Trial Pit Photos

TP05

Watford Bridge Road



Image 1. TP05 pit:
Photo 26-09-2023, 14 19 03



Image 2. TP05 spoil:
Photo 26-09-2023, 14 19 21

APPENDIX 8

GEOTECHNICAL LABORATORY TESTING

MURRAY RIX

CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client IGE Consulting Ltd

Address Office 16
Bartle House
Oxford Court
Manchester
M2 3WQ

Contract Watford Bridge Road

Job Number MRN 4601/52
Date of Issue 19 October 2023
Page 1 of 9

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

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

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.

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

6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

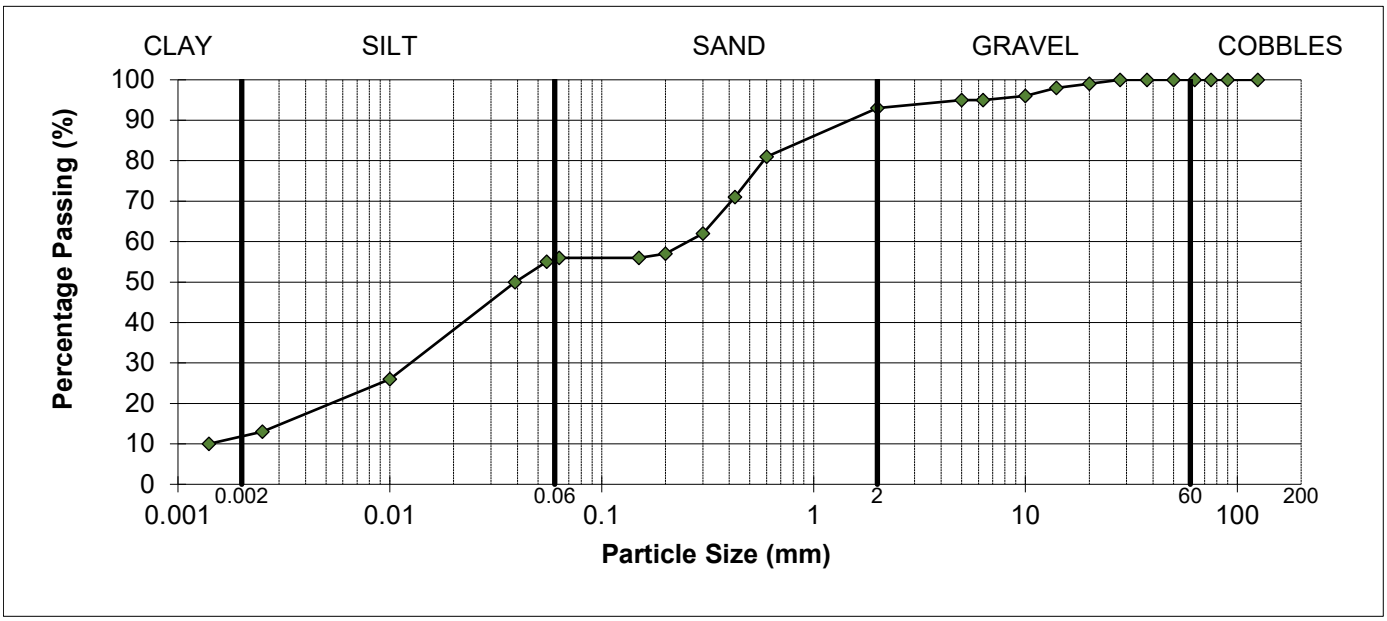
Determination of Water Content in accordance with BS EN ISO 17892-1:2014 (Oven Dry)

CLIENT	IGE Consulting Ltd
SITE	Watford Bridge Road
JOB NUMBER	MRN 4601/52

SAMPLE LABEL	TP01 @ 2.5m	DATE SAMPLED	26-Sep-23
LAB SAMPLE No	131993	DATE RECEIVED	02-Oct-23
DATE TESTED	04-Oct-23	SAMPLED BY	Client

MATERIAL	Dark brown silty sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	93	
90	100		0.6	81	
75	100		0.425	71	
63	100		0.3	62	
50	100		0.2	57	
37.5	100		0.15	56	
28	100		0.063	56	
20	99		0.055	55	
14	98		0.039	50	
10	96		0.010	26	
6.3	95		0.0025	13	
5	95		0.0014	10	



REMARKS
As received water content = 21.8%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 19-Oct-23

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

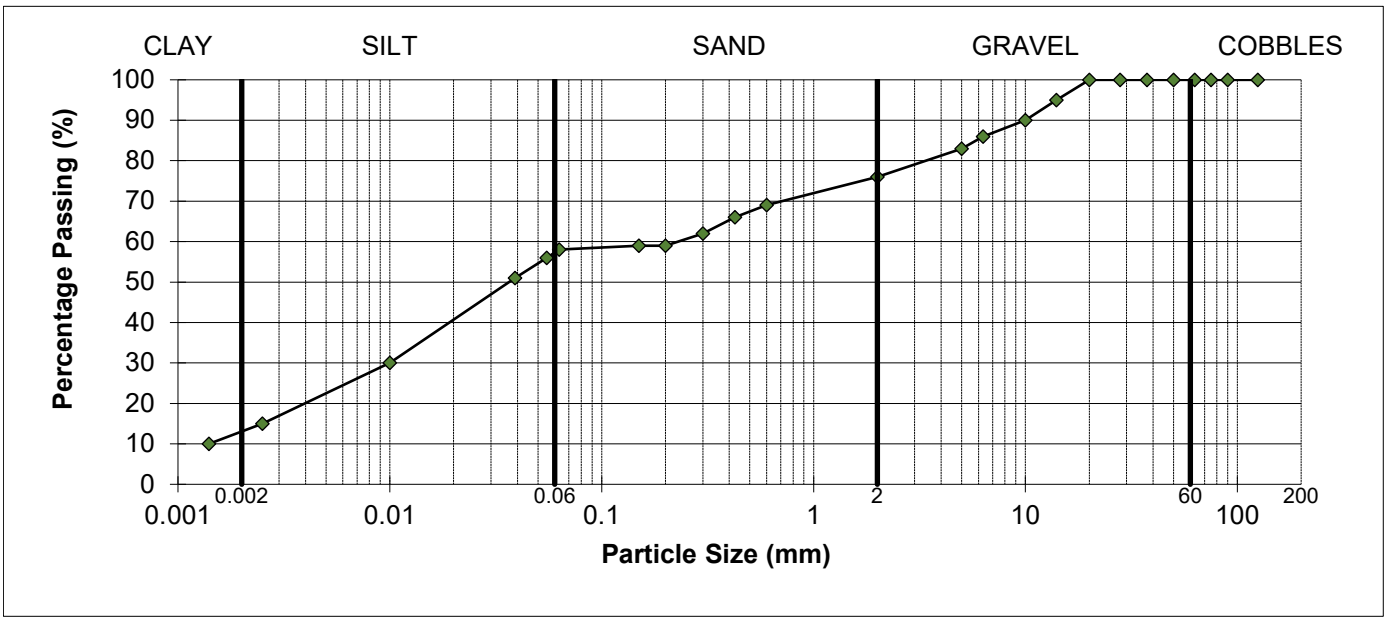
Determination of Water Content in accordance with BS EN ISO 17892-1:2014 (Oven Dry)

CLIENT	IGE Consulting Ltd
SITE	Watford Bridge Road
JOB NUMBER	MRN 4601/52

SAMPLE LABEL	TP01 @ 0.8m	DATE SAMPLED	26-Sep-23
LAB SAMPLE No	131994	DATE RECEIVED	02-Oct-23
DATE TESTED	04-Oct-23	SAMPLED BY	Client

MATERIAL	Grey silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	76	
90	100		0.6	69	
75	100		0.425	66	
63	100		0.3	62	
50	100		0.2	59	
37.5	100		0.15	59	
28	100		0.063	58	
20	100		0.055	56	
14	95		0.039	51	
10	90		0.010	30	
6.3	86		0.0025	15	
5	83		0.0014	10	



REMARKS
As received water content = 25.5%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 19-Oct-23

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

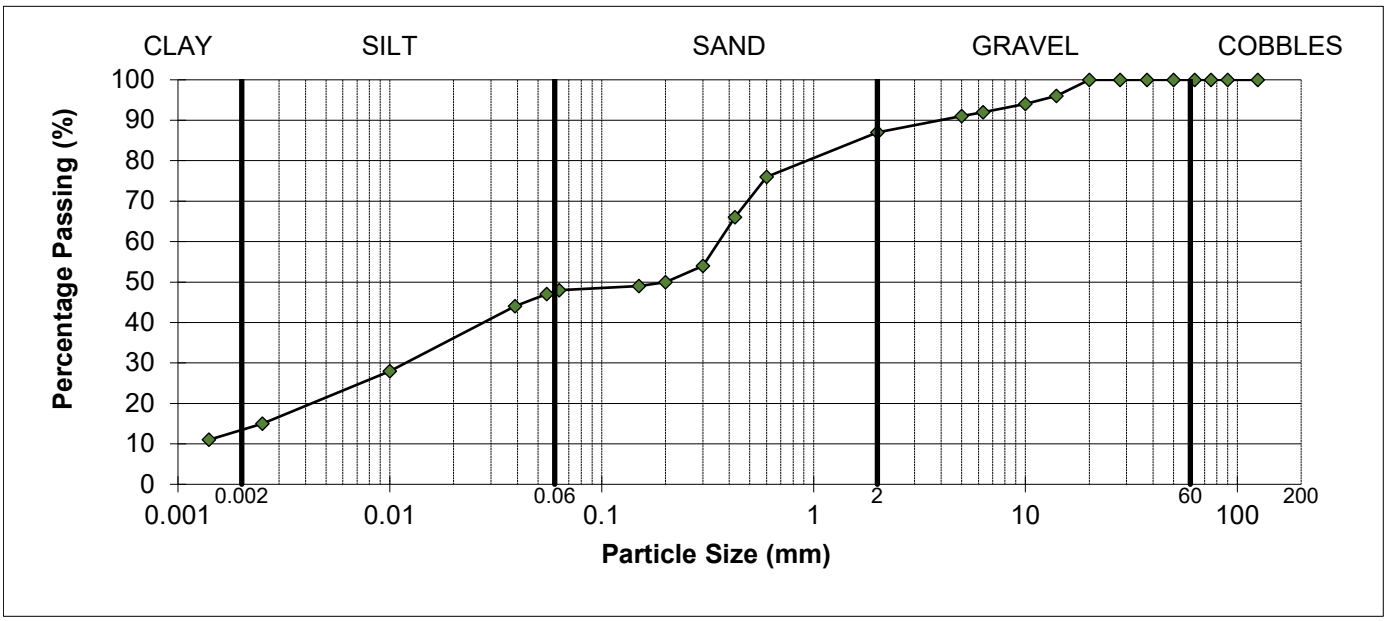
Determination of Water Content in accordance with BS EN ISO 17892-1:2014 (Oven Dry)

CLIENT	IGE Consulting Ltd
SITE	Watford Bridge Road
JOB NUMBER	MRN 4601/52

SAMPLE LABEL	TP02 @ 3.2m	DATE SAMPLED	26-Sep-23
LAB SAMPLE No	131995	DATE RECEIVED	02-Oct-23
DATE TESTED	04-Oct-23	SAMPLED BY	Client

MATERIAL	Grey silty sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	87	
90	100		0.6	76	
75	100		0.425	66	
63	100		0.3	54	
50	100		0.2	50	
37.5	100		0.15	49	
28	100		0.063	48	
20	100		0.055	47	
14	96		0.039	44	
10	94		0.010	28	
6.3	92		0.0025	15	
5	91		0.0014	11	



REMARKS
As received water content = 19.4%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 19-Oct-23

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

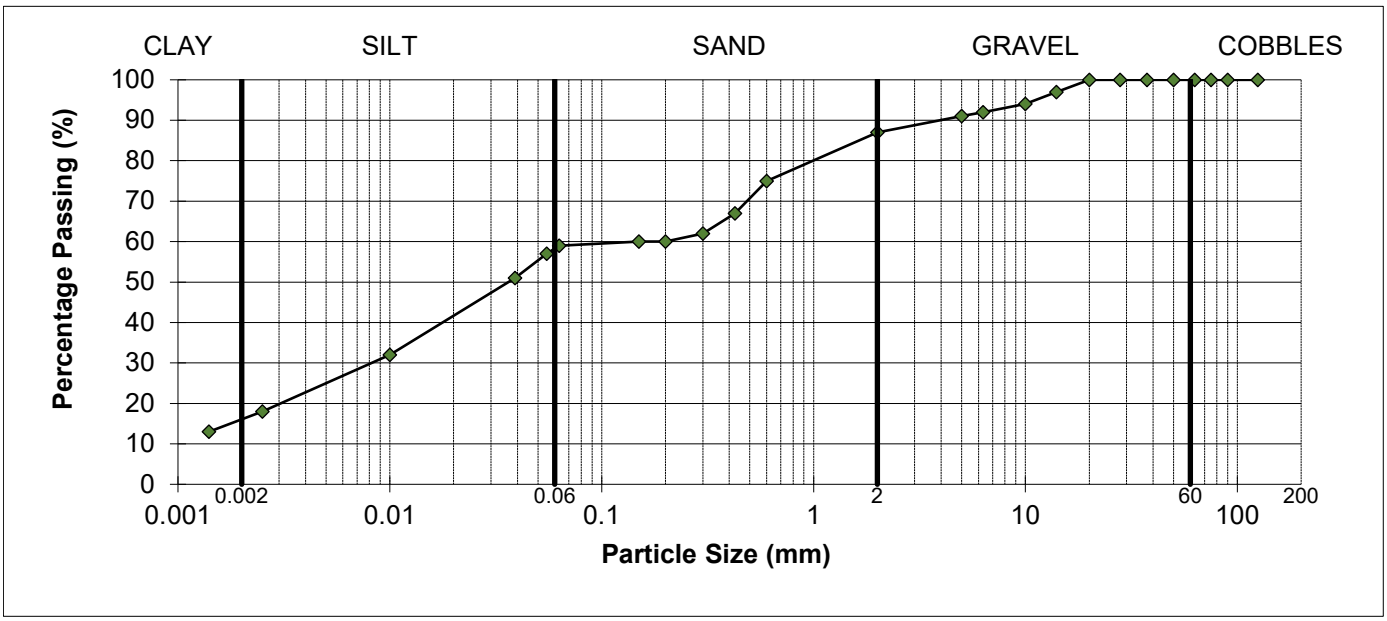
Determination of Water Content in accordance with BS EN ISO 17892-1:2014 (Oven Dry)

CLIENT	IGE Consulting Ltd
SITE	Watford Bridge Road
JOB NUMBER	MRN 4601/52

SAMPLE LABEL	TP05 @ 3.0m	DATE SAMPLED	26-Sep-23
LAB SAMPLE No	131998	DATE RECEIVED	02-Oct-23
DATE TESTED	04-Oct-23	SAMPLED BY	Client

MATERIAL	Grey silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	87	
90	100		0.6	75	
75	100		0.425	67	
63	100		0.3	62	
50	100		0.2	60	
37.5	100		0.15	60	
28	100		0.063	59	
20	100		0.055	57	
14	97		0.039	51	
10	94		0.010	32	
6.3	92		0.0025	18	
5	91		0.0014	13	



REMARKS
As received water content = 22.9%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 19-Oct-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014

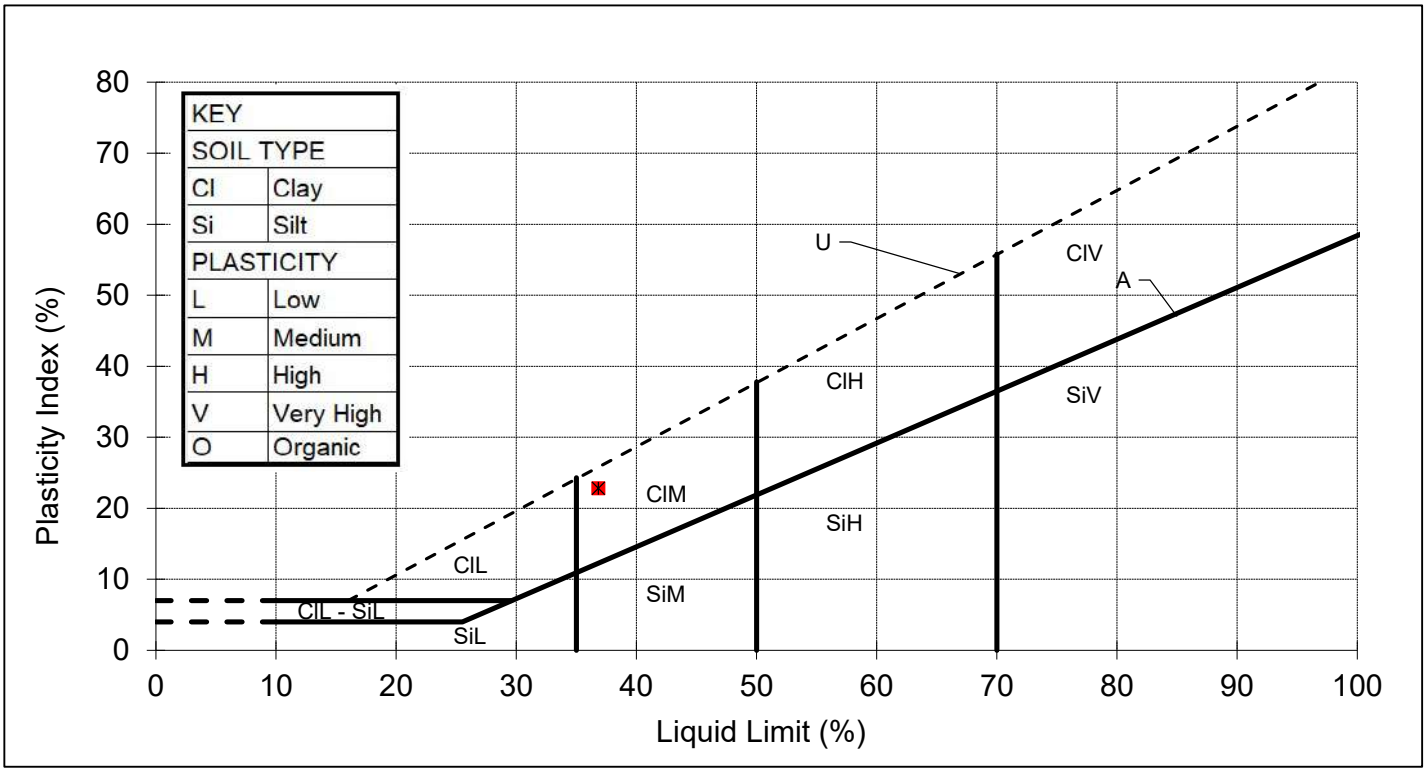
CLIENT	IGE Consulting Ltd
SITE	Watford Bridge Road
JOB NUMBER	MRN 4601/52

SAMPLE LABEL	TP01 @ 2.5m	DATE SAMPLED	26-Sep-23
SAMPLE No.	131993	DATE RECEIVED	02-Oct-23
DATE TESTED	04-Oct-23	SAMPLED BY	Client

MATERIAL	Dark brown silty sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.0	37.1	1.001	
Determination 2 (avg)	19.9	36.5		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
21.8	37	14	23	71



REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 19-Oct-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014

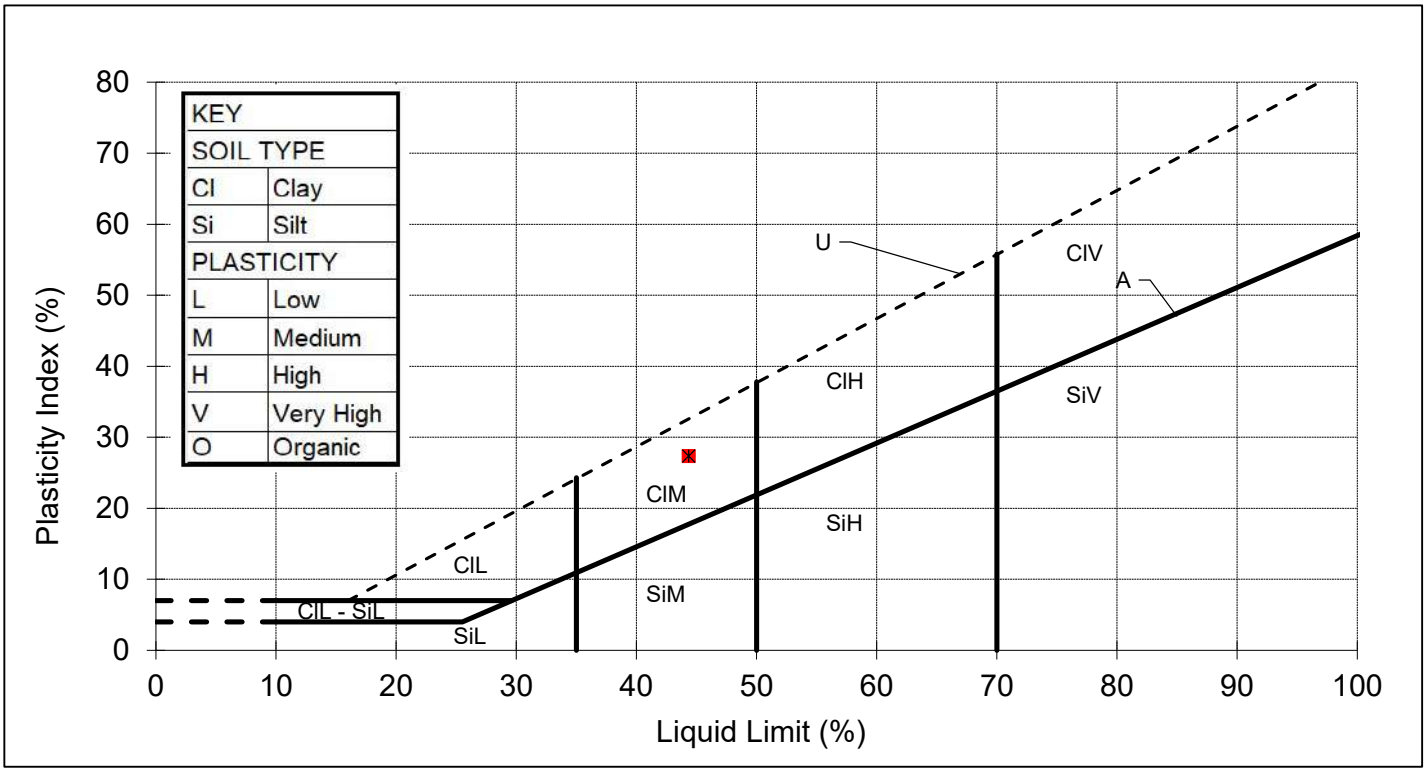
CLIENT	IGE Consulting Ltd
SITE	Watford Bridge Road
JOB NUMBER	MRN 4601/52

SAMPLE LABEL	TP02 @ 3.2m	DATE SAMPLED	26-Sep-23
SAMPLE No.	131995	DATE RECEIVED	02-Oct-23
DATE TESTED	04-Oct-23	SAMPLED BY	Client

MATERIAL	Grey silty sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	16.7	42.1	1.061	
Determination 2 (avg)	16.2	41.5		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
19.4	44	17	27	66



REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 19-Oct-23

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014

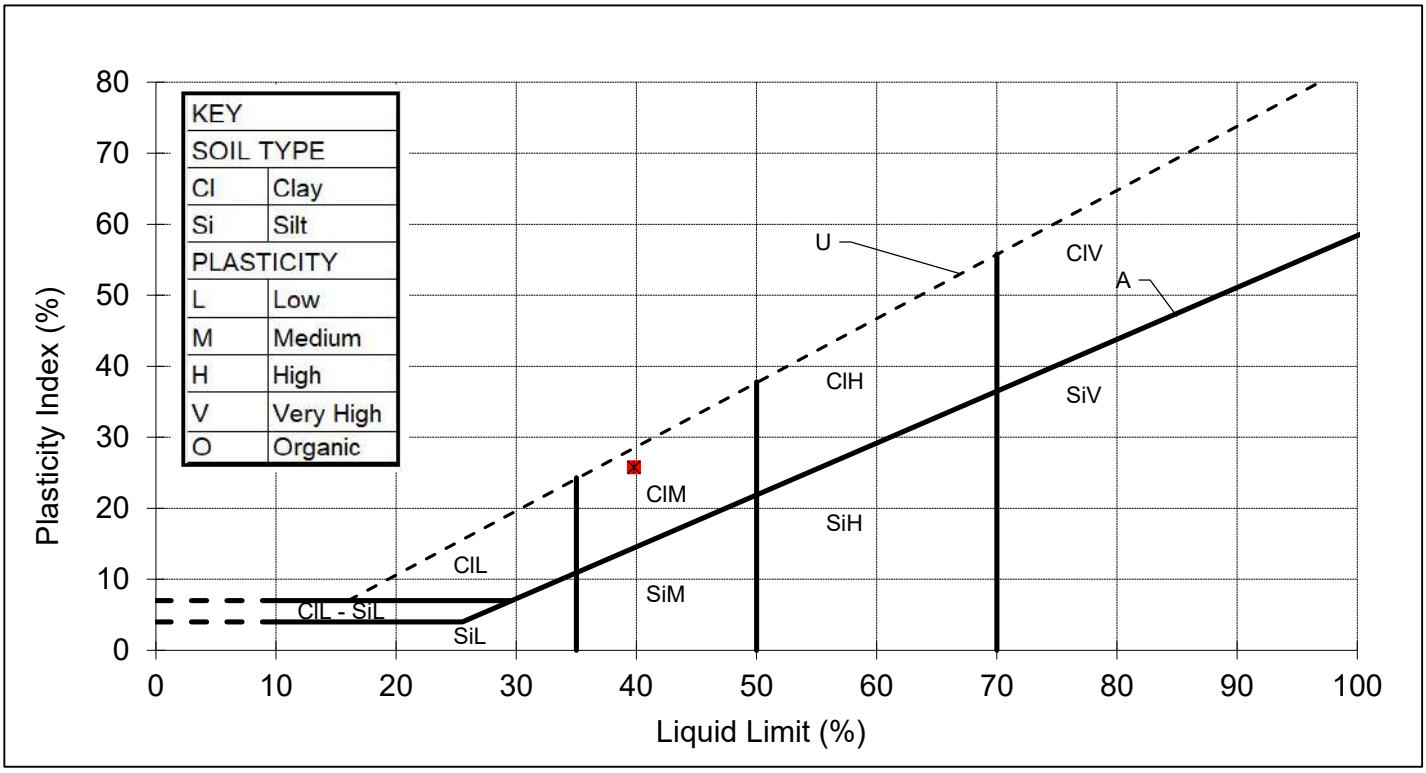
CLIENT	IGE Consulting Ltd
SITE	Watford Bridge Road
JOB NUMBER	MRN 4601/52

SAMPLE LABEL	TP03 @ 1.0m	DATE SAMPLED	26-Sep-23
SAMPLE No.	131996	DATE RECEIVED	02-Oct-23
DATE TESTED	04-Oct-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.1	38.6	1.029	
Determination 2 (avg)	18.7	38.7		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
16.2	40	14	26	70



REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 19-Oct-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A1:2021 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014

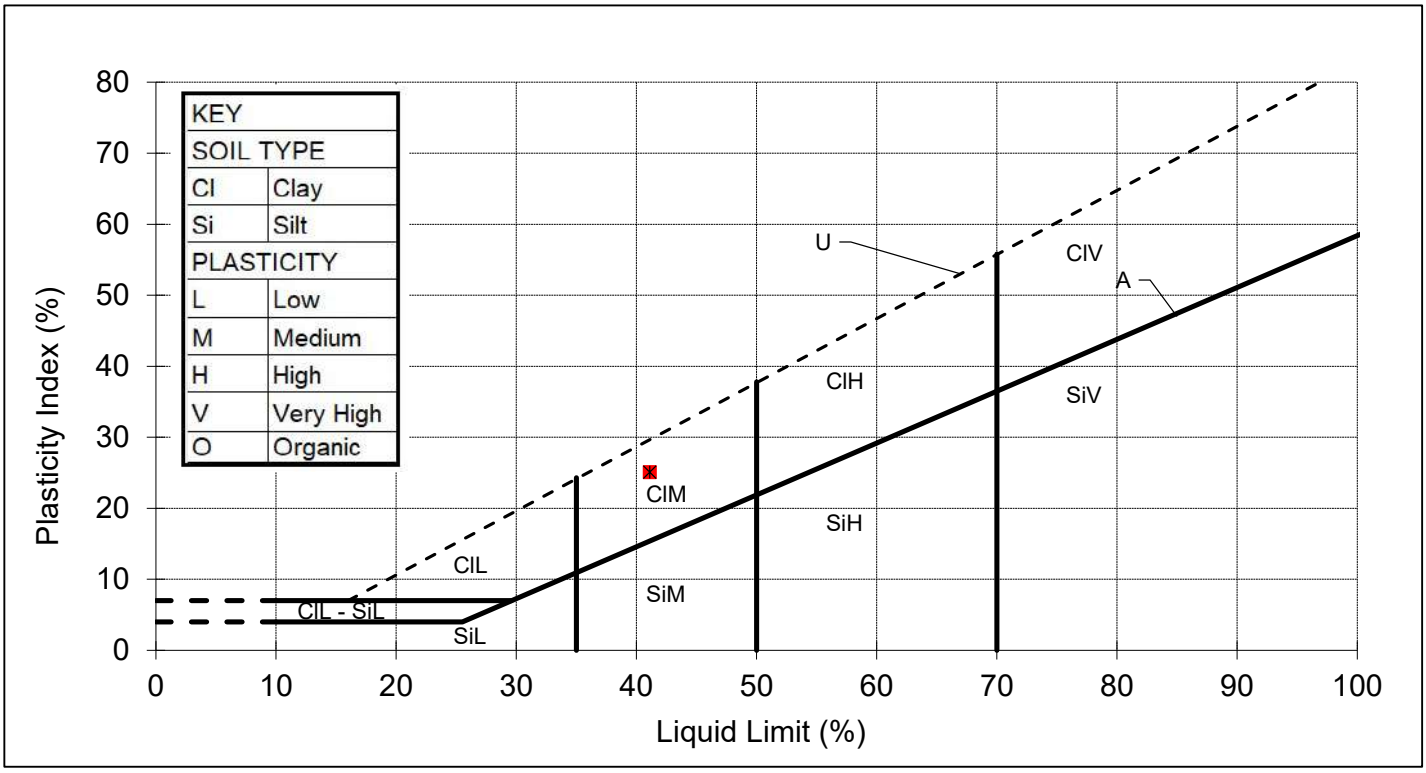
CLIENT	IGE Consulting Ltd
SITE	Watford Bridge Road
JOB NUMBER	MRN 4601/52

SAMPLE LABEL	TP04 @ 1.80m	DATE SAMPLED	26-Sep-23
SAMPLE No.	131997	DATE RECEIVED	02-Oct-23
DATE TESTED	04-Oct-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.0	41.1	1.000	
Determination 2 (avg)	20.1	41.1		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
25.6	41	16	25	87



REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 19-Oct-23

APPENDIX 9

CHEMICAL LABORATORY TESTING

Tom Pudifoot
IGE Consulting
Office 11
Bartle House
Oxford Court
Manchester
M2 3WQ

e: tompudifoot@igeconsulting.co.uk

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

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 23-59142

Project / Site name:	Watford Bridge Road	**Samples received on:**	27/09/2023
Your job number:	4059	**Samples instructed on/ Analysis started on:**	27/09/2023
Your order number:	4059-28-09-2023	**Analysis completed by:**	04/10/2023
Report Issue Number:	1	**Report issued on:**	04/10/2023
Samples Analysed:	7 soil samples		

Signed:

Anna Goc
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

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.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-59142
Project / Site name: Watford Bridge Road
Your Order No: 4059-28-09-2023

Lab Sample Number				2827041	2827042	2827043	2827044	2827045
Sample Reference				TP01	TP01	TP02	TP02	TP03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.20	1.00	2.00	0.70
Date Sampled				26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
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	42	< 0.1
Moisture Content	%	0.01	NONE	7.6	16	15	11	17
Total mass of sample received	kg	0.001	NONE	0.8	1	0.8	0.8	0.9
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	N/A	WEM	N/A	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.6	8	8	8.1	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	%	0.005	MCERTS	-	0.111	-	0.043	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	210	-	260	150	180
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.103	0.157	0.129	0.0739	0.0902
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	103	157	129	73.9	90.2
Total Chloride	mg/kg	5	NONE	-	740	-	110	-
Total Sulphur	%	0.005	MCERTS	-	0.077	-	0.039	-
Organic Matter (automated)	%	0.1	MCERTS	1.9	-	4.4	3	7
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.1	-	2.6	1.8	4
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	-	3.8	-	< 2.0	-
Water Soluble Nitrate (2:1) as NO3	mg/kg	2	NONE	< 2.0	-	9.8	5.2	32
Water Soluble Nitrate (2:1) as NO3 (leachate equivalent)	mg/l	5	NONE	< 5.0	-	< 5.0	< 5.0	16

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	0.11	0.06	0.09
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	0.24	0.05	0.08
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	0.38	0.07	0.21
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	0.49	0.08	0.18
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	6.6	1.1	2.2
Anthracene	mg/kg	0.05	MCERTS	0.08	-	1.8	0.31	0.53
Fluoranthene	mg/kg	0.05	MCERTS	0.71	-	9.7	3.1	4.9
Pyrene	mg/kg	0.05	MCERTS	0.64	-	8.3	3	4.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.38	-	4.9	1.8	2.4
Chrysene	mg/kg	0.05	MCERTS	0.42	-	4.4	1.8	2.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.68	-	6.3	2.3	2.6
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.21	-	2.2	1	1.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.54	-	5.3	2.2	2.6
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.25	-	2.1	1.2	1.3
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.05	-	0.57	0.29	0.32
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.3	-	2.4	1.3	1.5

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	4.26	-	55.9	19.5	26.8

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

Analytical Report Number: 23-59142
Project / Site name: Watford Bridge Road
Your Order No: 4059-28-09-2023

Lab Sample Number				2827041	2827042	2827043	2827044	2827045
Sample Reference				TP01	TP01	TP02	TP02	TP03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.20	1.00	2.00	0.70
Date Sampled				26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
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	9.5	-	29	29	9.9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	160	-	230	150	570
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.39	-	0.7	0.63	0.57
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	-	0.4	0.5	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.9	-	< 0.2	< 0.2	1.3
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	-	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	-	34	32	45
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	-	50	220	160
Lead (aqua regia extractable)	mg/kg	1	MCERTS	40	-	120	120	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	11	-	20	20	29
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	15	-	22	21	25
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	-	190	130	500
Magnesium (water soluble)	mg/kg	5	NONE	-	23	-	8.6	-
Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	12	-	4.3	-
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	-	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	< 2.0	-	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	-	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	-	22	27	18
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH_CU_1D_AL}$	mg/kg	8.4	NONE	< 8.4	-	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	< 10	-	26	28	18
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	< 10	-	31	34	23
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.1	NONE	< 0.10	-	< 0.10	< 0.10	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	< 2.0	-	4.3	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	-	27	12	12
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	30	-	82	75	53
TPH-CWG - Aromatic > EC35 - EC44 $_{EH_CU_1D_AR}$	mg/kg	8.4	NONE	13	-	19	24	19
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	35	-	110	87	66
TPH-CWG - Aromatic (EC5 - EC44) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	48	-	130	110	85

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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

Analytical Report Number: 23-59142
Project / Site name: Watford Bridge Road
Your Order No: 4059-28-09-2023

Lab Sample Number				2827046	2827047
Sample Reference				TP03	TP04
Sample Number				None Supplied	None Supplied
Depth (m)				2.20	0.60
Date Sampled				26/09/2023	26/09/2023
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	%	0.01	NONE	15	19
Total mass of sample received	kg	0.001	NONE	1	0.8
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	N/A	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8	7.8
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0
Total Sulphate as SO4	%	0.005	MCERTS	0.027	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	120
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0562	0.0599
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	56.2	59.9
Total Chloride	mg/kg	5	NONE	180	-
Total Sulphur	%	0.005	MCERTS	0.015	-
Organic Matter (automated)	%	0.1	MCERTS	-	4.5
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	2.6
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	-
Water Soluble Nitrate (2:1) as NO3	mg/kg	2	NONE	-	< 2.0
Water Soluble Nitrate (2:1) as NO3 (leachate equivalent)	mg/l	5	NONE	-	< 5.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	0.09
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	0.26
Pyrene	mg/kg	0.05	MCERTS	-	0.24
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.13
Chrysene	mg/kg	0.05	MCERTS	-	0.15
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	0.2
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	0.17
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	0.12

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	1.54

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Analytical Report Number: 23-59142
Project / Site name: Watford Bridge Road
Your Order No: 4059-28-09-2023

Lab Sample Number				2827046	2827047
Sample Reference				TP03	TP04
Sample Number				None Supplied	None Supplied
Depth (m)				2.20	0.60
Date Sampled				26/09/2023	26/09/2023
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	-	15
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	620
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	1.3
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.8
Chromium (hexavalent)	mg/kg	1.2	NONE	-	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	48
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	380
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	28
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	36
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	120
Magnesium (water soluble)	mg/kg	5	NONE	9.9	-
Magnesium (leachate equivalent)	mg/l	2.5	NONE	5	-
Monoaromatics & Oxygenates					
Benzene	µg/kg	5	MCERTS	-	< 5.0
Toluene	µg/kg	5	MCERTS	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0
p & m-xylene	µg/kg	5	MCERTS	-	< 5.0
o-xylene	µg/kg	5	MCERTS	-	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	< 5.0
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.1	NONE	-	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.1	NONE	-	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.1	NONE	-	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	-	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH_CU_1D_AL}$	mg/kg	8.4	NONE	-	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	-	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	-	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.1	NONE	-	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.1	NONE	-	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.1	NONE	-	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	-	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	-	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH_CU_1D_AR}$	mg/kg	8.4	NONE	-	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	-	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	-	< 10

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Analytical Report Number : 23-59142
Project / Site name: Watford Bridge Road

* 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 *
2827041	TP01	None Supplied	0.2	Brown clay and sand with gravel.
2827042	TP01	None Supplied	1.2	Brown clay and sand with gravel.
2827043	TP02	None Supplied	1	Brown clay and sand.
2827044	TP02	None Supplied	2	Brown clay with stones.
2827045	TP03	None Supplied	0.7	Brown clay and sand with gravel.
2827046	TP03	None Supplied	2.2	Light brown clay with gravel.
2827047	TP04	None Supplied	0.6	Brown clay.

Analytical Report Number : 23-59142
Project / Site name: Watford Bridge Road

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion 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
Chloride in soil	Determination of acid soluble chloride in soil by extraction with nitric acid, addition of silver nitrate followed by titration against thiocyanate.	In-house method	L075-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
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/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 Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	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. Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-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
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
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 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.	L009-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS

Analytical Report Number : 23-59142
Project / Site name: Watford Bridge Road

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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
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	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	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
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Sulphate, water soluble, in soil	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

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' 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.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted

Analytical Report Number : 23-59142
Project / Site name: Watford Bridge Road

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
_	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

APPENDIX 10

CHEMICAL LABORATORY SCREENING

Project: Watford Bridge Road

Job No: 4059

Lab Sample Number			2827041	2827042	2827043	2827044	2827045	2827046	2827047	Statistical Analysis					GAC - S4UL unless stated			
Sample Reference			TP01	TP01	TP02	TP02	TP03	TP03	TP04						Statistical Results			
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied									
Depth (m)			0.2	1.2	1	2	0.7	2.2	0.6									
Date Sampled			26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023									
Analytical Parameter (Soil Analysis)	**Units**	**LoD**								Count	Standard Deviation	Minimum	Maximum	Average	Maximum	**2.5% Commercial**	Pass/ Fail	Exceedances
Stone Content	%	0.1	0.1	0.1	0.1	42	0.1	0.1	0.1	7	15.84	0.1	42.0	6.1	42.0			
Moisture Content	%	0.01	7.6	16	15	11	17	15	19	7	3.85	7.60	19.00	14.37	19.00			
Total mass of sample received	kg	0.001	0.8	1	0.8	0.8	0.9	1	0.8	7	0.10	0.800	1.000	0.871	1.000			
Asbestos																		
Asbestos in Soil Screen	Type	N/A	Not-detected	-	Not-detected	-	Not-detected	-	Not-detected	4	-	-	-	-				
General Inorganics																		
pH - Automated	pH Units	N/A	10.6	8	8	8.1	8.1	8	7.8	7	0.99	7.80	10.60	8.37				
Total Cyanide	mg/kg	1	1	-	1	1	1	-	1	5	0.00	1.00	1.00	1.00	1.00	**60**	Pass	0
Free Cyanide	mg/kg	1	1	-	1	1	1	-	1	5	0.00	1.00	1.00	1.00	1.00	**60**	Pass	0
Total Sulfate as SO4	%	0.005	-	0.111	-	0.043	-	0.027	-	3	0.045	0.027	0.111	0.060				
Water Soluble Sulfate as SO4 16hr extraction (2:1)	mg/kg	2.50	210	-	260	150	180	-	120	5	54.13	120.00	260.00	184.00				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	0.103	0.157	0.129	0.0739	0.0902	0.0562	0.0599	7	0.03712	0.05620	0.15700	0.09560				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	103	157	129	73.9	90.2	56.2	59.9	7	37.12	56.20	157.00	95.60				
Total Chloride	mg/l	5.0	-	740	-	110	-	180	-	3	345.3	110.0	740.0	343.3				
Total Sulfur	%	0.005	-	0.077	-	0.039	-	0.015	-	3	0.031	0.015	0.077	0.044				
Organic Matter (automated)	%	0.10	1.90	-	4.40	3.00	7.00	-	4.50	5	1.92	1.90	7.00	**4.16**				
Total Organic Carbon (automated)	%	0.10	1.100	-	2.600	1.800	4.000	-	2.600	5	1.08	1.10	4.00	**2.42**				
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	-	3.8	-	2	-	2	-	3	1.04	2.00	3.80	2.60				
Water Soluble Nitrate (2:1) as NO3	mg/kg	2	2	-	9.8	5.2	32	-	2	5	12.60	2.00	32.00	10.20				
Water Soluble Nitrate (2:1) as NO3 (leachate equivalent)	mg/l	5	5	-	5	5	16	-	5	5	4.92	5.00	16.00	7.20				
Speciated PAHs																		
Naphthalene	mg/kg	0.05	0.05	-	0.11	0.06	0.09	-	0.05	5	0.03	0.05	0.11	0.07	0.11	**460.00**	Pass	0
Acenaphthylene	mg/kg	0.05	0.05	-	0.24	0.05	0.08	-	0.05	5	0.08	0.05	0.24	0.09	0.24	**97000**	Pass	0
Acenaphthene	mg/kg	0.05	0.05	-	0.38	0.07	0.21	-	0.05	5	0.14	0.05	0.38	0.15	0.38	**97000**	Pass	0
Fluorene	mg/kg	0.05	0.05	-	0.49	0.08	0.18	-	0.05	5	0.19	0.05	0.49	0.17	0.49	**68000**	Pass	0
Phenanthrene	mg/kg	0.05	0.05	-	6.6	1.1	2.2	-	0.09	5	2.71	0.05	6.60	2.01	6.60	**22000**	Pass	0
Anthracene	mg/kg	0.05	0.08	-	1.8	0.31	0.53	-	0.05	5	0.72	0.05	1.80	0.55	1.80	**540000**	Pass	0
Fluoranthene	mg/kg	0.05	0.71	-	9.7	3.1	4.9	-	0.26	5	3.83	0.26	9.70	3.73	9.70	**23000**	Pass	0
Pyrene	mg/kg	0.05	0.64	-	8.3	3	4.4	-	0.24	5	3.27	0.24	8.30	3.32	8.30	**54000**	Pass	0
Benzo(a)anthracene	mg/kg	0.05	0.38	-	4.9	1.8	2.4	-	0.13	5	1.92	0.13	4.90	1.92	4.90	**170.00**	Pass	0
Chrysene	mg/kg	0.05	0.42	-	4.4	1.8	2.2	-	0.15	5	1.70	0.15	4.40	1.79	4.40	**350**	Pass	0
Benzo(b)fluoranthene	mg/kg	0.05	0.68	-	6.3	2.3	2.6	-	0.2	5	2.40	0.20	6.30	2.42	6.30	**44.00**	Pass	0
Benzo(k)fluoranthene	mg/kg	0.05	0.21	-	2.2	1	1.3	-	0.08	5	0.86	0.08	2.20	0.96	2.20	**1200**	Pass	0
Benzo(a)pyrene	mg/kg	0.05	0.54	-	5.3	2.2	2.6	-	0.17	5	2.04	0.17	5.30	2.16	5.30	**35.00**	Pass	0
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	0.25	-	2.1	1.2	1.3	-	0.1	5	0.82	0.10	2.10	0.99	2.10	**510**	Pass	0
Dibenz(a,h)anthracene	mg/kg	0.05	0.05	-	0.57	0.29	0.32	-	0.05	5	0.22	0.05	0.57	0.26	0.57	**3.60**	Pass	0
Benzo(ghi)perylene	mg/kg	0.05	0.3	-	2.4	1.3	1.5	-	0.12	5	0.93	0.12	2.40	1.12	2.40	**4000**	Pass	0
Total PAH																		
Speciated Total EPA-16 PAHs	mg/kg	0.8	4.26	-	55.9	19.5	26.8	-	1.54	5	21.86	1.54	55.90	21.60				
Heavy Metals / Metalloids																		
Arsenic (aqua regia extractable)	mg/kg	1	9.5	-	29	29	9.9	-	15	5	9.85	9.50	29.00	18.48	29.00	**640**	Pass	0
Barium (aqua regia extractable)	mg/kg	1	160	-	230	150	570	-	620	5	230.07	150.00	620.00	346.00	620.00	**22000.00**	Pass	0
Boron (water soluble)	mg/kg	0.2	0.5	-	0.4	0.5	1.3	-	1.1	5	0.41	0.40	1.30	0.76	1.30	**240000**	Pass	0
Cadmium (aqua regia extractable)	mg/kg	0.2	0.9	-	0.2	0.2	1.3	-	0.8	5	0.48	0.20	1.30	0.68	1.30	**190**	Pass	0
Chromium (hexavalent)	mg/kg	1.2	1.2	-	1.2	1.2	1.2	-	1.2	5	0.00	1.20	1.20	1.20	1.20	**33**	Pass	0
Chromium (aqua regia extractable)	mg/kg	1	16	-	34	32	45	-	28	5	10.49	16.00	45.00	31.00	45.00	**8600**	Pass	0
Copper (aqua regia extractable)	mg/kg	1	27	-	50	220	160	-	48	5	84.45	27.00	220.00	101.00	220.00	**68000**	Pass	0
Lead (aqua regia extractable)	mg/kg	1	40	-	120	120	150	-	380	5	128.53	40.00	380.00	162.00	380.00	**2330**	Pass	0
Mercury (aqua regia extractable)	mg/kg	0.3	0.3	-	0.3	0.3	0.3	-	0.3	5	0.00	0.30	0.30	0.30	0.30	**1100**	Pass	0
Nickel (aqua regia extractable)	mg/kg	1	11	-	20	20	29	-	28	5	7.30	11.00	29.00	21.60	29.00	**980**	Pass	0
Selenium (aqua regia extractable)	mg/kg	1	1	-	1	1	1	-	1	5	0.00	1.00	1.00	1.00	1.00	**12000**	Pass	0
Vanadium (aqua regia extractable)	mg/kg	1	15	-	22	21	25	-	36	5	7.73	15.00	36.00	23.80	36.00	**9000**	Pass	0
Zinc (aqua regia extractable)	mg/kg	1	100	-	190	130	500	-	120	5	166.64	100.00	500.00	208.00	500.00	**730000**	Pass	0
Magnesium (water soluble)	mg/kg	5	-	23	-	8.6	-	9.9	-	3	7.97	8.60	23.00	13.83				
Magnesium (leachate equivalent)	mg/l	2.5	-	12	-	4.3	-	5	-	3	4.26	4.30	12.00	7.10				
Monoaromatics & Oxygenates																		
Benzene	µg/kg	5	5	-	5	5	5	-	5	5	0.00	5	5	5.00	5	**47000**	Pass	0
Toluene	µg/kg	5	5	-	5	5	5	-	5	5	0.00	5	5	5.00	5	**110000000**	Pass	0
Ethylbenzene	µg/kg	5	5	-	5	5	5	-	5	5	0.00	5	5	5.00	5	**13000000**	Pass	0
p & m-xylene	µg/kg	5	5	-	5	5	5	-	5	5	0.00	5	5	5.00	5	**14000000**	Pass	0
o-xylene	µg/kg	5	5	-	5	5	5	-	5	5	0.00	5	5	5.00	5	**15000000**	Pass	0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	5	-	5	5	5	-	5	5	0.00	5	5	5.00		**-**		
Petroleum Hydrocarbons																		
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	0.1	-	0.1	0.1	0.1	-	0.1	5	0.000	0.100	0.100	0.100	0.100	**5900**	Pass	0
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	0.1	-	0.1	0.1	0.1	-	0.1	5	0.000	0.100	0.100	0.100	0.100	**17000**	Pass	0
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	0.1	-	0.1	0.1	0.1	-	0.1	5	0.000	0.100	0.100	0.100	0.100	**4800**	Pass	0
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	1	-	1	1	1	-	1	5	0.00	1.00	1.00	1.00	1.00	**23000**	Pass	0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	2	-	2	2	2	-	2	5	0.00	2.00	2.00	2.00	2.00	**82000**	Pass	0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	8	-	8	8	8	-	8	5	0.00	8.00	8.00	8.00	8.00	**-**		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	8	-	22	27	18	-	8	5	8.47	8.00	27.00	16.60	27.00	**1700000**	Pass	0
TPH-CWG - Aliphatic >EC35 - EC44	mg/kg	8.4	8.4	-	8.4	8.4	8.4	-	8.4	5	0.00	8.40	8.40	8.40	8.40	**1700000**	Pass	0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	10	-	26	28	18	-	10	5	8.53	10.00	28.00	18.40		**-**		
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	10	-	31	34	23	-	10	5	11.33	10.00	34.00	21.60		**-**		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	0.1	-	0.1	0.1	0.1	-	0.1	5	0.000	0.100	0.100	0.100	0.100	**46000**	Pass	0
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	0.1	-	0.1	0.1	0.1	-	0.1	5	0.000	0.100	0.100	0.100	0.100	**110000**	Pass	0
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	0.1	-	0.1	0.1	0.1	-	0.1	5	0.000	0.100	0.100	0.100	0.100	**8100**	Pass	0
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	1	-	1	1	1	-	1	5	0.00	1.00	1.00	1.00	1.00	**28000**	Pass	0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	2	-	4.3	2	2	-	2	5	1.03	2.00	4.30	2.46	4.30	**37000**	Pass	0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	10	-	27	12	12	-	10	5	7.22	10.00	27.00	14.20	27.00	**28000**	Pass	0
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	30	-	82	75	53	-	10	5	30.24	10.00	82.00	50.00	82.00	**28000**	Pass	0
TPH-CWG - Aromatic >EC35 - EC44	mg/kg	8.4	13	-	19	24	19	-	8.4	5	6.05	8.40	24.00	16.68	24.00	**28000**	Pass	0
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	35	-	110	87	66	-	10	5	39.93	10.00	110.00	61.60		**-**		
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	48	-	130	110	85	-	10	5	48.20	10.00	130.00	76.60		**-**		

GAC used: LQM/CIEH Suitable 4 Use Levels for Human Health Risk Assessment (3rd edition, 2015)

Category 4 Screening Levels (March 2014) used for Arsenic

In-house methodology used for Cyanide - no GAC currently available

Exceeded GAC & C4SL

Exceeded GAC but not C4SL

Recorded below laboratory detection limit

This spreadsheet has been developed by IGE Consulting Ltd