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Ground Investigation Factual Report

Longhurst Road, Blackley

Proposed Residential Development

April 2023



Project Details

Site:	Proposed Residential Development
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Document history and status

Revision	Date	Description	Author	Checker	Reviewer
A	March 2023	First Issue	TO	DH	SCD
B	April 2023	Second Issue	FQ	DH	SCD
C	April 2023	Third Issue – following Client comments	DH	SCD	SCD

Any updates to the report as a revision B (following completion of gas and groundwater monitoring in March 2023) will be denoted by a single black line within the left-hand margin.

Any updates to the report as a revision C (following Client comments received in April 2023) will be denoted by a double black line within the left-hand margin.



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Drawing Register

Title	Produced by	Date	Reference
Exploratory Hole Location Plan	Soiltechnics	March 2023	STU5839-D01

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1 Introduction

1.1 Site Location

- 1.1.1 The site comprises a roughly rectangular shaped parcel of land approximately 0.35 hectares in size, some 6.0km north of the Manchester City Centre. The site is currently unoccupied and located at postal address M9 8NS. A site location plan is presented below:



Figure 1-1: Site location

1.2 Scheme Outline

- 1.2.1 The project comprises construction of a new residential dwellings.
- 1.2.2 The principal objectives of the ground investigation were to establish ground conditions in the investigation area sufficient to provide factual information to assist the design and construction the proposed development.
- 1.2.3 The report is based on the project proposals and information outlined above; should the scheme change then it may be necessary to review the conclusions and recommendations presented in this report.
- 1.2.4 It should also be noted that this report is preliminary and will be updated on completion of the gas and groundwater monitoring programme for the site.

1.3 Brief

- 1.3.1 This report has been prepared following instructions received from Pell Frischmann Ltd, on behalf of our mutual Client, Great Places Housing Group. The ground investigation specification was compiled by Pell Frischmann Ltd referenced 106240-PF-C-ZZ-XX-SP-0001.
- 1.3.2 The overall brief of works was to:
- i) Undertake a ground investigation at the site to establish the prevailing ground and groundwater conditions.
- 1.3.3 The objectives of this report are outlined below:
- i) Provide a brief overview of the scheme.
 - ii) Summarise the intrusive investigation works undertaken and associated laboratory testing.
 - iii) Present factual records of the investigation and laboratory testing.

1.4 Limitations

- 1.4.1 Soiltechnics disclaims any responsibility to our Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our contract, taking account of the manpower, resources, investigations and testing devoted to it by agreement with our Client. This report is confidential to our Client and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

2 The Site

2.1 Site Description

- 2.1.1 The site and surrounding land appear to have been historically reprofiled, with topography falling from south to north in a series of terraces approximately 1m in height with two retaining walls present on site along the southern site boundary and in the northeast corner. The majority of the site is surfaced in rough vegetation (partially removed prior to our investigation commencing).
- 2.1.2 Previous ground investigations were undertaken in April 2017 by Caulmert Limited, discussed in their Phase 1 and 2 Geo-environmental report (ref: 3025-CAU-XX-XX-RP-V-0307.A0-C1).
- 2.1.3 A plan showing the existing site features is presented in Drawing 01

2.2 Anticipated Geology

- 2.2.1 Based on published records and previous investigation, the sequence of soils underlying the site is as follows:

Stratum	Bedrock / superficial	Anticipated thickness (m bgl)	Typical soil type	Likely permeability
Topsoil/Made Ground	-	0.2-0.9	Clay with brick, concrete, ash and clinker	Variable
Glacial (Devensian) Till	Superficial	Unknown	Clays, Silts, Sands, Gravels	Low
Chester Pebble Beds	Bedrock	Unknown	Sandstone	Moderate/high

Table 2-1: Summary of anticipated geology and hydrogeology

3 Ground Investigation

3.1 Objectives

- 3.1.1 The ground investigation scope and location of exploratory holes was determined by Pell Frischmann Ltd, based upon our overall brief outlined in Section 1.

3.2 Fieldwork summary

- 3.2.1 Fieldwork was undertaken between 13th to 14th December 2022, and the works completed are summarised below. Exploratory hole logs are presented in Appendix C and an exploratory hole location plan is presented as Drawing 01.

Exploratory hole ID	Method	Achieved depth (m bgl)	Purpose
WS01 to WS03	Windowless sampler rig	5.45 – 6.05	Prove ground conditions and obtain samples.
TP01 to TP04	Machine excavated trial pits	0.90 – 4.00	Prove ground conditions and obtain samples.

Table 3-1: Summary of fieldwork undertaken

- 3.2.2 All soils encountered were described in accordance with BS EN ISO 14688 “Identification and classification of soil”, or in accordance with BS EN ISO14689 “Geotechnical investigation and testing – identification, description and classification of rock”.

- 3.2.3 Photographs of the site works are presented in Appendix B.

3.3 Site Restrictions

- 3.3.1 No significant site restrictions were encountered during our works.

3.4 Unexploded Ordnance (UXO)

- 3.4.1 In the absence of a UXO Risk Assessment in accordance with CIRIA C681, Soiltechnics commissioned a UXO specialist to undertake a preliminary risk review for the purpose of the ground investigation works phase only which concluded a moderate risk.

- 3.4.2 The ground investigation works were supervised full time by a UXO specialist. No ferrous anomalies were identified during the works.

3.5 Sampling

- 3.5.1 During the fieldwork, sampling of soil, rock and groundwater for geotechnical purposes has been undertaken in accordance with BS EN ISO 22475-1 “Geotechnical Investigation and testing – sampling by drilling and excavation and groundwater measurements”.
- 3.5.2 Samples collected for chemical analysis have been taken and handled in accordance with BS ISO 18400-105:2017 “Soil quality — Sampling Part 105: Packaging, transport, storage and preservation of samples”.

- 3.5.3 Various sampling and sub-sampling methodologies have been adopted as appropriate, with the primary aim of obtaining the highest quality sample class practicable.
- 3.5.4 Untested chemical and geotechnical samples will be held for a period of 4 weeks from the date of the first report issue, after which they will be disposed of with no further notice.

3.6 In-situ Testing

- 3.6.1 The following table summarises the field testing carried out. The results are summarised on individual exploratory hole logs where appropriate and detailed within the Appendices indicated.

Tests	Qty	Applicable standard / guidance	Location of Results
Standard penetration test (SPT)	17	BS EN ISO 22476-3	Included within logs. Detailed in Appendix D
Pocket penetrometer	22	Manufacturer's instructions	Included within logs Detailed in Appendix D
Soakaway test	2	BRE 365	Appendix D

Table 3-2: Summary of field testing undertaken

3.7 Monitoring Installations

- 3.7.1 Instrumentation installed within exploratory holes during the fieldwork are shown on the logs and summarised below:

Installation type	Target Stratum	Qty	Exploratory hole ID
Groundwater and gas monitoring well	Glacial Till	2	WS01 & WS03

Table 3-3: Summary of monitoring installations

3.8 Monitoring visits and groundwater sampling

- 3.8.1 Post fieldwork ground gas and groundwater monitoring has been undertaken on 5No. occasions following completion of the fieldworks.
- 3.8.2 Ground gas and groundwater level ranges are presented below.

Exploratory hole ID	Groundwater level (m bgl)	Methane concentration range (%v/v)	Carbon dioxide concentration range (%v/v)	Oxygen concentration range (%v/v)
WS01	1.50 – 1.70	0.10 – 0.20	0.10 – 2.60	17.10 – 21.70
WS03	1.72 – 2.00	0.10 – 0.90	0.10 – 2.70	2.30 – 21.50

Table 3-4: Summary of groundwater and ground gas monitoring results

- 3.8.3 Detailed records for monitoring rounds undertaken are included in Appendix G.

4 Laboratory testing

4.1 Overview

- 4.1.1 Upon completion of the fieldworks, selected samples obtained from exploratory holes were sent to independent laboratories for geotechnical testing.
- 4.1.2 The testing schedules were developed by Pell Frischmann Ltd taking cognisance of the scheme proposals and based on the initial findings of the fieldworks.

4.2 Chemical Testing

- 4.2.1 Laboratory test certificates are presented as Appendix E, and the total number of chemical tests undertaken is summarised below:

Geological Unit	Test	Quantity
Topsoil	Full WAC Suite (2-stage leachate)	1
	PF-A Soil Suite	1
Made Ground	Full WAC Suite (2-stage leachate)	3
	PF-A Soil Suite	6
Glacial Till	PF-A Soil Suite	2

Table 4-1: Summary of geotechnical laboratory testing

- 4.2.2 Reference should be made to the Pell Frischmann Ltd investigation specification (referenced 106240-PF-C-ZZ-XX-SP-0001) for full list of determinants forming part of the PF-A soils suite.

4.3 Geotechnical Testing

- 4.3.1 Laboratory test certificates are presented as Appendix F, and the total number of geotechnical tests undertaken is summarised below:

Geological Unit	Test	Quantity
Made Ground	Liquid limit/plastic limit/plasticity index (1 point)	2
	Moisture content	2
	BRE SD1 Suite D (brownfield – pyrite present)	2
Glacial Till	Liquid limit/plastic limit/plasticity index (1 point)	10
	Moisture content	10
	Particle size distribution (sieving above 63 micron)	6
	BRE SD1 Suite D (brownfield – pyrite present)	5

Table 4-2: Summary of geotechnical laboratory testing

Appendix A Drawings



Key:

Exploratory Holes

- Machine Excavated Trial Pit
- Windowless Sampling Borehole
- Monitoring Installation
- Soakaway / Permeability Testing

Site Features

- Site Boundary

Notes

1) Base image provided by Google.

2) All drawn features are approximate.

Contains OS data © Crown copyright [and database right] [2022]

Map data © 2022 Google

B	March 2023	Second issue
A	January 2023	First issue
REV	DATE	COMMENT ON VARIATION
soiltechnics environmental • geotechnical • building fabric		
PROJECT Longhurst Road, Blackley		
TITLE Exploratory Hole Location Plan		
PROJECT No. STU5839	DRAWING 01	REVISION B

Appendix B Photographic Record

P1: Photograph showing site arrangement, looking north.



P2: Photograph showing site arrangement, looking west from location of TP01.



Title

Photographic records

Photo sheet number

P1

Appendix

B

P3: Photograph showing site arrangement, looking east from TP01 postion.



P4: Photograph showing site arrangement, looking northeast from location of TP03.



Title

Photographic records

Photo sheet number

P1

Appendix

B

P5: Photograph showing site arrangement, looking west.



P6: Photograph showing access gate and retaining wall structure in northern part of the site.



Title

Photographic records

Photo sheet number

P1

Appendix

B

P7: Photograph showing TP01



P8: Photograph showing TP01A

Title	Photo sheet number	Appendix
Photographic records	P1	B



P9:Photograph showing TP02

Title	Photo sheet number	Appendix
Photographic records	P1	B



Title

Photographic records

Photo sheet number

P1

Appendix

B

P10: Photograph showing TP03



Title

Photographic records

Photo sheet number

P1

Appendix

B

P11: Photograph showing TP04



Title

Photographic records

Photo sheet number

P1

Appendix

B

P12: Photograph showing WS01



Title

Photographic records

Photo sheet number

P1

Appendix

B

P13: Photograph showing WS02



Title

Photographic records

Photo sheet number

P1

Appendix

B

P14: Photograph showing WS03



Title

Photographic records

Photo sheet number

P1

Appendix

B

Appendix C Exploratory Hole Logs

Key to legends

Composite materials, soils and lithology							
	Topsoil		Made Ground		Boulders		Chalk
	Clay		Coal		Cobbles		Concrete
	Gravel		Limestone		Mudstone		Peat
	Sand		Sandstone		Silt		Siltstone

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		Sampling	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)	From (m) To (m)	Records depth of sampling
	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m ²) by applying a factor of 50.		D Disturbed sample
			B Bulk disturbed sample
			ES Environmental sample
Result	SV – Hand held shear vane result reported as an undrained shear strength (kN/m ²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.	Type	W Water sample
			U Undisturbed thick-walled sample 100mm diameter sampler
			UT Undisturbed thin walled sample 100mm diameter sampler
			UTF Failed undisturbed sample

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ Water level observed after specified delay in drilling

∇ Water strike

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Dark brown to grey slightly gravelly clayey SAND with frequent rootlets. Gravel of fine to medium ash. (TOPSOIL - MADE GROUND)	0.40	90.17					0.20		D
Grey very clayey SAND with pea gravel bed in part of the pit from 0.6m depth. Gravel is medium to coarse angular limestone. (MADE GROUND)							0.50		D
TRIAL PIT TERMINATED AT 0.90m	0.90	89.67					0.90		B

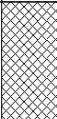
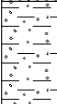
Notes Trial pits sides stable during the excavation. Trial pit terminated due to suspected underground service	Title Trial pit record	Dimensions (w x l) 0.70m x 2.70m	Date(s) 13/12/2022
	Method Machine excavator	Logged by TO	Sheet number Sheet 1 of 1
Groundwater observations No groundwater observed during the excavation.	Level (m OD) 90.57	Compiled by AM	Revision C
	Co-ordinates 384736mE, 403943mN	Checked by DH	TP01

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Rough vegetation over dark brown to grey slightly gravelly clayey SAND with frequent rootlets. Gravel is fine to medium ash. (TOPSOIL - MADE GROUND)							0.20		D
Orangish brown very clayey SAND (GLACIAL TILL)	0.40	90.25					0.50		D
Dark brown to grey slightly gravelly clayey SAND. Gravel of angular medium mudstone. (GLACIAL TILL)	0.60	90.05					0.80		B
Grey fine to medium SAND. (GLACIAL TILL)	0.90	89.75					1.20		B
							1.70		B
Firm dark grey very silty CLAY. (GLACIAL TILL)	1.80	88.85			PP 1.90	PP=50			
					PP 2.30	PP=54	2.20		B
TRIAL PIT TERMINATED AT 2.50m	2.50	88.15							

Notes Trial pits sides stable during the excavation. Infiltration testing performed.	Title Trial pit record	Dimensions (w x l) 0.70m x 2.60m	Date(s) 13/12/2022
	Method Machine excavator	Logged by TO	Sheet number Sheet 1 of 1
Groundwater observations No groundwater observed during the excavation.	Level (m OD) 90.65	Compiled by AM	Revision C
	Co-ordinates 384738mE, 403945mN	Checked by DH	TP01A

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Rough vegetation over dark brown to grey slightly gravelly clayey SAND with frequent rootlets. Gravel is fine to medium ash. (TOPSOIL - MADE GROUND)							0.20		D
Grey very clayey fine to medium SAND. (GLACIAL TILL)	0.40	90.19					0.50		D
Light brown medium to coarse angular GRAVEL of mudstone. (GLACIAL TILL)	0.70	89.89					1.00		B
Firm dark grey very silty CLAY. (GLACIAL TILL)	1.10	89.49			PP 1.40	PP=50	1.50		B
					PP 1.80	PP=58	2.00		B
					PP 2.30	PP=50	2.50		B
					PP 2.70	PP=50	3.00		B
					PP 3.10	PP=62	3.50		B
					PP 3.50	PP=70			
									
									
									
									
TRIAL PIT TERMINATED AT 4.00m	4.00	86.59					4.00		B

Notes Trial pits sides stable during the excavation.	Title Trial pit record	Dimensions (w x l) 0.70m x 2.70m	Date(s) 13/12/2022
	Method Machine excavator	Logged by TO	Sheet number Sheet 1 of 1
Groundwater observations No groundwater observed during the excavation.	Level (m OD) 90.59	Compiled by AM	Revision C
	Co-ordinates 384756mE, 403950mN	Checked by DH	TP02

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass over slightly sandy GRAVEL of fine to coarse brick, concrete, ash and slate. (MADE GROUND)							0.20		D
							0.50		D
...at 0.7m depth, hydrocarbon odour and black staining.							0.70		D
							1.00		B
Firm dark grey very gravelly CLAY. Gravel of angular medium mudstone. (GLACIAL TILL)	1.20	87.87			PP 1.50	PP=50	1.50		B
Firm grey very sandy silty CLAY. (GLACIAL TILL)	1.90	87.17			PP 2.10	PP=62	2.00		B
TRIAL PIT TERMINATED AT 2.50m	2.50	86.57			PP 2.40	PP=70	2.50		B

Notes Trial pits sides stable during the excavation. Infiltration testing performed.	Title Trial pit record	Dimensions (w x l) 0.70m x 2.70m	Date(s) 13/12/2022
	Method Machine excavator	Logged by TO	Sheet number Sheet 1 of 1
Groundwater observations No groundwater observed during the excavation.	Level (m OD) 89.07	Compiled by AM	Revision C
	Co-ordinates 384784mE, 403960mN	Checked by DH	TP03

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass over slightly sandy GRAVEL of fine to coarse brick, concrete, ash and slate. (MADE GROUND)							0.20		D
							0.50		D
							1.00		B
							1.50		B
							2.00		B
							2.20		B
Firm dark grey very gravelly CLAY. Gravel of angular medium mudstone. (GLACIAL TILL)	2.40	86.59							
...at 2.7m depth, hydrocarbon odour and black staining.					PP 2.70	PP=62	2.70		B
							2.70		ES
Grey very sandy silty CLAY. (GLACIAL TILL)	3.00	85.99			PP 3.20	PP=75	3.20		B
					PP 3.60	PP=66	3.70		B
TRIAL PIT TERMINATED AT 4.00m	4.00	84.99							

Notes Trial pits sides stable during the excavation. Hydrocarbon staining at 2.7m depth.	Title Trial pit record	Dimensions (w x l) 0.70m x 3.20m	Date(s) 13/12/2022
	Method Machine excavator	Logged by TO	Sheet number Sheet 1 of 1
Groundwater observations Groundwater seepage at 3.7m depth, unable to fill the bottom of the pit.	Level (m OD) 88.99	Compiled by AM	Revision C
	Co-ordinates 384805mE, 403970mN	Checked by DH	TP04

Key to legends

Composite materials, soils and lithology					
	Topsoil		Made Ground		Boulders
	Clay		Coal		Cobbles
	Gravel		Limestone		Mudstone
	Sand		Sandstone		Silt
					Siltstone
					Peat
					Concrete
					Chalk

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		Sampling	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)	From (m) To (m)	Records depth of sampling
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m ²) by applying a factor of 50.		D Disturbed sample
	SV – Hand held shear vane result reported as an undrained shear strength (kN/m ²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.		B Bulk disturbed sample
	SPT – Standard Penetration Test result (N value) (uncorrected) ^{1,2,3} SPT(c) – Standard Penetration Test result (solid cone) (N value) (uncorrected) ^{1,2,3}		ES Environmental sample
	UT – Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample	Type	W Water sample
			U Undisturbed thick-walled sample 100mm diameter sampler
			UT Undisturbed thin walled sample 100mm diameter sampler
			UTF Failed undisturbed sample

Water observations

Described at foot of log and shown in the 'water strike' column.

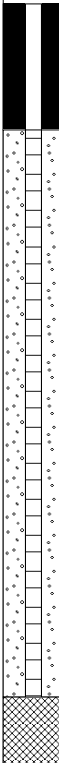
-  Water level observed after specified delay in drilling
-  Water strike

Installation details

	Gravel filter		Bentonite
	Slotted pipe		Unslotted pipe
	Arisings		Grout
	Extensometer magnet		Vibrating wire piezometer

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING					
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE			
	Dark brown slightly clayey SAND with frequent rootlets. (TOPSOIL)	0.30	90.72			S 1.00 - 1.45	(4) 8			PP 1.50	PP=58	0.20		D			
	Firm brown mottled grey slightly gravelly very sandy SILT. (GLACIAL TILL)											0.50		D			
												0.80		D			
												1.20		D			
	Firm brown slightly gravelly slightly clayey SILT. (GLACIAL TILL)	1.50	89.52			S 2.00 - 2.45	(3) 5					1.70	D				
				2.20								D					
				2.70								D					
	No recovery	3.00	88.02														
	[Medium dense] Brown slightly gravelly clayey SAND. (GLACIAL TILL)	4.00	87.02			S 4.00 - 4.45	(5) 16					4.00	5.00	D			
	No recovery	5.00	86.02														
						S 5.00 - 5.45	(7) 16										
																	
						S 5.60 - 6.05	(17) 45										
																	
	BOREHOLE TERMINATED AT 6.05m	6.05	84.97														

Notes Borehole terminated due to collapse of borehole sites.	Title Dynamic windowless sampling record			Date(s) 14/12/2022	
	Recovery details		Method Windowless sampler	Logged by TO	Sheet number Sheet 1 of 1
	Range (m)	Recovery (%)	Level (m OD) 91.02	Compiled by AM	Revision C
	0.00 - 3.00 3.00 - 4.00 4.00 - 5.00 5.00 - 5.50	100 0 100 0	Co-ordinates 384743mE, 403942mN	Checked by DH	WS01

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Dark brown slightly clayey SAND with frequent rootlets. (TOPSOIL)	0.30	89.24		▼							0.20		D
	Firm brown mottled grey gravelly very sandy CLAY. Gravel of fine to medium angular limestone and brick. (MADE GROUND)											0.50		D
												0.80		D
	[Medium dense] brown clayey SAND. (GLACIAL TILL)	1.00	88.54			S 1.00 - 1.45	(3) 11					1.20		D
												1.70		D
						S 2.00 - 2.45	(7) 13					2.20		D
												2.70		D
	Firm brownish grey sandy CLAY (GLACIAL TILL)	3.00	86.54			S 3.00 - 3.45	(4) 8					3.00	4.00	B
	[Medium dense] brown slightly gravelly clayey SAND. (GLACIAL TILL)	4.00	85.54			S 4.00 - 4.45	(5) 15					4.00	5.00	B
	Firm brown slightly gravelly sandy CLAY. (GLACIAL TILL)	5.00	84.54			S 5.00 - 5.45	(5) 25					5.00	6.00	B
						S 5.60 - 6.05	(13) 36							
	BOREHOLE TERMINATED AT 6.05m	6.05	83.49											

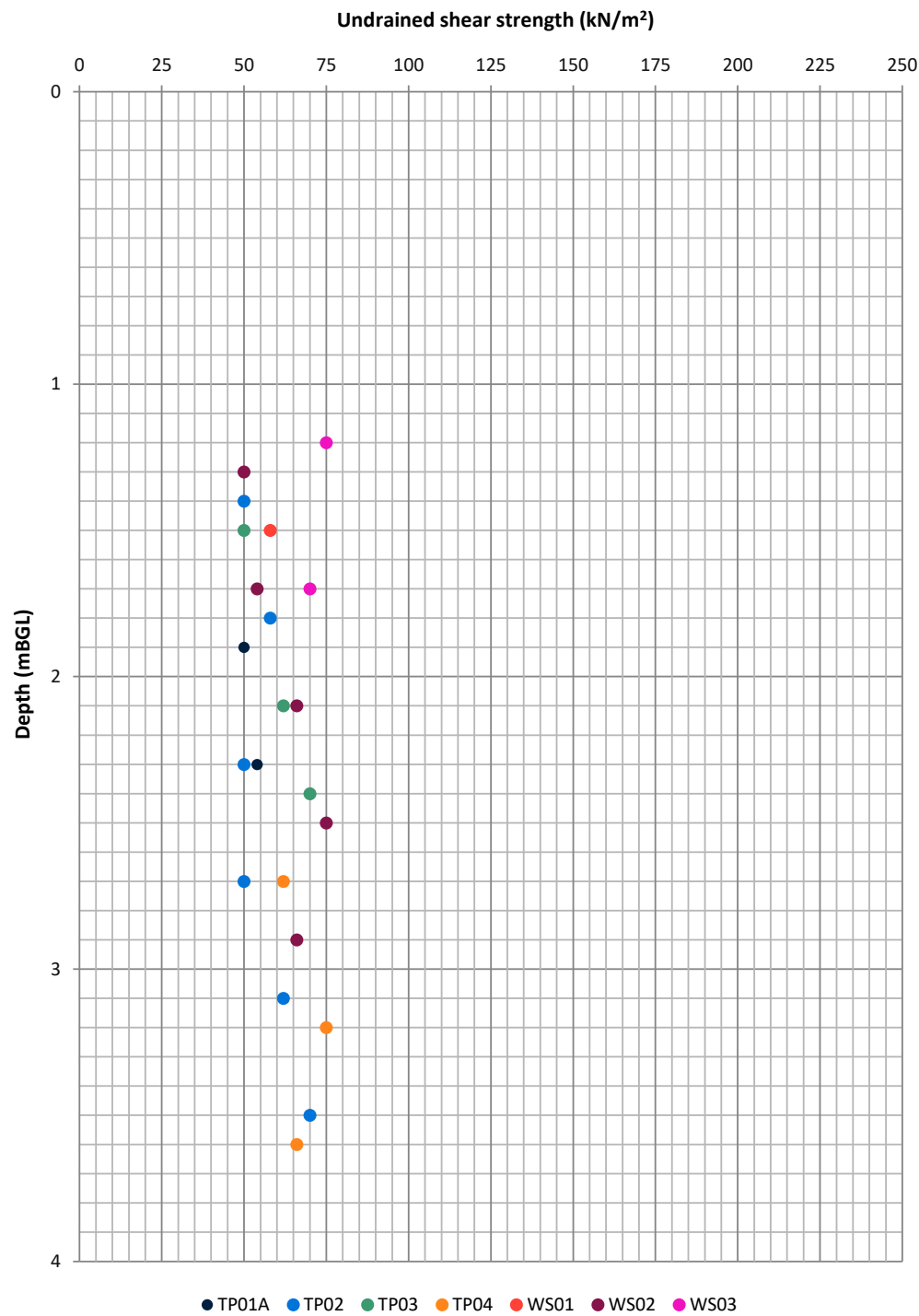
Notes Borehole terminated due to collapse of borehole sites.	Title			Date(s)	
	Dynamic windowless sampling record			14/12/2022	
	Recovery details		Method	Logged by	Sheet number
	Range (m)	Recovery (%)	Windowless sampler	TO	Sheet 1 of 1
	0.00 - 2.00 2.00 - 6.00	80 90	Level (m OD) 89.54	Compiled by AM	Revision C
Groundwater observations Groundwater present at 3.0m depth, on completion of the borehole.	Co-ordinates 384780mE, 403947mN		Checked by DH	WS02	

INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE

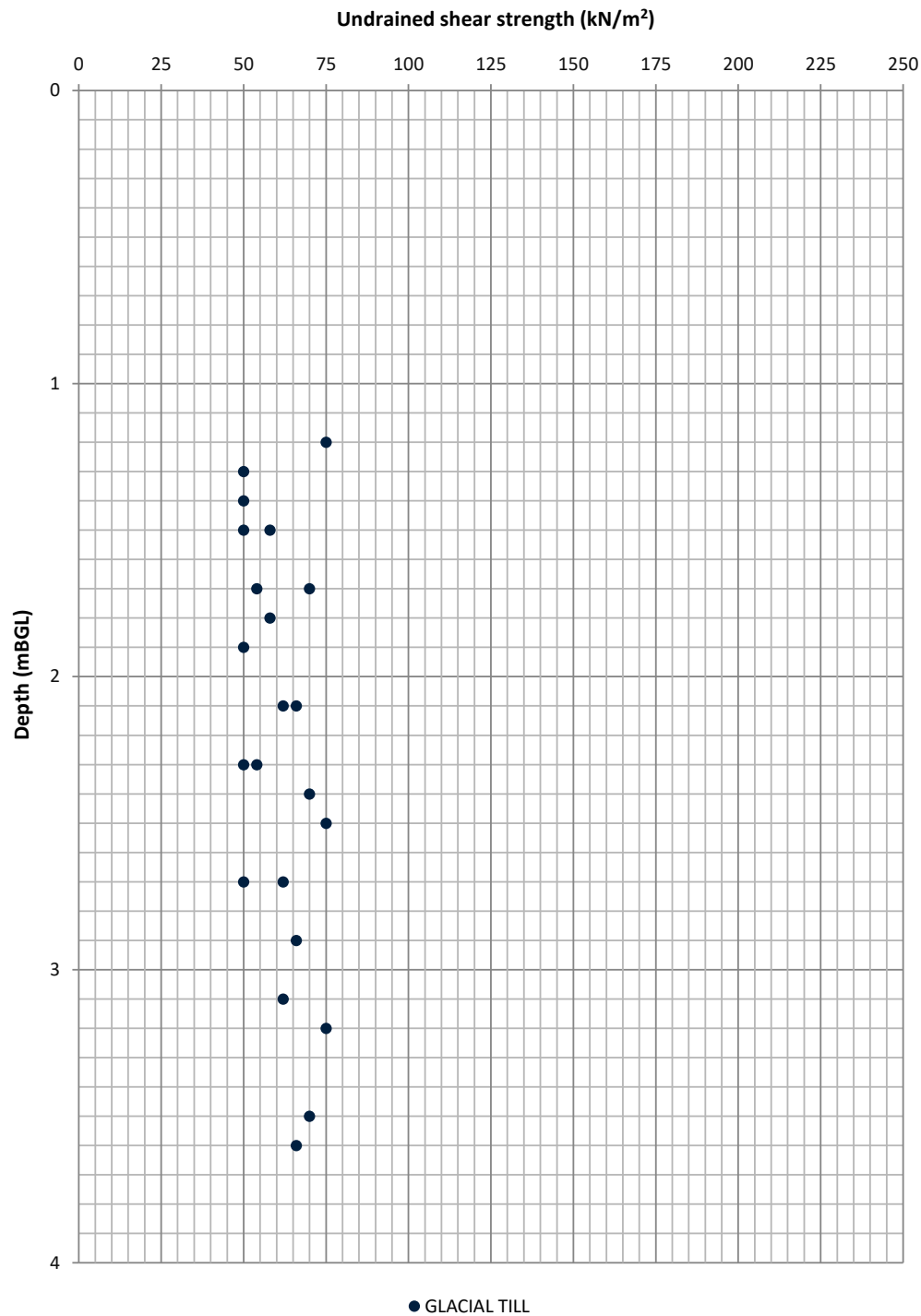
Notes Borehole terminated due to competency of soils.	Title Dynamic windowless sampling record			Date(s) 14/12/2022	
	Recovery details		Method Windowless sampler	Logged by TO	Sheet number Sheet 1 of 1
	Range (m)	Recovery (%)			
	0.00 - 1.00 1.00 - 2.00 2.00 - 4.00 4.00 - 5.00	100 90 100 90	Level (m OD) 89.11	Compiled by AM	Revision C
Groundwater observations Groundwater present at 3.0m depth, on completion of the borehole.			Co-ordinates 384809mE, 403960mN	Checked by DH	WS03

Appendix D In Situ Test Results

Plot summarising Pocket Penetrometer results versus depth filtered by location



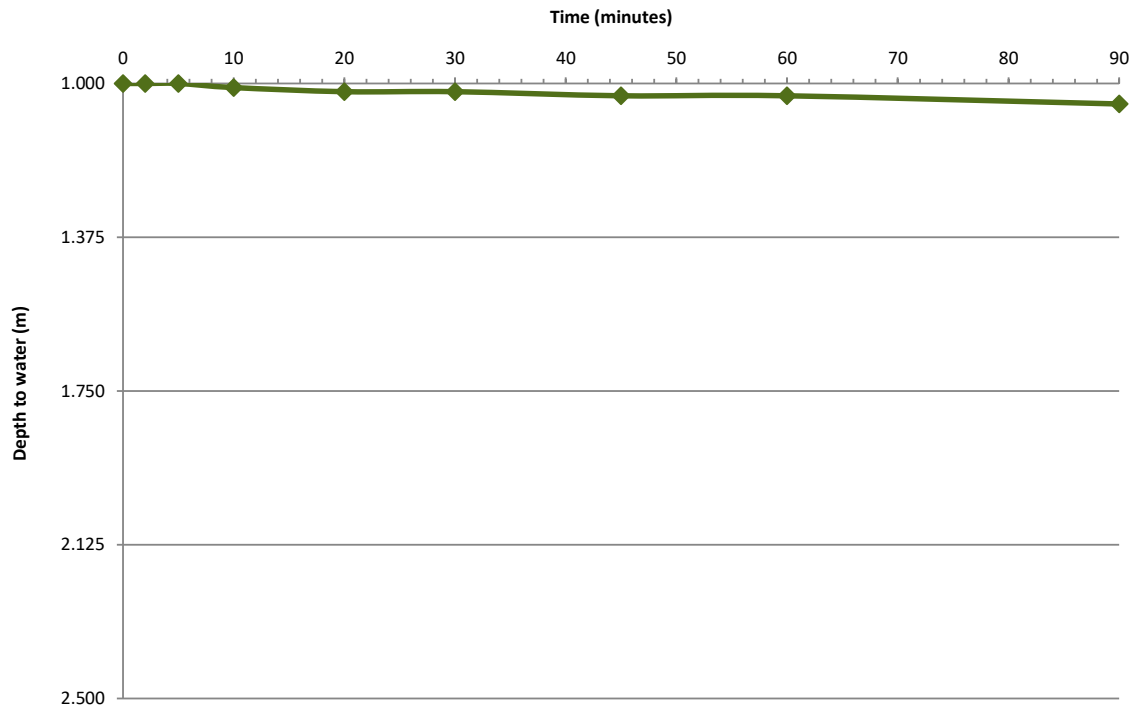
Plot summarising Pocket Penetrometer results versus depth filtered by geology



Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Dimensions (m)
TP01A	1	13/12/2022	0.70m x 2.60m

Depth at start of test (m)	Groundwater observations (at time of excavation)
1	No groundwater observed during the excavation.

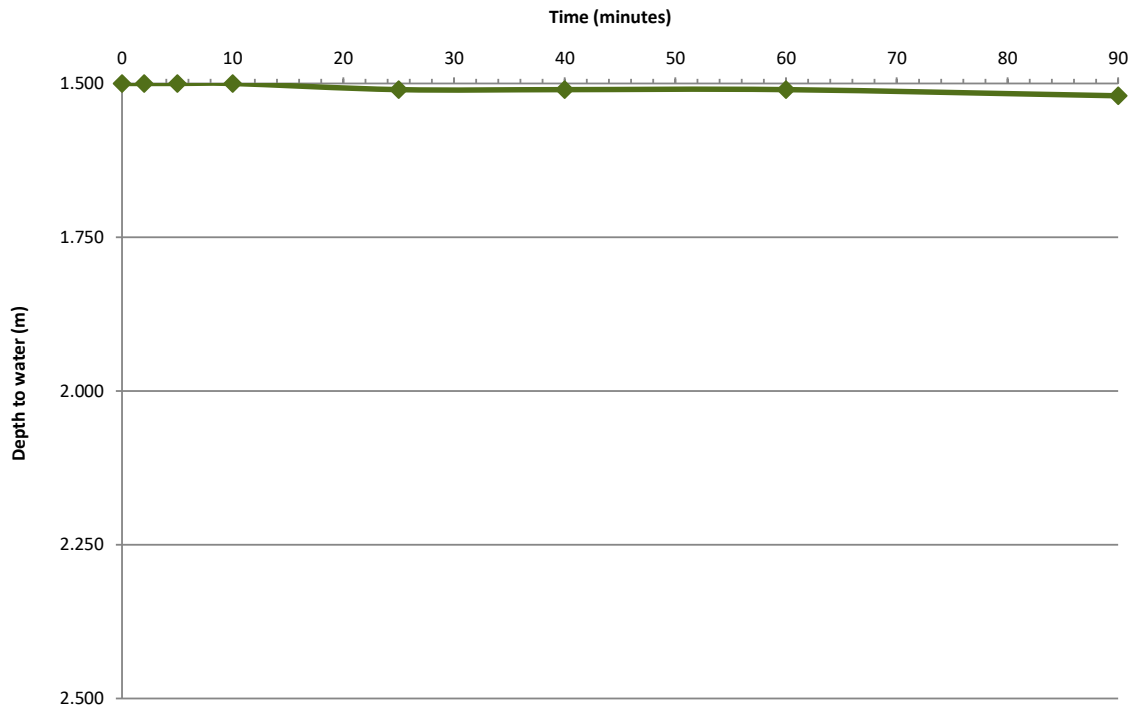


Insufficient infiltration over 90 minutes of monitoring therefore unable to calculate soil infiltration rate.

Soil infiltration test (following BRE Digest 365 2016)

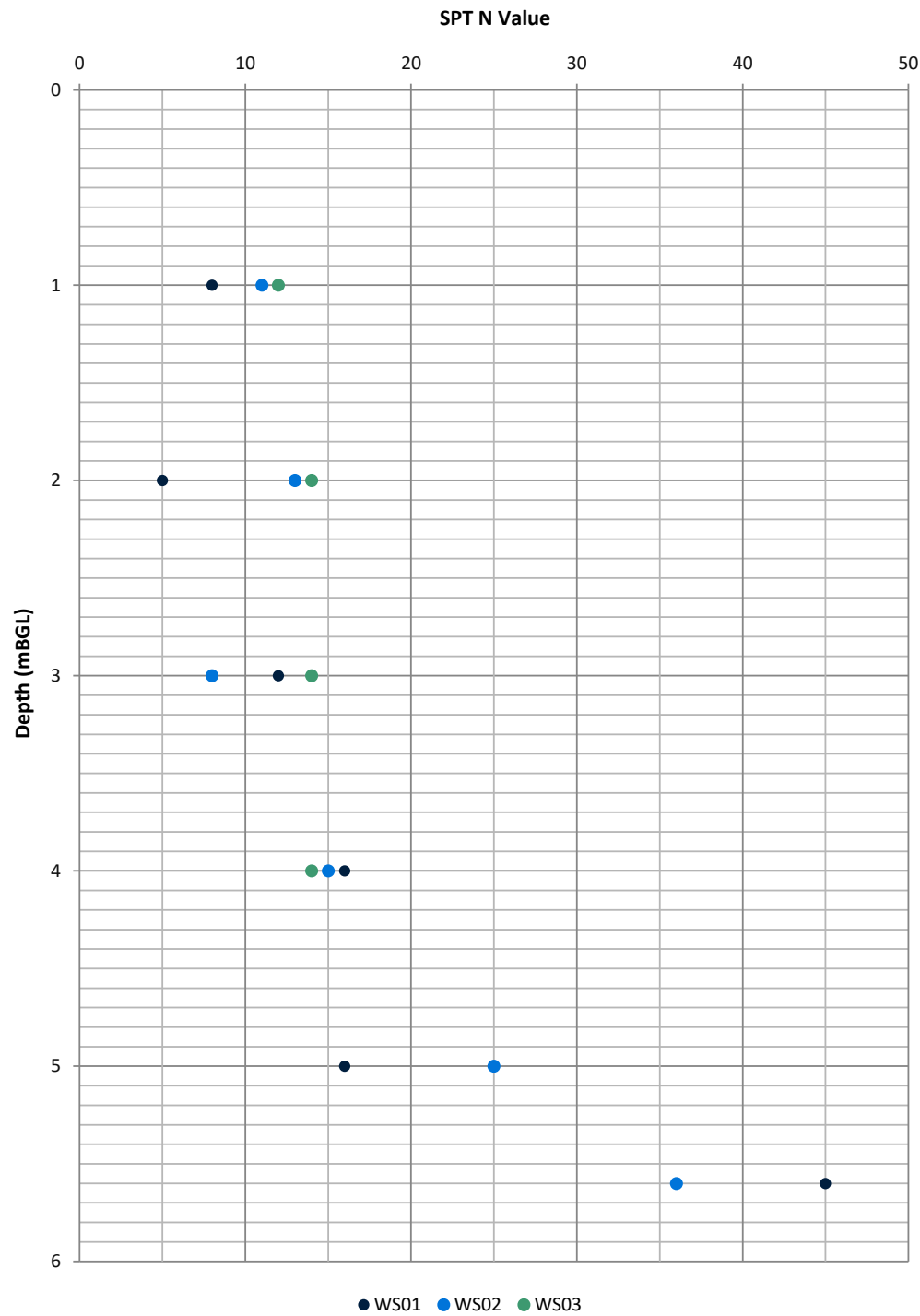
Location	Cycle	Test date	Dimensions (m)
TP03	1	13/12/2022	0.70m x 2.70m

Depth at start of test (m)	Groundwater observations (at time of excavation)
1.5	No groundwater observed during the excavation.



Insufficient infiltration over 90 minutes of monitoring therefore unable to calculate soil infiltration rate.

Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology

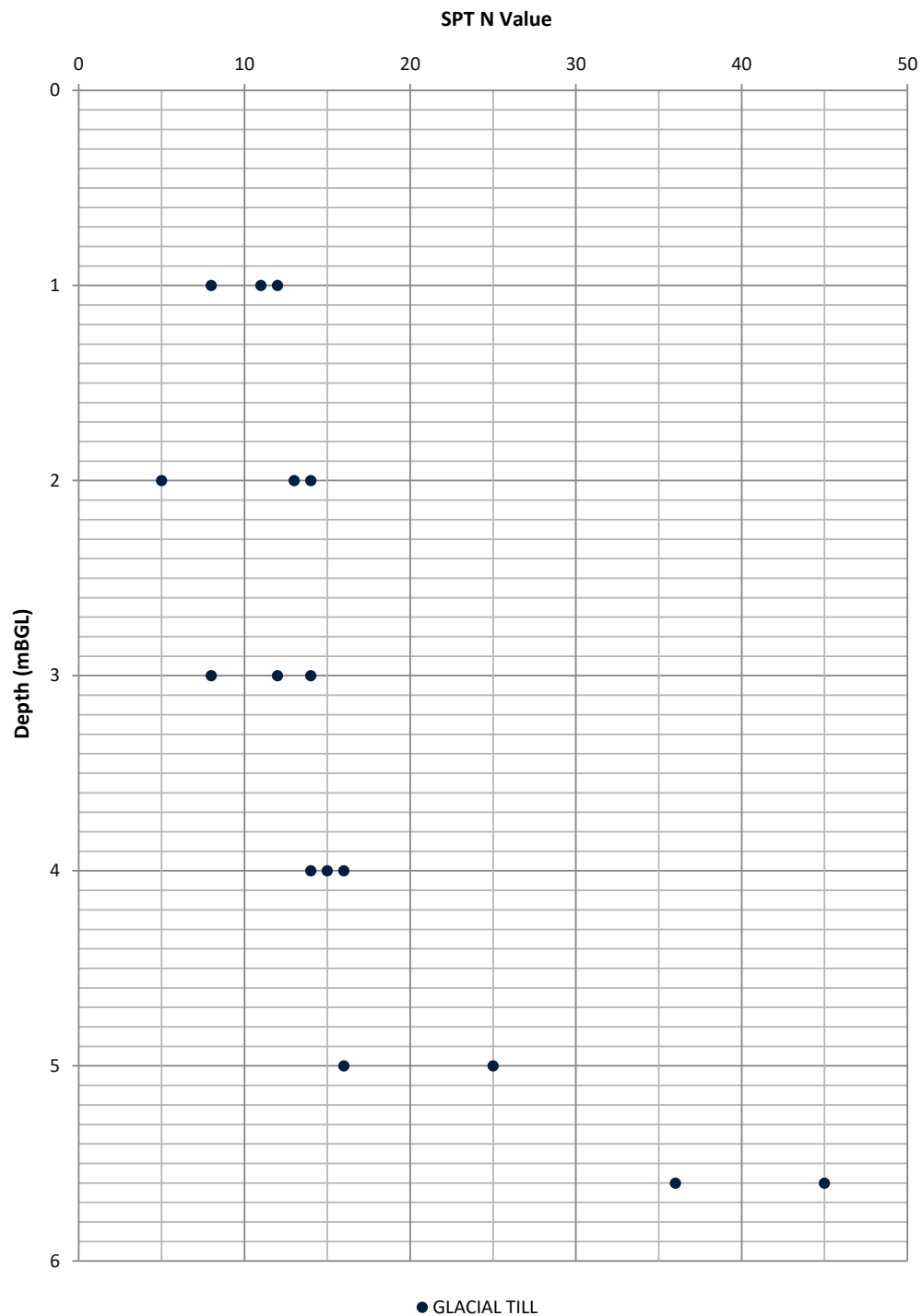


Table summarising Pocket Penetrometer results

* Instrument limit reached.

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m ²)
TP01A	1.90	1/1/1	1.00	50
TP01A	2.30	1/1.25/1	1.08	54
TP02	1.40	1/1/1	1.00	50
TP02	1.80	1.25/1.25/1	1.17	58
TP02	2.30	1/1/1	1.00	50
TP02	2.70	1/1/1	1.00	50
TP02	3.10	1.25/1.25/1.25	1.25	62
TP02	3.50	1.25/1.5/1.5	1.42	70
TP03	1.50	1/1/1	1.00	50
TP03	2.10	1.25/1.25/1.25	1.25	62
TP03	2.40	1.25/1.5/1.5	1.42	70
TP04	2.70	1.25/1.25/1.25	1.25	62
TP04	3.20	1.5/1.5/1.5	1.50	75
TP04	3.60	1.25/1.5/1.25	1.33	66
WS01	1.50	1.25/1.25/1	1.17	58
WS02	1.30	1/1/1	1.00	50
WS02	1.70	1/1/1.25	1.08	54
WS02	2.10	1.25/1.25/1.5	1.33	66
WS02	2.50	1.5/1.5/1.5	1.50	75
WS02	2.90	1.25/1.25/1.5	1.33	66
WS03	1.20	1.5/1.5/1.5	1.50	75
WS03	1.70	1.5/1.5/1.25	1.42	70

Table summarising Standard Penetration Test (SPT) results

Location	Start Depth (m)	Penetration (mm)					
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
WS01	1.00	2/2	2/1/2/3	4	8	150	300
WS01	2.00	2/1	2/1/1/1	3	5	150	300
WS01	3.00	2/2	2/3/3/4	4	12	150	300
WS01	4.00	3/2	4/4/3/5	5	16	150	300
WS01	5.00	3/4	3/4/4/5	7	16	150	300
WS01	5.60	9/8	9/11/12/13	17	45	150	300
WS02	1.00	1/2	2/2/3/4	3	11	150	300
WS02	2.00	4/3	4/3/3/3	7	13	150	300
WS02	3.00	2/2	2/1/2/3	4	8	150	300
WS02	4.00	3/2	4/3/4/4	5	15	150	300
WS02	5.00	2/3	5/6/6/8	5	25	150	300
WS02	5.60	7/6	7/5/11/13	13	36	150	300
WS03	1.00	1/2	3/3/3/3	3	12	150	300
WS03	2.00	2/2	3/4/4/3	4	14	150	300
WS03	3.00	2/3	2/4/4/4	5	14	150	300
WS03	4.00	3/3	4/4/3/3	6	14	150	300
WS03	5.00	5/6	9/11/10/24	11	54	150	300

Appendix E Chemical Laboratory Test Results



Lauren Wenham
Soiltechnics Ltd
White Lodge
Cedar Barn
Walgrave
NN6 9PY

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 23-01028

Site Reference: Lonhurst Road, Blackley

Project / Job Ref: STU5839

Order No: POR014553

Sample Receipt Date: 26/01/2023

Sample Scheduled Date: 26/01/2023

Report Issue Number: 1

Reporting Date: 02/02/2023

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.



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Soil Analysis Certificate						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	13/12/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Longhurst Road, Blackley	TP / BH No	TP010.502	TP01A0.201	TP01A0.502	TP020.201	TP020.502
Project / Job Ref: STU5839	Additional Refs	TP01	TP01A	TP01A	TP02	TP02
Order No: POR014553	Depth (m)	0.50	0.20	0.50	0.20	0.50
Reporting Date: 02/02/2023	DETS Sample No	630371	630372	630373	630374	630375

Determinand	Unit	RL	Accreditation	(n)				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.4	7.2	7.1	7.2	7.7
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
TOC (Total Organic Carbon)	%	< 0.1	MCERTS	1.3	11.7	6.2	2	0.6
Loss on Ignition @ 450°C	%	< 0.01	MCERTS	3.40	26.70	6.50	6.90	1.80
W/S Chloride (2:1)	mg/kg	< 1	MCERTS	10	15	8	8	7
W/S Chloride (2:1)	mg/l	< 0.5	MCERTS	5.1	7.5	4	4.2	3.4
Water Soluble Fluoride (2:1)	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Antimony (Sb)	mg/kg	< 1	NONE	3.2	11.3	9.4	3.9	< 1
Arsenic (As)	mg/kg	< 2	MCERTS	7	52	55	10	6
Barium (Ba)	mg/kg	< 2.5	MCERTS	52	494	147	135	37
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	1.5	0.9	0.3	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	9	49	29	14	6
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	17	133	45	35	8
Lead (Pb)	mg/kg	< 3	MCERTS	32	322	77	105	15
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	4.3	2.1	< 1	< 1
Molybdenum (Mo)	mg/kg	< 1	MCERTS	< 1	3.3	2.8	1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	9	24	15	15	9
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	11	31	19	16	7
Zinc (Zn)	mg/kg	< 3	MCERTS	39	375	92	87	30
Total Phenols (monohydric)	mg/kg	< 1	NONE	< 2	< 2	< 2	< 2	< 2
EPH (C10 - C40) : EH 1D Total	mg/kg	< 6	MCERTS	26	366	143	13	< 6

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation



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Soil Analysis Certificate						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Longhurst Road, Blackley	TP / BH No	TP030.502	TP030.703	TP040.502	TP042.7010	
Project / Job Ref: STU5839	Additional Refs	TP03	TP03	TP04	TP04	
Order No: POR014553	Depth (m)	0.50	0.70	0.50	2.70	
Reporting Date: 02/02/2023	DETS Sample No	630376	630377	630378	630379	

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.8	7.3	8.0	7.1
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1
TOC (Total Organic Carbon)	%	< 0.1	MCERTS	1.9	0.9	2.8	2.2
Loss on Ignition @ 450°C	%	< 0.01	MCERTS	8	11.20	5.80	7
W/S Chloride (2:1)	mg/kg	< 1	MCERTS	19	14	9	6
W/S Chloride (2:1)	mg/l	< 0.5	MCERTS	9.5	7.2	4.4	3
Water Soluble Fluoride (2:1)	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5
Antimony (Sb)	mg/kg	< 1	NONE	4.2	2.5	4.4	2.1
Arsenic (As)	mg/kg	< 2	MCERTS	18	5	14	6
Barium (Ba)	mg/kg	< 2.5	MCERTS	204	89	210	94
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.3	< 0.2	0.6	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	22	12	15	11
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	25	13	38	20
Lead (Pb)	mg/kg	< 3	MCERTS	142	49	129	71
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1
Molybdenum (Mo)	mg/kg	< 1	MCERTS	1.9	< 1	1.7	1.2
Nickel (Ni)	mg/kg	< 3	MCERTS	16	10	17	11
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	19	12	23	13
Zinc (Zn)	mg/kg	< 3	MCERTS	68	34	106	52
Total Phenols (monohydric)	mg/kg	< 1	NONE	< 2	< 2	< 2	< 2
EPH (C10 - C40) : EH 1D Total	mg/kg	< 6	MCERTS	126	293	287	33

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	13/12/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Longhurst Road, Blackley	TP / BH No	TP010.502	TP01A0.201	TP01A0.502	TP020.201	TP020.502
Project / Job Ref: STU5839	Additional Refs	TP01	TP01A	TP01A	TP02	TP02
Order No: POR014553	Depth (m)	0.50	0.20	0.50	0.20	0.50
Reporting Date: 02/02/2023	DETS Sample No	630371	630372	630373	630374	630375

Determinand	Unit	RL	Accreditation	(n)				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	0.96	0.40	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	0.68	0.36	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	0.42	0.15	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.17	4.86	2.80	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	1.01	0.50	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	0.30	6.79	4.29	< 0.1	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	0.29	6.08	3.69	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.18	3.81	2.40	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	0.19	3.62	2.23	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.18	3.96	2.15	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	1.31	0.77	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.18	3.64	1.98	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.11	2.09	1.10	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.46	0.25	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	1.87	0.92	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	1.6	41.6	24	< 1.6	< 1.6

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Longhurst Road, Blackley	TP / BH No	TP030.502	TP030.703	TP040.502	TP042.7010	
Project / Job Ref: STU5839	Additional Refs	TP03	TP03	TP04	TP04	
Order No: POR014553	Depth (m)	0.50	0.70	0.50	2.70	
Reporting Date: 02/02/2023	DETS Sample No	630376	630377	630378	630379	

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	0.16	0.18	0.18	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	0.20	0.13	0.22	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	0.15	0.27	0.14	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	1.67	1.15	1.51	0.16
Anthracene	mg/kg	< 0.1	MCERTS	0.36	0.21	0.34	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	2.74	1.58	2.83	0.37
Pyrene	mg/kg	< 0.1	MCERTS	2.69	1.17	2.67	0.41
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	1.60	0.56	1.67	0.24
Chrysene	mg/kg	< 0.1	MCERTS	1.51	0.52	1.50	0.25
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	1.60	0.42	1.74	0.24
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.53	0.14	0.61	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	1.50	0.32	1.78	0.22
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.91	0.21	1.04	0.13
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.26	< 0.1	0.24	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.82	0.18	0.92	0.12
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	16.7	7.1	17.4	2.1



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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	13/12/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Longhurst Road, Blackley	TP / BH No	TP010.502	TP01A0.201	TP01A0.502	TP020.201	TP020.502
Project / Job Ref: STU5839	Additional Refs	TP01	TP01A	TP01A	TP02	TP02
Order No: POR014553	Depth (m)	0.50	0.20	0.50	0.20	0.50
Reporting Date: 02/02/2023	DETS Sample No	630371	630372	630373	630374	630375

Determinand	Unit	RL	Accreditation	(n)				
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	4	3	< 2	< 2
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	2	< 2	< 2	< 2
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	11	5	< 2	< 2
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3	40	28	< 3	< 3
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10	85	40	< 10	< 10
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	143	76	< 21	< 21
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Tot al	mg/kg	< 42	NONE	< 42	143	76	< 42	< 42

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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Longhurst Road, Blackley	TP / BH No	TP030.502	TP030.703	TP040.502	TP042.7010
Project / Job Ref: STU5839	Additional Refs	TP03	TP03	TP04	TP04
Order No: POR014553	Depth (m)	0.50	0.70	0.50	2.70
Reporting Date: 02/02/2023	DETS Sample No	630376	630377	630378	630379

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	4	< 3	< 3	
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	56	49	< 10	
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	61	49	< 21	
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	4	3	< 2	
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	13	23	19	< 3	
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	32	52	75	< 10	
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	45	79	97	< 21	
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Tot al	mg/kg	< 42	NONE	45	140	145	< 42	



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	13/12/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Longhurst Road, Blackley	TP / BH No	TP010.502	TP01A0.201	TP01A0.502	TP020.201	TP020.502
Project / Job Ref: STU5839	Additional Refs	TP01	TP01A	TP01A	TP02	TP02
Order No: POR014553	Depth (m)	0.50	0.20	0.50	0.20	0.50
Reporting Date: 02/02/2023	DETS Sample No	630371	630372	630373	630374	630375

Determinand	Unit	RL	Accreditation	(n)				
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	3	< 2	< 2	< 2	< 2
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	5	26	3	2	3
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Longhurst Road, Blackley	TP / BH No	TP030.502	TP030.703	TP040.502	TP042.7010	
Project / Job Ref: STU5839	Additional Refs	TP03	TP03	TP04	TP04	
Order No: POR014553	Depth (m)	0.50	0.70	0.50	2.70	
Reporting Date: 02/02/2023	DETS Sample No	630376	630377	630378	630379	

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	5	< 2	4	< 2	
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	2	2	< 2	3	
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
MTBE : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	



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Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	13/12/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Longhurst Road, Blackley	TP / BH No	TP010.502	TP01A0.201	TP01A0.502	TP020.201	TP020.502
Project / Job Ref: STU5839	Additional Refs	TP01	TP01A	TP01A	TP02	TP02
Order No: POR014553	Depth (m)	0.50	0.20	0.50	0.20	0.50
Reporting Date: 02/02/2023	DETS Sample No	630371	630372	630373	630374	630375

Determinand	Unit	RL	Accreditation				(n)
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
TAME	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Ethyl Benzene	ug/kg	< 2	MCERTS	3	< 2	< 2	< 2
m,p-Xylene	ug/kg	< 2	MCERTS	5	26	3	3
o-Xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
Styrene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5

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Soil Analysis Certificate - Volatile Organic Compounds (VOC)

DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Longhurst Road, Blackley	TP / BH No	TP030.502	TP030.703	TP040.502	TP042.7010
Project / Job Ref: STU5839	Additional Refs	TP03	TP03	TP04	TP04
Order No: POR014553	Depth (m)	0.50	0.70	0.50	2.70
Reporting Date: 02/02/2023	DETS Sample No	630376	630377	630378	630379

Determinand	Unit	RL	Accreditation				
Dichlorodifluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Vinyl Chloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Chloromethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Chloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromomethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Trichlorofluoromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
2,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Chloroform	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1-Dichloropropene	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Carbon Tetrachloride	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Benzene	ug/kg	< 2	MCERTS	5	< 2	4	< 2
1,2-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Trichloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromodichloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Dibromomethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
TAME	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
1,3-Dichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Tetrachloroethene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Dibromochloromethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dibromoethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Chlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Ethyl Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
m,p-Xylene	ug/kg	< 2	MCERTS	2	2	< 2	3
o-Xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2
Styrene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromoform	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Isopropylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2,3-Trichloropropane	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
n-Propylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
Bromobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
2-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
4-Chlorotoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
tert-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
sec-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
p-Isopropyltoluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
n-Butylbenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	ug/kg	< 10	MCERTS	< 10	< 10	< 10	< 10
Hexachlorobutadiene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5



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Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	13/12/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Longhurst Road, Blackley	TP / BH No	TP010.502	TP01A0.201	TP01A0.502	TP020.201	TP020.502
Project / Job Ref: STU5839	Additional Refs	TP01	TP01A	TP01A	TP02	TP02
Order No: POR014553	Depth (m)	0.50	0.20	0.50	0.20	0.50
Reporting Date: 02/02/2023	DETS Sample No	630371	630372	630373	630374	630375

Determinand	Unit	RL	Accreditation	(n)				
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
0-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	0.7	0.2	< 0.1	< 0.1
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloroaniline	mg/kg	< 0.15	NONE	< 0.15	0.34	< 0.15	< 0.15	< 0.15
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzofuran	mg/kg	< 0.1	MCERTS	< 0.1	0.4	< 0.1	< 0.1	< 0.1
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibutyl phthalate	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Carbazole	mg/kg	< 0.1	ISO17025	< 0.1	0.3	< 0.1	< 0.1	< 0.1
bis(2-ethylhexyl)phthalate	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Longhurst Road, Blackley	TP / BH No	TP030.502	TP030.703	TP040.502	TP042.7010	
Project / Job Ref: STU5839	Additional Refs	TP03	TP03	TP04	TP04	
Order No: POR014553	Depth (m)	0.50	0.70	0.50	2.70	
Reporting Date: 02/02/2023	DETS Sample No	630376	630377	630378	630379	

Determinand	Unit	RL	Accreditation					
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
0-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	< 0.15	
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	< 0.15	
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
2,4,5-Trichlorophenol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	< 0.15	
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	0.2	0.2	0.3	0.1	
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
4-Chloroaniline	mg/kg	< 0.15	NONE	< 0.15	< 0.15	< 0.15	< 0.15	
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Dibenzofuran	mg/kg	< 0.1	MCERTS	< 0.1	0.3	< 0.1	< 0.1	
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Dibutyl phthalate	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
Carbazole	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	
bis(2-ethylhexyl)phthalate	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	< 0.15	
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	



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Soil Analysis Certificate - PCB (7 Congeners)						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	13/12/22
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Longhurst Road, Blackley	TP / BH No	TP010.502	TP01A0.201	TP01A0.502	TP020.201	TP020.502
Project / Job Ref: STU5839	Additional Refs	TP01	TP01A	TP01A	TP02	TP02
Order No: POR014553	Depth (m)	0.50	0.20	0.50	0.20	0.50
Reporting Date: 02/02/2023	DETS Sample No	630371	630372	630373	630374	630375

Determinand	Unit	RL	Accreditation	(n)				
PCB Congener 28	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
PCB Congener 52	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
PCB Congener 101	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
PCB Congener 118	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
PCB Congener 138	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
PCB Congener 153	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
PCB Congener 180	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
Total PCB (7 Congeners)	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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Soil Analysis Certificate - PCB (7 Congeners)						
DETS Report No: 23-01028	Date Sampled	13/12/22	13/12/22	13/12/22	13/12/22	
Soiltechnics Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Longhurst Road, Blackley	TP / BH No	TP030.502	TP030.703	TP040.502	TP042.7010	
Project / Job Ref: STU5839	Additional Refs	TP03	TP03	TP04	TP04	
Order No: POR014553	Depth (m)	0.50	0.70	0.50	2.70	
Reporting Date: 02/02/2023	DETS Sample No	630376	630377	630378	630379	

Determinand	Unit	RL	Accreditation					
PCB Congener 28	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	
PCB Congener 52	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	
PCB Congener 101	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	
PCB Congener 118	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	
PCB Congener 138	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	
PCB Congener 153	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	
PCB Congener 180	mg/kg	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	
Total PCB (7 Congeners)	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

DETS Report No: 23-01028		Date Sampled	13/12/22						Landfill Waste Acceptance Criteria Limits		
Soiltechnics Ltd		Time Sampled	None Supplied						Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Site Reference: Longhurst Road, Blackley		TP / BH No	TP020.201								
Project / Job Ref: STU5839		Additional Refs	TP02								
Order No: POR014553		Depth (m)	0.20								
Reporting Date: 02/02/2023		DETS Sample No	630374								
Determinand	Unit	MDL		3%							
TOC ^{MU}	%	< 0.1		2					--	--	10%
Loss on Ignition	%	< 0.01		6.90					6	--	--
BTEX ^{MU}	mg/kg	< 0.05		< 0.05					1	--	--
Sum of PCBs	mg/kg	< 0.1		< 0.1	500	--	--				
Mineral Oil ^{MU}	mg/kg	< 10		< 10	100	--	--				
Total PAH ^{MU}	mg/kg	< 1.7		< 1.7	--	--	--				
pH ^{MU}	pH Units	N/a		7.2	--	>6	--				
Acid Neutralisation Capacity	mol/kg (+/-)	< 1		< 1	--	To be evaluated	To be evaluated				
Eluate Analysis				2:1 mg/l	8:1 mg/l		Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
Arsenic ^U		< 0.01		< 0.01		< 0.2	0.5	2	25		
Barium ^U		0.08		0.03		0.4	20	100	300		
Cadmium ^U		< 0.0005		< 0.0005		< 0.02	0.04	1	5		
Chromium ^U		< 0.005		< 0.005		< 0.20	0.5	10	70		
Copper ^U		< 0.01		< 0.01		< 0.5	2	50	100		
Mercury ^U		< 0.0005		< 0.0005		< 0.005	0.01	0.2	2		
Molybdenum ^U		0.002		0.001		< 0.1	0.5	10	30		
Nickel ^U		< 0.007		< 0.007		< 0.2	0.4	10	40		
Lead ^U		< 0.005		< 0.005		< 0.2	0.5	10	50		
Antimony ^U		< 0.005		< 0.005		< 0.05	0.06	0.7	5		
Selenium ^U		< 0.005		< 0.005		< 0.05	0.1	0.5	7		
Zinc ^U		< 0.005		< 0.005		< 0.2	4	50	200		
Chloride ^U		4		3		30	800	15000	25000		
Fluoride ^U		< 0.5		< 0.5		< 1	10	150	500		
Sulphate ^U		10		3		41	1000	20000	50000		
TDS	137		50		582	4000	60000	100000			
Phenol Index	< 0.01		< 0.01		< 0.5	1	-	-			
DOC	27		35.2		344	500	800	1000			
Leach Test Information											
Sample Mass (kg)				0.21							
Dry Matter (%)				84.6							
Moisture (%)				18.2							
Stage 1											
Volume Eluate L2 (litres)				0.32							
Filtered Eluate VE1 (litres)				0.17							

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepancies with current legislation

M Denotes MCERTS accredited test

U Denotes ISO17025 accredited test

Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

DETS Report No: 23-01028		Date Sampled	13/12/22		Landfill Waste Acceptance Criteria Limits		
Soiltechnics Ltd		Time Sampled	None Supplied				
Site Reference: Longhurst Road, Blackley		TP / BH No	TP030.502				
Project / Job Ref: STU5839		Additional Refs	TP03				
Order No: POR014553		Depth (m)	0.50				
Reporting Date: 02/02/2023		DETS Sample No	630376				
Determinand	Unit	MDL			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
TOC ^{MU}	%	< 0.1	1.9		3%	5%	6%
Loss on Ignition	%	< 0.01	8		--	--	10%
BTEX ^{MU}	mg/kg	< 0.05	< 0.05		6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1		1	--	--
Mineral Oil ^{MU}	mg/kg	< 10	< 10		500	--	--
Total PAH ^{MU}	mg/kg	< 1.7	17		100	--	--
pH ^{MU}	pH Units	N/a	7.8		--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	1.4		--	To be evaluated	To be evaluated
Eluate Analysis			2:1 mg/l	8:1 mg/l	Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)	
Arsenic ^U		< 0.01	< 0.01		< 0.2	0.5	2
Barium ^U		0.07	0.04		0.4	20	100
Cadmium ^U		< 0.0005	< 0.0005		< 0.02	0.04	1
Chromium ^U		0.019	0.007		< 0.20	0.5	10
Copper ^U		< 0.01	< 0.01		< 0.5	2	50
Mercury ^U		< 0.0005	< 0.0005		< 0.005	0.01	0.2
Molybdenum ^U		0.010	0.003		< 0.1	0.5	10
Nickel ^U		< 0.007	< 0.007		< 0.2	0.4	10
Lead ^U		< 0.005	< 0.005		< 0.2	0.5	10
Antimony ^U		< 0.005	< 0.005		< 0.05	0.06	0.7
Selenium ^U		< 0.005	< 0.005		< 0.05	0.1	0.5
Zinc ^U		< 0.005	< 0.005		< 0.2	4	50
Chloride ^U		3	2		23	800	15000
Fluoride ^U		0.9	< 0.5		1.2	10	150
Sulphate ^U		109	13		255	1000	20000
TDS		200	82		978	4000	60000
Phenol Index		< 0.01	< 0.01		< 0.5	1	-
DOC		20.4	27.9		269	500	800
Leach Test Information							
Sample Mass (kg)		0.19					
Dry Matter (%)		91.1					
Moisture (%)		9.8					
Stage 1							
Volume Eluate L2 (litres)		0.33					
Filtered Eluate VE1 (litres)		0.23					

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
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 U Denotes ISO17025 accredited test



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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3									
DETS Report No: 23-01028		Date Sampled	13/12/22			Landfill Waste Acceptance Criteria Limits			
Soiltechnics Ltd		Time Sampled	None Supplied						
Site Reference: Longhurst Road, Blackley		TP / BH No	TP030.703						
Project / Job Ref: STU5839		Additional Refs	TP03						
Order No: POR014553		Depth (m)	0.70						
Reporting Date: 02/02/2023		DETS Sample No	630377						
Determinand	Unit	MDL				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
TOC ^{MU}	%	< 0.1	0.9			3%	5%	6%	
Loss on Ignition	%	< 0.01	11.20			--	--	10%	
BTEX ^{MU}	mg/kg	< 0.05	< 0.05			6	--	--	
Sum of PCBs	mg/kg	< 0.1	< 0.1			1	--	--	
Mineral Oil ^{MU}	mg/kg	< 10	63			500	--	--	
Total PAH ^{MU}	mg/kg	< 1.7	7.1			100	--	--	
pH ^{MU}	pH Units	N/a	7.3			--	>6	--	
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			--	To be evaluated	To be evaluated	
Eluate Analysis			2:1 mg/l	8:1 mg/l		Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic ^U		< 0.01	< 0.01		< 0.2	0.5	2	25	
Barium ^U		0.07	0.04		0.5	20	100	300	
Cadmium ^U		< 0.0005	< 0.0005		< 0.02	0.04	1	5	
Chromium ^U		< 0.005	< 0.005		< 0.20	0.5	10	70	
Copper ^U		< 0.01	< 0.01		< 0.5	2	50	100	
Mercury ^U		< 0.0005	< 0.0005		< 0.005	0.01	0.2	2	
Molybdenum ^U		0.008	0.003		< 0.1	0.5	10	30	
Nickel ^U		< 0.007	< 0.007		< 0.2	0.4	10	40	
Lead ^U		< 0.005	< 0.005		< 0.2	0.5	10	50	
Antimony ^U		< 0.005	< 0.005		< 0.05	0.06	0.7	5	
Selenium ^U		< 0.005	< 0.005		< 0.05	0.1	0.5	7	
Zinc ^U		< 0.005	< 0.005		< 0.2	4	50	200	
Chloride ^U		5	2		25	800	15000	25000	
Fluoride ^U		0.6	< 0.5		< 1	10	150	500	
Sulphate ^U		440	71		1142	1000	20000	50000	
TDS		545	161		2060	4000	60000	100000	
Phenol Index		< 0.01	< 0.01		< 0.5	1	-	-	
DOC		26.7	21.7		223	500	800	1000	
Leach Test Information									
Sample Mass (kg)		0.20							
Dry Matter (%)		89.7							
Moisture (%)		11.6							
Stage 1									
Volume Eluate L2 (litres)		0.33							
Filtered Eluate VE1 (litres)		0.20							
Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion									
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M Denotes MCERTS accredited test									
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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3									
DETS Report No: 23-01028		Date Sampled		13/12/22		Landfill Waste Acceptance Criteria Limits Inert Waste Landfill Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill Hazardous Waste Landfill			
Soiltechnics Ltd		Time Sampled		None Supplied					
Site Reference: Longhurst Road, Blackley		TP / BH No		TP040.502					
Project / Job Ref: STU5839		Additional Refs		TP04					
Order No: POR014553		Depth (m)		0.50					
Reporting Date: 02/02/2023		DETS Sample No		630378					
Determinand		Unit		MDL					
TOC ^{MU}		%		< 0.1		2.8			
Loss on Ignition		%		< 0.01		5.80			
BTEx ^{MU}		mg/kg		< 0.05		< 0.05			
Sum of PCBs		mg/kg		< 0.1		< 0.1			
Mineral Oil ^{MU}		mg/kg		< 10		69			
Total PAH ^{MU}		mg/kg		< 1.7		17.7			
pH ^{MU}		pH Units		N/a		8.0			
Acid Neutralisation Capacity		mol/kg (+/-)		< 1		1.2			
Eluate Analysis				2:1 mg/l		8:1 mg/l		Cumulative 10:1 mg/kg	
								Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)	
Arsenic ^U				< 0.01		< 0.01		< 0.2	
Barium ^U				0.03		0.02		0.2	
Cadmium ^U				< 0.0005		< 0.0005		< 0.02	
Chromium ^U				< 0.005		< 0.005		< 0.20	
Copper ^U				< 0.01		< 0.01		< 0.5	
Mercury ^U				< 0.0005		< 0.0005		< 0.005	
Molybdenum ^U				0.002		0.002		< 0.1	
Nickel ^U				< 0.007		< 0.007		< 0.2	
Lead ^U				< 0.005		< 0.005		< 0.2	
Antimony ^U				< 0.005		< 0.005		< 0.05	
Selenium ^U				< 0.005		< 0.005		< 0.05	
Zinc ^U				< 0.005		< 0.005		< 0.2	
Chloride ^U				2		2		24	
Fluoride ^U				1.2		0.7		7.1	
Sulphate ^U				14		22		207	
TDS				102		77		801	
Phenol Index				< 0.01		< 0.01		< 0.5	
DOC				20.9		33.2		316	
Leach Test Information									
Sample Mass (kg)				0.19					
Dry Matter (%)				91.1					
Moisture (%)				9.8					
Stage 1									
Volume Eluate L2 (litres)				0.33					
Filtered Eluate VE1 (litres)				0.22					

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
 Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepancies with current legislation
 M Denotes MCERTS accredited test
 U Denotes ISO17025 accredited test



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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 23-01028	
Soiltechnics Ltd	
Site Reference: Longhurst Road, Blackley	
Project / Job Ref: STU5839	
Order No: POR014553	
Reporting Date: 02/02/2023	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
\$ 630371	TP010.502	TP01	0.50	12.6	Brown sandy clay with stones
\$ 630372	TP01A0.201	TP01A	0.20	18.1	Black loamy sand with stones and vegetation
\$ 630373	TP01A0.502	TP01A	0.50	13.3	Black loamy sand with stones
\$ 630374	TP020.201	TP02	0.20	15.4	Brown sandy clay with stones
\$ 630375	TP020.502	TP02	0.50	5.8	Brown concrete
\$ 630376	TP030.502	TP03	0.50	8.8	Brown gravelly sand with stones and concrete
\$ 630377	TP030.703	TP03	0.70	10.3	Grey sandy clay
\$ 630378	TP040.502	TP04	0.50	8.9	Brown gravelly sand with stones and concrete
\$ 630379	TP042.7010	TP04	2.70	17	Brown sandy loam with stones

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{1/S}

Unsuitable Sample ^{U/S}

\$ samples exceeded recommended holding times



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Soil Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 23-01028	
Soiltechnics Ltd	
Site Reference: Longhurst Road, Blackley	
Project / Job Ref: STU5839	
Order No: POR014553	
Reporting Date: 02/02/2023	

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received



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Water Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 23-01028	
Soiltechnics Ltd	
Site Reference: Longhurst Road, Blackley	
Project / Job Ref: STU5839	
Order No: POR014553	
Reporting Date: 02/02/2023	

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered



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List of HWOL Acronyms and Operators	
DETS Report No: 23-01028	
Soiltechnics Ltd	
Site Reference: Longhurst Road, Blackley	
Project / Job Ref: STU5839	
Order No: POR014553	
Reporting Date: 02/02/2023	

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#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 eg. EH+HS_Total or EH_CU+HS_Total

Det - Acronym
Benzene - HS_1D_MS
EPH (C10 - C40) - EH_1D_Total
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
Mineral Oil (C10 - C40) (BS EN 12457-3) - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aliphatic C5 - C34 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C35 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C35 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
Total BTEX (BS EN 12457-3) - HS_1D_MS_Total
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Parameter	Matrix Type	Suite Reference	Expanded Uncertainty Measurement	Unit
TOC	Soil	BS EN 12457	10.4	%
Loss on Ignition	Soil	BS EN 12457	16.9	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	17.9	%
pH	Soil	BS EN 12457	0.282	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	19.5	%
Barium	Leachate	BS EN 12457	12.2	%
Cadmium	Leachate	BS EN 12457	17.2	%
Chromium	Leachate	BS EN 12457	20.7	%
Copper	Leachate	BS EN 12457	14.1	%
Mercury	Leachate	BS EN 12457	16.7	%
Molybdenum	Leachate	BS EN 12457	13.3	%
Nickel	Leachate	BS EN 12457	14.0	%
Lead	Leachate	BS EN 12457	12.1	%
Antimony	Leachate	BS EN 12457	16.1	%
Selenium	Leachate	BS EN 12457	15.5	%
Zinc	Leachate	BS EN 12457	14.0	%
Chloride	Leachate	BS EN 12457	15.7	%
Fluoride	Leachate	BS EN 12457	19.1	%
Sulphate	Leachate	BS EN 12457	27.6	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	20.4	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	16.9	%
pH	Soil	BS 3882: 2015	0.282	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	19.8	%
Copper	Soil	BS 3882: 2015	23.2	%
Nickel	Soil	BS 3882: 2015	32.6	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%

Appendix F Geotechnical Laboratory Test Results

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 30/01/2023
Sampled By: Not Given

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

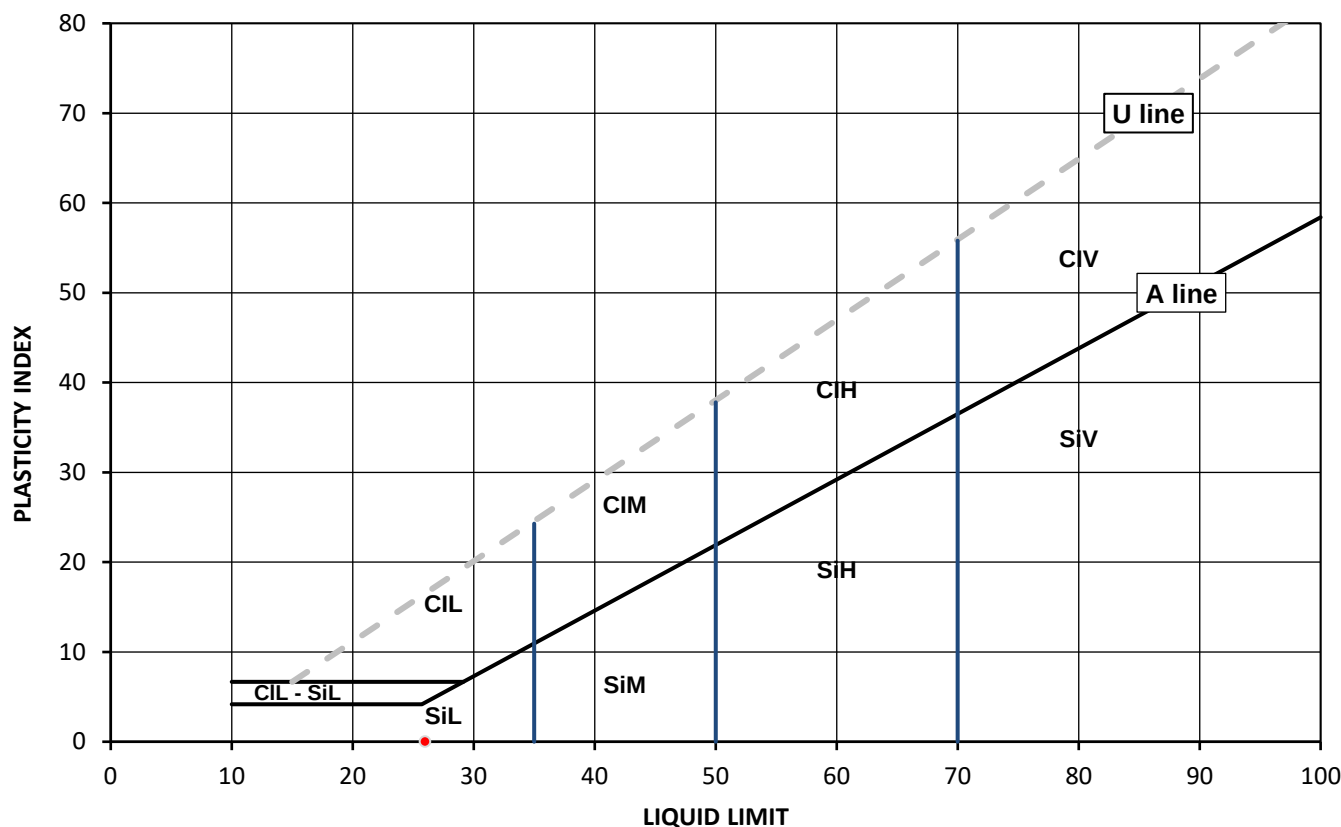
Test Results:

Laboratory Reference: 2563118
Hole No.: WS011.204
Sample Reference: 4
Sample Description: Dark brown slightly gravelly very sandy SILT

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: D

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
22	26	NP	NP	99



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: NP - non plastic

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
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 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 30/01/2023
Sampled By: Not Given

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

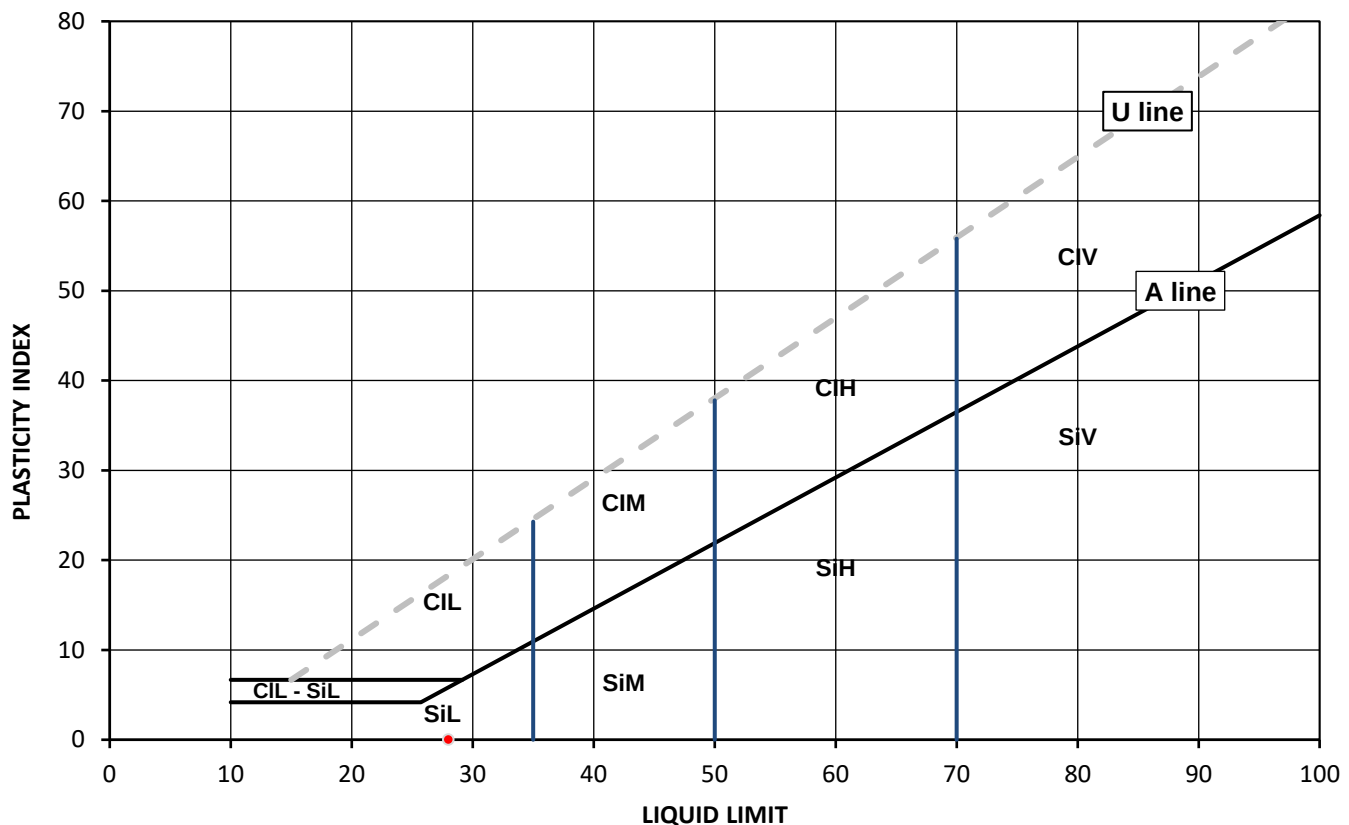
Test Results:

Laboratory Reference: 2563119
Hole No.: WS012.206
Sample Reference: 6
Sample Description: Brownish grey slightly gravelly slightly clayey SILT

Depth Top [m]: 2.20
Depth Base [m]: Not Given
Sample Type: D

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
26	28	NP	NP	98



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

	Plasticity	Liquid Limit
CI 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: NP - non plastic

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
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 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

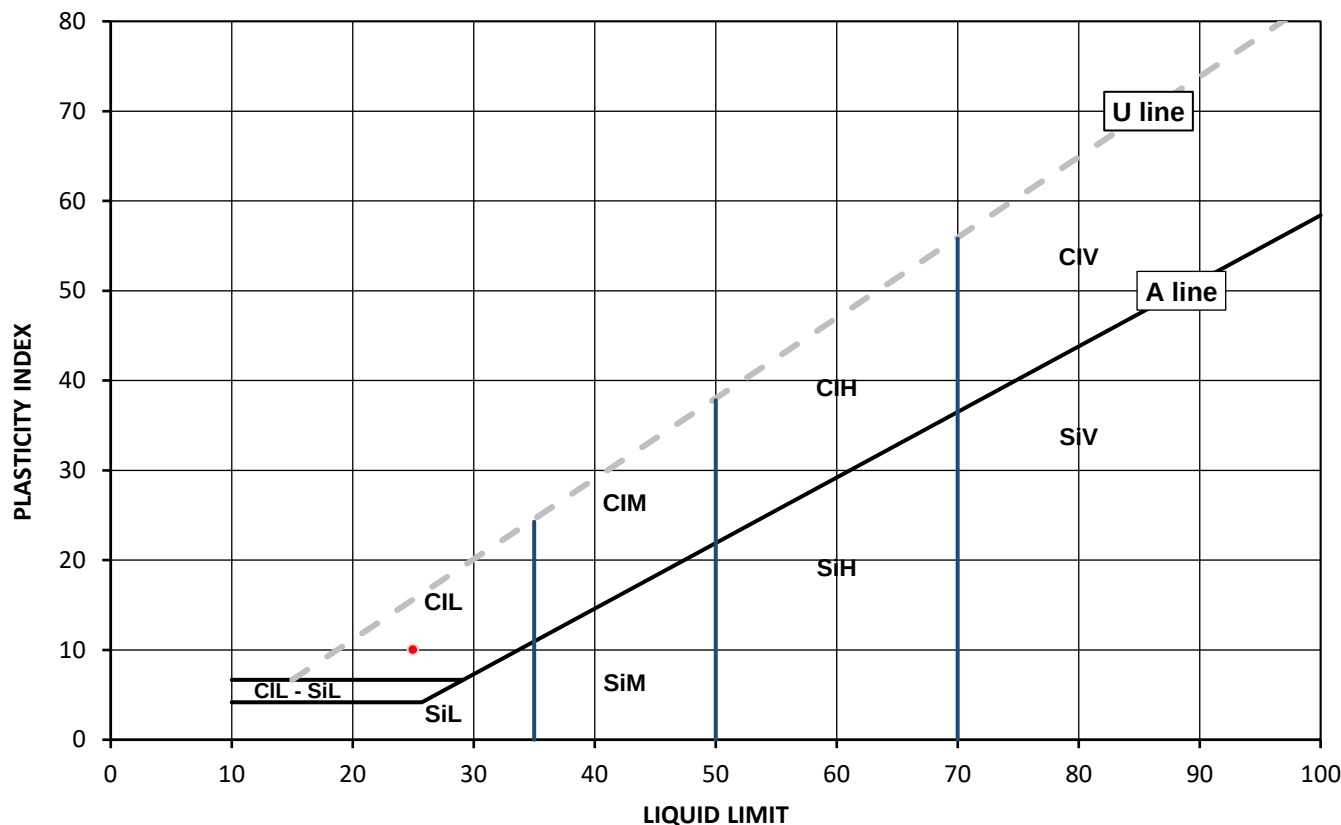
Test Results:

Laboratory Reference: 2563120
Hole No.: WS014.008
Sample Reference: 8
Sample Description: Brownish grey slightly gravelly clayey SAND

Depth Top [m]: 4.00
Depth Base [m]: 5.00
Sample Type: D

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	25	15	10	99



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	append to classification for organic material (eg CIHO)
	V Very high	
	O Organic	

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

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
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 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 30/01/2023
Sampled By: Not Given

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

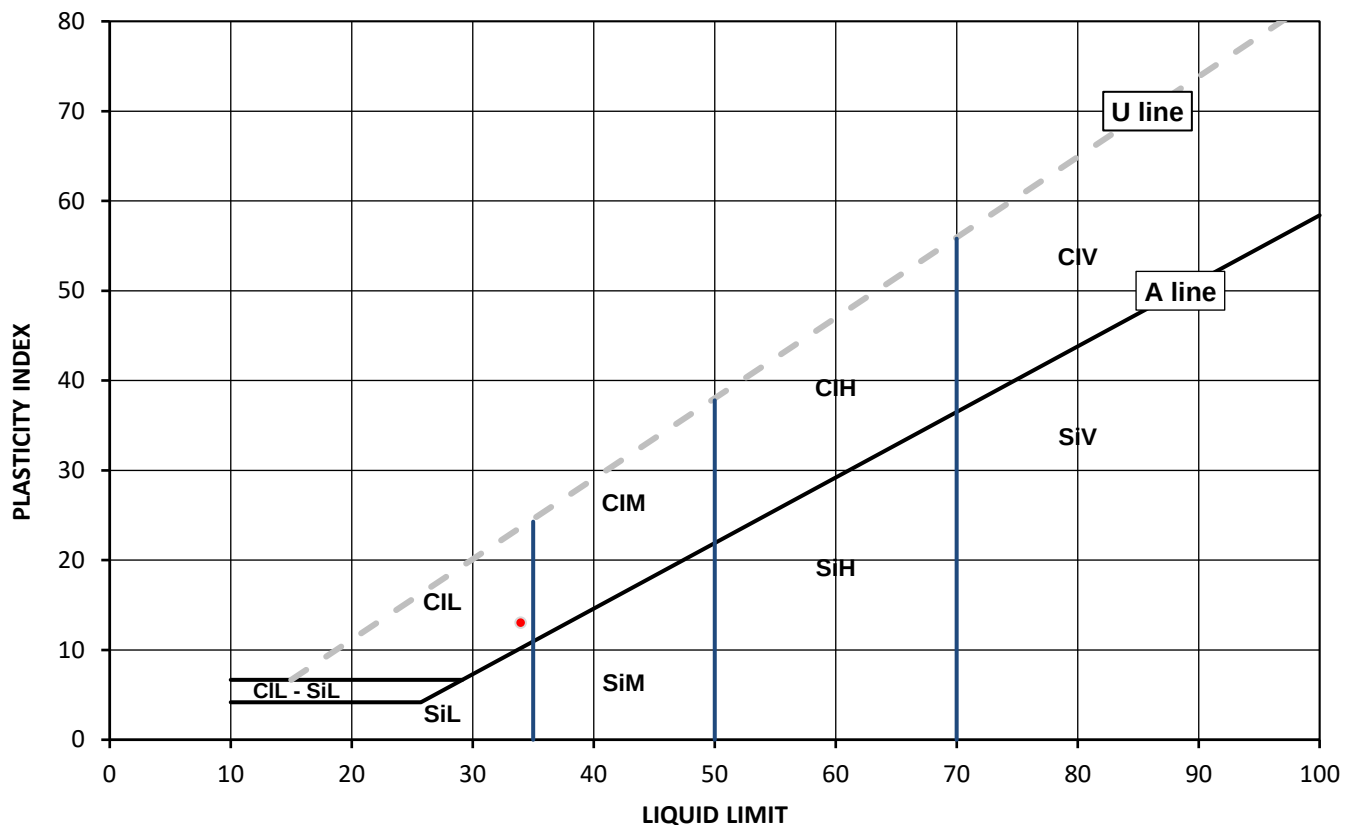
Test Results:

Laboratory Reference: 2563121
Hole No.: WS020.502
Sample Reference: 2
Sample Description: Brown slightly gravelly very sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: D

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
18	34	21	13	77



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:



Anna Dudzinska
PL Deputy Head of Reporting Team
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 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 30/01/2023
Sampled By: Not Given

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

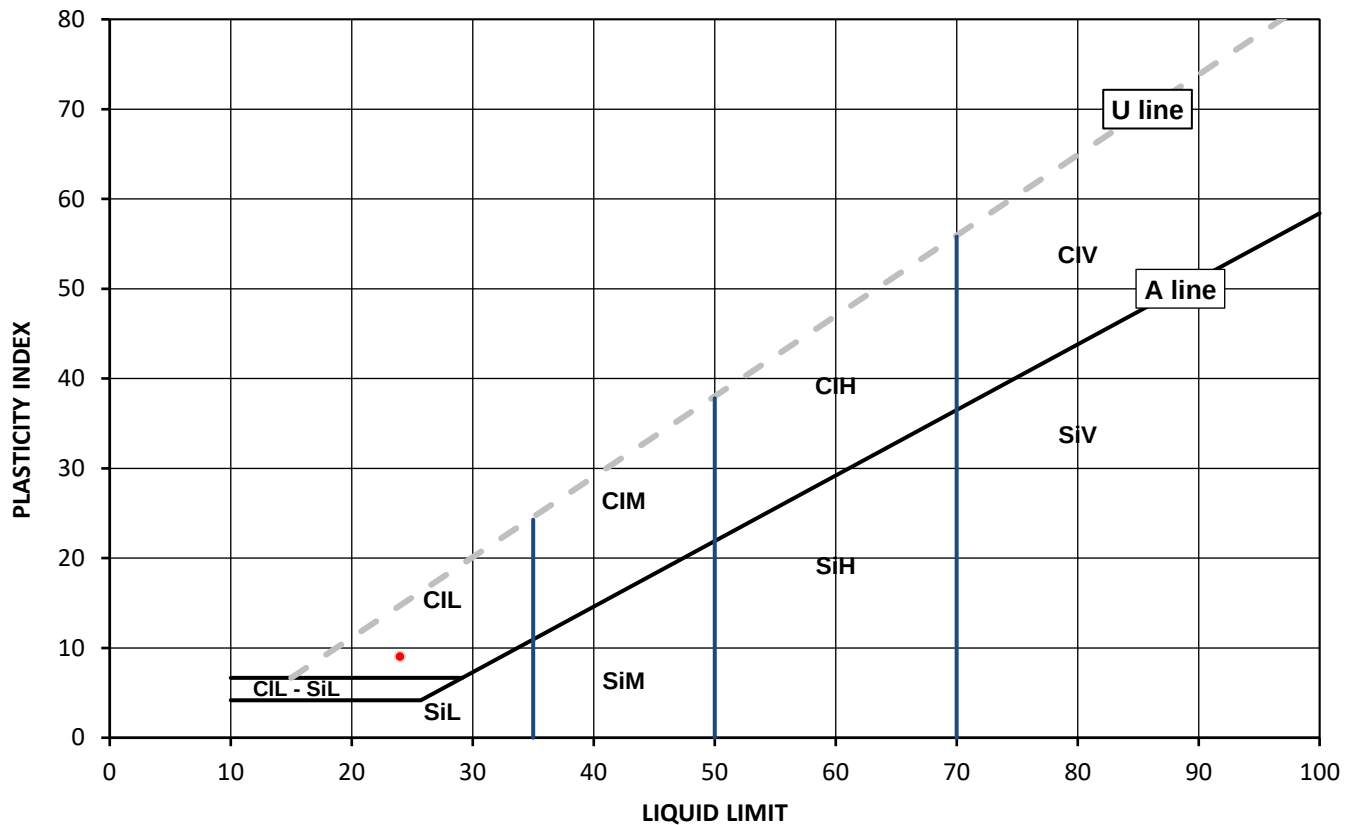
Test Results:

Laboratory Reference: 2563122
Hole No.: WS021.204
Sample Reference: 4
Sample Description: Brown clayey SAND

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: D

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
14	24	15	9	100



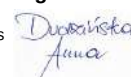
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	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:



Anna Dudzinska
PL Deputy Head of Reporting Team
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 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 30/01/2023
Sampled By: Not Given

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

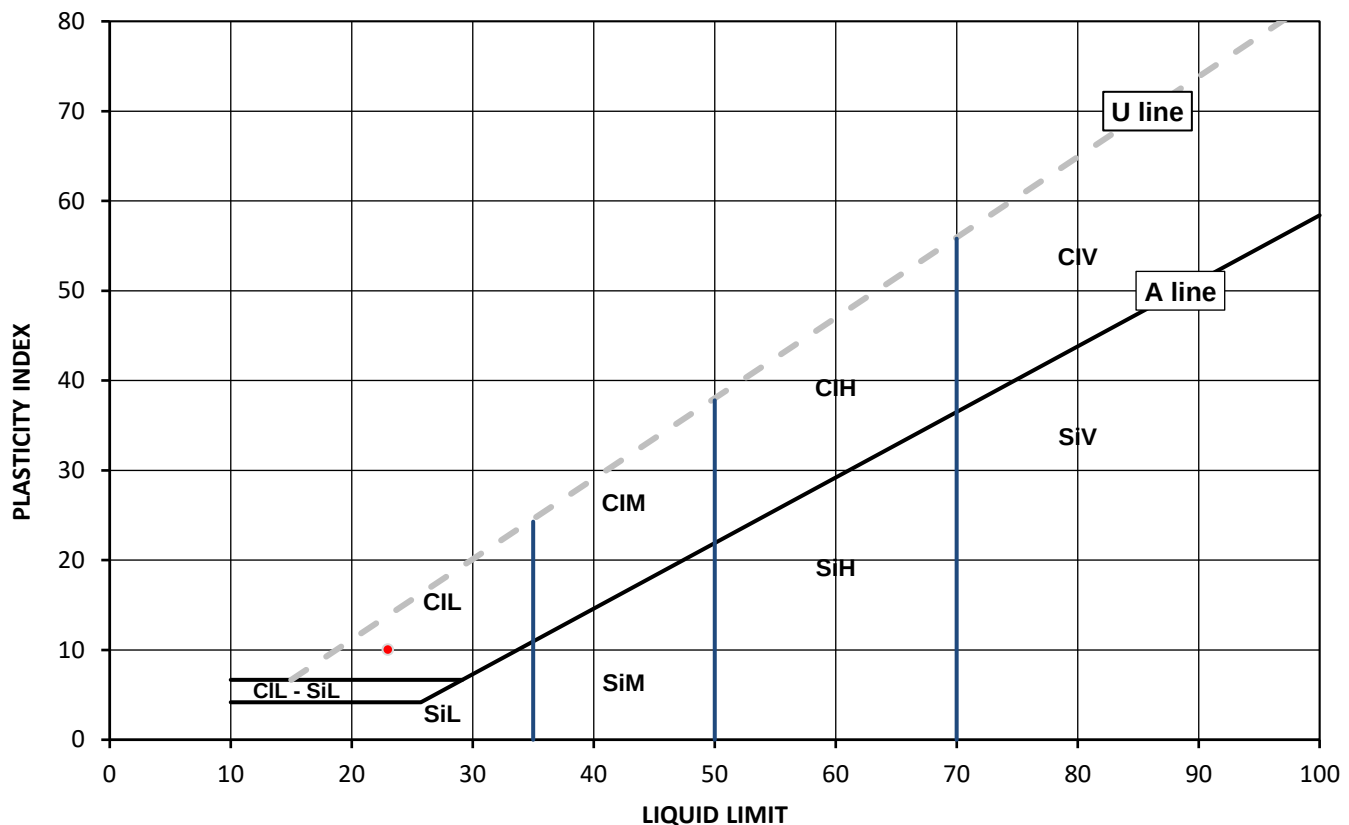
Test Results:

Laboratory Reference: 2563123
Hole No.: WS022.206
Sample Reference: 6
Sample Description: Brown slightly gravelly clayey SAND

Depth Top [m]: 2.20
Depth Base [m]: Not Given
Sample Type: D

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
18	23	13	10	99



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:



Anna Dudzinska
PL Deputy Head of Reporting Team
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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

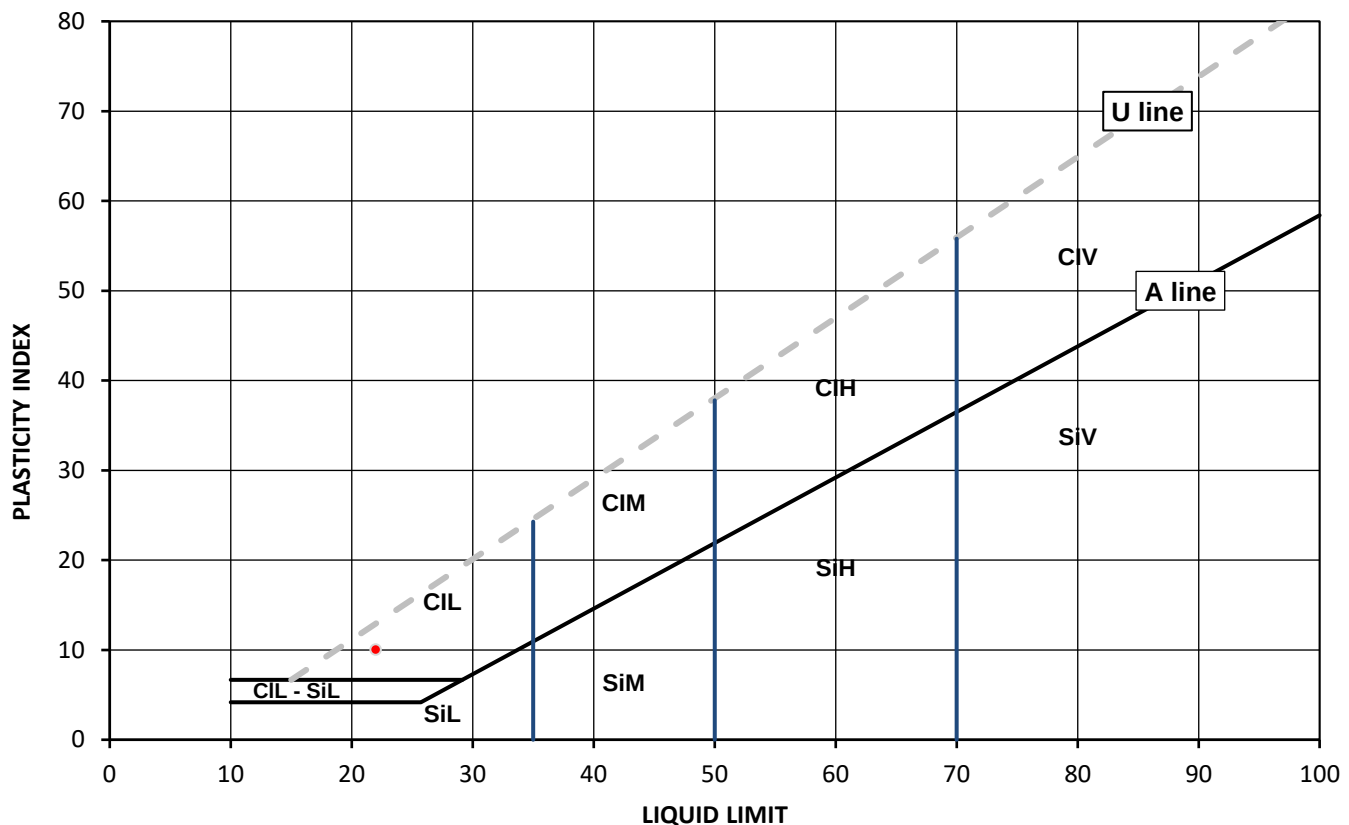
Test Results:

Laboratory Reference: 2563125
Hole No.: WS024.009
Sample Reference: 9
Sample Description: Brownish grey slightly gravelly clayey SAND

Depth Top [m]: 4.00
Depth Base [m]: 5.00
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
17	22	12	10	97



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

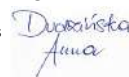
CI	Clay	Plasticity	Liquid Limit
Si	Silt	L	below 35
		M	35 to 50
		H	50 to 70
		V	exceeding 70
		O	append to classification for organic material (eg CIHO)

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

Remarks:

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Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
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 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

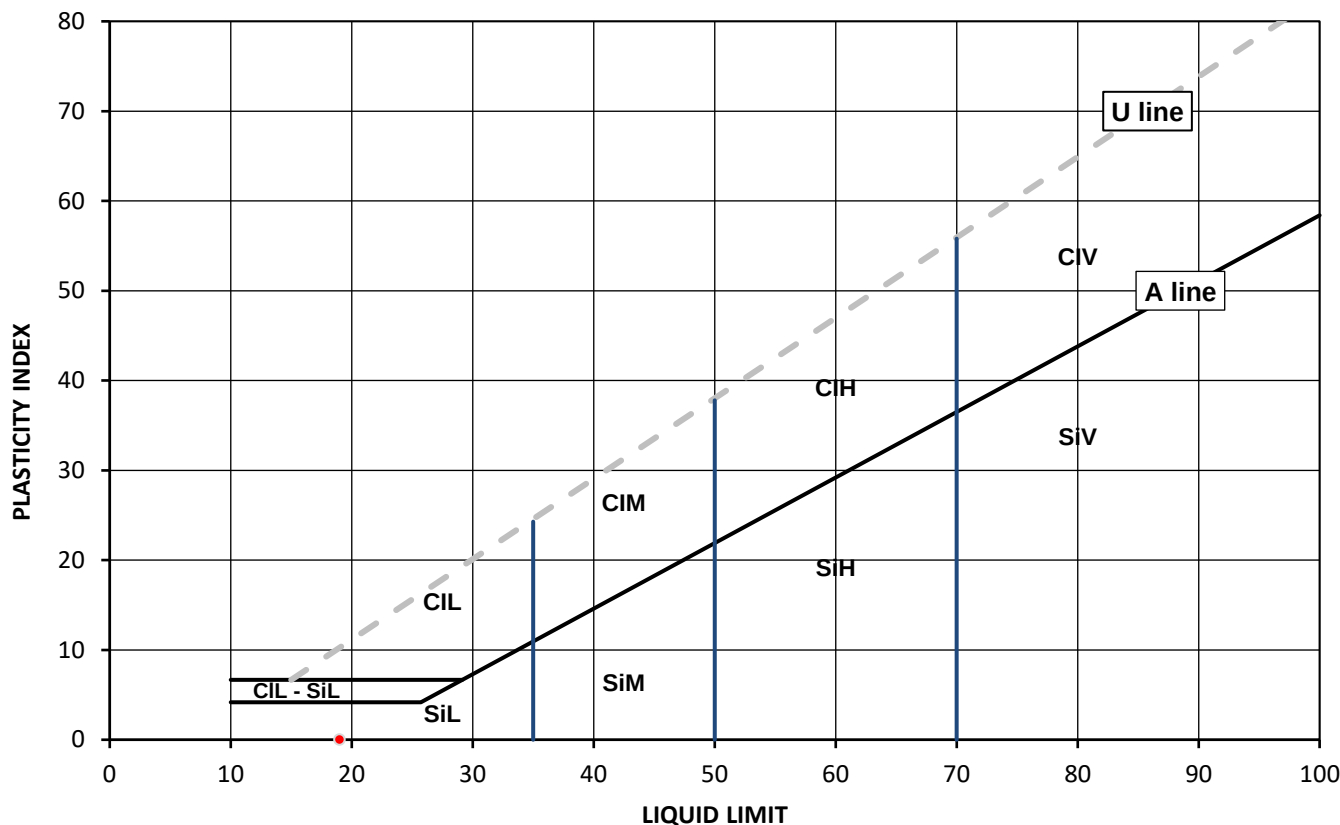
Test Results:

Laboratory Reference: 2563126
Hole No.: WS025.010
Sample Reference: 10
Sample Description: Brownish grey slightly gravelly sandy CLAY

Depth Top [m]: 5.00
Depth Base [m]: 6.00
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
20	19	NP	NP	98



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: NP - non plastic

Signed:



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PL Deputy Head of Reporting Team
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 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 30/01/2023
Sampled By: Not Given

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

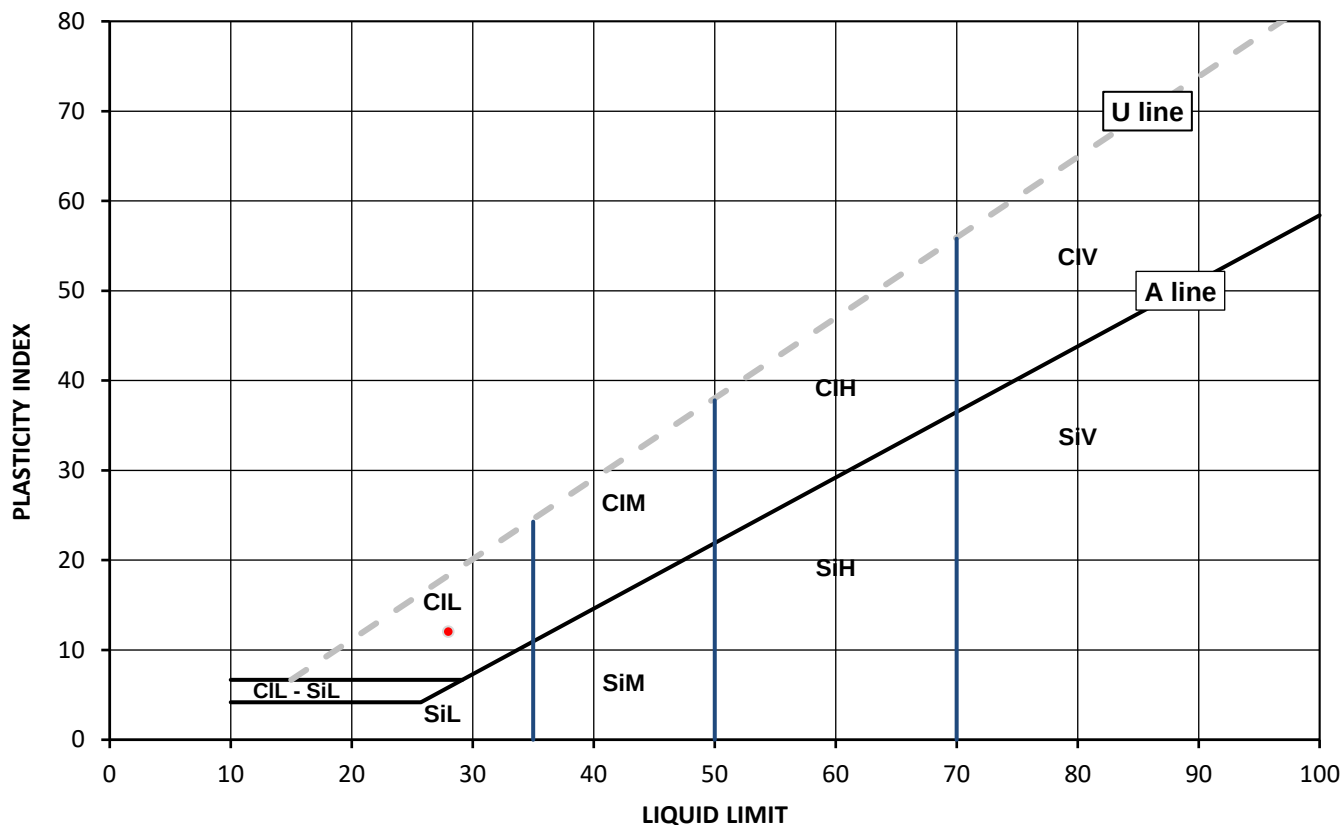
Test Results:

Laboratory Reference: 2563127
Hole No.: WS030.502
Sample Reference: 2
Sample Description: Brown gravelly very sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: D

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	28	16	12	41



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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PL Deputy Head of Reporting Team
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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 30/01/2023
Sampled By: Not Given

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

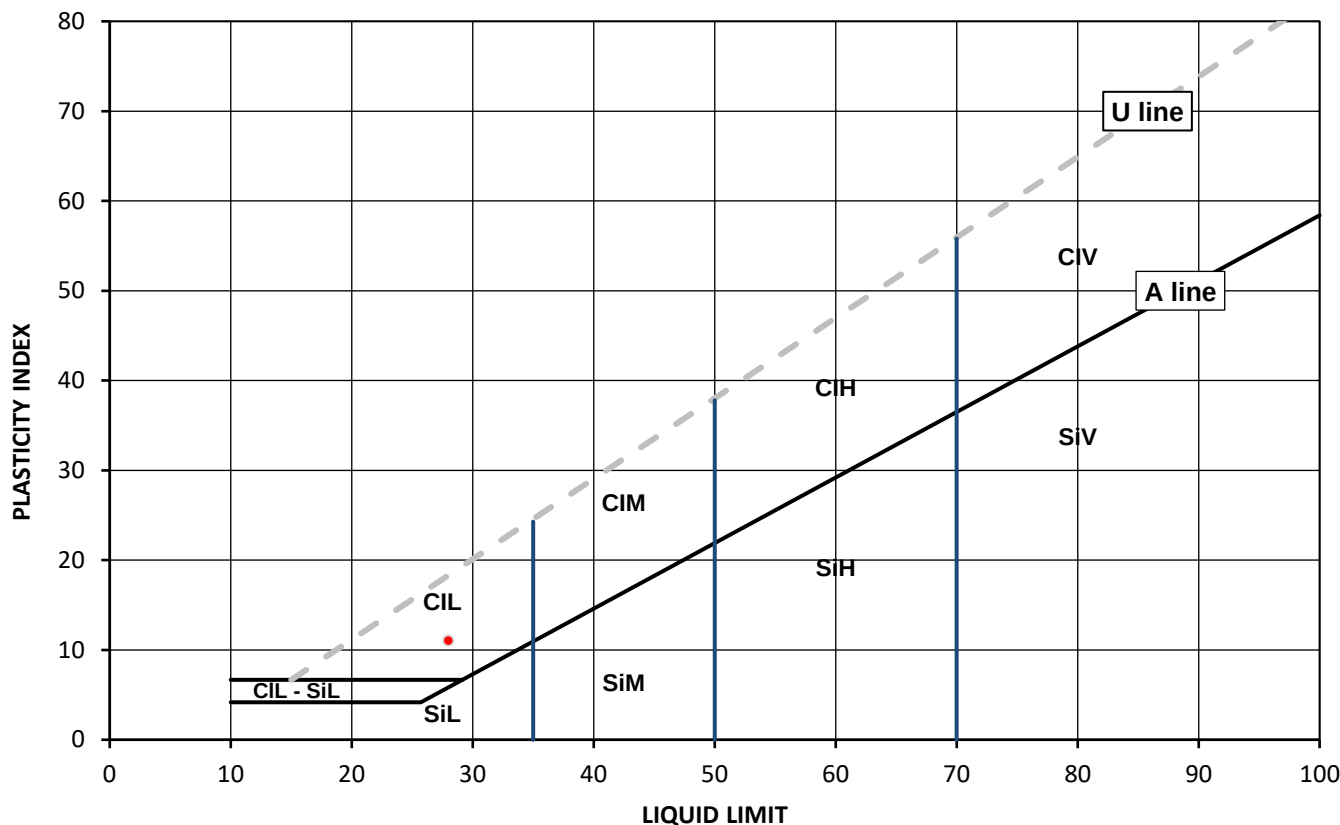
Test Results:

Laboratory Reference: 2563128
Hole No.: WS031.204
Sample Reference: 4
Sample Description: Brownish grey slightly gravelly very sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: D

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
15	28	17	11	99



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:

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PL Deputy Head of Reporting Team
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 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

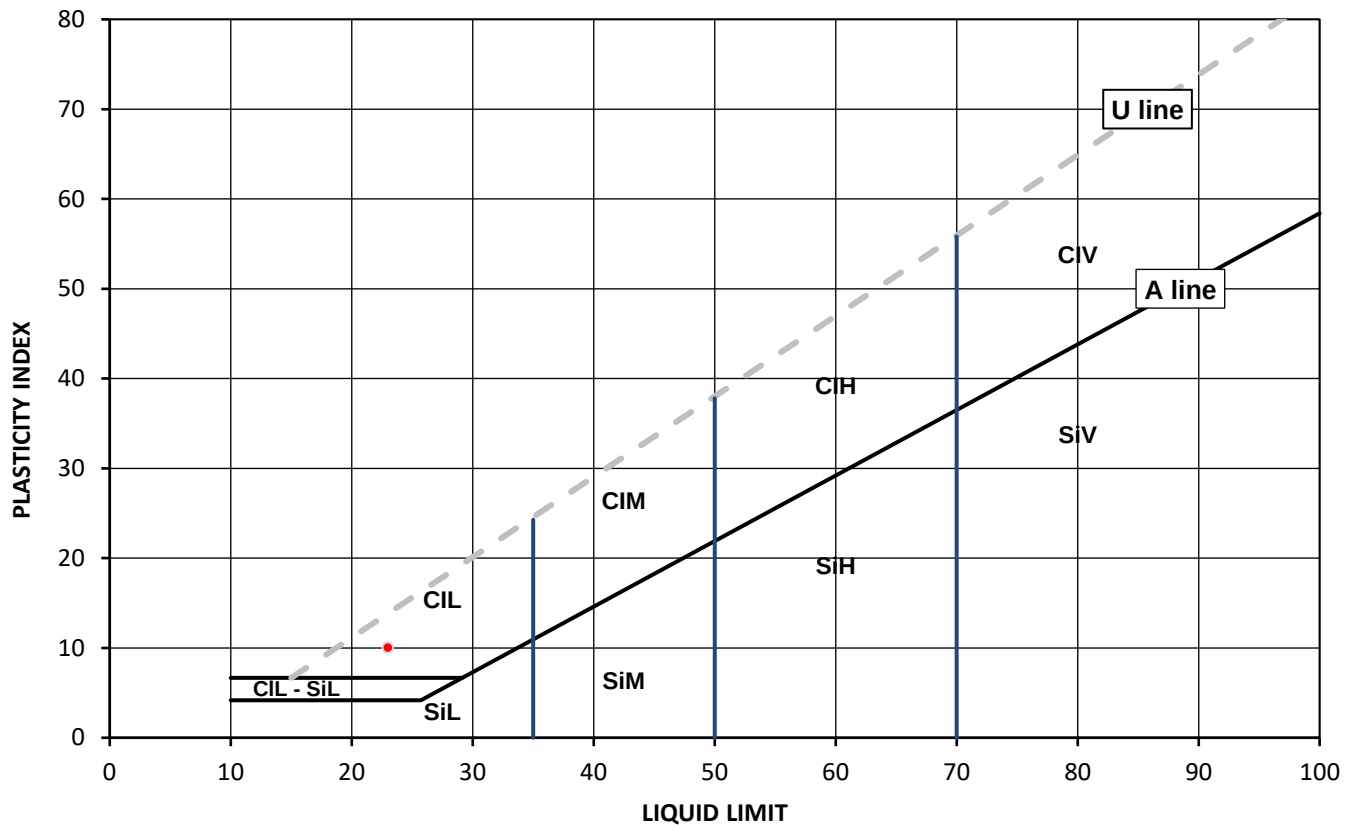
Test Results:

Laboratory Reference: 2563129
Hole No.: WS032.006
Sample Reference: 6
Sample Description: Brownish grey sandy CLAY

Depth Top [m]: 2.00
Depth Base [m]: 3.00
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
16	23	13	10	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:



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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with: BS 1377-2:1990: Clause 4.4 and 5

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

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

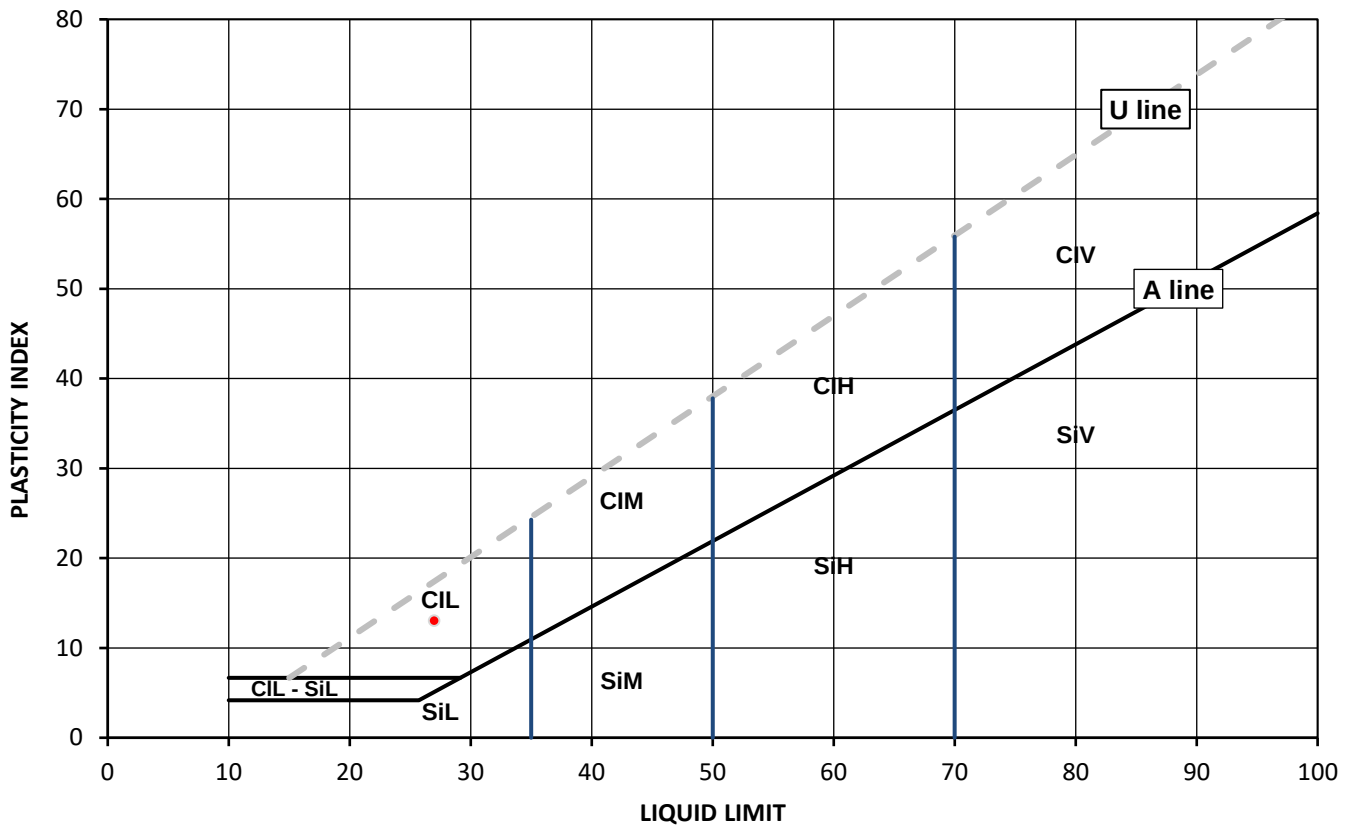
Test Results:

Laboratory Reference: 2563130
Hole No.: WS033.007
Sample Reference: 7
Sample Description: Brownish grey sandy CLAY

Depth Top [m]: 3.00
Depth Base [m]: 4.00
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
16	27	14	13	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
	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:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

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



4041

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY

Contact: Admin
Site Address: Longhurst Road, Blackley

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

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 30/01 - 31/01/2023
Sampled By: Not Given

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

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-1 [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			
2563118	WS011.204	4	1.20	Not Given	D	Dark brown slightly gravelly very sandy SILT	Atterberg 1 Point	22		99	26	NP	NP						
2563119	WS012.206	6	2.20	Not Given	D	Brownish grey slightly gravelly slightly clayey SILT	Atterberg 1 Point	26		98	28	NP	NP						
2563120	WS014.008	8	4.00	5.00	D	Brownish grey slightly gravelly clayey SAND	Atterberg 1 Point	23		99	25	15	10						
2563121	WS020.502	2	0.50	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	18		77	34	21	13						
2563122	WS021.204	4	1.20	Not Given	D	Brown clayey SAND	Atterberg 1 Point	14		100	24	15	9						
2563123	WS022.206	6	2.20	Not Given	D	Brown slightly gravelly clayey SAND	Atterberg 1 Point	18		99	23	13	10						
2563125	WS024.009	9	4.00	5.00	B	Brownish grey slightly gravelly clayey SAND	Atterberg 1 Point	17		97	22	12	10						
2563126	WS025.010	10	5.00	6.00	B	Brownish grey slightly gravelly sandy CLAY	Atterberg 1 Point	20		98	19	NP	NP						
2563127	WS030.502	2	0.50	Not Given	D	Brown gravelly very sandy CLAY	Atterberg 1 Point	13		41	28	16	12						
2563128	WS031.204	4	1.20	Not Given	D	Brownish grey slightly gravelly very sandy CLAY	Atterberg 1 Point	15		99	28	17	11						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Dudzińska Anna

Anna Dudzińska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

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



Environmental Science

4041

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

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

Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-1 [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			
2563129	WS032.006	6	2.00	3.00	B	Brownish grey sandy CLAY	Atterberg 1 Point	16		100	23	13	10						
2563130	WS033.007	7	3.00	4.00	B	Brownish grey sandy CLAY	Atterberg 1 Point	16		100	27	14	13						

Note: # Non accredited; NP - Non plastic

Comments:

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Signed:

Dudzińska Anna

Anna Dudzińska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



4041

Client: Soiltechnics Limited
 Client Address: Cedar Barn, White Lodge,
 Walgrave, Northampton,
 NN6 9PY
 Contact: Admin
 Site Address: Longhurst Road, Blackley

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: STU5839
 Job Number: 23-13506
 Date Sampled: 14/01/2023
 Date Received: 18/01/2023
 Date Tested: 30/01 - 31/01/2023
 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							
2563118	WS011.204	4	1.20	Not Given	D	Dark brown slightly gravelly very sandy SILT		22	Sample was quartered, oven dried at 108 °C			
2563119	WS012.206	6	2.20	Not Given	D	Brownish grey slightly gravelly slightly clayey SILT		26	Sample was quartered, oven dried at 108.2 °C			
2563120	WS014.008	8	4.00	5.00	D	Brownish grey slightly gravelly clayey SAND		23	Sample was quartered, oven dried at 106.9 °C			
2563121	WS020.502	2	0.50	Not Given	D	Brown slightly gravelly very sandy CLAY		18	Sample was quartered, oven dried at 106.4 °C			
2563122	WS021.204	4	1.20	Not Given	D	Brown clayey SAND		14	Sample was quartered, oven dried at 106.4 °C			
2563123	WS022.206	6	2.20	Not Given	D	Brown slightly gravelly clayey SAND		18	Sample was quartered, oven dried at 106 °C			
2563125	WS024.009	9	4.00	5.00	B	Brownish grey slightly gravelly clayey SAND		17	Sample was quartered, oven dried at 106.9 °C			
2563126	WS025.010	10	5.00	6.00	B	Brownish grey slightly gravelly sandy CLAY		20	Sample was quartered, oven dried at 106.1 °C			
2563127	WS030.502	2	0.50	Not Given	D	Brown gravelly very sandy CLAY		13	Sample was quartered, oven dried at 106 °C			
2563128	WS031.204	4	1.20	Not Given	D	Brownish grey slightly gravelly very sandy CLAY		15	Sample was quartered, oven dried at 106 °C			

Comments:

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Signed:

Dudzińska Anna

Anna Dudzińska
 PL Deputy Head of Reporting Team
 for and on behalf of i2 Analytical Ltd



4041

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

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: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
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							
2563129	WS032.006	6	2.00	3.00	B	Brownish grey sandy CLAY		16	Sample was quartered, oven dried at 106.2 °C			
2563130	WS033.007	7	3.00	4.00	B	Brownish grey sandy CLAY		16	Sample was quartered, oven dried at 106.2 °C			

Comments:

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Signed:

Dudzińska Anna

Anna Dudzińska
PL Deputy Head of Reporting Team
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: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

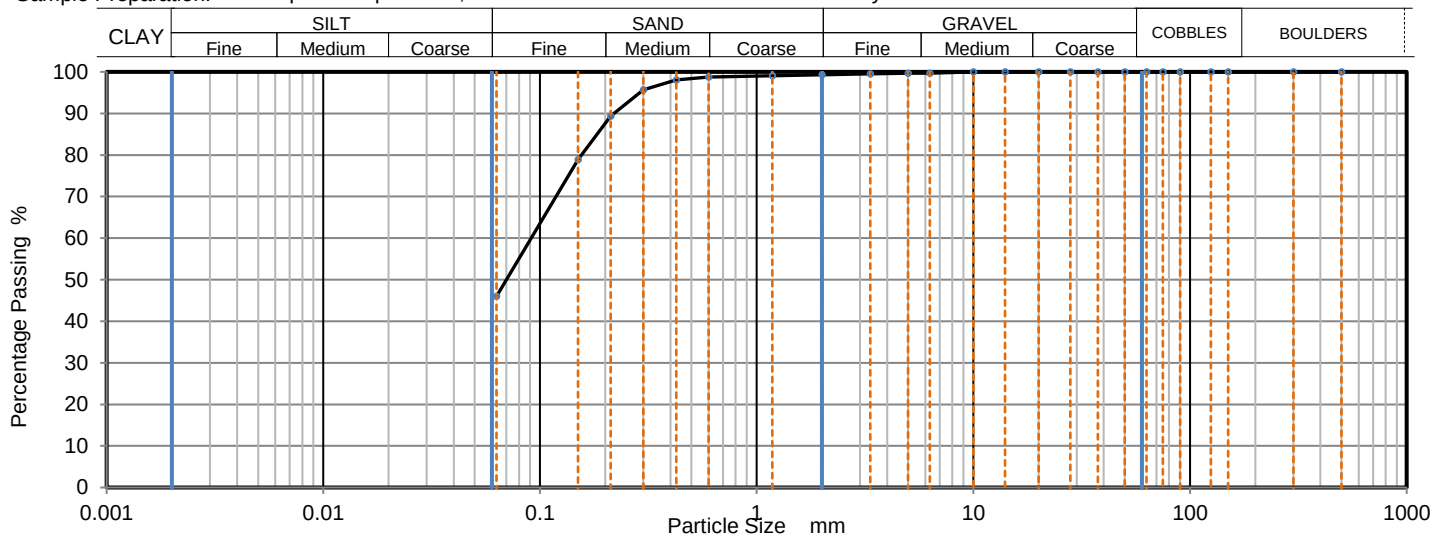
Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

Test Results:

Laboratory Reference: 2563124
Hole No.: WS023.008
Sample Reference: 8
Sample Description: Brownish grey sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 106.2 °C and broken down by hand.

Depth Top [m]: 3.00
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	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	99		
0.425	98		
0.3	96		
0.212	89		
0.15	79		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	52
Fines <0.063mm	47

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 1.4
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:

Signed:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
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: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

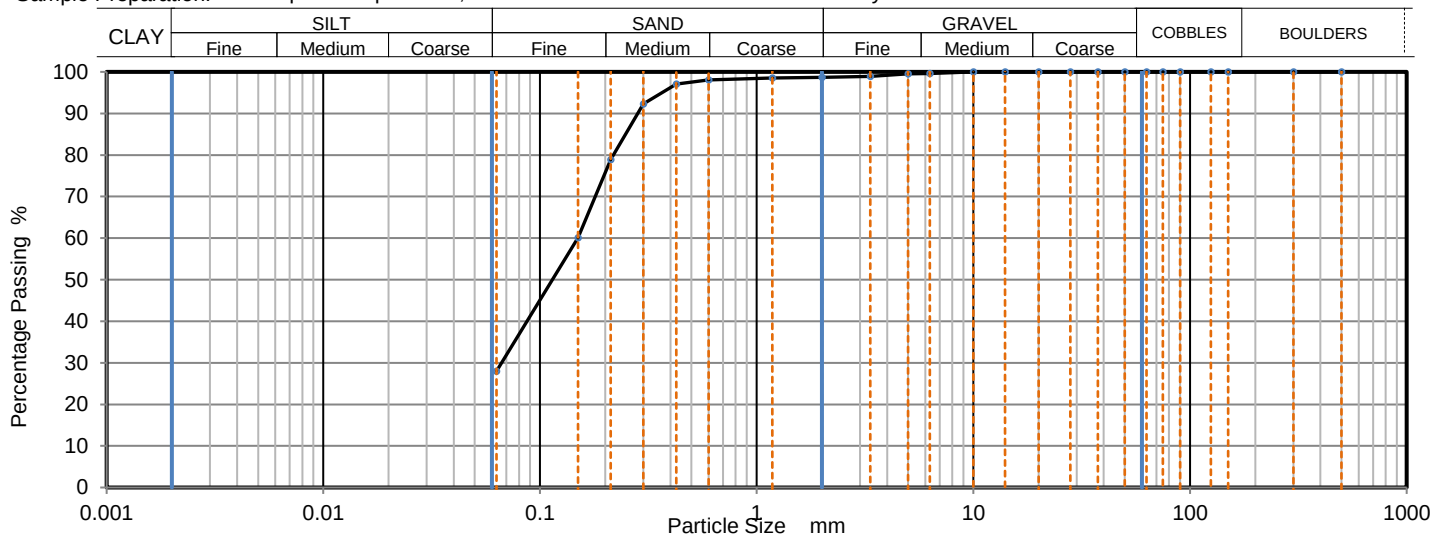
Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

Test Results:

Laboratory Reference: 2563125
Hole No.: WS024.009
Sample Reference: 9
Sample Description: Brownish grey slightly gravelly 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]: 5.00
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	100		
5	100		
3.35	99		
2	99		
1.18	99		
0.6	98		
0.425	97		
0.3	92		
0.212	79		
0.15	60		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	71
Fines <0.063mm	28

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 2.4
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:

Signed:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
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: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

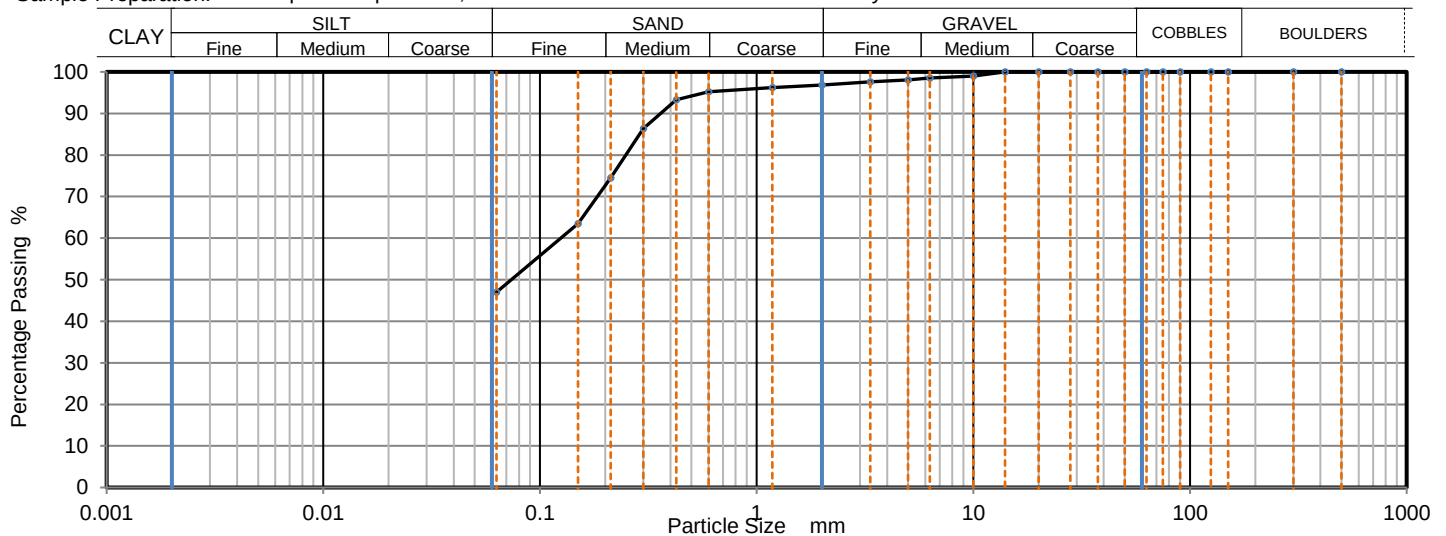
Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

Test Results:

Laboratory Reference: 2563126
Hole No.: WS025.010
Sample Reference: 10
Sample Description: Brownish grey slightly gravelly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 106.1 °C and broken down by hand.

Depth Top [m]: 5.00
Depth Base [m]: 6.00
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	93		
0.3	86		
0.212	75		
0.15	64		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	49
Fines <0.063mm	48

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 2
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:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

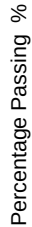
i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

Test Results:

Depth Top [m]: 2.00
Depth Base [m]: 3.00
Sample Type: B



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

Remarks:

Dupaińska
Anna

Page 1 of 1

Date Reported: 09/02/2023

GF 100.21

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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: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

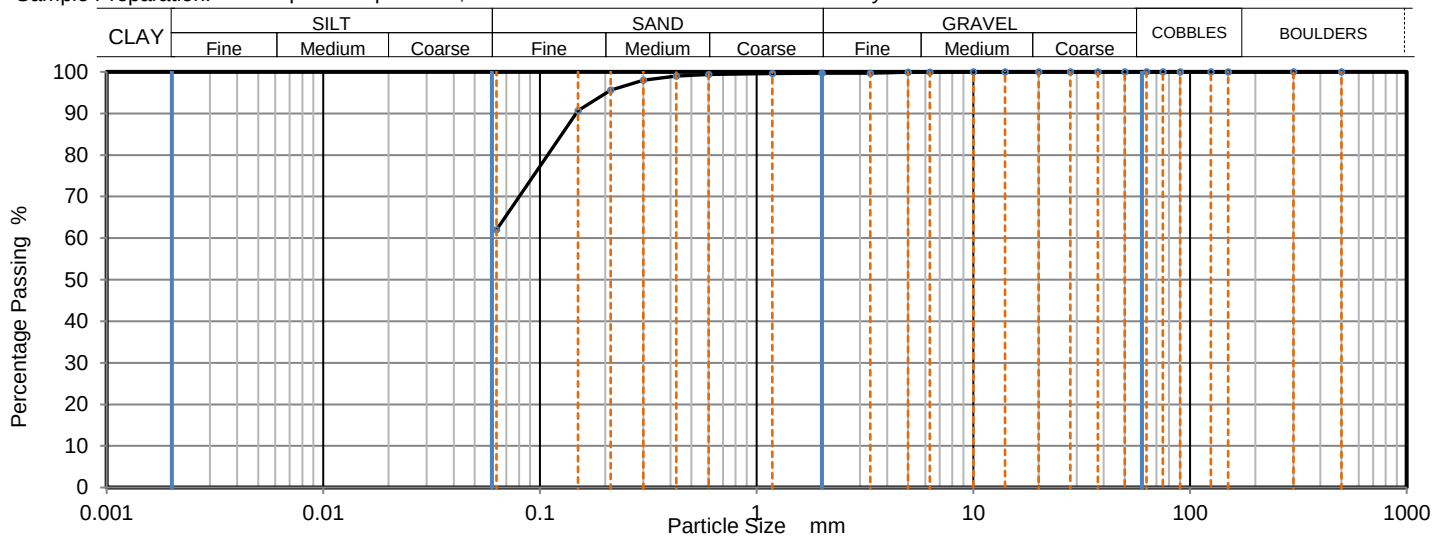
Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

Test Results:

Laboratory Reference: 2563130
Hole No.: WS033.007
Sample Reference: 7
Sample Description: Brownish grey sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 106.2 °C and broken down by hand.

Depth Top [m]: 3.00
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	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	98		
0.212	96		
0.15	91		
0.063	62		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	38
Fines <0.063mm	62

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:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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Brackmills Industrial Estate
Northampton NN4 7EB

Client: Soiltechnics Limited
Client Address: Cedar Barn, White Lodge,
Walgrave, Northampton,
NN6 9PY
Contact: Admin
Site Address: Longhurst Road, Blackley

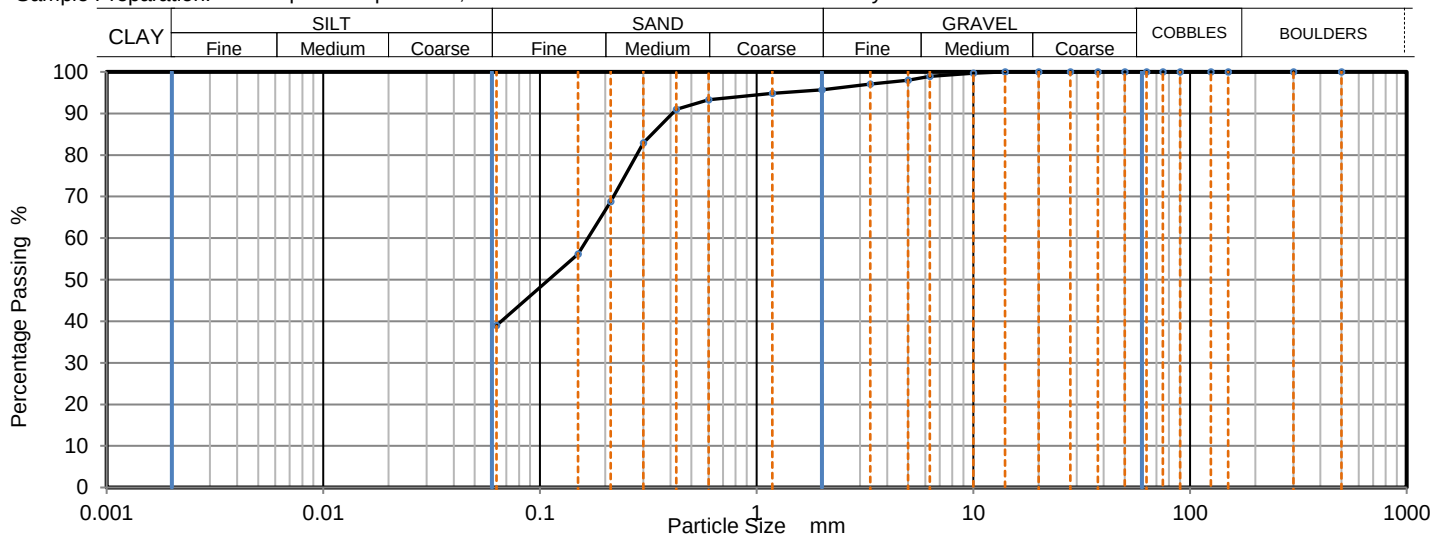
Client Reference: STU5839
Job Number: 23-13506
Date Sampled: 14/01/2023
Date Received: 18/01/2023
Date Tested: 31/01/2023
Sampled By: Not Given

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

Test Results:

Laboratory Reference: 2563131
Hole No.: WS034.008
Sample Reference: 8
Sample Description: Brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 106.2 °C and broken down by hand.

Depth Top [m]: 4.00
Depth Base [m]: 5.00
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	98		
3.35	97		
2	96		
1.18	95		
0.6	93		
0.425	91		
0.3	83		
0.212	69		
0.15	56		
0.063	39		

Sample Proportions	% dry mass
Very coarse	0
Gravel	4
Sand	57
Fines <0.063mm	39

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 2.6
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:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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Admin

Soiltechnics Limited
Cedar Barn
White Lodge
Walgrave
Northampton
NN6 9PY

e: admin@soiltechnics.net

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

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

Analytical Report Number : 23-13510

Project / Site name:	Longhurst Road, Blackley	Samples received on:	18/01/2023
Your job number:	STU5839	Samples instructed on/ Analysis started on:	24/01/2023
Your order number:	POR014546	Analysis completed by:	09/02/2023
Report Issue Number:	1	Report issued on:	09/02/2023
Samples Analysed:	7 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: 23-13510

Project / Site name: Longhurst Road, Blackley

Your Order No: POR014546

Lab Sample Number				2563142	2563143	2563144	2563145	2563146	2563147
Sample Reference				WS010.502	WS011.204	WS020.502	WS021.705	WS030.201	WS031.705
Sample Number				2	4	2	5	1	5
Depth (m)				0.50	1.20	0.50	1.70	0.20	1.70
Date Sampled				14/01/2023	14/01/2023	14/01/2023	14/01/2023	14/01/2023	14/01/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status						
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	23	16	11	12	11	16
Total mass of sample received	kg	0.001	NONE	0.9	0.6	0.4	0.6	0.6	0.6

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.8	6.2	7.2	8.2	8.5	6.9
Total Sulphate as SO ₄	%	0.005	MCERTS	0.037	0.011	0.026	0.025	0.056	0.017
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.01	0.0075	0.014	0.046	0.06	0.043
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	10	7.5	14.2	46.1	59.9	43.1
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2.3	3.2	2.3	2.5	9.1	7.7
Total Sulphur	%	0.005	MCERTS	0.047	0.009	0.017	0.086	0.042	0.032
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	< 5.0	< 5.0	12	< 5.0	12
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5	< 2.5	6	< 2.5	5.8

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

Analytical Report Number: 23-13510

Project / Site name: Longhurst Road, Blackley

Your Order No: POR014546

Lab Sample Number				2563148
Sample Reference				WS033.007
Sample Number				7
Depth (m)				3.00-4.00
Date Sampled				14/01/2023
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	14
Total mass of sample received	kg	0.001	NONE	0.6

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9
Total Sulphate as SO ₄	%	0.005	MCERTS	0.019
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.049
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	49.1
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	6
Total Sulphur	%	0.005	MCERTS	0.067
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	19
Magnesium (leachate equivalent)	mg/l	2.5	NONE	9.2

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

Analytical Report Number : 23-13510

Project / Site name: Longhurst Road, Blackley

* 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 *
2563142	WS010.502	2	0.5	Brown sandy clay.
2563143	WS011.204	4	1.2	Brown sandy clay.
2563144	WS020.502	2	0.5	Brown sandy clay with gravel.
2563145	WS021.705	5	1.7	Brown clay and sand with gravel.
2563146	WS030.201	1	0.2	Brown clay and loam with gravel and vegetation.
2563147	WS031.705	5	1.7	Brown sandy clay.
2563148	WS033.007	7	3.00-4.00	Brown sandy clay.

Analytical Report Number : 23-13510

Project / Site name: Longhurst Road, Blackley

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
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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total 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 (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
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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

Appendix G Monitoring results

Ground gas and groundwater monitoring results

Notes

- 1) The instrument limit of detection has been adopted where no gas flows or concentrations have been recorded (indicated in grey italics).
2) Atmospheric temperature (*) data sourced from local weather station data.
3) CH4 = methane; CO2 = carbon dioxide; O2 = oxygen; PPM = parts per million CO = carbon monoxide; H2S = hydrogen sulphide.
4) Gas Screening Values (GSVs) are rounded to 3 decimal places.

Worst case scenario									0.2	0.9	0.8	2.7	2.6	2.3	2.5	0	3	0.00	0.00	0.01	0.01	GREEN	GREEN	ONE
Average scenario									0.2	0.2	0.2	1.3	1.0	17.5	18.2	0	0	0.00	0.00	0.00	0.00	GREEN	GREEN	ONE
Date	Time	Location	Install Reference	Install Response Zone		Atmospheric Pressure (mB)	Atmospheric Temperature (°C) *	Depth to Water (m)	Gas Steady Flow	CH ₄ (%v/v)		CO ₂ (%v/v)		O ₂ (%v/v)		Other Gases (PPM)		GSV (CH ₄)		GSV (CO ₂)		Indicative NHBC Guideline		Indicative (steady) CIRIA Characteristic Situation
				Response Zone (mBGL)	Flooded				I/Hr	Peak	Steady	Peak	Steady	Minimum	Average	CO	H ₂ S	Peak	Steady	Peak	Steady	Peak	Steady	
23/01/2023	11:40	WS01	1	1.00 - 5.50	No	1030	6	1.53	0.2	0.1	0.1	0.2	0.1	21.3	21.3	0	0	0.000	0.000	0.000	0.000	GREEN	GREEN	CS-1
10/02/2023	10:04	WS01	1	1.00 - 5.50	No	1023	3	1.60	0.2	0.2	0.1	0.2	0.1	20.7	21.7	0	0	0.000	0.000	0.000	0.000	GREEN	GREEN	CS-1
20/02/2023	09:37	WS01	1	1.00 - 5.50	No	1010	10	1.50	0.2	0.2	0.1	1.0	0.2	20.8	21.3	0	0	0.000	0.000	0.002	0.000	GREEN	GREEN	CS-1
27/02/2023	09:20	WS01	1	1.00 - 5.50	No	1019	5	1.70	0.2	0.1	0.1	2.6	2.1	17.1	17.8	0	0	0.000	0.000	0.004	0.004	GREEN	GREEN	CS-1
13/03/2023	10:17	WS01	1	1.00 - 5.50	No	970	12	1.70	0.2	0.1	0.1	0.1	0.1	20.8	21.2	0	0	0.000	0.000	0.000	0.000	GREEN	GREEN	CS-1
24/03/2023	09:49	WS01	1	1.00 - 5.50	No	-	12	1.73	N/A															
23/01/2023	11:59	WS03	1	1.00 - 5.00	No	1030	6	1.72	0.2	0.9	0.8	2.7	2.6	2.3	2.5	0	3	0.002	0.001	0.005	0.004	GREEN	GREEN	CS-1
10/02/2023	09:56	WS03	1	1.00 - 5.00	No	1023	3	2.00	0.2	0.2	0.2	2.4	1.6	14.4	16.8	0	0	0.000	0.000	0.004	0.003	GREEN	GREEN	CS-1
20/02/2023	09:29	WS03	1	1.00 - 5.00	No	1011	10	2.00	0.2	0.1	0.1	1.9	1.5	18.0	18.7	0	0	0.000	0.000	0.003	0.003	GREEN	GREEN	CS-1
27/02/2023	09:29	WS03	1	1.00 - 5.00	No	1024	5	2.00	0.2	0.2	0.1	0.2	0.1	20.8	21.5	0	0	0.000	0.000	0.000	0.000	GREEN	GREEN	CS-1
13/03/2023	10:12	WS03	1	1.00 - 5.00	No	970	12	2.00	0.2	0.1	0.1	1.7	1.2	18.4	19.1	0	0	0.000	0.000	0.003	0.002	GREEN	GREEN	CS-1
24/03/2023	10:01	WS03	1	1.00 - 5.00	No	-	12	2.02	N/A															