO 17025	7.3	9.4			

Calcium (dissolved)	mg/l	0.012	ISO 17025	11	3.8			
Magnesium (dissolved)	mg/l	0.005	ISO 17025	2.8	1.2			



Analytical Report Number: 20-83394

Project / Site name: Hayes

Lab Sample Number				1424098	1424099			
Sample Reference				BH07	BH08			
Sample Number				None Supplied	None Supplied			
Depth (m)				5.80-6.00	5.50-6.00			
Date Sampled				24/01/2020	24/01/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	1.7			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	16			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	29			
o-xylene	µg/l	1	ISO 17025	< 1.0	18			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C44)	µg/l	10	NONE	< 10	< 10			

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	1.7			
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	88			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	370	5600			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	600	2000			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	100	1000			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	1100	8700			
TPH-CWG - Aromatic (C5 - C44)	µg/l	10	NONE	1100	8700			



Analytical Report Number : 20-83394

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Electrical conductivity at 20oC of leachate	Determination of electrical conductivity in leachate by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-PL	W	ISO 17025
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	NONE
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In house method.	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	NONE
TPH in (Leachate)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method, TPH with carbon banding.	L070-PL	W	NONE
TPH7 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 20-82909

Replaces Analytical Report Number : 20-82909, issue no. 1

Project / Site name:	Hayes	Samples received on:	24/01/2020
Your job number:	3249	Samples instructed on:	24/01/2020
Your order number:		Analysis completed by:	10/02/2020
Report Issue Number:	2	Report issued on:	10/02/2020
Samples Analysed:	4 soil samples		

Signed:

Rachel Bradley

Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 20-82909

Project / Site name: Hayes

Lab Sample Number				1421299	1421300	1421301	1421302	
Sample Reference				BH07	BH07	BH08	BH08	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				2.55-3.00	5.80-6.00	2.50-3.00	5.50-6.00	
Date Sampled				24/01/2020	24/01/2020	24/01/2020	24/01/2020	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	19	8.3	15	12	
Total mass of sample received	kg	0.001	NONE	2.0	1.9	1.6	2.0	

Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected	
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7	8.1	8.8	7.9	
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	390	55	1900	58	
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.19	0.028	0.96	0.029	
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	195	27.5	955	29.0	
Organic Matter	%	0.1	MCERTS	3.4	0.5	2.1	0.4	
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	3.2	< 2.0	2.6	< 2.0	
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	1.3	-	2.2	
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.92	65	1.3	79	
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	3.0	< 0.05	< 0.05	
Acenaphthene	mg/kg	0.05	MCERTS	1.5	72	0.50	42	
Fluorene	mg/kg	0.05	MCERTS	1.1	73	0.45	37	
Phenanthrene	mg/kg	0.05	MCERTS	3.8	200	1.8	100	
Anthracene	mg/kg	0.05	MCERTS	1.4	25	0.47	18	
Fluoranthene	mg/kg	0.05	MCERTS	7.2	93	2.4	37	
Pyrene	mg/kg	0.05	MCERTS	6.1	63	2.0	24	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.0	19	1.4	5.9	
Chrysene	mg/kg	0.05	MCERTS	2.1	11	0.98	3.4	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.0	4.5	1.0	1.6	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.3	3.6	0.79	1.1	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.9	3.0	1.0	1.2	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.65	0.85	0.42	< 0.05	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.26	< 0.05	< 0.05	< 0.05	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.91	0.54	0.55	< 0.05	

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	34.1	641	15.1	354	
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	13	15	8.4	
Barium (aqua regia extractable)	mg/kg	1	MCERTS	210	35	170	15	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5	0.74	1.4	0.46	
Boron (water soluble)	mg/kg	0.2	MCERTS	4.3	1.2	4.0	0.6	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.9	< 0.2	
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	42	27	47	23	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	200	12	100	8.7	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	350	14	180	4.7	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.2	< 0.3	< 0.3	< 0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	26	34	21	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	72	43	70	26	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	230	38	390	58	



Analytical Report Number: 20-82909

Project / Site name: Hayes

Lab Sample Number				1421299	1421300	1421301	1421302	
Sample Reference				BH07	BH07	BH08	BH08	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				2.55-3.00	5.80-6.00	2.50-3.00	5.50-6.00	
Date Sampled				24/01/2020	24/01/2020	24/01/2020	24/01/2020	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Analytical Report Number: 20-82909

Project / Site name: Hayes

Lab Sample Number	1421299	1421300	1421301	1421302	
Sample Reference	BH07	BH07	BH08	BH08	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	2.55-3.00	5.80-6.00	2.50-3.00	5.50-6.00	
Date Sampled	24/01/2020	24/01/2020	24/01/2020	24/01/2020	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	
TPH C10 - C40	mg/kg	10	MCERTS	2800	-	98	-	
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	
TPH C6 - C40	mg/kg	10	NONE	2800	-	98	-	

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	7.6	9.5	-	9.2	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	120	39	-	30	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	1500	27	-	32	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	520	17	-	23	
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	< 8.4	-	< 8.4	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	2100	94	-	95	
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	94	-	95	

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	1.7	70	-	110	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	78	300	-	380	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	560	390	-	410	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	370	140	-	44	
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	< 8.4	-	< 8.4	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	1000	900	-	940	
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	900	-	940	

TPH (C10 - C25)	mg/kg	10	MCERTS	2600	-	82	-	
TPH (C25 - C40)	mg/kg	10	MCERTS	550	-	< 10	-	

Analytical Report Number: 20-82909

Project / Site name: Hayes

Lab Sample Number				1421299	1421300	1421301	1421302	
Sample Reference				BH07	BH07	BH08	BH08	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				2.55-3.00	5.80-6.00	2.50-3.00	5.50-6.00	
Date Sampled				24/01/2020	24/01/2020	24/01/2020	24/01/2020	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
Chloroethane	µg/kg	1	NONE	-	< 1.0	-	< 1.0	
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	-	< 1.0	
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	-	< 1.0	
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	-	< 1.0	
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	< 1.0	
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	-	< 1.0	
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Styrene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Tribromomethane	µg/kg	1	NONE	-	< 1.0	-	< 1.0	
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0	



Analytical Report Number : 20-82909

Project / Site name: Hayes

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1421299	BH07	None Supplied	2.55-3.00	Grey clay with gravel.
1421300	BH07	None Supplied	5.80-6.00	Brown clay with gravel.
1421301	BH08	None Supplied	2.50-3.00	Grey clay with gravel.
1421302	BH08	None Supplied	5.50-6.00	Grey sandy gravel.**

**Non MCERTS matrix.

Analytical Report Number : 20-82909

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 20-82909

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	W	MCERTS
TPH C6 - C40 (soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method.	L076-PL	W	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPH Oils (Soils)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method with silica gel split/cleanup.	L076-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/cleanup.	L088/76-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 20-82909

Project / Site name: Hayes

Samples received on:

Your job number: 3249

Samples instructed on: 24/01/2020

Your order number:

Analysis completed by: 03/02/2020

Report Issue Number: 1

Report issued on: 03/02/2020

Samples Analysed: 4 soil samples

Signed: *A. Czerwińska*

Agnieszka Czerwińska

Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 20-82909

Project / Site name: Hayes

Lab Sample Number	1421299	1421300	1421301	1421302	
Sample Reference	BH07	BH07	BH08	BH08	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	2.55-3.00	5.80-6.00	2.50-3.00	5.50-6.00	
Date Sampled	24/01/2020	24/01/2020	24/01/2020	24/01/2020	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	19	15
Total mass of sample received	kg	0.001	NONE	2.0	1.6

Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7	8.1	8.8	7.9
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	390	55	1900	58
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.19	0.028	0.96	0.029
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	195	27.5	955	29.0
Organic Matter	%	0.1	MCERTS	3.4	0.5	2.1	0.4
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	3.2	< 2.0	2.6	< 2.0
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	1.3	-	2.2
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.92	65	1.3	79
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	3.0	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	1.5	72	0.50	42
Fluorene	mg/kg	0.05	MCERTS	1.1	73	0.45	37
Phenanthrene	mg/kg	0.05	MCERTS	3.8	200	1.8	100
Anthracene	mg/kg	0.05	MCERTS	1.4	25	0.47	18
Fluoranthene	mg/kg	0.05	MCERTS	7.2	93	2.4	37
Pyrene	mg/kg	0.05	MCERTS	6.1	63	2.0	24
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.0	19	1.4	5.9
Chrysene	mg/kg	0.05	MCERTS	2.1	11	0.98	3.4
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.0	4.5	1.0	1.6
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.3	3.6	0.79	1.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.9	3.0	1.0	1.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.65	0.85	0.42	< 0.05
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	0.26	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.91	0.54	0.55	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	34.1	641	15.1	354
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Analytical Report Number: 20-82909

Project / Site name: Hayes

Lab Sample Number	1421299	1421300	1421301	1421302	
Sample Reference	BH07	BH07	BH08	BH08	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	2.55-3.00	5.80-6.00	2.50-3.00	5.50-6.00	
Date Sampled	24/01/2020	24/01/2020	24/01/2020	24/01/2020	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	13	15	8.4	
Barium (aqua regia extractable)	mg/kg	1	MCERTS	210	35	170	15	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5	0.74	1.4	0.46	
Boron (water soluble)	mg/kg	0.2	MCERTS	4.3	1.2	4.0	0.6	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.9	< 0.2	
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	42	27	47	23	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	200	12	100	8.7	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	350	14	180	4.7	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.2	< 0.3	< 0.3	< 0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	26	34	21	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	72	43	70	26	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	230	38	390	58	

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
o-xylene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0	

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	
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TPH C10 - C40	mg/kg	10	MCERTS	2800	-	98	-	
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TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	
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TPH C6 - C40	mg/kg	10	NONE	2800	-	98	-	
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TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	9.5	-	9.2	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	39	-	30	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	27	-	32	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	17	-	23	
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	< 8.4	-	< 8.4	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	94	-	95	
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	94	-	95	

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	70	-	110	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	300	-	380	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	390	-	410	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	140	-	44	
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	< 8.4	-	< 8.4	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	900	-	940	
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	900	-	940	

TPH (C10 - C25)	mg/kg	10	MCERTS	2600	-	82	-	
TPH (C25 - C40)	mg/kg	10	MCERTS	550	-	< 10	-	

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Analytical Report Number: 20-82909

Project / Site name: Hayes

Lab Sample Number				1421299	1421300	1421301	1421302	
Sample Reference				BH07	BH07	BH08	BH08	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				2.55-3.00	5.80-6.00	2.50-3.00	5.50-6.00	
Date Sampled				24/01/2020	24/01/2020	24/01/2020	24/01/2020	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Analytical Report Number: 20-82909

Project / Site name: Hayes

Lab Sample Number	1421299	1421300	1421301	1421302	
Sample Reference	BH07	BH07	BH08	BH08	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	2.55-3.00	5.80-6.00	2.50-3.00	5.50-6.00	
Date Sampled	24/01/2020	24/01/2020	24/01/2020	24/01/2020	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Chloroethane	µg/kg	1	NONE	-	< 1.0	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	< 1.0
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Styrene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Tribromomethane	µg/kg	1	NONE	-	< 1.0	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	< 1.0

Analytical Report Number : 20-82909

Project / Site name: Hayes

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1421299	BH07	None Supplied	2.55-3.00	Grey clay with gravel.
1421300	BH07	None Supplied	5.80-6.00	Brown clay with gravel.
1421301	BH08	None Supplied	2.50-3.00	Grey clay with gravel.
1421302	BH08	None Supplied	5.50-6.00	Grey sandy gravel.**

** Non MCERTS Matrix

Analytical Report Number : 20-82909

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L0738-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 20-82909

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	W	MCERTS
TPH C6 - C40 (soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method.	L076-PL	W	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPH Oils (Soils)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method with silica gel split/cleanup.	L076-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/cleanup.	L088/76-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



Rachael Giles
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ME17 2JN
t: 01622 850410

DETS Report No: 19-09356

Site Reference: Bulls Bridge Industrial Estate, Hayes

Project / Job Ref: YE7331

Order No: None Supplied

Sample Receipt Date: 02/07/2019

Sample Scheduled Date: 02/07/2019

Report Issue Number: 1

Reporting Date: 08/07/2019

Authorised by:

A handwritten signature in black ink, appearing to read "Dave Ashworth".

Dave Ashworth
Deputy Quality Manager

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.



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Soil Analysis Certificate						
DETS Report No: 19-09356	Date Sampled	27/06/19	27/06/19	25/06/19	27/06/19	25/06/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS1	WS2	WS3	WS4	WS5
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.75	0.50	0.75	0.80	0.50
Reporting Date: 08/07/2019	DETS Sample No	418781	418782	418783	418784	418785

Determinand	Unit	RL	Accreditation	(n)				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Detected	Not Detected	Not Detected
Sample Matrix ^(S)	Material Type	N/a	NONE			bundle of Chrysotile fibres		
Asbestos Type ^(S)	PLM Result	N/a	ISO17025			Chrysotile		
pH	pH Units	N/a	MCERTS	7.5	7.5	8.0	8.4	9.9
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	153	152	148	200	585
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.15	0.15	0.15	0.20	0.58
Organic Matter	%	< 0.1	MCERTS	5.7	3.2	3.6	3.3	2.7
Arsenic (As)	mg/kg	< 2	MCERTS	32	20	19	34	12
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.2	0.4	0.2	0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	16	26	23	89	24
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	105	87	76	113	24
Lead (Pb)	mg/kg	< 3	MCERTS	28	146	381	67	58
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1	1.1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	41	24	22	56	13
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3	< 3	< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	54	210	211	116	146
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

Subcontracted analysis (S)

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation



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Soil Analysis Certificate						
DETS Report No: 19-09356	Date Sampled	25/06/19	25/06/19	26/06/19	27/06/19	26/06/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS5	WS6A	WS7	WS8	WS9
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	3.50	0.80	2.50	0.30	2.00
Reporting Date: 08/07/2019	DETS Sample No	418786	418787	418788	418789	418790

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Detected	Not Detected	Detected	Not Detected
Sample Matrix ^(S)	Material Type	N/a	NONE		bundles of Chrysotile fibres		bundles of Chrysotile fibres	
Asbestos Type ^(S)	PLM Result	N/a	ISO17025		Chrysotile		Chrysotile	
pH	pH Units	N/a	MCERTS	7.1	9.1	7.5	10.4	9.2
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	198	224	605	601	246
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.20	0.22	0.60	0.60	0.25
Organic Matter	%	< 0.1	MCERTS	1.5	1.7	3.1	2.2	2.4
Arsenic (As)	mg/kg	< 2	MCERTS	7	15	22	14	12
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	0.4	< 0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	17	26	32	22	143
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	12	35	62	46	76
Lead (Pb)	mg/kg	< 3	MCERTS	25	102	307	843	77
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1	1.7	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	8	25	22	16	19
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3	< 3	< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	34	114	285	124	86
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
 Subcontracted analysis (S)



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Soil Analysis Certificate						
DETS Report No: 19-09356	Date Sampled	26/06/19	25/06/19	25/06/19		
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS10	TP4	TP6		
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: None Supplied	Depth (m)	0.50	0.80	1.00		
Reporting Date: 08/07/2019	DETS Sample No	418791	418792	418793		

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Detected	
Sample Matrix ^(S)	Material Type	N/a	NONE			bundles of Chrysotile fibres	
Asbestos Type ^(S)	PLM Result	N/a	ISO17025			Chrysotile	
pH	pH Units	N/a	MCERTS	8.3	7.8	8.1	
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	55	191	55	
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.05	0.19	0.05	
Organic Matter	%	< 0.1	MCERTS	6.7	4.4	1.2	
Arsenic (As)	mg/kg	< 2	MCERTS	6	317	13	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	5.8	0.3	
Chromium (Cr)	mg/kg	< 2	MCERTS	13	18	11	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	13	75	31	
Lead (Pb)	mg/kg	< 3	MCERTS	27	52	60	
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1	< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS	11	32	11	
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3	
Zinc (Zn)	mg/kg	< 3	MCERTS	32	48	73	
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
 Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 19-09356	Date Sampled	27/06/19	27/06/19	25/06/19	27/06/19	25/06/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS1	WS2	WS3	WS4	WS5
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.75	0.50	0.75	0.80	0.50
Reporting Date: 08/07/2019	DETS Sample No	418781	418782	418783	418784	418785

Determinand	Unit	RL	Accreditation	(n)			
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	0.41	0.85	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	0.25	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.13	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	0.14	0.18	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.23	0.85	1.22	0.33
Anthracene	mg/kg	< 0.1	MCERTS	0.15	0.48	0.31	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	0.25	2.35	1.96	0.32
Pyrene	mg/kg	< 0.1	MCERTS	0.24	2.22	1.70	0.28
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	1.66	0.76	0.41
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	1.47	1.04	0.56
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.37	1.94	1.13	1.27
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.58	0.32	0.31
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	1.28	0.63	0.33
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	1.09	0.43	0.37
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.11	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	0.81	0.35	0.30
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	15.6	11	4.5

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 19-09356	Date Sampled	25/06/19	25/06/19	26/06/19	27/06/19	26/06/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS5	WS6A	WS7	WS8	WS9
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	3.50	0.80	2.50	0.30	2.00
Reporting Date: 08/07/2019	DETS Sample No	418786	418787	418788	418789	418790

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	0.13	4.65	0.81	0.35	0.57
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	0.20	0.15	< 0.1	0.33
Acenaphthene	mg/kg	< 0.1	MCERTS	0.17	9.79	1.73	0.16	0.12
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	8.60	2.10	0.16	1.22
Phenanthrene	mg/kg	< 0.1	MCERTS	0.33	33.70	11.30	1.56	14.20
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	7.27	6.42	0.32	4.22
Fluoranthene	mg/kg	< 0.1	MCERTS	0.46	20.60	22.10	2.84	23.80
Pyrene	mg/kg	< 0.1	MCERTS	0.35	15	15.40	2.54	17.50
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.18	3.05	7.68	1.34	7.92
Chrysene	mg/kg	< 0.1	MCERTS	0.29	2.94	6.35	1.42	7.78
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.32	2.45	6.17	1.71	7.83
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.74	2.08	0.53	2.54
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.17	1.55	4.42	1.23	4.81
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.13	0.73	1.79	0.80	2.31
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.15	0.44	0.14	0.69
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	0.60	1.29	0.67	1.85
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	2.5	112	90.3	15.8	97.6

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 19-09356	Date Sampled	26/06/19	25/06/19	25/06/19		
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS10	TP4	TP6		
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: None Supplied	Depth (m)	0.50	0.80	1.00		
Reporting Date: 08/07/2019	DETS Sample No	418791	418792	418793		

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	0.12	1.82		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.18		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.57		
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.41		
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	0.33	3.77		
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	2.23		
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.20	8.03		
Pyrene	mg/kg	< 0.1	MCERTS	0.13	0.16	6.05		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	2.53		
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	0.17	2.98		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.12	2.95		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.89		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	1.49		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.94		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.20		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.72		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	35.8		

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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 19-09356	Date Sampled	27/06/19	27/06/19	25/06/19	27/06/19	25/06/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS1	WS2	WS3	WS4	WS5
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.75	0.50	0.75	0.80	0.50
Reporting Date: 08/07/2019	DETS Sample No	418781	418782	418783	418784	418785

Determinand	Unit	RL	Accreditation	(n)				
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	4
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	23
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	285
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	312
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	3	4	< 2	< 2
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	4	10	14	< 3	9
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	25	36	22	< 10	79
Aromatic (C5 - C35)	mg/kg	< 21	NONE	29	49	40	< 21	88
Total >C5 - C35	mg/kg	< 42	NONE	< 42	49	< 42	< 42	400

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 19-09356	Date Sampled	25/06/19	25/06/19	26/06/19	27/06/19	26/06/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS5	WS6A	WS7	WS8	WS9
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	3.50	0.80	2.50	0.30	2.00
Reporting Date: 08/07/2019	DETS Sample No	418786	418787	418788	418789	418790

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	10	< 3	5	< 3
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	8	< 3	8	< 3
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	23	< 10
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	36	< 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	6	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	11	3	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	96	22	6	14
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	193	125	20	116
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	164	240	75	270
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	470	391	102	400
Total >C5 - C35	mg/kg	< 42	NONE	< 42	488	391	138	400

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 19-09356	Date Sampled	26/06/19	25/06/19	25/06/19		
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS10	TP4	TP6		
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: None Supplied	Depth (m)	0.50	0.80	1.00		
Reporting Date: 08/07/2019	DETS Sample No	418791	418792	418793		

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	25	< 3	< 3		
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	126	< 3	3		
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	754	< 10	21		
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	905	< 21	25		
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	3		
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	6	< 2	11		
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	151	< 3	47		
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	1584	< 10	112		
Aromatic (C5 - C35)	mg/kg	< 21	NONE	1741	< 21	174		
Total >C5 - C35	mg/kg	< 42	NONE	2646	< 42	198		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 19-09356	Date Sampled	27/06/19	27/06/19	25/06/19	27/06/19	25/06/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS1	WS2	WS3	WS4	WS5
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.75	0.50	0.75	0.80	0.50
Reporting Date: 08/07/2019	DETS Sample No	418781	418782	418783	418784	418785

Determinand	Unit	RL	Accreditation	(n)				
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: 19-09356	Date Sampled	25/06/19	25/06/19	26/06/19	27/06/19	26/06/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS5	WS6A	WS7	WS8	WS9
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	3.50	0.80	2.50	0.30	2.00
Reporting Date: 08/07/2019	DETS Sample No	418786	418787	418788	418789	418790

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	12
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	13
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

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 19-09356	Date Sampled	26/06/19	25/06/19	25/06/19		
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS10	TP4	TP6		
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: None Supplied	Depth (m)	0.50	0.80	1.00		
Reporting Date: 08/07/2019	DETS Sample No	418791	418792	418793		

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

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - Volatile Organic Compounds (VOC)

DETS Report No: 19-09356	Date Sampled	27/06/19	25/06/19	25/06/19	25/06/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS4	WS5	TP4	TP6
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.80	0.50	0.80	1.00
Reporting Date: 08/07/2019	DETS Sample No	418784	418785	418792	418793

Determinand	Unit	RL	Accreditation				
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
TAME	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Ethyl Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
m,p-Xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
o-Xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
Styrene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



DETS Ltd
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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 19-09356	
Your Environment	
Site Reference: Bulls Bridge Industrial Estate, Hayes	
Project / Job Ref: YE7331	
Order No: None Supplied	
Reporting Date: 08/07/2019	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
418781	WS1	None Supplied	0.75	16	Black silt with stones
418782	WS2	None Supplied	0.50	10.3	Brown loamy sand with brick and concrete
418783	WS3	None Supplied	0.75	12.3	Brown loamy sand with brick and concrete
418784	WS4	None Supplied	0.80	10.1	Black loamy sand with ash and stones
418785	WS5	None Supplied	0.50	10.9	Brown sandy gravel with stones and concrete
418786	WS5	None Supplied	3.50	16	Black loamy clay
418787	WS6A	None Supplied	0.80	10.7	Brown loamy sand with stones and brick
418788	WS7	None Supplied	2.50	18.6	Brown loamy sand
418789	WS8	None Supplied	0.30	13.3	Brown loamy sand with stones and concrete
418790	WS9	None Supplied	2.00	11.8	Black loamy sand with stones and concrete
418791	WS10	None Supplied	0.50	4.9	Black loamy sand with stones and concrete
418792	TP4	None Supplied	0.80	19	Black loamy sand with stones and concrete
418793	TP6	None Supplied	1.00	9.9	Brown sandy gravel with stones and brick

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

Insufficient Sample ^{1/5}

Unsuitable Sample ^{4/5}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 19-09356

Your Environment

Site Reference: Bulls Bridge Industrial Estate, Hayes

Project / Job Ref: YE7331

Order No: None Supplied

Reporting Date: 08/07/2019

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 diphenylcarbazide 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 @ 450°C	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 SO ₄) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO ₄) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO ₄) - 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



Rachael Giles
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DETS Report No: 19-09883

Site Reference: Bulls Bridge, Industrial Estate, Hayes

Project / Job Ref: YE7331

Order No: None Supplied

Sample Receipt Date: 02/07/2019

Sample Scheduled Date: 11/07/2019

Report Issue Number: 1

Reporting Date: 17/07/2019

Authorised by:

A handwritten signature in black ink, appearing to read "Dave Ashworth".

Dave Ashworth
Deputy Quality Manager

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Soil Analysis Certificate						
DETS Report No: 19-09883	Date Sampled	25/06/19	25/06/19	27/06/19	25/06/19	
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Bulls Bridge, Industrial Estate, Hayes	TP / BH No	WS3	WS6A	WS8	TP6	
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: None Supplied	Depth (m)	0.75	0.80	0.30	1.00	
Reporting Date: 17/07/2019	DETS Sample No	420731	420732	420733	420734	

Determinand	Unit	RL	Accreditation				
Asbestos Quantification ^(S)	%	< 0.001	ISO17025	0.004	0.004	0.002	0.005

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
Subcontracted analysis (S)



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 19-09883

Your Environment

Site Reference: Bulls Bridge, Industrial Estate, Hayes

Project / Job Ref: YE7331

Order No: None Supplied

Reporting Date: 17/07/2019

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 diphénylcarbazine 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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DETS Report No: 19-09550

Site Reference: Bulls Bridge Industrial Estate, Hayes

Project / Job Ref: YE7331

Order No: None Supplied

Sample Receipt Date: 05/07/2019

Sample Scheduled Date: 05/07/2019

Report Issue Number: 1

Reporting Date: 09/07/2019

Authorised by:

A handwritten signature in grey ink, appearing to read "Dave Ashworth".

Dave Ashworth
Deputy Quality Manager

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Water Analysis Certificate						
DETS Report No: 19-09550	Date Sampled	03/07/19	03/07/19	03/07/19	03/07/19	03/07/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS2	WS5	WS6	WS7	WS10
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	1.97	2.88	3.86	3.25	3.15
Reporting Date: 09/07/2019	DETS Sample No	419615	419616	419617	419618	419619

Determinand	Unit	RL	Accreditation	(hs)	(hs)	(hs)
pH	pH Units	N/a	ISO17025	7.5	7.1	7.4
Electrical Conductivity	uS/cm	< 5	NONE	947	1850	4840
Total Cyanide	ug/l	< 5	NONE	17	< 5	7
Sulphate as SO ₄	mg/l	< 1	ISO17025	116	114	270
Total Organic Carbon (TOC)	mg/l	< 0.1	NONE	0.5	8.5	16.9
Hardness - Total	mgCaCO ₃ /l	< 1	NONE	393	1010	880
Arsenic (dissolved)	ug/l	< 5	ISO17025	< 5	21	< 5
Barium (dissolved)	ug/l	< 5	ISO17025	127	140	120
Beryllium (dissolved)	ug/l	< 3	ISO17025	< 3	< 3	< 3
Boron (dissolved)	ug/l	< 5	ISO17025	141	510	575
Cadmium (dissolved)	ug/l	< 0.4	ISO17025	< 0.4	< 0.4	< 0.4
Chromium (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5
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	0.24	< 0.05	< 0.05
Nickel (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5
Selenium (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5
Vanadium (dissolved)	ug/l	< 5	ISO17025	8	< 5	< 5
Zinc (dissolved)	ug/l	< 2	ISO17025	8	7	4
Total Phenols (monohydric)	ug/l	< 10	NONE	< 10	< 10	< 10

Subcontracted analysis ^(S)
Insufficient sample ^{1/S}
Unsuitable Sample ^{U/S}
(hs) Please note deviating sample due to head space in container



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Water Analysis Certificate - Speciated PAH						
DETS Report No: 19-09550	Date Sampled	03/07/19	03/07/19	03/07/19	03/07/19	03/07/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS2	WS5	WS6	WS7	WS10
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	1.97	2.88	3.86	3.25	3.15
Reporting Date: 09/07/2019	DETS Sample No	419615	419616	419617	419618	419619

Determinand	Unit	RL	Accreditation	(hs)		(hs)		(hs)
Naphthalene	ug/l	< 0.01	NONE	0.03	< 0.01	< 0.01	0.06	0.66
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	0.07
Acenaphthene	ug/l	< 0.01	NONE	0.27	0.03	< 0.01	0.11	3.74
Fluorene	ug/l	< 0.01	NONE	0.02	< 0.01	< 0.01	0.03	1.25
Phenanthrene	ug/l	< 0.01	NONE	0.05	< 0.01	< 0.01	0.04	0.35
Anthracene	ug/l	< 0.01	NONE	0.01	< 0.01	0.03	0.02	0.09
Fluoranthene	ug/l	< 0.01	NONE	0.11	< 0.01	0.03	0.03	0.03
Pyrene	ug/l	< 0.01	NONE	0.10	< 0.01	0.02	0.03	0.02
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	ug/l	< 0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
Total EPA-16 PAHs	ug/l	< 0.01	NONE	0.59	0.03	0.08	0.32	6.21



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Water Analysis Certificate - TPH CWG Banded						
DETS Report No: 19-09550	Date Sampled	03/07/19	03/07/19	03/07/19	03/07/19	03/07/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS2	WS5	WS6	WS7	WS10
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	1.97	2.88	3.86	3.25	3.15
Reporting Date: 09/07/2019	DETS Sample No	419615	419616	419617	419618	419619

Determinand	Unit	RL	Accreditation	(hs)		(hs)		(hs)	
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70	< 70	< 70	< 70	< 70	< 70
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	14
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	27
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	25
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70	< 70	< 70	< 70	< 70	< 70
Total >C5 - C35	ug/l	< 140	NONE	< 140	< 140	< 140	< 140	< 140	< 140

(hs) Please note deviating sample due to head space in container



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Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 19-09550	Date Sampled	03/07/19	03/07/19	03/07/19	03/07/19	03/07/19
Your Environment	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Bulls Bridge Industrial Estate, Hayes	TP / BH No	WS2	WS5	WS6	WS7	WS10
Project / Job Ref: YE7331	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	1.97	2.88	3.86	3.25	3.15
Reporting Date: 09/07/2019	DETS Sample No	419615	419616	419617	419618	419619

Determinand	Unit	RL	Accreditation	(hs)	(hs)	(hs)
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

(hs) Please note deviating sample due to head space in container



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Water Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 19-09550	
Your Environment	
Site Reference: Bulls Bridge Industrial Estate, Hayes	
Project / Job Ref: YE7331	
Order No: None Supplied	
Reporting Date: 09/07/2019	

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 colorimetry	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 GI-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



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Analytical Report Number : 19-51430

Project / Site name:	Hayes	Samples received on:	24/07/2019
Your job number:	3249	Samples instructed on:	24/07/2019
Your order number:		Analysis completed by:	29/07/2019
Report Issue Number:	1	Report issued on:	29/07/2019
Samples Analysed:	2 leachate samples - 7 soil samples		

Signed: 

Rexona Rahman
Head of Customer Services
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 19-51430

Project / Site name: Hayes

Lab Sample Number	1275527	1275528	1275529	1275530	1275531
Sample Reference	WS202	WS202	WS203	WS203	TP201
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.60-0.90	2.10-2.40	0.40-0.70	3.00	0.30
Date Sampled	24/07/2019	24/07/2019	24/07/2019	24/07/2019	24/07/2019
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	6.7	< 0.1
Moisture Content	%	N/A	NONE	5.8	17
Total mass of sample received	kg	0.001	NONE	2.0	2.0

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile- Loose Fibres	-	Chrysotile- Loose Fibres
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Detected	-	Detected

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.7	8.3	9.3	9.0	11.4
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	890	410	730	590	2900
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.45	0.20	0.37	0.29	1.4
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	446	204	367	294	1440
Organic Matter	%	0.1	MCERTS	2.7	0.6	4.3	1.5	4.4
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	29	3.7	4.6	2.5	5.6
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	15	< 5.0	< 5.0	< 5.0	< 5.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.33	< 0.05	0.80
Acenaphthene	mg/kg	0.05	MCERTS	0.24	< 0.05	1.0	< 0.05	1.6
Fluorene	mg/kg	0.05	MCERTS	0.23	< 0.05	1.1	< 0.05	1.4
Phenanthrene	mg/kg	0.05	MCERTS	2.2	< 0.05	3.6	0.73	13
Anthracene	mg/kg	0.05	MCERTS	0.77	< 0.05	2.2	0.25	3.3
Fluoranthene	mg/kg	0.05	MCERTS	5.7	< 0.05	5.2	1.5	23
Pyrene	mg/kg	0.05	MCERTS	5.1	< 0.05	4.8	1.3	19
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.4	< 0.05	2.6	0.67	12
Chrysene	mg/kg	0.05	MCERTS	2.5	< 0.05	1.9	0.54	8.1
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.9	< 0.05	2.5	0.61	11
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.8	< 0.05	1.4	0.32	5.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.1	< 0.05	2.1	0.48	11
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.8	< 0.05	1.1	0.31	5.5
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.47	< 0.05	0.39	< 0.05	1.6
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.4	< 0.05	1.5	0.35	7.0

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	32.5	< 0.80	31.5	7.06	123
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Analytical Report Number: 19-51430

Project / Site name: Hayes

Lab Sample Number				1275527	1275528	1275529	1275530	1275531
Sample Reference				WS202	WS202	WS203	WS203	TP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60-0.90	2.10-2.40	0.40-0.70	3.00	0.30
Date Sampled				24/07/2019	24/07/2019	24/07/2019	24/07/2019	24/07/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.1	12	14	26	9.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	250	76	310	150	69
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.98	0.93	1.4	1.1	0.63
Boron (water soluble)	mg/kg	0.2	MCERTS	1.9	1.8	4.0	10	1.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.7	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	30	52	40	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	71	18	160	68	31
Lead (aqua regia extractable)	mg/kg	1	MCERTS	63	23	190	210	47
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	23	34	44	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	36	38	88	68	58
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	170	46	190	120	58

Analytical Report Number: 19-51430

Project / Site name: Hayes

Lab Sample Number				1275527	1275528	1275529	1275530	1275531
Sample Reference				WS202	WS202	WS203	WS203	TP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60-0.90	2.10-2.40	0.40-0.70	3.00	0.30
Date Sampled				24/07/2019	24/07/2019	24/07/2019	24/07/2019	24/07/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1	< 0.1
TPH C10 - C40	mg/kg	10	MCERTS	-	< 10	49	1100	160
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1	< 0.1
TPH C6 - C40	mg/kg	10	NONE	-	< 10	49	1100	160
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	43	-	-	-	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	60	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	43	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	100	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	17	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	150	-	-	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	150	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	160	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	310	-	-	-	-
TPH (C10 - C25)	mg/kg	10	MCERTS	-	< 10	21	1100	78
TPH (C25 - C40)	mg/kg	10	MCERTS	-	< 10	130	1700	400

Analytical Report Number: 19-51430

Project / Site name: Hayes

Lab Sample Number				1275532	1275533			
Sample Reference				TP205	TP208			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50	0.40			
Date Sampled				24/07/2019	24/07/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	13	14			
Moisture Content	%	N/A	NONE	8.6	1.4			
Total mass of sample received	kg	0.001	NONE	2.0	2.0			

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-			
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected			

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.4	10.8			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1500	650			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.73	0.33			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	734	326			
Organic Matter	%	0.1	MCERTS	1.5	0.8			
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	13	22			
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	6.6	11			

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	1.4	0.64			
Anthracene	mg/kg	0.05	MCERTS	0.56	0.40			
Fluoranthene	mg/kg	0.05	MCERTS	4.0	1.8			
Pyrene	mg/kg	0.05	MCERTS	4.9	1.6			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.7	1.1			
Chrysene	mg/kg	0.05	MCERTS	1.9	0.89			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.1	1.0			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.5	0.60			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.1	0.98			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.1	0.57			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.33	0.21			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.5	0.86			

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	23.9	10.6			
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Analytical Report Number: 19-51430

Project / Site name: Hayes

Lab Sample Number				1275532	1275533			
Sample Reference				TP205	TP208			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50	0.40			
Date Sampled				24/07/2019	24/07/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	12			
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	94			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.73	0.66			
Boron (water soluble)	mg/kg	0.2	MCERTS	2.8	3.9			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.9			
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	24			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	37	43			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	74	120			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	15			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	47	35			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	86	110			

Analytical Report Number: 19-51430

Project / Site name: Hayes

Lab Sample Number				1275532	1275533			
Sample Reference				TP205	TP208			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50	0.40			
Date Sampled				24/07/2019	24/07/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-			
Toluene	µg/kg	1	MCERTS	-	-			
Ethylbenzene	µg/kg	1	MCERTS	-	-			
p & m-xylene	µg/kg	1	MCERTS	-	-			
o-xylene	µg/kg	1	MCERTS	-	-			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-			
Petroleum Hydrocarbons								
Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH C10 - C40	mg/kg	10	MCERTS	950	110			
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH C6 - C40	mg/kg	10	NONE	950	110			
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-			
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	-	-			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	-	-			
TPH (C10 - C25)	mg/kg	10	MCERTS	950	110			
TPH (C25 - C40)	mg/kg	10	MCERTS	2400	220			



Analytical Report Number: 19-51430

Project / Site name: Hayes

Lab Sample Number				1275534	1275535			
Sample Reference				TP204	TP208			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.60	2.00			
Date Sampled				24/07/2019	24/07/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	10.1	7.8			
Electrical Conductivity	µS/cm	10	ISO 17025	400	290			
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10			
Sulphate as SO ₄	mg/l	0.1	ISO 17025	147	114			
Nitrate as N	mg/l	0.01	NONE	1.55	0.84			
Hardness - Total	mgCaCO ₃ /l	1	NONE	219	137			

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	0.61			
Acenaphthylene	µg/l	0.01	ISO 17025	0.02	0.66			
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	7.5			
Fluorene	µg/l	0.01	ISO 17025	< 0.01	1.6			
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Anthracene	µg/l	0.01	ISO 17025	0.01	< 0.01			
Fluoranthene	µg/l	0.01	ISO 17025	0.03	0.75			
Pyrene	µg/l	0.01	ISO 17025	0.02	0.50			
Benzo(a)anthracene	µg/l	0.01	ISO 17025	0.02	< 0.01			
Chrysene	µg/l	0.01	ISO 17025	0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	ISO 17025	0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	0.01	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	12			
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	6.5	3.7			
Barium (dissolved)	µg/l	0.05	ISO 17025	22	49			
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Boron (dissolved)	µg/l	10	ISO 17025	27	130			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Chromium (dissolved)	µg/l	0.4	ISO 17025	18	2.5			
Copper (dissolved)	µg/l	0.7	ISO 17025	14	8.7			
Lead (dissolved)	µg/l	1	ISO 17025	3.8	14			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	1.0			
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.5	1.8			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Vanadium (dissolved)	µg/l	1.7	ISO 17025	40	10			
Zinc (dissolved)	µg/l	0.4	ISO 17025	3.4	10			

Calcium (dissolved)	mg/l	0.012	ISO 17025	87	48			
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.32	3.9			



Analytical Report Number: 19-51430

Project / Site name: Hayes

Lab Sample Number				1275534	1275535			
Sample Reference				TP204	TP208			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.60	2.00			
Date Sampled				24/07/2019	24/07/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C35 - C44	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C44)	ug/l	10	NONE	< 10	< 10			

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	120			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	58			
TPH-CWG - Aromatic >C35 - C44	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	180			
TPH-CWG - Aromatic (C5 - C44)	ug/l	10	NONE	< 10	180			

Analytical Report Number : 19-51430

Project / Site name: Hayes

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1275527	WS202	None Supplied	0.60-0.90	Brown loam and sand with stones.
1275528	WS202	None Supplied	2.10-2.40	Brown clay.
1275529	WS203	None Supplied	0.40-0.70	Brown loam and clay with gravel.
1275530	WS203	None Supplied	3.00	Brown clay.
1275531	TP201	None Supplied	0.30	Brown loam and sand.
1275532	TP205	None Supplied	0.50	Brown loam and clay with stones.
1275533	TP208	None Supplied	0.40	Brown loam and sand with stones.

Analytical Report Number : 19-51430

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L0738-PL	W	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L0738-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Electrical conductivity at 20oC of leachate	Determination of electrical conductivity in leachate by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-PL	W	ISO 17025
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Nitrate as N in leachate	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS

Iss No 19-51430-1 Hayes 3249

Analytical Report Number : 19-51430

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	NONE
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	W	MCERTS
TPH C6 - C40 (soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method.	L076-PL	W	NONE
TPH in (Leachate)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method, TPH with carbon banding.	L070-PL	W	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
TPH Oils (Soils)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method with silica gel split/cleanup.	L076-PL	D	MCERTS
TPH7 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/cleanup.	L088/76-PL	W	MCERTS

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Analytical Report Number : 19-51430

Project / Site name: Hayes

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Charlie Knox**

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Analytical Report Number : 20-12662

Project / Site name:	Hayes Balls Bridge Ind Est	Samples received on:	05/06/2020
Your job number:		Sample instructed/ Analysis started on:	05/06/2020
Your order number:		Analysis completed by:	17/06/2020
Report Issue Number:	1	Report issued on:	17/06/2020
Samples Analysed:	10 water samples		

Signed: *A. Czerwińska*

Agnieszka Czerwińska

Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-12662-1 Hayes Balls Bridge Ind Est

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The results included within the report relate only to the sample(s) submitted for testing.

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Analytical Report Number: 20-12662

Project / Site name: Hayes Balls Bridge Ind Est

Lab Sample Number				1526053	1526054	1526055	1526056	1526057
Sample Reference				BH01 (J)	BH08	BH02	WS7	River Up stream
Sample Number				None Supplied	Shallow	None Supplied	None Supplied	None Supplied
Depth (m)				3.70-5.93	3.37-6.00	2.00-5.62	3.26-5.00	None Supplied
Date Sampled				04/06/2020	04/06/2020	04/06/2020	04/06/2020	04/06/2020
Time Taken				0906	1010	1120	1230	1330
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.2	6.9	7.1	7.2	7.9
Sulphate as SO ₄	mg/l	0.045	ISO 17025	103	3.81	95.4	24.7	-
Total Sulphur	µg/l	15	NONE	34000	1300	32000	8200	-
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Ammonia as NH ₃	µg/l	15	ISO 17025	8900	2100	1600	17000	390
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.85	28.4	32.1	30.6	6.70
Nitrate as N	mg/l	0.01	ISO 17025	6.11	0.34	0.30	0.28	-
Nitrate as NO ₃	mg/l	0.05	ISO 17025	27.0	1.52	1.32	1.22	-
Nitrite as N	µg/l	1	ISO 17025	87	11	7.8	8.4	-
Nitrite as NO ₂	µg/l	5	ISO 17025	290	37	26	28	-
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	14	180	150	140	-
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	7.7	19	8.0	8.6	-
Carbonate	mgCaCO ₃ /l	10	NONE	210	390	330	840	-
Dissolved Carbon Dioxide	mg/l	1	NONE	30	96	58	100	-

Phenols by HPLC

Catechol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Resorcinol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylphenol & Dimethylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cresols	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthols	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Isopropylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trimethylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Total Phenols

Total Phenols (HPLC)	µg/l	3.5	NONE	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	2480	65.8	1.93	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	5.98	5.31	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	105	110	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	39.4	45.8	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	19.4	14.8	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	5.07	2.69	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	1.26	2.06	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	0.64	1.09	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	2660	248	1.93	< 0.16
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Analytical Report Number: 20-12662

Project / Site name: Hayes Balls Bridge Ind Est

Lab Sample Number				1526053	1526054	1526055	1526056	1526057
Sample Reference				BH01 (J)	BH08	BH02	WS7	River Up stream
Sample Number				None Supplied	Shallow	None Supplied	None Supplied	None Supplied
Depth (m)				3.70-5.93	3.37-6.00	2.00-5.62	3.26-5.00	None Supplied
Date Sampled				04/06/2020	04/06/2020	04/06/2020	04/06/2020	04/06/2020
Time Taken				0906	1010	1120	1230	1330
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Mn (II)	mg/l	0.02	NONE	0.14	4.32	7.34	1.84	-
Mn (IV)	mg/l	0.02	NONE	< 0.02	0.22	0.03	1.10	-
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.35	7.71	3.16	8.84	2.11
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.22	< 0.02	< 0.02	0.06	< 0.02
Calcium (dissolved)	mg/l	0.012	ISO 17025	120	170	240	170	120
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.2	1.8	1.3	0.5	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	5.9	2.0	1.5	2.7	2.9
Iron (dissolved)	mg/l	0.004	ISO 17025	0.30	2.8	0.39	2.6	-
Fe ²⁺	mg/l	0.2	NONE	< 0.20	0.32	< 0.20	< 0.20	-
Fe ³⁺	mg/l	0.2	NONE	0.30	2.43	0.29	2.52	-
Lead (dissolved)	µg/l	0.2	ISO 17025	0.8	3.7	5.3	52	1.1
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.2	7.3	3.4	0.9	2.0
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.2	2.3	4.5	7.5	1.3
Zinc (dissolved)	µg/l	0.5	ISO 17025	26	7.2	3.7	32	5.7

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	7.1	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	72.7	6.6	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	141	5.8	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	76.0	11.1	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	7.1	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	370	32	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	2800	610	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	4600	1700	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	4600	1100	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	210	91	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	13000	3500	< 10	< 10

Environmental Forensics

Gases

Methane	mg/L	0.1	NONE	< 0.1	0.2	4.5	8.2	-
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U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 20-12662

Project / Site name: Hayes Balls Bridge Ind Est

Lab Sample Number				1526058	1526059	1526060	1526061	1526062
Sample Reference				River Mid stream	River Down stream	Canal Up Stream	Canal Mid Stream	Canal Down Stream
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				04/06/2020	04/06/2020	04/06/2020	04/06/2020	04/06/2020
Time Taken				1300	1400	1500	1445	1430
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.8	7.8	8.3	8.3	8.3
Sulphate as SO ₄	mg/l	0.045	ISO 17025	-	-	-	-	-
Total Sulphur	µg/l	15	NONE	-	-	-	-	-
Sulphide	µg/l	5	NONE	-	-	-	-	-
Ammonia as NH ₃	µg/l	15	ISO 17025	400	430	360	180	200
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	6.98	6.36	5.49	5.44	5.47
Nitrate as N	mg/l	0.01	ISO 17025	-	-	-	-	-
Nitrate as NO ₃	mg/l	0.05	ISO 17025	-	-	-	-	-
Nitrite as N	µg/l	1	ISO 17025	-	-	-	-	-
Nitrite as NO ₂	µg/l	5	ISO 17025	-	-	-	-	-
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	-	-	-	-	-
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	-	-	-	-	-
Carbonate	mgCaCO ₃ /l	10	NONE	-	-	-	-	-
Dissolved Carbon Dioxide	mg/l	1	NONE	-	-	-	-	-

Phenols by HPLC

Catechol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Resorcinol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylphenol & Dimethylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cresols	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthols	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Isopropylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trimethylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Total Phenols

Total Phenols (HPLC)	µg/l	3.5	NONE	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Analytical Report Number: 20-12662

Project / Site name: Hayes Balls Bridge Ind Est

Lab Sample Number				1526058	1526059	1526060	1526061	1526062
Sample Reference				River Mid stream	River Down stream	Canal Up Stream	Canal Mid Stream	Canal Down Stream
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				04/06/2020	04/06/2020	04/06/2020	04/06/2020	04/06/2020
Time Taken				1300	1400	1500	1445	1430
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Mn (II)	mg/l	0.02	NONE	-	-	-	-	-
Mn (IV)	mg/l	0.02	NONE	-	-	-	-	-
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.71	2.11	0.98	1.13	0.58
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05	< 0.02	< 0.02	< 0.02	0.05
Calcium (dissolved)	mg/l	0.012	ISO 17025	120	120	110	110	100
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3	< 0.2	0.7	< 0.2	0.6
Copper (dissolved)	µg/l	0.5	ISO 17025	2.2	2.8	5.2	4.1	5.0
Iron (dissolved)	mg/l	0.004	ISO 17025	-	-	-	-	-
Fe ²⁺	mg/l	0.2	NONE	-	-	-	-	-
Fe ³⁺	mg/l	0.2	NONE	-	-	-	-	-
Lead (dissolved)	µg/l	0.2	ISO 17025	2.5	0.7	0.6	0.5	0.7
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.4	2.0	1.8	1.8	1.8
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.3	1.3	1.1	1.2	1.1
Zinc (dissolved)	µg/l	0.5	ISO 17025	9.5	7.3	4.4	6.9	5.4

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

Environmental Forensics

Gases

Methane	mg/L	0.1	NONE	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 20-12662

Project / Site name: Hayes Balls Bridge Ind Est

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Alkalinity in Water (by titration)	Determination of Alkalinity by titration (colorimetry).	In house method based on MEWAM & USEPA Method 310.2.	L025-PL	W	NONE
Ammonia as NH ₃ in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Dissolved Carbon Dioxide in water	Determination of dissolved carbon dioxide in water by colorimetry and calculation.	In house method - based on Alkalinity	L025-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Gases C1-C4	Determination of volatile hydrocarbons by Refinery Gas Analyzer	In-house methods		W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Manganese II and IV in Water	Analysis of manganese compounds by periodate oxidation method.	In house method and calculation based on standard methods for the examination of water and waste water.	L090-PL	W	NONE
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrite as N in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry). Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry). Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025

Iss No 20-12662-1 Hayes Balls Bridge Ind Est

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The results included within the report relate only to the sample(s) submitted for testing.

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Analytical Report Number : 20-12662

Project / Site name: Hayes Balls Bridge Ind Est

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Phenols, speciated, in water, by HPLC	Determination of speciated phenols by HPLC.	In house method based on Blue Book Method.	L030-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphide in water	Determination of sulphide in water by ion selective electrode.	In-house method	L029-PL	W	NONE
Total Sulphur in water	Determination of total sulphur in water by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample Deviation Report



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH01 (J)		W	20-12662	1526053	c	Ammonia as NH3 in water	L082-PL	c
BH01 (J)		W	20-12662	1526053	c	Ammoniacal Nitrogen as N in water	L082-PL	c
BH01 (J)		W	20-12662	1526053	c	Biological oxygen demand (total) of water	L086-PL	c
BH01 (J)		W	20-12662	1526053	c	Iron (II) and Iron (III) in water	L079-PL	c
BH01 (J)		W	20-12662	1526053	c	Manganese II and IV in Water	L090-PL	c
BH01 (J)		W	20-12662	1526053	c	pH at 20oC in water (automated)	L099-PL	c
BH02		W	20-12662	1526055	c	Ammonia as NH3 in water	L082-PL	c
BH02		W	20-12662	1526055	c	Ammoniacal Nitrogen as N in water	L082-PL	c
BH02		W	20-12662	1526055	c	Biological oxygen demand (total) of water	L086-PL	c
BH02		W	20-12662	1526055	c	Iron (II) and Iron (III) in water	L079-PL	c
BH02		W	20-12662	1526055	c	Manganese II and IV in Water	L090-PL	c
BH02		W	20-12662	1526055	c	pH at 20oC in water (automated)	L099-PL	c
BH08	Shallow	W	20-12662	1526054	c	Ammonia as NH3 in water	L082-PL	c
BH08	Shallow	W	20-12662	1526054	c	Ammoniacal Nitrogen as N in water	L082-PL	c
BH08	Shallow	W	20-12662	1526054	c	Biological oxygen demand (total) of water	L086-PL	c
BH08	Shallow	W	20-12662	1526054	c	Iron (II) and Iron (III) in water	L079-PL	c
BH08	Shallow	W	20-12662	1526054	c	Manganese II and IV in Water	L090-PL	c
BH08	Shallow	W	20-12662	1526054	c	pH at 20oC in water (automated)	L099-PL	c
Canal Down Stream		W	20-12662	1526062	c	Ammonia as NH3 in water	L082-PL	c
Canal Down Stream		W	20-12662	1526062	c	Ammoniacal Nitrogen as N in water	L082-PL	c
Canal Down Stream		W	20-12662	1526062	c	pH at 20oC in water (automated)	L099-PL	c
Canal Mid Stream		W	20-12662	1526061	c	Ammonia as NH3 in water	L082-PL	c
Canal Mid Stream		W	20-12662	1526061	c	Ammoniacal Nitrogen as N in water	L082-PL	c
Canal Mid Stream		W	20-12662	1526061	c	pH at 20oC in water (automated)	L099-PL	c
Canal Up Stream		W	20-12662	1526060	c	Ammonia as NH3 in water	L082-PL	c
Canal Up Stream		W	20-12662	1526060	c	Ammoniacal Nitrogen as N in water	L082-PL	c
Canal Up Stream		W	20-12662	1526060	c	pH at 20oC in water (automated)	L099-PL	c
River Down stream		W	20-12662	1526059	c	Ammonia as NH3 in water	L082-PL	c
River Down stream		W	20-12662	1526059	c	Ammoniacal Nitrogen as N in water	L082-PL	c
River Down stream		W	20-12662	1526059	c	pH at 20oC in water (automated)	L099-PL	c
River Mid stream		W	20-12662	1526058	c	Ammonia as NH3 in water	L082-PL	c
River Mid stream		W	20-12662	1526058	c	Ammoniacal Nitrogen as N in water	L082-PL	c
River Mid stream		W	20-12662	1526058	c	pH at 20oC in water (automated)	L099-PL	c
River Up stream		W	20-12662	1526057	c	Ammonia as NH3 in water	L082-PL	c
River Up stream		W	20-12662	1526057	c	Ammoniacal Nitrogen as N in water	L082-PL	c
River Up stream		W	20-12662	1526057	c	pH at 20oC in water (automated)	L099-PL	c
WS7		W	20-12662	1526056	c	Ammonia as NH3 in water	L082-PL	c
WS7		W	20-12662	1526056	c	Ammoniacal Nitrogen as N in water	L082-PL	c
WS7		W	20-12662	1526056	c	Biological oxygen demand (total) of water	L086-PL	c
WS7		W	20-12662	1526056	c	Iron (II) and Iron (III) in water	L079-PL	c
WS7		W	20-12662	1526056	c	Manganese II and IV in Water	L090-PL	c
WS7		W	20-12662	1526056	c	pH at 20oC in water (automated)	L099-PL	c

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Environmental Science

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Analytical Report Number : 20-14987

Project / Site name:	Hayes Balls Bridge Ind Est	Samples received on:	19/06/2020
Your job number:	200023	Sample instructed/ Analysis started on:	19/06/2020
Your order number:		Analysis completed by:	01/07/2020
Report Issue Number:	1	Report issued on:	01/07/2020
Samples Analysed:	6 water samples		

Signed: Karolina Marek

Karolina Marek
PL Head of Reporting Team

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 20-14987-1 Hayes Balls Bridge Ind Est 200023

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The results included within the report relate only to the sample(s) submitted for testing.

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Analytical Report Number: 20-14987

Project / Site name: Hayes Balls Bridge Ind Est

Lab Sample Number				1538545	1538546	1538547	1538548	1538549
Sample Reference				BH01(J)	BH08	WS7	River Up Stream	River Mid Stream
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.66-5.91	3.34-5.99	3.18-4.99	None Supplied	None Supplied
Date Sampled				18/06/2020	18/06/2020	18/06/2020	18/06/2020	18/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	8.2	7.1	7.2	8.2	8.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	71.2	2.93	48.9	-	-
Total Sulphur	µg/l	15	NONE	24000	980	16000	-	-
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	-	-
Ammonia as NH ₃	µg/l	15	ISO 17025	4200	1900	17000	560	770
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	7.40	8.12	32.3	8.38	9.17
Nitrate as N	mg/l	0.01	ISO 17025	1.45	0.27	0.18	-	-
Nitrate as NO ₃	mg/l	0.05	ISO 17025	6.42	1.18	0.78	-	-
Nitrite as N	µg/l	1	ISO 17025	130	31	17	-	-
Nitrite as NO ₂	µg/l	5	ISO 17025	430	100	55	-	-
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	31	120	120	-	-
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	4.1	8.1	3.1	-	-
Carbonate	mgCaCO ₃ /l	10	NONE	260	720	1400	-	-
Dissolved Carbon Dioxide	mg/l	1	NONE	3.7	110	200	-	-

Phenols by HPLC

Catechol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Resorcinol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylphenol & Dimethylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cresols	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthols	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Isopropylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenol	µg/l	0.5	NONE	< 0.5	790	< 0.5	< 0.5	< 0.5
Trimethylphenol	µg/l	0.5	NONE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Total Phenols

Total Phenols (HPLC)	µg/l	3.5	NONE	< 3.5	790	< 3.5	< 3.5	< 3.5
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	1.86	5260	37.1	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	14.1	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	234	1.43	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	101	0.39	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	56.5	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	15.9	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	3.09	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	1.72	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	1.86	5680	39.0	< 0.16	< 0.16
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Analytical Report Number: 20-14987

Project / Site name: Hayes Balls Bridge Ind Est

Lab Sample Number				1538545	1538546	1538547	1538548	1538549
Sample Reference				BH01(J)	BH08	WS7	River Up Stream	River Mid Stream
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.66-5.91	3.34-5.99	3.18-4.99	None Supplied	None Supplied
Date Sampled				18/06/2020	18/06/2020	18/06/2020	18/06/2020	18/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Mn (II)	mg/l	0.02	NONE	0.06	0.26	0.49	-	-
Mn (IV)	mg/l	0.02	NONE	0.02	4.37	2.09	-	-
Zinc (dissolved)	µg/l	0.4	ISO 17025	-	-	59	-	29
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.79	7.63	1.79	1.23	1.96
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.09	< 0.02	< 0.02	< 0.02	0.02
Calcium (dissolved)	mg/l	0.012	ISO 17025	86	150	320	46	38
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.3	< 0.2	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	4.3	2.2	0.6	5.1	7.6
Iron (dissolved)	mg/l	0.004	ISO 17025	0.13	0.18	0.75	-	-
Fe ²⁺	mg/l	0.2	NONE	< 0.20	< 0.20	0.23	-	-
Fe ³⁺	mg/l	0.2	NONE	< 0.20	< 0.20	0.51	-	-
Lead (dissolved)	µg/l	0.2	ISO 17025	1.0	0.9	< 0.2	1.3	1.1
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.8	6.4	1.0	1.4	1.7
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.9	2.1	6.6	0.7	0.7
Zinc (dissolved)	µg/l	0.5	ISO 17025	30	6.2	-	16	-

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	3.5	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	10.4	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	122	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	243	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	117	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	3.5	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	10	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	610	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	9600	38	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	6000	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	1500	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	300	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	18000	38	< 10	< 10

Environmental Forensics

Gases

Methane	mg/L	0.1	NONE	< 0.1	0.2	6.4	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 20-14987

Project / Site name: Hayes Balls Bridge Ind Est

Lab Sample Number				1538550				
Sample Reference				River Down Stream				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				18/06/2020				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.9				
Sulphate as SO ₄	mg/l	0.045	ISO 17025	-				
Total Sulphur	µg/l	15	NONE	-				
Sulphide	µg/l	5	NONE	-				
Ammonia as NH ₃	µg/l	15	ISO 17025	440				
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	7.05				
Nitrate as N	mg/l	0.01	ISO 17025	-				
Nitrate as NO ₃	mg/l	0.05	ISO 17025	-				
Nitrite as N	µg/l	1	ISO 17025	-				
Nitrite as NO ₂	µg/l	5	ISO 17025	-				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	-				
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	-				
Carbonate	mgCaCO ₃ /l	10	NONE	-				
Dissolved Carbon Dioxide	mg/l	1	NONE	-				

Phenols by HPLC

Catechol	µg/l	0.5	NONE	< 0.5				
Resorcinol	µg/l	0.5	NONE	< 0.5				
Ethylphenol & Dimethylphenol	µg/l	0.5	NONE	< 0.5				
Cresols	µg/l	0.5	NONE	< 0.5				
Naphthols	µg/l	0.5	NONE	< 0.5				
Isopropylphenol	µg/l	0.5	NONE	< 0.5				
Phenol	µg/l	0.5	NONE	< 0.5				
Trimethylphenol	µg/l	0.5	NONE	< 0.5				

Total Phenols

Total Phenols (HPLC)	µg/l	3.5	NONE	< 3.5				
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16				
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Analytical Report Number: 20-14987

Project / Site name: Hayes Balls Bridge Ind Est

Lab Sample Number				1538550				
Sample Reference				River Down Stream				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				18/06/2020				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Mn (II)	mg/l	0.02	NONE	-				
Mn (IV)	mg/l	0.02	NONE	-				
Zinc (dissolved)	µg/l	0.4	ISO 17025	-				
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.40				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02				
Calcium (dissolved)	mg/l	0.012	ISO 17025	36				
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Copper (dissolved)	µg/l	0.5	ISO 17025	5.0				
Iron (dissolved)	mg/l	0.004	ISO 17025	-				
Fe ²⁺	mg/l	0.2	NONE	-				
Fe ³⁺	mg/l	0.2	NONE	-				
Lead (dissolved)	µg/l	0.2	ISO 17025	1.1				
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05				
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.3				
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6				
Zinc (dissolved)	µg/l	0.5	ISO 17025	12				

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				

Environmental Forensics

Gases

Methane	mg/L	0.1	NONE	-				
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U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 20-14987

Project / Site name: Hayes Balls Bridge Ind Est

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Alkalinity in Water (by titration)	Determination of Alkalinity by titration (colorimetry).	In house method based on MEWAM & USEPA Method 310.2.	L025-PL	W	NONE
Ammonia as NH ₃ in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B.	L086-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Dissolved Carbon Dioxide in water	Determination of dissolved carbon dioxide in water by colorimetry and calculation.	In house method - based on Alkalinity	L025-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Gases C1-C4	Determination of volatile hydrocarbons by Refinery Gas Analyzer	In-house methods		W	NONE
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Manganese II and IV in Water	Analysis of manganese compounds by periodate oxidation method.	In house method and calculation based on standard methods for the examination of water and waste water.	L090-PL	W	NONE
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
Nitrite as N in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry). Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry). Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025

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The results included within the report relate only to the sample(s) submitted for testing.

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Project / Site name: Hayes Balls Bridge Ind Est

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Phenols, speciated, in water, by HPLC	Determination of speciated phenols by HPLC.	In house method based on Blue Book Method.	L030-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphide in water	Determination of sulphide in water by ion selective electrode.	In-house method	L029-PL	W	NONE
Total Sulphur in water	Determination of total sulphur in water by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.