Borehole Log

Borehole No. **WS114**

Sheet 1 of 1

Project Name: North Bierley	Project No. B065646.300	Co-ords: -	Hole Type WS
Location: Bradford		Level:	Scale 1:50
Client: Opus North		Dates: 04/10/2019 - 04/10/2019	Logged By ES

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	D		0.20			Soft dark brown CLAY. Frequent rootlets.
					0.40			Soft browny grey gravelly CLAY. Gravel is fine to coarse sub angular to angular coal, mudstone and sandstone.
								Soft to firm orange brown mottled grey gravelly CLAY. Gravel is fine to coarse sub angular to angular coal, mudstone and sandstone. Low sandstone cobble content.
					3.00			End of borehole at 3.00 m

Remarks

1. Hole location scanned with CAT4+ prior to breaking ground. 2. Hand excavated pit 1.2m prior to drilling. 3. Terminated due to sinking rig. 4. Hole installed with 50mm stand pipe with response zone indicated on logs. 5. Reinstated at surface with flush cover.

Borehole Log

Borehole No. **WS115**

Sheet 1 of 1

Project Name: North Bierley	Project No. B065646.300	Co-ords: -	Hole Type WS
Location: Bradford		Level:	Scale 1:50
Client: Opus North		Dates: 04/10/2019 - 04/10/2019	Logged By ES

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.25	ES		0.20			Soft dark brown CLAY. Frequent rootlets.
					0.60			Soft browny grey gravelly CLAY. Gravel is fine to coarse sub angular to angular coal, mudstone and sandstone.
					1.40			Soft to firm orange brown mottled grey gravelly CLAY. Gravel is fine to coarse sub angular to angular coal, mudstone and sandstone. Low sandstone cobble content.
					3.20			Firm brown grey gravelly CLAY. Gravel is fine to coarse sub angular to angular coal, mudstone, sandstone and siltstone. Low sandstone and siltstone cobble content.
					4.50			Soft grey sandy gravelly CLAY. Gravel is fine to coarse sub angular to angular coal, mudstone, sandstone and siltstone.
								End of borehole at 4.50 m

Remarks

1. Hole location scanned with CAT4+ prior to breaking ground. 2. Hand excavated pit 1.2m prior to drilling. 3. Terminated due to refusal. 4. Hole installed with 50mm stand pipe with response zone indicated on logs. 5. Reinstated at surface with flush cover.

Borehole Log

Borehole No. **WS116**

Sheet 1 of 1

Project Name: North Bierley	Project No. B065646.300	Co-ords: -	Hole Type WS
Location: Bradford		Level:	Scale 1:50
Client: Opus North		Dates: 04/10/2019 - 04/10/2019	Logged By ES

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 0.30	D ES		0.10			Soft dark brown CLAY. Frequent rootlets.
					0.60			Soft light brown gravelly CLAY. Gravel is fine to coarse sub rounded to angular coal, mudstone and sandstone. Low sandstone cobble content.
					1.30			Soft brown mottled orange and black gravelly CLAY. Gravel is fine to coarse sub rounded to angular coal, mudstone and sandstone. Low sandstone cobble content.
					2.10			Firm browny grey mottled orange and light grey gravelly CLAY. Gravel is fine to coarse sub rounded to angular coal, mudstone and sandstone. Low sandstone cobble content.
					2.90			Firm brown gravelly CLAY. Gravel is fine to coarse sub rounded to angular coal, mudstone and sandstone. Moderate sandstone cobble content.
								End of borehole at 2.90 m

Remarks

1. Hole location scanned with CAT4+ prior to breaking ground. 2. Hand excavated pit 1.2m prior to drilling. 3. Terminated due to refusal. 4. Hole installed with 50mm stand pipe with response zone indicated on logs. 5. Reinstated at surface with flush cover.

Appendix C – Chemical Laboratory Testing Results

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Analytical Report Number : 19-66475

Project / Site name:	North Bierley	**Samples received on:**	07/10/2019
Your job number:	65646	**Samples instructed on:**	17/10/2019
Your order number:	EBLE820	**Analysis completed by:**	28/10/2019
Report Issue Number:	1	**Report issued on:**	28/10/2019
Samples Analysed:	13 soil samples		

Signed:

Zina Abdul Razzak
Senior Quality Specialist
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: 19-66475

Project / Site name: North Bierley

Your Order No: EBLE820

Lab Sample Number				1333707	1333708	1333709	1333710	1333711
Sample Reference				TP101	WS101	WS104	WS108	WS113
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1 30	0.90	0.40	0 60
Date Sampled				02/10/2019	02/10/2019	02/10/2019	03/10/2019	04/10/2019
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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	20	36	13	15	11
Total mass of sample received	kg	0.001	NONE	0.86	1 2	1.1	1.4	1.4
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.7	7.7	7.6	7.3	8 0
Total Cyanide	mg/kg	1	MCERTS	11	42	2	2	18
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2 5	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.26	0.36	0.13	0 047	0.027
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	265	365	134	46.6	27.0
Organic Matter	%	0.1	MCERTS	5.7	8 6	2.5	4.2	3 2
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	1 0	< 0 05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.33	< 0 05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	1 6	< 0 05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	1.4	< 0 05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	2.5	13	0 36	1.3	1.4
Anthracene	mg/kg	0.05	MCERTS	< 0.05	3 6	< 0 05	0.25	1 2
Fluoranthene	mg/kg	0.05	MCERTS	3.1	26	0.44	1.3	0.70
Pyrene	mg/kg	0.05	MCERTS	2.9	24	0 38	1.2	0.66
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.5	15	0 20	0.70	0.38
Chrysene	mg/kg	0.05	MCERTS	1.6	10	0 30	0.79	0.71
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.7	15	0 25	0.76	0.60
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.6	9.4	0 20	0.67	0.49
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.1	16	0 25	0.80	0.56
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.95	11	< 0.05	0.56	0.48
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	3 5	< 0 05	0.20	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.0	13	< 0.05	0.59	0.58
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0 8	MCERTS	18.9	163	2 38	9.17	7.79
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	92	40	21	110	34
Boron (water soluble)	mg/kg	0 2	MCERTS	0.9	4 5	1.2	0.4	0.7
Cadmium (aqua regia extractable)	mg/kg	0 2	MCERTS	0.6	7.4	< 0.2	< 0 2	0.4
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	68	2100	32	130	150
Copper (aqua regia extractable)	mg/kg	1	MCERTS	190	880	34	120	120
Lead (aqua regia extractable)	mg/kg	1	MCERTS	480	540	31	140	68
Mercury (aqua regia extractable)	mg/kg	0 3	MCERTS	0.6	2 3	< 0.3	< 0 3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	42	59	25	29	29
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	4.8	< 1.0	< 1.0	< 1 0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	350	1200	67	110	140

Analytical Report Number: 19-66475

Project / Site name: North Bierley

Your Order No: EBLE820

Lab Sample Number				1333707	1333708	1333709	1333710	1333711
Sample Reference				TP101	WS101	WS104	WS108	WS113
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1 30	0.90	0.40	0 60
Date Sampled				02/10/2019	02/10/2019	02/10/2019	03/10/2019	04/10/2019
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	< 1.0	< 1.0	< 1 0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1 0	3 2	< 1.0	1.1	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2 0	17	< 2.0	7.2	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8 0	200	< 8.0	15	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8 0	1300	< 8.0	72	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	1500	< 10	95	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	9.8	8 3	< 2.0	< 2 0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	52	110	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	130	740	< 10	19	19
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	190	860	< 10	25	27

Analytical Report Number: 19-66475

Project / Site name: North Bierley

Your Order No: EBLE820

Lab Sample Number				1333712	1333713	1333714	1333715	1333716
Sample Reference				WS116	WS101	WS102	WS103	WS106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	1.90	0.70	0.50	0 50
Date Sampled				04/10/2019	02/10/2019	02/10/2019	02/10/2019	03/10/2019
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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	25	19	16	13	13
Total mass of sample received	kg	0.001	NONE	1.4	1.4	1.4	1.4	1 3
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.7	7 8	8.0	7.8	7 8
Total Cyanide	mg/kg	1	MCERTS	2	-	-	-	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2 5	MCERTS	-	450	120	79	19
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0 030	0.23	0.062	0 040	0.0095
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	29.7	227	62.4	39.7	9 5
Organic Matter	%	0.1	MCERTS	1.2	0.4	0.8	1.8	2 6
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1 0	-	-	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.76	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0 05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.74	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0 66	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	1.9	5.5	0.54	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.54	1.4	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	3.1	7.2	0.54	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	2 8	6.4	0.49	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	1.7	3.1	0.35	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	1 8	2.8	0.35	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	2 6	2.6	0.40	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.4	1.3	0.16	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	2 3	2.2	0.29	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	2 0	1.5	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.61	0.46	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	2 3	1.8	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0 8	MCERTS	< 0.80	23.1	38 3	3.12	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	35	41	66	20	13
Boron (water soluble)	mg/kg	0 2	MCERTS	0.4	1.4	1.0	0.7	0 5
Cadmium (aqua regia extractable)	mg/kg	0 2	MCERTS	< 0 2	1 2	< 0.2	< 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	48	360	91	39	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33	150	88	37	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	73	110	440	42	22
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	16	30	28	29	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	72	220	120	77	61

Analytical Report Number: 19-66475

Project / Site name: North Bierley

Your Order No: EBLE820

Lab Sample Number				1333712	1333713	1333714	1333715	1333716
Sample Reference				WS116	WS101	WS102	WS103	WS106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	1.90	0.70	0.50	0 50
Date Sampled				04/10/2019	02/10/2019	02/10/2019	02/10/2019	03/10/2019
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	< 1.0	< 1.0	< 1 0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2 0	5 3	< 2.0	< 2 0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8 0	77	< 8.0	< 8 0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8 0	500	< 8.0	< 8 0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	580	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0 001	< 0.001	< 0.001	< 0 001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0	< 1 0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2 0	< 2.0	3.4	< 2 0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	36	20	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	230	44	12	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	270	68	19	< 10

Analytical Report Number: 19-66475

Project / Site name: North Bierley

Your Order No: EBLE820

Lab Sample Number				1333717	1333718	1333719		
Sample Reference				WS110	WS112	WS115		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.20	0 30	0.25		
Date Sampled				03/10/2019	04/10/2019	04/10/2019		
Time Taken				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		
Moisture Content	%	N/A	NONE	19	13	24		
Total mass of sample received	kg	0.001	NONE	1.3	1 3	1.5		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.4	7 8	7.4		
Total Cyanide	mg/kg	1	MCERTS	-	-	-		
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2 5	MCERTS	44	54	35		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0 022	0.027	0.018		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	22.2	26.9	17 5		
Organic Matter	%	0.1	MCERTS	0.8	1.1	0.8		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0 05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0 05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0 05		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0 05		
Phenanthrene	mg/kg	0.05	MCERTS	0.43	1.1	0 29		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0 05		
Fluoranthene	mg/kg	0.05	MCERTS	0.68	0.86	0 52		
Pyrene	mg/kg	0.05	MCERTS	0.60	0.83	0 33		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.23	0.45	0 28		
Chrysene	mg/kg	0.05	MCERTS	0.47	0.77	0 37		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.41	0.67	0 33		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.25	0.59	0 24		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.41	0.60	0 25		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.22	0.41	2.8		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0 05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.26	0.57	2.2		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0 8	MCERTS	3.96	6.88	7 60		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	23	11		
Boron (water soluble)	mg/kg	0 2	MCERTS	0.2	0.7	0.8		
Cadmium (aqua regia extractable)	mg/kg	0 2	MCERTS	< 0 2	0 5	< 0.2		
Chromium (hexavalent)	mg/kg	1 2	MCERTS	< 1 2	< 1.2	< 1.2		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	57	160	42		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	44	120	37		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	53	94	52		
Mercury (aqua regia extractable)	mg/kg	0 3	MCERTS	< 0 3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	36	19		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1 0	< 1.0	< 1.0		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	78	160	89		

Analytical Report Number: 19-66475

Project / Site name: North Bierley

Your Order No: EBLE820

Lab Sample Number				1333717	1333718	1333719		
Sample Reference				WS110	WS112	WS115		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.20	0 30	0.25		
Date Sampled				03/10/2019	04/10/2019	04/10/2019		
Time Taken				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

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	< 1 0	11	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2 0	19	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8 0	26	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8 0	96	< 8.0		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	150	< 10		

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 0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2 0	< 2.0	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	12	26	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	18	33	< 10		

Analytical Report Number : 19-66475

Project / Site name: North Bierley

* 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 *
1333707	TP101	None Supplied	0.60	Brown clay and sand with gravel.
1333708	WS101	None Supplied	1.30	Brown clay and sand.
1333709	WS104	None Supplied	0.90	Brown clay and sand with gravel.
1333710	WS108	None Supplied	0.40	Brown clay and sand with gravel and brick.
1333711	WS113	None Supplied	0.60	Brown clay and sand with gravel.
1333712	WS116	None Supplied	0.30	Brown loam and clay with gravel and vegetation.
1333713	WS101	None Supplied	1.90	Brown clay with gravel.
1333714	WS102	None Supplied	0.70	Brown clay and sand with gravel and vegetation.
1333715	WS103	None Supplied	0.50	Brown clay and sand with gravel and brick.
1333716	WS106	None Supplied	0.50	Brown clay and sand.
1333717	WS110	None Supplied	0.20	Brown clay and loam with gravel and vegetation.
1333718	WS112	None Supplied	0.30	Brown loam and clay with gravel and vegetation.
1333719	WS115	None Supplied	0.25	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 19-66475

Project / Site name: North Bierley

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
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 based on BS1377 Part 2, 1990, Classification tests	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
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
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
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 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
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

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 ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP101		S	19-66475	1333707	bc	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	bc
TP101		S	19-66475	1333707	bc	TPHCWG (Soil)	L088/76-PL	b
TP101		S	19-66475	1333707	bc	Total cyanide in soil	L080-PL	c
WS101		S	19-66475	1333708	bc	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	bc
WS101		S	19-66475	1333708	bc	TPHCWG (Soil)	L088/76-PL	b
WS101		S	19-66475	1333708	bc	Total cyanide in soil	L080-PL	c
WS101		S	19-66475	1333713	bc	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	bc
WS101		S	19-66475	1333713	bc	TPHCWG (Soil)	L088/76-PL	b
WS102		S	19-66475	1333714	bc	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	bc
WS102		S	19-66475	1333714	bc	TPHCWG (Soil)	L088/76-PL	b
WS103		S	19-66475	1333715	bc	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	bc
WS103		S	19-66475	1333715	bc	TPHCWG (Soil)	L088/76-PL	b
WS104		S	19-66475	1333709	bc	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	bc
WS104		S	19-66475	1333709	bc	TPHCWG (Soil)	L088/76-PL	b
WS104		S	19-66475	1333709	bc	Total cyanide in soil	L080-PL	c
WS106		S	19-66475	1333716	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
WS106		S	19-66475	1333716	b	TPHCWG (Soil)	L088/76-PL	b
WS108		S	19-66475	1333710	bc	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
WS108		S	19-66475	1333710	bc	TPHCWG (Soil)	L088/76-PL	b
WS108		S	19-66475	1333710	bc	Total cyanide in soil	L080-PL	c
WS110		S	19-66475	1333717	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
WS110		S	19-66475	1333717	b	TPHCWG (Soil)	L088/76-PL	b
WS112		S	19-66475	1333718	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
WS112		S	19-66475	1333718	b	TPHCWG (Soil)	L088/76-PL	b
WS113		S	19-66475	1333711	bc	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
WS113		S	19-66475	1333711	bc	TPHCWG (Soil)	L088/76-PL	b
WS113		S	19-66475	1333711	bc	Total cyanide in soil	L080-PL	c
WS115		S	19-66475	1333719	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
WS115		S	19-66475	1333719	b	TPHCWG (Soil)	L088/76-PL	b
WS116		S	19-66475	1333712	bc	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
WS116		S	19-66475	1333712	bc	TPHCWG (Soil)	L088/76-PL	b
WS116		S	19-66475	1333712	bc	Total cyanide in soil	L080-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

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Analytical Report Number : 19-66482

Project / Site name:	North Bierley	**Samples received on:**	07/10/2019
Your job number:	65646	**Samples instructed on:**	17/10/2019
Your order number:	EBLE820	**Analysis completed by:**	28/10/2019
Report Issue Number:	1	**Report issued on:**	28/10/2019
Samples Analysed:	3 10:1 WAC samples		

Signed:

Zina Abdul Razzak
Senior Quality Specialist
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.

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Waste Acceptance Criteria Analytical Results

Report No:	**19-66482**						
					Client: CURTINS		
Location	**North Bierley**						
Lab Reference (Sample Number)	1333750 / 1333751				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	02/10/2019				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS102						
Depth (m)	0.70						
Solid Waste Analysis							
TOC (%)**	2.0				3%	5%	6%
Loss on Ignition (%) **	6.5				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	130				500	--	--
Total PAH (WAC-17) (mg/kg)	38				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mol / kg)	15				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0090			0.0800	0.5	2	25
Barium *	0.0135			0.120	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0067			0.059	0.5	10	70
Copper *	0.0082			0.073	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0045			0.0395	0.5	10	30
Nickel *	< 0.0003			< 0.0030	0.4	10	40
Lead *	0.0034			0.030	0.5	10	50
Antimony *	0.014			0.13	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0028			0.025	4	50	200
Chloride *	1.1			9.8	800	4000	25000
Fluoride	0.61			5.4	10	150	500
Sulphate *	5.7			51	1000	20000	50000
TDS*	89			790	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	6.82			60.4	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.3						
Dry Matter (%)	84						
Moisture (%)	16						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation
** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	**19-66482**							
					Client:	**CURTINS**		
Location	**North Bierley**							
Lab Reference (Sample Number)	1333752 / 1333753				**Landfill Waste Acceptance Criteria Limits**			
Sampling Date	02/10/2019				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS103						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	1.3				3%	5%	6%
Loss on Ignition (%) **	5.6				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	3.1				100	--	--
pH (units)**	7.6				--	>6	--
Acid Neutralisation Capacity (mol / kg)	2.8				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0011			< 0.0110	0.5	2	25
Barium *	0.0110			0.0971	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0012			0.011	0.5	10	70
Copper *	0.0031			0.028	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0009			0.0080	0.5	10	30
Nickel *	< 0.0003			< 0.0030	0.4	10	40
Lead *	0.0011			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0035			0.031	4	50	200
Chloride *	0.92			8.1	800	4000	25000
Fluoride	0.59			5.2	10	150	500
Sulphate *	5.8			52	1000	20000	50000
TDS*	55			490	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	4.75			42.0	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.3						
Dry Matter (%)	87						
Moisture (%)	13						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation ** = MCERTS accrediited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	**19-66482**						
					Client: CURTINS		
Location	**North Bierley**						
Lab Reference (Sample Number)	1333754 / 1333755				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	03/10/2019				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS105						
Depth (m)	0.40						
Solid Waste Analysis							
TOC (%)**	2.5				3%	5%	6%
Loss on Ignition (%) **	11.5				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	86				500	--	--
Total PAH (WAC-17) (mg/kg)	1400				100	--	--
pH (units)**	7.7				--	>6	--
Acid Neutralisation Capacity (mol / kg)	4.0				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0096			0.0785	0.5	2	25
Barium *	0.0338			0.277	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0062			0.051	0.5	10	70
Copper *	0.016			0.13	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0036			0.0294	0.5	10	30
Nickel *	0.0012			0.0095	0.4	10	40
Lead *	0.014			0.11	0.5	10	50
Antimony *	0.034			0.28	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0078			0.064	4	50	200
Chloride *	1.0			8.5	800	4000	25000
Fluoride	1.0			8.3	10	150	500
Sulphate *	3.2			26	1000	20000	50000
TDS*	61			500	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	7.63			62.5	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	86						
Moisture (%)	14						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accrediited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Analytical Report Number : 19-66482

Project / Site name: North Bierley

* 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 *
1333750	WS102	None Supplied	0.70	Brown clay and sand with gravel and vegetation.
1333752	WS103	None Supplied	0.50	Brown clay and sand with gravel and brick.
1333754	WS105	None Supplied	0.40	Brown sandy loam with gravel and vegetation.

Analytical Report Number : 19-66482

Project / Site name: North Bierley

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
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in leachate by ICP-OES	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
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 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. MCERTS accredited except Coronene.	L064-PL	D	NONE
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 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE

Analytical Report Number : 19-66482

Project / Site name: North Bierley

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
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	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.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
WS102		S	19-66482	1333750	bc	BTEX in soil (Monoaromatics)	L073B-PL	bc
WS102		S	19-66482	1333750	bc	Total BTEX in soil (Poland)	L073-PL	bc
WS103		S	19-66482	1333752	bc	BTEX in soil (Monoaromatics)	L073B-PL	bc
WS103		S	19-66482	1333752	bc	Total BTEX in soil (Poland)	L073-PL	bc
WS105		S	19-66482	1333754	b	BTEX in soil (Monoaromatics)	L073B-PL	b
WS105		S	19-66482	1333754	b	Total BTEX in soil (Poland)	L073-PL	b

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Appendix D – Geotechnical Laboratory Testing Results

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

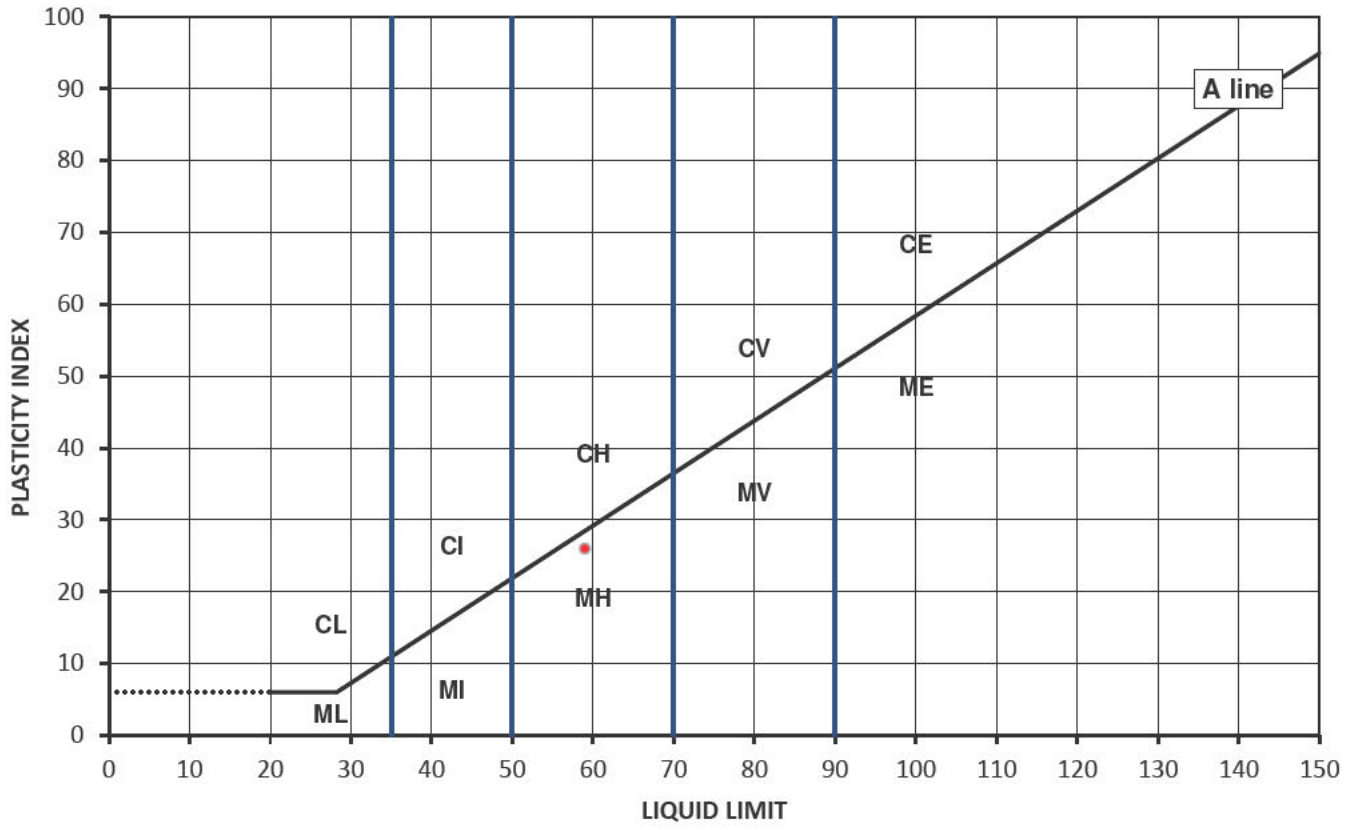
Client:	CURTINS	Client Reference:	65646
Client Address:	Rose Wharf, Ground Floor, 78-80 East Street, Leeds, LS9 8EE	Job Number:	19-66815
		Date Sampled:	02/10/2019
		Date Received:	07/10/2019
Contact:	Emma Scholes	Date Tested:	23/10/2019
Site Name:	North Bierley	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1335546	Depth Top [m]:	1.90
Hole No.:	WS101	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Dark brown slightly gravelly slightly sandy CLAY		

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
25	59	33	26	72



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 30/10/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

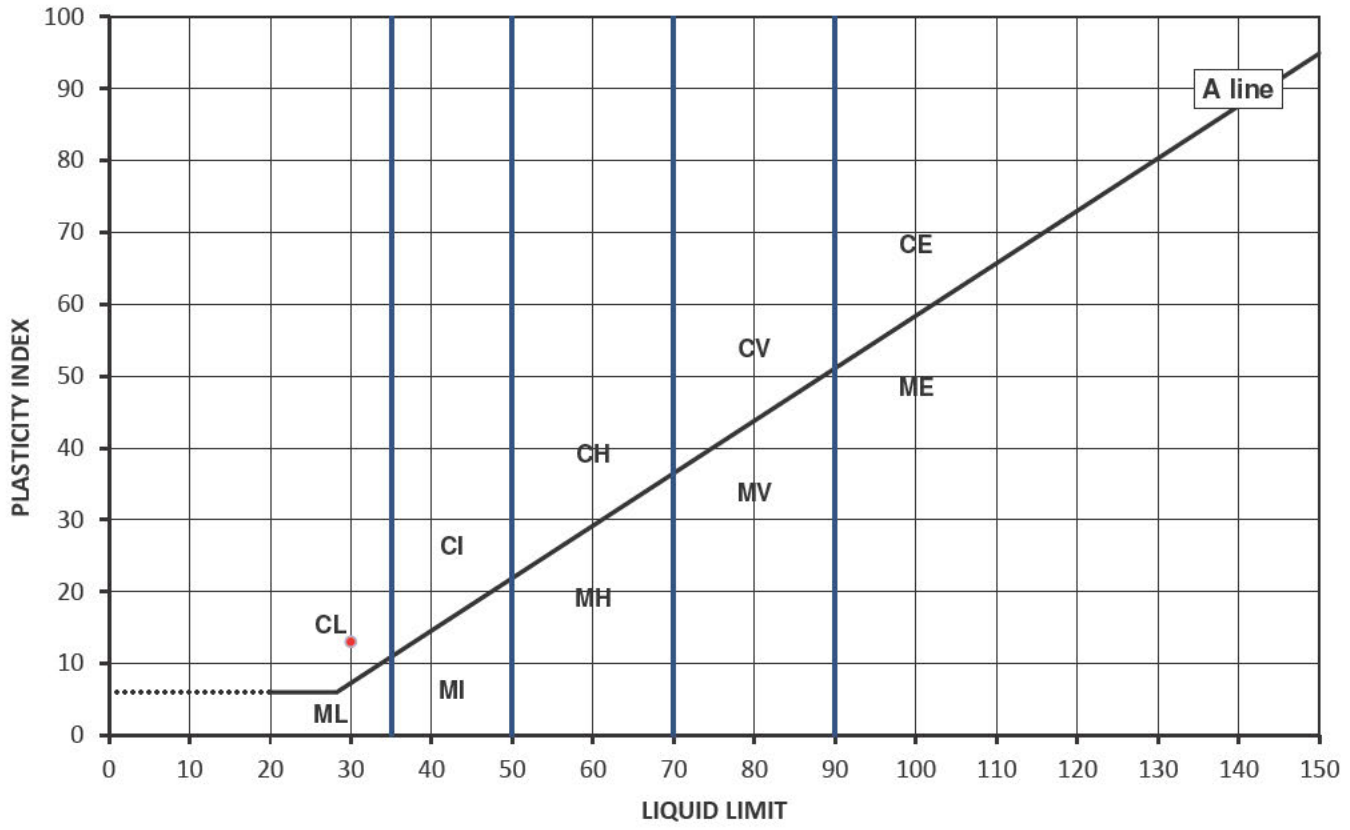
Client:	CURTINS	Client Reference:	65646
Client Address:	Rose Wharf, Ground Floor, 78-80 East Street, Leeds, LS9 8EE	Job Number:	19-66815
		Date Sampled:	02/10/2019
		Date Received:	07/10/2019
Contact:	Emma Scholes	Date Tested:	23/10/2019
Site Name:	North Bierley	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1335549	Depth Top [m]:	1.40
Hole No.:	WS102	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Orangish brown slightly gravelly very sandy CLAY		

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	30	17	13	78



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 30/10/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

TEST CERTIFICATE

Liquid and Plastic Limits

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7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

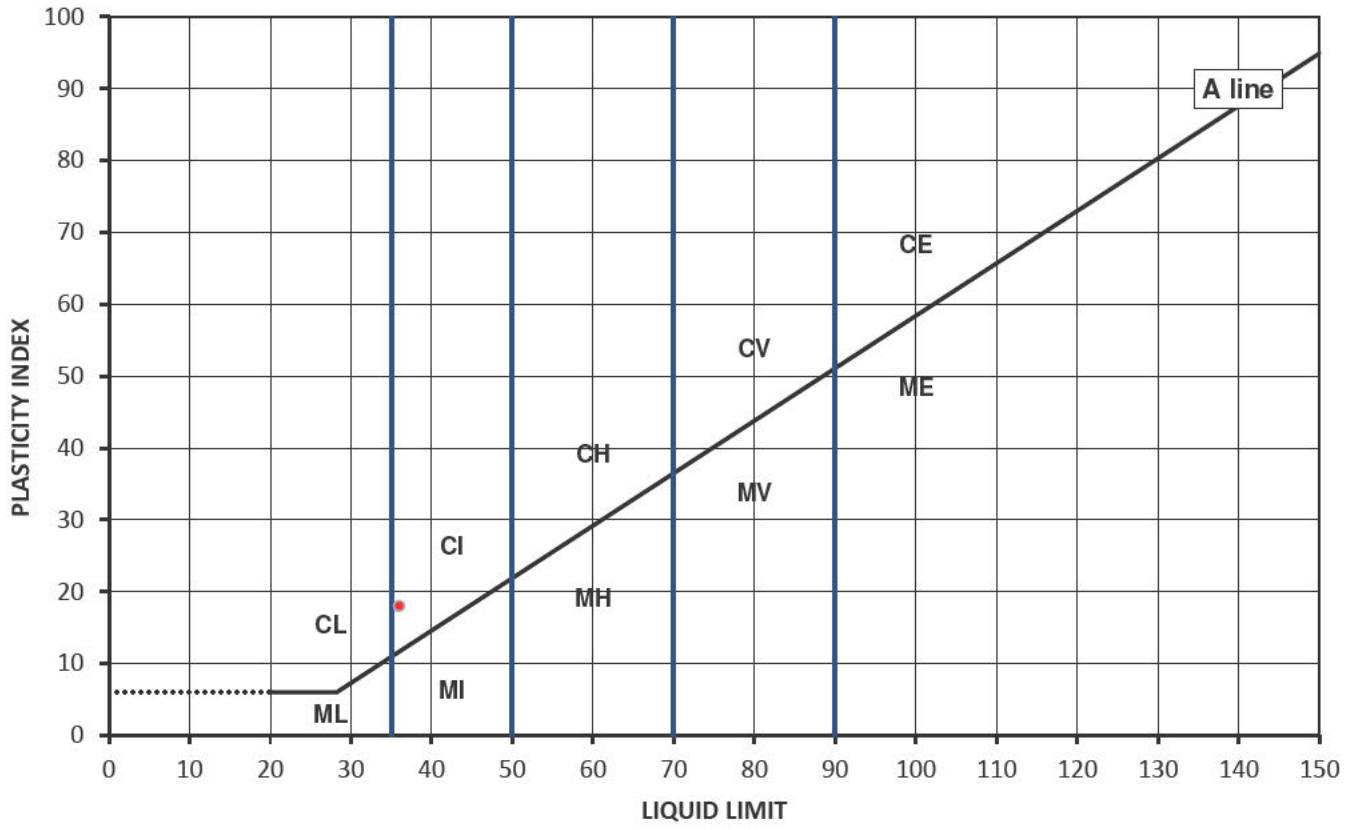
Client:	CURTINS	Client Reference:	65646
Client Address:	Rose Wharf, Ground Floor, 78-80 East Street, Leeds, LS9 8EE	Job Number:	19-66815
		Date Sampled:	02/10/2019
		Date Received:	07/10/2019
Contact:	Emma Scholes	Date Tested:	23/10/2019
Site Name:	North Bierley	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1335550	Depth Top [m]:	2.60
Hole No.:	WS102	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Orangish brown very gravelly sandy CLAY		

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	36	18	18	43



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager

Signed: Darren Berrill
Geotechnical General Manager

Date Reported: 30/10/2019

for and on behalf of i2 Analytical Ltd GF 236.5