

Phase 2: Site Investigation

l'Anson Site, Dalton Industrial Estate

l'Anson Bros

S200601

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PHASE 2 SITE INVESTIGATION REPORT

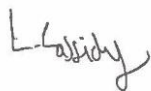


I'ANSON SITE, DALTON INDUSTRIAL ESTATE

TABLE OF CONTENTS

1	EXECUTIVE SUMMARY	2
2	INTRODUCTION	3
3	SITE DESCRIPTION AND FIELDWORK	3
4	GROUND CONDITIONS	4
5	GEOTECHNICAL TESTING AND ANALYSIS.....	4
TABLE 1: PRELIMINARY GROUND MODEL.....		6
TABLE 2: CALCULATED SAFE BEARING CAPACITIES		7

APPENDICES

Appendix A:	Drawings
Appendix B:	Borehole & Trial Pit Logs
Appendix C:	Geotechnical Laboratory Results
Appendix D:	Notes on Limitations & Contamination Guidelines

Revision	Date	Prepared By	Signed
Final	July 2020	L Cassidy <i>Environmental Engineer</i>	
		Checked By	
		R Woods <i>Principal Geotechnical Engineer</i>	
		Approved By	
		R Woods <i>Principal Geotechnical Engineer</i>	

1 EXECUTIVE SUMMARY

Site Address	l'Anson Site, Dalton Industrial Estate.
Proposed Development	The site is outlined for an industrial development.
Fieldwork	<ul style="list-style-type: none"> • 3no cable percussive boreholes (BH1 to BH3) with rotary follow on in BH1 & BH2, drilled to a maximum depth of 28.50mbgl. • 6no machine excavated trial pits (TP1 to TP6) to a maximum depth of 2.50mbgl.
Ground Conditions	<ul style="list-style-type: none"> • Made ground was encountered to depths of between 0.0.10 and 0.70mbgl. • Sand band locally, ranging in thickness from 1.30 to 1.50mbgl. • Soft to firm consistency locally sandy generally silty low to medium strength clay was then encountered, becoming firm to stiff consistency slightly sandy slightly gravelly medium to high strength clay with depth. • Thin granular band, representing completely weathered sandstone, with rockhead between 19.40 and 21.90mbgl. Coring undertaken to a maximum depth of 28.50mbgl, with the rock generally logged as weak dark reddish brown fine to medium grained thinly bedded slightly weathered sandstone. • Groundwater was encountered within BH1 (19.00mbgl) and BH2 (20.70mbgl) only.
Geotechnical Testing Results	<ul style="list-style-type: none"> • Cohesive deposits medium strength (45kPa-60kPa) based on in-situ hand vanes. • Triaxial testing indicates low to high strength (17kPa-101kPa). • Converted SPT N values indicate low to high strength deposits. • UCS testing returned results of 11.5 and 9.2MPa. • Cohesive materials on site have a medium volume change potential. • Moisture contents between 21 and 30%. • Sulphates between 120-140mg/l, pH slightly alkaline.
Geotechnical Analysis & Foundation Recommendations	<ul style="list-style-type: none"> • Bearing capacities of between 100 and 110kN/m² at minimum depth of 2.00mbgl, for pads (1.00x1.00 & 1.50x1.50) and strips (0.60m). • Settlements within 25mm. • For northern mill building, piled foundations are recommended. • Normal earthworks plant for excavations.

2 INTRODUCTION

2.1 Authorisation

The site investigation described in this report was carried out by Solmek to the instructions of K Baker Design & Development, on behalf of l'Anson Bros Ltd, on land located at Dalton Industrial Estate.

Sources of information, including previous work undertaken at the site, are detailed below:

- *Solmek Phase 1 Desk Study (S190224/DS) March 2019.*
- *Solmek Contamination Assessment (S190224/SI) March 2019.*

Reference should be made to the above report for details of the site's history and environmental setting, the ground conditions encountered, and the results of historical contamination analysis.

2.2 Scope of Works

The site is expected to be developed with new commercial buildings, with associated access roads.

A geotechnical risk assessment was requested. Environmental considerations were outlined within the previous reporting (Section 2.1). The fieldwork and testing was generally carried out according to the recommendations of BS5930: 2015 "Code of Practice for Ground Investigations" and where applicable BS EN 1997-2:2007 with soil descriptions to BS EN 14688-1:2013 where applicable. The information provided in this report is based on the investigation fieldwork, and is subject to the comments and approval of the various regulatory authorities.

There may be other conditions prevailing on the site which have not been disclosed by this investigation and which have not been taken into account by this report. Solmek reserve the right to alter conclusions and recommendations should further information be available or provided. Any schematic representation or opinion of the possible configuration of ground conditions between exploratory holes is conjectural and given for guidance only and confirmation of intermediate ground conditions should be considered if deemed necessary.

3 SITE DESCRIPTION AND FIELDWORK

A site inspection, as recommended in BS 5930 and BS 10175, was undertaken on 4th March 2019. The site is centred at Ordnance Survey Co-ordinates 441810, 476290 and covers approximately 4.14Ha.

The site is located on a parcel of land immediately south of Dalton Lane.

The site is rectangular shaped and has a mostly flat and even topography. The site is currently undeveloped and consists of an open grass field.

The site is bounded to the north and east by hedges and is unbounded to the south and west.

A road runs along the sites northern boundary. Industrial premises are located to the northeast. The field continues to the south and west, with industrial units present beyond this.

3.1 Fieldwork

The fieldwork was commenced on 5th June 2020, with the second phase commenced on 15th June 2020. The extent of the investigation was:

- 3no cable percussive boreholes (BH1 to BH3 inclusive) with rotary follow-on in BH1 & BH2, to a maximum depth of 28.50m below ground level (bgl).
 - BH1 & BH2 were located beneath the footprint of the proposed mill building.
 - BH3 was located beneath the footprint of the southern proposed building.
 - BH3 was specifically targeted to coincide with an infilled pond noted during the Phase 1 Desk Study.
- 6no machine excavated trial pits (TP1 to TP6) were dug to a maximum depth of 2.50mbgl.

- The trial pits were spaced evenly around the site to provide further information regarding shallow ground conditions.
- Insitu testing in the exploratory positions as Standard Penetration Tests (SPTs) and hand shear vanes.
- Retrieval of samples for geotechnical testing.

The trial pits and boreholes were backfilled with clean arisings, gravel and bentonite upon completion.

Descriptions of the strata encountered in the boreholes and trial pits together with details of sampling and groundwater are presented in Appendix B of this report. A plan showing the location of the boreholes and trial pits can be found in Appendix A (Figure 2).

4 GROUND CONDITIONS

A summary of the ground conditions encountered is given below.

4.1 Made Ground

Made ground was relatively uniform across the site and was encountered to a minimum depth of 0.10mbgl (BH2) and a maximum depth of 0.70mbgl (BH3). The made ground broadly consisted of sandy topsoil, however within BH3 some reworked clay was present beneath the topsoil.

4.2 Natural Deposits

Natural deposits were proven to underlie the made ground deposits across the site. The natural ground within BH1, BH3, TP1, TP2 and TP5 first consisted of a band of sand, ranging in thickness from 1.30 to 1.50mbgl.

Beneath the sand, or where the sand was not present, natural deposits generally comprised of locally thinly laminated locally sandy locally gravelly locally silty clay, with consistencies and strengths generally improving with depth. The clay was proven to maximum depths of 19.00 and 20.70mbgl, in BH1 and BH2.

4.3 Solid Geology

Within BH1 and BH2, bands of granular material were then encountered, representing completely weathered sandstone. Rockhead of sandstone was then encountered between 19.40 and 21.90mbgl.

The retrieved rock core was generally logged as weak dark reddish brown fine to medium grained thinly bedded slightly weathered sandstone.

4.4 Groundwater

Groundwater was encountered within BH1 (19.00mbgl) and BH2 (20.70mbgl) only.

It should be noted the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities. Therefore, water levels significantly higher than those found during this investigation may be encountered.

5 GEOTECHNICAL TESTING AND ANALYSIS

Samples taken from the boreholes underwent a series of geotechnical tests (BS 1377:1990) to aid foundation design and soil description. In addition, insitu Standard Penetration Tests (SPTs) and Hand Shear Vane Tests were undertaken at regular intervals during excavation. The geotechnical results are presented in Appendix C.

5.1 Strength and Density

Standard Penetration Tests undertaken within the natural granular deposits at 1.20mbgl yielded N values of

7 and 12, indicative of loose to medium dense deposits.

Hand shear vane testing within the natural cohesive deposits returned results ranging 45kPa to 60kPa, which are indicative of medium strength conditions.

Six samples were subjected to quick, undrained triaxial testing from BH1 (10.50 & 16.50m), BH2 (13.50 & 16.50m) and BH3 (2.00 & 4.00m). The results ranged from 17 to 101kPa, indicating low to high strength conditions.

Standard Penetration Tests undertaken within the natural cohesive deposits yielded N values of between 6 and 21. Using the Terzaghi and Peck (1967) correction, these N values can be multiplied by five to provide approximate shear strengths, with these results indicating low to high strength deposits.

An additional SPT within the granular material at 21.00mbgl yielded an N value of 23 (medium dense) whilst termination SPTs upon rockhead in BH1 and BH2 each yielded N values of 50+.

5.2 Unconfined Compressive Strength Testing

Unconfined Compressive Strength (UCS) testing was undertaken on two samples of rock core, from BH1 (23.40-23.70m) and BH2 (24.75-25.10m). The results of the testing were 11.5 and 9.1MPa.

5.3 Moisture Contents

Four samples recovered from the boreholes and trial pits have been subject to moisture content tests to determine the moisture profile at depths of between 0.50 and 2.45mbgl. Moisture levels were between 21% and 30%.

5.4 Atterberg Limit Determinations

Four Atterberg Limit Determination tests were carried out on samples of cohesive material to classify the fine grained soils. The results were compared to the Casagrande Chart published in BS 5930 and showed the samples to generally be clay of intermediate to high plasticity.

The Plasticity Indices ranged from 17 to 29 with equivalent moisture contents recorded above the corresponding plastic limits. The cohesive material can be assessed as having a **medium** shrinkage potential in relation to NHBC Guidance Chapter 4.2.

5.5 pH and Sulphate Results

Three natural samples from the boreholes were tested for acidity and soluble sulphate content to assess whether the material may be potentially aggressive to building fabric. The results of the testing for pH ranged from 8.3 to 8.5 indicating slightly alkaline conditions. Soluble sulphates were recorded at levels ranging from 120mg/l to 140mg/l.

5.6 Preliminary Ground Model

The information gathered during the intrusive works has been collated and summarised in the below preliminary ground model.

TABLE 1: PRELIMINARY GROUND MODEL

Strata	Depth (mbgl)		Parameters Range (average)	Reference
	From	To		
Loose to medium dense brown fine to coarse SAND	0.20-0.70	1.50-2.00	N = 7-12 (9.5)	In-situ SPT
Soft to firm consistency locally sandy low to medium strength locally silty CLAY	0.10-2.00	16.40-17.90	kPa = 45-60kPa (52)	In-Situ Hand Vane
			N = 6-8 (7.4)	In-situ SPT
			C _u = 17-64kPa (41)	Undrained Triaxial Testing
			pH = 8.3-8.5 (8.4)	Laboratory Testing
			SO ⁴ = 120-140 (130)	
IP = 19-29 (22.7)	Atterberg Limit Testing			
Firm to stiff consistency slightly sandy slightly gravelly medium to high strength CLAY	16.40-17.90	19.00-20.70	N = 14-21 (17.3)	In-situ SPT
			C _u = 101kPa (101)	Undrained Triaxial Testing
Medium dense gravelly SAND / Sandy GRAVEL	19.00-20.70	19.40-21.90	N = 23 (23)	In-situ SPT
Weathered reddish brown SANDSTONE	19.40-21.90	25.50-28.50	UCS = 9.2-11.5MPa (10.35)	UCS Testing

5.7 Foundations

Detailed design loads have not been made available to Solmek, however it is understood that the northern structure is heavily loaded, whilst the southern structure is a more lightweight, conventional building.

Solmek have therefore given consideration to both piled foundations and deepened strip/pad foundations.

5.7.1 Piled Foundations

For the heavily loaded structures the shallow ground conditions are not suitable to support traditional foundations. Instead, piled foundations should be adopted. Information provided in this report should be made available to a competent piling contractor who can design appropriate foundations in accordance with Section 7: Pile foundations of BS EN 1997 – 1:2004 which applies to end-bearing piles, friction piles, tension piles and transversely loaded piles installed by driving, by jacking, and by screwing or boring. The piling contractor will need to take into consideration the possible effects of negative skin friction from made ground, shallow loose sand and the soft consistency deposits. Allowance should be made for breaking through known and unknown buried obstructions.

The precise method of pile installation and the applicability of proprietary systems, diameters and depths required would need to be determined by a specialist piling contractor.

5.7.2 Deepened Strip/Pad Foundations

Based on plasticity index results, all cohesive soils at the site should be regarded as being of medium volume change potential. Foundations should therefore be placed at a minimum depth of 0.90m below original or finished ground level, whichever is the lower.

Given the shallow loose to medium dense sands, and local low strength pockets of clay, it would be prudent to deepen foundations to ca. 2.00mbgl.

Table 2 provides an overview of estimated safe bearing capacities for various foundations, assuming conservative shear strengths (40kPa) at 2.00mbgl. As well as deep strips, consideration has also been given to pad foundations.

TABLE 2: CALCULATED SAFE BEARING CAPACITIES

Foundation Type	Depth (mbgl)	Width (m)	Assumed Shear Strength (kPa)	Safe Bearing Capacity (kN/m ²)
Strip	2.00	0.60	40	100
Pad	2.00	1.50 x 1.50	40	105
Pad	2.00	1.00 x 1.00	40	110

Providing the safe bearing capacities outlined in Table 2 are not exceeded, settlements have been calculated to be less than 25mm.

Foundations near existing or proposed trees should be deepened and provided with appropriate heave precautions in accordance with NHBC Standards Chapter 4.2 current guidance.

5.7.3 General Foundation Comments

Sub-surface concrete should be Design Sulphate Class DS-1, with the site allocated an ACEC Classification of AC-1.

It should be recognised that clay rich soils can deteriorate fairly rapidly on exposure, particularly in periods of wet weather and frost. It would be prudent to protect all exposed soils in foundation excavations with a concrete blinding layer, particularly if they are likely to remain open for extended period of time.

Prior to placing foundation concrete, obvious soft or loose spots should be removed and replaced with suitably recompacted hardcore or lean mix concrete. In addition, all excavations should be inspected to ensure that they fully penetrate areas of disturbed ground.

Further advice should be sought from Solmek if unexpected ground conditions are encountered during redevelopment.

5.8 Excavation

Based on the nature of the ground conditions encountered, excavations should be within the capacity of normal earthworks plant, and although buried obstructions are considered unlikely, they cannot be ruled out. Stability of excavations will be poor in the made ground and shallow sands but should improve in the natural clay. Excavation sides should be designed, constructed and supported in accordance with the recommendations given in CIRIA Report No. 97: "Trenching Practice".

5.9 Groundwater

Groundwater was encountered within BH1 (19.00mbgl) and BH2 (20.70mbgl) only.

It should be noted the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities. Therefore, water levels significantly higher than those found during this investigation may be encountered.

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**APPENDIX A:
Figures and Drawings**



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Figure Title
Site Location Plan
Project Number
S200601
Project Name
l'Anson Site, Dalton
Client
l'Anson Bros
Date
July 2020
DRG Number
Figure 1
Scale
1:1250 @ A4 [DO NOT SCALE]

Legend Key

 Project Bounds - Project Bounds



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Figure Title
Exploratory Hole Location Plan
Project Number
S200601
Project Name
l'Anson Site, Dalton
Client
l'Anson Bros
Date
July 2020
DRG Number
Figure 2
Scale
1:1250 @ A4 [DO NOT SCALE]
Legend Key
<ul style="list-style-type: none">  Locations By Type - CP  Locations By Type - CP+RC  Locations By Type - TP  Project Bounds - Project Bounds

**APPENDIX B:
Borehole & Trial Pit Logs**



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Cable Percussive with Rotary Core Follow-on Log

Scale 1:75 Sheet 1 of 2

BH1

Contract no: S200601	Site: l'Anson Site, Dalton	Driller: BBL	GL (AOD):
Client: l'Anson Bros		Plant used: Dando 2000/Beretta	Easting: 441814
Method: Cable Percussive & Rotary Follow on		Started: 15/06/2020	Northing: 476336
		Ended: 17/06/2020	Logged: PF
		Backfilled: 17/06/2020	Status: FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
		0.30		MADE GROUND: Brown sandy topsoil.	0.20 - 0.30	B	
				Medium dense brown fine to coarse SAND.	0.50 - 0.60	B	
					1.20 - 1.65	SPT (S)	N=12 (1,3/4,3,3,2)
					1.20 - 1.65	B+D	
		1.80		Soft to firm consistency thinly laminated brownish grey low to medium strength silty CLAY of medium plasticity.	2.00 - 2.45	SPT (S)	N=8 (1,2/2,2,2,2)
					2.00 - 2.45	B+D	
					3.00 - 3.45	U	25 blows [450mm]
					3.45 - 3.50	B	
					4.00 - 4.45	SPT (S)	N=8 (2,2/2,2,2,2)
					4.00 - 4.45	B+D	
					5.00 - 5.45	U	34 blows [450mm]
					5.45 - 5.50	B	
					6.00 - 6.45	SPT (S)	N=6 (1,2/1,2,1,2)
					6.00 - 6.45	B+D	
					7.50 - 7.95	U	45 blows [450mm]
					7.95 - 8.00	B	
					9.00 - 9.45	SPT (S)	N=8 (2,1/2,2,2,2)
					9.00 - 9.45	B+D	
			10.50 - 10.95	U	60 blows [450mm]		
			10.95 - 11.00	B			
			12.00 - 12.45	SPT (S)	N=8 (2,1/2,2,2,2)		
			12.00 - 12.45	B+D			
12.70			Firm consistency grey medium strength silty CLAY.	13.50 - 13.95	U	60 blows [450mm]	
				13.95 - 14.00	B		
				15.00 - 15.45	SPT (S)	N=8 (2,2/2,2,2,2)	

Hole Diameter				Casing Depths				General Remarks			Chiselling			Ground Water			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Hand Dug Inspection Pit to 1.20mbgl.			From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)			
25.50	150	19.50	150	Groundwater Encountered at 19.00mbgl.						19.00	18.00						

Cable Percussive with Rotary Core Follow-on Log

BH1

Contract no: S200601	Site: l'Anson Site, Dalton	Driller: BBL	GL (AOD):
Client: l'Anson Bros		Plant used: Dando 2000/Beretta	Eastings: 441814
Method: Cable Percussive & Rotary Follow on		Started: 15/06/2020	Northing: 476336
		Ended: 17/06/2020	Logged: PF
		Backfilled: 17/06/2020	Status: FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
		16.40		Firm consistency grey medium strength silty CLAY.	15.00 - 15.45	B+D	
				Firm to stiff consistency reddish brown slightly sandy slightly gravelly medium to high strength CLAY. Gravel is fine to coarse angular to subangular of sandstone.	16.50 - 16.95	U	85 blows [450mm]
					16.95 - 17.00	B	
					18.00 - 18.45	SPT (S)	N=21 (3,4/4,5,6,6)
					18.00 - 18.45	B+D	
		19.00	▼	Reddish brown gravelly SAND. Gravel is fine to coarse angular to subangular of sandstone (Highly weathered sandstone)			
		19.40		Weathered reddish brown SANDSTONE.	19.50 - 19.66	SPT (S)	N=50+ (25 for 65mm/40,10 for 15mm)
		19.50		Weak dark reddish brown fine to medium grained, thinly bedded, slightly weathered SANDSTONE.	19.50 - 19.95	D	
							25 5 0 NI 0 80
							29 5 0 NI 0 70
							77 59 31 NI 160 180
							69 30 11 NI 70 170
		25.50		End of Borehole at 25.500m			

Hole Diameter				Casing Depths				General Remarks			Chiselling			Ground Water			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Hand Dug Inspection Pit to 1.20mbgl. Groundwater Encountered at 19.00mbgl.			From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)			
25.50	150	19.50	150							19.00	18.00						



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Cable Percussive with Rotary Core Follow-on Log

Scale 1:75 Sheet 1 of 2

BH2

Contract no: S200601	Site: l'Anson Site, Dalton	Driller: BBL	GL (AOD):
Client: l'Anson Bros		Plant used: Dando 2000/Beretta	Easting: 441835
Method: Cable Percussive & Rotary Follow on		Started: 18/06/2020	Northing: 476357
		Ended: 19/06/2020	Logged: PF
		Backfilled: 19/06/2020	Status: FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			
					Depth (m)	Type	Results	
		0.10		MADE GROUND: Brown sandy topsoil.	0.20 - 0.30	B		
				Firm consistency brown sandy low strength CLAY of high plasticity.	0.50 - 0.60	B		
					1.20 - 1.65	SPT (S)		N=6 (1,2/2,1,1,2)
					1.20 - 1.65	B+D		
		1.70		Firm consistency brownish grey sandy medium strength CLAY.	2.00 - 2.45	SPT (S)		N=8 (2,2/2,2,2,2)
					2.00 - 2.45	B+D		
					3.00 - 3.45	U		30 blows [450mm]
					3.45 - 3.50	B		
		3.70		Soft to firm consistency thinly laminated brownish grey low to medium strength silty CLAY.	4.00 - 4.45	SPT (S)		N=8 (1,1/2,2,2,2)
					4.00 - 4.45	B+D		
					5.00 - 5.45	U		30 blows [450mm]
					5.45 - 5.50	B		
					6.00 - 6.45	SPT (S)		N=6 (0,1/1,1,2,2)
					6.00 - 6.45	B+D		
					7.50 - 7.95	U		30 blows [450mm]
					9.00 - 9.45	SPT (S)		N=8 (1,1/2,2,2,2)
					9.00 - 9.45	B+D		
					10.50 - 10.95	U		35 blows [450mm]
			10.95 - 11.00	B				
			12.00 - 12.45	SPT (S)	N=8 (2,2/2,2,2,2)			
			12.00 - 12.45	B+D				
			13.50 - 13.95	U	45 blows [450mm]			
			13.95 - 14.00	B				
12.70		Firm consistency grey medium strength silty CLAY.	15.00 - 15.45	SPT (S)	N=8 (1,2/2,2,2,2)			

Hole Diameter				Casing Depths				General Remarks			Chiselling			Ground Water			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Hand Dug Inspection Pit to 1.20mbgl.			From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)			
28.50	150	22.00	150	Groundwater Encountered at 20.70mbgl.						20.70	20.00						



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Cable Percussive with Rotary Core Follow-on Log

Scale 1:75 Sheet 2 of 2

BH2

Contract no: S200601	Site: l'Anson Site, Dalton	Driller: BBL	GL (AOD):
Client: l'Anson Bros		Plant used: Dando 2000/Beretta	Eastings: 441835
Method: Cable Percussive & Rotary Follow on		Started: 18/06/2020	Northing: 476357
		Ended: 19/06/2020	Logged: PF
		Backfilled: 19/06/2020	Status: FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
		15.00 - 15.45		Firm consistency grey medium strength silty CLAY.	15.00 - 15.45	B+D	
		16.50 - 16.95			16.50 - 16.95	U	70 blows [450mm]
		16.95 - 17.00			16.95 - 17.00	B	
		17.90		Firm to stiff consistency reddish brown slightly sandy slightly gravelly medium to high strength CLAY. Gravel is fine to coarse angular to subangular of sandstone.	18.00 - 18.45	SPT (S)	N=14 (2,3/3,3,4,4)
					18.00 - 18.45	B+D	
					19.50 - 19.95	SPT (S)	N=17 (3,3/4,4,5,4)
					19.50 - 19.95	B+D	
		20.70		Medium dense light brown to brown sandy GRAVEL. Gravel is fine to coarse rounded to subrounded of sandstone.	21.00 - 21.45	SPT (S)	N=23 (2,4/5,6,6,6)
		21.10		Medium dense reddish brown gravelly SAND. Gravel is fine to coarse angular to subangular of sandstone (Highly weathered sandstone)	21.00 - 21.45	B+D	
		21.90		Weak dark reddish brown fine to medium grained, thinly bedded, slightly weathered SANDSTONE.			
					22.50 - 22.58	SPT (S)	N=50+ (25 for 35mm/50 for 40mm)
					22.50 - 22.95	D	
							47 18 18 NI 110 160
							48 25 19 NI 70 180
							97 47 43 NI 230 280
							98 79 69 NI 120 190
		28.50		End of Borehole at 28.500m			

Hole Diameter				Casing Depths				General Remarks			Chiselling			Ground Water			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Hand Dug Inspection Pit to 1.20mbgl. Groundwater Encountered at 20.70mbgl.			From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)			
28.50	150	22.00	150							20.70	20.00						



SOLMEK

Solmek Ltd
12-16 Yarm Road
Stockton on Tees
TS18 3NA
Tel: 01642 607083
Email: info@solmek.com

Trial Pit Log

Trial Pit No
TP1
Sheet 1 of 1

Project Name: I'Anson Site, Dalton	Project No. S200601	Co-ords: 441738E - 476316N Level:	Date: 05/06/2020
------------------------------------	---------------------	--------------------------------------	------------------

Plant Used: Neuson 1503 Mini Digger	Dimensions (m): Depth 2.20	1.60 	Scale: 1:26
-------------------------------------	-------------------------------	----------	-------------

Client: I'Anson Bros	Logged: KW
----------------------	------------

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.40			MADE GROUND: Brown sandy topsoil.	
	0.50	B					Brown red medium to coarse SAND.	1
	1.00	B						
	1.50	B						
	2.00	HV	55kPa	1.90			Soft to firm consistency thinly laminated brown sandy medium strength CLAY.	2
				2.20			End of Pit at 2.200m	3
								4
								5

Remarks: - No Groundwater Encountered.

Stability: Stable



SOLMEK

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12-16 Yarm Road
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Email: info@solmek.com

Trial Pit Log

TrialPit No
TP2
Sheet 1 of 1

Project Name: I'Anson Site, Dalton	Project No. S200601	Co-ords: 441757E - 476256N Level:	Date 05/06/2020
------------------------------------	---------------------	--------------------------------------	--------------------

Plant Used: Neuson 1503 Mini Digger	Dimensions (m): Depth 2.30	2.00 	Scale 1:26
-------------------------------------	-------------------------------	----------	---------------

Client: I'Anson Bros	Logged KW
----------------------	--------------

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30			MADE GROUND: Brown sandy topsoil.
	0.50	B					Brown fine to coarse SAND.
	1.00	B					
	1.50	B					
	2.00	HV	50kPa	1.70			Soft to firm consistency reddish brown medium strength sandy CLAY.
				2.30			End of Pit at 2.300m

Remarks: - No Groundwater Encountered.

Stability: Stable



SOLMEK

Solmek Ltd
12-16 Yarm Road
Stockton on Tees
TS18 3NA
Tel: 01642 607083
Email: info@solmek.com


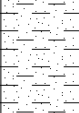
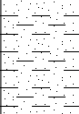
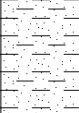

Trial Pit Log

Trial Pit No
TP3
Sheet 1 of 1

Project Name: I'Anson Site, Dalton Project No. S200601 Co-ords: 441795E - 476303N Date: 05/06/2020

Plant Used: Neuson 1503 Mini Digger Dimensions (m): 1.70

Client: I'Anson Bros Depth: 2.00 Scale: 1:26 Logged: KW

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.40			MADE GROUND: Brown sandy topsoil.
	0.50	B					Soft to firm consistency reddish brown medium strength sandy CLAY.
	1.00 1.00	B HV	45kPa				
	1.50	B					
	2.00	HV	50kPa	2.00			End of Pit at 2.000m

Remarks: - No Groundwater Encountered.

Stability: Stable



SOLMEK

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Email: info@solmek.com

Trial Pit Log

TrialPit No
TP4
Sheet 1 of 1

Project Name: I'Anson Site, Dalton	Project No. S200601	Co-ords: 441826E - 476370N Level:	Date 05/06/2020
------------------------------------	---------------------	--------------------------------------	--------------------

Plant Used: Neuson 1503 Mini Digger	Dimensions (m): Depth 2.30	1.80 	Scale 1:26
-------------------------------------	-------------------------------	----------	---------------

Client: I'Anson Bros	Logged KW
----------------------	--------------

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.20			MADE GROUND: Brown sandy topsoil.
	0.50	B					Firm consistency brown sandy CLAY.
	1.00 1.00	B HV	45kPa				
	1.50	B		1.60			Soft to firm consistency thinly laminated brownish grey medium strength sandy CLAY.
	2.00	HV	60kPa				
				2.30			End of Pit at 2.300m

Remarks: - No Groundwater Encountered.

Stability: Stable



SOLMEK

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TS18 3NA
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Email: info@solmek.com


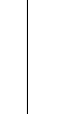
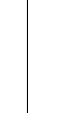


Trial Pit Log

TrialPit No
TP5
Sheet 1 of 1

Project Name: I'Anson Site, Dalton Project No. S200601 Co-ords: 441830E - 476320N Date: 05/06/2020

Plant Used: Neuson 1503 Mini Digger Dimensions (m): 2.00 Scale: 1:26

Client: I'Anson Bros Depth: 2.30 Logged: KW

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.20			MADE GROUND: Brown sandy topsoil.
	0.50	B					Brown fine to coarse SAND.
	1.00	B					
	1.50	B		1.50			Soft to firm consistency reddish brown medium strength sandy CLAY.
	2.00	HV	55kPa				
				2.30			End of Pit at 2.300m

Remarks: - No Groundwater Encountered.

Stability: Stable



SOLMEK

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Email: info@solmek.com

Trial Pit Log

TrialPit No
TP6
Sheet 1 of 1

Project Name: I'Anson Site, Dalton	Project No. S200601	Co-ords: 441858E - 476270N Level:	Date 05/06/2020
------------------------------------	---------------------	--------------------------------------	--------------------

Plant Used: Neuson 1503 Mini Digger	Dimensions (m): Depth 2.50	1.70 	Scale 1:26
-------------------------------------	-------------------------------	----------	---------------

Client: I'Anson Bros	Logged KW
----------------------	--------------

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.20			MADE GROUND: Brown sandy topsoil.
	0.50	B					Firm consistency reddish brown sandy medium strength CLAY.
	1.00 1.00	B HV	50kPa				
	1.50	B		1.60			Firm consistency reddish brown sandy medium strength CLAY.
	2.00	HV	55kPa				
				2.50			End of Pit at 2.500m

Remarks: - No Groundwater Encountered.

Stability: Stable

**APPENDIX C:
Geotechnical Laboratory Results**

Laboratory Report Front Sheet

Solmek
12-16 Yarm Road,
Stockton on Tees,
TS18 3NA
01642 607083
lab@solmek.com



Site name	Job number
Dalton Industrial Estate	S200601

Client details:

Reference: S200601
Name: Solmek
Address: 12 Yarm Road,
Stockton-on-tees,
TS18 3NA

Telephone: 01642 607083
Email: lcassidy@solmek.com

FAO: L Cassidy

Date commenced: 24/06/2020


Date reported: 02/07/2020

Observations and interpretations are outside of the UKAS Accreditation

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

Solmek are not UKAS Accredited for the following tests; Density by Linear Measurement, Particle Density by Gas Jar, Point Load, Triaxial UU Multi Specimen, Triaxial UU Multistage and California Bearing Ratio.

Samples will be held at the laboratory for a period of 4 weeks after the report date. After the all samples will be disposed of. Should further testing be required then the office should be informed before the above date.

Signature: 	Approved Signatories: <input checked="" type="checkbox"/> K Watkin (Lab Manager) <input type="checkbox"/> U Mazhar (Assistant Lab Manager) <input type="checkbox"/>
--	---

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S200601
		Borehole/Pit No.	BH1
Site Name	Dalton Industrial Estate		Sample No.
Soil Description			Depth
Specimen Reference	Specimen Depth	m	Sample Type
Specimen Description	Firm, brown, Medium Strength CLAY		KeyLAB ID
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test

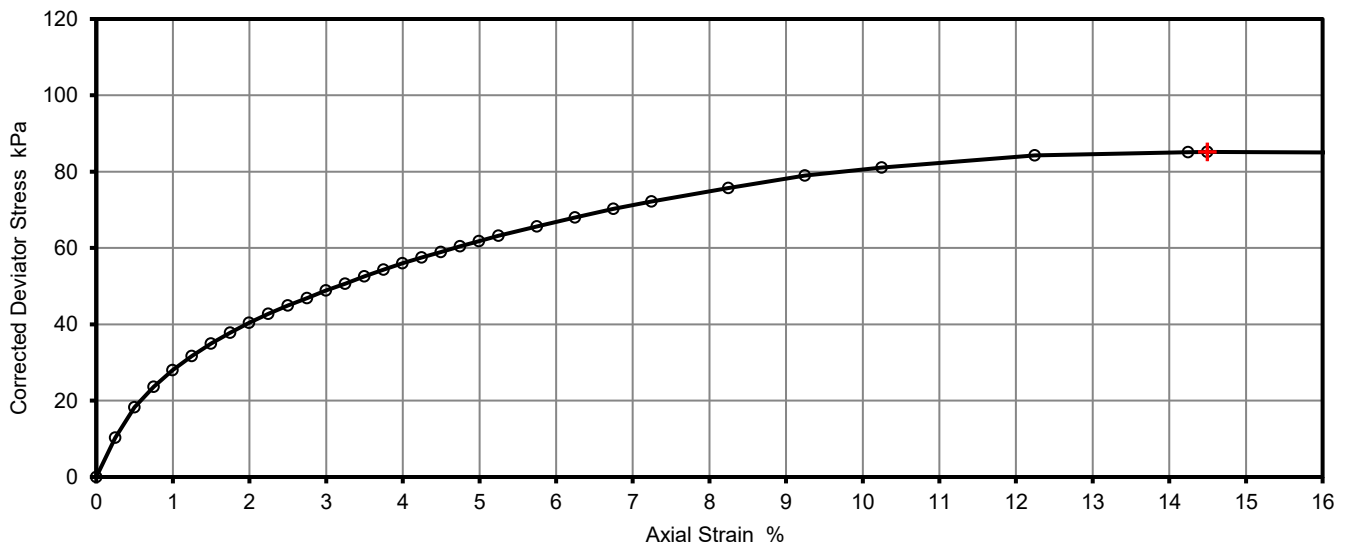
Test Number	1
Length	203.0 mm
Diameter	103.0 mm
Bulk Density	1.97 Mg/m ³
Moisture Content	30.5 %
Dry Density	1.51 Mg/m ³

Tracable Equipment Record

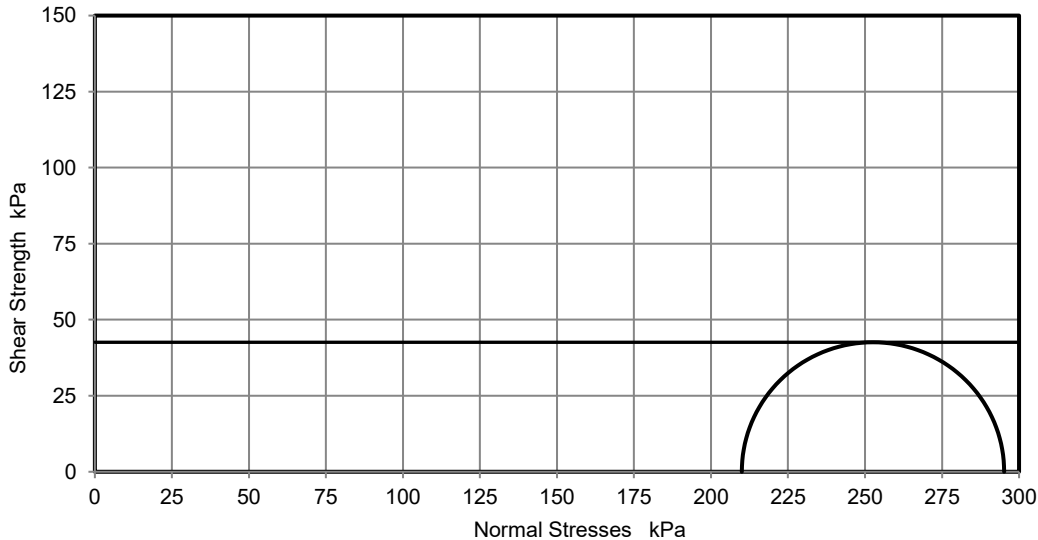
Test Frame	TRI 004
Load Ring	LOAD CELL 003
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-001

Rate of Strain	1.0 %/min
Cell Pressure	210 kPa
At failure	
Axial Strain	14.5 %
Deviator Stress, ($\sigma_1 - \sigma_3$) _f	85 kPa
Undrained Shear Strength, c_u	43 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Plastic

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377.

This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.36

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S200601
		Borehole/Pit No.	BH1
Site Name	Dalton Industrial Estate		Sample No.
Soil Description			Depth
Specimen Reference	Specimen Depth	m	Sample Type
Specimen Description	Firm, brown, slightly sandy, slightly gravelly, High Strength CLAY		KeyLAB ID
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test

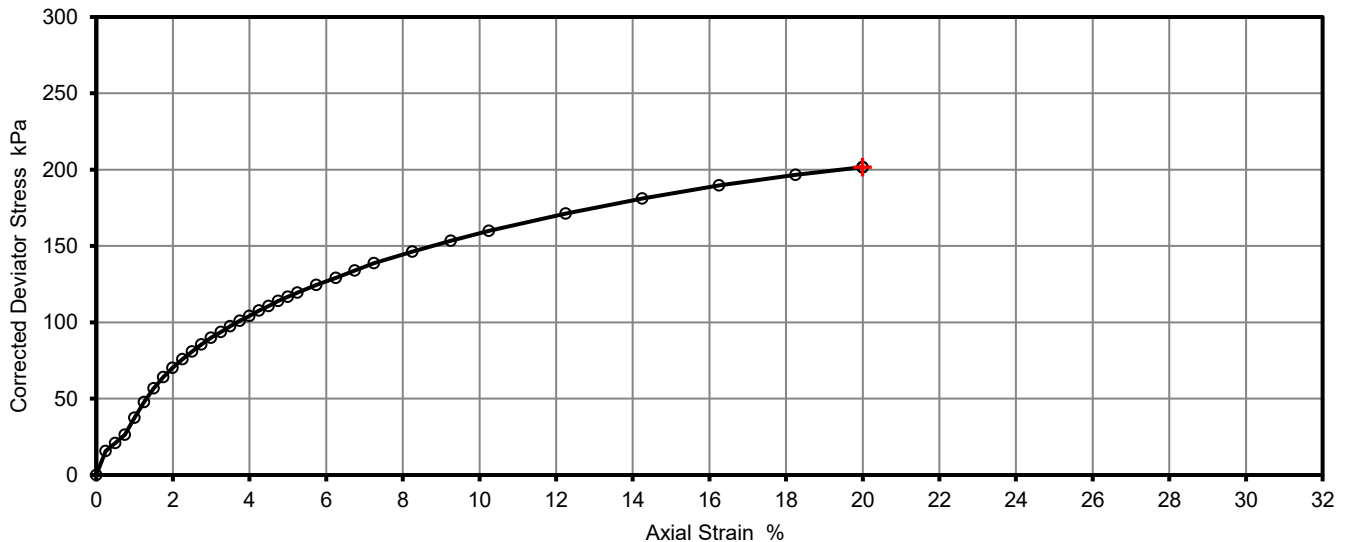
Test Number	1	
Length	205.0	mm
Diameter	103.0	mm
Bulk Density	2.26	Mg/m3
Moisture Content	15.1	%
Dry Density	1.97	Mg/m3

Tracable Equipment Record

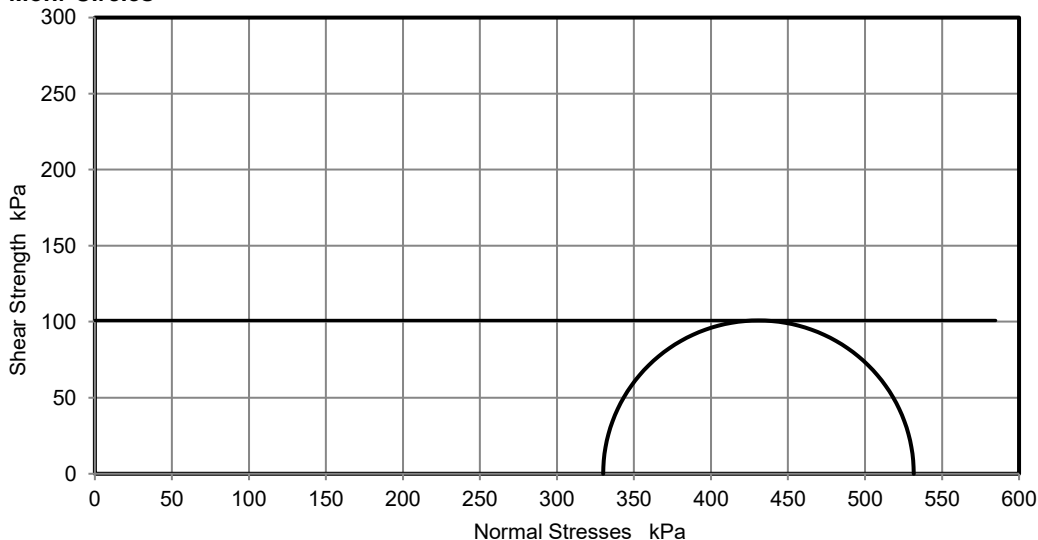
Test Frame	TRI 004
Load Ring	LOAD CELL 003
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-001

Rate of Strain	1.0	%/min	
Cell Pressure	330	kPa	
At failure	Axial Strain	20.0	%
	Deviator Stress, $(\sigma_1 - \sigma_3)_f$	202	kPa
	Undrained Shear Strength, c_u	101	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
	Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377.

This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.36

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S200601
		Borehole/Pit No.	BH2
Site Name	Dalton Industrial Estate		Sample No.
Soil Description			Depth
Specimen Reference	Specimen Depth	m	Sample Type
Specimen Description	Firm, brown, Medium Strength CLAY		KeyLAB ID
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test

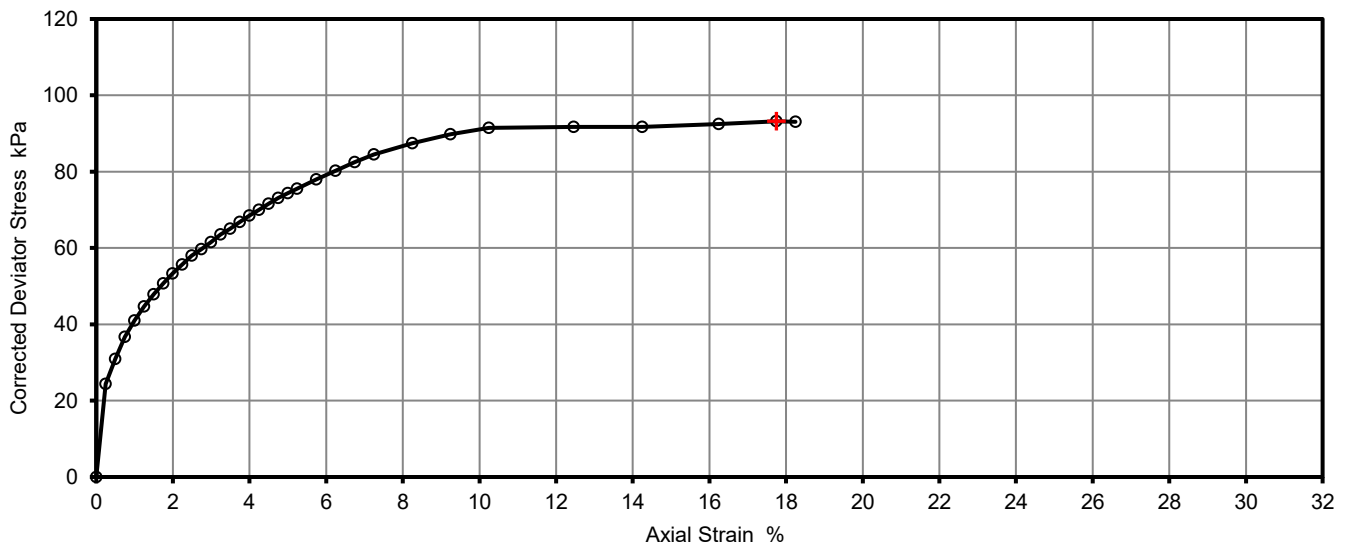
Test Number	1	
Length	204.0	mm
Diameter	102.0	mm
Bulk Density	2.02	Mg/m3
Moisture Content	29.5	%
Dry Density	1.56	Mg/m3

Tracable Equipment Record

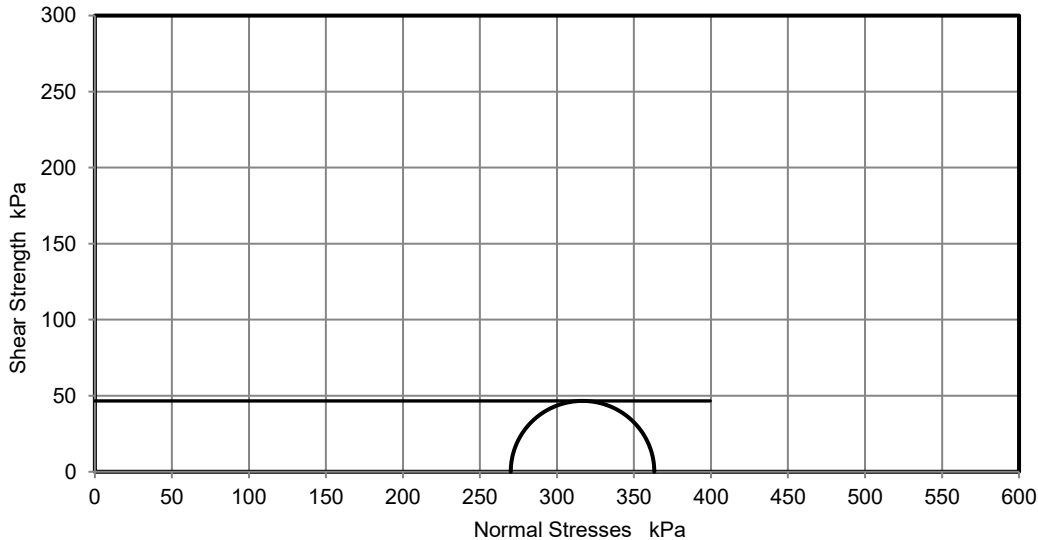
Test Frame	TRI 004
Load Ring	LOAD CELL 003
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-001

Rate of Strain	1.0	%/min	
Cell Pressure	270	kPa	
At failure	Axial Strain	17.7	%
	Deviator Stress, $(\sigma_1 - \sigma_3)_f$	93	kPa
	Undrained Shear Strength, c_u	47	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
	Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377.

This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.36

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S200601
		Borehole/Pit No.	BH2
Site Name	Dalton Industrial Estate		Sample No.
Soil Description			Depth
Specimen Reference	Specimen Depth	m	Sample Type
Specimen Description	Firm, brown, Medium Strength CLAY		KeyLAB ID
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test

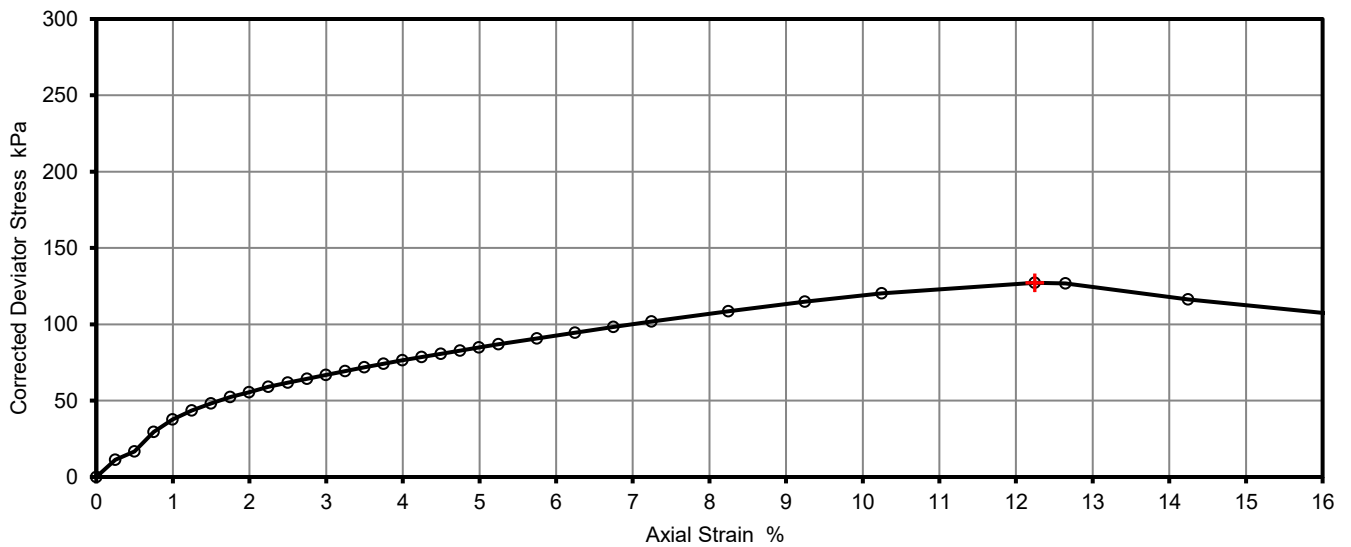
Test Number	1
Length	203.0 mm
Diameter	102.0 mm
Bulk Density	1.88 Mg/m3
Moisture Content	33.0 %
Dry Density	1.42 Mg/m3

Tracable Equipment Record

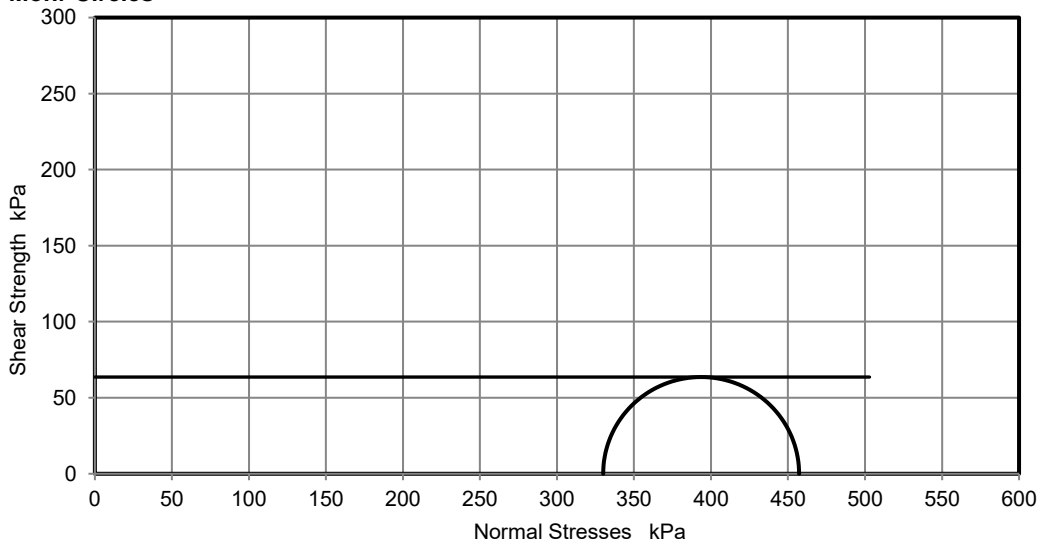
Test Frame	TRI 004
Load Ring	LOAD CELL 003
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-001

Rate of Strain	1.0 %/min
Cell Pressure	330 kPa
At failure	
Axial Strain	12.2 %
Deviator Stress, $(\sigma_1 - \sigma_3)_f$	127 kPa
Undrained Shear Strength, c_u	64 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Plastic

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.36

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S200601		
		Borehole/Pit No.	BH3		
Site Name	Dalton Industrial Estate		Sample No.		
Soil Description			Depth	2.00	
Specimen Reference		Specimen Depth	m	Sample Type	U
Specimen Description	Firm, brown, Low Strength CLAY		KeyLAB ID	SLMK2020062458	
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test	30/06/2020	

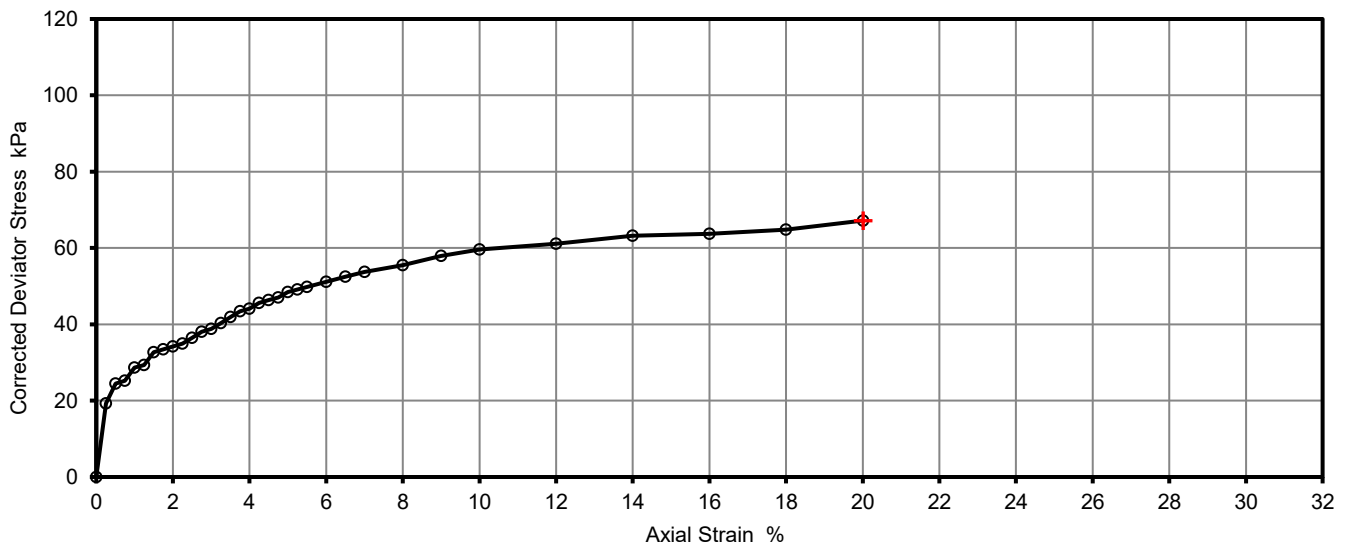
Test Number	1	
Length	76.0	mm
Diameter	38.0	mm
Bulk Density	2.01	Mg/m ³
Moisture Content	26.0	%
Dry Density	1.60	Mg/m ³

Tracable Equipment Record

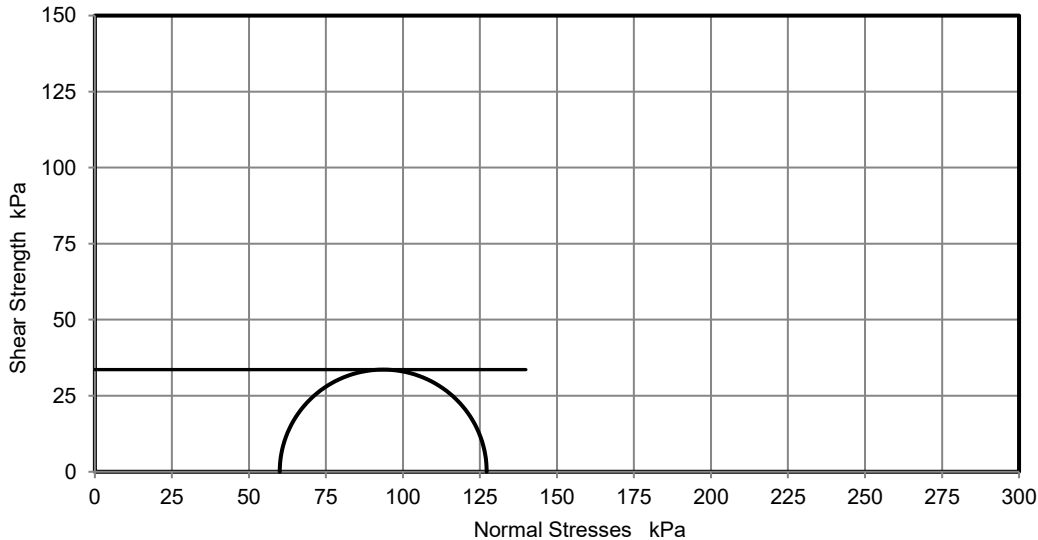
Test Frame	TRI 004
Load Ring	LOAD CELL 003
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-001

Rate of Strain	1.0	%/min	
Cell Pressure	60	kPa	
At failure	Axial Strain	20.0	%
	Deviator Stress, ($\sigma_1 - \sigma_3$) _f	67	kPa
	Undrained Shear Strength, c_u	34	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
	Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377.

This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.26

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S200601
		Borehole/Pit No.	BH3
Site Name	Dalton Industrial Estate		Sample No.
Soil Description			Depth
Specimen Reference	Specimen Depth	m	Sample Type
Specimen Description	Soft, brown, slightly sandy, Very Low Strength CLAY		KeyLAB ID
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test

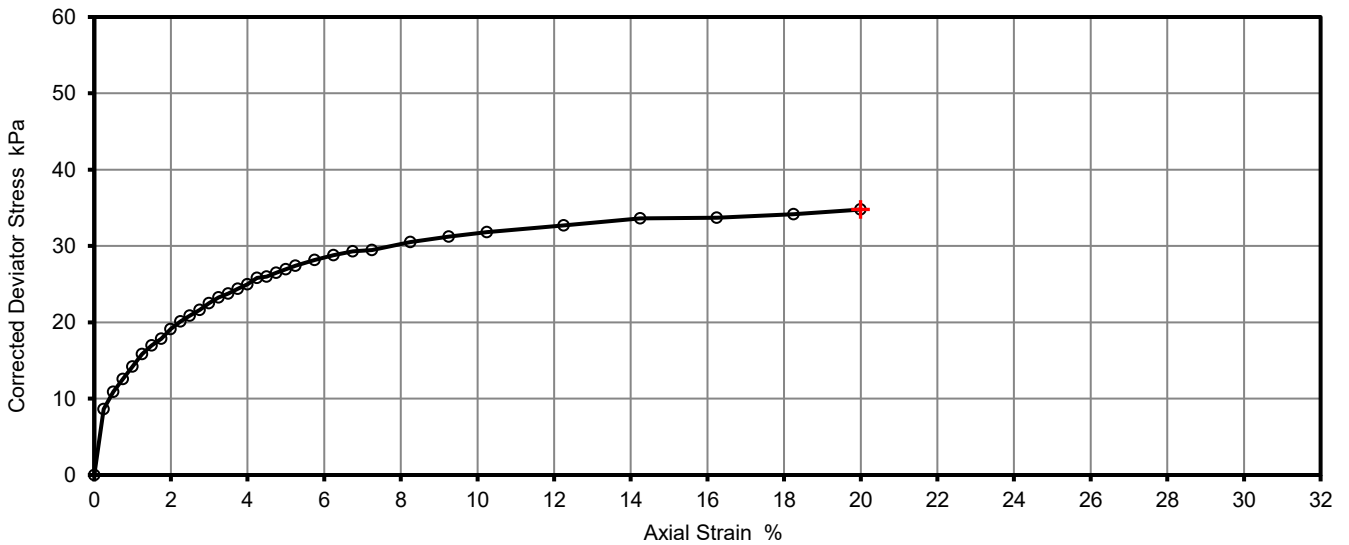
Test Number	1
Length	202.0 mm
Diameter	102.0 mm
Bulk Density	2.00 Mg/m3
Moisture Content	24.1 %
Dry Density	1.61 Mg/m3

Tracable Equipment Record

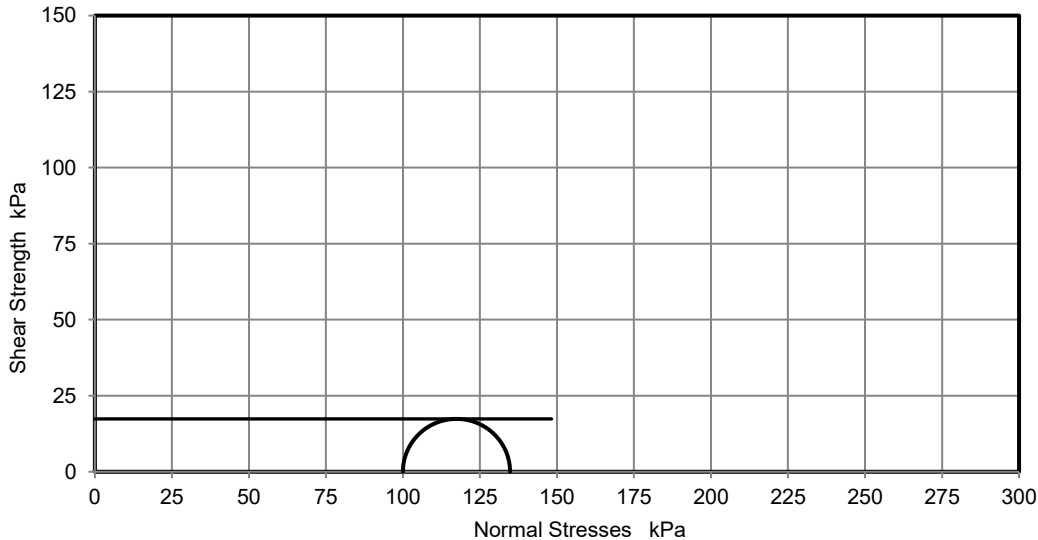
Test Frame	TRI 004
Load Ring	LOAD CELL 003
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-001

Rate of Strain	1.0 %/min
Cell Pressure	100 kPa
At failure	
Axial Strain	20.0 %
Deviator Stress, ($\sigma_1 - \sigma_3$) _f	35 kPa
Undrained Shear Strength, c_u	17 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Plastic

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377.

This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.36



LABORATORY REPORT



4043

Contract Number: PSL20/3421

Report Date: 22 July 2020
Client's Reference: S200601
Client Name: Solmek
12 Yarm Road
Stockton-on-Tees
TS18 3NA

For the attention of: Kathryn Watkin

Contract Title: Dalton Industrial Estate
Date Received: 8/7/2020
Date Commenced: 8/7/2020
Date Completed: 22/7/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

R Gunson
(Director)

A Watkins
(Director)

R Berriman
(Quality Manager)

L Knight
(Senior Technician)


S Eyre
(Senior Technician)

S Royle
(Laboratory Manager)

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Doncaster DN4 0AR
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e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of



Final Report

Report No.: 20-16347-1
Initial Date of Issue: 02-Jul-2020
Client: Solmek Ltd
Client Address: 12 Yarm Road
Stockton-on-Tees
TS18 3NA
Contact(s): Kathryn Watkin
Office
Project: S200601 Dalton Industrial Estate
Quotation No.: **Date Received:** 29-Jun-2020
Order No.: LAB436 **Date Instructed:** 29-Jun-2020
No. of Samples: 3
Turnaround (Wkdays): 5 **Results Due:** 03-Jul-2020
Date Approved: 02-Jul-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: S200601 Dalton Industrial Estate

Client: Solmek Ltd	Chemtest Job No.:				20-16347	20-16347	20-16347
Quotation No.:	Chemtest Sample ID.:				1023180	1023181	1023182
	Sample Location:				BH1	BH3	BH1
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				2.00	2.00	10.50
	Bottom Depth (m):				2.45	2.45	10.95
Determinand	Accred.	SOP	Units	LOD			
Moisture	N	2030	%	0.020	18	20	19
pH	U	2010		4.0	[A] 8.5	[A] 8.4	[A] 8.3
Sulphate (2:1 Water Soluble) as SO4	U	2120	mg/l	10	130	140	120

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Eurofins Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1023180			BH1		A	Plastic Tub 500g
1023181			BH3		A	Plastic Tub 500g
1023182			BH1		A	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

APPENDIX D:
Notes on Limitations & Contamination Guidance

♣Solmek conditions of offer, notes on limitations & basis for contract (ref: version1/2020)

These conditions accompany our tender and supercede any previous conditions issued. Solmek will prepare a report solely for the use of the Client (the party invoiced) and its agent(s). No reliance should be placed on the contents of this report, in whole or in part by 3rd parties. The report, its content and format and associated data are copyright, and the property of Solmek. Photocopying of part or all of the contents, transfer or reproduction of any kind is forbidden without written permission from Solmek. A charge may be levied against such approval, the same to be made at the discretion of Solmek.

Solmek cannot be held liable and do not warrant, or otherwise guarantee the validity of information provided by third parties and subsequently used in our reports. Solmek are not responsible for the action negligent of otherwise of subcontractors or third parties.

Site investigation is a process of sampling. The scope and size of an investigation may be considered proportional to levels of confidence regarding the ground and groundwater conditions. The exploratory holes undertaken investigate only a small volume of the ground in relation to the overall size of the site, and can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions as encountered within each of the exploratory holes. There may be different ground conditions elsewhere on the site which have not been identified by this investigation and which therefore have not been taken into account in this report. Reports are generally subject to the comments of the local authority and Environment Agency. The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that mobile contamination, ground gas levels and groundwater levels may vary owing to seasonal, tidal and/or weather related effects. Solmek cannot be held liable for any unrecorded or unforeseen obstructions between exploratory boreholes and trial pits. This includes instances where previous structures on the site (buried man made structures) or the presence of boulder clay (cobbles and/or boulder obstructions) have been anticipated. All types of piling operations should make allowance for obstructions within the construction budget to accommodate this. Unrecorded ancient mining may occur anywhere where seams that have been worked and influence the rock and soil above. Dissolution cavities can occur where gypsum or chalk is present. Rotary drilling is the recommended technique to prove the integrity of the rock.

Where the scope of the investigation is limited via access to information, time constraints, equipment limitations, testing, interpretation or by the client or his agents budgetary constraints, elements not set out in the proposal and excluded from the report are deemed to be omitted from the scope of the investigation.

Desk studies are generally prepared in accordance with RICS guidelines. Environmental site investigations are generally undertaken as 'exploratory investigations' in accordance with the definitions provided in paragraph 5.4 of BS 10175:2011 in order to confirm the conceptual assumptions. You are advised to familiarize yourself with the typical scope of such an investigation. No pumping of water will be undertaken unless a licence or facilities/equipment have been arranged by others.

Where the type, number or/and depth of exploratory hole is specified by others, Solmek cannot and will not be responsible for any subsequent shortfall or inadequacy in data, and any consequent shortfall in interpretation of environmental and geotechnical aspects which may be required at a later date in order to facilitate the design of permanent or temporary works.

All information acquired by Solmek in the course of investigation is the property of Solmek, and, only also becomes the joint property of the Client only on the complete settlement of all invoices relating to the project. Solmek reserve the right to use the information in commercial tendering and marketing, unless the Client expressly wishes otherwise in writing. The quoted rates do not include VAT, and payment terms are 30 days from dispatch of invoice from our offices. Quotes are subject to a site visit.

We have allowed for 1 mobilisation and normal working hours unless otherwise stated. The scope of the investigation may be reviewed following the desk study and/or fieldwork. The presence or otherwise of Japanese Knotweed or other invasive plants can be difficult to identify especially during winter months. If Japanese Knotweed or other invasive species are suspect, it should be confirmed by an ecologist. We have not allowed for acquiring services information, and cannot be responsible for damage to underground services or pipes not shown to us or not clearly shown on plans. Costs incurred will be passed on to you, and in commissioning Solmek you understand and accept that you/your agent have a contractual relationship with Solmek & you accept this. Our rates assume unobstructed, reasonably level and firm access to the exploratory positions and adequate clear working areas and headroom. We have priced on the basis that you or your client have the necessary permissions, wayleaves and approvals to access land. All boreholes and pits are backfilled with arisings except where gas monitoring pipes are installed with stopcock covers. Solmek are not responsible for any uneven surfaces as a result of siteworks and rutting and backfilled excavations may require re-levelling and/or making good by others after fieldwork is complete, and Solmek has not allowed for this. No price has been provided or requested for a return visit to remove pipework and covers. Hourly rates apply to consultancy only and do not include expenses unless otherwise shown. If warranties are required, legal costs incurred will be passed on to you assuming Solmek agree to complete such warranties, modified or otherwise and you understand and agree to pay all costs.

We reserve the right to pursue full payment of the invoice prior to release of any information including reports. We advise you/your client that we may elect to pursue our statutory rights under late payment legislation, and will apply 8% to the base rate for unreasonably late payments. Solmek are exempt from the CIS Scheme. Solmek offer to undertake work only in strict accordance with conditions covered by our current insurances, which are available for inspection. Solmek are not responsible for acts, negligent or otherwise of subcontractors and as a matter of policy cannot indemnify any other parties. Professional indemnity Insurance is limited to ten times the invoice net total except where stated otherwise by Solmek. Solmek give notice that consequential loss as a direct or indirect result of Solmek's activities or omission of the same are excluded.