

ROCK CORE PHOTOGRAPHIC RECORD



Project: 4173 Higham Lane		DSRC307
Location: Higham Lane, Dodworth, Barnsley		
Client: Commercial Development Projects Limited	Date: 8 August 2025	Sheet: 1 of 1

1.10m – 4.10m bgl

4.10m – 7.10m bgl

7.10m – 8.10m bgl

ROCK CORE PHOTOGRAPHIC RECORD



Project: 4173 Higham Lane

Location: Higham Lane, Dodworth, Barnsley

DSRC308

Client: Commercial Development Projects Limited

Date: 30 July 2015

Sheet: 1 of 1

2.80m – 4.30m bgl



4.30m – 5.80m bgl



5.80m – 7.30m bgl



7.30m – 8.80m bgl



ROCK CORE PHOTOGRAPHIC RECORD



Project: 4173 Higham Lane		DSRC309
Location: Higham Lane, Dodworth, Barnsley		
Client: Commercial Development Projects Limited	Date: 29 July 2025	Sheet: 1 of 1

2.20m – 3.70m bgl

3.70m – 5.20m bgl

5.20m – 6.70m bgl

5.20m – 6.70m bgl



Appendix C Chemical Analysis Certificates



STATISTICAL ASSESSMENT OF CHEMICAL ANALYSIS

The results of the chemical analysis have been assessed in accordance with CL:AIRE (Contaminated Land: Applications in Real Environments) 'Guidance on Comparing Soil Contamination Data with a Critical Concentration' published by the CIEH, May 2008.

This guidance provides a statistical approach to objectively evaluate the evidence for and against particular propositions/hypothesis and has the useful attribute of enabling decision makers to reach conclusions about the available evidence, with at least some understanding of the validity of the results.

The guidance approaches this in the context of assessing the results from two different perspectives, the Planning Scenario and Part 2A.

When assessing in terms of the Planning Scenario, the key question would be 'can we confidently say that the level of contamination on this land is low relative to some appropriate measure of risk?' Under Part 2A, the question would be 'can we confidently say that the level of contamination is high relative to some appropriate measure of risk?'

These questions are addressed through the use of formal hypothesis – the "Null Hypothesis" and the "Alternative Hypothesis".

This assessment will be carried out in accordance with the Planning Scenario, where the aim is to demonstrate 'suitability for use'. The Null Hypothesis is that the level of contamination is the same as, or higher than the critical concentration/GAC. The Alternative Hypothesis is that the level of contamination is lower than the critical concentration/GAC. Under Part 2A the opposite set of propositions are applicable.

By convention, the Null Hypothesis is the starting proposition against which the key question, as expressed by the Alternative Hypothesis, can be tested.

The assessment of the results relies on there being a normal distribution of results for a particular contaminant and that the data set under consideration is representative of the particular material which is being assessed. If more than one dataset is present, then the hypothesis should be applied individually for each data set.

Under the Planning Scenario, the statistical test is used to demonstrate that there is a 95% probability that the true population mean falls below the critical concentration/GAC.

Appropriate data sets must be created to enable the statistical testing to be carried out, and three key elements must be considered prior to statistical analysis. These are as follows:

- Dealing with non-detects.
- Understanding the statistical distribution of data; and
- Dealing with outliers.

The results can then be assessed, and the results will be compared against the following:

- Sample Mean – if the sample mean of the data set is in excess of the GAC, then the Upper Confidence Limit of the true population mean will be higher than the critical concentration.
- 95% of the Upper Confidence Limit.
- One Sample T Test (parametric test) carried out at the 95% confidence level.

On the basis of these tests, the validity of the Null Hypothesis can be assessed.



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Analytical Report Number : 25-042929

Project / Site name:	Higham Lane North	Samples received on:	11/08/2025
Your job number:	4173	Samples instructed on/ Analysis started on:	13/08/2025
Your order number:	4173	Analysis completed by:	22/08/2025
Report Issue Number:	1	Report issued on:	22/08/2025
Samples Analysed:	10 soil samples - 4 leachate samples		

Signed:

Rafał Szczepańczyk
Technical Reviewer
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
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-042929
Project / Site name: Higham Lane North
Your Order No: 4173

Lab Sample Number	645904				645905	645906	645907	645908
Sample Reference	TP301				TP302	TP303	TP307	TP310
Sample Number	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A				N/A	N/A	N/A	N/A
Depth (m)	0.40				0.20	0.20	0.20	0.10
Date Sampled	06/08/2025				06/08/2025	07/08/2025	06/08/2025	05/08/2025
Time Taken	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Stone Content	%	0.1	NONE	12.9	< 0.1	< 0.1	11.9	5.6
Moisture Content	%	0.01	NONE	16	18	15	14	13
Total mass of sample received	kg	0.1	NONE	0.5	0.6	1.4	1.5	1.4

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KKR	KKR	KKR	KKR	KKR
Analysis completed	N/A	N/A	N/A	22/08/2025	22/08/2025	22/08/2025	22/08/2025	22/08/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.2	7.4	7.3	7.7	7.1
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	400	-	670	-	600
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	83	33	59	54	38
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	41.7	16.7	29.5	26.8	19.1
Sulphide	mg/kg	1	MCERTS	1	-	1.4	-	< 1.0
Total Chloride	mg/kg	5	NONE	28	-	21	-	7
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	-	< 0.5	-	< 0.5
Organic Matter (automated)	%	0.1	MCERTS	3.4	4.7	4.4	4	3.9
Calorific Value	MJ/Kg	0.12	ISO 17025	< 0.120	-	< 0.120	-	< 0.120

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.2	0.07	< 0.05	0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.06	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.63	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.77	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	8.8	0.25	0.11	0.17	0.13
Anthracene	mg/kg	0.05	MCERTS	2.6	0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	13	0.5	0.24	0.31	0.28
Pyrene	mg/kg	0.05	MCERTS	11	0.42	0.2	0.27	0.25
Benzo(a)anthracene	mg/kg	0.05	MCERTS	5.6	0.35	0.15	0.2	0.19
Chrysene	mg/kg	0.05	MCERTS	4.8	0.35	0.15	0.23	0.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	5.7	0.52	0.25	0.3	0.29
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2.3	0.18	0.09	0.11	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4.7	0.35	0.15	0.2	0.17
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.2	0.24	0.09	0.12	0.12
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.59	0.07	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.4	0.27	0.11	0.16	0.13

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	65.8	3.64	1.54	2.11	1.83
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Analytical Report Number: 25-042929
Project / Site name: Higham Lane North
Your Order No: 4173

Lab Sample Number	645904				645905	645906	645907	645908
Sample Reference	TP301				TP302	TP303	TP307	TP310
Sample Number	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A				N/A	N/A	N/A	N/A
Depth (m)	0.40				0.20	0.20	0.20	0.10
Date Sampled	06/08/2025				06/08/2025	07/08/2025	06/08/2025	05/08/2025
Time Taken	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	20	14	20	16
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	U/S ^{*U/S g}	< 1.8	U/S ^{*U/S g}	U/S ^{*U/S g}	U/S ^{*U/S g}
Chromium (VI) by IC	mg/kg	1.8	NONE	< 1.80	-	< 1.80	< 1.80	< 1.80
Chromium (III) by IC	mg/kg	1	NONE	37	-	25	24	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37	28	25	24	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	38	46	30	50	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	41	54	46	43	39
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	28	18	18	20	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.7	1.9	1.4	1.7	1.3
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	110	97	100	83

Pesticides (GC-MS)

Alpha-BHC (Benzene Hexachloride)	µg/kg	10	NONE	-	< 10	-	< 10	-
Alachlor	µg/kg	10	NONE	-	< 10	-	< 10	-
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	-	< 10	-	< 10	-
Ormethoate	µg/kg	10	NONE	-	< 10	-	< 10	-
1,2,3-Trichlorobenzene	µg/kg	10	NONE	-	< 10	-	< 10	-
1,3,5-Trichlorobenzene	µg/kg	10	NONE	-	< 10	-	< 10	-
2,6-Dichlorobenzonitrile	µg/kg	10	NONE	-	< 10	-	< 10	-
Dimethylvinphos	µg/kg	10	NONE	-	< 10	-	< 10	-
Demeton-O	µg/kg	10	NONE	-	< 10	-	< 10	-
Demeton-S	µg/kg	10	NONE	-	< 10	-	< 10	-
Endrin Aldehyde	µg/kg	10	NONE	-	< 10	-	< 10	-
Endrin Ketone	µg/kg	10	NONE	-	< 10	-	< 10	-
Hexachlorobutadiene	µg/kg	10	NONE	-	< 10	-	< 10	-
Phosphamidon (Sum)	µg/kg	10	NONE	-	< 10	-	< 10	-
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	-	< 10	-	< 10	-
Endosulfan sulfate	µg/kg	10	NONE	-	< 10	-	< 10	-
Etrinfos	µg/kg	10	NONE	-	< 10	-	< 10	-
Fenvalerate (Sum)	µg/kg	10	NONE	-	< 10	-	< 10	-
Hexachlorobenzene	µg/kg	10	NONE	-	< 10	-	< 10	-
Mevinphos, E+Z	µg/kg	10	NONE	-	< 10	-	< 10	-
Pentachlorobenzene	µg/kg	10	NONE	-	< 10	-	< 10	-
Pirimiphos-ethyl	µg/kg	10	NONE	-	< 10	-	< 10	-
Propetamphos	µg/kg	10	NONE	-	< 10	-	< 10	-
Tecnazene	µg/kg	10	NONE	-	< 10	-	< 10	-
Aldrin	µg/kg	10	NONE	-	< 10	-	< 10	-
Azinphos-methyl	µg/kg	10	NONE	-	< 10	-	< 10	-
Beta-BHC	µg/kg	10	NONE	-	< 10	-	< 10	-
Cis-Chlordane	µg/kg	10	NONE	-	< 10	-	< 10	-
Chlorfenvinphos	µg/kg	10	NONE	-	< 10	-	< 10	-
Chlorpyrifos	µg/kg	10	NONE	-	< 10	-	< 10	-
Chlorothalonil	µg/kg	10	NONE	-	< 10	-	< 10	-
Carbophenothion	µg/kg	10	NONE	-	< 10	-	< 10	-
Delta-BHC	µg/kg	10	NONE	-	< 10	-	< 10	-

Analytical Report Number: 25-042929
Project / Site name: Higham Lane North
Your Order No: 4173

Lab Sample Number				645904	645905	645906	645907	645908
Sample Reference				TP301	TP302	TP303	TP307	TP310
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.40	0.20	0.20	0.20	0.10
Date Sampled				06/08/2025	06/08/2025	07/08/2025	06/08/2025	05/08/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Dieldrin	µg/kg	10	NONE	-	< 10	-	< 10	-
Heptachlor Exo-epoxide	µg/kg	10	NONE	-	< 10	-	< 10	-
Endrin	µg/kg	10	NONE	-	< 10	-	< 10	-
Endosulfan I (alpha isomer)	µg/kg	10	NONE	-	< 10	-	< 10	-
Endosulfan II (beta isomer)	µg/kg	10	NONE	-	< 10	-	< 10	-
Fenthion	µg/kg	10	NONE	-	< 10	-	< 10	-
Isodrin	µg/kg	10	NONE	-	< 10	-	< 10	-
Methacrifos	µg/kg	10	NONE	-	< 10	-	< 10	-
O,p'-DDD	µg/kg	10	NONE	-	< 10	-	< 10	-
O,p'-DDE	µg/kg	10	NONE	-	< 10	-	< 10	-
O,p'-DDT	µg/kg	10	NONE	-	< 10	-	< 10	-
Parathion	µg/kg	10	NONE	-	< 10	-	< 10	-
Parathion-methyl	µg/kg	10	NONE	-	< 10	-	< 10	-
Phorate	µg/kg	10	NONE	-	< 10	-	< 10	-
Phosalone	µg/kg	10	NONE	-	< 10	-	< 10	-
P,p'-DDD	µg/kg	10	NONE	-	< 10	-	< 10	-
P,p'-DDE	µg/kg	10	NONE	-	< 10	-	< 10	-
P,p'-DDT	µg/kg	10	NONE	-	< 10	-	< 10	-
P,p'-Methoxychlor	µg/kg	10	NONE	-	< 10	-	< 10	-
Triazophos	µg/kg	10	NONE	-	< 10	-	< 10	-
Trans-Chlordane	µg/kg	10	NONE	-	< 10	-	< 10	-
Dichlorvos	µg/kg	10	NONE	-	< 10	-	< 10	-
Dimethoate	µg/kg	10	NONE	-	< 10	-	< 10	-
Diazinon	µg/kg	10	NONE	-	< 10	-	< 10	-
Ethion	µg/kg	10	NONE	-	< 10	-	< 10	-
Fenitrothion	µg/kg	10	NONE	-	< 10	-	< 10	-
Malathion	µg/kg	10	NONE	-	< 10	-	< 10	-
Pirimiphos-methyl	µg/kg	10	NONE	-	< 10	-	< 10	-
Trifluralin	µg/kg	10	NONE	-	< 10	-	< 10	-
Azinphos-ethyl	µg/kg	10	NONE	-	< 10	-	< 10	-

Pesticides (LC-MS)

Terbutryn	µg/kg	10	NONE	-	< 10	-	< 10	-
Prometryn	µg/kg	10	NONE	-	< 10	-	< 10	-
Propazine	µg/kg	10	NONE	-	< 10	-	< 10	-
Trietazine	µg/kg	10	NONE	-	< 10	-	< 10	-
Atrazine	µg/kg	10	NONE	-	< 10	-	< 10	-
Cyanazine	µg/kg	10	NONE	-	< 10	-	< 10	-
Simazine	µg/kg	10	NONE	-	< 10	-	< 10	-
Terbutylazine	µg/kg	10	NONE	-	< 10	-	< 10	-

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

Analytical Report Number: 25-042929
Project / Site name: Higham Lane North
Your Order No: 4173

Lab Sample Number	645909				645910	645911	645912	645913
Sample Reference	TP313				TP314	TP315	TP320	TP326
Sample Number	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A				N/A	N/A	N/A	N/A
Depth (m)	0.20				0.20	0.50	0.20	0.10
Date Sampled	05/08/2025				05/08/2025	05/08/2025	04/08/2025	04/08/2025
Time Taken	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Stone Content	%	0.1	NONE	26.4	< 0.1	31.3	23.6	4.8
Moisture Content	%	0.01	NONE	13	17	9.2	12	16
Total mass of sample received	kg	0.1	NONE	1.5	1.4	1.8	1.2	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KKR	KKR	KKR	KKR	KKR
Analysis completed	N/A	N/A	N/A	22/08/2025	22/08/2025	22/08/2025	22/08/2025	22/08/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.8	7.2	7.4	7.1	7.6
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	-	520	-	700
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	30	40	20	26	36
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	14.9	20.1	9.88	13.2	18
Sulphide	mg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Total Chloride	mg/kg	5	NONE	-	-	35	-	28
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	< 0.5	-	< 0.5
Organic Matter (automated)	%	0.1	MCERTS	4.4	4.6	6.7	4.4	5.4
Calorific Value	MJ/Kg	0.12	ISO 17025	-	-	< 0.120	-	< 0.120

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.4	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.07	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.1	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1	0.18	0.19	0.19	0.42
Anthracene	mg/kg	0.05	MCERTS	0.26	< 0.05	< 0.05	< 0.05	0.09
Fluoranthene	mg/kg	0.05	MCERTS	1.5	0.46	0.14	0.55	0.77
Pyrene	mg/kg	0.05	MCERTS	1.2	0.45	0.11	0.54	0.69
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.1	0.26	0.08	0.33	0.41
Chrysene	mg/kg	0.05	MCERTS	1.1	0.33	0.1	0.37	0.48
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.5	0.46	0.11	0.46	0.6
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.44	0.14	< 0.05	0.21	0.21
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.94	0.29	0.06	0.36	0.43
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.59	0.21	< 0.05	0.25	0.27
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.18	0.06	< 0.05	0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.62	0.24	0.06	0.28	0.3

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	11.1	3.07	0.84	3.59	4.68
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Analytical Report Number: 25-042929
Project / Site name: Higham Lane North
Your Order No: 4173

Lab Sample Number	645909				645910	645911	645912	645913
Sample Reference	TP313				TP314	TP315	TP320	TP326
Sample Number	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A				N/A	N/A	N/A	N/A
Depth (m)	0.20				0.20	0.50	0.20	0.10
Date Sampled	05/08/2025				05/08/2025	05/08/2025	04/08/2025	04/08/2025
Time Taken	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	18	13	16	21
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	U/S ^{*U/S g}	U/S ^{*U/S g}	U/S ^{*U/S g}	U/S ^{*U/S g}	U/S ^{*U/S g}
Chromium (VI) by IC	mg/kg	1.8	NONE	< 1.80	< 1.80	< 1.80	< 1.80	< 1.80
Chromium (III) by IC	mg/kg	1	NONE	19	24	17	18	26
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	24	17	18	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	28	24	32	39
Lead (aqua regia extractable)	mg/kg	1	MCERTS	53	41	25	41	49
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	17	18	20	17	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.6	1.1	1.3	1.9	1.2
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	93	59	86	110

Pesticides (GC-MS)

Alpha-BHC (Benzene Hexachloride)	µg/kg	10	NONE	-	< 10	-	-	< 10
Alachlor	µg/kg	10	NONE	-	< 10	-	-	< 10
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	-	< 10	-	-	< 10
Ormethoate	µg/kg	10	NONE	-	< 10	-	-	< 10
1,2,3-Trichlorobenzene	µg/kg	10	NONE	-	< 10	-	-	< 10
1,3,5-Trichlorobenzene	µg/kg	10	NONE	-	< 10	-	-	< 10
2,6-Dichlorobenzonitrile	µg/kg	10	NONE	-	< 10	-	-	< 10
Dimethylvinphos	µg/kg	10	NONE	-	< 10	-	-	< 10
Demeton-O	µg/kg	10	NONE	-	< 10	-	-	< 10
Demeton-S	µg/kg	10	NONE	-	< 10	-	-	< 10
Endrin Aldehyde	µg/kg	10	NONE	-	< 10	-	-	< 10
Endrin Ketone	µg/kg	10	NONE	-	< 10	-	-	< 10
Hexachlorobutadiene	µg/kg	10	NONE	-	< 10	-	-	< 10
Phosphamidon (Sum)	µg/kg	10	NONE	-	< 10	-	-	< 10
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	-	< 10	-	-	< 10
Endosulfan sulfate	µg/kg	10	NONE	-	< 10	-	-	< 10
Etrinfos	µg/kg	10	NONE	-	< 10	-	-	< 10
Fenvalerate (Sum)	µg/kg	10	NONE	-	< 10	-	-	< 10
Hexachlorobenzene	µg/kg	10	NONE	-	< 10	-	-	< 10
Mevinphos, E+Z	µg/kg	10	NONE	-	< 10	-	-	< 10
Pentachlorobenzene	µg/kg	10	NONE	-	< 10	-	-	< 10
Pirimiphos-ethyl	µg/kg	10	NONE	-	< 10	-	-	< 10
Propetamphos	µg/kg	10	NONE	-	< 10	-	-	< 10
Tecnazene	µg/kg	10	NONE	-	< 10	-	-	< 10
Aldrin	µg/kg	10	NONE	-	< 10	-	-	< 10
Azinphos-methyl	µg/kg	10	NONE	-	< 10	-	-	< 10
Beta-BHC	µg/kg	10	NONE	-	< 10	-	-	< 10
Cis-Chlordane	µg/kg	10	NONE	-	< 10	-	-	< 10
Chlorfenvinphos	µg/kg	10	NONE	-	< 10	-	-	< 10
Chlorpyrifos	µg/kg	10	NONE	-	< 10	-	-	< 10
Chlorothalonil	µg/kg	10	NONE	-	< 10	-	-	< 10
Carbophenothion	µg/kg	10	NONE	-	< 10	-	-	< 10
Delta-BHC	µg/kg	10	NONE	-	< 10	-	-	< 10

Analytical Report Number: 25-042929
Project / Site name: Higham Lane North
Your Order No: 4173

Lab Sample Number				645909	645910	645911	645912	645913
Sample Reference				TP313	TP314	TP315	TP320	TP326
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.20	0.50	0.20	0.10
Date Sampled				05/08/2025	05/08/2025	05/08/2025	04/08/2025	04/08/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Dieldrin	µg/kg	10	NONE	-	< 10	-	-	< 10
Heptachlor Exo-epoxide	µg/kg	10	NONE	-	< 10	-	-	< 10
Endrin	µg/kg	10	NONE	-	< 10	-	-	< 10
Endosulfan I (alpha isomer)	µg/kg	10	NONE	-	< 10	-	-	< 10
Endosulfan II (beta isomer)	µg/kg	10	NONE	-	< 10	-	-	< 10
Fenthion	µg/kg	10	NONE	-	< 10	-	-	< 10
Isodrin	µg/kg	10	NONE	-	< 10	-	-	< 10
Methacrifos	µg/kg	10	NONE	-	< 10	-	-	< 10
O,p'-DDD	µg/kg	10	NONE	-	< 10	-	-	< 10
O,p'-DDE	µg/kg	10	NONE	-	< 10	-	-	< 10
O,p'-DDT	µg/kg	10	NONE	-	< 10	-	-	< 10
Parathion	µg/kg	10	NONE	-	< 10	-	-	< 10
Parathion-methyl	µg/kg	10	NONE	-	< 10	-	-	< 10
Phorate	µg/kg	10	NONE	-	< 10	-	-	< 10
Phosalone	µg/kg	10	NONE	-	< 10	-	-	< 10
P,p'-DDD	µg/kg	10	NONE	-	< 10	-	-	< 10
P,p'-DDE	µg/kg	10	NONE	-	< 10	-	-	< 10
P,p'-DDT	µg/kg	10	NONE	-	< 10	-	-	< 10
P,p'-Methoxychlor	µg/kg	10	NONE	-	< 10	-	-	< 10
Triazophos	µg/kg	10	NONE	-	< 10	-	-	< 10
Trans-Chlordane	µg/kg	10	NONE	-	< 10	-	-	< 10
Dichlorvos	µg/kg	10	NONE	-	< 10	-	-	< 10
Dimethoate	µg/kg	10	NONE	-	< 10	-	-	< 10
Diazinon	µg/kg	10	NONE	-	< 10	-	-	< 10
Ethion	µg/kg	10	NONE	-	< 10	-	-	< 10
Fenitrothion	µg/kg	10	NONE	-	< 10	-	-	< 10
Malathion	µg/kg	10	NONE	-	< 10	-	-	< 10
Pirimiphos-methyl	µg/kg	10	NONE	-	< 10	-	-	< 10
Trifluralin	µg/kg	10	NONE	-	< 10	-	-	< 10
Azinphos-ethyl	µg/kg	10	NONE	-	< 10	-	-	< 10

Pesticides (LC-MS)

Terbutryn	µg/kg	10	NONE	-	< 10	-	-	< 10
Prometryn	µg/kg	10	NONE	-	< 10	-	-	< 10
Propazine	µg/kg	10	NONE	-	< 10	-	-	< 10
Trietazine	µg/kg	10	NONE	-	< 10	-	-	< 10
Atrazine	µg/kg	10	NONE	-	< 10	-	-	< 10
Cyanazine	µg/kg	10	NONE	-	< 10	-	-	< 10
Simazine	µg/kg	10	NONE	-	< 10	-	-	< 10
Terbutylazine	µg/kg	10	NONE	-	< 10	-	-	< 10

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

Analytical Report Number: 25-042929
Project / Site name: Higham Lane North

Your Order No: 4173

Lab Sample Number				645904	645906	645908	645911
Sample Reference				TP301	TP303	TP310	TP315
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A
Depth (m)				0.40	0.20	0.10	0.50
Date Sampled				06/08/2025	07/08/2025	05/08/2025	05/08/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Test Limit of detection	Test Accreditation Status				

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.7	6.7	6.9	6.6
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1	< 1	< 1	< 1
Sulphate as SO ₄	mg/l	0.045	ISO 17025	4.75	2.17	2.11	1.16

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	1	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	NONE	0.04	< 0.01	0.14	< 0.01
Fluorene	µg/l	0.01	NONE	0.03	< 0.01	0.06	< 0.01
Phenanthrene	µg/l	0.01	NONE	0.05	< 0.01	0.15	< 0.01
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	1.04	0.35	< 0.16
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	2.4
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	3	1.8	4.3	1.3
Copper (dissolved)	µg/l	0.7	ISO 17025	15	30	29	25
Lead (dissolved)	µg/l	1	ISO 17025	1	1.6	2	< 1.0
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.9	1.7	1.8	1.1
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	10	7.1	26	5.2

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



Analytical Report Number : 25-042929
Project / Site name: Higham Lane North

* 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 *
645904	TP301	None Supplied	0.4	Brown loam and sand with gravel and vegetation
645905	TP302	None Supplied	0.2	Brown loam and clay with gravel and vegetation
645906	TP303	None Supplied	0.2	Brown loam and clay with gravel and vegetation
645907	TP307	None Supplied	0.2	Brown loam and clay with gravel and vegetation
645908	TP310	None Supplied	0.1	Brown loam and clay with gravel and vegetation
645909	TP313	None Supplied	0.2	Brown loam and sand with gravel and vegetation
645910	TP314	None Supplied	0.2	Brown loam and clay with gravel and vegetation
645911	TP315	None Supplied	0.5	Brown loam and clay with gravel and vegetation
645912	TP320	None Supplied	0.2	Brown loam and clay with gravel and vegetation
645913	TP326	None Supplied	0.1	Brown clay and loam with gravel and vegetation

Analytical Report Number : 25-042929
Project / Site name: Higham Lane North

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010-PL	D	MCERTS
Calorific Value of soil	Determination of the calorific value of soil by combustion in a controlled environment	Calorific Value of Soil by Bomb Calorimeter	L013B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	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.	L019B	D	NONE
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Cr(VI) in soils by Ion chromatography	Determination of hexavalent chromium in alkaline soil extract by use of ion chromatography with spectrophotometric detection	In-house method	L130B	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	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	L075B	D	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	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	L080-PL	W	MCERTS

Analytical Report Number : 25-042929
Project / Site name: Higham Lane North

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols (low level) in leachate	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	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	L080-PL	W	MCERTS
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	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
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		NONE
NRA Leachate 10:1		In-house method based on interim NRA guidance (1994)	L020B	W	NONE
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE
Pesticides by GC-MS/MS	Determination of Pesticides in soil by GC MS/MS	In-house method	L055B	W	NONE
Pesticides by LC-MS	Determination of Pesticides in soil by LC-MS	In-house method	L056B	W	NONE

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 30°C.

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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

*U/S g- Unsuitable for analysis due to high colour intensity.

Analytical Report Number : 25-042929

Project / Site name: Higham Lane North

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP301	N/A	S	645904	bc	Asbestos identification in Soil	A001B	b
TP301	N/A	S	645904	bc	Sulphide in soil	L010-PL	c
TP302	N/A	S	645905	b	Asbestos identification in Soil	A001B	b
TP303	N/A	S	645906	bc	Asbestos identification in Soil	A001B	b
TP303	N/A	S	645906	bc	Sulphide in soil	L010-PL	c
TP307	N/A	S	645907	b	Asbestos identification in Soil	A001B	b
TP310	N/A	S	645908	bc	Asbestos identification in Soil	A001B	b
TP310	N/A	S	645908	bc	Sulphide in soil	L010-PL	c
TP313	N/A	S	645909	b	Asbestos identification in Soil	A001B	b
TP314	N/A	S	645910	b	Asbestos identification in Soil	A001B	b
TP315	N/A	S	645911	bc	Asbestos identification in Soil	A001B	b
TP315	N/A	S	645911	bc	Sulphide in soil	L010-PL	c
TP320	N/A	S	645912	bc	Asbestos identification in Soil	A001B	b
TP320	N/A	S	645912	bc	Free cyanide in soil	L080-PL	c
TP320	N/A	S	645912	bc	Monohydric phenols in soil	L080-PL	c
TP320	N/A	S	645912	bc	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP326	N/A	S	645913	bc	Asbestos identification in Soil	A001B	b
TP326	N/A	S	645913	bc	Free cyanide in soil	L080-PL	c
TP326	N/A	S	645913	bc	Monohydric phenols in soil	L080-PL	c
TP326	N/A	S	645913	bc	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
TP326	N/A	S	645913	bc	Sulphide in soil	L010-PL	c

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Analytical Report Number : 25-044773

Project / Site name:	Higham Lane	Samples received on:	21/08/2025
Your job number:	4173	Samples instructed on/ Analysis started on:	21/08/2025
Your order number:	4173	Analysis completed by:	27/08/2025
Report Issue Number:	1	Report issued on:	27/08/2025
Samples Analysed:	3 water samples		



Signed:

Rafał Szczepańczyk
Technical Reviewer
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
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-044773

Project / Site name: Higham Lane

Your Order No: 4173

Lab Sample Number				656077	656078	656079
Sample Reference				DSRC301	DSRC304	RO302 (DSRO302)
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				Other water	Other water	Other water
Depth (m)				9.15	6.90	5.60
Date Sampled				20/08/2025	20/08/2025	20/08/2025
Time Taken				1330	1400	1430
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status			

General Inorganics

pH (L099)	pH Units	N/A	NONE	7	6.4	7
Free Cyanide (Low Level)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Sulphate as SO ₄	mg/l	0.045	NONE	187	174	78.9

Total Phenols

Total Phenols (Monohydric) Low Level	µg/l	1	NONE	3.7	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	5.4	250	< 0.01
Acenaphthylene	µg/l	0.01	NONE	0.07	5	< 0.01
Acenaphthene	µg/l	0.01	NONE	0.08	<2 ^{&}	< 0.01
Fluorene	µg/l	0.01	NONE	0.41	20	< 0.01
Phenanthrene	µg/l	0.01	NONE	1.4	88	< 0.01
Anthracene	µg/l	0.01	NONE	< 0.01	<2 ^{&}	< 0.01
Fluoranthene	µg/l	0.01	NONE	0.15	17	< 0.01
Pyrene	µg/l	0.01	NONE	0.21	<2 ^{&}	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	9.6	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01	16	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	<2 ^{&}	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	<2 ^{&}	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	<2 ^{&}	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	<2 ^{&}	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	<2 ^{&}	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	<2 ^{&}	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	7.79	406	< 0.16
-------------------	------	------	------	------	-----	--------

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	NONE	3.11	1.08	0.57
Cadmium (dissolved)	µg/l	0.02	NONE	0.11	0.03	3.5
Chromium (dissolved)	µg/l	0.2	NONE	< 0.2	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	NONE	18	2.7	1.9
Lead (dissolved)	µg/l	0.2	NONE	1.4	< 0.2	0.3
Mercury (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	NONE	5.6	23	6.3
Selenium (dissolved)	µg/l	0.6	NONE	< 0.6	< 0.6	< 0.6
Zinc (dissolved)	µg/l	0.5	NONE	6.4	9.7	17

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

Analytical Report Number : 25-044773

Project / Site name: Higham Lane

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW, GW, Hg - SW, PW, Al - SW, PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	NONE
Free cyanide (low level) in water	Determination of free cyanide in water by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	NONE
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE

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 30°C.

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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

&- Sample required dilution above the concentration range for the procedure due to matrix effect/ analyte concentration. The method limit of detection has been raised in line with the dilution. The result should be considered deviating and should be interpreted with caution. The result is not accredited.

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Analytical Report Number : 25-052560

Project / Site name:	Higham Lane	Samples received on:	30/09/2025
Your job number:	4173	Samples instructed on/ Analysis started on:	30/09/2025
Your order number:	4173	Analysis completed by:	06/10/2025
Report Issue Number:	1	Report issued on:	06/10/2025
Samples Analysed:	1 water sample		



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
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-052560
Project / Site name: Higham Lane

Your Order No: 4173

Lab Sample Number				699127
Sample Reference				DSRC304
Sample Number				None Supplied
Water Matrix				Other water
Depth (m)				8.29
Date Sampled				29/09/2025
Time Taken				0730
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Speciated PAHs

Naphthalene	µg/l	0.01	NONE	0.72
Acenaphthylene	µg/l	0.01	NONE	< 0.01
Acenaphthene	µg/l	0.01	NONE	< 0.01
Fluorene	µg/l	0.01	NONE	0.12
Phenanthrene	µg/l	0.01	NONE	0.28
Anthracene	µg/l	0.01	NONE	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01
Pyrene	µg/l	0.01	NONE	0.04
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	1.16
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Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_1D_AL}	µg/l	1	NONE	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS_1D_AL}	µg/l	1	NONE	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS_1D_AL}	µg/l	1	NONE	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_1D_AL_MS}	µg/l	10	NONE	10
TPH - Aliphatic >EC12 - EC16 _{EH_1D_AL_MS}	µg/l	10	NONE	30
TPH - Aliphatic >EC16 - EC21 _{EH_1D_AL_MS}	µg/l	10	NONE	32
TPH - Aliphatic >EC21 - EC35 _{EH_1D_AL_MS}	µg/l	10	NONE	23
TPH - Aliphatic >EC5 - EC35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	95

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	NONE	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	NONE	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	NONE	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	25
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	29
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	54

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	NONE	< 3.0
Benzene	µg/l	1	NONE	< 1.0
Toluene	µg/l	1	NONE	< 1.0
Ethylbenzene	µg/l	1	NONE	< 1.0
p & m-xylene	µg/l	1	NONE	< 1.0
o-xylene	µg/l	1	NONE	< 1.0

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

Analytical Report Number : 25-052560

Project / Site name: Higham Lane

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total Petroleum Hydrocarbons with carbon banding in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
Total Petroleum Hydrocarbons with carbon banding in water by GC-MS/HS-GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS/HS-GC-MS with carbon banding aliphatic and aromatic (Summed Bands)	Calculation	L070B/L088-PL	W	NONE
BTEX and/or Volatile Organic Compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method based on USEPA 8260	L073B	W	NONE
Total Petroleum Hydrocarbons in water by HS-GC/MS	Determination of total petroleum hydrocarbons in water by headspace HS-GC/MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	NONE

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
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution



Appendix D Geotechnical Testing Results



LABORATORY REPORT



Contract Number: PSL25/6230

Report Date: 19 September 2025

Client's Reference: 4173

Client Name: JPG Leeds
5 John Charles Way
Leeds
West Yorkshire
LS12 6QD

For the attention of: Emily Sykes

Contract Title: Higham Lane North

Date Received: 20/8/2025

Date Commenced: 20/8/2025

Date Completed: 19/9/2025

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)


S Braithwaite
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Page 1 of

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



Higham Lane North

Contract No:

PSL25/6230

Client Ref:

4173

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Test Type	Orientation	Dimensions (mm)		D_c^2	D_e (mm)	Failure Load		I_s (MPa)	Corr Fac F	I_{s50} (MPa)	Failure Type	Remarks
			Par / Perp	L	D			(Mpa)	(kN)					
DSRC301	6.40	D	Par	-	89	7921	89.00	-	5.15	0.627	1.296	0.81	Valid	
DSRC301	7.70	D	Par	-	89	7921	89.00	-	2.17	0.264	1.296	0.34	Valid	
DSRC301	8.06	D	Par	-	88	7744	88.00	-	3.33	0.415	1.290	0.54	Valid	
DSRC301	9.37	D	Par	-	89	7921	89.00	-	2.91	0.355	1.296	0.46	Valid	
				-				-						
DSRC302	4.75	D	Par	-	89	7921	89.00	-	8.13	0.990	1.296	1.28	Valid	
DSRC302	6.15	D	Par	-	90	8100	90.00	-	2.46	0.293	1.303	0.38	Valid	
				-				-						
DSRC303	6.22	D	Par	-	89	7921	89.00	-	0.45	0.055	1.296	0.07	Valid	
DSRC303	8.68	D	Par	-	89	7921	89.00	-	1.59	0.194	1.296	0.25	Valid	
				-				-						
DSRC304	2.79	D	Par	-	89	7921	89.00	-	3.40	0.414	1.296	0.54	Valid	
DSRC304	3.40	D	Par	-	89	7921	89.00	-	2.77	0.337	1.296	0.44	Valid	
DSRC304	5.28	D	Par	-	89	7921	89.00	-	1.98	0.241	1.296	0.31	Valid	
DSRC304	6.10	D	Par	-	89	7921	89.00	-	3.94	0.480	1.296	0.62	Valid	
DSRC304	9.50	D	Par	-	88	7744	88.00	-	2.50	0.312	1.290	0.40	Valid	

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Higham Lane North

Contract No:

PSL25/6230

Client Ref:

4173



LABORATORY REPORT



Contract Number: PSL25/6231

Report Date: 29 September 2025

Client's Reference: 4173

Client Name: JPG Leeds
5 John Charles Way
Leeds
West Yorkshire
LS12 6QD

For the attention of: Emily Sykes

Contract Title: Higham Lane North

Date Received: 20/8/2025

Date Commenced: 20/8/2025

Date Completed: 29/9/2025

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)


L Knight
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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP302		B D	0.70		Brown mottled grey slightly sandy slightly gravelly CLAY.
TP304		B D	1.30		Brown mottled grey highly weathered MUDSTONE.
TP306		B D	0.90		Brown mottled grey highly weathered MUDSTONE.
TP310		D	0.70		Brown GRAVEL.
TP311		B D	1.40		Brown highly weathered MUDSTONE.
TP314		B D	3.00		Brown highly weathered MUDSTONE.
TP315		B D	2.70		Brown highly weathered MUDSTONE.
TP317		B D	0.75		Brown slightly silty slightly sandy GRAVEL of cobbles.
TP318		B D	0.60		Brown slightly silty slightly sandy GRAVEL of cobbles.
TP319		B D	0.50		Brown mottled grey slightly sandy CLAY.
TP321		B D	2.25		Brown highly weathered MUDSTONE.
TP324		B D	2.00		Brown highly weathered MUDSTONE.
TP326		B D	1.50		Brown highly weathered MUDSTONE.
DSRC302		UT	1.20		Very stiff brown highly weathered MUDSTONE.
DSRC306		UT	0.50		Very stiff brown highly weathered MUDSTONE.
DSRC308		UT	1.90		Very stiff brown highly weathered MUDSTONE.



Higham Lane North

Contract No:

PSL25/6231

Client Ref:

4173

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m ³	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
TP302		B D	0.70		21.8		2.68	65	27	38	92	High Plasticity CIH
TP304		B D	1.30		15.4		2.71					
TP306		B D	0.90		16.9		2.68	57	25	32	94	High Plasticity CIH
TP310		D	0.70		1.9				NP			
TP311		B D	1.40		11.7		2.61					
TP314		B D	3.00		11.8		2.56					
TP315		B D	2.70		7.9		2.54	37	18	19	34	Medium Plasticity CIM
TP317		B D	0.75		4.3							
TP318		B D	0.60		2.1							
TP319		B D	0.50		22.2		2.68	62	27	35	100	High Plasticity CIH
TP321		B D	2.25		7.8		2.60				30	
TP324		B D	2.00		14.7		2.67	44	20	24	93	Medium Plasticity CIM
TP326		B D	1.50		13.2		2.69	41	20	21	78	Medium Plasticity CIM
DSRC302		UT	1.20		13.2			47	23	24	81	Medium Plasticity CIM
DSRC306		UT	0.50		17.7			56	25	31	84	High Plasticity CIH

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022

Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7

Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9

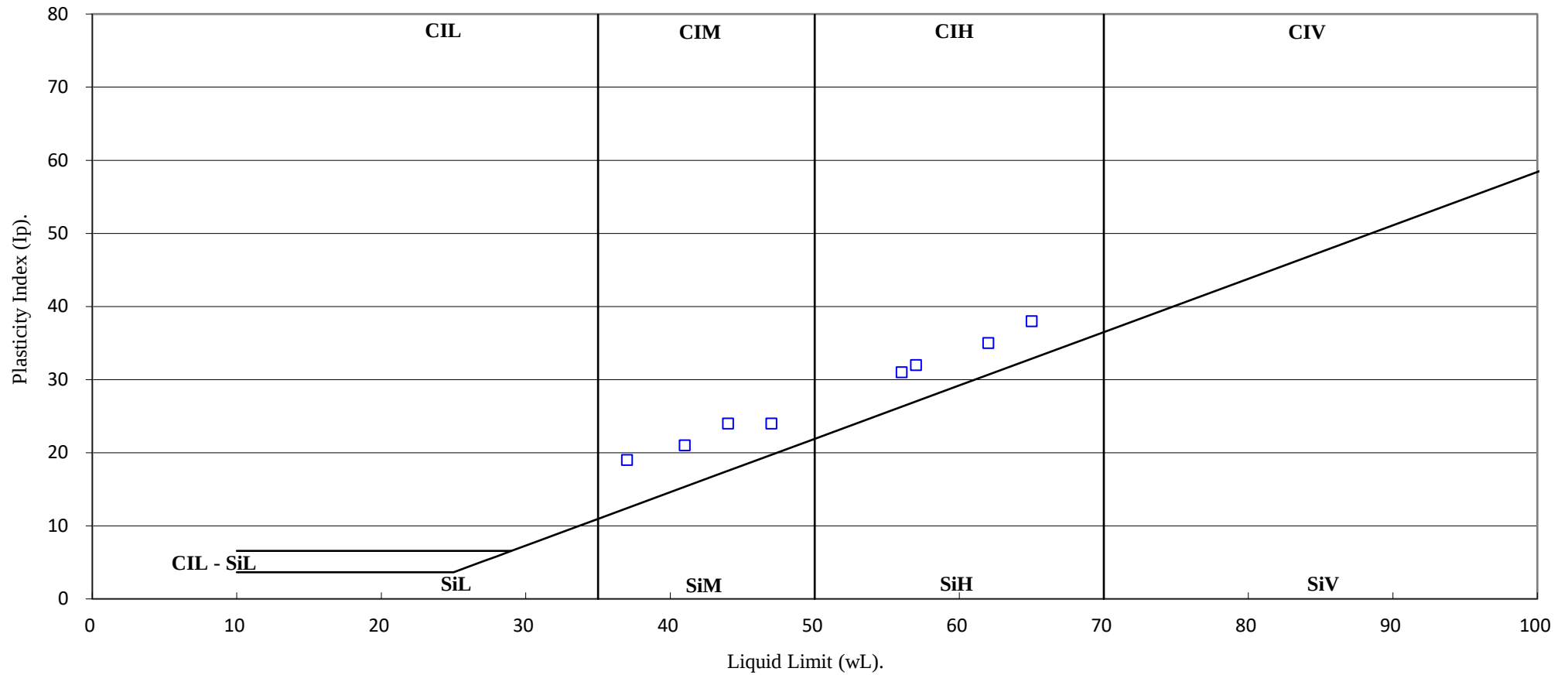
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

 	Higham Lane North		Contract No:
			PSL25/6231
			Client Ref:
			4173

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



Higham Lane North

Contract No:

PSL25/6231

Client Ref:

4173

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

[illegible]

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022

Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7

Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9

Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic



Higham Lane North

Contract No:

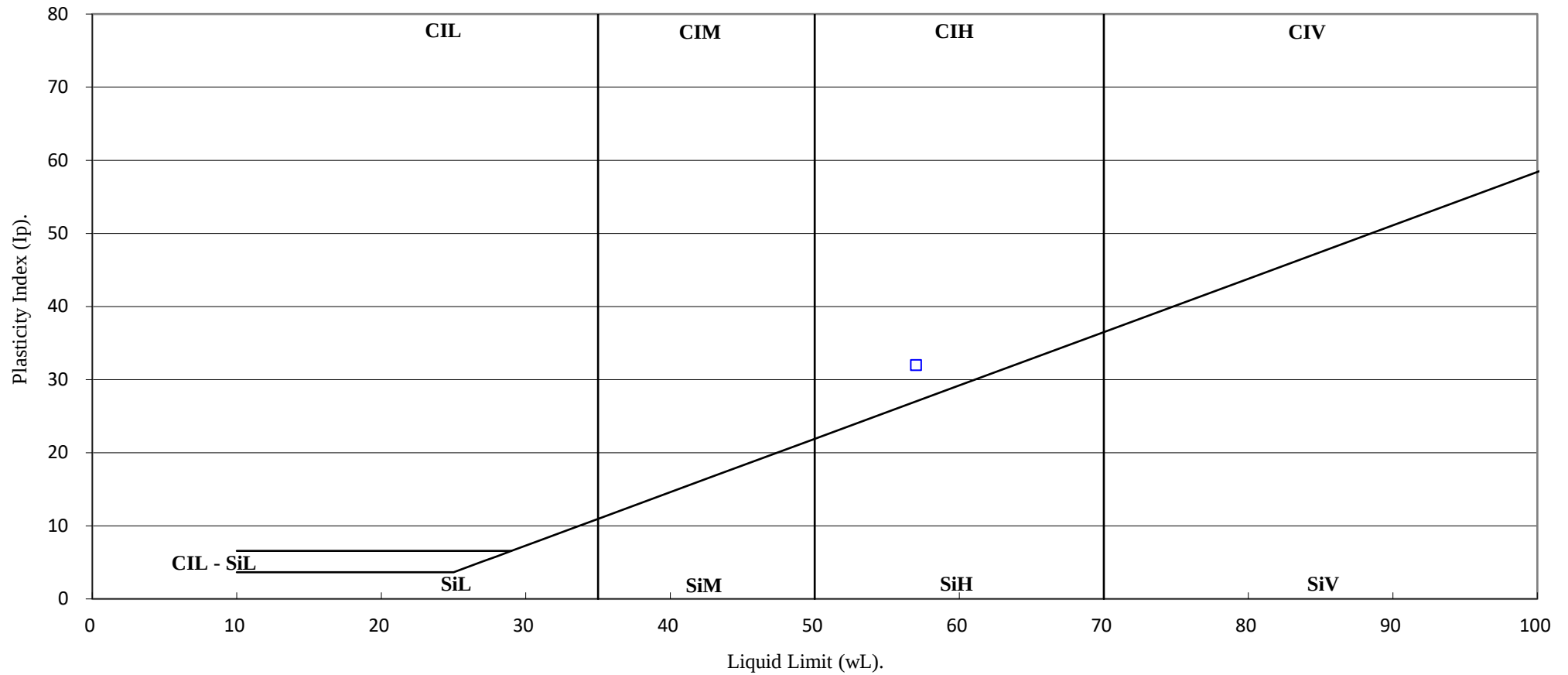
PSL25/6231

Client Ref:

4173

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



Higham Lane North

Contract No:

PSL25/6231

Client Ref:

4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

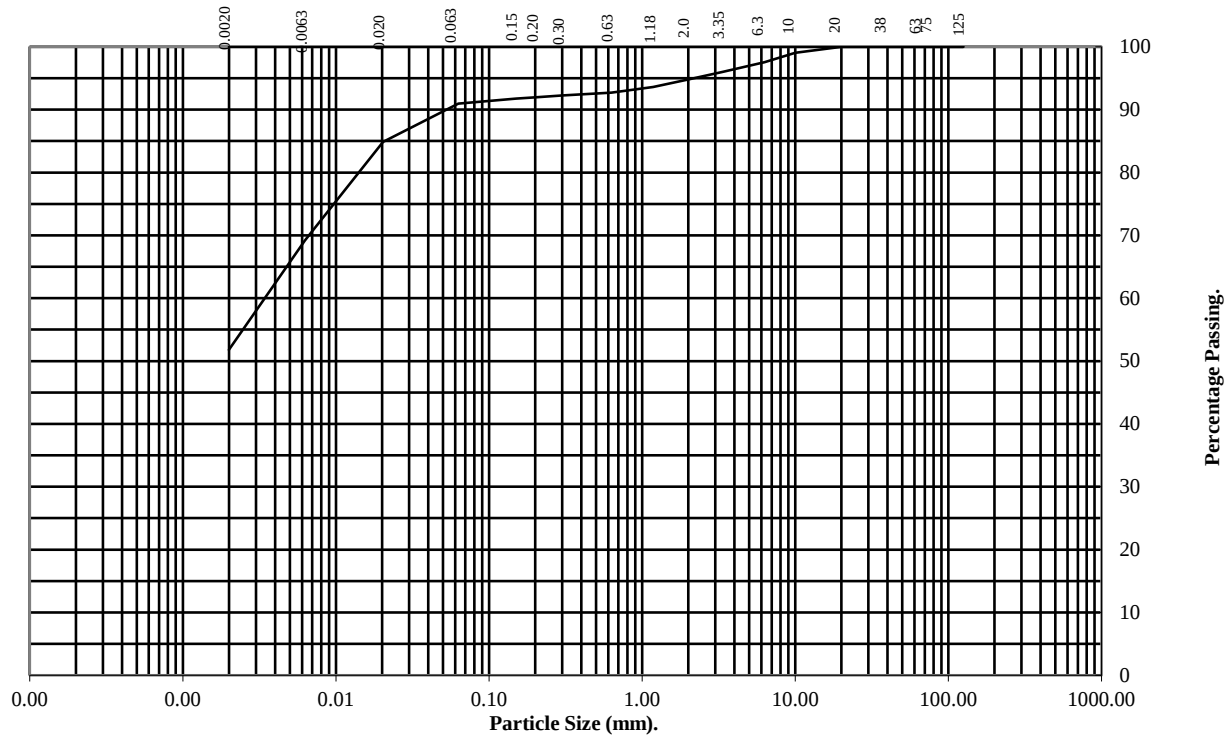
Hole Number: TP302

Top Depth (m): 0.70

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	98
3.35	96
2	95
1.18	94
0.63	93
0.3	92
0.2	92
0.15	92
0.063	91

Particle Diameter	Percentage Passing
0.020	85
0.0063	69
0.0020	52
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	4
Silt	39
Clay	52

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

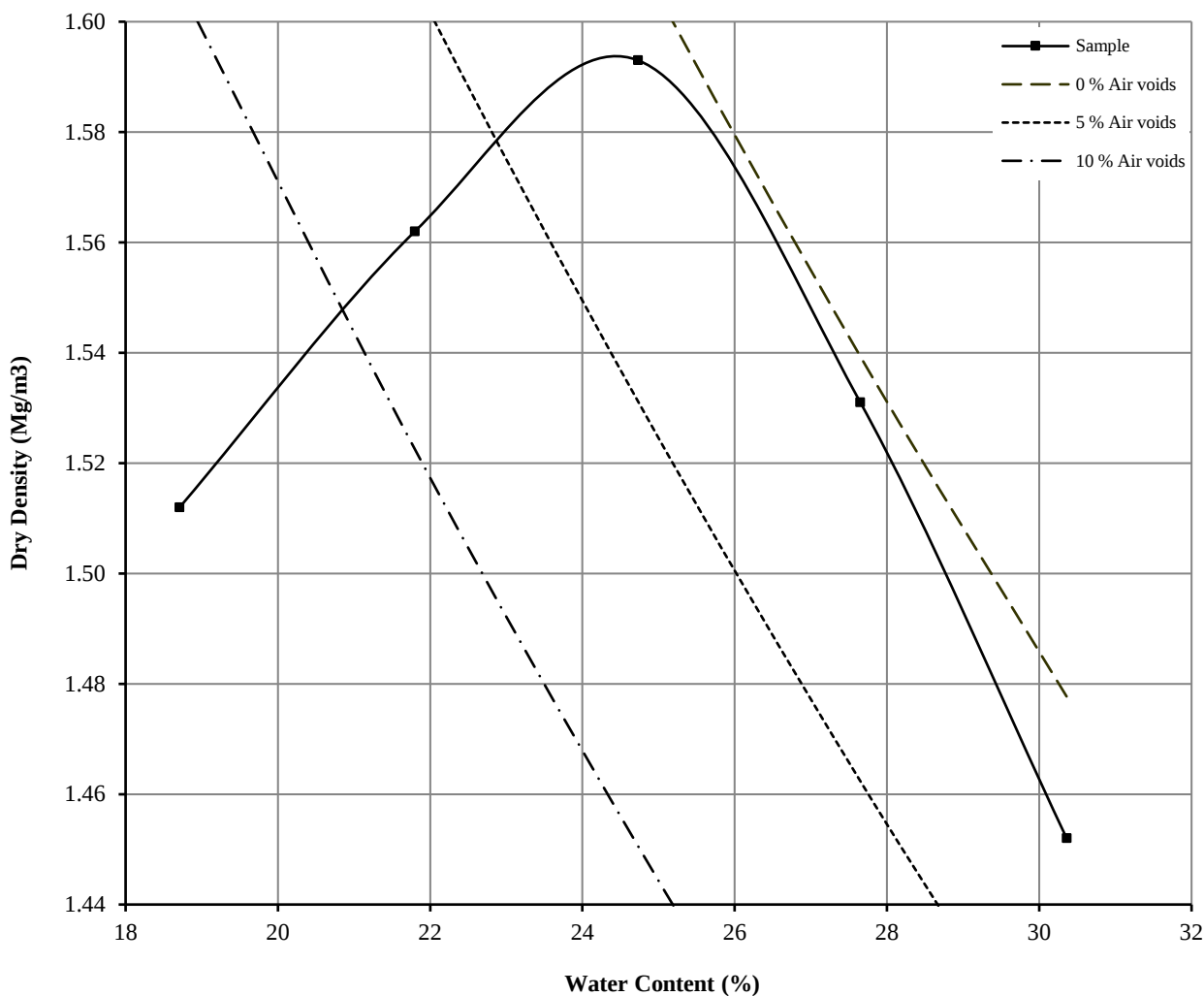
Hole Number: TP302

Top Depth (m): 0.70

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	21.8	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.59		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	25	Grading Zone:		1
Remarks See summary of soil descriptions				



Higham Lane North

Contract No.
PSL25/6231
Client Ref
4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

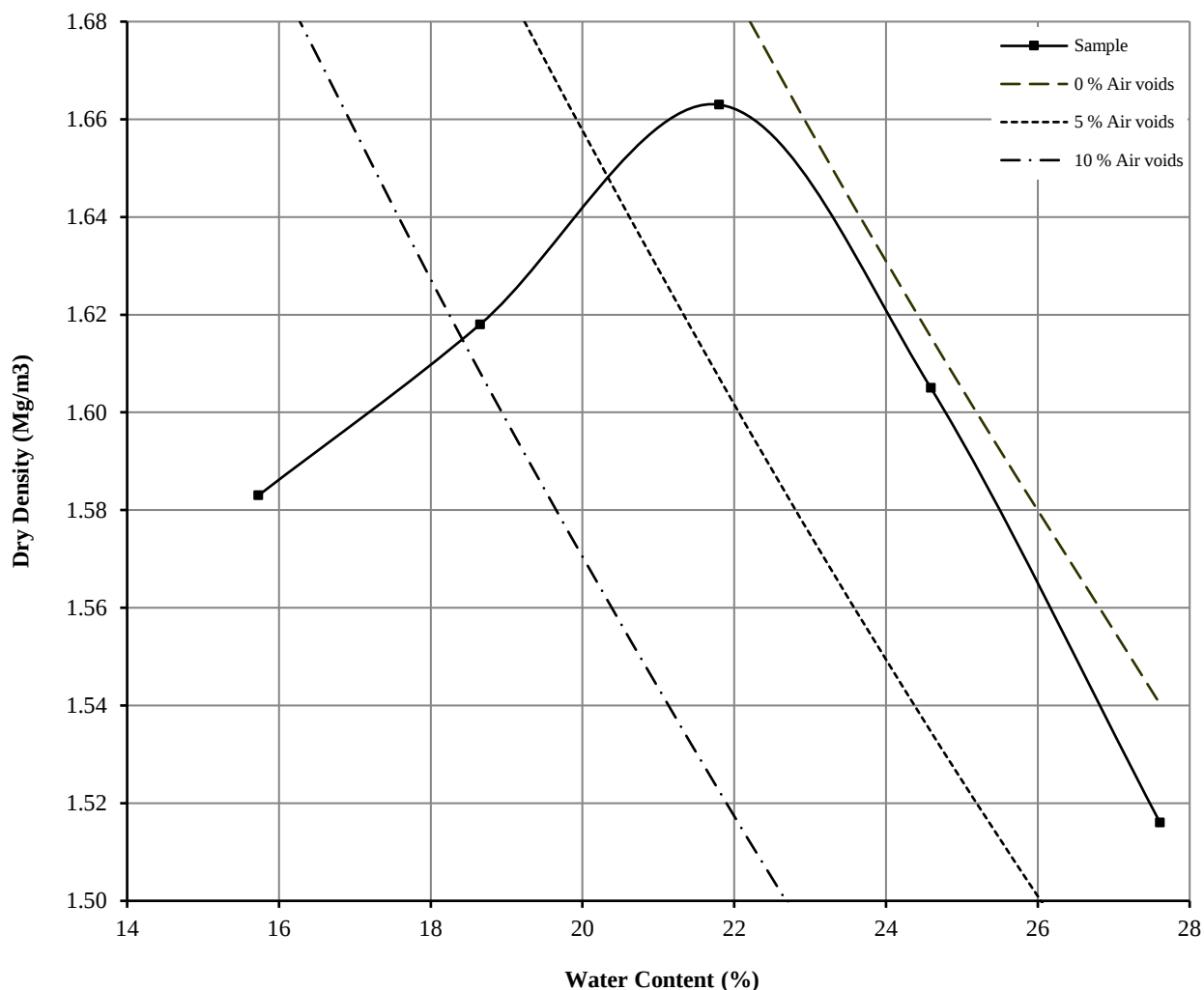
Hole Number: TP302

Top Depth (m): 0.70

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	21.8	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.66		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	22	Grading Zone:		1
Remarks See summary of soil descriptions				

 	Higham Lane North	Contract No.
		PSL25/6231
		Client Ref
		4173

CALIFORNIA BEARING RATIO (CBR)

BS 1377 - Part 2 : Clause 15 : 2022

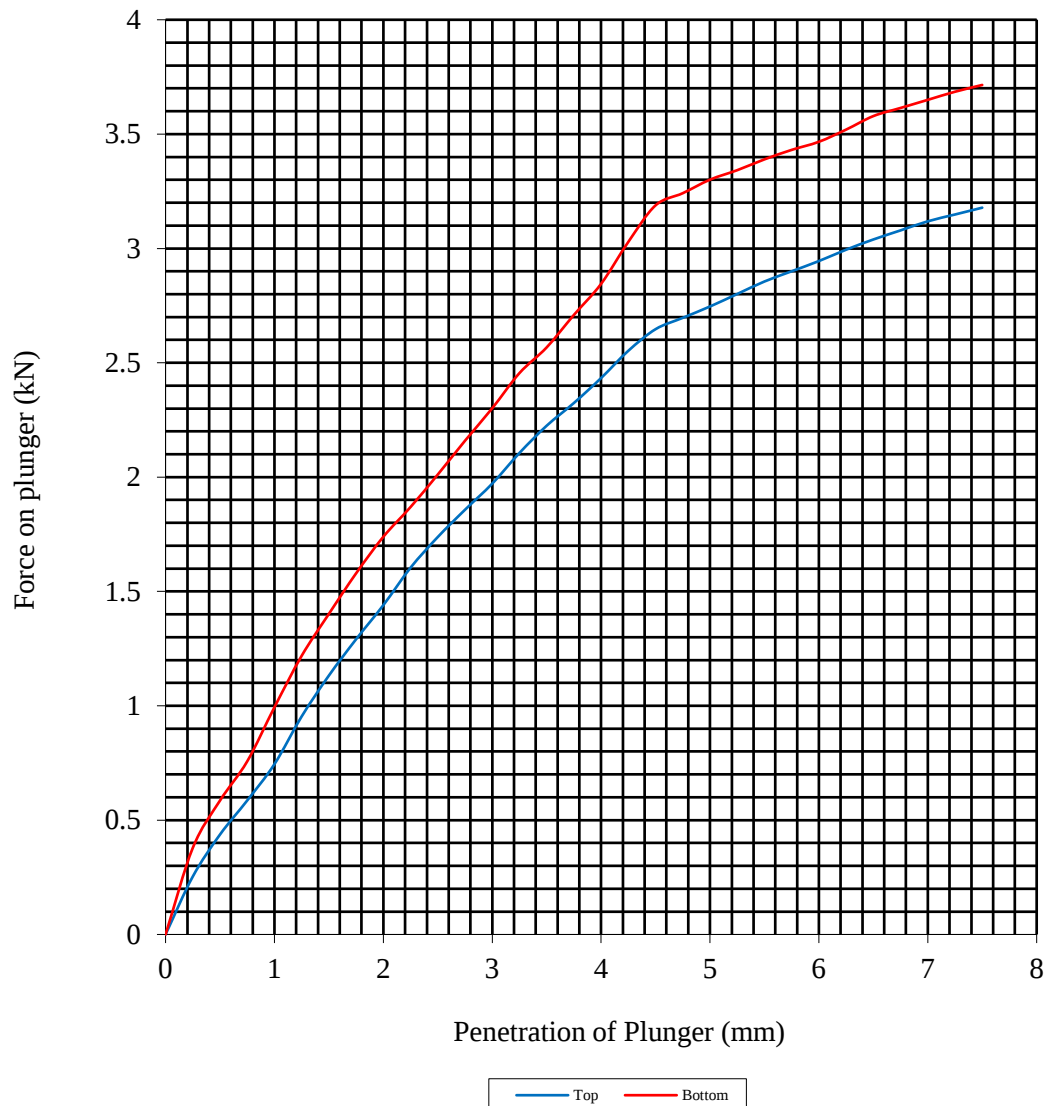
Hole Number: TP302

Top Depth (m): 0.70

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Sample Conditions		Sample Preparation		Final Water Content %		C.B.R. Value %	
Water Content:	21.8	Surcharge Kg:	0.00	Sample Top	21.7	Sample Top	13.7
Bulk Density Mg/m3:	1.91	Soaking Time hrs	0	Sample Bottom	22.0	Sample Bottom	16.5
Dry Density Mg/m3:	1.56	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

MCV/WATER CONTENT RELATION OF SOIL

BS1377 - Part 2 : 2022 Clause 13.5

Hole Number: TP302

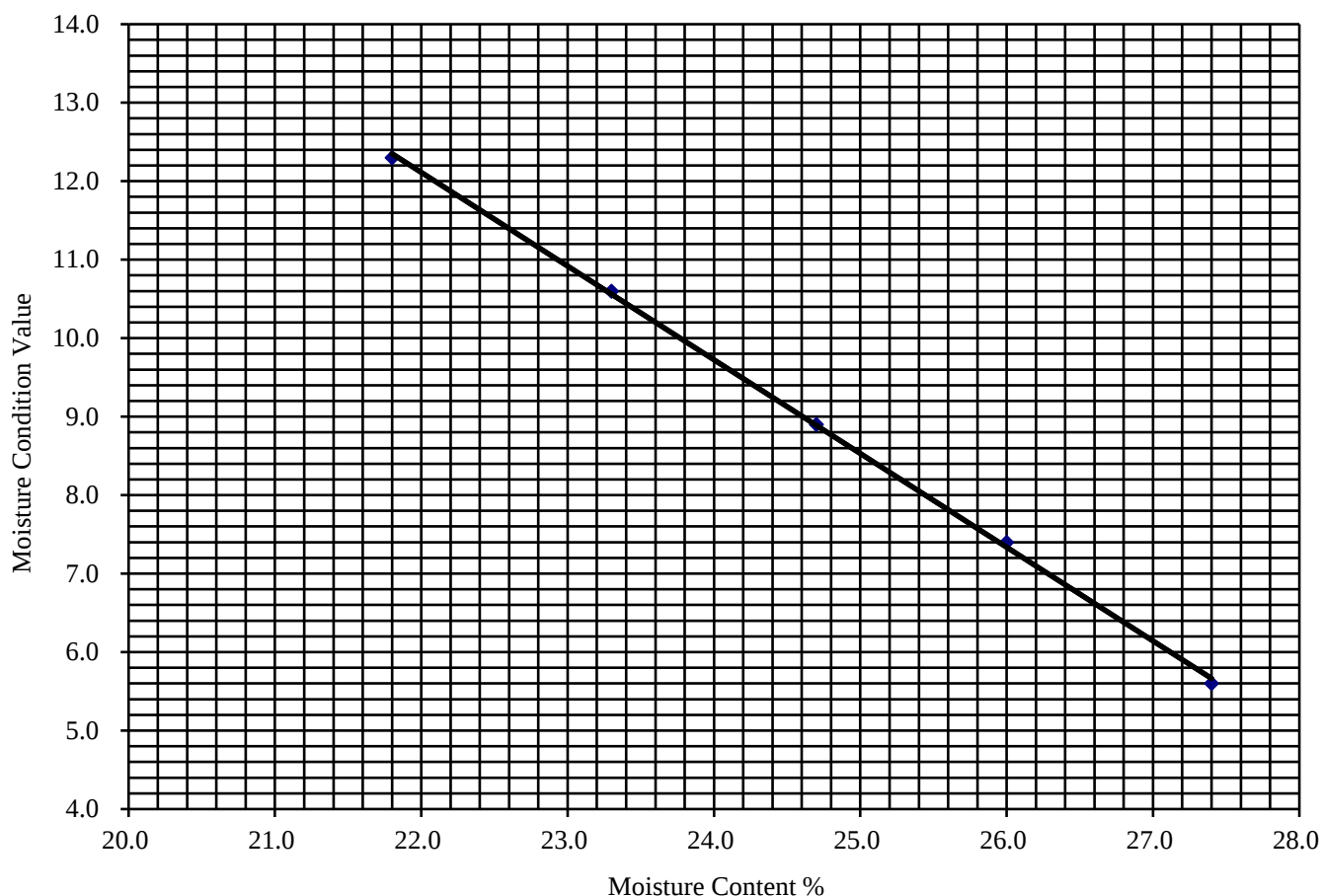
Top Depth (m): 0.70

Sample Number:

Base Depth (m):

Sample Type: B D

Initial Water Content (%):	21.8
Single/Separate Samples Tested	Separate
Material Retained on the 20mm BS Test Sieve (%):	0



Test Results.

Test Number	1	2	3	4	5
Water Content (%)	21.8	23.3	24.7	26.0	27.4
MCV	12.3	10.6	8.9	7.4	5.6



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

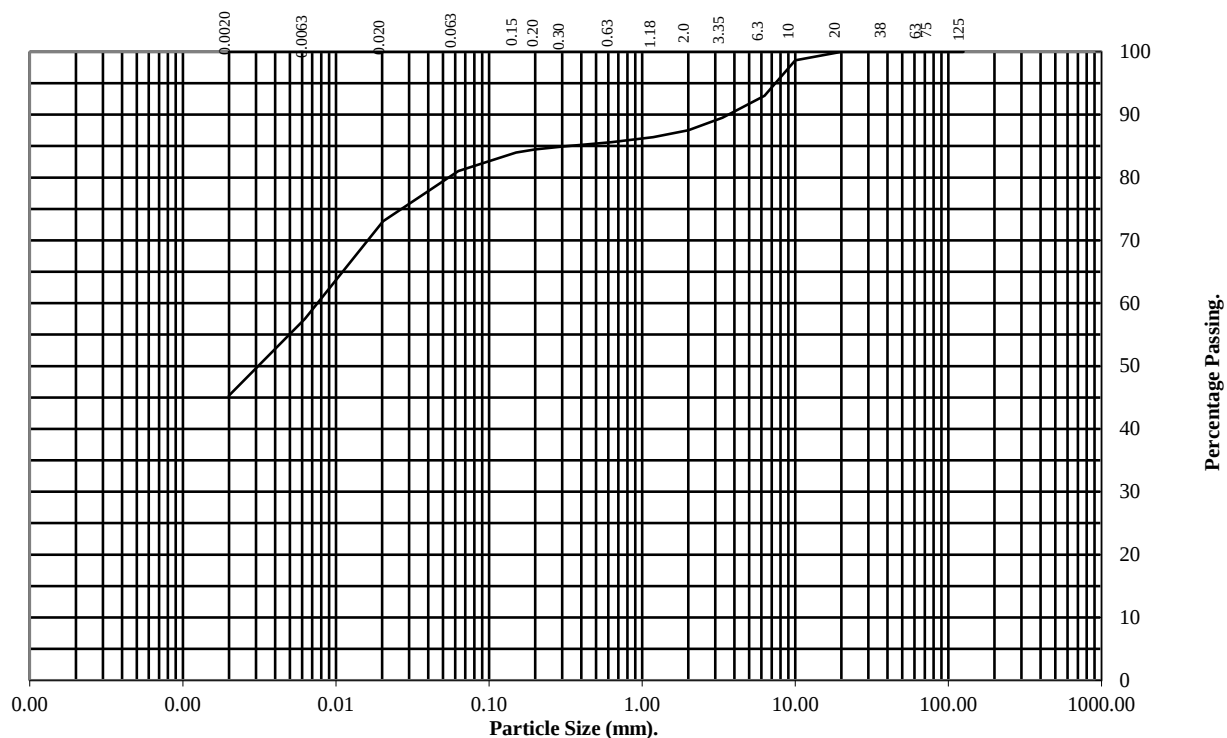
Hole Number: TP304

Top Depth (m): 1.30

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	93
3.35	90
2	88
1.18	86
0.63	86
0.3	85
0.2	84
0.15	84
0.063	81

Particle Diameter	Percentage Passing
0.020	73
0.0063	58
0.0020	45
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	12
Sand	7
Silt	36
Clay	45

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

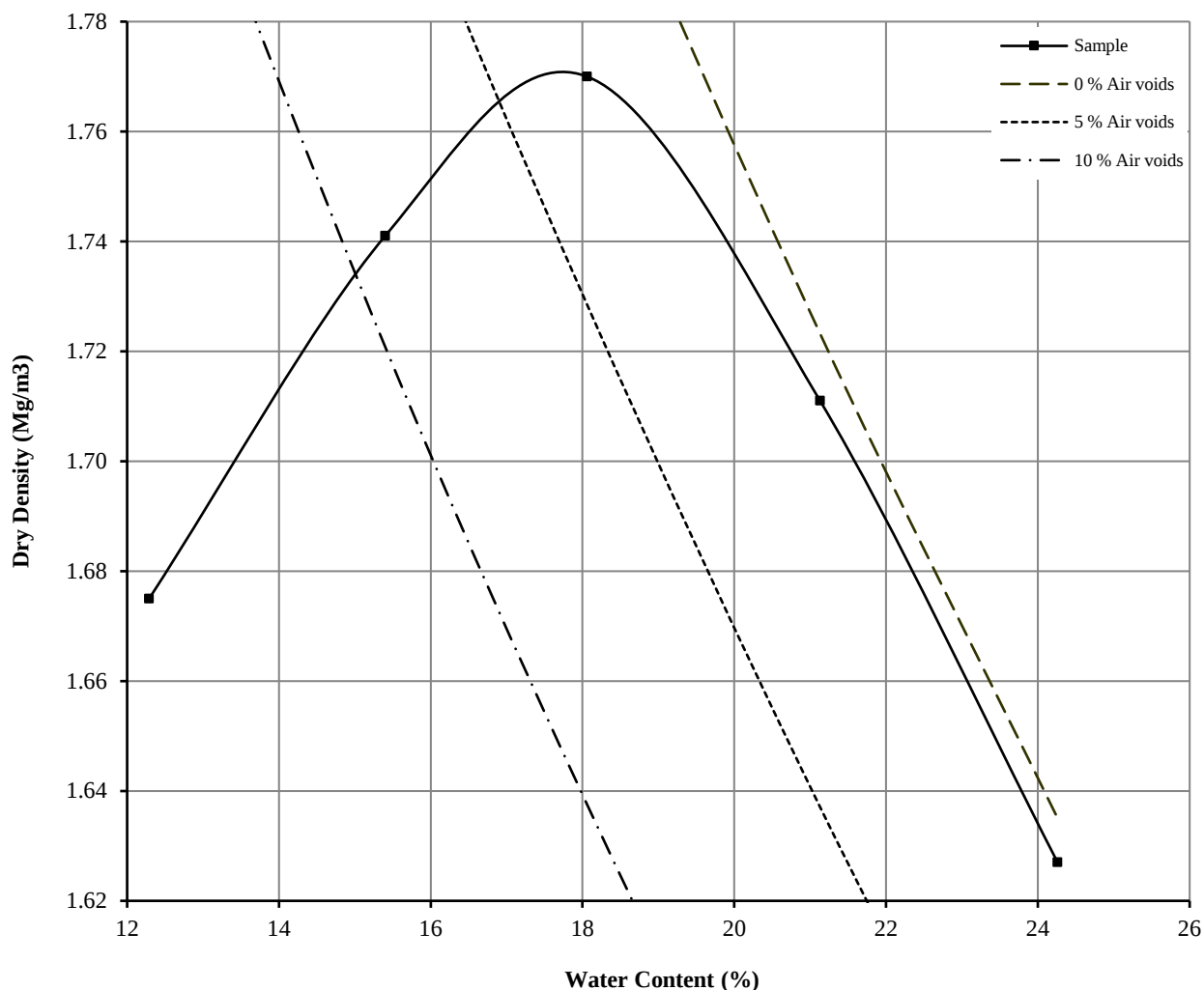
Hole Number: TP304

Top Depth (m): 1.30

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	15.4	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.71	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.77		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	18		Grading Zone:	1
Remarks See summary of soil descriptions				

 4043	 A PHENIX GROUP COMPANY	Higham Lane North	Contract No.
			PSL25/6231
			Client Ref
			4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

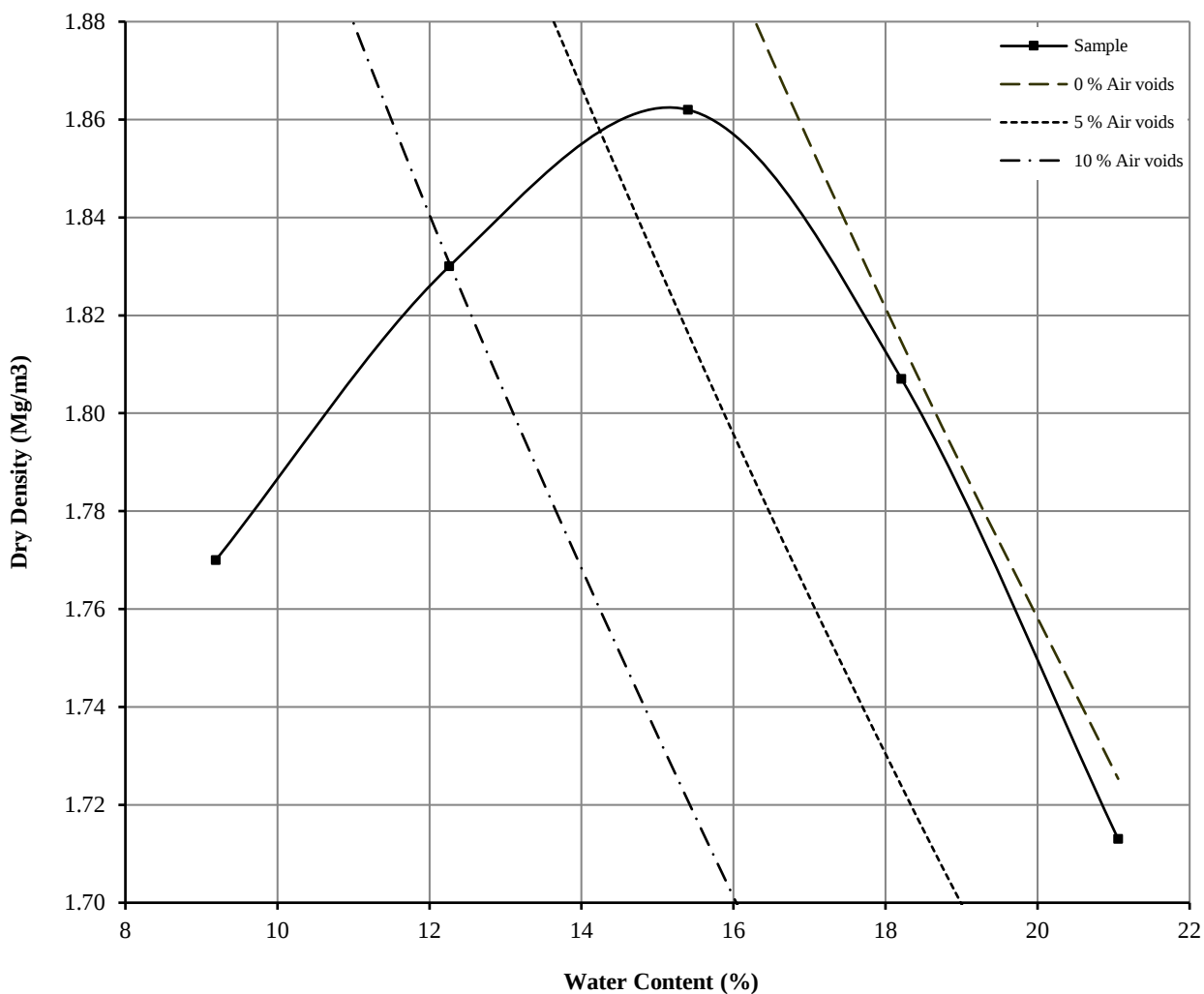
Hole Number: TP304

Top Depth (m): 1.30

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	15.4	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.71	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.86		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	15	Grading Zone:		1
Remarks See summary of soil descriptions				



Higham Lane North

Contract No.
PSL25/6231
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CALIFORNIA BEARING RATIO (CBR)

BS 1377 - Part 2 : Clause 15 : 2022

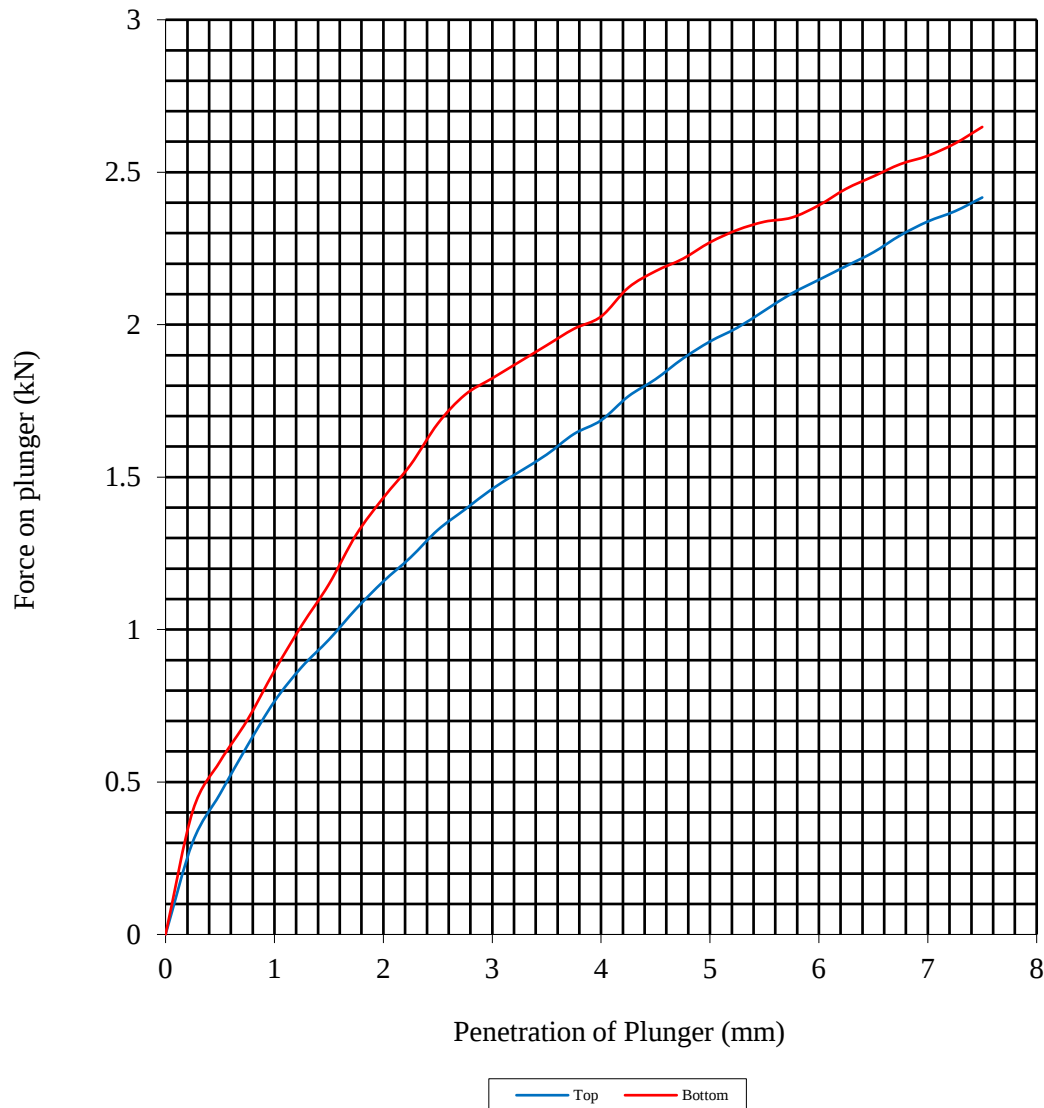
Hole Number: TP304

Top Depth (m): 1.30

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Sample Conditions		Sample Preparation		Final Water Content %		C.B.R. Value %	
Water Content:	15.4	Surcharge Kg:	4.00	Sample Top	15.4	Sample Top	10.0
Bulk Density Mg/m3:	1.99	Soaking Time hrs	0	Sample Bottom	15.5	Sample Bottom	12.7
Dry Density Mg/m3:	1.73	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

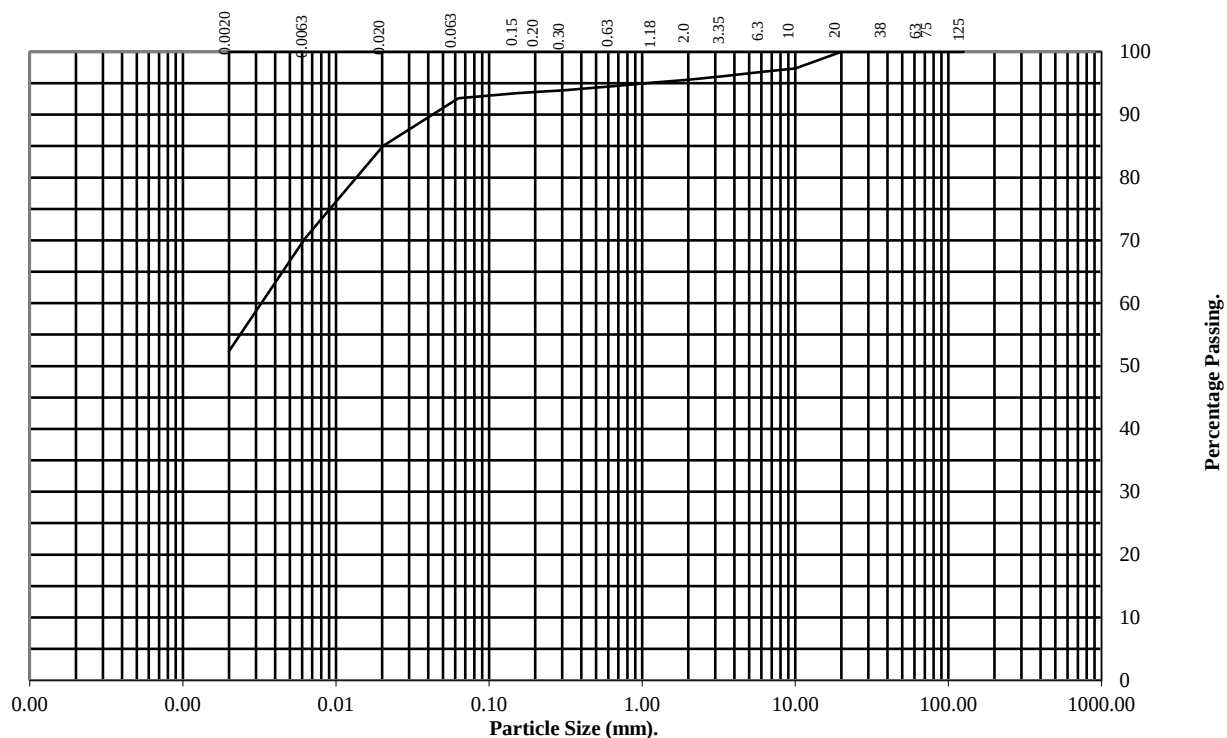
Hole Number: TP306

Top Depth (m): 0.90

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	97
6.3	97
3.35	96
2	96
1.18	95
0.63	94
0.3	94
0.2	94
0.15	93
0.063	93

Particle Diameter	Percentage Passing
0.020	85
0.0063	70
0.0020	52
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	3
Silt	41
Clay	52

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

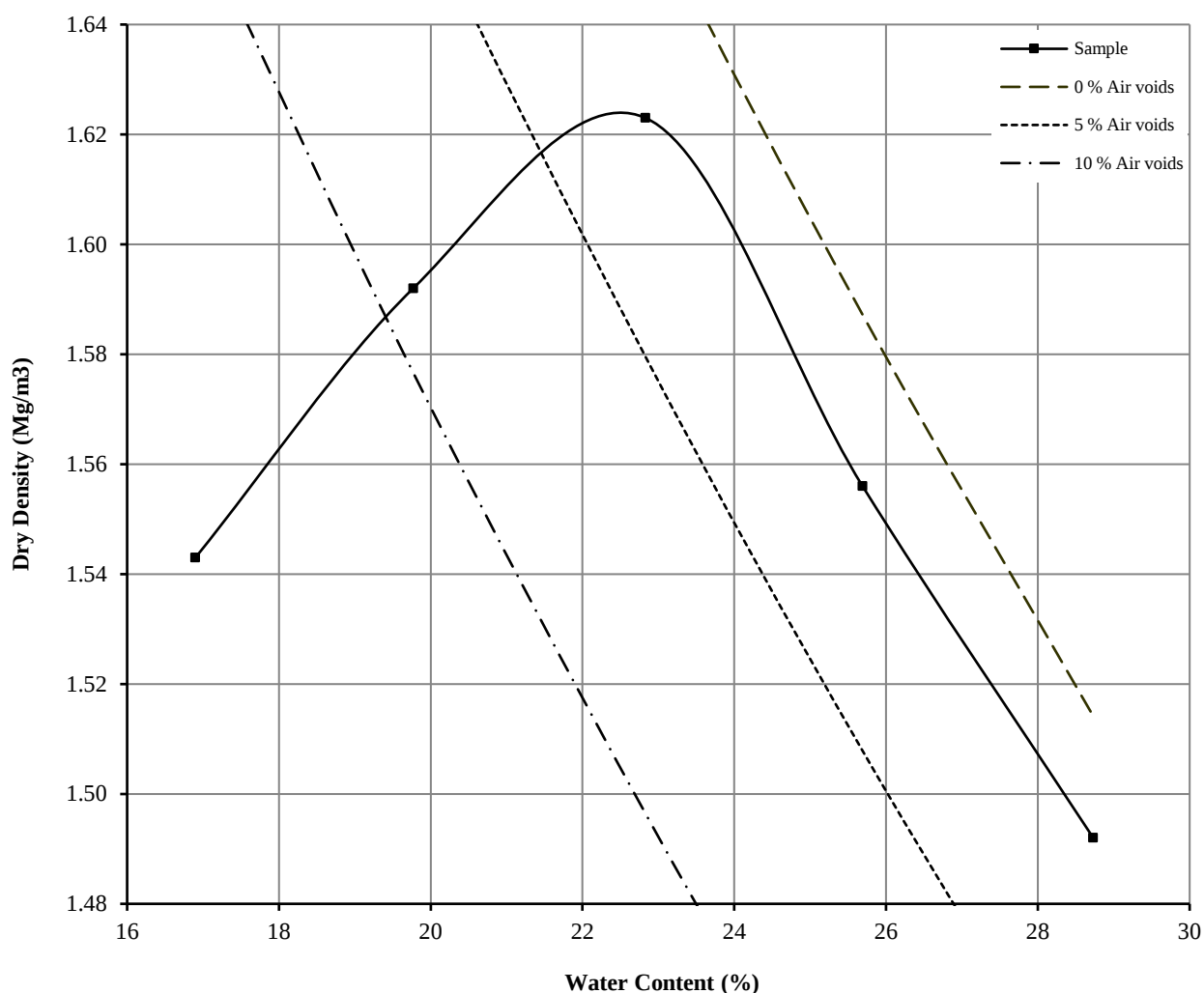
Hole Number: TP306

Top Depth (m): 0.90

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	16.9	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.62		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	23		Grading Zone:	1
Remarks See summary of soil descriptions				

 4043	 A PHENIX GROUP COMPANY	Higham Lane North	Contract No.
			PSL25/6231
			Client Ref
			4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

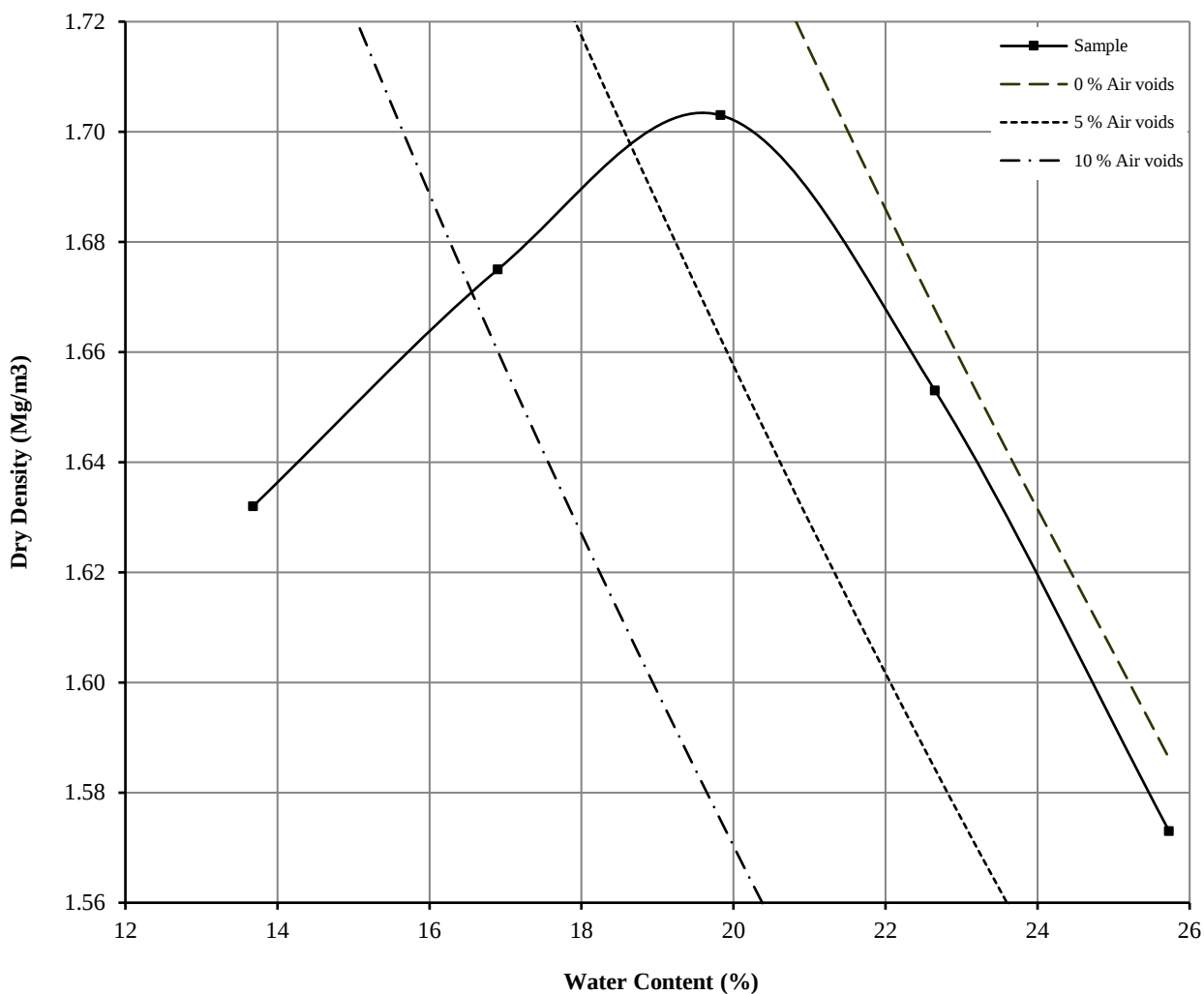
Hole Number: TP306

Top Depth (m): 0.90

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	16.9	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.70		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	20	Grading Zone:		1
Remarks See summary of soil descriptions				

 4043	 A PHENIX GROUP COMPANY	Higham Lane North	Contract No.
			PSL25/6231
			Client Ref
			4173

CALIFORNIA BEARING RATIO (CBR)

BS 1377 - Part 2 : Clause 15 : 2022

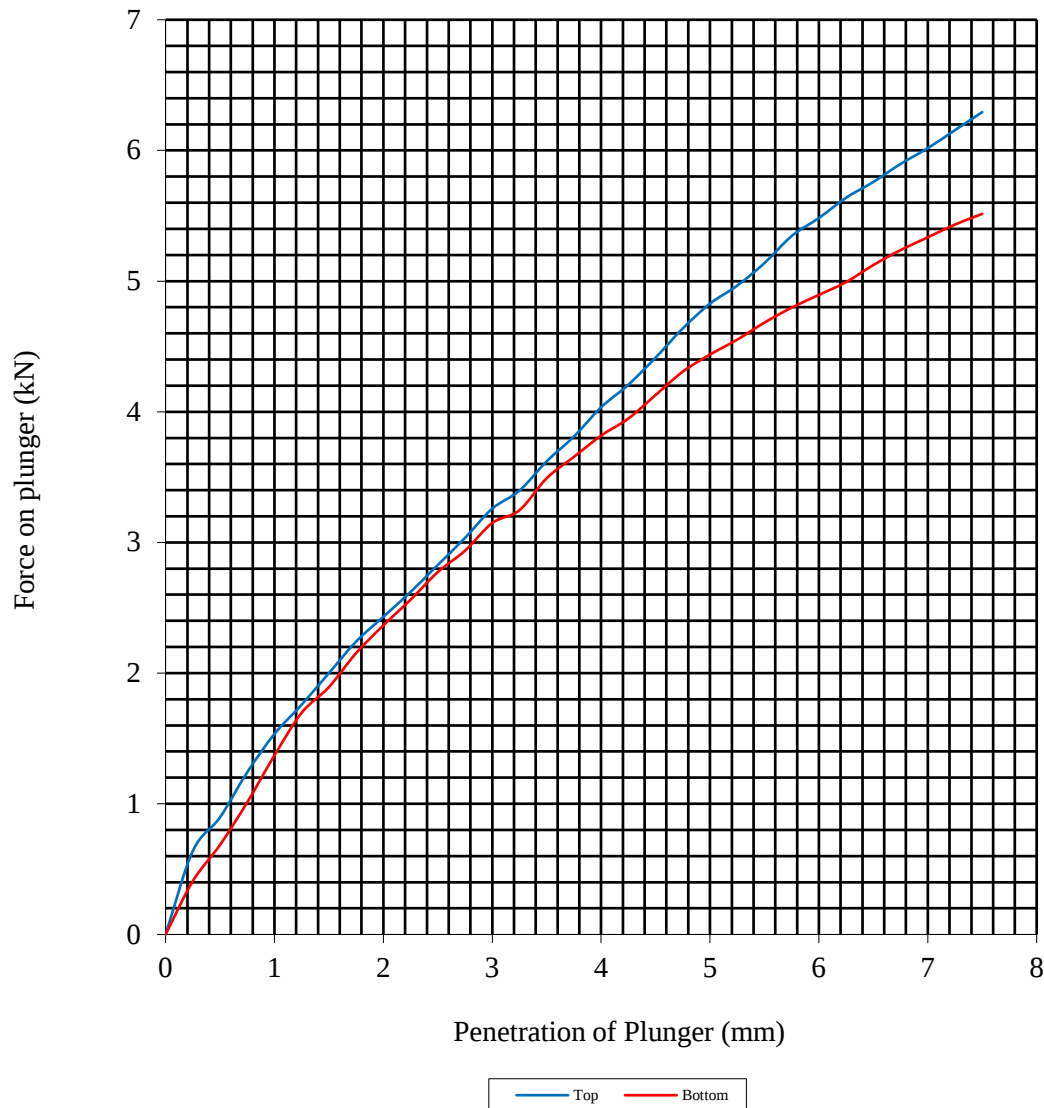
Hole Number: TP306

Top Depth (m): 0.90

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Sample Conditions		Sample Preparation		Final Water Content %		C.B.R. Value %	
Water Content:	16.9	Surcharge Kg:	4.00	Sample Top	16.7	Sample Top	24.1
Bulk Density Mg/m3:	1.81	Soaking Time hrs	0	Sample Bottom	17.4	Sample Bottom	22.2
Dry Density Mg/m3:	1.55	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

MOISTURE CONDITION VALUE (MCV)

BS1377 - Part 2 : 2022 : Clause 13

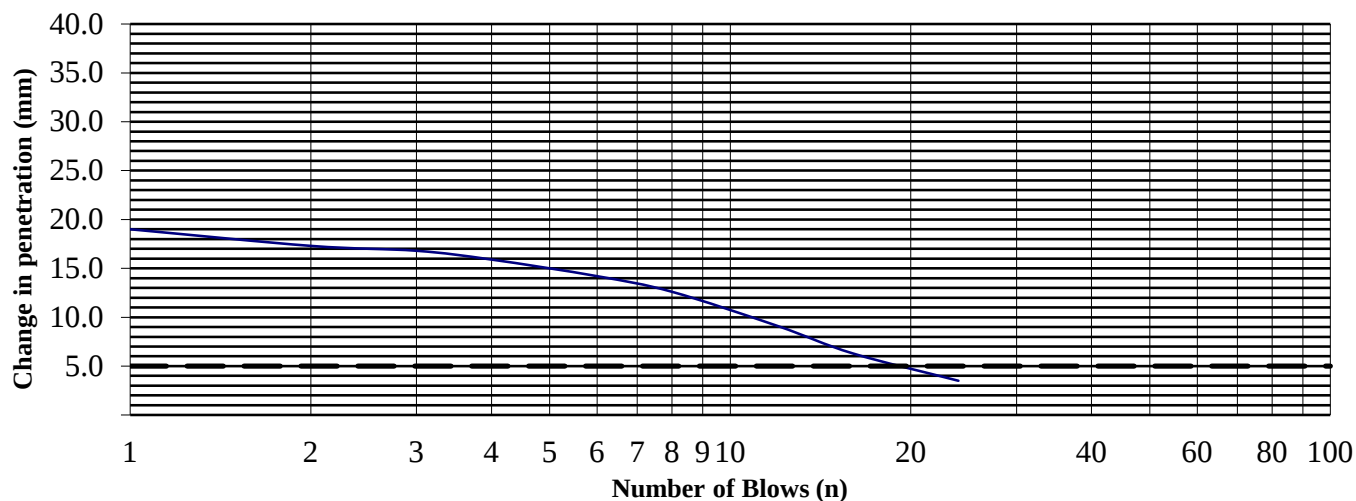
Hole Number: TP306 Top Depth (m): 0.90

Sample Number: Base Depth (m):

Sample Type: B D

Material Retained on the 20mm BS Test Sieve (%):	0
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	82.6	19.0
2	73.1	17.3
3	67.9	16.8
4	63.6	15.9
6	58.8	14.2
8	55.8	12.6
12	51.1	9.1
16	47.7	6.3
24	44.6	3.5
32	43.2	
48	42.0	
64	41.4	
96	41.1	
128		
192		
256		

Test Results.

Water Content (%)	16.9
MCV	12.7



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

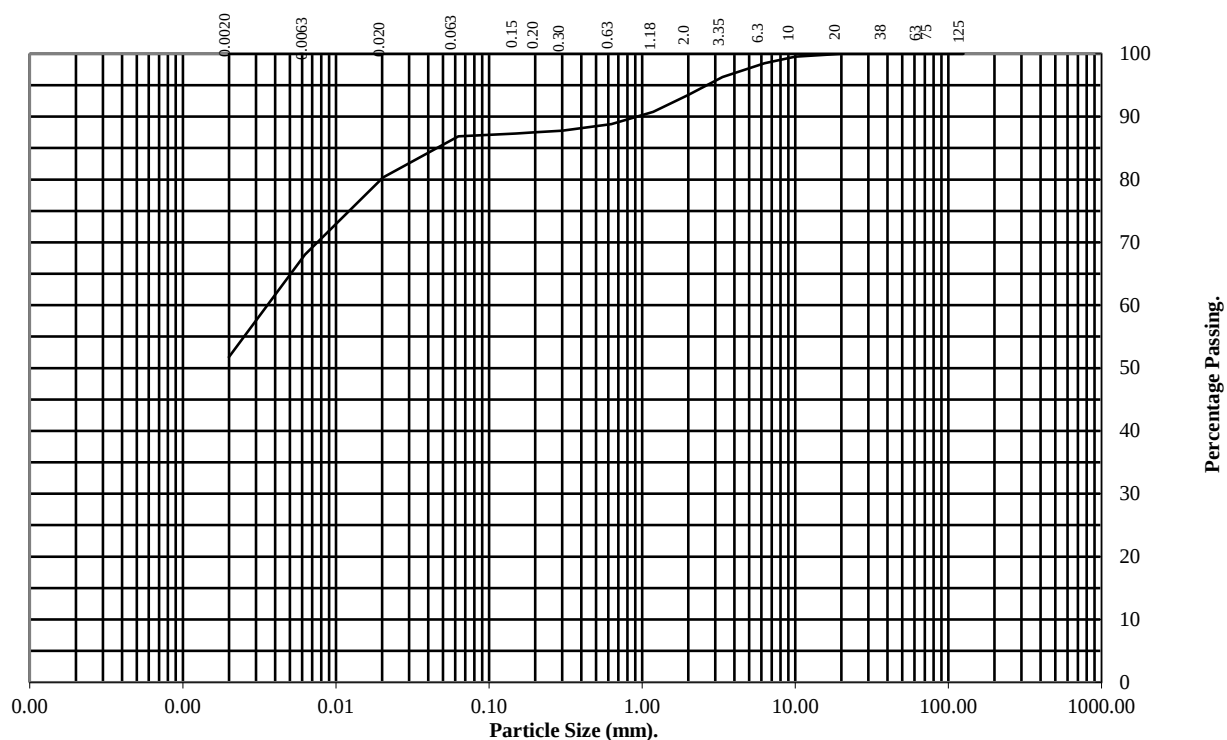
Hole Number: TP311

Top Depth (m): 1.40

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	98
3.35	96
2	93
1.18	91
0.63	89
0.3	88
0.2	87
0.15	87
0.063	87

Particle Diameter	Percentage Passing
0.020	80
0.0063	68
0.0020	52
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	6
Silt	35
Clay	52

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

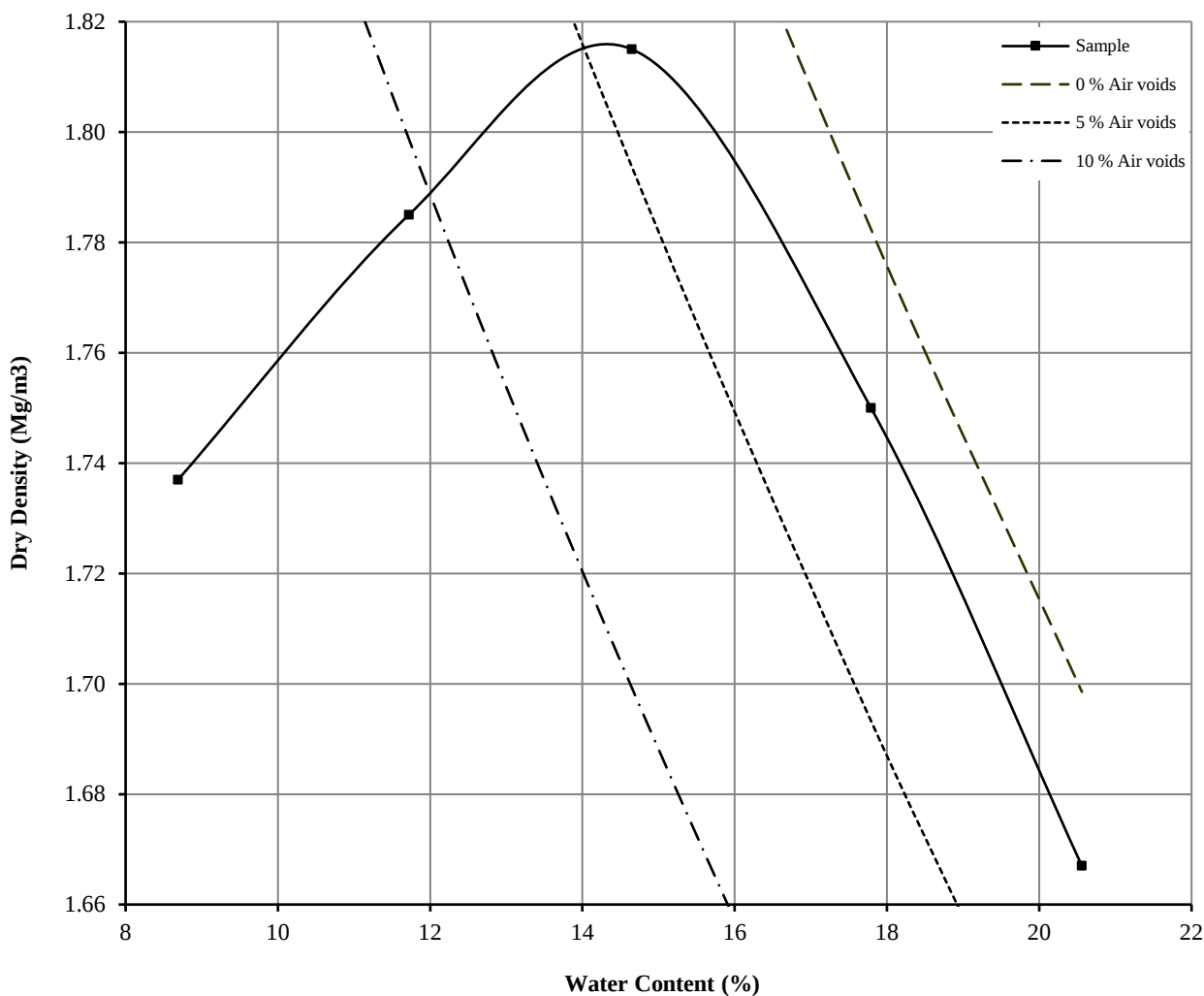
Hole Number: TP311

Top Depth (m): 1.40

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	11.7	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.61	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.82		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	15	Grading Zone:		1
Remarks See summary of soil descriptions				

 4043	 A PHENIX GROUP COMPANY	Higham Lane North	Contract No.
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			Client Ref
			4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

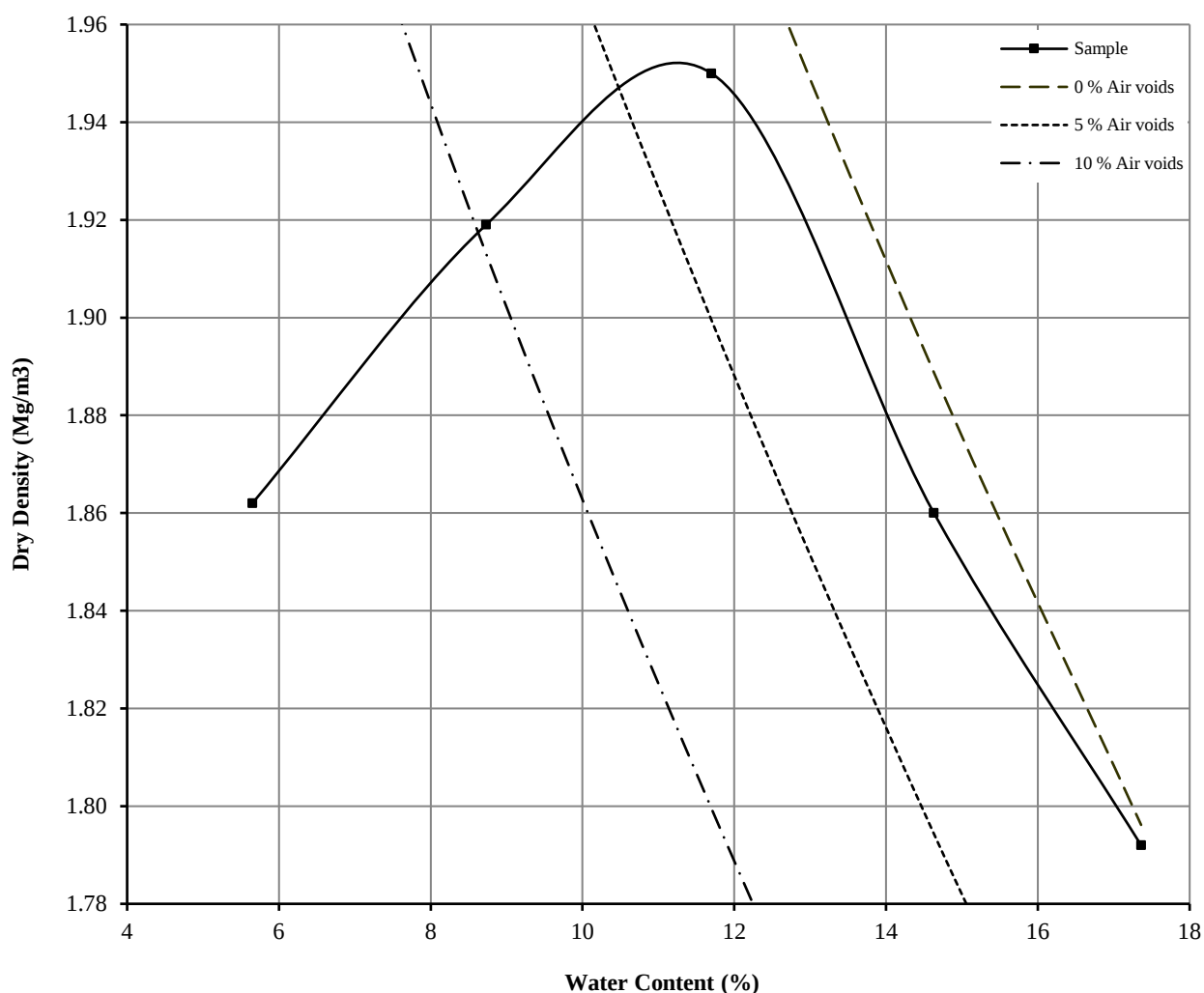
Hole Number: TP311

Top Depth (m): 1.40

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	11.7	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.61	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.95		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	12	Grading Zone:		1
Remarks See summary of soil descriptions				

 	Higham Lane North		Contract No.
			PSL25/6231
			Client Ref
			4173

CALIFORNIA BEARING RATIO (CBR)

BS 1377 - Part 2 : Clause 15 : 2022

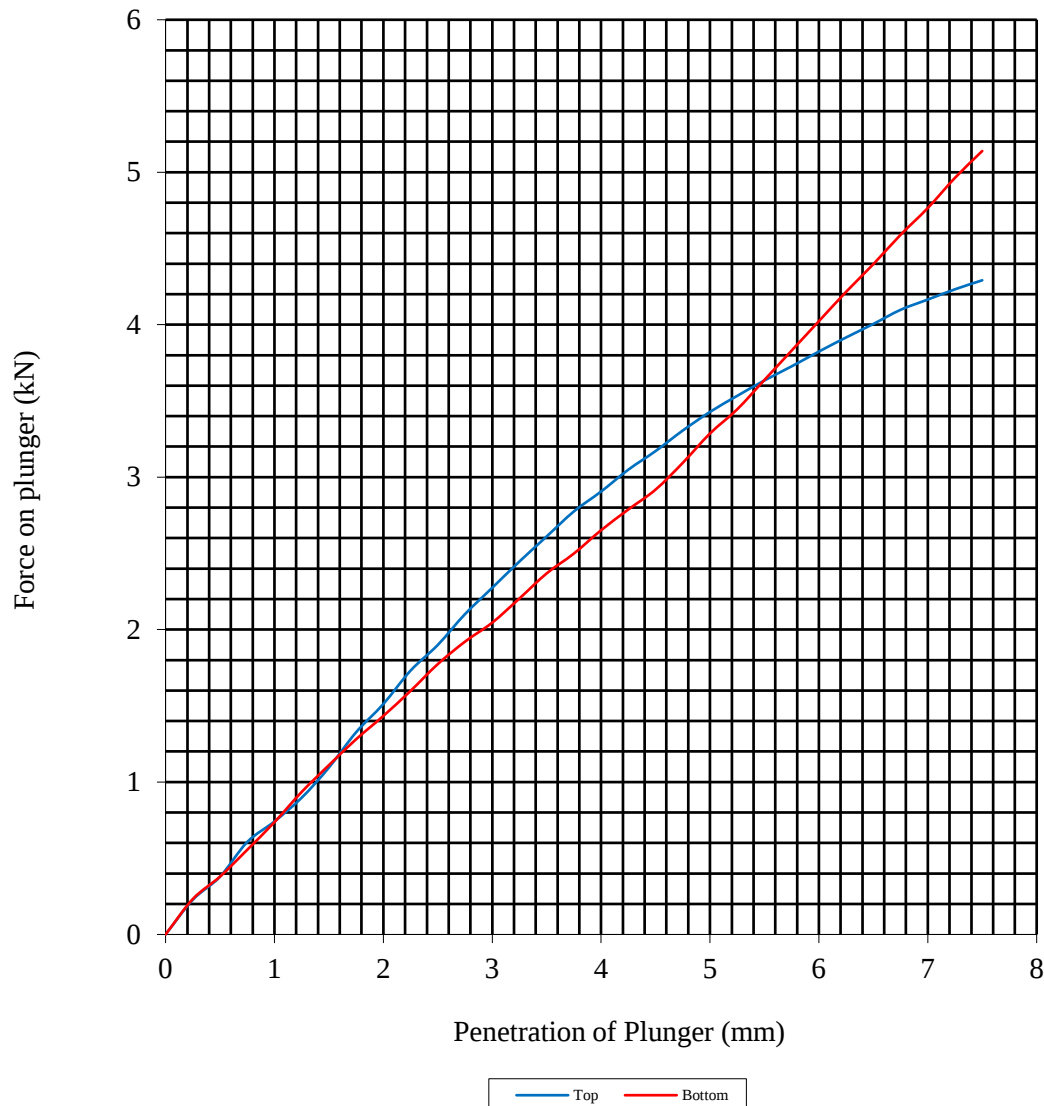
Hole Number: TP311

Top Depth (m): 1.40

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Sample Conditions		Sample Preparation		Final Water Content %		C.B.R. Value %	
Water Content:	11.7	Surcharge Kg:	4.00	Sample Top	11.5	Sample Top	17.1
Bulk Density Mg/m3:	2.00	Soaking Time hrs	0	Sample Bottom	12.0	Sample Bottom	16.4
Dry Density Mg/m3:	1.79	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

MCV/WATER CONTENT RELATION OF SOIL

BS1377 - Part 2 : 2022 Clause 13.5

Hole Number: TP311

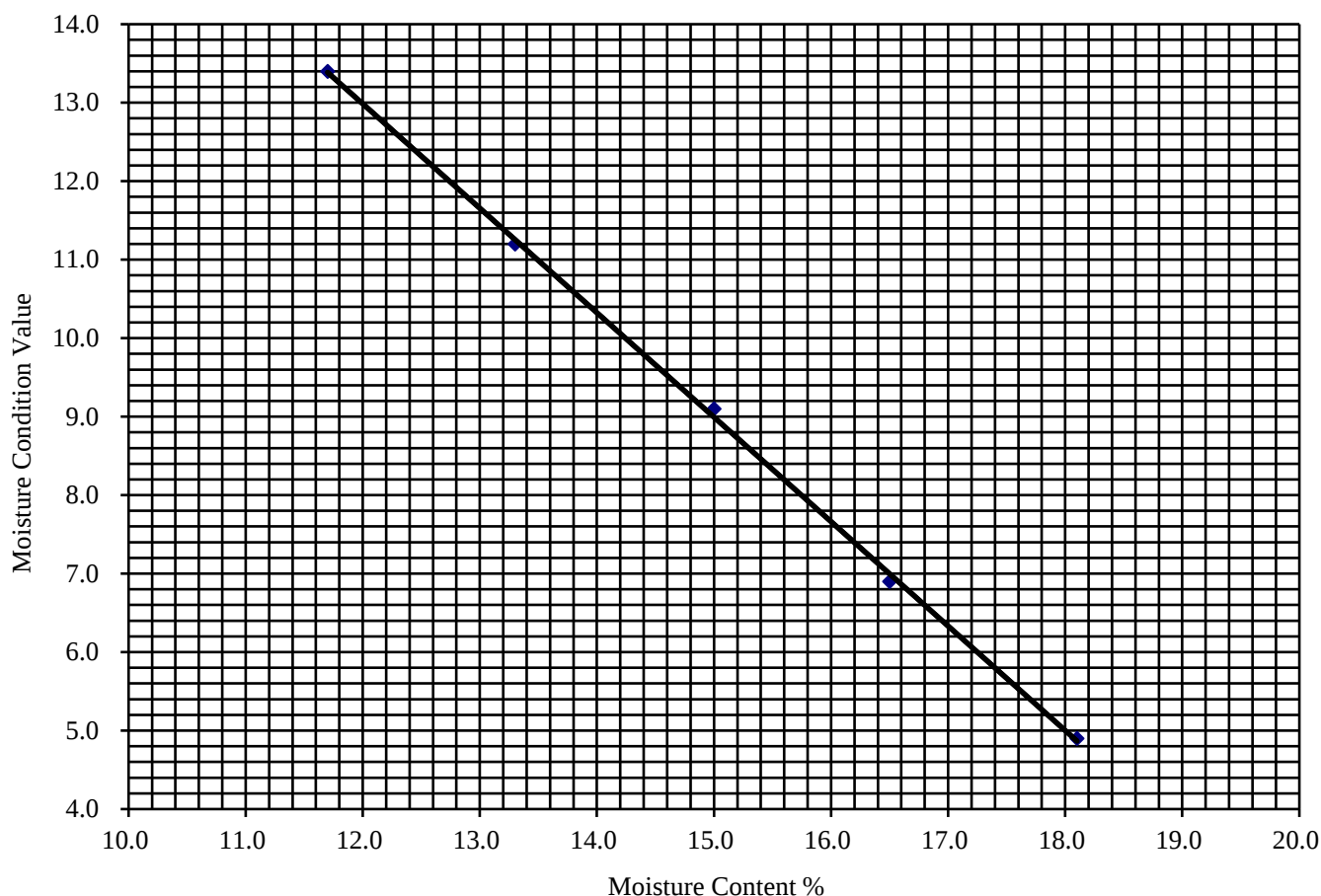
Top Depth (m): 1.40

Sample Number:

Base Depth (m):

Sample Type: B D

Initial Water Content (%):	11.7
Single/Separate Samples Tested	Separate
Material Retained on the 20mm BS Test Sieve (%):	0



Test Results.

Test Number	1	2	3	4	5
Water Content (%)	11.7	13.3	15.0	16.5	18.1
MCV	13.4	11.2	9.1	6.9	4.9



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

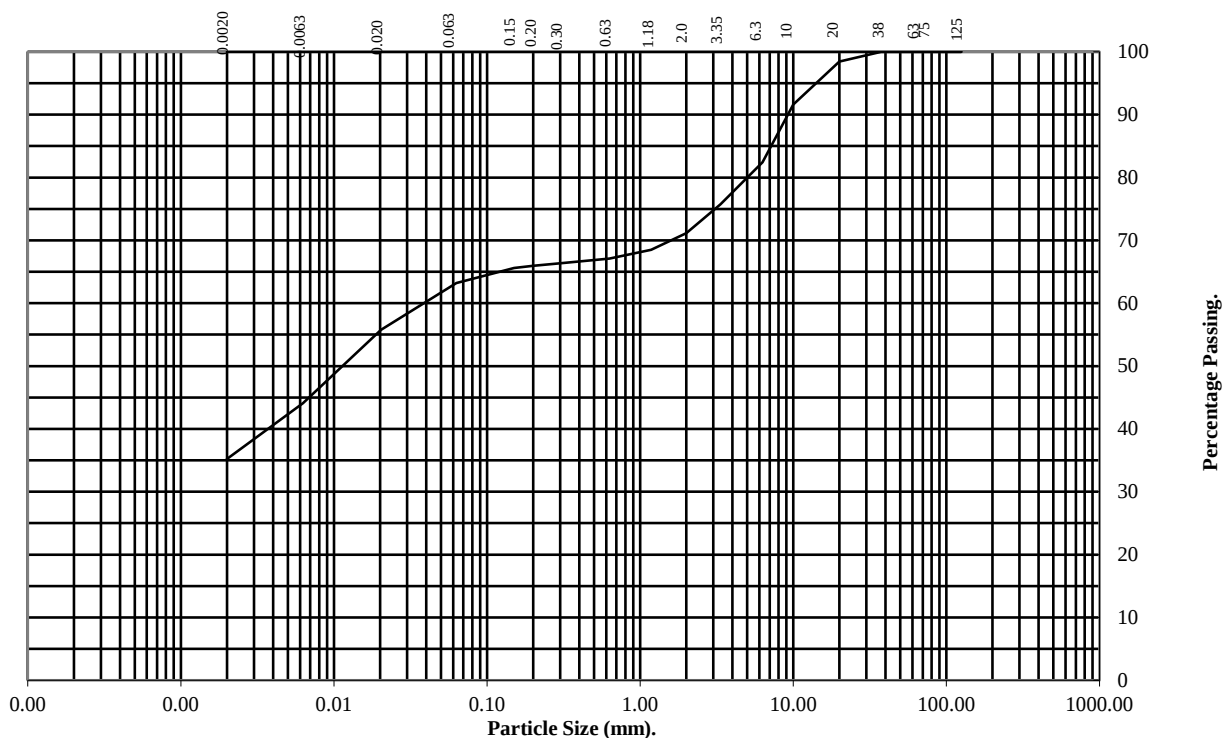
Hole Number: TP314

Top Depth (m): 3.00

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	98
10	92
6.3	82
3.35	76
2	71
1.18	68
0.63	67
0.3	66
0.2	66
0.15	66
0.063	63

Particle Diameter	Percentage Passing
0.020	56
0.0063	44
0.0020	35
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	29
Sand	8
Silt	28
Clay	35

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

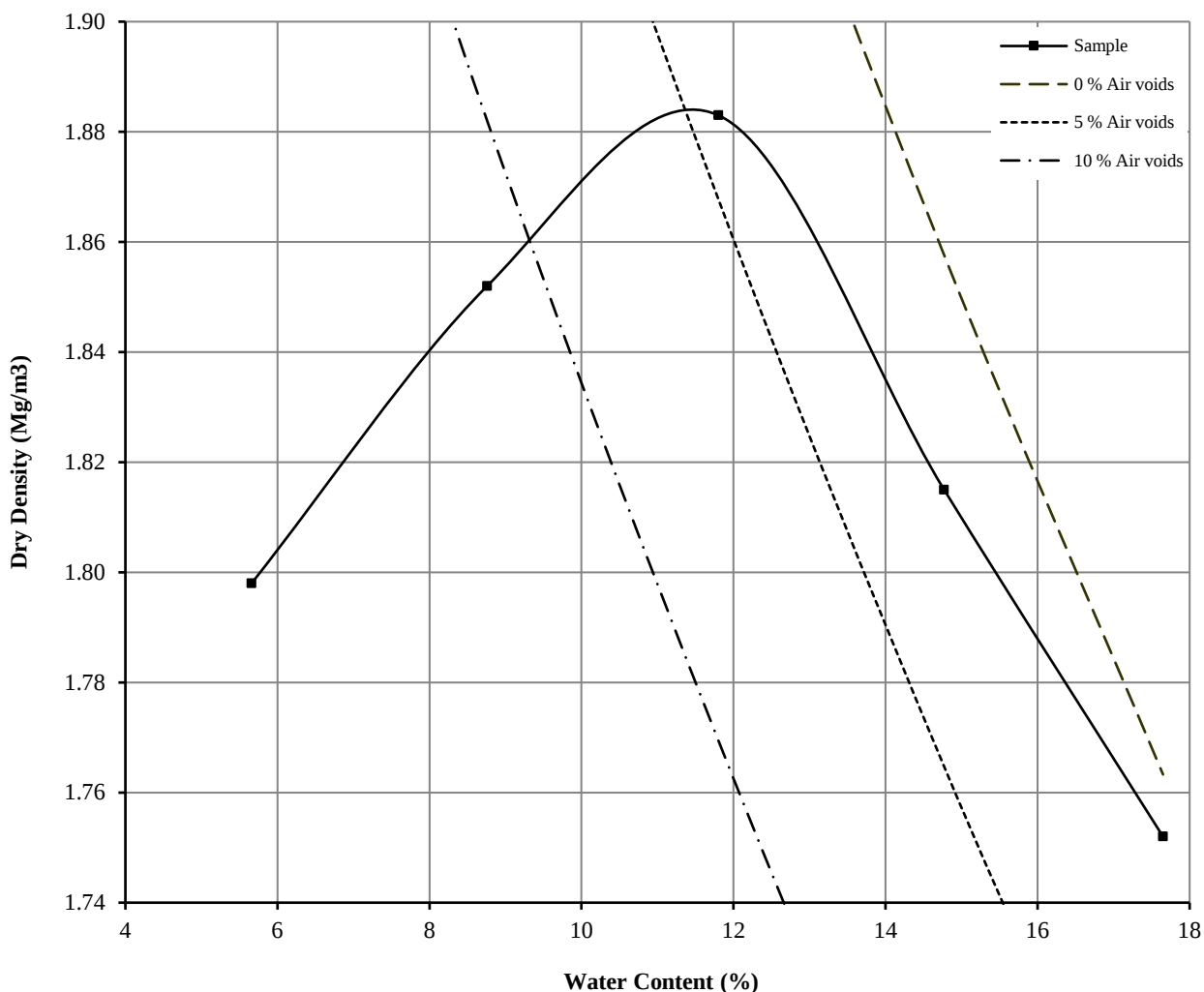
Hole Number: TP314

Top Depth (m): 3.00

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	11.8	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.56	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.88		Material Retained on 20.0 mm Test Sieve (%):	2
Optimum Water Content (%):	12	Grading Zone:		2
Remarks See summary of soil descriptions				

 4043	 A PHENIX GROUP COMPANY	Higham Lane North	Contract No.
			PSL25/6231
			Client Ref
			4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

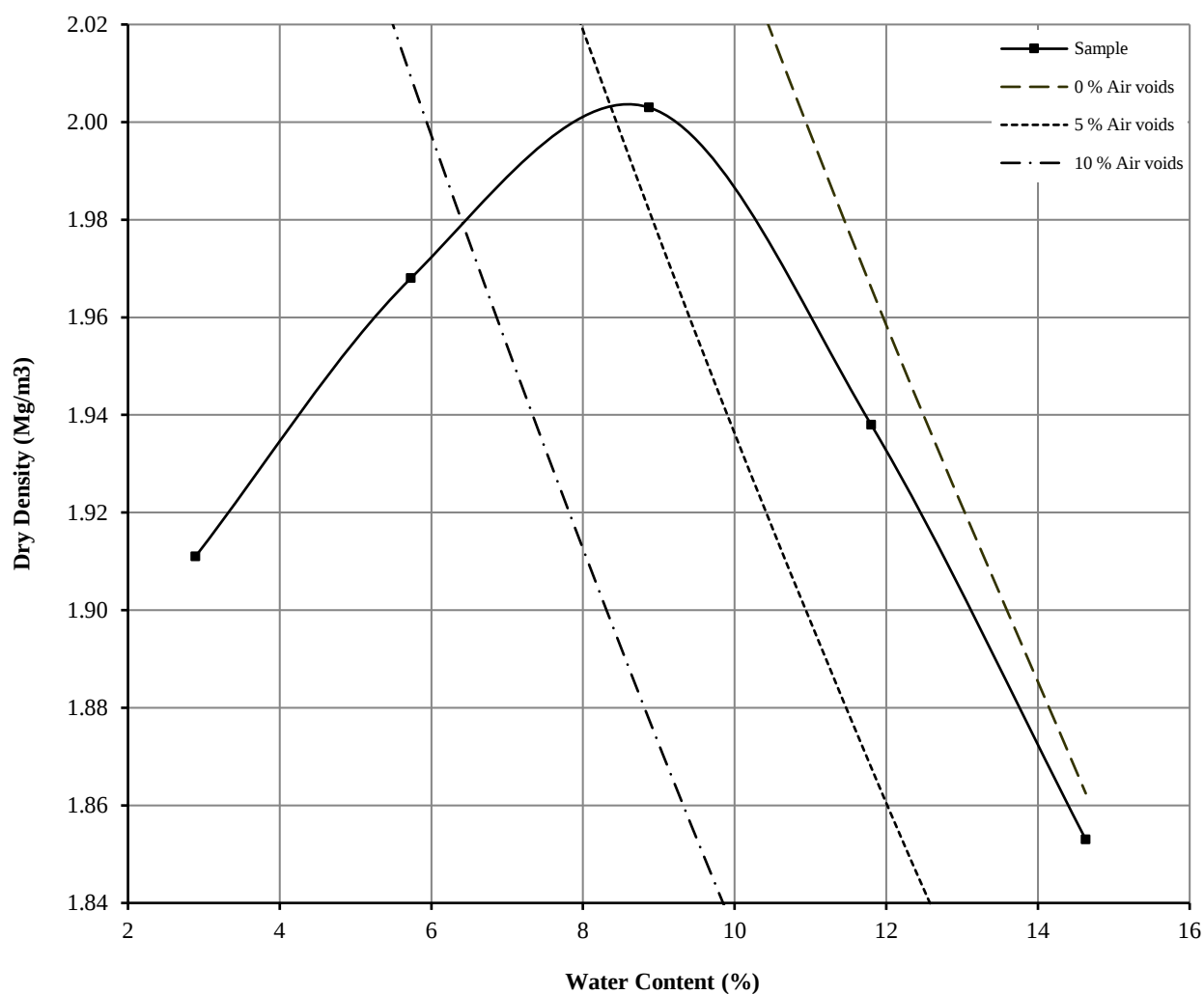
Hole Number: TP314

Top Depth (m): 3.00

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	11.8	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.56	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	2.00		Material Retained on 20.0 mm Test Sieve (%):	2
Optimum Water Content (%):	9	Grading Zone:		2
Remarks See summary of soil descriptions				



Higham Lane North

Contract No.
PSL25/6231
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CALIFORNIA BEARING RATIO (CBR)

BS 1377 - Part 2 : Clause 15 : 2022

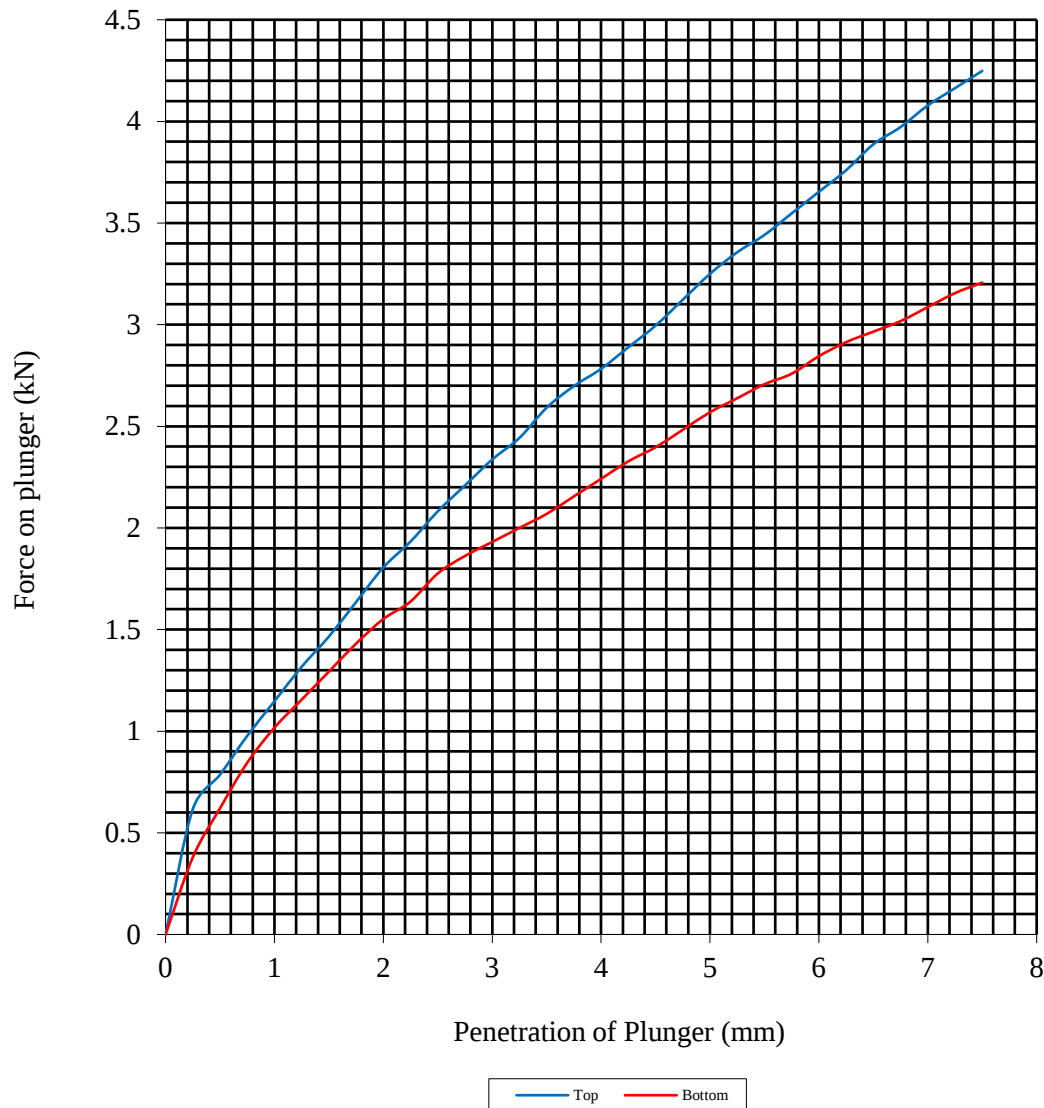
Hole Number: TP314

Top Depth (m): 3.00

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Sample Conditions		Sample Preparation		Final Water Content %		C.B.R. Value %	
Water Content:	11.8	Surcharge Kg:	4.00	Sample Top	11.6	Sample Top	16.3
Bulk Density Mg/m3:	2.09	Soaking Time hrs	0	Sample Bottom	12.1	Sample Bottom	13.5
Dry Density Mg/m3:	1.87	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		2					
Compaction Conditions		2.5kg					



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

MOISTURE CONDITION VALUE (MCV)

BS1377 - Part 2 : 2022 : Clause 13

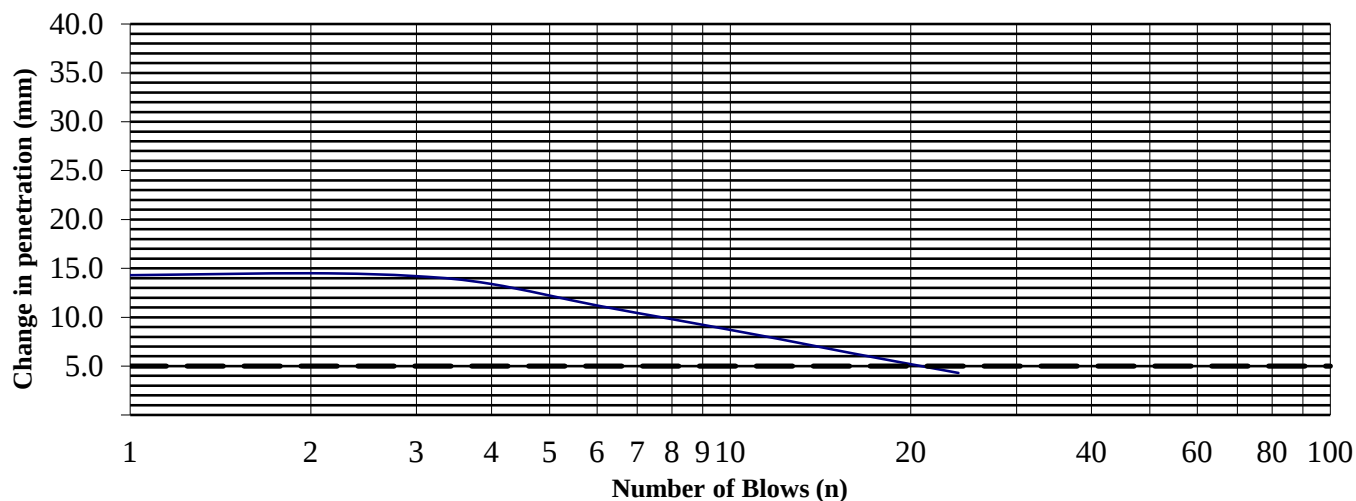
Hole Number: TP314 Top Depth (m): 3.00

Sample Number: Base Depth (m):

Sample Type: B D

Material Retained on the 20mm BS Test Sieve (%):	2
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	70.4	14.3
2	63.4	14.5
3	59.2	14.2
4	56.1	13.4
6	51.6	11.2
8	48.9	9.8
12	45.0	7.8
16	42.7	6.3
24	40.4	4.3
32	39.1	
48	37.2	
64	36.4	
96	36.1	
128		
192		
256		

Test Results.

Water Content (%)	12.0
MCV	12.4



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

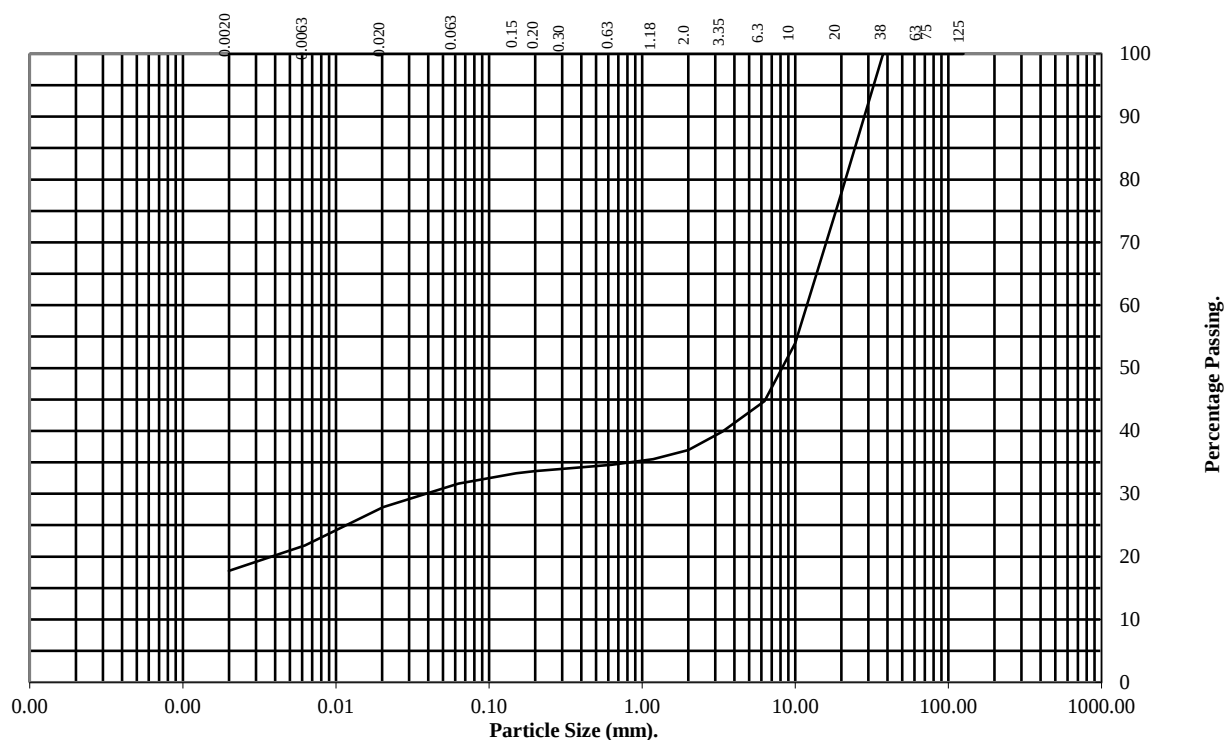
Hole Number: TP315

Top Depth (m): 2.70

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	78
10	54
6.3	45
3.35	40
2	37
1.18	35
0.63	35
0.3	34
0.2	34
0.15	33
0.063	32

Particle Diameter	Percentage Passing
0.020	28
0.0063	22
0.0020	18
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	63
Sand	5
Silt	14
Clay	18

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

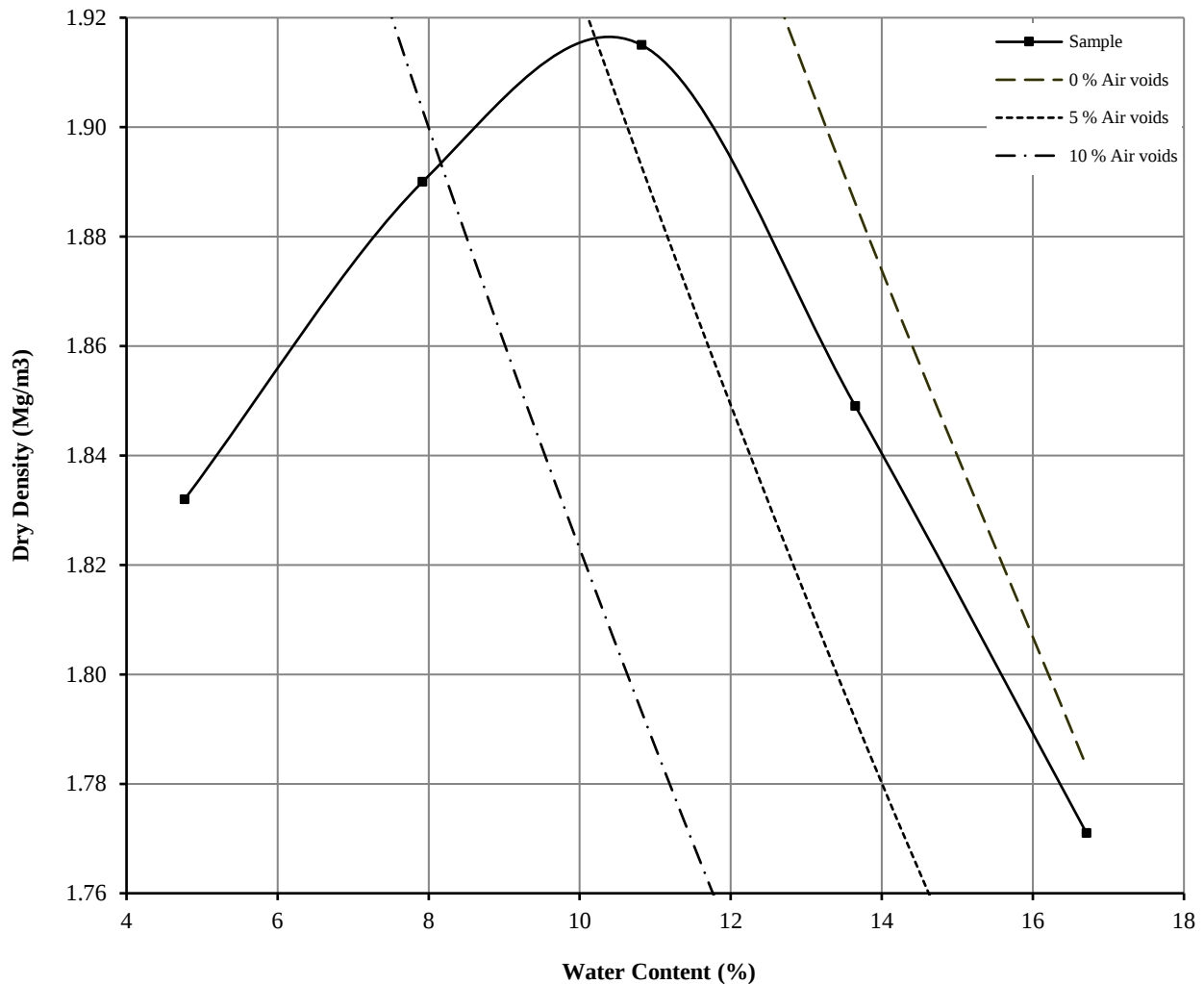
Hole Number: TP315

Top Depth (m): 2.70

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	7.9	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.54	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.92		Material Retained on 20.0 mm Test Sieve (%):	22
Optimum Water Content (%):	11	Grading Zone:		3
Remarks See summary of soil descriptions				



Higham Lane North

Contract No.
PSL25/6231
Client Ref
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DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

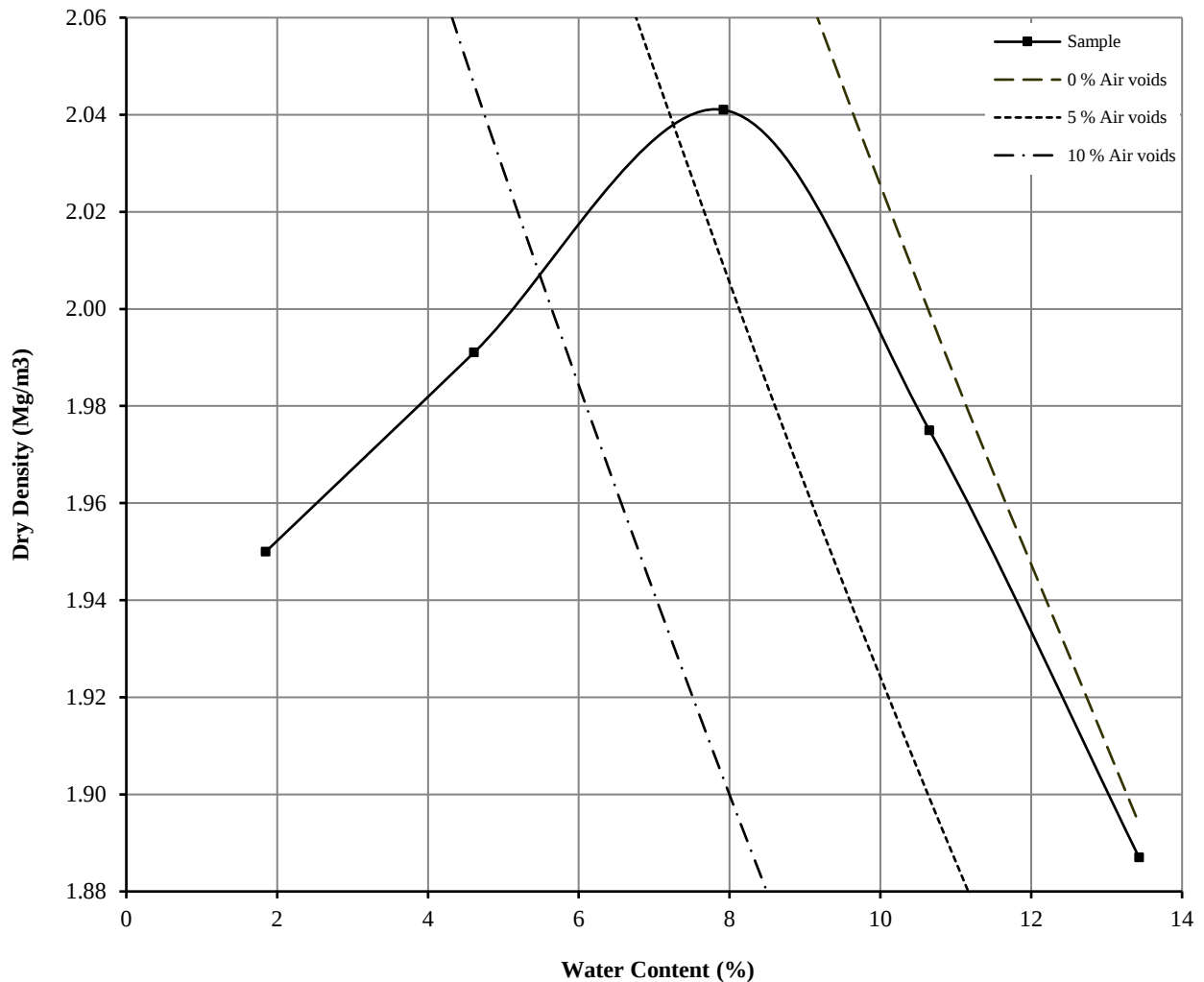
Hole Number: TP315

Top Depth (m): 2.70

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	7.9	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.54	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	2.04		Material Retained on 20.0 mm Test Sieve (%):	22
Optimum Water Content (%):	8		Grading Zone:	3
Remarks See summary of soil descriptions				



Higham Lane North

Contract No.
PSL25/6231
Client Ref
4173

CALIFORNIA BEARING RATIO (CBR)

BS 1377 - Part 2 : Clause 15 : 2022

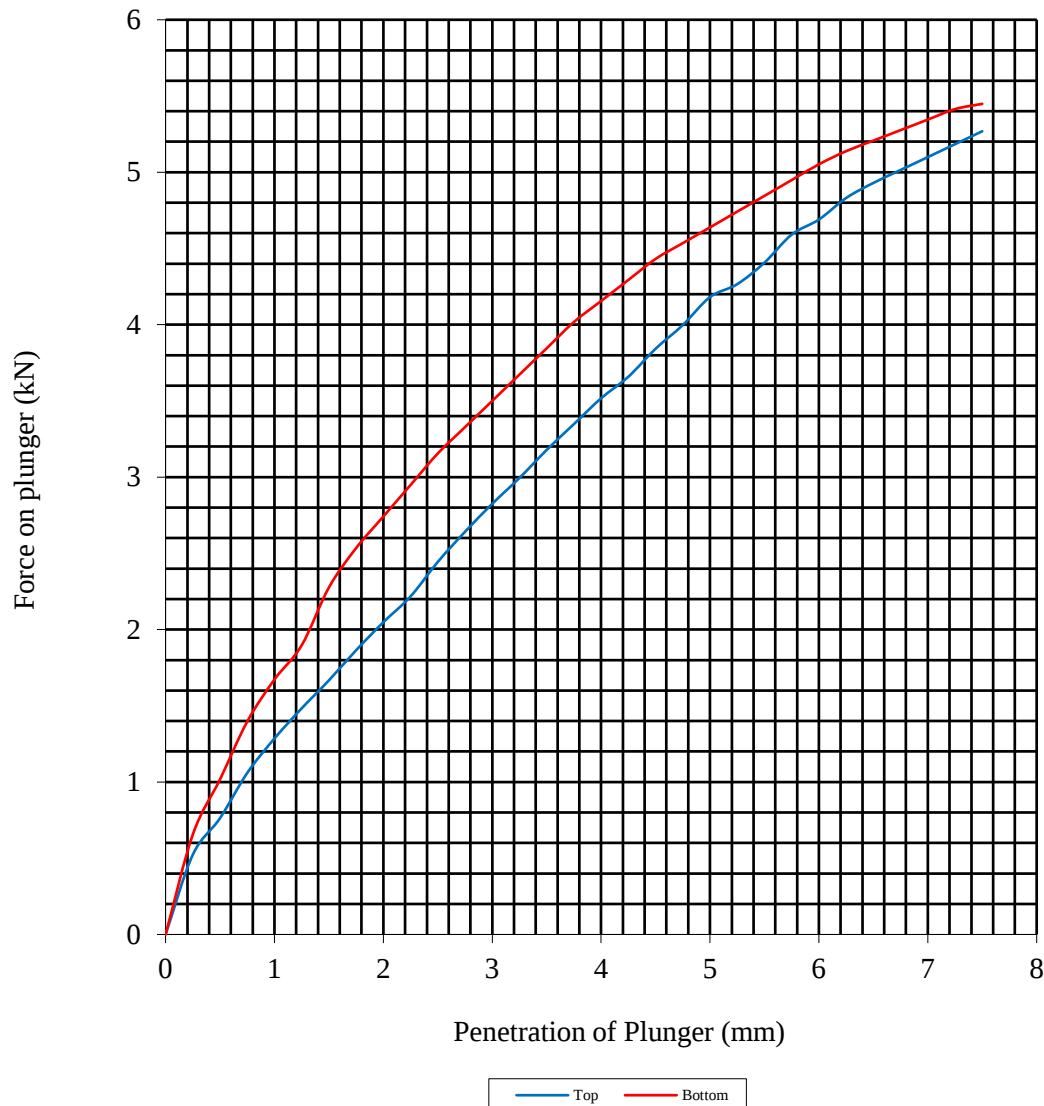
Hole Number: TP315

Top Depth (m): 2.70

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Sample Conditions		Sample Preparation		Final Water Content %		C.B.R. Value %	
Water Content:	7.4	Surcharge Kg:	4.00	Sample Top	7.3	Sample Top	20.9
Bulk Density Mg/m3:	2.03	Soaking Time hrs	0	Sample Bottom	7.7	Sample Bottom	23.9
Dry Density Mg/m3:	1.89	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		22					
Compaction Conditions		2.5kg					



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

MCV/WATER CONTENT RELATION OF SOIL

BS1377 - Part 2 : 2022 Clause 13.5

Hole Number: TP315

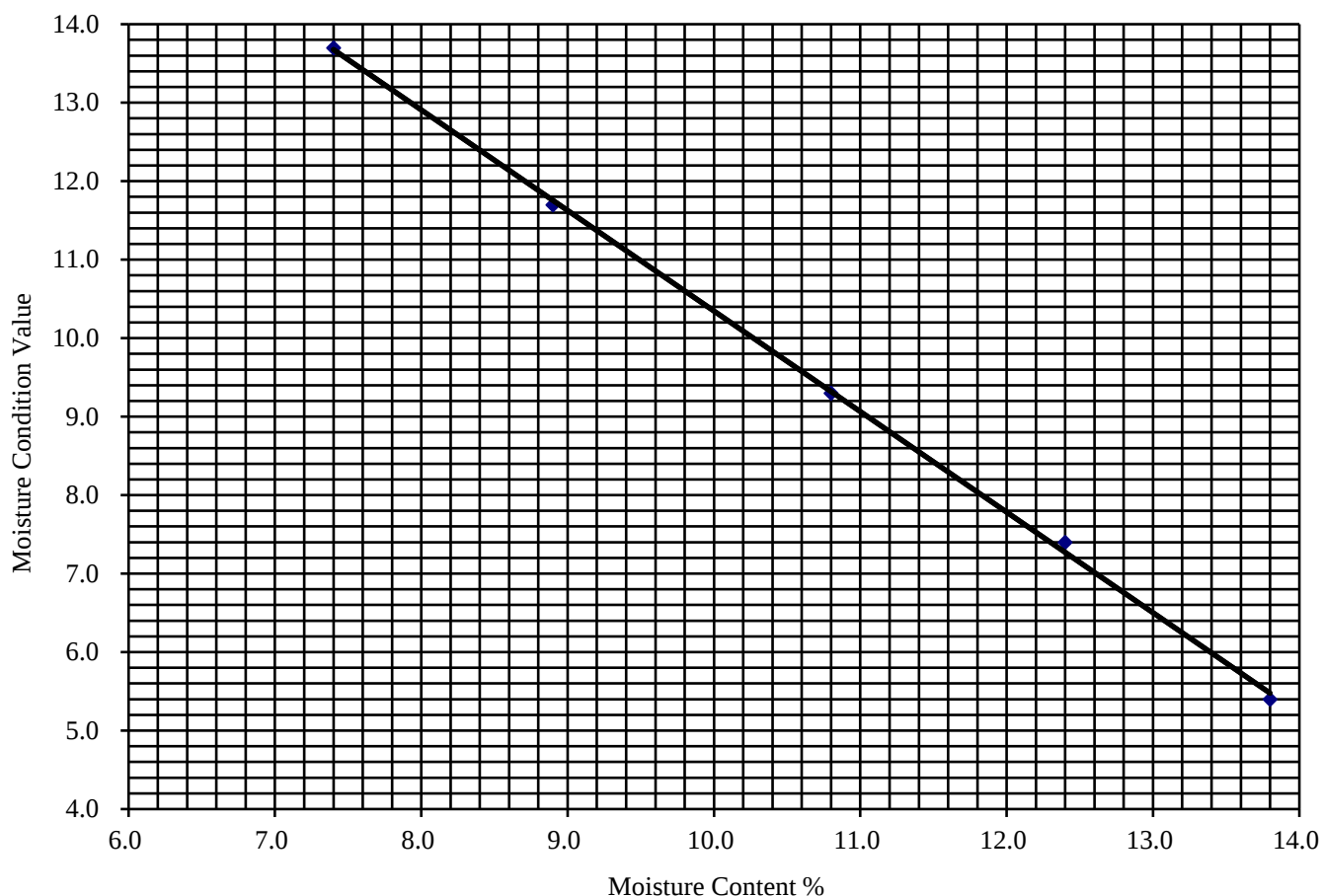
Top Depth (m): 2.70

Sample Number:

Base Depth (m):

Sample Type: B D

Initial Water Content (%):	7.4
Single/Separate Samples Tested	Separate
Material Retained on the 20mm BS Test Sieve (%):	22



Test Results.

Test Number	1	2	3	4	5
Water Content (%)	7.4	8.9	10.8	12.4	13.8
MCV	13.7	11.7	9.3	7.4	5.4



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

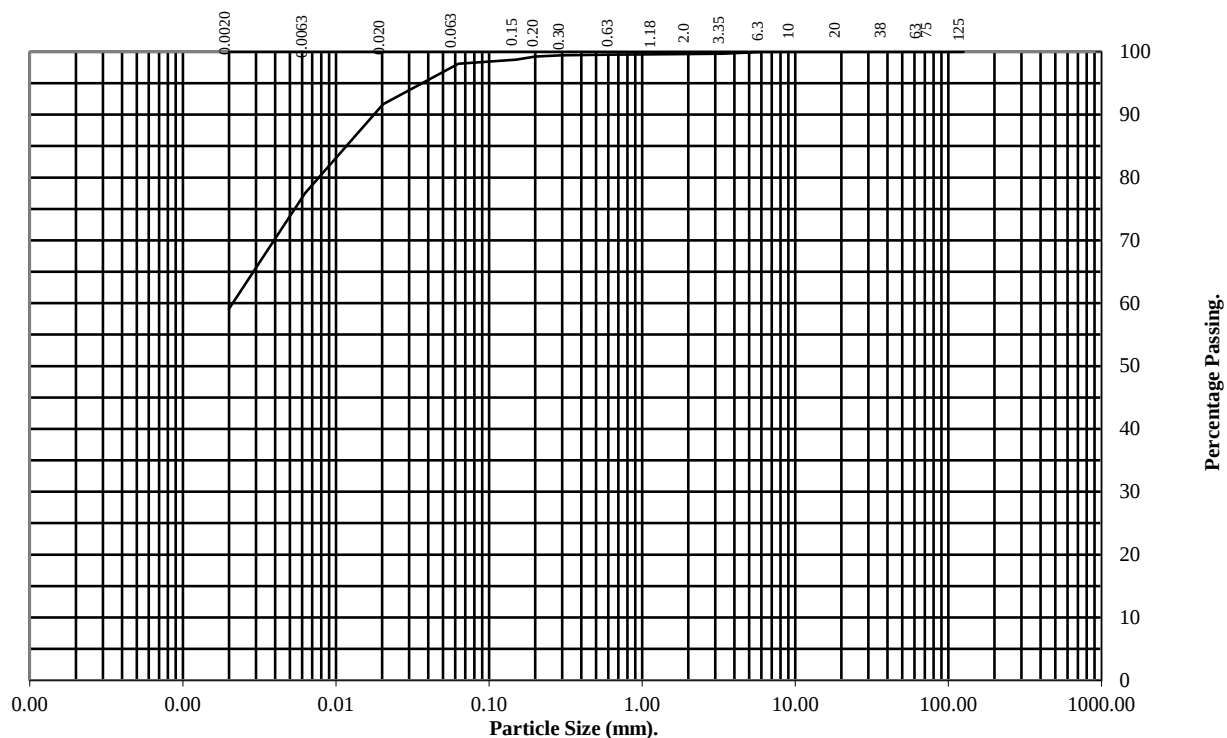
Hole Number: TP319

Top Depth (m): 0.50

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.63	100
0.3	99
0.2	99
0.15	99
0.063	98

Particle Diameter	Percentage Passing
0.020	92
0.0063	78
0.0020	59
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	2
Silt	39
Clay	59

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
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Client Ref:
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DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

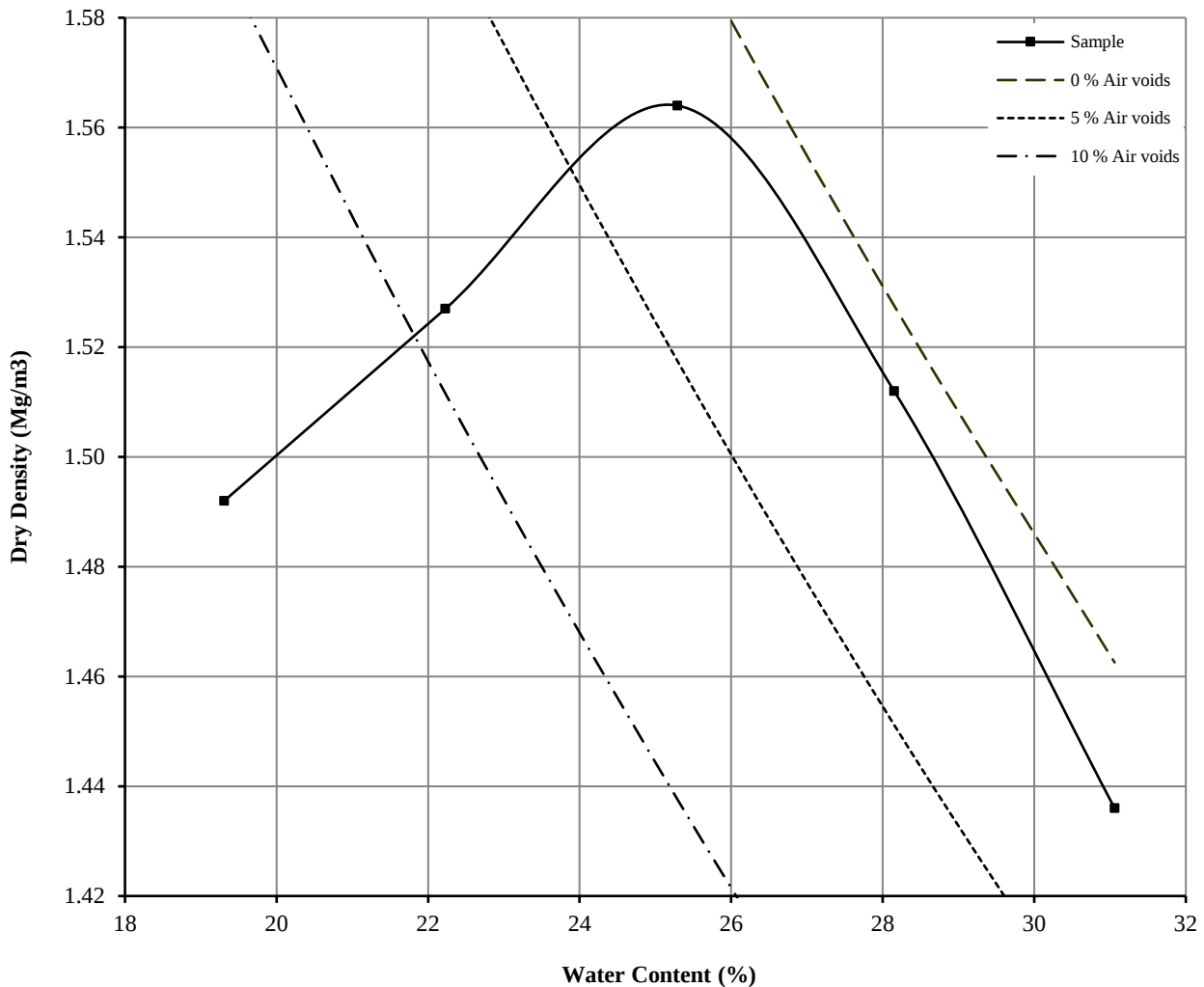
Hole Number: TP319

Top Depth (m): 0.50

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	22.2	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.56		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	25	Grading Zone:		1
Remarks See summary of soil descriptions				



Higham Lane North

Contract No.

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DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

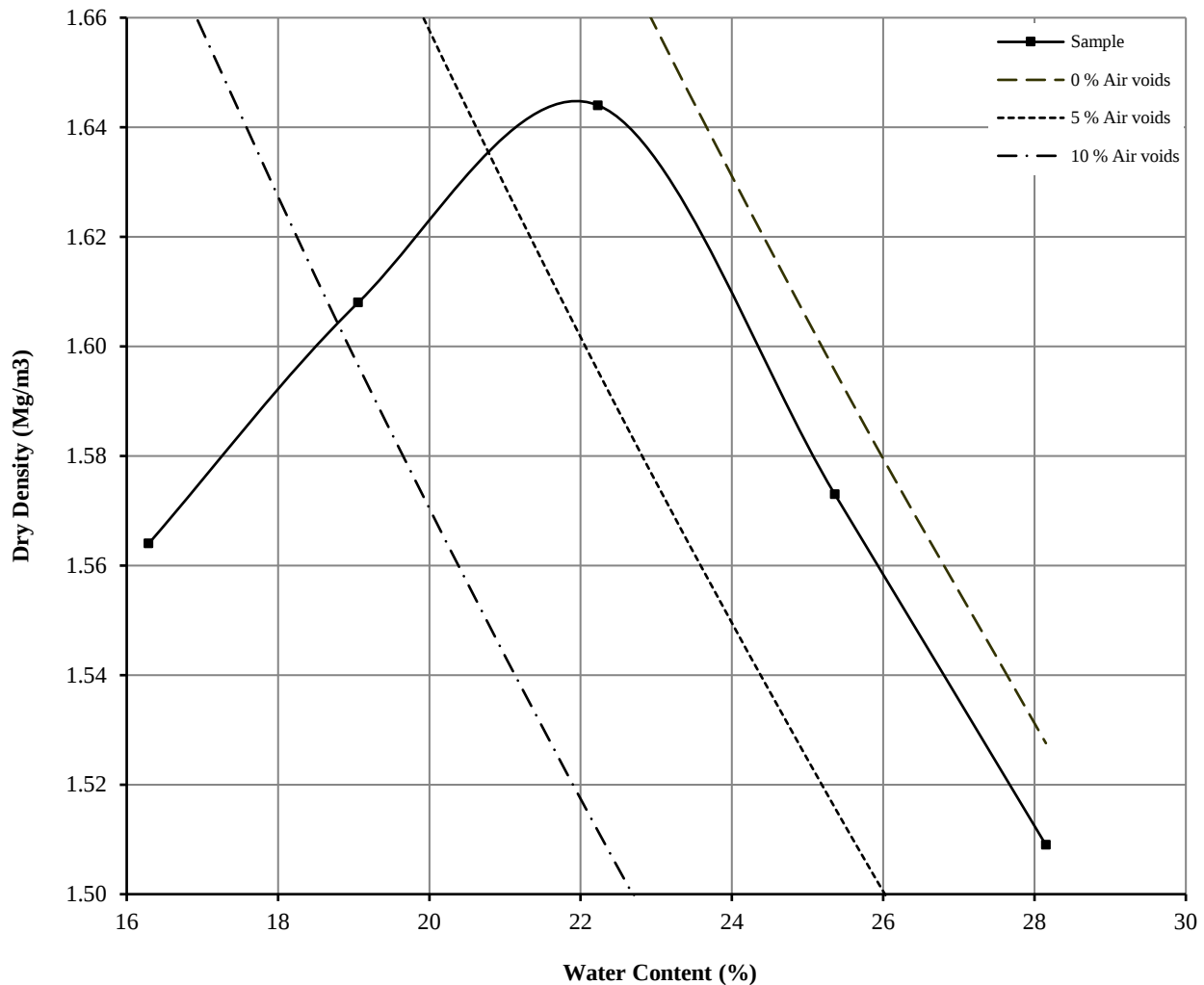
Hole Number: TP319

Top Depth (m): 0.50

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	22.2	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.68	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.64		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	22	Grading Zone:		1
Remarks See summary of soil descriptions				

 4043	 A PHENIX GROUP COMPANY	Higham Lane North	Contract No.
			PSL25/6231
			Client Ref
			4173

CALIFORNIA BEARING RATIO (CBR)

BS 1377 - Part 2 : Clause 15 : 2022

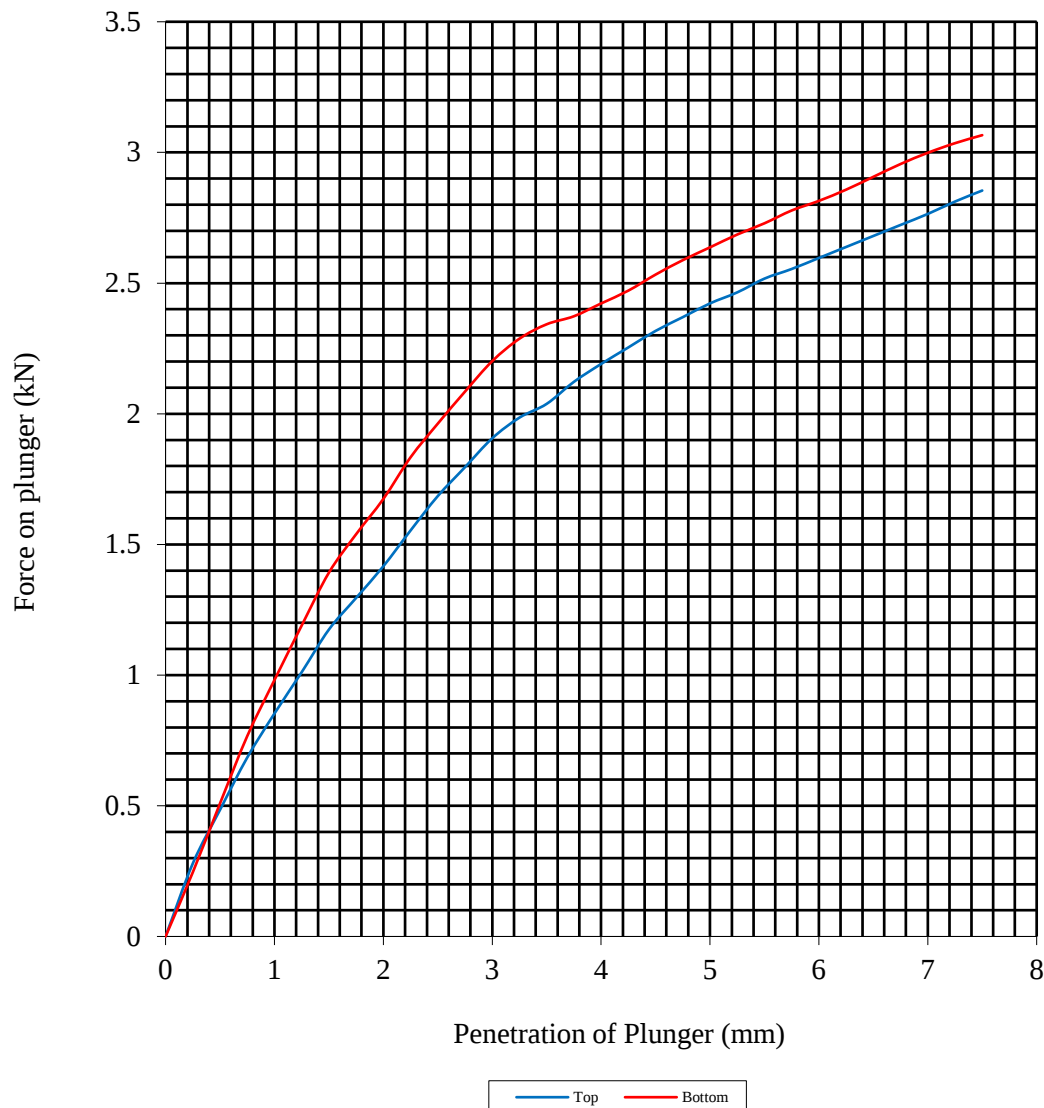
Hole Number: TP319

Top Depth (m): 0.50

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Sample Conditions		Sample Preparation		Final Water Content %		C.B.R. Value %	
Water Content:	22.2	Surcharge Kg:	0.00	Sample Top	22.1	Sample Top	12.8
Bulk Density Mg/m3:	1.87	Soaking Time hrs	0	Sample Bottom	20.8	Sample Bottom	14.9
Dry Density Mg/m3:	1.53	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

MCV/WATER CONTENT RELATION OF SOIL

BS1377 - Part 2 : 2022 Clause 13.5

Hole Number: TP319

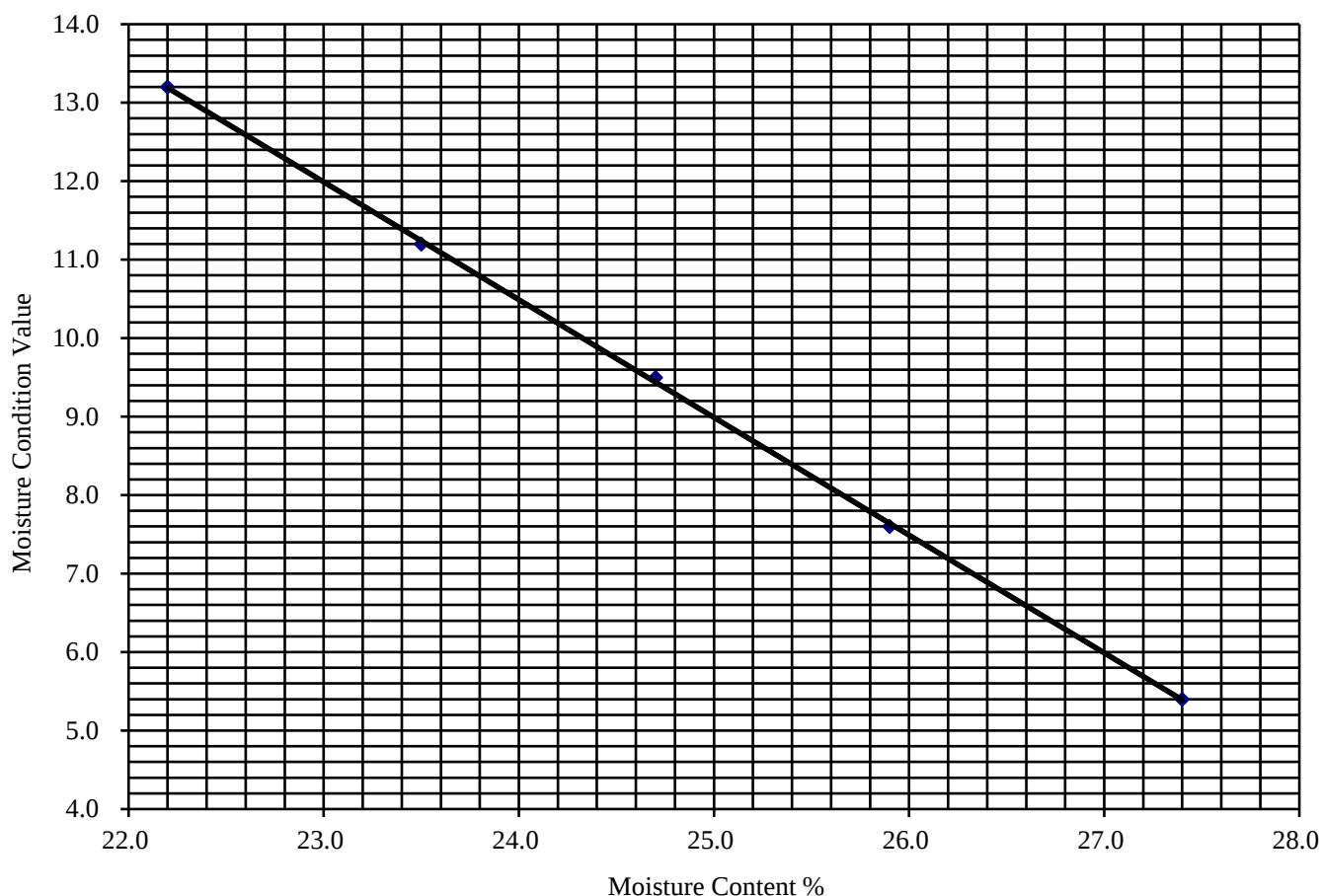
Top Depth (m): 0.50

Sample Number:

Base Depth (m):

Sample Type: B D

Initial Water Content (%):	22.2
Single/Separate Samples Tested	Separate
Material Retained on the 20mm BS Test Sieve (%):	0



Test Results.

Test Number	1	2	3	4	5
Water Content (%)	22.2	23.5	24.7	25.9	27.4
MCV	13.2	11.2	9.5	7.6	5.4



Higham Lane North

Contract No:

PSL25/6231

Client Ref:

4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

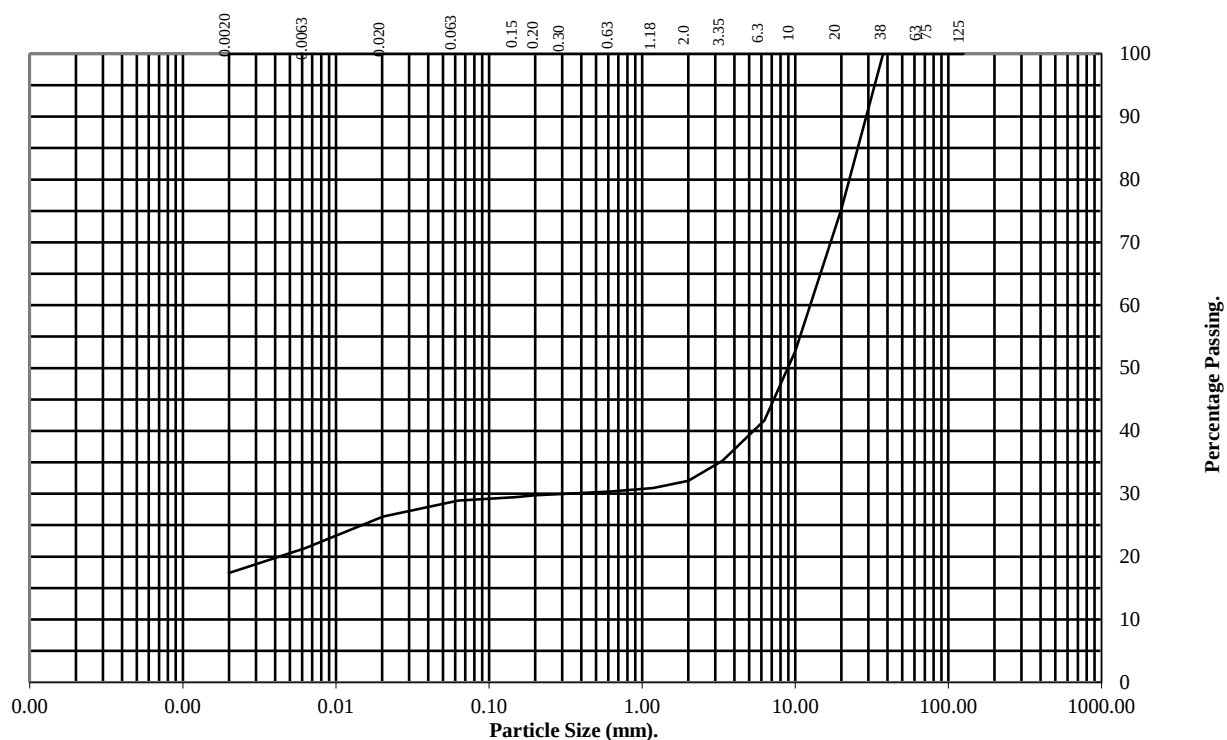
Hole Number: TP321

Top Depth (m): 2.25

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	75
10	53
6.3	42
3.35	35
2	32
1.18	31
0.63	30
0.3	30
0.2	30
0.15	29
0.063	29

Particle Diameter	Percentage Passing
0.020	26
0.0063	21
0.0020	17
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	68
Sand	3
Silt	12
Clay	17

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

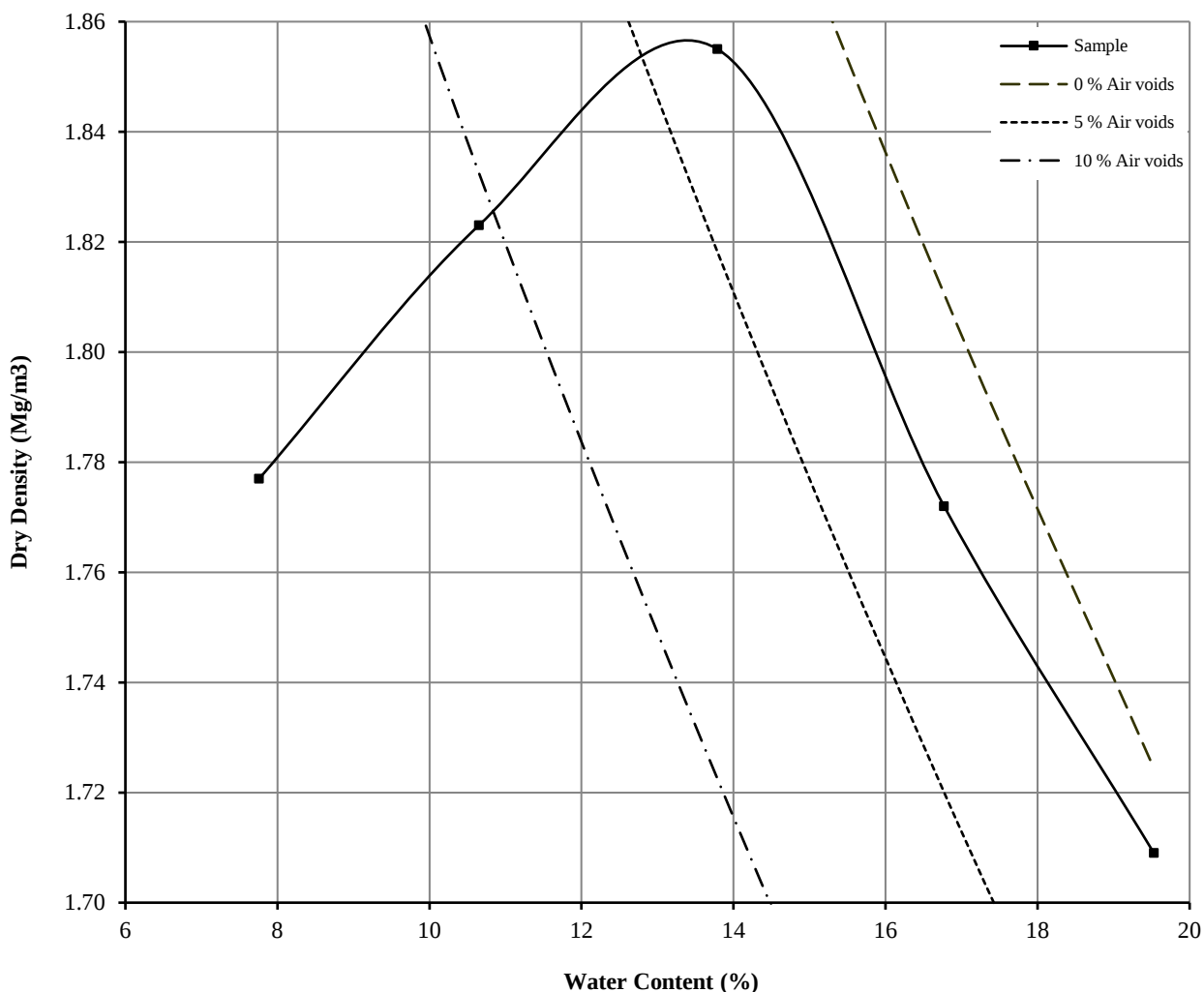
Hole Number: TP321

Top Depth (m): 2.25

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	7.8	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.60	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.86		Material Retained on 20.0 mm Test Sieve (%):	25
Optimum Water Content (%):	14		Grading Zone:	3
Remarks See summary of soil descriptions				



Higham Lane North

Contract No.
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DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

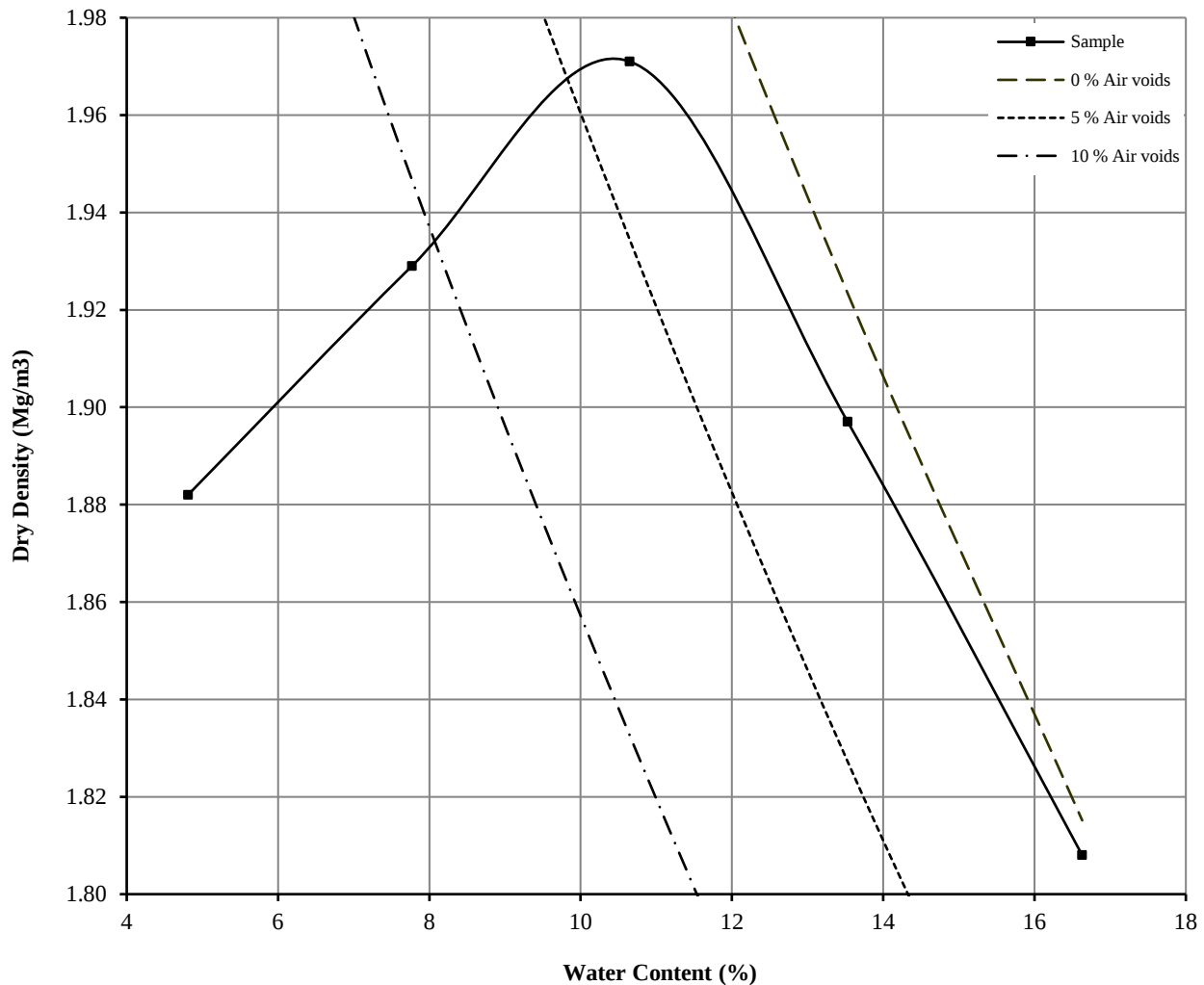
Hole Number: TP321

Top Depth (m): 2.25

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	7.8	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.60	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.97		Material Retained on 20.0 mm Test Sieve (%):	25
Optimum Water Content (%):	11	Grading Zone:		3
Remarks See summary of soil descriptions				

 	Higham Lane North		Contract No.
			PSL25/6231
			Client Ref
			4173

CALIFORNIA BEARING RATIO (CBR)

BS 1377 - Part 2 : Clause 15 : 2022

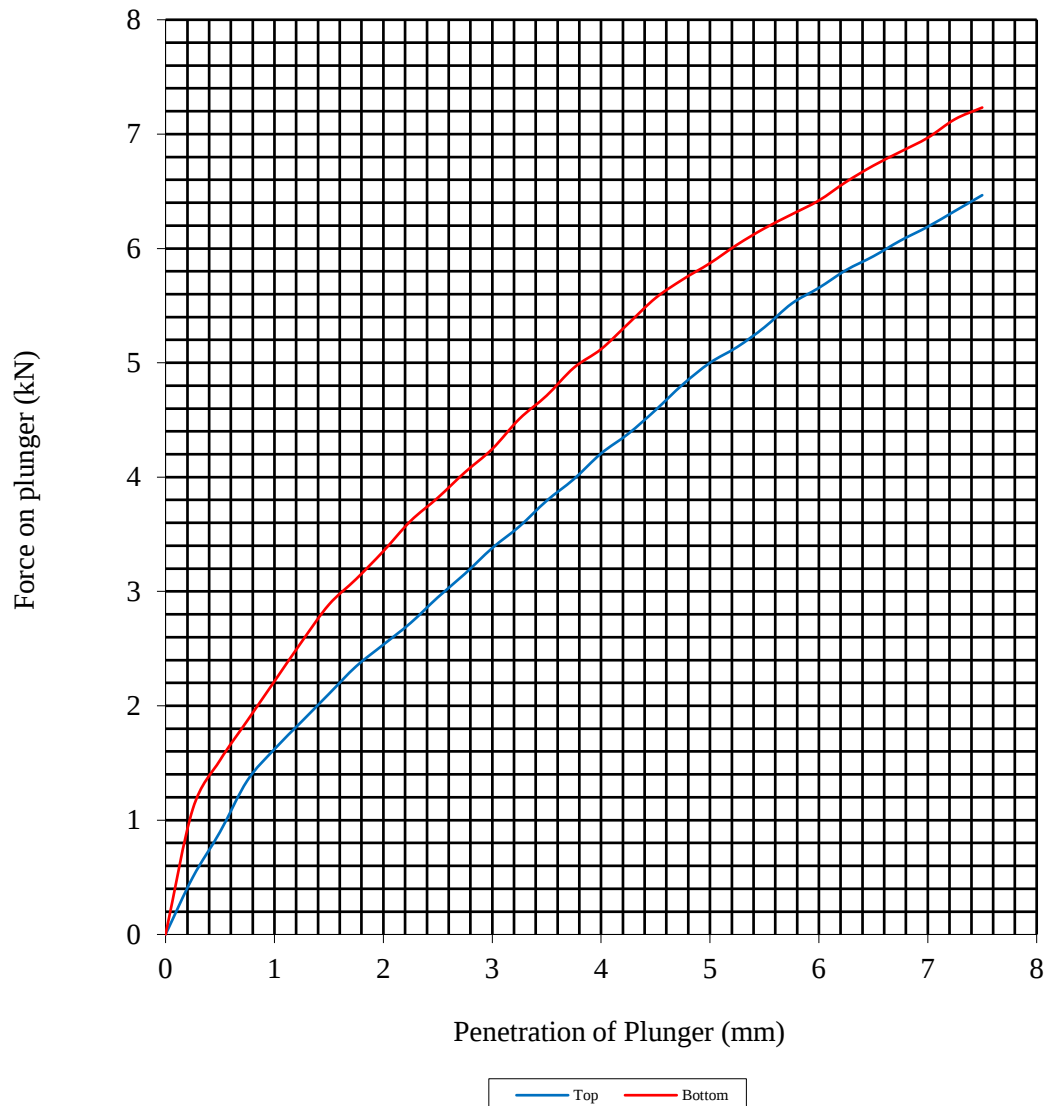
Hole Number: TP321

Top Depth (m): 2.25

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Sample Conditions		Sample Preparation		Final Water Content %		C.B.R. Value %	
Water Content:	7.8	Surcharge Kg:	4.00	Sample Top	7.7	Sample Top	25.0
Bulk Density Mg/m3:	1.91	Soaking Time hrs	0	Sample Bottom	8.0	Sample Bottom	29.4
Dry Density Mg/m3:	1.78	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		25					
Compaction Conditions		2.5kg					



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

MOISTURE CONDITION VALUE (MCV)

BS1377 - Part 2 : 2022 : Clause 13

Hole Number: TP321

Top Depth (m): 2.25

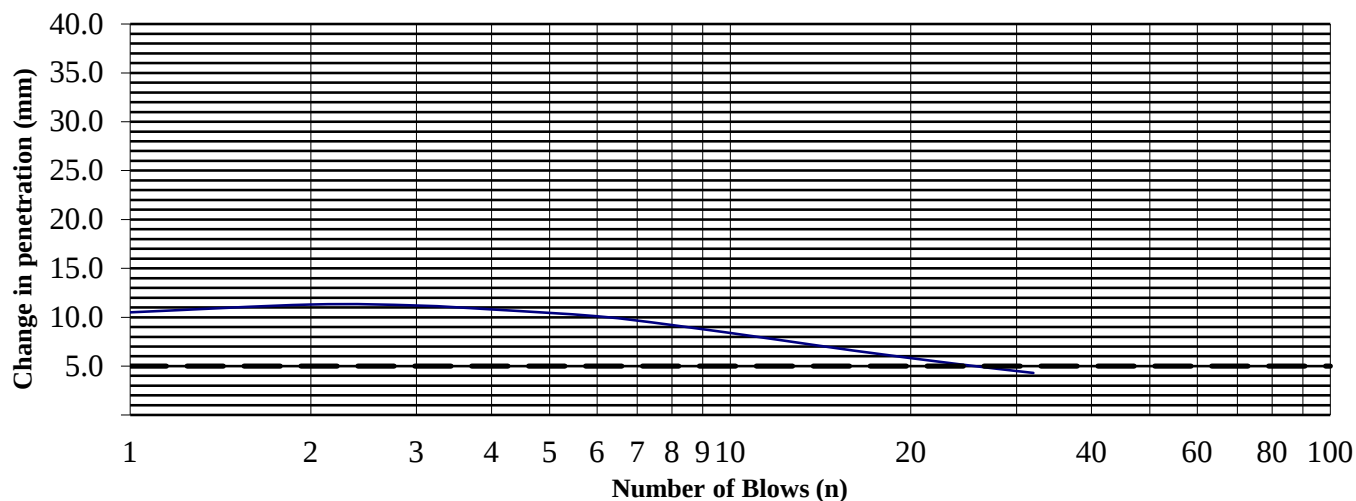
Sample Number:

Base Depth (m):

Sample Type: B D

Material Retained on the 20mm BS Test Sieve (%):	25
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	67.0	10.5
2	62.3	11.3
3	58.9	11.2
4	56.5	10.8
6	53.3	10.1
8	51.0	9.2
12	47.7	7.7
16	45.7	6.6
24	43.2	5.2
32	41.8	4.3
48	40.0	
64	39.1	
96	38.0	
128	37.5	
192		
256		

Test Results.

Water Content (%)	7.8
MCV	13.9



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

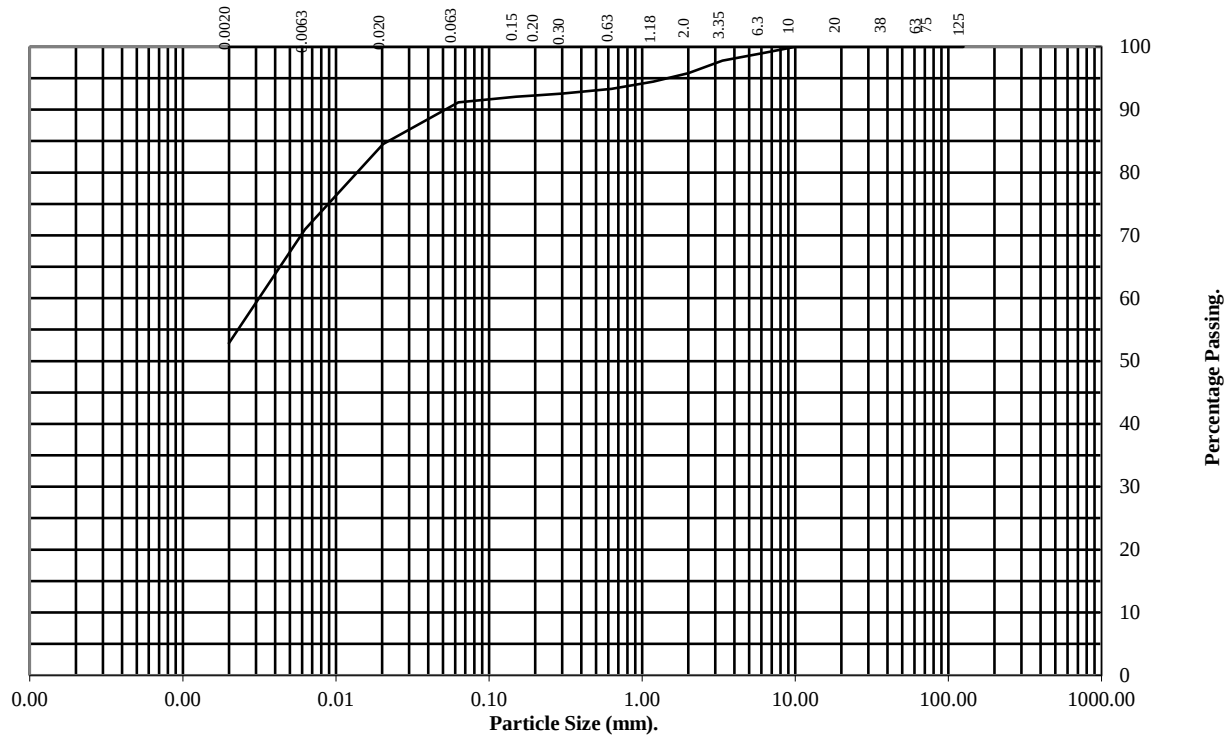
Hole Number: TP324

Top Depth (m): 2.00

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	98
2	96
1.18	94
0.63	93
0.3	93
0.2	92
0.15	92
0.063	91

Particle Diameter	Percentage Passing
0.020	85
0.0063	71
0.0020	53
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	5
Silt	38
Clay	53

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

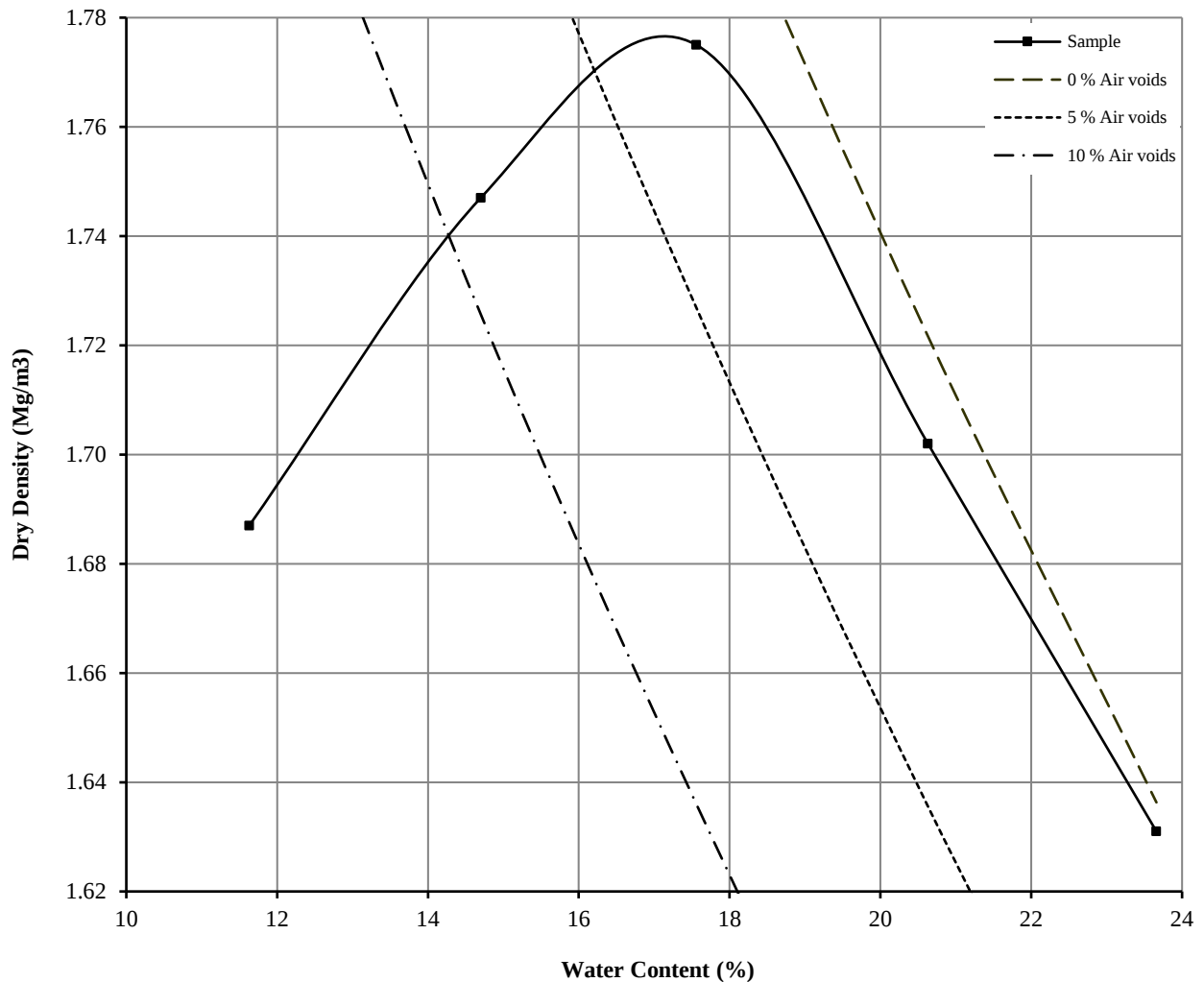
Hole Number: TP324

Top Depth (m): 2.00

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	14.7	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.67	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.78		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	18		Grading Zone:	1
Remarks See summary of soil descriptions				



Higham Lane North

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DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

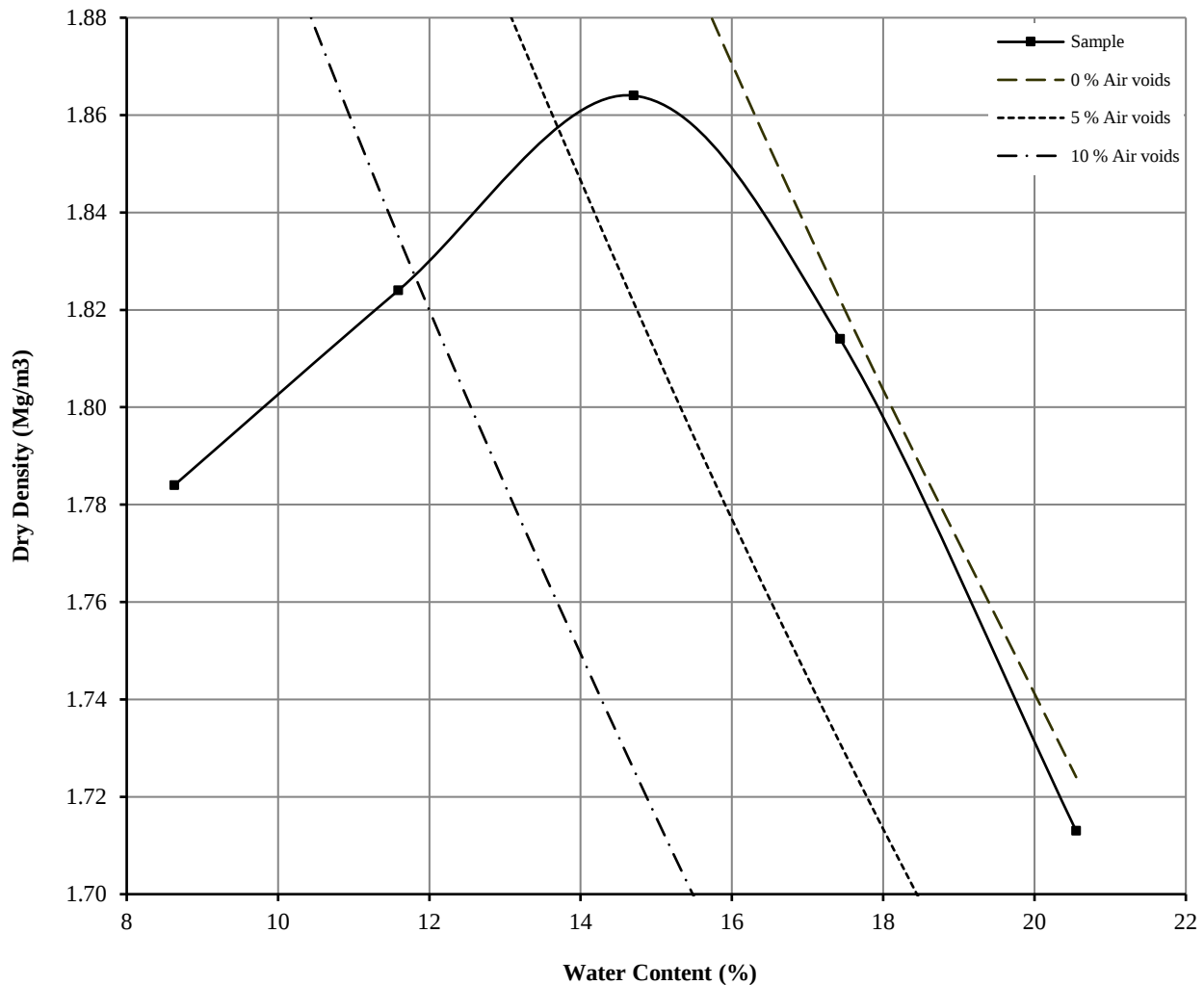
Hole Number: TP324

Top Depth (m): 2.00

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	14.7	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m ³):	2.67	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.86		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Water Content (%):	15	Grading Zone:		1
Remarks See summary of soil descriptions				



Higham Lane North

Contract No.
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CALIFORNIA BEARING RATIO (CBR)

BS 1377 - Part 2 : Clause 15 : 2022

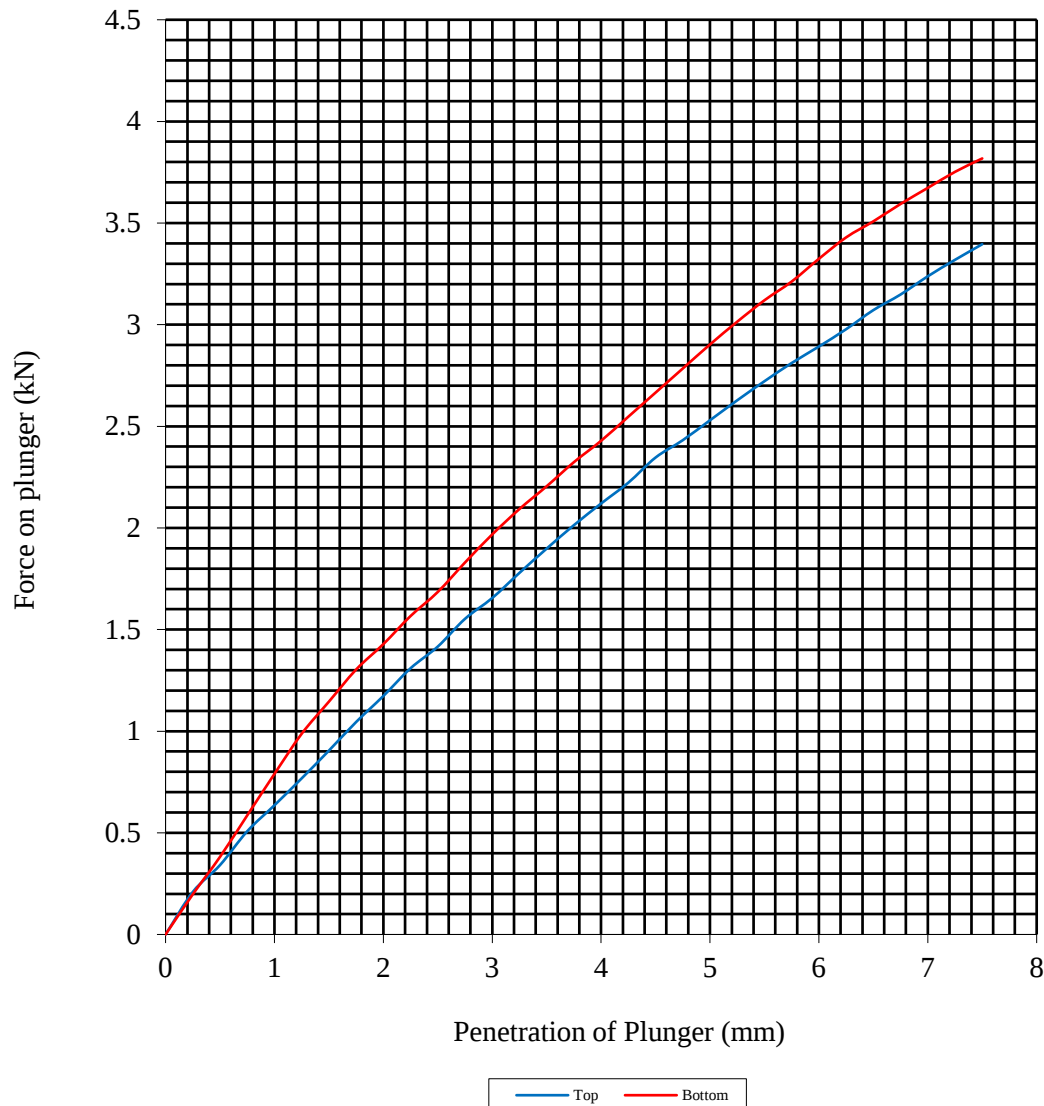
Hole Number: TP324

Top Depth (m): 2.00

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Sample Conditions		Sample Preparation		Final Water Content %		C.B.R. Value %	
Water Content:	14.7	Surcharge Kg:	4.00	Sample Top	14.6	Sample Top	12.6
Bulk Density Mg/m3:	2.00	Soaking Time hrs	0	Sample Bottom	15.0	Sample Bottom	14.5
Dry Density Mg/m3:	1.75	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		0					
Compaction Conditions		2.5kg					



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

MCV/WATER CONTENT RELATION OF SOIL

BS1377 - Part 2 : 2022 Clause 13.5

Hole Number: TP324

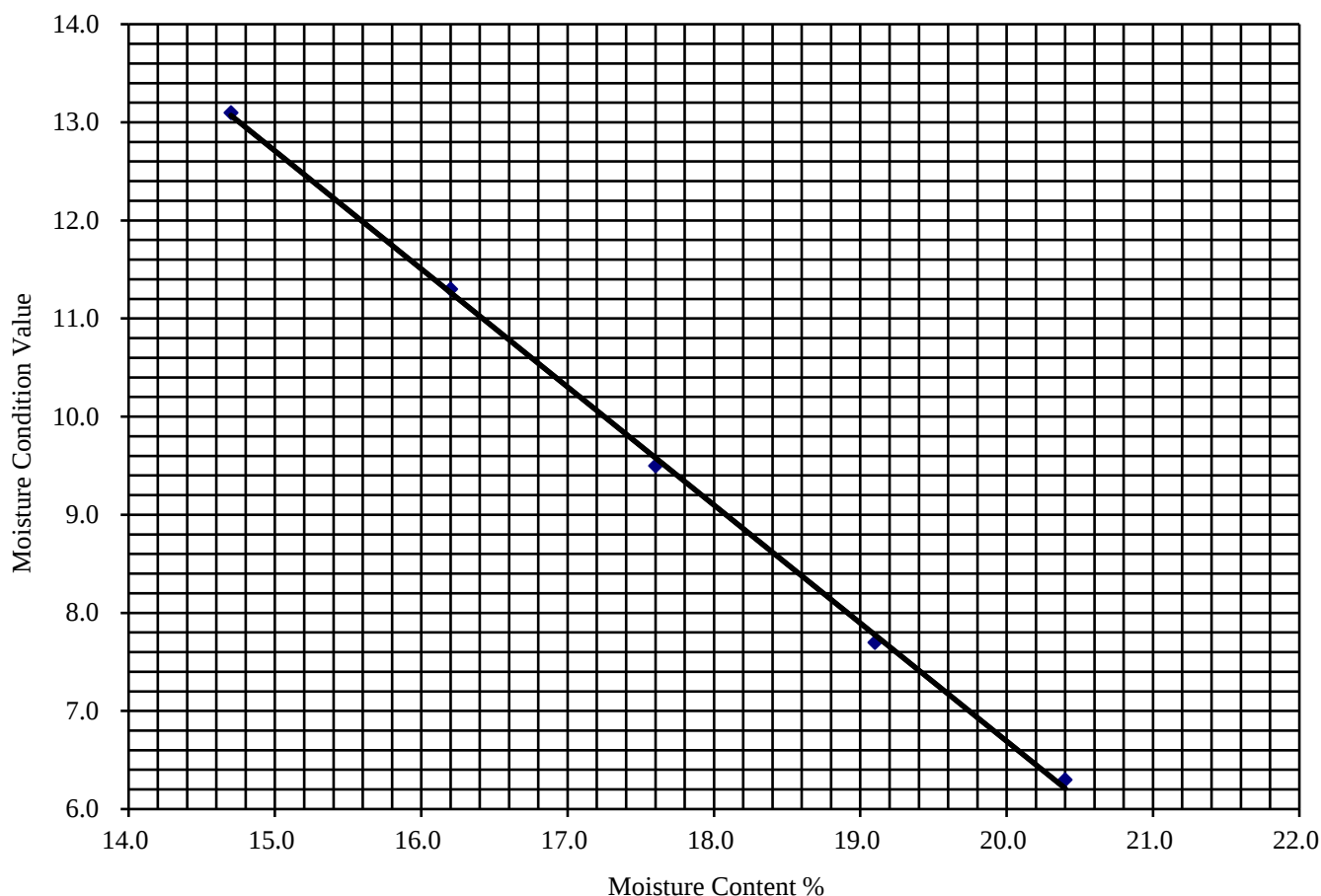
Top Depth (m): 2.00

Sample Number:

Base Depth (m):

Sample Type: B D

Initial Water Content (%):	14.7
Single/Separate Samples Tested	Separate
Material Retained on the 20mm BS Test Sieve (%):	



Test Results.

Test Number	1	2	3	4	5
Water Content (%)	14.7	16.2	17.6	19.1	20.4
MCV	13.1	11.3	9.5	7.7	6.3



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
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PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

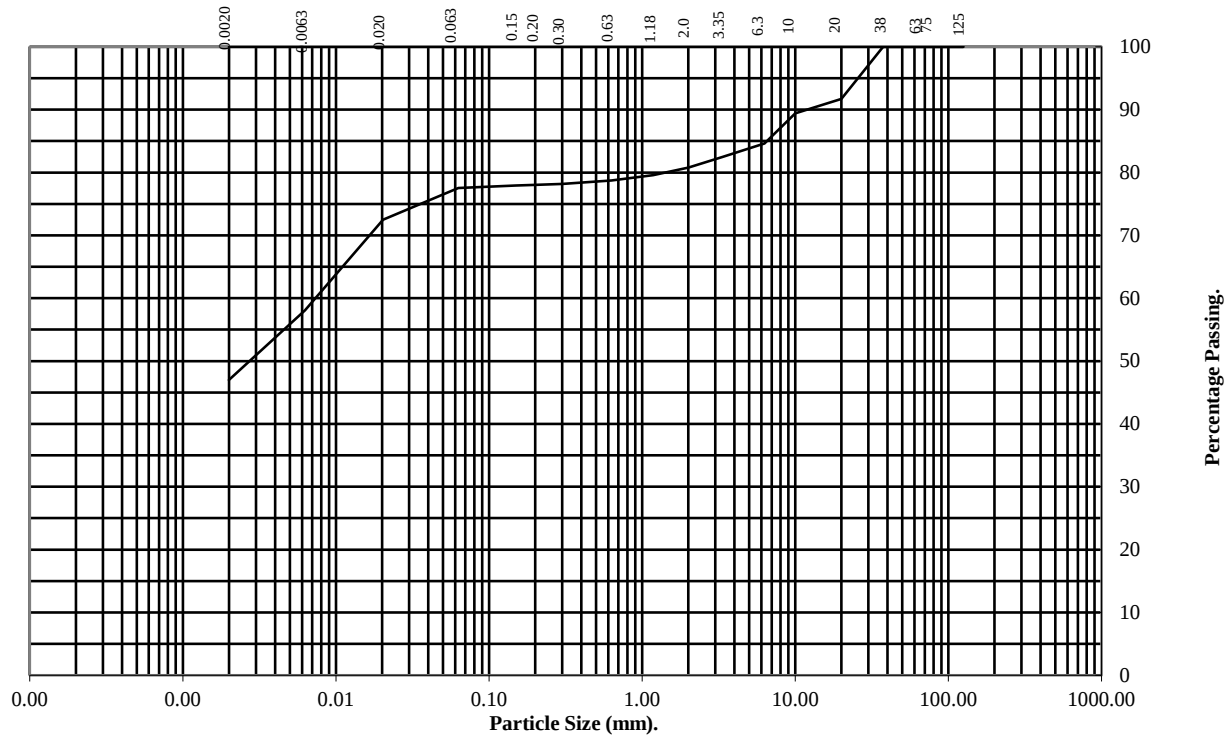
Hole Number: TP326

Top Depth (m): 1.50

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	92
10	89
6.3	85
3.35	82
2	81
1.18	80
0.63	79
0.3	78
0.2	78
0.15	78
0.063	78

Particle Diameter	Percentage Passing
0.020	72
0.0063	58
0.0020	47
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	19
Sand	3
Silt	31
Clay	47

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
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DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

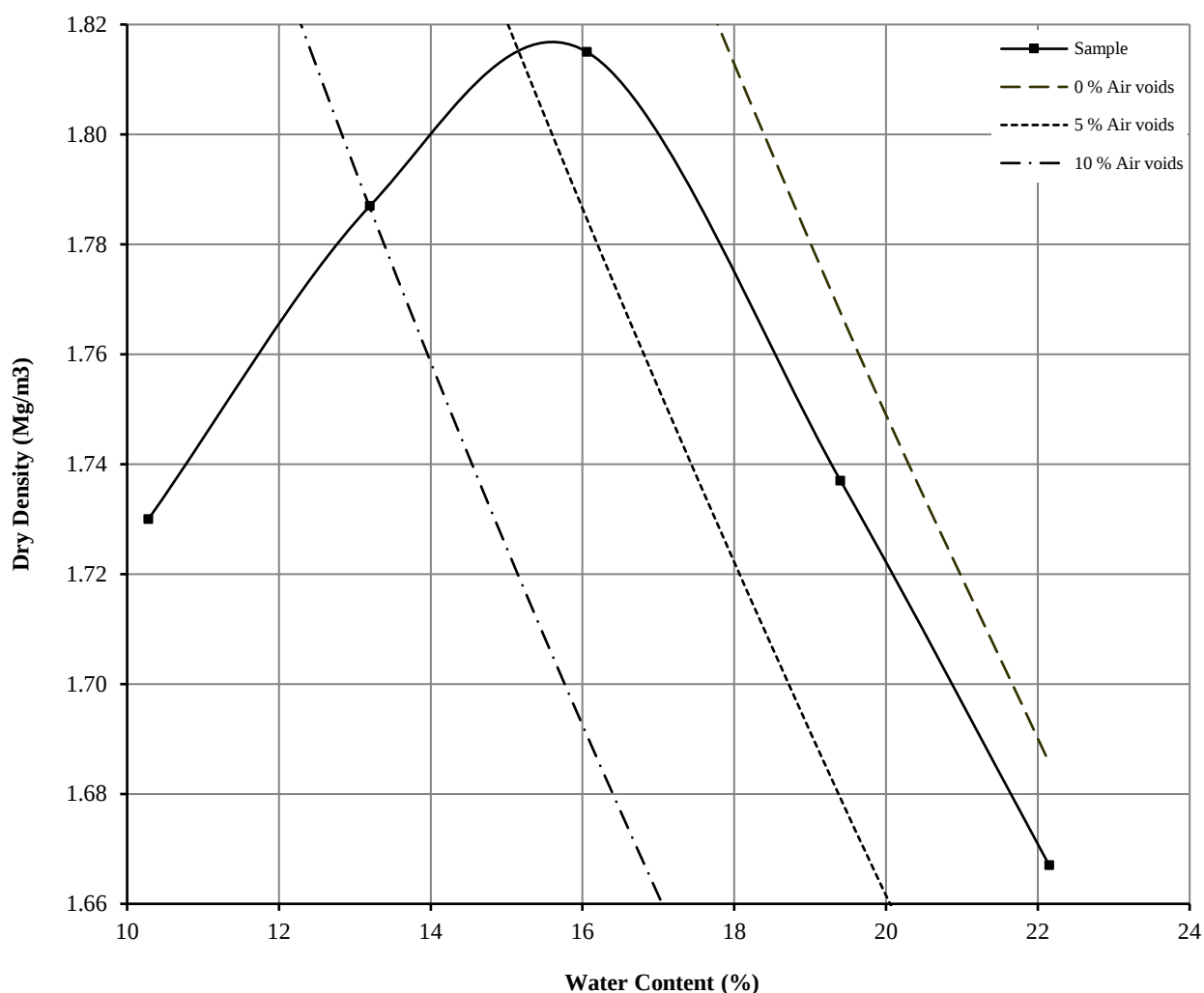
Hole Number: TP326

Top Depth (m): 1.50

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	13.2	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.69	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.82		Material Retained on 20.0 mm Test Sieve (%):	8
Optimum Water Content (%):	16	Grading Zone:		3
Remarks See summary of soil descriptions				



Higham Lane North

Contract No.
PSL25/6231
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DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

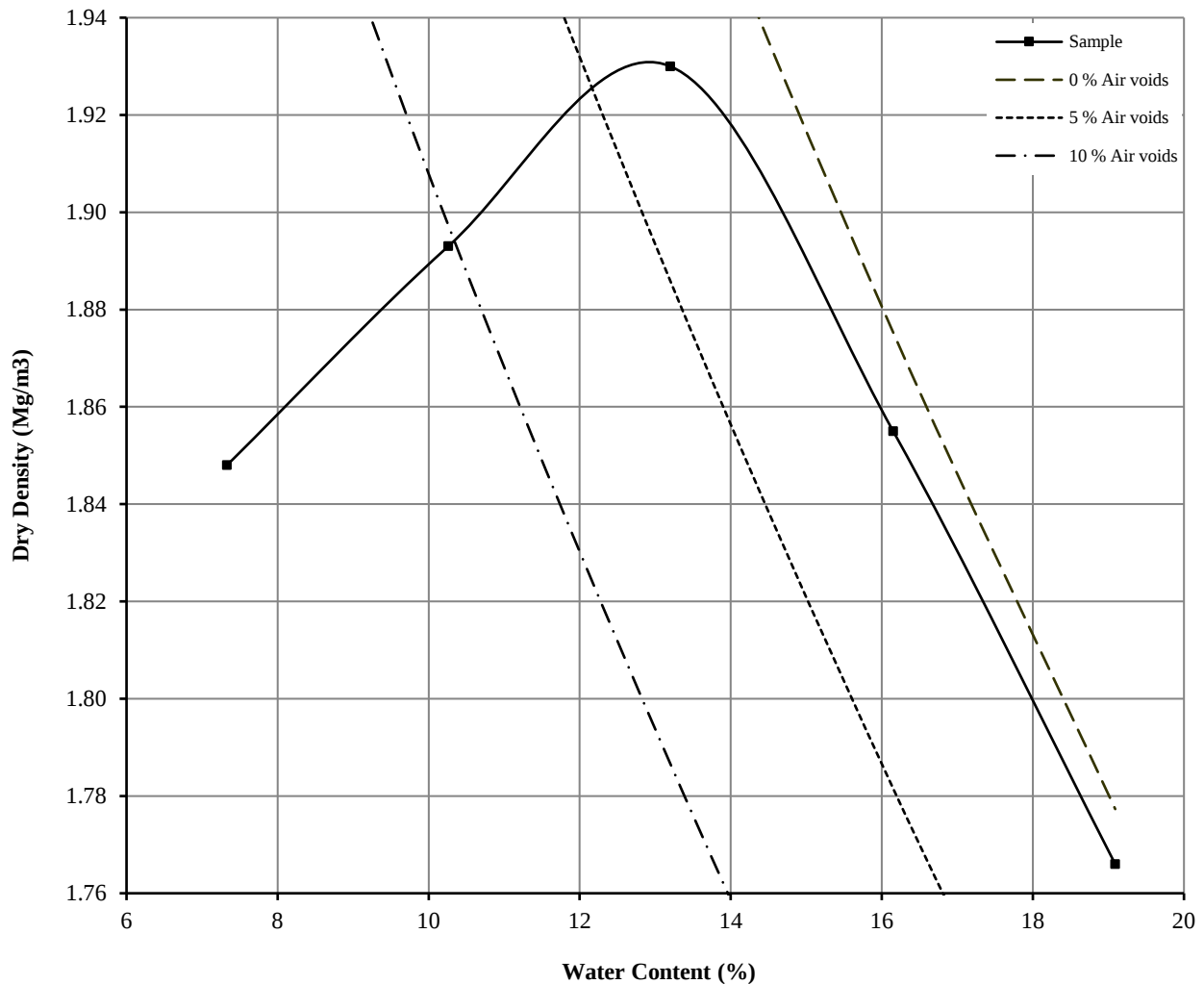
Hole Number: TP326

Top Depth (m): 1.50

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Water Content:	13.2	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.69	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.93		Material Retained on 20.0 mm Test Sieve (%):	8
Optimum Water Content (%):	13	Grading Zone:		3
Remarks See summary of soil descriptions				



Higham Lane North

Contract No.
PSL25/6231
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CALIFORNIA BEARING RATIO (CBR)

BS 1377 - Part 2 : Clause 15 : 2022

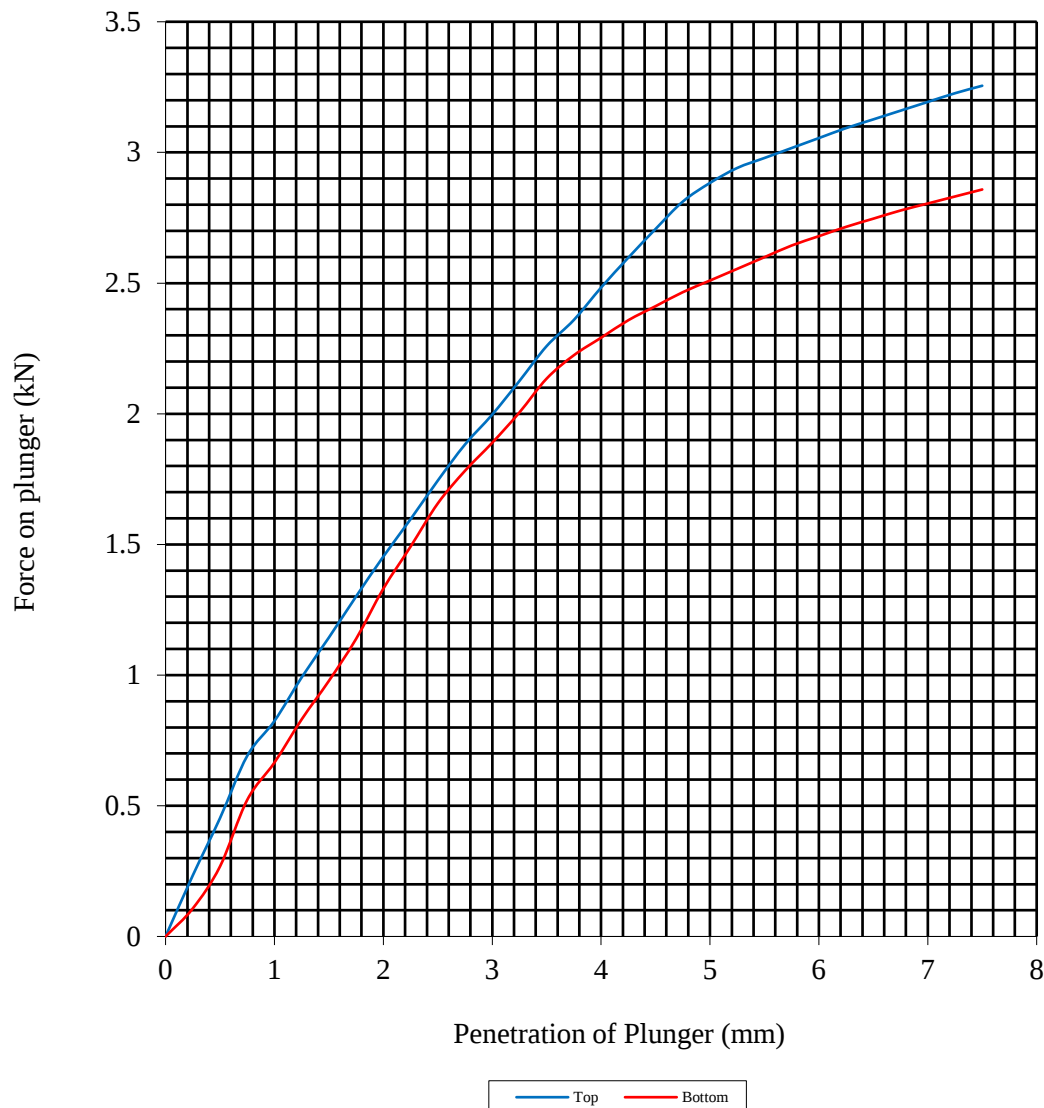
Hole Number: TP326

Top Depth (m): 1.50

Sample Number:

Base Depth (m):

Sample Type: B D



Initial Sample Conditions		Sample Preparation		Final Water Content %		C.B.R. Value %	
Water Content:	13.2	Surcharge Kg:	4.00	Sample Top	13.1	Sample Top	14.4
Bulk Density Mg/m3:	2.03	Soaking Time hrs	0	Sample Bottom	13.3	Sample Bottom	12.6
Dry Density Mg/m3:	1.79	Swelling mm:	0	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:		8					
Compaction Conditions		2.5kg					



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

MOISTURE CONDITION VALUE (MCV)

BS1377 - Part 2 : 2022 : Clause 13

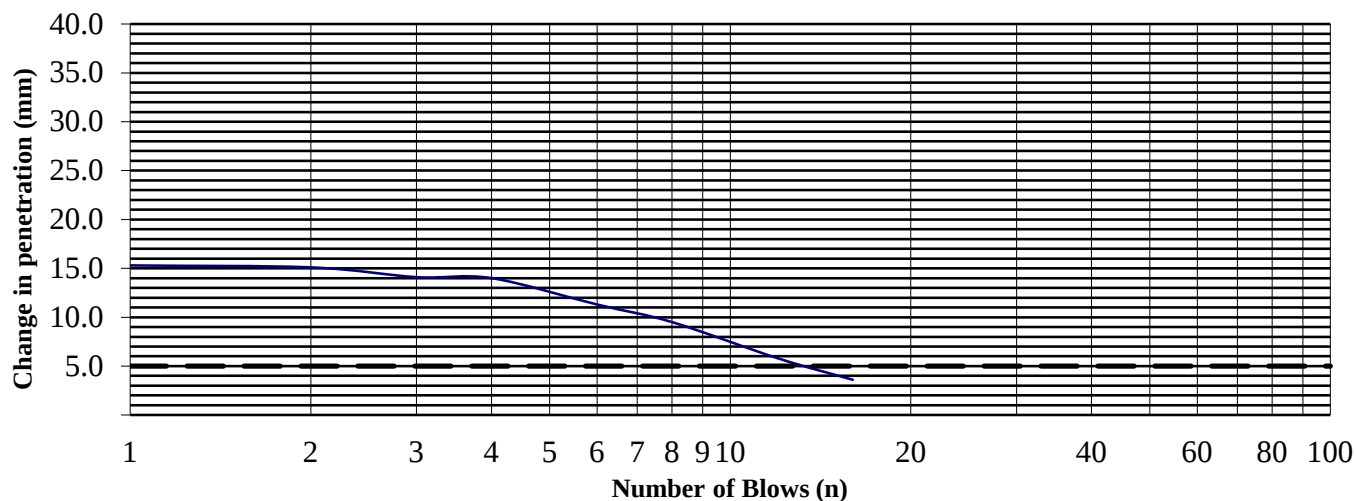
Hole Number: TP326 Top Depth (m): 1.50

Sample Number: Base Depth (m):

Sample Type: B D

Material Retained on the 20mm BS Test Sieve (%):	8
Interpretation based on steepest straight line intercept with 5mm change in penetration.	

MCV Determination



Blows (N)	Penetration (mm)	n to 4n (mm)
1	72.9	15.3
2	65.3	15.1
3	60.2	14.1
4	57.6	14.0
6	52.5	11.3
8	50.2	9.5
12	46.1	5.8
16	43.6	3.6
24	41.2	
32	40.7	
48	40.3	
64	40.0	
96		
128		
192		
256		

Test Results.

Water Content (%)	13.2
MCV	11.0



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

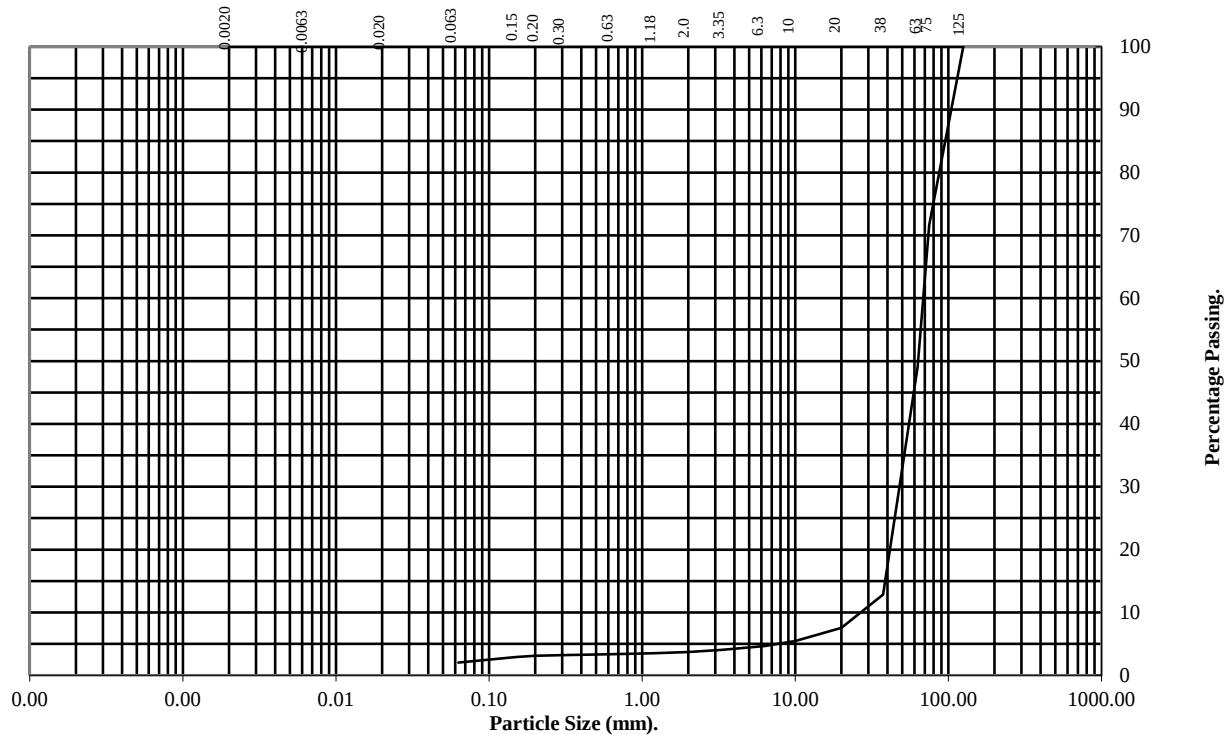
Hole Number: TP317

Top Depth (m): 0.75

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	100
75	72
63	49
37.5	13
20	8
10	5
6.3	5
3.35	4
2	4
1.18	3
0.63	3
0.3	3
0.2	3
0.15	3
0.063	2

Soil Fraction	Total Percentage
Cobbles	51
Gravel	45
Sand	2
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

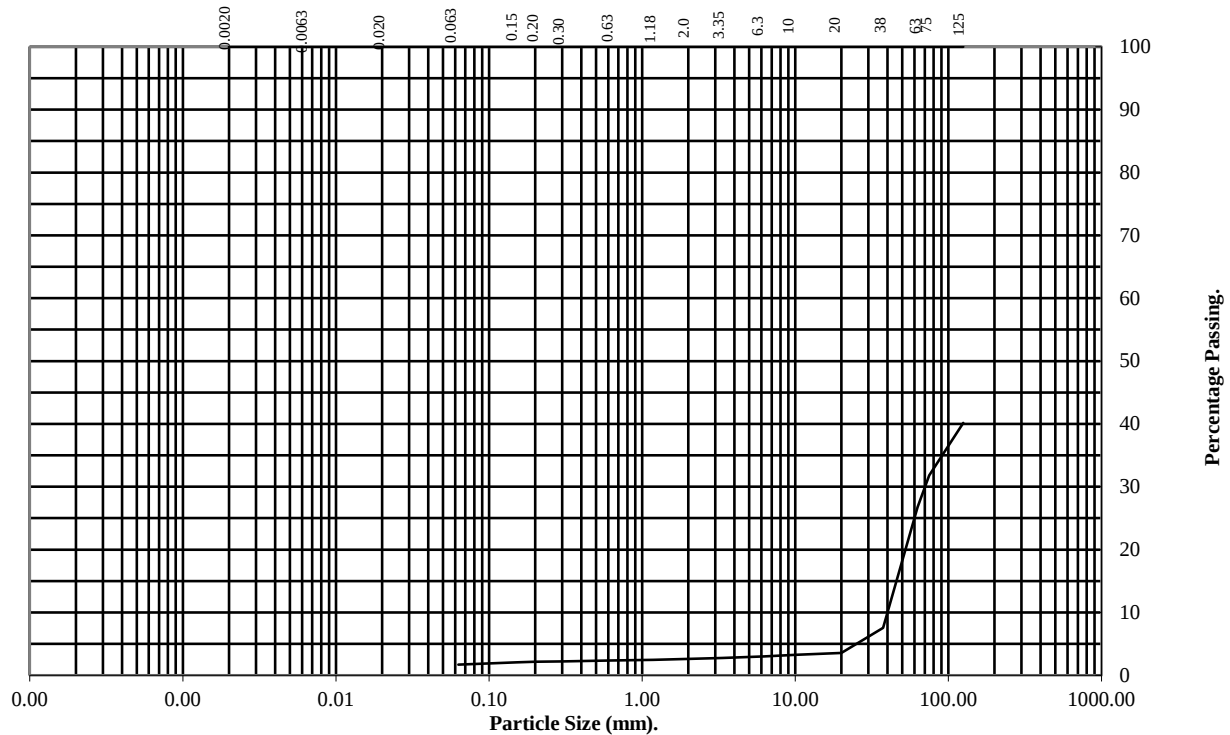
Hole Number: TP318

Top Depth (m): 0.60

Sample Number:

Base Depth (m):

Sample Type: B D



BS Test Sieve (mm)	Percentage Passing
125	40
75	32
63	27
37.5	8
20	4
10	3
6.3	3
3.35	3
2	3
1.18	2
0.63	2
0.3	2
0.2	2
0.15	2
0.063	2

Soil Fraction	Total Percentage
Cobbles	73
Gravel	24
Sand	1
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

Hole Number:

DSRC302

Top Depth (m):

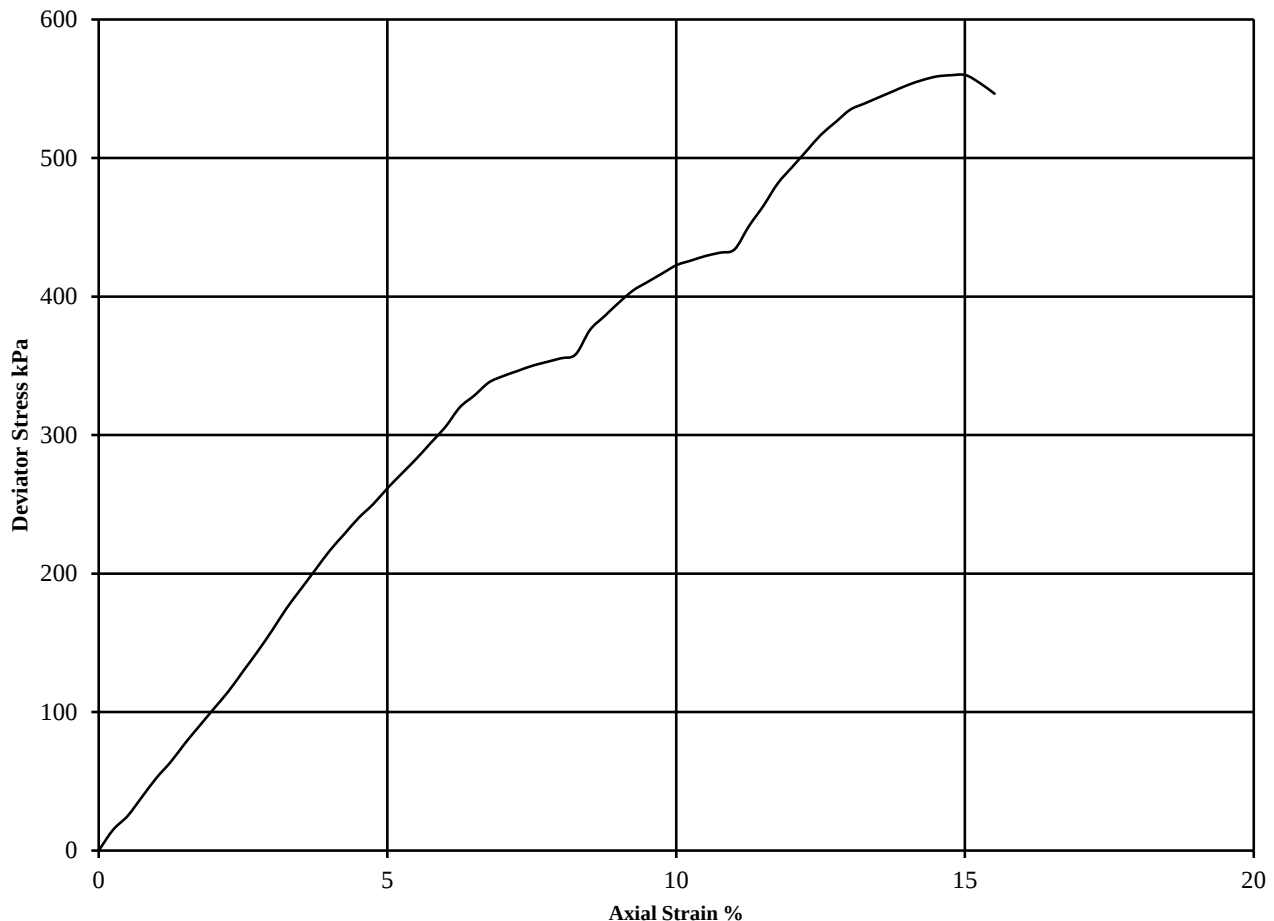
1.20

Sample Number:

Base Depth (m):

Sample Type

UT



Diameter (mm):		102.1275	Height (mm):		204.09	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa) 0.36 0.35 0.34 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
	1	13	2.12	1.88	50	358	179	8.3	
					100	434	217	11.0	
				200	560	280	15.0	Brittle	



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

INCREMENTAL LOADING OEDOMETER TEST

BS 1377 - Part 2 : 2022 : Clause 16 in accordance with BS EN ISO 17892 - 5 : 2017

Hole Number: DSRC302

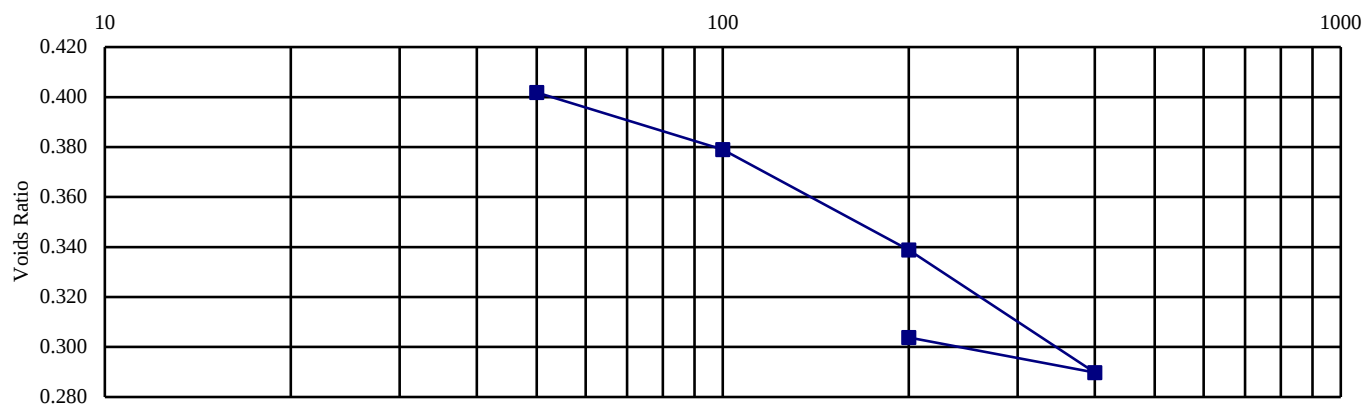
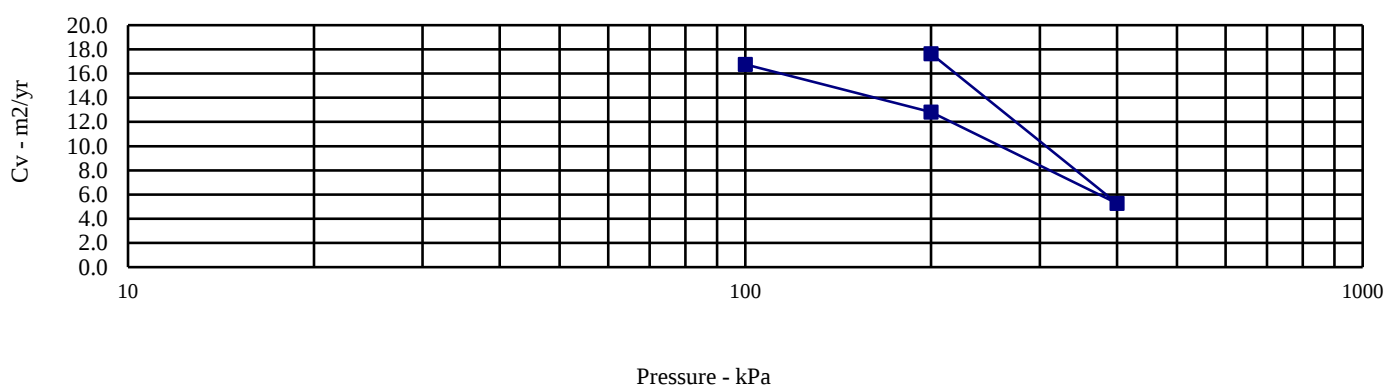
Top Depth (m): 1.20

Sample Number:

Base Depth (m) :

Sample Type: UT

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top Vertical
Water Content (%):	13.8						
Bulk Density (Mg/m3):	2.09	0	50	Swelling	Swelling	Method of preparation:	Trimmed from extruded material
Dry Density (Mg/m3):	1.84	50	100	0.326	16.771	Method used to determine CV:	T90
Voids Ratio:	0.440	100	200	0.291	12.818	Nominal temperature during test ' C:	20
Degree of saturation:	82.7	200	400	0.183	5.273	Results correct against equipment deformation	Yes
Height (mm):	20.018	400	200	0.054	17.646		
Diameter (mm)	75.013						
Particle Density (Mg/m3): Assumed	2.65						



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

Hole Number: DSRC306

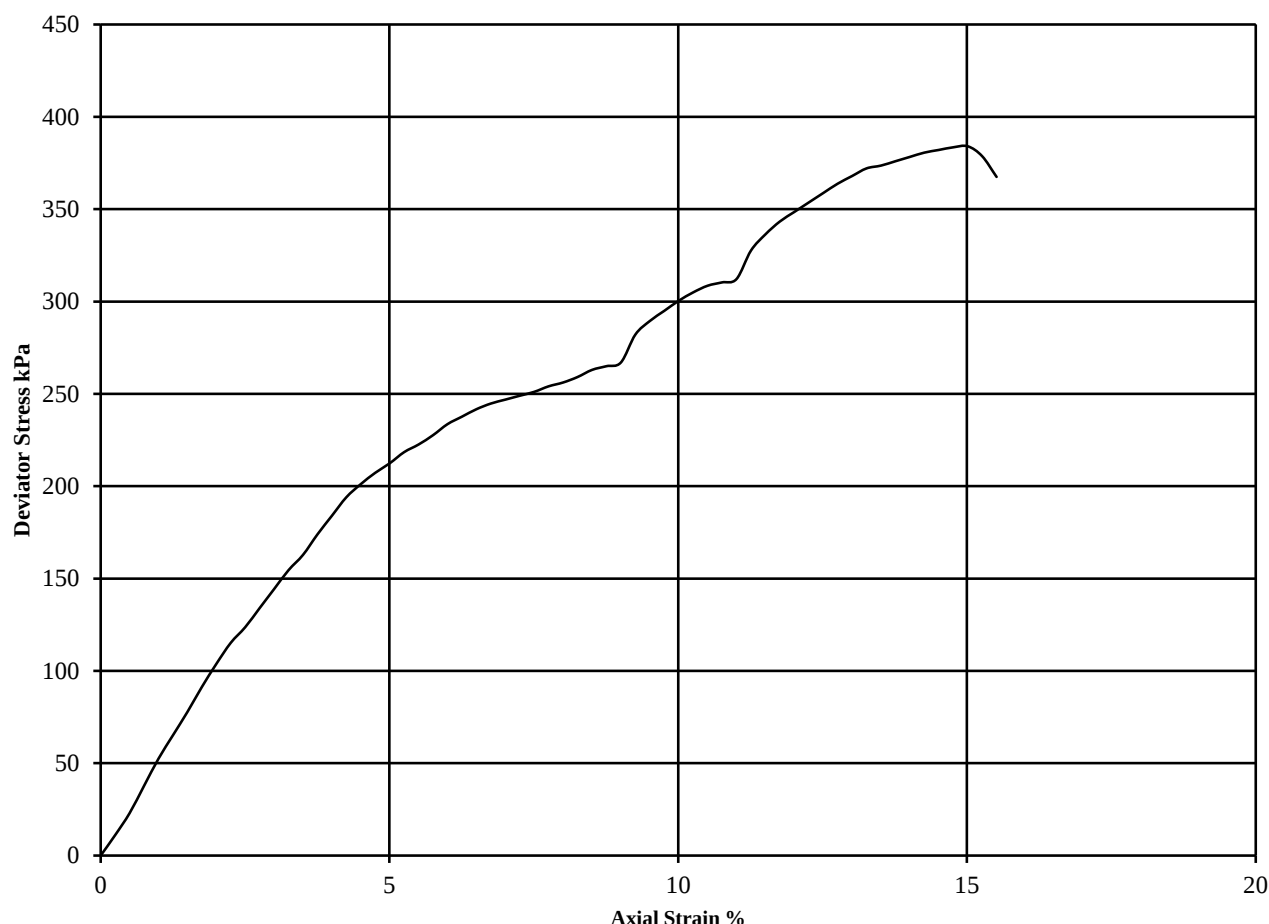
Top Depth (m): 0.50

Sample Number:

Base Depth (m):

Sample Type

UT



Diameter (mm):		102.1525	Height (mm):		204.1425	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa) 0.35 0.35 0.34 See summary of soil descriptions
1	18	2.08	1.77	25	267	133	9.0		
				50	312	156	11.0		
				100	384	192	15.0	Brittle	



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

INCREMENTAL LOADING OEDOMETER TEST

BS 1377 - Part 2 : 2022 : Clause 16 in accordance with BS EN ISO 17892 - 5 : 2017

Hole Number: DSRC306

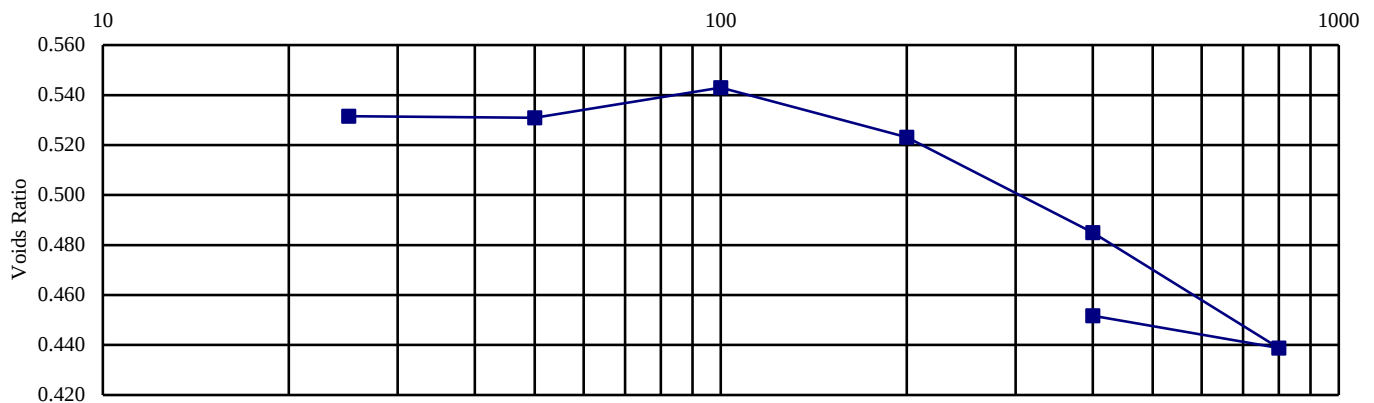
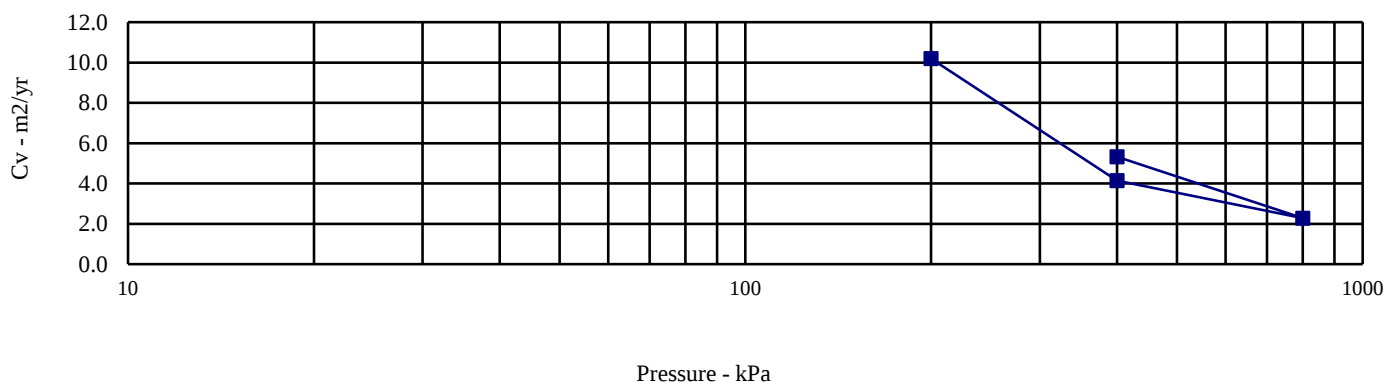
Top Depth (m): 0.50

Sample Number:

Base Depth (m) :

Sample Type: UT

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top Vertical
Water Content (%):	18.7					Method of preparation:	Trimmed from extruded material
Bulk Density (Mg/m3):	2.05	0	25	Swelling	Swelling	Method used to determine CV:	T90
Dry Density (Mg/m3):	1.72	25	50	Swelling	Swelling		
Voids Ratio:	0.537	50	100	Swelling	Swelling	Nominal temperature during test ' C:	20
Degree of saturation:	92.1	100	200	0.129	10.188		
Height (mm):	20.01	200	400	0.125	4.148	Results correct against equipment deformation	Yes
Diameter (mm)	75.008	400	800	0.078	2.281		
Particle Density (Mg/m3):	2.65	800	400	0.022	5.328		
Assumed							



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

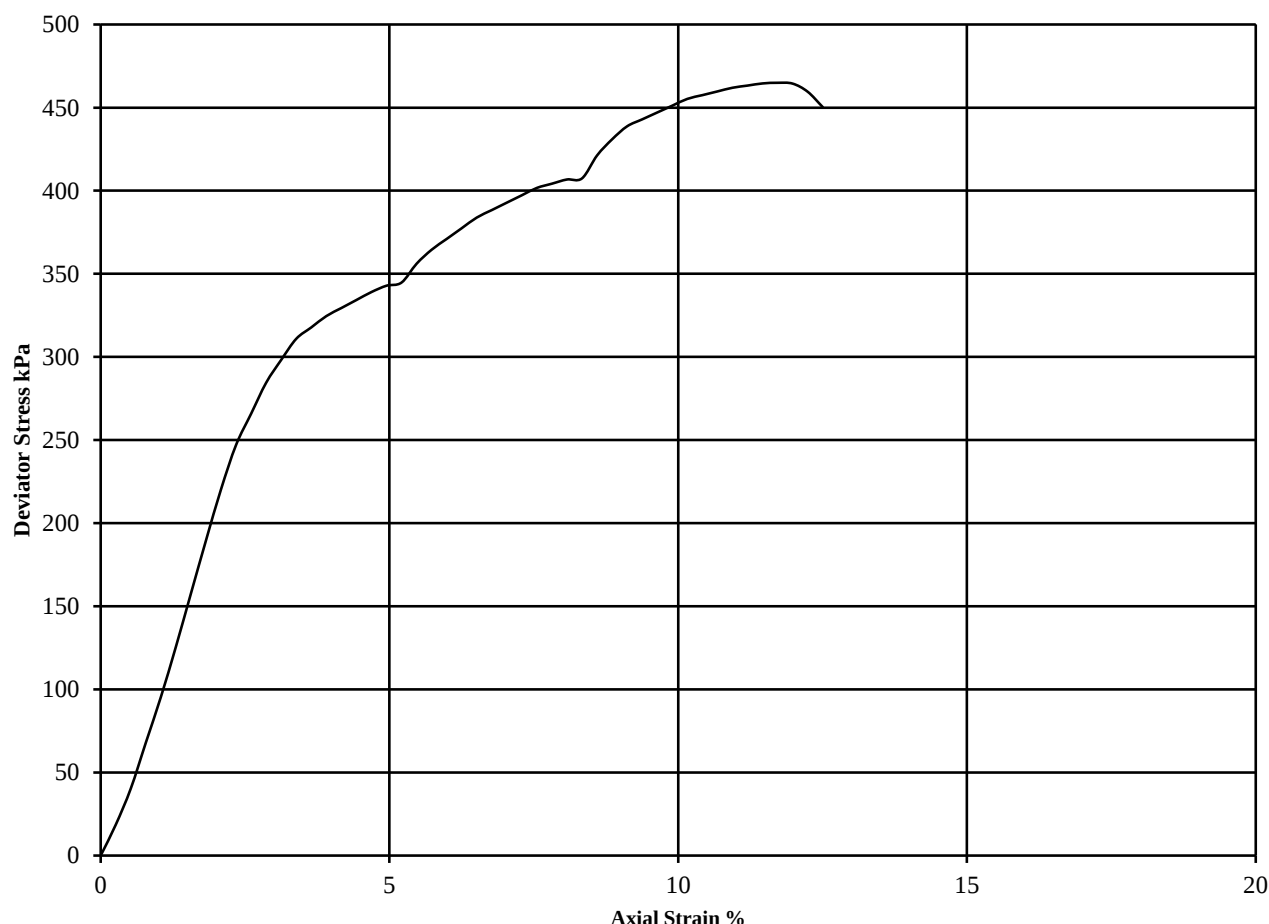
Hole Number: DSRC308

Top Depth (m): 1.90

Sample Number:

Base Depth (m):

Sample Type UT



Diameter (mm):		102.16	Height (mm):		196.1225	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa) 0.36 0.36 0.35 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
	1	11	2.18	1.96	50	345	172	5.2	
					100	407	204	8.3	
				200	465	232	11.7	Brittle	



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173

INCREMENTAL LOADING OEDOMETER TEST

BS 1377 - Part 2 : 2022 : Clause 16 in accordance with BS EN ISO 17892 - 5 : 2017

Hole Number: DSRC308

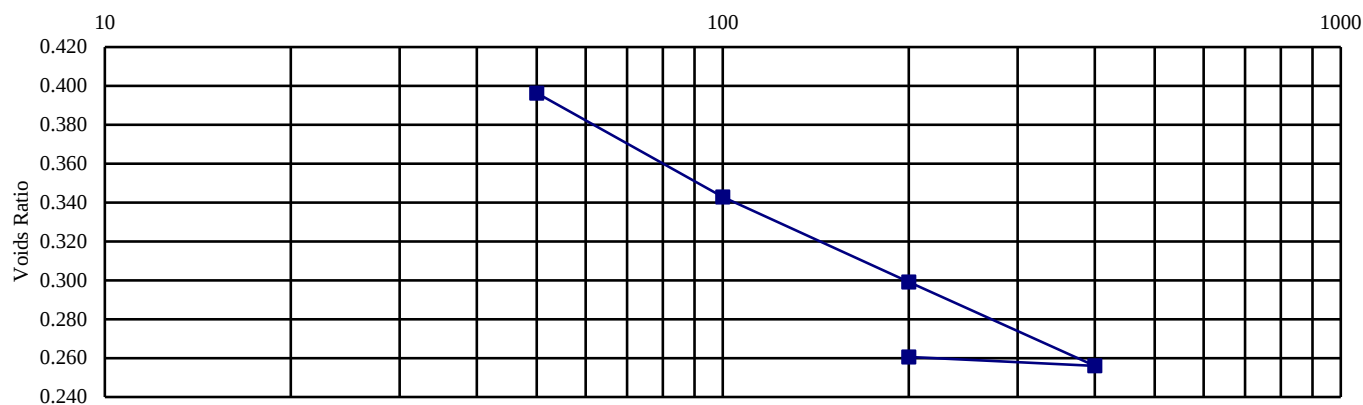
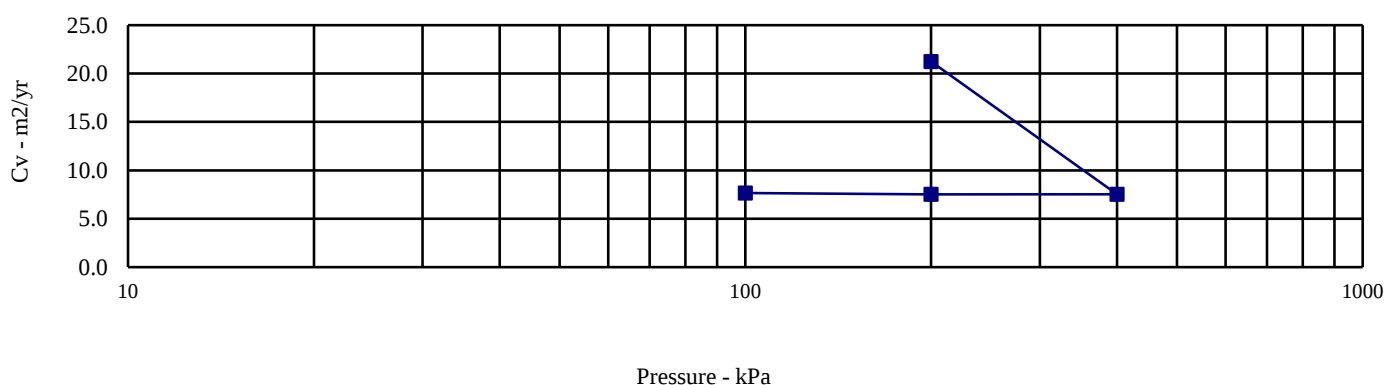
Top Depth (m): 1.90

Sample Number:

Base Depth (m) :

Sample Type: UT

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top Vertical
Water Content (%):	12.3						
Bulk Density (Mg/m3):	2.13	0	50	Swelling	Swelling	Method of preparation:	Trimmed from extruded material
Dry Density (Mg/m3):	1.90	50	100	0.766	7.667	Method used to determine CV:	T90
Voids Ratio:	0.396	100	200	0.326	7.518	Nominal temperature during test ' C:	20
Degree of saturation:	82.2	200	400	0.166	7.542	Results correct against equipment deformation	Yes
Height (mm):	20.006	400	200	0.018	21.247		
Diameter (mm)	75.005						
Particle Density (Mg/m3): Assumed	2.65						



Higham Lane North

Contract No:
PSL25/6231
Client Ref:
4173



Professional Soils Laboratory
5/7 Hexthorpe Road
Hexthorpe
Doncaster
DN4 0AR

7 - 11 Harding Street
Leicester
LE1 4DH

Analytical Test Report: L25/09655/PSL - 25-82080

Your Project Reference: **PSL25/6231 Higham Lane North**

Your Order Number: PSL25/6231 Samples Received / Instructed: 16/09/2025 / 16/09/2025

Report Issue Number: 1 Sample Tested: 16/09 to 23/09/2025

Samples Analysed: 5 sample(s) Report issued: 23/09/2025

Signed

James Gane
Analytical Services Manager
CTS

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with CTS method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

This report shall not be reproduce except in full

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

UKAS accreditation on waters only covers the Ground water and Surface water matrices

Date of Issue: 27.08.25

Issued by: J. Gane

Issue No: 4

Rev No: 27



L25/09655/PSL - 25-82080

Project Reference - PSL25/6231 Higham Lane

North

Analytical Test Results - Solid

7 - 11 Harding Street
Leicester
LE1 4DH

Lab Reference			593817	593818	593819	593821
Client Sample ID			-	-	-	-
Client Sample Location			TP302	TP311	TP318	TP326
Client Sample Type			BD	BD	BD	BD
Client Sample Number			-	-	-	-
Depth - Top (m)			0.70	1.40	0.60	1.50
Depth - Bottom (m)			0.70	1.40	0.60	1.50
Date of Sampling			-	-	-	-
Time of Sampling			-	-	-	-
Sample Matrix			Clay	Clay	Other	Clay
Determinant	Units	Accreditation				
SOM (via TOC)	(%)	UKAS	< 0.9	< 0.9	< 0.9	< 0.9



L25/09655/PSL - 25-82080

Project Reference - PSL25/6231 Higham Lane
North

Analytical Test Results - Chemical Analysis

7 - 11 Harding Street
Leicester
LE1 4DH

Lab Reference			593817	593818	593819	593820	593821
Client Sample ID			-	-	-	-	-
Client Sample Location			TP302	TP311	TP318	TP321	TP326
Client Sample Type			BD	BD	BD	BD	BD
Client Sample Number			-	-	-	-	-
Depth - Top (m)			0.70	1.40	0.60	2.25	1.50
Depth - Bottom (m)			0.70	1.40	0.60	2.25	1.50
Date of Sampling			-	-	-	-	-
Time of Sampling			-	-	-	-	-
Sample Matrix			Clay	Clay	Other	Other	Clay
Determinant	Units	Accreditation					
Water soluble sulphate (as SO ₄)	(mg/l)	u	57	13	< 10	50	58
Acid Soluble Sulphate	(%)	u	0.02	0.01	< 0.01	0.01	0.01
Total Sulphur	(%)	UKAS	0.02	0.01	< 0.01	0.01	0.01
pH Value	pH Units	MCERTS	7.5	5.8	6.2	6.2	6.4
Water Soluble Chloride	(mg/l)	u	1.7	1.6	1.4	-	3.9



L25/09655/PSL - 25-82080

7 - 11 Harding Street
Leicester
LE1 4DH

Project Reference - PSL25/6231 Higham Lane North

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
593817	-	TP302	BD	-	Greyish brown silty clay	17	< 0.1	100
593818	-	TP311	BD	-	Brown silty clay with occasional mudstone	9.3	< 0.1	100
593819	-	TP318	BD	-	Cream crushed rock	1.3	< 0.1	100
593820	-	TP321	BD	-	Greyish brown crushed rock	-	-	100
593821	-	TP326	BD	-	Greyish brown silty clay with occasional mudstone	9.7	< 0.1	100



L25/09655/PSL - 25-82080

Project Reference - PSL25/6231 Higham Lane North

7 - 11 Harding Street
Leicester
LE1 4DH

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
593817	-	TP302	BD	-	
593818	-	TP311	BD	-	
593819	-	TP318	BD	-	
593820	-	TP321	BD	-	
593821	-	TP326	BD	-	



7 - 11 Harding Street
Leicester
LE1 4DH

L25/09655/PSL - 25-82080

Project Reference - PSL25/6231 Higham Lane North

Analysis Methodologies - Please refer to sample comments page (if present) for any changes to methods

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
TOCS	MS - CL - TOC Eltra	Air Dried	Passing 10mm test sieve	Determination of Total Organic Carbon in soils
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)



7 - 11 Harding Street
Leicester
LE1 4DH

L25/09655/PSL - 25-82080

Project Reference - PSL25/6231 Higham Lane North

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided for water sample

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
593817	-	TP302	BD	-		A
593818	-	TP311	BD	-		A
593819	-	TP318	BD	-		A
593820	-	TP321	BD	-		A
593821	-	TP326	BD	-		A



LABORATORY REPORT



Contract Number: PSL25/6230

Report Date: 28 October 2025
Client's Reference: 4173
Client Name: JPG Leeds
5 John Charles Way
Leeds
West Yorkshire
LS12 6QD

For the attention of: Emily Sykes

Contract Title: Higham Lane North

Date Received: 20/8/2025
Date Commenced: 20/8/2025
Date Completed: 3/10/2025

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

T Watkins
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4173

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Test Type	Orientation	Dimensions (mm)		Area (mm ²)	D _e ²	D _e (mm)	Failure Load (P)		I _s (MPa)	Corr Fac F	I _{s50} (MPa)	Failure Type	Remarks
			Par / Perp	W	D				(Mpa)	(kN)					
DSRC301	10.30	A	Perp	89	45	4005	5099.32	71.41	-	0.65	0.12	1.174	0.14	Valid	
DSRC301	12.30	A	Perp	89	38	3382	4306.10	65.62	-	0.89	0.20	1.130	0.23	Valid	
DSRC302	7.45	A	Perp	89	45	4005	5099.32	71.41	-	1.23	0.23	1.174	0.27	Valid	
DSRC302	9.65	A	Perp	89	49	4361	5552.60	74.52	-	1.37	0.24	1.197	0.28	Valid	
DSRC302	10.60	A	Perp	87	67	5829	7421.71	86.15	-	1.16	0.15	1.277	0.19	Valid	
DSRC302	12.10	A	Perp	89	43	3827	4872.69	69.80	-	1.25	0.25	1.162	0.29	Valid	
DSRC303	2.50	A	Perp	88	37	3256	4145.67	64.39	-	0.59	0.14	1.121	0.15	Valid	
DSRC303	6.22	A	Perp	89	47	4183	5325.96	72.98	-	1.15	0.21	1.186	0.25	Valid	
DSRC303	10.73	A	Perp	89	51	4539	5779.23	76.02	-	1.37	0.23	1.207	0.28	Valid	
DSRC303	11.90	A	Perp	88	36	3168	4033.62	63.51	-	0.40	0.10	1.114	0.11	Valid	
DSRC304	5.70	A	Perp	89	50	4450	5665.92	75.27	-	1.01	0.17	1.202	0.21	Valid	
DSRC305	3.26	A	Perp	88	47	4136	5266.12	72.57	-	1.14	0.21	1.182	0.25	Valid	
DSRC305	7.75	A	Perp	89	51	4539	5779.23	76.02	-	2.13	0.36	1.207	0.43	Valid	
DSRC306	2.40	A	Perp	90	38	3420	4354.48	65.99	-	0.33	0.07	1.133	0.08	Valid	
DSRC306	4.35	A	Perp	89	42	3738	4759.37	68.99	-	3.63	0.74	1.156	0.85	Valid	
DSRC306	5.95	A	Perp	88	51	4488	5714.30	75.59	-	1.89	0.32	1.204	0.38	Valid	
DSRC306	7.50	A	Perp	91	52	4732	6024.97	77.62	-	2.10	0.34	1.219	0.41	Valid	
DSRC307	2.50	A	Perp	90	41	3690	4698.25	68.54	-	4.71	0.97	1.153	1.11	Valid	
DSRC307	3.10	A	Perp	89	31	2759	3512.87	59.27	-	1.22	0.34	1.080	0.36	Valid	
DSRC307	6.10	A	Perp	89	62	5518	7025.74	83.82	-	3.27	0.45	1.262	0.57	Valid	
DSRC308	3.90	A	Perp	89	35	3115	3966.14	62.98	-	0.13	0.03	1.109	0.04	Valid	
DSRC308	5.50	A	Perp	91	41	3731	4750.46	68.92	-	0.56	0.11	1.155	0.13	Valid	

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

		Higham Lane North	Contract No:
			PSL25/6230
			Client Ref:
			4173

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Test Type	Orientation	Dimensions (mm)		D_c^2	D_c (mm)	Failure Load		I_s (MPa)	Corr Fac F	I_{s50} (MPa)	Failure Type	Remarks
			Par / Perp	L	D			(Mpa)	(kN)					
DSRC301	6.40	D	Par	-	89	7921	89.00	-	5.15	0.627	1.296	0.81	Valid	
DSRC301	7.70	D	Par	-	89	7921	89.00	-	2.17	0.264	1.296	0.34	Valid	
DSRC301	8.06	D	Par	-	88	7744	88.00	-	3.33	0.415	1.290	0.54	Valid	
DSRC301	9.37	D	Par	-	89	7921	89.00	-	2.91	0.355	1.296	0.46	Valid	
DSRC301	9.43	D	Par	-	88	7744	88.00	-	1.77	0.221	1.290	0.28	Valid	
DSRC301	12.60	D	Par	-	90	8100	90.00	-	0.22	0.026	1.303	0.03	Valid	
DSRC302	4.75	D	Par	-	89	7921	89.00	-	8.13	0.990	1.296	1.28	Valid	
DSRC302	6.15	D	Par	-	90	8100	90.00	-	2.46	0.293	1.303	0.38	Valid	
DSRC302	7.65	D	Par	-	91	8281	91.00	-	0.45	0.052	1.309	0.07	Valid	
DSRC303	6.22	D	Par	-	89	7921	89.00	-	0.45	0.055	1.296	0.07	Valid	
DSRC303	8.68	D	Par	-	89	7921	89.00	-	1.59	0.194	1.296	0.25	Valid	
DSRC304	2.74	D	Par	-	89	7921	89.00	-	3.40	0.414	1.296	0.54	Valid	
DSRC304	3.40	D	Par	-	89	7921	89.00	-	2.77	0.337	1.296	0.44	Valid	
DSRC304	5.28	D	Par	-	89	7921	89.00	-	1.98	0.241	1.296	0.31	Valid	
DSRC304	6.10	D	Par	-	89	7921	89.00	-	3.94	0.480	1.296	0.62	Valid	
DSRC304	9.50	D	Par	-	88	7744	88.00	-	2.50	0.312	1.290	0.40	Valid	
DSRC305	3.62	D	Par	-	89	7921	89.00	-	0.67	0.082	1.296	0.11	Valid	

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Higham Lane North

Contract No:

PSL25/6230

Client Ref:

4173

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



Higham Lane North

Contract No:

PSL25/6230

Client Ref:

4173

Effective Stress Triaxial Compression

Consolidated Drained

Summary Report

Sample Details  <i>sketch showing specimen location in original sample</i>	Depth	1.20m UT			
	Description	Grey slightly sandy gravelly CLAY.			
	Type	Undisturbed, vertical orientation.			
	Initial Sample Length	L ₀	(mm)	200.0	
	Initial Sample Diameter	D ₀	(mm)	100.0	
	Initial Sample Weight	W ₀	(gr)	3304.0	
		Initial Bulk Density	ρ ₀	(Mg/m ³)	2.10
		Particle Density	ρ _s	(Mg/m ³)	2.65
					Assumed

Initial Conditions			Stage 1	2	3	4
Initial Cell Pressure	σ _{3i}	(kPa)	700	750	850	
Initial Back Pressure	U _{bi}	(kPa)	650	650	650	
Membrane Thickness	m _b	(mm)	0.400			
Displacement Input	L _{IP}	(mm)	CH 2			
Load Input	N _{IP}	(N)	CH 1			
Pore Water Pressure Input	u _{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω _i	(%)	11.6			
Initial Dry Density	ρ _{di}	(Mg/m ³)	1.89			
Initial Voids Ratio	e _i	.	0.403			
Initial Degree of Saturation	S _i	(%)	75			
B Value	B	.	0.95			

Final Conditions			Stage 1	2	3	4
Final Moisture	ω _f	(%)	16.3			
Final Dry Density	ρ _{df}	(Mg/m ³)	1.97			
Final Voids Ratio	e _f	.	0.343			
Final Degree of Saturation	S _f	(%)	100.0			
Failure Criteria	.		Max. Dev.	Max. Dev.	Max. Dev.	
Strain At Failure	ε _f	(%)	7.80	15.15	20.00	
Stress At Failure	(σ ₁ - σ ₃)	(kPa)	107.2	161.6	270.8	
Minor Stress At Failure	σ ₃ '	(kPa)	50.0	100.0	200.0	
Major Stress At Failure	σ ₁ '	(kPa)	157.2	261.6	470.8	
Principal Stress Ratio At Failure	σ ₁ ' / σ ₃ '		3.143	2.616	2.354	
PwP At Failure Criteria	u _f		650.0	649.0	650.0	

Notes



Plastic

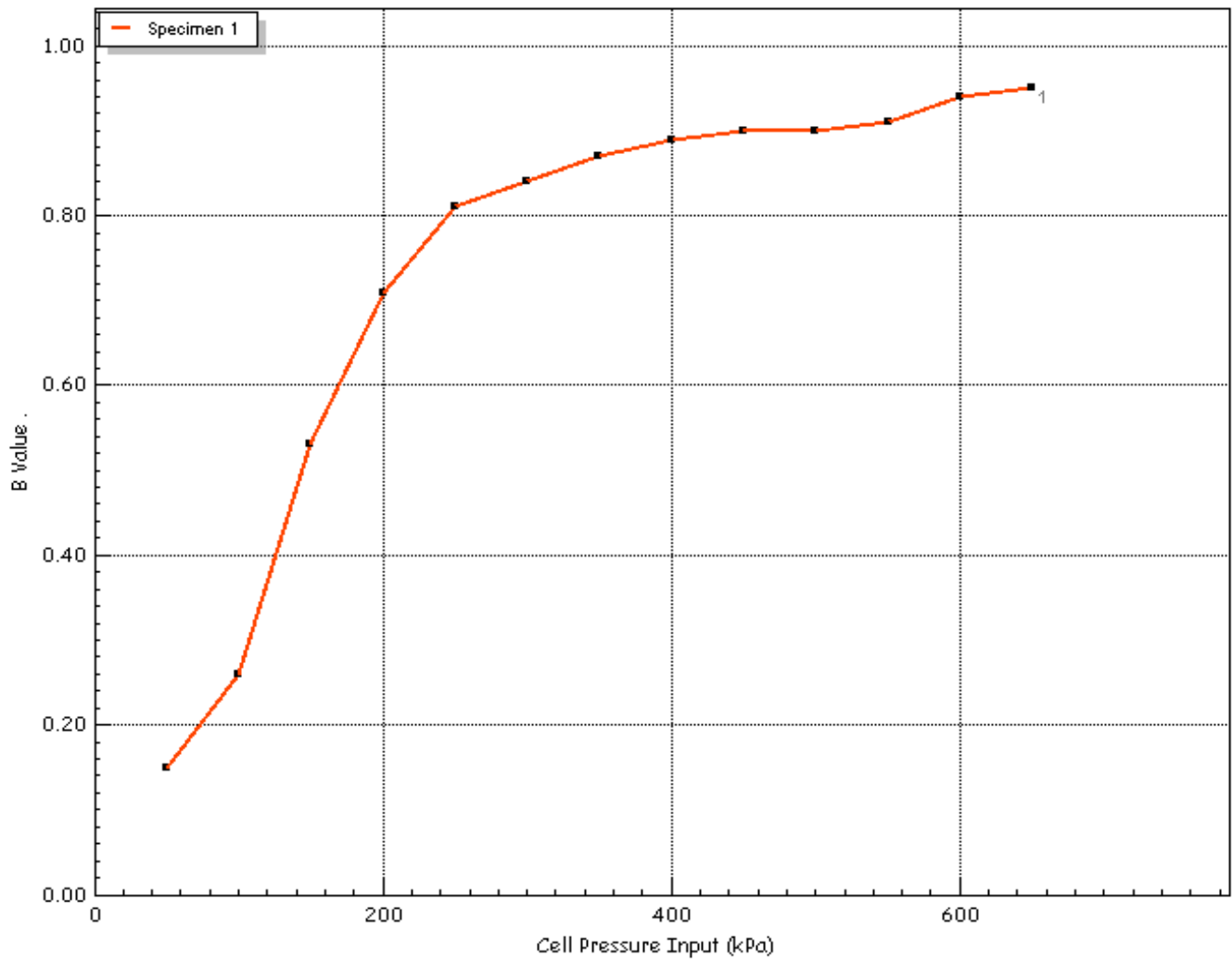
	Test Method	BS 1377-2: 2022 tested in accordance with BS EN ISO 17892-9.		Test Name	DSRC302 1.20m UT	
				Test Date	10/10/2025	
	Jobfile	Higham Lane North		Borehole	DSRC302	
	Client	JPG Leeds		Sample	1.20m UT	
				Depth	1.20m UT	
Operator		David Burton	Checked	S.Royle	Approved	S.Royle

Effective Stress Triaxial Compression

Consolidated Drained

Saturation Plots

Saturation Method		Stepped
Cell Pressure Input	σ (kPa)	650
Pore Water Pressure Input	u_{pwp} (kPa)	628
B Value	B	0.95



	Test Method	BS 1377-2: 2022 tested in accordance with BS EN ISO 17892-9.		Test Name	DSRC302 1.20m UT	
				Test Date	10/10/2025	
	Jobfile	Higham Lane North		Borehole	DSRC302	
	Client	JPG Leeds		Sample Depth	1.20m UT	
		Operator	David Burton	Checked	S.Royle	Approved

PSL Laboratory

Effective Stress Triaxial Compression

Consolidated Drained

Consolidation Plots

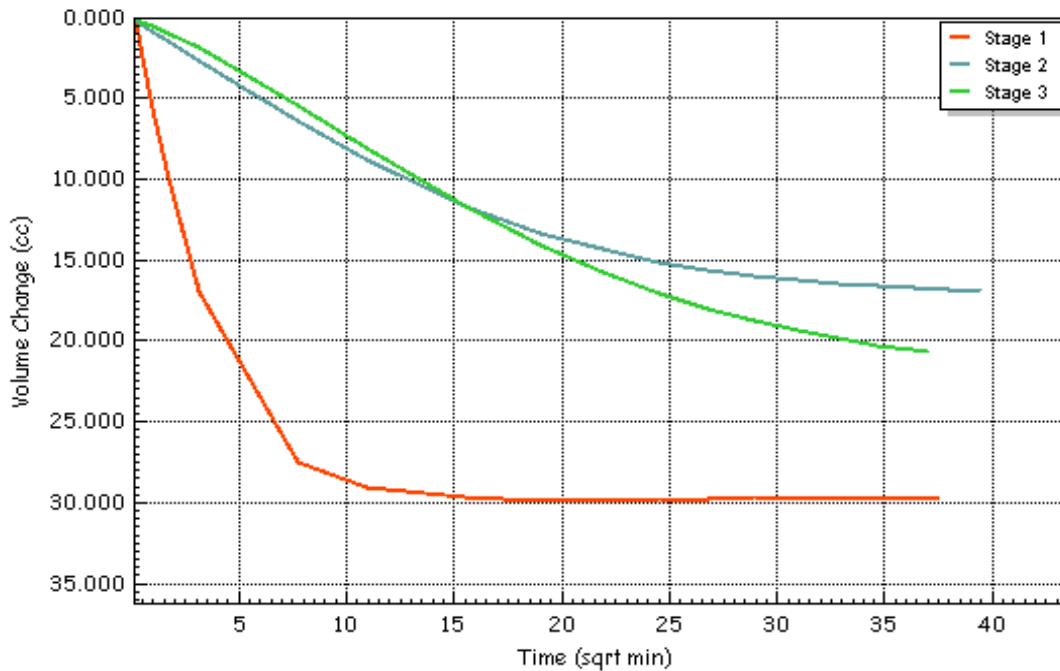
Initial Conditions

			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	700	750	850
Initial Back Pressure	u_{bi}	(kPa)	650	650	650
Pore Water Pressure Input	u_{pwp}	(kPa)	674	716	719
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	$U\%$	(%)	100.00	100.00	100.00
Volumetric Strain	$\epsilon_v\%$	(%)	1.89	1.08	1.32
Corrected Length	L_c	(mm)	198.7	182.6	166.0
Corrected Area	A_c	(cm ²)	77.55	83.49	90.55
Corrected Volume	V_c	(cc)	1541.160	1524.255	1503.553
t100	t_{100}	(min)	27.84	443.08	27.84
Consolidation	c_v	(m ² /year)	0.073	0.005	0.086
Compressibility	m_v	(m ² /MN)	0.781	0.163	0.191
Test Time	t_F	(h:m:s)	06:29:45	103:23:07	06:29:45
Estimated Strain to Failure	$\epsilon\%$	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.02550	0.00147	0.02130

Notes

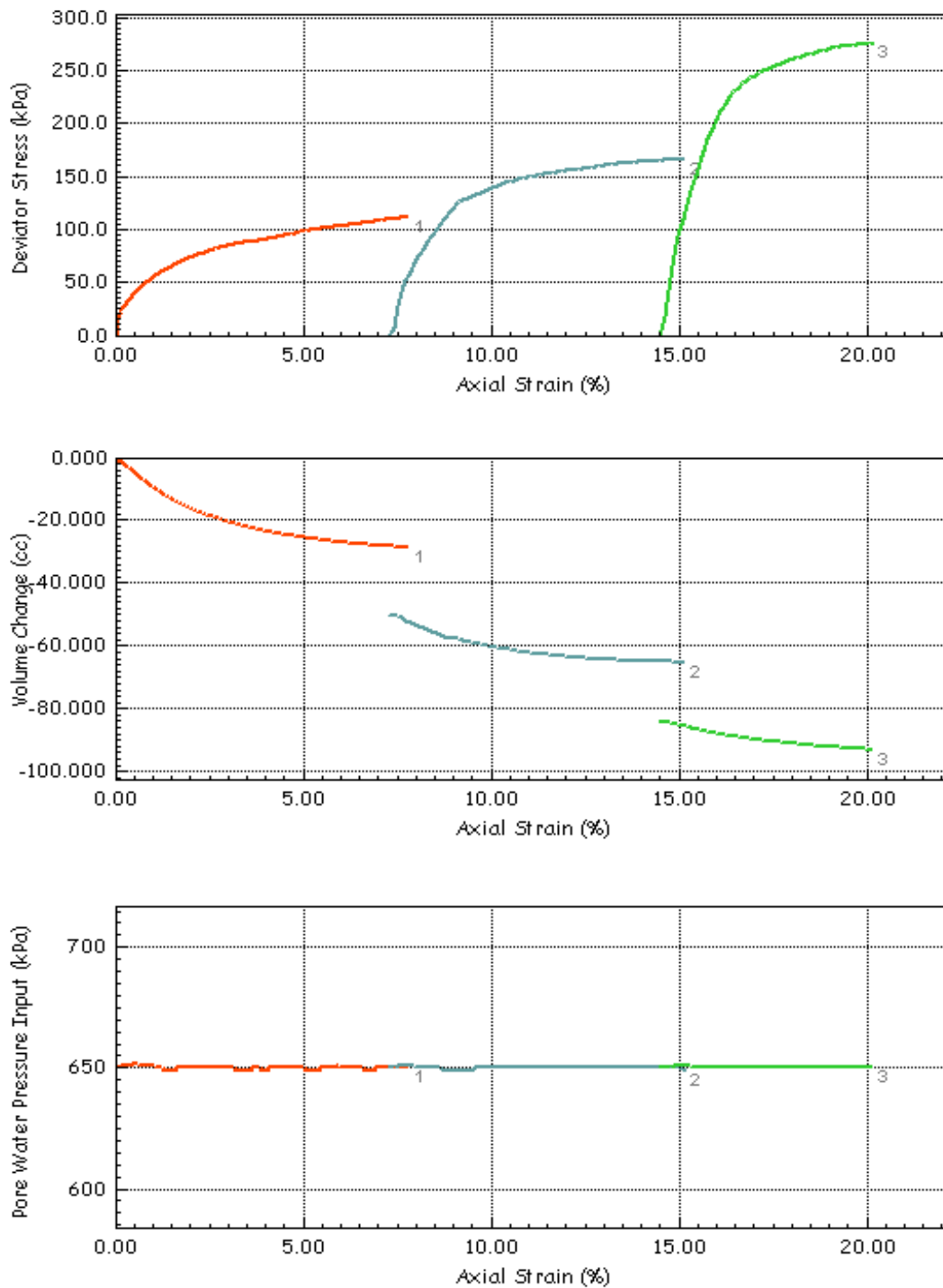


	Test Method	BS 1377-2: 2022 tested in accordance with BS EN ISO 17892-9.		Test Name	DSRC302 1.20m UT	
				Test Date	10/10/2025	
	Jobfile	Higham Lane North		Borehole	DSRC302	
	Client	JPG Leeds		Sample	1.20m UT	
	Operator	David Burton	Checked	S.Royle	Approved	S.Royle

Effective Stress Triaxial Compression

Consolidated Drained

Shear Stage Plots



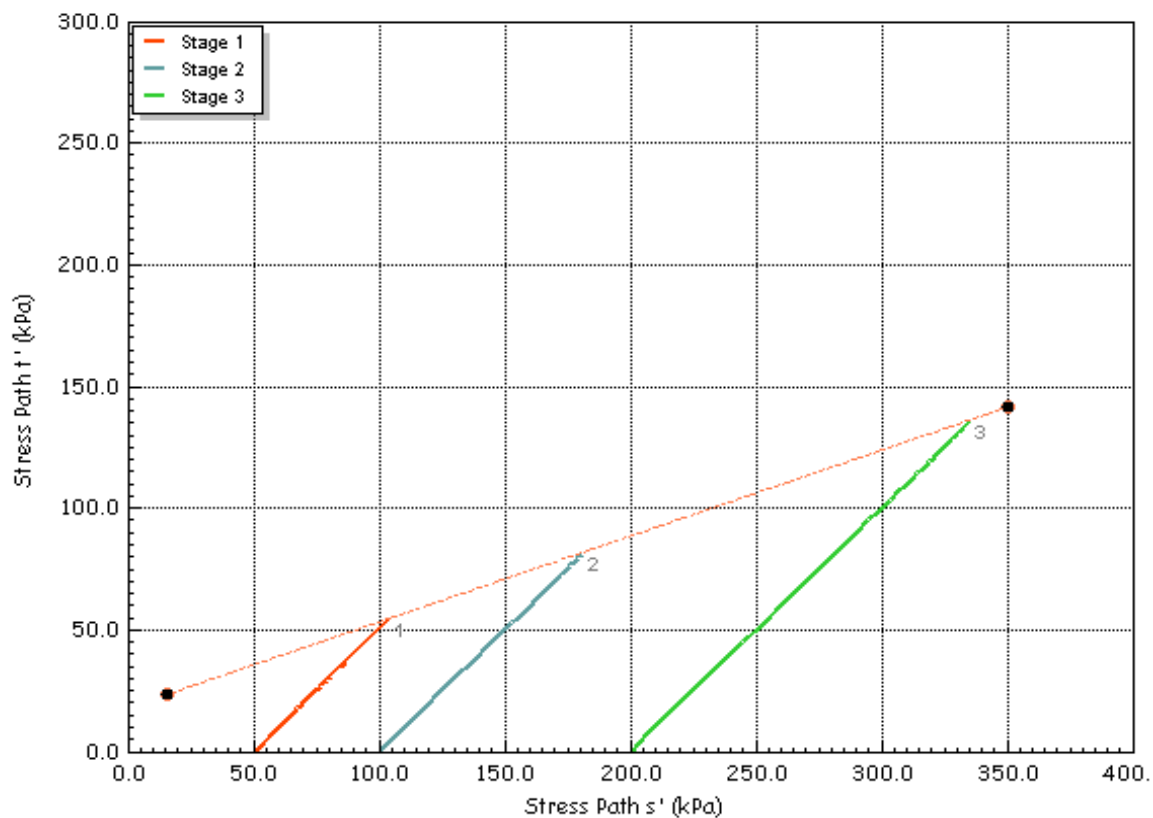
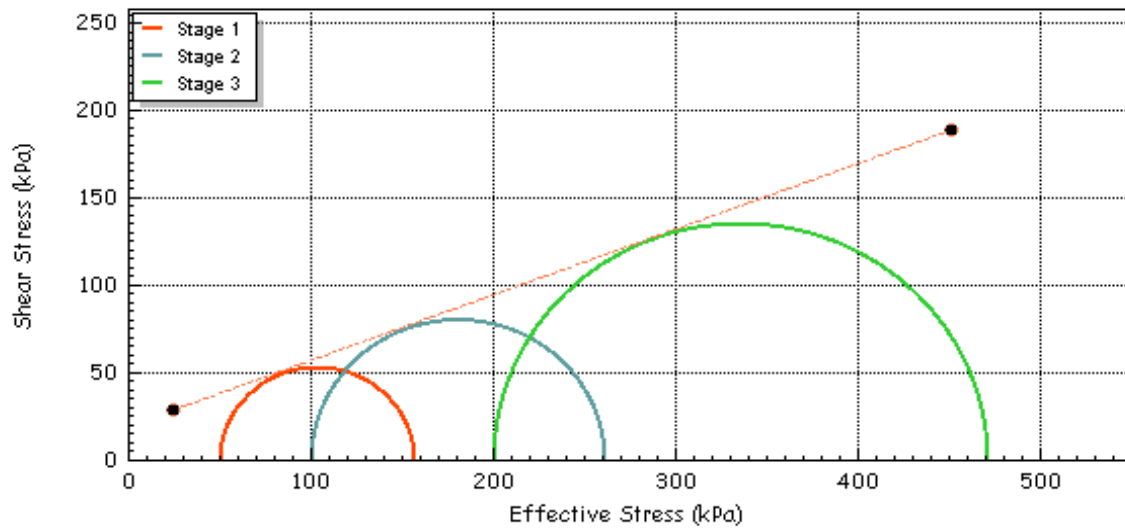
 	Test Method	BS 1377-2: 2022 tested in accordance with BS EN ISO 17892-9.		Test Name	DSRC302 1.20m UT	
				Test Date	10/10/2025	
	Jobfile	Higham Lane North		Borehole	DSRC302	
	Client	JPG Leeds		Sample	1.20m UT	
				Depth	1.20m UT	
	Operator	David Burton	Checked	S.Royle	Approved	S.Royle

Effective Stress Triaxial Compression

Consolidated Drained

Shear Stage Plots

Effective	c'	(kPa)	18.90	Effective Cohesion c'	(kPa)	18.90
Effective Friction	ϕ'	(deg)	20.7	Effective Friction ϕ'	(deg)	20.7



	Test Method BS 1377-2: 2022 tested in accordance with BS EN ISO 17892-9. -		Test Name DSRC302 1.20m UT	
	Site Reference		Test Date 10/10/2025	
	Jobfile Higham Lane North	Borehole DSRC302	Sample 1.20m UT	Depth 1.20m UT
	Client JPG Leeds	Operator David Burton	Checked S.Royle	Approved S.Royle



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5/7 Hexthorpe Road
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7 - 11 Harding Street
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LE1 4DH

Analytical Test Report: L25/10455/PSL - 25-84681

Your Project Reference:	PSL25/6230 Higham Lane North		
Your Order Number:	PSL25/6230	Samples Received / Instructed:	06/10/2025 / 06/10/2025
Report Issue Number:	1	Sample Tested:	06/10 to 13/10/2025
Samples Analysed:	3 sample(s)	Report issued:	13/10/2025

Signed

James Gane
Analytical Services Manager
CTS

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

This report shall not be reproduce except in full

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

UKAS accreditation on waters only covers the Ground water and Surface water matrices

Date of Issue: 27.08.25

Issued by: J. Gane

Issue No: 4

Rev No: 27



L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane

North

Analytical Test Results - Solid

7 - 11 Harding Street
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Lab Reference			609329	609330	609331
Client Sample ID			-	-	-
Client Sample Location			DSRC307	DSRC308	DSRC309
Client Sample Type			-	-	-
Client Sample Number			-	-	-
Depth - Top (m)			2.50	3.90	3.15
Depth - Bottom (m)			2.62	3.90	3.25
Date of Sampling			-	-	-
Time of Sampling			-	-	-
Sample Matrix			Other	Other	Other
Determinant	Units	Accreditation			
Sulphate (Acid Soluble)	(%)	u	< 0.01	0.02	< 0.01
Sulphur (Total)	(%)	UKAS	< 0.01	0.04	0.01



L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane
North

Analytical Test Results - Chemical Analysis

7 - 11 Harding Street
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Lab Reference			609329	609330	609331
Client Sample ID			-	-	-
Client Sample Location			DSRC307	DSRC308	DSRC309
Client Sample Type			-	-	-
Client Sample Number			-	-	-
Depth - Top (m)			2.50	3.90	3.15
Depth - Bottom (m)			2.62	3.90	3.25
Date of Sampling			-	-	-
Time of Sampling			-	-	-
Sample Matrix			Other	Other	Other
Determinant	Units	Accreditation			
Water soluble sulphate (as SO ₄)	(mg/l)	u	10	41	49
pH Value	pH Units	MCERTS	8.0	6.9	6.9



L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane North

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Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
609329	-	DSRC307	-	-	Brown sandstone	-	-	100
609330	-	DSRC308	-	-	Grey mudstone	-	-	100
609331	-	DSRC309	-	-	Brown mudstone	-	-	100



L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane North

7 - 11 Harding Street
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Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
609329	-	DSRC307	-	-	
609330	-	DSRC308	-	-	
609331	-	DSRC309	-	-	



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L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane North

Analysis Methodologies - Please refer to sample comments page (if present) for any changes to methods

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)



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L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane North

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided for water sample

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
609329	-	DSRC307	-	-		A
609330	-	DSRC308	-	-		A
609331	-	DSRC309	-	-		A



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Analytical Test Report: L25/10777/PSL - 25-85927

Your Project Reference:	PSL25/6230 Higlan Lane North		
Your Order Number:	PSL25/6230	Samples Received / Instructed:	13/10/2025 / 13/10/2025
Report Issue Number:	1	Sample Tested:	13/10 to 21/10/2025
Samples Analysed:	1 sample(s)	Report issued:	21/10/2025

Signed

James Gane
Analytical Services Manager
CTS

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with CTS method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

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MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

UKAS accreditation on waters only covers the Ground water and Surface water matrices

Date of Issue: 27.08.25

Issued by: J. Gane

Issue No: 4

Rev No: 27



7 - 11 Harding Street
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L25/10777/PSL - 25-85927

Project Reference - PSL25/6230 Higlan Lane
North

Analytical Test Results - Solid

Lab Reference				614344
Client Sample ID				-
Client Sample Location				DSRC302
Client Sample Type				UT
Client Sample Number				-
Depth - Top (m)				1.20
Depth - Bottom (m)				1.20
Date of Sampling				-
Time of Sampling				-
Sample Matrix				Other
Determinant	Units	Accreditation		
SOM (via TOC)	(%)	UKAS	< 0.9	



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L25/10777/PSL - 25-85927

Project Reference - PSL25/6230 Higlan Lane
North

Analytical Test Results - Chemical Analysis

Lab Reference 614344			
Client Sample ID -			
Client Sample Location DSRC302			
Client Sample Type UT			
Client Sample Number -			
Depth - Top (m) 1.20			
Depth - Bottom (m) 1.20			
Date of Sampling -			
Time of Sampling -			
Sample Matrix Other			
Determinant	Units	Accreditation	
Water soluble sulphate (as SO ₄)	(mg/l)	u	110
Acid Soluble Sulphate	(%)	u	0.04
Total Sulphur	(%)	UKAS	0.04
pH Value	pH Units	MCERTS	8.1
Water Soluble Chloride	(mg/l)	u	8.1



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L25/10777/PSL - 25-85927

Project Reference - PSL25/6230 Higlan Lane North

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
614344	-	DSRC302	UT	-	Grey mudstone	5.0	< 0.1	100



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L25/10777/PSL - 25-85927

Project Reference - PSL25/6230 Higlan Lane North

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
614344	-	DSRC302	UT	-	



7 - 11 Harding Street
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L25/10777/PSL - 25-85927

Project Reference - PSL25/6230 Higlan Lane North

Analysis Methodologies - Please refer to sample comments page (if present) for any changes to methods

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
TOCS	MS - CL - TOC Eltra	Air Dried	Passing 10mm test sieve	Determination of Total Organic Carbon in soils
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)



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L25/10777/PSL - 25-85927

Project Reference - PSL25/6230 Higlan Lane North

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided for water sample

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
614344	-	DSRC302	UT	-		A



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Analytical Test Report: L25/11006/PSL - 25-86765

Your Project Reference: **PSL25/6230 Higham Lane**

Your Order Number: PSL25/6230 Samples Received / Instructed: 17/10/2025 / 17/10/2025

Report Issue Number: 1 Sample Tested: 17/10 to 28/10/2025

Samples Analysed: 12 sample(s) Report issued: 28/10/2025

Signed

James Gane
Analytical Services Manager
CTS

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with CTS method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

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Accreditation Key

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UKAS accreditation on waters only covers the Ground water and Surface water matrices

Date of Issue: 27.08.25

Issued by: J. Gane

Issue No: 4

Rev No: 27



7 - 11 Harding Street
Leicester
LE1 4DH

L25/11006/PSL - 25-86765

Project Reference - PSL25/6230 Higham Lane

Analytical Test Results - Solid

Lab Reference			618720	618721	618722	618723	618724	618725	618726
Client Sample ID			-	-	-	-	-	-	-
Client Sample Location			DSRC301	DSRC301	DSRC301	DSRC302	DSRC302	DSRC303	DSRC303
Client Sample Type			C	C	C	C	C	C	C
Client Sample Number			-	-	-	-	-	-	-
Depth - Top (m)			6.40	7.70	9.37	4.75	6.15	2.50	6.22
Depth - Bottom (m)			6.46	7.76	9.40	4.90	6.25	2.60	6.44
Date of Sampling			-	-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-	-
Sample Matrix			Other	Other	Other	Other	Other	Other	Other
Determinant	Units	Accreditation							
SOM (via TOC)	(%)	UKAS	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9



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Leicester
LE1 4DH

L25/11006/PSL - 25-86765

Project Reference - PSL25/6230 Higham Lane

Analytical Test Results - Solid

Lab Reference			618727	618728
Client Sample ID			-	-
Client Sample Location			DSRC304	DSRC304
Client Sample Type			C	C
Client Sample Number			-	-
Depth - Top (m)			2.74	3.40
Depth - Bottom (m)			2.76	3.45
Date of Sampling			-	-
Time of Sampling			-	-
Sample Matrix			Other	Other
Determinant	Units	Accreditation		
SOM (via TOC)	(%)	UKAS	< 0.9	< 0.9



7 - 11 Harding Street
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LE1 4DH

L25/11006/PSL - 25-86765

Project Reference - PSL25/6230 Higham Lane

Analytical Test Results - Chemical Analysis

Lab Reference			618720	618721	618722	618723	618724	618725	618726
Client Sample ID			-	-	-	-	-	-	-
Client Sample Location			DSRC301	DSRC301	DSRC301	DSRC302	DSRC302	DSRC303	DSRC303
Client Sample Type			C	C	C	C	C	C	C
Client Sample Number			-	-	-	-	-	-	-
Depth - Top (m)			6.40	7.70	9.37	4.75	6.15	2.50	6.22
Depth - Bottom (m)			6.46	7.76	9.40	4.90	6.25	2.60	6.44
Date of Sampling			-	-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-	-
Sample Matrix			Other	Other	Other	Other	Other	Other	Other
Determinant	Units	Accreditation							
Water soluble sulphate (as SO ₄)	(mg/l)	u	230	340	470	980	270	750	190
Acid Soluble Sulphate	(%)	u	0.16	0.18	0.26	0.44	0.18	0.34	0.16
Total Sulphur	(%)	UKAS	0.31	0.35	0.38	0.45	0.34	0.42	0.31
pH Value	pH Units	MCERTS	7.7	7.5	7.7	7.8	7.7	7.8	8.2



7 - 11 Harding Street
Leicester
LE1 4DH

L25/11006/PSL - 25-86765

Project Reference - PSL25/6230 Higham Lane

Analytical Test Results - Chemical Analysis

Lab Reference			618727	618728
Client Sample ID			-	-
Client Sample Location			DSRC304	DSRC304
Client Sample Type			C	C
Client Sample Number			-	-
Depth - Top (m)			2.74	3.40
Depth - Bottom (m)			2.76	3.45
Date of Sampling			-	-
Time of Sampling			-	-
Sample Matrix			Other	Other
Determinant	Units	Accreditation		
Water soluble sulphate (as SO ₄)	(mg/l)	u	860	220
Acid Soluble Sulphate	(%)	u	0.37	0.18
Total Sulphur	(%)	UKAS	0.45	0.37
pH Value	pH Units	MCERTS	7.9	8.3



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L25/11006/PSL - 25-86765

Project Reference - PSL25/6230 Higham Lane

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
618720	-	DSRC301	C	-	Grey crushed rock	0.9	< 0.1	100
618721	-	DSRC301	C	-	Grey crushed rock	2.2	< 0.1	100
618722	-	DSRC301	C	-	Grey crushed rock	1.9	< 0.1	100
618723	-	DSRC302	C	-	Grey crushed rock	1.1	< 0.1	100
618724	-	DSRC302	C	-	Grey crushed rock	1.7	< 0.1	100
618725	-	DSRC303	C	-	Grey crushed rock	1.9	< 0.1	100
618726	-	DSRC303	C	-	Grey crushed rock	1.2	< 0.1	100
618727	-	DSRC304	C	-	Grey crushed rock	1.6	< 0.1	100
618728	-	DSRC304	C	-	Grey crushed rock	1.3	< 0.1	100



L25/11006/PSL - 25-86765

Project Reference - PSL25/6230 Higham Lane

7 - 11 Harding Street
Leicester
LE1 4DH

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
618720	-	DSRC301	C	-	
618721	-	DSRC301	C	-	
618722	-	DSRC301	C	-	
618723	-	DSRC302	C	-	
618724	-	DSRC302	C	-	
618725	-	DSRC303	C	-	
618726	-	DSRC303	C	-	
618727	-	DSRC304	C	-	
618728	-	DSRC304	C	-	



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L25/11006/PSL - 25-86765

Project Reference - PSL25/6230 Higham Lane

Analysis Methodologies - Please refer to sample comments page (if present) for any changes to methods

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
TOCS	MS - CL - TOC Eltra	Air Dried	Passing 10mm test sieve	Determination of Total Organic Carbon in soils
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)



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LE1 4DH

L25/11006/PSL - 25-86765

Project Reference - PSL25/6230 Higham Lane

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided for water sample

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
618720	-	DSRC301	C	-		A
618721	-	DSRC301	C	-		A
618722	-	DSRC301	C	-		A
618723	-	DSRC302	C	-		A
618724	-	DSRC302	C	-		A
618725	-	DSRC303	C	-		A
618726	-	DSRC303	C	-		A
618727	-	DSRC304	C	-		A
618728	-	DSRC304	C	-		A

Test Amendment Notice

Date:	3.10.23
PSL Contract Reference:	6230
Contract Title:	Higham lane
Engineer/Client Details:	Emily Sykes
Sample Details:	OSRC 303 @ 6.22-6.44 OSRC 304 @ 8.88-9.08
Testing required:	UCS

Details of Unsuitability

The above sample cannot be performed due to the following reasons:

- 1 The Sample has not been received
- 2 There is insufficient material for the required testing:

Sample Mass received (g)

Sample Mass required (g)
- 3 The sample has been previously tested
- 4 The sample has been misplaced in the laboratory
- 5 The sample is unsuitable for testing because the cores are of insufficient dimensions due to fragmentation.....

Please advise action required:

- 1 Perform the testing on the following sample:
- 2 Combine samples has follows for testing:
- 3 Perform the following alternative testing:
- 4 Perform a non standard test:
- 5 Take no further action
- 6 Undertake the following instructions:

Signed

(Project Engineer)

Date





Professional Soils Laboratory
5/7 Hexthorpe Road
Hexthorpe
Doncaster
DN4 0AR

7 - 11 Harding Street
Leicester
LE1 4DH

Analytical Test Report: L25/10455/PSL - 25-84681

Your Project Reference:	PSL25/6230 Higham Lane North		
Your Order Number:	PSL25/6230	Samples Received / Instructed:	06/10/2025 / 06/10/2025
Report Issue Number:	1	Sample Tested:	06/10 to 13/10/2025
Samples Analysed:	3 sample(s)	Report issued:	13/10/2025

Signed

James Gane
Analytical Services Manager
CTS

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

This report shall not be reproduce except in full

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

UKAS accreditation on waters only covers the Ground water and Surface water matrices

Date of Issue: 27.08.25

Issued by: J. Gane

Issue No: 4

Rev No: 27



L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane

North

Analytical Test Results - Solid

7 - 11 Harding Street
Leicester
LE1 4DH

Lab Reference			609329	609330	609331
Client Sample ID			-	-	-
Client Sample Location			DSRC307	DSRC308	DSRC309
Client Sample Type			-	-	-
Client Sample Number			-	-	-
Depth - Top (m)			2.50	3.90	3.15
Depth - Bottom (m)			2.62	3.90	3.25
Date of Sampling			-	-	-
Time of Sampling			-	-	-
Sample Matrix			Other	Other	Other
Determinant	Units	Accreditation			
Sulphate (Acid Soluble)	(%)	u	< 0.01	0.02	< 0.01
Sulphur (Total)	(%)	UKAS	< 0.01	0.04	0.01



L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane
North

Analytical Test Results - Chemical Analysis

7 - 11 Harding Street
Leicester
LE1 4DH

Lab Reference			609329	609330	609331
Client Sample ID			-	-	-
Client Sample Location			DSRC307	DSRC308	DSRC309
Client Sample Type			-	-	-
Client Sample Number			-	-	-
Depth - Top (m)			2.50	3.90	3.15
Depth - Bottom (m)			2.62	3.90	3.25
Date of Sampling			-	-	-
Time of Sampling			-	-	-
Sample Matrix			Other	Other	Other
Determinant	Units	Accreditation			
Water soluble sulphate (as SO ₄)	(mg/l)	u	10	41	49
pH Value	pH Units	MCERTS	8.0	6.9	6.9



L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane North

7 - 11 Harding Street
Leicester
LE1 4DH

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
609329	-	DSRC307	-	-	Brown sandstone	-	-	100
609330	-	DSRC308	-	-	Grey mudstone	-	-	100
609331	-	DSRC309	-	-	Brown mudstone	-	-	100



L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane North

7 - 11 Harding Street
Leicester
LE1 4DH

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
609329	-	DSRC307	-	-	
609330	-	DSRC308	-	-	
609331	-	DSRC309	-	-	



7 - 11 Harding Street
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L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane North

Analysis Methodologies - Please refer to sample comments page (if present) for any changes to methods

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preparation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)



7 - 11 Harding Street
Leicester
LE1 4DH

L25/10455/PSL - 25-84681

Project Reference - PSL25/6230 Higham Lane North

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided

W - No time of sampling provided for water sample

C - Received in inappropriate container

H - Contains headspace

T - Temperature on receipt exceeds storage temperature

R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
609329	-	DSRC307	-	-		A
609330	-	DSRC308	-	-		A
609331	-	DSRC309	-	-		A



Appendix E Gas and Groundwater Monitoring

GAS AND GROUNDWATER MONITORING RESULTS

Site: Higham Lane North, Dodworth

Job No: 4173

Visit No: 1

Client: Commercial Development Projects Limited

Date: 20/08/2025



Monitoring Location	Gas Concentration									Gas Emission Rate		GWL	Base of Standpipe	
	Peak			Steady			Highest	Highest	Lowest					
	BH	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S	CO	O ₂	Litre/Hour			
	% lsl	%v/v	%	% lsl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl		
WS312	0.0	0.0	3.6	0.0	0.0	3.5	0	0	16.0	0.0	0.0	2.10	3.20	
DSRC301	0.0	0.0	5.3	0.0	0.0	5.0	7	34	5.5	0.0	0.0	9.15	12.10	
DSRC304	0.0	0.0	2.8	0.0	0.0	2.8	3	25	15.8	0.0	0.0	8.15	12.00	
DSRC308	0.0	0.0	3.0	0.0	0.0	2.9	0	0	19.4	0.0	0.0	Dry	8.70	
DSRC309	0.0	0.0	1.2	0.0	0.0	1.2	4	33	18.3	0.0	0.0	Dry	8.25	
DSRO301	0.0	0.0	0.3	0.0	0.0	0.2	0	0	20.5	0.0	0.0	17.7	20.50	
DSRO302	0	0	6.1	0	0	5.6	1	3	12.3	0	0	4.70	19.95	
Ambient Concentration (% volume):				CH ₄	0.2	%v/v					0.0	%v/v		
				O ₂	21.2	%v/v								
Barometric Pressure:		Start	997					Monitoring Equipment:				GA5000		
		End	1002					Serial Number of Equipment:				G505491		
Barometric Pressure Trend:		Locally rising, regionally steady				Date of Last Calibration:				14.Jan.2025				
Weather:		Cloudy, warm				Operator:				EJS				
Key		Remarks												
NR - Not Recorded NA - Not Applicable														
		Checked:		JBW		Approved:		JBW						

GAS AND GROUNDWATER MONITORING RESULTS

Site: Higham Lane North, Dodworth

Job No: 4173

Visit No: 2

Client: Commercial Development Projects Limited

Date: 26/08/2025



Monitoring Location	Gas Concentration									Gas Emission Rate		GWL	Base of Standpipe	
	Peak		Steady			Highest	Highest	Lowest						
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S	CO	O ₂	Litre/Hour				
BH	% lsl	%v/v	%	% lsl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl		
WS312	0.0	0.0	2.6	0.0	0.0	2.5	1	0	18.0	0.0	0.0	2.10	3.20	
DSRC301	0.0	0.0	6.3	0.0	0.0	6.1	2	3	0.7	0.0	0.0	9.30	12.10	
DSRC304	0.0	0.0	3.3	0.0	0.0	3.3	2	1	13.3	0.1	0.1	9.20	12.00	
DSRC308	0.0	0.0	12.2	0.0	0.0	12.2	0	0	3.6	0.0	0.0	7.00	8.70	
DSRC309	0.0	0.0	1.4	0.0	0.0	1.2	1	4	5.9	0.1	0.1	Dry	8.25	
DSRO301	0.0	0.0	4.6	0.0	0.0	4.6	1	0	9.8	0.0	0.0	18.6	20.50	
DSRO302	0.0	0.0	4.3	0.0	0.0	4.1	2	2	11.0	0.1	0.1	5.50	19.95	
Ambient Concentration (% volume):				CH ₄	0.1	%v/v	CO ₂		0.1	%v/v				
Barometric Pressure:		Start	984	O ₂	20.8	%v/v	Monitoring Equipment:				GA5000			
		End	989					Serial Number of Equipment:				G505491		
Barometric Pressure Trend:		Locally steady, regionally falling				Date of Last Calibration:				14.Jan.2025				
Weather:		Sunny and warm				Operator:				DJW				
Key		Remarks												
NR - Not Recorded NA - Not Applicable														
		Checked:		JBW			Approved:		JBW					

GAS AND GROUNDWATER MONITORING RESULTS

Site: Higham Lane North, Dodworth

Job No: 4173

Visit No: 3

Client: Commercial Development Projects Limited

Date: 05/09/2025



Monitoring Location	Gas Concentration									Gas Emission Rate		GWL	Base of Standpipe	
	Peak			Steady		Highest	Highest	Lowest						
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S	CO	O ₂	Litre/Hour				
BH	% lsl	%v/v	%	% lsl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl		
WS312	0.0	0.0	1.2	0.0	0.0	1.2	0	0	20.1	0	0	Dry	3.20	
DSRC301	0.0	0.0	2.4	0.0	0.0	2.4	1	2	16.2	0.3	0.2	9.40	12.10	
DSRC304	0.0	0.0	5.2	0.0	0.0	5.2	0	2	10.2	0.1	0.1	8.70	12.00	
DSRC308	0.0	0.0	0.7	0.0	0.0	0.7	0	1	20.7	0.0	0.0	7.10	8.70	
DSRC309	0.0	0.0	0.5	0.0	0.0	0.5	0	2	20.4	0.1	0.1	Dry	8.25	
DSRO301	0.0	0.0	0.1	0.0	0.0	0.1	0	1	20.6	0.3	0.3	18.70	20.50	
DSRO302	0.0	0.0	6.8	0.0	0.0	6.8	0	1	5.1	0.1	0	5.50	19.95	
Ambient Concentration (% volume):				CH ₄	0.0	%v/v	CO ₂		0.1	%v/v				
Barometric Pressure:		Start	995	O ₂	20.8	%v/v	Monitoring Equipment:				GA5000			
		End	1003					Serial Number of Equipment:				G505491		
Barometric Pressure Trend:		Locally rising, regionally rising.					Date of Last Calibration:				14.Jan.2025			
Weather:		Dry and Sunny.					Operator:				DJW			
Key		Remarks												
NR - Not Recorded NA - Not Applicable														
		Checked:		JBW		Approved:		JBW						

GAS AND GROUNDWATER MONITORING RESULTS

Site: Higham Lane North, Dodworth

Job No: 4173

Visit No: 4

Client: Commercial Development Projects Limited

Date: 12/09/2025



Monitoring Location	Gas Concentration									Gas Emission Rate		GWL	Base of Standpipe
	Peak			Steady		Highest	Highest	Lowest					
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S	CO	O ₂	Litre/Hour			
BH	% lsl	%v/v	%	% lsl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl	
WS312	0.0	0.0	1.9	0.0	0.0	1.9	0	4	19.8	0.0	0.0	Dry	3.20
DSRC301	0.0	0.0	4.1	0.0	0.0	4.1	0	0	9.8	0.0	0.0	9.40	12.10
DSRC304	0.0	0.0	5.3	0.0	0.0	5.3	0	0	11.5	0.0	0.0	9.00	12.00
DSRC308	0.0	0.0	1.7	0.0	0.0	1.7	0	0	20.2	0.0	0.0	6.80	8.70
DSRC309	0.0	0.0	0.8	0.0	0.0	0.8	0	0	20.6	0.1	0.1	Dry	8.25
DSRO301	0.0	0.0	0.4	0.0	0.0	0.3	0	0	20.5	-0.8	-0.8	15.50	20.50
DSRO302	0	0	7.7	0	0	7.7	0	0	3.6	0	0	5.55	19.95
Ambient Concentration (% volume):													
			CH ₄		%v/v		CO ₂			%v/v			
			O ₂		%v/v								
Barometric Pressure:		Start	980						Monitoring Equipment:		GA5000		
		End	983						Serial Number of Equipment:		G505491		
Barometric Pressure Trend:		Locally rising, regionally rising.						Date of Last Calibration:		14.Jan.2025			
Weather:		Overcast						Operator:		EJS			
Key		Remarks											
NR - Not Recorded NA - Not Applicable													
		Checked:		JBW			Approved:		JBW				

GAS AND GROUNDWATER MONITORING RESULTS

Site: Higham Lane North, Dodworth

Job No: 4173

Visit No: 5

Client: Commercial Development Projects Limited

Date: 23/09/2025



Monitoring Location	Gas Concentration									Gas Emission Rate		GWL	Base of Standpipe
	Peak			Steady		Highest	Highest	Lowest					
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S	CO	O ₂	Litre/Hour			
BH	% lcl	%v/v	%	% lcl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl	
WS312	0.0	0.0	0.3	0.0	0.0	0.3	0	0	20.00	-0.1	-0.1	0.80	3.20
DSRC301	0.0	0.0	2.5	0.0	0.0	2.5	0	0	14.80	0.0	0.0	5.50	12.10
DSRC304	0.0	0.0	1.5	0.0	0.0	1.5	0	0	19.90	0.0	0.0	6.80	12.00
DSRC308	0.0	0.0	0.3	0.0	0.0	0.3	0	0	20.80	0.0	0.0	7.95	8.70
DSRC309	0.0	0.0	0.3	0.0	0.0	0.2	0	0	1.90	0.0	0.0	Dry	8.25
DSRO301	0.0	0.0	1.4	0.0	0.0	0.7	0	0	20.30	0.0	0.0	17.10	20.50
DSRO302	0	0	7.6	0.0	0.0	7.6	0	0	19.0	0	0	5.75	19.95
Ambient Concentration (% volume):			CH ₄		%v/v		CO ₂		%v/v				
Barometric Pressure:		Start	1005	O ₂		%v/v		Monitoring Equipment:				GA5000	
		End	1010					Serial Number of Equipment:				G505491	
Barometric Pressure Trend:		Locally rising, regionally rising						Date of Last Calibration:		14.Jan.2025			
Weather:		Sunny						Operator:		EJS			
Key		Remarks											
NR - Not Recorded NA - Not Applicable													
		Checked:		JBW			Approved:		JBW				

GAS AND GROUNDWATER MONITORING RESULTS

Site: Higham Lane North, Dodworth

Job No: 4173

Visit No: 6

Client: Commercial Development Projects Limited

Date: 29/09/2025



Monitoring Location	Gas Concentration									Gas Emission Rate		GWL	Base of Standpipe	
	Peak			Steady			Highest	Highest	Lowest					
	CH ₄		CO ₂	CH ₄		CO ₂	H ₂ S	CO	O ₂	Litre/Hour				
BH	% lsl	%v/v	%	% lsl	%v/v	%	ppm	ppm	%	Peak	Steady	(m) bgl		
WS312	0.0	0.0	0.5	0.0	0.0	0.3	1	0	20.6	0.0	0.0	Dry	3.20	
DSRC301	0.0	0.0	3.7	0.0	0.0	3.7	1	0	9.1	0.1	0.1	9.52	12.10	
DSRC304	0.0	0.0	4.0	0.0	0.0	4.0	1	0	11.6	0.1	0.1	8.29	12.00	
DSRC308	0.0	0.0	1.8	0.0	0.0	1.8	0	0	20.2	0.0	0.0	7.06	8.70	
DSRC309	0.0	0.0	2.4	0.0	0.0	2.4	0	1	16.6	0.0	0.0	Dry	8.25	
DSRO301	0.0	0.0	0.3	0.0	0.0	0.3	1	0	20.6	0.1	0.1	17.75	20.50	
DSRO302	0.0	0.0	6.9	0.0	0.0	6.9	1	0	2.3	0.1	0.1	5.74	19.95	
Ambient Concentration (% volume):				CH ₄	0.1	%v/v	CO ₂			0.2	%v/v			
Barometric Pressure:		Start	1003	O ₂	20.8	%v/v	Monitoring Equipment:					GA5000		
		End	1005						Serial Number of Equipment:					G505491
Barometric Pressure Trend:		Locally rising, regionally falling.					Date of Last Calibration:					14.Jan.2025		
Weather:		Sunny.					Operator:					DMH		
Key		Remarks												
NR - Not Recorded NA - Not Applicable		Borehole DSRC304 purged and water sample taken.												
		Checked:		JBW			Approved:		JBW					



Appendix F Notes on Limitations



General

JPG (Leeds) Limited have prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from JPG (Leeds) Limited; a charge may be levied against such approval.

JPG (Leeds) Limited accepts no responsibility or liability for:

- a) The consequences of this document being used for any purpose or project other than for which it was commissioned, and
- b) The use of this document by any third party with whom an agreement has not been executed.

Phase I Desk Study Reports

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including any information provided by the Client), together with (where appropriate) a brief walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties where appropriate. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, JPG (Leeds) Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Phase II Geo-Environmental Investigations

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, geotechnical characteristics and ground and groundwater conditions to allow a reasonable assessment of the environmental risks together with engineering and development implications.

The objectives of the investigation have been limited to establishing the risks associated with potential human receptors, building materials, the environment (including adjacent land) and controlled waters (surface water and groundwater).

The number of sampling points and the methods of sampling and testing do not preclude the existence of localised "hotspots" of contamination where concentrations may be significantly higher than those actually encountered.

The risk assessment and opinions provided, inter alia, take into consideration currently available guidance values relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

The scope of the investigation was selected on the basis of the specific development proposed by the Client and may be inappropriate to another form of development or scheme.

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Appendix C

JPG Ground Investigation Report, 2025



INTERPRETATIVE REPORT ON A GEOENVIRONMENTAL & GEOTECHNICAL GROUND INVESTIGATION

Higham Lane North Dodworth

Reference

4173-JPG-XX-XX-RP-G-0610-S2-P01

Date

November 2025

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JPG (Leeds) Limited. Composite Exploratory Hole Location Plan. Commercial Plot, Higham Lane North, Dodworth. Drawing Ref, 4173-JPG-ZZ-ZZ-DR-G-1104 S2 P07, dated 22 August 2025.

JPG (Leeds) Limited. Unit 1, Geological Site Sections. Higham Lane, Barnsley. Drawing Ref, 4173-JPG-ZZ-ZZ-DR-G-1120 S2 P03, dated 8 October 2025.

The Harris Partnership. Proposed Industrial Development. Capitol Park, Junction 37 M1, Higham Lane, Barnsley. Reference, 11138-1-(P)111. Revision E. Dated May 2023.

Appendix B HazWasteOnline Waste Classification

Appendix C Notes on Limitations



CONFIDENTIALITY STATEMENT

This report is addressed to and may be relied upon by the following:

Commercial Development Projects Limited
Huddersfield Road
ELLAND
HX5 9BW

This report has been prepared for the sole use and reliance of the above-named party. This report shall not be relied upon or transferred to any other parties without the express written authorisation of JPG (Leeds) Limited. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party.

DOCUMENT HISTORY

Revision	Date	Revision Details	Status	Author(s)	Approved
P01	12.11.2025	First Issue	Information	EJS	JBW



EXECUTIVE SUMMARY

Site Address	Higham Lane North, Dodworth
Site Location	NGR 431541, 406356
Current Site Use & Proposed Development	The site is irregular in shape and occupies an area of approximately 5.96 hectares. It generally consists of sloping arable farmland, which is divided into two similar sized fields by a hedgerow. The site can be accessed via two farm tracks off Higham Lane, located in the south and east of the site. The northern field falls gradually to the northwest, with ground levels of approximately 155m AOD in the south falling to approximately 145m AOD in the north. A hill is present in the southern field, the highest point of which is approximately 163m AOD. An overhead telecoms line crosses the northern field from the northwest to the east, before continuing to follow the eastern boundary of the southern field. There is also a telecoms transmitter, surrounded by a metal post and chain link fence, in the eastern corner of the site.
Previous Reports	JPG have completed a Desk Study Report and Factual Ground Investigation Report for the site, these are referenced below: • JPG (Leeds) Limited. Geoenvironmental Desk Study Report. Higham Lane North, Dodworth, Barnsley. Report Ref 4173-JPG-XX-XX-RP-G-0605 S2 P01. Dated July 2025. • JPG (Leeds) Limited. Factual Report on Geoenvironmental & Geotechnical Ground Investigation. Higham Lane North, Dodworth. Report Ref 4173-JPG-XX-XX-RP-G-0609 S2 P03. Dated September 2025, P03 revision dated 31 October 2025. Previously JPG produced a Desk Study Report and standalone Coal Mining Risk Assessment and Coal Recovery Report to support an outline planning application for the site under reference 2019/0286. These reports are referenced below. • JPG (Leeds) Limited. Geoenvironmental Desk Study Report. Higham Lane North, Dodworth, Barnsley. Report Ref JAM/DS/4173.v1. Dated January 2019. • JPG (Leeds) Limited. Coal Mining Risk Assessment and Coal Recovery Report. Higham Lane North, Dodworth. Report Ref JAM/CMRA/4173.v1. Dated February 2019. This interpretative report should be read in conjunction with the above referenced reports.
Ground and Groundwater Conditions	The ground investigation confirmed topsoil across site to depths of between 0.13m and 0.40m bgl, mean 0.28m bgl. Made ground was encountered below the topsoil in one location only (TP301) between 0.30m and 0.70m bgl. The residual soils (completely weathered bedrock material) were typically found to comprise firm, orangish brown and mottled grey, gravelly clay to depths of between 0.70m and 3.60m bgl, mean 1.58m bgl. In the southeast of the site the residual soils were found to comprise light yellowish brown, sandy, gravel and cobbles of sandstone to depths of between 0.85m and 1.67m bgl, mean 1.20m bgl. The underlying bedrock was typically found to comprise extremely weak, light and dark greyish brown, thinly laminated mudstone. Mudstone was frequently recovered as destructured with clay infill to fractures. The strength of the underlying bedrock was found to increase with depth, becoming very weak, thinly laminated, light grey and brown, occasionally distinctly weathered mudstone. Ironstone nodules were encountered within the rock core recovered from across the site. Two outcrops of coal were encountered in the west of the site (TT301, TT302 and TT304). The coal outcrops are considered representative of the Top Haigh Moor and Low Haigh Moor coal seams. The Top Haigh Moor and Low Haigh Moor coal seams were also encountered in multiple exploratory holes at varying depths across site, dipping to the east. The Top Haigh Moor seam was found to typically comprise three leaves. The Low Haigh Moor was typically recorded to comprise two leaves. The coal seams were found to be intact in all trial pits and boreholes, with no evidence of past underground workings such as soft ground, broken ground or loss of drilling flush.
Geotechnical and Engineering Assessment	Mining - Two outcrops of coal were proven in the west of the site. These coal outcrops are considered representative of the Top Haigh Moor and Low Haigh Moor coal seams. The coal seams were also encountered in multiple exploratory holes at varying depths across site, dipping to the east. The Top Haigh Moor seam was found to typically comprise three leaves. The Low Haigh Moor was typically recorded to comprise two leaves. The coal seams were found to be intact in all trial pits and boreholes, with no evidence of past underground workings such as soft ground, broken ground or loss of drilling flush. On this basis, drill and grout treatment of past underground coal workings in the Top Haigh Moor and Low Haigh Moor coal seams below the site is not required. The Top Haigh Moor coal seam has been subject to opencast mining to the north and northeast of the site in the Hunters Cottage opencast site. As part of the JPG ground investigation, a rotary openhole borehole (DSRO302) was drilled near the north-eastern boundary to investigate if the backfilled opencast encroaches onto the site. The borehole did not encounter any made ground. The borehole encountered intact coal was encountered from 0.80m to 1.20m bgl, 1.80m to 2.00m bgl and 9.00m to 10.80m bgl. Based on ground modelling and geotechnical sections, shallow coal is only likely to be encountered to the south of Unit 1 where the Top Haigh Moor outcrops. Where the coal is encountered, it may be relocated on site or removed from the site. An 'Incidental coal agreement' will be required from the Mining Remediation Authority. This is an 'Agreement to Dig and Carry Away Coal in the Course of



	Non-Mining Activities'. Earthworks - There will be a requirement to carry out significant earthworks in order to create suitable development platforms. This will include the excavation and compaction of site won materials in order to achieve the required levels. In the northern half of the site, the cut and fill analysis indicates filling below the majority of Unit 1, with upfilling of up to approximately 6.00m in the northern part and a slight cut of up to approximately 1.00m below the southernmost part of the unit. The proposed earthworks is to enable a finished floor level (FFL) of 150.70m AOD for Unit 1. A retaining structure is required along the northeast of the unit in order to accommodate the upfilling and also the loading of the proposed unit. In the southern half of the site, the existing hill in the south will be cut with a reduction in ground levels of up to approximately 6.00m. Ground levels will be raised below the northern third of Unit 2 by up to approximately 3.00m. The proposed earthworks is to enable an FFL of 159.50m AOD for Unit 2. Proper selection and control will be required as part of the earthworks. The materials should not be allowed to deteriorate during excavation and compaction and must be sufficiently protected from traffic after placement. The contractor shall be responsible for selecting suitable plant and methods of working to ensure that the fill materials are compacted to achieve at least 95% of the maximum dry density and less than 5% air voids. Any earthworks should be carried out in accordance with the Manual of Contract Documents for Highway Works, CC 601 Earthworks (formerly Series 600). Detailed recommendations for retaining structures is outside the scope of this report. Foundations – It is proposed to raise ground levels below most of the Unit 1 footprint except for the southernmost part where soils are to be cut into natural. On this basis, it is anticipated that foundations will bear onto both natural soils/rock and engineered fill of appropriate bearing capacity and settlement criteria. Foundations will comprise either: • Pad foundations; • Mass fill concrete (in areas of deeper engineered fill); or • Piled foundations (where the depth to natural strata precludes the use of the above). For Unit 2, ground levels will be raised in the northern third by placement of engineering fill while the southern two-thirds of the unit will be constructed on an area of cut. On this basis, pad foundations will bear onto both natural soils/rock and engineered fill of appropriate bearing capacity and settlement criteria. Ground Floor Slab - Following the cut and fill earthworks operation, ground-bearing floor slabs are to be adopted. It is recommended that the formation level is proof rolled and inspected. Any soft or loose materials should be removed and replaced with suitably compacted granular fill. Any proposed earthworks should be designed in order to achieve the specified allowable bearing capacity and limits on settlement for the proposed ground floor slab. Roads, Pavements and Hardstanding Surfaces - Laboratory testing of cohesive soils and mudstone indicate that CBRs of between 10.0% and 29.4% are achievable. Based on the ground conditions encountered and laboratory testing carried out, it is recommended that a design CBR value of 3% is adopted for the materials. CBR tests are to be undertaken at formation level on a maximum grid spacing of 30m by 30m. The contractor shall be responsible for achieving greater than the 3% design CBR. A minimum of 450mm plate diameter should be used to carry out the plate load tests. Excavations - Based on the nature of the made ground, underlying natural strata and the presence of shallow groundwater. It is considered likely that if excavations were left unsupported, then over time collapse would occur. Obstructions/Existing Services – Based on the findings of the ground investigation, manmade obstructions are considered unlikely. An overhead telecoms line crosses the northern field from the northwest to the east, before continuing to follow the eastern boundary of the southern field. There is also a telecoms transmitter, surrounded by a metal post and chain link fence, in the eastern corner of the site. Chemical Attack on Buried Concrete – Concrete should be designed to Aggressive Chemical Environment for Concrete (ACEC) Design Sulphate Class DS-2 and ACEC Class AC-2.
Environmental Risk Assessment & Waste Classification	Based on the results of the chemical analysis and hazardous ground gas monitoring, no potential sources of contamination have been identified. Therefore, there is negligible risk to human health or controlled waters. Nine samples of made ground and one sample of natural ground were assessed using HazWasteOnline™ in order to determine the classification of the materials for disposal off-site. All of the samples were classified as non-hazardous.
Hazardous Ground Gases	The ground gas assessment carried out classifies the site as Characteristic Situation (CS) 1 in accordance with BS8485:2015+A1:2019. Therefore, no gas protection measures will be required. No radon protective measures are required.
This sheet is intended as a summary only of the assessment of the site in relation to ground condition. It does not provide a definitive engineering analysis.	



1.0 INTRODUCTION

1.1 Instruction

JPG (Leeds) Limited (JPG) has been instructed by Commercial Development Projects Limited (CDP) to provide an Interpretative Geoenvironmental And Geotechnical Ground Investigation Report for a proposed industrial development located to the north of Higham Lane, Dodworth.

1.2 Objectives

The main objective of the Interpretative Geoenvironmental And Geotechnical Report is to provide geotechnical parameters for earthworks, foundation and floor slab design and to identify potential geotechnical and environmental constraints of the proposed development and, if required, make recommendations for any remedial works.

In addition to providing general site coverage, the ground investigation was designed to target the location of a proposed retaining structure against the northern boundary in order to provide geotechnical parameters to inform foundation (retaining wall) design. The design of the retaining structure is to be agreed with JPG's Designers Geotechnical Adviser (DGA) Byland Engineering Limited (Byland), who will provide a Geotechnical Design Report (GDR) for the structure.

1.3 Scope of Works

The scope of works for this Interpretative Geoenvironmental And Geotechnical Report includes the following.

- A detailed description of the ground conditions encountered.
- Assessment of potential contaminants to include a Tier 2 generic quantitative risk assessment (GQRA) specific to the proposed end-use using source-pathway-receptor linkages, including a hazardous ground gas risk assessment.
- An assessment of the classification of materials for disposal off-site (not including WAC testing).
- Comments on the likely requirements for remedial measures on the site, to address potential contamination or hazardous ground gas issues.
- Engineering assessment to include recommendations with respect to earthworks, foundations, ground floor and pavement design.
- Recommendations for further work where appropriate; and,
- Presentation of the findings in a tabular non-technical summary.



1.4 Location

The site is located approximately 3km west of Barnsley town centre. The approximate centre of the site is located at NGR 431541, 406356.

A site location plan is given as Figure 1 in Appendix A.

1.5 Site Description and Topography

The site is irregular in shape and occupies an area of approximately 5.96 hectares. It generally consists of sloping arable farmland, which is divided into two similar sized fields by a hedgerow.

The site can be accessed via two farm tracks off Higham Lane, located in the south and east of the site. The northern field falls gradually to the northwest, with ground levels of approximately 155m AOD in the south falling to approximately 145m AOD in the north. A hill is present in the southern field, the highest point of which is approximately 163m AOD.

An overhead telecoms line crosses the northern field from the northwest to the east, before continuing to follow the eastern boundary of the southern field. There is also a telecoms transmitter, surrounded by a metal post and chain link fence, in the eastern corner of the site.

The northeastern boundary of the site comprises a wooden fence running parallel to the M1 motorway, which is located within a cutting adjacent to the site. Higham Lane abuts the southwestern boundary of the site. Higham Lane is raised on an embankment adjacent to the northwest of the site before crossing the M1 via an overbridge. The eastern, southern and western boundaries consist of trees and hedgerows.

Higham Manor and Lane Side Farm are large residential properties halfway along the southwestern boundary of the site. Higham Manor and Lane Side Farm are surrounded by a stone walls, wooden fences and hedgerows, separating them from the site. Capitol Park, a commercial development, is present to the east.

An aerial photograph of the site is included as Figure 2 in Appendix A.

1.6 Development Proposals

It is proposed to develop the site for an industrial end use, comprising two large units (Unit 1 in the north and Unit 2 in the south) with associated service yards, car park spacing and soft landscaping areas.

A proposed site layout plan is referenced below, a copy of which is presented in Appendix A of this report.

- The Harris Partnership. Proposed Industrial Development. Capitol Park, Junction 37 M1, Higham Lane, Barnsley. Reference, 11138-1-(P)111. Revision E. Dated August 2022.



1.7 Previous Reports

JPG have completed a Desk Study Report and Factual Ground Investigation Report for the site, these are referenced below:

- JPG (Leeds) Limited. Geoenvironmental Desk Study Report. Higham Lane North, Dodworth, Barnsley. Report Ref 4173-JPG-XX-XX-RP-G-0605 S2 P01. Dated July 2025.
- JPG (Leeds) Limited. Factual Report on Geoenvironmental & Geotechnical Ground Investigation. Higham Lane North, Dodworth. Report Ref 4173-JPG-XX-XX-RP-G-0609 S2 P03. Dated September 2025, P03 revision dated 31 October 2025.

Previously JPG produced a Desk Study Report and standalone Coal Mining Risk Assessment and Coal Recovery Report to support an outline planning application for the site under reference 2019/0286. These reports are referenced below.

- JPG (Leeds) Limited. Geoenvironmental Desk Study Report. Higham Lane North, Dodworth, Barnsley. Report Ref JAM/DS/4173.v1. Dated January 2019.
- JPG (Leeds) Limited. Coal Mining Risk Assessment and Coal Recovery Report. Higham Lane North, Dodworth. Report Ref JAM/CMRA/4173.v1. Dated February 2019.

This interpretative report should be read in conjunction with the above referenced reports.

1.8 Limitations

The general limitations to the nature of the investigation are outlined in Appendix C.



2.0 GROUND AND GROUNDWATER CONDITIONS

2.1 Ground Conditions

The ground investigation confirmed topsoil across site to depths of between 0.13m and 0.40m bgl, mean 0.28m bgl. Topsoil typically comprised a dark brown sandy gravelly clay or a clayey gravelly sand with rootlets.

Made ground was encountered below the topsoil in one location only (TP301) between 0.30m and 0.70m bgl. Made ground comprised a dark brown, slightly clayey, sandy gravel with frequent boulders of concrete, timber and masonry work.

The residual soils (completely weathered bedrock material) were typically found to comprise firm, orangish brown and mottled grey, gravelly clay to depths of between 0.70m and 3.60m bgl, mean 1.58m bgl.

In the southeast of the site, the residual soils were found to comprise light yellowish brown, sandy, gravel and cobbles of sandstone to depths of between 0.85m and 1.67m bgl, mean 1.20m bgl.

The underlying bedrock was typically found to comprise extremely weak, light and dark greyish brown, thinly laminated mudstone. Mudstone was frequently recovered as destructured with clay infill to fractures. The strength of the underlying bedrock was found to increase with depth, becoming very weak, thinly laminated, light grey and brown, occasionally distinctly weathered mudstone. Ironstone nodules were encountered within the rock core recovered from across the site.

Occasional bands of yellowish brown fine to coarse grained sandstone were encountered at varying depths. Sandstone beds were recorded with thicknesses of between 0.25m and 1.40m.

Two outcrops of coal were encountered in the west of the site (TT301, TT302 and TT304). The coal outcrops are considered representative of the Top Haigh Moor and Low Haigh Moor coal seams. Outcrops typically comprised black, slightly sandy gravel of coal, with a seam/leaf thickness of between 0.40m and 1.00m thick. The Top Haigh Moor and Low Haigh Moor coal seams were also encountered in multiple exploratory holes at varying depths across site, dipping to the east. The Top Haigh Moor seam was found to typically comprise three leaves. The Low Haigh Moor was typically recorded to comprise two leaves. The coal seams were found to be intact in all trial pits and boreholes, with no evidence of past underground workings such as soft ground, broken ground or loss of drilling flush.

A geological section has been prepared for the Unit 1 area to illustrate the shallow coal seams and the depth to competent bedrock strata. A copy is provided in Appendix A and referenced below.

- JPG (Leeds) Limited. Unit 1, Geological Site Sections. Higham Lane, Barnsley. Drawing Ref, 4173-JPG-ZZ-ZZ-DR-G-1120 S2 P03, dated 8 October 2025.



2.2 In-Situ Testing

The results of the in-situ standard penetration testing (SPTs) carried out in the cable percussive boreholes, rotary cored boreholes and window sample boreholes have been plotted against level (m AOD). The results have been corrected in accordance with the energy ratio of the testing equipment.

Due to the differences in level between the units, two separate plots have been prepared for Unit 1 and Unit 2. These are presented as Figure 3a and 3b respectively in Appendix A. SPT data (uncorrected) is included on the exploratory hole logs provided in Appendix B of the factual report.

Figure 3a shows a correlation of increasing strength with level (m AOD) in the natural ground. Figure 3b indicates no clear correlation between level and depth. However, corrected SPTs of >20 are typically recorded below 1.00m bgl.

2.3 Geotechnical Laboratory Testing

The testing suite was designed to classify the materials and confirm suitability for earthworks. In addition, samples of rock core were submitted to assess rock strength.

The laboratory testing schedule was reviewed by Byland to ensure testing in relation to the geotechnical design of the retaining structure was appropriate.

Moisture Content and Atterberg Limits

Moisture content and Atterberg limits testing has been carried out on 14 samples, comprising 10 of natural cohesive (clay soils) and four of distinctly weathered bedrock (gravelly clay). Moisture content testing has been carried out on four samples of natural granular soils. The results are summarised in Table 2.3.2.

Table 2.3.2 – Summary of Moisture Content and Atterberg Limit Testing

Material	Moisture Content (%)		Atterberg Limits Modified Plasticity Index (%)	
	No of samples	Range	No of samples	Range
Cohesive Natural Ground	6	13.2 – 22.2	5	16.4 – 35.0
Bedrock – Distinctly weathered (Cohesive)	4	7.9 – 14.7	4	6.5 – 23.4
Granular Natural Ground	2	2.1 – 4.3	-	-
Bedrock – Distinctly weathered (Granular)	2	7.8 – 7.9	-	-

The moisture contents of the natural cohesive material typically range between 13% and 22%. The results of the modified plasticity indices for the natural cohesive soil typically ranges between 16% and 35%, indicating low to medium plasticity.

Moisture content of the distinctly weathered (cohesive) bedrock typically ranges between 8% and 15%. Results of the modified plasticity indices for the cohesive bedrock typically range between 7% and 23%, indicating low plasticity.



The Plasticity Indices reported have been modified based on the percentage of particles smaller than 425µm. The results indicate that the natural cohesive material is of low to medium plasticity, indicating a low to medium potential for volume change.

Particle Size Distribution

Particle size distribution/sedimentation testing has been carried out on six samples of natural cohesive material, two samples of natural granular material and four samples of distinctly weathered bedrock (mudstone). The tests were carried out to confirm the field description of the materials and inform the earthworks classification. The results are summarised in Table 2.3.3.

Table 2.3.3 – Summary of Particle Size Distribution/Sedimentation Testing

Trial Pit	Depth (m bgl)	Material	Cobbles (%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
TP302	0.70	Slightly sandy slightly gravelly CLAY	0	5	4	39	52
TP304	1.30	Slightly sandy slightly gravelly CLAY	0	12	7	36	45
TP306	0.90	Slightly sandy slightly gravelly CLAY	0	4	3	41	52
TP311	1.40	Distinctly weathered MUDSTONE. (Clay)	0	7	6	35	52
TP314	3.00	Distinctly weathered MUDSTONE. (Clay)	0	29	8	28	35
TP315	2.70	Distinctly weathered MUDSTONE. (Gravel)	0	63	5	14	18
TP317	0.75	Slightly sandy COBBLES and GRAVEL of sandstone.	51	45	2	2	
TP318	0.60	Slightly sandy COBBLES and GRAVEL of sandstone	73	24	1	2	
TP319	0.50	Slightly sandy CLAY	0	0	2	39	59
TP321	2.25	Distinctly weathered MUDSTONE. (Gravel)	0	68	3	12	17
TP324	2.00	Distinctly weathered MUDSTONE. (Clay)	0	4	5	38	53
TP326	1.50	Slightly sandy gravelly CLAY	0	19	3	31	47

Compaction Testing

Ten soil samples, comprising six of natural cohesive and four of bedrock were submitted for dry density/moisture content relationship testing. The tests were carried out using a 2.5kg and a 4.5kg rammer. The results are summarised in Table 2.3.4.



Table 2.3.4 – Summary of Compaction Test Results

Exp. Hole	Depth (m bgl)	Material	Compaction Hammer	Particle Density (Mg/m ³)	Natural Moisture Content (NMC)	Max. Dry Density (Mg/m ³)	Optimum Moisture Content (OMC)	Suitability for Compaction and Range of Acceptable Moisture Contents*
TP302	0.70	Slightly sandy slightly gravelly CLAY	2.5kg	2.68	21.8	1.59	25	Unsuitable Too Dry 23% to 28.5%
			4.5kg			1.66	22	Suitable 20.5% to 25.5%
TP304	1.30	Slightly sandy slightly gravelly CLAY	2.5kg	2.71	15.4	1.77	18	Unsuitable Too Dry 17% to 22%
			4.5kg			1.86	15	Suitable 14.5% to 19.5%
TP306	0.90	Slightly sandy slightly gravelly CLAY	2.5kg	2.68	16.9	1.62	23	Unsuitable Too Dry 21.5% to 26.5%
			4.5kg			1.70	20	Unsuitable Too Dry 19% to 29%
TP311	1.40	Distinctly weathered MUDSTONE. (Clay)	2.5kg	2.61	11.7	1.82	15	Unsuitable Too Dry 14% to 18.5%
			4.5kg			1.95	12	Suitable 11% to 15%
TP314	3.00	Distinctly weathered MUDSTONE. (Clay)	2.5kg	2.56	11.8	1.88	12	Suitable 11.5% to 16%
			4.5kg			1.65	12	Suitable 12% to 16.5%
TP315	2.70	Distinctly weathered MUDSTONE. (Gravel)	2.5kg	2.54	7.9	1.92	11	Unsuitable Too Dry 10.5% to 14.5%
			4.5kg			2.04	8	Suitable 7.5% to 12%
TP319	0.50	Slightly sandy CLAY	2.5kg	2.68	22.2	1.56	25	Unsuitable Too Dry 24% to 29.5%
			4.5kg			1.64	22	Suitable 21% to 26%
TP321	2.25	Distinctly weathered MUDSTONE. (Gravel)	2.5kg	2.60	7.8	1.86	14	Unsuitable Too Dry 13% to 17%
			4.5kg			1.97	11	Unsuitable Too Dry 10% to 15%
TP324	2.00	Distinctly weathered MUDSTONE. (Clay)	2.5kg	2.67	14.7	1.78	18	Unsuitable Too Dry 16.5% to 21%
			4.5kg			1.86	15	Suitable 13.5% to 19%
TP326	1.50	Slightly sandy gravelly CLAY	2.5kg	2.69	13.2	1.82	16	Unsuitable Too Dry 15% to 19.5%
			4.5kg			1.93	13	Suitable 12% to 17%

* To achieve >95% of Maximum Dry Density and <5% Air Voids.

Suitability for compaction is defined as achieving greater than 95% of the maximum dry density and less than 5% air voids.



Based on the results of the compaction testing, both materials are typically unsuitable when subjected to light compaction with the 2.5kg hammer due to being too dry. When subjected to heavier compaction with the 4.5kg hammer, materials were typically suitable for compaction. Notably, suitable samples were on the drier end of acceptance in all cases, with two samples being too dry with heavy compaction (4.5kg rammer) also.

Two samples of coarse sandstone cobbles and gravel were also submitted for compaction testing. However, due to the size of the cobbles there was insufficient testing specimen after initial classification testing had been carried out to complete any compaction testing.

Moisture Condition Value

Samples of the natural ground were submitted for five-point moisture condition value (MCV) calibrations and one-point MCV tests at received moisture contents.

MCV values below eight may be indicative of soils which would be too wet to compact and MCV values above 12 may be indicative of soils which are too dry to achieve adequate compaction.

A range of acceptable moisture contents, based on MCV values of 8 and 12, have been calculated. These have been compared to the as-received moisture content. A summary is provided in Table 2.3.5 below.

Table 2.3.5 – Summary of Moisture Condition Value Calibrations

Location	Depth (m bgl)	Material	As Received Moisture Content (%)	Acceptable Range of Moisture Contents (%)
TP302	0.70	Slightly sandy slightly gravelly CLAY	21.8	Slightly too dry 22% to 25.5%
TP311	1.40	Distinctly weathered MUDSTONE. (Clay)	11.7	Slightly too dry 12.7% to 15.8%
TP315	2.70	Distinctly weathered MUDSTONE. (Gravel)	7.4	Slightly too dry 9% to 12%
TP319	0.50	Slightly sandy CLAY	22.2	Slightly too dry 23% to 258.5%
TP324	2.00	Distinctly weathered MUDSTONE. (Clay)	14.7	Slightly too dry 15.5% to 19%

The results indicate that the natural ground is slightly too dry when compared to acceptable moisture content ranges for compaction. This correlates with the results from the compaction testing.

Results of one-point MCV testing at natural moisture content are summarised in table 2.3.6 below.



Table 2.3.6 – Single Point Moisture Condition Value Tests

Sample Ref.	Depth (m bgl)	Material	Moisture Content (%)	Moisture Condition Value (MCV)
TP306	0.90	Slightly sandy slightly gravelly CLAY	16.9	12.7
TP314	3.00	Distinctly weathered MUDSTONE. (Clay)	12.0	12.4
TP321	2.25	Distinctly weathered MUDSTONE. (Clay)	7.8	13.9
TP326	1.50	Slightly sandy gravelly CLAY	13.2	11.0

One-point MCV testing on two samples of the clay the material ranges between being slightly too dry and just suitable. Testing on two samples of the weathered bedrock indicates the material is too dry for compaction.

One-point testing indicates that to incorporate natural soil into the earthworks it will likely be required to increase moisture content to meet compaction requirements.

Compaction Test Method Suitability Comparison

The results of the dry density/moisture content compactions and the MCV (one-point and five-point) compaction testing results have been compared.

Typically, the five-point and one-point MCV tests indicate that the material is outside the acceptable range of moisture contents, i.e. too dry, corresponding to the dry density/moisture content relationship results, which also indicate that the material is too dry to be effectively compacted in its current condition.

Compaction results indicate that under heavy compaction material may be able to meet requirements, at current moisture content. These acceptable test results still fall on the dry side of the limit, and it would be beneficial to add water during earthworks operation to ensure effective compaction.

California Bearing Ratio (CBR) Testing

California Bearing Ratio (CBR) testing has been carried out on five samples of natural cohesive material, two samples of cohesive weathered bedrock material (mudstone) and two of granular weathered bedrock material (sandstone). Samples were compacted with a 2.5kg rammer in the laboratory. The results are summarised in Table 2.3.7 below.



Table 2.3.7 – Summary of CBR Testing

Sample Ref.	Depth (m bgl)	Material	CBR Value Top (%)	CBR Value Base (%)	Report CBR Average (%) *
TP302	0.70	Slightly sandy slightly gravelly CLAY	13.7	16.5	15.1
TP304	1.30	Slightly sandy slightly gravelly CLAY	10.0	12.7	
TP306	0.90	Slightly sandy slightly gravelly CLAY	24.1	22.2	23.15
TP311	1.40	Distinctly weathered MUDSTONE. (Clay)	17.1	16.4	16.75
TP314	3.00	Distinctly weathered MUDSTONE. (Clay)	16.3	13.5	14.9
TP315	2.70	Distinctly weathered MUDSTONE. (Gravel)	20.9	23.9	22.4
TP319	0.50	Slightly sandy CLAY	12.8	14.9	13.85
TP321	2.25	Distinctly weathered MUDSTONE. (Gravel)	25	29.4	27.2
TP324	2.00	Distinctly weathered MUDSTONE. (Clay)	12.6	14.5	13.55
TP326	1.50	Slightly sandy gravelly CLAY	14.4	12.6	13.5

* To report a CBR average, the results from each end of the sample must be within +/- 10% of the mean value.

Two samples of coarse sandstone cobbles and gravel were also submitted for CBR testing. However, due to the size of the cobbles there was insufficient testing specimen after initial classification testing had been carried out.

Strength Testing

Three samples of the natural cohesive material at depths of between 0.50m and 1.90m bgl, were submitted for undrained shear strength in triaxial compression. Results are summarised in table 2.3.8 below.

Table 2.3.8 – Summary of Strength Testing

Sample Ref.	Depth (m bgl)	Natural Moisture Content (%)	Material	Cell Pressure (kPa)	Shear Strength (Cu)
DSRC302	1.20	13	Gravelly CLAY	50	179
				100	217
				200	280
DSRC306	0.50	18	Slightly sandy gravelly CLAY	25	133
				50	156
				100	192
DSRC308	1.90	11	Slightly sandy gravelly CLAY	50	172
				100	204
				200	232

Natural cohesive soils recorded shear strengths of between 133kN/m² and 280kN/m², mean 196kN/m². This result indicates that when material is remoulded in the laboratory, it can achieve high to very high strength properties.

One sample of cohesive natural material at 1.20m bgl was submitted for consolidated drained shear strength in triaxial compression. Results are summarised in Table 2.3.9.



Table 2.3.9- Summary of Drained Triaxial Compression

Sample Ref.	Depth (m bgl)	Natural Moisture Content (%)	Material	Cell Pressure (kPa)	Cv (m ² /year)	Mv (m ² /MN)
DSRC302	1.20	11.6	Slightly sandy gravelly CLAY	50	0.073	0.781
				100	0.005	0.163
				200	0.086	0.191

Oedometer Testing

One-dimensional consolidation testing was carried out on three undisturbed natural cohesive samples in order to assess the compressibility of the soils. The results are summarised in Table 2.3.10.

Table 2.3.10 – Summary of One-Dimensional Consolidation Tests

Exp. Hole	Depth (m bgl)	Material	Pressure Range (kPa)	Mv (m ² /MN)	Cv (m ² /yr)	Void Ratio
DSRC302	1.20	Gravelly CLAY	0 to 50	Swelling	Swelling	0.440
			50 to 100	0.326	16.771	
			100 to 200	0.291	12.818	
			200 to 400	0.183	5.273	
			400 to 200	0.054	17.646	
DSRC306	0.50	Slightly sandy gravelly CLAY	0 to 100	Swelling	Swelling	0.537
			100 to 200	0.129	10.188	
			200 to 400	0.125	4.148	
			400 to 800	0.078	2.281	
			800 to 400	0.022	5.328	
DSRC308	1.90	Slightly sandy gravelly CLAY	0 to 50	Swelling	Swelling	0.396
			50 to 100	0.766	7.667	
			100 to 200	0.326	7.518	
			200 to 400	0.166	7.542	
			400 to 200	0.018	21.247	

At an applied pressure range of 100kPa to 200kPa, a co-efficient of volume compressibility (Mv) of between 0.129m²/MN and 0.326m²/MN is recorded, indicating medium to high compressibility for this pressure range.

pH and Sulphate Testing

Two samples of natural clay, two samples of weathered bedrock and one sample of natural granular material were submitted for sulphate (total and water soluble) and total sulphur testing in order to determine the total potential sulphate and oxidisable sulphates which will give an indication of the potential for the material to heave. The results are summarised in Table 2.3.11.



Table 2.3.11 – Summary of pH and Sulphate Testing

Exp. Hole	Depth (m bgl)	pH	Water Soluble Sulphate (mg/l)	Total Sulphate - AS (% SO ₄)	Total Sulphur – TS (%)	Total Potential Sulphate – TPS (=3 x TS) (% SO ₄)	Oxidisable Sulphides – OS (=TPS-AS) (% SO ₄)
TP302	0.70	7.5	57	0.02	0.02	0.06	0.04
TP311	1.40	5.8	13	0.01	0.01	0.03	0.02
TP318	0.60	6.2	<10	<0.01	<0.01	<0.01	<0.01
TP321	2.25	6.2	50	0.01	0.01	0.03	0.02
TP326	1.50	6.4	58	0.01	0.01	0.03	0.02
DSRC307	2.50	8	10	<0.01	<0.01	<0.01	<0.01
DSRC308	3.90	6.9	41	0.02	0.04	0.12	0.1
DSRC309	3.15	6.9	49	<0.01	0.01	0.03	0.03
DSRC302	1.20	8.1	110	0.04	0.04	0.12	0.08
DSRC301	6.40	7.7	230	0.16	0.31	0.93	0.77
DSRC301	7.70	7.5	340	0.18	0.35	1.05	0.87
DSRC301	9.37	7.7	470	0.26	0.38	1.14	0.88
DSRC302	4.75	7.8	980	0.44	0.45	1.35	0.91
DSRC302	6.15	7.7	270	0.18	0.34	1.02	0.84
DSRC303	2.50	7.8	750	0.34	0.42	1.26	0.92
DSRC303	6.22	8.2	190	0.16	0.31	0.93	0.77
DSRC304	2.74	7.9	860	0.37	0.45	1.35	0.98
DSRC304	3.40	8.3	220	0.18	0.37	1.11	0.93

pH values were found to range between 5.8 and 8.3 with a mean of 7.4. Water soluble sulphate ranged between <10mg/l and 980mg/l with a characteristic value of 800mg/l.

A maximum Total Potential Sulphate (TPS) of 0.06% has been recorded, mean 0.04%.

Oxidisable sulphides range between 0.02% and 0.98% mean 0.45%.

Rock Strength Testing

Rock strength testing was carried out by Professional Soils Laboratory (PSL). 64 samples were submitted for Point Load Strength Index (PLI) testing, and two samples were submitted for Uniaxial Compressive Strength (UCS) testing. However, due to fragmentation, both rock core samples were deemed unsuitable for UCS tests. Consequently, PLI tests were carried out on the samples.

The results of the point load index (PLI) tests have been corrected in accordance with Broch & Franklin (1972). The Is_{50} value has been multiplied by a factor of 24 in order to obtain an approximate UCS.

The equivalent UCS values based on the results of the PLI tests and multiplication factor are provided in Table 2.3.1.



Table 2.3.1 – Summary of Laboratory Point Load Index (PLI) Tests

Exp. Hole	Top Depth (m bgl)	Orientation Perp/Par	Point Load Index (PLI)	Calculated Uniaxial Compressive Strength (MPa)	Strength*
DSRC301	6.40	Par	0.81	19.44	Weak
	7.70	Par	0.34	8.16	Weak
	8.06	Par	0.54	12.96	Weak
	9.37	Par	0.46	11.04	Weak
	9.43	Par	0.28	6.72	Weak
	10.30	Perp	0.14	3.36	Very weak
	12.30	Perp	0.23	5.52	Weak
	12.60	Par	0.03	0.72	Extremely weak
DSRC302	4.75	Par	0.81	19.44	Weak
	6.15	Par	0.34	8.16	Weak
	7.45	Perp	0.27	6.48	Weak
	7.65	Par	0.07	1.68	Extremely weak
	9.65	Perp	0.28	6.72	Weak
	10.60	Perp	0.19	4.56	Very weak
	12.10	Perp	0.29	6.96	Weak
DSRC303	2.50	Perp	0.15	6.48	Weak
	6.22	Par	0.07	1.68	Extremely weak
	6.22	Perp	0.25	6.00	Weak
	8.68	Perp	0.25	6.00	Weak
	10.73	Perp	0.28	6.72	Weak
	11.90	Perp	0.11	2.64	Very weak
DSRC304	2.74	Par	0.54	12.96	Weak
	3.40	Par	0.44	10.56	Weak
	5.28	Par	0.31	7.44	Weak
	5.70	Perp	0.21	5.04	Weak
	6.10	Par	0.62	14.88	Weak
	9.50	Par	0.40	9.60	Weak
DSRC305	3.26	Perp	0.25	6.00	Weak
	3.62	Par	0.11	2.64	Very weak
	7.75	Perp	0.43	10.37	Weak
DSRC306	2.40	Perp	0.08	1.92	Very weak
	4.35	Perp	0.85	20.40	Weak
	5.95	Perp	0.38	9.12	Weak
	7.50	Perp	0.41	9.84	Weak
DSRC307	2.50	Perp	1.11	26.64	Medium strong
	3.10	Perp	0.36	8.64	Weak
	6.10	Perp	0.57	13.68	Weak
DSRC308	3.90	Perp	0.04	0.96	Extremely weak
	5.50	Perp	0.13	3.12	Extremely weak
	6.30	Par	0.37	8.88	Weak
	7.40	Par	0.23	5.52	Weak
DSRC309	3.15	Perp	0.04	0.96	Extremely weak
	5.70	Perp	0.21	5.04	Weak
	6.50	Perp	0.24	5.76	Weak
	8.00	Perp	0.07	1.68	Extremely weak

* Based on BS EN ISO 14689 (Table 5).

The calculated uniaxial compressive strengths, based on the point load Is_{50} value, multiplied by a factor of 24 indicate extremely weak to weak rock for the mudstone. One of the tests, undertaken in sandstone at a depth of 2.50m bgl resulted in a strength of medium strong, no other samples of sandstone were obtained.



The results for all the rock strength tests have been plotted against depth (m bgl) and level (m AOD) and are presented as Figures 4A and 4B respectively in Appendix A.

There is no clear correlation of increasing strength with depth.

It should be noted that due to the weak nature of the bedrock it was not possible to obtain suitable core samples for UCS testing.

2.4 Groundwater

No groundwater strikes were recorded during the ground investigation. The deeper boreholes were drilled with air mist or full water flush, so it was difficult to detect the presence of water within the boreholes during the drilling operation.

Gas and groundwater monitoring wells were installed in one of the window sample boreholes, four of the rotary cored boreholes and two of the rotary open hole boreholes. Groundwater monitoring has been carried out on six occasions between 20 August and 29 September 2025.

A summary of the monitored groundwater levels is provided in Table 2.4 below.

Table 2.4 – Summary of Monitored Groundwater Levels

Location	Water level during monitoring (m bgl)					
	20/08/2025	26/08/2025	05/09/2025	12/09/2025	23/09/2025	29/09/2025
WS312	2.10	2.10	Dry	Dry	0.80	Dry
DSRC301	9.15	9.30	9.40	9.40	5.50	9.52
DSRC304	8.15	9.20	8.70	9.00	6.80	8.29
DSRC308	Dry	7.00	7.10	6.80	7.95	7.06
DSRC309	Dry	Dry	Dry	Dry	Dry	Dry
DSRO301	17.7	18.6	18.70	15.50	17.10	17.75
DSRC302	4.70	5.50	5.50	5.55	5.75	5.74

It should be noted that the groundwater conditions recorded are based on observations made at the time that site work and monitoring was carried out. Groundwater levels are likely to vary owing to seasonal and weather-related effects.

2.5 Ground Gas

Hazardous ground gas monitoring has been undertaken on six occasions between 20 August and 29 September 2025. The works were carried out using a portable gas meter in accordance with the standard JPG methodology and included measurements of methane, carbon dioxide, oxygen, hydrogen sulphide, carbon monoxide, gas flows and atmospheric pressure.

The results of the gas monitoring are provided in the Factual Geoenvironmental And Geotechnical Ground Investigation Report and an assessment of gas monitoring results is provided in Section 5 of this report.



3.0 GEOTECHNICAL AND ENGINEERING ASSESSMENT

3.1 Development Proposals

It is proposed to develop the site for an industrial end use, comprising two large units (Unit 1 in the north and Unit 2 in the south) with associated service yards, car park spacing and soft landscaping areas.

A proposed site layout plan is referenced below, a copy of which is presented in Appendix A of this report.

- The Harris Partnership. Proposed Industrial Development. Capitol Park, Junction 37 M1, Higham Lane, Barnsley. Reference, 11138-1-(P)111. Revision E. Date August 2022.

3.2 Coal Seams, Coal Mining Assessment & Coal Recovery

The coal mining investigation and assessment has been carried out in accordance with CIRIA Special Publication 32 'Construction Over Abandoned Mine Workings', dated 1984, and CIRIA C758D 'Abandoned mine workings manual', dated 2019.

Two outcrops of coal were proven in the west of the site. These coal outcrops are considered representative of the Top Haigh Moor and Low Haigh Moor coal seams. The coal seams were also encountered in multiple exploratory holes at varying depths across site, dipping to the east. The Top Haigh Moor seam was found to typically comprise three leaves. The Low Haigh Moor was typically recorded to comprise two leaves. The coal seams were found to be intact in all trial pits and boreholes, with no evidence of past underground workings such as soft ground, broken ground or loss of drilling flush.

In addition, boreholes drilled on Higham Lane located on the southern boundary as part of a previous JPG ground investigation (Report ref. 4173-JPG-XX-XX-RP-G-0604-S2-P01, dated September 2023) encountered only intact coal seams.

On this basis, drill and grout treatment of past underground coal workings in the Top Haigh Moor and Low Haigh Moor coal seams below the site is not required.

The Top Haigh Moor coal seam has been subject to opencast mining to the north and northeast of the site in the Hunters Cottage opencast site. As part of the JPG ground investigation, a rotary openhole borehole (DSRO302) was drilled near the north-eastern boundary to investigate if the backfilled opencast encroaches onto the site. The borehole did not encounter any made ground. Intact coal was encountered from 0.80m to 1.20m bgl, 1.80m to 2.00m bgl and 9.00m to 10.80m bgl.

Based on ground modelling and geotechnical sections (JPG Drawing No. 4173-JPG-ZZ-ZZ-DR-G-1120), the very shallow coal is considered to represent the Swallow Wood coal seam. The lower coal seam is considered to represent the Top Haigh Moor coal seam. Both the Swallow Wood and the Top Haigh Moor coal seam were extracted from the Hunters Cottage opencast site. On this basis, there is no evidence that the opencast encroaches onto the site.



There are no recorded mine entries on the site. However, the possibility of unrecorded mine entries (shafts, adits or bell pits) cannot be discounted. Vigilance should be maintained during the earthworks, in particular during excavations. If a suspected mine entry is encountered, advice should be sought from a suitably qualified consultant.

As part of the enabling works for the site, an earthworks operation comprising 'cut and fill' is required. Based on ground modelling and geotechnical sections (JPG Drawing No. 4173-JPG-ZZ-ZZ-DR-G-1120), shallow coal is only likely to be encountered to the south of Unit 1 where the Top Haigh Moor outcrops.

Where the coal is encountered, it may be relocated on site or removed from the site. An 'Incidental coal agreement' will be required from the Mining Remediation Authority. This is an 'Agreement to Dig and Carry Away Coal in the Course of Non-Mining Activities'.

Any coal encountered should not remain within 1.00m of the finished ground surface due to combustion risk.

3.3 Earthworks

There will be a requirement to carry out significant earthworks in order to create suitable development platforms. This will include the excavation and compaction of site won materials in order to achieve the required levels.

A cut and fill analysis has been carried out (JPG Drawing No. 4173-JPG-ZZ-ZZ-DR-C-1205).

In the northern half of the site, the cut and fill analysis indicates filling below the majority of Unit 1, with upfilling of up to approximately 6.00m in the northern part and a slight cut of up to approximately 1.00m below the southernmost part of the unit. The proposed earthworks is to enable a finished floor level (FFL) of 150.70m AOD for Unit 1.

A retaining structure is required along the northeast of the unit in order to accommodate the upfilling and also the loading of the proposed unit. A reduction in ground levels is proposed in the south of the northern site area where a further retaining wall of up to approximately 3.75m will be required.

In the southern half of the site, the existing hill in the south will be cut with a reduction in ground levels of up to approximately 6.00m. Ground levels will be raised below the northern third of Unit 2 by up to approximately 3.00m. The proposed earthworks is to enable an FFL of 159.50m AOD for Unit 2.

Retaining walls up to approximately 2.70m high will be required adjacent to the north and east of Unit 2 in order to enable construction of the development platform. In addition, a contiguous piled retaining wall is required to enable construction of a spine road between Units 1 and 2, as indicated on the site preparation drawing (JPG Drawing No. 4173-JPG-ZZ-ZZ-DR-C-1206).



The results of the laboratory compaction testing carried out as part of the JPG ground investigation indicate that the natural soils are generally suitable for use under heavy compaction but are too dry under light compaction.

Care should be taken to ensure the moisture content of material falls within suitable limits for compaction, i.e. soils should not be too dry to achieve compaction requirements. In the case of material being too dry, consideration should be given to increasing the moisture content of the material to meet the specification.

During the earthworks, bulk soil samples shall be taken of each different type of fill material and tested at an appropriate frequency. Each bulk sample shall be tested for the following prior to the commencement of filling:

- Moisture Content.
- Atterberg Limit Test.
- Particle Size Distribution (Wet Sieve and Pipette (Sedimentation)).
- Particle Density; and
- Compaction Tests (2.5kg and 4.5kg rammers).

Proper selection and control will be required as part of the earthworks. The materials should not be allowed to deteriorate during excavation and compaction and must be sufficiently protected from traffic after placement.

The contractor shall be responsible for selecting suitable plant and methods of working to ensure that the fill materials are compacted to achieve at least 95% of the maximum dry density and less than 5% air voids.

Any earthworks should be carried out in accordance with the Manual of Contract Documents for Highway Works, CC 601 Earthworks (formerly Series 600).

Detailed recommendations for retaining structures are outside the scope of this report.

3.4 Foundations

The ground investigation confirmed topsoil across site to depths of between 0.13m and 0.40m bgl, mean 0.28m bgl. Topsoil typically comprised a dark brown sandy gravelly clay or a clayey gravelly sand with rootlets.

Made ground was encountered below the topsoil in one location only (TP301) between 0.30m and 0.70m bgl. Made ground comprised a dark brown, slightly clayey, sandy gravel with frequent boulders of concrete, timber and masonry work.

The residual soils (completely weathered bedrock material) were typically found to comprise firm, orangish brown and mottled grey, gravelly clay to depths of between 0.70m and 3.60m bgl, mean 1.58m bgl.



In the southeast of the site the residual soils were found to comprise light yellowish brown, sandy, gravel and cobbles of sandstone to depths of between 0.85m and 1.67m bgl, mean 1.20m bgl.

The underlying bedrock was typically found to comprise extremely weak, light and dark greyish brown, thinly laminated mudstone. Mudstone was frequently recovered as destructured with clay infill to fractures. The strength of the underlying bedrock was found to increase with depth, becoming very weak, thinly laminated, light grey and brown, occasionally distinctly weathered mudstone. Ironstone nodules were encountered within the rock core recovered from across the site.

Occasional bands of yellowish brown fine to coarse grained sandstone were encountered at varying depths. Sandstone beds were recorded with thicknesses of between 0.25m and 1.40m.

It is proposed to raise ground levels below most of the Unit 1 footprint except for the southernmost part where soils are to be cut into natural. On this basis, it is anticipated that foundations will bear onto both natural soils/rock and engineered fill of appropriate bearing capacity and settlement criteria. Foundations will comprise either:

- Pad foundations;
- Mass fill concrete (in areas of deeper engineered fill); or
- Piled foundations (where the depth to natural strata precludes the use of the above).

For Unit 2, ground levels will be raised in the northern third by placement of engineering fill while the southern two-thirds of the unit will be constructed on an area of cut. On this basis, pad foundations will bear onto both natural soils/rock and engineered fill of appropriate bearing capacity and settlement criteria.

The carrying capacity of piles depends on their size, the ground conditions and on their method of installation. Pile design and installation is an ever-evolving process for contractors. It is recommended that specialist piling contractors are consulted as to the suitability and carrying capacity of their piles for the ground conditions on-site.

3.5 Ground Floor Slab

Following the cut and fill earthworks operation, ground-bearing floor slabs are to be adopted. It is recommended that the formation level is proof rolled and inspected. Any soft or loose materials should be removed and replaced with suitably compacted granular fill.

Any proposed earthworks should be designed in order to achieve the specified allowable bearing capacity and limits on settlement for the proposed ground floor slab.



3.6 Roads, Pavements and Hardstanding Surfaces

Laboratory testing of cohesive soils and mudstone indicate that CBRs of between 10.0% and 29.4% are achievable.

Based on the ground conditions encountered and laboratory testing carried out, it is recommended that a design CBR value of 3% is adopted for the materials.

Prior to roads and hardstanding being formed, the formation should be proof rolled and any soft or loose materials should be removed and replaced with well compacted suitable granular materials.

CBR tests are to be undertaken at formation level on a maximum grid spacing of 30m by 30m. The contractor shall be responsible for achieving greater than the 3% design CBR. A minimum of 450mm plate diameter should be used to carry out the plate load tests.

Materials with high fines content will deteriorate rapidly due to water ingress and tracking by construction plant. Adequate protection of formation levels will be required to maintain the strength of the material.

3.7 Excavations

Based on the nature of the natural strata and the absence of widespread shallow groundwater, it is considered likely that excavations would remain stable in the short-term.

Good working practice with respect to drainage of excavations and formations will be required to protect materials. Any excavation for structural foundations must be covered without delay with blinding concrete to prevent softening by water.

The requirement for temporary support of excavations should be assessed on an individual basis, and a competent person must inspect excavation sides at the start of the working shift and at other specified times in accordance with HSE guidance. No works shall take place until the excavation is safe.

3.8 Obstructions/Existing Services

Based on the findings of the ground investigation, manmade obstructions are considered unlikely.

Earthworks being carried out on in the south of site is likely to encounter weathered bedrock at shallow depth during cut and fill operations.

An overhead telecoms line crosses the northern field from the northwest to the east, before continuing to follow the eastern boundary of the southern field. There is also a telecoms transmitter, surrounded by a metal post and chain link fence, in the eastern corner of the site.



3.9 Chemical Attack on Buried Concrete

Laboratory testing has been undertaken on samples of the made ground, natural ground, and groundwater to determine the sulphate content and acidity and hence the concrete class required for buried concrete.

Laboratory testing of the made ground recorded water-soluble sulphate contents ranging between 13.2mg/l and 41.7mg/l and pH values of between 7.1 and 7.8.

Laboratory testing of the natural ground recorded water-soluble sulphate contents ranging between <10mg/l and 980mg/l with a characteristic value of 800mg/l and pH values of between 5.8 and 8.2 with a characteristic value of 6.15.

In the groundwater, sulphate contents of between 78.9mg/l and 187mg/l and pH values of 6.4 and 7.0 were recorded.

Foundations are likely to come into contact with made ground, natural ground and the underlying groundwater. On this basis it is recommended that concrete should be designed to Aggressive Chemical Environment for Concrete (ACEC) Design Sulphate Class DS-2 and ACEC Class AC-2, based on mobile groundwater conditions.

The site has been assessed in accordance with BRE Special Digest 1:2005 'Concrete in Aggressive Ground', and with the requirements for a greenfield site with mobile groundwater.



4.0 ENVIRONMENTAL RISK ASSESSMENT

4.1 Introduction

The statutory definition of contaminated land is given in the Environmental Protection Act, Part IIA, Section 78, 1990, which was introduced by the Environment Act, Section 57, Department of Environment, 1995 and is defined as:

Land, which appears to the Local Authority in whose area it is situated, to be in such a condition, by reason of substances in, on or under the land that:

- Significant harm is being caused or there is a significant possibility of such harm being caused (where harm is defined as harm to health of living organisms or other interference with the ecological systems of which they form a part and, in the case of man, includes harm to his property); and/or
- Significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused (by the land).

The presence of contaminated materials on a site is generally only of concern if an actual or potentially unacceptable risk exists. The potential for harm to occur requires three conditions to be satisfied:

- **Sources** – The presence of substances (potential contaminants/pollutants), in or under the ground, that may cause harm or pollution.
- **Receptors** - The presence of a receptor which may be harmed, e.g. the water environment or humans, buildings, fauna and flora; and
- **Pathway** - The existence of a linkage between the Source and the Receptor.

In summary, the presence of measurable concentrations of contaminants within the ground and subsurface environment does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and an unacceptable risk of harm to available receptors.

The nature and importance of both pathways and receptors, which are relevant to a particular site, will vary according to the sensitivity of the intended end use of the site and the site's characteristics and environmental setting.



Legislation and guidance on the assessment of contaminated sites acknowledges the need for a tiered risk-based approach. This is set out in the Environment Agency's manual *Land contamination: risk management* (published in October 2020 and last updated 12 June 2025) and comprises the following stages of risk assessment:

Tier 1: Preliminary risk assessment (PRA)	As part of this assessment, the overall site objectives are defined. Current and historical information about the site and the potential contaminants expected to be present are assessed and an outline conceptual model (CM) is developed. The risks are assessed qualitatively, and the findings reported in the PRA (or desk study). The report recommends what further works would be required in order to assess whether the site is suitable for its proposed use.
Tier 2: Generic quantitative risk assessment (GQRA)	The GQRA uses Generic Assessment Criteria and a standard set of generic assumptions based on specific end uses in order to assess the risks to receptors. It includes the collection of more detailed information including laboratory analysis of soil and water samples in order to inform and assess the risks.
Tier 3: Detailed quantitative risk assessment (DQRA)	If pollutant linkages are confirmed as part of the GQRA, these are known as relevant pollutant linkages (RPLs) and further detailed assessment is required. At this tier, detailed site-specific information is collected to estimate the risk or to develop site-specific assessment criteria (SSAC). This may include collecting information about the receptor.

A Tier 1 Assessment has been prepared for the site by JPG and is reported in the Geoenvironmental Desk Study Report (Ref 4173-JPG-XX-XX-RP-G-0605).

This environmental risk assessment undertaken by JPG constitutes a Tier 2 Generic Quantitative Risk Assessment (GQRA) and has been carried out in accordance with the Environment Agency's *Land contamination: risk management guidance*.

4.2 Assessment Approach

Human Health

The results of the chemical analysis for each determinand will be assessed against their respective GAC. These include the LQM/CIEH Suitable 4 Use Levels (S4UL) and Category 4 Screening Levels (C4SL) which were developed using the UK Contaminated Land Exposure Assessment (CLEA) Framework Documents and Software.

The CLEA model uses generic assumptions about the fate and transport of chemicals in the environment and a generic conceptual model (referred to as generic land use scenarios) for site conditions and human behaviour, to estimate child and adult exposures to soil contaminants for those living, working and/or playing on contaminated sites over long time periods.



The S4UL and C4SL screening levels have been derived for a variety of land uses including residential, allotments, commercial and public open space.

In the absence of S4UL and C4SL for potential contaminants, appropriate alternative GAC will be used.

Controlled Waters

Based on the environmental setting of the site, the leachate and groundwater chemical testing results have been compared against Generic Assessment Criteria (GAC) threshold values based on the Water Supply (Water Quality) Regulations (Drinking Water Standards) and the Water Framework Directive threshold values.

An exceedance of a threshold value does not directly imply there is an unacceptable risk, however, it indicates that the exceedance should be further assessed via the qualitative source-pathway-receptor approach.

4.3 Evaluation of Soils Analysis

Initially, the results of the chemical analysis for each potential contaminant will be compared directly with their respective GAC. Based on the current development proposals for the site, i.e. an hotel, the results of the chemical analysis for the soil samples have been assessed against GAC for a commercial end use.

If any significant exceedances of the GAC are noted, then the results will be subject to statistical analysis if appropriate. An outline of the methodology of the statistical analysis is presented in Appendix B.

Nine samples of made ground and one sample of natural ground were submitted for chemical analysis. A summary of the results is provided below.

Human Health – Soils

The results have been compared directly with their respective GAC and are summarised in Table 4.3.1.



Table 4.3.1 – Summary of Chemical Analysis for Soil Samples

Determinand	GAC for Commercial End Use (mg/kg)	Sample Mean (mg/kg)	Range of Results (mg/kg)	Do any samples exceed the GAC?
Metals and Metalloids				
Arsenic	640 ⁽¹⁾	17	13 - 21	No
Cadmium	190 ⁽¹⁾	<0.2	<0.2	No
Chromium	8600 ⁽¹⁾	23.9	17 - 37	No
Hexavalent Chromium	33 ⁽¹⁾	<1.8	<1.8	No
Copper	68,000 ⁽¹⁾	34.6	24 – 50	No
Lead	2,330 ⁽²⁾	43.2	24 – 54	No
Mercury (Inorganic)	1,100 ⁽¹⁾	<0.3	<0.3	No
Nickel	980 ⁽¹⁾	19.5	17 – 28	No
Selenium	12,000 ⁽¹⁾	1.51	1.1 – 1.9	No
Zinc	730,000 ⁽¹⁾	94.8	59 – 110	No
Inorganics				
Cyanide (free)	20 ⁽²⁾	<1.0	<1.0	No
Phenols				
Total Phenols	440 ^{*(1)}	<1.0	<1.0	No
Poly Aromatic Hydrocarbons				
Naphthalene	190 ^{*(1)}	0.18	<0.05 – 0.4	No
Acenaphthylene	83,000 ^{*(1)}	0.07	<0.05 – 0.07	No
Acenaphthene	84,000 ^{*(1)}	0.35	<0.05-0.63	No
Fluorene	63,000 ^{*(1)}	0.44	<0.05 – 0.77	No
Phenanthrene	22,000 ^{*(1)}	1.14	<0.05 – 8.8	No
Anthracene	520,000 ^{*(1)}	0.75	<0.05 – 2.6	No
Fluoranthene	23,000 ^{*(1)}	1.78	<0.05 – 13	No
Pyrene	54,000 ^{*(1)}	1.51	<0.05 – 11	No
Benz(a)anthracene	170 ^{*(1)}	0.87	<0.05 – 5.6	No
Chrysene	350 ^{*(1)}	0.81	<0.05 – 4.8	No
Benzo(b)fluoranthene	44 ^{*(1)}	1.02	<0.05 – 5.7	No
Benzo(k)fluoranthene	1,200 ^{*(1)}	0.42	<0.05 – 2.3	No
Benzo(a)pyrene	35 ^{*(1)}	0.77	<0.05 – 4.7	No
Indeno(123-cd) pyrene	500 ^{*(1)}	0.45	<0.05 – 2.2	No
Dibenzo(ah)anthracene	3.5 ^{*(1)}	0.19	<0.05 – 0.59	No
Benzo(ghi)perylene	3,900 ^{*(1)}	0.46	<0.05 – 2.4	No

(1) S4UL * BASED ON 1% SOM, (2) C4SL

None of the determinands were recorded at concentrations in excess of their respective GAC for commercial end use.

All 10 samples were submitted for an asbestos screen; no asbestos was detected.

Four samples of topsoil were also submitted for pesticides and herbicides, none were detected.



Evaluation of Controlled Waters Analysis

Four samples of topsoil / made ground were submitted for leachability analysis. The results for each determinand were compared directly with their respective GAC, the results are summarised in Table 4.3.2.

Table 4.3.2 – Summary of Leachability Results

Determinand	GAC (µg/l)	TP301 0.30m	TP303 0.20m	TP310 0.10m	TP315 0.50m
Metals and Metalloids					
Arsenic	10 (1)	< 1.0	< 1.0	< 1.0	2.4
Cadmium	5 (1)	< 0.08	< 0.08	< 0.08	< 0.08
Chromium	50 (1)	3	1.8	4.3	1.3
Copper	2000 (1)	15	30	29	25
Lead	10 (1)	1	1.6	2	<1.0
Mercury	1 (1)	< 0.5	< 0.5	< 0.5	< 0.5
Nickel	20 (1)	1.9	1.7	1.8	1.1
Selenium	10 (1)	< 4.0	< 4.0	< 4.0	< 4.0
Zinc	5000 (1)*	10	7.1	26	5.2
Inorganics					
Cyanide Free	50 (1)	< 1	< 1	< 1	< 1
Poly Aromatic Hydrocarbons					
Naphthalene	4.24 (2)	< 0.01	1	< 0.01	< 0.01
Anthracene	0.193 (2)	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	0.0122 (2)	< 0.01	< 0.01	< 0.01	< 0.01
Benzo (a) pyrene	0.01 (1)	< 0.01	< 0.01	< 0.01	< 0.01
Sum of: Benzo (b) fluoranthene, Benzo (k) fluoranthene, Indeno (1,2,3-c,d) pyrene, and; Benzo (g,h,i) perylene	0.1 (1)	< 0.01	1	< 0.01	< 0.01
Phenols					
Phenol	14.9 (2)	< 1	< 1	< 1	< 1

(1) Water Supply (Water Quality) Regulations *Historical 1989 Threshold Value.

(2) Water Framework Directive 2015, Surface Water, Maximum Threshold Value.

None of the determinands were recorded in excess of their respective GAC.

Three samples of groundwater were submitted for chemical analysis. The results for each determinand were compared directly with their respective GAC. The results are summarised in Table 4.3.3.



Table 4.3.3 – Summary of Groundwater Results

Determinand	GAC (µg/l)	DSRC301 9.15m	DSRC304 6.90m	DSRO302 5.60m
Metals and Metalloids				
Arsenic	50(1)	3.11	1.08	0.57
Cadmium	5(1)	0.11	0.03	3.5
Chromium (total)	50(1)	<0.2	<0.2	<0.2
Copper	2000(1)	18	2.7	1.9
Lead	10(1)	1.4	<0.2	0.3
Mercury	1(1)	<0.05	<0.05	<0.05
Nickel	20(1)	5.6	23	6.3
Selenium	10(1)	<0.6	<0.6	<0.6
Zinc	5000(1)	6.4	9.7	17
Inorganics				
Cyanide (Free)	50(1)	< 1.0	<1.0	< 1.0
Sulphate as SO ₄	250,000(1)	187	178	78.9
pH	6.5-9.5(1)	7	6.4	7
Poly Aromatic Hydrocarbons				
Naphthalene	4.24(2)	5.4	250	< 0.01
Anthracene	0.193(2)	<0.01	<2*	< 0.01
Fluoranthene	0.0122(2)	0.15	17	< 0.01
Benzo(a)pyrene	0.01(1)	< 0.01	<2*	< 0.01
Sum of: Benzo (b) fluoranthene, Benzo (k) fluoranthene, Indeno (1,2,3-c,d) pyrene, and; Benzo (g,h,i) perylene.	0.1 (1)	< 0.01	<2*	< 0.01
Phenols				
Phenol	14.9(2)	3.7	<1.0	< 1.0

(1) Water Supply (Water Quality) Regulations *Historical 1989 Threshold Value.

(2) Water Framework Directive 2015, Surface Water, Maximum Threshold Value.

In DSRC304, the initial sample was reported with high limits of detection due to the sample requiring dilution above the concentration range for the procedure. Results were considered deviating as a result of this and not accredited. In addition, naphthalene and fluoranthene were recorded in excess of the respective GACs.

Consequently, a further water sample was obtained from DSRC304 and tested for PAH and TPH only. No determinands were recorded at concentrations in excess of their respective GAC in this sample. On this basis, the previously recorded concentrations of naphthalene and fluoranthene were discounted.

Slightly elevated concentrations of naphthalene and fluoranthene were also recorded in DSRC301. However, these results are not considered typical of the groundwater quality.

None of the other samples recorded determinands at concentrations in excess of their respective GAC.



4.4 Evaluation of Hazardous Ground Gases

Based on the desk study information and ground conditions encountered, it was considered that there was the potential for the presence of concentrations of elevated concentration of hazardous ground gases on the site.

In order to assess the potential risks posed to the proposed development from hazardous ground gases, monitoring wells were installed in four of the rotary cored boreholes, two rotary open hole boreholes and one of the window sample boreholes.

Ground gas monitoring has been undertaken on six occasions. The works were carried out using a portable infrared gas meter in accordance with the standard JPG methodology and included the measurement of methane, carbon dioxide, oxygen, hydrogen sulphide, carbon monoxide, gas flows and atmospheric pressure.

4.5 Summary of Results

The results of the hazardous ground gas monitoring are provided on the site visit record sheets in the factual geo-environmental ground investigation report. A summary of the results is provided below:

- Methane was not recorded in any of the boreholes throughout the six monitoring visits.
- Steady concentrations of carbon dioxide of 6.1% v/v and 12.2% v/v were recorded on one occasion in DSRC301 and DSRC308 during the second visit. Steady concentrations of carbon dioxide of 5.6% v/v and 7.7% v/v in excess of 5% v/v were also recorded in DSRO302.
- Reduced oxygen concentrations (i.e. <16%v/v) were recorded in all boreholes except WS310.
- No significant concentrations of hydrogen sulphide (H₂S) or carbon monoxide (CO) were recorded.
- A positive peak flow of 1.6 l/hr was recorded in DSRO301 during the third visit, no other peak flows of >0.3 l/hr were recorded.
- A positive steady flow of 1.5l/hr was recorded in DSRO301 during the third visit, no other steady flows of >0.2 l/hr were recorded.

Two of the monitoring visits were carried out during periods of regionally falling atmospheric pressure, three during rising atmospheric pressure and one during a period of steady atmospheric pressure. Barometric pressures during the monitoring period ranged between 980mB and 1010mB.

4.6 Requirements for Gas Protection Measures

The results of the hazardous ground gas monitoring have been assessed in accordance with BS8485:2015+A1:2019, 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.



A gas screening value (GSV) for carbon dioxide has been calculated based on worst-case conditions. Using the highest steady carbon dioxide concentration and highest steady flow, a GSV of 0.183 l/hr for carbon dioxide has been calculated. This would result in the site being classified as Characteristic Situation (CS) 2.

However, the recorded steady flows of 1.5/hr, peak flow of 1.6l/hr, are not considered to be typical as all other borehole flow rates were no greater than 0.3 l/hr, but typically 0.1 l/hr or non-detectable. Therefore, the outlier flows have been removed from the dataset. Once the outlier flow rates have been removed, a worst-case GSV of 0.0244 l/hr for carbon dioxide can be calculated. This GSV is indicative of CS1.

DSRC301, DSRC304 and DSRO301 targeted the footprint of Unit 1 in the north. In DSRC301, carbon dioxide ranged from 2.4% to 6.1% v/v, mean 4.0% v/v. In DSRC304, carbon dioxide ranged from 1.5% to 5.3% v/v, mean 3.7% v/v. In DSRO301 carbon dioxide ranged from 0.2% to 4.6% v/v, mean 1.0% v/v. On this basis, carbon dioxide concentrations can be seen to be typically less than 5%.

WS312, DSRC308 and DSRO309 targeted the footprint of Unit 2 in the south. In WS312, carbon dioxide ranged from 0.3% to 3.5% v/v, mean 1.6% v/v. In DSRC308, carbon dioxide ranged from 0.3% to 12.2% v/v, mean 3.3% v/v. In DSRC309 carbon dioxide ranged from 0.2% to 2.4% v/v, mean 1.1% v/v. The maximum steady carbon dioxide concentration of 12.2% v/v was recorded at a barometric pressure of between 984mB and 989mB during a period of falling regional pressure. Therefore, the elevated concentration of carbon dioxide is considered attributable to atmospheric conditions and not the result of gas generation.

Based on the above assessment, it is recommended that CS1 is adopted for both units on the site.

Radon Risk

The site is not shown to be within a radon affected area as defined by Public Health England with between 1% and 3% of properties are above the action level.

In accordance with the Building Research Establishment (BRE) publication BR211, no radon protective measures are required for new properties constructed on the site.

4.7 Summary of Potential Sources, Pathways and Receptors

Based on the results of the chemical analysis and hazardous ground gas monitoring, no potential sources of contamination have been identified.

4.8 Risk Classification

Based on the updated conceptual site model, it is considered that there is negligible risk to human health or controlled waters.



4.9 Mitigation Measures

Although no potential sources of contamination have been identified on the site, and no risks to potential receptors have been identified, consideration should be given to implementing the following mitigation measures for development and maintenance workers.

Development and Maintenance Workers

- Site workers involved in groundworks should use appropriate PPE, i.e. overalls and gloves. Appropriate health and safety measures, e.g. washing hands prior to eating or drinking, should also be enforced.
- Site workers involved in groundworks should take the necessary measures to ensure that all works in excavations and confined spaces are carried out in accordance with best practice in order to prevent exposure to potentially hazardous ground gases.
- During development of the site, all workers should remain vigilant to the possible risk of encountering areas of potentially contaminated material. Should potentially contaminated material be encountered, site management should be informed. Further testing may then be required to assess the risk to health and safety of the site workers and the environment.
- All employers involved in works at the site should produce an appropriate method statement and risk assessment, to which all employees should comply, e.g. working in confined spaces. Reference should also be made to the appropriate HSE and other guidance for working on contaminated and potentially contaminated sites.

4.10 Classification of Materials for Disposal Off-site

Nine samples of made ground and one sample of natural ground were assessed using HazWasteOnline™ in order to determine the classification of the materials for disposal off-site.

Based on the results of the chemical analysis, all of the samples were classified as non-hazardous. Details of the classification generated by HazWasteOnline™ are provided in Appendix B.

The results of the chemical analysis and waste classification should be forwarded to the landfill operator to confirm this assessment and provide a price for disposal.



Appendix A Figures/Drawings

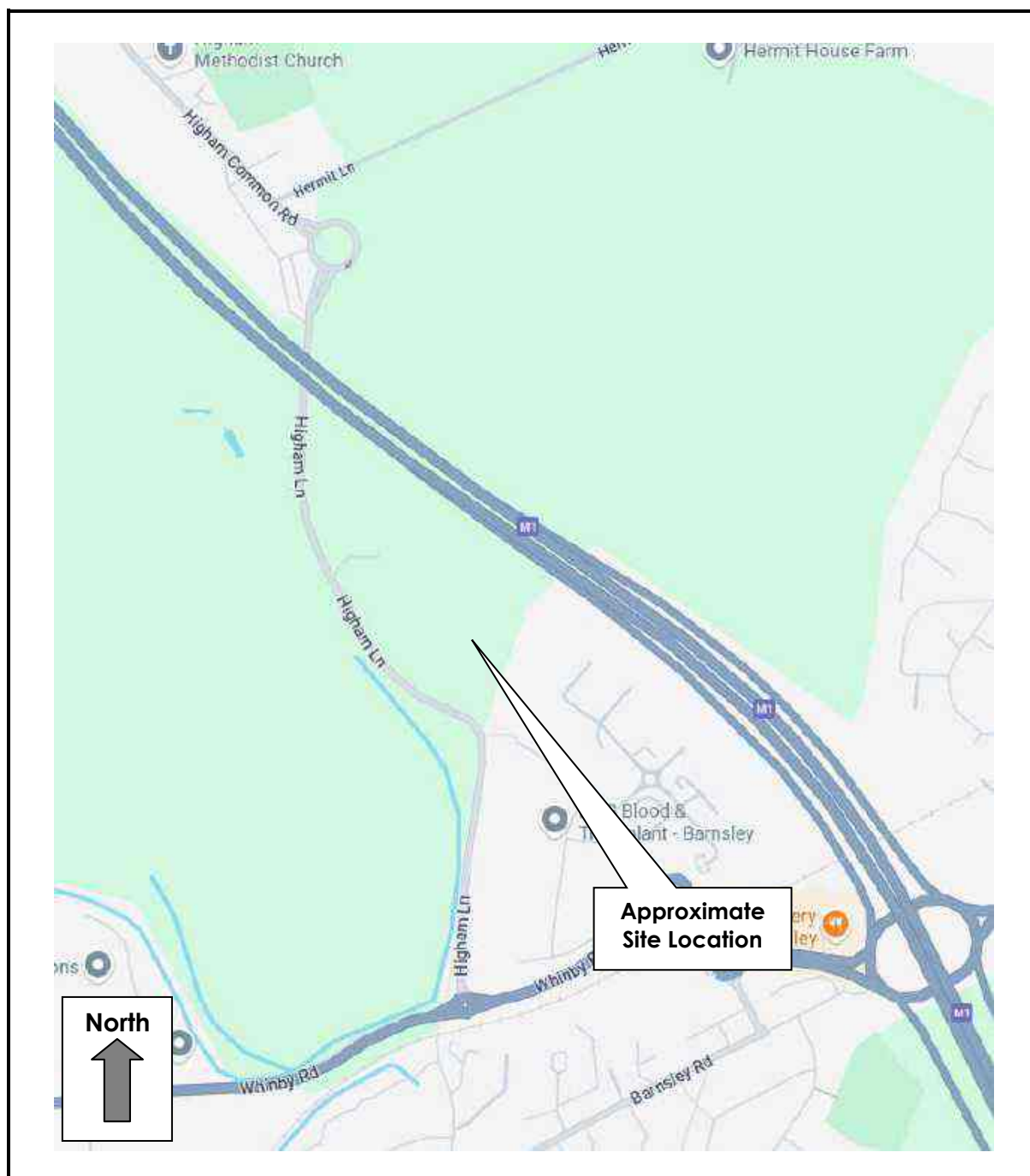


Figure 1 – Site Location Plan	
Site	Higham Lane North, Dodworth, Barnsley
Client	Commercial Development Projects Limited
Job Number	4173
Scale	NTS

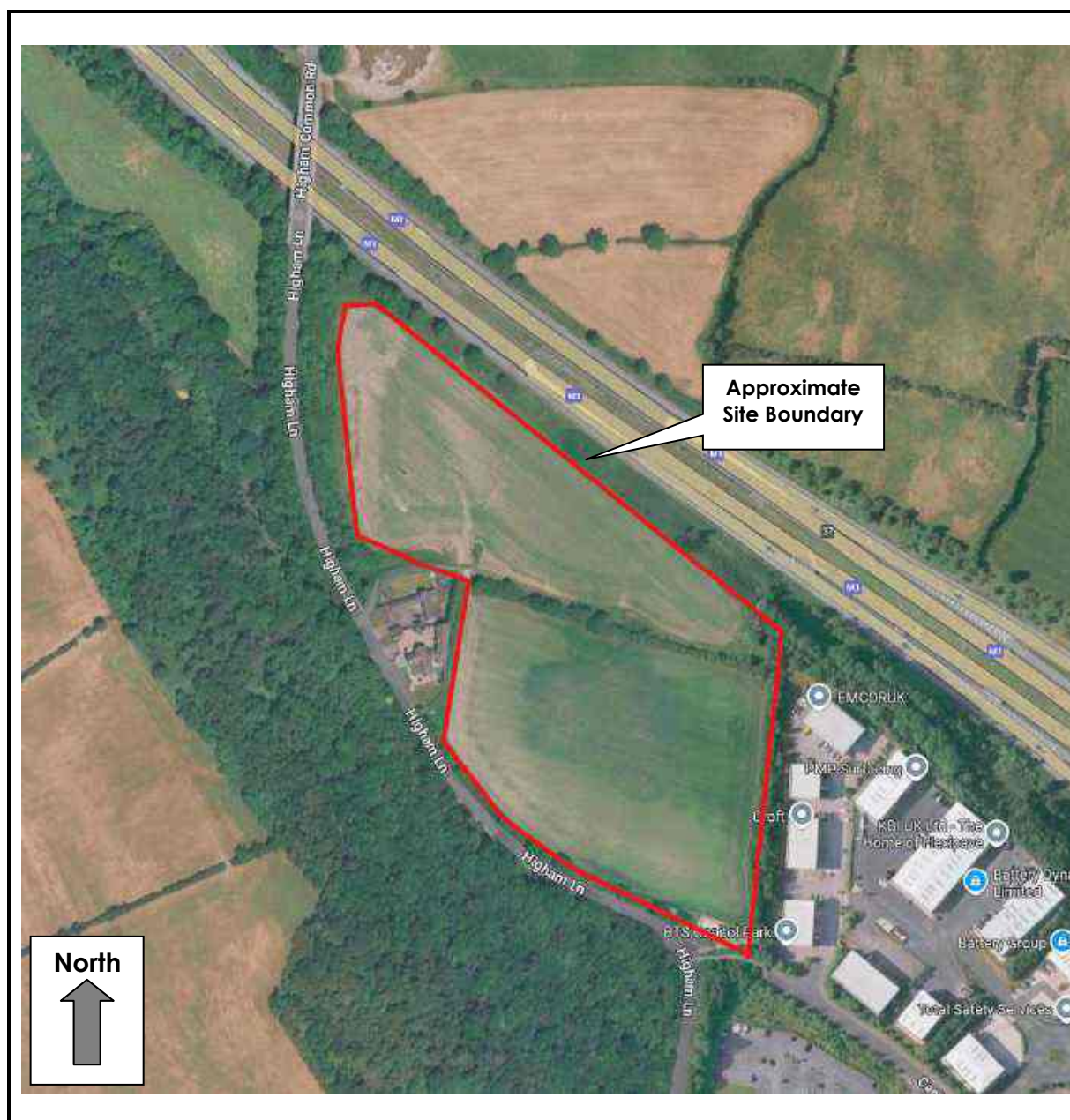
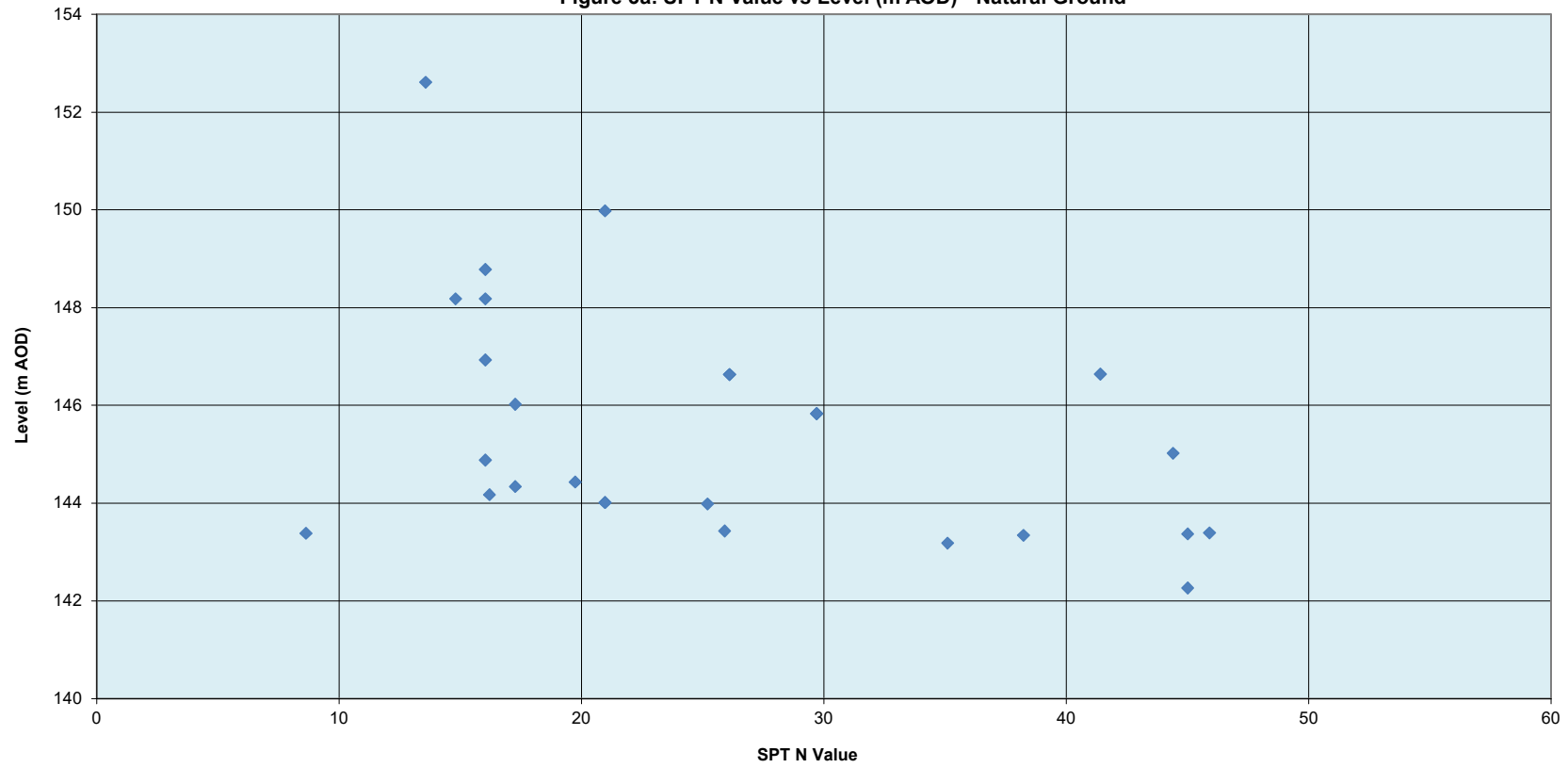


Figure 2 – Aerial Photograph

Site	Higham Lane North, Dodworth, Barnsley
Client	Commercial Development Projects Limited
Job Number	4173
Scale	NTS

Unit 1
Figure 3a: SPT N Value vs Level (m AOD) - Natural Ground



Unit 2

Figure 3b: SPT N Value vs Depth (m AOD) - Natural Ground

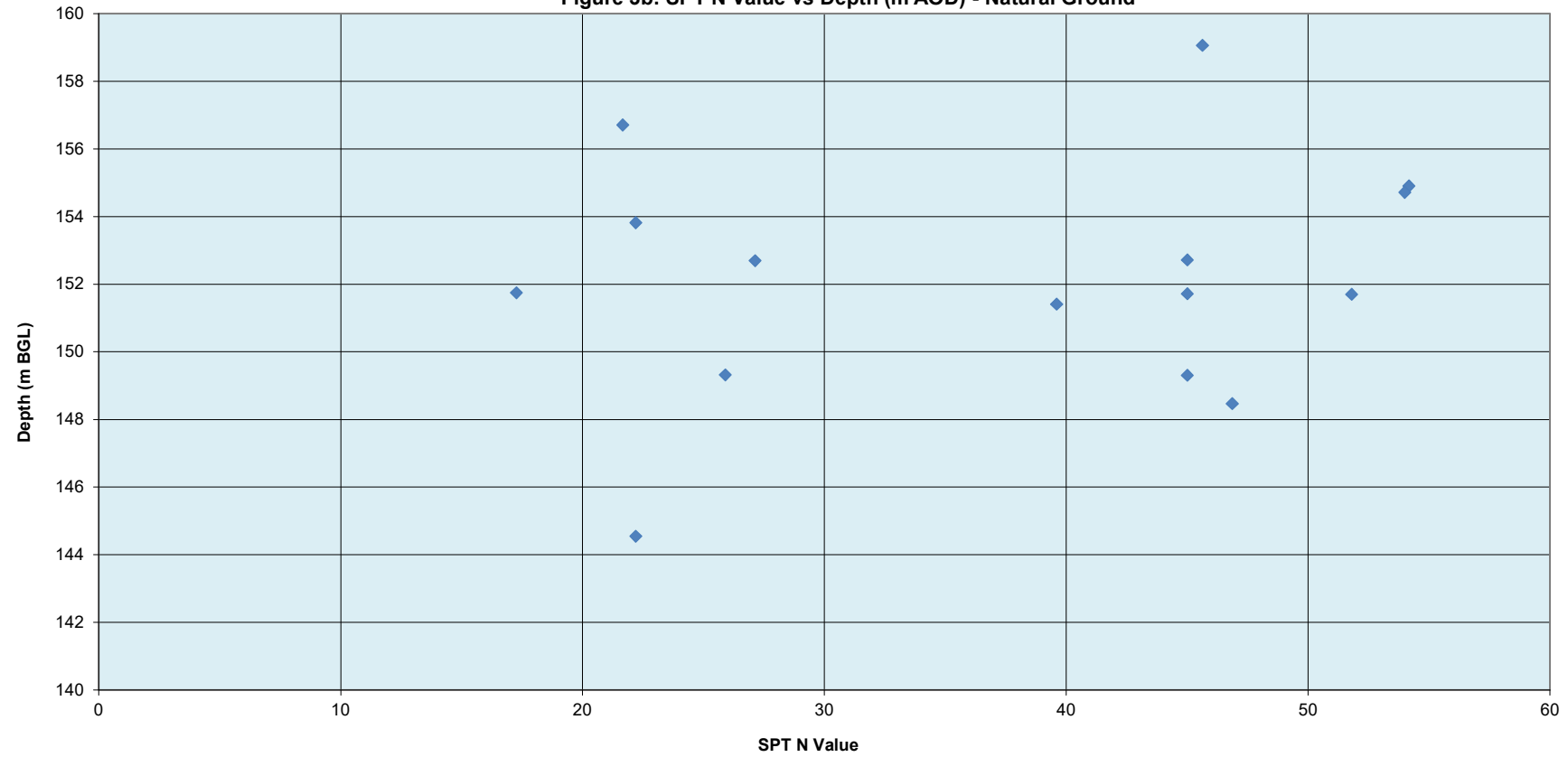


Figure 4A - Unconfined Compressive Strength vs. Depth

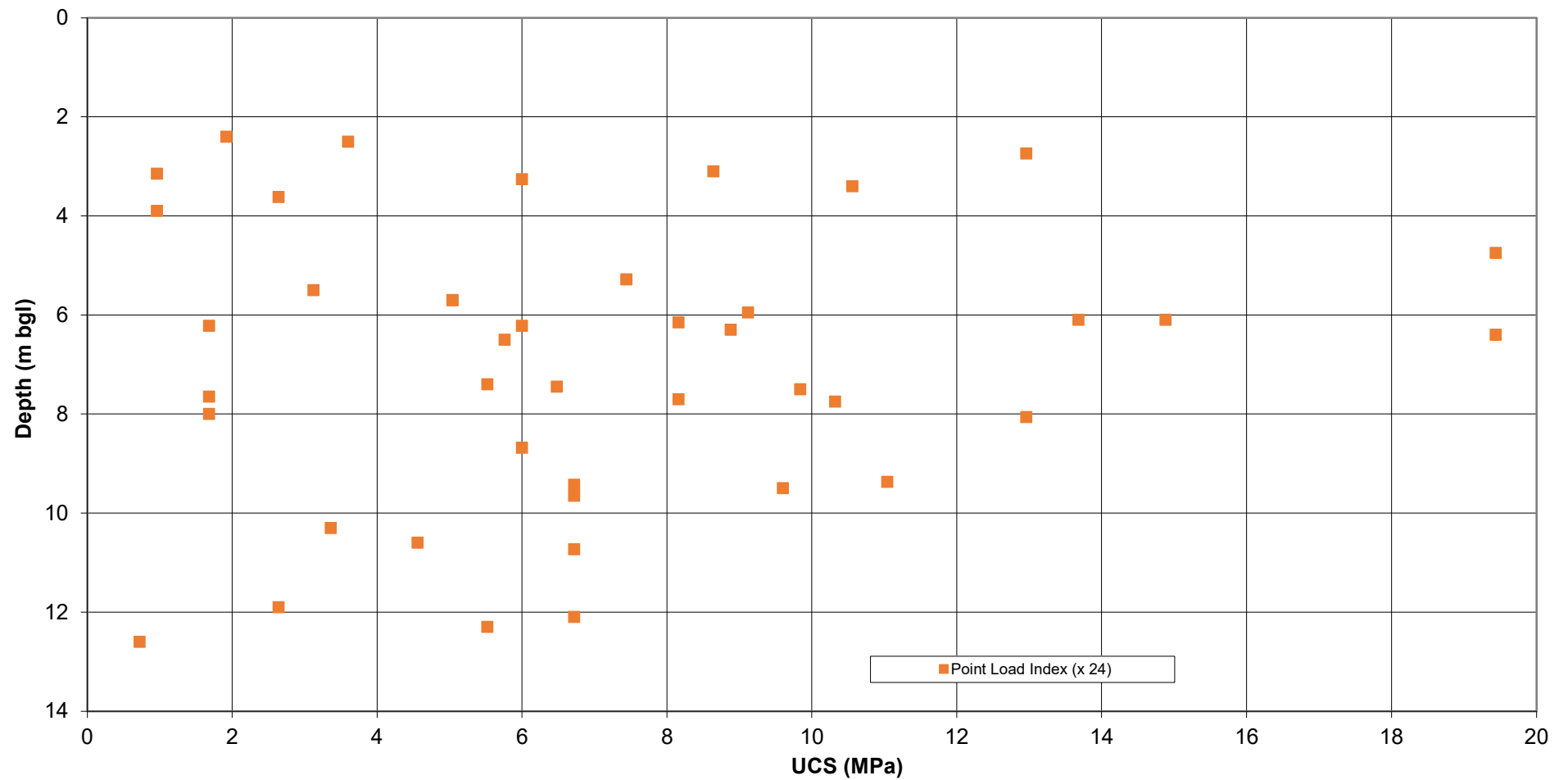
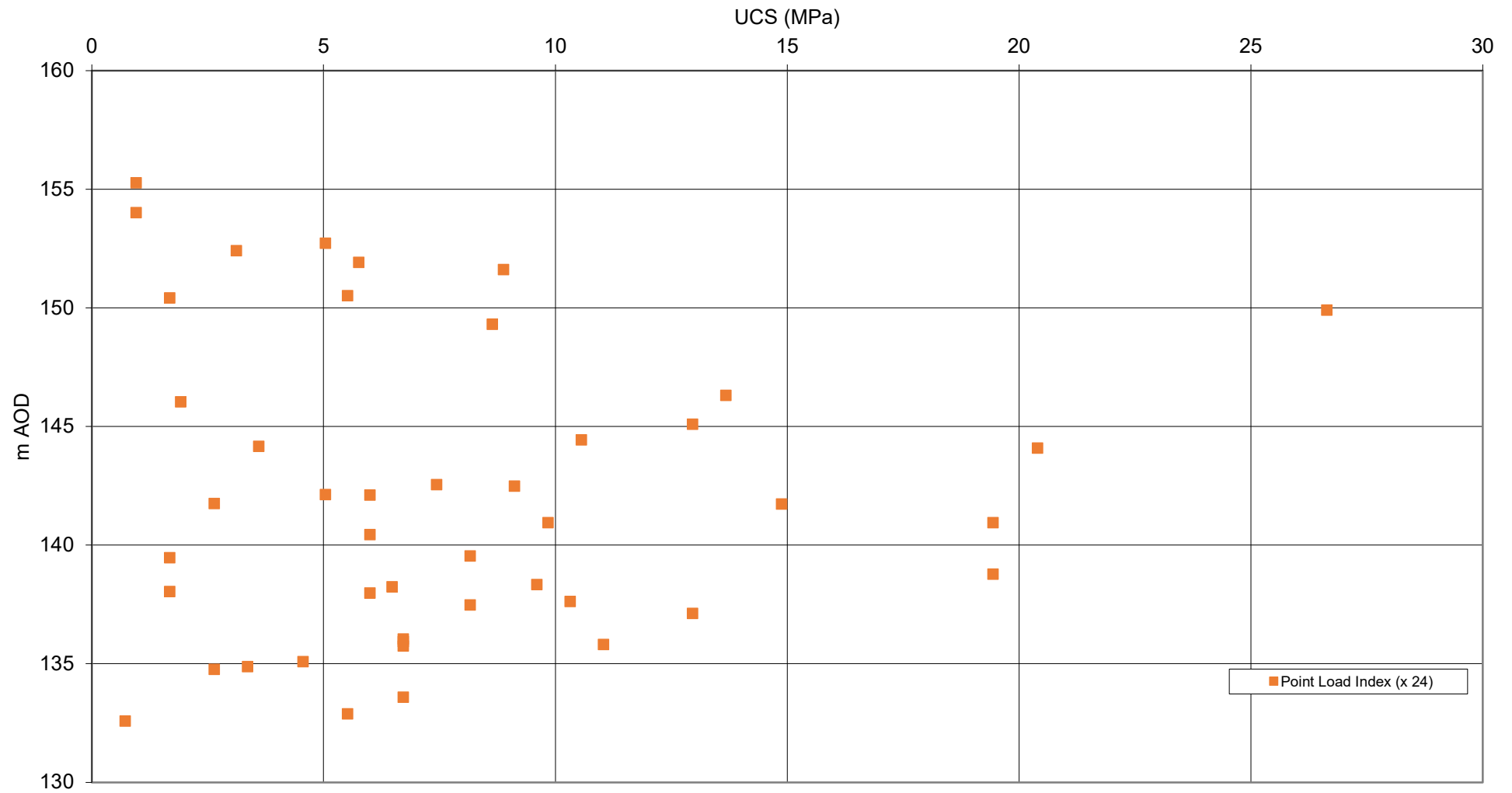
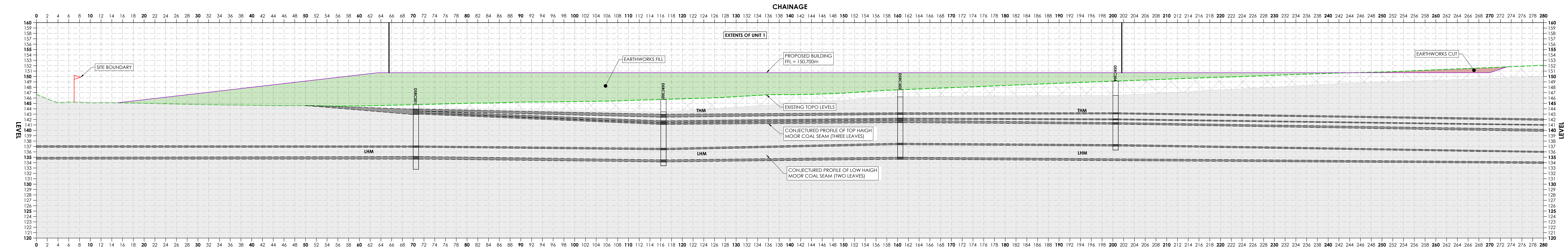
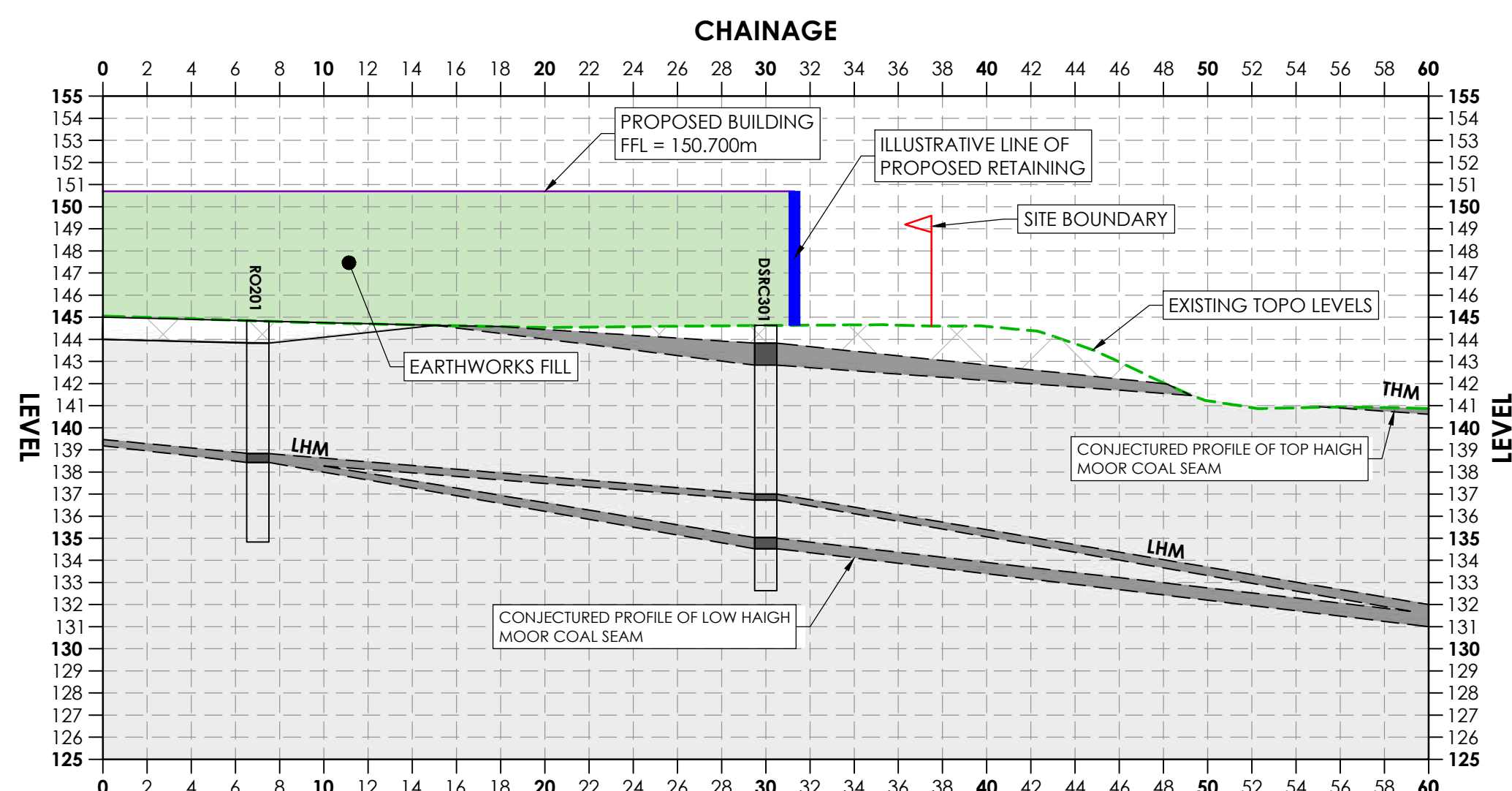


Figure 4B - Unconfined Compressive Strength vs. Elevation

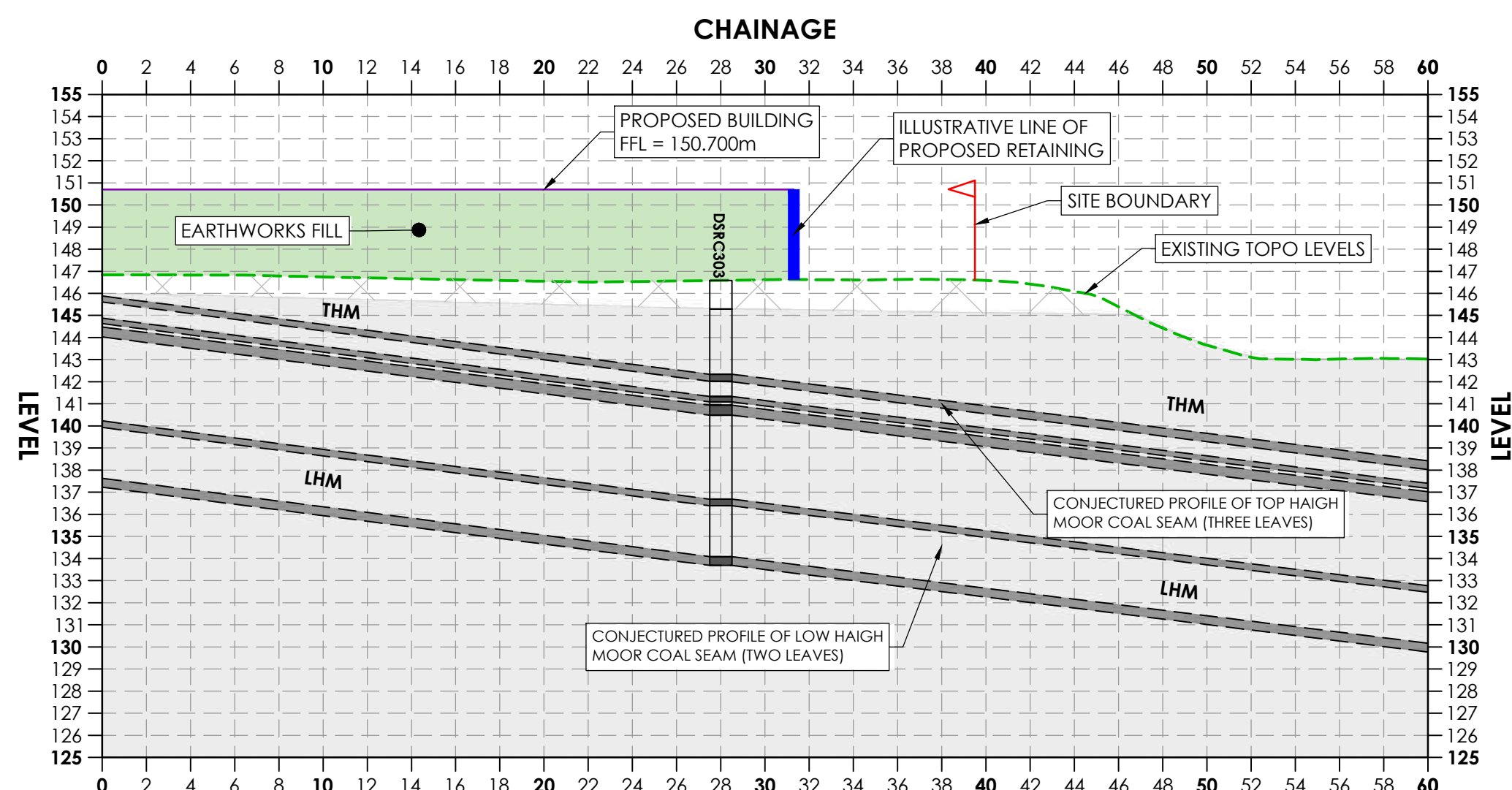




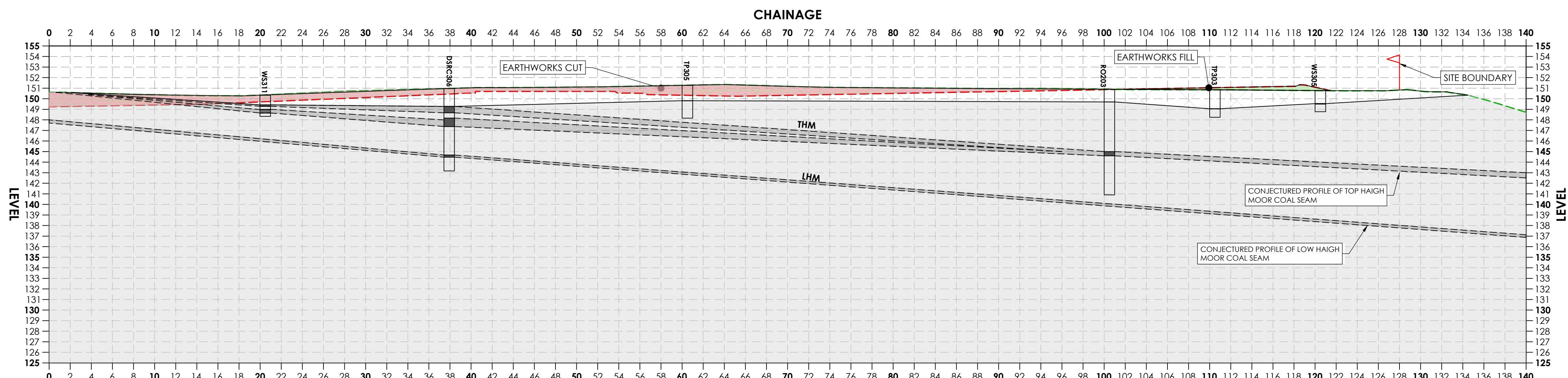
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SCALE 1:250



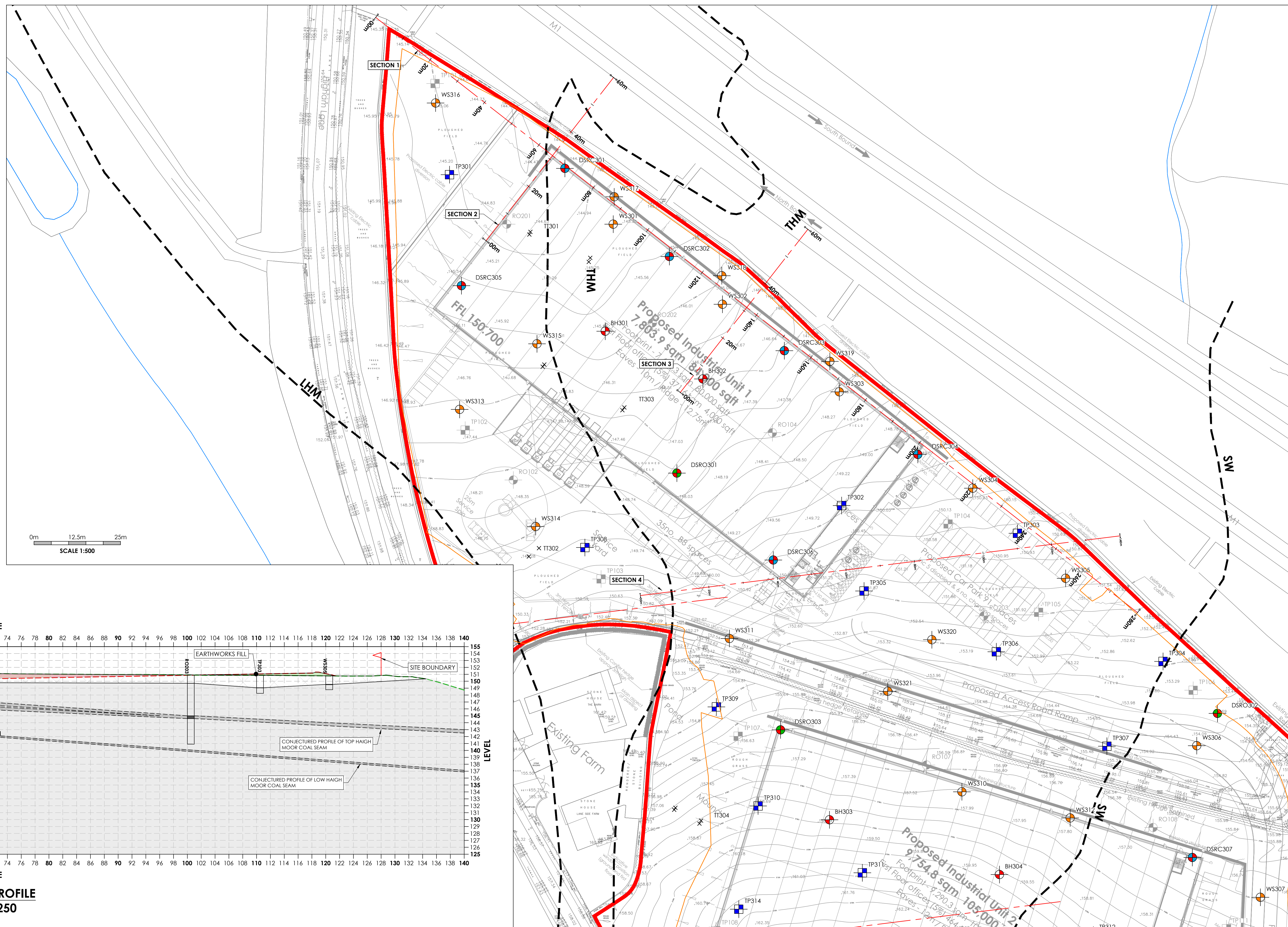
SECTION 2 PROFILE
SCALE 1:250



SECTION 3 PROFILE
SCALE 1:250



SECTION 4 PROFILE
SCALE 1:250



- GENERAL NOTES**
1. ALL MATERIALS AND WORKMANSHIP IS TO COMPLY WITH JPG CONSULTANTS STANDARD SPECIFICATION & ALL RELEVANT BRITISH & EUROPEAN STANDARDS.
 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, M & E CONSULTANTS AND JPG CONSULTANTS DRAWINGS.
 3. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ENGINEER IMMEDIATELY SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO COMMENCEMENT OF WORKS.

- JPG INVESTIGATION 2025**
- BH CABLE PERCUSSIVE BOREHOLE
 - WS WINDOW SAMPLE BOREHOLE
 - DSRO DYNAMIC SAMPLE BOREHOLE WITH ROTARY OPEN HOLE FOLLOW-ON
 - DSRC DYNAMIC SAMPLE BOREHOLE WITH ROTARY CORED BOREHOLE
 - TP TRIAL PIT

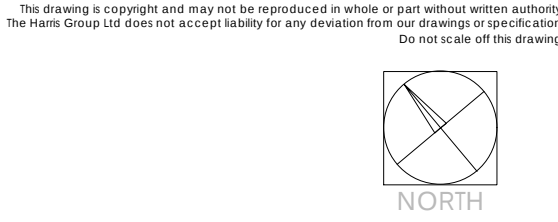
- HYDROCK INVESTIGATION 2022**
- TP TRIAL PIT
 - RO ROTARY OPEN HOLE BOREHOLE

- LEGEND**
- BEDROCK (PENINSLE MIDDLE COAL MEASURES)
 - CONJECTURED COAL SEAM
 - OVERBURDEN (COHESIVE SOILS AND MADE GROUND)
 - RED LINE DENOTES SITE BOUNDARY
 - PURPLE LINE DENOTES PROPOSED FINISHED LEVELS
 - DASHED GREEN LINE DENOTES EXISTING TOPO LEVELS
 - DASHED BLACK LINE DENOTES COAL SEAM OUTCROP

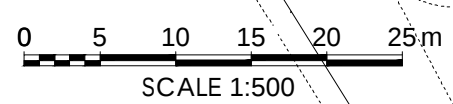
REV	DESCRIPTION	DATE	CHK	BY
P03	SECTION 4 EXTENDED	18.10.25	JBW	EJS
P02	UPDATED WITH BOREHOLE DATA	24.09.25	JBW	EJS
P01	FIRST ISSUE	25.07.25	EJS	LSG

Project
**HIGHAM LANE
BARNSELEY**

Drawing Title
**UNIT 1
GEOLOGICAL SITE SECTIONS**



Overall Site Boundary 13.79 acres 5.58 hectares



Information is based on OS map and received information.
All legal easements and status of existing underground services
locations are subject to confirmation.

11/08/23 Highway type amended		NBB	PSM
23/08/23 Highway type amended		NBB	PSM
23/08/23 Highway type amended		NBB	PSM
16/11/22 Updated to include the new highway conditions		NBB	PSM
16/11/22 Updated to include the new highway conditions		NBB	PSM
16/11/22 Updated to include the new highway conditions		NBB	PSM
Rev	Description	Draw by	
1	11138-1(P)111	CLIVE E	

PROPOSED INDUSTRIAL DEVELOPMENT			
Capitol Park Junction 37 M1 Higham Lane Barnsley			
STERLING CAPITOL PLC			
RESERVE MATTERS APPLICATION			
1:500		AO	
08.2022		NBB PSM	
PROPOSED SITE PLAN			
11138-1(P)111			Rev E
30-32, Station Road, Walsby, WALSLEY, M1 3QA, 01924 255000			
Carver Warehouse, 77 Dale Street, MANCHESTER, M1 2AG, 0161 2388555			
The Old Rectory, 79 High Street, NEWPORT, NP23 5BN, 01493 211177			
101 London Road, BARNLEY, S80 1JY, 0115 967700			
150 Great Court St, Chesham Place, LONDON, W12 3JF 0207 4084155			
			
ARCHITECTS			
www.harrispartnership.com			



Appendix B HazWasteOnline Waste Classification



Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



3QM87-8I4BE-MPKT6

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in **pale yellow**.

Report is invalid if pages are removed.

Job name

Higham Lane North

Description/Comments

Project

4173

Site

Dodworth, Barnsley

Classified by

Name: **Emily Sykes**
Date: **03 Oct 2025 08:09 GMT**
Telephone: **01132631155**
Company: **JPG (LEEDS) Ltd**
5 John Charles Way
Leeds
LS12 6QA

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:

CERTIFIED

Course

Hazardous Waste Classification

Date

07 Aug 2025

Next 3 year Refresher due by Aug 2028

Purpose of classification

2 - Material Characterisation

Address of the waste

Higham Lane, Higham, Barnsley, South Yorkshire, England, United Kingdom

Post Code S75 1PN

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Development of greenfield land for commercial end use.

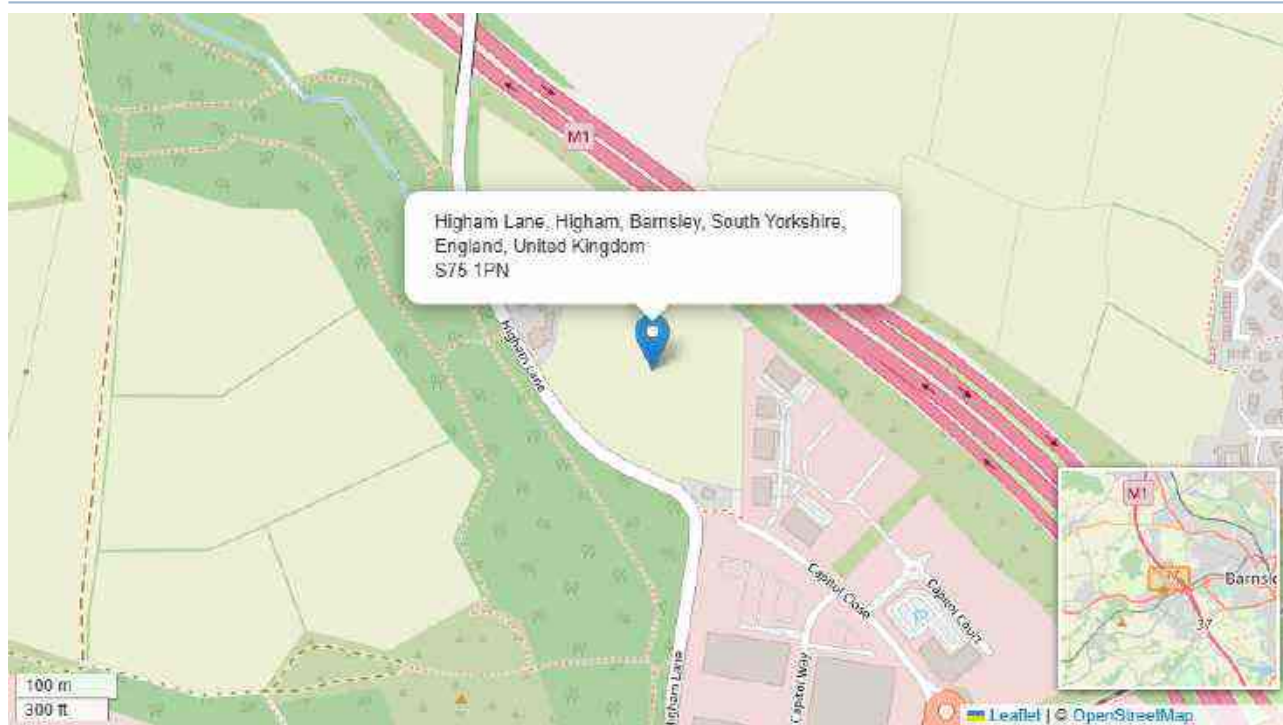
Description of the specific process, sub-process and/or activity that created the waste

Cut and fill earthworks achieve suitable development platform.

Description of the waste

Made ground comprising dark brown sandy gravelly clay of topsoil and reworked natural ground.

Waste Location



Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP301	0.40	Non Hazardous		3
2	TP302	0.20	Non Hazardous		5
3	TP303	0.20	Non Hazardous		7
4	TP307	0.20	Non Hazardous		9
5	TP310	0.10	Non Hazardous		11
6	TP313	0.20	Non Hazardous		13
7	TP314	0.20	Non Hazardous		15
8	TP315	0.50	Non Hazardous		17
9	TP320	0.20	Non Hazardous		19
10	TP326	0.10	Non Hazardous		21

Related documents

#	Name	Description
1	JPG WASTE STREAM V21	waste stream template used to create this Job

Report

Created by: Emily Sykes

Created date: 03 Oct 2025 08:09 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	23
Appendix B: Rationale for selection of metal species	24
Appendix C: Version	24

Classification of sample: TP301

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP301	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.40 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
16%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 16% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				13 mg/kg	1.32	17.164 mg/kg	0.00172 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
4	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				37 mg/kg	1.462	54.078 mg/kg	0.00541 %			
		215-160-9	1308-38-9								
5	copper { dicopper oxide; copper (I) oxide }				38 mg/kg	1.126	42.784 mg/kg	0.00428 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	41 mg/kg	1.56	63.952 mg/kg	0.0041 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.3 mg/kg	1.16	<0.348 mg/kg	<0.0000348 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				28 mg/kg	2.976	83.335 mg/kg	0.00833 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.7 mg/kg	1.405	2.389 mg/kg	0.000239 %			
	034-002-00-8										
10	zinc { zinc chromate }				100 mg/kg	2.774	277.415 mg/kg	0.0277 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.2 pH		7.2 pH	7.2 pH			
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
13	naphthalene				0.2 mg/kg		0.2 mg/kg	0.00002 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.06 mg/kg		0.06 mg/kg	0.000006 %			
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	acenaphthene	201-469-6	83-32-9		0.63 mg/kg		0.63 mg/kg	0.000063 %		
16	fluorene	201-695-5	86-73-7		0.77 mg/kg		0.77 mg/kg	0.000077 %		
17	phenanthrene	201-581-5	85-01-8		8.8 mg/kg		8.8 mg/kg	0.00088 %		
18	anthracene	204-371-1	120-12-7		2.6 mg/kg		2.6 mg/kg	0.00026 %		
19	fluoranthene	205-912-4	206-44-0		13 mg/kg		13 mg/kg	0.0013 %		
20	pyrene	204-927-3	129-00-0		11 mg/kg		11 mg/kg	0.0011 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		5.6 mg/kg		5.6 mg/kg	0.00056 %		
22	chrysene	601-048-00-0	205-923-4		4.8 mg/kg		4.8 mg/kg	0.00048 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		5.7 mg/kg		5.7 mg/kg	0.00057 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		2.3 mg/kg		2.3 mg/kg	0.00023 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		4.7 mg/kg		4.7 mg/kg	0.00047 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		2.2 mg/kg		2.2 mg/kg	0.00022 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.59 mg/kg		0.59 mg/kg	0.000059 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		2.4 mg/kg		2.4 mg/kg	0.00024 %		
29	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.0584 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP302

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP302	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
18%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 18% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				20 mg/kg	1.32	26.407 mg/kg		0.00264 %		
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg		<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg		<0.000346 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
4	copper { dicopper oxide; copper (I) oxide }				46 mg/kg	1.126	51.791 mg/kg		0.00518 %		
	029-002-00-X	215-270-7	1317-39-1								
5	lead { lead chromate }			1	54 mg/kg	1.56	84.23 mg/kg		0.0054 %		
	082-004-00-2	231-846-0	7758-97-6								
6	mercury { mercury(II) sulfide }				<0.3 mg/kg	1.16	<0.348 mg/kg		<0.0000348 %		<LOD
		215-696-3	1344-48-5								
7	nickel { nickel chromate }				18 mg/kg	2.976	53.573 mg/kg		0.00536 %		
	028-035-00-7	238-766-5	14721-18-7								
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.9 mg/kg	1.405	2.669 mg/kg		0.000267 %		
	034-002-00-8										
9	zinc { zinc chromate }				110 mg/kg	2.774	305.156 mg/kg		0.0305 %		
	024-007-00-3	236-878-9	13530-65-9								
10	pH				7.4 pH		7.4 pH		7.4 pH		
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg		<0.000188 %		<LOD
	006-007-00-5										
12	naphthalene				0.07 mg/kg		0.07 mg/kg		0.000007 %		
	601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-917-1	208-96-8								
14	acenaphthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		201-469-6	83-32-9								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
15	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
16	phenanthrene	201-581-5	85-01-8		0.25 mg/kg		0.25 mg/kg	0.000025 %			
17	anthracene	204-371-1	120-12-7		0.05 mg/kg		0.05 mg/kg	0.000005 %			
18	fluoranthene	205-912-4	206-44-0		0.5 mg/kg		0.5 mg/kg	0.00005 %			
19	pyrene	204-927-3	129-00-0		0.42 mg/kg		0.42 mg/kg	0.000042 %			
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.35 mg/kg		0.35 mg/kg	0.000035 %			
21	chrysene	601-048-00-0	205-923-4		0.35 mg/kg		0.35 mg/kg	0.000035 %			
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.52 mg/kg		0.52 mg/kg	0.000052 %			
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.18 mg/kg		0.18 mg/kg	0.000018 %			
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.35 mg/kg		0.35 mg/kg	0.000035 %			
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.24 mg/kg		0.24 mg/kg	0.000024 %			
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.07 mg/kg		0.07 mg/kg	0.000007 %			
27	benzo[ghi]perylene	205-883-8	191-24-2		0.27 mg/kg		0.27 mg/kg	0.000027 %			
28	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
Total:									0.0497 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP303

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP303	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
15%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 15% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				14 mg/kg	1.32	18.485 mg/kg	0.00185 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
4	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				25 mg/kg	1.462	36.539 mg/kg	0.00365 %			
		215-160-9	1308-38-9								
5	copper { dicopper oxide; copper (I) oxide }				30 mg/kg	1.126	33.777 mg/kg	0.00338 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	46 mg/kg	1.56	71.751 mg/kg	0.0046 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.3 mg/kg	1.16	<0.348 mg/kg	<0.0000348 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				18 mg/kg	2.976	53.573 mg/kg	0.00536 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.4 mg/kg	1.405	1.967 mg/kg	0.000197 %			
	034-002-00-8										
10	zinc { zinc chromate }				97 mg/kg	2.774	269.092 mg/kg	0.0269 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.3 pH		7.3 pH	7.3 pH			
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.11 mg/kg		0.11 mg/kg	0.000011 %		
18	anthracene	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.24 mg/kg		0.24 mg/kg	0.000024 %		
20	pyrene	204-927-3	129-00-0		0.2 mg/kg		0.2 mg/kg	0.00002 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.15 mg/kg		0.15 mg/kg	0.000015 %		
22	chrysene	601-048-00-0	205-923-4		0.15 mg/kg		0.15 mg/kg	0.000015 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.25 mg/kg		0.25 mg/kg	0.000025 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.09 mg/kg		0.09 mg/kg	0.000009 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.15 mg/kg		0.15 mg/kg	0.000015 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.09 mg/kg		0.09 mg/kg	0.000009 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		0.11 mg/kg		0.11 mg/kg	0.000011 %		
29	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.0461 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP307

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP307	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
14%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 14% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				20 mg/kg	1.32	26.407 mg/kg		0.00264 %		
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg		<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg		<0.000346 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
4	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				24 mg/kg	1.462	35.077 mg/kg		0.00351 %		
		215-160-9	1308-38-9								
5	copper { dicopper oxide; copper (I) oxide }				50 mg/kg	1.126	56.294 mg/kg		0.00563 %		
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	43 mg/kg	1.56	67.072 mg/kg		0.0043 %		
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.3 mg/kg	1.16	<0.348 mg/kg		<0.0000348 %		<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				20 mg/kg	2.976	59.525 mg/kg		0.00595 %		
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.7 mg/kg	1.405	2.389 mg/kg		0.000239 %		
	034-002-00-8										
10	zinc { zinc chromate }				100 mg/kg	2.774	277.415 mg/kg		0.0277 %		
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.7 pH		7.7 pH		7.7 pH		
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg		<0.000188 %		<LOD
	006-007-00-5										
13	naphthalene				0.05 mg/kg		0.05 mg/kg		0.000005 %		
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.17 mg/kg		0.17 mg/kg	0.000017 %		
18	anthracene	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.31 mg/kg		0.31 mg/kg	0.000031 %		
20	pyrene	204-927-3	129-00-0		0.27 mg/kg		0.27 mg/kg	0.000027 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.2 mg/kg		0.2 mg/kg	0.00002 %		
22	chrysene	601-048-00-0	205-923-4		0.23 mg/kg		0.23 mg/kg	0.000023 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.3 mg/kg		0.3 mg/kg	0.00003 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.11 mg/kg		0.11 mg/kg	0.000011 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.2 mg/kg		0.2 mg/kg	0.00002 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.12 mg/kg		0.12 mg/kg	0.000012 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		0.16 mg/kg		0.16 mg/kg	0.000016 %		
29	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.0502 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP310

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP310	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.10 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
13%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 13% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				16 mg/kg	1.32	21.125 mg/kg	0.00211 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
4	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				21 mg/kg	1.462	30.693 mg/kg	0.00307 %			
		215-160-9	1308-38-9								
5	copper { dicopper oxide; copper (I) oxide }				27 mg/kg	1.126	30.399 mg/kg	0.00304 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	39 mg/kg	1.56	60.833 mg/kg	0.0039 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.3 mg/kg	1.16	<0.348 mg/kg	<0.0000348 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				17 mg/kg	2.976	50.597 mg/kg	0.00506 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.3 mg/kg	1.405	1.827 mg/kg	0.000183 %			
	034-002-00-8										
10	zinc { zinc chromate }				83 mg/kg	2.774	230.254 mg/kg	0.023 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.1 pH		7.1 pH	7.1 pH			
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.13 mg/kg		0.13 mg/kg	0.000013 %		
18	anthracene	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.28 mg/kg		0.28 mg/kg	0.000028 %		
20	pyrene	204-927-3	129-00-0		0.25 mg/kg		0.25 mg/kg	0.000025 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.19 mg/kg		0.19 mg/kg	0.000019 %		
22	chrysene	601-048-00-0	205-923-4		0.2 mg/kg		0.2 mg/kg	0.00002 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.29 mg/kg		0.29 mg/kg	0.000029 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.08 mg/kg		0.08 mg/kg	0.000008 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.17 mg/kg		0.17 mg/kg	0.000017 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.12 mg/kg		0.12 mg/kg	0.000012 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		0.13 mg/kg		0.13 mg/kg	0.000013 %		
29	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.0406 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP313

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP313	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
13%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 13% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				19 mg/kg	1.32	25.086 mg/kg	0.00251 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
4	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				19 mg/kg	1.462	27.77 mg/kg	0.00278 %			
		215-160-9	1308-38-9								
5	copper { dicopper oxide; copper (I) oxide }				32 mg/kg	1.126	36.028 mg/kg	0.0036 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	53 mg/kg	1.56	82.67 mg/kg	0.0053 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.3 mg/kg	1.16	<0.348 mg/kg	<0.0000348 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				17 mg/kg	2.976	50.597 mg/kg	0.00506 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.6 mg/kg	1.405	2.248 mg/kg	0.000225 %			
	034-002-00-8										
10	zinc { zinc chromate }				110 mg/kg	2.774	305.156 mg/kg	0.0305 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.8 pH		7.8 pH	7.8 pH			
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
13	naphthalene				0.4 mg/kg		0.4 mg/kg	0.00004 %			
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				0.07 mg/kg		0.07 mg/kg	0.000007 %			
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	acenaphthene	201-469-6	83-32-9		0.06 mg/kg		0.06 mg/kg	0.000006 %		
16	fluorene	201-695-5	86-73-7		0.1 mg/kg		0.1 mg/kg	0.00001 %		
17	phenanthrene	201-581-5	85-01-8		1 mg/kg		1 mg/kg	0.0001 %		
18	anthracene	204-371-1	120-12-7		0.26 mg/kg		0.26 mg/kg	0.000026 %		
19	fluoranthene	205-912-4	206-44-0		1.5 mg/kg		1.5 mg/kg	0.00015 %		
20	pyrene	204-927-3	129-00-0		1.2 mg/kg		1.2 mg/kg	0.00012 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		1.1 mg/kg		1.1 mg/kg	0.00011 %		
22	chrysene	601-048-00-0	205-923-4		1.1 mg/kg		1.1 mg/kg	0.00011 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.5 mg/kg		1.5 mg/kg	0.00015 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.44 mg/kg		0.44 mg/kg	0.000044 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.94 mg/kg		0.94 mg/kg	0.000094 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.59 mg/kg		0.59 mg/kg	0.000059 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.18 mg/kg		0.18 mg/kg	0.000018 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.62 mg/kg		0.62 mg/kg	0.000062 %		
29	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.0511 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP314

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP314	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
17%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 17% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				18 mg/kg	1.32	23.766 mg/kg	0.00238 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
4	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				24 mg/kg	1.462	35.077 mg/kg	0.00351 %			
		215-160-9	1308-38-9								
5	copper { dicopper oxide; copper (I) oxide }				28 mg/kg	1.126	31.525 mg/kg	0.00315 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	41 mg/kg	1.56	63.952 mg/kg	0.0041 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.3 mg/kg	1.16	<0.348 mg/kg	<0.0000348 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				18 mg/kg	2.976	53.573 mg/kg	0.00536 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.1 mg/kg	1.405	1.546 mg/kg	0.000155 %			
	034-002-00-8										
10	zinc { zinc chromate }				93 mg/kg	2.774	257.996 mg/kg	0.0258 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.2 pH		7.2 pH	7.2 pH			
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.18 mg/kg		0.18 mg/kg	0.000018 %		
18	anthracene	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.46 mg/kg		0.46 mg/kg	0.000046 %		
20	pyrene	204-927-3	129-00-0		0.45 mg/kg		0.45 mg/kg	0.000045 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.26 mg/kg		0.26 mg/kg	0.000026 %		
22	chrysene	601-048-00-0	205-923-4		0.33 mg/kg		0.33 mg/kg	0.000033 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.46 mg/kg		0.46 mg/kg	0.000046 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.14 mg/kg		0.14 mg/kg	0.000014 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.29 mg/kg		0.29 mg/kg	0.000029 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.21 mg/kg		0.21 mg/kg	0.000021 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.06 mg/kg		0.06 mg/kg	0.000006 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.24 mg/kg		0.24 mg/kg	0.000024 %		
29	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.0448 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP315

✓ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP315	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.2%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.2% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				13 mg/kg	1.32	17.164 mg/kg		0.00172 %		
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg		<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg		<0.000346 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
4	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				17 mg/kg	1.462	24.846 mg/kg		0.00248 %		
		215-160-9	1308-38-9								
5	copper { dicopper oxide; copper (I) oxide }				24 mg/kg	1.126	27.021 mg/kg		0.0027 %		
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	25 mg/kg	1.56	38.995 mg/kg		0.0025 %		
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.3 mg/kg	1.16	<0.348 mg/kg		<0.0000348 %		<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				20 mg/kg	2.976	59.525 mg/kg		0.00595 %		
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.3 mg/kg	1.405	1.827 mg/kg		0.000183 %		
	034-002-00-8										
10	zinc { zinc chromate }				59 mg/kg	2.774	163.675 mg/kg		0.0164 %		
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.4 pH		7.4 pH		7.4 pH		
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg		<0.000188 %		<LOD
	006-007-00-5										
13	naphthalene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.19 mg/kg		0.19 mg/kg	0.000019 %		
18	anthracene	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.14 mg/kg		0.14 mg/kg	0.000014 %		
20	pyrene	204-927-3	129-00-0		0.11 mg/kg		0.11 mg/kg	0.000011 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.08 mg/kg		0.08 mg/kg	0.000008 %		
22	chrysene	601-048-00-0	205-923-4		0.1 mg/kg		0.1 mg/kg	0.00001 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.11 mg/kg		0.11 mg/kg	0.000011 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.06 mg/kg		0.06 mg/kg	0.000006 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		0.06 mg/kg		0.06 mg/kg	0.000006 %		
29	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.032 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP320

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP320	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
12%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 12% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				16 mg/kg	1.32	21.125 mg/kg	0.00211 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
4	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %			
		215-160-9	1308-38-9								
5	copper { dicopper oxide; copper (I) oxide }				32 mg/kg	1.126	36.028 mg/kg	0.0036 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	41 mg/kg	1.56	63.952 mg/kg	0.0041 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.3 mg/kg	1.16	<0.348 mg/kg	<0.0000348 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				17 mg/kg	2.976	50.597 mg/kg	0.00506 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.9 mg/kg	1.405	2.669 mg/kg	0.000267 %			
	034-002-00-8										
10	zinc { zinc chromate }				86 mg/kg	2.774	238.577 mg/kg	0.0239 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.1 pH		7.1 pH	7.1 pH			
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.19 mg/kg		0.19 mg/kg	0.000019 %		
18	anthracene	204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
19	fluoranthene	205-912-4	206-44-0		0.55 mg/kg		0.55 mg/kg	0.000055 %		
20	pyrene	204-927-3	129-00-0		0.54 mg/kg		0.54 mg/kg	0.000054 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.33 mg/kg		0.33 mg/kg	0.000033 %		
22	chrysene	601-048-00-0	205-923-4		0.37 mg/kg		0.37 mg/kg	0.000037 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.46 mg/kg		0.46 mg/kg	0.000046 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.21 mg/kg		0.21 mg/kg	0.000021 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.36 mg/kg		0.36 mg/kg	0.000036 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.25 mg/kg		0.25 mg/kg	0.000025 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
28	benzo[ghi]perylene	205-883-8	191-24-2		0.28 mg/kg		0.28 mg/kg	0.000028 %		
29	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.042 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP326

✓ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP326	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.10 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
16%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 16% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				21 mg/kg	1.32	27.727 mg/kg	0.00277 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in Cr(VI) compounds { chromium(VI) oxide }				<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
4	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }				26 mg/kg	1.462	38 mg/kg	0.0038 %			
		215-160-9	1308-38-9								
5	copper { dicopper oxide; copper (I) oxide }				39 mg/kg	1.126	43.91 mg/kg	0.00439 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	49 mg/kg	1.56	76.431 mg/kg	0.0049 %			
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury(II) sulfide }				<0.3 mg/kg	1.16	<0.348 mg/kg	<0.0000348 %			<LOD
		215-696-3	1344-48-5								
8	nickel { nickel chromate }				22 mg/kg	2.976	65.478 mg/kg	0.00655 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.2 mg/kg	1.405	1.686 mg/kg	0.000169 %			
	034-002-00-8										
10	zinc { zinc chromate }				110 mg/kg	2.774	305.156 mg/kg	0.0305 %			
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.6 pH		7.6 pH	7.6 pH			
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
13	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
14	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	fluorene	201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	phenanthrene	201-581-5	85-01-8		0.42 mg/kg		0.42 mg/kg	0.000042 %		
18	anthracene	204-371-1	120-12-7		0.09 mg/kg		0.09 mg/kg	0.000009 %		
19	fluoranthene	205-912-4	206-44-0		0.77 mg/kg		0.77 mg/kg	0.000077 %		
20	pyrene	204-927-3	129-00-0		0.69 mg/kg		0.69 mg/kg	0.000069 %		
21	benzo[a]anthracene	601-033-00-9	200-280-6		0.41 mg/kg		0.41 mg/kg	0.000041 %		
22	chrysene	601-048-00-0	205-923-4		0.48 mg/kg		0.48 mg/kg	0.000048 %		
23	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.6 mg/kg		0.6 mg/kg	0.00006 %		
24	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.21 mg/kg		0.21 mg/kg	0.000021 %		
25	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.43 mg/kg		0.43 mg/kg	0.000043 %		
26	indeno[123-cd]pyrene	205-893-2	193-39-5		0.27 mg/kg		0.27 mg/kg	0.000027 %		
27	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
28	benzo[ghi]perylene	205-883-8	191-24-2		0.3 mg/kg		0.3 mg/kg	0.00003 %		
29	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.0536 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification



Appendix A: Classifier defined and non GB MCL determinands

• **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H332, Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Resp. Sens. 1; H334, Skin Sens. 1; H317, Repr. 1B; H360FD, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• **mercury(II) sulfide** (EC Number: 215-696-3, CAS Number: 1344-48-5)

Description/Comments: Data from ECHA's C&L and SDS Sigma Aldrich V6 dated 17/9/2019

Threshold for EUH031 based on calculation method in WM3 Box C12.1

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/8530>

Data source date: 14 May 2020

Hazard Statements: EUH031 >= 1 %, EUH031, Skin Sens. 1; H317, STOT RE 2; H373

• **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

• **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

• **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

• **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

• **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

• **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

• **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2; H351

• **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides.

chromium in Cr(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments

chromium in Cr(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight.

mercury {mercury(II) sulfide}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight.

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil.

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight.

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide]

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**

HazWasteOnline Classification Engine Version: 2025.275.6807.12324 (02 Oct 2025)

HazWasteOnline Database: 2025.273.6804.12320 (30 Sep 2025)



This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK:

2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

GB MCL List v2.0 - version 2.0 of 20th October 2023

GB MCL List v3.0 - version 3.0 of 11th January 2024

GB MCL List v4.0 - version 4.0 of 2nd March 2024

GB MCL List v5.0 - version 5.0 of 26th June 2024

GB MCL List v6.0 - version 6.0 of 15th February 2025



Appendix C Notes on Limitations



General

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- b) The use of this document by any third party with whom an agreement has not been executed.

Phase I Desk Study Reports

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including any information provided by the Client), together with (where appropriate) a brief walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties where appropriate. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, JPG (Leeds) Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Phase II Geo-Environmental Investigations

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, geotechnical characteristics and ground and groundwater conditions to allow a reasonable assessment of the environmental risks together with engineering and development implications.

The objectives of the investigation have been limited to establishing the risks associated with potential human receptors, building materials, the environment (including adjacent land) and controlled waters (surface water and groundwater).

The number of sampling points and the methods of sampling and testing do not preclude the existence of localised "hotspots" of contamination where concentrations may be significantly higher than those actually encountered.

The risk assessment and opinions provided, inter alia, take into consideration currently available guidance values relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

The scope of the investigation was selected on the basis of the specific development proposed by the Client and may be inappropriate to another form of development or scheme.

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Appendix D

Geotechnical Parameter Plots



Byland
engineering limited
Geotechnical Design Engineers

BY
CHK

SM
WF

DATE
DATE

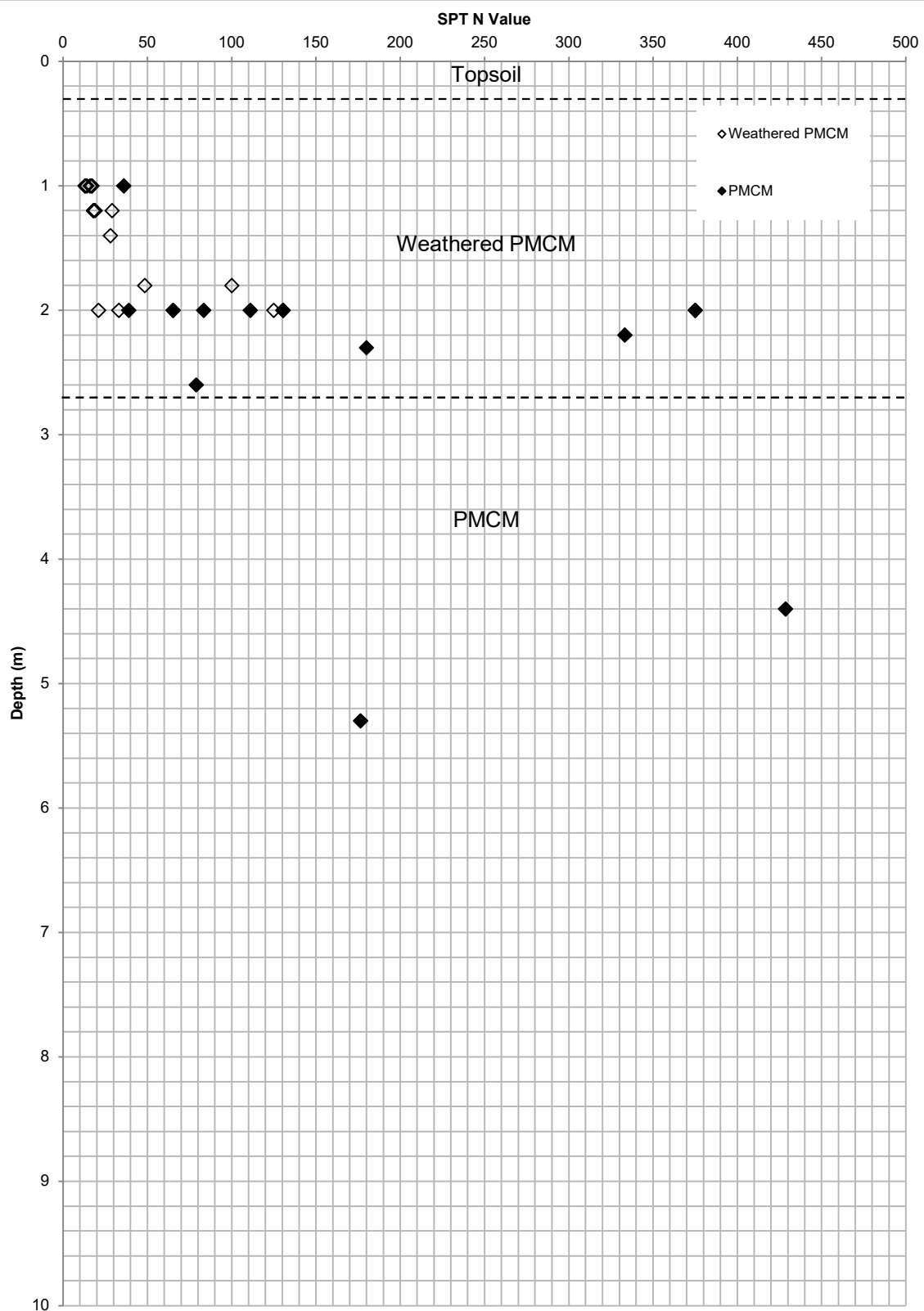
03/12/2025
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PROJECT

2971 - Higham Lane RW

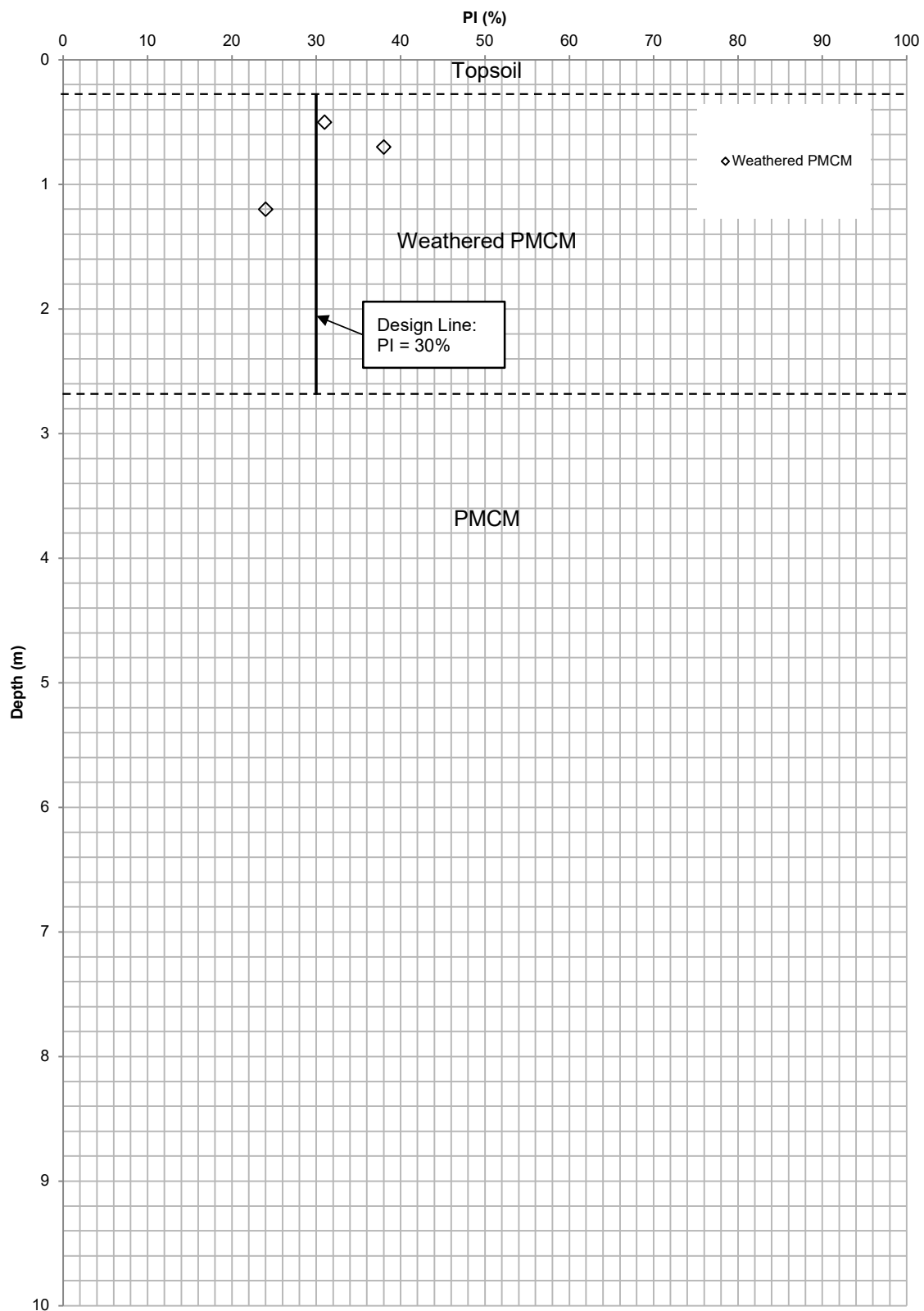
SECTION

Figure D1: Profile of SPT N Value versus Depth



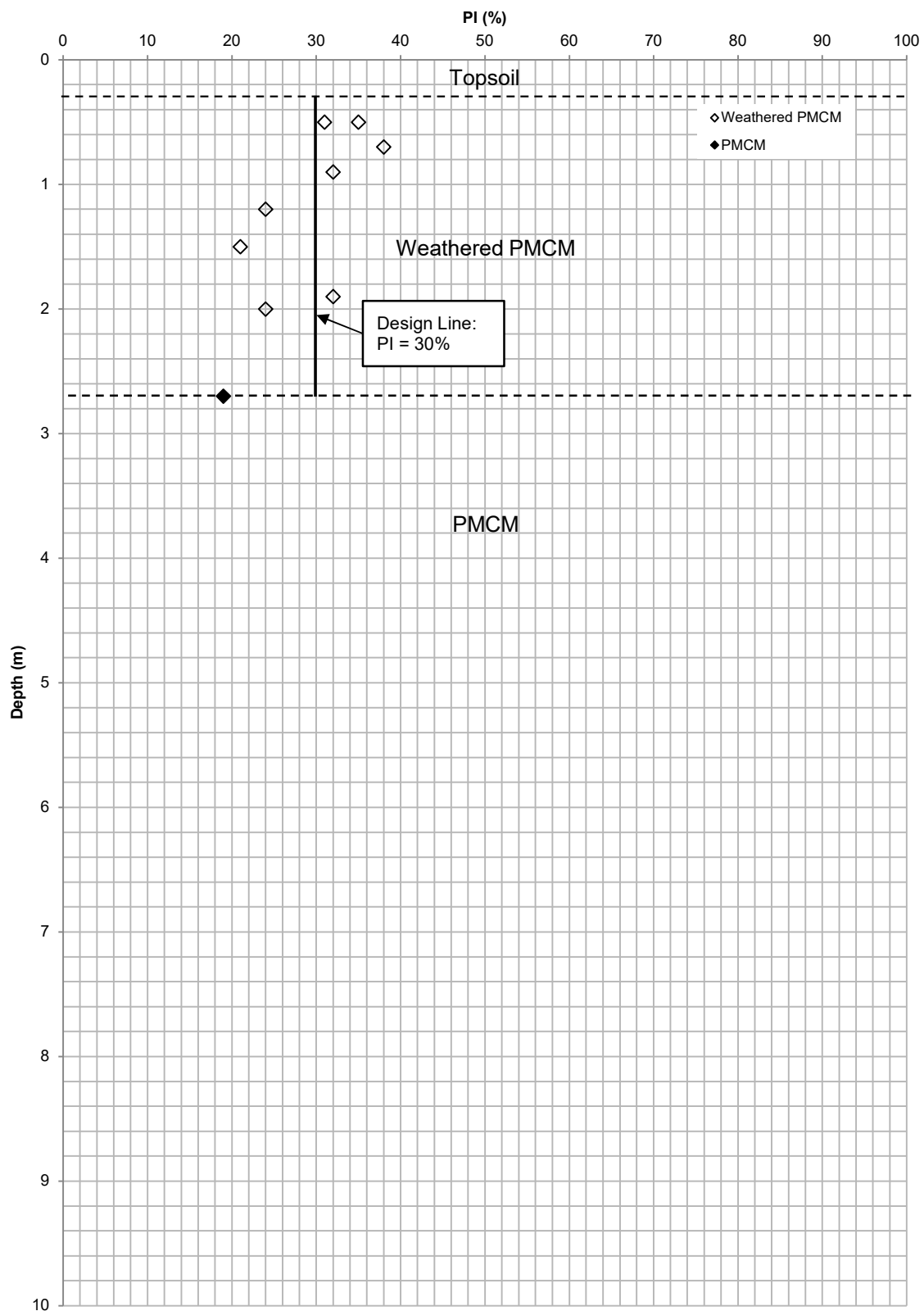
PROJECT 2971 - Higham Lane RW

SECTION Figure D2: Profile of Plasticity versus Depth



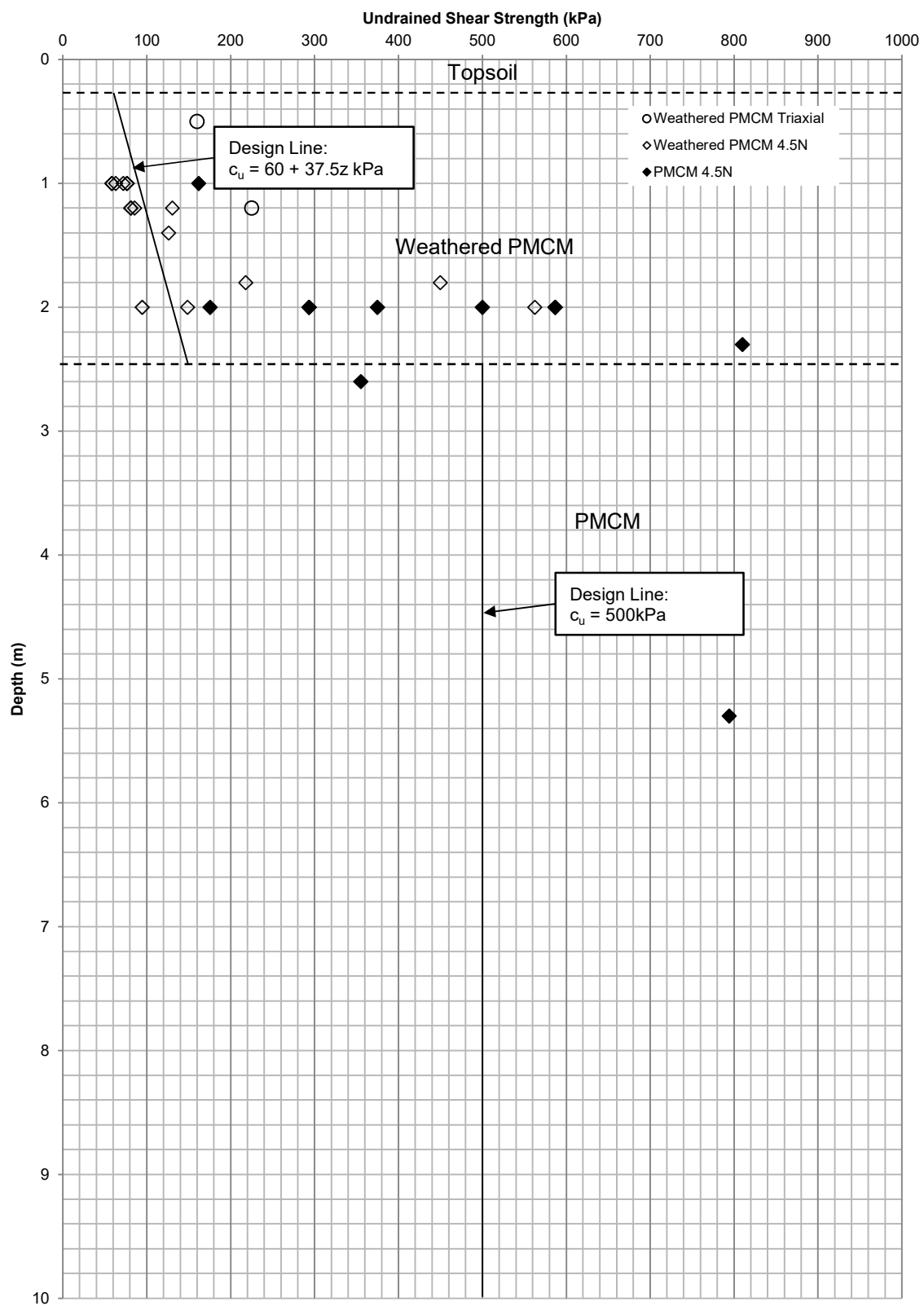
PROJECT 2971 - Higham Lane RW

SECTION Figure D3: Profile of Plasticity versus Depth (Sitewide)



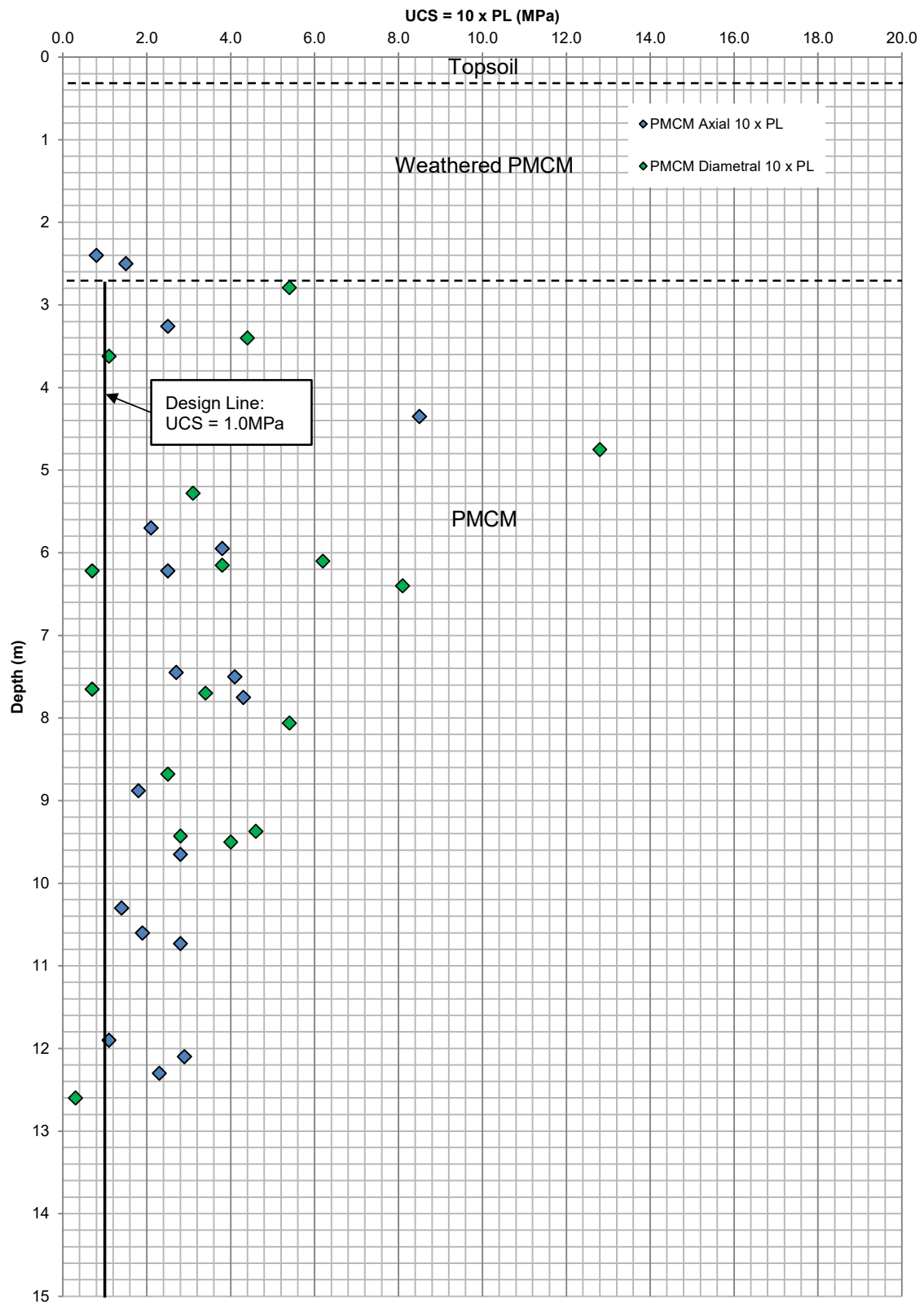
PROJECT 2971 - Higham Lane RW

SECTION Figure D4: Profile of Undrained Shear Strength versus Depth



PROJECT 2971 - Higham Lane RW

SECTION Figure D5: Profile of UCS versus Depth



Appendix E

Geotechnical Risk Register

GEOTECHNICAL RISK REGISTER

A summary of the geotechnical risks identified for this scheme is presented in the Geotechnical Risk Register below. The risk classification matrices and definitions adopted are also presented.

Risk Classification Matrix

Likelihood		Severity				
		1	2	3	4	5
		Minor	Moderate	Serious	Major	Catastrophic
1	Extremely Unlikely	1	2	3	4	5
2	Unlikely	2	4	6	8	10
3	Likely	3	6	9	12	15
4	Extremely Likely	4	8	12	16	20
5	Almost Certain	5	10	15	20	25

Risk Classification Definitions

Risk Classification	
Low (1 to 8)	Ensure assumed control measures are maintained and reviewed as necessary.
Medium (9 to 19)	Additional control measures needed to reduce risk rating to a level that is equivalent to a test of “reasonably required” for.
High (20 to 25)	Activity not permitted. Hazard to be avoided or risk to be reduced to a tolerable level.

Potential Severity Definitions

Potential Severity of Harm Occurring		
1	Minor	Minor damage or loss (no human injury)
2	Moderate	Moderate damage or loss (slight injury or illness)
3	Serious	Substantial damage or loss (serious injury or illness)
4	Major	Major damage or loss (fatal injury or illness)
5	Catastrophic	Catastrophic loss or damage (multiple fatalities)

Geotechnical Risk Register

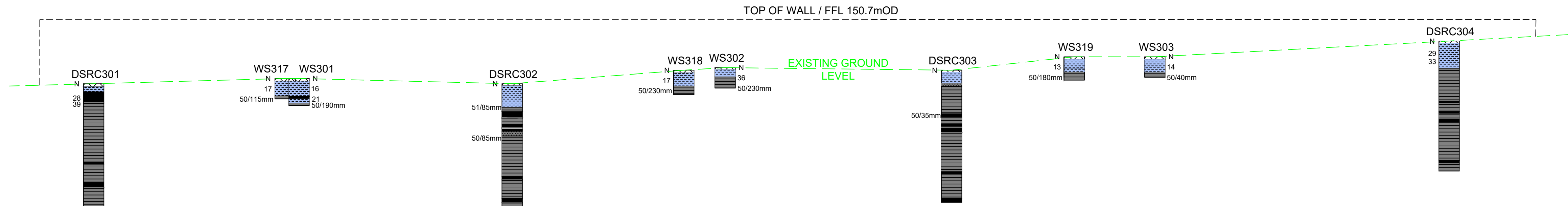
Risk ID	Hazard	Consequence	Likelihood	Severity	Risk	Mitigation	Likelihood	Severity	Residual Risk
1	Ground conditions are worse than assumed/indicated by the limited ground investigation data.	Inadequate retaining wall design and inaccurate slope stability assessment.	3	4	12	Ground investigation has been undertaken along the line of the retaining wall, building footprint and, to a limited extent, within the slope in front. The ground investigation has indicated relatively consistent ground conditions.	1	4	4
2	Groundwater conditions are worse than assumed/indicated by the limited ground investigation data.	Inadequate retaining wall design and inaccurate slope stability assessment.	3	4	12	Ground investigation has been undertaken with no groundwater strikes being noted. Groundwater level monitoring has also been undertaken and the design groundwater level can be set accordingly.	1	4	4
3	Presence of contaminated materials on site.	Adverse effects on the health of site operatives and site users.	2	3	6	Ground investigation has been undertaken, including across the wider site, and no visible contamination and/or olfactory odour was noted.	1	2	2
4	Service strikes.	Injury to site operatives.	3	5	15	Updated service plans to be obtained. Hand-dug trial pits and C&G surveys to be undertaken prior to excavations and drilling.	1	5	5
5	Presence of shallow coal mineworking below the site.	Potential failure of ground below retaining wall and building footprint when loaded and subsequent danger to site operatives and site users.	2	4	8	Ground investigation has been undertaken and has not indicated the presence of shallow mineworkings. If shallow mineworkings are found to be present during construction, they can subsequently be treated and/or the design can be modified.	1	2	2
6	Induced instability of slope forming the boundary to the M1 motorway.	Slope failure impacting the highway and subsequent danger to site and motorway users.	2	5	10	Slope stability design and assessment to be undertaken as part of the retaining wall design.	1	5	5
7	Presence of sulphates and pyrite in the soils/rocks.	Potential sulphate attack on concrete for retaining wall foundations leading to deterioration of the structure.	3	3	9	Ground investigation has been undertaken and included BRE SD1 sulphate testing. Design Sulphate Class and Aggressive Chemical Environment for Concrete have been derived.	2	2	4
8	Potential for Unexploded ordnance to be present at the site.	Excavations and/or piling operations coming into contact with UXO.	1	4	4	The site has a low risk of UXO suggesting that the risk of explosion from UXO is also low. Hand-dug trial pits and C&G surveys to be undertaken prior to excavations and drilling.	1	4	4
9	Potential to encounter hard rock, such as Haigh Moor Formation, during construction.	Inadequate retaining wall design if hard material cannot be piled and/or excavated.	2	2	4	Ground investigation has been undertaken and indicated the Unit 1 building to be underlain by PMCM Formation except for thin layers of harder sandstone only.	2	1	2

Appendix F

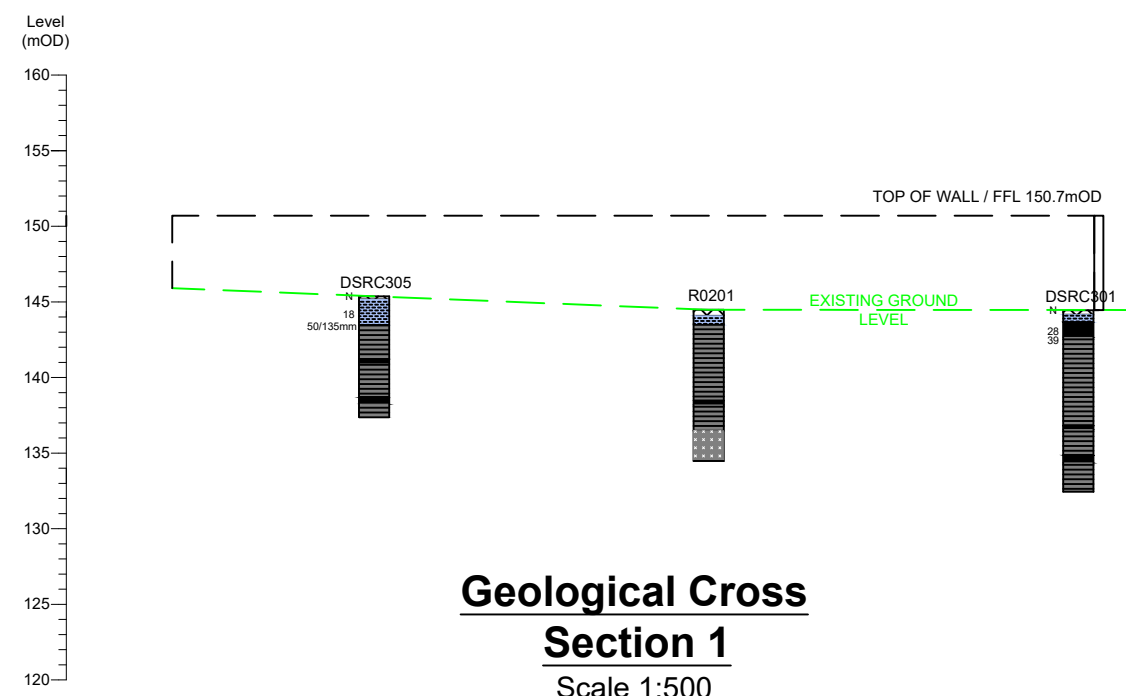
Geological Sections Drawing

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(mOD)

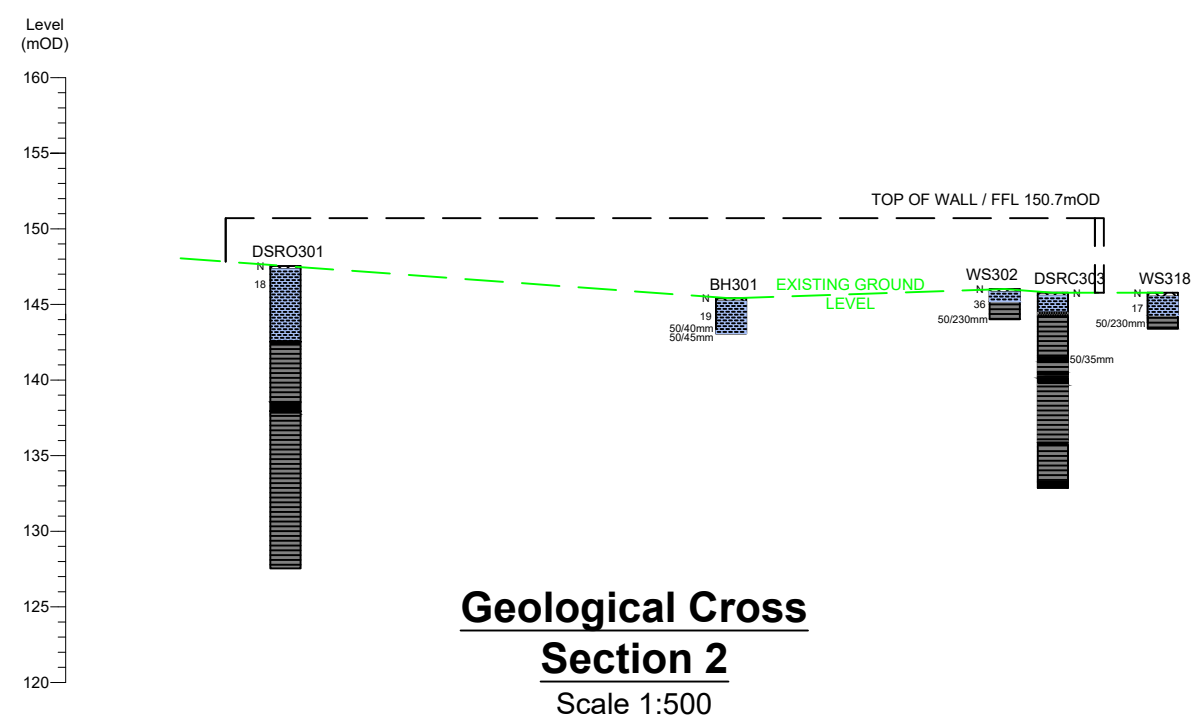
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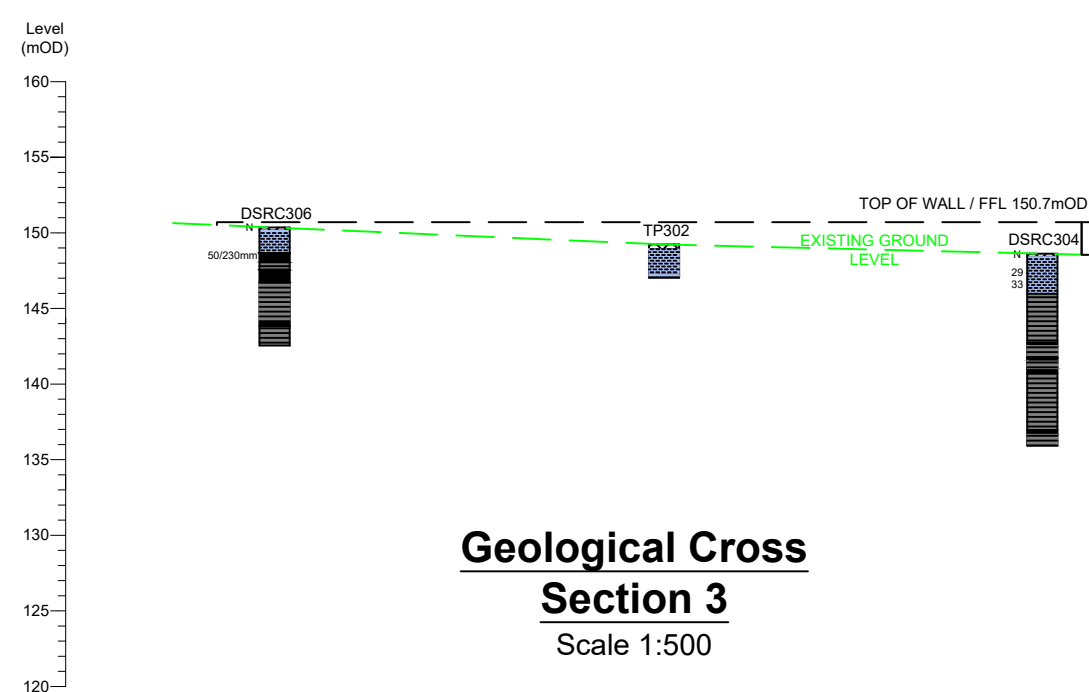
Geological Long Section
Scale 1:250



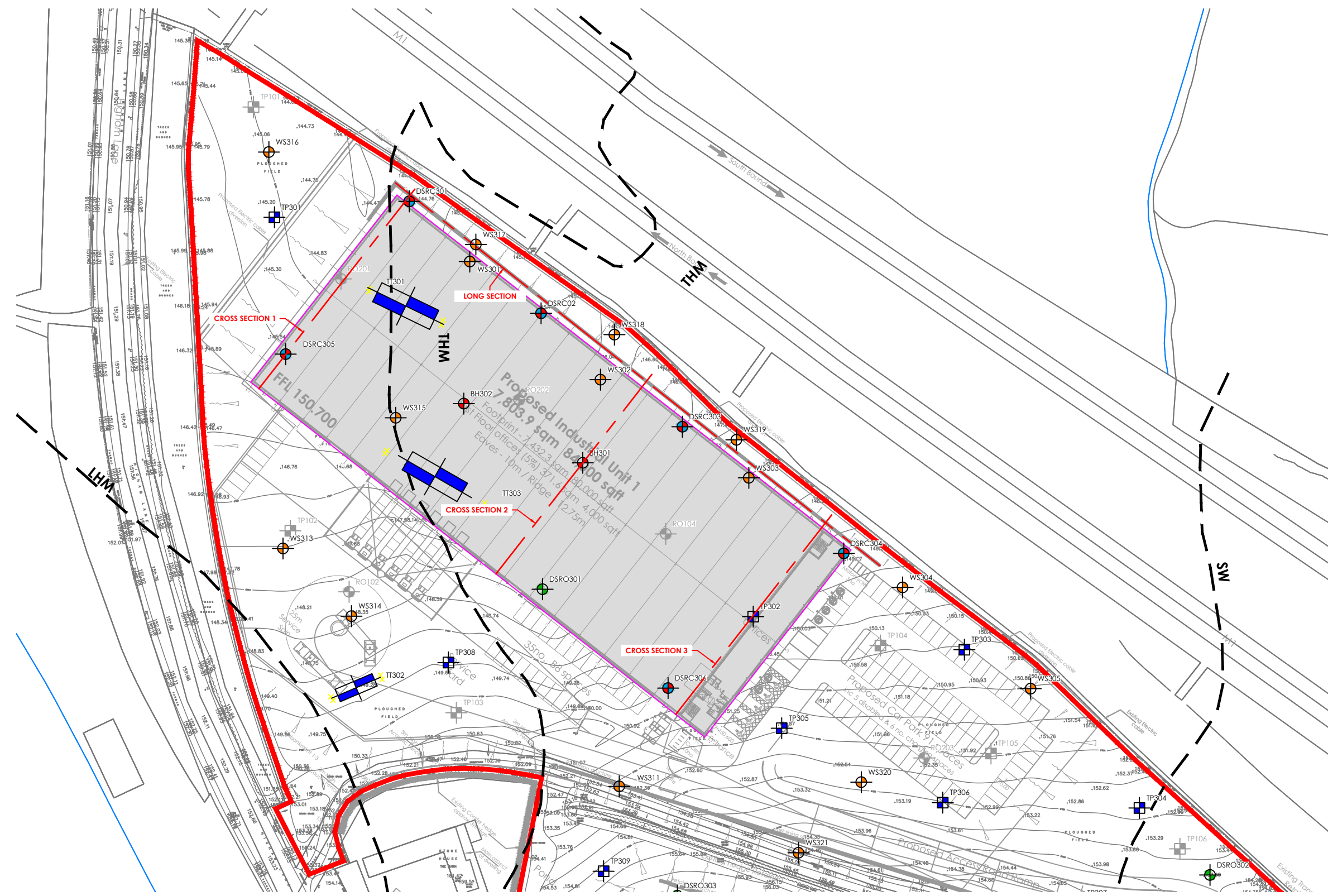
Geological Cross Section 1
Scale 1:500



Geological Cross Section 2
Scale 1:500



Geological Cross Section 3
Scale 1:500



Exploratory Hole Location Plan
Scale 1:250

NOTES :

General

All dimensions mm UNO
All elevations mOD UNO

KEY :

JPG INVESTIGATION 2025

- BH Cable Percussive Borehole
- WS Window Sample Borehole
- DSRO Dynamic Sample Borehole with Rotary Open Hole Follow On
- DSRC Dynamic Sample Borehole with Rotary Cored Borehole
- TP Trial Pit

HYDROCK INVESTIGATION 2022

- TP Trial Pit
- RO Rotary Open Hole Borehole

Composition

- Topsoil
- Void
- Clay
- Silt
- Sand
- Gravel
- Sandstone
- Siltstone
- Mudstone
- Coal

Formation

- Weathered Pennine Middle Coal Measures
- Pennine Middle Coal Measures
- Groundwater strike
- Groundwater rise

REV.	AMENDMENTS	DRAWN	CHECK	DATE
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Client: **JPG Limited**

Project: **Higham Lane Retaining Wall**

Title: **Exploratory Hole Location Plan & Geological Sections**

Drawing Status: **FOR APPROVAL**

DRAWN	SM	03/12/2025	ORIGINAL SHEET SIZE	A1
CHECKED	WF	03/12/2025	SCALE	As Shown
APPROVED	WF	03/12/2025	DECEMBER 2025	
DRAWING NUMBER				REVISION
2971-DWG-001				P01