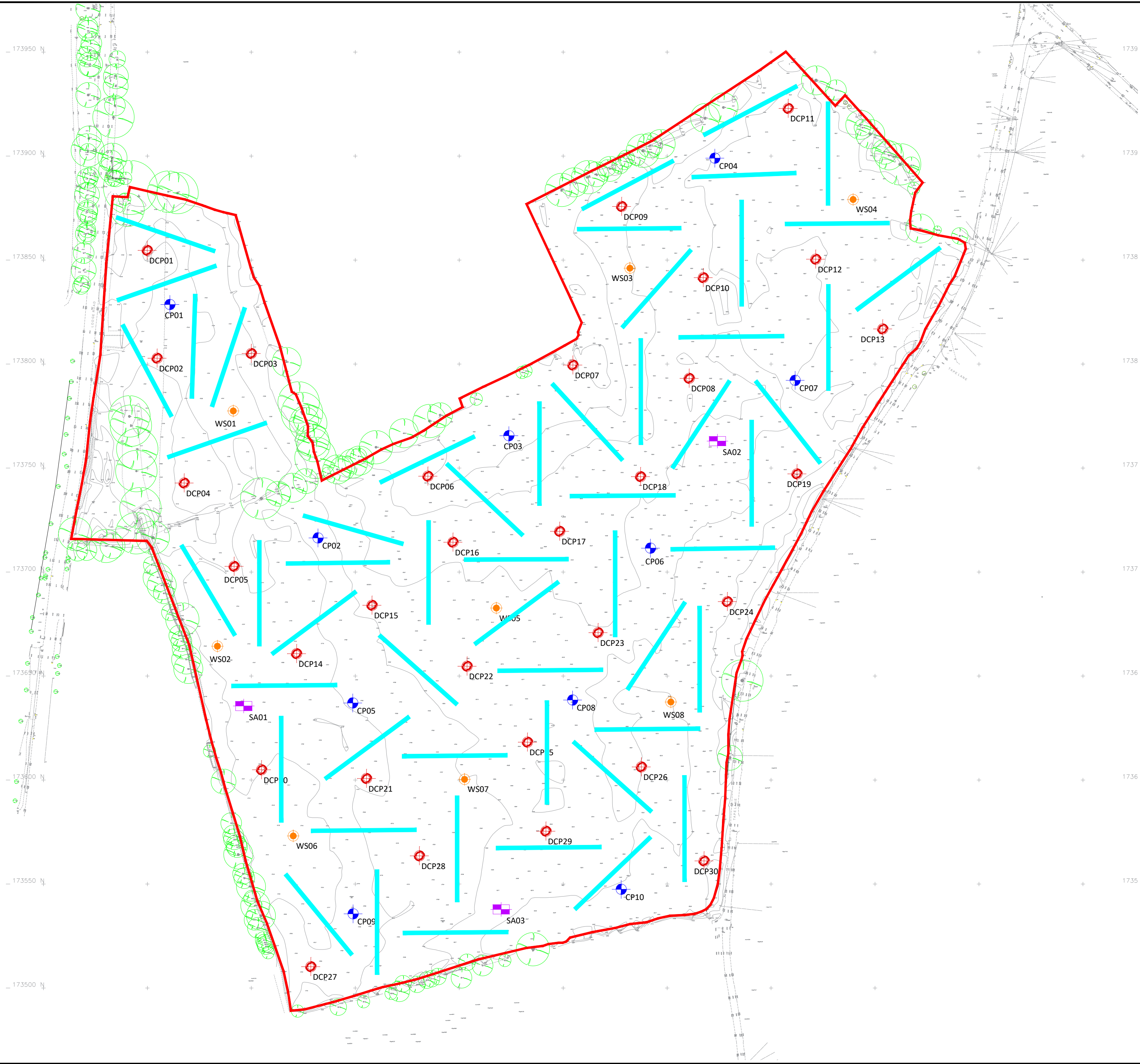


Appendix D Exploratory hole location plan, exploratory hole logs

Exploratory hole location plan



KEY

Hydrock (proposed Site Investigation)

CP##

Cable Percussion Borehole

DCP##

DCP Test Location

SA##

Soakaway Test Location

WS##

Dynamic Sampler Borehole

Cotswold Archaeology (proposed Trenches)

Evaluation Trench

NOTES

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.

2. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications.

3. This drawing has been based on the following drawings and information: Unreferenced drawing supplied by the Client.

PO1

FIRST ISSUE

SD

18/10/22

KG

18/10/22

NM

18/10/22

REV.

REVISION NOTES/COMMENTS

DRAWN BY

DATE

CHECKED BY

DATE

APPROVED BY

DATE

Hydrock

Hawthorn Park

Holdenby Road

Spratton

Northampton NN6 8LD

TEL: 01604 842 888

E-Mail: northampton@hydrock.com

or visit www.hydrock.com

CLIENT

Mactaggart & Mickel Homes England Ltd

PROJECT

Lodge Road, Hurst

TITLE

Exploratory Hole Location Sketch Plan

HYDROCK PROJECT NO.

26519 GELO

SCALE @ A2

1:1250

PURPOSE OF ISSUE

SUITABLE FOR INFORMATION

STATUS

S2

DRAWING NO. - (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)

26519-HYD-XX-ZZ-SK-GE-1001

REVISION

P01

Exploratory hole logs

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 8.5m, GL to 1m bgl plain pipe. 1 to 8.5m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater encountered 5.6m and rose to 3.8m after 20 minutes. Response zone within Kempton Park Gravel Member and Lambeth Group stratum.

Logged in general accordance with BS5930:2015

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 0.5 to 2.4m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 0.9m. Response zone within Kempton Park Gravel Member stratum.

Logged in general accordance with BS5930:2015

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks: 1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 0.5 to 3m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 1m. Response zone within Kempton Park Gravel Member stratum.
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	

Logged in general accordance with BS5930:2015

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 8.5m, GL to 1m bgl plain pipe. 0.5 to 8.5m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater encountered 6m and rose to 5.6m after 20 minutes . Response zone within Kempton Park Gravel Member and Lambeth Group stratum.

Logged in general accordance with BS5930:2015



Method: Cable Percussion	Date(s): 05/12/2022 - 07/12/2022	Logged By: JF	Drilled By: Wheeler SI
Client: Mactaggart & Mickel	Co-ords: 479572.96, 173899.02	Checked By: KG	Flush:
Hydrock Project No: 26519-GELO			Scale: 1:50

Samples / Tests			Water- Strikes	Stratum Description	Depth m bgl	Thickness (m)	Level m OD	Legend	Instrumentation / Backfill
Depth (m)	Type	Results							
14.00	B				11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

Progress and Observations									Chiselling			General Remarks: 1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 8.5m, GL to 1m bgl plain pipe. 0.5 to 8.5m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater encountered 6m and rose to 5.6m after 20 minutes . Response zone within Kempton Park Gravel Member and Lambeth Group stratum.
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 1 to 3m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 1m. Response zone within Kempton Park Gravel Member stratum.

Logged in general accordance with BS5930:2015



Project: Lodge Road, Hurst

Borehole No
CP06

Page No. 1 of 1

Method: Cable Percussion	Date(s): 14/12/2022	Logged By: JF	Drilled By: Wheeler SI
Client: Mactaggart & Mickel	Co-ords: 479541.98, 173711.51	Checked By: KG	Flush:
Hydrock Project No: 26519-GELO			Scale: 1:50

Samples / Tests			Water- Stikes	Stratum Description	Depth m bgl	Thickness (m)	Level m OD	Legend	Instrum- entation / Backfill
Depth (m)	Type	Results							
0.00	B			Topsoil over dark brown silty slightly gravelly SAND. Gravel is fine subrounded flint. (TOPSOIL)	0.30	(0.30)			
0.30	B			Orange to brown clayey SAND. Sand is medium to fine and rounded to subrounded. (KEMPTON PARK GRAVEL MEMBER)					
1.20	SPT	N=4 (1,0,2,1,0,1)			1	(1.40)			
1.20	D								
1.70	B				1.70				
2.00	SPT	N=11 (3,2,3,2,3,3)		Grey to brown clayey SAND. Sand is medium to fine and rounded to subrounded. (KEMPTON PARK GRAVEL MEMBER)	2				
2.00	D					(1.30)			
3.00	SPT	N=16 (5,2,3,4,4,5)			3				
3.00	B			Grey to brown clayey, slightly gravelly SAND. Sand is medium to fine and rounded to subrounded. Gravel is fine subrounded flint. (KEMPTON PARK GRAVEL MEMBER)	3.00	(0.50)			
3.00	D								
3.50	B			Brown to grey firm CLAY. (LAMBETH GROUP)	3.50				
4.00	SPT	N=25 (2,3,4,4,7,10)			4	(1.50)			
4.00	D								
4.70	B								
				End of Borehole at 5.00m	5				
					6				
					7				
					8				
					9				
					10				

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 0.5 to 3m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 0.9m. Response zone within Kempton Park Gravel Member stratum.

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 1 to 3m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 0.9m. Response zone within Kempton Park Gravel Member stratum.

Logged in general accordance with BS5930:2015

Drilled By: Wheeler SI

Flush:	
--------	--

Scale: 1:50

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 5m, GL to 1m bgl plain pipe. 0.5 to 3.6m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater seepage encountered at 1m. Response zone within Kempton Park Gravel Member stratum.

Logged in general accordance with BS5930:2015

Drilled By: Wheeler SI

Flush:

Scale: 1:50

Progress and Observations									Chiselling			General Remarks:
Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)	From (m)	To (m)	Duration (HH:MM)	
												1. Location cleared by 3rd party utilities specialist and set out with survey quality GPS. 2. Handpit to 1.2m. 3. Installed to 6.3m, GL to 1m bgl plain pipe. 1 to 6.3m bgl slotted pipe with gravel surround. Installed flush well top. Groundwater encountered 5.8m and rose to 4.7m after 20 minutes . Response zone within Kempton Park Gravel Member and Lambeth Group stratum.

Logged in general accordance with BS5930:2015

Appendix E Geotechnical test results and geotechnical plots

Geotechnical laboratory test results

4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

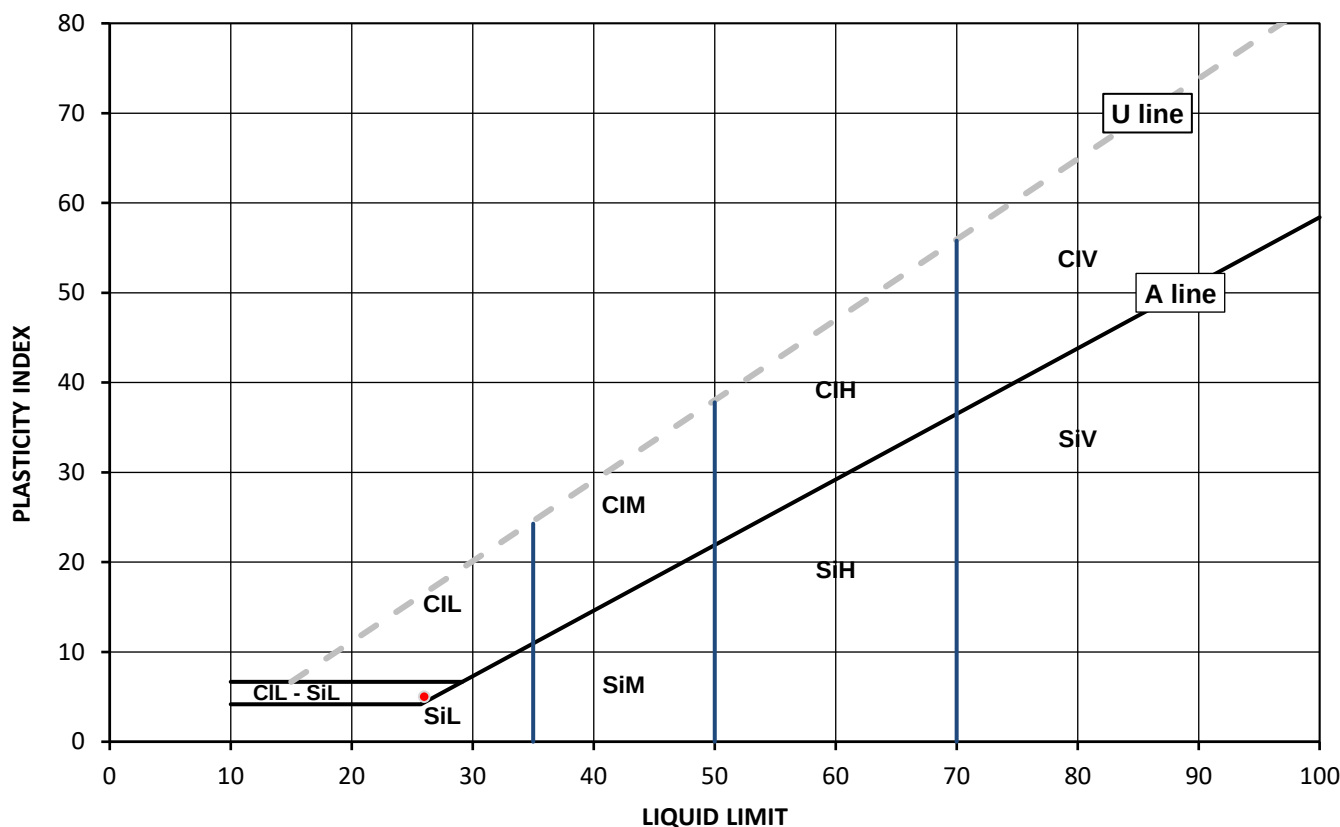
Test Results:

Laboratory Reference: 2527369
Hole No.: TT2 (21)
Sample Reference: Not Given
Sample Description: Yellowish brown clayey very gravelly SAND

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
13	26	21	5	49



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
		50 to 70
		exceeding 70
		append to classification for organic material (eg CIHO)

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

Remarks:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

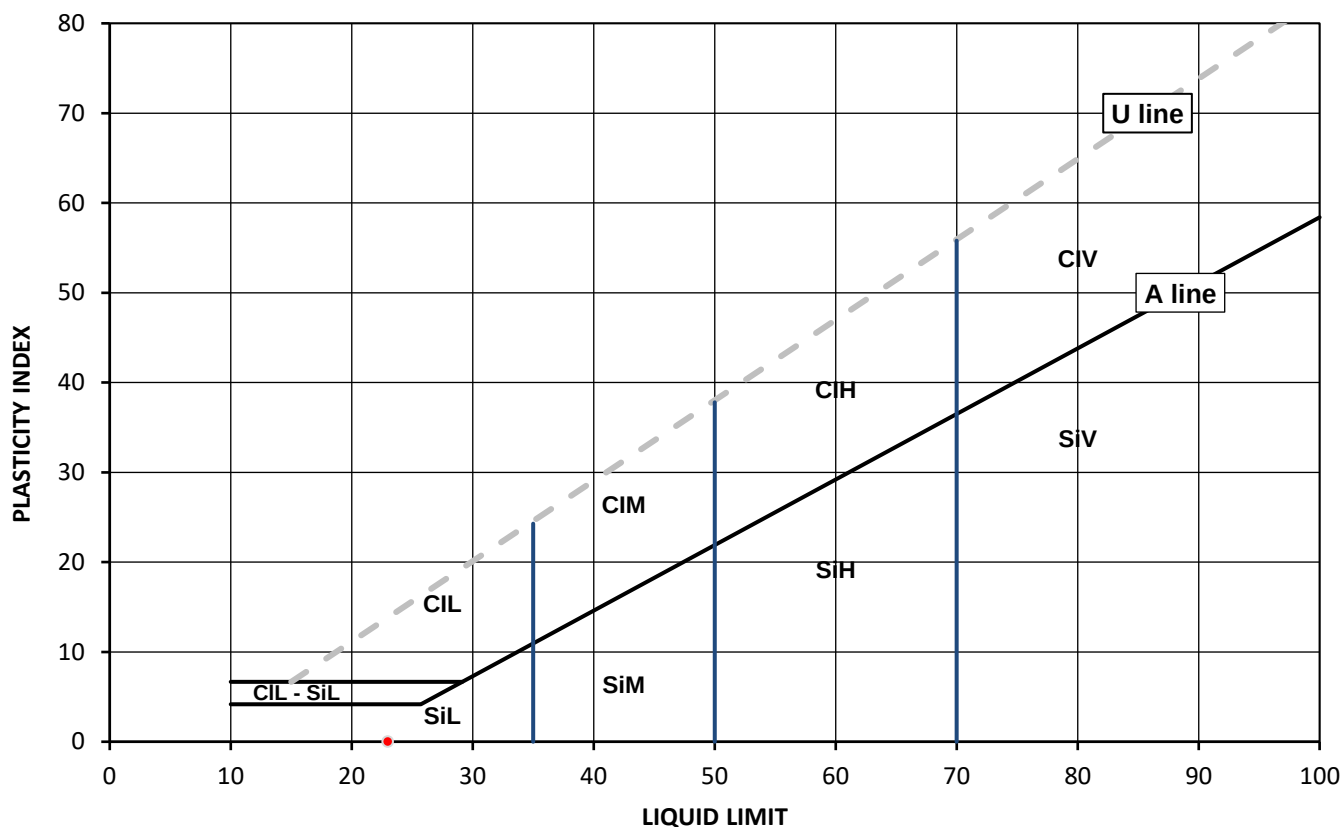
Test Results:

Laboratory Reference: 2527370
Hole No.: TT3 (20)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey gravelly SAND

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
16	23	NP	NP	93



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

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

Remarks: NP - non plastic

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

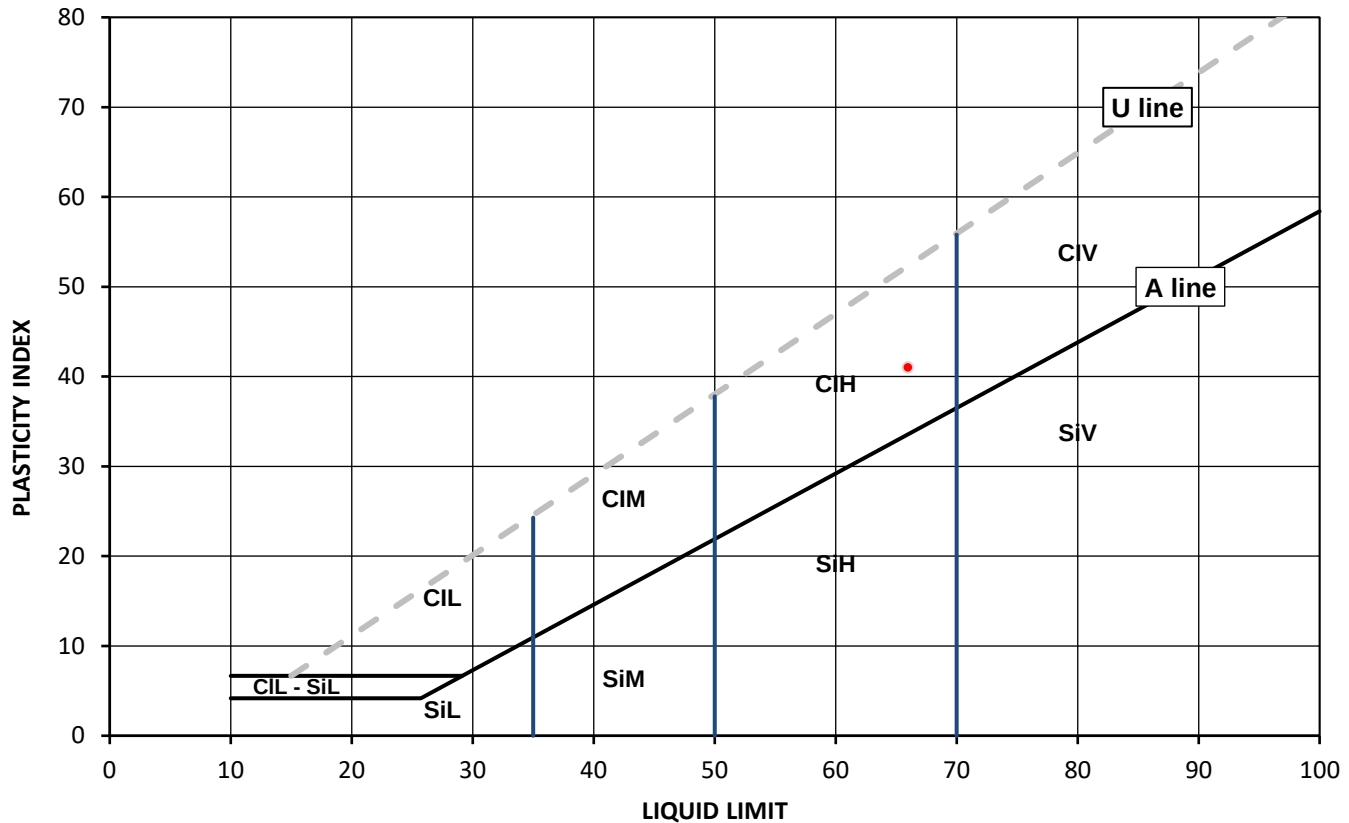
Test Results:

Laboratory Reference: 2527373
Hole No.: TT30B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
28	66	25	41	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	
	V Very high	
	O Organic	append to classification for organic material (eg CIHO)

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

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

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

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

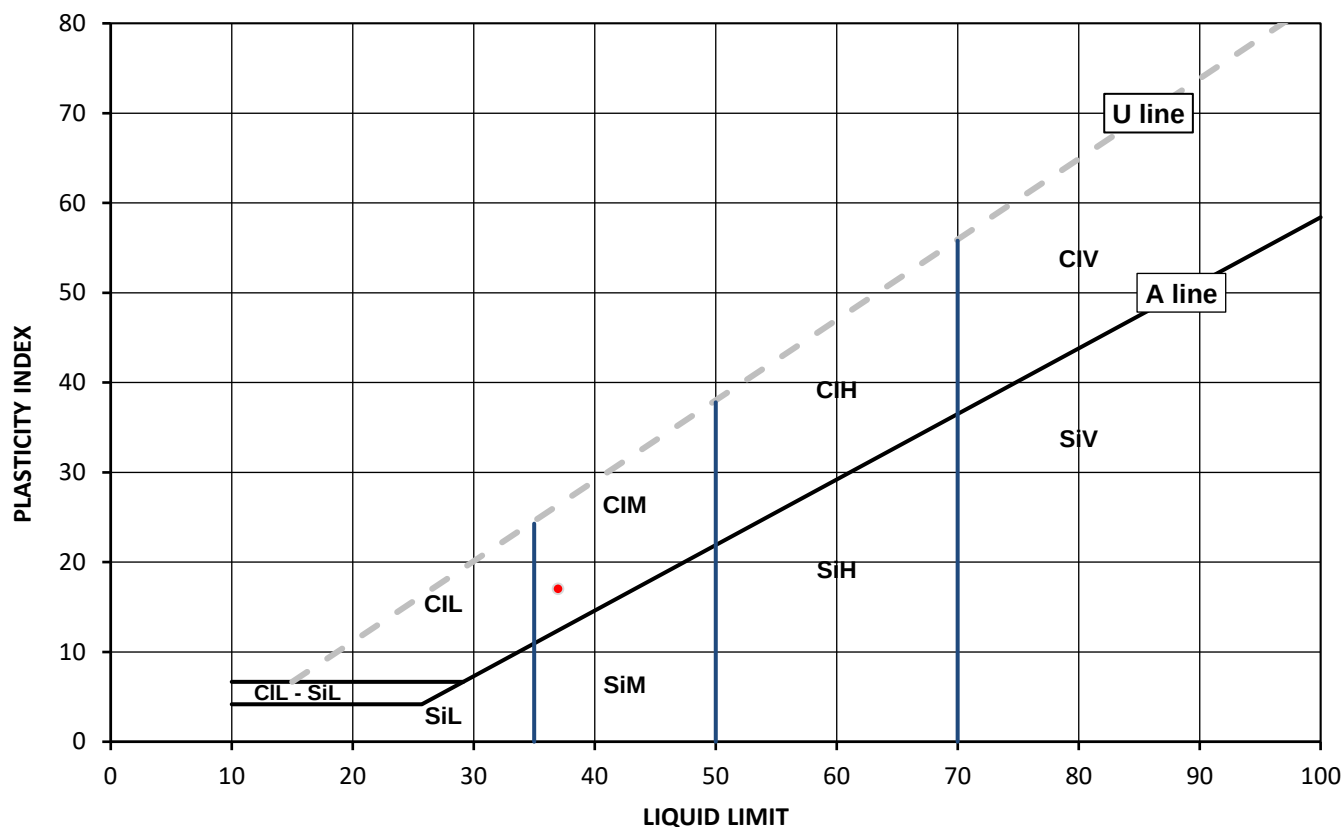
Test Results:

Laboratory Reference: 2527378
Hole No.: TT47B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

Depth Top [m]: 3.00
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
21	37	20	17	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

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

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

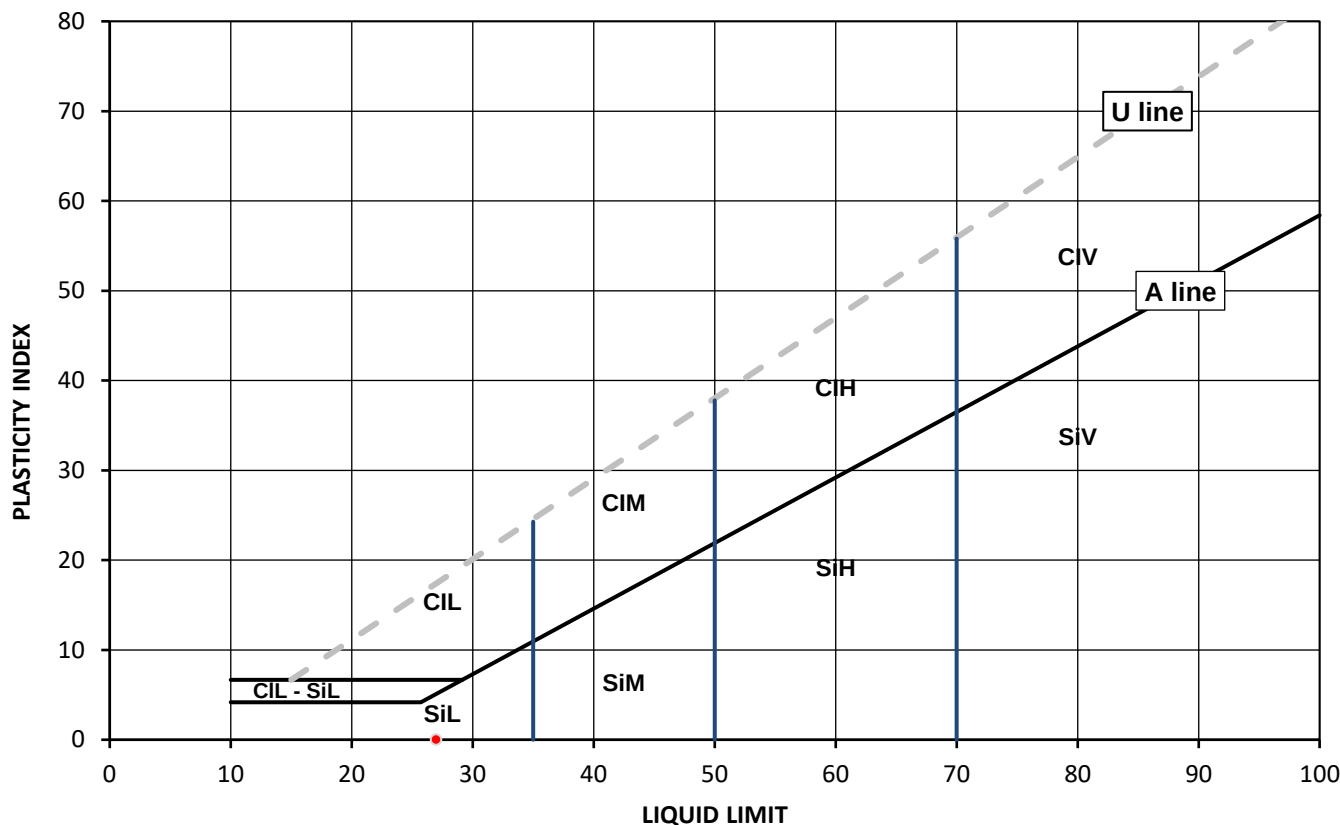
Test Results:

Laboratory Reference: 2534137
Hole No.: WS07
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey very gravelly SAND

Depth Top [m]: 1.00
Depth Base [m]: 1.50
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
13	27	NP	NP	53



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	Liquid Limit
Si	Silt	L Low	below 35
		M Medium	35 to 50
		H High	50 to 70
		V Very high	exceeding 70
		O Organic	append to classification for organic material (eg CIHO)

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

Remarks: NP - non plastic

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
 Client Address: 5-7 Tanner Street, London,
 SE1 3LE

Contact: Julian Fowler
 Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Environmental Science

Client Reference: 26519
 Job Number: 22-12311
 Date Sampled: 24/11 - 01/12/2022
 Date Received: 29/11/2022
 Date Tested: 16/12 - 21/12/2022
 Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um %	WL %	Wp %	Ip %	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
2527368	TT1 (26)	Not Given	1.00	Not Given	B	Greyish brown slightly gravelly clayey SAND										2.68			
2527369	TT2 (21)	Not Given	2.00	Not Given	B	Yellowish brown clayey very gravelly SAND	Atterberg 4 Point	13		49	26	21	5						
2527370	TT3 (20)	Not Given	1.00	Not Given	B	Yellowish brown slightly clayey gravelly SAND	Atterberg 4 Point	16		93	23	NP	NP			2.67			
2527373	TT30B	Not Given	2.00	Not Given	B	Brownish grey CLAY	Atterberg 4 Point	28		100	66	25	41			2.35			
2527371	TT4 (22)	Not Given	3.00	Not Given	B	Yellowish brown slightly clayey GRAVEL and SAND										2.63			
2527376	TT45B	Not Given	2.00	Not Given	B	Greyish brown slightly clayey gravelly SAND										2.65			
2527378	TT47B	Not Given	3.00	Not Given	B	Brownish grey CLAY	Atterberg 4 Point	21		100	37	20	17			2.79			
2534137	WS07	Not Given	1.00	1.50	B	Yellowish brown slightly clayey very gravelly SAND	Atterberg 4 Point	13		53	27	NP	NP						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:



Monika Siewior
 Reporting Specialist
 for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
 Client Address: 5-7 Tanner Street, London,
 SE1 3LE

Contact: Julian Fowler
 Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Environmental Science

Client Reference: 26519
 Job Number: 22-12311
 Date Sampled: 24/11 - 01/12/2022
 Date Received: 29/11/2022
 Date Tested: 16/12 - 21/12/2022
 Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2527369	TT2 (21)	Not Given	2.00	Not Given	B	Yellowish brown clayey very gravelly SAND		13	Sample was quartered, oven dried at 106 °C			
2527370	TT3 (20)	Not Given	1.00	Not Given	B	Yellowish brown slightly clayey gravelly SAND		16	Sample was quartered, oven dried at 106 °C			
2527373	TT30B	Not Given	2.00	Not Given	B	Brownish grey CLAY		28	Sample was quartered, oven dried at 106 °C			
2527378	TT47B	Not Given	3.00	Not Given	B	Brownish grey CLAY		21	Sample was quartered, oven dried at 106 °C			
2534137	WS07	Not Given	1.00	1.50	B	Yellowish brown slightly clayey very gravelly SAND		13	Sample was quartered, oven dried at 109 °C			

Comments:

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Signed:



Monika Siewior
 Reporting Specialist
 for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

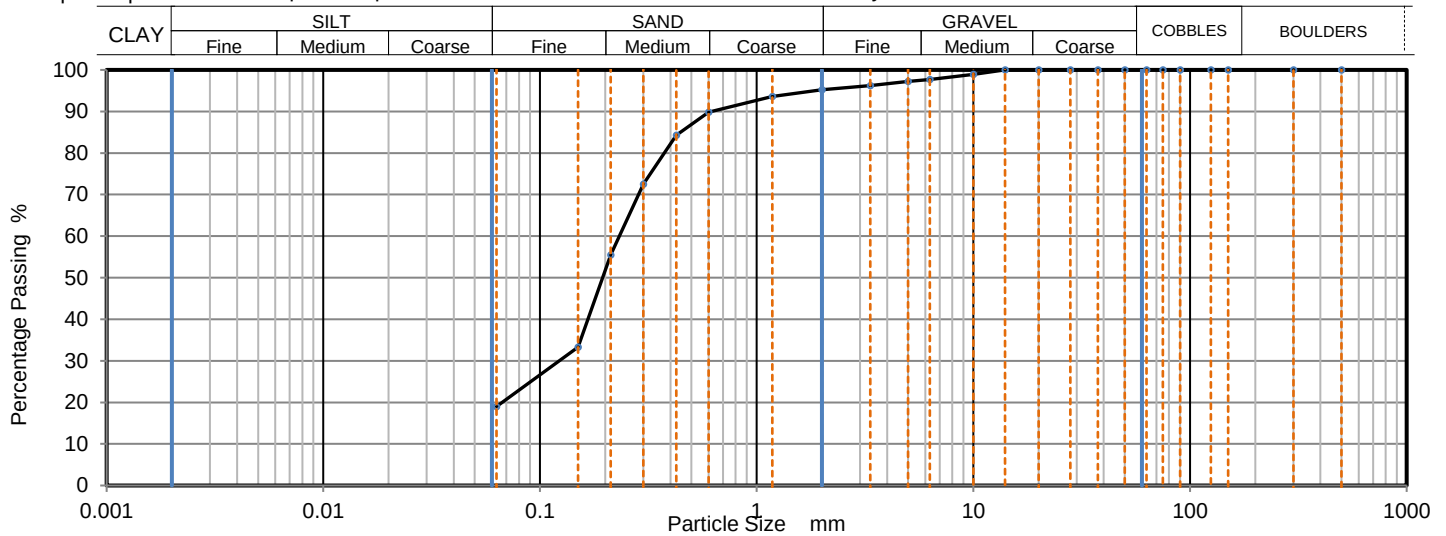
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527368
Hole No.: TT1 (26)
Sample Reference: Not Given
Sample Description: Greyish brown slightly gravelly clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	98		
5	97		
3.35	96		
2	95		
1.18	94		
0.6	90		
0.425	84		
0.3	73		
0.212	56		
0.15	33		
0.063	20		

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	75
Fines <0.063mm	20

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 3.7
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

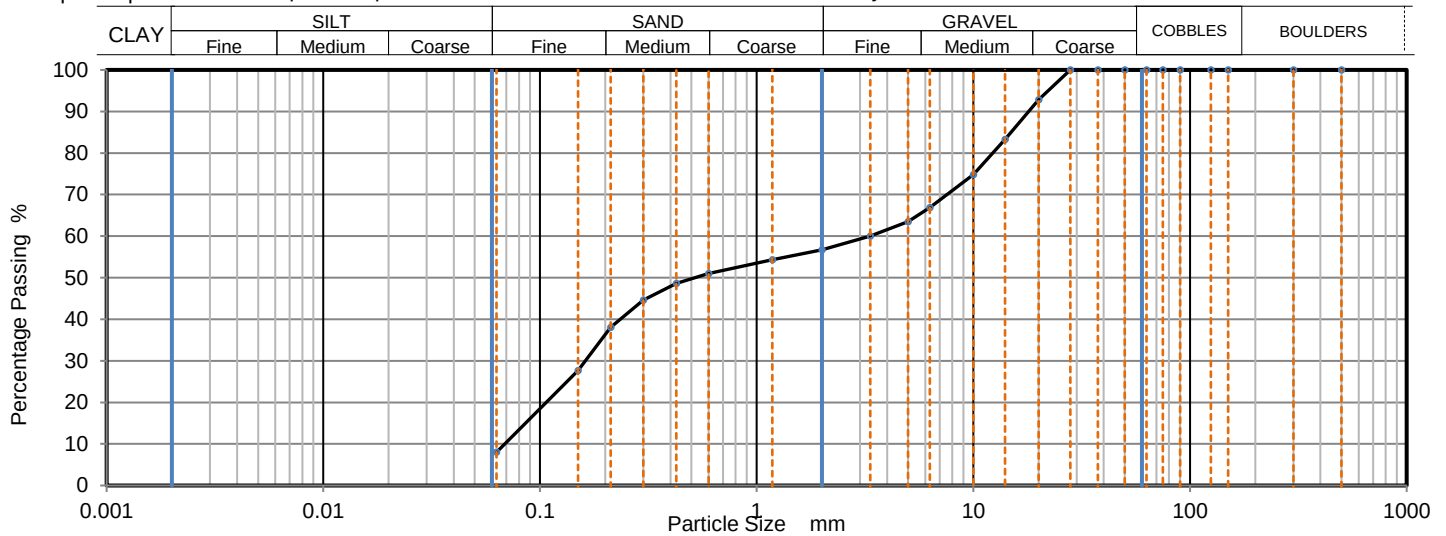
Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2527369
Hole No.: TT2 (21)
Sample Reference: Not Given
Sample Description: Yellowish brown clayey very gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	83		
10	75		
6.3	67		
5	64		
3.35	60		
2	57		
1.18	54		
0.6	51		
0.425	49		
0.3	45		
0.212	38		
0.15	28		
0.063	9		

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	48
Fines <0.063mm	9

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	51
Curvature Coefficient	0.12

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
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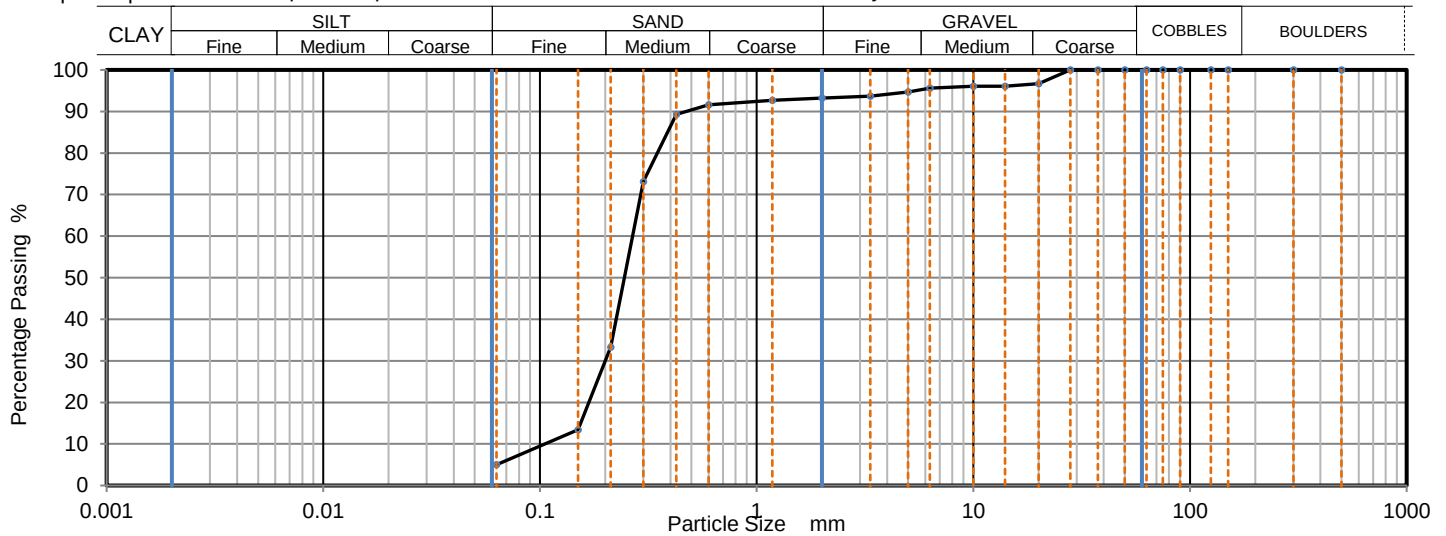
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527370
Hole No.: TT3 (20)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	96		
10	96		
6.3	96		
5	95		
3.35	94		
2	93		
1.18	93		
0.6	92		
0.425	89		
0.3	73		
0.212	33		
0.15	13		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	7
Sand	88
Fines <0.063mm	5

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	2.6
Curvature Coefficient	1.4

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Site Address: Lodge Road Hurst

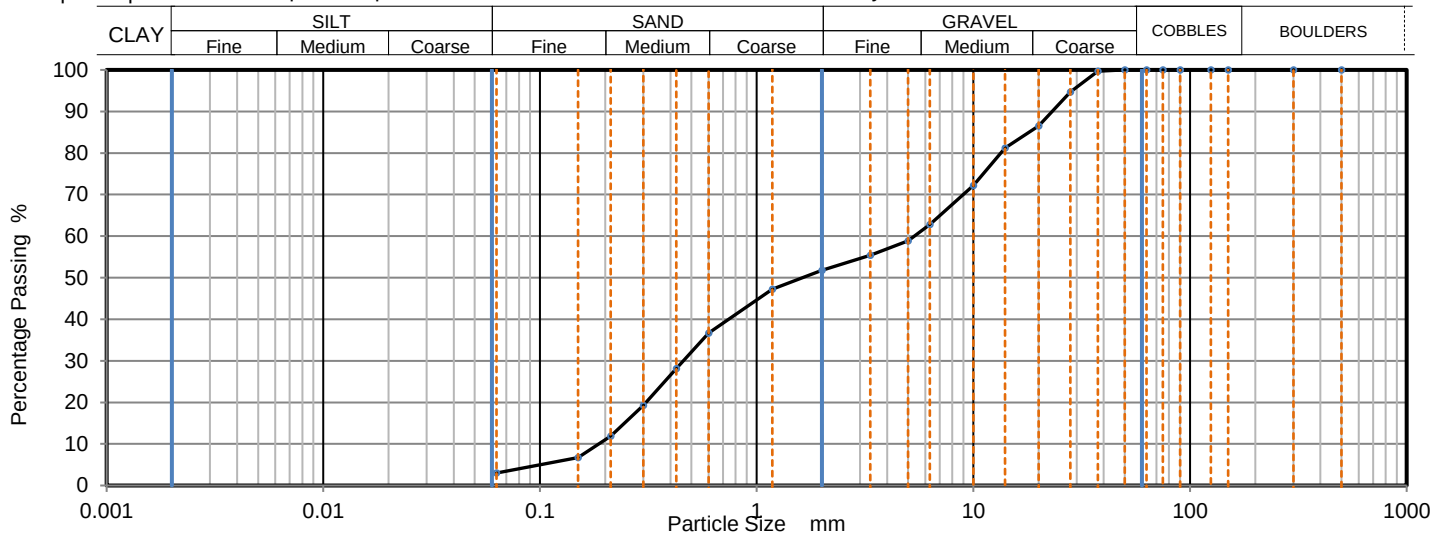
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527371
Hole No.: TT4 (22)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey GRAVEL and SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	87		
14	81		
10	72		
6.3	63		
5	59		
3.35	55		
2	52		
1.18	47		
0.6	37		
0.425	28		
0.3	19		
0.212	12		
0.15	7		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	48
Fines <0.063mm	4

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Client Address: 5-7 Tanner Street, London,
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Contact: Julian Fowler
Site Address: Lodge Road Hurst

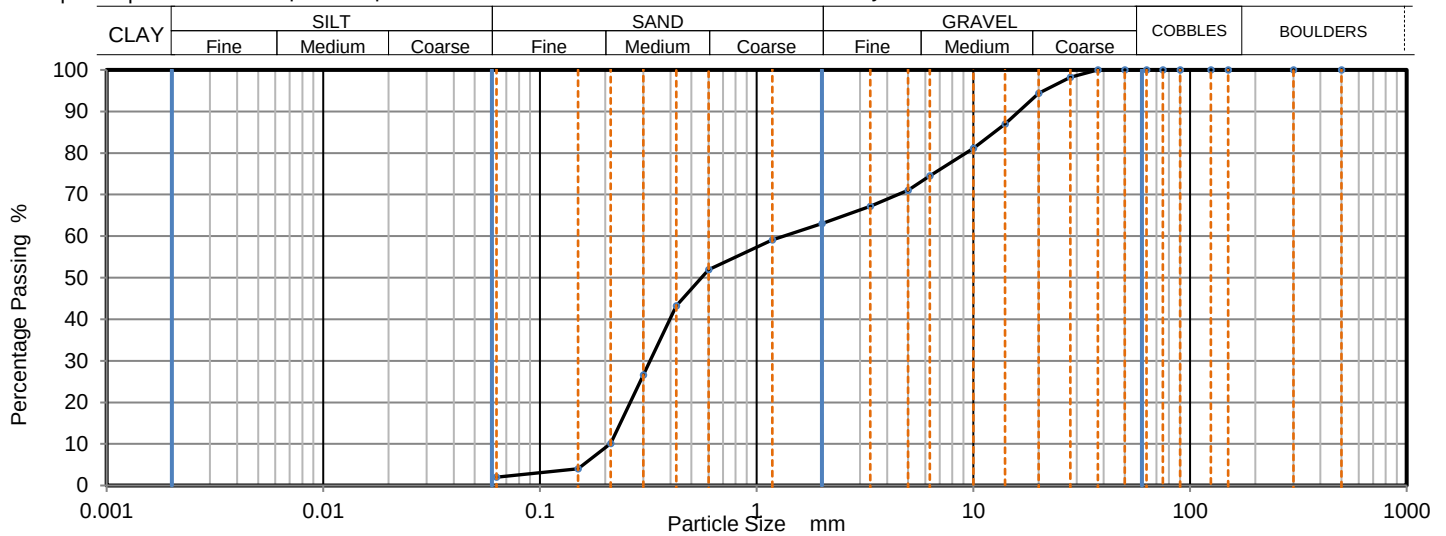
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527372
Hole No.: TT29A
Sample Reference: Not Given
Sample Description: Light brown slightly clayey gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	94		
14	87		
10	81		
6.3	75		
5	71		
3.35	67		
2	63		
1.18	59		
0.6	52		
0.425	43		
0.3	27		
0.212	10		
0.15	4		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	61
Fines <0.063mm	2

Grading Analysis	
D100	mm 37.5
D60	mm 1.34
D30	mm 0.322
D10	mm 0.21
Uniformity Coefficient	6.4
Curvature Coefficient	0.37

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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SE1 3LE

Contact: Julian Fowler
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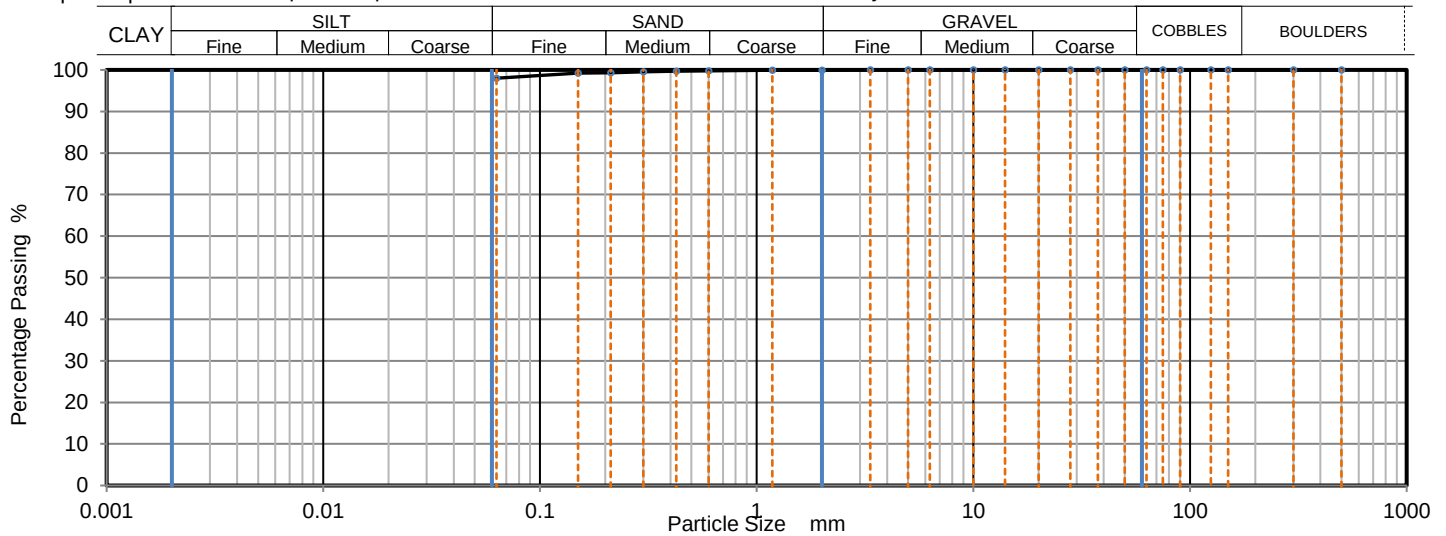
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527373
Hole No.: TT30B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	1
Fines <0.063mm	99

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

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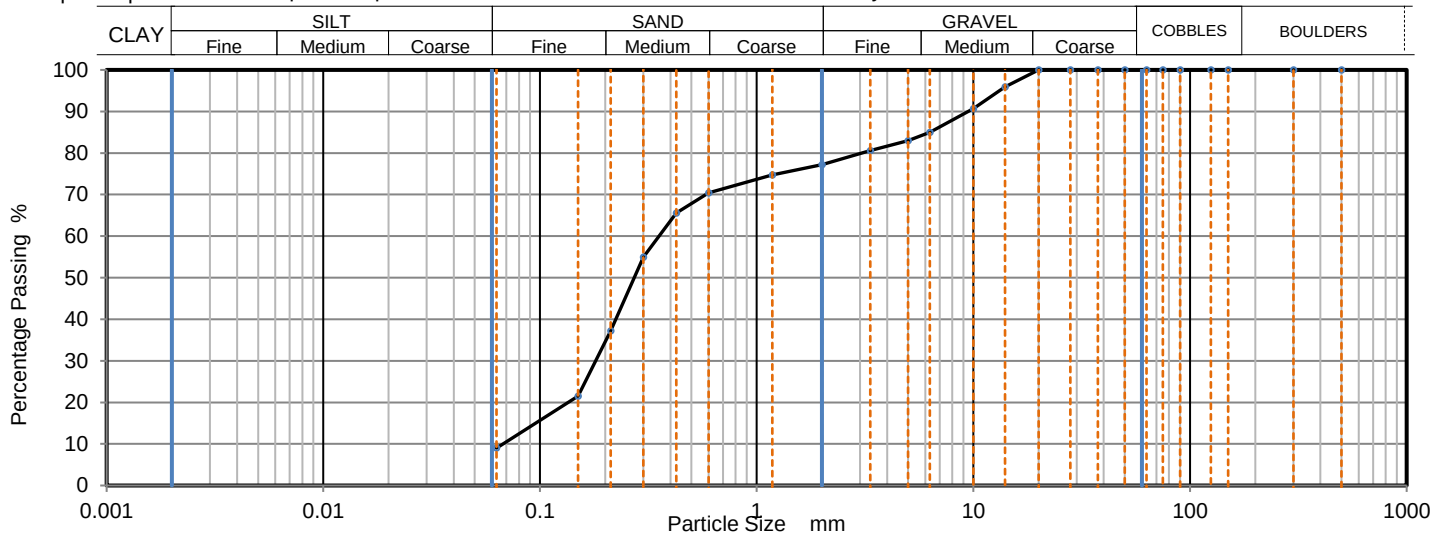
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527374
Hole No.: TT18B
Sample Reference: Not Given
Sample Description: Yellowish brown clayey gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	96		
10	91		
6.3	85		
5	83		
3.35	81		
2	77		
1.18	75		
0.6	70		
0.425	66		
0.3	55		
0.212	37		
0.15	22		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	67
Fines <0.063mm	10

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	5.6
Curvature Coefficient	1.4

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

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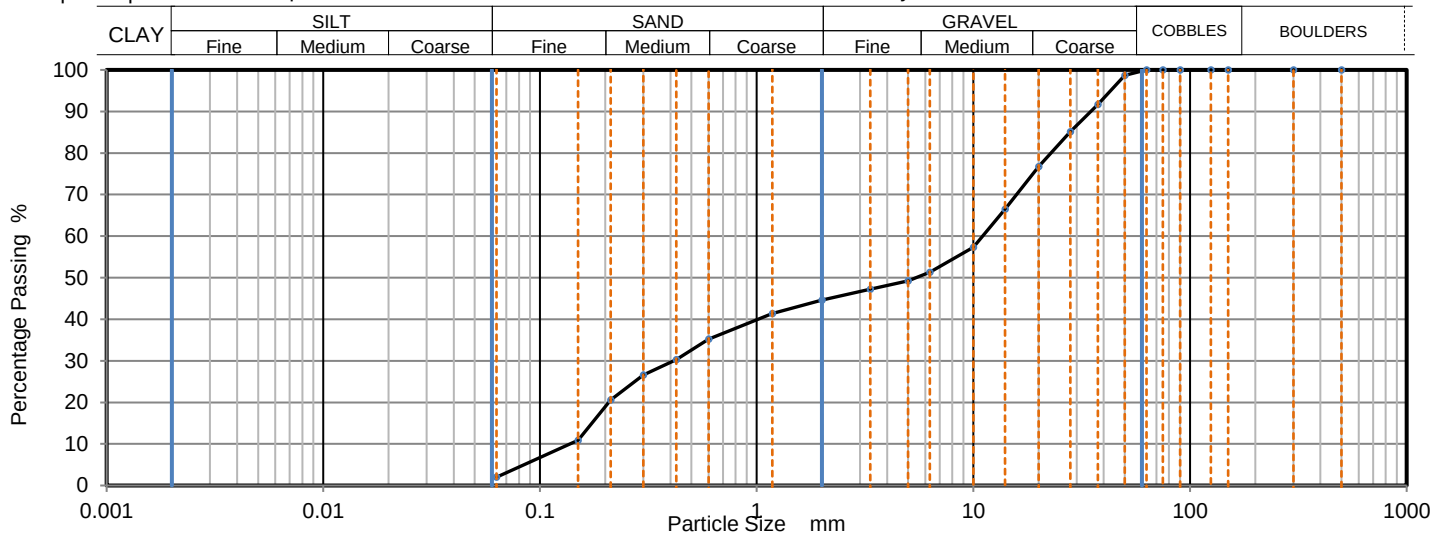
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527375
Hole No.: TT32A
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey very sandy GRAVEL
Sample Preparation: Sample was whole tested, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	99		
37.5	92		
28	85		
20	77		
14	67		
10	57		
6.3	51		
5	49		
3.35	47		
2	45		
1.18	41		
0.6	35		
0.425	30		
0.3	27		
0.212	21		
0.15	11		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	42
Fines <0.063mm	3

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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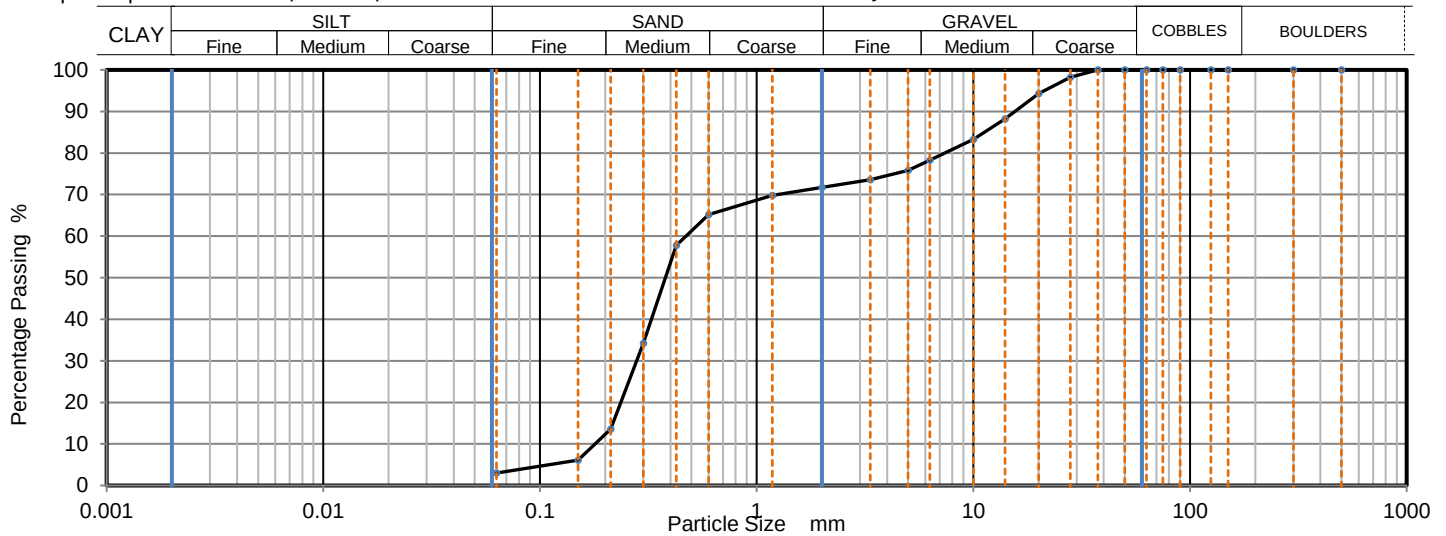
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527376
Hole No.: TT45B
Sample Reference: Not Given
Sample Description: Greyish brown slightly clayey gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	94		
14	88		
10	83		
6.3	78		
5	76		
3.35	74		
2	72		
1.18	70		
0.6	65		
0.425	58		
0.3	34		
0.212	14		
0.15	6		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	68
Fines <0.063mm	3

Grading Analysis	
D100	mm 37.5
D60	mm 0.471
D30	mm 0.279
D10	mm 0.18
Uniformity Coefficient	2.6
Curvature Coefficient	0.92

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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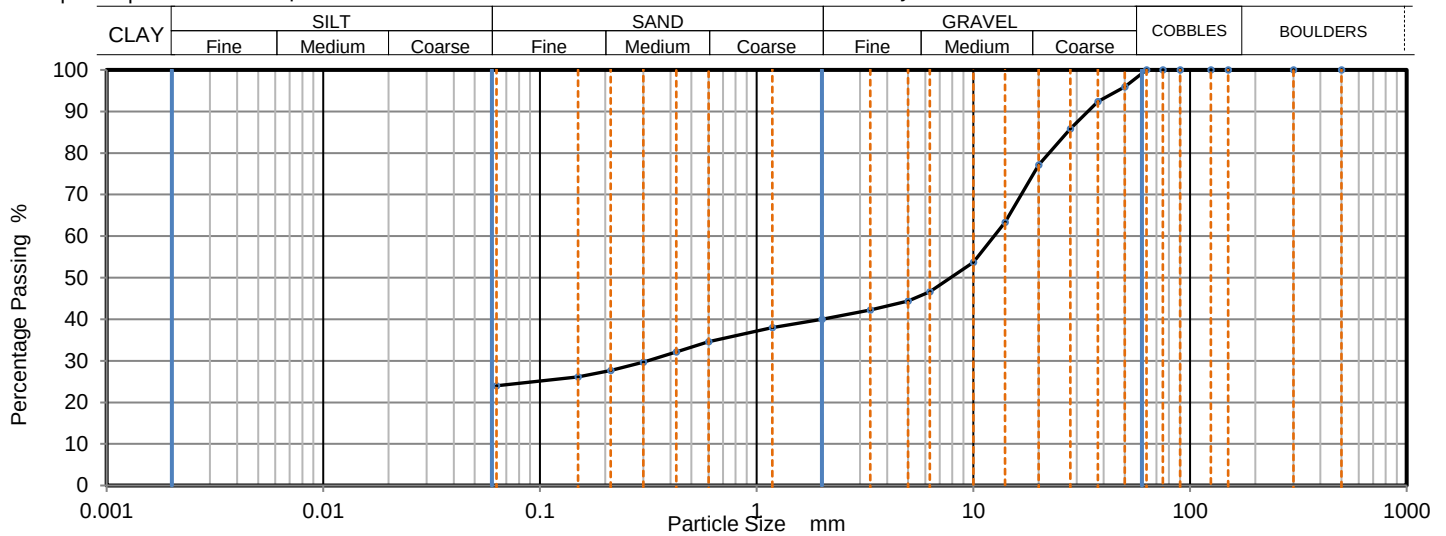
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527377
Hole No.: TT46B
Sample Reference: Not Given
Sample Description: Yellowish brown sandy clayey GRAVEL
Sample Preparation: Sample was whole tested, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	96		
37.5	92		
28	86		
20	77		
14	63		
10	54		
6.3	47		
5	44		
3.35	42		
2	40		
1.18	38		
0.6	35		
0.425	32		
0.3	30		
0.212	28		
0.15	26		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0
Gravel	60
Sand	15
Fines <0.063mm	25

Grading Analysis	
D100	mm 63
D60	mm 12.5
D30	mm 0.314
D10	mm
Uniformity Coefficient	> 200
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:



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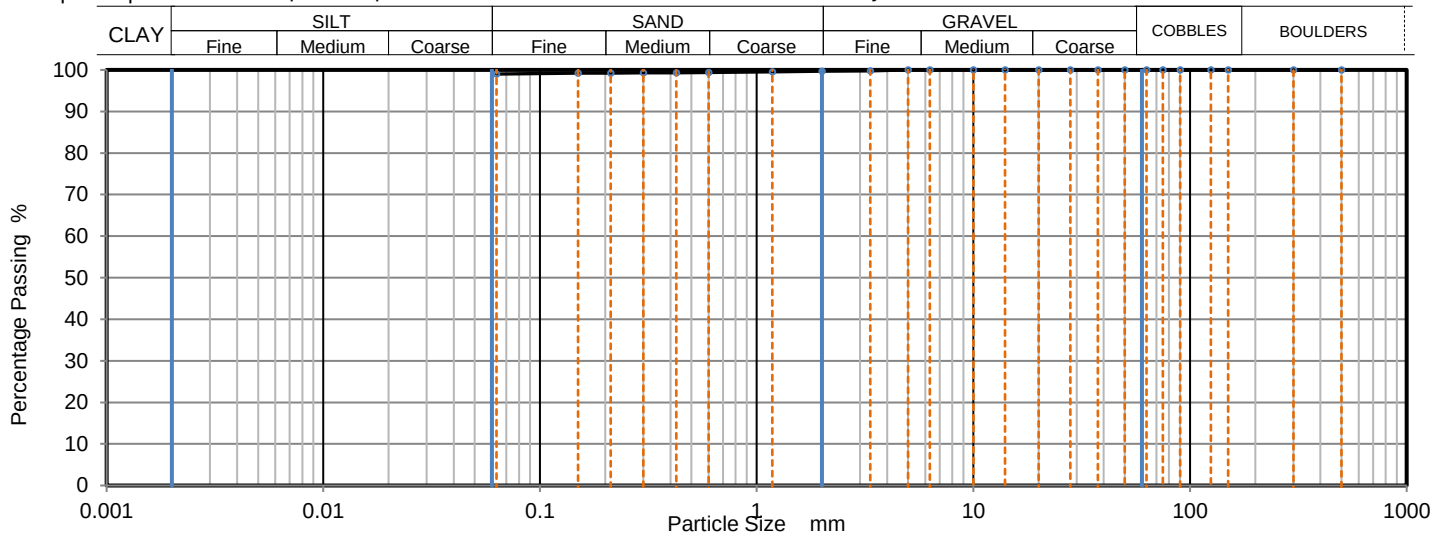
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Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527378
Hole No.: TT47B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	1
Fines <0.063mm	99

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

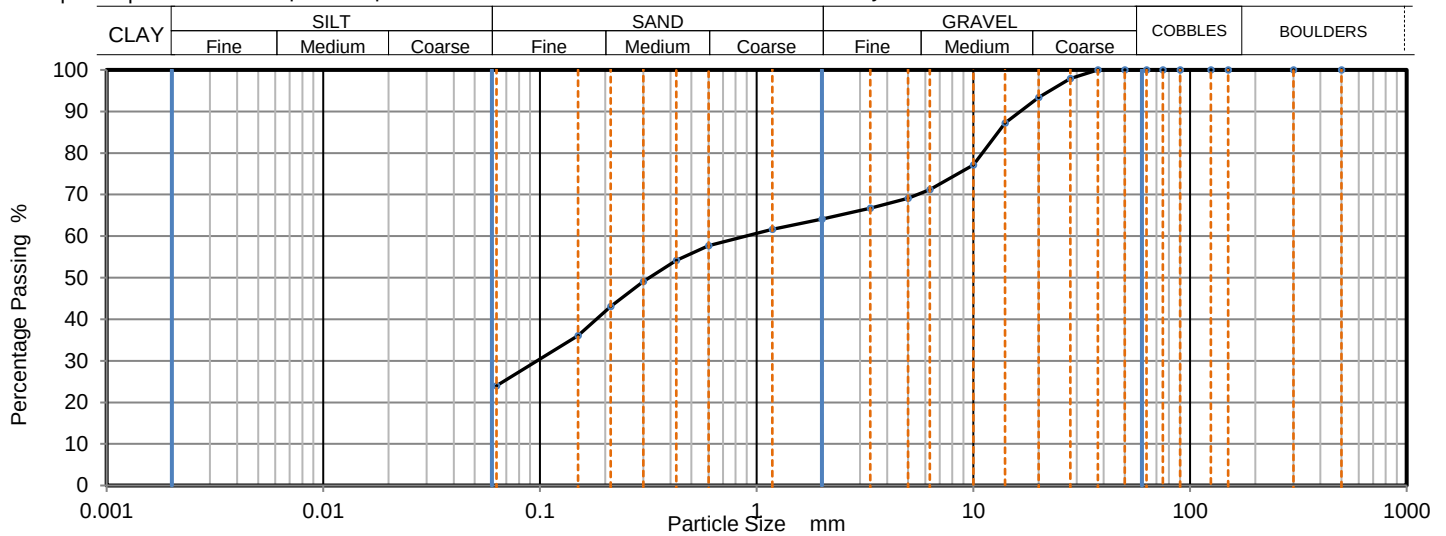
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527379
Hole No.: TT40B
Sample Reference: Not Given
Sample Description: Brownish grey clayey gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	93		
14	87		
10	77		
6.3	71		
5	69		
3.35	67		
2	64		
1.18	62		
0.6	58		
0.425	54		
0.3	49		
0.212	43		
0.15	36		
0.063	24		

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	40
Fines <0.063mm	24

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 14
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

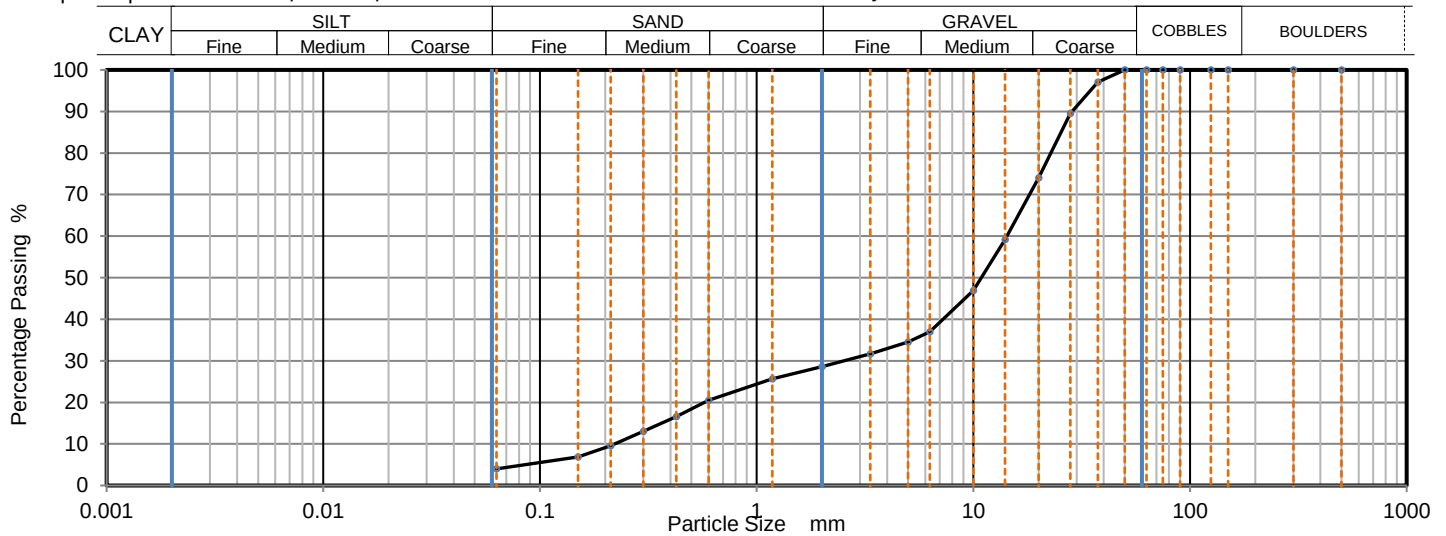
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 16/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527380
Hole No.: TT38A
Sample Reference: Not Given
Sample Description: Brown slightly clayey sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	90		
20	74		
14	59		
10	47		
6.3	37		
5	35		
3.35	32		
2	29		
1.18	26		
0.6	21		
0.425	17		
0.3	13		
0.212	10		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	71
Sand	24
Fines <0.063mm	5

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	64
Curvature Coefficient	2

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Monika Siewior
Reporting Specialist
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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

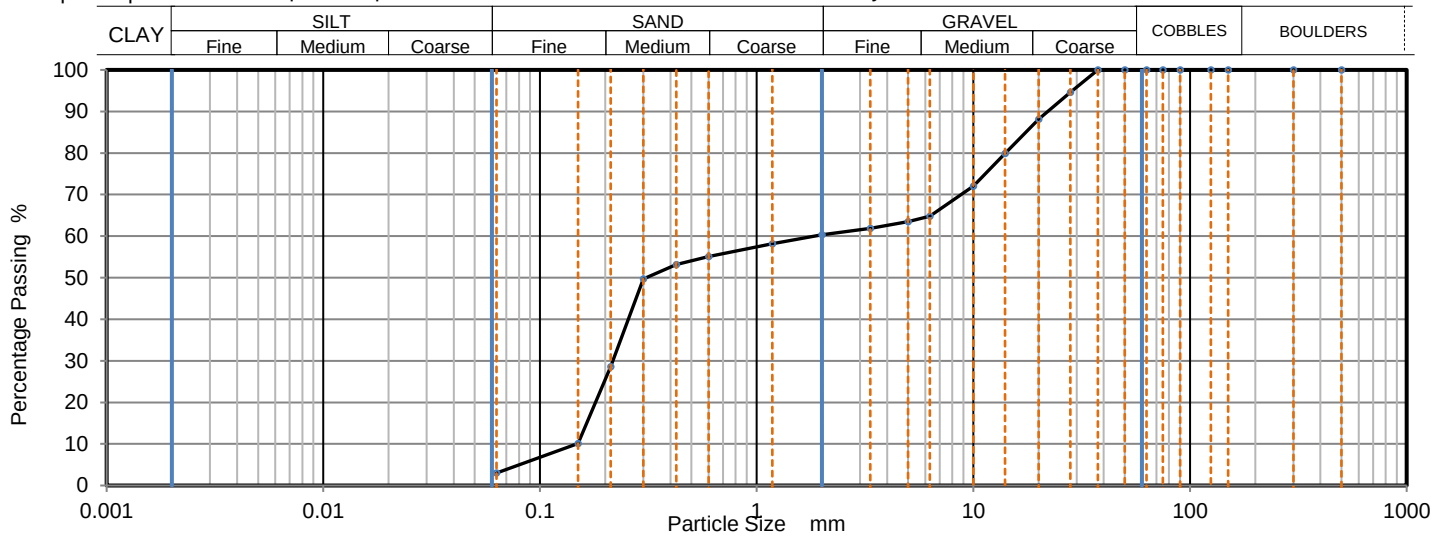
Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2534137
Hole No.: WS07
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey very gravelly SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.00
Depth Base [m]: 1.50
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	88		
14	80		
10	72		
6.3	65		
5	64		
3.35	62		
2	60		
1.18	58		
0.6	55		
0.425	53		
0.3	50		
0.212	29		
0.15	10		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	57
Fines <0.063mm	4

Grading Analysis	
D100	mm 37.5
D60	mm 1.85
D30	mm 0.217
D10	mm 0.149
Uniformity Coefficient	12
Curvature Coefficient	0.17

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

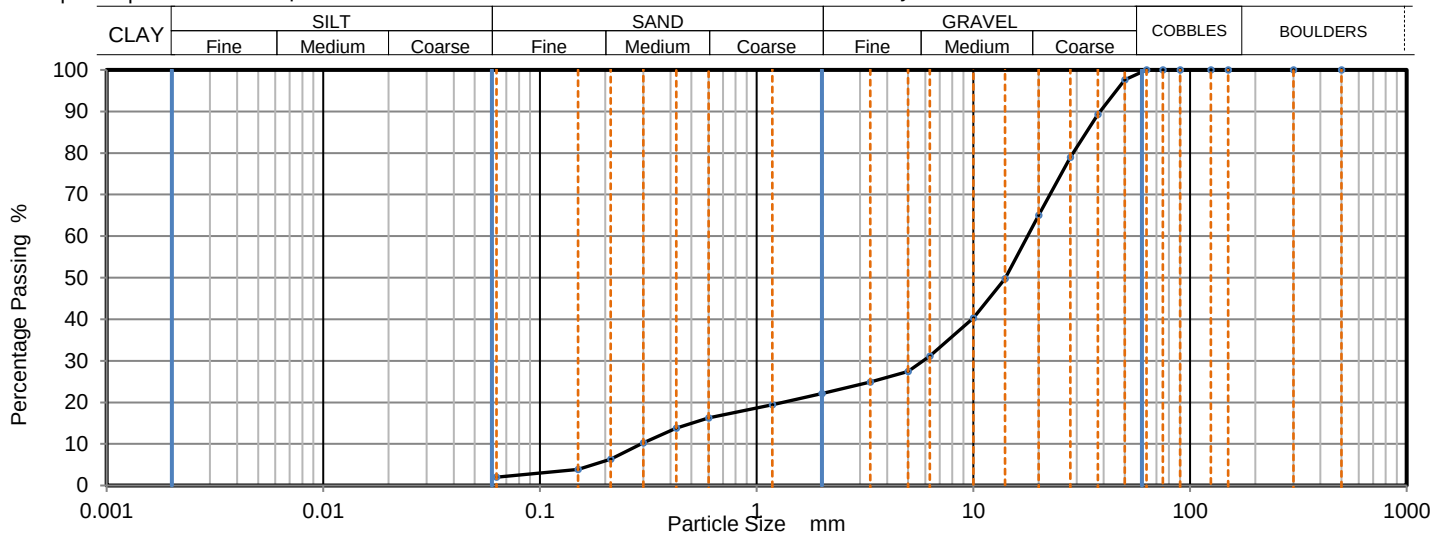
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2534138
Hole No.: WS05
Sample Reference: Not Given
Sample Description: Brown slightly clayey sandy GRAVEL
Sample Preparation: Sample was whole tested, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 0.50
Depth Base [m]: 1.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	98		
37.5	89		
28	79		
20	65		
14	50		
10	40		
6.3	31		
5	27		
3.35	25		
2	22		
1.18	19		
0.6	16		
0.425	14		
0.3	10		
0.212	6		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	78
Sand	19
Fines <0.063mm	3

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

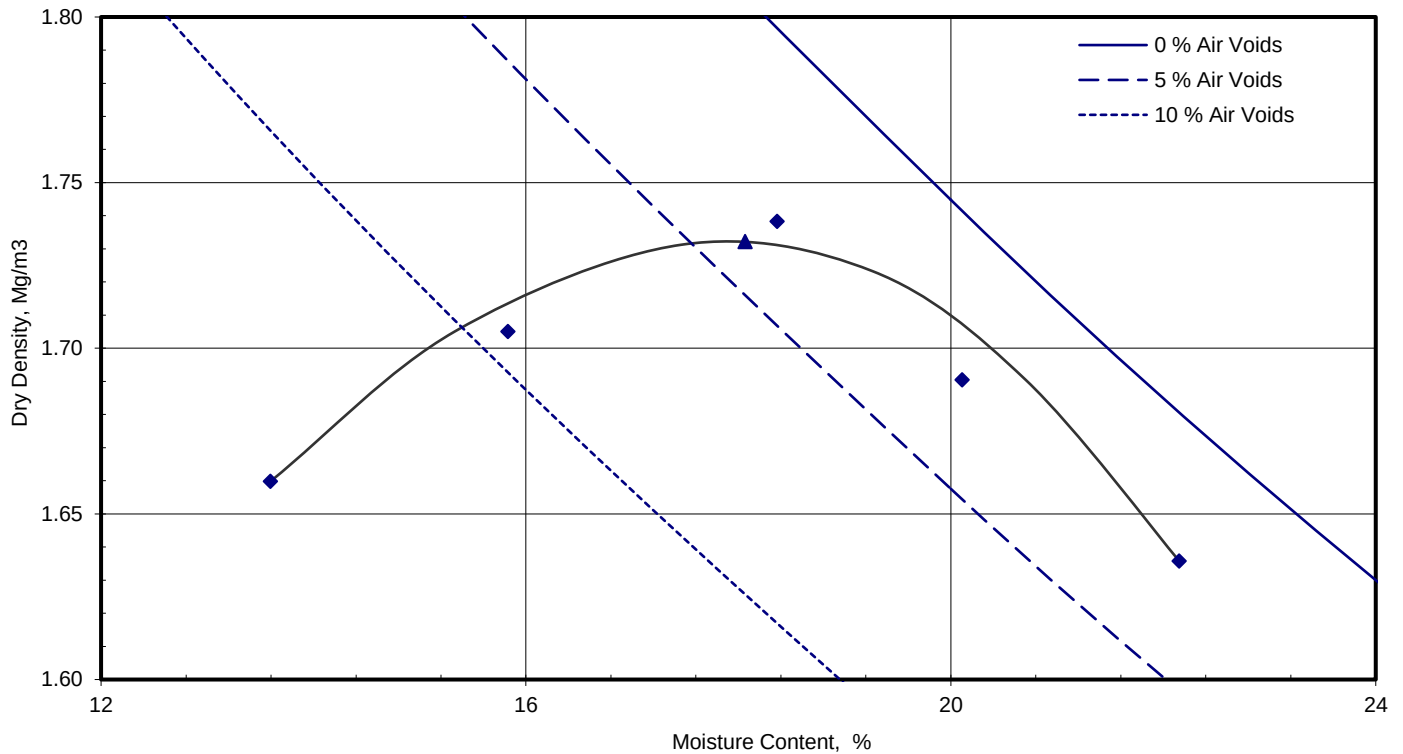
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527368
Hole No.: TT1 (26)
Sample Reference: Not Given
Sample Description: Greyish brown slightly gravelly clayey SAND
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B



Compaction Point No.	1	2	3	4	5
Moisture Content %	14	16	18	20	22
Dry Density Mg/m³	1.66	1.71	1.74	1.69	1.64

Mould Type	1 Litre
Samples Used	Single sample tested
Material Retained on 37.5 mm Sieve %	0
Material Retained on 20.0 mm Sieve %	0
Particle Density - Measured using gas jar Mg/m³	2.68
As received Moisture Content %	17
Maximum Dry Density Mg/m³	1.73

Optimum Moisture Content %	18
----------------------------	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

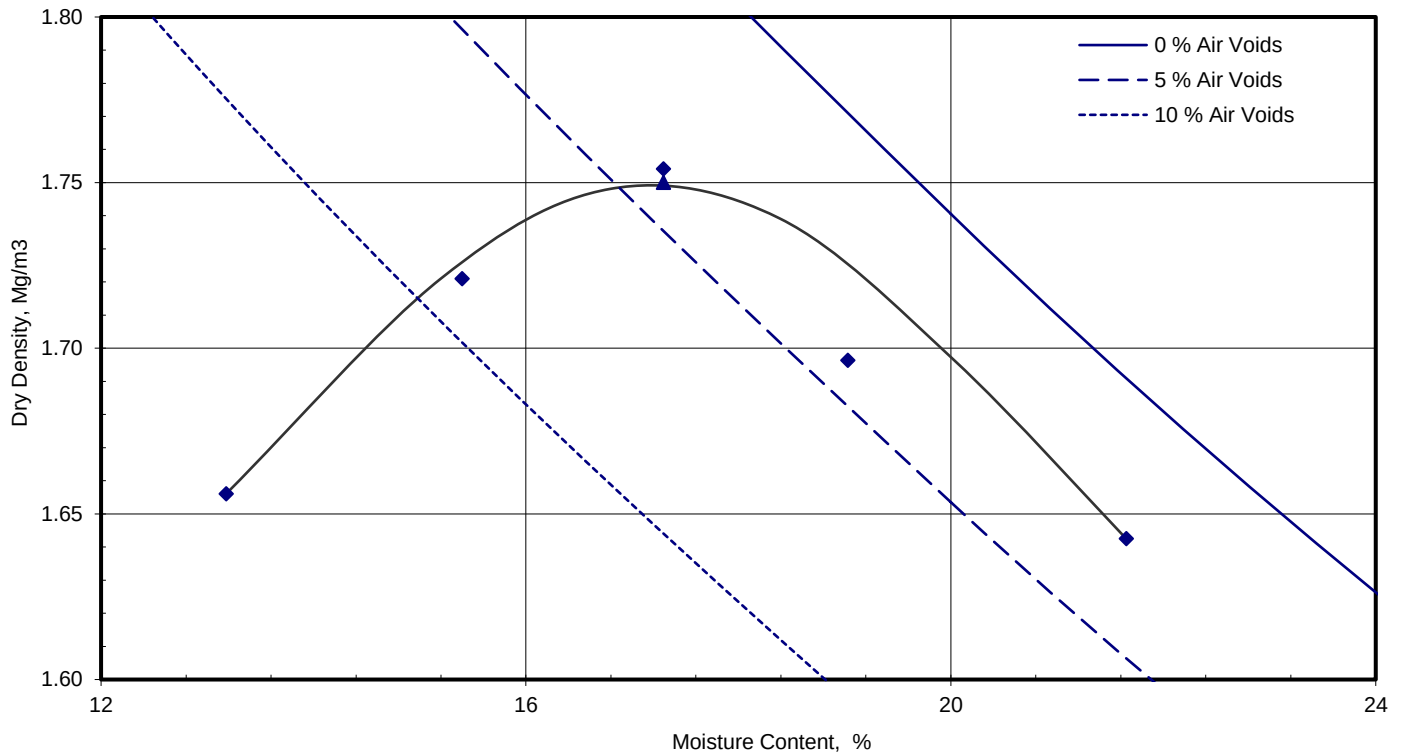
Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527370
Hole No.: TT3 (20)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey gravelly SAND
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B


Compaction Point No.	1	2	3	4	5
Moisture Content %	13	15	17	19	22
Dry Density Mg/m³	1.66	1.72	1.75	1.70	1.64

Mould Type	1 Litre
Samples Used	Single sample tested
Material Retained on 37.5 mm Sieve %	0
Material Retained on 20.0 mm Sieve %	4
Particle Density - Measured using gas jar Mg/m³	2.67
As received Moisture Content %	16
Maximum Dry Density Mg/m³	1.75

Optimum Moisture Content %	17
----------------------------	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

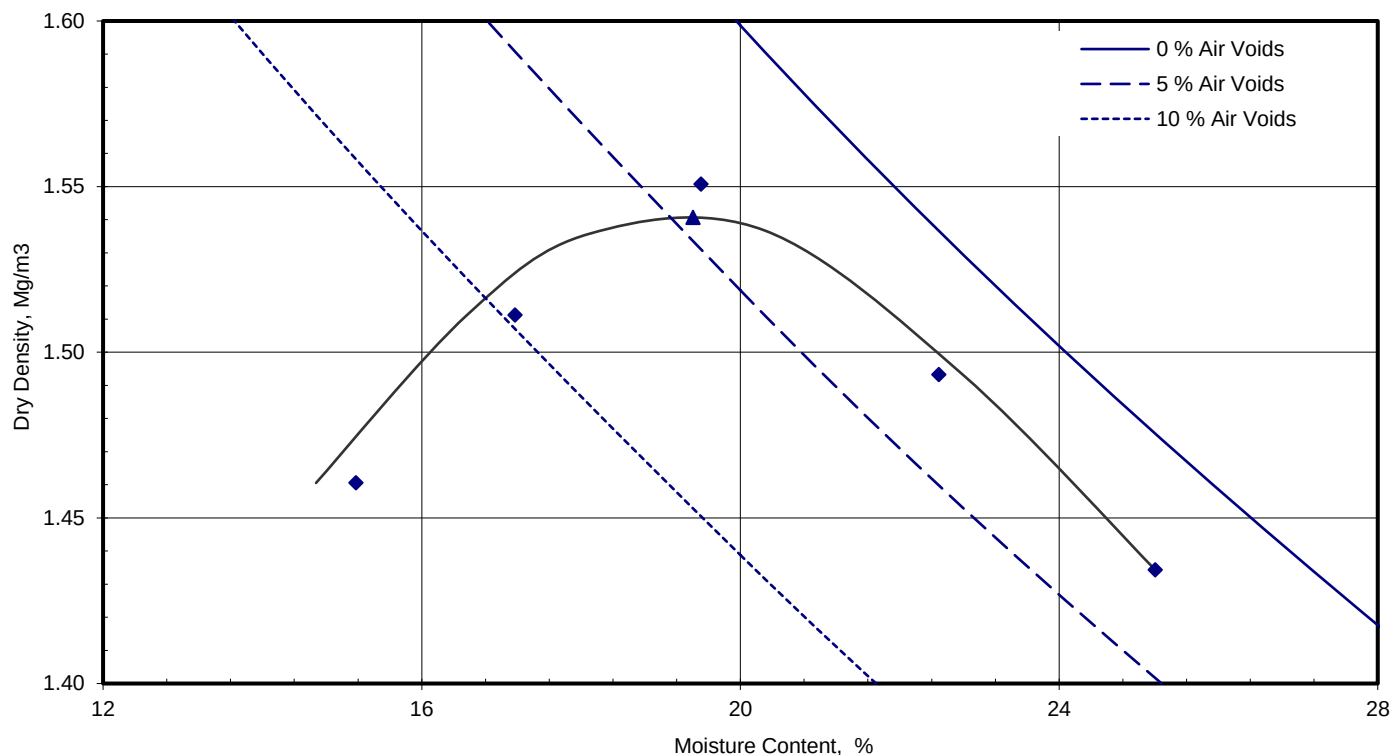
Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527373
Hole No.: TT30B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B


Compaction Point No.	1	2	3	4	5
Moisture Content	15	17	20	22	25
Dry Density	1.46	1.51	1.55	1.49	1.43

Mould Type	1 Litre
Samples Used	Single sample tested
Material Retained on 37.5 mm Sieve	0
Material Retained on 20.0 mm Sieve	0
Particle Density - Measured using gas jar	2.35
As received Moisture Content	28
Maximum Dry Density	1.54

Optimum Moisture Content	19
--------------------------	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

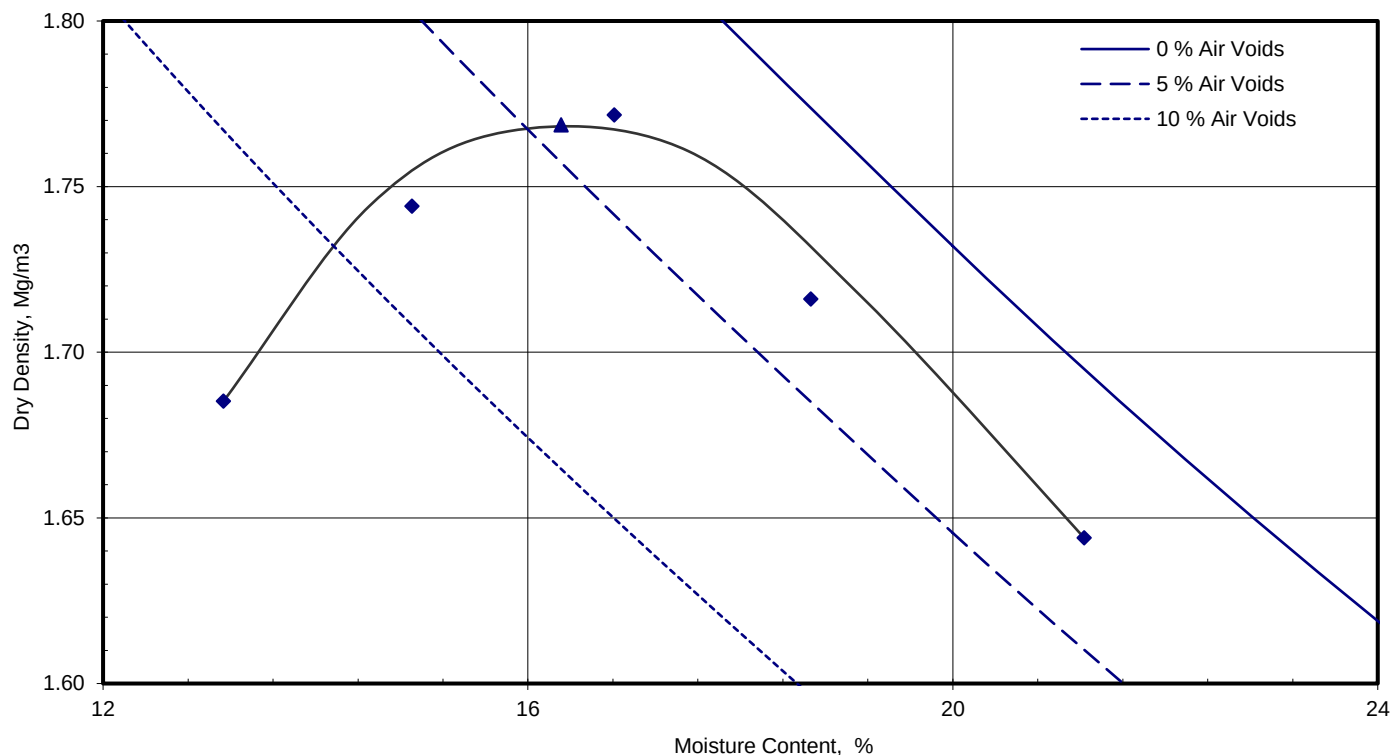
Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527376
Hole No.: TT45B
Sample Reference: Not Given
Sample Description: Greyish brown slightly clayey gravelly SAND
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B


Compaction Point No.	1	2	3	4	5
Moisture Content %	13	15	17	19	21
Dry Density Mg/m³	1.69	1.74	1.77	1.72	1.64

Mould Type	CBR
Samples Used	Single sample tested
Material Retained on 37.5 mm Sieve %	0
Material Retained on 20.0 mm Sieve %	7
Particle Density - Measured using gas jar Mg/m³	2.65
As received Moisture Content %	14
Maximum Dry Density Mg/m³	1.77

Optimum Moisture Content %	16
----------------------------	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.6 using 4.5kg [heavy] Rammer

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

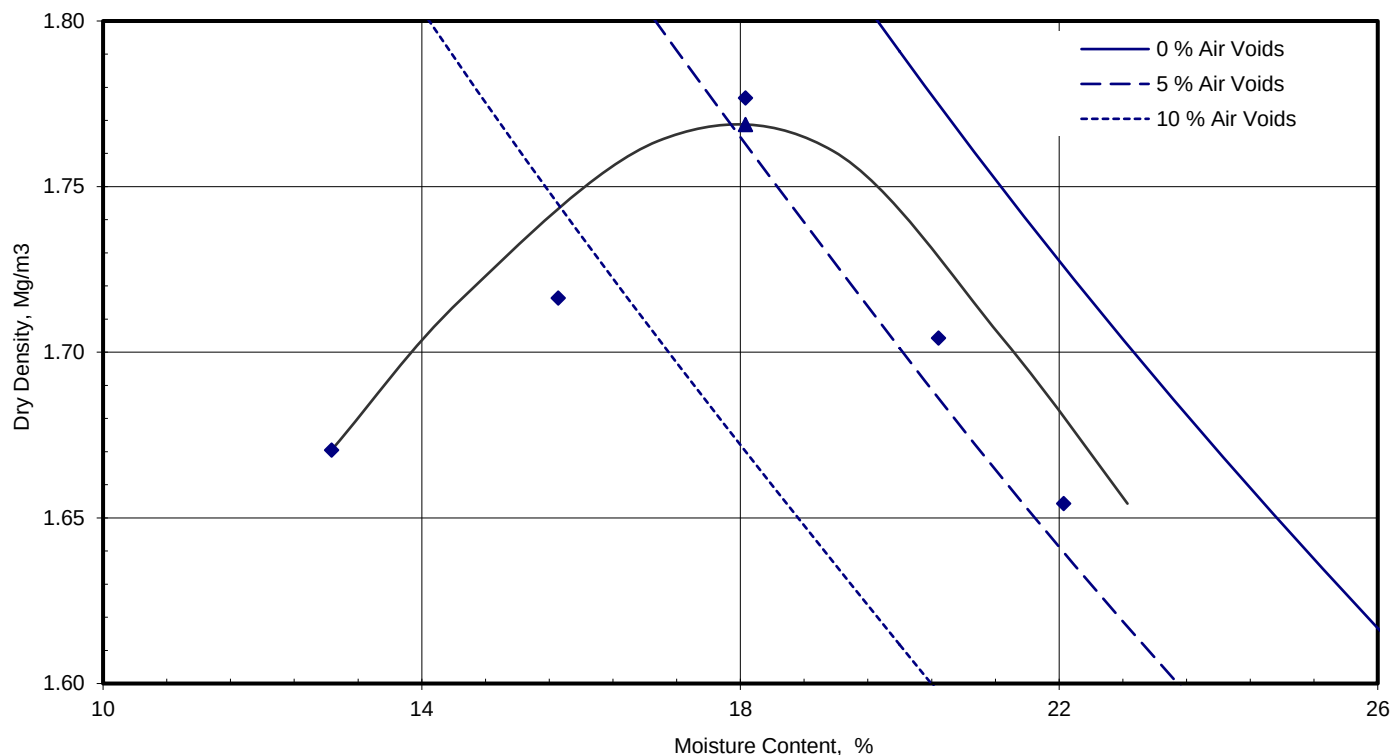
Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527378
Hole No.: TT47B
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 3.00
Depth Base [m]: Not Given
Sample Type: B


Compaction Point No.	1	2	3	4	5
Moisture Content %	13	16	18	20	22
Dry Density Mg/m³	1.67	1.72	1.78	1.70	1.65

Mould Type	1 Litre
Samples Used	Single sample tested
Material Retained on 37.5 mm Sieve %	0
Material Retained on 20.0 mm Sieve %	0
Particle Density - Measured using gas jar Mg/m³	2.79
As received Moisture Content %	21
Maximum Dry Density Mg/m³	1.77

Optimum Moisture Content %	18
----------------------------	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Test Results:

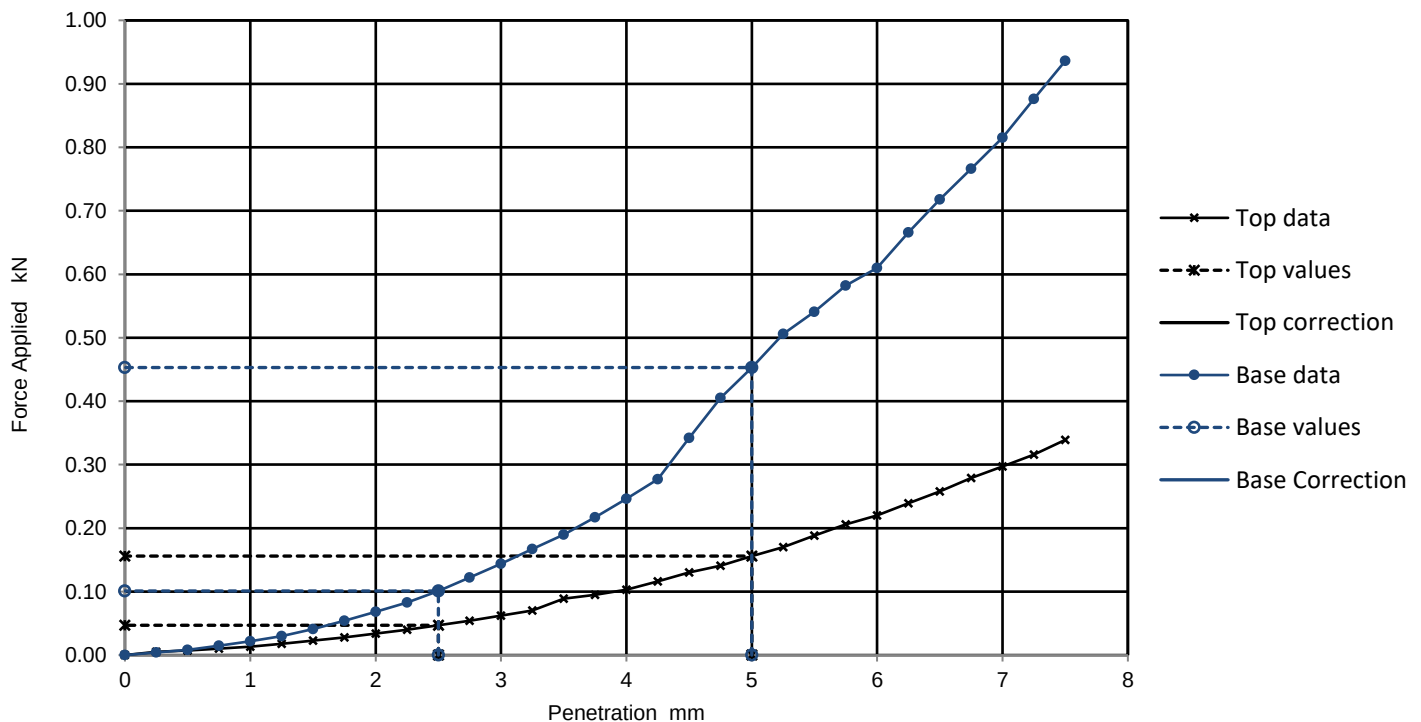
Laboratory Reference: 2527369
Hole No.: TT2 (21)
Sample Reference: Not Given
Sample Description: Yellowish brown clayey very gravelly SAND

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B

Specimen Preparation:

Condition	Remoulded			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed	8	%		Dry density after soaking		Mg/m3	
Initial Specimen details	Bulk density	2.13	Mg/m3	Surcharge applied		8	kg
	Dry density	1.87	Mg/m3			4.9	kPa
	Moisture content	14	%				

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	0.4	0.8	0.8	
No	0.8	2.3	2.3	

Moisture Content %
14
13

Remarks:

Test/ Specimen specific remarks:

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 30/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

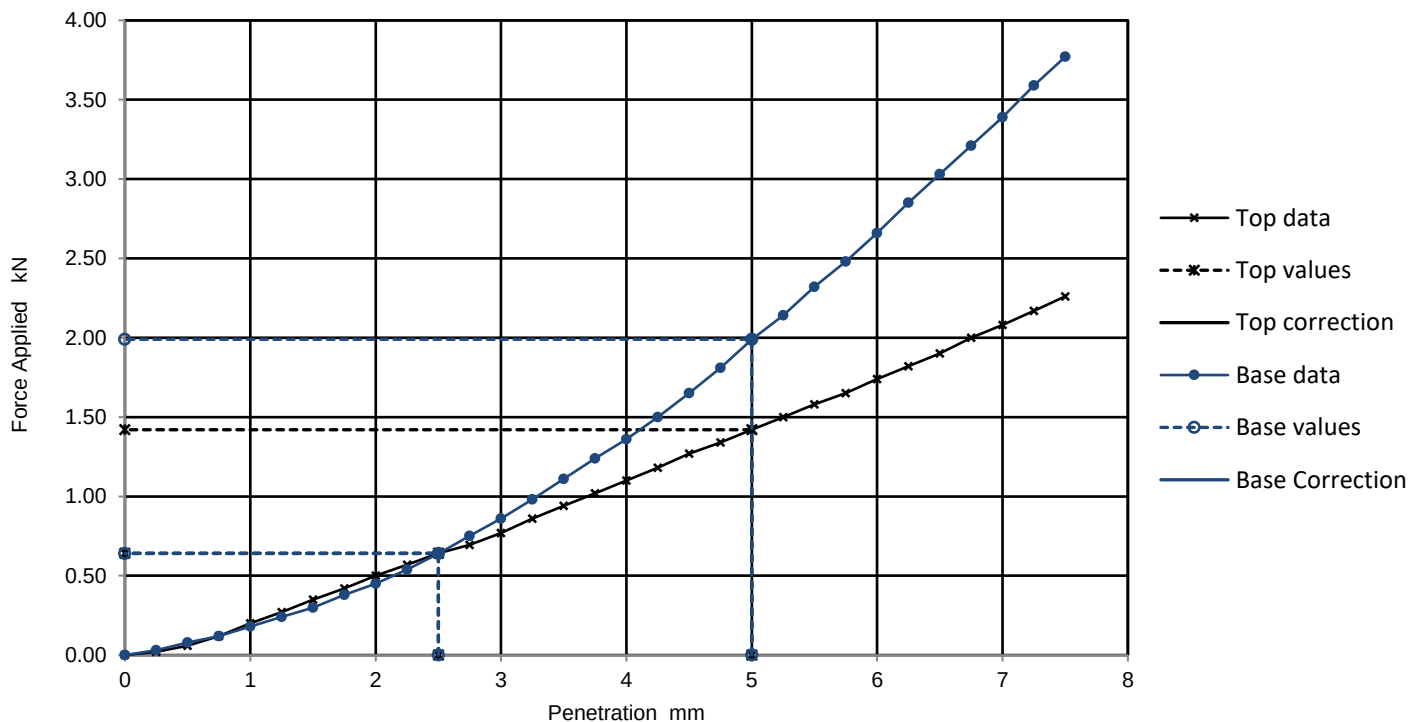
Laboratory Reference: 2527374
Hole No.: TT18B
Sample Reference: Not Given
Sample Description: Yellowish brown clayey gravelly SAND

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
		Dry density after soaking	Mg/m3
Material retained on 20mm sieve removed	0 %		
Initial Specimen details	Bulk density	2.15 Mg/m3	Surcharge applied
	Dry density	1.88 Mg/m3	8 kg
	Moisture content	14 %	4.8 kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	4.9	7.1	7.1	
No	4.8	10.0	10.0	

Moisture Content %
14
12

Remarks:

Test/ Specimen specific remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 01/12/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Test Results:

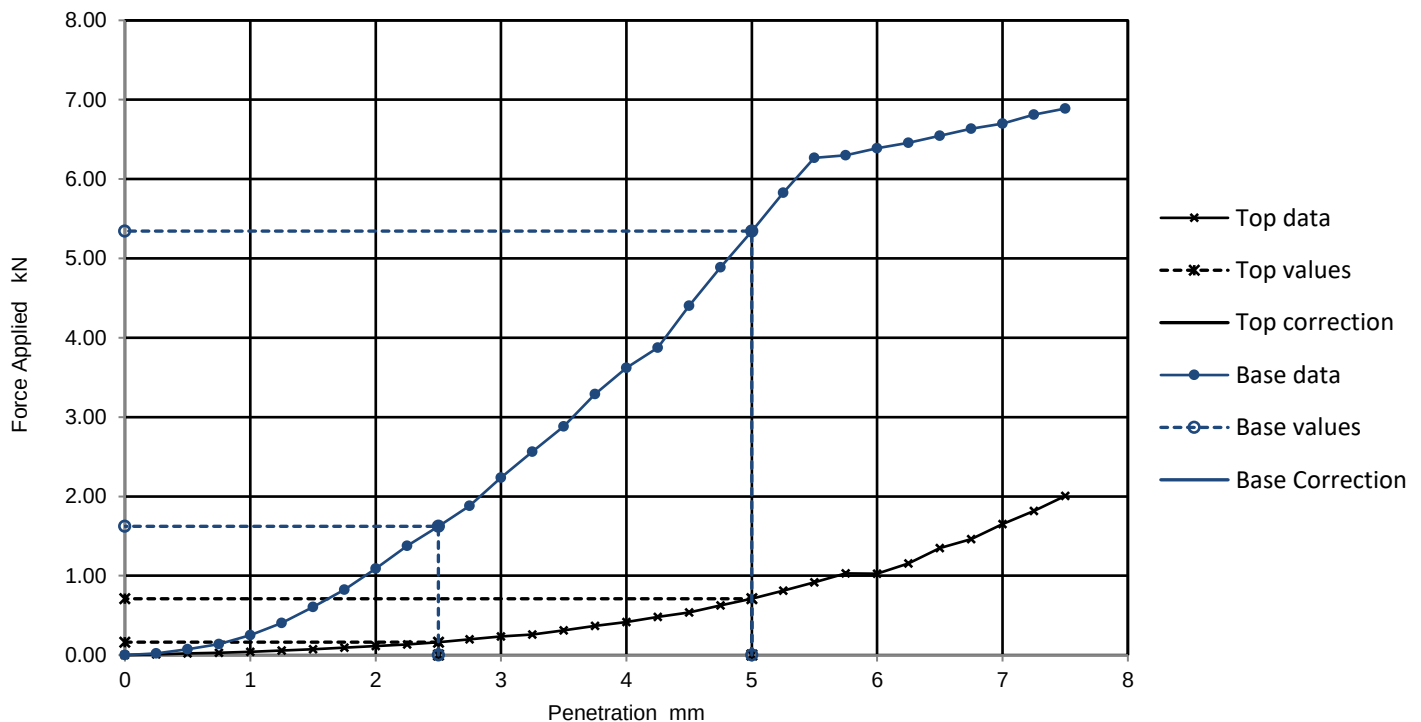
Laboratory Reference: 2527380
Hole No.: TT38A
Sample Reference: Not Given
Sample Description: Brown slightly clayey sandy GRAVEL

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B

Specimen Preparation:

Condition	Remoulded			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed	28	%		Dry density after soaking		Mg/m3	
Initial Specimen details	Bulk density	2.28	Mg/m3	Surcharge applied		8	kg
	Dry density	2.10	Mg/m3			4.8	kPa
	Moisture content	8.4	%				

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	1.2	3.6	3.6	
No	12.0	27.0	27.0	

Moisture Content %
9.4
8.9

Remarks: Test carried out with > 25 % retained on 20mm as per clause 7.2.1.2

Test/ Specimen specific remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2527370
Hole No.: TT3 (20)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey gravelly SAND

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B

Preparation Details Sample prepared from loose material

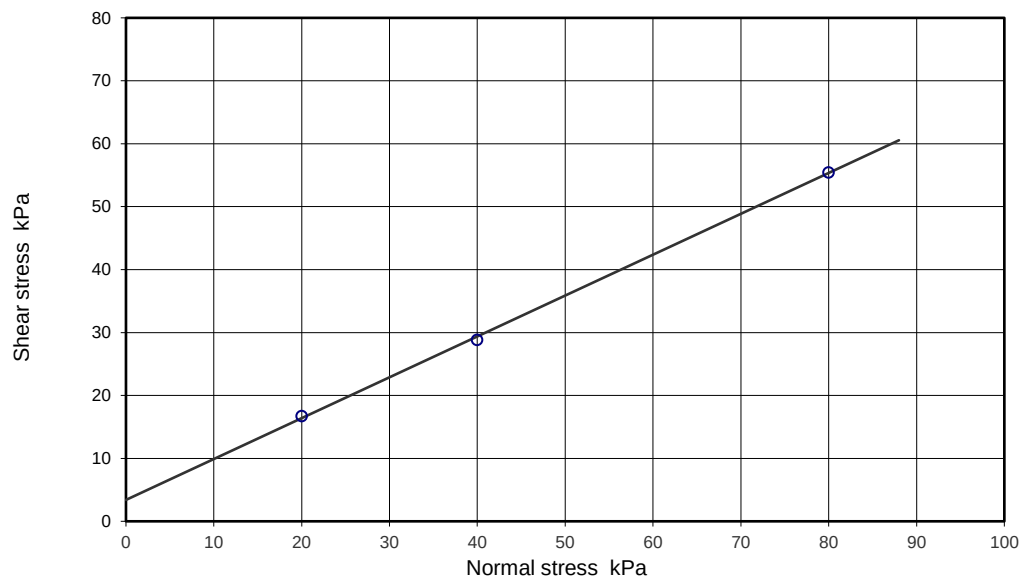
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.77	1.77	1.77			Mg/m ³
	Moisture Content	16.3	16.3	16.3			%
	Dry density	1.52	1.52	1.52			Mg/m ³
	Voids ratio	0.743	0.743	0.743			
Consolidation	Degree of Saturation	58	58	58			%
	Consolidation / Normal Stress applied	20	40	80			kPa
	Change in height during consolidation	0.690	1.082	1.140			mm
After test	Voids ratio after consolidation	0.683	0.649	0.644			
	Final Moisture content	21.4	21.2	21.0			%

Shearing stage(s)

Rate of displacement	Peak	0.06562	0.06562	0.06562			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	3.01	6.13	2.95			mm
	Shear stress	16.7	28.8	55.4			kPa
	Vertical Movement at peak shear stress	0.04	0.22	0.19			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 1 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	3.4
Ø'	degrees	33.0

Residual strength, (x)

c'R	kPa	not assessed
Ø'R	degrees	not assessed

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

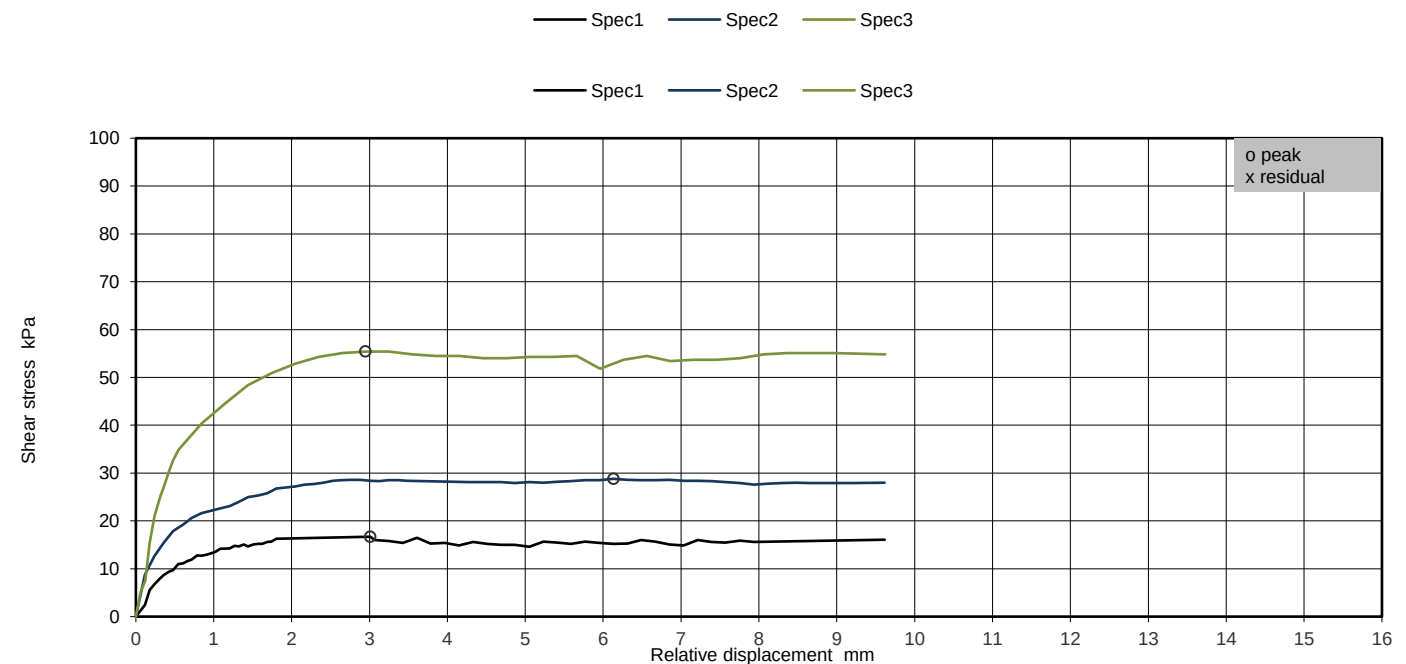
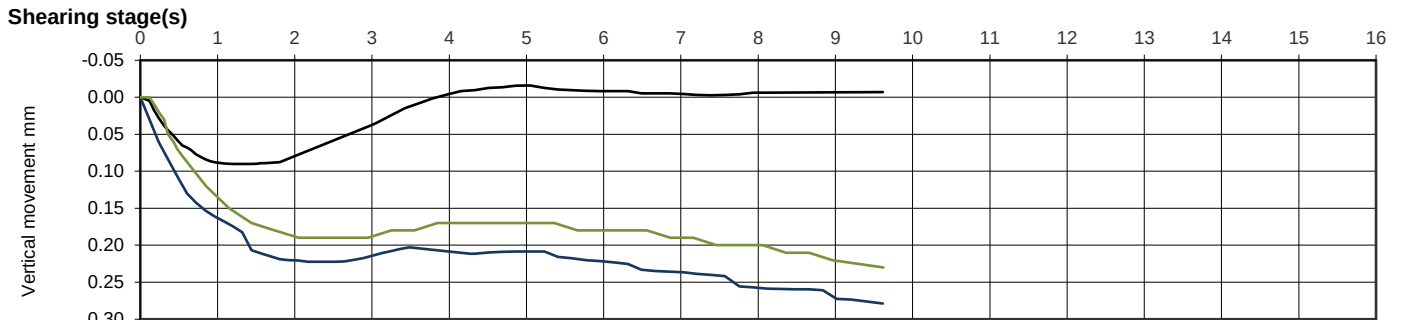
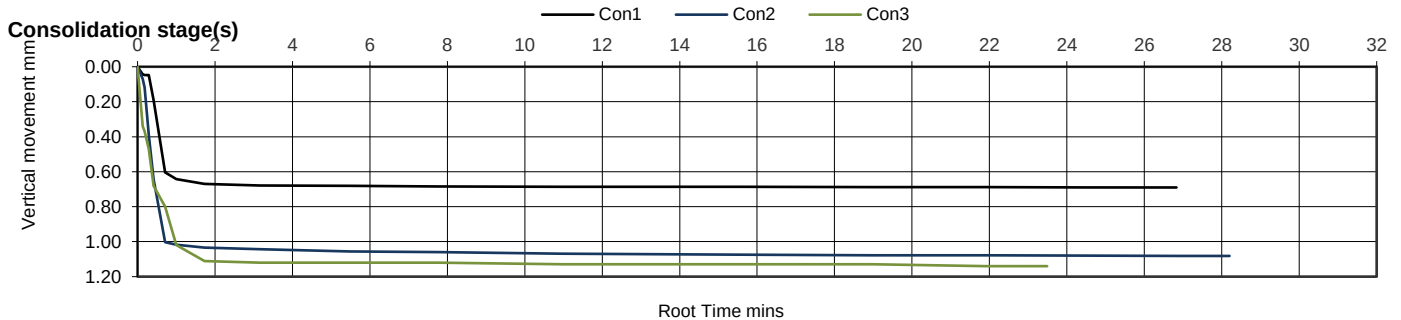
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 21/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527370
Hole No.: TT3 (20)
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey gravelly SAND

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B



Remarks:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road Hurst

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2527374
Hole No.: TT18B
Sample Reference: Not Given
Sample Description: Yellowish brown clayey gravelly SAND

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B

Preparation Details Sample prepared from loose material

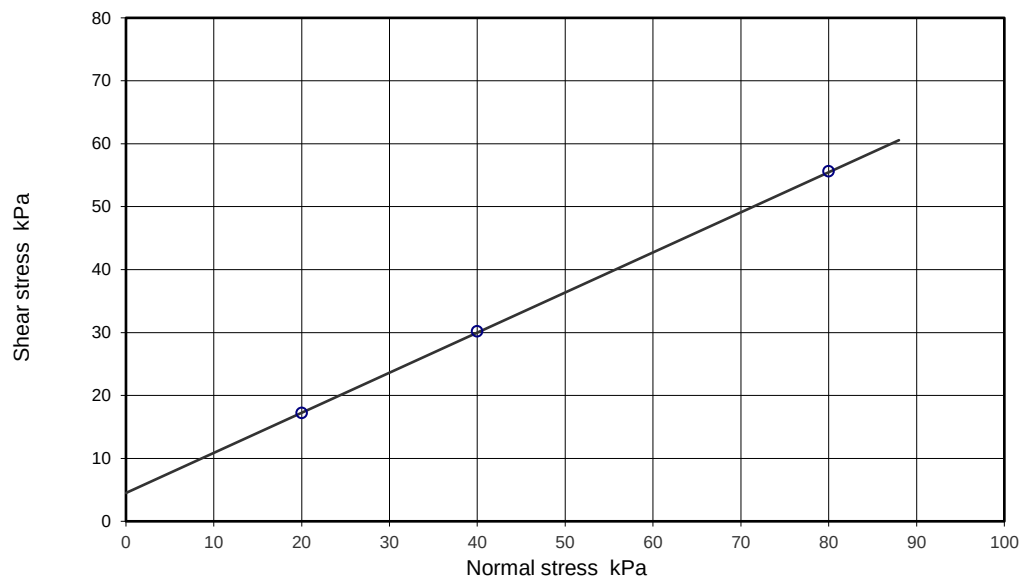
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.93	1.93	1.93			Mg/m ³
	Moisture Content	13.5	13.5	13.5			%
	Dry density	1.70	1.70	1.70			Mg/m ³
	Voids ratio	0.559	0.559	0.559			
	Degree of Saturation	64	64	64			%
Consolidation	Consolidation / Normal Stress applied	20	40	80			kPa
	Change in height during consolidation	0.130	0.371	0.833			mm
	Voids ratio after consolidation	0.549	0.530	0.494			
After test	Final Moisture content	19.1	18.8	18.1			%

Shearing stage(s)

Rate of displacement	Peak	0.06249	0.06249	0.06249			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	3.31	2.89	9.61			mm
	Shear stress	17.2	30.2	55.6			kPa
	Vertical Movement at peak shear stress	0.39	0.39	0.41			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 1 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	4.5
Ø'	degrees	32.5

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

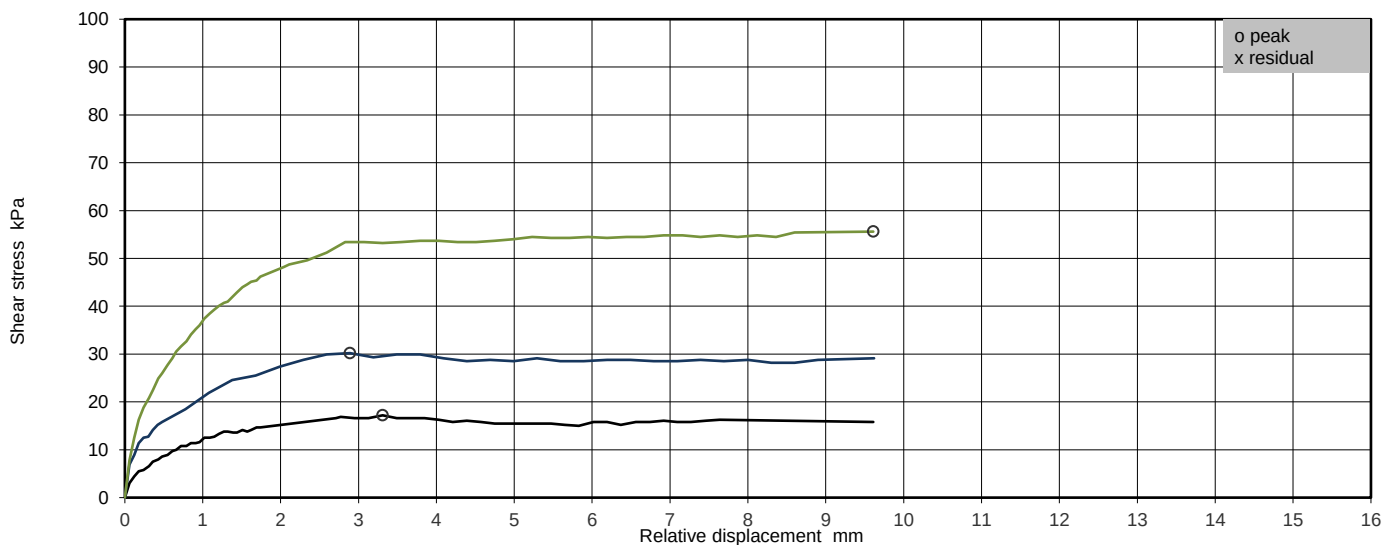
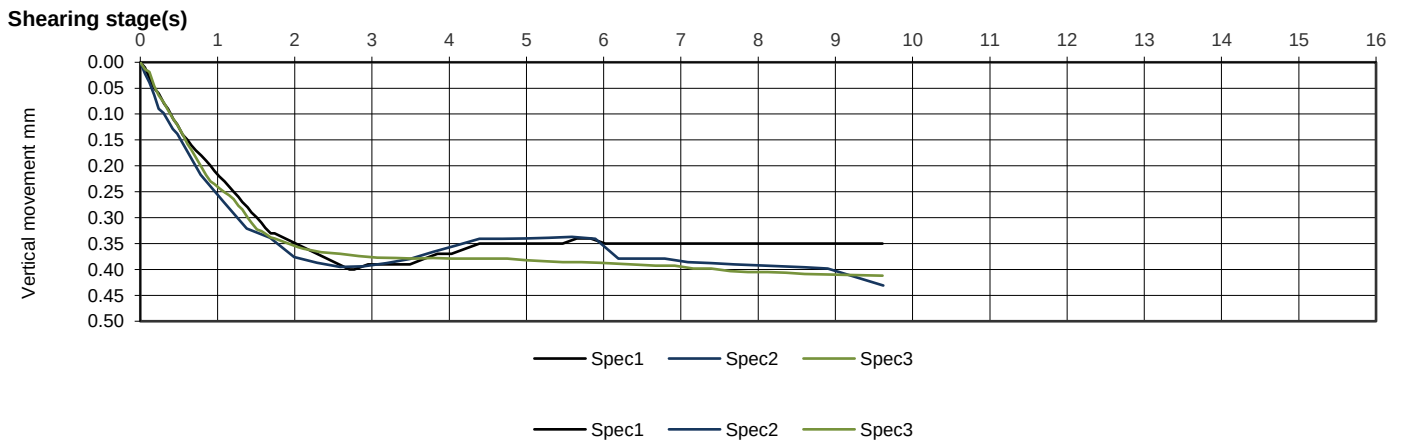
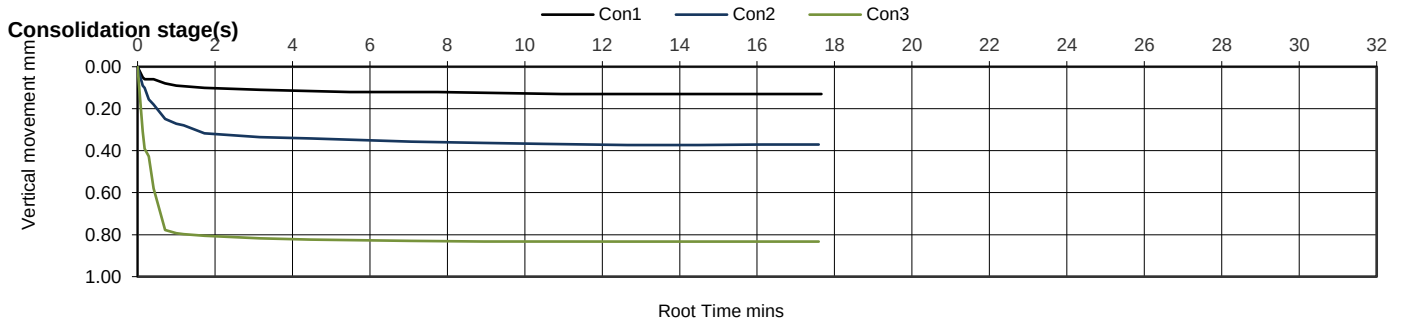
Contact: Julian Fowler
Site Address: Lodge Road Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-12311
Date Sampled: 24/11/2022
Date Received: 29/11/2022
Date Tested: 22/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2527374
Hole No.: TT18B
Sample Reference: Not Given
Sample Description: Yellowish brown clayey gravelly SAND

Depth Top [m]: 1.00
Depth Base [m]: Not Given
Sample Type: B


Remarks:

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Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

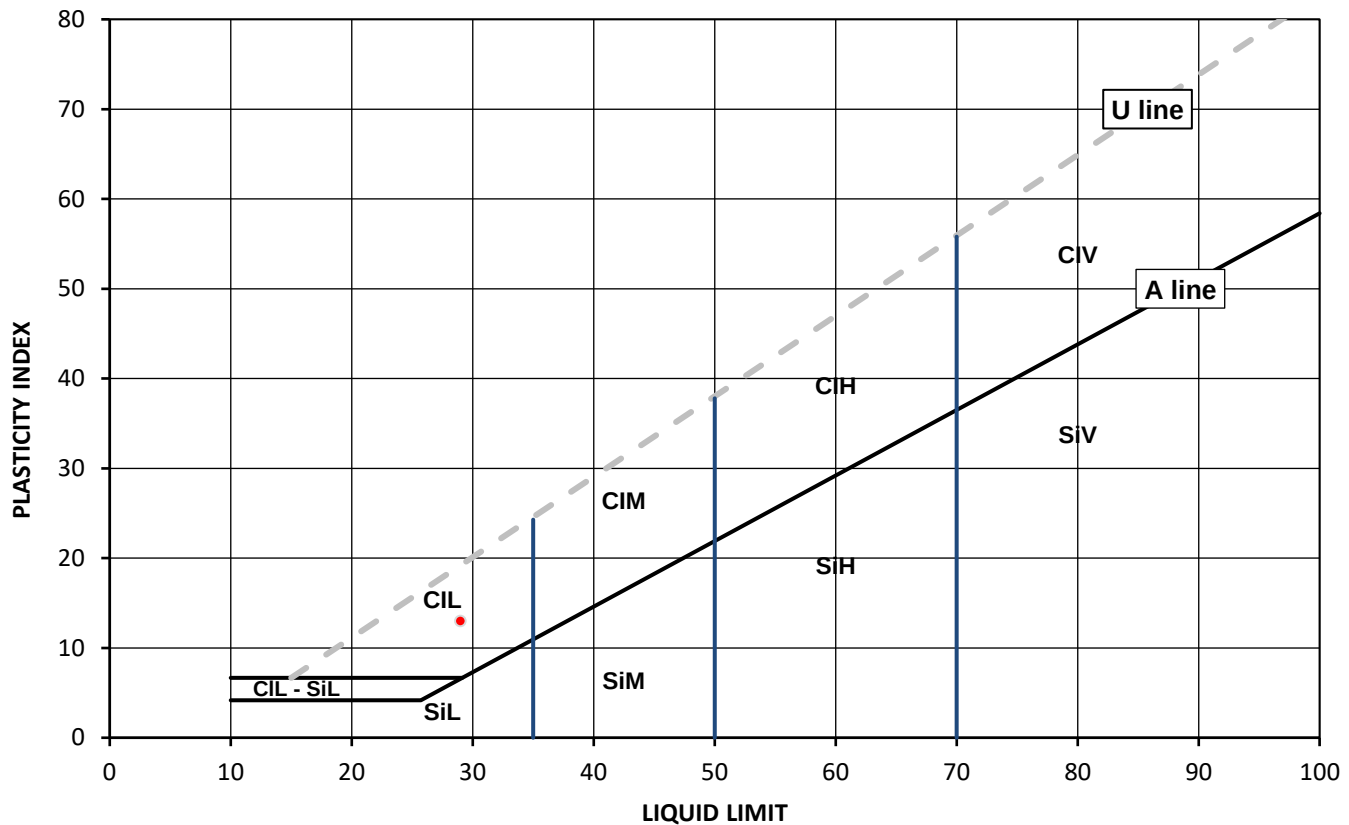
Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND

Depth Top [m]: 0.30
Depth Base [m]: 0.80
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	29	16	13	92



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	Liquid Limit
Si	Silt	L	below 35
		M	35 to 50
		H	50 to 70
		V	exceeding 70
		O	append to classification for organic material (eg CIHO)

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

Remarks: Preliminary report

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

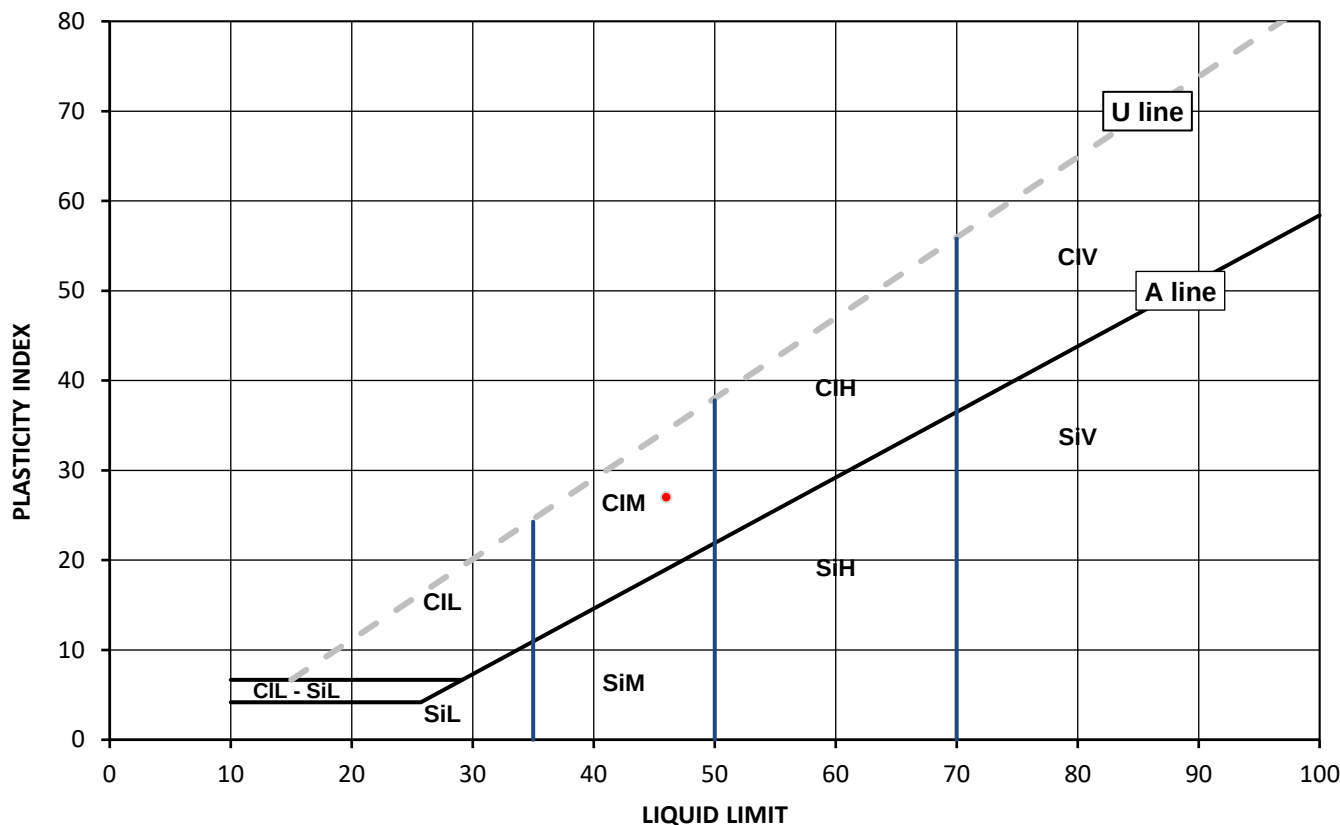
Test Results:

Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAY

Depth Top [m]: 3.60
Depth Base [m]: 4.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
27	46	19	27	89



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	L Low below 35
Si	Silt	M Medium 35 to 50
		H High 50 to 70
		V Very high exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

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

Remarks: Preliminary report

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Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

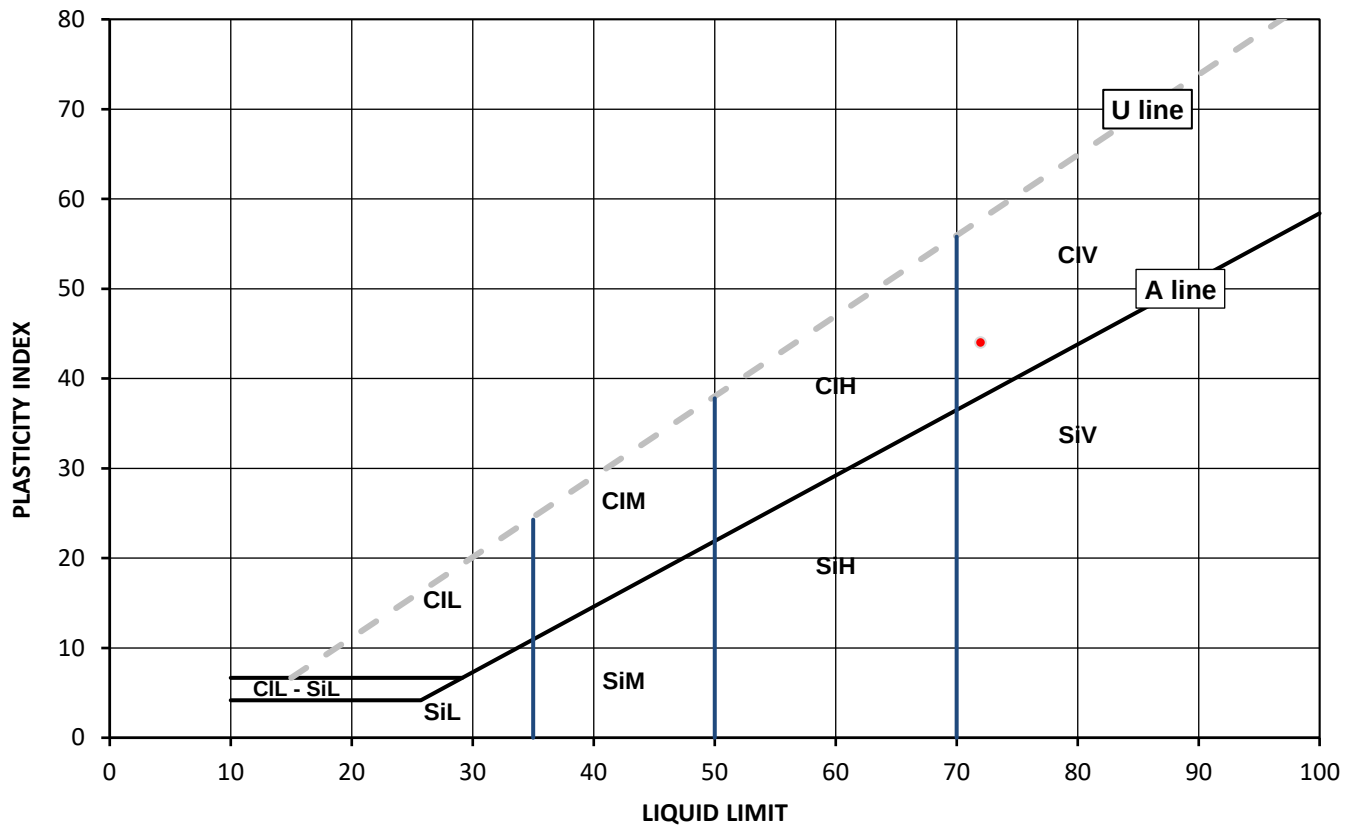
Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY

Depth Top [m]: 6.80
Depth Base [m]: 7.20
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
30	72	28	44	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	L Low below 35
Si	Silt	M Medium 35 to 50
		H High 50 to 70
		V Very high exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

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

Remarks: Preliminary report

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

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

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

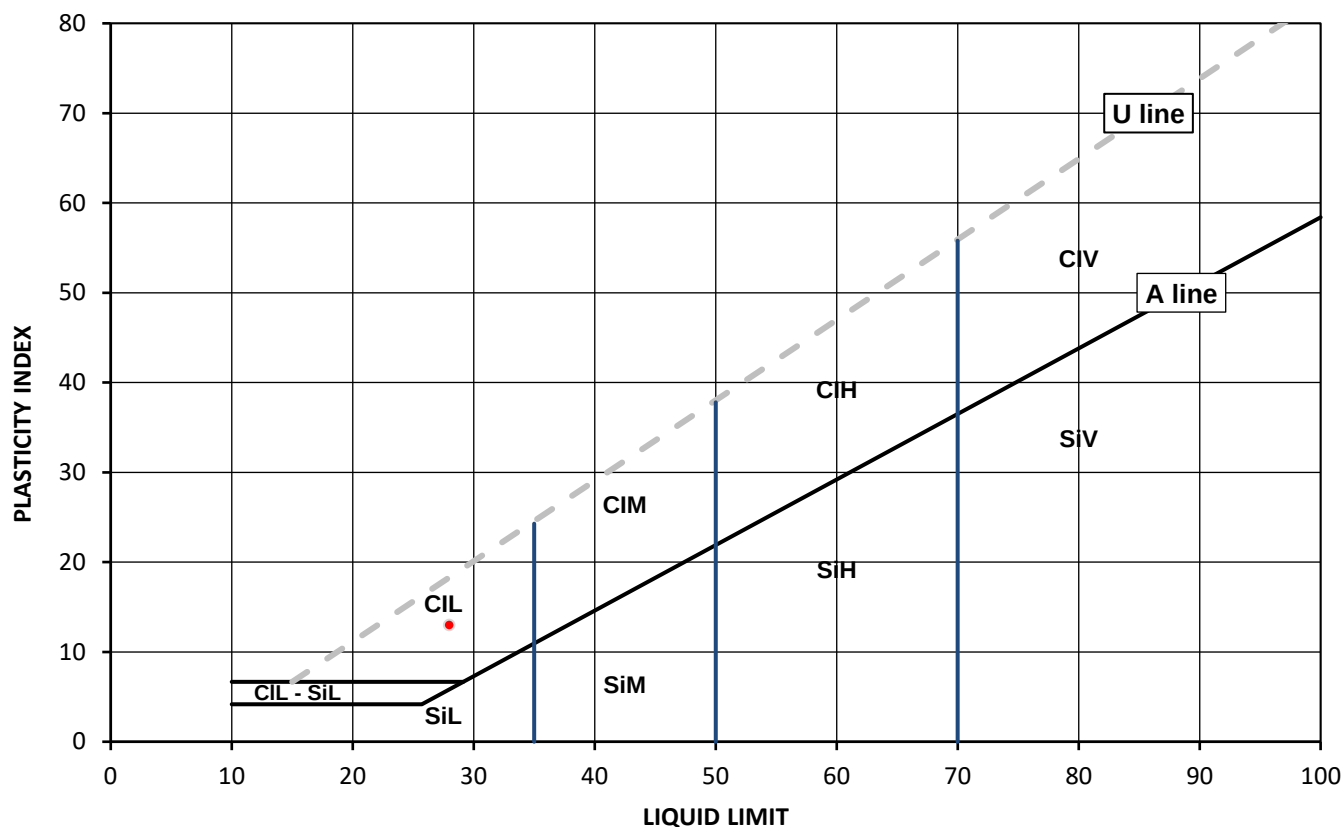
Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	28	15	13	83



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	L Low below 35
Si	Silt	M Medium 35 to 50
		H High 50 to 70
		V Very high exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

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

Remarks: Preliminary report

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
 Client Address: 5-7 Tanner Street, London,
 SE1 3LE

Contact: Julian Fowler
 Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Environmental Science

Client Reference: 26519
 Job Number: 22-14402
 Date Sampled: 07/12 - 12/12/2022
 Date Received: 13/12/2022
 Date Tested: 29/12 - 30/12/2022
 Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	WL	Wp	Ip	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
2540753	CP01	Not Given	0.50	0.80	B	Greyish brown CLAY										2.73			
2540744	CP04	Not Given	0.30	0.80	B	Yellowish brown clayey SAND	Atterberg 4 Point	23		92	29	16	13			2.64			
2540756	CP01	Not Given	5.30	5.80	B	Yellowish brown sandy GRAVEL		6.6											
2540747	CP04	Not Given	3.60	4.00	B	Greyish brown CLAY	Atterberg 4 Point	27		89	46	19	27						
2540748	CP04	Not Given	6.80	7.20	B	Brown CLAY	Atterberg 4 Point	30		100	72	28	44						
2540752	CP10	Not Given	4.00	4.45	B	Greyish brown clayey SAND	Atterberg 4 Point	17		83	28	15	13						

Note: # Non accredited; NP - Non plastic

Comments: Preliminary report

Signed:



Monika Siewior
 Reporting Specialist
 for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12 - 12/12/2022
Date Received: 13/12/2022
Date Tested: 29/12 - 30/12/2022
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2540744	CP04	Not Given	0.30	0.80	B	Yellowish brown clayey SAND		23	Sample was quartered, oven dried at 107.5 °C			
2540747	CP04	Not Given	3.60	4.00	B	Greyish brown CLAY		27	Sample was quartered, oven dried at 106.8 °C			
2540748	CP04	Not Given	6.80	7.20	B	Brown CLAY		30	Sample was quartered, oven dried at 108.8 °C			
2540752	CP10	Not Given	4.00	4.45	B	Greyish brown clayey SAND		17	Sample was quartered, oven dried at 106.9 °C			
2540756	CP01	Not Given	5.30	5.80	B	Yellowish brown sandy GRAVEL		6.6	Sample was quartered, oven dried at 106.8 °C			

Comments: Preliminary report

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Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

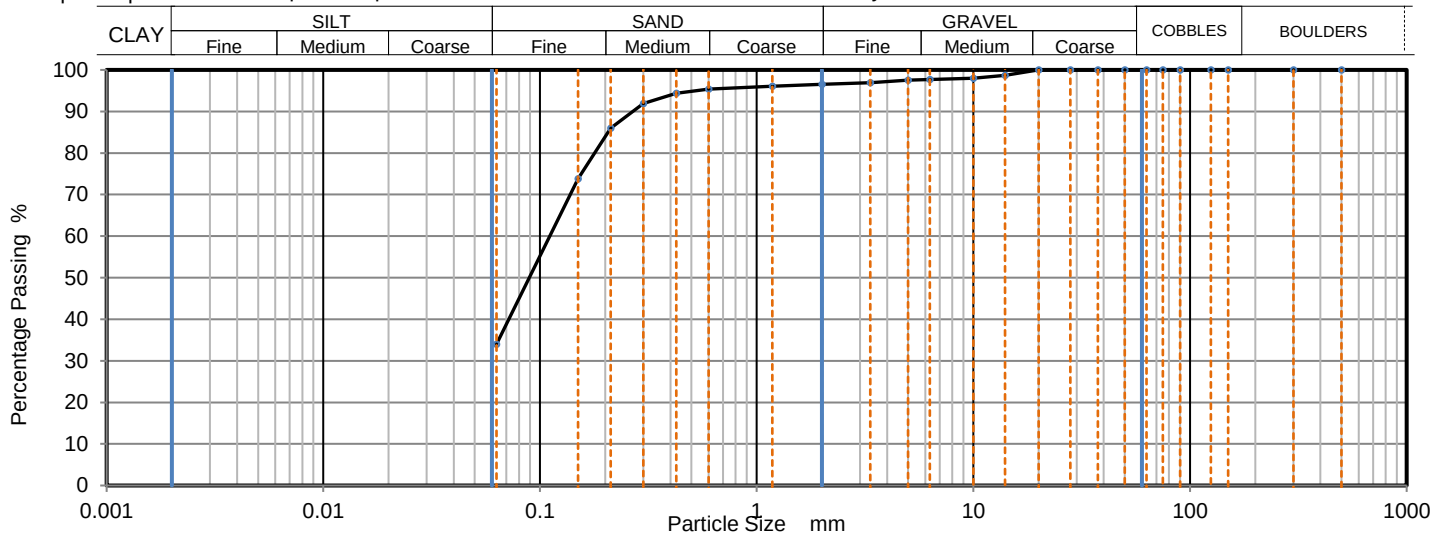
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 107.5 °C and broken down by hand.

Depth Top [m]: 0.30
Depth Base [m]: 0.80
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	98		
6.3	98		
5	98		
3.35	97		
2	97		
1.18	96		
0.6	95		
0.425	94		
0.3	92		
0.212	86		
0.15	74		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0
Gravel	4
Sand	62
Fines <0.063mm	34

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 1.8
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

Signed:



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TEST CERTIFICATE

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i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

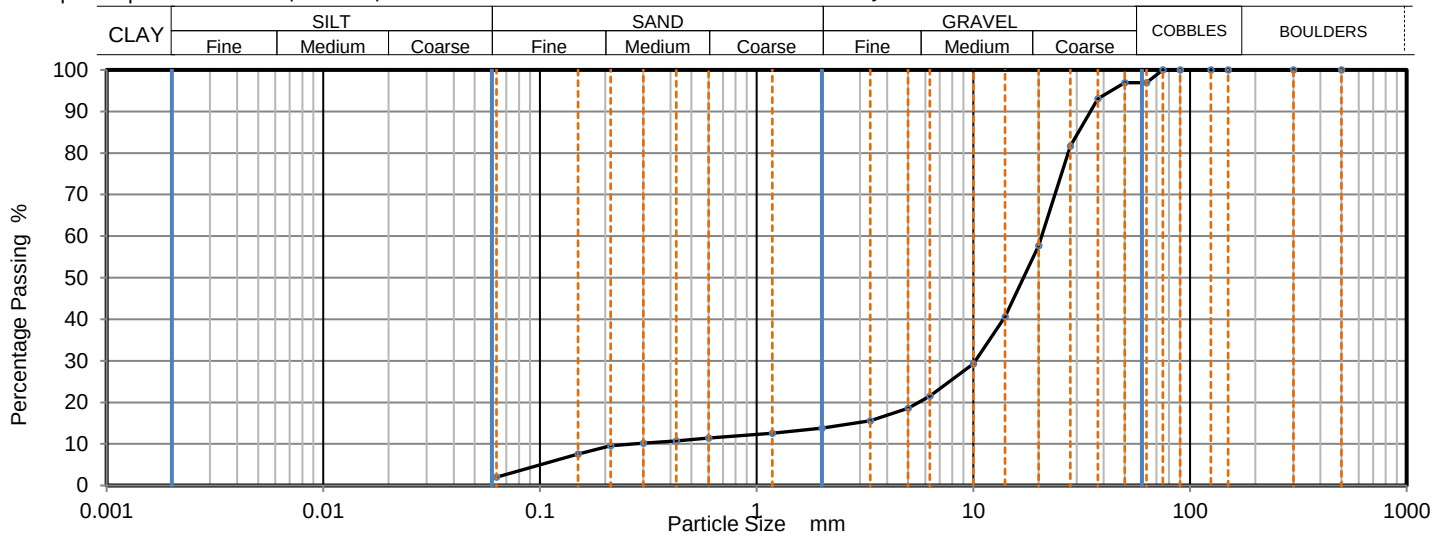
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2540745
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.30
Depth Base [m]: 1.80
Sample Type: B


TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

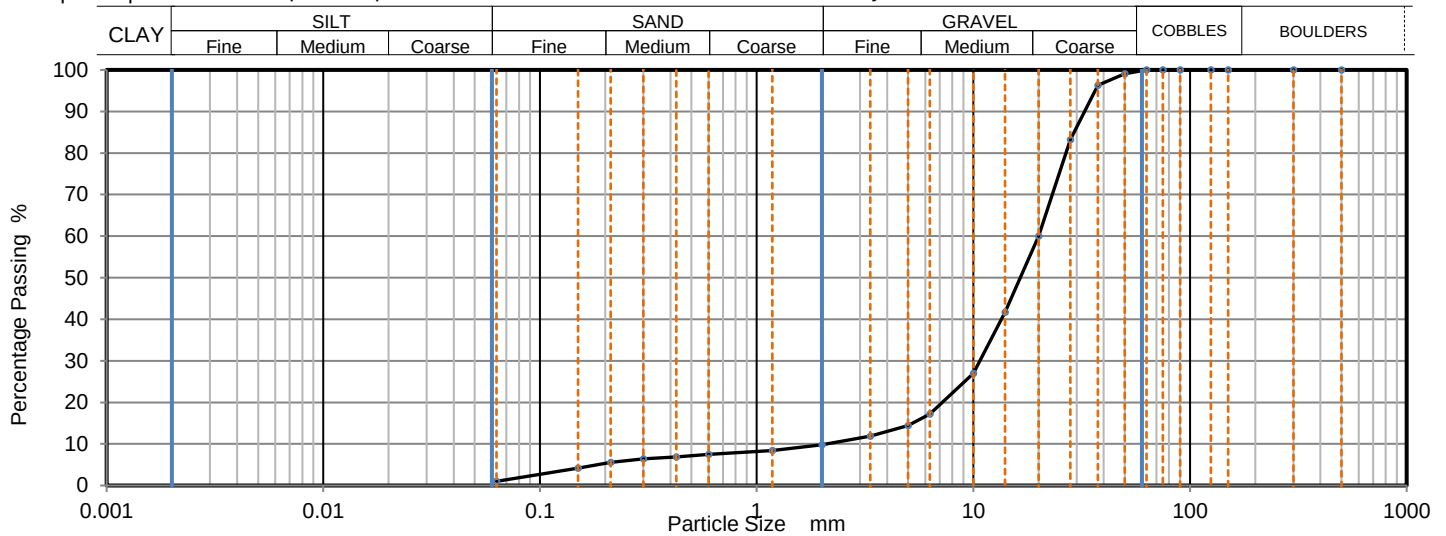
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540746
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 2.45
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	99		
37.5	96		
28	83		
20	60		
14	42		
10	27		
6.3	17		
5	14		
3.35	12		
2	10		
1.18	8		
0.6	8		
0.425	7		
0.3	6		
0.212	6		
0.15	4		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0
Gravel	90
Sand	8
Fines <0.063mm	1

Grading Analysis	
D100	63
D60	20
D30	10.7
D10	2.11
Uniformity Coefficient	9.5
Curvature Coefficient	2.7

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

Signed:

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

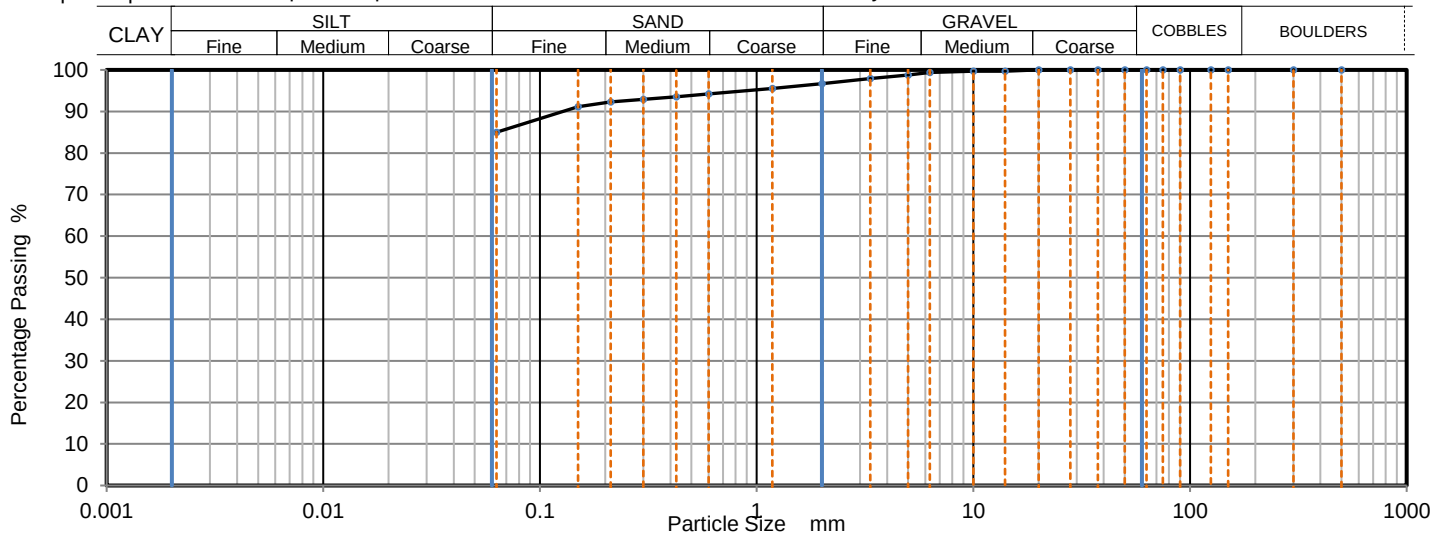
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered, oven dried at 106.8 °C and broken down by hand.

Depth Top [m]: 3.60
Depth Base [m]: 4.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	97		
1.18	96		
0.6	94		
0.425	94		
0.3	93		
0.212	92		
0.15	91		
0.063	86		

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	11
Fines <0.063mm	86

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

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TEST CERTIFICATE

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Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

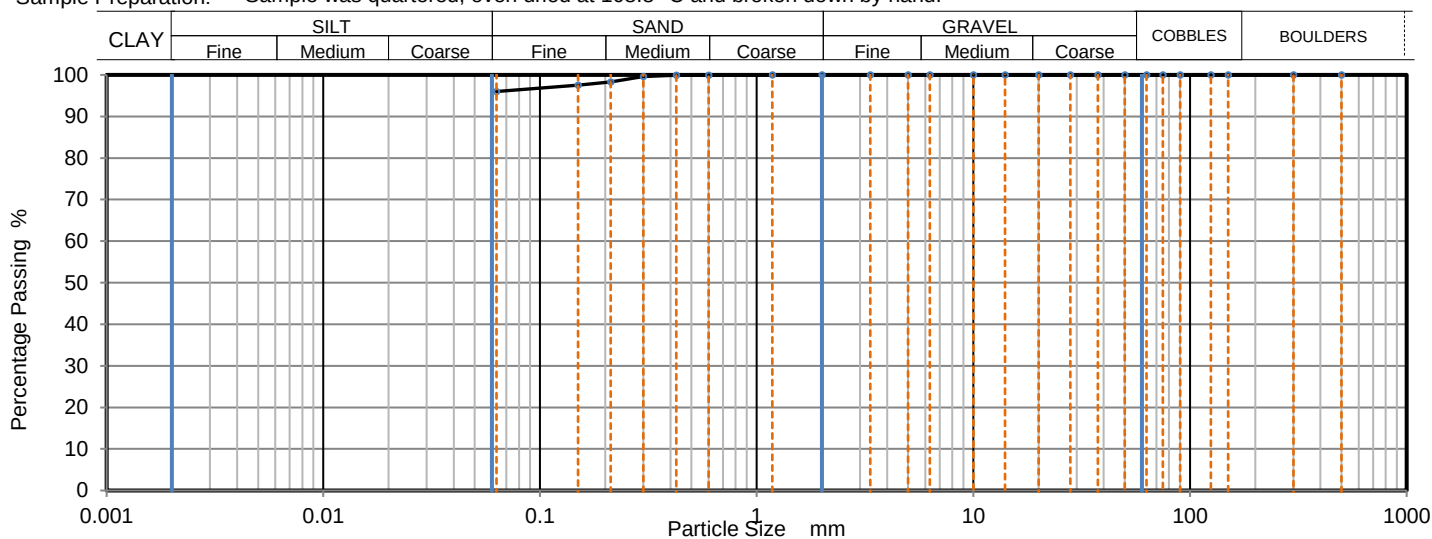
Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 6.80

Depth Base [m]: 7.20

Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	3
Fines <0.063mm	97

Grading Analysis		
D100	mm	2
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

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Northampton NN4 7EB

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Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

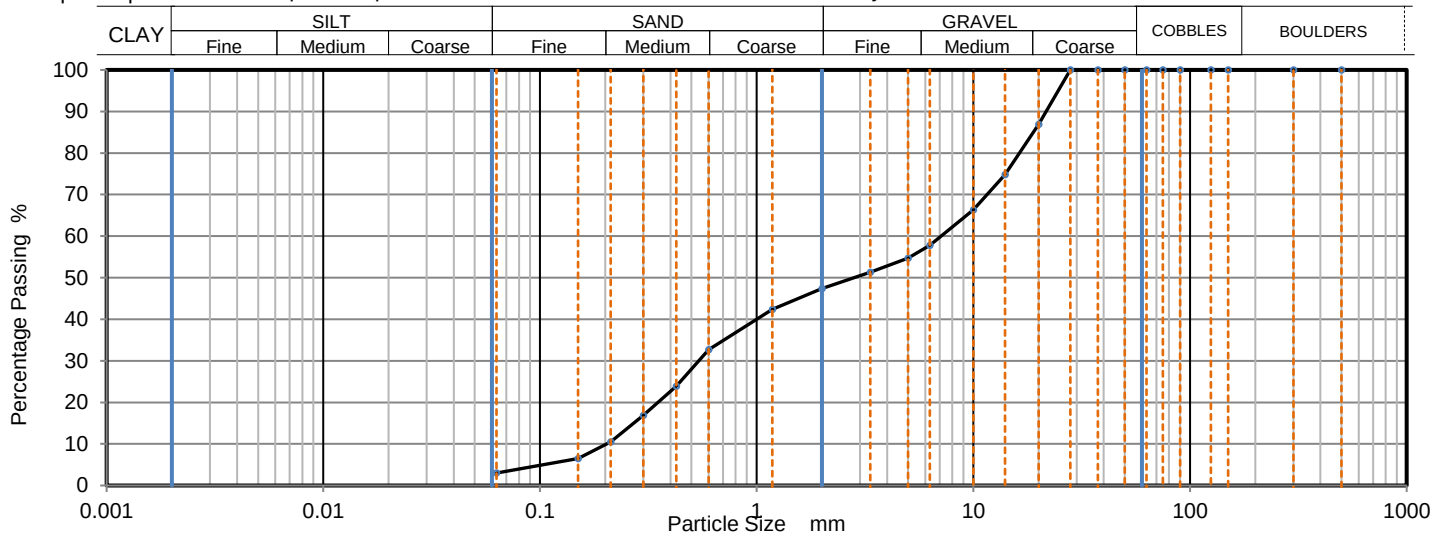
Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2540749
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Orangish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 0.50
Depth Base [m]: 1.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	87		
14	75		
10	66		
6.3	58		
5	55		
3.35	51		
2	47		
1.18	42		
0.6	33		
0.425	24		
0.3	17		
0.212	11		
0.15	7		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	44
Fines <0.063mm	4

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	35
Curvature Coefficient	0.2

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

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Reporting Specialist
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i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

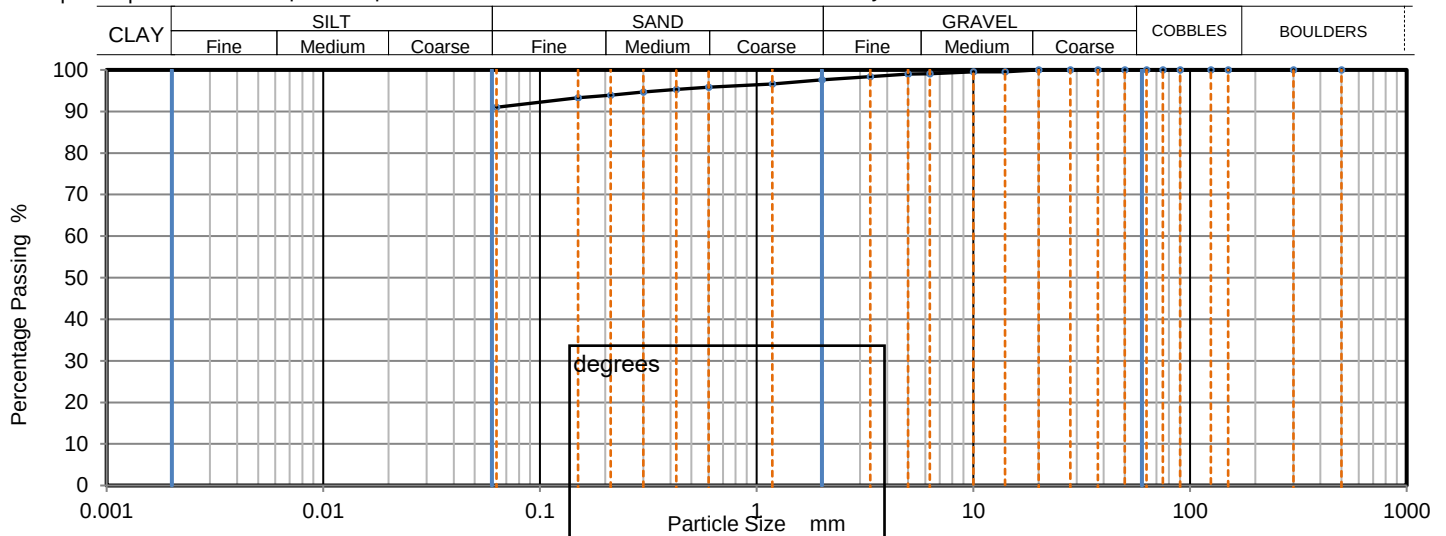
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540750
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 2.45
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	98		
1.18	97		
0.6	96		
0.425	95		
0.3	95		
0.212	94		
0.15	93		
0.063	91		

Sample Proportions		% dry mass
Very coarse		0
Gravel		2
Sand		6
Fines <0.063mm		91

Grading Analysis		
D100	mm	20
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

Signed:



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i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

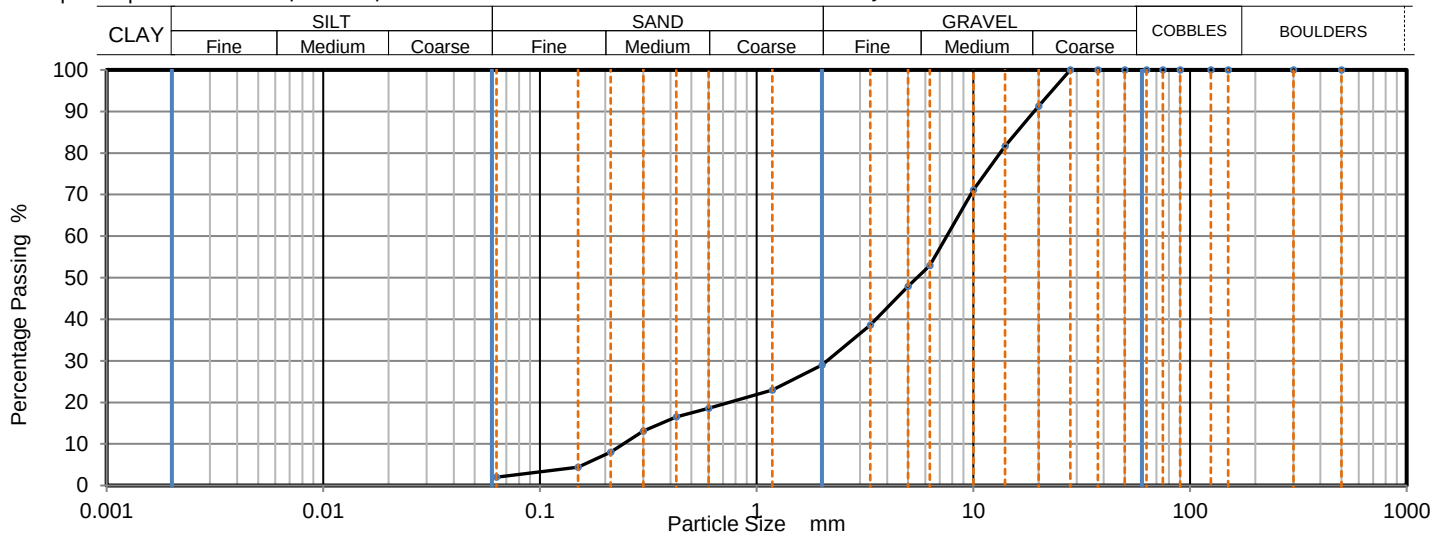
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540751
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 107.0 °C and broken down by hand.

Depth Top [m]: 2.60
Depth Base [m]: 3.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	82		
10	71		
6.3	53		
5	48		
3.35	39		
2	29		
1.18	23		
0.6	19		
0.425	17		
0.3	13		
0.212	8		
0.15	4		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0
Gravel	71
Sand	27
Fines <0.063mm	2

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

Signed:

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TEST CERTIFICATE

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

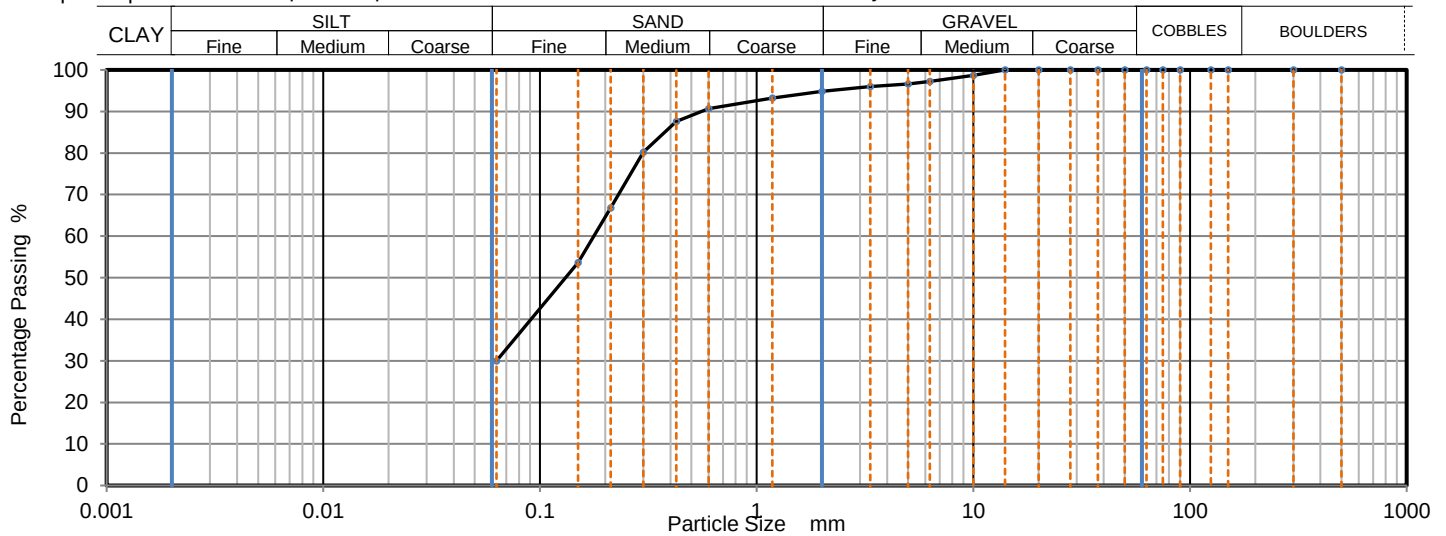
Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	97		
5	97		
3.35	96		
2	95		
1.18	93		
0.6	91		
0.425	88		
0.3	80		
0.212	67		
0.15	54		
0.063	31		

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	64
Fines <0.063mm	31

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 2.8
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

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4041

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

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i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

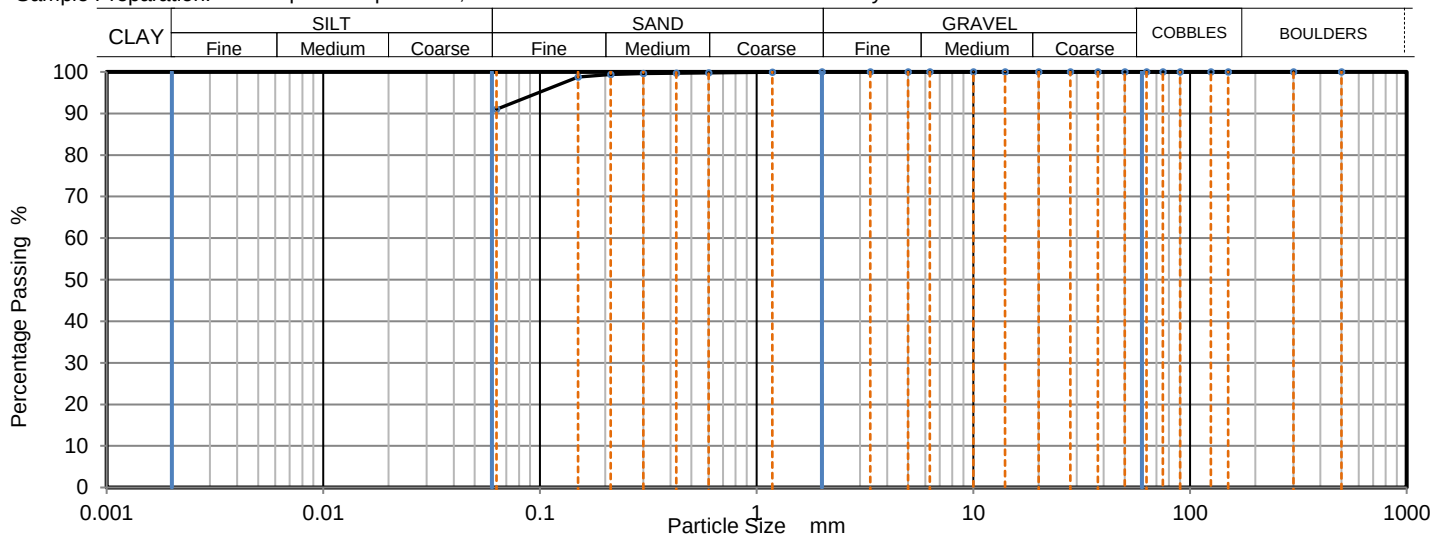
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540753
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 0.50
Depth Base [m]: 0.80
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	92		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	8
Fines <0.063mm	92

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

Signed:



Monika Siewior
Reporting Specialist
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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

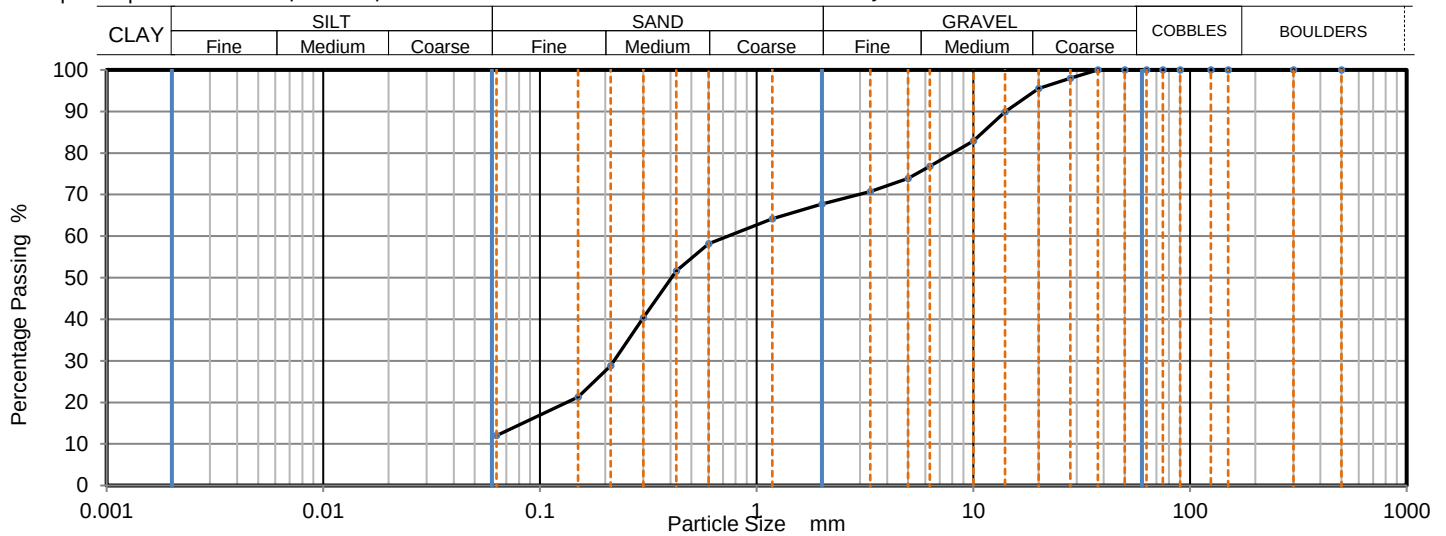
Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2540754
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.20
Depth Base [m]: 1.70
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	96		
14	90		
10	83		
6.3	77		
5	74		
3.35	71		
2	68		
1.18	64		
0.6	58		
0.425	52		
0.3	40		
0.212	29		
0.15	21		
0.063	12		

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	56
Fines <0.063mm	12

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 12
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

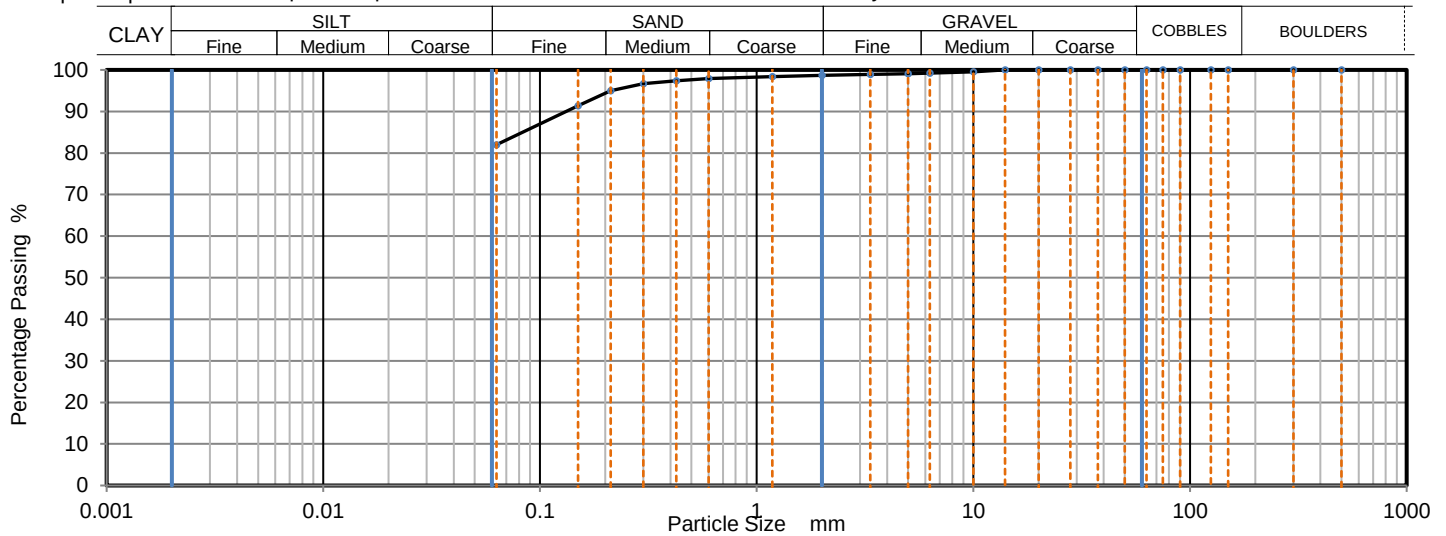
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540755
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Brownish grey silty CLAY
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 2.50
Depth Base [m]: 2.90
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99		
2	99		
1.18	98		
0.6	98		
0.425	97		
0.3	97		
0.212	95		
0.15	91		
0.063	83		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	16
Fines <0.063mm	82

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

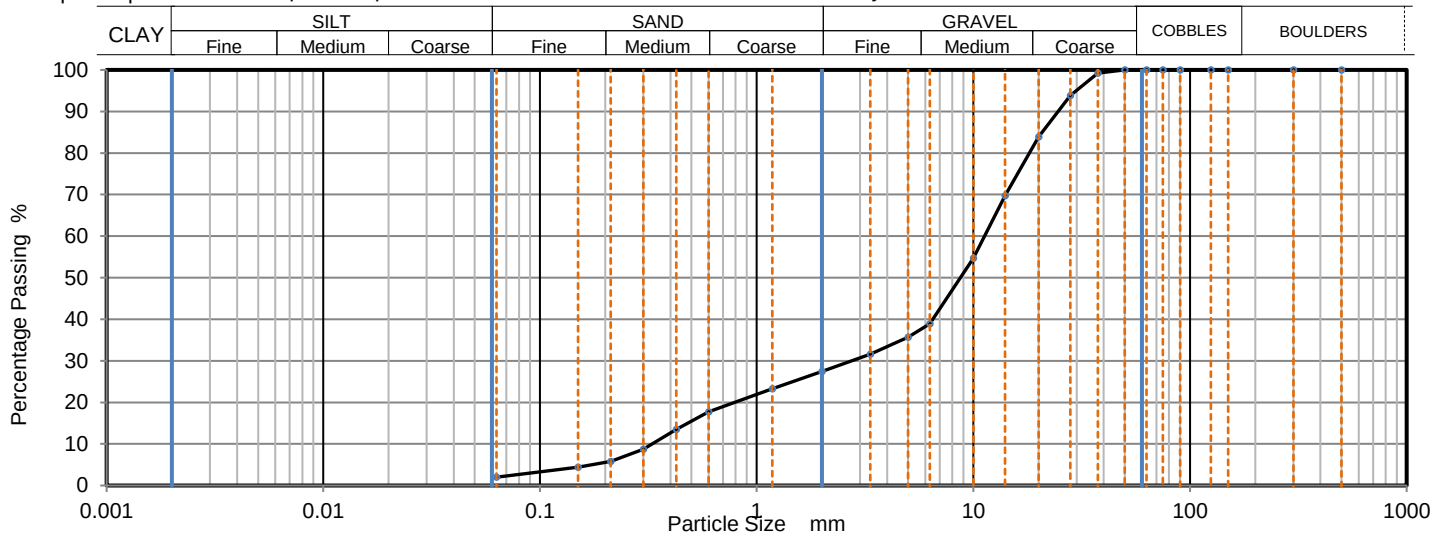
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540756
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.8 °C and broken down by hand.

Depth Top [m]: 5.30
Depth Base [m]: 5.80
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	99		
28	94		
20	84		
14	70		
10	55		
6.3	39		
5	36		
3.35	32		
2	27		
1.18	23		
0.6	18		
0.425	14		
0.3	9		
0.212	6		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	73
Sand	25
Fines <0.063mm	3

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: Preliminary report

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

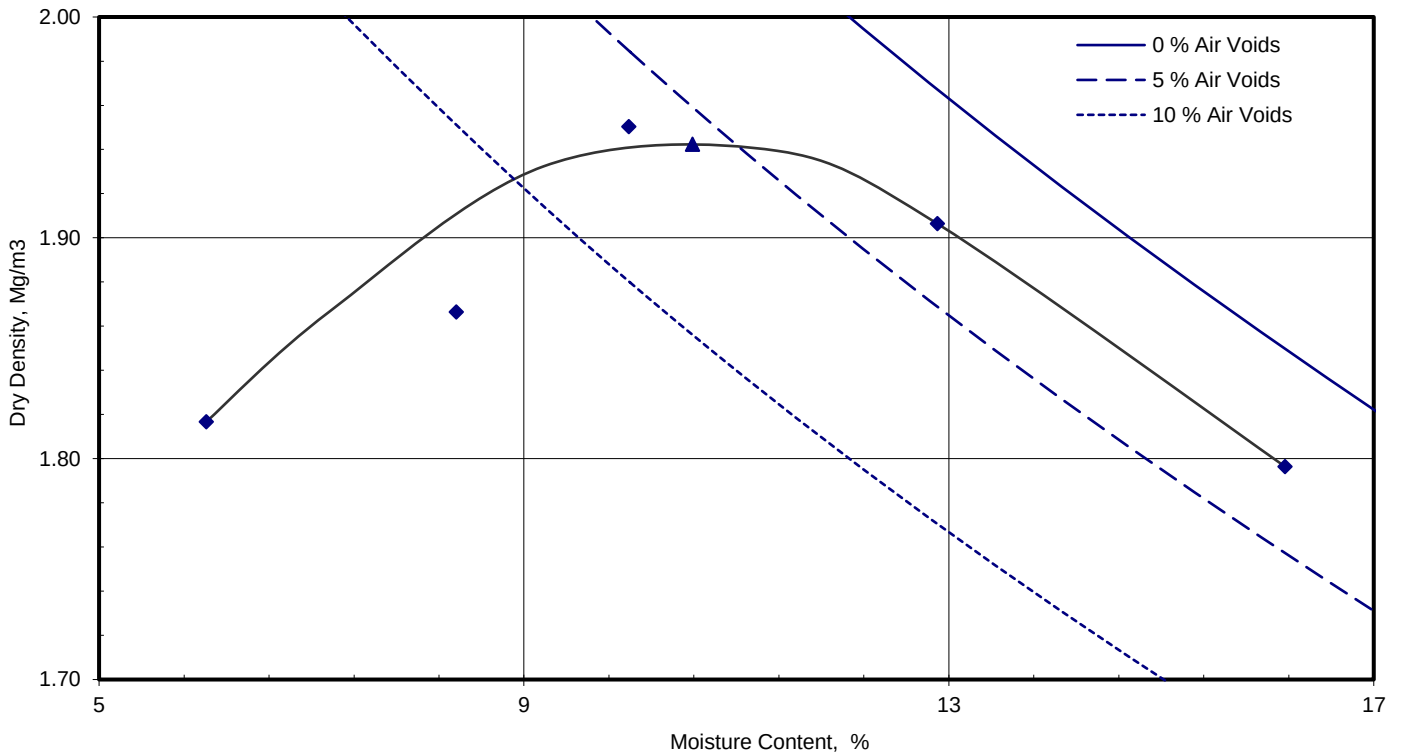
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 0.30
Depth Base [m]: 0.80
Sample Type: B


Compaction Point No.	1	2	3	4	5
Moisture Content %	6.0	8.4	10.0	13	16
Dry Density Mg/m³	1.82	1.87	1.95	1.91	1.80

Mould Type	1 Litre
Samples Used	Single sample tested
Material Retained on 37.5 mm Sieve %	0
Material Retained on 20.0 mm Sieve %	0
Particle Density - Measured using gas jar Mg/m³	2.64
As received Moisture Content %	23
Maximum Dry Density Mg/m³	1.94

Optimum Moisture Content %	11
----------------------------	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks: Preliminary report

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

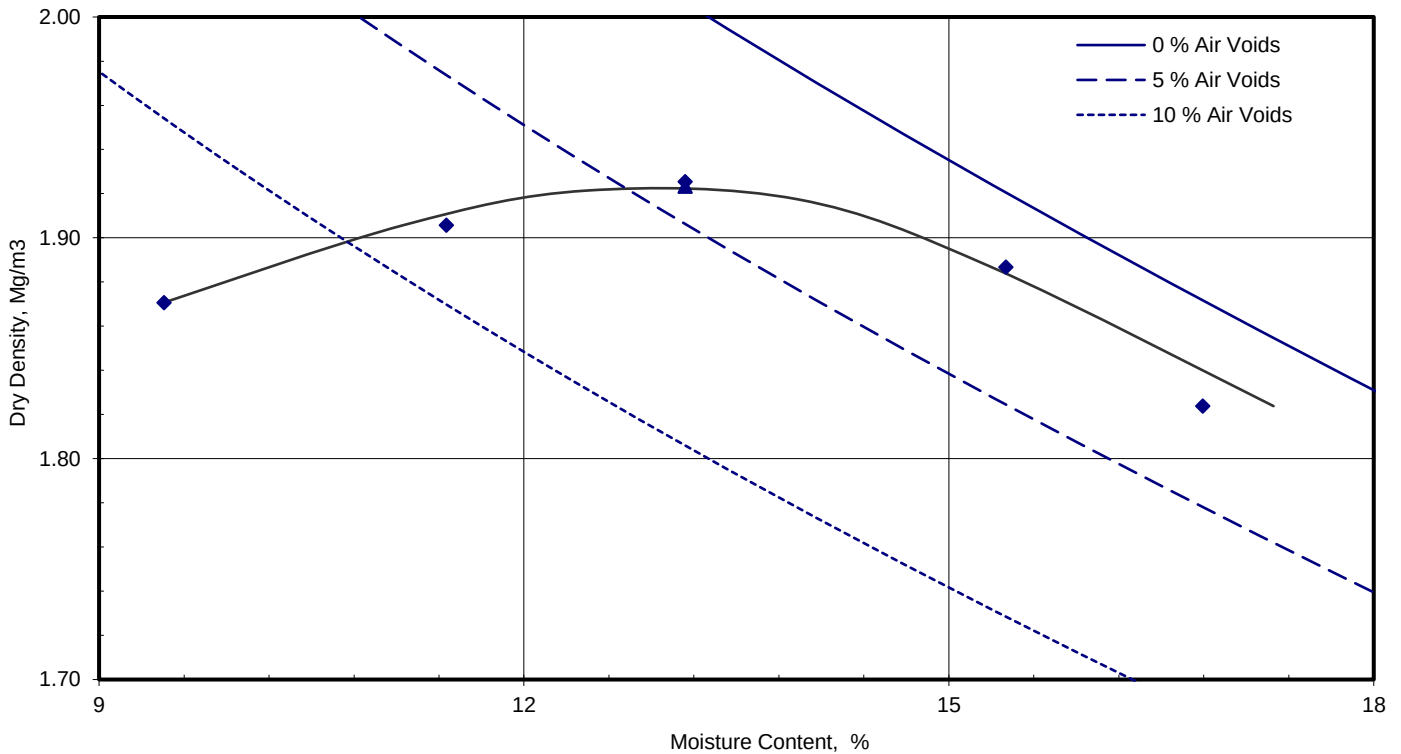
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Not Given

Test Results:

Laboratory Reference: 2540753
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 0.50
Depth Base [m]: 0.80
Sample Type: B



Compaction Point No.	1	2	3	4	5
Moisture Content %	9.5	11	13	15	17
Dry Density Mg/m³	1.87	1.91	1.93	1.89	1.82

Mould Type	1 Litre
Samples Used	Single sample tested
Material Retained on 37.5 mm Sieve %	0
Material Retained on 20.0 mm Sieve %	0
Particle Density - Measured using gas jar Mg/m³	2.73
As received Moisture Content %	19
Maximum Dry Density Mg/m³	1.92

Optimum Moisture Content %	13
----------------------------	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks: Preliminary report

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Not Given

Test Results:

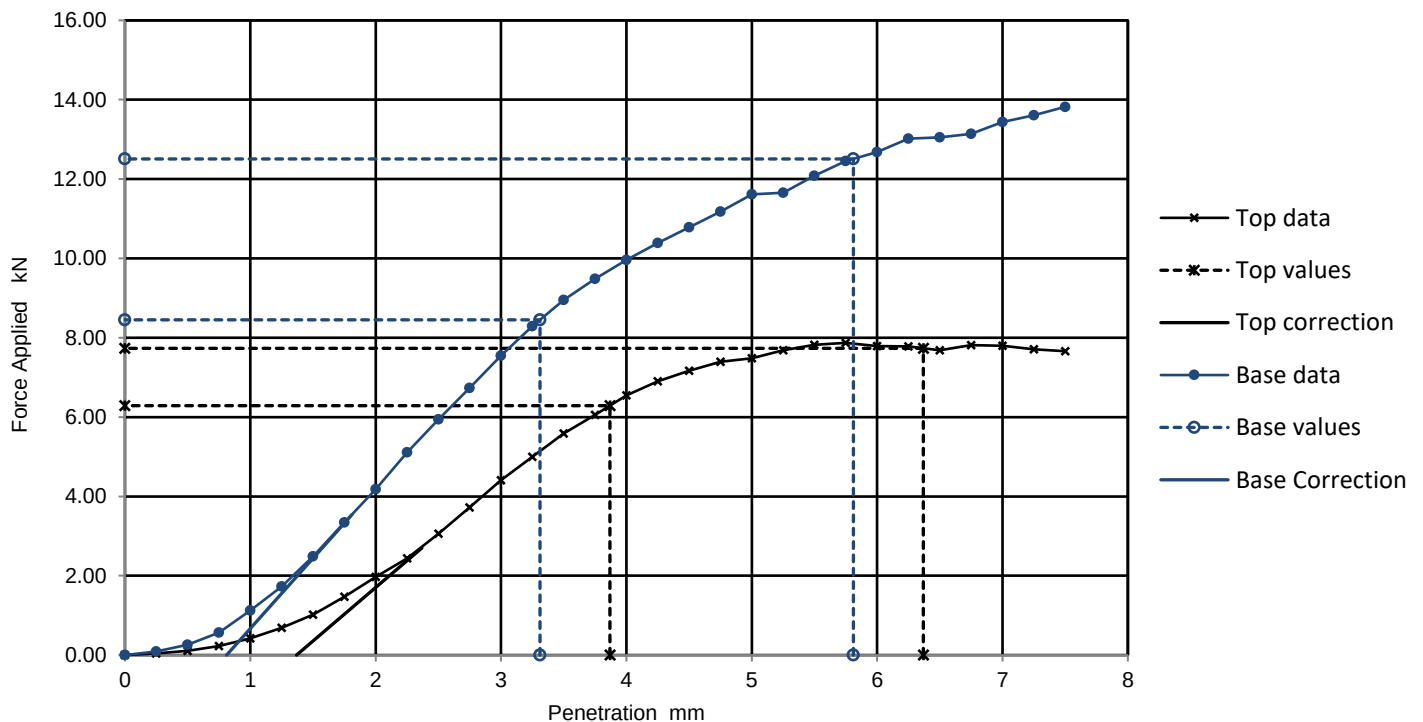
Laboratory Reference: 2540749
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Orangish brown sandy GRAVEL

Depth Top [m]: 0.50
Depth Base [m]: 1.00
Sample Type: B

Specimen Preparation:

Condition	Remoulded			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed	14	%		Dry density after soaking		Mg/m3	
Initial Specimen details	Bulk density	2.23	Mg/m3	Surcharge applied		8	kg
	Dry density	2.03	Mg/m3			4.8	kPa
	Moisture content	9.8	%				

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
Yes	48.0	39.0	48.0	
Yes	64.0	63.0	64.0	

Moisture Content %
8.9
8.0

Remarks: Preliminary report

Test/ Specimen specific remarks:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Not Given

Test Results:

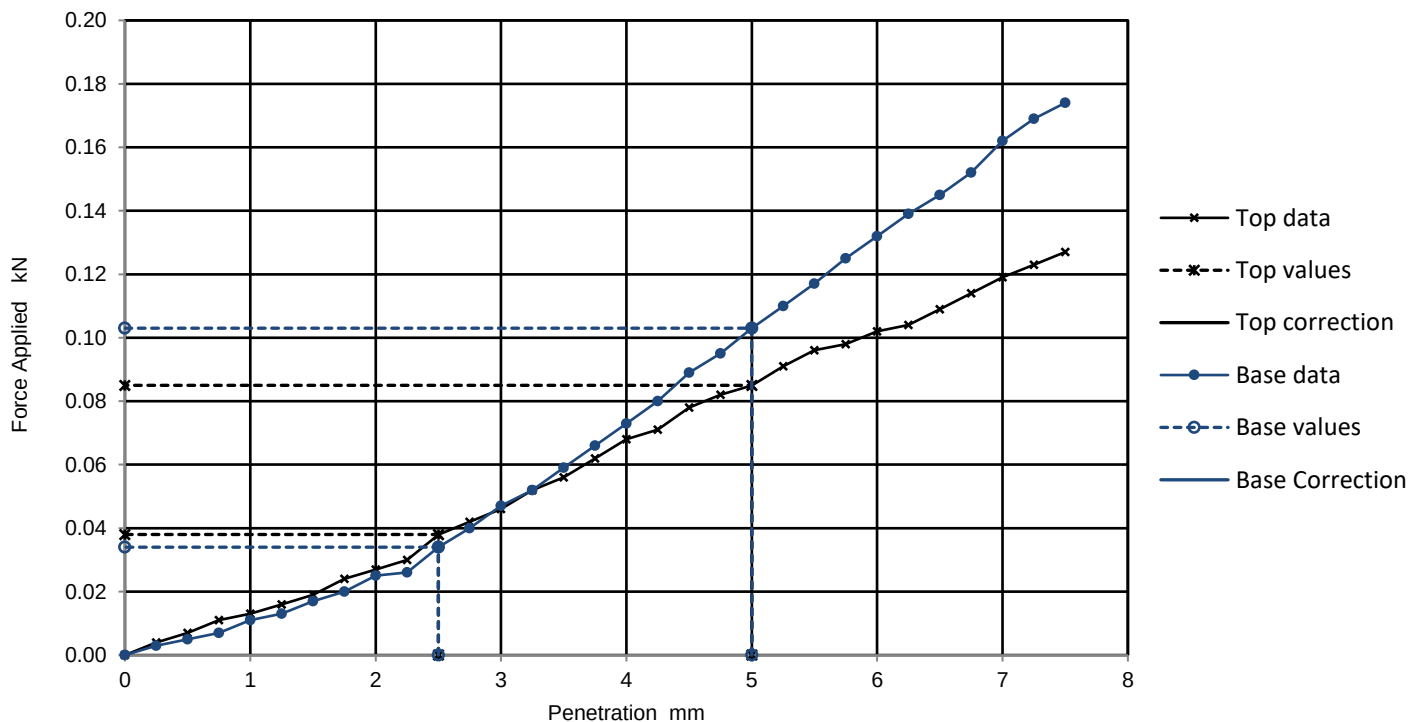
Laboratory Reference: 2540754
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly clayey SAND

Depth Top [m]: 1.20
Depth Base [m]: 1.70
Sample Type: B

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
		Dry density after soaking	Mg/m3
Material retained on 20mm sieve removed	5 %		
Initial Specimen details	Bulk density	2.20	Mg/m3
	Dry density	1.95	Mg/m3
	Moisture content	13	%
	Surcharge applied	8	kg
		4.9	kPa

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	0.3	0.4	0.4	0.5
No	0.3	0.5	0.5	

Moisture Content %
12
12

Remarks: Preliminary report

Test/ Specimen specific remarks:

Signed:



Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Client - J Fowler

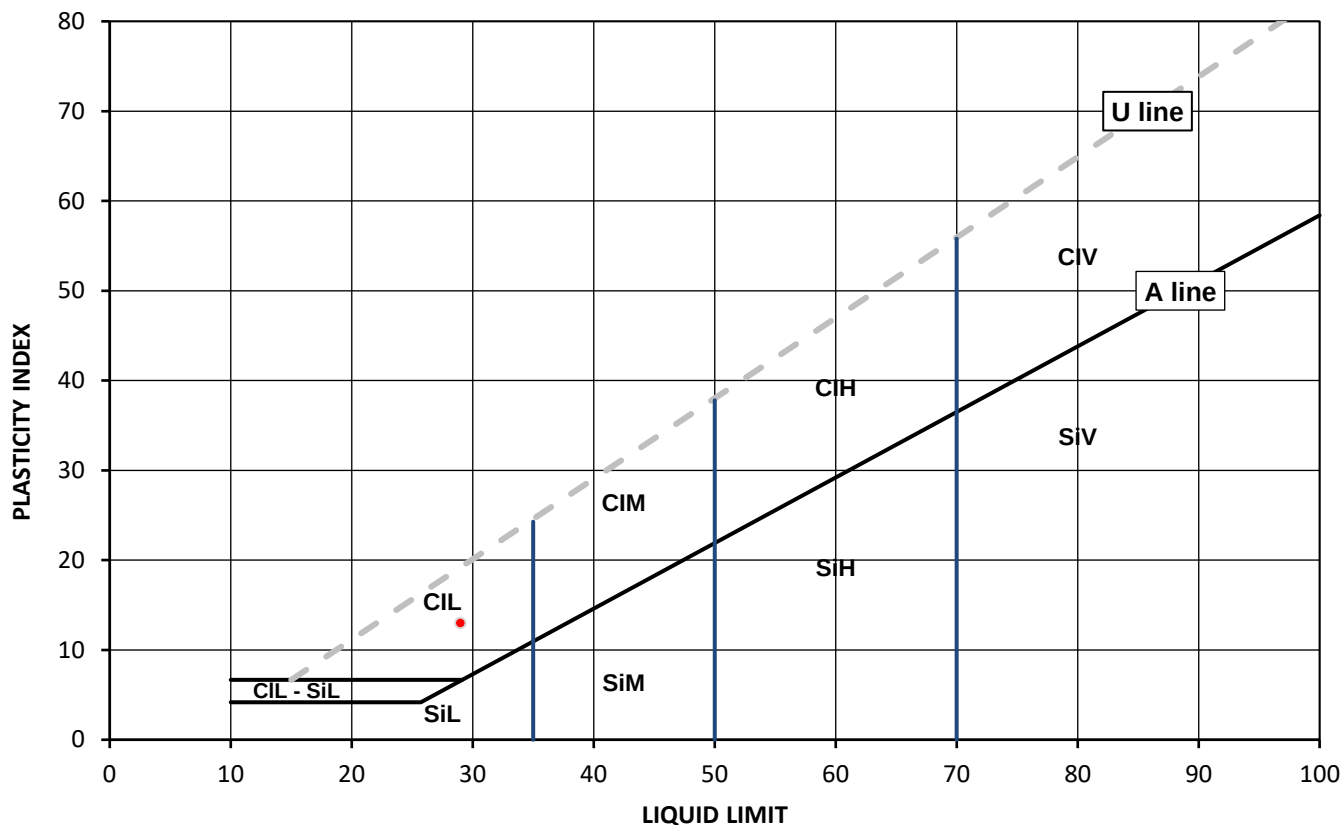
Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND

Depth Top [m]: 0.30
Depth Base [m]: 0.80
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	29	16	13	92



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

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

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

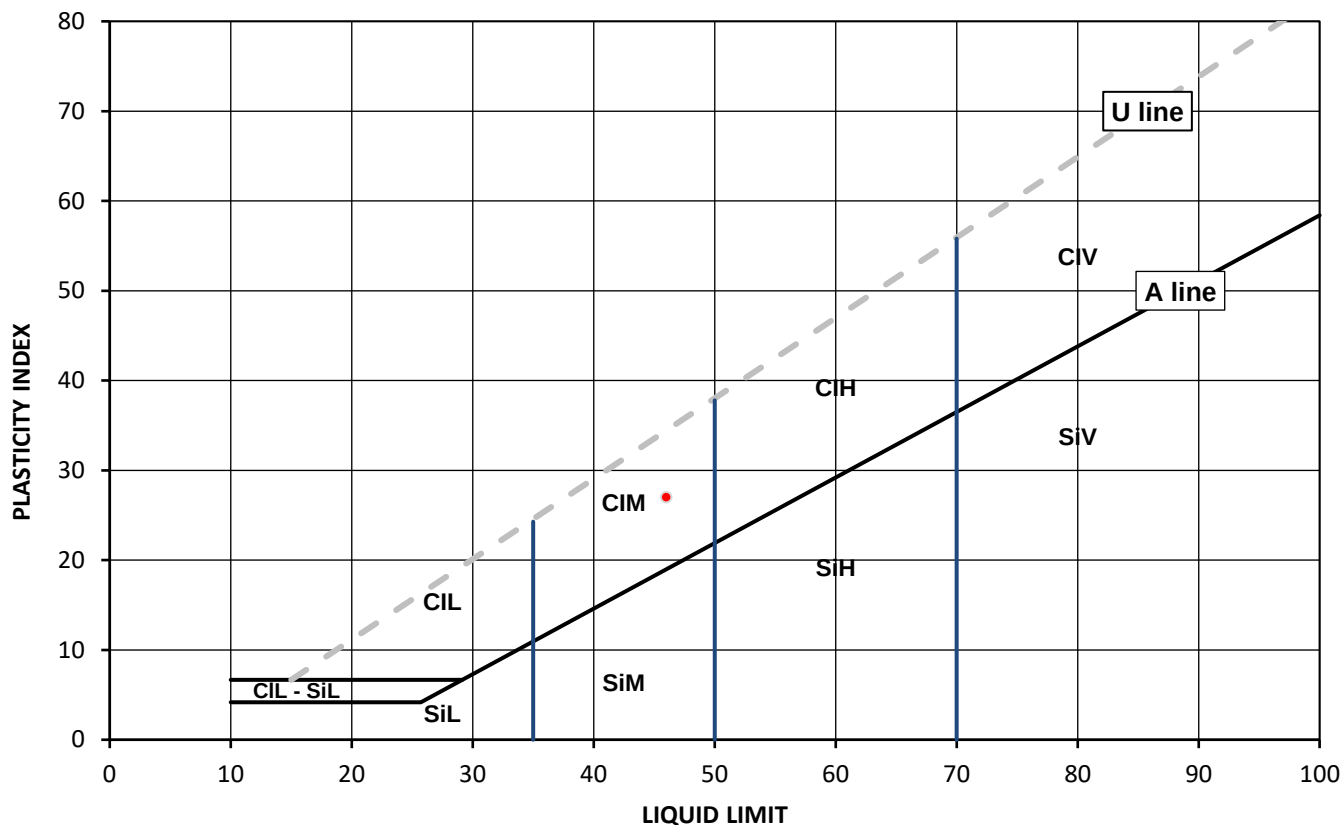
Test Results:

Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAY

Depth Top [m]: 3.60
Depth Base [m]: 4.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
27	46	19	27	89



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	L Low
Si	Silt	M Medium
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

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

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

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

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

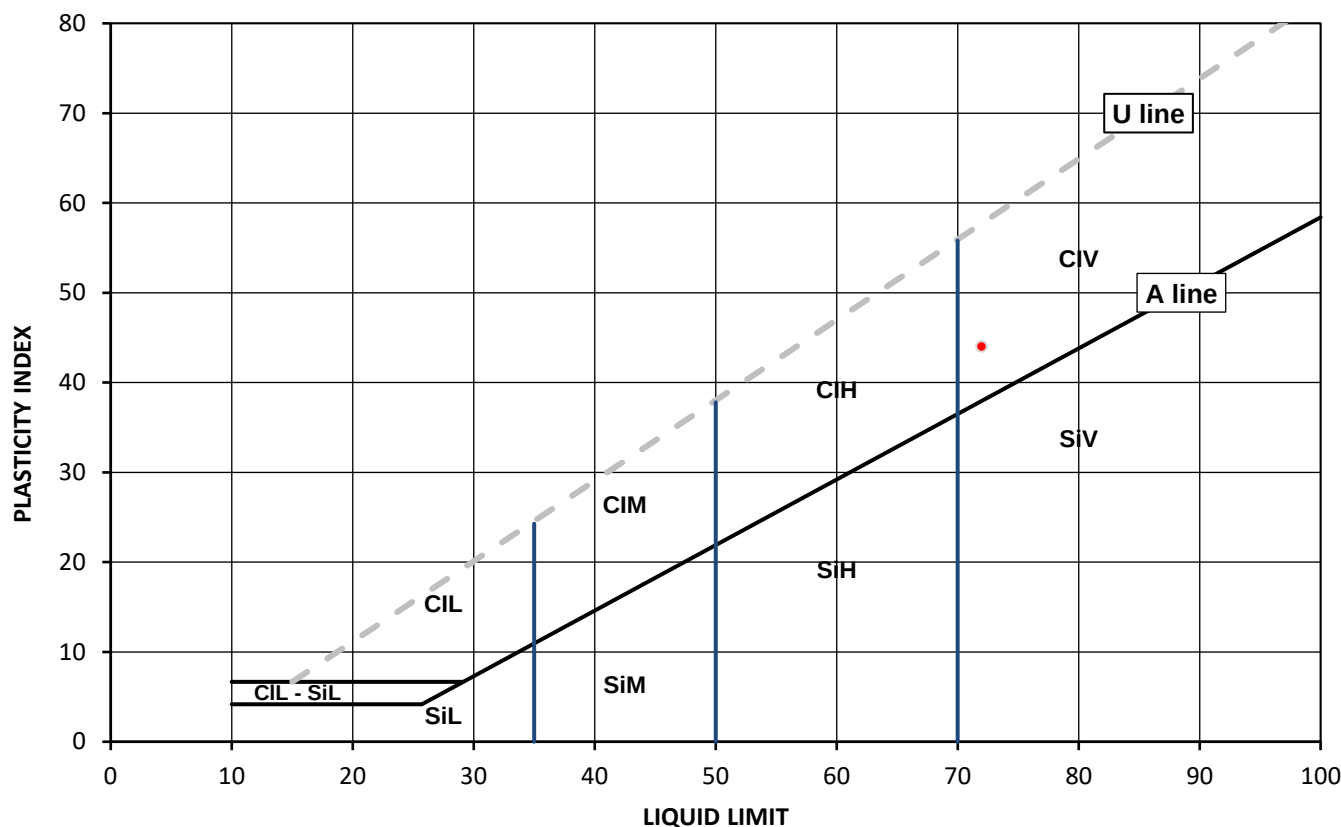
Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY

Depth Top [m]: 6.80
Depth Base [m]: 7.20
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
30	72	28	44	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg CIHO)

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

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

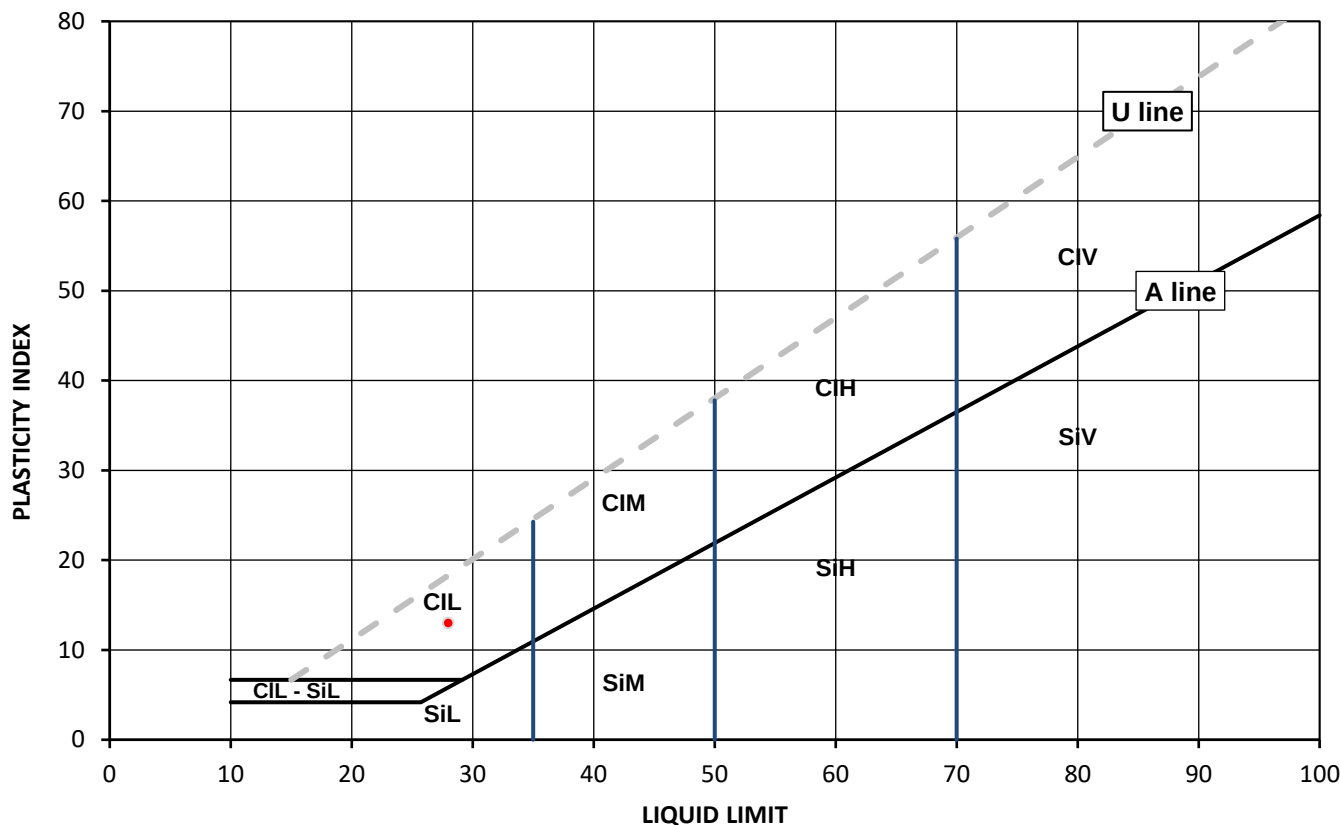
Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	28	15	13	83



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	L Low below 35
Si	Silt	M Medium 35 to 50
	H High 50 to 70	V Very high exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

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

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
 Client Address: 5-7 Tanner Street, London,
 SE1 3LE

Contact: Julian Fowler
 Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Environmental Science

Client Reference: 26519
 Job Number: 22-14402
 Date Sampled: 07/12 - 12/12/2022
 Date Received: 13/12/2022
 Date Tested: 29/12 - 30/12/2022
 Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	WL	Wp	Ip	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
2540753	CP01	Not Given	0.50	0.80	B	Greyish brown CLAY										2.73			
2540744	CP04	Not Given	0.30	0.80	B	Yellowish brown clayey SAND	Atterberg 4 Point	23		92	29	16	13			2.64			
2540756	CP01	Not Given	5.30	5.80	B	Yellowish brown sandy GRAVEL		6.6											
2540747	CP04	Not Given	3.60	4.00	B	Greyish brown CLAY	Atterberg 4 Point	27		89	46	19	27						
2540748	CP04	Not Given	6.80	7.20	B	Brown CLAY	Atterberg 4 Point	30		100	72	28	44						
2540752	CP10	Not Given	4.00	4.45	B	Greyish brown clayey SAND	Atterberg 4 Point	17		83	28	15	13						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:



Katarzyna Koziel
 Reporting Specialist
 for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12 - 12/12/2022
Date Received: 13/12/2022
Date Tested: 29/12 - 30/12/2022
Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2540744	CP04	Not Given	0.30	0.80	B	Yellowish brown clayey SAND		23	Sample was quartered, oven dried at 107.5 °C			
2540747	CP04	Not Given	3.60	4.00	B	Greyish brown CLAY		27	Sample was quartered, oven dried at 106.8 °C			
2540748	CP04	Not Given	6.80	7.20	B	Brown CLAY		30	Sample was quartered, oven dried at 108.8 °C			
2540752	CP10	Not Given	4.00	4.45	B	Greyish brown clayey SAND		17	Sample was quartered, oven dried at 106.9 °C			
2540756	CP01	Not Given	5.30	5.80	B	Yellowish brown sandy GRAVEL		6.6	Sample was quartered, oven dried at 106.8 °C			

Comments:

Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

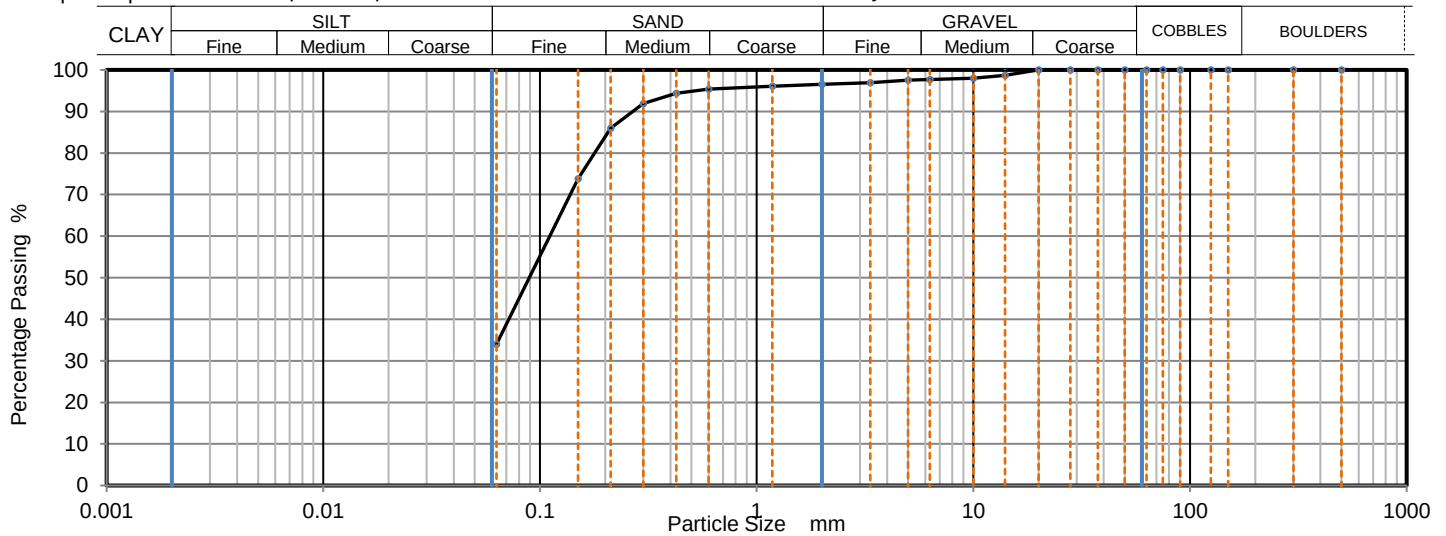
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 107.5 °C and broken down by hand.

Depth Top [m]: 0.30
Depth Base [m]: 0.80
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	98		
6.3	98		
5	98		
3.35	97		
2	97		
1.18	96		
0.6	95		
0.425	94		
0.3	92		
0.212	86		
0.15	74		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0
Gravel	4
Sand	62
Fines <0.063mm	34

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 1.8
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

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Reporting Specialist
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Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

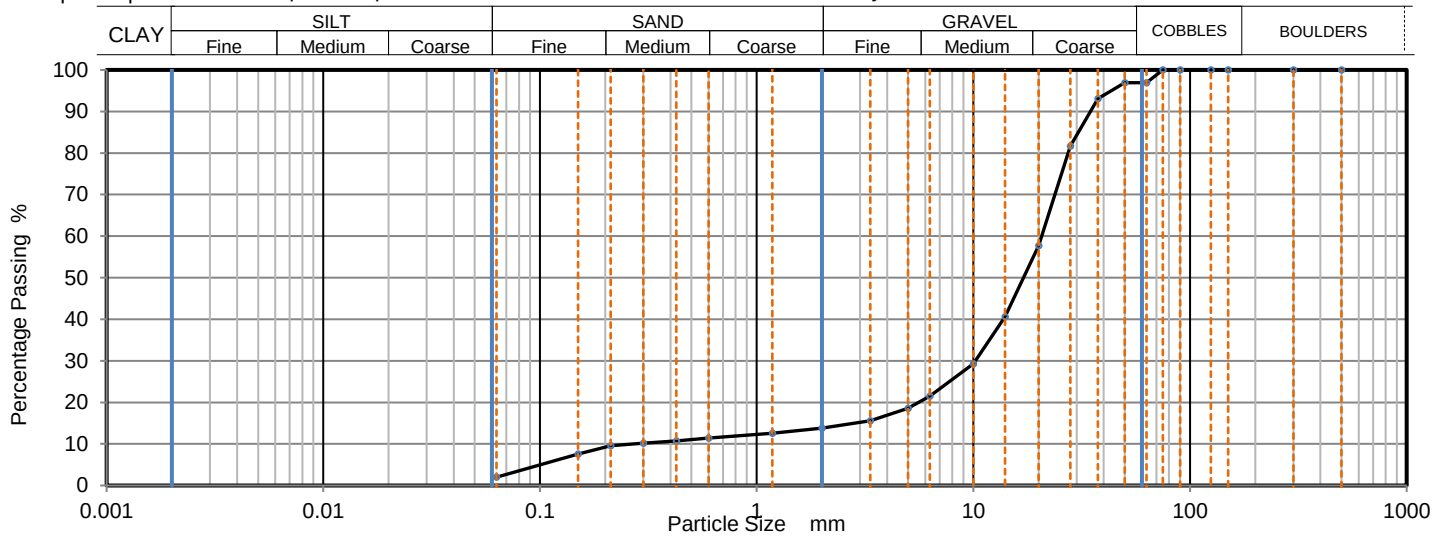
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540745
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.30
Depth Base [m]: 1.80
Sample Type: B


Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	97		
50	97		
37.5	93		
28	82		
20	58		
14	41		
10	29		
6.3	22		
5	19		
3.35	16		
2	14		
1.18	13		
0.6	11		
0.425	11		
0.3	10		
0.212	10		
0.15	8		
0.063	3		

Sample Proportions	% dry mass
Very coarse	3
Gravel	83
Sand	11
Fines <0.063mm	3

Grading Analysis	
D100	75
D60	20.7
D30	10.2
D10	0.269
Uniformity Coefficient	77
Curvature Coefficient	19

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

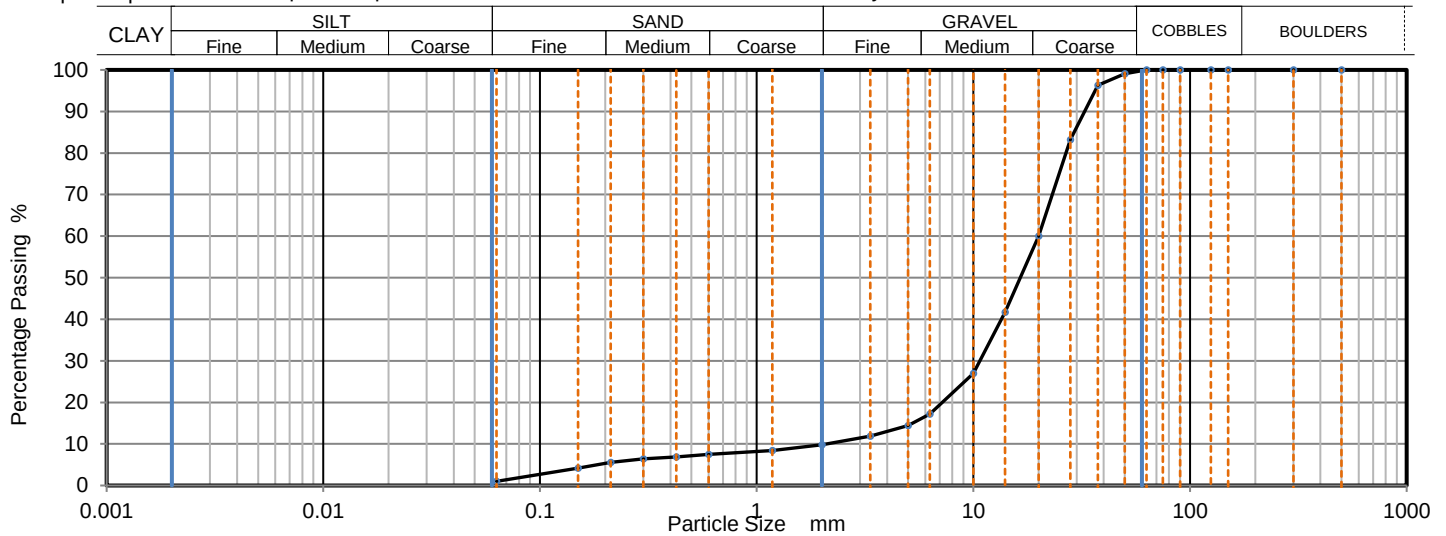
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540746
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 2.45
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	99		
37.5	96		
28	83		
20	60		
14	42		
10	27		
6.3	17		
5	14		
3.35	12		
2	10		
1.18	8		
0.6	8		
0.425	7		
0.3	6		
0.212	6		
0.15	4		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0
Gravel	90
Sand	8
Fines <0.063mm	1

Grading Analysis	
D100	63
D60	20
D30	10.7
D10	2.11
Uniformity Coefficient	9.5
Curvature Coefficient	2.7

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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TEST CERTIFICATE

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Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

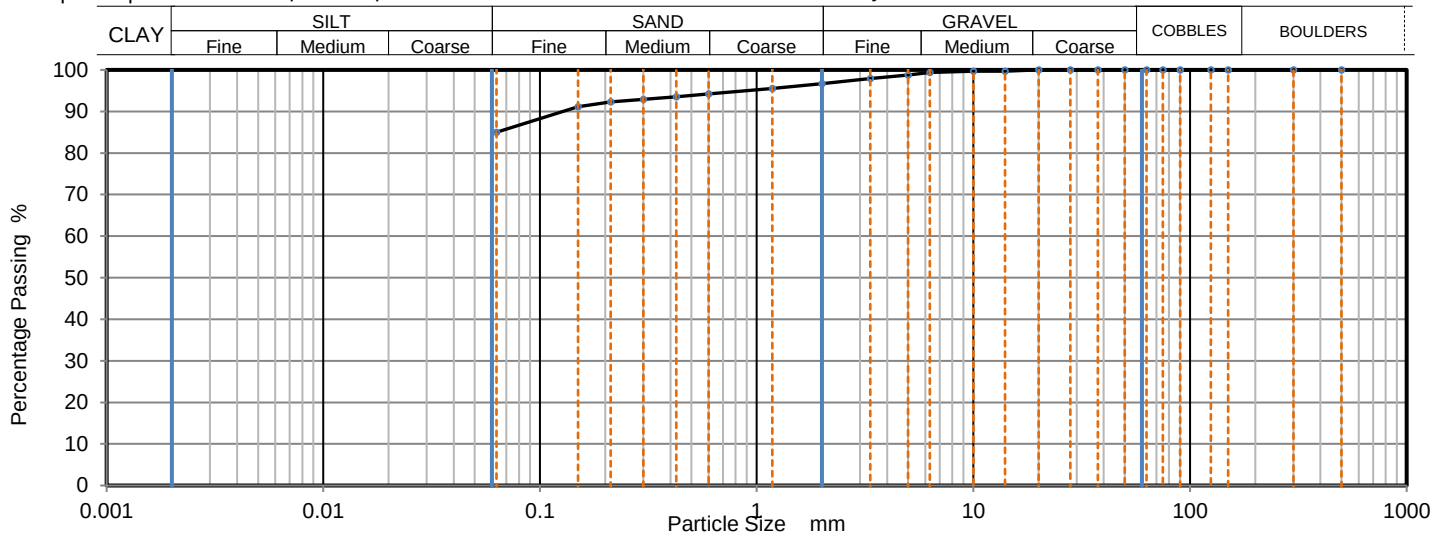
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered, oven dried at 106.8 °C and broken down by hand.

Depth Top [m]: 3.60
Depth Base [m]: 4.00
Sample Type: B


Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	97		
1.18	96		
0.6	94		
0.425	94		
0.3	93		
0.212	92		
0.15	91		
0.063	86		

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	11
Fines <0.063mm	86

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

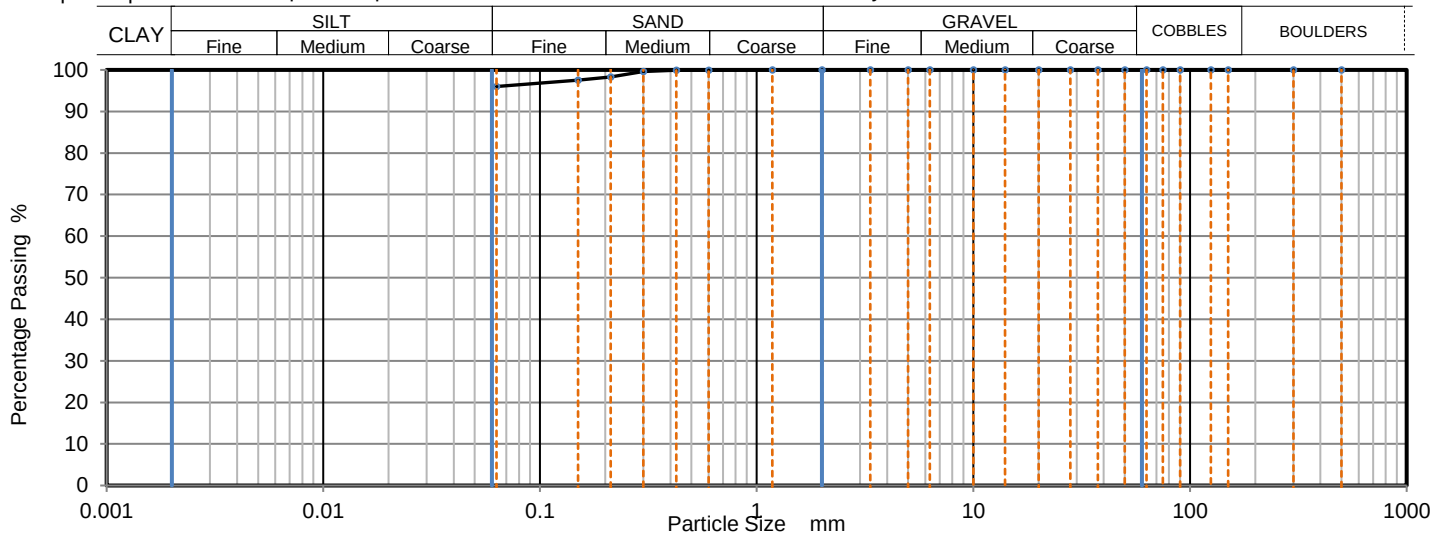
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 6.80
Depth Base [m]: 7.20
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	3
Fines <0.063mm	97

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
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Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

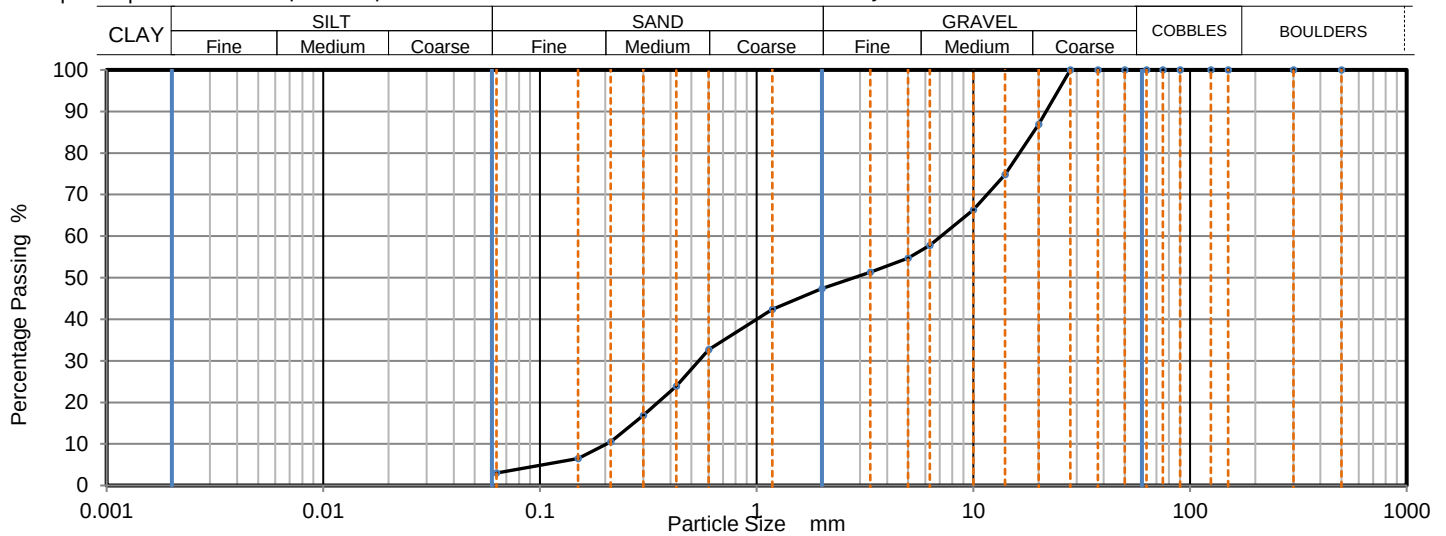
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540749
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Orangish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 0.50
Depth Base [m]: 1.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	87		
14	75		
10	66		
6.3	58		
5	55		
3.35	51		
2	47		
1.18	42		
0.6	33		
0.425	24		
0.3	17		
0.212	11		
0.15	7		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	44
Fines <0.063mm	4

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	35
Curvature Coefficient	0.2

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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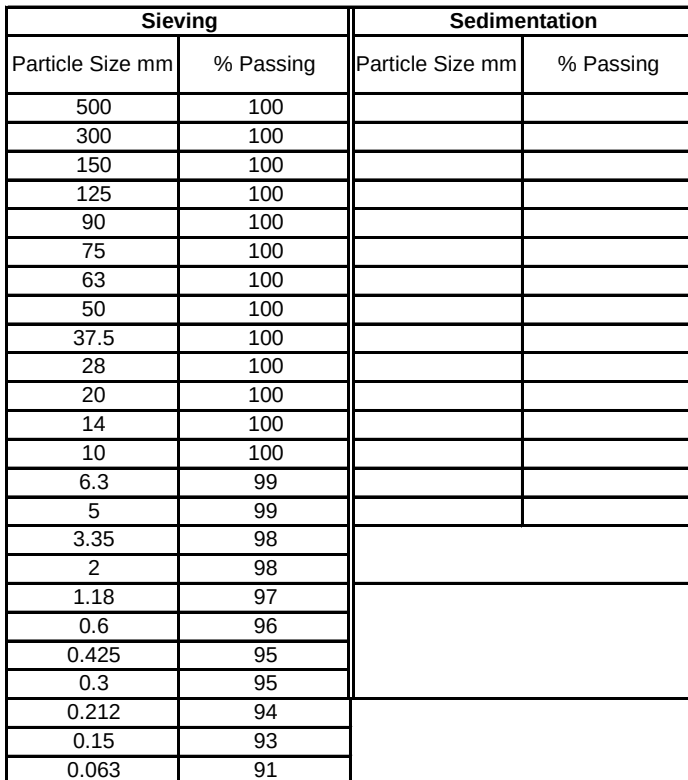
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Depth Top [m]: 2.00
Depth Base [m]: 2.45
Sample Type: B



Grading Analysis		
D100	mm	20
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

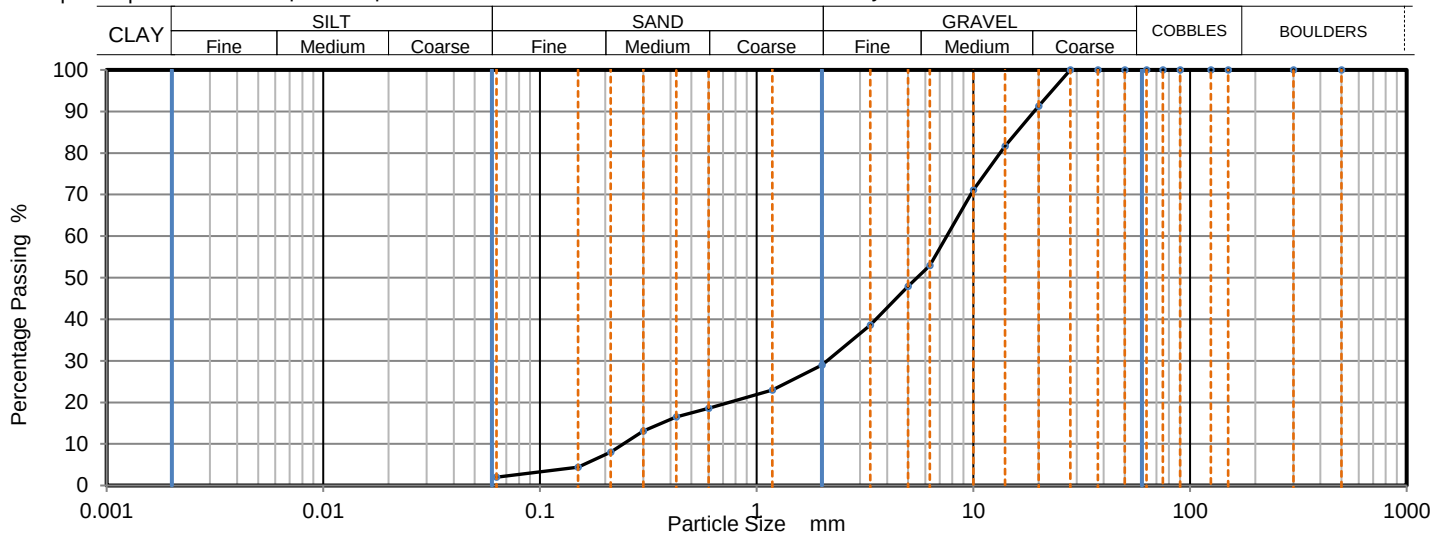
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540751
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 107.0 °C and broken down by hand.

Depth Top [m]: 2.60
Depth Base [m]: 3.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	82		
10	71		
6.3	53		
5	48		
3.35	39		
2	29		
1.18	23		
0.6	19		
0.425	17		
0.3	13		
0.212	8		
0.15	4		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0
Gravel	71
Sand	27
Fines <0.063mm	2

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

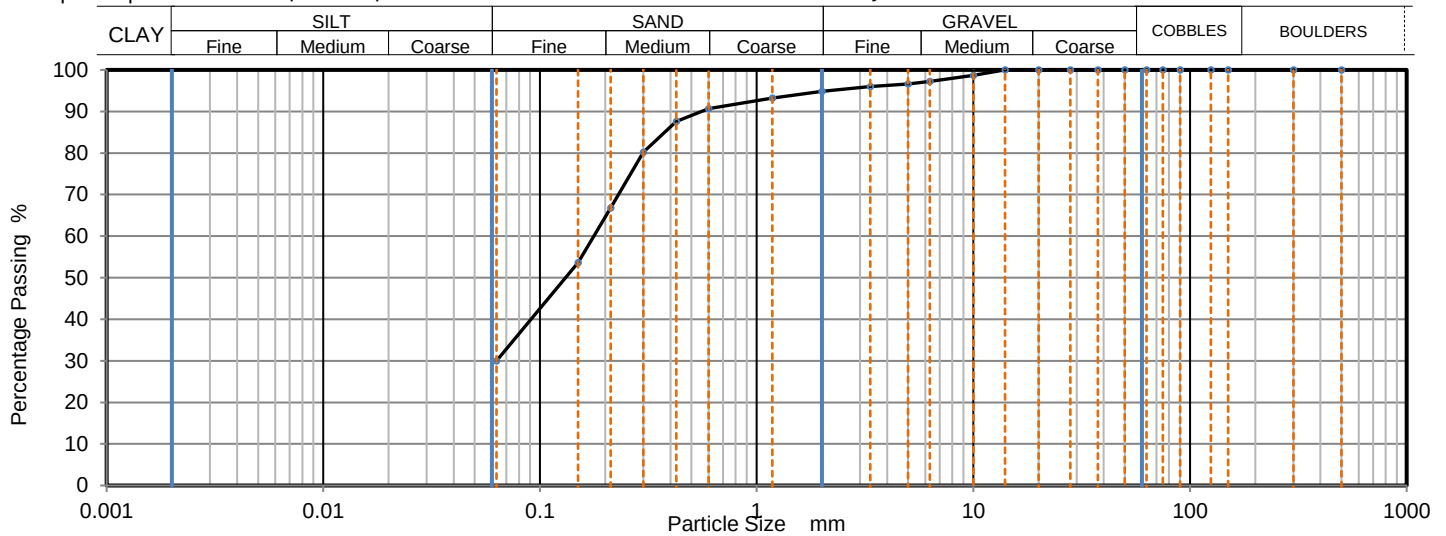
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	97		
5	97		
3.35	96		
2	95		
1.18	93		
0.6	91		
0.425	88		
0.3	80		
0.212	67		
0.15	54		
0.063	31		

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	64
Fines <0.063mm	31

Grading Analysis	
D100	mm 14
D60	mm 0.177
D30	mm
D10	mm
Uniformity Coefficient	> 2.8
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

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4041

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

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i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

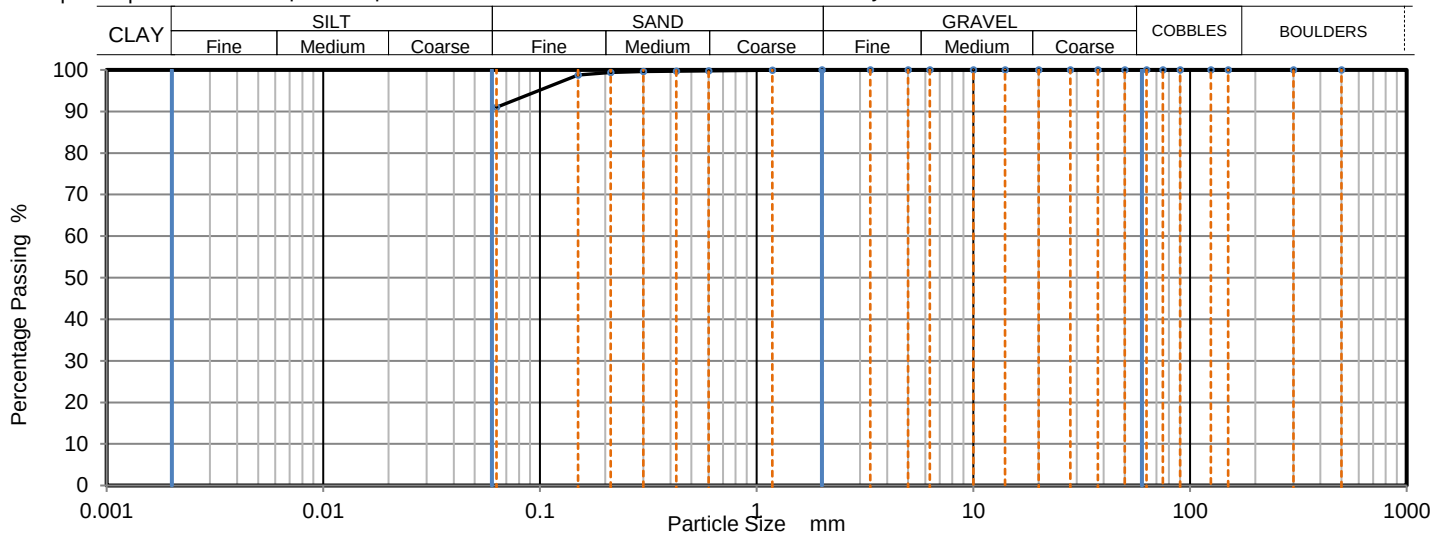
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540753
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 0.50
Depth Base [m]: 0.80
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	92		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	8
Fines <0.063mm	92

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:



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Reporting Specialist
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Client: Hydrock Consultants Ltd
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SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

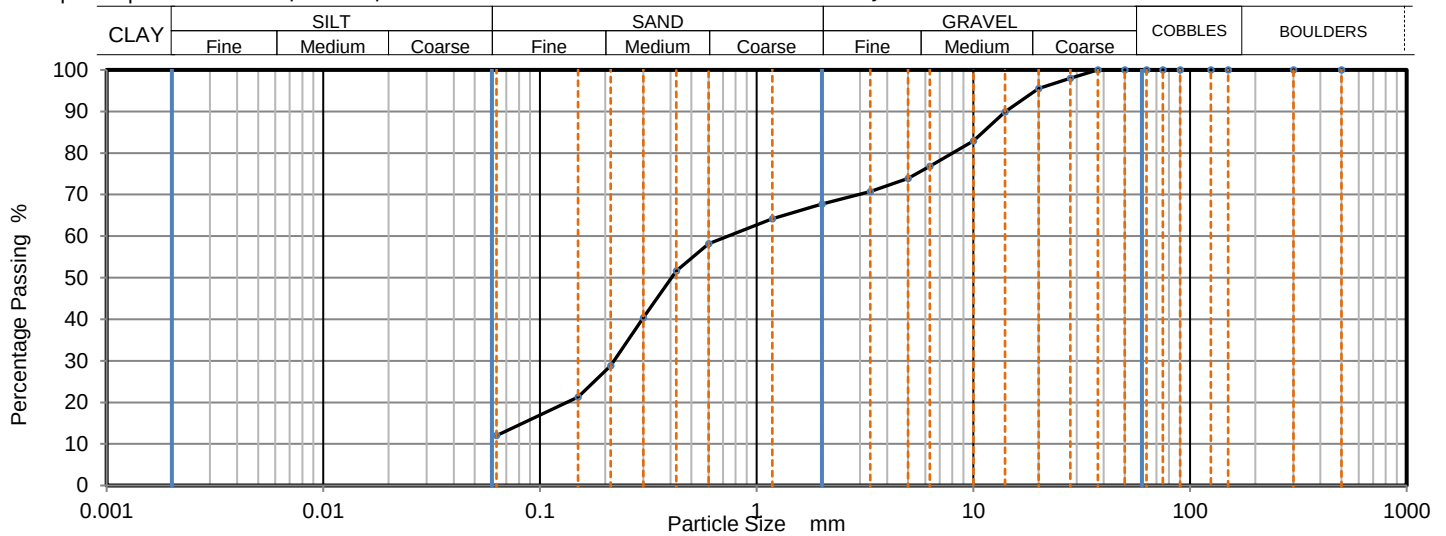
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540754
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.20
Depth Base [m]: 1.70
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	96		
14	90		
10	83		
6.3	77		
5	74		
3.35	71		
2	68		
1.18	64		
0.6	58		
0.425	52		
0.3	40		
0.212	29		
0.15	21		
0.063	12		

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	56
Fines <0.063mm	12

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 12
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

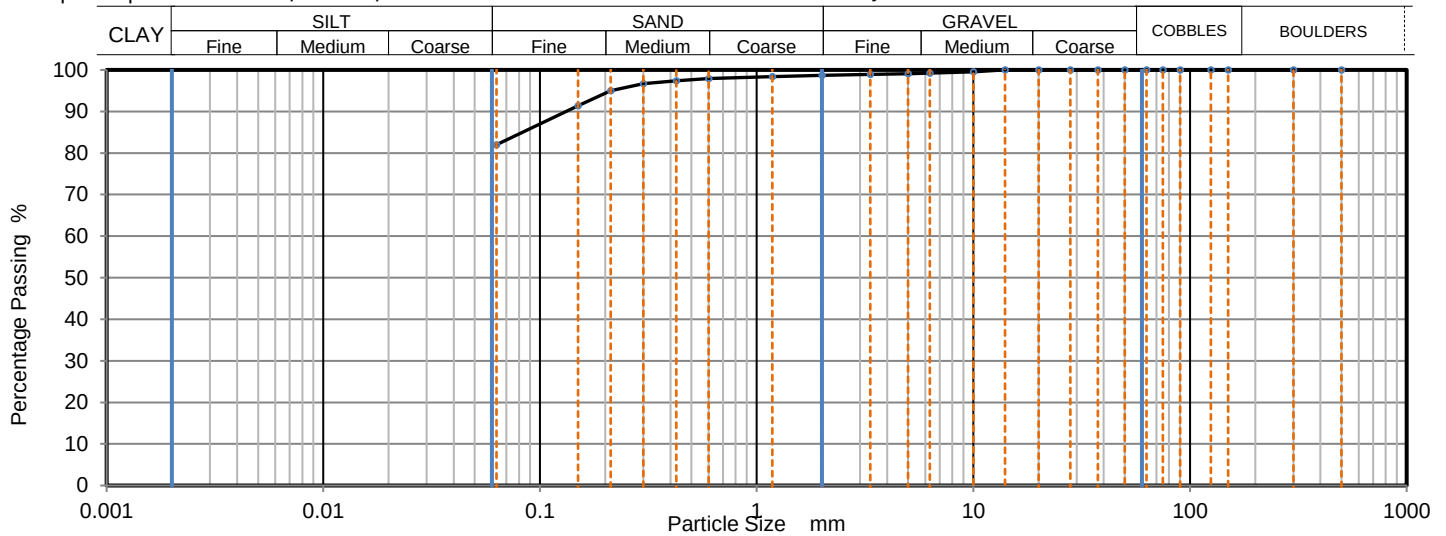
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 29/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540755
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Brownish grey silty CLAY
Sample Preparation: Sample was quartered, oven dried at 106.9 °C and broken down by hand.

Depth Top [m]: 2.50
Depth Base [m]: 2.90
Sample Type: B


Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99		
2	99		
1.18	98		
0.6	98		
0.425	97		
0.3	97		
0.212	95		
0.15	91		
0.063	83		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	16
Fines <0.063mm	82

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

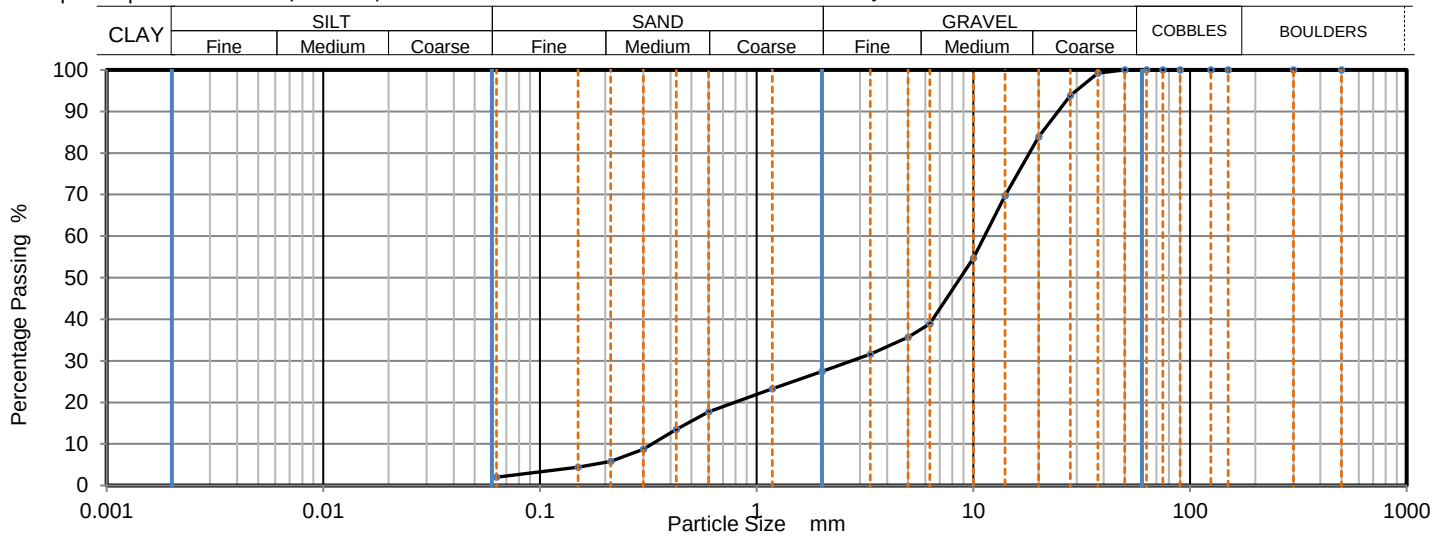
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 30/12/2022
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540756
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 106.8 °C and broken down by hand.

Depth Top [m]: 5.30
Depth Base [m]: 5.80
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	99		
28	94		
20	84		
14	70		
10	55		
6.3	39		
5	36		
3.35	32		
2	27		
1.18	23		
0.6	18		
0.425	14		
0.3	9		
0.212	6		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	73
Sand	25
Fines <0.063mm	3

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

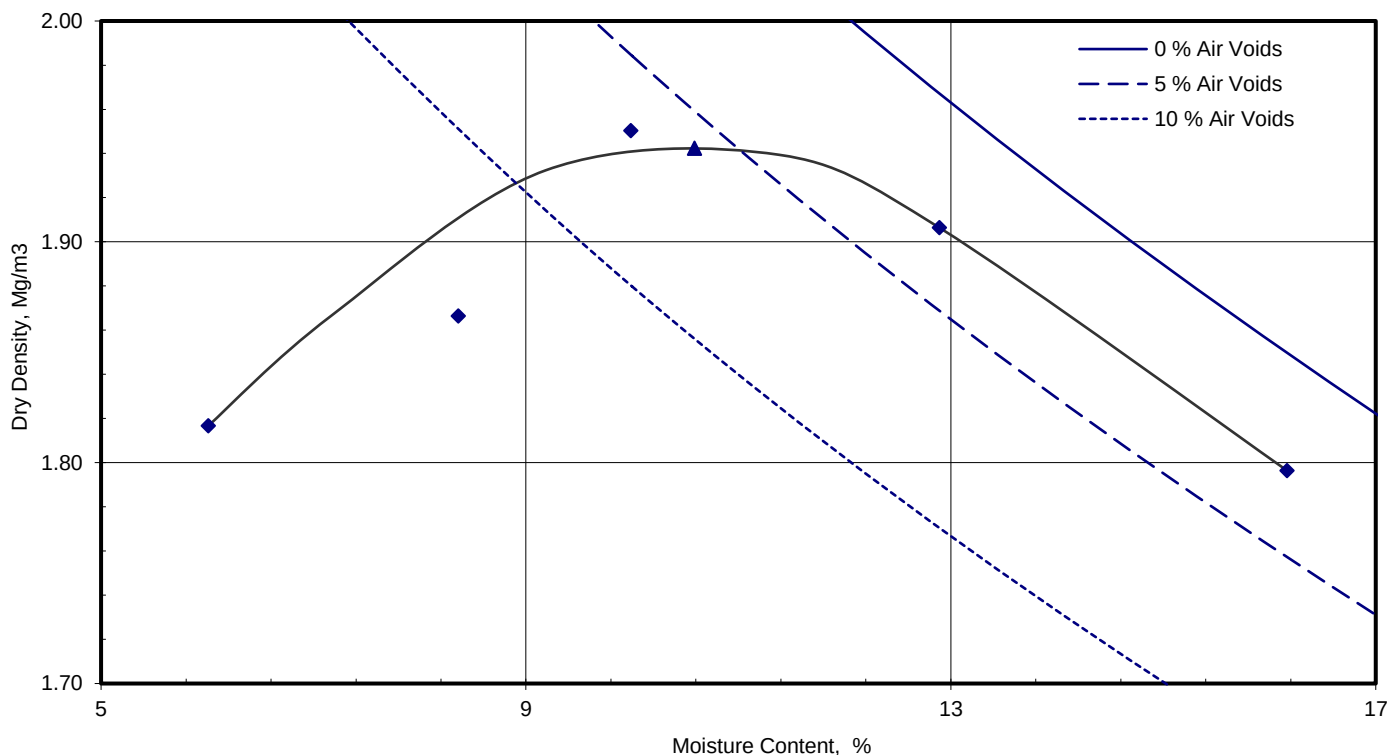
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540744
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 0.30
Depth Base [m]: 0.80
Sample Type: B


Compaction Point No.		1	2	3	4	5
Moisture Content	%	6.0	8.4	10.0	13	16
Dry Density	Mg/m³	1.82	1.87	1.95	1.91	1.80

Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m³	2.64
As received Moisture Content	%	23
Maximum Dry Density	Mg/m³	1.94

Optimum Moisture Content	%	11
--------------------------	---	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

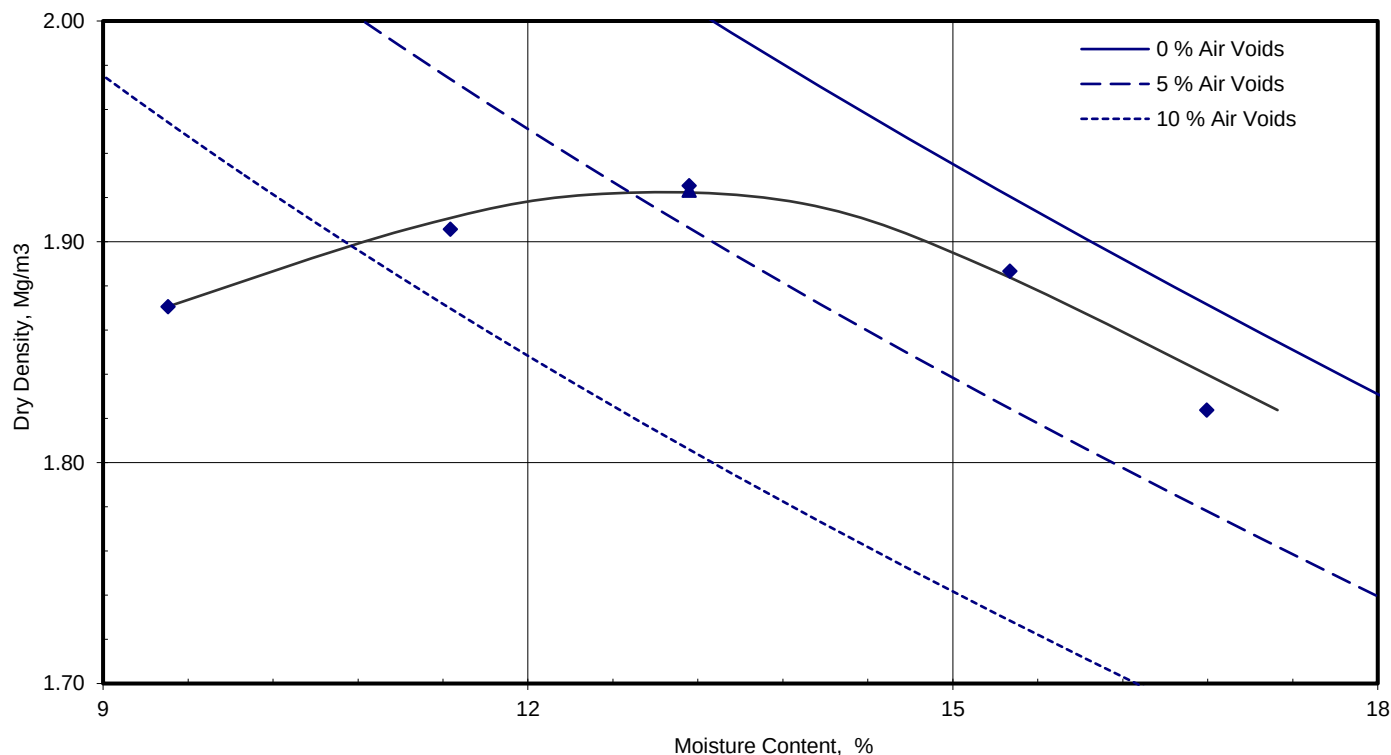
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540753
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Greyish brown CLAY
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 0.50
Depth Base [m]: 0.80
Sample Type: B


Compaction Point No.		1	2	3	4	5
Moisture Content	%	9.5	11	13	15	17
Dry Density	Mg/m³	1.87	1.91	1.93	1.89	1.82

Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m³	2.73
As received Moisture Content	%	19
Maximum Dry Density	Mg/m³	1.92

Optimum Moisture Content	%	13
--------------------------	---	----

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Client - J Fowler

Test Results:

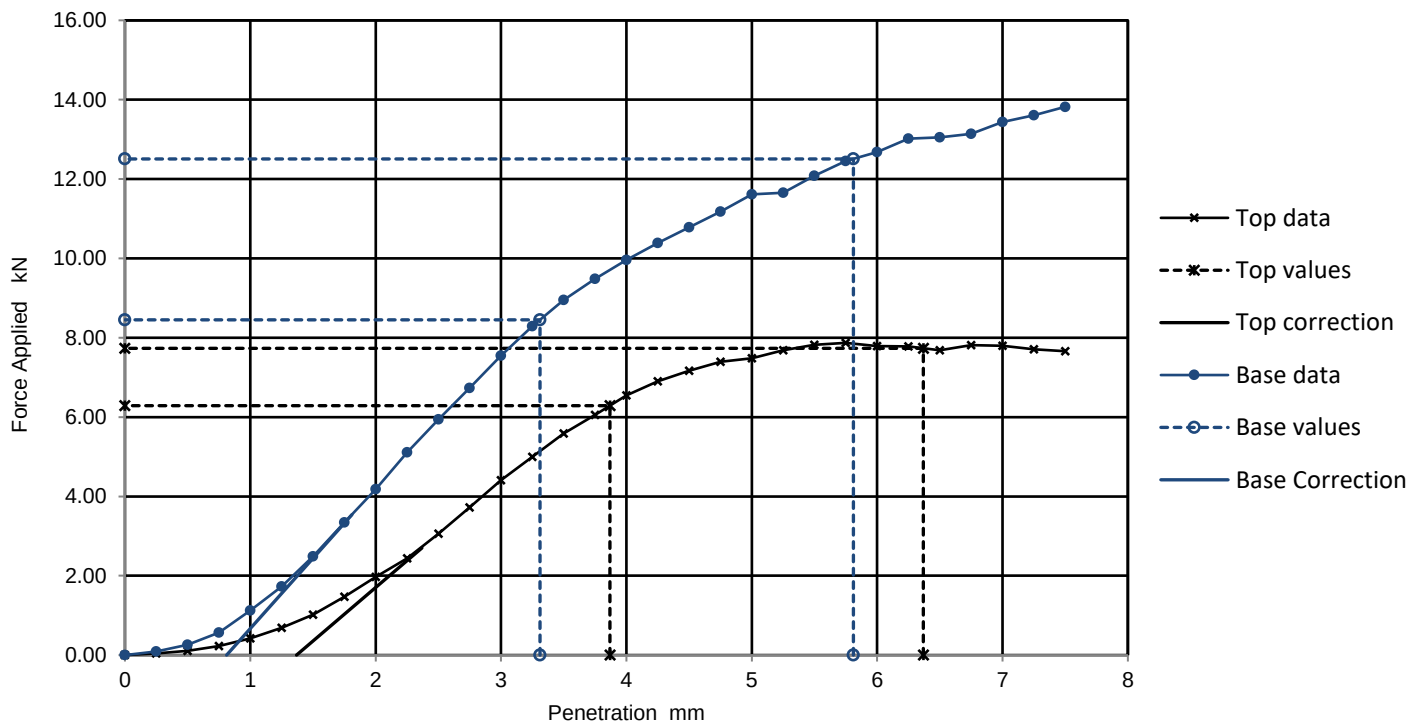
Laboratory Reference: 2540749
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Orangish brown sandy GRAVEL

Depth Top [m]: 0.50
Depth Base [m]: 1.00
Sample Type: B

Specimen Preparation:

Condition	Remoulded			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed	14	%		Dry density after soaking		Mg/m3	
Initial Specimen details	Bulk density	2.23	Mg/m3	Surcharge applied		8	kg
	Dry density	2.03	Mg/m3			4.8	kPa
	Moisture content	9.8	%				

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
Yes	48.0	39.0	48.0	
Yes	64.0	63.0	64.0	

Moisture Content %
8.9
8.0

Remarks:

Test/ Specimen specific remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London, SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 04/01/2023
Sampled By: Client - J Fowler

Test Results:

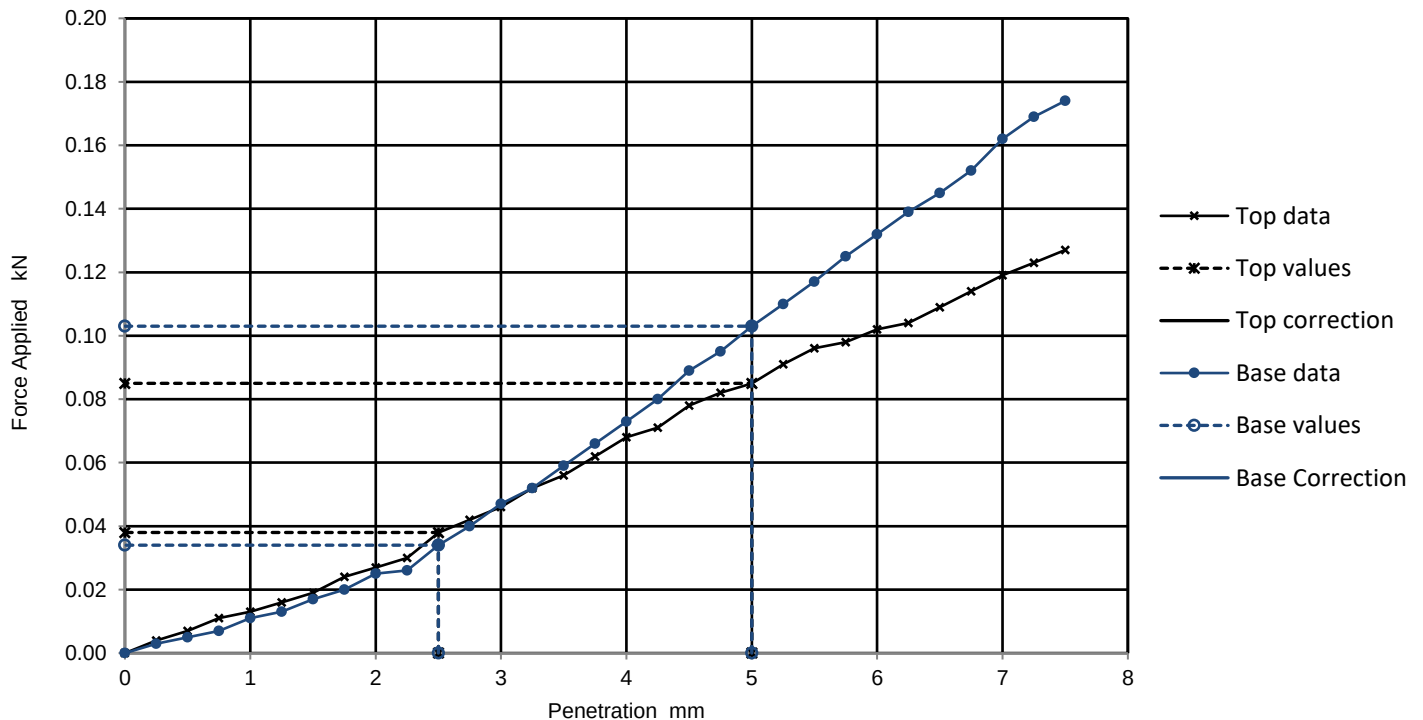
Laboratory Reference: 2540754
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly clayey SAND

Depth Top [m]: 1.20
Depth Base [m]: 1.70
Sample Type: B

Specimen Preparation:

Condition	Remoulded			Soaking details		Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days	
				Time to surface		days	
				Amount of swell recorded		mm	
Material retained on 20mm sieve removed	5	%		Dry density after soaking		Mg/m3	
Initial Specimen details	Bulk density	2.20	Mg/m3	Surcharge applied		8	kg
	Dry density	1.95	Mg/m3			4.9	kPa
	Moisture content	13	%				

Force v Penetration Plots



Results

TOP
BASE

Curve correction applied	CBR Values, %			
	2.5mm	5mm	Highest	Average
No	0.3	0.4	0.4	0.5
No	0.3	0.5	0.5	

Moisture Content %
12
12

Remarks:

Test/ Specimen specific remarks:

Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

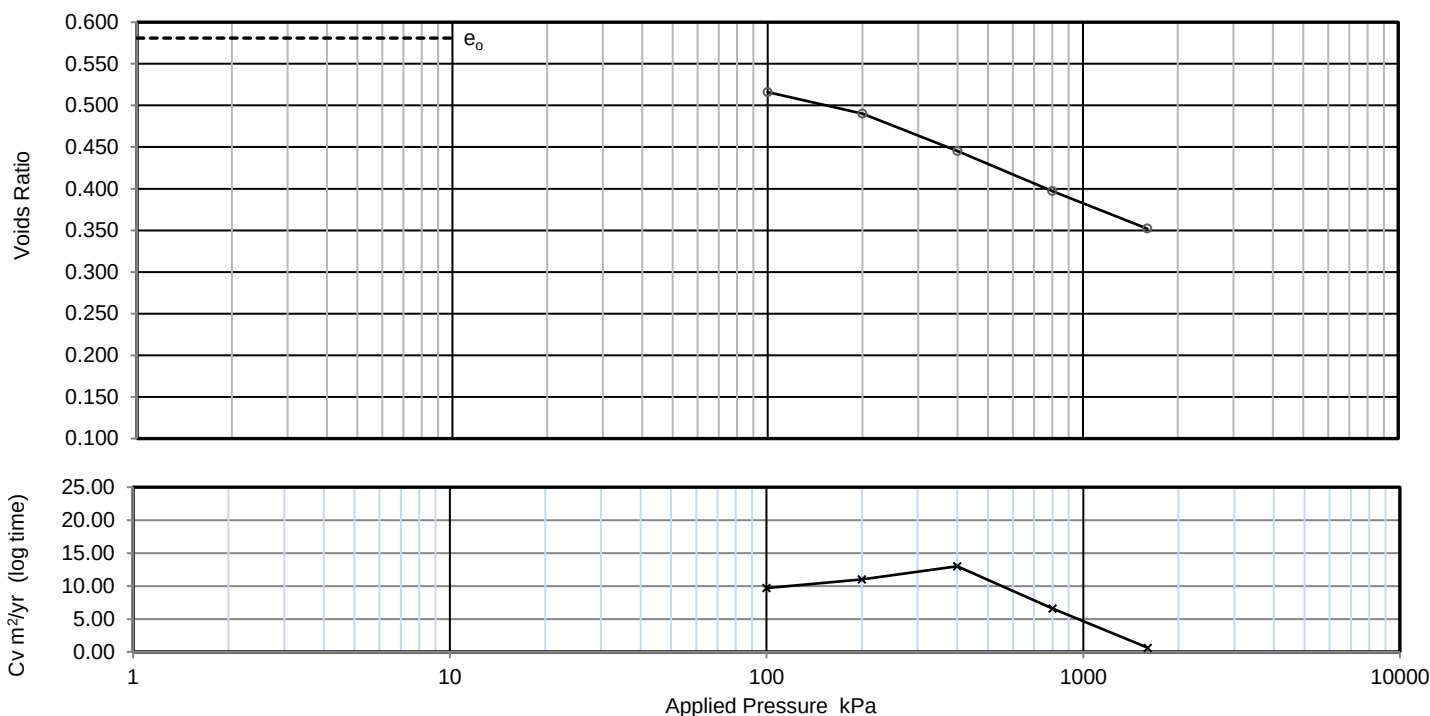
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 06/01/2023
Sampled By: Client - J Fowler

Laboratory Reference: 2540757
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Mottled brown CLAY

Depth Top [m]: 8.00
Depth Base [m]: 8.45
Sample Type: U

[illegible]

Preparation

Carried out on top of U100

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Vertical		
assumed	2.65	Mg/m3
N/A		%
N/A		%

Specimen details

Diameter

Height

Moistur

Bulk density

Dry density

Voids Ratio

Saturation

Avg. tempe

Swelling Pressure

Settlement on saturday

Total test time

Initial	Final	
50.00	-	mm
20.18	17.26	mm
21	19	%
2.03	2.33	Mg/m ³
1.68	1.96	Mg/m ³
0.581	0.352	
95	140	%
22.0		°C
Not measured		kPa
		%
5		days

Note: C_v corrected to 20°C

Remarks:

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Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd



4041

TEST CERTIFICATE**DETERMINATION OF SHEAR STRENGTH
BY DIRECT SHEAR
(SMALL SHEARBOX APPARATUS)**

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EBClient: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LEContact: Julian Fowler
Site Address: Lodge Road, HurstClient Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAYDepth Top [m]: 3.60
Depth Base [m]: 4.00
Sample Type: B

Preparation Details Sample carried out on lump

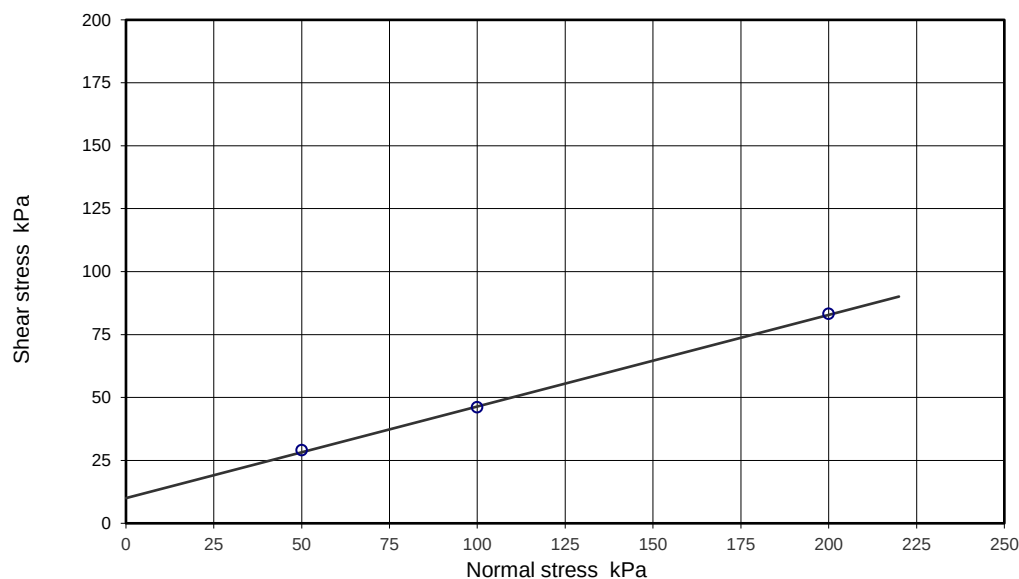
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.93	1.93	1.93			Mg/m ³
	Moisture Content	26.8	26.8	26.8			%
	Dry density	1.52	1.52	1.52			Mg/m ³
	Voids ratio	0.743	0.743	0.743			
Consolidation	Degree of Saturation	96	96	96			%
	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	1.624	2.216	2.738			mm
After test	Voids ratio after consolidation	0.602	0.550	0.504			
	Final Moisture content	27.3	25.2	23.3			%

Shearing stage(s)

Rate of displacement	Peak	0.00670	0.00670	0.00670			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	4.03	2.53	2.94			mm
	Shear stress	29.0	46.1	83.2			kPa
	Vertical Movement at peak shear stress	0.38	0.20	0.23			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 2 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	10
Ø'	degrees	20.0

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

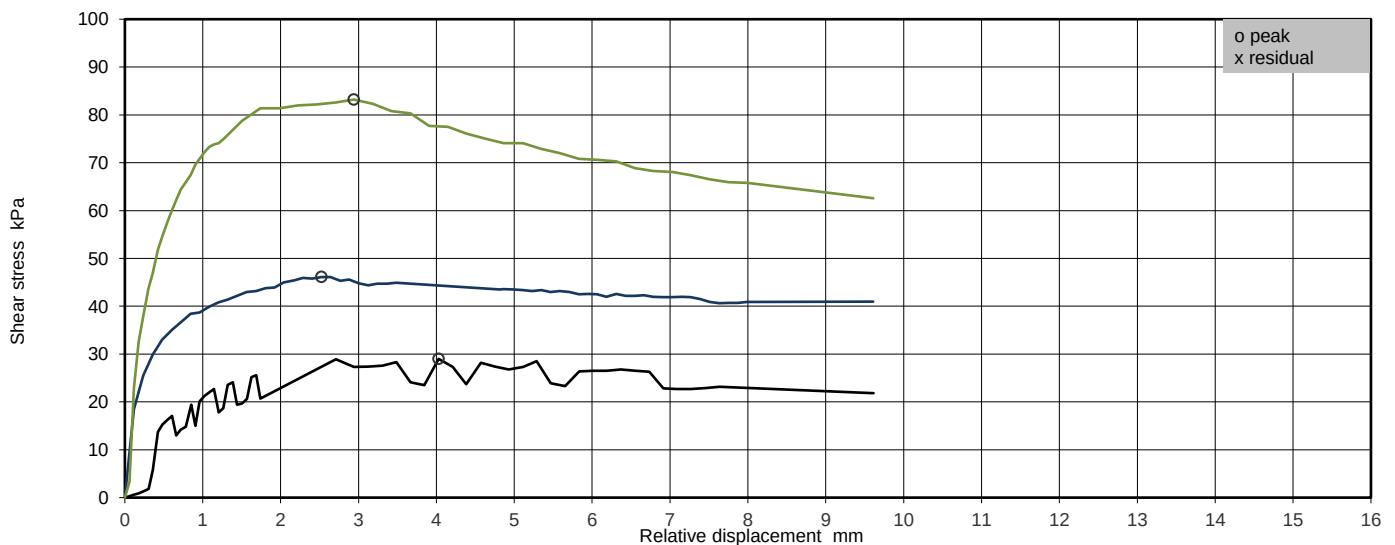
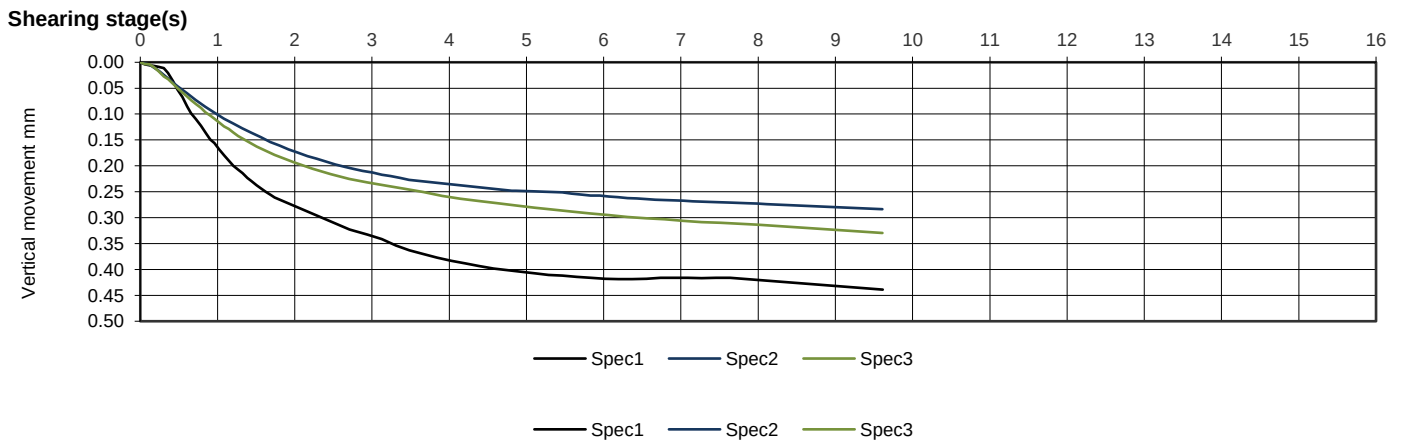
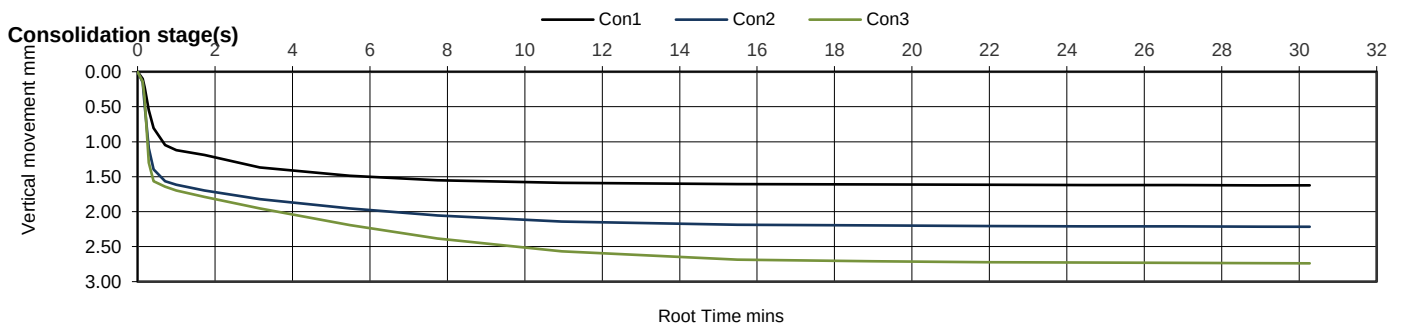
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540747
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Greyish brown CLAY

Depth Top [m]: 3.60
Depth Base [m]: 4.00
Sample Type: B



Remarks:

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Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 09/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY

Depth Top [m]: 6.80
Depth Base [m]: 7.20
Sample Type: B

Preparation Details Sample carried out on lump

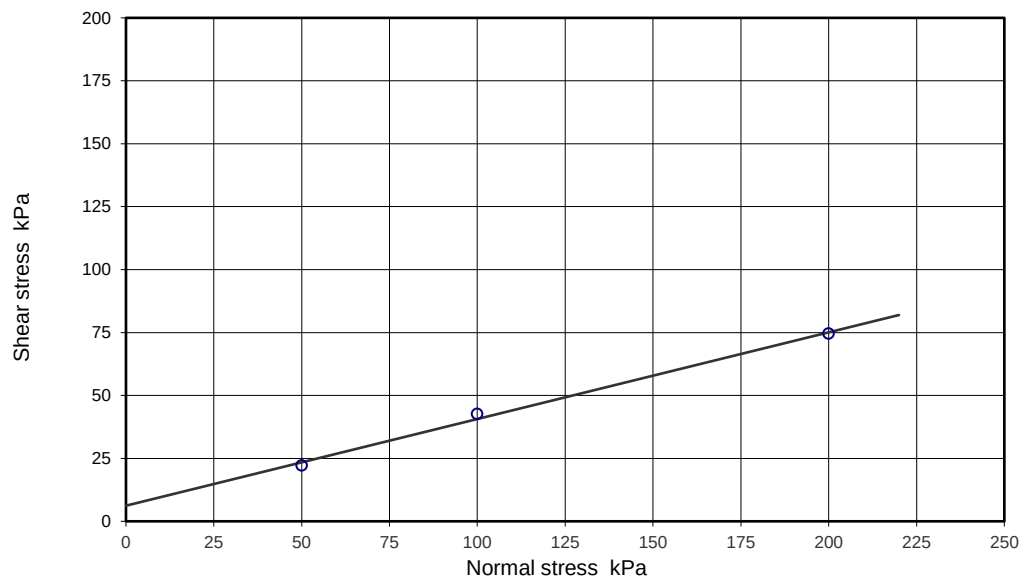
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.1	20.1	20.1			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.78	1.78	1.78			Mg/m ³
	Moisture Content	27.1	27.1	27.1			%
	Dry density	1.40	1.40	1.40			Mg/m ³
	Voids ratio	0.893	0.893	0.893			
Consolidation	Degree of Saturation	80	80	80			%
	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	0.785	1.930	2.190			mm
After test	Voids ratio after consolidation	0.819	0.711	0.687			
	Final Moisture content	34.3	33.7	31.3			%

Shearing stage(s)

Rate of displacement	Peak	0.00670	0.00670	0.00670			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	3.07	3.55	2.65			mm
	Shear stress	22.1	42.6	74.5			kPa
	Vertical Movement at peak shear stress	0.36	0.37	0.27			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 2 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	6.2
Ø'	degrees	19.0

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

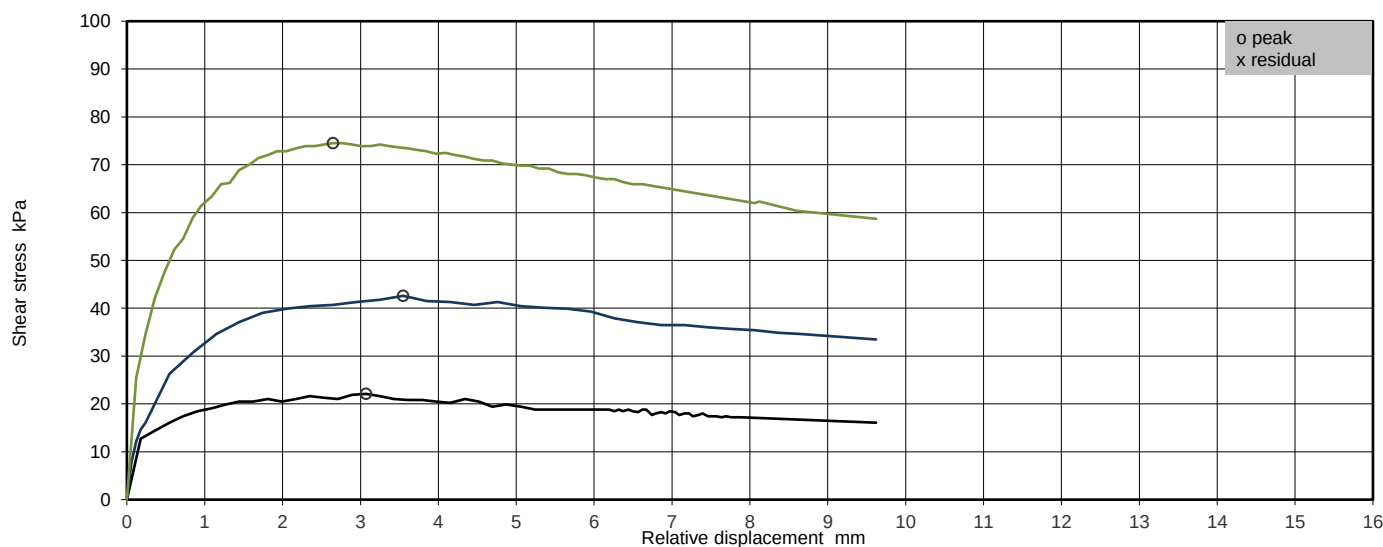
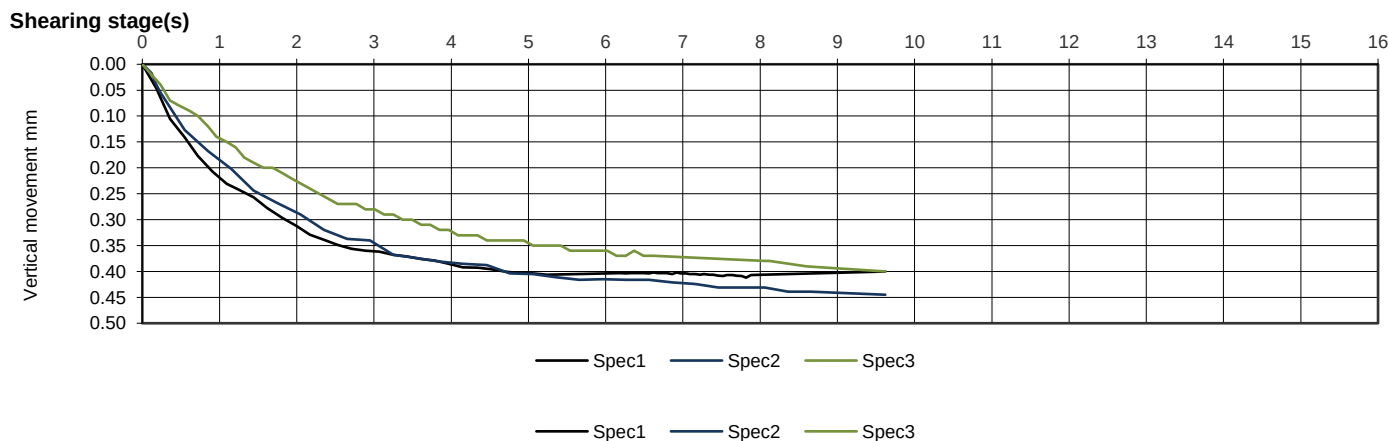
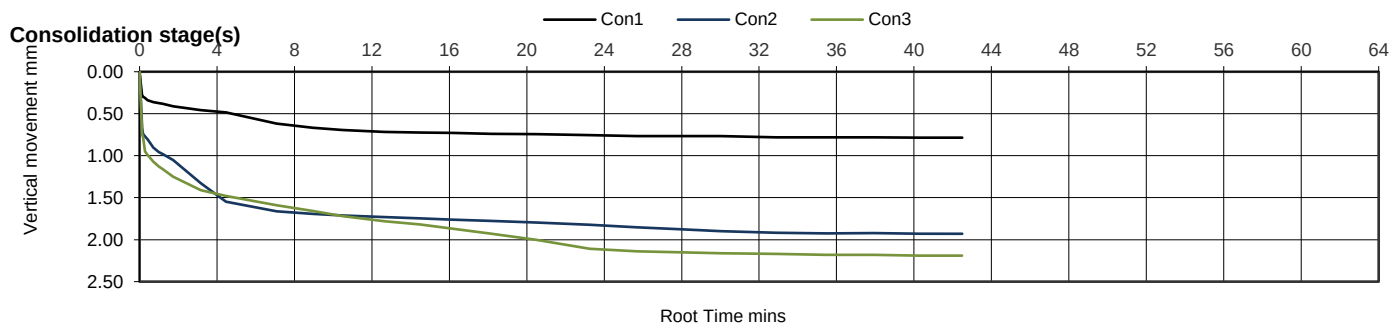
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 07/12/2022
Date Received: 13/12/2022
Date Tested: 09/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540748
Hole No.: CP04
Sample Reference: Not Given
Sample Description: Brown CLAY

Depth Top [m]: 6.80
Depth Base [m]: 7.20
Sample Type: B


Remarks:

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Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: B

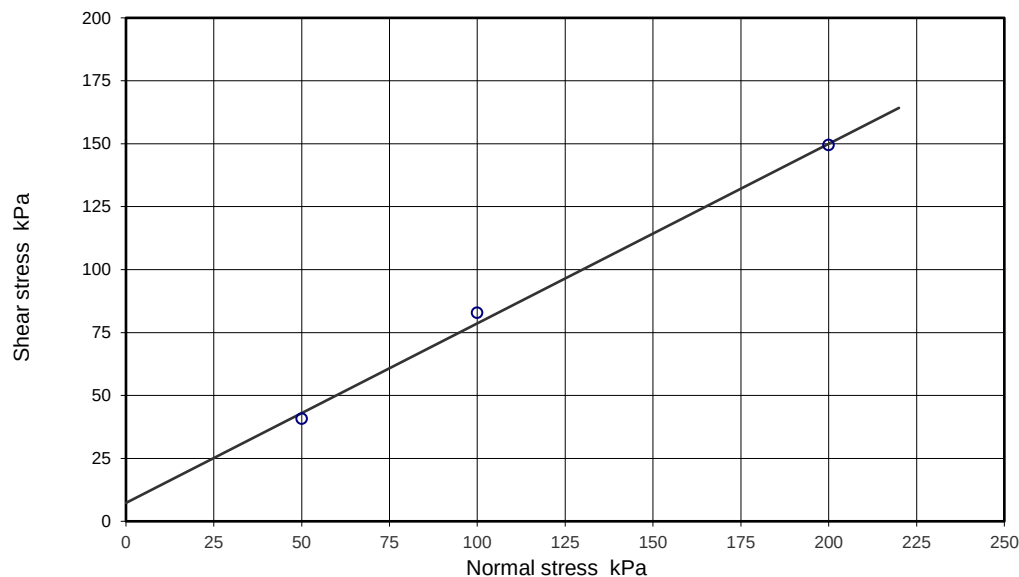
Preparation Details Sample prepared from loose material

Specimen Details

Test No.		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	2.07	2.07	2.07			Mg/m ³
	Moisture Content	18.8	18.8	18.8			%
	Dry density	1.74	1.74	1.74			Mg/m ³
	Voids ratio	0.523	0.523	0.523			
	Degree of Saturation	95	95	95			%
Consolidation	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	0.926	1.382	1.810			mm
	Voids ratio after consolidation	0.452	0.418	0.385			
After test	Final Moisture content	16.3	15.5	15.3			%

Shearing stage(s)

Rate of displacement	Peak	0.01857	0.01857	0.01857			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	3.07	4.52	5.05			mm
	Shear stress	40.7	82.8	149.5			kPa
	Vertical Movement at peak shear stress	0.24	0.27	0.31			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 1 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	7.3
Ø'	degrees	35.5

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

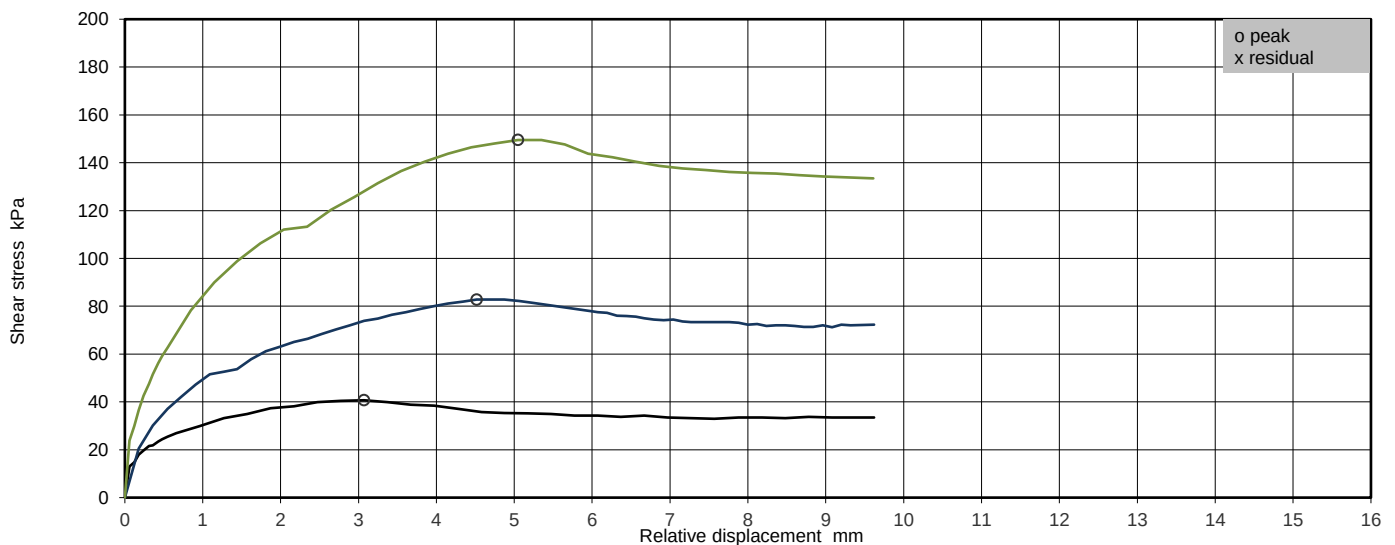
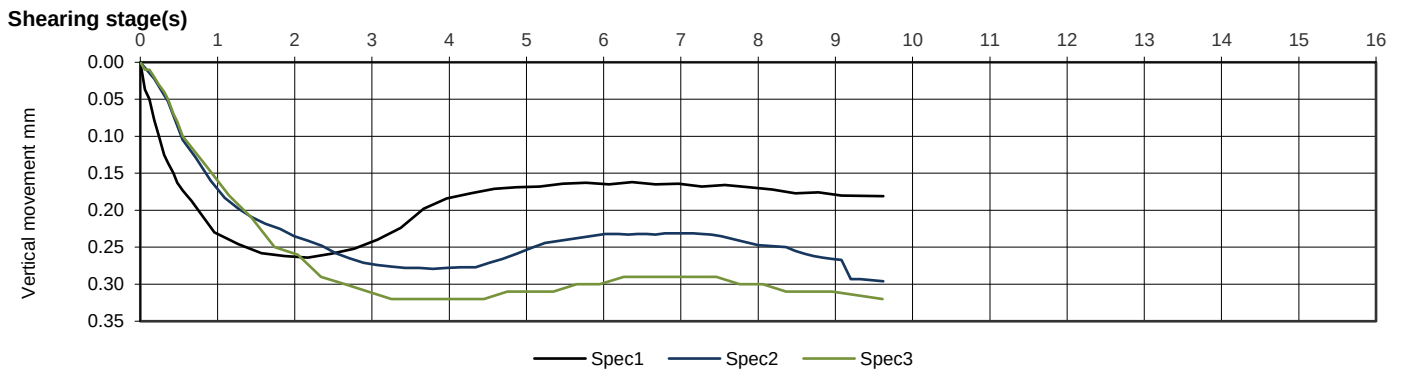
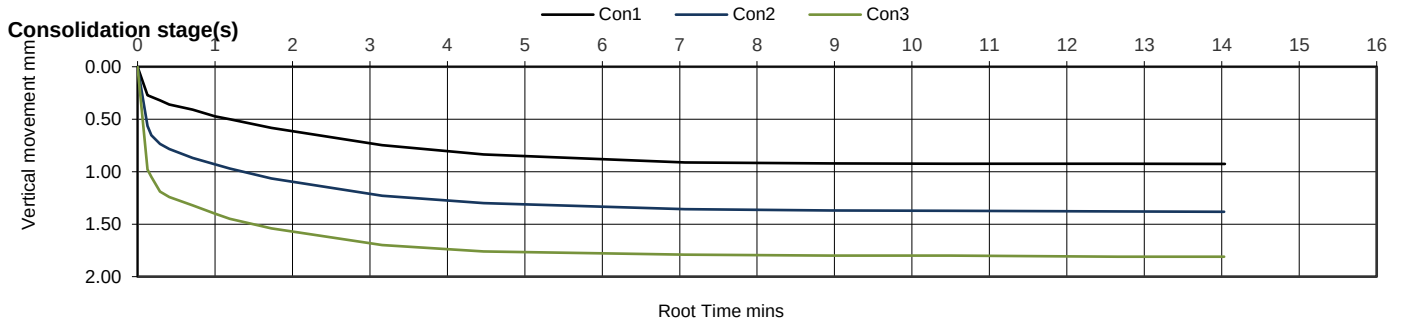
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 08/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540752
Hole No.: CP10
Sample Reference: Not Given
Sample Description: Greyish brown clayey SAND

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: B



Remarks:

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Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2540757
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Mottled brown CLAY

Depth Top [m]: 8.00
Depth Base [m]: 8.45
Sample Type: U

Preparation Details Sample carried out on lump

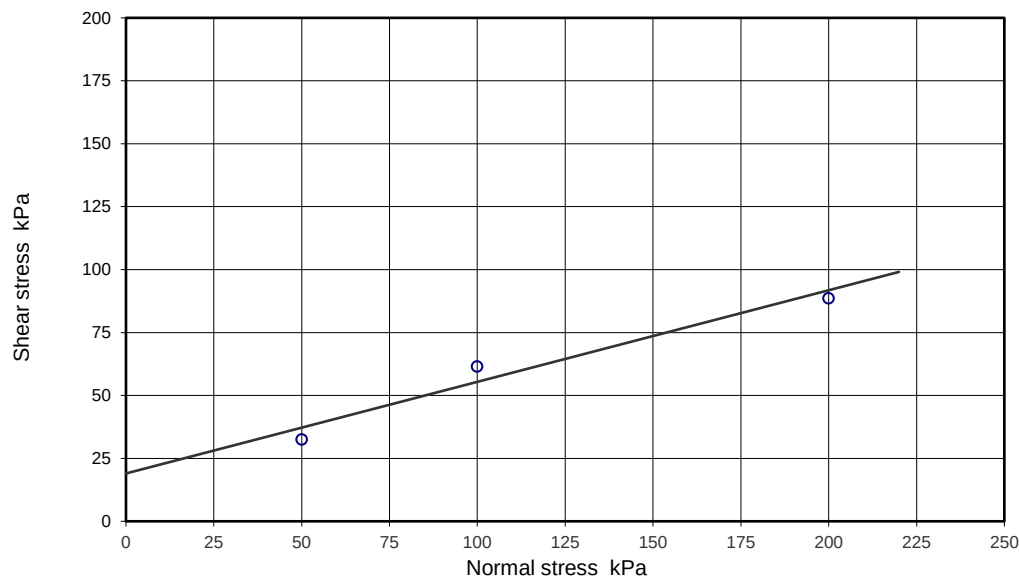
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.90	1.90	1.90			Mg/m ³
	Moisture Content	21.6	21.6	21.6			%
	Dry density	1.56	1.56	1.56			Mg/m ³
	Voids ratio	0.699	0.699	0.699			
	Degree of Saturation	82	82	82			%
Consolidation	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	0.528	1.417	2.319			mm
	Voids ratio after consolidation	0.654	0.579	0.502			
After test	Final Moisture content	25.9	24.1	24.0			%

Shearing stage(s)

Rate of displacement	Peak	0.01486	0.01486	0.01486			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	2.29	3.07	2.77			mm
	Shear stress	32.5	61.5	88.6			kPa
	Vertical Movement at peak shear stress	0.25	0.35	0.16			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 4 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	19
Ø'	degrees	20.0

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

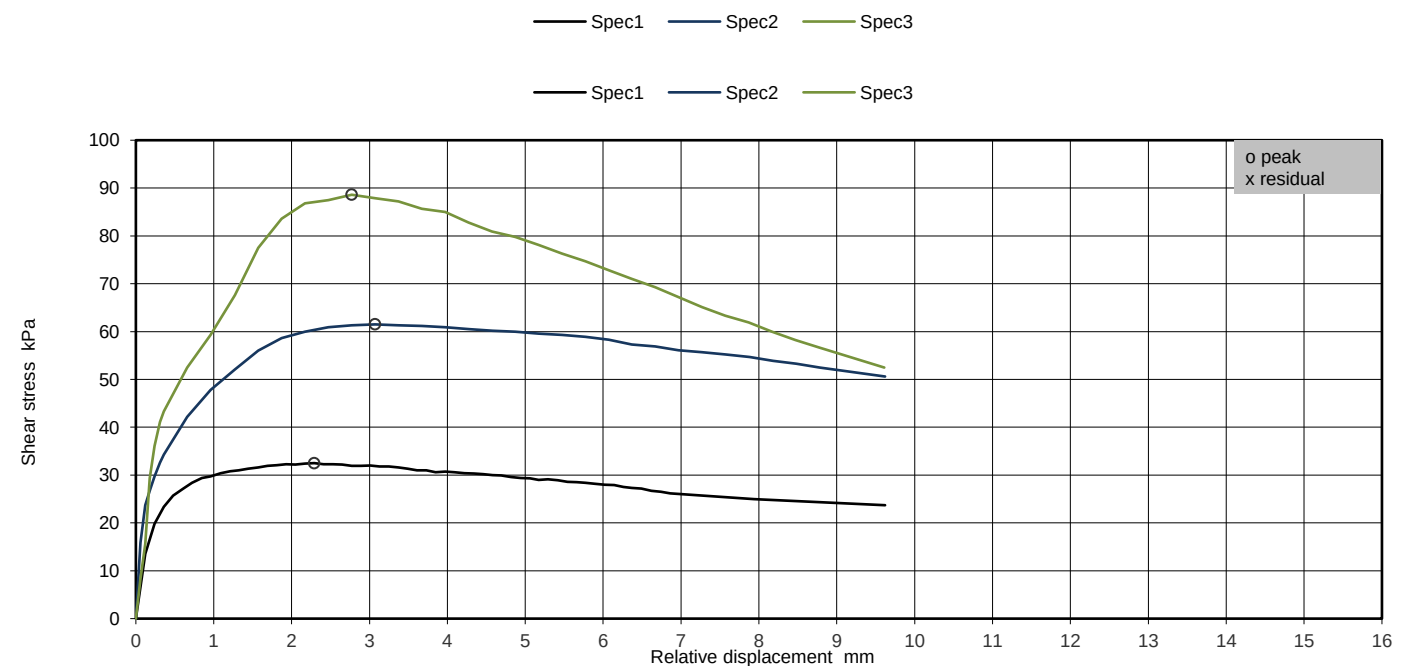
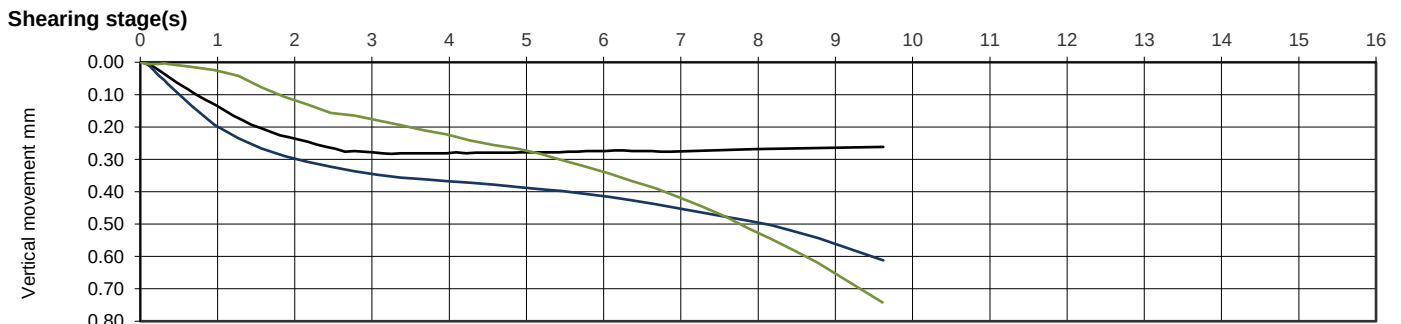
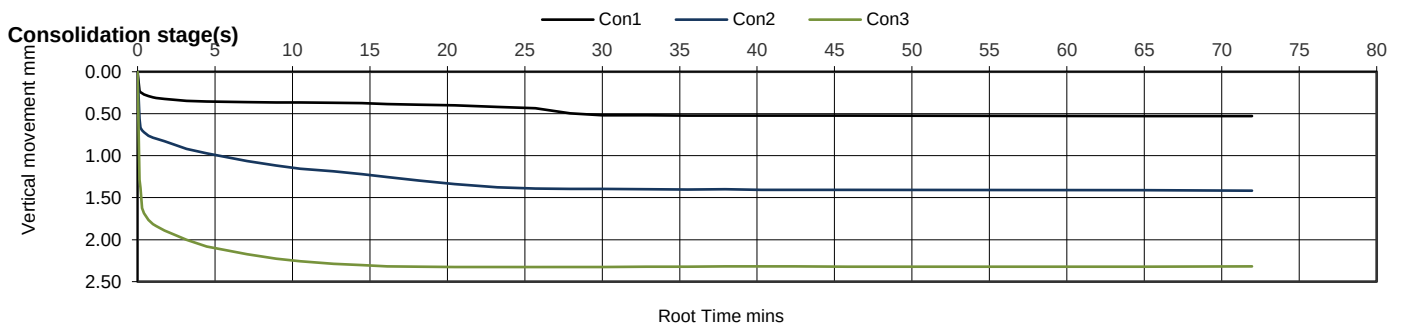
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14402
Date Sampled: 12/12/2022
Date Received: 13/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2540757
Hole No.: CP01
Sample Reference: Not Given
Sample Description: Mottled brown CLAY

Depth Top [m]: 8.00
Depth Base [m]: 8.45
Sample Type: U



Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

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

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

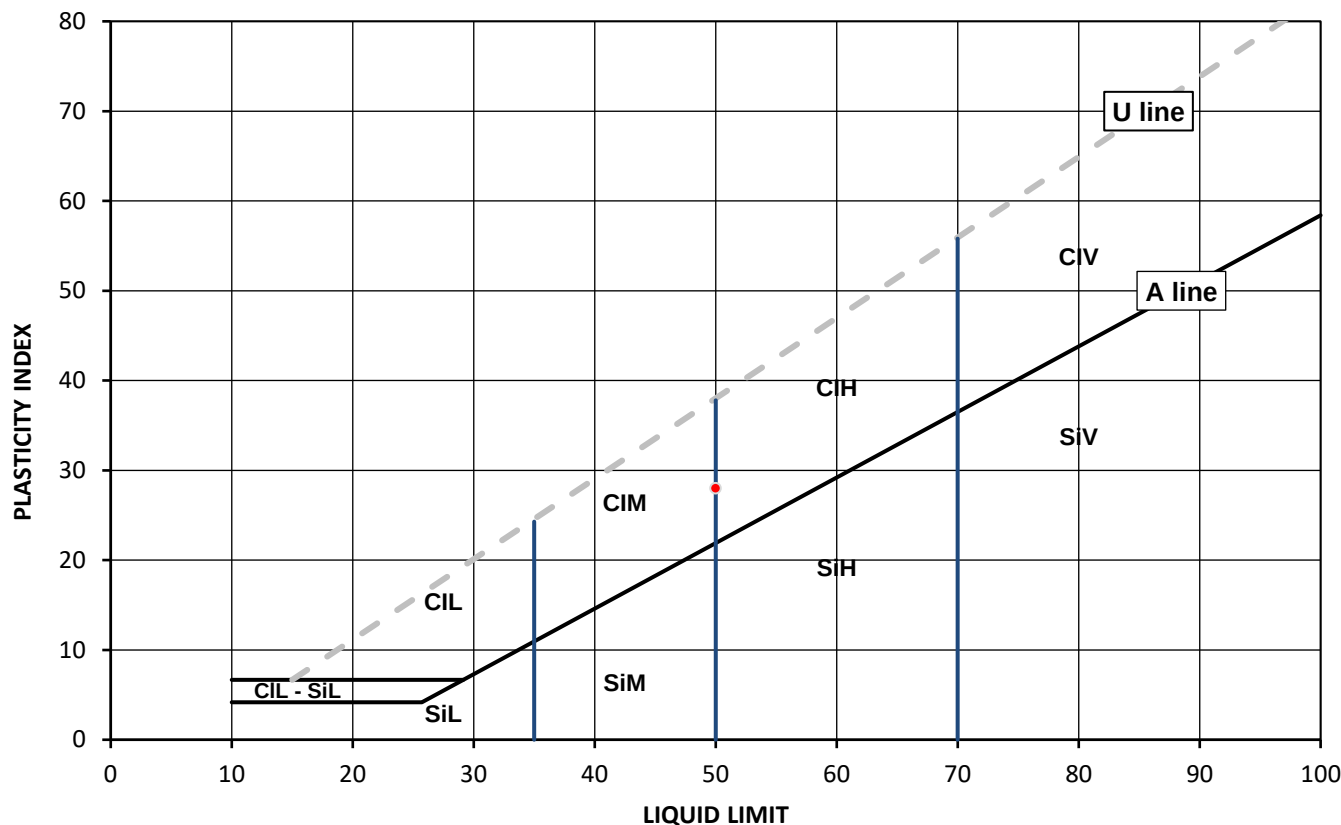
Test Results:

Laboratory Reference: 2543268
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

Depth Top [m]: 2.70
Depth Base [m]: 3.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
26	50	22	28	82



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg CIHO)

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

Remarks:

Signed:

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Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

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

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

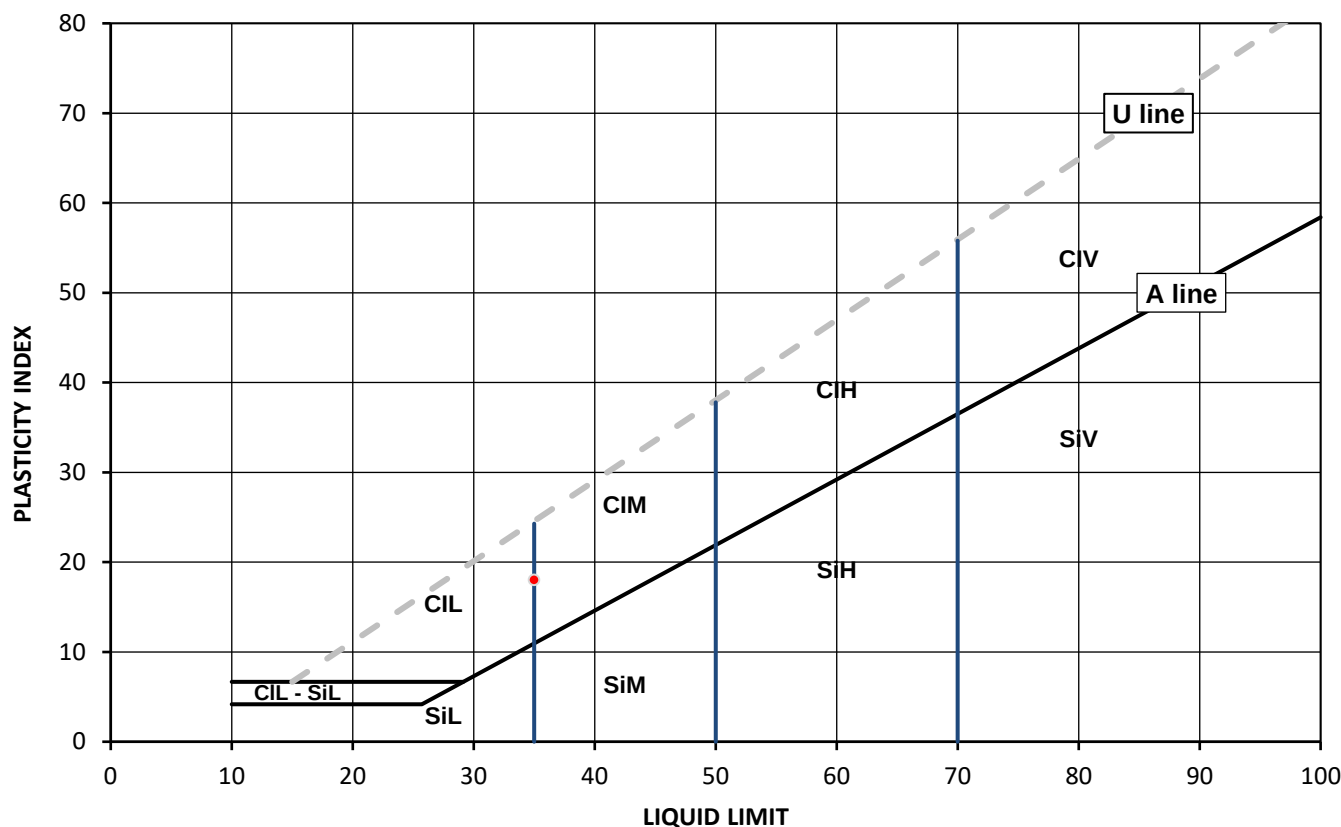
Test Results:

Laboratory Reference: 2543274
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND

Depth Top [m]: 0.60
Depth Base [m]: 1.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
21	35	17	18	83



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	
	V Very high	
	O Organic	append to classification for organic material (eg CIHO)

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

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

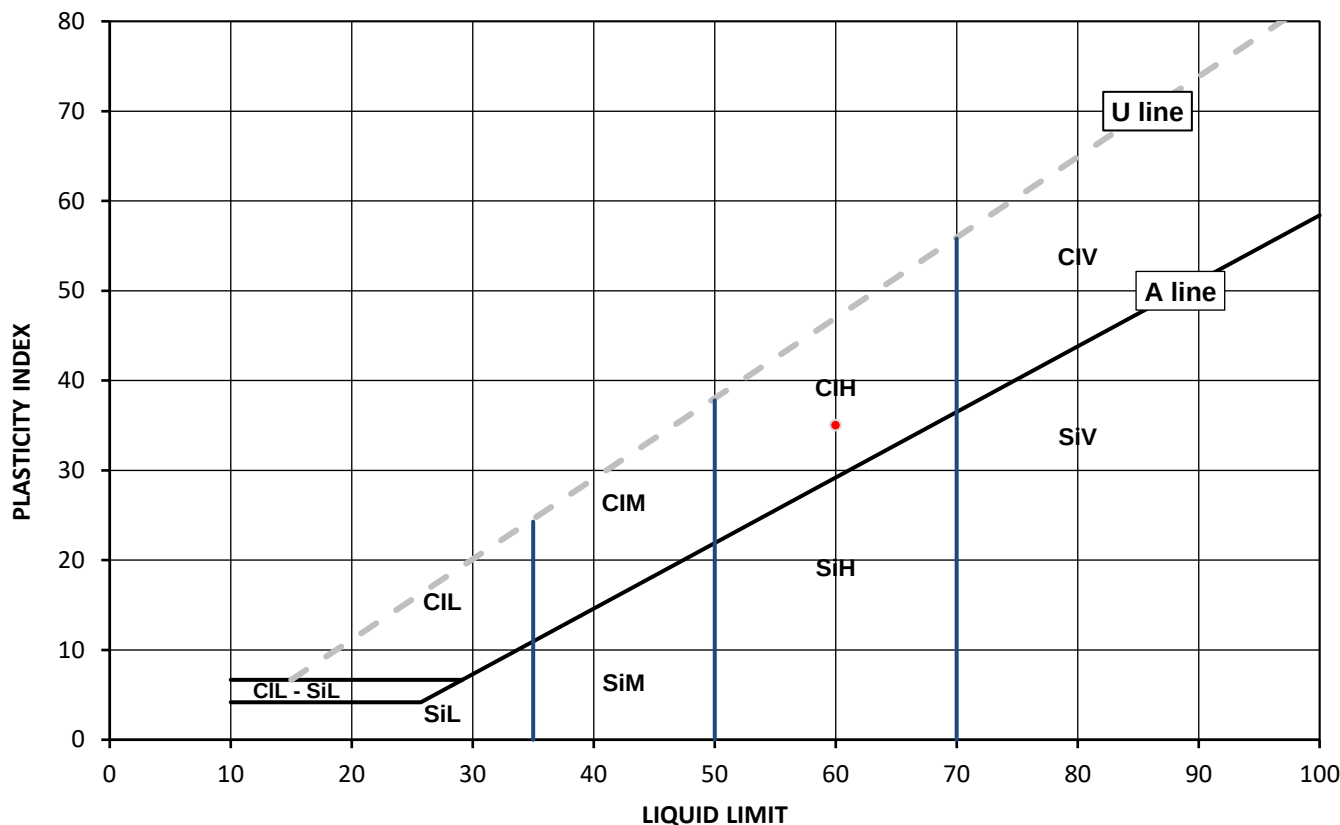
Test Results:

Laboratory Reference: 2543277
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Brown to grey CLAY

Depth Top [m]: 3.50
Depth Base [m]: 4.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
24	60	25	35	95



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	L Low below 35
Si	Silt	M Medium 35 to 50
	H High 50 to 70	V Very high exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

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

Remarks:

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
 Client Address: 5-7 Tanner Street, London,
 SE1 3LE

Contact: Julian Fowler
 Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Environmental Science

Client Reference: 26519
 Job Number: 22-14844
 Date Sampled: 08/12/2022
 Date Received: 16/12/2022
 Date Tested: 05/01/2023
 Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um %	WL %	Wp %	Ip %	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
2543266	CP02	Not Given	1.60	2.00	B	Yellowish brown GRAVEL										2.62			
2543267	CP02	Not Given	2.40	2.70	B	Yellowish brown gravelly CLAY										2.71			
2543268	CP02	Not Given	2.70	3.00	B	Brownish grey CLAY	Atterberg 4 Point	26		82	50	22	28						
2543271	CP03	Not Given	3.45	Not Given	B	Brown sandy GRAVEL		3.9											
2543274	CP05	Not Given	0.60	1.00	B	Yellowish brown clayey SAND	Atterberg 4 Point	21		83	35	17	18			2.66			
2543277	CP05	Not Given	3.50	4.00	B	Brown to grey CLAY	Atterberg 4 Point	24		95	60	25	35						
2543272	CP06	Not Given	1.70	2.00	B	Yellowish brown clayey SAND										2.66			

Note: # Non accredited; NP - Non plastic

Comments:

Signed:



Katarzyna Koziel
 Reporting Specialist
 for and on behalf of i2 Analytical Ltd

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4041

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2543268	CP02	Not Given	2.70	3.00	B	Brownish grey CLAY		26	Sample was quartered, oven dried at 108.8 °C			
2543271	CP03	Not Given	3.45	Not Given	B	Brown sandy GRAVEL		3.9	Sample was quartered, oven dried at 108.8 °C			
2543274	CP05	Not Given	0.60	1.00	B	Yellowish brown clayey SAND		21	Sample was quartered, oven dried at 109 °C			
2543277	CP05	Not Given	3.50	4.00	B	Brown to grey CLAY		24	Sample was quartered, oven dried at 108.8 °C			

Comments:

Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

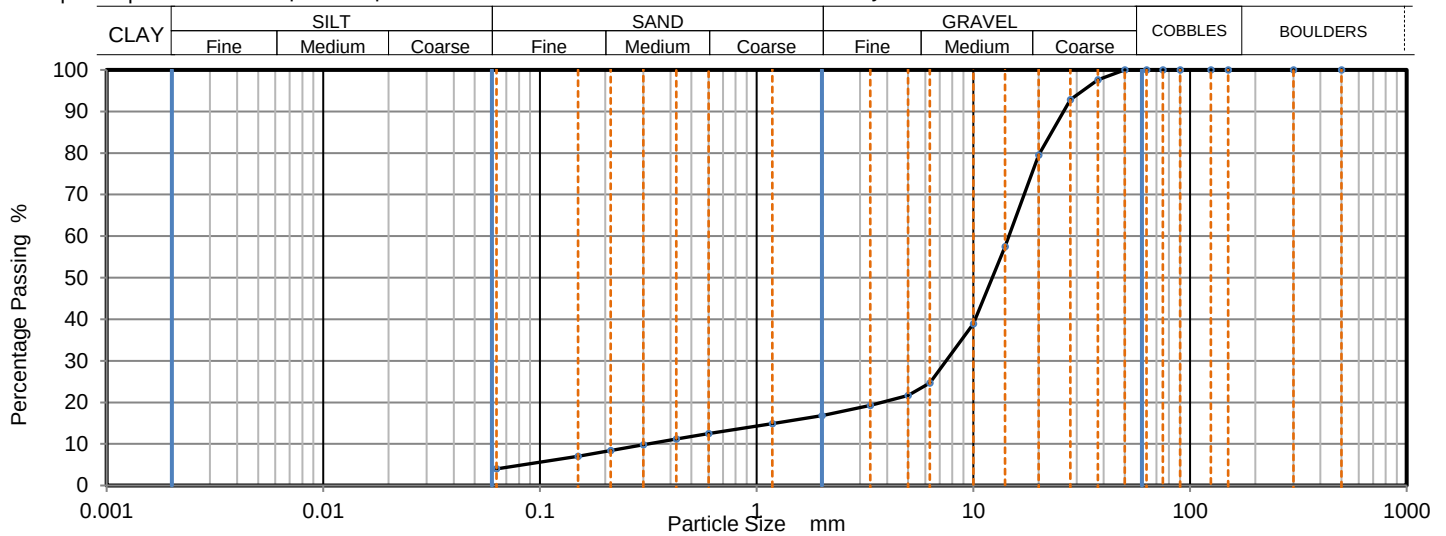
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543266
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.60
Depth Base [m]: 2.00
Sample Type: B


Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	93		
20	80		
14	58		
10	39		
6.3	25		
5	22		
3.35	19		
2	17		
1.18	15		
0.6	13		
0.425	11		
0.3	10		
0.212	8		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	83
Sand	12
Fines <0.063mm	5

Grading Analysis	
D100	mm 50
D60	mm 14.6
D30	mm 7.48
D10	mm 0.317
Uniformity Coefficient	46
Curvature Coefficient	12

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:


Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

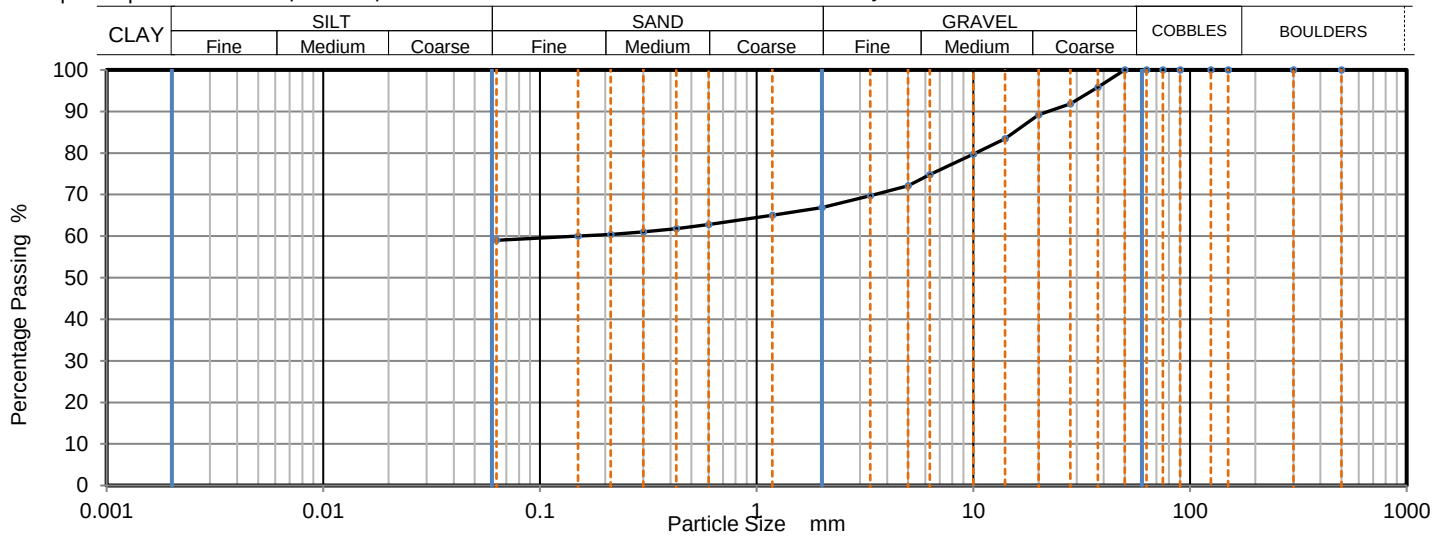
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543267
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Yellowish brown gravelly CLAY
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.40
Depth Base [m]: 2.70
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	92		
20	89		
14	83		
10	80		
6.3	75		
5	72		
3.35	70		
2	67		
1.18	65		
0.6	63		
0.425	62		
0.3	61		
0.212	60		
0.15	60		
0.063	59		

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	8
Fines <0.063mm	59

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 2.5
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

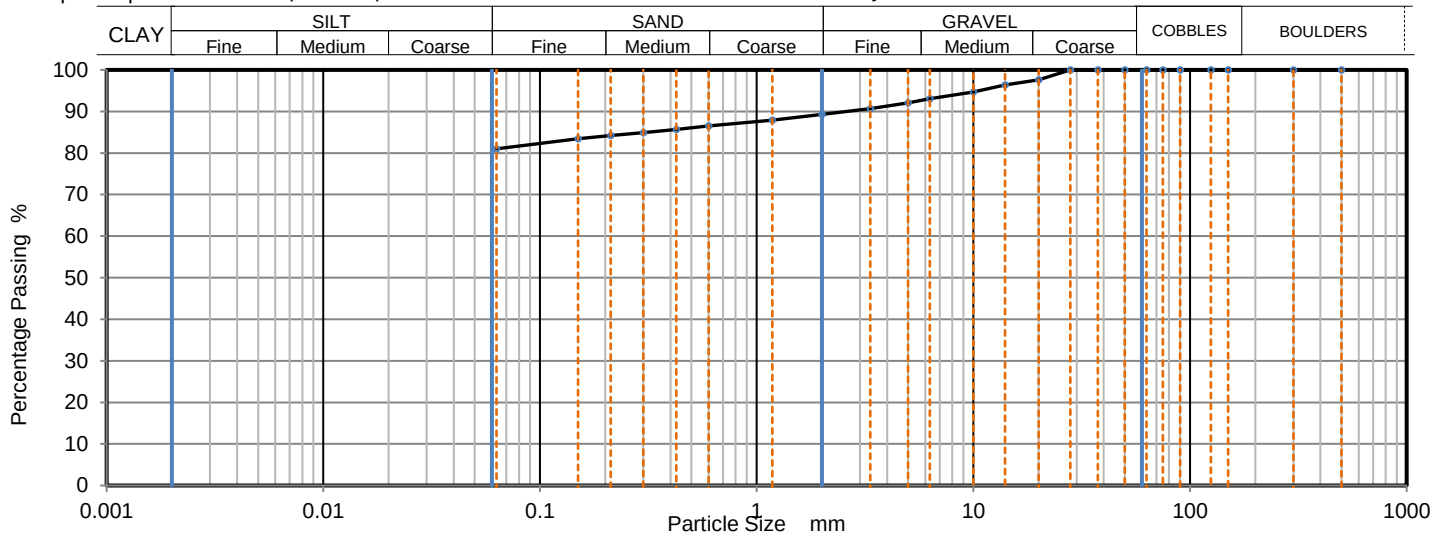
Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543268
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Brownish grey CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 2.70
Depth Base [m]: 3.00
Sample Type: B


Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	96		
10	95		
6.3	93		
5	92		
3.35	91		
2	89		
1.18	88		
0.6	87		
0.425	86		
0.3	85		
0.212	84		
0.15	83		
0.063	82		

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	8
Fines <0.063mm	82

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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Contact: Julian Fowler
Site Address: Lodge Road, Hurst

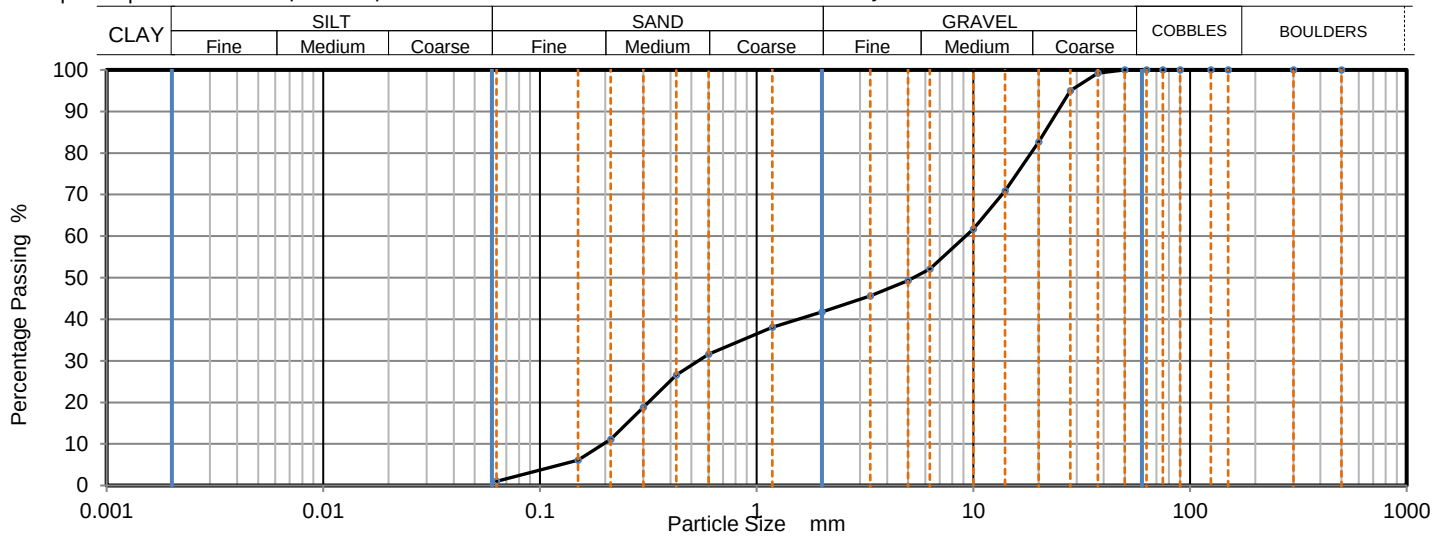
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543269
Hole No.: CP03
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.20
Depth Base [m]: 1.80
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	99		
28	95		
20	83		
14	71		
10	62		
6.3	52		
5	49		
3.35	46		
2	42		
1.18	38		
0.6	32		
0.425	27		
0.3	19		
0.212	11		
0.15	6		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0
Gravel	58
Sand	40
Fines <0.063mm	2

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

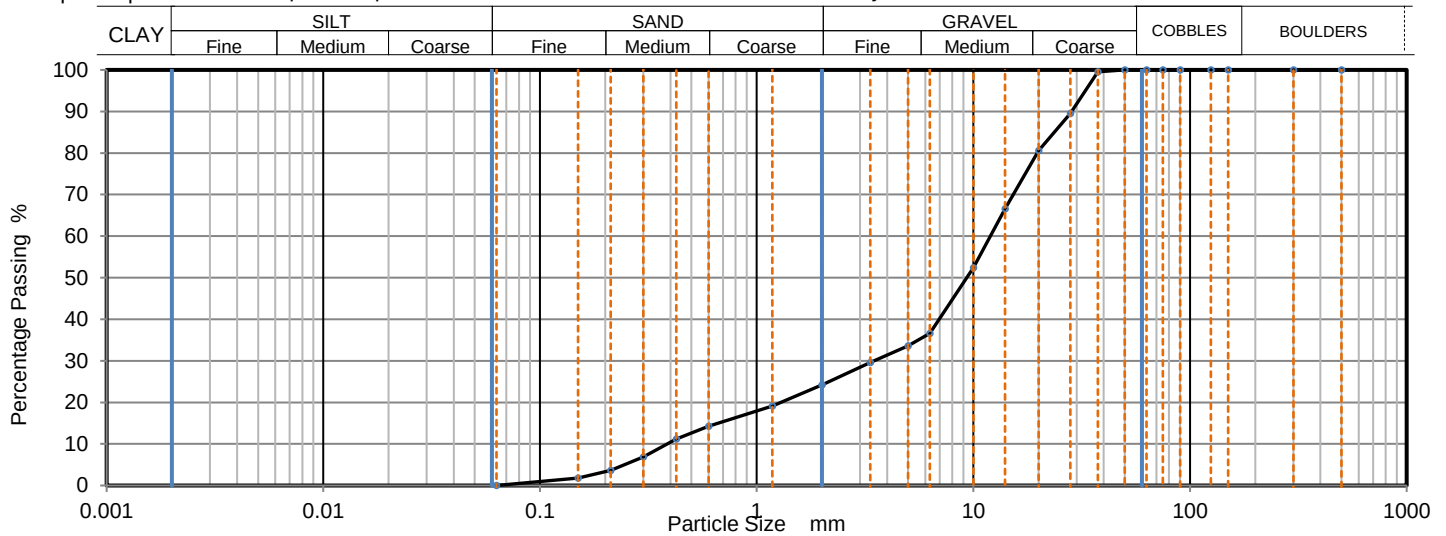
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543270
Hole No.: CP03
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 2.30
Depth Base [m]: 2.80
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	81		
14	67		
10	52		
6.3	37		
5	34		
3.35	30		
2	24		
1.18	19		
0.6	14		
0.425	11		
0.3	7		
0.212	4		
0.15	2		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0
Gravel	76
Sand	24
Fines <0.063mm	1

Grading Analysis	
D100	mm 50
D60	mm 12
D30	mm 3.49
D10	mm 0.385
Uniformity Coefficient	31
Curvature Coefficient	2.6

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

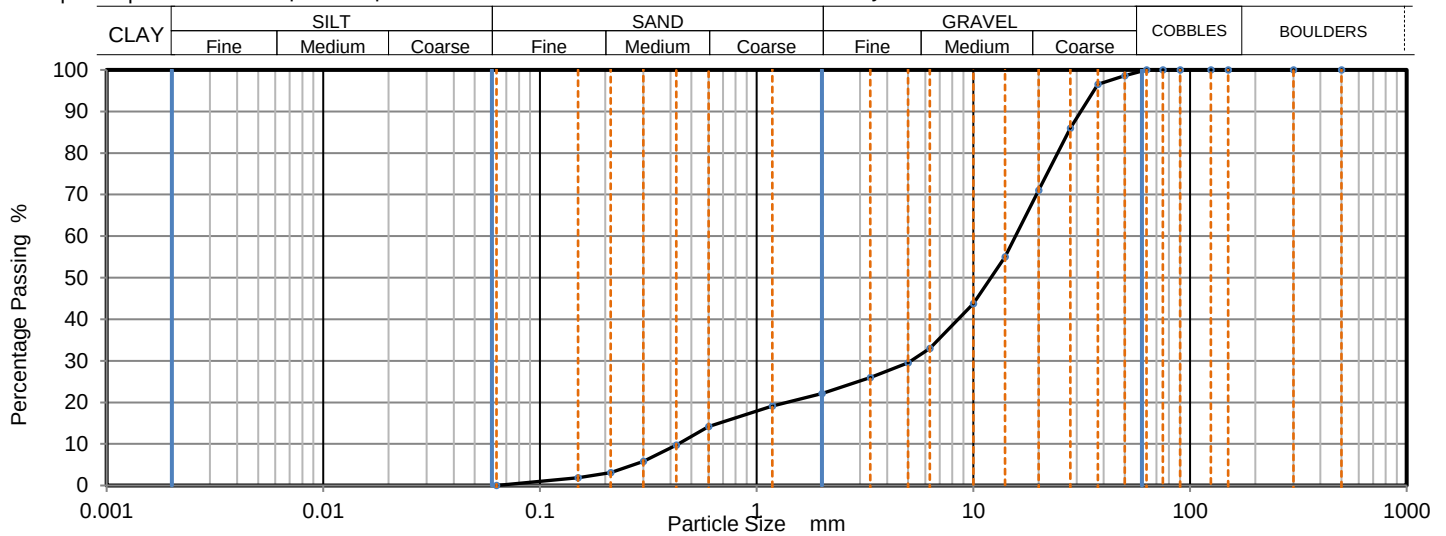
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543271
Hole No.: CP03
Sample Reference: Not Given
Sample Description: Brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 3.45
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	99		
37.5	97		
28	86		
20	71		
14	55		
10	44		
6.3	33		
5	30		
3.35	26		
2	22		
1.18	19		
0.6	14		
0.425	10		
0.3	6		
0.212	3		
0.15	2		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0
Gravel	78
Sand	21
Fines <0.063mm	1

Grading Analysis		
D100	mm	63
D60	mm	15.6
D30	mm	5.15
D10	mm	0.436
Uniformity Coefficient		36
Curvature Coefficient		3.9

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
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Contact: Julian Fowler
Site Address: Lodge Road, Hurst

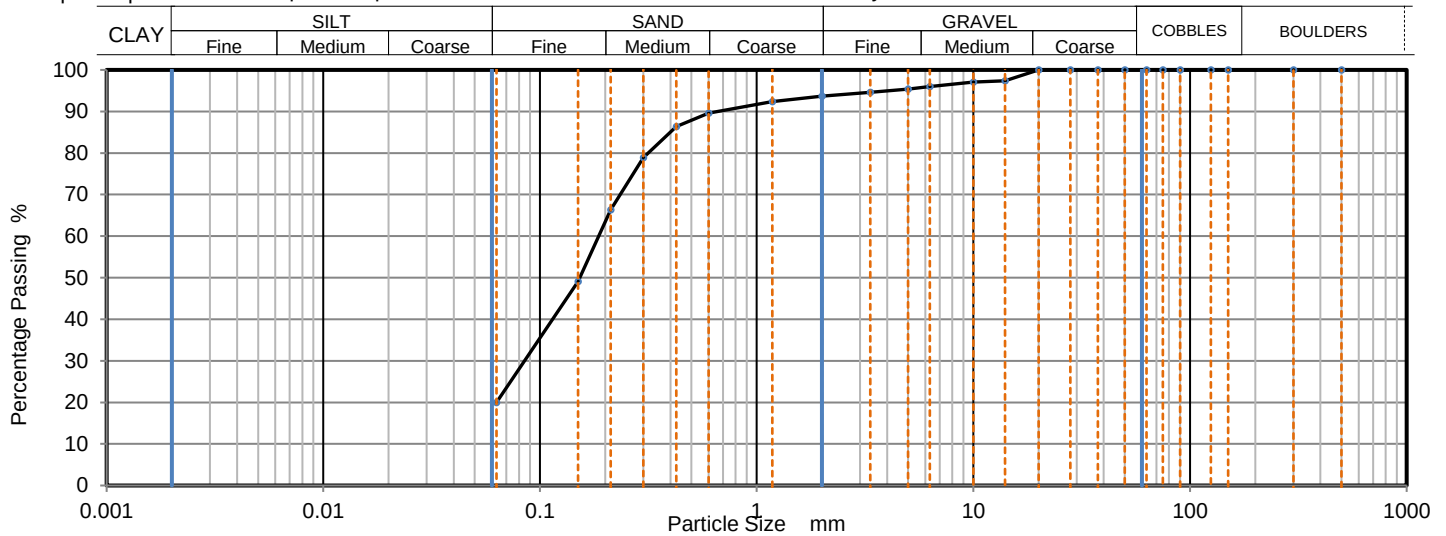
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543272
Hole No.: CP06
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.70
Depth Base [m]: 2.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	97		
6.3	96		
5	95		
3.35	95		
2	94		
1.18	92		
0.6	90		
0.425	86		
0.3	79		
0.212	66		
0.15	49		
0.063	20		

Sample Proportions	% dry mass
Very coarse	0
Gravel	6
Sand	73
Fines <0.063mm	20

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 3
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

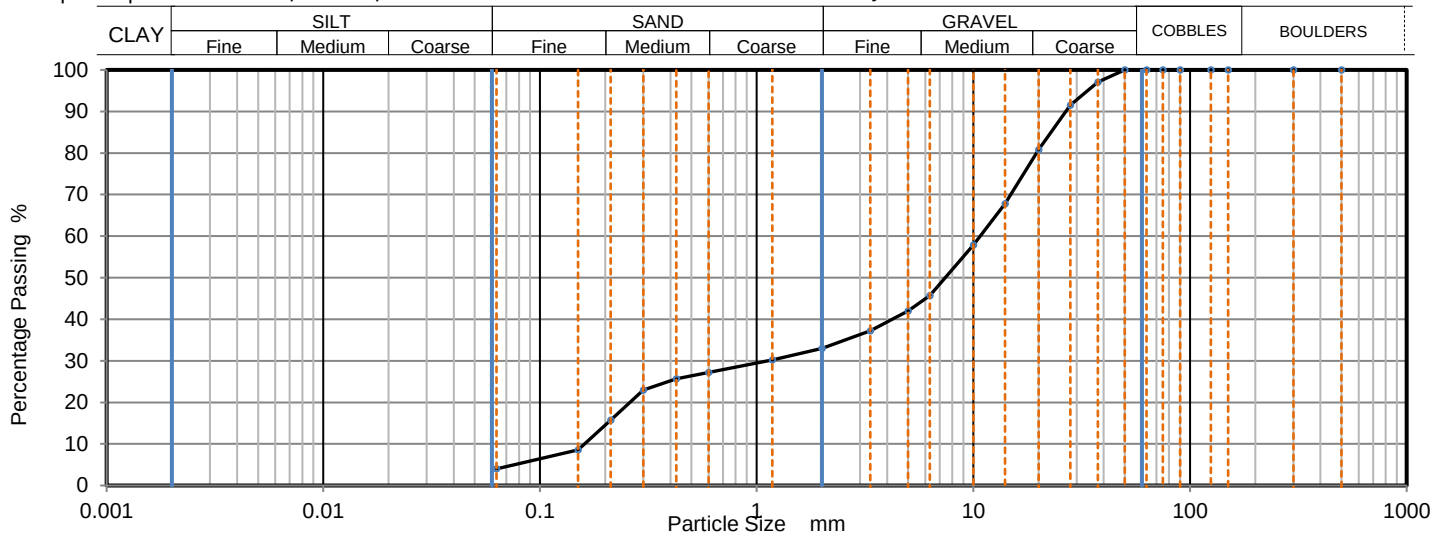
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543273
Hole No.: CP06
Sample Reference: Not Given
Sample Description: Yellowish brown sandy GRAVEL
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: 3.30
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	92		
20	81		
14	68		
10	58		
6.3	46		
5	42		
3.35	37		
2	33		
1.18	30		
0.6	27		
0.425	26		
0.3	23		
0.212	16		
0.15	9		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	67
Sand	28
Fines <0.063mm	5

Grading Analysis		
D100	mm	50
D60	mm	10.7
D30	mm	1.13
D10	mm	0.161
Uniformity Coefficient		67
Curvature Coefficient		0.75

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Site Address: Lodge Road, Hurst

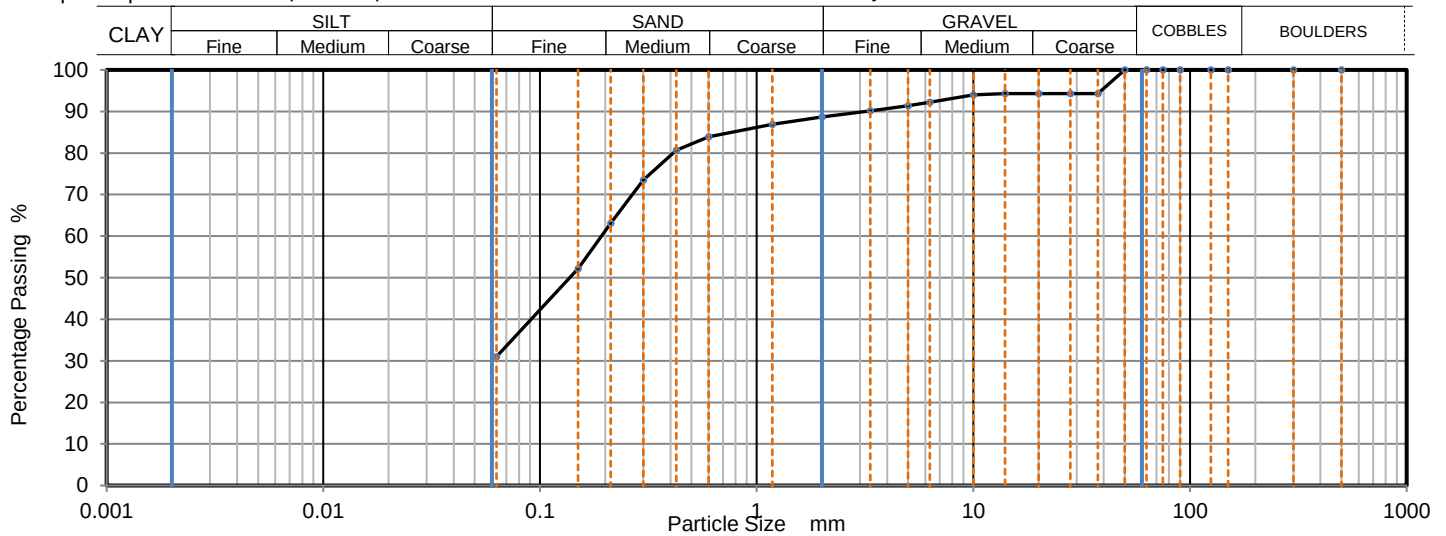
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543274
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 0.60
Depth Base [m]: 1.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	94		
20	94		
14	94		
10	94		
6.3	92		
5	91		
3.35	90		
2	89		
1.18	87		
0.6	84		
0.425	81		
0.3	74		
0.212	63		
0.15	52		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	57
Fines <0.063mm	32

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 3
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

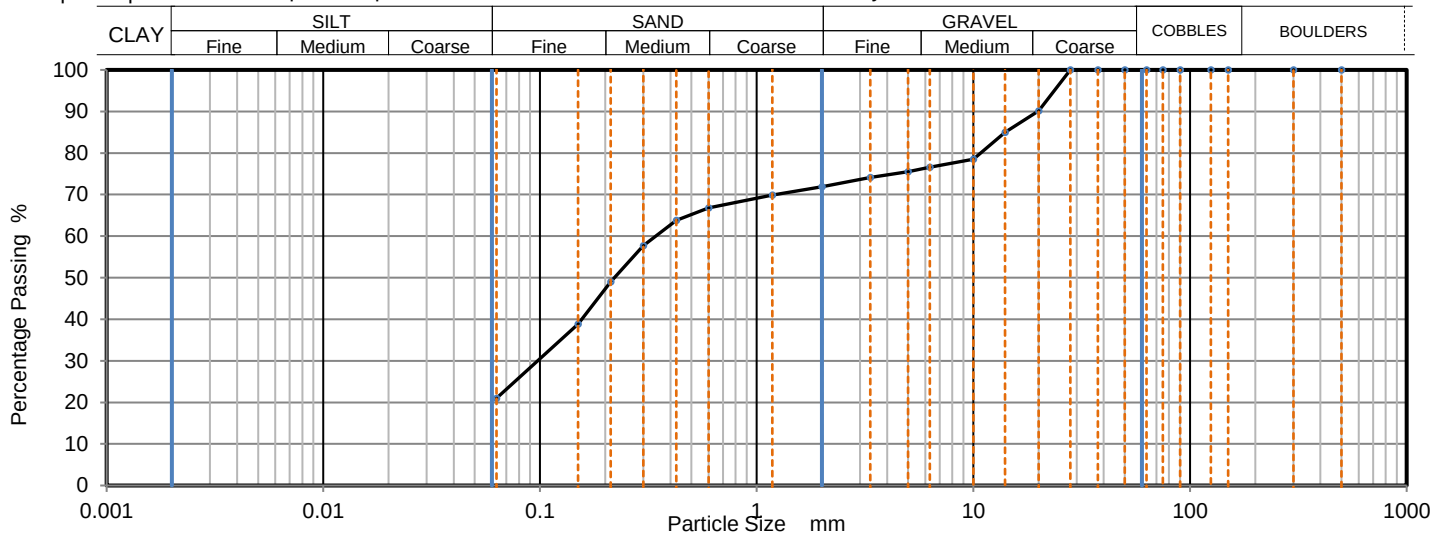
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 06/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543275
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Brown gravelly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 1.20
Depth Base [m]: 1.65
Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	90		
14	85		
10	79		
6.3	77		
5	76		
3.35	74		
2	72		
1.18	70		
0.6	67		
0.425	64		
0.3	58		
0.212	49		
0.15	39		
0.063	22		

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	50
Fines <0.063mm	22

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 5.4
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

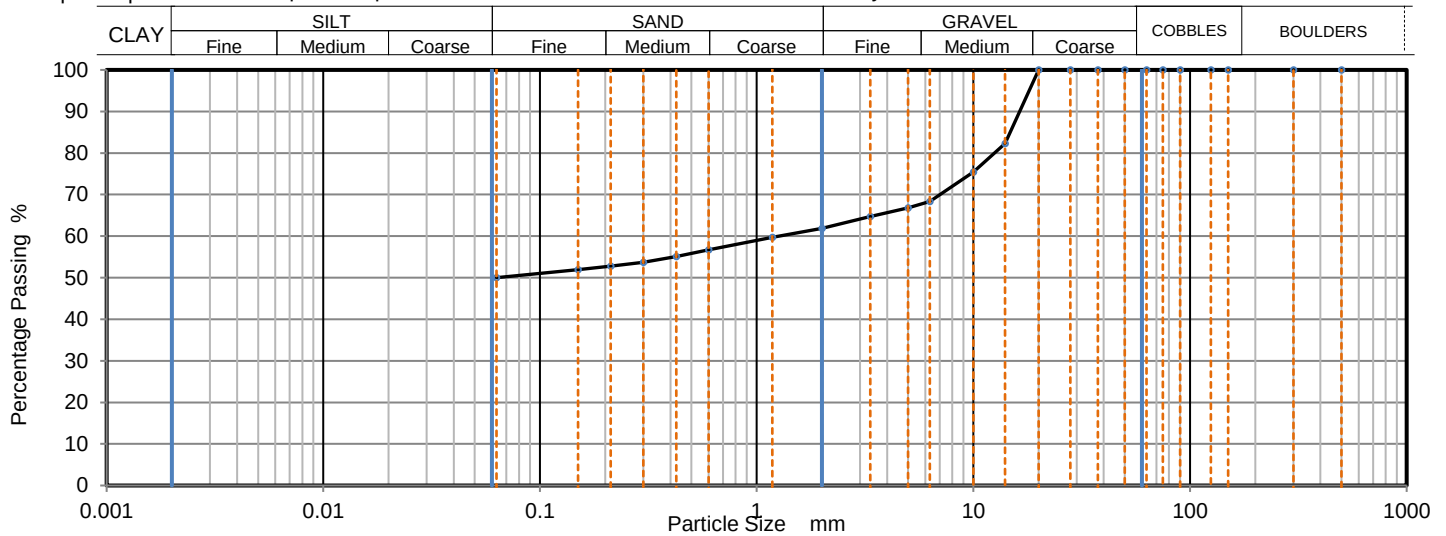
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 06/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543276
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Brownish grey gravelly CLAY
Sample Preparation: Sample was quartered, oven dried at 108.9 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 2.45
Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	82		
10	75		
6.3	68		
5	67		
3.35	65		
2	62		
1.18	60		
0.6	57		
0.425	55		
0.3	54		
0.212	53		
0.15	52		
0.063	51		

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	11
Fines <0.063mm	51

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 20
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

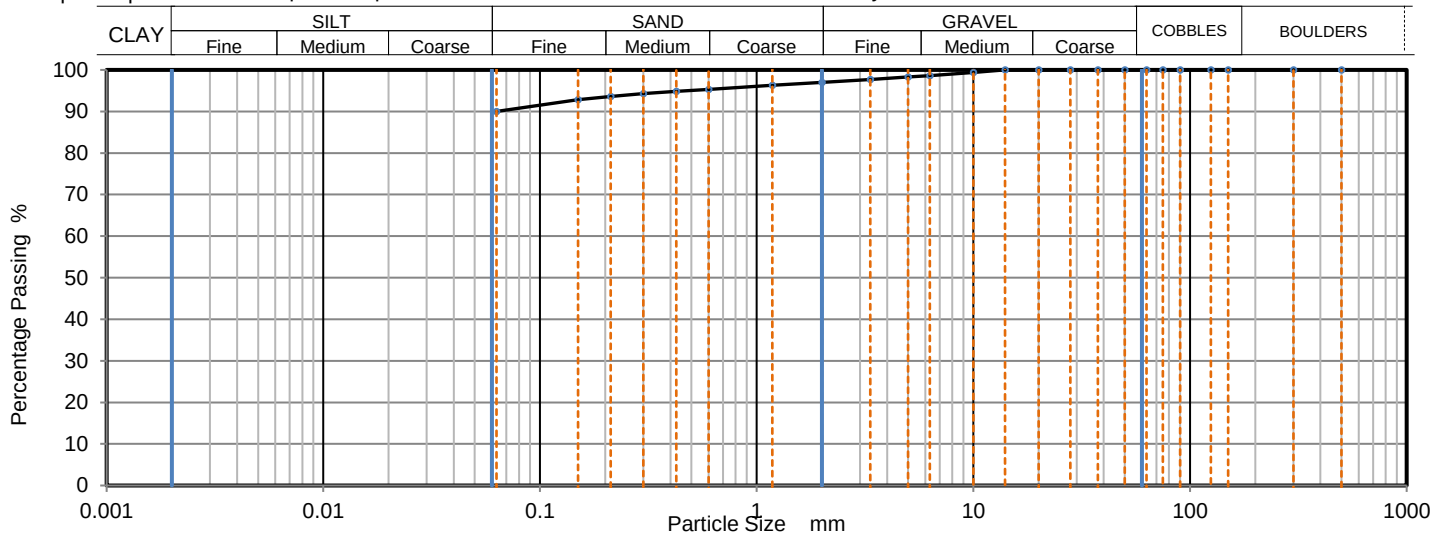
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 05/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543277
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Brown to grey CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 3.50
Depth Base [m]: 4.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	99		
5	98		
3.35	98		
2	97		
1.18	96		
0.6	95		
0.425	95		
0.3	94		
0.212	94		
0.15	93		
0.063	91		

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	6
Fines <0.063mm	91

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:



Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING 4.5 KG RAMMER

Tested in Accordance with: BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

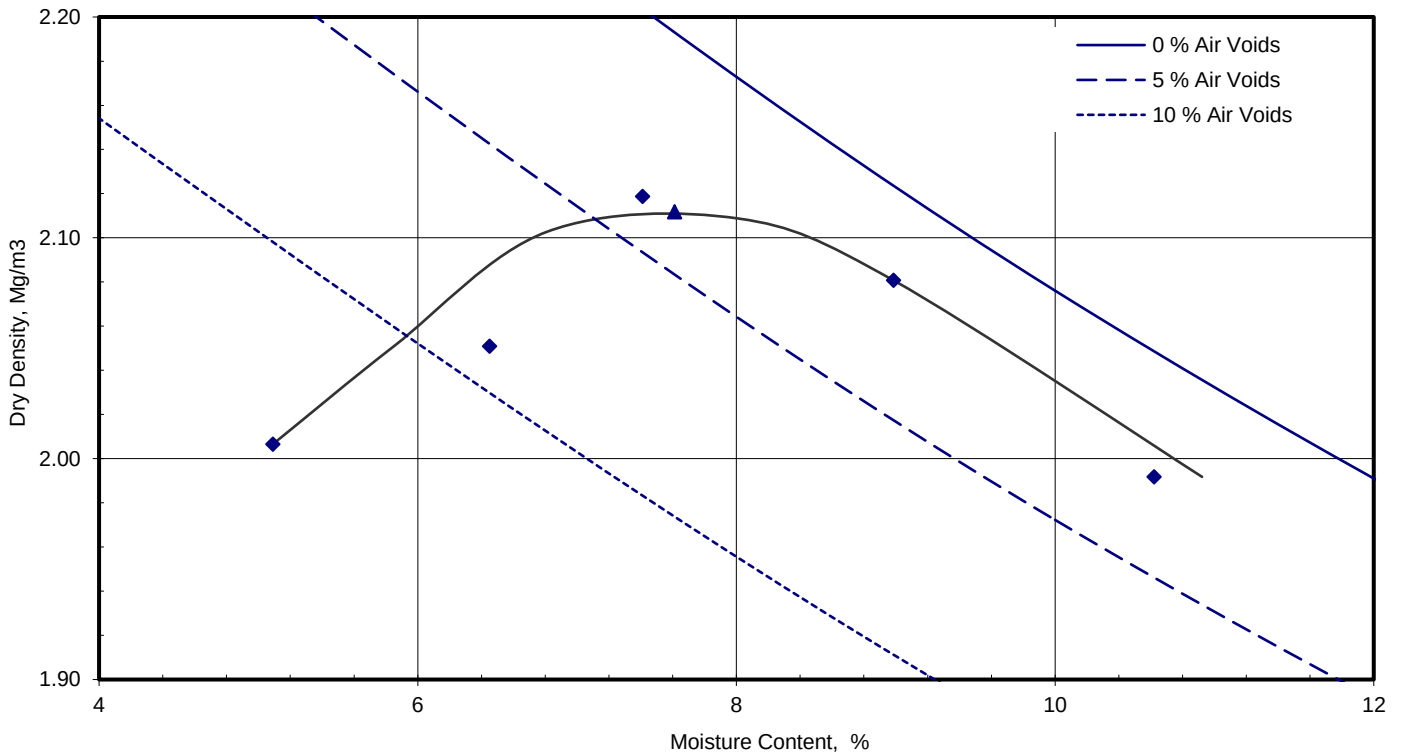
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 09/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543266
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Yellowish brown GRAVEL
Sample Preparation: Sample was quartered and broken down by hand. Material used was natural.

Depth Top [m]: 1.60
Depth Base [m]: 2.00
Sample Type: B



Compaction Point No.	1	2	3	4	5
Moisture Content %	5.1	6.5	7.4	9.0	11
Dry Density Mg/m³	2.01	2.05	2.12	2.08	1.99

Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	3
Material Retained on 20.0 mm Sieve	%	22
Particle Density - Measured using gas jar	Mg/m³	2.62
As received Moisture Content	%	6.2
Maximum Dry Density	Mg/m³	2.11

Optimum Moisture Content	%	7.6
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Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.5 using 4.5kg [heavy] Rammer

Remarks: Insufficient amount of material - compacted in 1 litre mould

Signed:

Katarzyna Koziel
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 10/01/2023
Sampled By: Client - J Fowler

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2543268
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

Depth Top [m]: 2.70
Depth Base [m]: 3.00
Sample Type: B

Preparation Details Sample carried out on lump

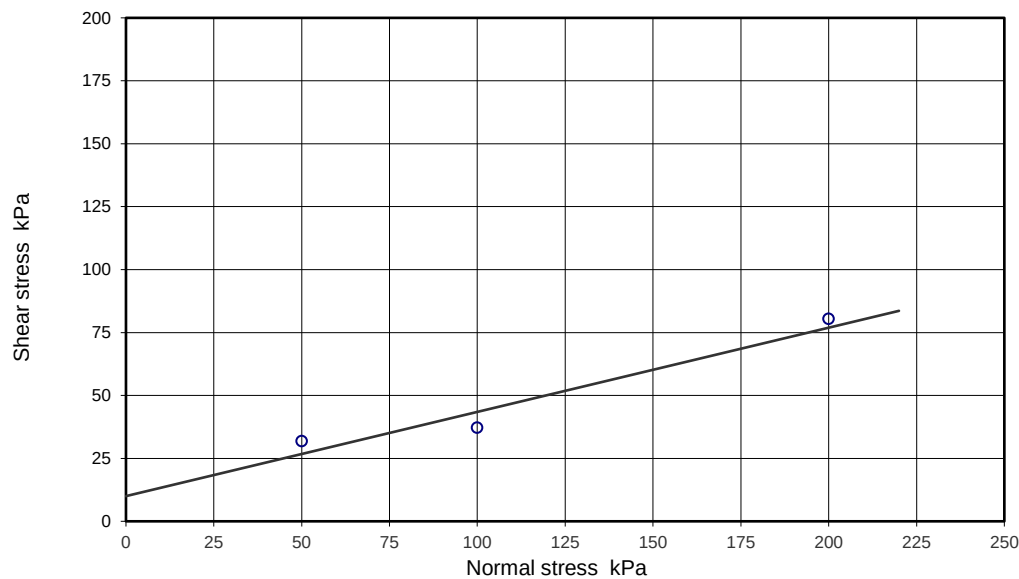
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.1	20.1	20.1			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	1.92	1.92	1.92			Mg/m ³
	Moisture Content	23.0	23.0	23.0			%
	Dry density	1.56	1.56	1.56			Mg/m ³
	Voids ratio	0.699	0.699	0.699			
	Degree of Saturation	87	87	87			%
Consolidation	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	0.827	2.378	2.461			mm
	Voids ratio after consolidation	0.629	0.498	0.491			
After test	Final Moisture content	29.4	27.0	25.9			%

Shearing stage(s)

Rate of displacement	Peak	0.01697	0.01697	0.01697			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	1.99	3.61	1.69			mm
	Shear stress	31.8	37.2	80.4			kPa
	Vertical Movement at peak shear stress	0.26	0.25	0.17			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 1 days

Shear Strength Parameters

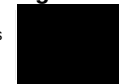
Peak strength, (o)	Regression	Manual
c'	kPa	10
Ø'	degrees	18.5

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:



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Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

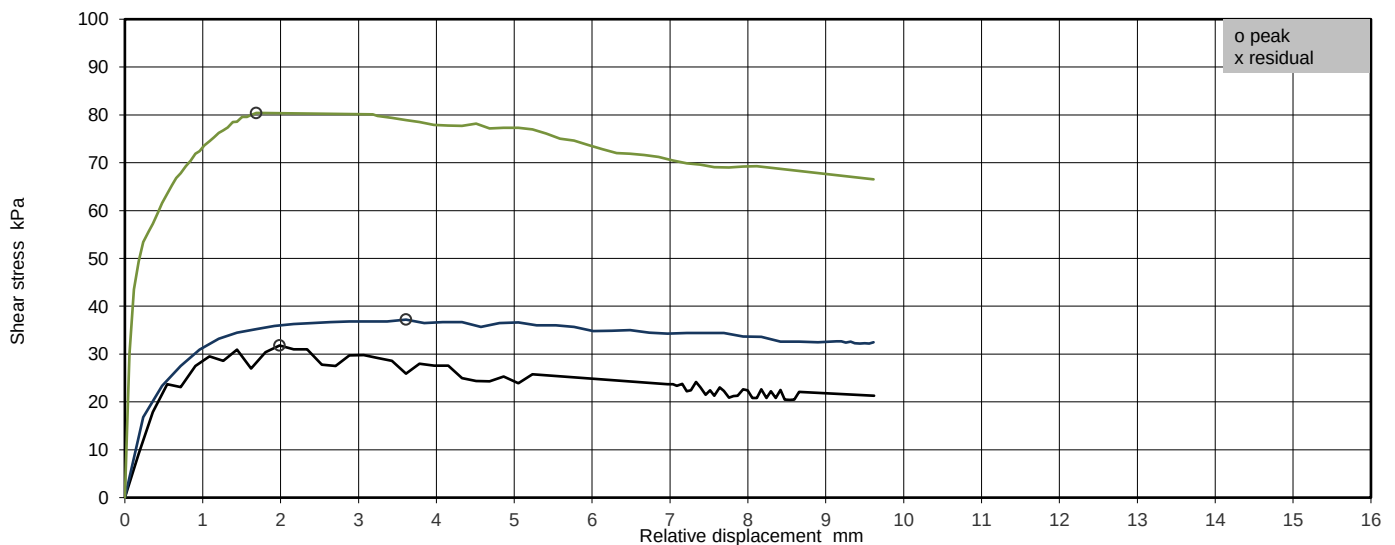
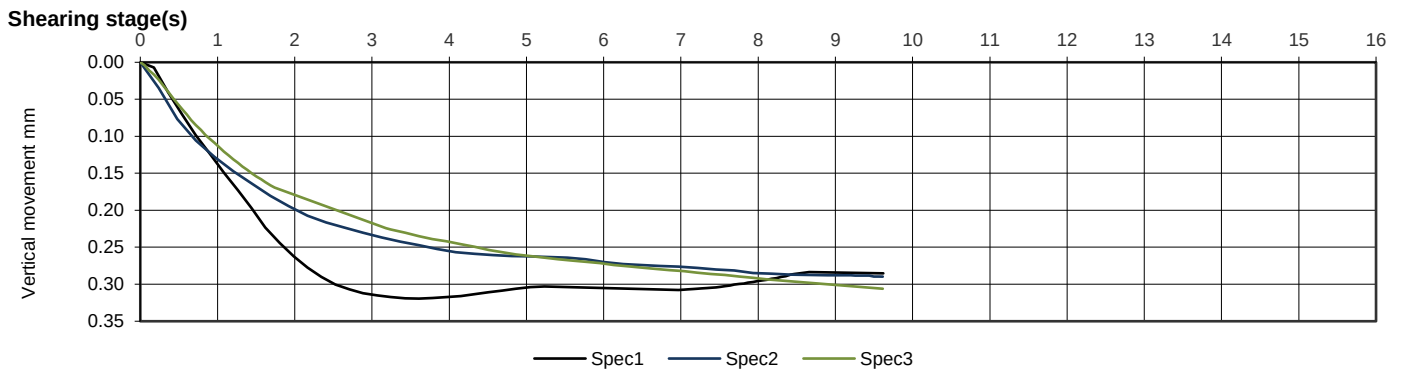
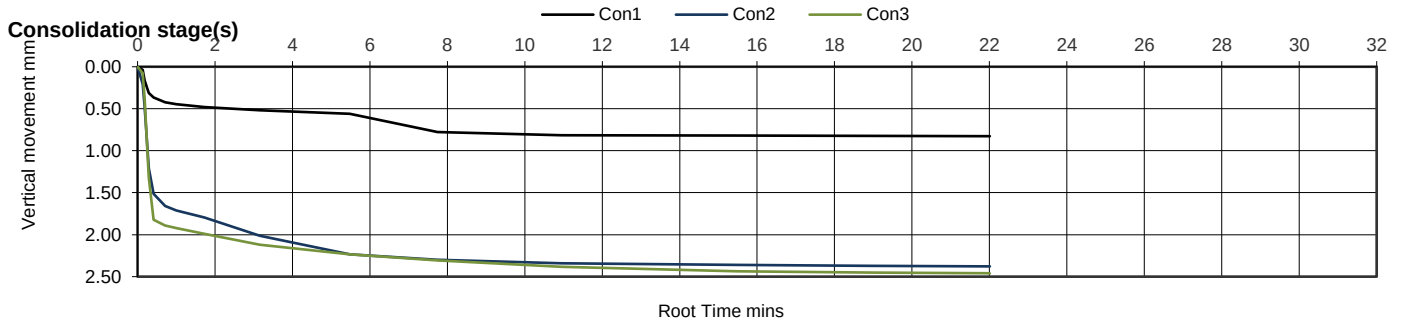
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 10/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543268
Hole No.: CP02
Sample Reference: Not Given
Sample Description: Brownish grey CLAY

Depth Top [m]: 2.70
Depth Base [m]: 3.00
Sample Type: B



Remarks:

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 10/01/2023
Sampled By: Client - J Fowler

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2543274
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND

Depth Top [m]: 0.60
Depth Base [m]: 1.00
Sample Type: B

Preparation Details Sample carried out on lump

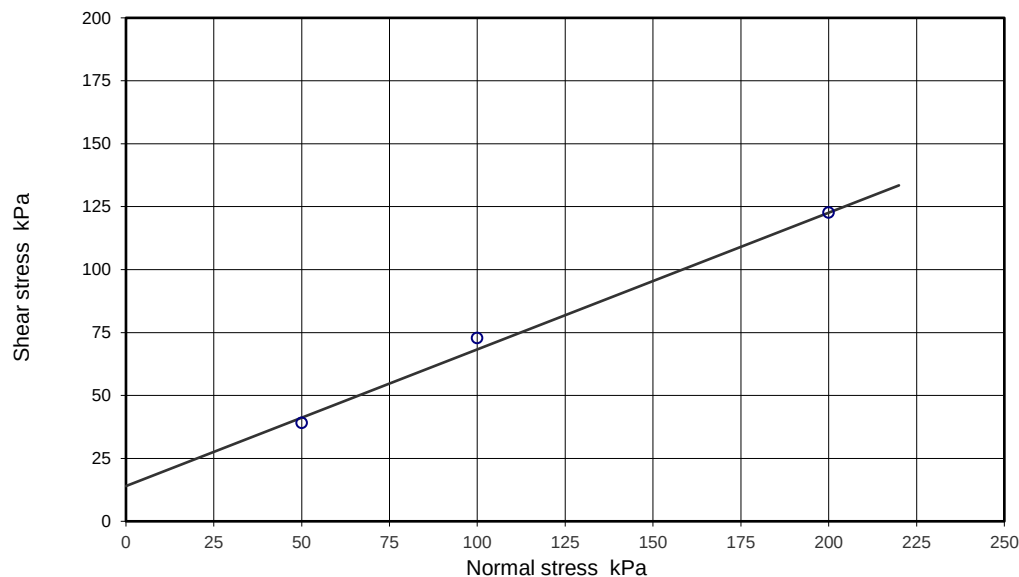
Specimen Details

Test No.

		1	2	3			
Initial	Height	20.0	20.0	20.0			mm
	Length	60.1	60.1	60.1			mm
	Breadth	60.1	60.1	60.1			mm
	Particle Density - (assumed)	2.65	2.65	2.65			Mg/m ³
	Bulk Density	2.08	2.08	2.08			Mg/m ³
	Moisture Content	17.5	17.5	17.5			%
	Dry density	1.77	1.77	1.77			Mg/m ³
	Voids ratio	0.497	0.497	0.497			
	Degree of Saturation	93	93	93			%
Consolidation	Consolidation / Normal Stress applied	50	100	200			kPa
	Change in height during consolidation	1.229	1.899	2.787			mm
	Voids ratio after consolidation	0.405	0.411	0.342			
After test	Final Moisture content	20.2	18.5	17.0			%

Shearing stage(s)

Rate of displacement	Peak	0.01884	0.01884	0.01884			mm/min
	Residual						mm/min
Peak values, (o)	Relative horizontal displacement	8.48	8.48	8.12			mm
	Shear stress	39.1	72.8	122.6			kPa
	Vertical Movement at peak shear stress	0.27	0.41	0.41			mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1			
	Relative horizontal displacement						mm
	Shear stress						kPa
	Vertical movement at residual shear stress						mm



Total test time 1 days

Shear Strength Parameters

Peak strength, (o)	Regression	Manual
c'	kPa	14
Ø'	degrees	28.5

Residual strength, (x)

c'R	kPa	not assessed	-
Ø'R	degrees	not assessed	-

Remarks:

Signed:

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Reporting Specialist
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH BY DIRECT SHEAR (SMALL SHEARBOX APPARATUS)

Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

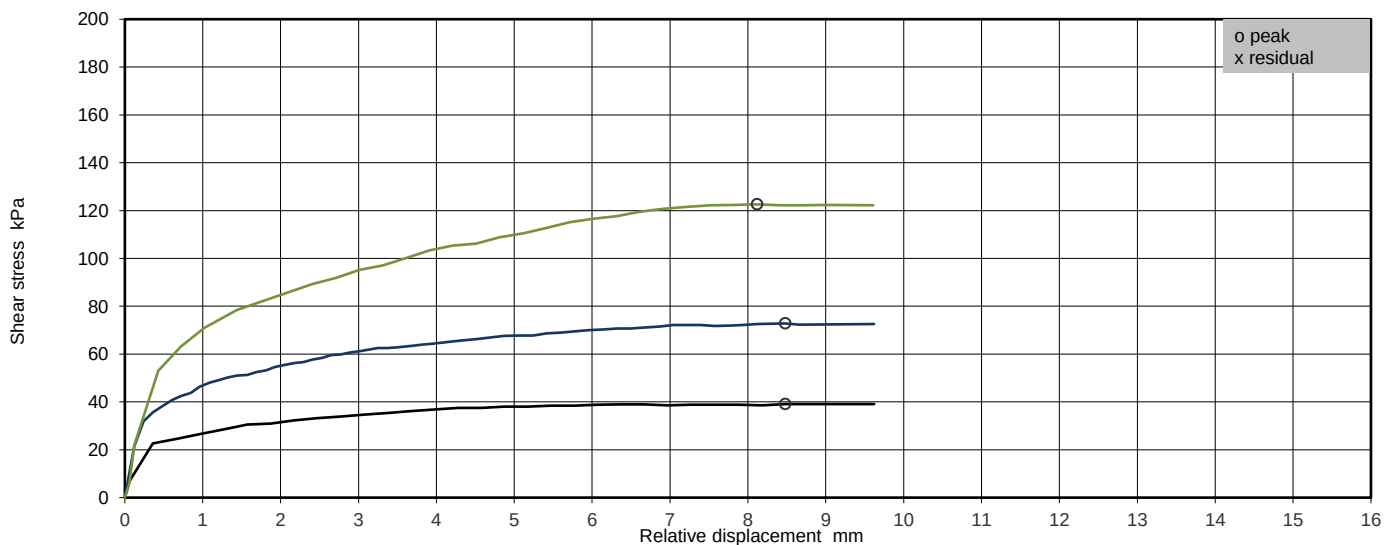
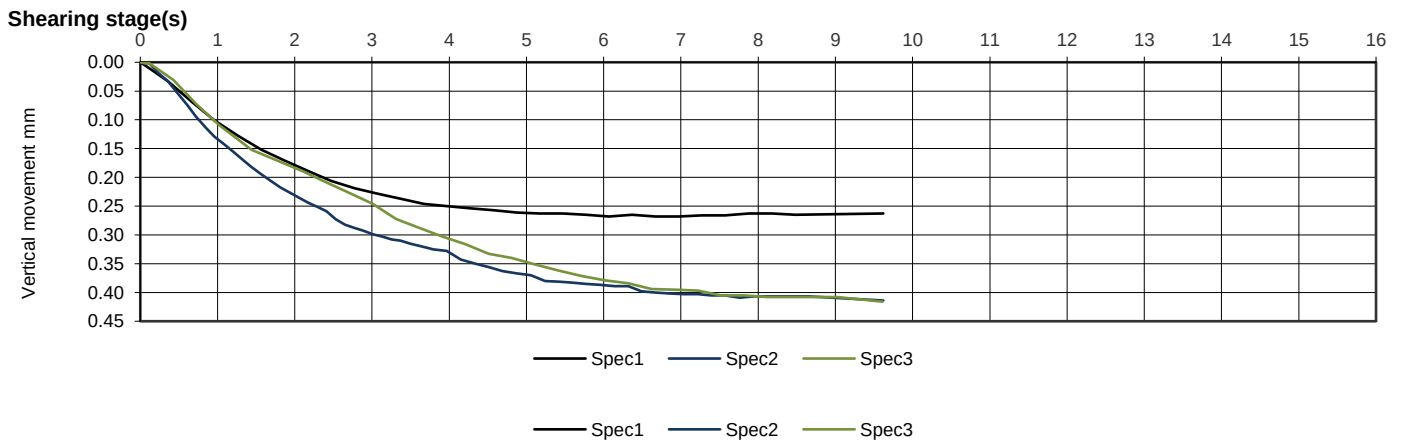
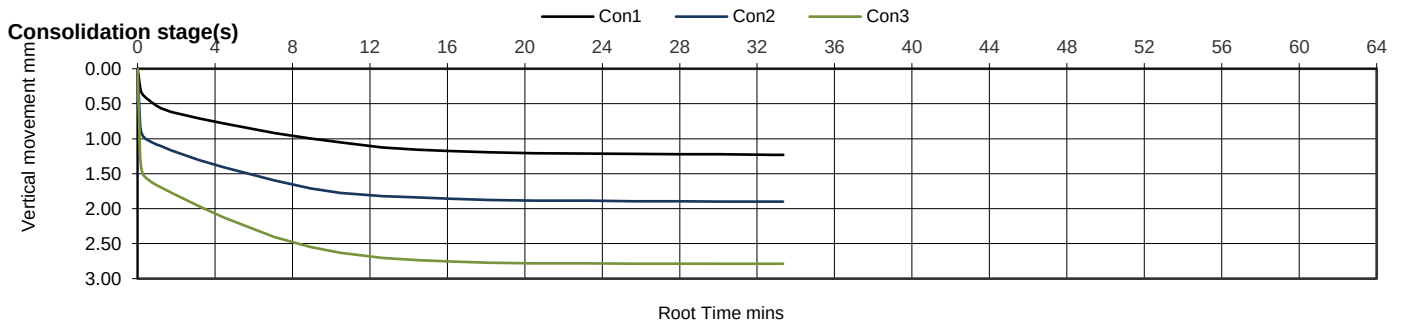
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: 26519
Job Number: 22-14844
Date Sampled: 08/12/2022
Date Received: 16/12/2022
Date Tested: 10/01/2023
Sampled By: Client - J Fowler

Test Results:

Laboratory Reference: 2543274
Hole No.: CP05
Sample Reference: Not Given
Sample Description: Yellowish brown clayey SAND

Depth Top [m]: 0.60
Depth Base [m]: 1.00
Sample Type: B



Remarks:

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Appendix F Site monitoring data

Site: Lodge Road, Hurst Job number: 26519 Client:								Notes on site conditions:					Gas analyser: Equipment check OK: Service in date: Calibration check OK: Name of person monitoring:				GFM436									
								20.12.22 Wet ground conditions, sunny mild day									Y									
								11.1.23 Wet conditions, occasional rain, lots of water on surface									Y									
								18.1.23 Icy conditions, site iced over									Y									
Notes: LEL = lower explosive limit = 5%v/v. Where the flow is less than the limit of detection of the instrument, the detection limit is reported. GSVs are rounded to 3 places.								27.1.23 Dry mild conditions, wet underfoot					BJ													
								1.2.23 Dry mild conditions, wet underfoot					A HIRE DIP METER WAS USED TO MEASURE BELOW 35m													
								13.2.23 Sunny mild conditions																		
Monitoring round		Borehole details						Pressure and flow				Gas concentrations										GSV		Local conditions		
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Volume of headspace in BH (well pipe & filter pack) (m³)	Atmospheric pressure (hPa)	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Gas flow* (l/hr)	Gas flow* (absolute value) (l/hr)	CH ₄ (%v/v)	CH ₄ (%LEL)		CO ₂ (%v/v)		O ₂ (%v/v)		Other Gases		Gas Screening Value (CH ₄) (l/hr)	Gas Screening Value (CO ₂) (l/hr)	Notes on condition of borehole and surrounding ground		
														Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady				CO	H ₂ S
								Max. individual values:			111.1		0.0		0.0		3.3		20.0			#VALUE!	#VALUE!	Summary statistics for this monitoring period.		
								Min. individual values:			-3.4		0.0		0.0		0.2		6.0			#VALUE!	#VALUE!			
								Worst-case GSVs based on max. individual flow and max. individual conc. over the duration of this table:																	0	3.6663
20.12.22	10*55	cp01		8.72	1.00			1005		0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.3	20.3	17.6	0	0			Did not wait long enough for flow to stabilise, only 1min during this monitoring round	
	11*04	ws01		1.64	1.05			1005		0.00	0.00		0.0	0.0	0.0	0.0	0.1	1.0	20.2	18.9	0	0				
	11*13	cp02		1.6	0.66			1004		0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.2	20.3	19.9	10	0				
	11*22	ws02		1.81	0.49			1004		0.00	0.00	71.50	0.0	0.0	0.0	0.0	0.0	0.7	20.3	18.9	0	0				
	11*32	cp05		3.06	0.67			1004		191.00	17.90	97.90	0.0	0.0	0.0	0.0	0.1	2.4	20.2	16.5	19	0			v high pressure, hissing noise after opening tap	
	11*44	cp09		3.64	0.20			1004		0.00	0.00		0.0	0.0	0.0	0.0	0.0	0.7	20.3	16.4	15	0				
	11*57	ws06		3.61	0.20			1004		0.00	0.00	104.20	0.0	0.0	0.0	0.0	0.0	0.7	20.2	18.0	38	0			v high pressure, hissing noise after opening tap	
	12*10	ws07		1.87	0.53			1004		0.00	0.00	28.60	0.0	0.0	0.0	0.0	0.0	0.8	20.3	19.1	0	0				
	12..21	cp08		3.14	0.55			1004		27.00	4.10	47.40	0.0	0.0	0.0	0.0	0.1	1.2	20.3	19.1	13	0				
	12*31	cp10		5.2	0.74			1003		0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.1	0.4	20.2	19.8	0	0				
	12*38	ws08		1.71	0.77			1003		0.00	0.00		0.0	0.0	0.0	0.0	0.2	0.9	20.1	18.8	0	0				
	12*53	cp06		2.98	0.41			1003		0.00	0.00	3.90	0.0	0.0	0.0	0.0	0.1	0.6	20.2	19.6	0	0			tap open	
	13*08	cp03		3.08	1.33			1003		0.00	0.00	6.90	0.0	0.0	0.0	0.0	0.2	1.5	20.3	18.2	0	0			tap open	
	13*20	ws03		1.92	1.03			1003		0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.6	20.2	19.5	0	0				
	13*30	ws04		3.54	0.52			1003		0.00	0.00	20.70	0.0	0.0	0.0	0.0	0.1	0.6	20.2	19.0	0	0				
11.1.23	12 10	cp01		8.61	0.68		0.000	1008		42.00	5.40	43.60	0.0	0.0	0.0	0.0	0.2	0.9	20.0	9.8	0	0	<0.007	0.392	Did not wait long enough for flow to stabilise, only 1min during this monitoring round	
	12:20	WS01		1.62	0.10		0.000								0.0	0.0							#VALUE!	#VALUE!	Flooded	
	12:25	CP02		2.5	0.10		0.000	1008		0.00	0.00	0.00			0.0	0.0							<0.007	<0.007	Flooded	
	12 33	WS02		1.81	0.27		0.000	1008		0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	3.3	20.1	15.2	0	0	<0.007	<0.007		
	12:42	CP05		3.16	0.61		0.000	1005		230.00	21.30	110.80	0.0	0.0	0.0	0.0	0.1	3.3	20.0	8.9	0	0	<0.007	3.656		
	12:50	WS06		3.62	0.10		0.000								0.0	0.0							#VALUE!	#VALUE!	Flooded	
	12:59	CP09		3.68	0.00		0.000								0.0	0.0							#VALUE!	#VALUE!	Flooded	
	13:10	WS07		1.87	0.42		0.000	1005		24.00	4.70	58.60	0.0	0.0	0.0	0.0	0.3	1.9	19.9	17.1	0	0	<0.007	1.113		
	13 22	CP08		3.16	0.30		0.000	1005		106.00	10.70	49.80	0.0	0.0	0.0	0.0	0.2	1.3	20.0	17.8	0	0	<0.007	0.647		
	13 33	CP10		5.6	0.59		0.000	1005		1.60	10.00	15.00	0.0	0.0	0.0	0.0	0.1	1.5	20.2	16.3	24	0	<0.007	0.225		
	13:43	WS08		1.7	0.25		0.000	1005		297.00	26.90	104.20	0.0	0.0	0.0	0.0	0.0	0.7	20.1	18.3	0	0	<0.007	0.729		
	13:50	CP06		2.89	0.00		0.000								0.0	0.0							#VALUE!	#VALUE!	Flooded	
	13 54	WS04		3.57	0.10		0.000								0.0	0.0							#VALUE!	#VALUE!	Flooded	
	14:07	WS03		1.92	0.56		0.000	1005		35.00	4.60	45.60	0.0	0.0	0.0	0.0	0.1	0.6	20.0	18.4	0	0	<0.007	0.274		
	14:15	CP03		3.05	0.59		0.000	1005		0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	1.9	20.1	16.0	0	0	<0.007	<0.007		
18.1.23	11:47	WS04		3.55	0.10		0.000								0.0	0.0							#VALUE!	#VALUE!	Flooded	
	11:53	WS03		1.9	0.30		0.000	997		0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.1	0.4	19.7	18.1	0	0	<0.007	<0.007		
	12:02	CP03		3.09	0.60		0.000	997		0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.1	2.6	19.7	14.9	0	0	<0.007	<0.007		
	12:14	CP02		2.47	0.20		0.000								0.0	0.0							#VALUE!	#VALUE!	Flooded	
	12:20	WS01		1.46	0.25		0.000								0.0	0.0							#VALUE!	#VALUE!	Flooded	
	12:29	CP01		8.58	0.62		0.000	997		0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.7	19.7	13.2	0	0	<0.007	<0.007	Bung had to be removed as it was underwater	
	12:40	WS02		3.08	0.57		0.000	997		0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.1	1.7	19.9	18.5	0	0	<0.007	<0.007		
	12:50	CP05		3.11	0.56		0.000	997		0.00	0.00	111.10	0.0	0.0	0.0	0.0	0.1	3.3	19.7	6.7	0	0	<0.007	3.666	9 mins to drop to stable (no flow)	
	12:58	WS06		3.58	0.10		0.000								0.0	0.0							#VALUE!	#VALUE!	Flooded	
	13:05	CP09		3.66	0.10		0.000								0.0	0.0							#VALUE!	#VALUE!	Flooded	
	13:13	WS07		1.66	0.31		0.000	996		0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.1	0.8	19.8	17.4	0	0	<0.007	<0.007		

Monitoring round		Borehole details						Pressure and flow				Gas concentrations										GSV		Local conditions		
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Volume of headspace in BH (well pipe & filter pack) (m³)	Atmospheric pressure (hPa)	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Gas flow* (l/hr)	Gas flow* (absolute value) (l/hr)		CH ₄ (%v/v)		CH ₄ (%LEL)		CO ₂ (%v/v)		O ₂ (%v/v)		Other Gases		Gas Screening Value (CH ₄) (l/hr)	Gas Screening Value (CO ₂) (l/hr)	Notes on condition of borehole and surrounding ground
														Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady	CO	H2S			
	13:21	CP08		3.19	0.27		0.000	997		0.00	0.00	24.90		0.0	0.0	0.0	0.0	0.1	1.4	20.0	17.8	0	0	<0.007	0.349	
	13:33	CP10		5.19	0.41		0.000	995		0.00	0.00	9.40		0.0	0.0	0.0	0.0	0.0	1.3	19.9	18.1	0	0	<0.007	0.122	
	13:47	WS08		1.68	0.10		0.000									0.0	0.0							#VALUE!	#VALUE!	Flooded
	13:52	CP06		2.91	0.10		0.000									0.0	0.0							#VALUE!	#VALUE!	Flooded
27.1.23	10 53	WS04		3.56	0.10		0.000									0.0	0.0							#VALUE!	#VALUE!	
	11:00	WS03		1.91	0.34		0.000	1028		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.0	0.4	19.7	18.1	0	0	<0.007	<0.007	
	11:08	CP03		3.08	0.58		0.000	1028		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	1.1	19.9	18.0	0	0	<0.007	<0.007	
	11:16	CP02		2.47	0.28		0.000	1028		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.3	19.9	19.5	0	0	<0.007	<0.007	
	11:25	WS01		1.65	0.25		0.000									0.0	0.0							#VALUE!	#VALUE!	
	11:30	CP01		8.57	0.80		0.000	1028		0.00	0.00	37.60		0.0	0.0	0.0	0.0	0.0	0.7	20.0	12.0	0	0	<0.007	0.263	
	11:38	WS02		1.81	0.41		0.000	1028		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	1.5	19.9	17.6	0	0	<0.007	<0.007	
	11:45	CP05		3.07	0.48		0.000	1028		0.00	0.00	104.50		0.0	0.0	0.0	0.0	0.1	2.9	20.0	7.3	0	0	<0.007	3.031	6 mins to reach stable
	11:57	WS06		3.6	0.28		0.000	1027		0.00	0.00	10.80		0.0	0.0	0.0	0.0	0.1	1.0	19.8	15.9	0	0	<0.007	0.108	
	12:04	CP09		3.65	0.10		0.000									0.0	0.0							<0.007	<0.007	
	12:09	WS07		1.84	0.49		0.000	1027		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.6	20.0	18.6	0	0	#REF!	#REF!	DP offscale in negatives, negative pk flow of -70
	12:16	CP10		5.24	0.54		0.000	1026		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.6	20.1	19.3	0	0	<0.007	<0.007	Peak negative flow of -20.6
	12:26	WS08		1.64	0.44		0.000	1026		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.3	20.2	19.2	0	0	<0.007	<0.007	DP offscale in negatives, negative pk flow of 62.2 took 3 mins to stabilise
	12:35	CP08		3.18	0.35		0.000	1026		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.7	20.1	18.0	0	0	<0.007	<0.007	
	12:48	CP06		2.91	0.10		0.000									0.0	0.0							#VALUE!	#VALUE!	
1.2.23	10:42	WS04		3.54	0.10		0.000									0.0	0.0							#VALUE!	#VALUE!	Flooded
	10:49	WS03		1.9	0.43		0.000	1023		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.0	0.3	20.0	19.7	0	0	<0.007	<0.007	
	11:00	CP03		3.09	0.60		0.000	1023		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	1.6	20.0	18.6	0	0	<0.007	<0.007	
	11:13	CP02		2.48	0.36		0.000	1022		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.0	0.3	20.1	19.7	0	0	<0.007	<0.007	
	11:22	WS01		1.45	0.30		0.000	1022		51.00	3.50	3.50		0.0	0.0	0.0	0.0	0.1	0.3	20.1	19.0	0	0	<0.007	0.011	
	11:34	CP01		8.53	0.65		0.000	1022		0.00	0.00	2.40		0.0	0.0	0.0	0.0	0.1	0.8	20.1	13.8	0	0	<0.007	0.019	
	11:44	WS02		3.08	0.54		0.000	1022		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.6	19.9	19.5	0	0	<0.007	<0.007	Peak negative flow of 42.3, <2mins to stabilise
	11:56	CP05		3.11	0.70		0.000	1022		25.00	3.60	39.80		0.0	0.0	0.0	0.0	0.2	2.4	20.0	8.0	0	0	<0.007	0.955	3 mins to stabilise
	12:10	WS06		3.57	0.46		0.000	1022		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.7	20.1	19.4	0	0	<0.007	<0.007	Peak negative flow of 54, <2mins to stabilise
	12:21	CP09		3.64	0.20		0.000									0.0	0.0							#VALUE!	#VALUE!	Water sucked up, gases not possible
	12:30	WS07		1.84	0.58		0.000	1022		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.9	20.2	19.2	0	0	<0.007	<0.007	BH has begun to collapse (see pic), Peak negative flow of 44.8, <2mins to stabilise
	12:38	CP10		5.22	0.70		0.000	1022		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.9	20.0	18.9	10	0	<0.007	<0.007	
	12:44	WS08		1.67	0.61		0.000	1022		-19.00	-3.40	-3.40		0.0	0.0	0.0	0.0	0.0	0.5	20.1	19.5	0	0	<0.007	<0.007	Peak negative flow of 54.8
	12:53	CP08		3.15	0.46		0.000	1022		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.0	0.5	20.2	19.8	0	0	<0.007	<0.007	
		CP06			0.00		0.000									0.0	0.0							#VALUE!	#VALUE!	BH has now sunk, cannot be accessed as the cover cannot be removed.
13.2.23	09:53	WS04		3,55	0.31			1033		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.0	0.9	19.9	18.0	0	0	<0.007	<0.007	
	10:26	WS03		1.89	0.59			1031		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.6	20.0	19.2	0	0	<0.007	<0.007	Negative flows, took 1 min to stabilise
	11:11	CP03		3.08	0.73			1031		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.0	0.6	20.2	19.6	0	0	<0.007	<0.007	
	11:20	CP02		2.51	0.55			1032		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.2	0.5	20.3	19.1	0	0	<0.007	<0.007	
	11:29	WS01		1.83	0.43			1032		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.3	20.3	19.4	0	0	<0.007	<0.007	Negative flows, took 4 mins to stabilise
	12:10	CP01		8.49	0.98			1030		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.2	0.4	20.3	12.3	0	0	<0.007	<0.007	
	12:21	WS02		2.5	0.70			1030		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.6	20.2	19.8	0	0	<0.007	<0.007	Negative flow, stabilised in less than a min
	12:55	CP05		3.07	0.83			1029		2.00	3.60	104.00		0.0	0.0	0.0	0.0	0.0	2.5	20.3	6.0	0	0	<0.007	2.600	DP offscale, took 7 mins to stabilise
	13:06	WS06		3.57	0.56			1029		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.2	0.9	20.1	18.7	0	0	<0.007	<0.007	Negative flows, took 2 mins to stabilise
	13:33	CP09		3.64	0.43			1029		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	0.4	20.4	20.0	0	0	<0.007	<0.007	
	13:40	WS07		1.84	0.74			1029		0.00	0.00	0.00		0.0	0.0	0.0	0.0	0.1	2.4	20.5	15.5	0	0	<0.007	<0.0	

Appendix G Contamination test results and GQRA

Contamination test results

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Analytical Report Number : 22-11832

Project / Site name:	Lodge Road Hurst	Samples received on:	06/12/2022
Your job number:	26519	Samples instructed on/ Analysis started on:	07/12/2022
Your order number:	PO22688	Analysis completed by:	14/12/2022
Report Issue Number:	1	Report issued on:	14/12/2022
Samples Analysed:	6 soil samples		

Signed:

Adam Fenwick
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

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

Analytical Report Number: 22-11832
Project / Site name: Lodge Road Hurst

Lab Sample Number				2524443	2524444	2524445	2524446	2524447
Sample Reference				TT29A	TT30B	TT18B	TT32A	TT45B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.50	0.20	0.20
Date Sampled				30/11/2022	30/11/2022	30/11/2022	30/11/2022	01/12/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	40	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	8.2	11	13	14
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2	1.2	1.2

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSO	DSO	DSO	DSO	DSO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.5	8.2	8.2	7.4	7.5
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble SO ₄ ²⁻ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.004	0.0052	0.0019	0.004	0.0044
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0082	0.005	0.003	0.013	0.015

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	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.07	< 0.05	< 0.05	< 0.05	0.05
Pyrene	mg/kg	0.05	MCERTS	0.06	< 0.05	< 0.05	< 0.05	0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.4	9.5	7.3	6.2	6.2
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.42	0.42	0.39	0.35	0.33
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.2	1.1	0.6
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	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	14	15	13	13	10
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	15	13	13	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	5	3.1	4.7	5.5	6.2
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16	8.9	8.2	20	21
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	7.3	7.6	6.5	5.9	5.4
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	27	23	21	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	20	16	16	21	21

Analytical Report Number: 22-11832
Project / Site name: Lodge Road Hurst

Lab Sample Number	2524443	2524444	2524445	2524446	2524447
Sample Reference	TT29A	TT30B	TT18B	TT32A	TT45B
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.20	0.50	0.50	0.20	0.20
Date Sampled	30/11/2022	30/11/2022	30/11/2022	30/11/2022	01/12/2022
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/kg	5	NONE	< 5.0*	< 5.0*	-	< 5.0*	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	< 5.0	-
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	-	< 5.0	-
o-xylene	µg/kg	5	NONE	< 5.0*	< 5.0*	-	< 5.0*	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 _{HS,1D,AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8 _{HS,1D,AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10 _{HS,1D,AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12 _{EH,CU,1D,AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16 _{EH,CU,1D,AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21 _{EH,CU,1D,AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	-	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35 _{EH,CU,1D,AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	-	< 8.0	-
TPH-CWG - Aliphatic >EC16 - EC35 _{EH,CU,1D,AL}	mg/kg	10	MCERTS	< 10	< 10	-	< 10	-
TPH-CWG - Aliphatic > EC35 - EC44 _{EH,CU,1D,AL}	mg/kg	8.4	NONE	< 8.4	< 8.4	-	< 8.4	-
TPH-CWG - Aliphatic (EC5 - EC35) _{EH,CU+HS,1D,AL}	mg/kg	10	NONE	< 10	< 10	-	< 10	-
TPH-CWG - Aliphatic (EC5 - EC44) _{EH,CU+HS,1D,AL}	mg/kg	10	NONE	< 10	< 10	-	< 10	-

TPH-CWG - Aromatic >EC5 - EC7 _{HS,1D,AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8 _{HS,1D,AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10 _{HS,1D,AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12 _{EH,CU,1D,AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16 _{EH,CU,1D,AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21 _{EH,CU,1D,AR}	mg/kg	10	MCERTS	< 10	< 10	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35 _{EH,CU,1D,AR}	mg/kg	10	MCERTS	< 10	< 10	-	< 10	-
TPH-CWG - Aromatic > EC35 - EC44 _{EH,CU,1D,AR}	mg/kg	8.4	NONE	< 8.4	< 8.4	-	< 8.4	-
TPH-CWG - Aromatic (EC5 - EC35) _{EH,CU+HS,1D,AR}	mg/kg	10	NONE	< 10	< 10	-	< 10	-
TPH-CWG - Aromatic (EC5 - EC44) _{EH,CU+HS,1D,AR}	mg/kg	10	NONE	< 10	< 10	-	< 10	-

TPH Total C5 - C44 _{EH,CU+HS,1D,TOTAL}	mg/kg	10	NONE	< 10	< 10	-	< 10	-
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Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	None Detected	-	-	None Detected	None Detected
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U/S = Unsuitable Sample I/S = Insufficient Sample

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

Analytical Report Number: 22-11832
Project / Site name: Lodge Road Hurst

Lab Sample Number				2524448
Sample Reference				TT46B
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				01/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.001	NONE	1.2

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.7
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Water Soluble SO ₄ ²⁻ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0051
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0041

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.3
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.5
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	4.5
Lead (aqua regia extractable)	mg/kg	1	MCERTS	7.6
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	20

Analytical Report Number: 22-11832
Project / Site name: Lodge Road Hurst

Lab Sample Number				2524448
Sample Reference				TT46B
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				01/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Monoaromatics & Oxygenates

Benzene	µg/kg	5	NONE	< 5.0*
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0
o-xylene	µg/kg	5	NONE	< 5.0*
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 _{HS, 1D, AL}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 _{HS, 1D, AL}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 _{HS, 1D, AL}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 _{EH, CU, 1D, AL}	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 _{EH, CU, 1D, AL}	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 _{EH, CU, 1D, AL}	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 _{EH, CU, 1D, AL}	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35 _{EH, CU, 1D, AL}	mg/kg	10	MCERTS	< 10
TPH-CWG - Aliphatic > EC35 - EC44 _{EH, CU, 1D, AL}	mg/kg	8.4	NONE	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) _{EH, CU+HS, 1D, AL}	mg/kg	10	NONE	< 10
TPH-CWG - Aliphatic (EC5 - EC44) _{EH, CU+HS, 1D, AL}	mg/kg	10	NONE	< 10

TPH-CWG - Aromatic >EC5 - EC7 _{HS, 1D, AR}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 _{HS, 1D, AR}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 _{HS, 1D, AR}	mg/kg	0.001	NONE	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 _{EH, CU, 1D, AR}	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH, CU, 1D, AR}	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 _{EH, CU, 1D, AR}	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC21 - EC35 _{EH, CU, 1D, AR}	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic > EC35 - EC44 _{EH, CU, 1D, AR}	mg/kg	8.4	NONE	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) _{EH, CU+HS, 1D, AR}	mg/kg	10	NONE	< 10
TPH-CWG - Aromatic (EC5 - EC44) _{EH, CU+HS, 1D, AR}	mg/kg	10	NONE	< 10

TPH Total C5 - C44 _{EH, CU+HS, 1D, TOTAL}	mg/kg	10	NONE	< 10
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Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	-
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U/S = Unsuitable Sample I/S = Insufficient Sample

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

Analytical Report Number : 22-11832

Project / Site name: Lodge Road Hurst

* 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 *
2524443	TT29A	None Supplied	0.2	Brown clay and sand with vegetation.
2524444	TT30B	None Supplied	0.5	Brown clay and sand with vegetation and stones.
2524445	TT18B	None Supplied	0.5	Brown sandy clay with gravel.
2524446	TT32A	None Supplied	0.2	Brown sandy loam with gravel and vegetation.
2524447	TT45B	None Supplied	0.2	Brown loam and clay with gravel and vegetation.
2524448	TT46B	None Supplied	0.5	Brown clay and sand with gravel and vegetation.

Analytical Report Number : 22-11832
Project / Site name: Lodge Road Hurst

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
GC Pesticide Screen (TIC)	Analysis of unknown pesticides by GCMS	GC Pesticide Screen (TIC)	L064B	D	NONE
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method	L009	D	MCERTS

Analytical Report Number : 22-11832
Project / Site name: Lodge Road Hurst

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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

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).

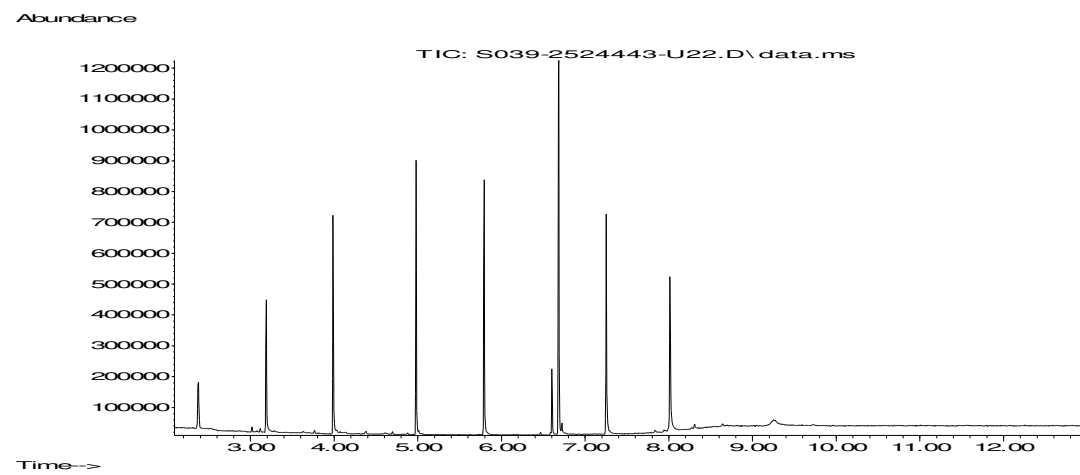
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

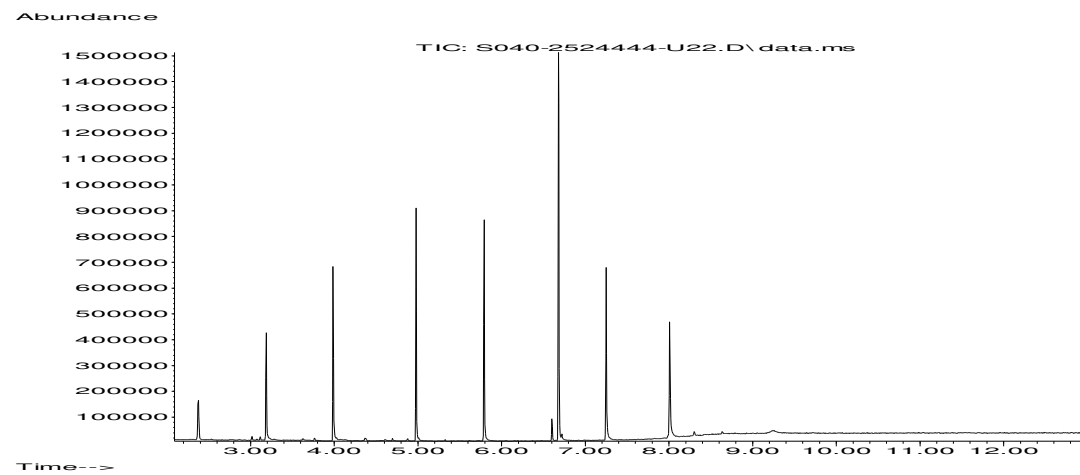
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC Unless otherwise indicated,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

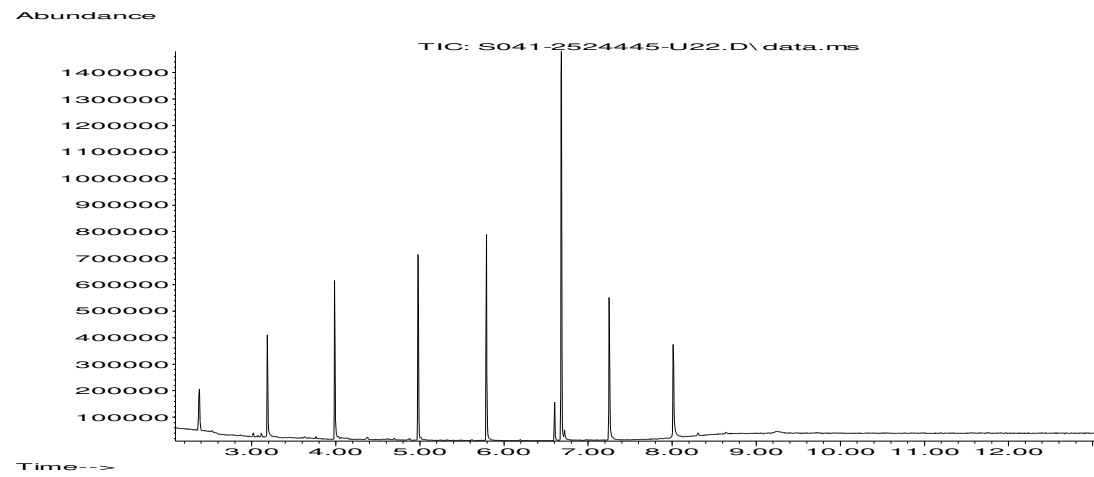
Information in Support of Analytical Results

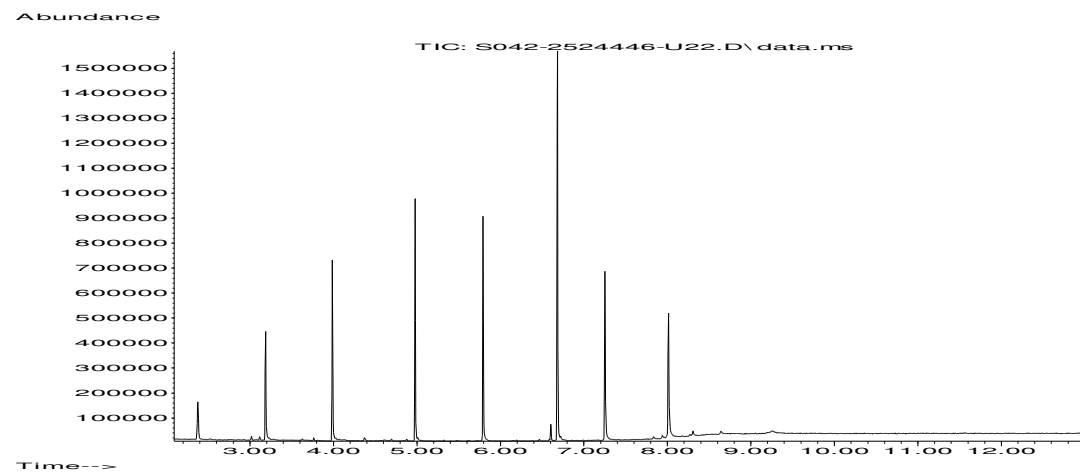
List of HWOL Acronyms and Operators

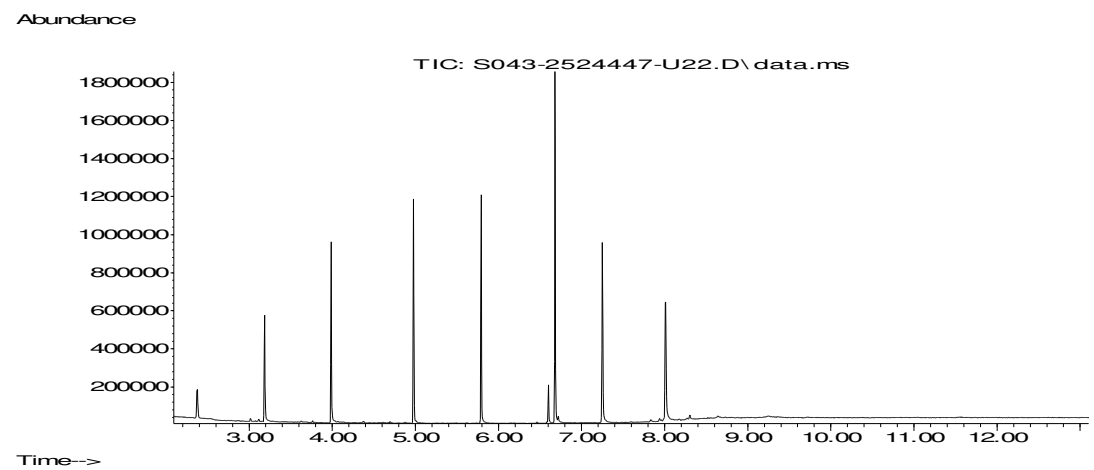
Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column 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 - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

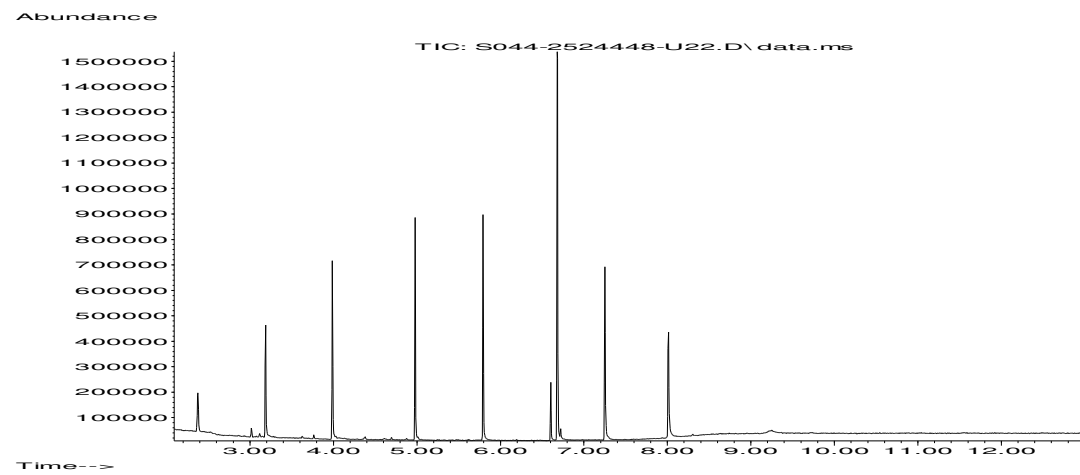












Sample Deviation Report



Analytical Report Number : 22-11832

Project / Site name: Lodge Road Hurst

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.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TT18B	None Supplied	S	2524445	c	Free cyanide in soil	L080-PL	c
TT29A	None Supplied	S	2524443	c	Free cyanide in soil	L080-PL	c
TT30B	None Supplied	S	2524444	c	Free cyanide in soil	L080-PL	c
TT32A	None Supplied	S	2524446	c	Free cyanide in soil	L080-PL	c

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Analytical Report Number : 22-12315

Project / Site name:	Lodge Road Hurst	Samples received on:	29/11/2022
Your job number:	26519	Samples instructed on/ Analysis started on:	09/12/2022
Your order number:	PO22689	Analysis completed by:	23/12/2022
Report Issue Number:	1	Report issued on:	23/12/2022
Samples Analysed:	4 soil samples		

Signed:

Elżbieta Suchy
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 22-12315
 Project / Site name: Lodge Road Hurst
 Your Order No: PO22689

Lab Sample Number				2527392	2527393	2527394	2534139
Sample Reference				TT3 (20)	TT18B	TT38A	WS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	1.00	2.00	0.50-1.00
Date Sampled				24/11/2022	30/11/2022	01/12/2022	01/12/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	59	52
Moisture Content	%	0.01	NONE	11	9.4	7	5.6
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.3

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	8.3	8.2	8
Total Sulphate as SO ₄	mg/kg	50	MCERTS	< 50	< 50	160	84
Total Sulphate as SO ₄	%	0.005	MCERTS	< 0.005	< 0.005	0.016	0.008
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0035	0.0017	0.011	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	3.5	1.7	10.7	-
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	-	-	-	0.0051
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	-	-	-	10
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	-	-	-	5.1
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	2.9	3.1	5.3	3.4
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.4	1.6	2.7	1.7
Total Sulphur	mg/kg	50	MCERTS	< 50	< 50	63	65
Total Sulphur	%	0.005	MCERTS	< 0.005	< 0.005	0.006	0.006
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Organic Matter (automated)	%	0.1	MCERTS	0.3	0.2	0.3	0.7
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	4.2	2.5	2.4	2.6
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	< 5.0	5.2	< 5.0
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5	2.6	< 2.5

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

Analytical Report Number : 22-12315

Project / Site name: Lodge Road Hurst

* 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 *
2527392	TT3 (20)	None Supplied	1	Brown sand with gravel.
2527393	TT18B	None Supplied	1	Brown sand with gravel.
2527394	TT38A	None Supplied	2	Brown sandy clay with gravel and stones.
2534139	WS05	None Supplied	0.50-1.00	Brown loam and sand with gravel and stones.

Analytical Report Number : 22-12315
Project / Site name: Lodge Road Hurst

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE

Analytical Report Number : 22-12315
Project / Site name: Lodge Road Hurst

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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



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Analytical Report Number : 22-13833

Project / Site name:	Lodge Road, Hurst	Samples received on:	16/12/2022
Your job number:	26519	Samples instructed on/ Analysis started on:	19/12/2022
Your order number:	PO22688	Analysis completed by:	29/12/2022
Report Issue Number:	1	Report issued on:	29/12/2022
Samples Analysed:	10 soil samples		

Signed:



Anna Goc
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 22-13833
 Project / Site name: Lodge Road, Hurst
 Your Order No: PO22688

Lab Sample Number				2537060	2537061	2537062	2537063	2537064
Sample Reference				WS04	WS04	WS06	WS02	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.50	0.20	1.50
Date Sampled				07/12/2022	07/12/2022	07/12/2022	08/07/2022	08/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	31
Moisture Content	%	0.01	NONE	12	16	14	13	5.2
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EC	EC	EC	EC	EC

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	8.4	8.1	7.3	7.4
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0053	0.0033	0.0038	0.0044	0.011
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0084	< 0.0010	0.0015	0.0073	< 0.0010

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	< 0.05	< 0.05	< 0.05	< 0.05	0.11
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.07
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.06
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.08
Phenanthrene	mg/kg	0.05	MCERTS	0.09	0.11	0.07	0.19	0.31
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.1
Fluoranthene	mg/kg	0.05	MCERTS	0.2	0.17	0.08	0.19	0.52
Pyrene	mg/kg	0.05	MCERTS	0.22	0.2	0.14	0.23	0.66
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.11	0.1	< 0.05	0.1	0.28
Chrysene	mg/kg	0.05	MCERTS	0.1	0.07	< 0.05	0.07	0.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.11	< 0.05	< 0.05	0.08	0.2
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.08	< 0.05	< 0.05	< 0.05	0.12
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.1	< 0.05	< 0.05	0.07	0.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.07	< 0.05	< 0.05	< 0.05	0.12
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.08	< 0.05	< 0.05	< 0.05	0.23

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.16	< 0.80	< 0.80	0.93	3.26
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Analytical Report Number: 22-13833
Project / Site name: Lodge Road, Hurst
Your Order No: PO22688

Lab Sample Number				2537060	2537061	2537062	2537063	2537064
Sample Reference				WS04	WS04	WS06	WS02	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.50	0.20	1.50
Date Sampled				07/12/2022	07/12/2022	07/12/2022	08/07/2022	08/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.3	11	9.5	6.9	9
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.45	0.93	0.8	0.41	0.45
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	0.2	0.2	< 0.2	< 0.2
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	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	16	24	23	17	10
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	24	23	17	10
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	8.3	7.2	4.4	3.3
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	8.7	8.2	11	5.4
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	8.7	32	21	7.8	9.7
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	24	40	35	27	18
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	32	19	23	17	13

Monoaromatics & Oxygenates*

Benzene	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
Toluene	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
p & m-xylene	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
o-xylene	µg/kg	5	NOE	< 5.0	< 5.0	-	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	-	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	17	-	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35 EH_CU_1D_AL	mg/kg	10	MCERTS	< 10	17	-	< 10	< 10
TPH-CWG - Aliphatic > EC35 - EC44 EH_CU_1D_AL	mg/kg	8.4	NONE	< 8.4	14	-	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	22	-	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44) EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	36	-	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.001	NONE	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	3.1	< 2.0	-	6	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	10	< 10	-	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	21	< 10	-	12	14
TPH-CWG - Aromatic > EC35 - EC44 EH_CU_1D_AR	mg/kg	8.4	NONE	< 8.4	< 8.4	-	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	NONE	34	< 10	-	26	21
TPH-CWG - Aromatic (EC5 - EC44) EH_CU+HS_1D_AR	mg/kg	10	NONE	34	< 10	-	26	21

TPH Total C5 - C44 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	34	36	-	26	21
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Analytical Report Number: 22-13833
Project / Site name: Lodge Road, Hurst
Your Order No: PO22688

Lab Sample Number				2537060	2537061	2537062	2537063	2537064
Sample Reference				WS04	WS04	WS06	WS02	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.50	0.20	1.50
Date Sampled				07/12/2022	07/12/2022	07/12/2022	08/07/2022	08/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Pesticide and Herbicide Screen								
GCMS Pesticide Screen		N/A	NONE	None Detected	-	-	-	-

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

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

Analytical Report Number: 22-13833
Project / Site name: Lodge Road, Hurst
Your Order No: PO22688

Lab Sample Number				2537065	2537066	2537067	2537068	2537069
Sample Reference				WS07	WS03	WS03	TT05(N)	TT05(N)
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.20	0.70	0.20	0.40
Date Sampled				08/07/2022	08/07/2022	08/07/2022	13/12/2022	13/12/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	38	< 0.1	33	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.3	12	8.3	14	11
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EC	EC	EC	EC	EC

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.9	7.6	8.5	7.5	6.5
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012	0.0056	0.014	0.038	0.054
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0031	0.014	0.0022	0.018	0.0039

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	0.17	< 0.05	0.14	0.11	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.08	< 0.05	0.08	0.31	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.08	< 0.05	0.06	0.08	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.12	< 0.05	0.09	0.15	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.5	0.1	0.35	0.55	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.16	< 0.05	0.11	0.29	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.93	0.21	0.68	2	< 0.05
Pyrene	mg/kg	0.05	MCERTS	1.1	0.26	0.87	3.1	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.44	0.11	0.35	0.95	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.35	0.09	0.27	0.77	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.37	0.12	0.32	0.89	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.17	0.05	0.13	0.47	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.36	0.09	0.28	0.98	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.22	< 0.05	0.17	0.73	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.09	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.42	< 0.05	0.35	1.9	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	5.45	1.03	4.25	13.3	< 0.80
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Analytical Report Number: 22-13833
Project / Site name: Lodge Road, Hurst
Your Order No: PO22688

Lab Sample Number				2537065	2537066	2537067	2537068	2537069
Sample Reference				WS07	WS03	WS03	TT05(N)	TT05(N)
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.20	0.70	0.20	0.40
Date Sampled				08/07/2022	08/07/2022	08/07/2022	13/12/2022	13/12/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	5.4	5.9	5.9	6.6
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.58	0.28	0.27	0.44	0.38
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.9	< 0.2	0.4	0.2
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	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	15	11	9.8	12	14
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15	12	9.8	14	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	4.4	7	4.5	13	9.4
Lead (aqua regia extractable)	mg/kg	1	MCERTS	10	14	6.5	34	10
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	8.9	5.5	5.5	6.4	6.5
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	32	18	17	22	23
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	16	22	12	26	16

Monoaromatics & Oxygenates*

Benzene	µg/kg	5	NONE	-	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	NONE	-	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	NONE	-	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	NONE	-	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	NOE	-	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	< 5.0	< 5.0	< 5.0	< 5.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.001	NONE	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.001	NONE	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.001	NONE	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	-	< 2.0	< 2.0	4.8	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	-	< 8.0	< 8.0	9.9	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	-	< 8.0	< 8.0	24	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35 EH_CU_1D_AL	mg/kg	10	MCERTS	-	< 10	< 10	34	< 10
TPH-CWG - Aliphatic > EC35 - EC44 EH_CU_1D_AL	mg/kg	8.4	NONE	-	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_1D_AL	mg/kg	10	NONE	-	< 10	< 10	38	< 10
TPH-CWG - Aliphatic (EC5 - EC44) EH_CU+HS_1D_AL	mg/kg	10	NONE	-	< 10	< 10	38	< 10

TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.001	NONE	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.001	NONE	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.001	NONE	-	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-	< 2.0	< 2.0	6.5	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-	< 10	< 10	22	< 10
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-	< 10	12	48	< 10
TPH-CWG - Aromatic > EC35 - EC44 EH_CU_1D_AR	mg/kg	8.4	NONE	-	< 8.4	< 8.4	10	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	NONE	-	11	18	76	< 10
TPH-CWG - Aromatic (EC5 - EC44) EH_CU+HS_1D_AR	mg/kg	10	NONE	-	11	18	86	< 10

TPH Total C5 - C44 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	-	11	18	120	< 10
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Analytical Report Number: 22-13833
 Project / Site name: Lodge Road, Hurst
 Your Order No: PO22688

Lab Sample Number				2537065	2537066	2537067	2537068	2537069
Sample Reference				WS07	WS03	WS03	TT05(N)	TT05(N)
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.20	0.70	0.20	0.40
Date Sampled				08/07/2022	08/07/2022	08/07/2022	13/12/2022	13/12/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Pesticide and Herbicide Screen								
GCMS Pesticide Screen					N/A	NONE	-	-

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

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

Analytical Report Number : 22-13833
Project / Site name: Lodge Road, Hurst

* 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 *
2537060	WS04	None Supplied	0.2	Brown loam and clay with gravel and vegetation.
2537061	WS04	None Supplied	0.5	Brown clay and sand with gravel.
2537062	WS06	None Supplied	0.5	Brown clay and sand with vegetation.
2537063	WS02	None Supplied	0.2	Brown loam and clay with gravel and vegetation.
2537064	WS02	None Supplied	1.5	Brown gravelly sand with stones.
2537065	WS07	None Supplied	0.5	Brown sand with gravel and stones.
2537066	WS03	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
2537067	WS03	None Supplied	0.7	Brown sand with gravel and stones.
2537068	TT05(N)	None Supplied	0.2	Brown loam and sand with gravel and vegetation.
2537069	TT05(N)	None Supplied	0.4	Brown sandy clay with vegetation.

Analytical Report Number : 22-13833
Project / Site name: Lodge Road, Hurst

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	NONE
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
GC Pesticide Screen (TIC)	Analysis of unknown pesticides by GCMS	GC Pesticide Screen (TIC)	L064B	D	NONE
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method	L009	D	MCERTS

Analytical Report Number : 22-13833
Project / Site name: Lodge Road, Hurst

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

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.

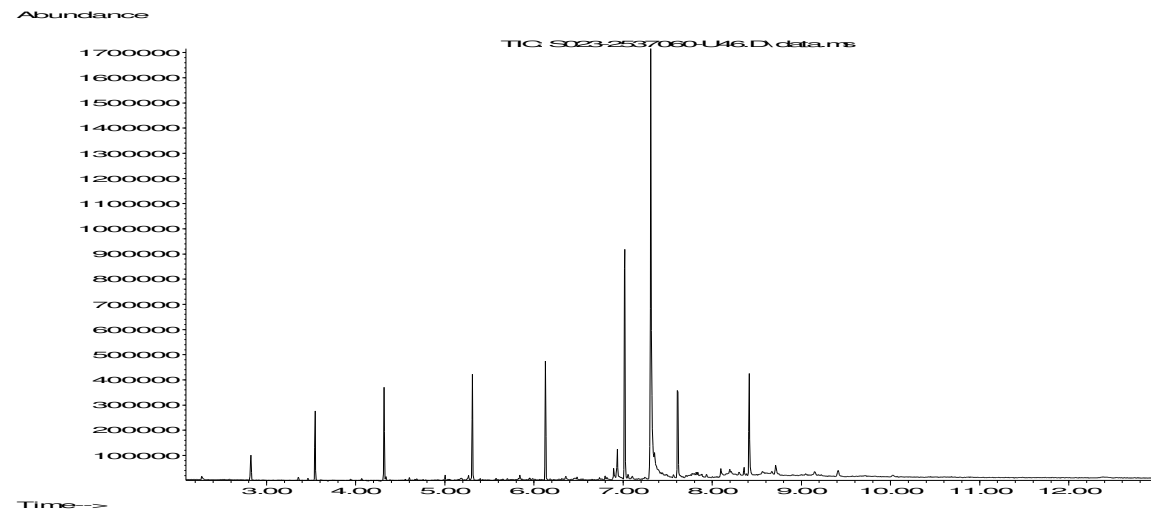
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

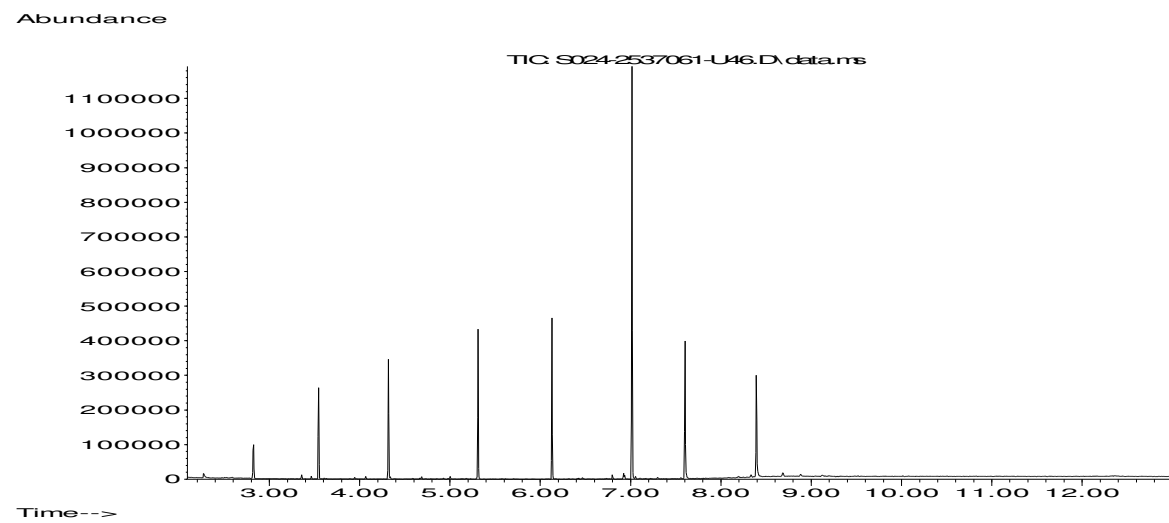
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

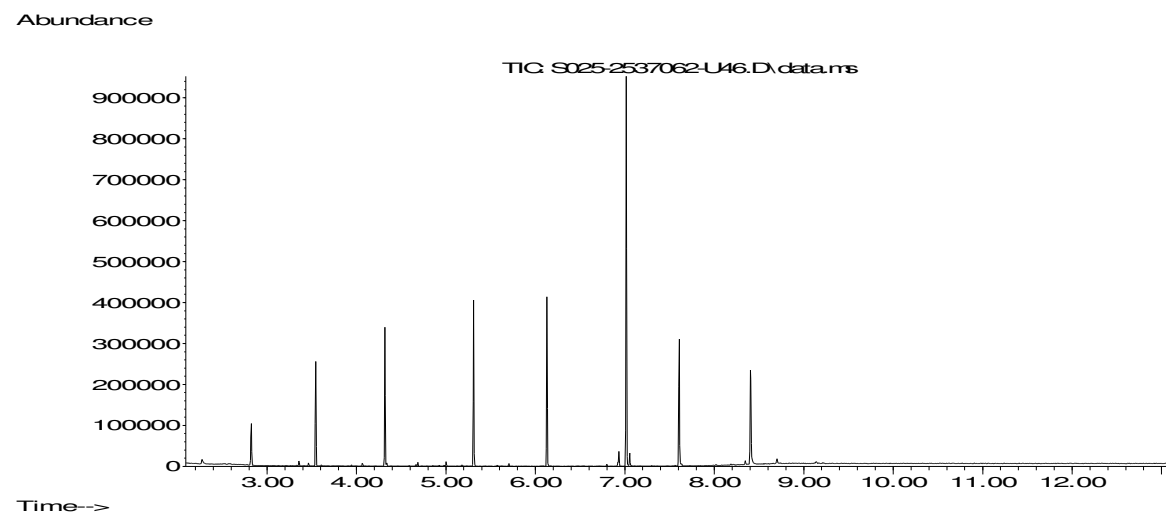
Information in Support of Analytical Results

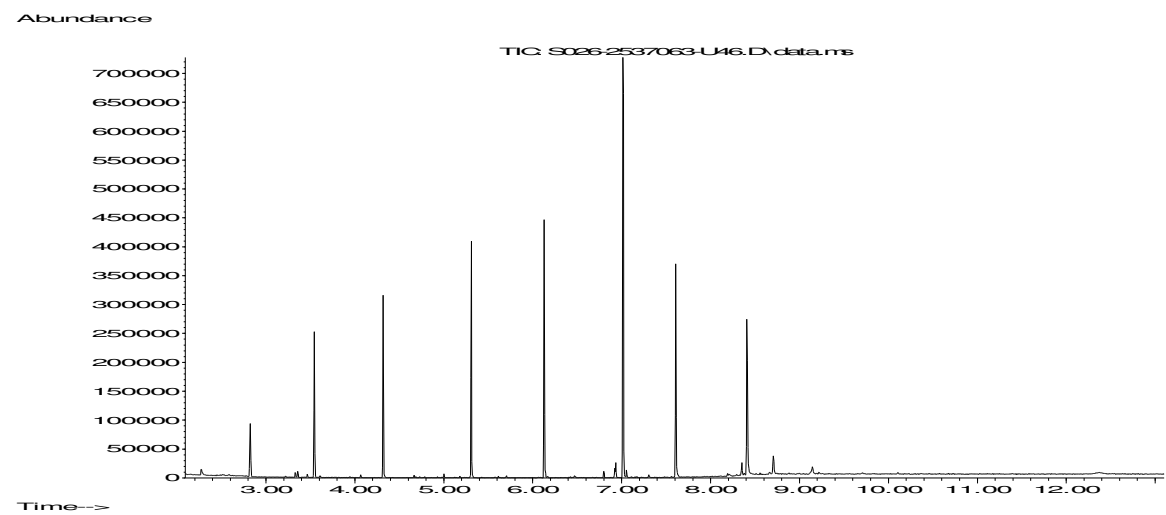
List of HWOL Acronyms and Operators

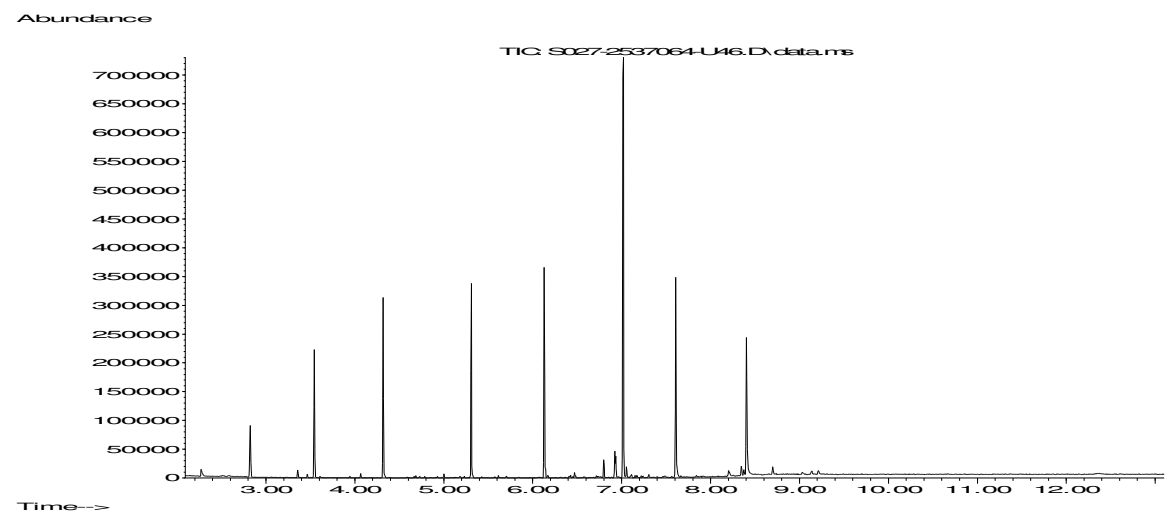
Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column 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 - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

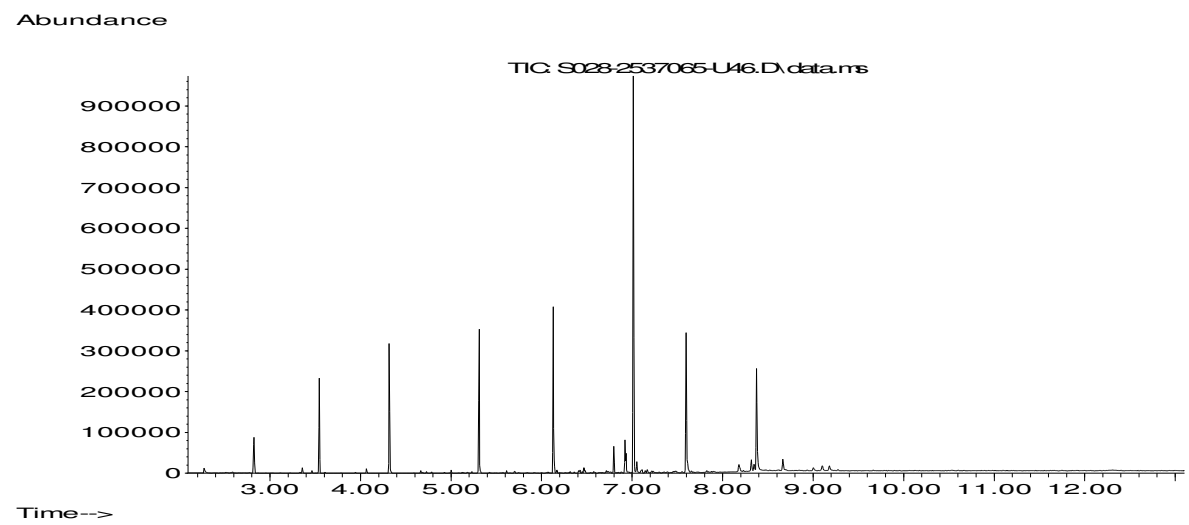


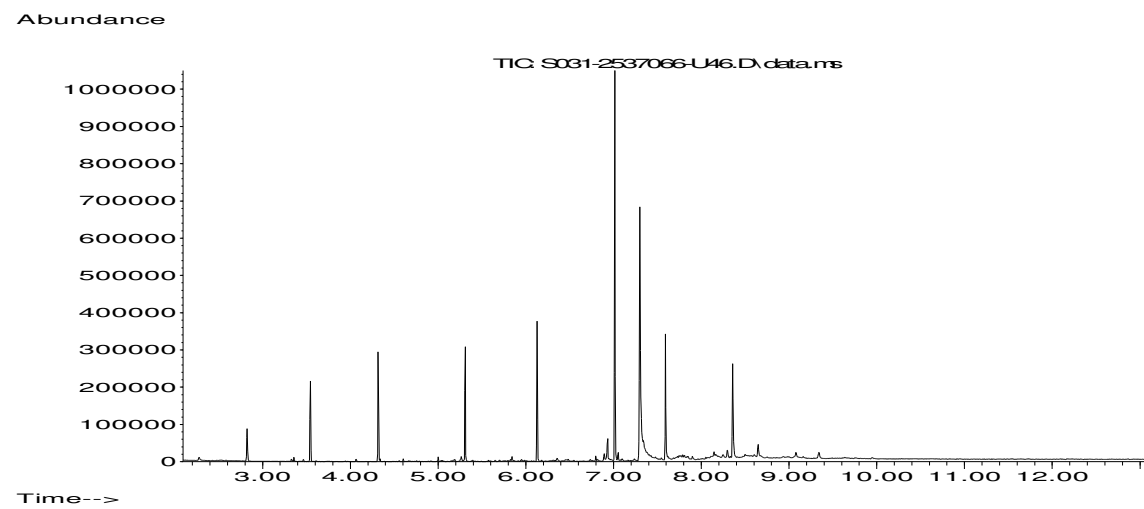


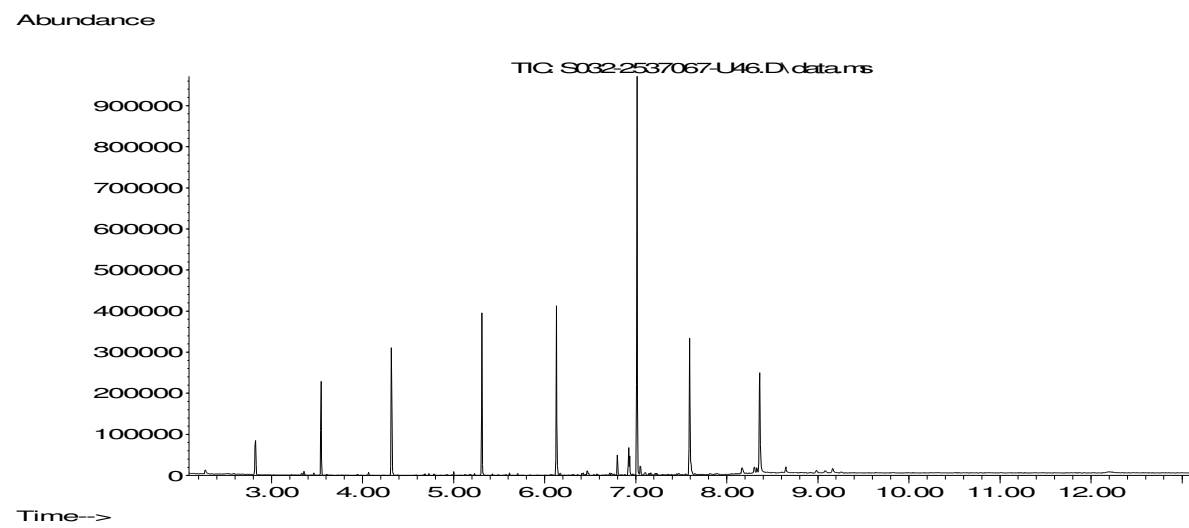


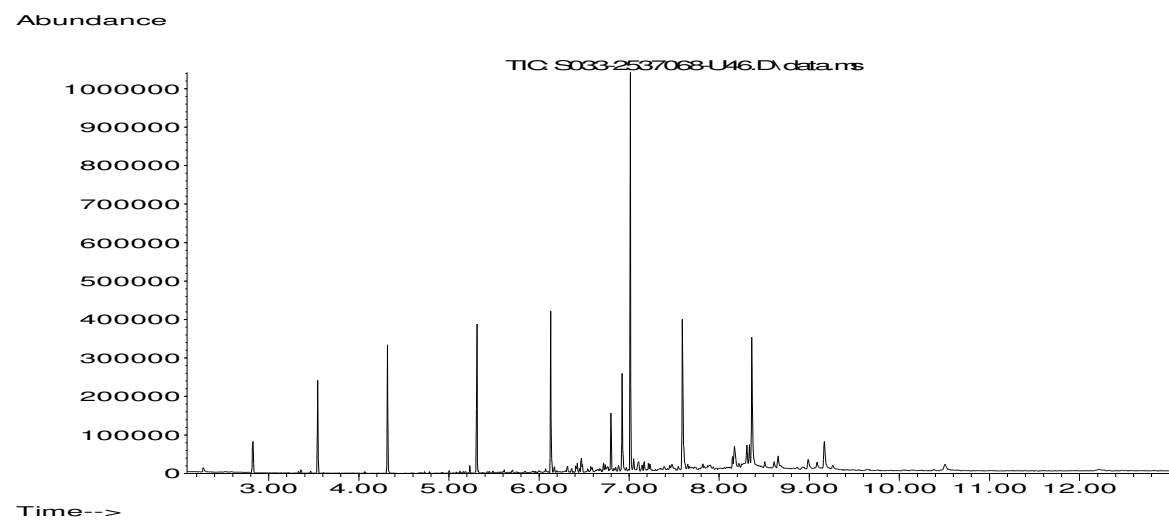


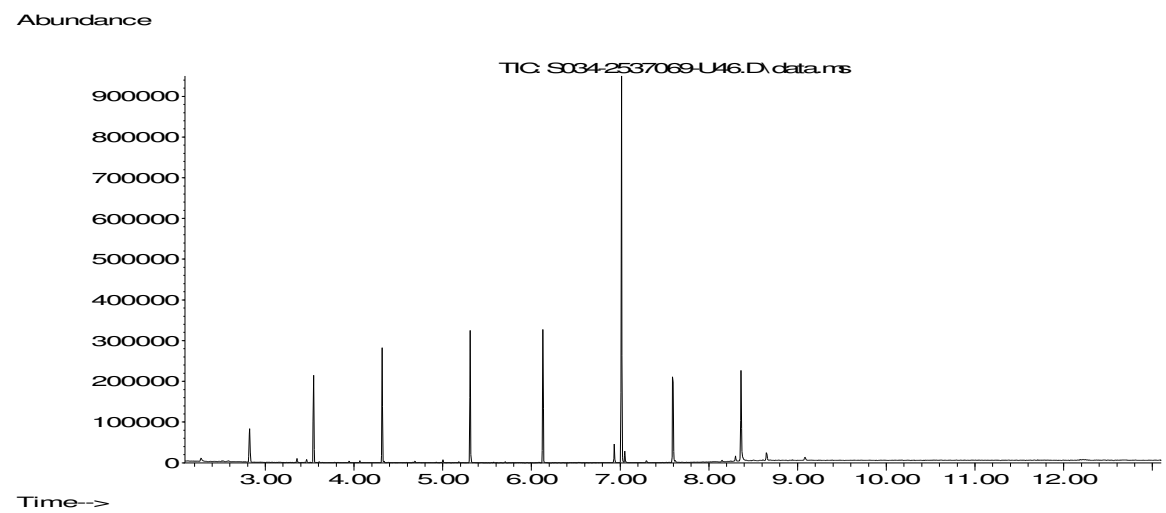












Sample Deviation Report

Analytical Report Number : 22-13833

Project / Site name: Lodge Road, Hurst

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 c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
WS02	None Supplied	S	2537063	c	Free cyanide in soil	L080-PL	c
WS02	None Supplied	S	2537063	c	Hexavalent chromium in soil	L080-PL	c
WS02	None Supplied	S	2537063	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
WS02	None Supplied	S	2537063	c	Cr (III) in soil	L080-PL	c
WS02	None Supplied	S	2537063	c	Fraction Organic Carbon FOC Automated	L009	c
WS02	None Supplied	S	2537063	c	Monohydric phenols in soil	L080-PL	c
WS02	None Supplied	S	2537063	c	Organic matter (Automated) in soil	L009-PL	c
WS02	None Supplied	S	2537063	c	Speciated EPA-16 PAHs in soil	L064-PL	c
WS02	None Supplied	S	2537063	c	TPH Chromatogram in Soil	L064-PL	c
WS02	None Supplied	S	2537063	c	TPH in (Soil)	L076-PL	c
WS02	None Supplied	S	2537063	c	TPHCWG (Soil)	L088/76-PL	c
WS02	None Supplied	S	2537063	c	pH in soil (automated)	L099-PL	c
WS02	None Supplied	S	2537064	c	Free cyanide in soil	L080-PL	c
WS02	None Supplied	S	2537064	c	Hexavalent chromium in soil	L080-PL	c
WS02	None Supplied	S	2537064	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
WS02	None Supplied	S	2537064	c	Cr (III) in soil	L080-PL	c
WS02	None Supplied	S	2537064	c	Fraction Organic Carbon FOC Automated	L009	c
WS02	None Supplied	S	2537064	c	Monohydric phenols in soil	L080-PL	c
WS02	None Supplied	S	2537064	c	Organic matter (Automated) in soil	L009-PL	c
WS02	None Supplied	S	2537064	c	Speciated EPA-16 PAHs in soil	L064-PL	c
WS02	None Supplied	S	2537064	c	TPH Chromatogram in Soil	L064-PL	c
WS02	None Supplied	S	2537064	c	TPH in (Soil)	L076-PL	c
WS02	None Supplied	S	2537064	c	TPHCWG (Soil)	L088/76-PL	c
WS02	None Supplied	S	2537064	c	pH in soil (automated)	L099-PL	c
WS03	None Supplied	S	2537066	c	Free cyanide in soil	L080-PL	c
WS03	None Supplied	S	2537066	c	Hexavalent chromium in soil	L080-PL	c
WS03	None Supplied	S	2537066	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
WS03	None Supplied	S	2537066	c	Cr (III) in soil	L080-PL	c
WS03	None Supplied	S	2537066	c	Fraction Organic Carbon FOC Automated	L009	c
WS03	None Supplied	S	2537066	c	Monohydric phenols in soil	L080-PL	c
WS03	None Supplied	S	2537066	c	Organic matter (Automated) in soil	L009-PL	c
WS03	None Supplied	S	2537066	c	Speciated EPA-16 PAHs in soil	L064-PL	c
WS03	None Supplied	S	2537066	c	TPH Chromatogram in Soil	L064-PL	c
WS03	None Supplied	S	2537066	c	TPH in (Soil)	L076-PL	c
WS03	None Supplied	S	2537066	c	TPHCWG (Soil)	L088/76-PL	c
WS03	None Supplied	S	2537066	c	pH in soil (automated)	L099-PL	c
WS03	None Supplied	S	2537067	c	Free cyanide in soil	L080-PL	c
WS03	None Supplied	S	2537067	c	Hexavalent chromium in soil	L080-PL	c
WS03	None Supplied	S	2537067	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
WS03	None Supplied	S	2537067	c	Cr (III) in soil	L080-PL	c
WS03	None Supplied	S	2537067	c	Fraction Organic Carbon FOC Automated	L009	c
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WS03	None Supplied	S	2537067	c	TPHCWG (Soil)	L088/76-PL	c
WS03	None Supplied	S	2537067	c	pH in soil (automated)	L099-PL	c
WS04	None Supplied	S	2537060	c	Free cyanide in soil	L080-PL	c
WS04	None Supplied	S	2537061	c	Free cyanide in soil	L080-PL	c
WS06	None Supplied	S	2537062	c	Free cyanide in soil	L080-PL	c
WS07	None Supplied	S	2537065	c	Free cyanide in soil	L080-PL	c
WS07	None Supplied	S	2537065	c	Hexavalent chromium in soil	L080-PL	c
WS07	None Supplied	S	2537065	c	Cr (III) in soil	L080-PL	c
WS07	None Supplied	S	2537065	c	Fraction Organic Carbon FOC Automated	L009	c
WS07	None Supplied	S	2537065	c	Monohydric phenols in soil	L080-PL	c
WS07	None Supplied	S	2537065	c	Organic matter (Automated) in soil	L009-PL	c
WS07	None Supplied	S	2537065	c	Speciated EPA-16 PAHs in soil	L064-PL	c
WS07	None Supplied	S	2537065	c	pH in soil (automated)	L099-PL	c

			Date	07/12/2022
			Zone	
			Strata	
			Location	WS04
Code	Determinand	Unit	Reporting Limit	Depth
-	Asbestos			0.20
	pH 2.5:1 extract	pH Units		7.1
	Soluble Sulphate 2:1 (mg/l)	mg/l		
	Acid Soluble Sulphate (%)	%		
	Total Sulphur (%)	%		
	Magnesium 2:1 (mg/l)	mg/l		
	Ammonium (mg/l)	mg/l		
	Nitrate 2:1 (mg/l)	mg/l		
	Chloride 2:1 (mg/l)	mg/l		

[illegible]

[illegible]

TEST CERTIFICATE

SPECIFICATION FOR TOPSOIL
Tested in Accordance with: BS 3882: 2015

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



Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

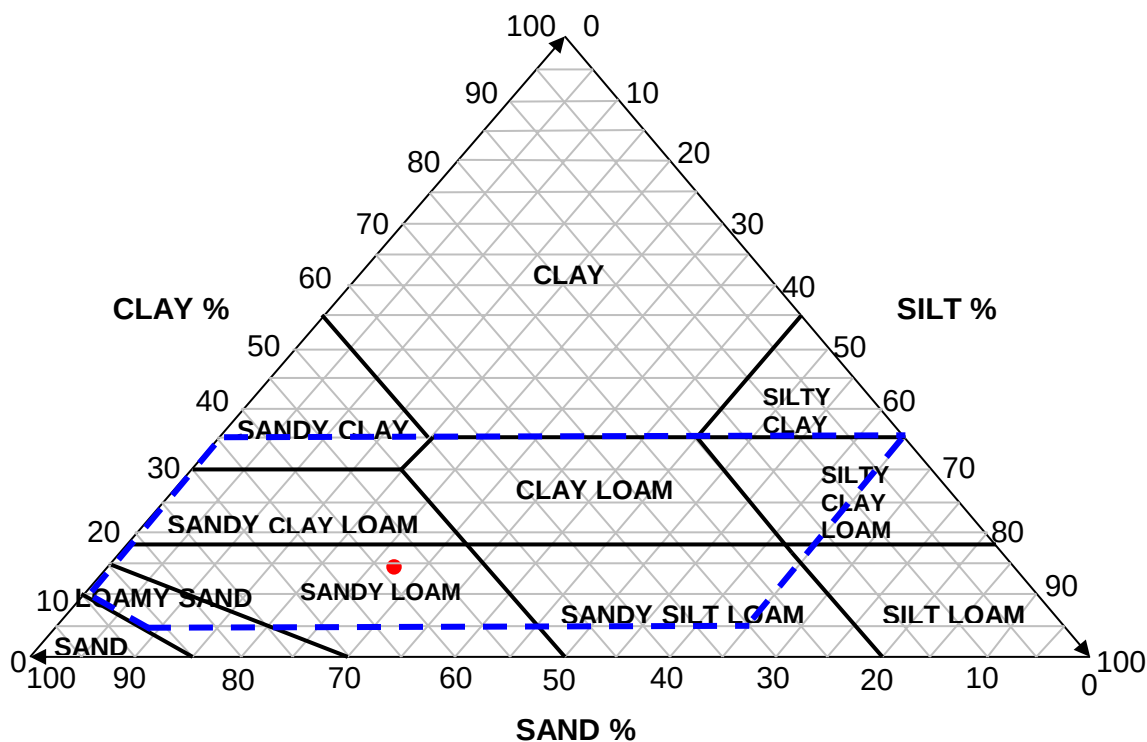
Client Reference: 26519
Job Number: 22-13838
Date Sampled: 08/07/2022
Date Received: 16/12/2022
Date Tested: 21/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2537079
Hole No.: WS02
Sample Reference: Not Given
Sample Description: SANDY LOAM

Depth Top [m]: 0.20
Depth Base [m]: Not Given
Sample Type: D

Soil Texture Triangle



Sample Proportion	% dry mass
Sand	59.0
Silt	25.5
Clay	15.5

Texture within acceptable area (Y/N)

Remarks:

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

SPECIFICATION FOR TOPSOIL
Tested in Accordance with: BS 3882: 2015

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



Client: Hydrock Consultants Ltd
Client Address: 5-7 Tanner Street, London,
SE1 3LE

Contact: Julian Fowler
Site Address: Lodge Road, Hurst

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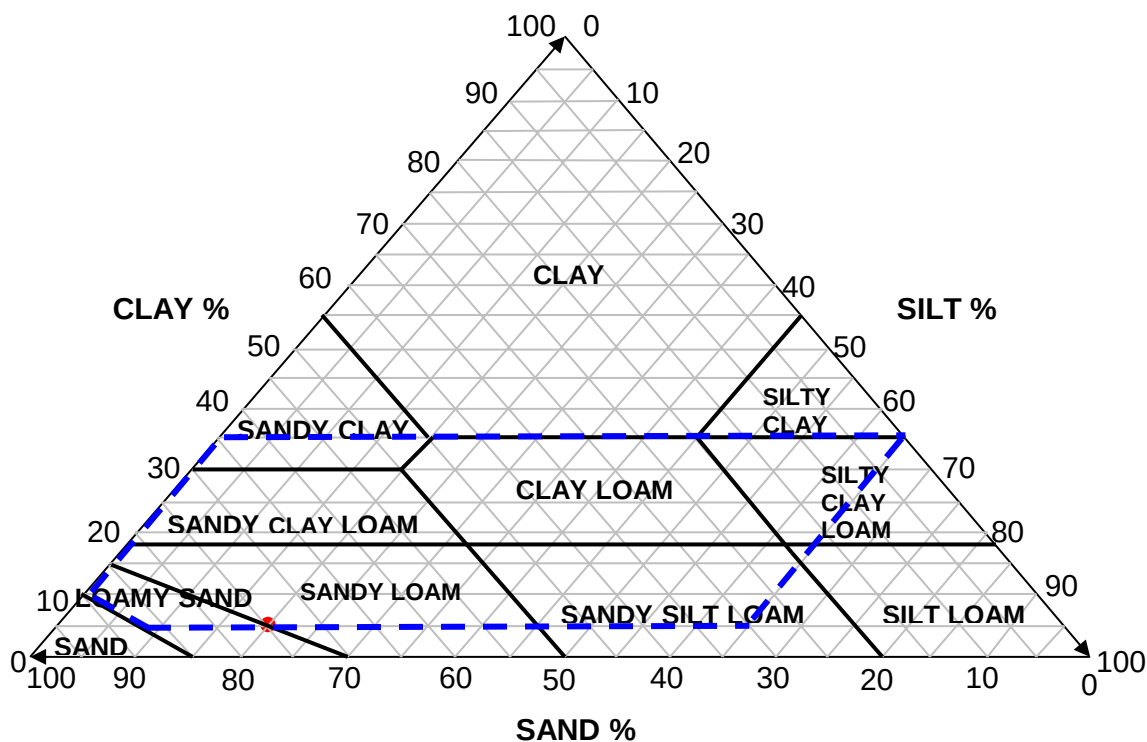
Client Reference: 26519
Job Number: 22-13838
Date Sampled: 13/12/2022
Date Received: 16/12/2022
Date Tested: 21/12/2022
Sampled By: Not Given

Test Results:

Laboratory Reference: 2537080
Hole No.: TT0S(N)
Sample Reference: Not Given
Sample Description: SANDY LOAM

Depth Top [m]: 0.20
Depth Base [m]: Not Given
Sample Type: ES

Soil Texture Triangle



Sample Proportion	% dry mass
Sand	75.5
Silt	18.3
Clay	6.2

Texture within acceptable area (Y/N)

Remarks:

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Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Julian Fowler
Hydrock Consultants Ltd
5-7 Tanner Street
London
SE1 3LE

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

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

e: julianfowler@hydrock.com

Analytical Report Number : 22-13838

Project / Site name:	Lodge Road, Hurst	Samples received on:	16/12/2022
Your job number:	26519	Samples instructed on/ Analysis started on:	19/12/2022
Your order number:	PO22688	Analysis completed by:	04/01/2023
Report Issue Number:	1	Report issued on:	04/01/2023
Samples Analysed:	2 soil samples		

Signed:

Joanna Wawrzeczko
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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



4041



Environmental Science

i2 Analytical

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

Telephone: 01923 225404

Fax: 01923 237404

email:reception@i2analytical.com

Certificate of Analysis									
BS 3882:2015 Specification For Topsoil									
	Pass BS 3882 for Low fertility;				client				
Report No:	22-13838			Hydrock Consultants Ltd					
Location	Lodge Road, Hurst								
Lab Reference (Sample Number)	2537079								
Sampling Date	08/07/2022								
Sample ID	WS02								
Depth (m)	0.20			Compliant with range (Y/N)					
		unit	Result	Multi-P	Acid	Calc	Low-F	Low-F(a)	Low-F(c)
Soil texture	<2mm fraction	%m/m	SANDY LOAM	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	4.00	Y	Y	Y	Y	Y	Y
	>20mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	2.60						
	Clay 5-20%		Y	N	N	N	Y	Y	Y
	Clay 20-35%		-	-	-	-	-	-	-
Soil pH:		pH	7.10	Y	N	N	Y	N	N
Carbonate:		%m/m	2.30	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.22	Y	Y	Y	-	-	-
	Extractable Phosphate (as P)	mg/l	7.40	N	N	N	Y	Y	Y
	Extractable Potassium	mg/l	48.60	N	N	N	-	-	-
	Extractable Magnesium	mg/l	30.00	N	N	N	-	-	-
Carbon: Nitrogen Ratio:		:1	7.00	Y	Y	Y	Y	Y	Y
Conductivity		us/cm	1900.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	17.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	2.90	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	7.60	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliance:				Fail	Fail	Fail	Pass	Fail	Fail

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

** = MCERTS accredited



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Certificate of Analysis									
BS 3882:2015 Specification For Topsoil									
	Pass BS 3882 for Low fertility;				client				
Report No:	22-13838			Hydrock Consultants Ltd					
Location	Lodge Road, Hurst								
Lab Reference (Sample Number)	2537080								
Sampling Date	13/12/2022								
Sample ID	TT05(N)								
Depth (m)	0.20			Compliant with range (Y/N)					
		unit	Result	Multi-P	Acid	Calc	Low-F	Low-F(a)	Low-F(c)
Soil texture	<2mm fraction	%m/m	SANDY LOAM	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	6.60	Y	Y	Y	Y	Y	Y
	>20mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	4.00						
	Clay 5-20%		Y	Y	Y	Y	Y	Y	Y
	Clay 20-35%		-	-	-	-	-	-	-
Soil pH:		pH	6.70	Y	N	N	Y	N	N
Carbonate:		%m/m	3.10	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.70	Y	Y	Y	-	-	-
	Extractable Phosphate (as P)	mg/l	12.00	N	N	N	Y	Y	Y
	Extractable Potassium	mg/l	91.40	N	N	N	-	-	-
	Extractable Magnesium	mg/l	27.00	N	N	N	-	-	-
Carbon: Nitrogen Ratio:		:1	3.30	Y	Y	Y	Y	Y	Y
Conductivity		us/cm	1900.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	22.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	10.00	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	6.30	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliance:				Fail	Fail	Fail	Pass	Fail	Fail

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

** = MCERTS accredited

Analytical Report Number : 22-13838

Project / Site name: Lodge Road, Hurst

* 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 *
2537079	WS02	None Supplied	0.2	Brown loam and clay with gravel and vegetation.
2537080	TT05(N)	None Supplied	0.2	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 22-13838
Project / Site name: Lodge Road, Hurst

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Geotechnical Testing in Soil	See attached geotechnical report	See attached geotechnical report		W	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.	L038-PL	D	MCERTS
Textural Classification Diagram	Textural classification Diagram	BS3882:2015		D	NONE
Carbon to Nitrogen Ratio (Topsoil - BS3882:2015)	Carbon to Nitrogen ratio (:1) calculated using Loss on Ignition.	BS3882:2015	L01TS2015	W	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	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.	L019-UK/PL	D	NONE
Kjeldahl nitrogen in soil	Determination of total nitrogen using the Kjeldahl-digestion method and colorimetric determination.	In house method based on BS 7755-3.7:1995 &	L087-PL	D	NONE
Topsoil	See attached report.	BS 3882: 2015	PL	W	NONE
Mass loss on ignition (Topsoil - BS3882)	Determination of Loss on Ignition as per BS 3882:2015.	BS3882:2015	L047-PL	D	NONE
Carbonate (Topsoil - BS3882)	Determination of Carbonate as per BS 3882:2015.	BS3882:2015	L034-PL	D	NONE
Phosphorus as PO ₄ (BS3882/BS8601)	Determination of the extractable phosphorus in soil, in accordance with BS3882:2007 methodology.	BS3882:2015 & BS8601:2013	L048-PL	D	NONE
Coarse Fragment and Contaminant Analysis	Determination of >2mm contaminants	BS3882:2007 & BS8601:2013 & PAS 100:2005	L01TS	D	NONE
Nitrogen (TKN)	Determination of total nitrogen by Kjeldahl method.	BS3882:2007	L087-PL	D	NONE
Conductivity (BS3882/BS8601)	Determination of the conductivity of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE

Analytical Report Number : 22-13838
Project / Site name: Lodge Road, Hurst

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH (BS3882/BS8601)	Determination of the pH of soil in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L099-PL	D	NONE
Extractable/Available Metals (BS3882/BS8601)	Determination of the extractable metals in soil, in accordance with BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L038-PL	D	NONE
Sodium (exchangeable %)	Determination of exchangeable sodium (%) by calculation, in accordance with BS3882:2007 methodology.	BS3882:2007	L038-PL	D	NONE
Textural Classification (BS3882/BS8601)	Determination of the textural classification of soil following BS3882:2007 methodology.	BS3882:2007 & BS8601:2013	L01TS	D	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.

Analytical Report Number : 22-13838

Project / Site name: Lodge Road, Hurst

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 c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
WS02	None Supplied	S	2537079	c	Conductivity (BS3882/BS8601)	L099-PL	c
WS02	None Supplied	S	2537079	c	Kjeldahl nitrogen in soil	L087-PL	c
WS02	None Supplied	S	2537079	c	Nitrogen (TKN)	L087-PL	c
WS02	None Supplied	S	2537079	c	Phosphorus as PO4 (BS3882/BS8601)	L048-PL	c
WS02	None Supplied	S	2537079	c	pH (BS3882/BS8601)	L099-PL	c

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Analytical Report Number : 22-14404

Project / Site name:	Lodge Road, Hurst	Samples received on:	13/12/2022
Your job number:	26519	Samples instructed on/ Analysis started on:	20/12/2022
Your order number:	PO22689	Analysis completed by:	03/01/2023
Report Issue Number:	1	Report issued on:	03/01/2023
Samples Analysed:	6 soil samples		

Signed:



Joanna Wawrzeczko
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

Analytical Report Number: 22-14404
Project / Site name: Lodge Road, Hurst

Lab Sample Number				2540759	2540760	2540761	2540762	2540763
Sample Reference				CP04	CP04	CP10	CP10	CP01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30-0.80	3.60-4.00	0.50-1.00	4.00-4.45	0.50-0.80
Date Sampled				07/12/2022	07/12/2022	08/12/2022	08/12/2022	12/12/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	28	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	17	6.4	13	13
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	8.5	7.2	8.4	6.7
Total Sulphate as SO ₄	mg/kg	50	MCERTS	110	130	73	64	86
Total Sulphate as SO ₄	%	0.005	MCERTS	0.011	0.013	0.007	0.006	0.009
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0069	0.035	0.0032	0.021	0.0056
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	6.9	35.4	3.2	20.9	5.6
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	9	8.7	1.9	3.3	3.7
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	4.5	4.3	1	1.7	1.9
Total Sulphur	mg/kg	50	MCERTS	65	620	< 50	96	76
Total Sulphur	%	0.005	MCERTS	0.007	0.062	< 0.005	0.01	0.008
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	0.8	< 0.5
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.08	< 0.05
Organic Matter (automated)	%	0.1	MCERTS	0.6	0.3	0.5	0.1	0.6
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	3.8	< 2.0	4.8	< 2.0	12
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	6.1

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	15	< 5.0	9.2	7
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	7.4	< 2.5	4.6	3.5

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

Analytical Report Number: 22-14404
Project / Site name: Lodge Road, Hurst

Lab Sample Number				2540764
Sample Reference				CP01
Sample Number				None Supplied
Depth (m)				5.30-5.80
Date Sampled				12/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	16
Total mass of sample received	kg	0.001	NONE	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4
Total Sulphate as SO ₄	mg/kg	50	MCERTS	700
Total Sulphate as SO ₄	%	0.005	MCERTS	0.07
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.12
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	116
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	11
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	5.6
Total Sulphur	mg/kg	50	MCERTS	1200
Total Sulphur	%	0.005	MCERTS	0.125
Ammoniacal Nitrogen as NH ₄	mg/kg	0.5	MCERTS	1.8
Ammonium as NH ₄ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	0.18
Organic Matter (automated)	%	0.1	MCERTS	0.3
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	< 2.0
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	34
Magnesium (leachate equivalent)	mg/l	2.5	NONE	17

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

Analytical Report Number : 22-14404

Project / Site name: Lodge Road, Hurst

* 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 *
2540759	CP04	None Supplied	0.30-0.80	Brown clay and sand with gravel.
2540760	CP04	None Supplied	3.60-4.00	Brown clay and sand with gravel.
2540761	CP10	None Supplied	0.50-1.00	Brown sand with gravel and stones.
2540762	CP10	None Supplied	4.00-4.45	Brown clay.
2540763	CP01	None Supplied	0.50-0.80	Brown clay and sand with gravel.
2540764	CP01	None Supplied	5.30-5.80	Brown clay.

Analytical Report Number : 22-14404

Project / Site name: Lodge Road, Hurst

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

Analytical Report Number : 22-14404

Project / Site name: Lodge Road, Hurst

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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.



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Analytical Report Number : 23-17745

Project / Site name:	Hurst, Lodge Rd	Samples received on:	15/02/2023
Your job number:	26519	Samples instructed on/ Analysis started on:	15/02/2023
Your order number:	PO24141	Analysis completed by:	22/02/2023
Report Issue Number:	1	Report issued on:	22/02/2023
Samples Analysed:	7 water samples		

Signed:

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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



4041



Analytical Report Number: 23-17745

Project / Site name: Hurst, Lodge Rd

Your Order No: P024141

Lab Sample Number				2586342	2586343	2586344	2586345	2586346
Sample Reference				WS04	WS03	WS01	WS02	WS06
Sample Number				WS1	WS1	WS1	WS1	WS1
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				13/02/2023	13/02/2023	13/02/2023	13/02/2023	13/02/2023
Time Taken				1002	1103	1209	1249	1333
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics & Oxygenates

Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)*	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Sum of m, p & o-Xylene	µg/l	2	ISO 17025	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6 _{HS,1D,AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 _{HS,1D,AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 _{HS,1D,AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 _{EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 _{EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 _{EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 _{EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44 _{EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) _{HS+EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44) _{HS+EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7 _{HS,1D,AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 _{HS,1D,AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 _{HS,1D,AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 _{EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 _{EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 _{EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 _{EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C35 - C44 _{EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) _{HS+EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C44) _{HS+EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG Total C5 - C44 _{EH+HS,1D,TOTAL,MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
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VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane*	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)*	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trans-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0



4041



Analytical Report Number: 23-17745

Project / Site name: Hurst, Lodge Rd

Your Order No: PO24141

Lab Sample Number				2586342	2586343	2586344	2586345	2586346
Sample Reference				WS04	WS03	WS01	WS02	WS06
Sample Number				WS1	WS1	WS1	WS1	WS1
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				13/02/2023	13/02/2023	13/02/2023	13/02/2023	13/02/2023
Time Taken				1002	1103	1209	1249	1333
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Tetrachloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
p & m-Xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Tri bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
o-Xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0

Dichloromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dichlorodifluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Total Trihalomethanes	µg/l	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Total Trichlorobenzenes	ug/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Total Dichlorobenzenes	ug/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trichloroethylene (TCE) + Tetrachloroethylene (PCE)	ug/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total 1,2-Dichloroethene	ug/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total 1,3-Dichloropropane	ug/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Tetrachloroethane	ug/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
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4041



Analytical Report Number: 23-17745

Project / Site name: Hurst, Lodge Rd

Your Order No: PO24141

Lab Sample Number				2586342	2586343	2586344	2586345	2586346
Sample Reference				WS04	WS03	WS01	WS02	WS06
Sample Number				WS1	WS1	WS1	WS1	WS1
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				13/02/2023	13/02/2023	13/02/2023	13/02/2023	13/02/2023
Time Taken				1002	1103	1209	1249	1333
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Analytical Report Number: 23-17745
Project / Site name: Hurst, Lodge Rd

Your Order No: PO24141

Lab Sample Number				2586342	2586343	2586344	2586345	2586346
Sample Reference				WS04	WS03	WS01	WS02	WS06
Sample Number				WS1	WS1	WS1	WS1	WS1
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				13/02/2023	13/02/2023	13/02/2023	13/02/2023	13/02/2023
Time Taken				1002	1103	1209	1249	1333
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
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PFAS

Perfluorobutane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluoropentane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorohexane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluoroheptane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorooctane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorononane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorodecane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluoroundecane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorododecane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorobutanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluoropentanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorohexanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluoroheptanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorooctanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorononanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorodecanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluoroundecanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Perfluorododecanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Gases

Methane	mg/L	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and therefore may be compromised.



4041



Analytical Report Number: 23-17745

Project / Site name: Hurst, Lodge Rd

Your Order No: P024141

Lab Sample Number				2586347	2586348
Sample Reference				WS07	WS08
Sample Number				WS1	WS1
Depth (m)				None Supplied	None Supplied
Date Sampled				13/02/2023	13/02/2023
Time Taken				1419	1510
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)*	µg/l	3	NONE	< 3.0	< 3.0
Sum of m, p & o-Xylene	µg/l	2	ISO 17025	< 2.0	< 2.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6 _{HS, 1D, AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 _{HS, 1D, AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 _{HS, 1D, AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 _{EH, 1D, AL, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 _{EH, 1D, AL, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 _{EH, 1D, AL, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 _{EH, 1D, AL, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C35 _{EH, 1D, AL, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44 _{EH, 1D, AL, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) _{HS+EH, 1D, AL, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44) _{HS+EH, 1D, AL, MS}	µg/l	10	NONE	< 10	< 10

TPH-CWG - Aromatic >C5 - C7 _{HS, 1D, AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 _{HS, 1D, AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 _{HS, 1D, AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 _{EH, 1D, AR, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 _{EH, 1D, AR, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 _{EH, 1D, AR, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 _{EH, 1D, AR, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C35 - C44 _{EH, 1D, AR, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) _{HS+EH, 1D, AR, MS}	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C44) _{HS+EH, 1D, AR, MS}	µg/l	10	NONE	< 10	< 10

TPH-CWG Total C5 - C44 _{EH+HS, 1D, TOTAL, MS}	µg/l	10	NONE	< 10	< 10
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VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane*	µg/l	3	NONE	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)*	µg/l	3	NONE	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0
Trichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0
Trans-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0



4041



Analytical Report Number: 23-17745

Project / Site name: Hurst, Lodge Rd

Your Order No: P024141

Lab Sample Number				2586347	2586348
Sample Reference				WS07	WS08
Sample Number				WS1	WS1
Depth (m)				None Supplied	None Supplied
Date Sampled				13/02/2023	13/02/2023
Time Taken				1419	1510
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0
Tetrachloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
p & m-Xylene	µg/l	3	ISO 17025	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0
Tribromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0
o-Xylene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0

Dichloromethane	µg/l	3	NONE	< 3.0	< 3.0
Dichlorodifluoromethane	µg/l	3	NONE	< 3.0	< 3.0
Total Trihalomethanes	µg/l	4	NONE	< 4.0	< 4.0
Total Trichlorobenzenes	ug/l	3	NONE	< 3.0	< 3.0
Total Dichlorobenzenes	ug/l	3	NONE	< 3.0	< 3.0
Trichloroethylene (TCE) + Tetrachloroethylene (PCE)	ug/l	2	NONE	< 2.0	< 2.0
Total 1,2-Dichloroethene	ug/l	2	NONE	< 2.0	< 2.0
Total 1,3-Dichloropropane	ug/l	2	NONE	< 2.0	< 2.0
Tetrachloroethane	ug/l	2	NONE	< 2.0	< 2.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05
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4041



Analytical Report Number: 23-17745

Project / Site name: Hurst, Lodge Rd

Your Order No: P024141

Lab Sample Number				2586347	2586348
Sample Reference				WS07	WS08
Sample Number				WS1	WS1
Depth (m)				None Supplied	None Supplied
Date Sampled				13/02/2023	13/02/2023
Time Taken				1419	1510
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01



4041



Analytical Report Number: 23-17745

Project / Site name: Hurst, Lodge Rd

Your Order No: P024141

Lab Sample Number				2586347	2586348
Sample Reference				WS07	WS08
Sample Number				WS1	WS1
Depth (m)				None Supplied	None Supplied
Date Sampled				13/02/2023	13/02/2023
Time Taken				1419	1510
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01

3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10
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PFAS

Perfluorobutane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluoropentane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorohexane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluoroheptane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorooctane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorononane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorodecane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluoroundecane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorododecane sulphonate	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorobutanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluoropentanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorohexanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluoroheptanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorooctanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorononanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorodecanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluoroundecanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1
Perfluorododecanoic acid	µg/l	0.1	NONE	< 0.1	< 0.1

Gases

Methane	mg/L	0.1	NONE	< 0.1	< 0.1
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and therefore may be compromised.

Analytical Report Number : 23-17745

Project / Site name: Hurst, Lodge Rd

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPH in (Water)	Determination of TPH bands by HS-GC-MS/GC-MS	In-house method, TPH with carbon banding.	L070-PL	W	NONE
TPH Chromatogram in Water	TPH Chromatogram in Water.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE
Gases C1-C4	Determination of volatile hydrocarbons by Refinery Gas Analyzer	In-house methods	L110B	W	NONE
EF - PFAS in water	PFAS suite by LC-MS	In-house method	UK	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.

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 - understore to separate acronyms (exception for +)



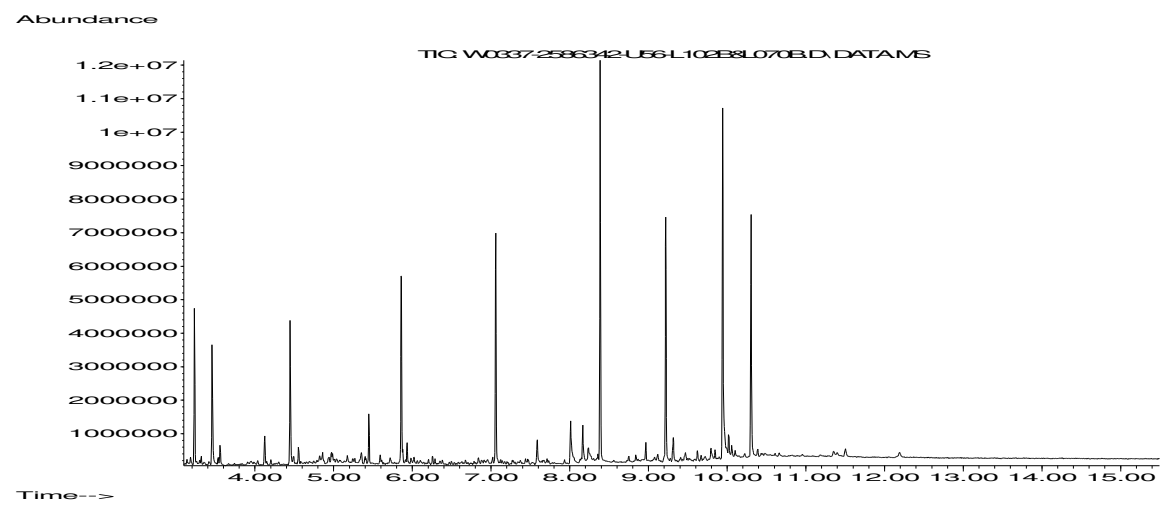
Analytical Report Number : 23-17745
Project / Site name: Hurst, Lodge Rd

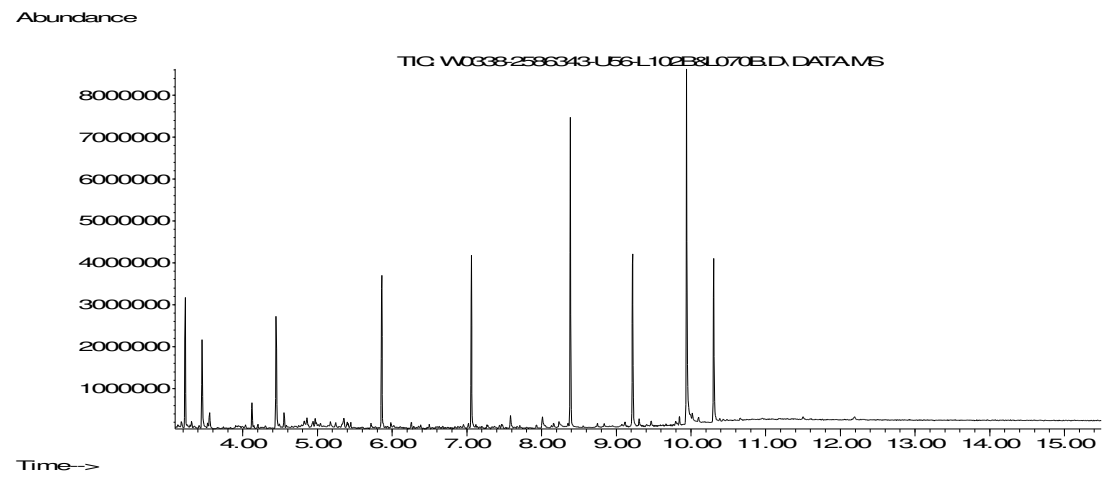
Water matrix abbreviations:

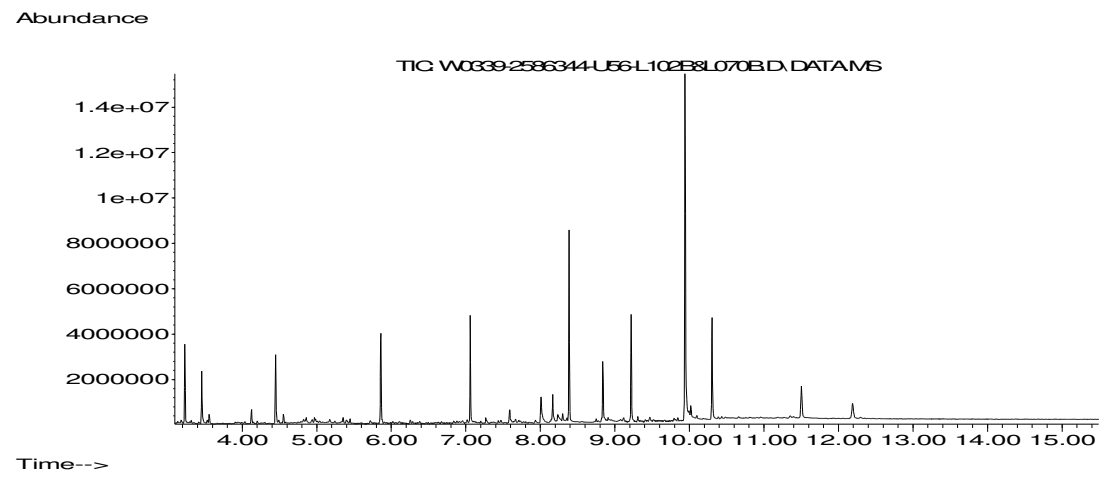
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

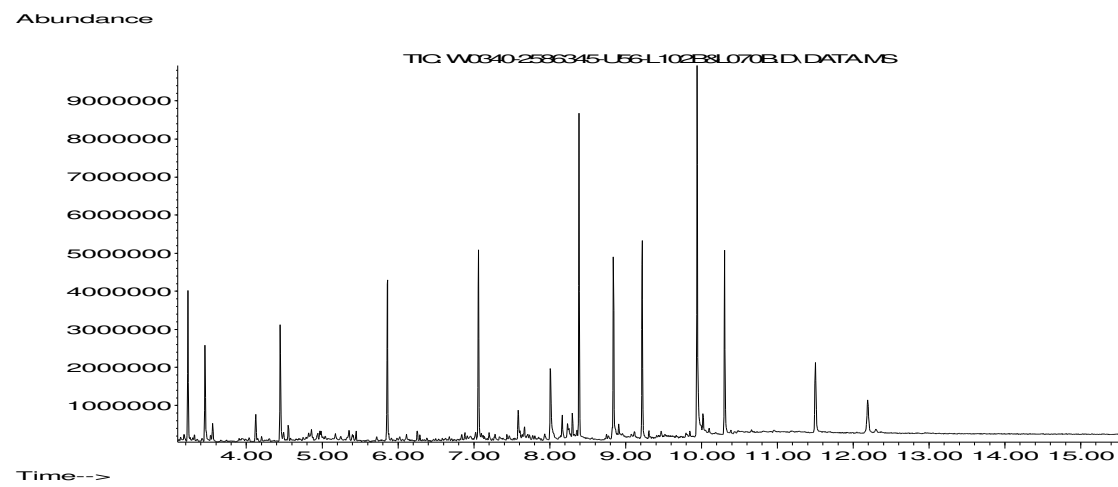
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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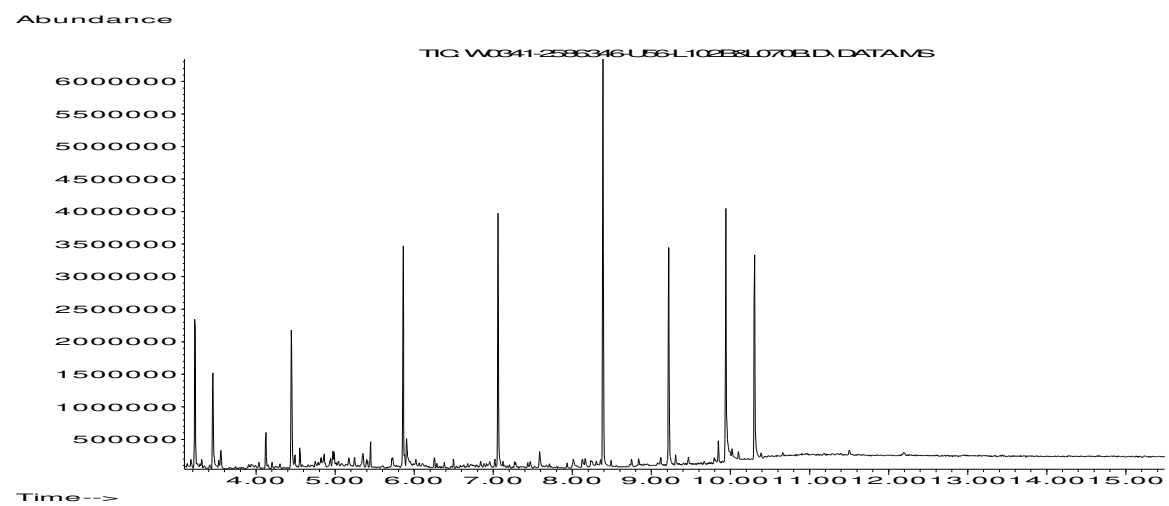
+ Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

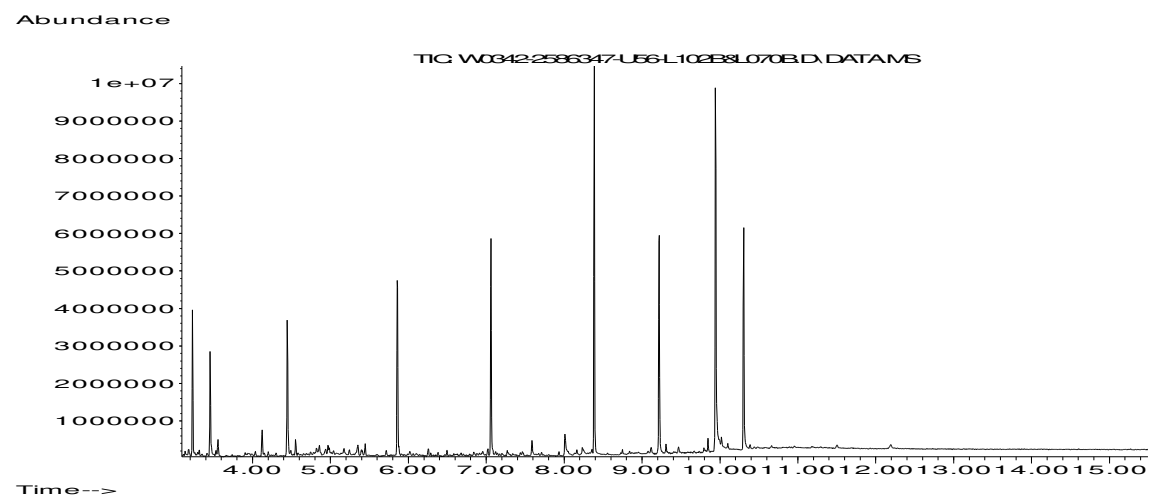


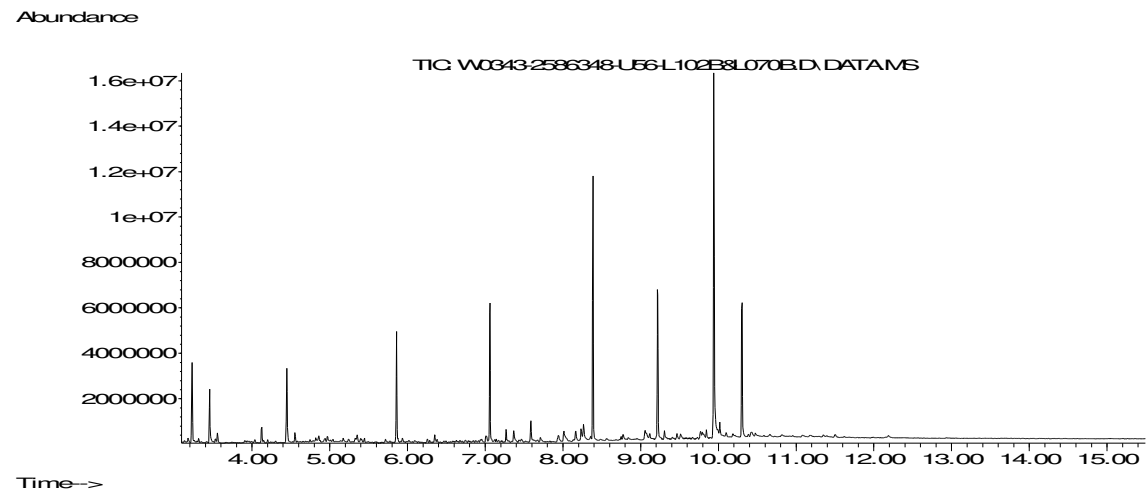












GAC derivation

Background

Initially, the Hydrock GAC were derived following the publishing of soil guideline values (SGV), toxicological (TOX) reports and associated publications by the Environment Agency (EA) in 2009 referenced under Science Report SC050021 (EA, 2009a, b, c, d). The Hydrock GAC have then been periodically updated following publication of new information on toxicological, physico-chemical, land use or receptor parameters, namely:

- » LQM/CIEH, 2009. LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment, second edition. Nathaniel, C. P., McCaffrey, C., Ashmore, M., Cheng, Y., Gillet, A. G., Ogden, R. C. and Scott, D.
- » CL:AIRE, 2010. 'The EIC/AGS/CL:AIRE Soil Generic Assessment Criteria for Human Health Risk Assessment'. Environmental Industries Commission, The Association of Geotechnical and Geoenvironmental Specialists and Contaminated Land: Applications in Real Environment.
- » CL:AIRE, 2014. 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination', Revision 2, DEFRA research project SP1010. Contaminated Land: Applications in Real Environment.
- » LQM/CIEH, 2015. 'The LQM/CIEH S4ULs for Human Health Risk Assessment'. Nathaniel, C. P., McCaffrey, C., Gillet, A. G., Ogden, R. C. and Nathaniel, J. F.
- » CL:AIRE, 2021. 'C4SL Phase 2 Technical Reports'. Contaminated Land: Applications in Real Environment.

Land use scenarios

Hydrock has derived generic assessment criteria (GAC) for human health based on the six exposure scenarios defined in CL:AIRE (2014) using generic default assumptions from published guidance. GAC for each exposure scenario have been derived for three soil organic matter (SOM) contents, 1%, 2.5% and 6%.

All GAC have been rounded to two significant figures.

Exposure parameters

The exposure parameters used for the Hydrock GAC are the default parameters stated in SR3, unless updated in CL:AIRE (2014) where the CL:AIRE (2014) values have been adopted.

Approach to consumption rates

Hydrock have adopted the 90th percentile consumption rates from Table 3.4 of CL:AIRE (2014) for all produce types. This is noted to be more conservative than the "top two" approach taken in the derivation of C4SLs.

Approach to plant uptake for GAC omitted in CL:AIRE (2010)

Plant uptake factors were not identified in CL:AIRE (2010) for antimony, barium and molybdenum. Hydrock has sourced the required parameter values from ORNL (1984) in order to derive GAC that are inclusive of the homegrown produce exposure pathway.

Chemical and toxicity parameters

The chemical and toxicity parameters have been adopted based on the following documents:

- » IRIS, 2016. 'Toxicological Review of Trimethylbenzenes'. Integrated Risk Information System, National Centre for Environmental Assessment, office of Research and Development, U.S. Environmental Protection Agency.
- » LQM/CIEH, 2015.

- » ORNL, 1984. 'ORNL-5786. A Review and Analysis of Parameters for Assessing Transport of Environmentally released Radionuclides through Agriculture'. Oak Ridge National Laboratory.
- » CL:AIRE, 2010.
- » RIVM, 2001. RIVM Report 711701 025 'HCV Re-evaluation of human-toxicological maximum-permissible risk levels'. National Institute of Public Health and the Environment.
- » LQM/CIEH, 2009.
- » EA, 2009a.

Approach to Cyanide GAC

The Hydrock GAC for free cyanide have been derived based on ingestion of a bolus of contaminated soil. The GAC are derived for acute exposure of a child (0-6 years old) for all land uses except commercial, where the GAC are derived for acute exposure of an adult (16-65 years old). For the purpose of GQRA, the child value may be adopted for all land use scenarios.

For complex cyanide, the GAC have been derived based on chronic exposure, using the default exposure scenarios but excluding the consumption of homegrown produce, soil attached to homegrown produce, indoor vapour and outdoor vapour pathways. The chronic health criteria value (HCV) for complex cyanide is based on the EA (2009a) HCV for free cyanide and the ratio of toxicity between free and complex cyanide proposed by RIVM (2001).

Approach to Phenol GAC

In accordance with the EA Science Report SC050021 / Phenol SGV, a $GAC_{ing/inh}$ has been derived for ingested and inhaled phenol using the CLEA model, with a GAC_{derm} derived for dermal contact using Equation 5.7 within SR3. The lower of the $GAC_{ing/inh}$ and GAC_{derm} has been adopted as the final GAC.

Approach to PCB GAC

GAC for assessing the non-dioxin-like risk from PCBs have been based on the "Dutch 7". As the TDI used by the authors of the Dutch guidance is for the sum of the 7 individual congeners, the TDI has been divided by 7 to create a TDI for each congener. The non-dioxin-like risk from PCBs is therefore assessed using a Hazard Index approach as for total petroleum hydrocarbons (TPH).

Sub-surface soil to indoor air correction factors

Reflecting the approach taken by the Environment Agency in the development of revised SGV in 2009 for BTEX, a sub-surface soil to indoor air correction factor of 10 has been applied for petroleum hydrocarbons in order to account for over-prediction of vapour intrusion into building using the Johnson and Ettinger approach.

The correction factor of 10 has been applied to the following petroleum hydrocarbons (it makes negligible difference to less volatile TPH and PAH compounds):

- » TPHCWG fractions, namely aliphatic EC>5-44 and aromatic EC>6-44;
- » PAHs (acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene), benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, pyrene);
- » BTEX;
- » Isopropylbenzene;
- » Propylbenzene;
- » 1,2,4- and 1,3,5-trimethylbenzene; and
- » Styrene.

Approach to saturation limits

The CLEA model includes a traffic light colour system to highlight when saturated soil conditions have potentially been exceeded for the vapour pathways during calculation of assessment criteria. The colours represent:

- » Green: the assessment criteria do not exceed the saturated soil concentration.
- » Amber: the assessment criteria exceed the saturated soil concentration but the contribution of the indoor and outdoor vapour pathway to total exposure is less than 10% and will not significantly affect the assessment criteria.
- » Red: the assessment criteria exceed the saturated soil concentration and the contribution of the indoor and outdoor vapour pathway to total exposure is greater than 10% and will significantly affect the assessment criteria.

Hydrock have not applied any further calculations or assessment in relation to saturation limits during GAC derivation, with the CLEA-modelled GAC being presented as the GAC. Consideration of saturation limits is undertaken during the data assessment stage.

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Human health GQRA

Assessment of Chemicals of Potential Concern to Human Health

Risk parameter:			Default - Human Health - residential with home-grown produce (1%SOM)											TPH		TT0A-9		TT0B-9		TT0C-9		TT0D-9		TT0E-9		W00A-9		W00B-9		W00C-9		W00D-9		W00E-9		TT05(N)																									
Client:			Mactaggart & Mickel											Data Filters											Hydrock																																				
Site:			Land East of Lodge Road, Hurst											Zone		All																																													
Job no.:			26519											Strata		All																																													
Lab. report no(s):			22-14404-1 22-12315-1 22-11832-1											Depth Min (m bgl)		0.5																																													
														Depth Max (m bgl)		0.5													Date	30/11/2022	30/11/2022	30/11/2022	30/11/2022	01/12/2022	01/12/2022	07/12/2022	07/12/2022	07/12/2022	08/07/2022	08/07/2022	08/07/2022	08/07/2022	08/07/2022	08/07/2022	13/12/2022																
All values in mg/kg unless otherwise stated															Dataset mean SOM%															1.31															Location	TT29A	TT30B	TT18B	TT32A	TT45B	TT46B	WS04	WS04	WS06	WS02	WS02	WS07	WS03	WS03	WS03	TT05(N)
CAS No / P Code	Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	Soil Saturation Limit @1% SOM	GAC	GAC Source	Strata	MG / NAT?																																														
-	Asbestos																																																												
P1020	Asbestos Identified	text	Y/N	16	-	-	-	-	No. of detects:	0	-	-	-		Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected																												
P188g	Asbestos Screen Name	text		0	-	-	-	-	-		-		-																																																
P1885	Asbestos Quant. (Stage 2)	%	0.001	0					No. > LOD:		-		-																																																
P1935	Asbestos Quant. Total	%	0.001	0					No. > LOD:		-		-																																																
P1826	Asbestos Quant. (Stage 3)	%	0.001	0					No. > LOD:		-		-																																																
-	Asbestos Quant. Total (Stages 2+3)	%	0.001	0					No. > LOD:		-		-																																																
P1880	Asbestos Containing Material Types Detected (ACMI)	text		0	-	-	-	-	-		-		-																																																
-	Hydrock Default Suite - FOC / SOM / pH										-																																																		
P1085	FOC (dimensionless)		0.001	14	0.002	0.018	0.008	0.006	0.01		-	-	-		0.0082	0.005	0.003	0.013	0.015	0.0041	0.0084	< 0.0010	0.0015	0.0073	< 0.0010	0.0031	0.014	0.0022	0.018																																
-	SOM (calculated)	%	0.1724	14	0.26	3.10	1.31	1.06	0.93		-	-	-		1.41368	0.862	0.5172	2.2412	2.586	0.70684	1.44816	0.2586	1.25852	0.53444	2.4136	0.37928	3.1032																																		
P1334	pH (su)	pH Units	0.1	16	6.50	8.50	7.55	7.50	0.60		-	-	-		7.5	8.2	8.2	7.4	7.5	6.7	7.1	8.4	8.1	7.3	7.4	6.9	7.6	8.5	7.5																																
-	Hydrock Default Suite - Metals & PAH																																																												
7440-38-2	Arsenic	mg/kg	1	16	5.40	13.00	7.71	6.75	2.24	0	NR	37	C4SL - CL-AIRE 2014		5.4	9.5	7.3	6.2	6.2	9.3	6.3	11	9.5	6.9	9	13	5.4	5.9	5.9																																
7440-41-7	Beryllium	mg/kg	0.06	16	0.27	0.93	0.46	0.42	0.18	0	NR	1.7	Hydrock Derived		0.42	0.42	0.39	0.35	0.33	0.5	0.45	0.93	0.8	0.41	0.45	0.58	0.28	0.27	0.44																																
7440-42-8	Boron	mg/kg	0.2	11	0.20	1.10	0.48	0.40	0.31	0	NR	300	Hydrock Derived		0.3	< 0.2	0.2	1.1	0.6	0.6	0.6	0.2	0.2	< 0.2	< 0.2	< 0.2	0.9	< 0.2	0.4																																
7440-43-9	Cadmium	mg/kg	0.2	0											< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2																														
16065-83-1	Chromium (III)	mg/kg	1	10	9.80	24.00	15.18	14.50	5.03	0	NR	890	Hydrock Derived		< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	16	24	23	17	10	15	11	9.8	12																																
18540-29-9	Chromium (VI)	mg/kg	1.8	6	10.00	19.00	14.00	13.50	2.97	0	NR	21	C4SL - CL-AIRE 2014		14	15	13	13	10	19	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8																														
7440-47-3	Chromium (Total)	mg/kg	1	16	9.80	24.00	15.05	14.00	4.06			-		14	15	13	13	12	19	16	24	23	17	10	15	12	9.8	14																																	
7440-50-8	Copper	mg/kg	1	16	3.10	13.00	6.47	5.25	3.08	0	NR	2500	Hydrock Derived		5	3.1	4.7	5.5	6.2	4.5	13	8.3	7.2	4.4	3.3	4.4	7	4.5	13																																
7439-92-1	Lead	mg/kg	1	16	5.40	34.00	13.41	10.00	7.91	0	NR	200	C4SL - CL-AIRE 2014		16	8.9	8.2	20	21	7.6	25	8.7	8.2	11	5.4	10	14	6.5	34																																
7439-97-6	Mercury, inorganic	mg/kg	0.3	0											< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3																														
7440-02-0	Nickel	mg/kg	1	16	5.40	32.00	9.61	7.45	7.03	0	NR	130	Hydrock Derived		7.3	7.6	6.5	5.9	5.4	9	8.7	32	21	7.8	9.7	8.9	5.5	5.5	6.4																																
7782-49-2	Selenium	mg/kg	1	0											< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0																														
7440-62-2	Vanadium	mg/kg	1	16	17.00	40.00	24.81	23.00	6.61	0	NR	410	Hydrock Derived		21	27	23	21	19	30	24	40	35	27	18	32	18	17	22																																
7440-66-6	Zinc	mg/kg	1	16	12.00	32.00	19.38	19.50	5.00	0	NR	3900	Hydrock Derived		20	16	16	21	21	20	32	19	23	17	13	16	22	12	26																																
P1095	Cyanide (free)	mg/kg	1	0											< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0																														
P1186	Total Phenols (Monohydric)	mg/kg	1	0											< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0																														
83-32-9	Acenaphthene	mg/kg	0.05	4	0.06	0.08	0.07	0.07	0.01	0	57	230	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	0.08	< 0.05	0.06	0.08																																
208-96-8	Acenaphthylene	mg/kg	0.05	4	0.07	0.31	0.14	0.08	0.12	0	86	180	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	0.08	< 0.05	0.08	< 0.05	0.31																															
120-12-7	Anthracene	mg/kg	0.05	4	0.10	0.29	0.17	0.14	0.09	0	1.17	2400	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	0.16	< 0.05	0.11	0.29																																
56-55-3	Benz(a)anthracene	mg/kg	0.05	8	0.10	0.95	0.31	0.20	0.29	0	1.71	8.9	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.11	0.1	< 0.05	0.1	0.28	0.44	0.11	0.35	0.95																																
50-32-8	Benzo(a)pyrene	mg/kg	0.05	7	0.07	0.98	0.30	0.20	0.32	0	0.91	5	C4SL - CL-AIRE 2014		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	< 0.05	0.07	0.2	0.36	0.09	0.28	0.98																																
205-99-2	Benzo(b)fluoranthene	mg/kg	0.05	7	0.08	0.89	0.30	0.20	0.28	0	1.22	2.6	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.11	< 0.05	< 0.05	0.08	0.2	0.37	0.12	0.32	0.89																																
191-24-2	Benzo(ghi)perylene	mg/kg	0.05	5	0.08	1.90	0.60	0.35	0.74	0	0.02	320	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	0.23	0.42	< 0.05	0.35	1.9																																
207-08-9	Benzo(k)fluoranthene	mg/kg	0.05	6	0.05	0.47	0.17	0.13	0.15	0	0.69	78	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	0.12	0.17	0.05	0.13	0.47																																
218-01-9	Chrysene	mg/kg	0.05	9	0.05	0.77	0.22	0.10	0.23	0	0.44	15	Hydrock Derived		0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	0.07	< 0.05	0.07	0.2	0.35	0.09	0.27	0.77																																
53-70-3	Dibenz(a,h)anthracene	mg/kg	0.05	1	0.09	0.09	0.09	0.09	-	0	0.004	0.25	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09																															
206-44-0	Fluoranthene	mg/kg	0.05	11	0.05	2.00	0.46	0.20	0.58	0	19	290	Hydrock Derived		0.07	< 0.05	< 0.05	< 0.05	0.05	< 0.05	0.2	0.17	0.08	0.19	0.52	0.93	0.21	0.68	2																																
86-73-7	Fluorene	mg/kg	0.05	4	0.08	0.15	0.11	0.11	0.03	0	31	180	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	0.12	< 0.05	0.09	0.15																																
193-39-5	Indeno(123cd)pyrene	mg/kg	0.05	5	0.07	0.73	0.26	0.17	0.27	0	0.06	28	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	0.12	0.22	< 0.05	0.17	0.73																																
91-20-3	Naphthalene	mg/kg	0.05	4	0.11	0.17	0.13	0.13	0.03	0	76	13	Hydrock Derived		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.11	0.17	< 0.05	0.14	0.11																																
85-01-8	Phenanthrene	mg/kg	0.05	10	0.05	0.55	0.23	0.15	0.18	0	36	98	Hydrock Derived		0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	0.11	0.07	0.19	0.31	0.5	0.1	0.35	0.55																																
129-00-0	Pyrene	mg/kg	0.05	11	0.05	3.10	0.63	0.23	0.89	0	2.2	620	Hydrock Derived		0.06	< 0.05	< 0.05	< 0.05	0.05	< 0.05	0.22	0.2	0.14	0.23	0.66	1.1	0.26	0.87	3.1																																
P1310	PAH 16 Total	mg/kg																																																											

Assessment of Chemicals of Potential Concern to Human Health

[illegible]

Assessment of Chemicals of Potential Concern to Human Health

Risk parameter:		Default - Human Health - residential with home-grown produce (1%SOM)										T100		T100-1		T100-2		T100-3		T100-4		T100-5		W100-1		W100-2		W100-3		W100-4		W100-5		T100-6	
Client:		Mactaggart & Mickel										Data Filters																							
Site:		Land East of Lodge Road, Hurst										Zone		All																					
Job no.:		26519										Strata		All																					
Lab. report no(s).:		22-14404-1 22-12315-1 22-11832-1										Depth Min (m bgl)		0.5																					
												Depth Max (m bgl)		0.5																					
All values in mg/kg unless otherwise stated														Dataset mean SOM%														1.31							
CAS No / P Code	Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	Soil Saturation Limit @1% SOM	GAC	GAC Source	Strata	MG / NAT?																				
75-34-3	1,1-Dichloroethane	mg/kg	1	0																															
107-06-2	1,2-Dichloroethane	mg/kg	1	0																															
75-35-4	1,1-Dichloroethene	mg/kg	1	0																															
356-59-2	Cis 1,2 Dichloroethene	mg/kg	1	0																															
356-60-5	Trans 1,2 Dichloroethene	mg/kg	1	0																															
75-09-2	Dichloromethane	mg/kg		0																															
78-87-5	1,2-Dichloropropane	mg/kg	1	0																															
67-72-1	Hexachloroethane	mg/kg	0.05	0																															
127-18-4	Tetrachloroethene	mg/kg	1	0																															
630-20-6	1,1,1,2-Tetrachloroethane	mg/kg	1	0																															
79-34-5	1,1,2,2-Tetrachloroethane	mg/kg	1	0																															
56-23-5	Tetrachloromethane	mg/kg	1	0																															
79-01-6	Trichloroethene	mg/kg	1	0																															
71-55-6	1,1,1-Trichloroethane	mg/kg	1	0																															
79-00-5	1,1,2 Trichloroethane	mg/kg	1	0																															
67-66-3	Trichloromethane	mg/kg	1	0																															
-	Other phenols & chlorophenols																																		
108-95-2	Phenol	mg/kg	0.2	0																															
95-57-8	2-Chlorophenol	mg/kg	0.1	0																															
120-83-2	2,4-Dichlorophenol	mg/kg	0.3	0																															
105-67-9	2,4-Dimethylphenol	mg/kg	0.3	0																															
95-48-7	2-Methylphenol	mg/kg	0.3	0																															
108-39-4	3-Methylphenol	mg/kg		0																															
106-44-5	4-Methylphenol	mg/kg	0.2	0																															
87-86-5	Pentachlorophenol	mg/kg		0																															
88-06-2	2,3,4,6-Tetrachlorophenol	mg/kg		0																															
88-06-2	2,4,6-Trichlorophenol	mg/kg	0.1	0																															
-	Phthalates																																		
117-81-7	Bis (2-ethylhexyl) phthalate	mg/kg		0																															
85-68-7	Butyl benzyl phthalate	mg/kg	0.3	0																															
84-66-2	Diethyl Phthalate	mg/kg	0.2	0																															
84-74-2	Di-n-butyl phthalate	mg/kg	0.2	0																															
117-84-0	Di-n-octyl phthalate	mg/kg		0																															
-	Pesticides																																		
309-00-2	Aldrin	mg/kg		0																															
1912-24-9	Atrazine	mg/kg		0																															
72-54-8	DDD	mg/kg		0																															
75-55-9	DDE	mg/kg		0																															
50-29-3	DDT	mg/kg		0																															
62-73-7	Dichlorvos	mg/kg		0																															
60-57-1	Dieldrin	mg/kg		0																															
959-98-8	Endosulfan - alpha	mg/kg		0																															
33213-65-9	Endosulfan - beta	mg/kg		0																															
319-84-6	Hexachlorocyclohexanes - alpha (inc. Lindane)	mg/kg		0																															
319-85-7	Hexachlorocyclohexanes - beta (inc. Lindane)	mg/kg		0																															
58-89-9	Hexachlorocyclohexanes - gamma (inc. Lindane)	mg/kg		0																															
-	Non-dioxin-like PCBs																																		
7012-37-5	PCB-28	mg/kg	0.001	0																															
35693-99-3	PCB-52	mg/kg	0.001	0																															
37680-73-2	PCB-101	mg/kg	0.001	0																															
31508-00-6	PCB-118	mg/kg	0.001	0																															
35065-28-2	PCB-138	mg/kg	0.001	0																															
35065-27-1	PCB-153	mg/kg	0.001	0																															
35065-29-3	PCB-180	mg/kg	0.001	0																															

Assessment of Chemicals of Potential Concern to Human Health

Risk parameter: Default - Human Health - residential with home-grown produce (1%SOM)														TT29A														TT30B														TT18B														TT32A														TT45B														TT46B														WS04														WS04														WS06														WS02														WS02														WS07														WS03														WS03														TT05(N)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										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Assessment of Chemicals of Potential Concern to Human Health

Risk parameter:														Default - Human Health - residential with home-grown produce (1%SOM)										Data Filters																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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CAS No / P Code	Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	Soil Saturation Limit @1% SOM	GAC	GAC Source	Strata	MG / NAT?																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

Hydrock

07/03/2023, 15:25

Assessment of Chemicals of Potential Concern to Human Health

Risk parameter:		Default - Human Health - residential with home-grown produce (1%SOM)										Threats																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Lab. report no(s).:		22-14404-1 22-12315-1 22-11832-1										Depth Min (m bgl) 0.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Assessment of Chemicals of Potential Concern to Human Health

Default - Human Health - residential with home-grown produce (1%SOM)										Threats																		
Risk parameter:		Client: Mactaggart & Mickel								Data Filters																		
Site:		Land East of Lodge Road, Hurst								Zone		All																
Job no.:		26519								Strata		All																
Lab. report no(s):		22-14404-1 22-12315-1 22-11832-1								Depth Min (m bgl)		0.5																
										Depth Max (m bgl)		0.5																
										13/12/2022																		
										0.40																		
All values in mg/kg unless otherwise stated										Dataset mean SOM%		1.31																
										TT05(N)																		
Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	Soil Saturation Limit @1% SOM	GAC	GAC Source																
1,1-Dichloroethane	mg/kg	1	0																									
1,2-Dichloroethane	mg/kg	1	0																									
1,1-Dichloroethene	mg/kg	1	0																									
Cis 1,2 Dichloroethene	mg/kg	1	0																									
Trans 1,2 Dichloroethene	mg/kg	1	0																									
Dichloromethane	mg/kg		0																									
1,2-Dichloropropane	mg/kg	1	0																									
Hexachloroethane	mg/kg	0.05	0																									
Tetrachloroethene	mg/kg	1	0																									
1,1,1,2-Tetrachloroethane	mg/kg	1	0																									
1,1,2,2-Tetrachloroethane	mg/kg	1	0																									
Tetrachloromethane	mg/kg	1	0																									
Trichloroethene	mg/kg	1	0																									
1,1,1-Trichloroethane	mg/kg	1	0																									
1,1,2 Trichloroethane	mg/kg	1	0																									
Trichloromethane	mg/kg	1	0																									
Other phenols & chlorophenols																												
Phenol	mg/kg	0.2	0																									
2-Chlorophenol	mg/kg	0.1	0																									
2,4-Dichlorophenol	mg/kg	0.3	0																									
2,4-Dimethylphenol	mg/kg	0.3	0																									
2-Methylphenol	mg/kg	0.3	0																									
3-Methylphenol	mg/kg		0																									
4-Methylphenol	mg/kg	0.2	0																									
Pentachlorophenol	mg/kg		0																									
2,3,4,6-Tetrachlorophenol	mg/kg		0																									
2,4,6-Trichlorophenol	mg/kg	0.1	0																									
Phthalates																												
Bis (2-ethylhexyl) phthalate	mg/kg		0																									
Butyl benzyl phthalate	mg/kg	0.3	0																									
Diethyl Phthalate	mg/kg	0.2	0																									
Di-n-butyl phthalate	mg/kg	0.2	0																									
Di-n-octyl phthalate	mg/kg		0																									
Pesticides																												
Aldrin	mg/kg		0																									
Atrazine	mg/kg		0																									
DDD	mg/kg		0																									
DDE	mg/kg		0																									
DDT	mg/kg		0																									
Dichlorvos	mg/kg		0																									
Dieldrin	mg/kg		0																									
Endosulfan - alpha	mg/kg		0																									
Endosulfan - beta	mg/kg		0																									
Hexachlorocyclohexanes - alpha (inc. Lindane)	mg/kg		0																									
Hexachlorocyclohexanes - beta (inc. Lindane)	mg/kg		0																									
Hexachlorocyclohexanes - gamma (inc. Lindane)	mg/kg		0																									
Non-dioxin-like PCBs																												
PCB-28	mg/kg	0.001	0																									
PCB-52	mg/kg	0.001	0																									
PCB-101	mg/kg	0.001	0																									
PCB-118	mg/kg	0.001	0																									
PCB-138	mg/kg	0.001	0																									
PCB-153	mg/kg	0.001	0																									
PCB-180	mg/kg	0.001	0																									

Assessment of Chemicals of Potential Concern to Human Health

Risk parameter: Default - Human Health - residential with home-grown produce (1%SOM)														Threats																	
Client:		Mactaggart & Mickel												Data Filters		Hydrock															
Site:		Land East of Lodge Road, Hurst												Zone																All	
Job no.:		26519												Strata																All	
Lab. report no(s):		22-14404-1 22-12315-1 22-11832-1												Depth Min (m bgl)																0.5	
														Depth Max (m bgl)		0.5															
All values in mg/kg unless otherwise stated														Dataset mean SOM%		1.31		13/12/2022													
																0.40															
														TT05(N)																	
Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	Soil Saturation Limit @1% SOM	GAC	GAC Source																			
Total PCB (ICES7)	mg/kg	0.001	0																												
Explosives																															
HMX	mg/kg		0																												
RDX	mg/kg		0																												
2,4,6-Trinitrotoluene	mg/kg		0																												
Other inorganics																															
Antimony	mg/kg		0																												
Barium	mg/kg		0																												
Mercury, elemental	mg/kg		0																												
Molybdenum	mg/kg		0																												
Thiocyanate	mg/kg		0																												
Other organics																															
Biphenyl	mg/kg		0																												
Carbon disulphide	mg/kg		0																												
2,4-Dinitrotoluene	mg/kg	0.2	0																												
2,6-Dinitrotoluene	mg/kg	0.1	0																												
Hexachloro-1,3-butadiene	mg/kg	1	0																												
Mercury, methyl	mg/kg		0																												
Styrene	mg/kg	1	0																												
Tributyl tin oxide	mg/kg		0																												
2-Chloronaphthalene	mg/kg	0.1	0																												
Other VOC Suite Substances which do not have a GAC																															
Bromomethane	mg/kg	1	0																												
Trichlorofluoromethane	mg/kg	1	0																												
1,1,2-Trichloro 1,2,2-Trifluoroethane	mg/kg	1	0																												
2,2-Dichloropropane	mg/kg	1	0																												
1,1-Dichloropropene	mg/kg	1	0																												
Dibromomethane	mg/kg	1	0																												
Cis-1,3-dichloropropene	mg/kg	1	0																												
Trans-1,3-dichloropropene	mg/kg	1	0																												
1,3-Dichloropropane	mg/kg	1	0																												
Dibromochloromethane	mg/kg	1	0																												
1,2-Dibromoethane	mg/kg	1	0																												
Isopropylbenzene	mg/kg	1	0																												
2-Chlorotoluene	mg/kg	1	0																												
4-Chlorotoluene	mg/kg	1	0																												
tert butylbenzene	mg/kg	1	0																												
sec butylbenzene	mg/kg	1	0																												
Isopropyltoluene	mg/kg	1	0																												
n butylbenzene	mg/kg	1	0																												
chloropropane	mg/kg	1	0																												
Other SVOC Suite Substances which do not have a GAC																															
Aniline	mg/kg	0.1	0																												
Bis(2-chloroethyl)ether	mg/kg	0.2	0																												
Bis(2-chloroisopropyl)ether	mg/kg	0.1	0																												
Nitrobenzene	mg/kg	0.3	0																												
Isophorone	mg/kg	0.2	0																												
2-Nitrophenol	mg/kg	0.3	0																												
Bis(2-chloroethoxy)methane	mg/kg	0.3	0																												
4-Chloroaniline	mg/kg	0.1	0																												
4-Chloro-3-methylphenol	mg/kg	0.1	0																												
2,4,5-Trichlorophenol	mg/kg	0.2	0																												
2-Methylnaphthalene	mg/kg	0.1	0																												
Dimethyl phthalate	mg/kg	0.1	0																												
Dibenzofuran	mg/kg	0.2	0																												
ether	mg/kg	0.3	0																												
4-Nitroaniline	mg/kg	0.2	0																												

Assessment of Chemicals of Potential Concern to Human Health

Risk parameter:

Client:

Site:

Job no.:

Lab. report no(s).:

Default - Human Health - residential with home-grown produce (1%SOM)

Mactaggart & Mickel

Land East of Lodge Road, Hurst

26519

22-14404-1 22-12315-1 22-11832-1

Data Filters

Zone

All

Strata

All

Depth Min (m bgl)

0.5

Depth Max (m bgl)

0.5

Hydrock

13/12/2022

0.40

TT05(N)

All values in mg/kg unless otherwise stated

Dataset mean SOM%

1.31

Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	Soil Saturation Limit @1% SOM	GAC	GAC Source													
Azobenzene	mg/kg	0.3	0																						
Bromophenyl phenyl ether	mg/kg	0.2	0																						
Carbazole	mg/kg	0.3	0																						
Anthraquinone	mg/kg	0.3	0																						
GAC																									
1-Methylnaphthalene	mg/kg		0																						
Sulfur (elemental)	mg/kg		0																						
Additional Substances																									
Other 1	mg/kg		0																						
Other 2	mg/kg		0																						
Other 3	mg/kg		0																						
Other 4	mg/kg		0																						
Other 5	mg/kg		0																						
Other 6	mg/kg		0																						
Other 7	mg/kg		0																						
Other 8	mg/kg		0																						
Other 9	mg/kg		0																						
Other 10	mg/kg		0																						
TPH Additivity Check	HAZARD QUOTIENTS FOR EACH FRACTION																								
Hazard Index table - HI or HQ greater than 1 highlighted with orange shading.													Aliph												
													Aliph												
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													Hazard Index												
													Hazard Index												
													Hazard Index fr												

Legend:

MG

HH

XX

Made Ground

Holt Heath Sand and Gravel

XX Other Codes

<0.02

0.02

64.00

<10

Y

-

+

Value below the laboratory reporting limit and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.

Value greater than, or equal to, the generic assessment criterion (GAC).

Value exceed saturation limit and substance is liquid or solid at ambient temperature

Value excluded from statistical analysis

Text result

Represents a determinand that was not tested.

represents a data point that is not included in the current filter settings

Phytotoxic GQRA

Assessment of Chemicals of Potential Concern to Plant Life

Risk parameter:

Client:

Site:

Job no.:

Lab. report no(s):

Phytotoxic pH 7

xxxxx

xxxxx

xxxxx

Data Filters

Zone

Strata

Depth Min (m bgl)

Depth Max (m bgl)

All

All

0.2

0.2

Hydrock

13/12/22

XX

TT05(N)

0.2

MG / NAT?

All values in mg/kg unless otherwise stated

Dataset mean pH

Scenario pH

6.70

7

CAS No / P Code	Chemical of Potential Concern	Units	LoD	No. Samples	Min. Value	Max. Value	Mean	Median	Standard Deviation	No. Samples >= GAC & > LoD	GAC	GAC Source	Strata
-	Hydrock Default Suite - FOC / SOM / pH												
P1334	pH (su)	pH Units	0.1	1	6.70	6.70	6.70	6.70	-		-	-	6.70
-	Hydrock Default Suite - Metals & PAH												
7440-38-2	Arsenic	mg/kg	1	1	6.60	6.60	6.60	6.60	-	0	250	MAFF 1998	6.6
7440-42-8	Boron	mg/kg	0.2	1	0.20	0.20	0.20	0.20	-	0	5	Nable, et al. 1997	0.2
18065-83-1	Chromium (III)	mg/kg	1	1	14.00	14.00	14.00	14.00	-	0	400	MAFF 1998 (Cr(T))	14
18540-29-9	Chromium (VI)	mg/kg	1.8	0									< 1.8
7440-50-8	Copper	mg/kg	1	1	9.40	9.40	9.40	9.40	-	0	135	BS3882 2015	9.4
7440-02-0	Nickel	mg/kg	1	1	6.50	6.50	6.50	6.50	-	0	75	BS3882 2015	6.5
7440-66-6	Zinc	mg/kg	1	1	16.00	16.00	16.00	16.00	-	0	300	BS3882 2015	16

Legend:

MG

HH

XX

Made Ground

Holt Heath Sand and Gravel

XX Other Codes

<0.02

0.02

64.00

<10

Y

-

•

Value below the laboratory reporting limit and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.

Value greater than, or equal to, the generic assessment criterion (GAC).

Value exceed saturation limit and substance is liquid or solid at ambient temperature

Value excluded from statistical analysis

Text result

Represents a determinand that was not tested.

represents a data point that is not included in the current filter settings

Template Version:

103: 09/11/22

Appendix H Preliminary geotechnical risk register

Geotechnical hazard identification – desk study stage

Potential geotechnical hazards have been assessed in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents HD 41/15 and CD 622. The following pages set out the identified geotechnical risks and hazards which are associated with the proposed development and establish the approach which is to be taken to manage the risks including the geotechnical input and analysis. Table J.1 is a preliminary assessment of possible geotechnical hazards at the site at Desk Study stage. This information is used to assist with ground investigation design.

Table J.1: Possible geotechnical hazards

Hazard	Comment	Hazard status based on desk study	
		Could be present and / or affect site (i.e. Plausible)	Unlikely to be present and/or affect site
Uncontrolled Made Ground (variable strength and compressibility).	Unlikely to encounter made ground on site.	✓	-
Soft / loose compressible ground (low strength and high settlement potential).		✓	
Shrink swell of the clay fraction of soils under the influence of vegetation.		✓	
Variable lateral and vertical changes in ground conditions.		✓	
High sulfates present in the soils.			✓
Adverse chemical ground conditions, (e.g. expansive slag).			✓
Obstructions.			✓
Existing below ground structures to remain			✓
Shallow groundwater.		✓	
Changing groundwater conditions.		✓	

Risk from erosion.			✓
Risk from flooding.			✓
Running sands and / or loose Made Ground, leading to difficulty with excavation and collapse of side walls.	Sidewall collapse of trial pits frequently occurred when deeper than 2m.	✓	
Slope stability issues – general slopes.			✓
Slope stability issues – retaining walls.			✓
Earthworks – settlement (due to placement of fill on soft / loose ground).		✓	
Earthworks – poor bearing capacity of new fill.		✓	
Earthworks – unsuitability of site won material to be reused as fill.			✓
Solution features in Chalk.			✓
Cavities in the Superficial Deposits due to solution features.			✓
Dissolution (associated with “wet rock head”).			✓
Brine extraction.			✓
Mining.		✓	
Cambered ground with gulls possibly present.			✓
Relict Slip Surfaces.			✓
Solifluction.			✓
Problematic soils (silts and rewetting etc.).			✓

Geotechnical Hazard Identification – Following Ground Investigation

The preliminary Geotechnical Risk Register following Ground Investigation is set out in Table J.3.

The probability and impact of a hazard have been judged on a qualitative scale as set out in Table J.2. The degree of risk (R) is determined by combining an assessment of the probability (P) of the hazard occurring with an assessment of the impact (I) of the hazard and associated mitigation it will require if it occurs ($R = P \times I$).

Table J.2: Qualitative assessment of hazards and risks

P = Probability		I = Impact		R = Risk Rating (P x I)	
1	Very unlikely (VU)	1	Very Low	1 – 4	None / negligible
2	Unlikely (U)	2	Low	5 – 9	Minor
3	Plausible (P)	3	Medium	10 – 14	Moderate
4	Likely (Lk)	4	High	15 – 19	Substantial
5	Very Likely (VLk)	5	Very High	20 – 25	Severe

Hazard	Comments	Who is at Risk	Consequence	Risk Before Mitigation			Actions Required
				P	I	R	
Uncontrolled Made Ground (variable strength and compressibility).	There is no Made Ground due to historical construction activity at the site.	Residential Dwellings.	Bearing capacity failure, settlement (total and differential).	1	4	4	Design foundations to found below Made Ground or on Made Ground which has been improved.
			Floor slab failure.	1	4	4	Design floor slabs as suspended.
		Roads and Pavements.	Settlement (total and differential) of roads and pavements.	1	2	2	Design roads and pavements using suitable geotechnical parameters and increase the sub-base and use geo-grids as appropriate.
		Services.	Settlement (differential), causing damage to services.	1	2	2	Anticipated settlements are significant with regard to services. There is a requirement to improve the Made Ground prior to installation of services. It is also advisable to steepen falls in drainage to prevent back fall and use rocker boxes and flexible couplings.
		Gardens.	Settlement (differential), in gardens.	1	2	2	It is unlikely that settlements will be significant with regard to gardens.
		Construction staff, vehicles and plant operators.	Trafficking of the site in temporary conditions. Overturning of plant during construction.	1	3	3	Where soft spots encountered, over-excavation and replacement with suitable fill. Outline design of working platform to include geo-grid. Site inspection and watching brief by Contractor to review working platform frequently and regularly.

Cont.....

Soft / loose ground (low strength and high settlement potential).	The shallow natural soils comprise KPGM, which consist of soft clay and sand and gravel with a variable relative density.	Residential Dwellings.	Foundation bearing capacity failure, settlement (total and differential).	3	4	12	Design foundations to found below any loose relative density sand and gravel or soft clay, or improve the River Terrace Deposits prior to founding.
			Floor slab failure.	3	4	12	Design floor slab as suspended.
		Roads and Pavements.	Settlement (total and differential), of roads and pavements.	3	3	9	Design roads and pavements using suitable geotechnical parameters and increase the sub-base and use geo-grids as appropriate. If anticipated settlements are significant, and cannot be mitigated by design, over-excavate and replace soft soils.
		Services.	Settlement (differential), causing damage to services.	3	3	9	Ground levels are likely remaining at approximately current levels. Settlements are not anticipated to be significant. No additional design requirements envisaged at this time.
		Gardens.	Settlement (differential), in gardens.	3	3	9	
		Construction staff, vehicles and plant operators.	Trafficking of the site in temporary conditions. Overturning of plant during construction.	4	3	9	Where soft spots encountered, over-excavate and replace with suitable fill. Design working platform to suit the ground conditions. Outline design of working platform to include geo-grid if necessary. Site inspection and watching brief by Contractor to review working platform frequently and regularly.

Shrinkage / swelling of the clay fraction of soils under the influence of vegetation.	The clays of the Lambeth Group are medium heave potential.	Foundation s.	Shrinkage or heave of soils and associated damage to foundations.	3	3	9	Design foundations in accordance with NHBC standards. Deepen foundations due to trees as appropriate.
		Floor slabs.	Floor slab failure.	3	4	12	Design floor slabs in accordance with NHBC standards. Design floor slab as suspended with a void, unless the warranty provider is satisfied the soil is not desiccated, or slabs are constructed when soils are not seasonally desiccated (i.e. during winter and spring).
Variable lateral and vertical changes in ground conditions.	KPGM has lateral SPT values and sand/gravel PSD's across the site .	Residential Dwellings.	Foundation bearing capacity failure, settlement (total and differential).	4	4	16	Design foundations to found below any loose relative density sand and gravel or soft clay, or improve the KPGM prior to founding.
			Floor slab failure.	4	4	16	Design floor slab as suspended.
		Roads and Pavements.	Settlement (total and differential), of roads and pavements.	4	3	12	Design roads and pavements using suitable geotechnical parameters and increase the sub-base and use geo-grids as appropriate. If anticipated settlements are significant, and cannot be mitigated by design, over-excavate and replace unsuitable soils.
		Services.	Settlement (differential), causing damage to services.	4	3	12	Settlements are not anticipated to be significant with regard to services. No additional design requirements envisaged.
		Gardens.	Settlement (differential), in gardens.	4	3	12	It is unlikely that settlements will be significant with respect to gardens.

		Constructio n staff, vehicles and plant operators.	Trafficking of the site in temporary conditions. Overturning of plant during construction.	4	3	12	Where soft spots encountered, over-excavate and replace with suitable fill. Design working platform to suit the ground conditions. Outline design of working platform to include geo-grid if necessary. Site inspection and watching brief by Contractor to review working platform frequently and regularly.
Sulfates present in the soils.	The ground investigation has proven that there is the potential for expansive sulfate bearing soils to be present.	Attack of buried concrete.	Damage to concrete and reduction in strength.	2	4	8	Classify concrete in accordance with BRE SD1 and design concrete accordingly.
		Earthworks.	.	2	4	8	Supplementary sulfate testing in accordance with BRE guidelines to be undertaken during earthworks.
Shallow groundwater.	Monitoring during the ground investigations has proven a shallow groundwater table (at approximately 0 - 1.2m bgl), with relatively mdoerate inflows of water seen during the ground investigation.	Constructio n staff, vehicles and plant operators.	Difficulty with excavation. Limit state failure, excessive deformation, trafficking of site plant, inability to place and compact fill.	4	2	8	Contractor to appoint competent Temporary Works Designer to design temporary works, in accordance with BS 5975:2008+A1:2011. Temporary Works Designer to consider in their analysis the impact of, and requirements for, de-watering of excavations. Any water that collects at the base of excavations to be removed as soon as practicable.
		Slopes and Retaining.	Serviceability issues.	4	2	8	Contractor to appoint competent Temporary Works Designer to design temporary works, as required in accordance with BS 5975:2008+A1:2011. The shallow groundwater is to be taken into account during geotechnical design of the permanent works.

Changing groundwater conditions.	Monitoring during the ground investigations has proven that the groundwater table is highly variable (between 1.2m bgl in winter and 2.7m bgl in summer).	Construction staff, vehicles and plant operators.	Difficulty with excavation. Limit state failure, excessive deformation, trafficking of site plant, inability to place and compact fill.	4	2	8	Contractor to appoint competent Temporary Works Designer to design temporary works as required, in accordance with BS 5975:2008+A1:2011. Temporary Works Designer to consider in their analysis the impact of a variable water table.
		Slopes and Retaining.	Serviceability issues.	4	2	8	Contractor to appoint competent Temporary Works Designer to design temporary works, as required in accordance with BS 5975:2008+A1:2011. Design drainage for retaining walls to account for fluctuating groundwater levels. The shallow groundwater is to be taken into account during geotechnical design of the permanent works.
Running sands and / or loose Made Ground, leading to difficulty with excavation and collapse of side walls.	The ground investigation has indicated that there is a potential for loose soils and Made Ground to be present at the site.	Construction staff, vehicles and plant operators.	Ground failure, instability of plant and machinery.	4	4	16	As instability has been noted in all pits from surface, foundation options should be reviewed to ensure minimal excavation (e.g. piles).
			Risk of collapse of excavation.	4	3	12	Contractor to appoint competent Temporary Works Designer to design temporary works, in accordance with BS 5975:2008+A1:2011. Temporary Works Design to include recommendations for inspection of excavations. No person entry to unsupported excavations.
	The site is on sloping ground and	Residential Dwellings.	Serviceability issues.	4	4	16	Safe slope angles to be assessed during design.

Slope stability issues – General Slopes.	the proposed development requires slopes to be formed as part of the cut to fill.	Roads and Pavements.	Serviceability issues.	4	3	12	Engineered fill requirements to be defined at outline design stage.
		Gardens.	Serviceability issues.	4	2	8	Drainage requirements to be assessed during design. Slopes to be constructed at a safe angle.
Earthworks – Settlement (due to placement of fill on soft / loose ground / Deep Made Ground).	The ground conditions at the site include up to 10m of very soft and soft Alluvium. Levels are increasing across parts of the site to allow the installation of a cover system and positive drainage.	Residential Dwellings.	Foundation bearing capacity failure, settlement (total and differential).	3	4	12	Design foundations to found below the Alluvium i.e. piled foundations.
			Floor slab failure.	3	4	12	Design floor slab as suspended.
		Roads and Pavements.	Settlement (total and differential), of roads and pavements.	3	3	9	Settlements are anticipated to be significant with regard to roads and pavements. Undertake ground improvement (pre-load and surcharge / rolling dynamic compaction / dynamic compaction / over-excavation and replacement) to reduce settlements. Design roads and pavements using suitable geotechnical parameters and increase the sub-base and use geo-grids as appropriate.
		Services.	Settlement (differential), causing damage to services.	3	3	9	Settlements are anticipated to be significant with regard to services. Detailed design works are required to assess the impact and design mitigation measures.
		Gardens.	Settlement (differential), in gardens.	3	3	9	Assess the use of geogrids as part of the design process. Undertake ground improvement (pre-load and surcharge / rolling dynamic compaction / dynamic compaction / over-excavation and replacement) to reduce settlements.
		Construction staff, vehicles	Trafficking of the site in temporary conditions.	3	3	9	Where soft spots encountered, over-excavate and replace with suitable fill.

		and plant operators.	Overturning of plant during construction.				Design working platform to suit the ground conditions. Outline design of working platform to include geo-grid if necessary. Site inspection and watching brief by Contractor to review working platform frequently and regularly.
Earthworks – poor bearing capacity and / or settlement of new fill.	There is a requirement for cut to fill to create the development platform and filling of remediation excavations. This will require reuse of soils excavated from the site.	Residential Dwellings.	Foundation bearing capacity failure, settlement (total and differential).	3	4	12	Design foundations to found below the KPGM / new fill i.e. piled foundations.
			Floor slab failure.	3	4	12	Design floor slab as suspended.
		Roads and Pavements.	Settlement (total and differential).	3	3	9	Minimum engineering performance to be defined in an Earthworks Specification.
		Services.	Settlement (differential), causing damage to services.	3	3	9	Earthworks to be designed in accordance with 1) Manual of Contract Documents for Highway Works (MCHW), Volume 1;
		Gardens.	Settlement (differential), in gardens.	3	3	9	2) Specification for Highway Works (SHW) Series 600; 3) 6031:2009, Code of practice for earthworks; and 4) BS 8000-1, workmanship on building sites.
		Construction staff, vehicles and plant operators.	Trafficking of the site in temporary conditions. Overturning of plant during construction.	3	3	9	Site testing to be undertaken to confirm the works are in accordance with the design. A suitable watching brief and independent verification.
Earthworks – Unsuitability of site won material to be reused as fill.	Currently no masterplan showing needed cut/fill	Earthworks control, inability to place and compact fill.	Service limit state failure, excessive and intolerable total and differential settlement.	3	3	9	The design is to describe the processes required to produce suitable fill for reuse. Contractor to design site control measures, plant, equipment and arrangement to comply with processing requirements.

		Project Budgets - Insufficient fill to complete earthworks.	Additional Costs, due to importation of fill or having to modify designs.	3	2	6	Site testing to be undertaken to confirm the works are in accordance with the design. A suitable watching brief and independent verification. Adequate investigation required of soil types and characterisation of the soils to be undertaken during investigation. Some fill may be unsuitable for use.	
Mining.	A former sand and gravel extraction pit was situated 100m east of the site.	Residential Dwellings.	Reduction of lateral support potentially affecting stability of the structure.	3	5	15	Further investigation will be required to fully define the extent of the coal workings. If stabilisation works (grouting) is required, this will need to be designed and undertaken by a specialist.	Notwithstanding stabilisation works, foundations to be designed in accordance with CIRIA publication C758D, 'Abandoned Mine Workings Manual' and 'Structural Foundations Manual for Low Rise Buildings' (Atkinson) or the NCB publication, 'Subsidence Engineers Handbook'.
			Floor slab failure.	3	5	15		Design floor slab as suspended.
		Roads and Pavements.	Serviceability affected.	3	3	9		-
		Services.	Damage to services. Leaking drainage causing inundation and further collapse.	3	3	9		No soakaway drainage within influencing distance of structures and roads. Infiltration if used is to be installed in POS.
		Gardens.	Depression or void forming at the surface.	3	3	9		Use rocker boxes and flexible couplings.

		Construction staff, vehicles and plant operators.	Trafficking of the site in temporary conditions. Overturning of plant during construction.	3	3	9		Where soft spots encountered, over-excavation and replacement with suitable fill. Site inspection and watching brief by Contractor to review working platform frequently and regularly.
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Whilst the probability and impact of the hazard occurring can be reduced to a minimum by geotechnical design, the impact cannot be reduced below very low. The risk register will need to be up-dated, as necessary, to reflect design, additional information, data and experience as it is gained through the construction process.

Impacts of the design with regard to health and Safety considerations will need to be included by the designer at design stage.

Appendix I Plausible source-pathway-receptor contaminant linkages

Summary of potential contaminant linkages

Table K.2 lists the plausible contaminant linkages which have been identified. These are considered as potentially unacceptable risks in line with guidelines published in LCRM (2021) and additional risk assessment is required.

Source – Pathway – Receptor Linkages have been assessed in general accordance with guidance in CIRIA Report C552 (Rudland *et al* 2001) but modified to add a 'no linkage' category and to remove low/moderate risk (See Table K.1).

It should be noted that whilst the risk assessment process undertaken in this report may identify potential risks to site demolition and redevelopment workers, consideration of occupational health and safety issues is beyond the scope of this report and need to be considered separately in the Construction Phase Health and Safety Plan.

Table K.1: Consequence versus probability assessment.

		Consequence			
Probability		Severe	Medium	Mild	Minor
	High Likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Low risk	Very low risk
	Low Likelihood	Moderate risk	Low risk	Low risk	Very low risk
	Unlikely	Low risk	Very low risk	Very low risk	Very low risk
	No Linkage	No risk			

Table K.2: Exposure model – final source-pathway-receptor contaminant linkages

Sources	Possible Pathways		Receptors	Probability	Consequence	Risk Level	Comments
Ground gases (methane) from organic materials in the Made Ground associated with former quarry 100m east of site.	Migration, build up and explosion.			Unlikely			Ground gas monitoring has indicated no concentrations of methane above the detection limits of the analytical apparatus. CS1 conditions and no mitigation required for methane.
			Site users.		Severe	Low	
			Buildings on site. Buildings on adjacent sites.		Medium	Very low	

Historic landfill located 50m west of the site. (S05)	(P08) Migration via groundwater and leachate contamination.	Neighbours . Site users. Neighbours . Buildings on site. Buildings on adjacent sites.	Unlikely	Medium	Very low	Listed as co-disposal landfill site. Precise waste allowed unknown. Recommendation that further information on landfill is reviewed to improve understanding of potential gas risk. Current site information indicates that risk is low.
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