

Continuous Tube Sampler Log

Borehole No.

CT 01
Project Location: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

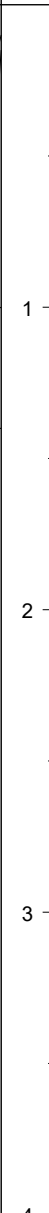
Co-ords: 510677E - 230603N

Project Number:
24.07.023

Level: 76.20 mAOD

Logged By:
Dates: 16/07/2024

 Niall Auckland
to BS 5930:2015

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Result					
		0.12	PID	0.2 ppm	0.10	76.10		FILL	
		0.20	PID	0.1 ppm	0.15	76.05		Grey cement-CONCRETE with black staining and a slight hydrocarbon odour.	
		0.45	PID	0.3 ppm				MADE GROUND	
		0.70	PID	0.2 ppm				Firm light brown locally dark grey sandy gravelly CLAY with black staining and a slight hydrocarbon odour. Gravel is fine to coarse subrounded to subangular of quartzite and flint.	
		0.95	PID	0.3 ppm				WEST MELBURY MARLY CHALK FORMATION	
		1.00 - 1.40	PID	0.3 ppm	1.00	75.20		Firm white locally grey gravelly calcareous silty CLAY with faint hydrocarbon odour. Gravel is fine to coarse subrounded to subangular of chalk.	
		1.00	PP	4.0kg/cm ²				WEST MELBURY MARLY CHALK FORMATION	
		1.00	SPT(S)	N=28 (4/3,6,8,11)				Stiff light grey locally light brown calcareous silty CLAY.	
		1.25	PP	3.5kg/cm ²				-With faint hydrocarbon odour to 2.50m depth	
		1.40 - 2.00	D		1.40	74.80		WEST MELBURY MARLY CHALK FORMATION	
		1.45	PID	6.4 ppm				Very stiff light grey calcareous silty CLAY.	
		1.50	PP	>5.0kg/cm ²					
		1.95	PID	7.7 ppm					
		2.00 - 2.50	D						
		2.00	SPT(S)	N=31 (8/6,7,8,10)					
		2.50	PID	2.6 ppm					
		2.90	PID	0.4 ppm					
		3.00 - 3.50	D						
		3.00	SPT(S)	N=34 (11/7,8,8,11)					
		3.50	PID	0.2 ppm					
		3.90	PID	0.1 ppm					
		4.00	SPT(S)	N=95 (10/7,10,37,41)	4.00	72.20			
								End of Borehole at 4.00m	

Borehole Diameter: 87mm to 67mm

Groundwater: Not encountered

Instrumentation: Backfilled with arisings

Remarks: Inspection pit excavated to 1.20m

AGS Association of Geotechnical & Geoenvironmental Specialists

Continuous Tube Sampler Log

Borehole No.

CT 02
Project Location: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

Co-ords: 510664E - 230598N

Project Number:
24.07.023

Level: 76.35 mAOD

Logged By:
Dates: 16/07/2024

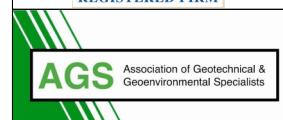
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to BS 5930:2015

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Result					
		0.10			0.10	76.25		FILL Grey cement-CONCRETE.	1
		0.40 - 1.10	D		0.40	75.95		MADE GROUND Loose dark brown SAND and GRAVEL with occasional brick cobbles. Gravel is fine to coarse angular of ceramic, brick, flint and chalk.	
		1.00	SPT(S)	N=10 (3/2,2,2,4)				MADE GROUND Firm grey brown silty gravelly CLAY with occasional flint and limestone cobbles. Gravel is fine to medium angular of limestone and brick.	
		1.10 - 1.60	D		1.10	75.25		WEST MELBURY MARLY CHALK FORMATION Stiff grey brown calcareous silty CLAY with localised red brown staining.	
		1.25	PP	1.2kg/cm²					2
		1.50	PP	1.2kg/cm²					
		1.60 - 2.00	D		1.60	74.75		WEST MELBURY MARLY CHALK FORMATION Very stiff light grey calcareous silty CLAY.	
		1.75	PP	>5.0kg/cm²					
		2.00	SPT(S)	N=55 (10/14,13,14,14)					3
		2.50 - 3.00	D						
		3.00	SPT(S)	N=36 (10/7,9,9,11)					
		3.50 - 4.00	D		3.50	72.85		WEST MELBURY MARLY CHALK FORMATION Very stiff light grey calcareous silty CLAY with localised red brown staining.	
		4.00	SPT(S)	N=55 (14/12,14,14,15)	4.00	72.35			4
								End of Borehole at 4.00m	

Borehole Diameter: 87mm to 67mm

Groundwater: Not encountered

Instrumentation: Backfilled with arisings

Remarks: Inspection pit excavated to 1.20m


Continuous Tube Sampler Log

Borehole No.

CT 03
Project Location: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

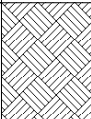
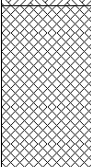
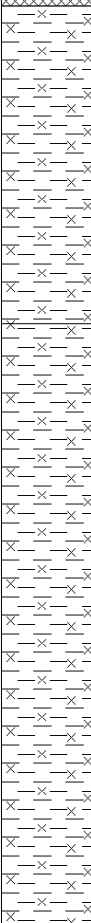
Co-ords: 510678E - 230587N

Project Number:
24.07.023

Level: 76.60 mAOD

Logged By:
Dates: 16/07/2024

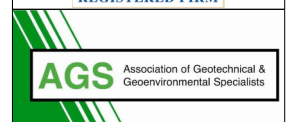
 Niall Auckland
to BS 5930:2015

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Result					
					0.40	76.20		TOPSOIL Dark brown slightly gravelly slightly sandy silty CLAY with occasional cobbles. Gravel is fine to coarse angular to subangular of chalk and siltstone.	
								MADE GROUND Firm grey brown calcareous silty gravelly CLAY with occasional rootlets. Gravel is fine to medium angular of flint and chalk.	
		1.00 - 1.50	D		0.95	75.65		WEST MELBURY MARLY CHALK FORMATION Stiff light brown and light grey calcareous silty CLAY with occasional rootlets.	1
		1.00	PP	3.5kg/cm ²					
		1.00	SPT(S)	N=16 (5/4,4,4,4)					
		1.25	PP	4.0kg/cm ²					
		1.50 - 2.00	D						
		1.50	PP	4.0kg/cm ²					
		1.75	PP	>5.0kg/cm ²					
		2.00	PP	>5.0kg/cm ²	2.00	74.60		WEST MELBURY MARLY CHALK FORMATION Very stiff light grey calcareous silty CLAY.	2
		2.00	SPT(S)	N=25 (7/4,5,6,10)					
		2.50 - 3.00	D						
		3.00	SPT(S)	N=34 (12/7,7,10,10)					3
		3.50 - 4.00	D						
		4.00	SPT(S)	N=68 (22/17,16,17,18)	4.00	72.60		End of Borehole at 4.00m	4

Borehole Diameter: 87mm to 67mm

Groundwater: Not encountered

Instrumentation: Backfilled with arisings

Remarks: Inspection pit excavated to 1.20m
Roots visible to 2.00m depth.


Continuous Tube Sampler Log

Borehole No.

CT 04
Project Location: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

Co-ords: 510675E - 230618N

Project Number:
24.07.023

Level: 76.41 mAOD

Logged By:
Dates: 16/07/2024

 Niall Auckland
to BS 5930:2015

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Result					
		0.30 - 0.80	D		0.30	76.11		MADE GROUND Brown silty slightly sandy GRAVEL. Gravel is fine to coarse angular to subrounded of flint and brick.	
								MADE GROUND Stiff dark grey brown slightly gravelly silty CLAY with occasional rootlets. Gravel is fine to coarse angular to subangular of flint and chalk.	
		0.85 - 1.50	D		0.80	75.61		WEST MELBURY MARLY CHALK FORMATION Stiff light grey calcareous silty CLAY.	1
		1.00	PP	3.2kg/cm ²					
		1.00	SPT(S)	N=15 (3/3,3,4,5)					
		1.25	PP	3.2kg/cm ²					
		1.50 - 2.00	D		1.50	74.91		WEST MELBURY MARLY CHALK FORMATION Very stiff light grey calcareous silty CLAY.	
		1.50	PP	3.2kg/cm ²					
		1.75	PP	>5.0kg/cm ²					
		2.00 - 2.50	D						2
		2.00	SPT(S)	N=46 (15/9,10,12,15)					
		3.00 - 3.50	D						
		3.00	SPT(S)	N=43 (11/7,8,11,17)					
		3.50 - 4.00	D						
		4.00	SPT(S)	N=45 (18/10,11,11,13)					4

Borehole Diameter: 87mm to 57mm

Groundwater: Not encountered

Instrumentation: Backfilled with arisings

Remarks: Inspection pit excavated to 1.20m


Continuous Tube Sampler Log

Borehole No.

CT 04
Project Location: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

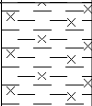
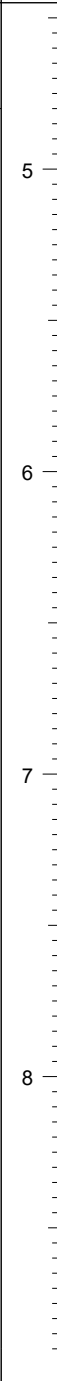
Co-ords: 510675E - 230618N

Project Number:
24.07.023

Level: 76.41 mAOD

Logged By:
Dates: 16/07/2024

 Niall Auckland
to BS 5930:2015

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Result					
		4.50 - 4.80	D		4.80	71.61		WEST MELBURY MARLY CHALK FORMATION Very stiff light grey calcareous silty CLAY.	
		4.80	SPT(S)	N=54 (33/12,12,14,16)				End of Borehole at 4.80m	

Borehole Diameter: 87mm to 57mm

Groundwater: Not encountered

Instrumentation: Backfilled with arisings

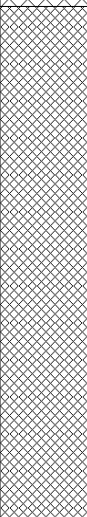
Remarks: Inspection pit excavated to 1.20m


Test Location	Depth at Start of Test (m)	Spoon or Cone	Blows per 75mm Penetration (unless otherwise stated)				Field 'N' Value	'N ₆₀ ' Value	Stratum
CT 01	1.00	S	3	6	8	11	28	37	WMMC
	2.00	S	6	7	8	10	31	41	
	3.00	S	7	8	8	11	34	45	
	4.00	S	7	10	37	41	95	125	
CT 02	1.00	S	2	2	2	4	10	13	WMMC
	2.00	S	14	13	14	14	55	72	
	3.00	S	7	9	9	11	36	47	
	4.00	S	12	14	14	15	55	72	
CT 03	1.00	S	4	4	4	4	16	21	WMMC
	2.00	S	4	5	6	10	25	33	
	3.00	S	7	7	10	10	34	45	
	4.00	S	17	16	17	18	68	90	
CT 04	1.00	S	3	3	4	5	15	20	WMMC
	2.00	S	9	10	12	15	46	61	
	3.00	S	7	8	11	17	43	57	
	4.00	S	10	11	11	13	45	59	
	4.80	S	12	12	14	16	54	71	
Key: WMMC = WEST MELBURY MARLY CHALK									
Corrections in accordance with BS EN ISO 22476-3, 2005, National Annex A; using Energy Ratio (79%) from current equipment calibrations									
STANDARD PENETRATION TEST SUMMARY								Report: 24.07.023 Sheet 1 of 1	

Trial Pit Log

Trial Pit No.
TP 01

Project Location: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE	Co-ords: 510665E - 230594N	Project Number: 24.07.023
	Level: 76.42 mAOD	Logged By: Niall Auckland to BS 5930:2015
	Dates: 15/07/2024	

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth (m)	Type	Result					
				0.12	76.30		FILL Grey cement CONCRETE over course of bricks.	
	0.50	D					MADE GROUND Firm brown locally grey slightly sandy slightly gravelly silty CLAY with occasional rootlets. Gravel is fine to medium subrounded to subangular of brick and coal.	
	0.70	HV	70kPa					
				0.80	75.62		End of Trial Pit at 0.80m	

Method of excavation: JCB	Dimensions: 0.90m(W) x 0.30m(L) x 0.80m(D)	 
Stability: Sides stable		
Groundwater: Not encountered		
Remarks: Trial pit excavated by client prior to site visit to locate services. Roots visible to 0.40m depth.		
Listers Geotechnical Consultants LTD www.listersgeotechnics.co.uk Tel: 01327 860060		Sheet 1 of 1

Trial Pit Log

Trial Pit No.

TP 02
Project Location: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

Co-ords: 510670E - 230606N

Project Number:
24.07.023

Level: 76.30 mAOD

Logged By:
Dates: 15/07/2024

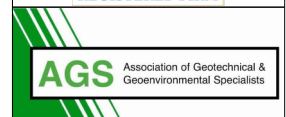
 Niall Auckland
to BS 5930:2015

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth (m)	Type	Result					
	0.15	D		0.10	76.20		FILL Grass over grey very gravelly CLAY with occasional rootlets. Gravel is fine to coarse subangular to angular of igneous chippings.	
				0.20	76.10		MADE GROUND Light grey locally light brown sandy gravelly CLAY with medium cobble content. Gravel is fine to coarse subrounded to subangular of flint, chalk, brick, coal and quartzite. Cobbles are subrounded to subangular of brick and quartzite.	
	0.30	D					MADE GROUND Light grey slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse subrounded to angular of brick, chalk, flint and quartzite.	
	0.50	D		0.50	75.80			
	0.55	HV	65kPa	0.55	75.75		WEST MELBURY MARLY CHALK FORMATION Firm grey calcareous slightly gravelly silty CLAY. Gravel is fine to medium subrounded to subangular of chalk.	
							End of Trial Pit at 0.55m	

Method of excavation: JCB **Dimensions:** 1.10m(W) x 1.20m(L) x 0.55 m(D)

Stability: Sides stable

Groundwater: Not encountered

Remarks: Trial pit excavated by client prior to site visit. Water pipe at 0.50m depth and clay drainage pipe at 0.45m depth. Roots visible to 0.10m depth.


Trial Pit Log

Trial Pit No.

TP 03
Project Location: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

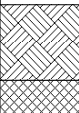
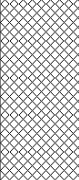
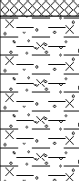
Co-ords: 510665E - 230590N

Project Number:
24.07.023

Level: 76.57 mAOD

Logged By:
Dates: 15/07/2024

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to BS 5930:2015

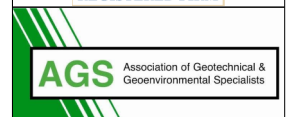
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth (m)	Type	Result					
	0.05	D	40kPa	0.10	76.47		TOPSOIL Dark grey organic slightly sandy slightly gravelly CLAY with occasional rootlets (maximum diameter 50mm). Gravel is fine to coarse subrounded to subangular of brick, chalk, flint and quartzite.	
	0.25	D					MADE GROUND Grey locally light brown slightly gravelly slightly sandy silty CLAY with occasional roots (maximum diameter 50mm). Gravel is fine to coarse subrounded to subangular of chalk, flint, brick, ceramic and slate.	
	0.45	HV		0.40	76.17		WEST MELBURY MARLY CHALK FORMATION Firm grey calcareous slightly gravelly silty CLAY. Gravel is fine to medium subrounded to subangular of chalk.	
	0.50	D		0.65	75.92		End of Trial Pit at 0.65m	

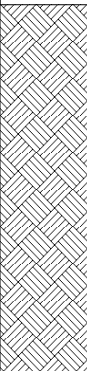
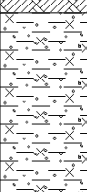
Method of excavation: JCB

Dimensions: 1.10m(W) x 2.00m(L) x 0.65m(D)

Stability: Sides stable

Groundwater: Not encountered

Remarks: Trial pit excavated by client prior to site visit. Roots visible to 0.40m depth.


				Trial Pit Log				Trial Pit No. TP 04	
Project Location: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE						Co-ords: 510690E - 230593N Level: 76.38 mAOD Dates: 15/07/2024		Project Number: 24.07.023 Logged By: Niall Auckland to BS 5930:2015	
Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth (m)	Type	Result						
	0.30	D					TOPSOIL Dark grey organic slightly sandy slightly gravelly silty CLAY with frequent roots (maximum diameter 50mm). Gravel is fine to coarse subrounded to subangular of glass, slate, ceramic, chalk and brick.		
	0.60	D		0.50	75.88		WEST MELBURY MARLY CHALK FORMATION Firm grey calcareous slightly gravelly silty CLAY with occasional roots (maximum diameter 10mm) . Gravel is fine to medium subrounded to subangular of chalk.		
	0.75	HV	72kPa	0.75	75.63		End of Trial Pit at 0.75m		
Method of excavation: JCB Stability: Sides stable Groundwater: Not encountered Remarks: Trial pit excavated by client prior to site visit. Roots visible to base. Dimensions: 0.80m(W) x 1.80m(L) x 0.75 m(D)									
									
									
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APPENDIX C

LABORATORY TEST REPORTS

GroundTech Laboratories

Geotechnical Testing Facility

Slapton Hill Barn, Blakesley Road, Slapton, Towcester, Northants. NN12 8QD

Telephone:- 01327 860947/860060

Email: lab@listersgeotechnics.co.uk

PROJECT INFORMATION		SAMPLE INFORMATION																																																							
Site Location:- Model Farm Mill Lane Hexton Hitchin Hertfordshire	Laboratory Tests Undertaken:- <table border="1"> <thead> <tr> <th>TEST TYPE</th> <th>TEST METHOD</th> <th>TESTED</th> </tr> </thead> <tbody> <tr> <td>Natural Moisture Contents (MC%)</td> <td>(BS 1377:Part 2:1990 Clause 3.2)</td> <td>✓</td> </tr> <tr> <td>Liquid Limits (%)</td> <td>(BS 1377:Part 2:1990 Clause 4.3)</td> <td>✓</td> </tr> <tr> <td>Plastic Limits (%)</td> <td>(BS 1377:Part 2:1990 Clause 5.3)</td> <td>✓</td> </tr> <tr> <td>Plasticity Index (%)</td> <td>(BS 1377:Part 2:1990 Clause 5.4)</td> <td>✓</td> </tr> <tr> <td>Saturated Moisture Content (%)</td> <td>(BS1377 : Part 2 : 1990, clause 3.3)</td> <td></td> </tr> <tr> <td>PSD - Wet Sieving</td> <td>(BS 1377:Part 2:1990 Clause 9.2)</td> <td></td> </tr> <tr> <td>Engineering Sample Descriptions</td> <td>(BS 5930 : Section 6)</td> <td></td> </tr> <tr> <td>Passing 425/63 (µm)</td> <td>-</td> <td>✓</td> </tr> <tr> <td>Hydrometer</td> <td>(BS 1377:Part 2:1990 Clause 9.5)</td> <td></td> </tr> <tr> <td>Loss on Ignition (%)</td> <td>-</td> <td></td> </tr> <tr> <td>Soil Suctions (kPa)</td> <td>BRE Digest IP 4/93, 1993</td> <td></td> </tr> <tr> <td>Bulk Density (Mg/m³)</td> <td>(BS 1377:Part 2:1990 Clause 7.2)</td> <td></td> </tr> <tr> <td>Strength Tests</td> <td>(BS 1377:Part 7:1990 Clause 8 & 9)</td> <td></td> </tr> <tr> <td>Soluble Sulphate Content (SO₄g/l)</td> <td>(BS 1377:Part 3:1990 Clause 5.3)</td> <td>✓</td> </tr> <tr> <td>pH value</td> <td>(BS 1377:Part 3:1990 Clause 9.4)</td> <td>✓</td> </tr> <tr> <td>California Bearing Ratios (CBR)</td> <td>(BS 1377:Part 4:1990 Clause 7)</td> <td></td> </tr> <tr> <td>Compaction Tests</td> <td>(BS 1377:Part 4:1990 Clauses 3.0-3.6)</td> <td></td> </tr> </tbody> </table>	TEST TYPE	TEST METHOD	TESTED	Natural Moisture Contents (MC%)	(BS 1377:Part 2:1990 Clause 3.2)	✓	Liquid Limits (%)	(BS 1377:Part 2:1990 Clause 4.3)	✓	Plastic Limits (%)	(BS 1377:Part 2:1990 Clause 5.3)	✓	Plasticity Index (%)	(BS 1377:Part 2:1990 Clause 5.4)	✓	Saturated Moisture Content (%)	(BS1377 : Part 2 : 1990, clause 3.3)		PSD - Wet Sieving	(BS 1377:Part 2:1990 Clause 9.2)		Engineering Sample Descriptions	(BS 5930 : Section 6)		Passing 425/63 (µm)	-	✓	Hydrometer	(BS 1377:Part 2:1990 Clause 9.5)		Loss on Ignition (%)	-		Soil Suctions (kPa)	BRE Digest IP 4/93, 1993		Bulk Density (Mg/m ³)	(BS 1377:Part 2:1990 Clause 7.2)		Strength Tests	(BS 1377:Part 7:1990 Clause 8 & 9)		Soluble Sulphate Content (SO ₄ g/l)	(BS 1377:Part 3:1990 Clause 5.3)	✓	pH value	(BS 1377:Part 3:1990 Clause 9.4)	✓	California Bearing Ratios (CBR)	(BS 1377:Part 4:1990 Clause 7)		Compaction Tests	(BS 1377:Part 4:1990 Clauses 3.0-3.6)			
TEST TYPE	TEST METHOD	TESTED																																																							
Natural Moisture Contents (MC%)	(BS 1377:Part 2:1990 Clause 3.2)	✓																																																							
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Plastic Limits (%)	(BS 1377:Part 2:1990 Clause 5.3)	✓																																																							
Plasticity Index (%)	(BS 1377:Part 2:1990 Clause 5.4)	✓																																																							
Saturated Moisture Content (%)	(BS1377 : Part 2 : 1990, clause 3.3)																																																								
PSD - Wet Sieving	(BS 1377:Part 2:1990 Clause 9.2)																																																								
Engineering Sample Descriptions	(BS 5930 : Section 6)																																																								
Passing 425/63 (µm)	-	✓																																																							
Hydrometer	(BS 1377:Part 2:1990 Clause 9.5)																																																								
Loss on Ignition (%)	-																																																								
Soil Suctions (kPa)	BRE Digest IP 4/93, 1993																																																								
Bulk Density (Mg/m ³)	(BS 1377:Part 2:1990 Clause 7.2)																																																								
Strength Tests	(BS 1377:Part 7:1990 Clause 8 & 9)																																																								
Soluble Sulphate Content (SO ₄ g/l)	(BS 1377:Part 3:1990 Clause 5.3)	✓																																																							
pH value	(BS 1377:Part 3:1990 Clause 9.4)	✓																																																							
California Bearing Ratios (CBR)	(BS 1377:Part 4:1990 Clause 7)																																																								
Compaction Tests	(BS 1377:Part 4:1990 Clauses 3.0-3.6)																																																								
Client Reference:- Date Samples Received:- 16 July 2024 Date Testing Completed:- 30 July 2024																																																									
The results relate only to the samples tested																																																									
This test-report may not be reproduced, except with full and written approval of GROUNDTECH LABORATORIES		Laboratory testing in accord with BS EN ISO/IEC 17025-2000 and Quality Management in accord with ISO 9001																																																							
Signed on behalf of GroundTech Laboratories:- 		Technical Signatory	Quality Assured to ISO 9001																																																						
GEOTECHNICAL LABORATORY TEST RESULTS		Report No:	24.07.023																																																						

GroundTech Laboratories

Geotechnical Testing Facility

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**Quality Assured
to ISO 9001**

SAMPLES				CLASSIFICATION TESTS							CLASSIFICATION TESTS							STRENGTH TESTS					CHEMICAL TESTS				
Test Location	Sample Type	Sample Depth -m	Test Type	WC %	LL %	PL %	PI %	Passing 425 µm %	Modified PI %	Class	Passing 63 µm %	WC/ LL	PL+ 2%	Liquidity Index	Loss on Ignition %	Soil Suction kPa	Bulk Density Mg/m³	Test Type	Cell Pressure kN/m²	Deviator Stress kN/m²	Apparent Cohesion kN/m²	φ	pH Value	Soluble Sulphate Content SO4 g/l			
CT 01	D	1.00	PI/63	27	51	24	27	99	27	CH	96	0.53	26	0.11									7.8	0.02			
	D	1.40		19																							
	D	2.00		21	58	23	35	99	35	CH	96	0.36	25	-0.06													
	D	3.00		18	51	23	28	100	28	CH	98	0.35	25	-0.18													
CT 02	D	0.40	PI/63	23																			7.9	0.02			
	D	1.10		32	57	26	31	100	31	CH	97	0.56	28	0.19													
	D	1.60		23	51	23	28	100	28	CH	97	0.45	25	0.00													
	D	2.50		22																							
CT 03	D	3.50	PI/63	22	54	24	30	100	30	CH	96	0.41	26	-0.07													
	D	1.00		22																							
	D	1.50		20	55	24	31	99	31	CH	96	0.36	26	-0.13													
	D	2.50		22	54	24	30	99	30	CH	96	0.41	26	-0.07									7.8	0.02			
CT 04	D	3.50	PI/63	21																							
	D	0.30		23																							
	D	0.85		29	57	27	30	100	30	CH	97	0.51	29	0.07									7.6	0.02			
	D	1.50		21																							
TP 01	D	2.00	PI/63	18	52	24	28	100	28	CH	98	0.35	26	-0.21													
	D	3.00		20																							
	D	3.50		21																							
	D	4.50		20	52	24	28	100	28	CH	96	0.38	26	-0.14													
TP 01	D	0.50	PI/63	26	44	24	20	92	18	CI	77	0.59	26	0.10													
TP 02	D	0.15		32																							
	D	0.30		25																			7.4	0.04			
Symbols:				U	Undisturbed Sample					R	Remoulded				PI	Plasticity Index			T	Triaxial Undrained					L	100mm specimen	
				D	Disturbed Sample					63	Passing 63µm				F	Filter Paper Suction Tests			M	Multistage Triaxial					S	38mm specimen	
				B	Bulk Sample					H	Hydrometer				CC	Continuous Core			HP	Hand Penetrometer							
				W	Water Sample					PSD	Wet Sieving								V	Vane Test							
LABORATORY TEST RESULTS																					Project Reference 24.07.023						

GroundTech Laboratories

Geotechnical Testing Facility

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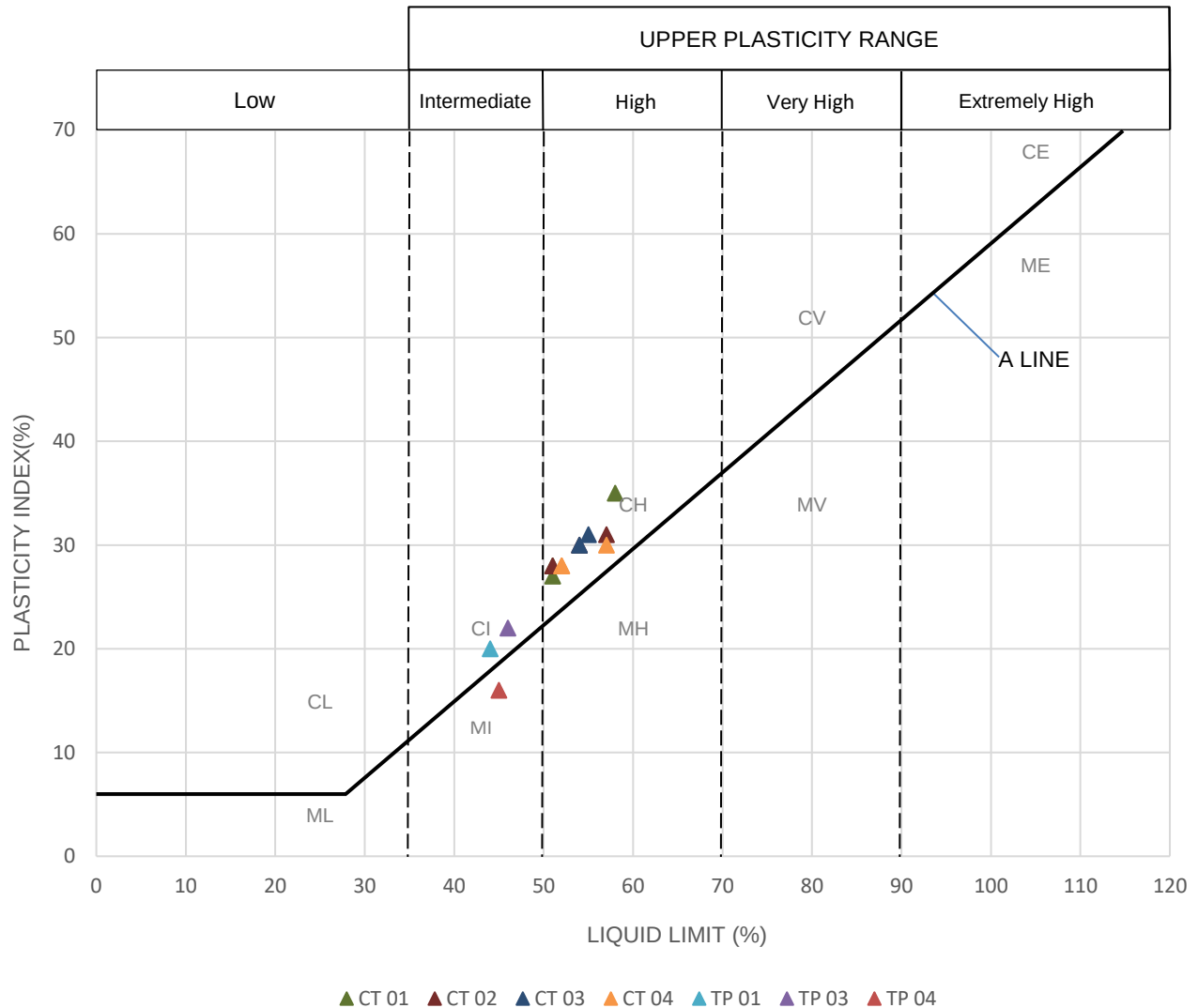
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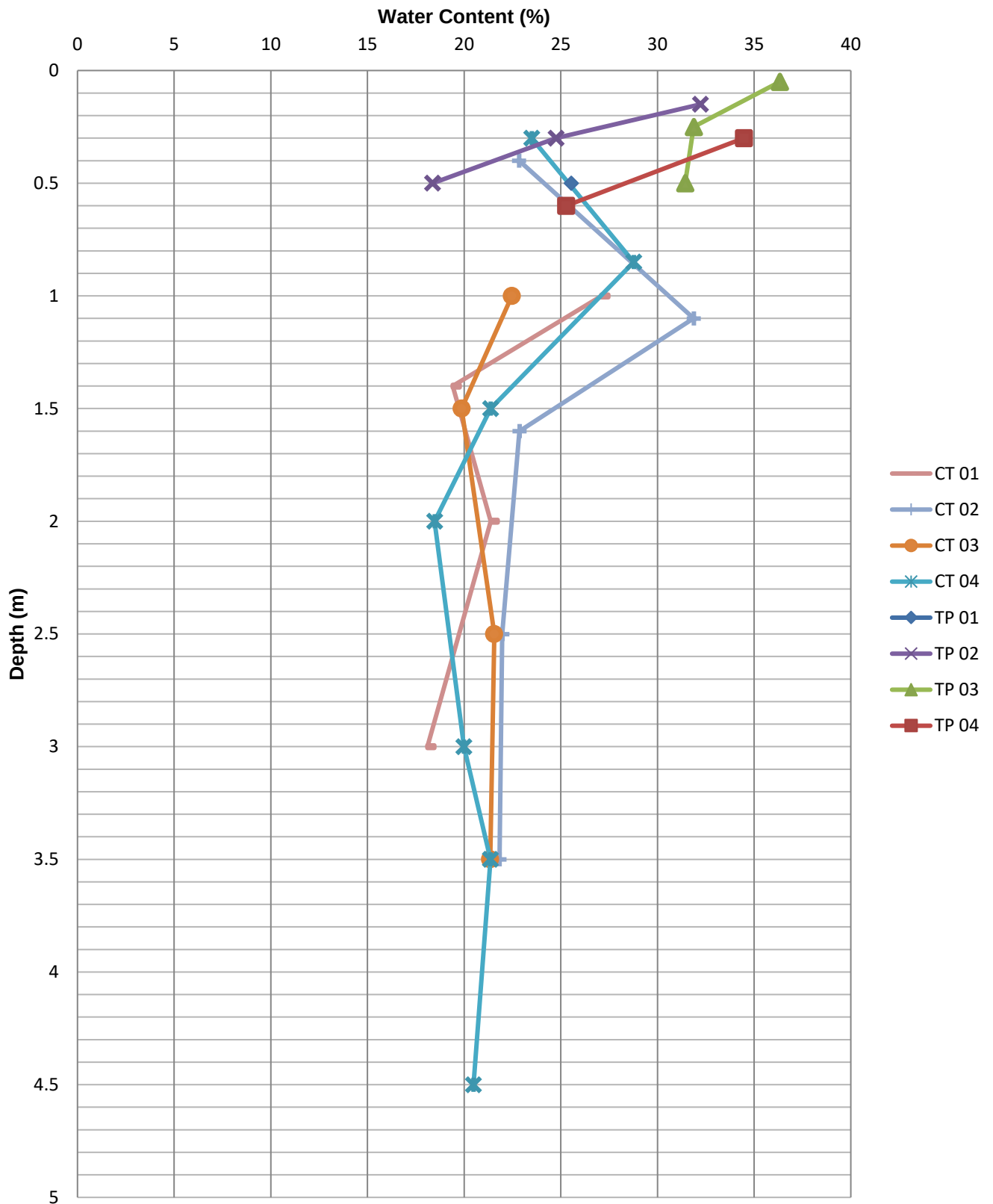
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to ISO 9001**

SAMPLES				CLASSIFICATION TESTS							CLASSIFICATION TESTS							STRENGTH TESTS					CHEMICAL TESTS			
Test Location	Sample Type	Sample Depth -m	Test Type	WC %	LL %	PL %	PI %	Passing 425 μm %	Modified PI %	Class	Passing 63 μm %	WC/ LL	PL+ 2%	Liquidity Index	Loss on Ignition %	Soil Suction kPa	Bulk Density Mg/m³	Test Type	Cell Pressure kN/m²	Deviator Stress kN/m²	Apparent Cohesion kN/m²	φ	pH Value	Soluble Sulphate Content SO4 g/l		
TP 02	D	0.50		18																						
TP 03	D	0.05		36																						
	D	0.25		32																						
TP 04	D	0.50	PI/63	31	46	24	22	88	19	CI	77	0.67	26	0.32												
	D	0.30		34																						
	D	0.60	PI/63	25	45	29	16	89	14	MI	74	0.56	31	-0.25									8.0	0.04		
Symbols:				U	Undisturbed Sample					R	Remoulded				PI	Plasticity Index			T	Triaxial Undrained				L	100mm specimen	
				D	Disturbed Sample					63	Passing 63μm				F	Filter Paper Suction Tests			M	Multistage Triaxial				S	38mm specimen	
				B	Bulk Sample					H	Hydrometer				CC	Continuous Core			HP	Hand Penetrometer						
				W	Water Sample					PSD	Wet Sieving								V	Vane Test						
LABORATORY TEST RESULTS																				Project Reference 24.07.023						



PLASTICITY CHART

Report:
24.07.023



WATER CONTENT v DEPTH

Report:
24.07.023



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Analytical Report Number : 24-032187

Project / Site name:	Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE	Samples received on:	22/07/2024
Your job number:	24.07.023	Samples instructed on/ Analysis started on:	24/07/2024
Your order number:	24.07.023 754	Analysis completed by:	30/07/2024
Report Issue Number:	1	Report issued on:	30/07/2024
Samples Analysed:	7 soil samples		

Signed: _____

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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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



Environmental Science

Analytical Report Number: 24-032187

Project / Site name: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

Your Order No: 24.07.023 754

Lab Sample Number				265181	265182	265183	265184	265185
Sample Reference				CT 01	CT 01	CT 01	CT 03	CT 03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.12	1.45	1.95	0.10-0.40	0.40-0.95
Date Sampled				16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	54	< 0.1
Moisture Content	%	0.01	NONE	18	12	15	12	13
Total mass of sample received	kg	0.1	NONE	0.4	0.4	0.4	1.4	1.4

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-	-	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	-	-	-	MMI	MMI

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	-	-	-	7.7	8.2
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	60	23
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	29.8	11.6

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	0.06	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	0.17	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	-	0.16	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	-	0.09	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	0.1	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	0.08	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	0.06	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	0.07	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	-	-	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	17	6.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	20	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	42	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	13000	37
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	21	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	< 1.0	1.4
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	130	66

Analytical Report Number: 24-032187

Project / Site name: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

Your Order No: 24.07.023 754

Lab Sample Number				265181	265182	265183	265184	265185
Sample Reference				CT 01	CT 01	CT 01	CT 03	CT 03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.12	1.45	1.95	0.10-0.40	0.40-0.95
Date Sampled				16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	-
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	-
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	-
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	9.3	-	< 2.0	-	-
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	60	-	< 8.0	-	-
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	1000	-	< 8.0	-	-
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	1100	-	< 10	-	-

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	-
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	-
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	-	< 0.020	-	-
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	3.1	-	< 2.0	-	-
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	20	-	< 10	-	-
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	250	-	< 10	-	-
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	270	-	< 10	-	-

TPH (>EC10 - EC12) _{EH_CU_1D_TOTAL}	mg/kg	2	MCERTS	-	-	-	< 2.0	< 2.0
TPH (>EC12 - EC16) _{EH_CU_1D_TOTAL}	mg/kg	4	MCERTS	-	-	-	< 4.0	< 4.0
TPH (>EC16 - EC21) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	-	-	-	< 10	< 10
TPH (>EC21 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	-	-	-	< 10	< 10

TPH (EC10 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	-	< 10	-	< 10	< 10
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	-	< 5.0	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	-
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	-

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

Analytical Report Number: 24-032187

Project / Site name: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3J

Your Order No: 24.07.023 754

Lab Sample Number				265186	265187
Sample Reference				CT 04	CT 04
Sample Number				None Supplied	None Supplied
Depth (m)				0.10-0.30	0.30-0.80
Date Sampled				16/07/2024	16/07/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	63.4	< 0.1
Moisture Content	%	0.01	NONE	9.8	15
Total mass of sample received	kg	0.1	NONE	1.4	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	MMI	-

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	8.1	8.1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	220	13
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	109	6.31

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.34	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.11	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.2	< 0.05
Pyrene	mg/kg	0.05	MCERTS	1.2	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.65	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.76	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.94	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.35	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.74	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.4	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.11	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.45	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	7.24	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	9.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	60	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.3
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	79	73

Analytical Report Number: 24-032187

Project / Site name: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3J

Your Order No: 24.07.023 754

Lab Sample Number				265186	265187
Sample Reference				CT 04	CT 04
Sample Number				None Supplied	None Supplied
Depth (m)				0.10-0.30	0.30-0.80
Date Sampled				16/07/2024	16/07/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	-
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	-	-
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	-	-
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	-
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	-
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-	-

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-	-
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-	-
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	-	-
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	-	-
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	-	-
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-	-
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-	-
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	-	-

TPH (>EC10 - EC12) _{EH_CU_1D_TOTAL}	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH (>EC12 - EC16) _{EH_CU_1D_TOTAL}	mg/kg	4	MCERTS	< 4.0	< 4.0
TPH (>EC16 - EC21) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	< 10	< 10
TPH (>EC21 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	15	< 10

TPH (EC10 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	23	< 10
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VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	-
Benzene	µg/kg	5	MCERTS	-	-
Toluene	µg/kg	5	MCERTS	-	-
Ethylbenzene	µg/kg	5	MCERTS	-	-
p & m-Xylene	µg/kg	5	MCERTS	-	-
o-Xylene	µg/kg	5	MCERTS	-	-

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

Analytical Report Number : 24-032187

Project / Site name: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

* 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 *
265181	CT 01	None Supplied	0.12	Brown clay
265182	CT 01	None Supplied	1.45	Brown clay
265183	CT 01	None Supplied	1.95	Brown clay
265184	CT 03	None Supplied	0.10-0.40	Brown loam and sand with gravel and stones
265185	CT 03	None Supplied	0.40-0.95	Brown loam and clay with gravel and vegetation
265186	CT 04	None Supplied	0.10-0.30	Brown loam with vegetation and stones
265187	CT 04	None Supplied	0.30-0.80	Brown clay and loam with gravel and vegetation

Analytical Report Number : 24-032187

Project / Site name: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
TPH Chromatogram in soil	TPH Chromatogram in soil	In-house method	L064B	D	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS

Analytical Report Number : 24-032187

Project / Site name: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

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
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/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).

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

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

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

The result for sum should be interpreted with caution

Analytical Report Number : 24-032187

Project / Site name: Model Farm, Mill Lane, Hexton, Hitchin, Hertfordshire, SG5 3JE

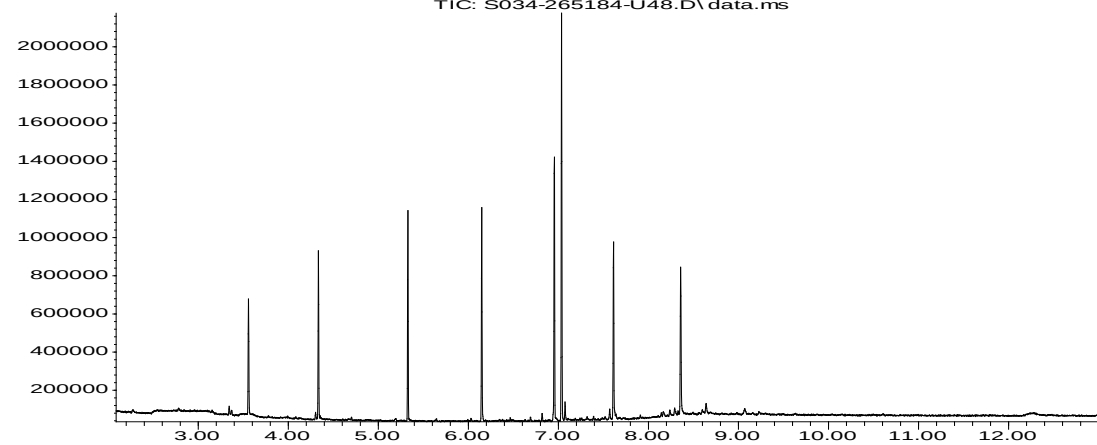
This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

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
CT 01	N/A	S	265181	b	BTEX and/or Volatile organic compounds in soil	L073B	b
CT 01	N/A	S	265181	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088	b
CT 01	N/A	S	265183	b	BTEX and/or Volatile organic compounds in soil	L073B	b
CT 01	N/A	S	265183	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088	b

Abundance

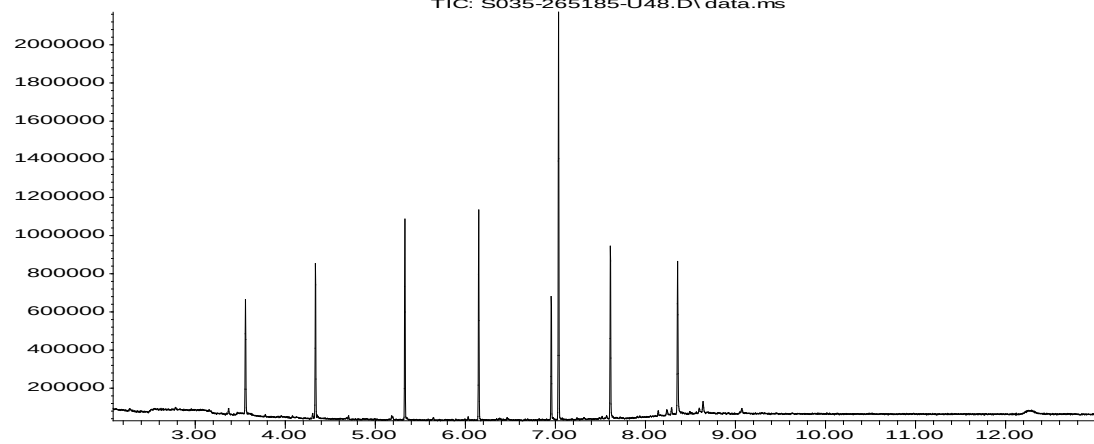
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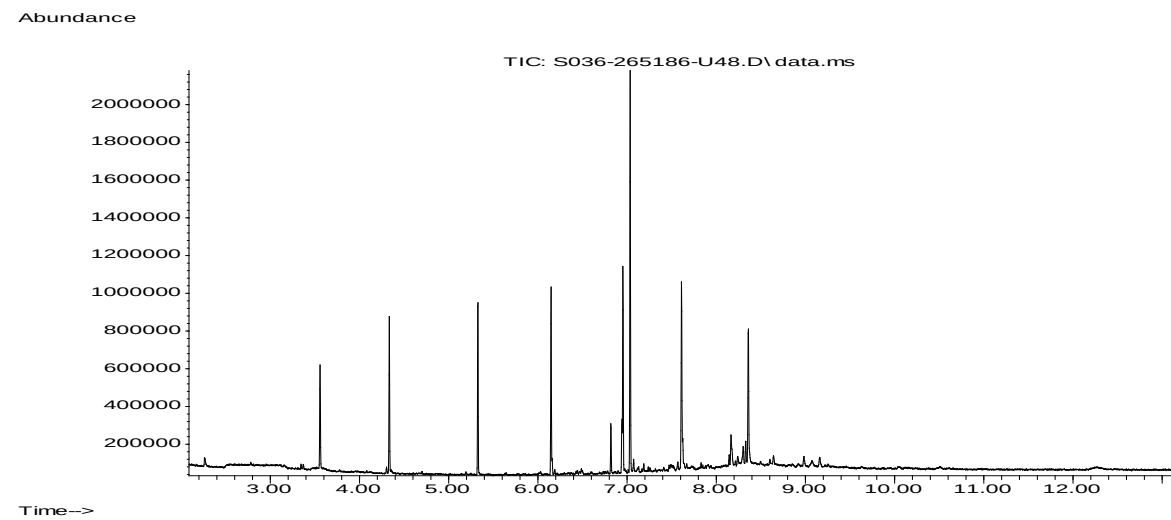
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Abundance

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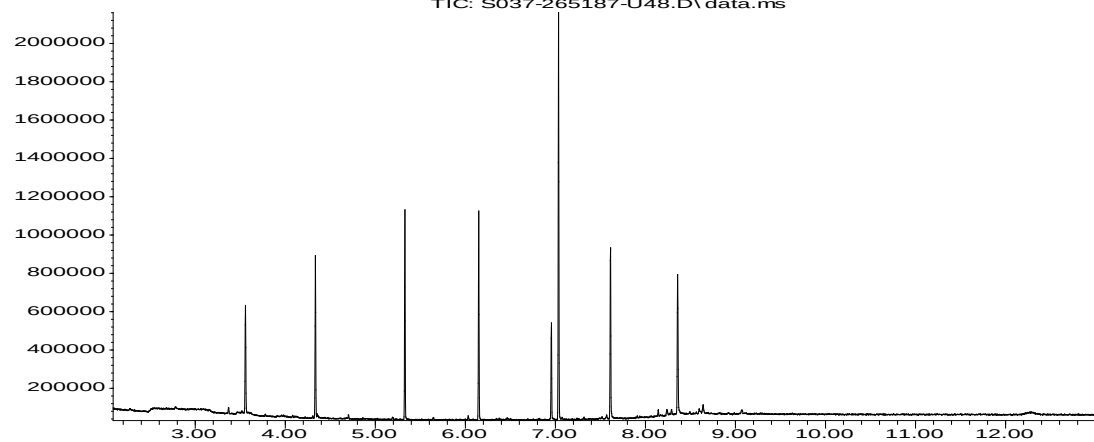


Time-->



Abundance

TIC: S037-265187-U48.D\data.ms



Time-->

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Analytical Report Number : 24-032505

Project / Site name:	Model Farm Mill Lane Hexton Hitchin Hertfordshire SG5 3JE	Samples received on:	24/07/2024
Your job number:	24 07 023	Samples instructed on/ Analysis started on:	24/07/2024
Your order number:	24 07 023 754	Analysis completed by:	31/07/2024
Report Issue Number:	1	Report issued on:	01/08/2024
Samples Analysed:	1 soil sample		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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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: 24-032505

Project / Site name: Model Farm Mill Lane Hexton Hitchin Hertfordshire SG5 3JE

Your Order No: 24 07 023 754

Lab Sample Number				267100
Sample Reference				CT 01 WMMCF
Sample Number				None Supplied
Depth (m)				2.90
Date Sampled				16/07/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)		Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	14
Total mass of sample received	kg	0.1	NONE	0.5

Petroleum Hydrocarbons

TPH (EC10 - EC40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-032505

Project / Site name: Model Farm Mill Lane Hexton Hitchin Hertfordshire SG5 3JE

* 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 *
267100	CT 01 WMMCF	None Supplied	2.9	Brown sandy clay

Analytical Report Number : 24-032505

Project / Site name: Model Farm Mill Lane Hexton Hitchin Hertfordshire SG5 3JE

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
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/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 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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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

The result for sum should be interpreted with caution

APPENDIX D CONTAMINATION RISK ASSESSMENT

Contaminated Land Risk Assessment – Definition of Methodology

The Contaminated Land Risk Assessment methodology followed in this report is based on Environment Agency's (EA) online guidance, Land Contamination: Risk Management (LCRM), published in June 2019. The new guidance is based upon the principles of the EA's CLR11 guidance, Model procedures for the management of land contamination, published in 2004.

The preliminary Conceptual Site Model (CSM) has been assessed using the methodology set out in CIRIA C552, Contaminated Land Risk Assessment - A Guide to Good Practice, published in 2001, as detailed below.

Risk evaluation determines the magnitude of risks present by assessing the likelihood of a particular risk being present alongside the severity of the consequence, should that event occur. The overall risk classification is a combination of the two and provides a qualitative assessment upon which to base any further work or remedial measures, where deemed necessary.

Where complete pollutant linkages are present, the probability of a contamination risk occurring at the site has been classified in accordance with the terms listed and defined in the table below.

Classification	Definition of Probability
High Likelihood	An event appears very likely in the short term and almost inevitable in the long term; or there is evidence at the receptor that harm or pollution is occurring.
Likely	It is probable that an event will occur, however, the event is not inevitable. It is possible in the short term and is likely over the long term.
Low Likelihood	Circumstances are possible under which an event could occur. However, it is uncertain that the event would occur even over a longer period and even less likely in the short term.
Unlikely	Circumstances are such that it is improbable that an event would occur even in the very long term.

The magnitude of the consequence of a contamination event occurring at this site is classified in accordance with the definitions listed in the following table. The classification of the consequence does not take into account the probability of the consequences being realised.

Classification	Definition of Consequence	Examples
Severe	Short term (acute) risk to human health likely to result in “significant harm” as defined by the Environment protection Act (1990), Part IIA. Short term risk of pollution of controlled waters. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion causing building collapse (can also equate to a short-term human health risk if buildings are occupied.).
Medium	Chronic damage to Human Health (“significant harm”). Pollution of controlled waters. A significant change in a particular ecosystem, or organism forming part of such ecosystem.	Concentrations of contaminants from site exceeding generic or site-specific screening criteria. Leaching of contaminants into a major or minor aquifer. Death of species within a designated nature reserve.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment	Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy. (e.g. foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by measures such as protective clothing etc). Easily reparable effects of damage to buildings, structures and services	The presence of contaminants at such concentration that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discolouration of concrete.

Once the probability and consequence of each pathway has been classified, the potential overall risk classification can be evaluated using the following matrix.

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate/Low Risk
	Likely	High Risk	Moderate Risk	Moderate/Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate/Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate/Low Risk	Low Risk	Very Low Risk	Very Low Risk

The definitions of the risk categories provided in CIRIA C552, together with actions that are likely to be necessary, are presented below.

Classification	Definition of Risk and Likely Actions Required
Very high Risk	• High probability that severe harm could arise or that severe harm is already occurring • This risk, if realised, is likely to result in a substantial liability • Urgent investigation and remediation are likely to be required
High Risk	• Harm is likely to arise • The risk, if realised, is likely to present a substantial liability • Urgent investigation is required and remediation may be necessary in the short term and likely over the longer term
Moderate Risk	• It is possible that harm could arise, however, it is unlikely that any harm would be severe and more likely it would be relatively mild • Investigation is likely to be required to clarify the risk and determine potential liability • Some remediation may be required in the longer term
Low Risk	• It is possible that harm could arise, but is likely that this harm, if realised, would be mild at worst
Very low Risk	• There is a low possibility that harm could arise • If realised, such harm is not likely to be severe

Reference:

Rudland, D J, Lancefield, R M, Mayell, P N, Contaminated land Risk Assessment. A guide to Good Practice, CIRIA Report C552, 2001.