

Cambridge Waste Water Treatment Plant Relocation Project
Anglian Water Services Limited

Appendix 14.9: Preliminary Ground Investigation Factual Report – Cambridge WWTP

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September 2023

**A REPORT ON A GROUND INVESTIGATION FOR
CAMBRIDGE WASTE WATER TREATMENT
PLANT RELOCATION (WWTPR)
CAMBRIDGESHIRE
(FACTUAL) - FINAL**

CLIENT: Anglian Water Services Limited

ENGINEER: Mott MacDonald Limited

Date: 30 November 2020

Reference: AHm/20.245/Final

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1. INTRODUCTION

1.1 OBJECTIVES

It is proposed to construct a new sewer tunnel as part of the Cambridge Waste Water Treatment Plant Relocation (WWTPR).

At the instruction of Anglian Water Services Limited (AWS), a geotechnical and geo-environmental ground investigation was carried out to inform the feasibility of the scheme, with Mott MacDonald Limited (MML) acting as principal designer for the scheme.

1.2 INVESTIGATION SCOPE

The scope of work is detailed in the MML specification and comprises a number of combined dynamic sampling and rotary cored boreholes. In situ testing and sampling was carried out with standpipes installed within each borehole.

A scope of laboratory testing was undertaken scheduled by MML and results collated into a factual report to be interpreted by MML.

Details of the fieldwork, in situ and laboratory testing are described more fully below.

2. SITE DESCRIPTION AND LOCATION

The scheme area is located in the village of Milton, approximately 5 km north east of Cambridge (drawing 20.245/01) and comprised five locations where boreholes were carried out.

BH01 is located approximately 600 m south of the village of Horningsea and approximately 600 m east of Horningsea Road. The borehole location is currently in the corner of an arable field adjacent to a concrete hardstanding (549410 E, 261505 N).

BH02 is located between Milton and Histon and approximately 500 m south of Milton Road. The borehole location is within the corner of an arable field (545644 E, 263054 N).

BH03 is located approximately 1.3 km north west of Milton and 500 m west of Landbeach road. It is located within the corner of an arable field within Rectory Farm (547524 E, 263839 N).

BH04 is located 1.3 km north of Milton and directly off the Milton exit of the A10 (Ely Road). The borehole is located just off an access track into the field in an area of rough ground (548467 E, 263780 N).

BH05 is located 1.5 km north east of Milton, adjacent to Milton Fen. The borehole is located in set aside within an arable field (548978 E, 263320 N).

3. FIELDWORK

Fieldwork was carried out during the period 24 August and 5 October 2020 and comprised five wireline rotary cored boreholes, referenced BH01 to BH05. Details of the strata encountered,, piezometer installations, *in situ* and laboratory testing and groundwater monitoring are shown on records appended to this report.

3.1 LOCATION SURVEY (GPS)

The exploratory hole positions were selected and set out in general accordance with the requirements of AWS, as shown approximately on Drawings 20.245/02. The National Grid references and, the elevation of the locations relative to Ordnance Datum, were measured using a Hemisphere S320 VRS GPS (RTK) system.

3.2 HAND EXCAVATED TRIAL PITS

A cable avoidance tool (CAT) was used to sweep the borehole locations and the immediate surrounding area to locate any potential services and the position adjusted as necessary. A starter pit was also excavated by hand using non conductive hand tools to a depth of 1.20 m to provide direct inspection for services.

3.3 WIRELINE ROTARY BOREHOLES

The **wireline rotary cored boreholes** were carried out using a Pioneer multi purpose rig progressed initially by dynamic sampling until competent material restricted progress at depths ranging from 1.7 to 7.5 m. Thereafter, wireline rotary techniques were utilised to advance the holes to the final depths between 30.0 and 40.5 m below ground level.

During the wireline (Geobore S system) coring process, the inner tube assembly latches inside the outer core barrel, before being lifted to the surface by a retrieval device that is connected to a wireline cable. This method allows for optimum production rates in comparison to conventional coring methods. It also ensures that the boreholes are fully cased at all times in order to optimise stability in areas of weak stratum and also to seal off any water ingress. In the case of BH01 where the aquifer protection was implemented the borehole was commenced with larger 200 mm diameter casing through the shallow material, until Gault Clay was encountered. This comprised installing a bentonite seal within the hole which was allowed to ‘go off’ and the borehole was then advanced through this with smaller diameter casing.

Water flush was used to advance the boreholes with a bio-degradable polymer utilised on occasion within granular material to increase recovery. The core was recovered within a 100 mm diameter plastic liner. The liners were then opened to allow a geologist to examine the cores which were described in general accordance with BS EN1997-2:2007 Eurocode 7 (BSI, 2007) and its UK National Annex supported by BS 5930:2015+A1:2020 (BSI, 2020). A modified approach was used for description of chalk based on Lord *et. al* (2002).

The boreholes were monitored for **groundwater** ingress during advance. Upon encountering groundwater, work was temporarily stopped to allow the level to stabilise, recording the water level for a period of time. Water levels were also recorded at the start and end of each shift. However, such observations are affected by the permeability of the ground, the rate of progress of the hole and the excavation techniques in operation. The general procedures used do not allow precise measurements of the groundwater conditions, but give only a general guide to the overall situation. Fluctuations in any groundwater table will occur as a result of seasonal or climatic effects, as well as other outside influences.

3.4 IN SITU TESTING

Standard penetration tests (SPT) were carried out using a split barrel sampler until the SPT N value was recorded as greater than 40 or refusal where coring techniques were then utilised. The N value was taken as the number of blows for 300 mm of penetration, following a seating drive of 150 mm or 25 blows. The summary of tests for each borehole is presented below.

Borehole	SPT's	PID Head space Tests	Rising Head Tests
BH01	3	4	1
BH02	5	3	2
BH03	5	4	2
BH04	5	4	0
BH05	6	4	0

Table 1 Number of in situ tests per borehole

The energy ratio of the SPT hammer for the rig was 73.79%

Head space screen testing for volatile organic compounds (VOCs) using a MiniRAE 3000 portable photo-ionisation detector (PID) was carried out on selected samples. This comprised placing soil into a sealed plastic bag which was left for 10 to 15 minutes at ambient temperature. The headspace above the soil was then analysed for approximately two minutes using the PID and the maximum value observed was recorded.

Rising head permeability tests were carried out in boreholes BH02 and BH03 during drilling and also in the standpipes in BH01, BH02 and BH03 in accordance with the procedures given in BS EN 22282-2:2012, but supported by BS 5930:2015+A1:2020.

3.5 GEOTECHNICAL SAMPLING

Selected lengths of cores were subsampled and preserved in accordance with the specification with further disturbed samples also taken for possible laboratory testing.

3.6 ENVIRONMENTAL SAMPLING

Dedicated **environmental samples** were taken at all borehole positions for chemical analysis. They were placed in suitable containers, stored temporarily in cool boxes and delivered to a UKAS accredited facility for analysis of potential contaminants.

3.7 INSTRUMENTATION AND MONITORING

To allow a longer term assessment of the groundwater conditions and for sampling purposes, slotted standpipe piezometers were installed in all borehole positions. These comprised a 50 mm internal diameter slotted uPVC access tube, which was surrounded by a granular filter and sealed at the top and bottom by a bentonite seal. A raised secure cover with marker posts was then installed at surface.

Subsequent to the completion of the fieldwork AFHA returned to site to carry out groundwater monitoring and sampling from the slotted standpipe piezometers. At the time of the first visit on 16 October 2020 development of the standpipes took place and involved purging of three times the well volume of groundwater, or until the standpipe became 'dry'.

The sampling took place on a total of three occasions at monthly intervals between 16 October and 15 December 2020. The standpipes were allowed to fully recharge before sampling by using the following methodology:

- Low-flow groundwater sampling in line with published guidance (USEPA, 2017) (ASTM, 2018) was attempted during the return monitoring. In line with this methodology the flow rate of the peristaltic pump was set so that the minimal draw down did not exceed 0.10 m, following the initial drawdown as water was taken into the overall pump system (flow cell and tubing). During this process it was recorded that the low flow rate required to minimise the drawdown combined with the overall volume of the well itself, that stabilisation readings could only be taken in excess of once every 120 minutes. Therefore the water sampling procedure was changed to a passive method, utilising bailers. Water quality parameters (pH, electrical conductivity, temperature, redox potential, dissolved oxygen, salinity, and total dissolved solids) were taken of the water removed during the sampling process, and the results are appended in Appendix D, along with the equipment calibration certificates.
- The environmental water samples, referenced W1 to W3 for chemical contamination testing were taken from each standpipe at a flow rate of approximately 0.5 litres/min, then placed in suitable containers, stored temporarily in cool boxes and delivered to a UKAS accredited facility for analysis of potential contaminants.

Full details of the groundwater monitoring and sampling are contained within the appended records.

4. LABORATORY TESTING

4.1 GENERAL

Subsequent to the fieldwork, a programme of laboratory testing was carried out to provide geotechnical and geo-environmental data on the soil and groundwater samples taken during the course of the investigation. The tests were specified by Mott MacDonald Limited and completed in accordance with specified procedures, and consisted of the tests tabulated below and with the methods and standards presented in subsequent report sections:

TEST TYPE	NUMBER OF TESTS
Natural moisture content	63
Atterberg limits	63
Organic content	45
Dry Density/Saturation moisture content	3
Particle size distribution (wet sieve and pipette)	45 and 39
Unconsolidated undrained triaxial testing	16
Consolidated undrained triaxial testing with pore water pressure measurement	18
Uniaxial compressive strength testing of rock	1
Incremental loading oedometer tests	22
Swelling pressure measurement tests	5
Dispersibility testing (pinhole method), crumb and dispersion methods)	5,16 and 8
X-ray diffraction	10
Redox potential testing	10
pH and sulphate of soil	23
BRE Water suite (sulphate, magnesium, ammonium, nitrate and pH)	5
MM Comprehensive soil suite	6
MM leachate composition	4
MM Comprehensive water suite	5

Table 2 Test type and Number

A small no of tests could not be undertaken for the reasons shown below:

- 6 no. pipette tests on samples where less than 10% passed the 63 micron sieve.
- 1 no. dispersibility by the pinhole method and 1no. by the crumb method as both samples were granular
- 1 no. unconsolidated undrained triaxial test was replaced by a uniaxial compressive strength test as the sample was rock
- Only 3 no. saturation moisture contents could be carried out due to clast size.

4.2 GEOTECHNICAL TESTING

Natural moisture content

The natural moisture content (also known as water content) is determined according to BS EN ISO 17892: Part 1: 2014: clause 5.2.

Atterberg limits

The Atterberg limits are determined in the laboratory by the procedures given in BS EN ISO 17892: Part 12: 2018 using the fall cone methods of Clauses 4.2 and 5.3.

Dry Density/Saturation moisture content

The saturation moisture content of intact chalk lumps is based on the dry density of the lump using the immersion in water method according to BS 1377: Part 2: 1990: clause 3.3.

Particle size distribution

A quantitative assessment of the particle size distribution of the soil down to the fine grained sand size is made according to BS EN ISO 17892: Part 4: 2016: clause 5.2. The quantitative determination of the particle size distribution for fine soils, from coarse silt to clay size, is made according to BS EN ISO 17892: Part 4: 2016: clause 5.4, using the pipette method.

Unconsolidated undrained triaxial testing

The undrained shear strength of the soil is measured, as stated in BS EN ISO 17892: Part 8: 2018. The confining pressures were provided Mott MacDonald Limited.

Consolidated undrained triaxial testing with pore water pressure measurement

The effective shear strength of the soil is measured, as stated in BS 1377: Part 8: 1990: clause 7, by axial compression of selected lengths of carefully wrapped core subsamples. Single stage tests were requested by Mott MacDonald Limited, who also supplied the test pressures.

Uniaxial Compressive strength

The test is carried out in accordance with ISRM Suggested Methods for Rock Characterisation, Testing and Monitoring: 2007-2014 to provide an immediate approximation of the compressive strength of the material.

Incremental loading oedometer tests

The procedure is carried out according to BS EN ISO 17892: Part 5: 2017: clause 6 in which the total load is applied incrementally, with Mott MacDonald Limited specifying eleven loading and unloading stages on samples carefully obtained from the prepared core subsamples.

Swelling pressure measurement

Selected samples that had been subject to incremental loading oedometer tests were subject to the measurement of their swelling pressure capability according to BS 1377: Part 5: 1990: clause 4.

Dispersibility testing

Certain fine- grained soils are suitable for dispersibility testing, with three test methods available. In this case tests were undertaken using the Pinhole method, the Crumb Method and the Dispersion method (also known as the double hydrometer test) according to clauses 6.2, 6.3 and 6.4.

X-Ray diffraction

Petrographic analysis of the whole rock is carried out using a PANalyticalX'Pert3 Diffractometer. Identification is achieved by comparison with standards compiled by the International Centre for Diffraction Data. The clay fraction is analysed using a Phillips 1030 goniometer, with interpretation carried out with 'Traces' and 'Search+Match' software.

4.3 CHEMICAL AND ENVIRONMENTAL SOIL TESTING

Organic content

The organic matter content is determined in accordance with BS 1377: 1990: Part 3: clause 3.

Redox Potential

The redox potential is used to describe the reducing or oxidising capacity of the soils and is established electrometrically using a redox meter and may provide a positive or negative result.

pH

The pH of a soil filtrate is established electrometrically according to BS 1377: Part 3: 1990: clause 9.5.

Sulphate content

The water soluble sulphate requires the preparation of a soil extract using deionised water at a 2:1 ratio. The filtered extract of the soil is then injected into an ion exchange chromatograph with a conductivity detector.

MM Comprehensive Soil Suite MM Comprehensive Leachate Suite

A specified suite of soil tests was undertaken to provide data on a broad mix of inorganic and organic potential contaminants in the ground. This included a comprehensive suites of metals and metalloids, together with pH, soil organic matter, total organic carbon, speciated phenols, speciated polycyclic aromatic hydrocarbons (PAH), and specific hydrocarbon analysis which took place in the form of total petroleum hydrocarbons using the Criteria Working Group (CWG) suite. Asbestos screening also took place.

A leachate was prepared for selected samples whereby most of the above substances were determined in soluble form. Water hardness, ammoniacal nitrogen, chloride and nitrate are also analysed.

Throughout, the materials were tested using a variety of analytical techniques, and carried out to MCERTS accredited methods, where applicable, or to UKAS accredited or other acceptable methodologies. These are listed within the appended test reports.

4.4 WATER TESTING

BRE Water suite

The suite consists of pH which is established electrometrically according to BS 1377: Part 3: 1990: clause 9.5, sulphate and magnesium which are determined using ICP-OES methodology, ammonium determined by spectrophotometric analysis and nitrate by ion chromatography.

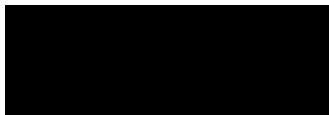
MM Comprehensive Water Suite

Water samples purged from the standpipe piezometers were analysed for the same substances as the leachate suite, while total dissolved solids were also determined. The testing uses a variety of analytical techniques, and are carried out to MCERTS accredited methods, where applicable, or to UKAS accredited or other acceptable methodologies. These are listed within the appended test reports.

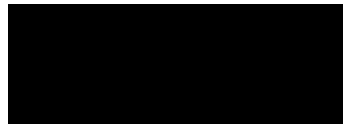
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30 November 2020



APPENDIX A: REFERENCES

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APPENDIX B: WIRELINE ROTARY CORE BOREHOLE RECORDS

D	Small disturbed sample
B	Bulk disturbed sample
ES	Environmental sample
CS	Core Sub-sample
W	Water sample (suffix P denotes sample taken from piezometer)
PID	Photo-ionisation detector reading
SPT	Standard penetration test using a split spoon sampler
X,X/X,X,X,X	Blows per increment during the standard penetration test. The initial value relates to the seating drive (150 mm) and the remaining four to the 75 mm increments of the test length
N=X	SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300 mm)
X*/Y	Incomplete standard penetration test where the seating drive could not be completed. The blows 'X' represent the total blows for the given length of seating drive 'Y' (mm)
X/Z	Incomplete standard penetration test where the seating drive was achieved but the full test length was not. The blows 'X' represent the total blows for the given test length 'Z' (mm)
TCR %	TOTAL CORE RECOVERY: Defined as the percentage of rock/soil recovered (both solid and non-intact, NI) to the total length of the core run
SCR %	SOLID CORE RECOVERY: Defined as the percentage ratio of rock core with at least one full diameter (measured along the core axis between natural fractures) to the total length of the core run
RQD %	ROCK QUALITY DESIGNATION: Defined as the percentage of the length of solid core pieces greater than 100 mm (measured along the core axis between natural fractures) to the total length of the core run
I_f	FRACTURE SPACING (mm): reported, where possible, as either; average, minimum and maximum spacing, or a single figure equal to the length of non-fractured core where there are no fractures. NI = Non intact. NA = Not applicable. NR = No recovery.

Each sample type is numbered sequentially with depth and relates to the depth range quoted

All depths and measurements are given in metres, except as noted

Strata descriptions compiled by visual examination of liner samples obtained after BS EN1997-2:2007 Eurocode 7 and its UK National Annex supported by BS 5930:2015+A1-2020 and modified in accordance with laboratory test results where applicable



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH01

Machine : Comacchio 305	Casing Diameter 200mm cased to 11.60m	Ground Level (mOD) 10.29	Client Anglian Water Services Limited	Job Number 20.245
Method : Dynamic sampling/ Wireline cored	Location 549410 E 261505 N	Dates 21/09/2020- 25/09/2020	Engineer Mott Macdonald	Sheet 1/7

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10-0.30 0.20	B1 ES1			PID = 0.00 ppm		(0.30)	TOPSOIL (Dark brown slightly silty slightly gravelly fine to medium sand. Gravel is subrounded fine to medium flint and occasional rootlets)		
0.30-0.80 0.30-0.80	B2 D1			PID = 0.00 ppm	9.99	0.30	Brown slightly clayey slightly silty gravelly fine to medium SAND. Gravel is subangular fine to coarse flint and rare roots		
0.50	ES2					(0.50)			
0.80-1.20 0.80-1.20	B3 D2			PID = 0.00 ppm	9.49	0.80	Structureless CHALK recovered as light yellowish brown and off white sandy silty angular to subrounded fine to coarse extremely weak to very weak low density gravel and occasional subrounded medium flint. (Grade Dc)		
1.00	ES3			4,4/4,6,5,8 SPT N=23					
1.20-1.65 1.20 1.20-1.70	TCR SCR RQD		If	PID = 0.00 ppm B4		(0.90)			
	100 0 0			11,11/10,13,11,10 SPT N=44 21/09/2020:1.02m	8.59	1.70	Buff mottled light grey CHALK recovered as slightly gravelly silt. Gravel is subangular to rounded fine to medium and a little coarse, very weak, low density chalk and rare subangular fine to medium flint. (Grade Dm)		
1.70 1.70-2.15 1.70-2.30				22/09/2020:0.90m D3			... from 1.70 to 1.80 m: non intact, recovered as extremely weak fine to medium chalk fragments (drilling induced)		
2.00				ES4					
2.30-3.00	65 35 31			D4			... from 3.00 m: chalk gravel becoming off white mottled light yellow and fine to coarse		
3.00-3.45 3.00				4,7/8,7,10,9 SPT N=34			... from 2.90 to 3.00 m: non intact, recovered as extremely weak fine to medium chalk fragments (drilling induced)		
3.50-4.00	60 30 20			D5					
4.00-4.50 4.00				D6		(4.50)			
4.50-4.70	100 71 70		Av:150 Min: 50 Max: 250	D7			... with occasional subrounded of weak medium density creamish white chalk cobbles		
4.70							... from 4.70 m: becoming gravelly		
5.00-5.40				D8					

Remarks

1. Location CAT scanned prior to excavation.
2. Hand dug inspection pit to 1.20 m.
3. Groundwater not encountered prior to use of water flush
4. Dynamically sampled (Diam: 113 mm) from 1.20 m to 1.70 m.
5. Wireline drilling from 1.70 m to 30.20 m.
6. Bentonite seal installed between 10.00 and 12.00 m for aquifer protection measures.
7. On completion borehole was backfilled with bentonite and slotted standpipe installed to 10.50 m.
8. SPT Hammer Energy Ratio = 78.34%

Scale (approx)
1:25

Logged By
AHm

Figure No.
20.245.BH01



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Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole Number
BH01

Machine : Comacchio 305 Flush : Water Core Dia: 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 200mm cased to 11.60m	Ground Level (mOD) 10.29	Client Anglian Water Services Limited	Job Number 20.245
	Location 549410 E 261505 N	Dates 21/09/2020- 25/09/2020	Engineer Mott Macdonald	Sheet 2/7

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (Thickness) (m)	Description	Legend	Water
5.40-5.80	100	53	45	Av:104 Min: 60 Max: 240	D9	4.09	6.20	Off-white mottled light yellow CHALK recovered as gravelly silt. Gravel is subangular to rounded fine to medium and a little coarse, very weak, low density chalk and rare subangular fine to medium flint. (Grade Dm)		
5.70					W1			... from 5.40 to 5.80 m: band of weak medium density off white mottled light orange rock chalk		
6.00-6.10					D10			... from 5.70 to 5.80 m: subvertical undulating smooth open fracture		
6.20	93	53	47	Av:103 Min: 40 Max: 230	D11	1.49	8.80	... from 6.00 to 6.10 m: band of very weak medium density off white rock chalk		
6.40-6.70					D11			Extremely weak to very weak, low and medium density off white with slight light yellow staining CHALK. Fractures are very close to medium spaced subhorizontal undulating smooth open to very open and generally infilled with white mottled yellow silt sized matrix and rare black speckling in places. (Grade C5)		
7.00-7.20					D12			... from 6.20 to 6.35 m: non intact, recovered as soft yellowish white clayey silt sized matrix chalk (drilling induced)		
7.70					D12			... from 6.60 to 6.70 m: vertical stepped rough open fracture		
8.00-8.17	100	87	85	Av:181 Min: 100 Max: 240	D13	1.49	8.80	... from 8.30 to 8.50 m: vertical undulating rough open fracture (possible drilling induced)		
8.90-9.20					D14			Weak to moderately weak medium to high density, with occasional moderately strong clasts very high density, light greyish off white CHALK. Fractures are close to medium spaced horizontal undulating and stepped smooth open and slightly polished with light orange staining and rarely infilled with grey silty clay. (Probably Grade A2)		
9.20					D14			22/09/2020:1.50m		
9.40-9.62	77	53	43	Av:142	D15	1.49	8.80	23/09/2020:1.48m CS1		
9.40-9.62					D15			... from 9.50 to 9.65 m: subvertical (60 degree) undulating smooth moderately open fracture		
10.00-10.30					D15			... at 9.00 m: with a bivalve shell fragment (<30 mm)		

Remarks	Scale (approx)	Logged By
	1:25	AHm
	Figure No. 20.245.BH01	



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Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole Number
BH01

Machine : Comacchio 305 Flush : Water Core Dia: 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 200mm cased to 11.60m Location 549410 E 261505 N	Ground Level (mOD) 10.29 Dates 21/09/2020- 25/09/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 3/7
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.70								Weak to moderately weak medium to high density, with occasional moderately strong clasts very high density, light greyish off white CHALK. Fractures are close to medium spaced horizontal undulating and stepped smooth open and slightly polished with light orange staining and rarely infilled with grey silty clay. (Probably Grade A2)		
11.00-11.50					D16	-0.61	10.90	Stiff fissured grey silty calcareous CLAY. Fissures are closely to medium spaced, randomly orientated undulated smooth stained bluish grey. Occasional subvertical medium irregular smooth fissures		
11.70-12.20	100	53	37	Av:126 Min: 80 Max: 200	D17			... from 10.70 to 12.20 m: Fractures are close spaced vertical undulating rough open		
12.20					23/09/2020:2.52m			... from 12.20 to 13.70 m: Fractures are close to wide spaced horizontal undulating smooth open and tight		
12.40-12.70					24/09/2020:2.49m CS2					
13.00	100	73	73	Av:266 Min: 70 Max: 800	D18			... from 13.10 to 13.20 m: vertical undulating smooth open fracture		
13.70								... from 13.70 to 14.00 m: non intact, recovered in a softened condition (drilling induced)		
14.10-14.40	100	60	60	Av:330 Min: 90 Max: 500	CS3			... from 13.70 to 16.70 m: Fractures are close to medium and rare wide spaced horizontal and subhorizontal undulating rough moderately open		
15.00					D19					

Remarks	Scale (approx) 1:25	Logged By AHm
Figure No. 20.245.BH01		



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH01

Machine : Comacchio 305 Flush : Water Core Dia: 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 200mm cased to 11.60m	Ground Level (mOD) 10.29	Client Anglian Water Services Limited	Job Number 20.245
	Location 549410 E 261505 N	Dates 21/09/2020- 25/09/2020	Engineer Mott Macdonald	Sheet 4/7

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
15.20-16.00 15.20					D20			Stiff fissured grey silty calcareous CLAY. With rare fossil fragments. Fissures are horizontal very closely to medium spaced (<300 mm) planar smooth with occasional low polish. Fissures are subvertical closely stepped matt		
16.00-16.70	100	93	89	Av:333 Min: 100 Max: 600	D21					
16.70								... from 16.70 to 22.70 m: Fractures are close to wide spaced horizontal undulating rough open and tight		
17.00-17.30					CS4					
18.00										
18.20 18.40-18.70	100	93	87	Av:433 Min: 170 Max: 900	D22					
18.40-18.70					CS5					
18.70-19.70	100	90	90	Av:338 Min: 100 Max: 900	D23					
19.70 19.70										

Remarks

Scale (approx)
1:25

Logged By
AHm

Figure No.
20.245.BH01



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole Number
BH01

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 200mm cased to 11.60m Location 549410 E 261505 N	Ground Level (mOD) 10.29 Dates 21/09/2020- 25/09/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 5/7
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
20.50-20.80	100	93	80	Av:323 Min: 90 Max: 700	CS6		(19.30)	Stiff to very stiff fissured grey silty calcareous CLAY. With rare fossil shell fragments. Fissures are subhorizontal medium spaced (< 350mm) planar smooth polish. Fissures are subvertical closely to medium undulating smooth highly polish with light brown staining ... from 22.70 to 24.20 m: Fractures are very close to close spaced horizontal undulating rough open to very open (possible drilling induced) ... from 24.20 to 25.70 m: Fractures are close to wide spaced subhorizontal undulating rough open. No recovery from 25.50 to 25.60 m.		
21.20										
21.50-21.80					CS7					
	100	97	93	Av:350 Min: 100 Max: 1000						
22.70-23.50 22.70					D24					
23.50-24.20	100	93	80	Av:132 Min: 50 Max: 200	D25					
24.20										
24.50-24.80					CS8					
	100	90	75	Av:325 Min: 90, Max: 1000						

Remarks	Scale (approx) 1:25	Logged By AHm
Figure No. 20.245.BH01		



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Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole Number
BH01

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 200mm cased to 11.60m Location 549410 E 261505 N	Ground Level (mOD) 10.29	Client Anglian Water Services Limited	Job Number 20.245
			Dates 21/09/2020- 25/09/2020	Engineer Mott Macdonald
			Sheet 6/7	

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
25.70-26.50 25.70					D26			Stiff to very stiff fissured grey silty calcareous CLAY. With rare fossil shell fragments. Fissures are subhorizontal medium spaced (< 350mm) planar smooth polish. Fissures are subvertical closely to medium undulating smooth highly polish		
26.50-27.20	93	60	57	Av:127 Min: 40 Max: 170	D27			... from 25.70 to 27.20 m: Fractures are very close to close spaced horizontal stepped rough open and very open (possible drilling induced)		
27.20						24/09/2020:5.08m 25/09/2020:5.63m		... from 27.20 to 27.50 m: non intact, recovered in a softened condition (drilling induced)		
28.30-28.60	93	80	80	Av:400 Min: 100 Max: 700	CS9			... from 27.20 to 30.20 m: Fractures are close to wide spaced horizontal undulating rough open and tight		
28.70 29.00-30.00					D28					
	100	97	92	Av:345 Min: 120 Max: 700						

Remarks	Scale (approx) 1:25	Logged By AHm
Figure No. 20.245.BH01		



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Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole Number
BH01

Machine : Comacchio 305 Flush : Water Core Dia: 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 200mm cased to 11.60m Location 549410 E 261505 N	Ground Level (mOD) 10.29 Dates 21/09/2020- 25/09/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 7/7
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
30.20					25/09/2020:2.19m	-19.91	30.20	See previous sheet Complete at 30.20m		

Remarks	Scale (approx) 1:25	Logged By AHm
Figure No. 20.245.BH01		



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH02

Machine : Comacchio 305 Method : Dynamic sampling/ Wireline cored	Casing Diameter 168mm cased to 21.90m	Ground Level (mOD) 11.39	Client Anglian Water Services Limited	Job Number 20.245
	Location 545644 E 263054 N	Dates 28/09/2020- 05/10/2020	Engineer Mott Macdonald	Sheet 1/9

Depth (m)	Sample / Tests		Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10-0.35 0.20	B1 ES1				PID = 0.00 ppm		(0.35)	TOPSOIL (Dark brown slightly silty sandy gravelly clay. Gravel is angular to subrounded fine to coarse flint, rare brick fragments and occasional rootlets)		▼1
0.35-0.70 0.35-0.70 0.50	B2 D1 ES2				PID = 0.00 ppm	11.04	0.35 (0.35)	Orange brown clayey silty slightly gravelly fine to medium SAND. Gravel is subangular fine to medium flint and quartzite		
0.70-1.20 0.70-1.20	B3 D2				PID = 0.00 ppm	10.69	0.70	Firm and friable brownish grey sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse flint and chalk		
1.00	ES3				2,3/5,6,5,11 SPT N=27		(0.70)			
1.20-1.65 1.20	TCR	SCR	RQD	If						
1.40-2.10					B4	9.99	1.40 (0.70)	Light brown slightly silty very sandy subangular to subrounded fine to medium and a little coarse flint and chalk GRAVEL		
2.00					ES4 2,4/2,4,2,4 D3 SPT N=12	9.29	2.10	Firm indistinctly fissured grey mottled light yellow silty CLAY. Occasional dark brown decayed roots to approx. 3.00 m.		
2.10-2.50 2.20-2.65 2.20 2.20					W1					
2.50-3.20					D4					
	100	100	100							
3.20-3.65 3.20 3.20-3.60					3,2/3,3,4,4 SPT N=14			... locally, becoming slightly sandy and slightly gravelly with shell fragments		
3.60-4.20					D5					
	100	100	100							
4.20 4.20-4.65 4.20-4.60					1,2/2,3,4,4 SPT N=13 28/09/2020:1.36m			... with rare calcareous nodules (<30mm)		
4.60-5.20					29/09/2020:0.90m D7					
	100	100	100		D8		(5.40)			

Remarks

1. Location CAT scanned prior to excavation.
2. Hand dug inspection pit to 1.20 m.
3. Groundwater struck at 9.00 m and rose to 0.10 m in 5 mins
4. Dynamically sampled (Diam: 113 mm) from 1.20 m to 7.50 m.
5. Wireline drilling from 7.50 m to 40.50 m.
6. Rising head permeability test performed at 2.26 m for 60 minutes, with 168 mm diameter casing to 21.90 m depth. The response zone from 22.00 to 24.00 m.

Scale (approx)
1:25

Logged By
AHm

Figure No.
20.245.BH02



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH02

Machine : Comacchio 305 Flush : Water Core Dia: 102 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 168mm cased to 21.90m	Ground Level (mOD) 11.39	Client Anglian Water Services Limited	Job Number 20.245
	Location 545644 E 263054 N	Dates 28/09/2020- 05/10/2020	Engineer Mott Macdonald	Sheet 2/9

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
5.20-5.65 5.20 5.20-6.20					2,2/2,4,4,4 SPT N=14 D9			Firm fissured grey silty CLAY		
6.20-6.70	100	93	93		D10			... becoming firm to stiff in places		
6.70-7.10 6.70					D11					
7.10-7.50	100	100	100		D12					
7.50-8.00 7.50					D13	3.89	7.50	Stiff fissured grey silty calcareous CLAY. Fissures are closely spaced, randomly orientated undulated stained dull and occasional light yellowish brown stained		
8.00-8.30	100	93	83	Av:310 Min: 100 Max: 600	CS1			... from 7.50 to 10.50 m: Fractures are close to medium spaced subhorizontal undulating striated and tight		
9.00					Water strike(1) at 9.00m, rose to 0.10m in 5 mins, sealed at 10.10m.			... from 9.00 to 9.15 m: non intact, recovered in a very softened condition (drilling induced)		∇1
10.00-10.30	100	93	80	Av:400 Min: 100 Max: 600	CS2			... from 9.70 to 9.90 m: vertical planar rough moderately open fracture		

Remarks
7. On completion borehole was backfilled with bentonite and slotted standpipe installed to 24.00 m.

Scale (approx)
1:25

Logged By
AHm

Figure No.
20.245.BH02



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH02

Machine : Comacchio 305 Flush : Water Core Dia : 102 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 168mm cased to 21.90m Location 545644 E 263054 N	Ground Level (mOD) 11.39 Dates 28/09/2020- 05/10/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 3/9
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.50								Stiff fissured grey silty calcareous CLAY. Fissures are closely spaced, randomly orientated undulated stained dull		
10.70-11.50					D14			... from 10.50 to 13.50 m: Fractures are close to wide spaced horizontal undulating rough open and rare very open		
11.50-12.00	100	93	93	Av:470 Min: 110 Max: 700	D15			... from 10.50 to 10.65 m: non intact, recovered in a softened condition (drilling induced)		
12.00								... with small pockets of fine sand and gravel in places		
12.20-12.50					CS3			... from 12.00 m: with occasional subvertical closely to medium (<300 mm) planar matt fissures		
13.50	100	93	75	Av:565 Min: 120 Max: 1010				... becoming very stiff		
13.50					D16			... from 13.50 to 15.00 m: Fractures are very close to wide spaced horizontal stepped smooth open and very open (possible drilling induced)		
14.00-14.30					CS4					
	97	93	81	Av:266 Min: 50 Max: 800						
15.00						29/09/2020:0.58m 30/09/2020:	(14.50)			

Remarks 8. SPT Hammer Energy Ratio = 78.34%	Scale (approx) 1:25	Logged By AHm
	Figure No. 20.245.BH02	



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Site
Cambridge WWTP Relocation

Borehole
Number
BH02

Machine : Comacchio 305 Flush : Water Core Dia: 102 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 168mm cased to 21.90m	Ground Level (mOD) 11.39	Client Anglian Water Services Limited	Job Number 20.245
	Location 545644 E 263054 N	Dates 28/09/2020- 05/10/2020	Engineer Mott Macdonald	Sheet 4/9

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
15.50-15.80	100	93	93	1400	CS5			Stiff fissured grey silty calcareous CLAY. Fissures are closely spaced, randomly orientated undulated stained dull ... from 15.00 to 18.00 m: Fractures are wide spaced horizontal planar smooth		
16.00					D17					
16.50	100	93	93	1400				... locally, with rare fine to medium gravel		
17.00					D18					
17.50-17.80	100	93	93	1400	CS6			... from 18.00 to 19.50 m: Fractures are medium to wide spaced subhorizontal undulating smooth and tight ... at 18.55 m: subvertical planar smooth moderately open fracture		
18.00-19.00 18.00					D19					
19.00-19.50	100	97	97	Av:725 Min: 500 Max: 950	D20			... from 19.50 to 21.00 m: Fractures are close to wide spaced subhorizontal undulating smooth tight and rare open		
19.50-19.80 19.50					CS7					

Remarks	Scale (approx)	Logged By
	1:25	AHm
Figure No. 20.245.BH02		



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH02

Machine : Comacchio 305 Flush : Water Core Dia: 102 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 168mm cased to 21.90m	Ground Level (mOD) 11.39	Client Anglian Water Services Limited	Job Number 20.245
	Location 545644 E 263054 N	Dates 28/09/2020- 05/10/2020	Engineer Mott Macdonald	Sheet 5/9

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
21.00-21.50 21.00	100	97	80	Av:600 Min: 60 Max: 1140	D21			Stiff fissured grey silty calcareous CLAY. With rare fossil fragments. Fissures are horizontal closely to medium spaced (<350 mm) wavy planar smooth with occasional low polish. Fissures are vertical closely stepped smooth matt		
22.50	100	87	87	Av:650 Min: 300 Max: 1000		-10.61	22.00 (0.50)	Very weak greenish grey silty slightly gravelly fine to coarse grained SANDSTONE. Gravel is mainly fine rounded quartzite		
23.00-23.30	87	83	83	Av:417 Min: 150 Max: 900	CS8	-11.11	22.50	Firm to stiff dark greenish grey silty slightly sandy CLAY. Fractures are close to wide spaced horizontal irregular striated open and rare very open. With thin bands of very weak greenish grey silty fine to medium grained sandstone		
23.80							(2.50)	... from 22.50 to 22.70 m: non intact, grey silty clay recovered in a very softened condition (drilling induced)		
24.00 24.20-24.50	87	87	87	1300	D22 30/09/2020:2.26m 01/10/2020:2.20m CS9			... from 24.00 m: Fractures are wide spaced horizontal undulating rough open. With bands of very weak greenish grey silty fine to medium grained sandstone		

Remarks	Scale (approx)	Logged By
	1:25	AHm
Figure No. 20.245.BH02		



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Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole Number
BH02

Machine : Comacchio 305 Flush : Water Core Dia: 102 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 168mm cased to 21.90m Location 545644 E 263054 N	Ground Level (mOD) 11.39 Dates 28/09/2020- 05/10/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 6/9
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
25.50						-13.61	25.00	Very weak greenish grey silty fine to coarse grained SANDSTONE. Fractures are close to medium spaced horizontal undulating rough open and tight (possible drilling induced in places)		
26.30-27.00	100	47	35	Av:115 Min: 70 Max: 220	D23		(3.50)	... from 25.50 to 25.70 m: non intact, grey silty clay recovered in a softened condition (drilling induced)		
27.00								... from 26.10 to 26.25 m: non intact, recovered as light brown fine to medium subangular sandstone fragments, with greenish grey gravelly coarse SAND (possibly drilling induced)		
27.50-28.00					D24			... from 27.00 m: becoming light grey mottled brown extremely weakly sandstone with non intact bands of weakly cemented silty sand		
28.50-30.00 28.50	80	60	58	Av:174 Min: 100 Max: 300	B5					
28.50						-17.11	28.50	Extremely weakly cemented SANDSTONE; recovered as light greenish grey mottled beige silty fine to medium SAND, occasional subrounded mainly fine and a little medium quartzite gravel. (non-intact)		
30.00-31.00 30.00	97	n/a	n/a	n/a	B6		(2.80)			

Remarks	Scale (approx)	Logged By
	1:25	AHm
	Figure No. 20.245.BH02	



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Site
Cambridge WWTP Relocation

Borehole
Number
BH02

Machine : Comacchio 305 Flush : Water Core Dia: 102 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 168mm cased to 21.90m	Ground Level (mOD) 11.39	Client Anglian Water Services Limited	Job Number 20.245
	Location 545644 E 263054 N	Dates 28/09/2020- 05/10/2020	Engineer Mott Macdonald	Sheet 7/9

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
31.50	100	13	13	n/a		-19.91	31.30	Extremely weakly cemented SANDSTONE; recovered as light greenish grey mottled beige silty fine to medium SAND, occasional subrounded mainly fine and a little medium quartzite gravel. (non-intact)		
31.70-32.00					CS10			Stiff to very stiff fissured grey silty calcareous CLAY. With rare fossil fragments. Fissures are horizontal mainly medium and occasional closely spaced planar smooth and highly polish in places. Fissures are subvertical closely irregular smooth with low polish		
32.50-33.00	93	62	56	Av:186 Min: 90 Max: 400	D25			... from 31.50 to 33.00 m: Fractures are close to medium spaced horizontal and subhorizontal undulating striated open and rare very open (possible drilling induced)		
33.00					01/10/2020:2.10m					
33.00-34.00					D26			... from 33.00 to 34.50 m: Fractures are close to wide spaced horizontal undulating smooth and tight		
34.00-34.50	97	87	77	Av:575 Min: 140 Max: 1010	D27			... from 33.00 to 33.15 m: non intact, recovered in a softened condition (drilling induced)		
34.50								... from 34.50 to 34.60 m: non intact, recovered in a very softened condition (drilling induced)		
34.70-35.00					CS11			... from 34.50 to 39.00 m: Fractures are close to medium spaced subhorizontal undulating smooth open and tight		

Remarks	Scale (approx)	Logged By
	1:25	AHm
	Figure No. 20.245.BH02	



A F Howland Associates

Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole Number
BH02

Machine : Comacchio 305 Flush : Water Core Dia : 102 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 168mm cased to 21.90m Location 545644 E 263054 N	Ground Level (mOD) 11.39 Dates 28/09/2020- 05/10/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 8/9
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
36.00-37.00 36.00	100	60	57	Av:230 Min: 70 Max: 400	D28		(9.20)	Stiff to very stiff fissured grey silty calcareous CLAY. With rare fossil fragments. Fissures are horizontal mainly medium and occasional closely spaced planar smooth and highly polish in places. Fissures are subvertical closely irregular smooth with low polish ... from 35.50 to 35.80 m: vertical planar rough and tight fracture		
37.00-37.50	100	93	83	Av:264 Min: 70 Max: 450	D29					
37.50 37.60-37.90					CS12					
39.00	100	93	93	Av:282 Min: 100 Max: 500						
39.30-39.60					CS13			... from 39.00 to 40.50 m: Fractures are medium to wide spaced horizontal undulating smooth open and tight ... at 39.30 m: subvertical undulating smooth moderately open fracture		
40.00	100	93	81	Av:605 Min: 200 Max: 1010	D30					

Remarks	Scale (approx) 1:25	Logged By AHm
Figure No. 20.245.BH02		



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Site
Cambridge WWTP Relocation

Borehole Number
BH02

Machine : Comacchio 305 Flush : Water Core Dia: 102 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 168mm cased to 21.90m Location 545644 E 263054 N	Ground Level (mOD) 11.39 Dates 28/09/2020- 05/10/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 9/9
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
40.50					02/10/2020:0.79m 05/10/2020:1.52m	-29.11	40.50	Stiff to very stiff fissured grey silty calcareous CLAY. With rare fossil fragments. (See previous sheet)		
								Complete at 40.50m		

Remarks	Scale (approx) 1:25	Logged By AHm
Figure No. 20.245.BH02		



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole Number
BH02

Installation Type Single Installation	Dimensions Internal Diameter of Tube [A] = 50 mm		Client Anglian Water Services Limited	Job Number 20.245
	Location 545644 E 263054 N	Ground Level (mOD) 11.39		

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling										
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)	
						Groundwater Observations During Drilling										
						Start of Shift					End of Shift					
						Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)
			10.89	0.50	Concrete Topfill	29/09/20		9.00	7.10		0.10				10.10	
					Bentonite Seal	28/09/20		4.20	4.20	0.90	10.49	19:00	4.20	4.20	1.36	10.03
						29/09/20	07:00	15.00	10.10			19:00	15.00	10.10	0.58	10.81
						30/09/20	07:00	15.00	10.10			19:00	24.00	21.90	2.26	9.13
						01/10/20	06:30	24.00	21.90	2.20	9.19	19:30	33.00	21.90	2.10	9.29
						02/10/20	06:30	33.00	21.90	2.10	9.29	18:00	40.50	21.90	0.79	10.60
						05/10/20	05:15	40.50	21.90	1.52	9.87					
						Instrument Groundwater Observations										
						Inst. [A] Type : Slotted Standpipe										
						Date	Instrument [A]			Remarks						
							Time	Depth (m)	Level (mOD)							
			-10.61	22.00	Gravel Filter	16/10/20	13:10	2.20	9.19							
			-11.11	22.50	Slotted Standpipe	06/11/20	11:45	4.86	6.53							
			-12.61	24.00		16/11/20	12:47	4.82	6.57							
					Bentonite Seal											
			-29.11	40.50												

Remarks



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH03

Machine : Comacchio 305		Casing Diameter 146mm cased to 5.00m		Ground Level (mOD) 8.66		Client Anglian Water Services Limited		Job Number 20.245	
Method : Dynamic sampling/ Wireline cored		Location 547524 E 263839 N		Dates 07/09/2020- 14/09/2020		Engineer Mott Macdonald		Sheet 1/5	

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10-0.30 0.20	B1 ES1			PID = 0.00 ppm	8.36	(0.30)	TOPSOIL (Dark brown sandy slightly gravelly clay. Gravel is angular to subrounded fine to medium flint and some rootlets)		
0.30-0.70 0.30-0.70 0.50	B2 D1 ES2			PID = 0.00 ppm	7.96	(0.40)	Brown clayey slightly silty gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium flint and chalk		
0.70-1.20 0.70-1.20	B3 D2			PID = 0.00 ppm	7.21	(0.75)	Firm light brownish grey silty slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to medium and a little coarse flint and chalk		
1.00 1.20-1.45 1.20-1.65	ES3 D3 SPT N=15		0.00	1,1/1,3,5,6	6.96	(1.45)	... becoming silty with occasional decayed fine roots		
1.45-1.70	D4			PID = 0.00 ppm		(0.25)	Light brown slightly silty fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded predominantly fine to medium and occasional coarse flint and chalk		
1.70-2.00	D5					1.70	Firm to stiff indistinctly fissured pale grey silty calcareous CLAY. Occasional decayed fine roots		
2.00 2.00-2.45 2.00-2.50	ES4 SPT N=20 D6	2.00	0.10	3,3/3,5,6,6			... from 2.00 m: becoming grey mottled light yellow and rare calcareous nodules (<4 mm)		
2.50-3.00	D7			07/09/2020:0.10m 08/09/2020:0.10m					
3.00-3.50 3.00-3.45	D8 SPT N=24	3.00	0.00	3,4/5,5,7,7		(3.30)	... locally, with black organic staining and rare sand sized gypsum crystals ... at 3.20 m: occasional dark brown semi-decomposed roots (<3 mm)		
3.50-4.00	D9								
4.00-4.50 4.00-4.45	D10 SPT N=23	4.00	0.00	3,4/5,5,5,8			... becoming grey, fissured		
4.40 4.50-5.00	W1 D11								
5.00-6.00 5.00-5.45 5.00	TCR SCR RQD I_f			3,5/5,6,6,6 B4 SPT N=23	3.66	5.00	Stiff fissured grey silty calcareous CLAY. Fissures are very closely to closely spaced, randomly orientated undulated smooth stained light yellowish brown		
	100 90 75			Av:172 Min: 50 Max: 500			from 5.00 to 6.00 m: Fractures are very close to medium spaced subhorizontal undulating rough open (possible drilling induced)		
6.00 6.30-6.60				CS1			from 6.00 to 9.00 m: Fractures are close to wide spaced horizontal undulating rough open (possible drilling induced)		
7.00	100 100 75			Av:423 Min: 70 Max: 1130					
7.50-8.50 7.50				D12 D13			... with rare shell fossil fragments		

Remarks 1. Location CAT scanned prior to excavation. 2. Hand dug inspection pit to 1.20 m. 3. Groundwater not encountered prior to use of water flush 4. Dynamically sampled (Diam: 113 mm) from 1.20 m to 5.00 m. 5. Wireline drilling from 5.00 m to 40.00 m. 6. Rising head permeability test performed for 90 mins. 7. On completion borehole was backfilled with bentonite and slotted standpipe installed to 30.00 m. 8. SPT Hammer Energy Ratio = 78.34%	Scale (approx)	Logged By
	1:40	AHm
	Figure No. 20.245.BH03	



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Site
Cambridge WWTP Relocation

Borehole
Number
BH03

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 5.00m Location 547524 E 263839 N	Ground Level (mOD) 8.66 Dates 07/09/2020- 14/09/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 2/5
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
8.50-9.00	100	100	89	Av:443 Min: 100 Max: 1130	D14			Stiff fissured grey silty calcareous CLAY. With rare shell fossil fragments. Fissures are very closely to closely spaced, randomly orientated undulated smooth stained light yellowish brown from 8.20 to 8.23 m: with light grey calcareous subangular fine to medium mudstone fragments		
9.10-9.40 9.00					CS2			from 9.00 to 12.00 m: Fractures are close to wide spaced horizontal undulating smooth moderately open and rare tight		
10.00	100	100	97	Av:487 Min: 160 Max: 700	D15					
10.50					CS3			... from 10.50 m: Fissures are horizontal very closely to medium spaced planar smooth with occasional low polish. Fissures are subvertical closely undulated smooth stained light brown		
11.00-11.30	93	93	88	Av:440 Min: 100 Max: 1120						
12.00 12.00					D16			from 12.00 to 15.00 m: Fractures are close to wide spaced subhorizontal undulating smooth and very open (possible drilling induced)		
12.50-12.80	100	100	97	Av:633 Min: 130 Max: 1135	CS4					
13.20					D17			...at 13.00 m: 1 No. calcareous nodules (<30 mm)		
13.50-14.50 13.50					D18			from 13.50 to 15.00 m: Fractures becoming stepped and open		
14.50-15.00	100	97	95	Av:375 Min: 70 Max: 1110	D19					
15.10-15.40 15.00					CS5			from 15.00 to 16.50 m: Fractures are close to wide spaced horizontal undulating rough open and tight		
16.00	100	100	97	Av:340 Min: 110 Max: 650	D20		(21.80)			

Remarks 9. Fracture spacing (mm): reported, where possible, as either; average, minimum and maximum spacing, or a single figure equal to the length of non-fractured core where there are no fractures. NI = Non intact. NA = Not applicable. NR = No recovery	Scale (approx) 1:40	Logged By AHm
	Figure No. 20.245.BH03	



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Site
Cambridge WWTP Relocation

Borehole
Number
BH03

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 5.00m Location 547524 E 263839 N	Ground Level (mOD) 8.66 Dates 07/09/2020- 14/09/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 3/5
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
16.50								Stiff to very stiff fissured grey silty CLAY. With rare calcareous nodules (<5 mm) and fossil shell fragments. Fissures are subhorizontal medium spaced planar smooth polish. Fissures are vertical closely to medium undulating smooth highly polish with light grey silt pockets		
17.00-17.30							from 16.50 to 18.00 m: Fractures are close to wide spaced subhorizontal undulating rough very open (possible drilling induced)			
18.00								from 18.00 to 21.00 m: Fractures are very close to wide spaced horizontal undulating smooth moderately open (possible drilling induced)		
18.00							... fractures becoming irregular and open			
19.00-19.30	100	97	82	Av:435 Min: 80 Max: 1125	CS6			from 21.00 to 24.00 m: Fractures are close to wide spaced subhorizontal undulating rough tight		
19.50-20.50							... at 21.50 m: subvertical undulating rough open fracture			
20.50-21.00	100	93	75	Av:423 Min: 60 Max: 1130	CS7			... fractures becoming undulating smooth and open		
21.00							08/09/2020:0.00m			
21.10-21.40								... fractures becoming undulating smooth and open		
22.00	100	90	83	Av:447 Min: 90 Max: 1120	CS8		09/09/2020:0.00m			
22.50								... fractures becoming undulating smooth and open		
22.70-23.00										
23.50-24.00	100	93	90	Av:357 Min: 80 Max: 1110	CS9					
24.00										

Remarks	Scale (approx)	Logged By
	1:40	AHm
Figure No. 20.245.BH03		



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Site
Cambridge WWTP Relocation

Borehole
Number
BH03

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 5.00m	Ground Level (mOD) 8.66	Client Anglian Water Services Limited	Job Number 20.245
	Location 547524 E 263839 N	Dates 07/09/2020- 14/09/2020	Engineer Mott Macdonald	Sheet 4/5

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
24.50-24.80	100	97	97	1145	CS10	-18.14	26.80	Stiff to very stiff fissured grey silty CLAY. With rare fossil shell fragments. Fissures are subhorizontal closely to medium spaced planar smooth polish. Fissures are vertical medium undulating smooth becoming highly polish with depth from 24.00 to 25.50 m: Fractures are wide spaced		
25.00					D26					
25.50 25.50	100	97	97	Av:258 Min: 100 Max: 500	D27	-18.14	26.80	from 25.50 to 27.00 m: Fractures are close to medium spaced subhorizontal undulating smooth moderately open. Becoming slightly sandy ... 25.60 - 25.80 m: vertical undulating smooth tight fracture		
26.00-26.30					CS11					
26.80-27.00					D28					
27.00 27.20-27.70	80	53	43	Av:216 Min: 100 Max: 400	D29	-18.14	26.80	Very weak to weak greenish grey silty fine to coarse grained SANDSTONE. Fractures are close spaced (up to 100 mm) undulating rough horizontal moderately open from 27.00 to 28.50 m: Fractures are close to medium spaced from 27.80 to 28.30 m: core sample recovered as dark greenish grey clayey silty fine to medium sand (non-intact)		
27.80-28.50					D30					
28.50										
29.00-29.30	100	93	93	Av:442 Min: 100 Max: 1125	CS12	-18.14	(4.70)	... becoming dark greenish grey clayey fine to medium SANDSTONE from 28.50 to 30.00 m: Fractures are close to wide spaced horizontal undulating rough open		
30.00-30.30 30.00					D31					
31.50-32.00 31.50	21	20	20	Av:150 Min: 100 Max: 200	D32	-22.84	31.50	from 30.00 to 31.50 m: Fractures are close spaced subhorizontal undulating rough open (possible drilling induced)		
32.00-32.90					D33					

Remarks	Scale (approx)	Logged By
	1:40	AHm
	Figure No. 20.245.BH03	



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Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole Number
BH03

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 5.00m Location 547524 E 263839 N	Ground Level (mOD) 8.66	Client Anglian Water Services Limited	Job Number 20.245
			Dates 07/09/2020- 14/09/2020	Engineer Mott Macdonald
Sheet 5/5				

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
32.90-33.00	93	40	23	Av:87 Min: 50 Max: 120			(1.50)	Very weak greenish grey silty fine to coarse grained SANDSTONE. Fractures are very close to close spaced subhorizontal undulating rough open (possible drilling induced from 32.00 to 32.90 m: core sample recovered as greenish grey silty fine to coarse sand (non-intact)		
33.00					D34 09/09/2020:0.00m	-24.34	33.00	Extremely weakly cemented SANDSTONE; recovered as greenish grey slightly clayey silty fine to medium sand and rare fine gravel. No recovery in places (non-intact)		
33.00-33.90	100	n/a	n/a	n/a	10/09/2020: D35 10/09/2020:2.70m		(1.50)			
33.90	No recovery				11/09/2020:					
34.50						-25.84	34.50	Stiff fissured grey silty calcareous CLAY. Fissures are horizontal closely to medium spaced planar smooth polish. Fissures are subvertical medium irregular smooth		
35.00-36.00	61	53	31	Av:113 Min: 30 Max: 250	D36			from 34.50 to 36.00 m:Fractures are very close to medium spaced subhorizontal undulating rough open (possible drilling induced)		
36.00							(3.00)	... fractures becoming medium spaced		
36.20-36.50	100	93	91	Av:340 Min: 260 Max: 500	CS13					
37.50-38.00						-28.84	37.50	Very stiff fissured pale grey silty slightly calcareous CLAY tending to extremely weak MUDSTONE. Fractures are medium spaced horizontal planar smooth tight and clean		
38.20-38.50	67	67	67	Av:333 Min: 300 Max: 400	CS14	-29.54	38.20	Weak to medium strong pale grey silty MUDSTONE band		
39.00						-30.04	38.70	Very stiff fissured pale grey silty slightly calcareous CLAY tending to extremely weak MUDSTONE. From 39.00 m: Fractures are close to wide spaced horizontal planar smooth tight and clean		
39.50-40.00	100	100	100	Av:500 Min: 100 Max: 900	D38		(1.30)			
40.00						-31.34	40.00			

Remarks	Scale (approx)	Logged By
	1:40	AHm
Figure No. 20.245.BH03		



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Site
Cambridge WWTP Relocation

Borehole
Number
BH03

Installation Type
Single Installation

Dimensions
Internal Diameter of Tube [A] = 50 mm

Client
Anglian Water Services Limited

Job
Number
20.245

Location
547524 E 263839 N

Ground Level (mOD)
8.66

Engineer
Mott Macdonald

Sheet
1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling														
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)					
						Groundwater Observations During Drilling														
						Date	Start of Shift					End of Shift								
							Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)				
			8.46	0.20	Concrete															
					Bentonite Seal	07/09/20						2.45	2.00	0.10	8.56					
						08/09/20		2.00	2.00	0.10	8.56	21.00	5.00		8.66					8.66
						09/09/20		21.00	5.00			33.00	5.00							8.66
						10/09/20		33.00	5.00			33.00	5.00	2.70						5.96
						11/09/20		33.00	5.00			40.50	5.00	0.20						8.46
						Instrument Groundwater Observations														
						Inst. [A] Type : Slotted Standpipe														
						Date	Instrument [A]			Remarks										
							Time	Depth (m)	Level (mOD)											
			-18.84	27.50		01/10/20	12:00	4.42	4.24											
			-19.34	28.00	Gravel Filter Slotted Standpipe	16/10/20	16:00	4.40	4.26											
			-20.84	29.50		06/11/20	13:00	4.15	4.51											
			-21.34	30.00	Gravel Filter	16/11/20	13:40	2.29	6.37											
					Bentonite Seal															
			-31.34	40.00																

Remarks



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH04

Machine : Comacchio 305		Casing Diameter	Ground Level (mOD)	Client	Job Number
Method : Dynamic sampling/ Wireline cored		146mm cased to 6.00m	5.30	Anglian Water Services Limited	20.245
		Location	Dates	Engineer	Sheet
		548467 E 263780 N	02/09/2020- 04/09/2020	Mott Macdonald	1/4

Depth (m)	Sample / Tests		Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10-0.60 0.10-0.60 0.20	B1 D1 ES1				PID = 4.5 ppm	5.20	(0.10)	MADE GROUND (Fragments (<50 mm) of concrete, asphalt and brick fragments)		
0.50 0.60-1.20 0.60-1.20	ES2 B2 D2				PID = 0.00 ppm	4.70	(0.50)	MADE GROUND (Dark brown slightly clayey silty gravelly fine to coarse sand. Gravel is angular to subrounded fine to coarse flint and sandstone with fragments of brick, concrete, glass, clinker and rootlets)		
1.00 1.20-2.20 1.20-1.65 1.20	ES3				5,8/8,7,10,11 B3 SPT N=36 PID = 0.00 ppm			Dense light brown slightly silty very gravelly fine to coarse SAND. Gravel is fine to coarse subrounded to rounded fine to medium and a little coarse flint, quartzite and subangular calcareous stones		
1.52	TCR	SCR	RQD	If	W1					
	100	n/a	n/a							
2.00 2.20-2.65 2.20 2.20-3.20					ES4 2,5/5,9,8,9 SPT N=31 PID = 0.00 ppm B4		(3.30)			
	100	n/a	n/a							
3.20-3.90 3.20					B5			... becoming very sandy fine to coarse GRAVEL		
	100	n/a	n/a							
3.90-4.20					D3	1.40	3.90	Firm indistinctly fissured grey silty calcareous CLAY		
4.20-4.65 4.20 4.20-4.70					2,1/2,3,3,5 SPT N=13 D4					
4.70-5.20					D5					
	100	100	100							
5.20-5.65 5.20 5.20-6.20					2,2/3,2,4,4 SPT N=13 D6		(2.80)	... with rare light brown calcareous nodules (<4 mm)		
6.20-6.70					D7					
6.70-7.15 6.70 6.70-7.50					5,4/4,5,5,7 SPT N=21 B6	-1.40	6.70	Stiff fissured grey silty calcareous CLAY. Fissures are very closely spaced and extremely closely spaced in places, randomly orientated undulated rough stained dark grey		
	100	100	56	Av:90 Min: 30 Max: 220						
7.50 7.70-8.00					CS1			from 6.70 to 7.50 m: Fractures are very close to medium spaced subhorizontal undulating rough open (possible drilling induced)		

Remarks

1. Location CAT scanned prior to excavation.
2. Hand dug inspection pit to 1.20 m.
3. Groundwater not encountered prior to use of water flush
4. Dynamically sampled (Diam: 113 mm) from 1.20 m to 6.70 m.
5. Wireline drilling from 6.70 m to 30.00 m.
6. On completion borehole was backfilled with bentonite and slotted standpipe installed to 10.00 m.
7. SPT Hammer Energy Ratio = 78.34%

Scale (approx)

1:40

Logged By

AHm

Figure No.

20.245.BH04



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Site
Cambridge WWTP Relocation

Borehole
Number
BH04

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.00m Location 548467 E 263780 N	Ground Level (mOD) 5.30 Dates 02/09/2020- 04/09/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 2/4
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
8.50-9.00	100	97	97	Av:328 Min: 100 Max: 750	D8			Stiff fissured grey silty CLAY. Fissures are horizontal closely to medium spaced planar smooth with occasional low polish. Fissures are subvertical medium irregular smooth stained light brown		
9.00						02/09/2020:1.02m		from 7.50 to 9.00 m: Fractures are close to wide spaced subhorizontal undulating striated moderately open (possible drilling induced)		
9.00-9.50						03/09/2020: D9		from 9.00 to 10.50 m: Fractures are close to medium spaced horizontal undulating rough open and clean (possible drilling induced)		
10.00-10.30	100	100	100	Av:258 Min: 100 Max: 550	CS2			... with rare shell fossil fragments		
10.50					D10					
10.50										
11.00-11.30					CS3			from 10.50 to 12.00 m: Fractures are medium spaced horizontal undulating rough tight and subvertical open fracture from 11.6 to 11.70 m.		
11.00-11.30	100	97	97	Av:338 Min: 250 Max: 600						
12.00								from 12.00 to 13.50 m: Fractures are close to wide spaced horizontal undulating rough tight and subvertical moderately open fracture from 13.20 to 13.30 m. (possible drilling induced)		
12.50-12.80					CS4					
13.00-13.50	93	93	87	Av:262 Min: 90 Max: 700	D11					
13.50								from 13.50 to 15.00 m: Fractures are medium to wide spaced subhorizontal undulating smooth tight and clean		
14.00-14.30	100	100	100	Av:685 Min: 250 Max: 1120	CS5					
15.00					D12					
15.00								from 15.00 to 16.50 m: Fractures are very close to medium spaced subhorizontal undulating smooth tight and clean		
15.50-15.80					CS6					
16.00-16.50	100	100	92	Av:274 Min: 40 Max: 600	D13					

Remarks	Scale (approx)	Logged By
	1:40	AHm
	Figure No. 20.245.BH04	



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH04

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.00m Location 548467 E 263780 N	Ground Level (mOD) 5.30 Dates 02/09/2020- 04/09/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 3/4
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
16.50							 (20.30)	Stiff fissured grey silty CLAY. With rare fossil shell fragments and intact fossil. Fissures are subhorizontal closely to medium spaced planar smooth polish. Fissures are vertical closely undulating smooth highly polish		
17.00-17.30					CS7			from 16.50 to 18.00 m: Fractures are medium to wide spaced horizontal undulating rough tight and moderately open		
18.00-19.00 18.00					D14			from 18.00 to 19.50 m: Fractures are close to medium spaced subhorizontal irregular rough open to very open (possible drilling induced)		
19.00-19.50	100	100	100	Av:725 Min: 200 Max: 1250	D15			... becoming slightly sandy		
19.50-19.80 19.50					CS8			from 19.50 to 21.00 m: Fractures are close to wide spaced horizontal undulating rough tight and clean		
21.00-22.00 21.00					D16			... becoming stiff to very stiff, with rare calcareous nodules (3-6 mm)		
22.00-22.50	100	100	100	Av:640 Min: 150 Max: 1130	D17			from 21.00 to 22.50 m: Fractures are medium to wide spaced horizontal undulating rough tight and clean		
22.50 22.70-23.00					CS9			from 22.50 to 24.00 m: Fractures are close to wide spaced horizontal undulating rough tight and open fracture at 23.80 m. (possible drilling induced)		
24.00-25.00 24.00	100	100	95	Av:473 Min: 200 Max: 820	D18					

Remarks	Scale (approx)	Logged By
	1:40	AHm
Figure No. 20.245.BH04		



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Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole Number
BH04

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.00m Location 548467 E 263780 N	Ground Level (mOD) 5.30 Dates 02/09/2020- 04/09/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 4/4
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m)	Description	Legend	Water
25.00-25.50	100	100	87	Av:77 Min: 40 Max: 400	D19			Stiff fissured grey silty CLAY, with rare fossil shell fragments. Fractures are very close to medium spaced subhorizontal undulating rough moderately open and vertical open fracture from 24.70 to 24.85 m.		
25.50 25.70-26.00	100	100	92	Av:222 Min: 40 Max: 400	CS10					
27.00-28.00 27.00					D20	-21.70	27.00	Very stiff fissured grey silty calcareous CLAY. Becoming hard in places with shell fossil fragments. Fractures are close to wide spaced horizontal undulating smooth moderately open (possible drilling induced)		
28.00-28.50	100	97	85	Av:363 Min: 80 Max: 1110	D21					
28.50 28.70-29.00	100	100	85	Av:237 Min: 50 Max: 600	CS11		(3.00)	from 28.50 to 30.00 m: Fractures are very close to medium spaced horizontal undulating smooth open (possible drilling induced)		
29.90-30.00 30.00					D22 03/09/2020:0.00m	-24.70	30.00	... from 29.90 m: becoming sandy Complete at 30.00m		

Remarks	Scale (approx) 1:40	Logged By AHm
Figure No. 20.245.BH04		



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Site
Cambridge WWTP Relocation

Borehole Number
BH04

Installation Type
Single Installation

Dimensions
Internal Diameter of Tube [A] = 50 mm

Client
Anglian Water Services Limited

Job Number
20.245

Location
548467 E 263780 N

Ground Level (mOD)
5.30

Engineer
Mott Macdonald

Sheet
1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling														
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)					
			5.10	0.20	Concrete															
			2.30	3.00	Bentonite Seal															
					Slotted Standpipe	Groundwater Observations During Drilling														
						Start of Shift					End of Shift									
						Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)				
			-4.70	10.00		02/09/20						18:30	9.00	6.60	1.02	4.28				
						03/09/20		9.00	6.60			18:10	30.00	6.00		5.30				
						Instrument Groundwater Observations														
						Inst. [A] Type : Slotted Standpipe														
						Date	Instrument [A]			Remarks										
							Time	Depth (m)	Level (mOD)											
					Bentonite Seal	08/09/20	11:50	0.12	5.18											
						11/09/20	08:30	0.37	4.93											
						15/09/20	10:00	0.63	4.67											
						01/10/20	10:30	1.47	3.83											
						16/10/20	11:50	1.52	3.78											
						06/11/20	10:20	1.67	3.63											
						16/11/20	11:12	1.70	3.60											
			-24.70	30.00																

Remarks



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH05

Machine : Comacchio 305 Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.50m	Ground Level (mOD) 2.85	Client Anglian Water Services Limited	Job Number 20.245
	Location 548978 E 263320 N	Dates 24/08/2020- 01/09/2020	Engineer Mott Macdonald	Sheet 1/8

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20-0.30 0.20-0.30	B1+D1 ES1			PID = 0.00 ppm	2.45	(0.40)	MADE GROUND (Dark brown slightly sandy slightly gravelly clay. Gravel is subangular to subrounded fine to medium flint and occasional rootlets)		
0.50-0.70 0.50-0.70	B2+D2 ES2			PID = 0.00 ppm	1.95	(0.50)	Light brown grey silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium flint and chalk and rare rootlets . Occasional clay lenses		
1.20-1.65 1.00-1.10 1.10	B3+D3 W1			ES3 at 1.0 m 3,2/3,3,3,4 SPT N=13 PID = 12.40 ppm	1.75	(0.20)	Very soft dark brown and black slightly clayey silty sandy gravelly fibrous PEAT, with rare plant remains and shell fragments		
1.10-1.20 1.10-1.70 1.20 1.20-1.50	TCR	SCR	RQD	If		1.10	Medium dense brown silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium flint. Becoming grey SAND and fine to coarse GRAVEL		
1.50-1.70	80	n/a	n/a	D4 B4 D5 D6		(0.60)			
1.70-2.20 1.80-2.00				D7 ES4 PID = 0.00 ppm 2,1/1,1,1,1 SPT N=4 24/08/2020:DRY	1.15	1.70	Soft becoming firm indistinctly fissured pale grey silty CLAY. Locally, rare semi-decomposed roots and rootlets		
2.00 2.00-2.45 2.00-2.45				25/08/2020:DRY D8					
2.50-3.00	80	80	80	D9					
3.00-3.45 3.00 3.00-3.45				1,1/1,1,1,2 SPT N=5 D10			... with light brown calcareous nodules (<5 mm)		
3.50-4.00	90	80	80	25/08/2020:0.94m 26/08/2020:1.25m D11					
4.00-4.45 4.00				D12					

Remarks 1. Location CAT scanned prior to excavation. 2. Hand dug inspection pit to 1.20 m. 3. Groundwater not encountered prior to use of water flush 4. Dynamically sampled (Diam: 113 mm) from 1.20 m to 6.50 m. 5. Wireline drilling from 6.50 m to 30.00 m. 6. On completion borehole was backfilled with bentonite and slotted standpipe installed to 10.00 m 7. SPT Hammer Energy Ratio = 78.34%	Scale (approx) 1:20	Logged By PJM/AHm
	Figure No. 20.245.BH05	



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH05

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.50m	Ground Level (mOD) 2.85	Client Anglian Water Services Limited	Job Number 20.245
	Location 548978 E 263320 N	Dates 24/08/2020- 01/09/2020	Engineer Mott Macdonald	Sheet 2/8

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
4.00-4.45					SPT N=11 1,2/2,3,3,3		(4.80)	Soft becoming firm indistinctly fissured pale grey silty CLAY. Locally, rare semi-decomposed roots		
4.50-5.00	90	90	90		D13					
5.00-5.45 5.00 5.00-5.50					2,3/3,3,3,6 SPT N=15 D14			... becoming firm to stiff		
6.00-6.50	97	97	97		D15					
6.50-6.95 6.50					4,3/4,4,5,5 SPT N=18	-3.65	6.50	Stiff fissured grey silty calcareous CLAY. Fissures are very closely spaced, randomly orientated undulating smooth stained dark grey.		
6.90-7.20	100	90	75	Av:158 Min: 30 Max: 600	CS1 26/08/2020:1.80m 27/08/2020:0.95m			from 6.50 to 9.00 m: Fractures are very close to medium spaced horizontal undulating rough moderately open to very open (possible drilling induced)		
7.50-8.50 7.50					D16					

Remarks	Scale (approx)	Logged By
	1:20	PJM/AHm
	Figure No. 20.245.BH05	



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH05

Machine : Comacchio 305 Flush : Water Core Dia: 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.50m	Ground Level (mOD) 2.85	Client Anglian Water Services Limited	Job Number 20.245
	Location 548978 E 263320 N	Dates 24/08/2020- 01/09/2020	Engineer Mott Macdonald	Sheet 3/8

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
8.50-9.00	100	93	85	Av:137 Min: 50 Max: 250	D17			Stiff fissured grey silty CLAY. With rare calcareous nodules (<4 mm) and fossil fragments. Fissures are very closely and rare closely (up to 90 mm) spaced, randomly orientated planar smooth matt		
9.00 9.10-9.40					CS2			from 9.00 to 12.00 m: Fractures are close to medium spaced horizontal undulating rough moderately open (possible drilling induced)		
10.00	100	100	94	Av:237 Min: 90 Max: 500	D18					
10.50										
11.00					D19					
11.50-11.80	100	100	100	Av:276 Min: 200 Max: 400	CS3					
12.00										

Remarks	Scale (approx) 1:20	Logged By PJM/AHm
	Figure No. 20.245.BH05	



A F Howland Associates Geotechnical Engineers

Site
Cambridge WWTP Relocation

Borehole
Number
BH05

Machine : Comacchio 305 Flush : Water Core Dia : 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.50m	Ground Level (mOD) 2.85	Client Anglian Water Services Limited	Job Number 20.245
	Location 548978 E 263320 N	Dates 24/08/2020- 01/09/2020	Engineer Mott Macdonald	Sheet 4/8

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
12.40-12.70	100	93	93	Av:256 Min: 100 Max: 500	CS4			Stiff fissured grey silty CLAY. With rare calcareous nodules (<4 mm) and fossil fragments. Fissures are very closely and rare closely (up to 90 mm) spaced, randomly orientated planar smooth matt		
13.00					D20		from 12.00 to 13.50 m: Fractures are close to medium spaced subhorizontal stepped rough open and rare tight			
13.50	100	93	88	Av:340 Min: 80 Max: 600	CS5			from approximately 13.50 m: subvertical fissures are closely to medium spaced irregular smooth stained dark grey		
13.70-14.00					D21		... becoming slightly sandy slightly gravelly			
14.60	100	97	91	Av:142 Min: 80 Max: 200	D22			from 15.00 to 16.50 m: Fractures are close spaced horizontal and subhorizontal undulating rough very open (possible drilling induced)		
15.00-16.00 15.00					D23		... 15.30 - 15.40 m: vertical stepped rough open fracture			
16.00-16.50										

Remarks	Scale (approx) 1:20	Logged By PJM/AHm
	Figure No. 20.245.BH05	



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Site
Cambridge WWTP Relocation

Borehole
Number
BH05

Machine : Comacchio 305 Flush : Water Core Dia: 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.50m	Ground Level (mOD) 2.85	Client Anglian Water Services Limited	Job Number 20.245
	Location 548978 E 263320 N	Dates 24/08/2020- 01/09/2020	Engineer Mott Macdonald	Sheet 5/8

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
16.50								Stiff fissured grey silty CLAY. With rare fossil fragments. Fissures are horizontal very closely to medium spaced planar smooth with occasional low polish. Fissures are vertical closely stepped striated and becoming subvertical in places		
17.00-17.30					CS6			from 16.50 to 18.00 m: Fractures are close to wide spaced horizontal planar rough moderately open and tight		
18.00 18.00	100	97	97	Av:700 Min: 200 Max: 1200			(22.00)	from 18.00 to 21.00 m: Fractures are close to wide spaced horizontal planar rough tight and open at 19.40 m and 20.90 m (possible drilling induced)		
18.50-18.80					CS7					
19.50	100	93	93	Av:620 Min: 120 Max: 1120						
20.00-20.30					CS8					

Remarks	Scale (approx)	Logged By
	1:20	PJM/AHm
Figure No. 20.245.BH05		



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Site
Cambridge WWTP Relocation

Borehole Number
BH05

Machine : Comacchio 305 Flush : Water Core Dia: 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.50m Location 548978 E 263320 N	Ground Level (mOD) 2.85 Dates 24/08/2020- 01/09/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 6/8
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
20.60	100	100	100	Av:625 Min: 120 Max: 1120	D25			Very stiff fissured grey silty CLAY. With rare fossil fragments. Fissures are horizontal very closely to medium spaced planar smooth with occasional low polish. Fissures are vertical closely stepped striated and becoming subvertical in places. With rare calcareous nodules (<6 mm)		
21.00								from 21.00 to 24.00 m: Fractures are close to medium spaced horizontal undulating rough moderately open and tight at 23.20 m. (possible drilling induced)		
21.00-22.00						27/08/2020:0.78m 28/08/2020:1.03m D26				
22.00-22.50	100	97	97	Av:189 Min: 120 Max: 240	D27			... locally, becoming slightly sandy		
22.50										
23.70-24.00	100	97	77	Av:147 Min: 60 Max: 300	CS9					
24.00										

Remarks	Scale (approx) 1:20	Logged By PJM/AHm
Figure No. 20.245.BH05		



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Site
Cambridge WWTP Relocation

Borehole
Number
BH05

Machine : Comacchio 305 Flush : Water Core Dia: 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.50m	Ground Level (mOD) 2.85	Client Anglian Water Services Limited	Job Number 20.245
	Location 548978 E 263320 N	Dates 24/08/2020- 01/09/2020	Engineer Mott Macdonald	Sheet 7/8

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
24.50-24.80	100	97	97	Av:450 Min: 300 Max: 600	CS10			Stiff fissured grey silty CLAY, with rare fossil fragments. Fractures are medium spaced horizontal undulating rough moderately open and tight to 25.50 m.		
25.00					D28		... 24.33 - 24.40 m: subvertical undulating rough open fracture			
25.50	100	100	100	Av:288 Min: 120 Max: 700	CS11			from 25.50 to 27.00 m: Fractures are close to wide spaced horizontal undulating rough moderately open		
26.00-26.30					D29					
26.80	100	97	72	Av:109 Min: 50 Max: 240	D30			from 27.00 to 28.50 m: Fractures are very close to medium spaced horizontal undulating rough moderately open (possible drilling induced)		
27.00-28.00 27.00					D31					
28.00-28.50										

Remarks

Scale (approx)
1:20

Logged By
PJM/AHm

Figure No.
20.245.BH05



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Site
Cambridge WWTP Relocation

Borehole Number
BH05

Machine : Comacchio 305 Flush : Water Core Dia: 100 mm Method : Dynamic sampling/ Wireline cored	Casing Diameter 146mm cased to 6.50m Location 548978 E 263320 N	Ground Level (mOD) 2.85 Dates 24/08/2020- 01/09/2020	Client Anglian Water Services Limited Engineer Mott Macdonald	Job Number 20.245 Sheet 8/8
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Depth (m)	TCR (%)	SCR (%)	RQD (%)	I _f (mm)	Field Records	Level (mOD)	Depth (m)	Depth (Thickness) (m)	Description	Legend	Water
28.50					28/08/2020:0.98m 01/09/2020:1.02m	-25.65	28.50		Stiff fissured grey silty CLAY, with rare fossil fragments. Fractures are medium spaced horizontal undulating rough moderately open and tight		
29.00-29.30	100	100	100	Av:375 Min: 100 Max: 800	CS12		(1.50)		Very stiff fissured grey silty calcareous CLAY tending to extremely weak MUDSTONE. Fractures are close to wide spaced horizontal undulating rough tight and clean		
29.80					D32						
30.00					01/09/2020:1.04m	-27.15	30.00		Complete at 30.00m		

Remarks	Scale (approx) 1:20	Logged By PJM/AHm
Figure No. 20.245.BH05		

APPENDIX C: LABORATORY TESTING





Site

Cambridge WWTP Relocation

Client

Anglian Water Services Limited

Sheet

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BH/TP No.	Depth (m)	SAMPLE DETAILS		CLASSIFICATION TESTS									SHEAR STRENGTH				CHEMICAL				OTHER RESULTS
		Sample	Laboratory Description	NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH	ORG %	
BH01	0.30	D1	Brown fine sandy silty CLAY with rare gravel.	11.8	20	34	14														
BH01	0.30	B2	Dark brown clayey silty SAND with rare gravel and rootlets.					9.0	34.8	46.2	10.0	0.0									1.1
BH01	0.30	D1	Brown fine sandy silty CLAY with rare gravel.																		
BH01	0.80	D2															0.12			8.6	
BH01	1.20	B4	Light brown and rare yellowish brown fine sandy clayey SILT.					19.0	64.0	16.0	1.0	0.0								< 0.40	
BH01	1.70	D3	Light brown and light grey fine sandy silty CLAY.	21.5	23	44	21														
BH01	3.50	D5															< 0.010			8.7	
BH01	4.00	D6	Light grey fine sandy clayey SILT.					23.0	62.8	13.2	1.0	0.0								< 0.40	
BH01	4.50	D7	Light grey weathered CHALK	15.4	20	33	13														
BH01	5.70	W1	Water sample															0.02		7.7	
BH01	6.00	D10	Light grey clayey SILT.					22.0	69.5	6.5	2.0	0.0								< 0.40	
BH01	6.40	D11	Light grey weathered CHALK	21.5	29	41	12														
BH01	8.00	D13															< 0.010			8.5	
BH01	10.00	D15	Light grey weathered CHALK	19.3	23	35	12														
BH01	11.00	D16	Grey clayey fine sandy SILT with rare gravel and shell.					20.0	46.0	22.0	12.0	0.0								< 0.40	

CLASSIFICATION TESTS

NMC Natural Moisture Content
PL Plastic limit
LL Liquid limit
PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
C Apparent cohesion
phi Angle of shearing resistance
BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
gw Sulphate (groundwater)
ORG Organic content

OTHER

CON Consolidation
COMP Compaction
CBR California bearing ratio
PLI Point load index

EF
CL
AS
CONT

Effective stress testing
Chloride content
Acid Soluble Sulphate
Contamination testing



LABORATORY TEST SUMMARY SHEET

Site

Cambridge WWTP Relocation

Client

Anglian Water Services Limited

Sheet

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BH/TP No.	Depth (m)	SAMPLE DETAILS		CLASSIFICATION TESTS									SHEAR STRENGTH				CHEMICAL				OTHER RESULTS
		Sample	Laboratory Description	NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH	ORG %	
BH01	12.40	CS2	Firm grey CLAY.																		
BH01	13.00	D18	Grey fine sandy silty CLAY.	29.1	30	75	45														
BH01	14.10	CS3																			Redox Potential = 1.9 mV
BH01	15.00	D19	Grey fine sandy silty CLAY.	26.9	29	75	46														
BH01	15.20	D20	Grey clayey SILT.					44.0	54.3	1.7	0.0	0.0								0.7	
BH01	16.00	D21														0.25		8.4			
BH01	17.00	CS4	Stiff grey silty CLAY.	28.9									UU	105	0.0	2.02					
BH01	18.00	D22	Grey fine sandy silty CLAY.	28.2	30	71	41														
BH01	19.70	D23	Grey SILT and CLAY.					48.0	52.0	0.0	0.0	0.0								0.7	
BH01	20.50	CS6	Very stiff grey CLAY.																		
BH01	22.70	D24	Grey fine sandy silty CLAY.	27.7	33	80	47									0.39		8.5			
BH01	23.50	D25	Grey SILT and CLAY.					51.0	47.9	0.1	1.0	0.0							< 0.40		
BH01	24.50	CS8	Very stiff grey silty CLAY.	28.3									UU	272		1.97					Redox Potential = -14 mV
BH01	25.70	D26	Grey fine sandy silty CLAY.	31.7	31	68	37														
BH01	26.50	D27	Grey silty CLAY.					53.0	46.0	1.0	0.0	0.0							< 0.40		
BH01	28.30	CS9	Very stiff grey CLAY.																		
BH01	29.00	D28	Grey fine sandy silty CLAY.	29.1	32	75	43														

CLASSIFICATION TESTS

NMC Natural Moisture Content
 PL Plastic limit
 LL Liquid limit
 PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
 C Apparent cohesion
 phi Angle of shearing resistance
 BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
 gw Sulphate (groundwater)
 ORG Organic content

OTHER

CON Consolidation
 COMP Compaction
 CBR California bearing ratio
 PLI Point load index

EF
 CL
 AS
 CONT

Effective stress testing
 Chloride content
 Acid Soluble Sulphate
 Contamination testing



Site

Cambridge WWTP Relocation

Client

Anglian Water Services Limited

Sheet

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BH/TP No.	Depth (m)	SAMPLE DETAILS		CLASSIFICATION TESTS									SHEAR STRENGTH				CHEMICAL				OTHER RESULTS
		Sample	Laboratory Description	NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH	ORG %	
BH02	0.35	D1	Brown silty CLAY with rare gravel.	16.9	18	41	23														
BH02	0.35	B2	Grey and brown sandy silty CLAY with rare fine to medium gravel.					18.0	33.1	42.9	6.0	0.0									24.0
BH02	0.35	D1	Brown silty CLAY with rare gravel.																		
BH02	0.70	D2	Brown and grey mottled dark brown silty CLAY with rare gravel.	18.2	23	56	33														
BH02	1.40	B4	Yellowish brown SAND and GRAVEL.							46.0	51.0	0.0									1.3
BH02	2.20	W1	Water sample														0.02		8.6		
BH02	2.50	D4	Grey and brown silty CLAY.	32	33	74	41														
BH02	3.20	D5	Greenish grey silty CLAY with rare shell fragments.					57.0	31.8	9.2	2.0	0.0									< 0.40
BH02	3.60	D6														0.19		8.4			
BH02	4.20	D7	Greyish brown silty CLAY.	35.9	35	83	48	67.0	31.8	1.2	0.0	0.0									0.6
BH02	6.20	D10	Grey silty CLAY with rare gravel.	32	31	74	43														
BH02	6.70	D11	Grey silty CLAY.					47.0	50.6	2.4	0.0	0.0									0.5
BH02	7.50	D13														0.83		8.2			
BH02	8.00	CS1	Stiff grey CLAY.																		
BH02	10.70	D14	Grey silty CLAY.	31.2	33	75	42														

CLASSIFICATION TESTS

NMC Natural Moisture Content
PL Plastic limit
LL Liquid limit
PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
C Apparent cohesion
phi Angle of shearing resistance
BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
gw Sulphate (groundwater)
ORG Organic content

OTHER

CON Consolidation
COMP Compaction
CBR California bearing ratio
PLI Point load index

EF
CL
AS
CONT

Effective stress testing
Chloride content
Acid Soluble Sulphate
Contamination testing



Site

Cambridge WWTP Relocation

Client

Anglian Water Services Limited

Sheet

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BH/TP No.	Depth (m)	SAMPLE DETAILS		CLASSIFICATION TESTS									SHEAR STRENGTH				CHEMICAL				OTHER RESULTS
		Sample	Laboratory Description	NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH	ORG %	
BH02	11.50	D15	Grey silty CLAY.					48.0	47.8	2.2	2.0	0.0								0.5	
BH02	12.20	CS3	Stiff grey silty CLAY	26.9									UU	177	0.0	2.04					
BH02	13.50	D16	Grey silty CLAY.	30.5	33	79	46										0.10		8.9		
BH02	15.50	CS5	Stiff grey CLAY with rare shells.																		
BH02	16.00	D17	Grey silty CLAY with rare gravel.	32.7	32	81	49														
BH02	17.00	D18	Grey silty CLAY with rare gravel.					50.0	44.5	1.5	4.0	0.0								0.6	
BH02	19.00	D20	Grey mottled brownish grey silty CLAY with rare gravel.	32	35	87	52														
BH02	19.50	CS7	Stiff grey silty CLAY.	32									UU	100		1.93					
BH02	21.00	D21	Grey silty CLAY.					39.0	55.8	5.2	0.0	0.0								0.6	
BH02	23.00	CS8	Very stiff thinly laminated dark grey mottled brownish grey very sandy silty CLAY. Sand is fine to medium.																		Redox Potential = 14 mV
BH02	23.80	D22	Dark greyish brown silty CLAY	17.3	18	36	18										0.24		8.3		
BH02	24.20	CS9	Stiff dark brown SILT.																		
BH02	26.30	D23	Greenish grey slightly silty SAND with rare gravel.							84.0	12.0	0.0								0.6	
BH02	27.50	D24	Bluish grey slightly gravelly clayey silty SAND.	19.2	NP																

CLASSIFICATION TESTS

NMC Natural Moisture Content
PL Plastic limit
LL Liquid limit
PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
C Apparent cohesion
phi Angle of shearing resistance
BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
gw Sulphate (groundwater)
ORG Organic content

OTHER

CON Consoildation
COMP Compaction
CBR California bearing ratio
PLI Point load index

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Effective stress testing
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Acid Soluble Sulphate
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BH/TP No.	Depth (m)	Sample	SAMPLE DETAILS Laboratory Description	CLASSIFICATION TESTS									SHEAR STRENGTH				CHEMICAL				OTHER RESULTS	
				NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH	ORG %		
BH02	30.00	B6	Greenish grey slightly silty SAND.							93.0	2.0	0.0									< 0.40	
BH02	32.50	D25	Dark grey silty CLAY.	31.1	38	89	51															
BH02	33.00	D26	Dark grey silty CLAY.					62.0	36.7	1.3	0.0	0.0									2.6	
BH02	34.00	D27															0.59		9.1			
BH02	34.70	CS11	Stiff dark grey silty CLAY.	30.5									UU	136		1.92					Redox Potential = 3.6 mV	
BH02	36.00	D28	Dark grey silty CLAY.	29.2	34	81	47															
BH02	37.00	D29	Dark grey CLAY and SILT.					51.0	45.5	3.5	0.0	0.0									4.1	
BH02	39.30	CS13	Very stiff grey CLAY.																			
BH02	40.00	D30	Dark grey silty CLAY.	28.3	34	79	45	59.0	39.4	1.6	0.0	0.0									1.4	
BH03	0.70	D2	Brown and grey fine sandy silty CLAY with rare gravel sized chalk.	23.2	21	66	45															
BH03	0.70	B3	Greyish brown slightly sandy silty CLAY with rare coarse sand sized and fine gravel sized chalk.					32.0	35.5	31.5	1.0	0.0									0.6	
BH03	0.70	D2	Brown and grey fine sandy silty CLAY with rare gravel sized chalk.																			
BH03	1.70	D5	Grey mottled brown silty CLAY with rare gravel. Gravel includes flint and chalk.	28.6	27	67	40															
BH03	2.50	D7	Grey mottled light brown silty CLAY.	32	29	72	43															

CLASSIFICATION TESTS

NMC Natural Moisture Content
PL Plastic limit
LL Liquid limit
PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
C Apparent cohesion
phi Angle of shearing resistance
BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
gw Sulphate (groundwater)
ORG Organic content

OTHER

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BH/TP No.	Depth (m)	SAMPLE DETAILS		CLASSIFICATION TESTS									SHEAR STRENGTH				CHEMICAL				OTHER RESULTS
		Sample	Laboratory Description	NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH	ORG %	
BH03	3.00	D8	Grey silty CLAY with black organic staining and rare sand sized gypsum crystals.					58.0	39.8	2.2	0.0	0.0					1.77		8.3	< 0.40	
BH03	4.00	D10	Grey silty CLAY.	31.6	28	71	43														
BH03	4.40	W1	Water sample														0.01		8.6		
BH03	6.30	CS1	Stiff dark grey CLAY.																		
BH03	7.00	D12	Grey silty CLAY with rare gravel.	28.7	30	69	39														
BH03	7.50	D13	Grey silty CLAY.					60.0	37.9	1.1	1.0	0.0								< 0.40	
BH03	8.50	D14	Grey silty CLAY.	29.8	31	74	43														
BH03	10.00	D15	Grey clay														0.94		8.9		
BH03	11.00	CS3	Firm to stiff fissured grey silty CLAY.	30.2									UU	98		1.99					
BH03	12.00	D16	Grey silty CLAY.	30.2	29	74	45														
BH03	13.20	D17	Grey silty CLAY.					57.0	41.7	1.3	0.0	0.0								0.7	
BH03	14.50	D19	Grey silty CLAY.	31.9	34	76	42														
BH03	15.10	CS5	Stiff dark grey CLAY.																		
BH03	18.00	D21	Grey silty CLAY.	29.6	35	76	41										0.28		8.8		
BH03	19.00	CS7	Very stiff fissured dark grey silty CLAY.	27.3									UU	150		1.97					

CLASSIFICATION TESTS

NMC Natural Moisture Content
 PL Plastic limit
 LL Liquid limit
 PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
 C Apparent cohesion
 phi Angle of shearing resistance
 BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
 gw Sulphate (groundwater)
 ORG Organic content

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Effective stress testing
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BH/TP No.	Depth (m)	SAMPLE DETAILS		CLASSIFICATION TESTS									SHEAR STRENGTH				CHEMICAL				OTHER RESULTS
		Sample	Laboratory Description	NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH	ORG %	
BH03	19.50	D22	Dark grey silty CLAY.					48.0	49.9	2.1	0.0	0.0								0.5	
BH03	22.00	D24	Grey silty CLAY.	27.9	35	82	47														
BH03	22.70	CS9	Stiff dark grey CLAY.																		
BH03	23.50	D25	Grey silty CLAY.					43.0	54.8	2.2	0.0	0.0								0.6	
BH03	25.00	D26	Grey silty CLAY.	30.3	32	77	45														
BH03	25.50	D27	Grey silty CLAY with rare shell fragments.					45.0	50.2	3.8	1.0	0.0				0.30		8.8	0.5		
BH03	26.00	CS11	Very stiff fissured dark grey silty CLAY.	28.6									UU	150		1.98					
BH03	27.80	D30	Dark brown clayey silty SAND with rare pockets of black organic matter.					8.0	10.8	80.2	1.0	0.0								0.5	
BH03	29.00	CS12																			Redox Potential = 12 mV
BH03	32.00	D33	Greenish grey slightly clayey SAND with rare fine gravel.							92.0	2.0	0.0								1.1	
BH03	32.90	D34																			Redox Potential = 15 mV
BH03	35.00	D36	Dark grey silty CLAY.	27.5	30	74	44	64.0	34.7	1.3	0.0	0.0								0.8	
BH03	36.20	CS13	Stiff dark grey silty CLAY.																		
BH03	37.50	D37	Grey sandy clay													0.24		9.3			
BH03	39.50	D38	Grey silty CLAY.	22.2	27	58	31														

CLASSIFICATION TESTS

NMC Natural Moisture Content
PL Plastic limit
LL Liquid limit
PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
C Apparent cohesion
phi Angle of shearing resistance
BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
gw Sulphate (groundwater)
ORG Organic content

OTHER

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BH/TP No.	Depth (m)	SAMPLE DETAILS		CLASSIFICATION TESTS									SHEAR STRENGTH				CHEMICAL				OTHER RESULTS
		Sample	Laboratory Description	NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH	ORG %	
BH04	1.20	B3	Yellowish brown and light brown SAND and GRAVEL.	6.9	NP					49.0	48.0	0.0								0.5	
BH04	1.52	W1	Water sample														0.01		8.1		
BH04	2.20	B4	Light brown sandy gravel														0.01		8.1		
BH04	3.20	B5	Light brown very sandy GRAVEL.							26.0	72.0	0.0								0.4	
BH04	3.90	D3	Greyish brown silty CLAY.	30.4	28	71	43														
BH04	4.70	D5	Grey clay														0.13		8.0		
BH04	6.20	D7	Greyish brown silty CLAY with rare gravel.	34.2	31	72	41														
BH04	6.70	B6	Grey silty CLAY.					58.0	38.7	1.3	2.0	0.0								1.4	
BH04	7.70	CS1	Stiff fissured dark grey silty CLAY.	37.1									UU	57		1.94					
BH04	8.50	D8	Greyish brown silty CLAY.	31	32	77	45														
BH04	10.00	CS2	Firm grey CLAY.																		Redox Potential = 78 mV
BH04	10.50	D10	Grey silty CLAY.	27.8	28	67	39														
BH04	11.00	CS3	Stiff fissured grey silty CLAY.	33.1									UU	52		1.94					
BH04	13.00	D11	Grey silty CLAY.	32.3	33	74	41														
BH04	14.00	CS5	Stiff grey slightly gravelly CLAY. Gravel is ifne to medium.																		Redox Potential = 58 mV

CLASSIFICATION TESTS

NMC Natural Moisture Content
PL Plastic limit
LL Liquid limit
PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
C Apparent cohesion
phi Angle of shearing resistance
BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
gw Sulphate (groundwater)
ORG Organic content

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BH/TP No.	Depth (m)	SAMPLE DETAILS		CLASSIFICATION TESTS									SHEAR STRENGTH				CHEMICAL				OTHER RESULTS
		Sample	Laboratory Description	NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH	ORG %	
BH04	15.00	D12	Grey silty CLAY.	28.7	32	77	45														
BH04	15.50	CS6	Very stiff fissured grey silty CLAY.	31									UU	77		1.92					
BH04	16.00	D13	Dark grey silty CLAY with rare shell fragments.					66.0	33.0	1.0	0.0	0.0					0.15		8.7	0.8	
BH04	18.00	D14	Grey silty CLAY.	28	29	70	41														
BH04	19.00	D15	Greyish brown silty CLAY with rare shell fragments.					55.0	39.7	5.3	0.0	0.0								0.5	
BH04	19.50	CS8	Stiff grey CLAY.																		
BH04	21.00	D16	Greyish brown silty CLAY.	28.1	31	68	37														
BH04	22.00	D17	Dark grey silty CLAY.					66.0	33.0	1.0	0.0	0.0								1.3	
BH04	22.70	CS9	Very stiff fissured dark grey silty CLAY.	30.3									UU	130		1.96					
BH04	24.00	D18	Greyish brown silty CLAY.	29.1	29	73	44														
BH04	25.00	D19	Dark grey silty CLAY.					39.0	58.8	2.2	0.0	0.0								1.4	
BH04	27.00	D20	Greyish brown silty CLAY.	29.5	31	76	45														
BH04	28.00	D21	Grey clay														0.20		8.8		
BH04	28.70	CS11	Very stiff dark grey CLAY.																		
BH04	29.90	D22	Dark grey sandy clayey SILT with rare gravel.	18.5	28	43	15														

CLASSIFICATION TESTS

NMC Natural Moisture Content
PL Plastic limit
LL Liquid limit
PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
C Apparent cohesion
phi Angle of shearing resistance
BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
gw Sulphate (groundwater)
ORG Organic content

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BH/TP No.	Depth (m)	SAMPLE DETAILS		CLASSIFICATION TESTS									SHEAR STRENGTH				CHEMICAL				OTHER RESULTS
		Sample	Laboratory Description	NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH	ORG %	
BH05	1.00	D3	Brown organic SILT with rare shells.	54.6	48	89	41														
BH05	1.00	B3	Black gravelly sandy fibrous PEAT. Gravel includes shell fragments and rare plastic remains.					5.0	21.7	60.3	13.0	0.0									12.0
BH05	1.00	D3	Brown organic SILT with rare shells.																		
BH05	1.10	W1	Water sample														0.01		7.8		
BH05	2.00	D8	Grey mottled brown clayey SILT.	37.9	35	76	41														
BH05	2.50	D9	Grey silty CLAY.					56.0	41.8	2.2	0.0	0.0									0.9
BH05	3.00	D10	Grey clay													0.47			7.8		
BH05	4.00	D12	Greyish brown silty CLAY.	31.7	28	79	51														
BH05	5.00	D14	Grey clay													0.18			8.1		
BH05	6.00	D15	Greyish brown silty CLAY.	30.1	29	71	42														
BH05	6.90	CS1	Stiff grey slightly gravelly CLAY.																		
BH05	7.50	D16	Grey silty CLAY.	30.9	30	74	44														
BH05	8.50	D17	Grey silty CLAY.					58.0	41.6	0.4	0.0	0.0									0.8
BH05	10.00	D18	Grey clayey SILT.	30.7	36	76	40														
BH05	11.50	CS3	Stiff fissured dark grey silty CLAY.	29.8										UU	39		1.88				

CLASSIFICATION TESTS

NMC Natural Moisture Content
PL Plastic limit
LL Liquid limit
PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
C Apparent cohesion
phi Angle of shearing resistance
BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
gw Sulphate (groundwater)
ORG Organic content

OTHER

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BH/TP No.	Depth (m)	Sample	SAMPLE DETAILS Laboratory Description	CLASSIFICATION TESTS								SHEAR STRENGTH				CHEMICAL				OTHER RESULTS	
				NMC %	PL %	LL %	PI %	% Clay	% Silt	% Sand	% Gravel	% Cobble	Type	C kN/m ²	phi Deg.	BD Mg/m ³	S04 2:1 g/l	S04 gw g/l	pH		ORG %
BH05	13.00	D20	Grey silty CLAY.	27.3	30	68	38											0.19		8.3	
BH05	13.70	CS5	Very stiff fissured grey silty CLAY.	30.4										UU	90		1.95				
BH05	14.60	D21	Grey fine sandy silty CLAY.	31.3	34	79	45														
BH05	15.00	D22	Grey silty CLAY with rare shell fragments.					62.0	34.0	2.0	2.0	0.0								0.8	
BH05	17.00	CS6	Stiff grey CLAY																		Redox Potential = 56 mV
BH05	18.00	D24	Grey fine sandy silty CLAY.	30.5	32	73	41														
BH05	20.00	CS8	Very stiff fissured grey silty CLAY.	32.6										UU	92		1.95				
BH05	20.60	D25	Grey clayey SILT.	32.4	34	73	39														
BH05	22.00	D27	Grey silty CLAY.					59.0	37.9	3.1	0.0	0.0						0.29		8.4	1.1
BH05	24.50	CS10	Stiff grey CLAY.																		Redox Potential = 63 mV
BH05	25.00	D28	Dark grey silty CLAY with rare gravel.	27.6	32	76	44														
BH05	27.00	D30	Dark grey fine sandy silty CLAY.	31.2	32	87	55														
BH05	28.00	D31	Dark grey silty CLAY.					58.0	40.9	1.1	0.0	0.0									1.6
BH05	29.00	CS12	Very stiff fissured dark grey silty CLAY.	25										UU	440		2.02				
BH05	29.80	D32	Dark greyish brown silty CLAY with rare shell fragments.	21.9	24	64	40														

CLASSIFICATION TESTS

NMC Natural Moisture Content
PL Plastic limit
LL Liquid limit
PI Plasticity index

SHEAR STRENGTH

UU Unconsolidated undrained triaxial
C Apparent cohesion
phi Angle of shearing resistance
BD Bulk density

CHEMICAL

2:1 Soluble sulphate (soil)
gw Sulphate (groundwater)
ORG Organic content

OTHER

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Engineer : Mott Macdonald

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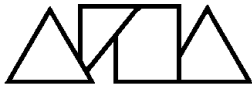
**DETERMINATION OF MOISTURE CONTENT, LIQUID LIMIT AND PLASTIC LIMIT
AND DERIVATION OF PLASTICITY AND LIQUIDITY INDEX**

Borehole/ Trial Pit	Depth (m)	Sample	Natural Moisture Content %	Sample Passing 425µm Sieve		Liquid Limit %	Plastic Limit %	Plasticity Index %	Liquidity Index	Group Symbol	Laboratory Description
				Percentage %	Moisture Content %						
BH01	0.30	D1	11.8	78	15.1	34	20	14	-0.36	CL	Brown fine sandy silty CLAY with rare gravel.
BH01	1.70	D3	21.5	99	21.7	44	23	21	-0.05	CI	Light brown and light grey fine sandy silty CLAY.
BH01	4.50	D7	15.4	76	20.3	33	20	13	0.00	CL	Light grey weathered CHALK
BH01	6.40	D11	21.5	70	30.7	41	29	12	0.17	MI	Light grey weathered CHALK
BH01	10.00	D15	19.3	54	35.7	35	23	12	1.08	CL/CI	Light grey weathered CHALK
BH01	13.00	D18	29.1	99	29.4	75	30	45	-0.02	CV	Grey fine sandy silty CLAY.
BH01	15.00	D19	26.9	99	27.2	75	29	46	-0.04	CV	Grey fine sandy silty CLAY.
BH01	18.00	D22	28.2	99	28.5	71	30	41	-0.05	CV	Grey fine sandy silty CLAY.
BH01	22.70	D24	27.7	99	28.0	80	33	47	-0.11	CV	Grey fine sandy silty CLAY.
BH01	25.70	D26	31.7	99	32.0	68	31	37	0.03	CH	Grey fine sandy silty CLAY.
BH01	29.00	D28	29.1	99	29.4	75	32	43	-0.07	CV	Grey fine sandy silty CLAY.
BH02	0.35	D1	16.9	100	16.9	41	18	23	-0.04	CI	Brown silty CLAY with rare gravel.
BH02	0.70	D2	18.2	98	18.6	56	23	33	-0.12	CH	Brown and grey mottled dark brown silty CLAY with rare gravel.
BH02	2.50	D4	32.0	100	32.0	74	33	41	-0.02	CV	Grey and brown silty CLAY.
BH02	4.20	D7	35.9	100	35.9	83	35	48	0.02	CV	Greyish brown silty CLAY.
BH02	6.20	D10	32.0	100	32.0	74	31	43	0.02	CV	Grey silty CLAY with rare gravel.
BH02	10.70	D14	31.2	100	31.2	75	33	42	-0.05	CV	Grey silty CLAY.
BH02	13.50	D16	30.5	100	30.5	79	33	46	-0.04	CV	Grey silty CLAY.
BH02	16.00	D17	32.7	99	33.0	81	32	49	0.02	CV	Grey silty CLAY with rare gravel.
BH02	19.00	D20	32.0	99	32.3	87	35	52	-0.06	CV	Grey mottled brownish grey silty CLAY with rare gravel.
BH02	23.80	D22	17.3	100	17.3	36	18	18	-0.06	CI	Dark greyish brown silty CLAY
BH02	27.50	D24	19.2	12	160.0		NP				Bluish grey slightly gravelly clayey silty SAND.
BH02	32.50	D25	31.1	100	31.1	89	38	51	-0.14	CV	Dark grey silty CLAY.
BH02	36.00	D28	29.2	100	29.2	81	34	47	-0.11	CV	Dark grey silty CLAY.
BH02	40.00	D30	28.3	100	28.3	79	34	45	-0.13	CV	Dark grey silty CLAY.
BH03	0.70	D2	23.2	98	23.7	66	21	45	0.07	CH	Brown and grey fine sandy silty CLAY with rare gravel sized chalk.
BH03	1.70	D5	28.6	95	30.1	67	27	40	0.08	CH	Grey mottled brown silty CLAY with rare gravel. Gravel includes flint and chalk.
BH03	2.50	D7	32.0	100	32.0	72	29	43	0.07	CV	Grey mottled light brown silty CLAY.
BH03	4.00	D10	31.6	100	31.6	71	28	43	0.09	CV	Grey silty CLAY.
BH03	7.00	D12	28.7	100	28.7	69	30	39	-0.03	CH	Grey silty CLAY with rare gravel.
BH03	8.50	D14	29.8	100	29.8	74	31	43	-0.02	CV	Grey silty CLAY.
BH03	12.00	D16	30.2	100	30.2	74	29	45	0.02	CV	Grey silty CLAY.
BH03	14.50	D19	31.9	100	31.9	76	34	42	-0.05	CV	Grey silty CLAY.
BH03	18.00	D21	29.6	100	29.6	76	35	41	-0.12	CV	Grey silty CLAY.

Method of Preparation : BS EN ISO 17892:PART 1:2014:5.1 Test specimen preparation (moisture content). BS EN ISO 17892:PART 1:2018:5.2 Preparation of samples for classification tests

Method of Test : BS EN ISO 17892:PART 1:2014:5.2 Test execution (moisture content) BS EN ISO 17892: PART 12:5.3 & 6.2 Determination of the liquid limit BS EN ISO 17892:PART 5.5, 6.4 & 6.5 Determination of the plastic limit and plasticity index

Remarks :



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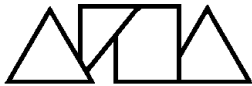
**DETERMINATION OF MOISTURE CONTENT, LIQUID LIMIT AND PLASTIC LIMIT
AND DERIVATION OF PLASTICITY AND LIQUIDITY INDEX**

Borehole/ Trial Pit	Depth (m)	Sample	Natural Moisture Content %	Sample Passing 425µm Sieve		Liquid Limit %	Plastic Limit %	Plasticity Index %	Liquidity Index	Group Symbol	Laboratory Description
				Percentage %	Moisture Content %						
BH03	22.00	D24	27.9	100	27.9	82	35	47	-0.15	CV	Grey silty CLAY.
BH03	25.00	D26	30.3	100	30.3	77	32	45	-0.04	CV	Grey silty CLAY.
BH03	35.00	D36	27.5	100	27.5	74	30	44	-0.05	CV	Dark grey silty CLAY.
BH03	39.50	D38	22.2	100	22.2	58	27	31	-0.16	CH	Grey silty CLAY.
BH04	1.20	B3	6.9	30	23.0		NP				Yellowish brown and light brown SAND and GRAVEL.
BH04	3.90	D3	30.4	99	30.7	71	28	43	0.07	CV	Greyish brown silty CLAY.
BH04	6.20	D7	34.2	99	34.5	72	31	41	0.10	CV	Greyish brown silty CLAY with rare gravel.
BH04	8.50	D8	31.0	99	31.3	77	32	45	-0.02	CV	Greyish brown silty CLAY.
BH04	10.50	D10	27.8	99	28.1	67	28	39	0.00	CH	Grey silty CLAY.
BH04	13.00	D11	32.3	99	32.6	74	33	41	0.00	CV	Grey silty CLAY.
BH04	15.00	D12	28.7	99	29.0	77	32	45	-0.07	CV	Grey silty CLAY.
BH04	18.00	D14	28.0	99	28.3	70	29	41	-0.02	CH/CV	Grey silty CLAY.
BH04	21.00	D16	28.1	99	28.4	68	31	37	-0.08	CH	Greyish brown silty CLAY.
BH04	24.00	D18	29.1	99	29.4	73	29	44	0.00	CV	Greyish brown silty CLAY.
BH04	27.00	D20	29.5	99	29.8	76	31	45	-0.02	CV	Greyish brown silty CLAY.
BH04	29.90	D22	18.5	84	22.0	43	28	15	-0.40	MI	Dark grey sandy clayey SILT with rare gravel.
BH05	1.00	D3	54.6	97	56.3	89	48	41	0.20	MV	Brown organic SILT with rare shells.
BH05	2.00	D8	37.9	99	38.3	76	35	41	0.07	CV	Grey mottled brown clayey SILT.
BH05	4.00	D12	31.7	99	32.0	79	28	51	0.08	CV	Greyish brown silty CLAY.
BH05	6.00	D15	30.1	99	30.4	71	29	42	0.02	CV	Greyish brown silty CLAY.
BH05	7.50	D16	30.9	99	31.2	74	30	44	0.02	CV	Grey silty CLAY.
BH05	10.00	D18	30.7	99	31.0	76	36	40	-0.13	MV	Grey clayey SILT.
BH05	13.00	D20	27.3	99	27.6	68	30	38	-0.05	CH	Grey silty CLAY.
BH05	14.60	D21	31.3	99	31.6	79	34	45	-0.04	CV	Grey fine sandy silty CLAY.
BH05	18.00	D24	30.5	99	30.8	73	32	41	-0.02	CV	Grey fine sandy silty CLAY.
BH05	20.60	D25	32.4	99	32.7	73	34	39	-0.03	CV	Grey clayey SILT.
BH05	25.00	D28	27.6	99	27.9	76	32	44	-0.09	CV	Dark grey silty CLAY with rare gravel.
BH05	27.00	D30	31.2	99	31.5	87	32	55	0.00	CV	Dark grey fine sandy silty CLAY.
BH05	29.80	D32	21.9	98	22.3	64	24	40	-0.05	CH	Dark greyish brown silty CLAY with rare shell fragments.

Method of Preparation : BS EN ISO 17892:PART 1:2014:5.1 Test specimen preparation (moisture content). BS EN ISO 17892:PART 1:2018:5.2 Preparation of samples for classification tests

Method of Test : BS EN ISO 17892:PART 1:2014:5.2 Test execution (moisture content) BS EN ISO 17892: PART 12:5.3 & 6.2 Determination of the liquid limit BS EN ISO 17892:PART 5.5, 6.4 & 6.5 Determination of the plastic limit and plasticity index

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**DETERMINATION OF CHLORIDE CONTENT, ORGANIC MATTER CONTENT,
LOSS ON IGNITION AND NITRATE CONTENT**

Borehole/ Trial Pit	Depth (m)	Sample	Concentration of Chloride			Percentage of sample passing 2mm Sieve %	Organic Matter Content %	Mass Loss on Ignition %	Water Soluble Nitrate mg/l	Laboratory Description
			Soil		Groundwater mg/l					
			Acid Soluble %	Water Soluble mg/l						
BH01	0.30	B2				1.1			Dark brown clayey silty SAND with rare gravel and rootlets.	
BH01	1.20	B4				< 0.40			Light brown and rare yellowish brown fine sandy clayey SILT.	
BH01	4.00	D6				< 0.40			Light grey fine sandy clayey SILT.	
BH01	5.70	W1					0.90		Water sample	
BH01	6.00	D10				< 0.40			Light grey clayey SILT.	
BH01	11.00	D16				< 0.40			Grey clayey fine sandy SILT with rare gravel and shell.	
BH01	15.20	D20				0.7			Grey clayey SILT.	
BH01	19.70	D23				0.7			Grey SILT and CLAY.	
BH01	23.50	D25				< 0.40			Grey SILT and CLAY.	
BH01	26.50	D27				< 0.40			Grey silty CLAY.	
BH02	0.35	B2				24.0			Grey and brown sandy silty CLAY with rare fine to medium gravel.	
BH02	1.40	B4				1.3			Yellowish brown SAND and GRAVEL.	
BH02	2.20	W1					9.60		Water sample	
BH02	3.20	D5				< 0.40			Greenish grey silty CLAY with rare shell fragments.	
BH02	4.20	D7				0.6			Greyish brown silty CLAY.	
BH02	6.70	D11				0.5			Grey silty CLAY.	
BH02	11.50	D15				0.5			Grey silty CLAY.	
BH02	17.00	D18				0.6			Grey silty CLAY with rare gravel.	
BH02	21.00	D21				0.6			Grey silty CLAY.	
BH02	26.30	D23				0.6			Greenish grey slightly silty SAND with rare gravel.	
BH02	30.00	B6				< 0.40			Greenish grey slightly silty SAND.	
BH02	33.00	D26				2.6			Dark grey silty CLAY.	
BH02	37.00	D29				4.1			Dark grey CLAY and SILT.	
BH02	40.00	D30				1.4			Dark grey silty CLAY.	
BH03	0.70	B3				0.6			Greyish brown slightly sandy silty CLAY with rare coarse sand sized and fine gravel sized chalk.	
BH03	3.00	D8				< 0.40			Grey silty CLAY with black organic staining and rare sand sized gypsum crystals.	
BH03	4.40	W1					8.90		Water sample	
BH03	7.50	D13				< 0.40			Grey silty CLAY.	
BH03	13.20	D17				0.7			Grey silty CLAY.	
BH03	19.50	D22				0.5			Dark grey silty CLAY.	
BH03	23.50	D25				0.6			Grey silty CLAY.	
BH03	25.50	D27				0.5			Grey silty CLAY with rare shell fragments.	
BH03	27.80	D30				0.5			Dark brown clayey silty SAND with rare pockets of black organic matter.	

Method of Preparation : BS 1377:PART 1:1990:7.5 Preparation of soil for chemical tests

Method of Test : Lab in-house method based on Standard Methods for the Examination of Water and Wastewater Part 3120 B – 21st Edition (2005) for Determination of chloride content, BS 1377:PART 3:1990:4 for Determination of loss on ignition

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**DETERMINATION OF CHLORIDE CONTENT, ORGANIC MATTER CONTENT,
LOSS ON IGNITION AND NITRATE CONTENT**

Borehole/ Trial Pit	Depth (m)	Sample	Concentration of Chloride			Percentage of sample passing 2mm Sieve %	Organic Matter Content %	Mass Loss on Ignition %	Water Soluble Nitrate mg/l	Laboratory Description
			Soil		Groundwater mg/l					
			Acid Soluble %	Water Soluble mg/l						
BH03	32.00	D33							Greenish grey slightly clayey SAND with rare fine gravel.	
BH03	35.00	D36							Dark grey silty CLAY.	
BH04	1.20	B3							Yellowish brown and light brown SAND and GRAVEL.	
BH04	1.52	W1					1.80		Water sample	
BH04	3.20	B5							Light brown very sandy GRAVEL.	
BH04	6.70	B6							Grey silty CLAY.	
BH04	16.00	D13							Dark grey silty CLAY with rare shell fragments.	
BH04	19.00	D15							Greyish brown silty CLAY with rare shell fragments.	
BH04	22.00	D17							Dark grey silty CLAY.	
BH04	25.00	D19							Dark grey silty CLAY.	
BH05	1.00	B3							Black gravelly sandy fibrous PEAT. Gravel includes shell fragments and rare plastic remains.	
BH05	1.10	W1					<0.05		Water sample	
BH05	2.50	D9							Grey silty CLAY.	
BH05	8.50	D17							Grey silty CLAY.	
BH05	15.00	D22							Grey silty CLAY with rare shell fragments.	
BH05	22.00	D27							Grey silty CLAY.	
BH05	28.00	D31							Dark grey silty CLAY.	

Method of Preparation : BS 1377:PART 1:1990:7.5 Preparation of soil for chemical tests

Method of Test : Lab in-house method based on Standard Methods for the Examination of Water and Wastewater Part 3120 B – 21st Edition (2005) for Determination of chloride content, BS 1377:PART 3:1990:4 for Determination of loss on ignition

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DETERMINATION OF SATURATION MOISTURE CONTENT

Borehole/ Trial Pit	Depth (m)	Sample	Water Content %	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Saturation Moisture Content %	Porosity %	Laboratory Description
BH01	4.50	D7	15.4	2.19	1.9	16	30	Light grey weathered CHALK
BH01	6.40	D11	16.6	2.19	1.88	16	30	Light grey weathered CHALK
BH01	10.00	D15	15.8	2.19	1.89	16	30	Light grey weathered CHALK

Method of Preparation : BS 1377:PART 1:1990:7.3 and 7.4 Preparation of samples for classification tests

Method of Test : BS 1377:PART 2:1990:3 Determination of Saturation moisture content and water content 1990:7 Determination of density

Remarks :

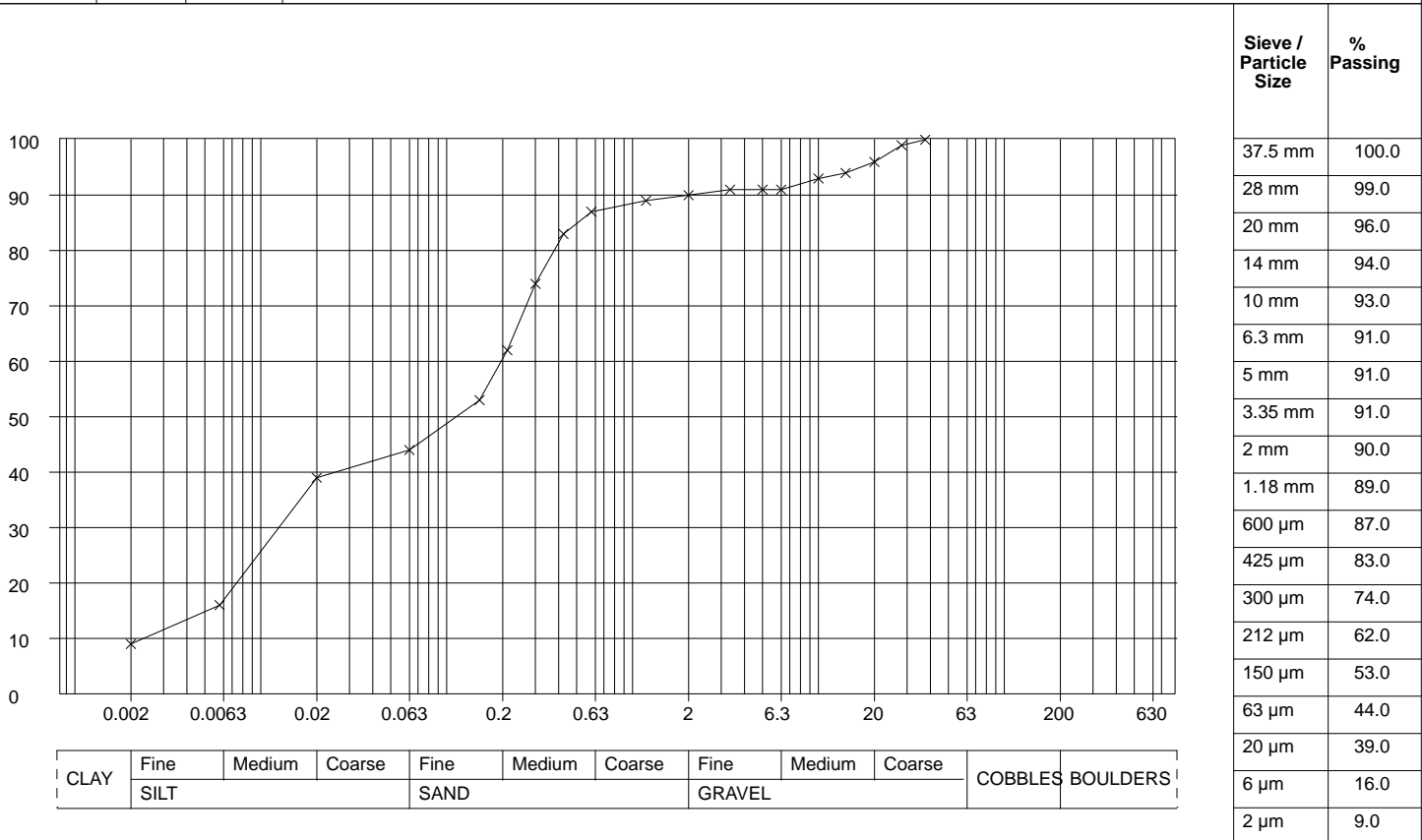


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH01	0.30	B2	Dark brown clayey silty SAND with rare gravel and rootlets.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	512.5 µm
D60	198.2 µm
D10	2.6 µm
Uniformity Coefficient	77.1

Particle Proportions	
Cobbles + Boulders	-
Gravel	10.0%
Sand	46.2%
Silt	34.8%
Clay	9.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

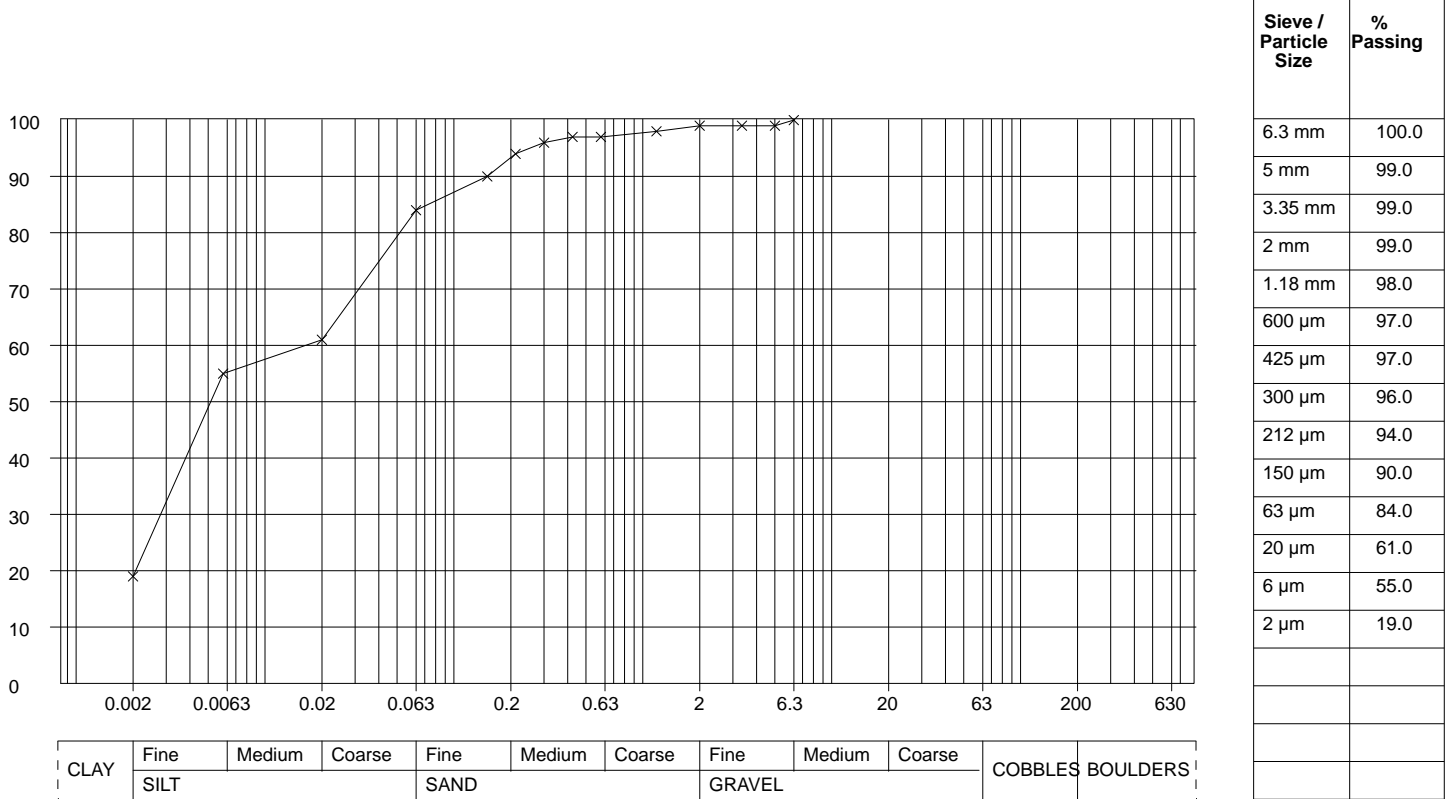


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH01	1.20	B4	Light brown and rare yellowish brown fine sandy clayey SILT.



Grading Analysis	
D85	77.5 µm
D60	17.7 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	1.0%
Sand	16.0%
Silt	64.0%
Clay	19.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution
Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette
Remarks :

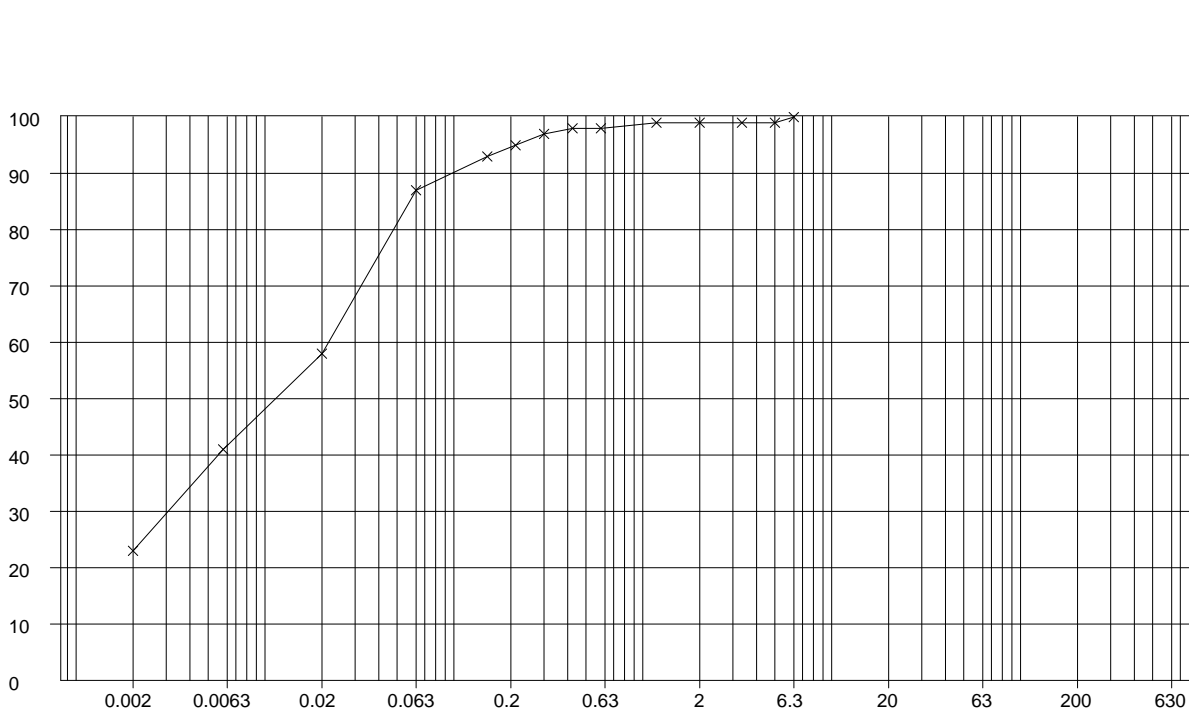


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH01	4.00	D6	Light grey fine sandy clayey SILT.



Sieve / Particle Size	% Passing
6.3 mm	100.0
5 mm	99.0
3.35 mm	99.0
2 mm	99.0
1.18 mm	99.0
600 µm	98.0
425 µm	98.0
300 µm	97.0
212 µm	95.0
150 µm	93.0
63 µm	87.0
20 µm	58.0
6 µm	41.0
2 µm	23.0

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	60.0 µm
D60	23.0 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	1.0%
Sand	13.2%
Silt	62.8%
Clay	23.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

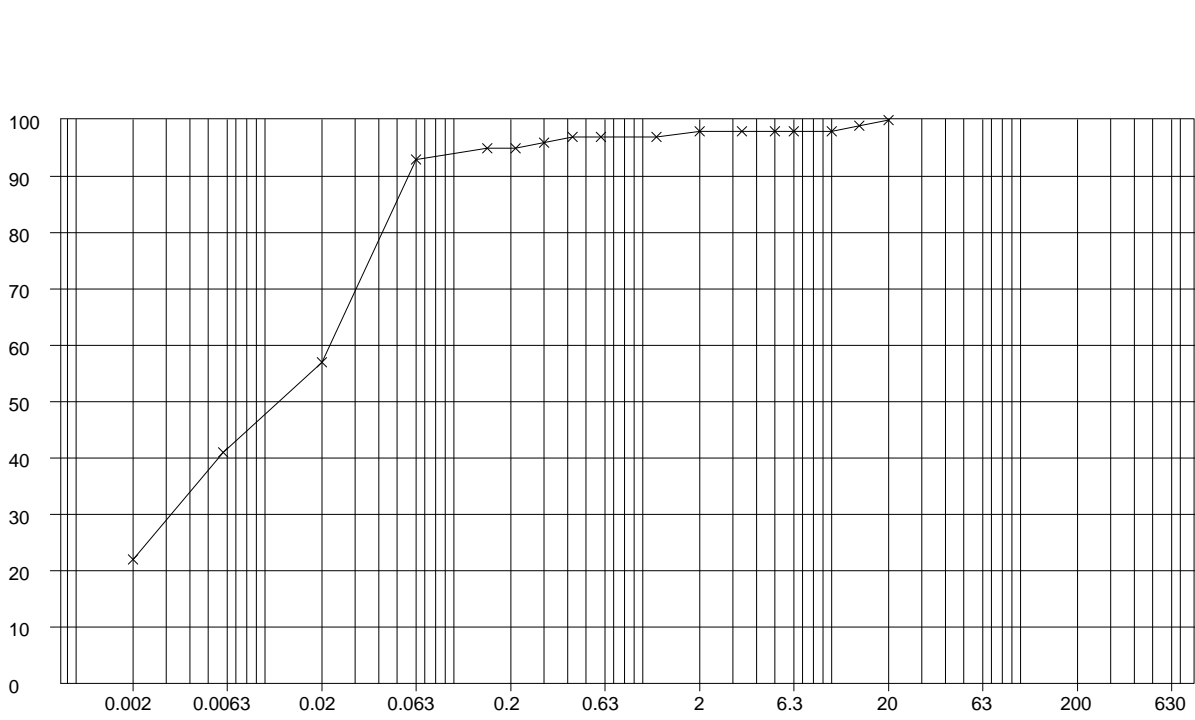


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH01	6.00	D10	Light grey clayey SILT.



Sieve / Particle Size	% Passing
20 mm	100.0
14 mm	99.0
10 mm	98.0
6.3 mm	98.0
5 mm	98.0
3.35 mm	98.0
2 mm	98.0
1.18 mm	97.0
600 µm	97.0
425 µm	97.0
300 µm	96.0
212 µm	95.0
150 µm	95.0
63 µm	93.0
20 µm	57.0
6 µm	41.0
2 µm	22.0

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	53.4 µm
D60	23.6 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	2.0%
Sand	6.5%
Silt	69.5%
Clay	22.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

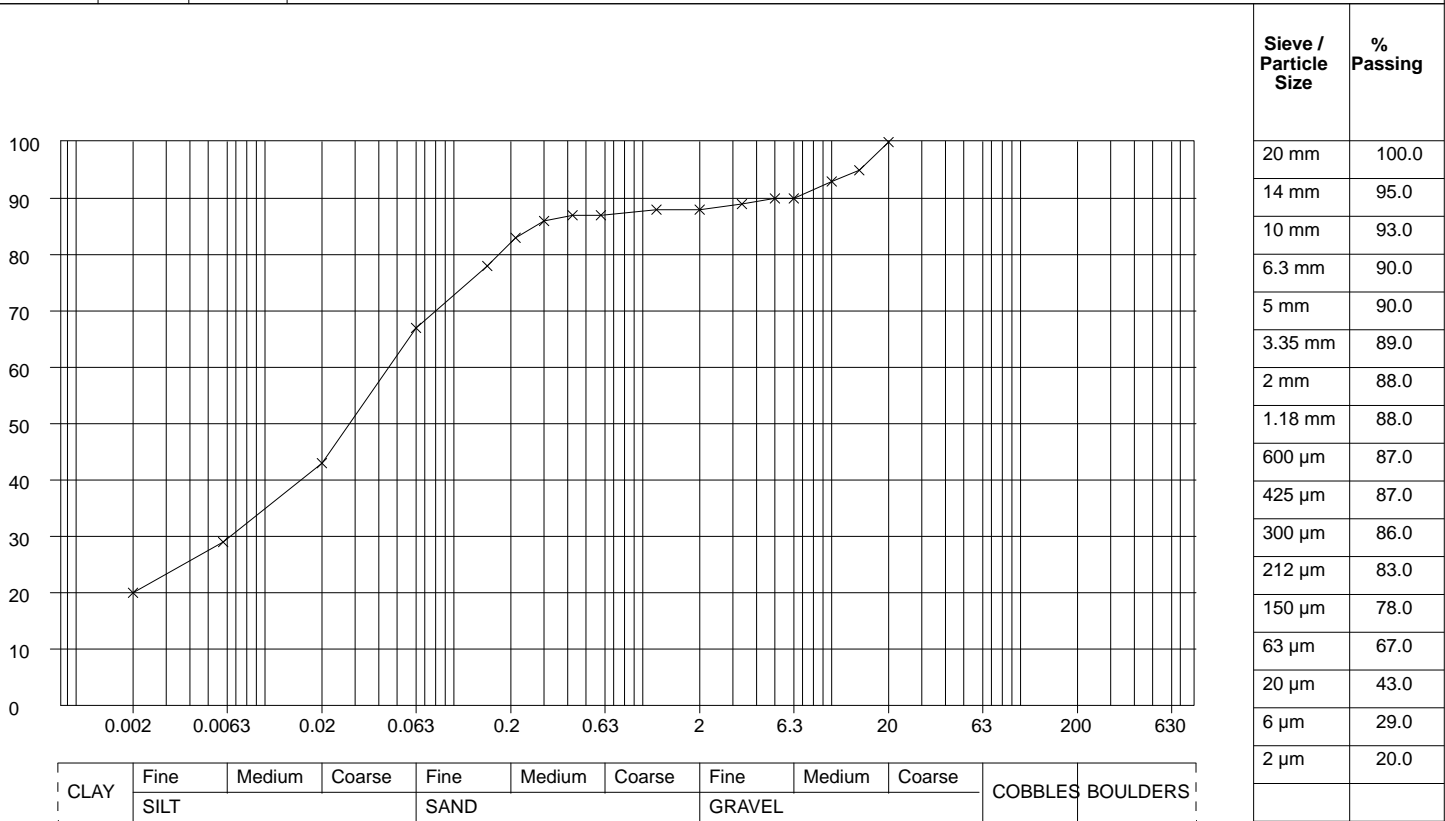


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH01	11.00	D16	Grey clayey fine sandy SILT with rare gravel and shell.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	270.7 µm
D60	50.5 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	12.0%
Sand	22.0%
Silt	46.0%
Clay	20.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution
Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette
Remarks :

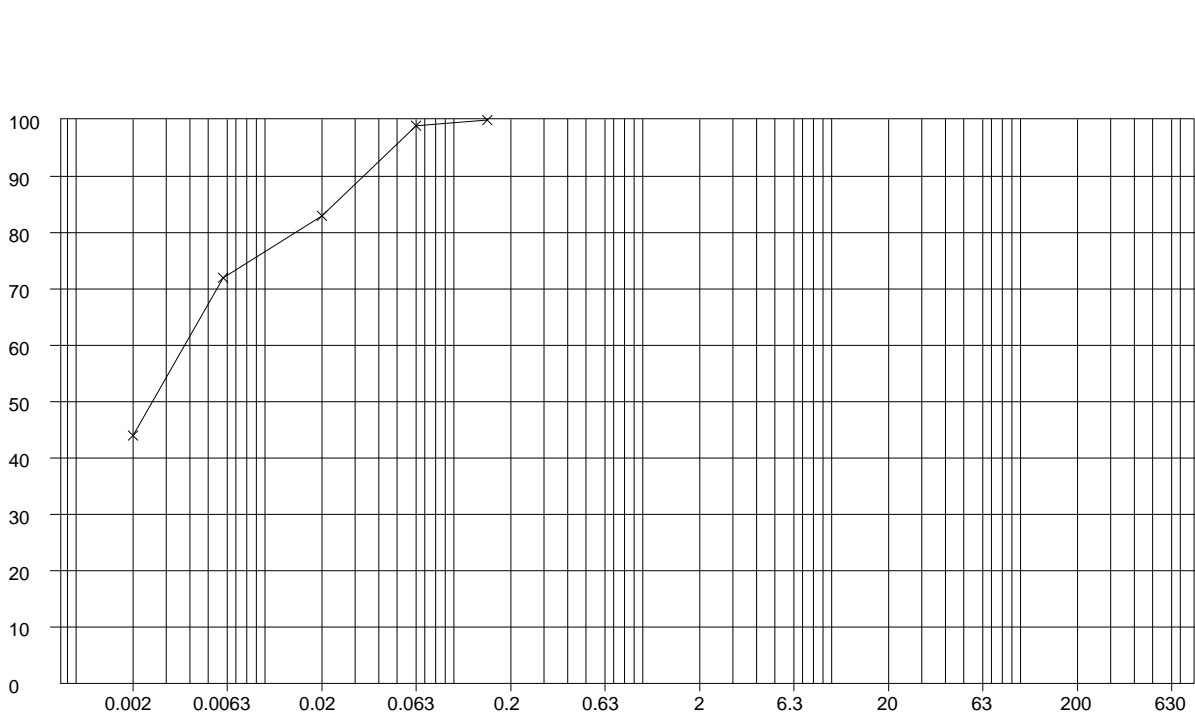


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH01	15.20	D20	Grey clayey SILT.



Sieve / Particle Size	% Passing
150 µm	100.0
63 µm	99.0
20 µm	83.0
6 µm	72.0
2 µm	44.0

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	25.4 µm
D60	4.3 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	1.7%
Silt	54.3%
Clay	44.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

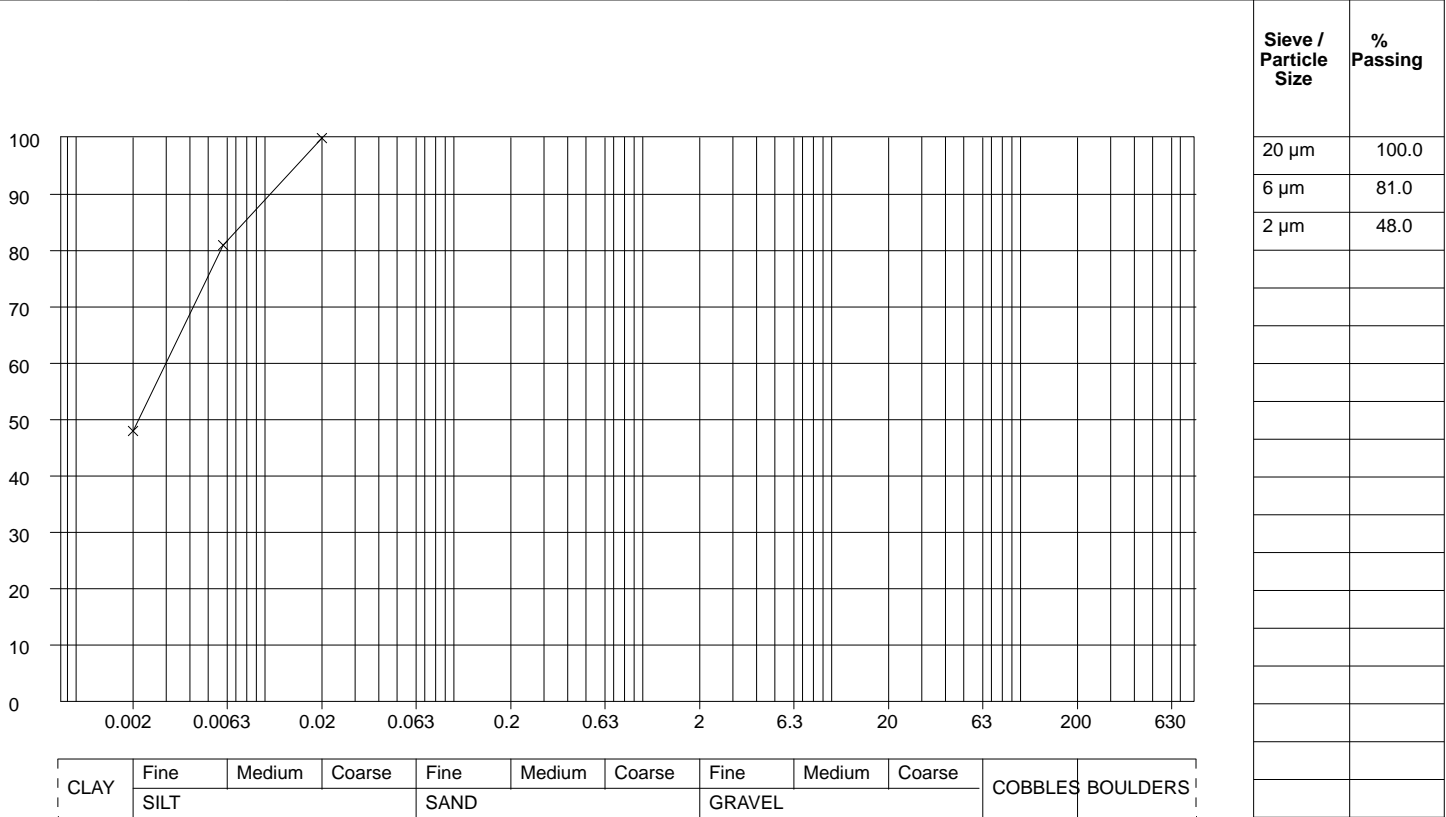


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH01	19.70	D23	Grey SILT and CLAY.



Grading Analysis	
D85	8.9 µm
D60	3.5 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	-
Silt	52.0%
Clay	48.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

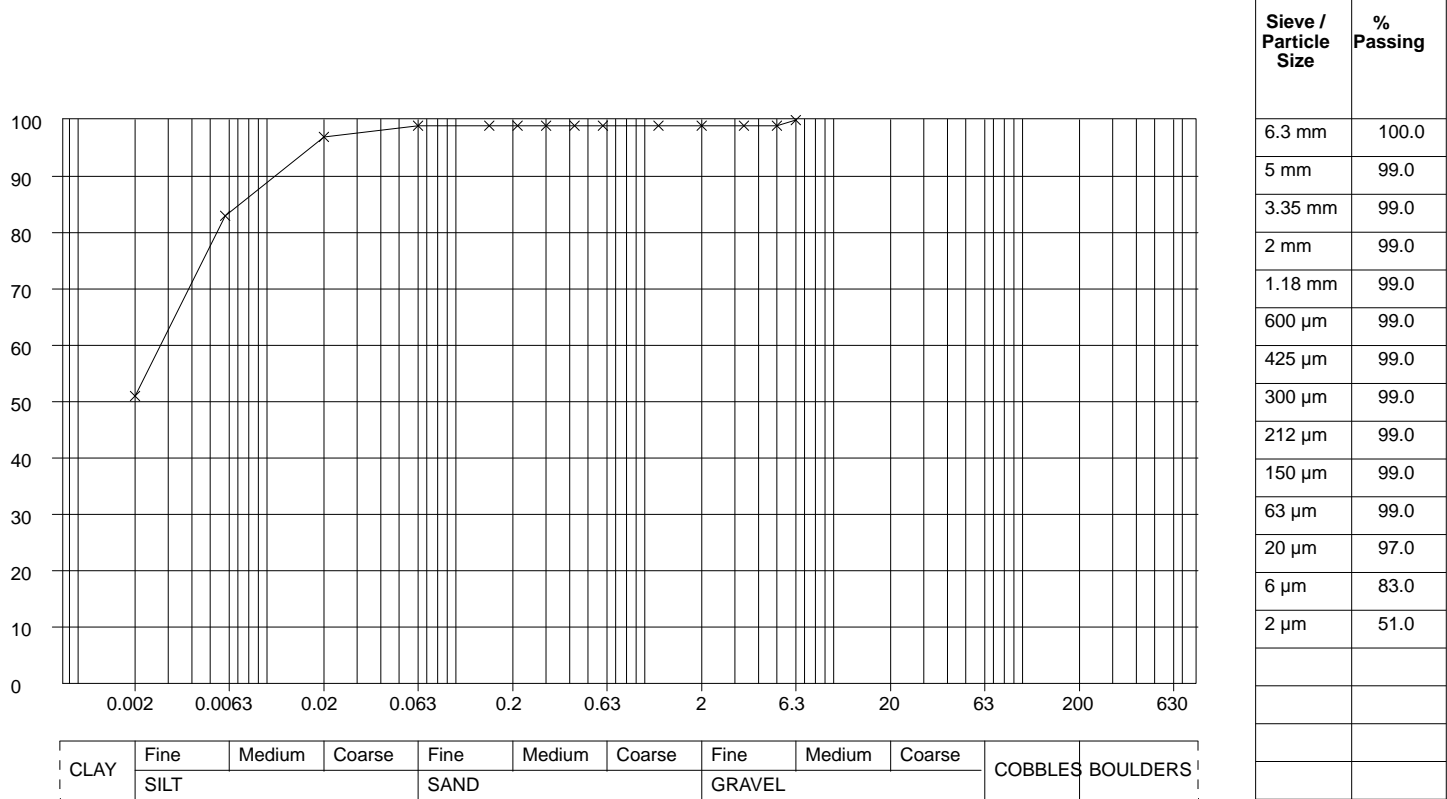


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH01	23.50	D25	Grey SILT and CLAY.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	8.0 µm
D60	3.1 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	1.0%
Sand	0.1%
Silt	47.9%
Clay	51.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

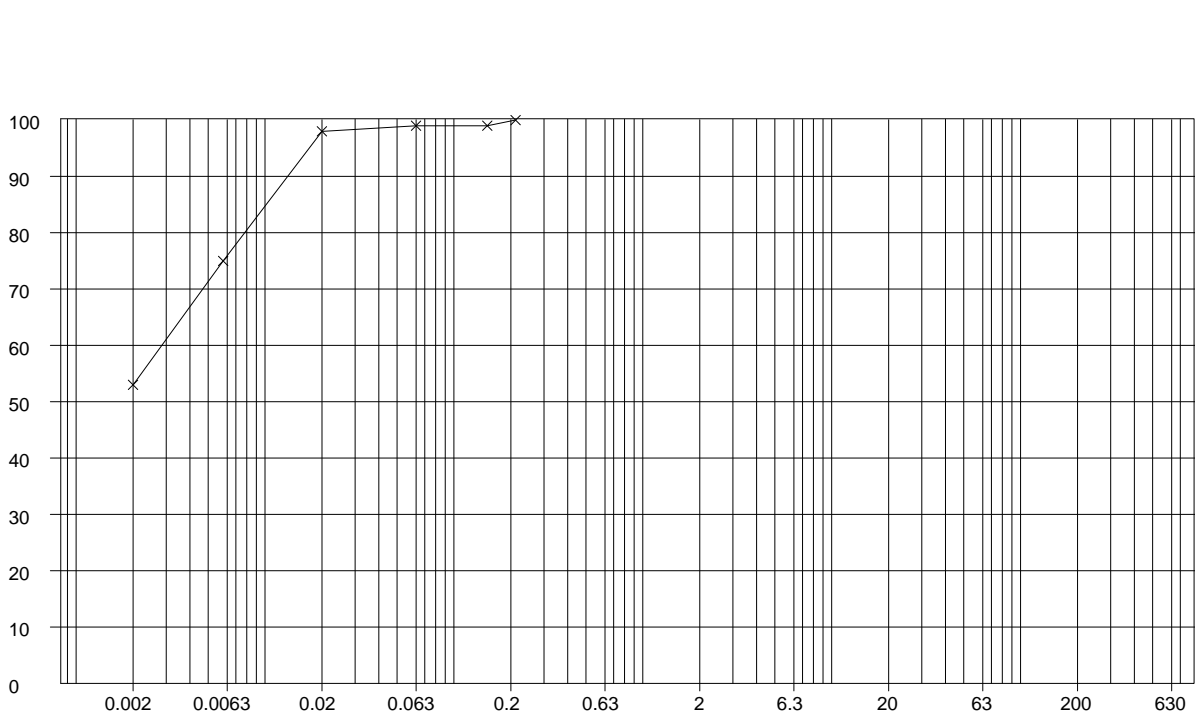


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH01	26.50	D27	Grey silty CLAY.



Sieve / Particle Size	% Passing
212 µm	100.0
150 µm	99.0
63 µm	99.0
20 µm	98.0
6 µm	75.0
2 µm	53.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
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Grading Analysis	
D85	12.1 µm
D60	3.3 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	1.0%
Silt	46.0%
Clay	53.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

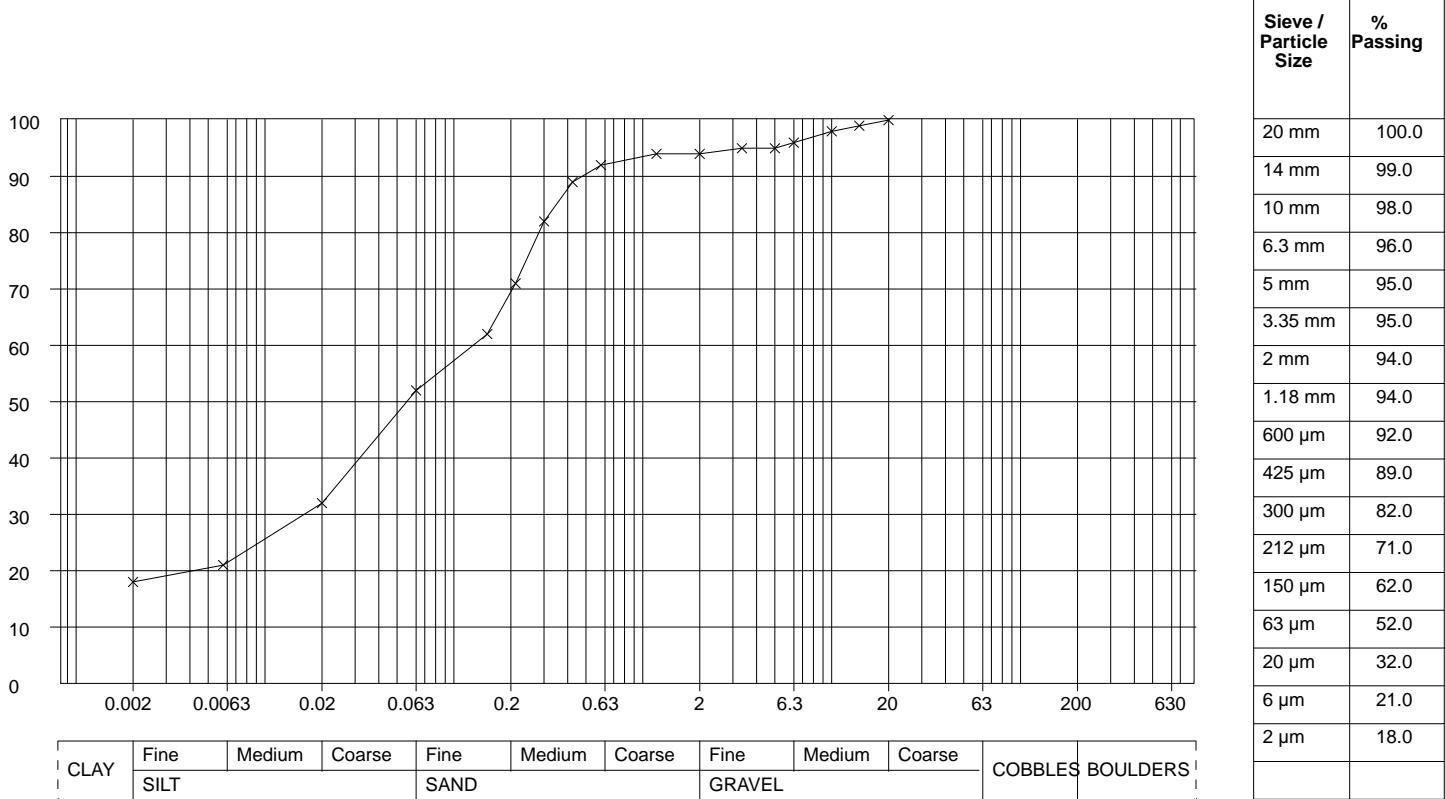


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	0.35	B2	Grey and brown sandy silty CLAY with rare fine to medium gravel.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	353.6 µm
D60	132.6 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	6.0%
Sand	42.9%
Silt	33.1%
Clay	18.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

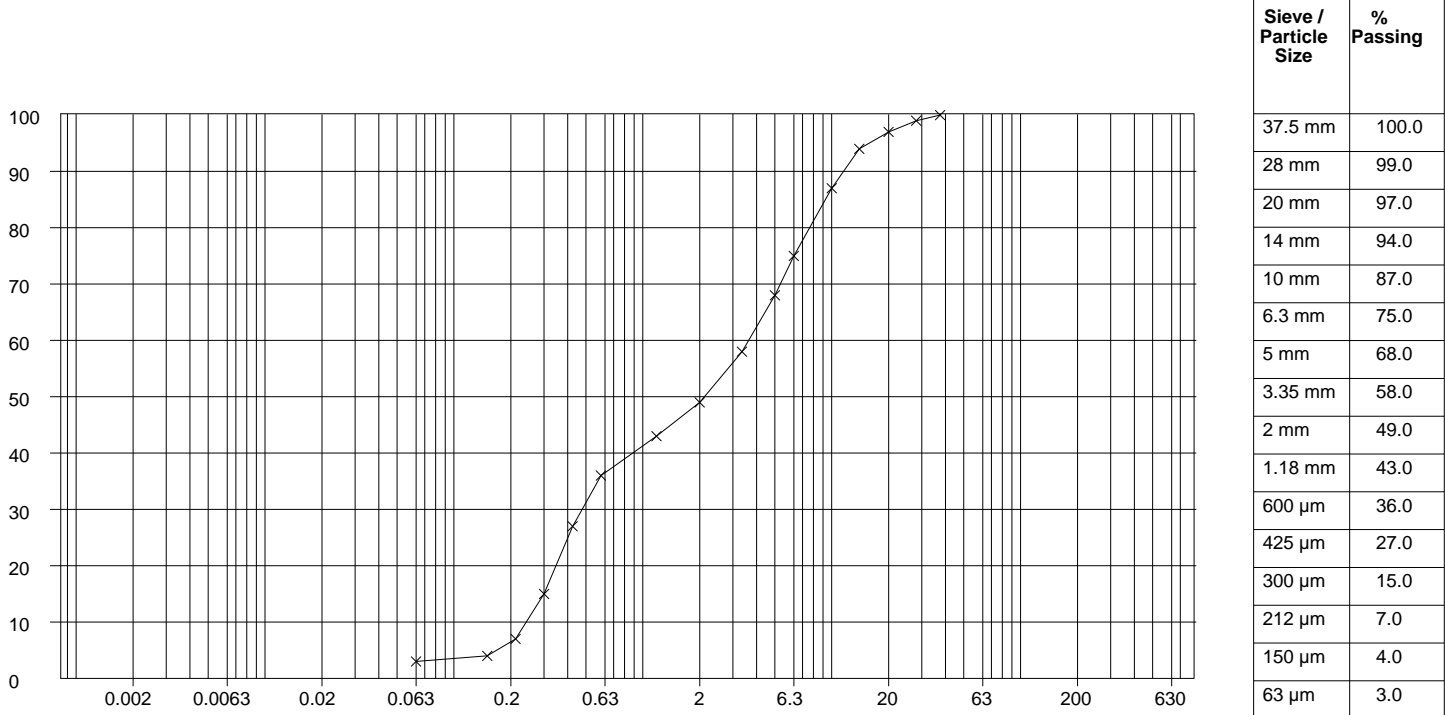


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	1.40	B4	Yellowish brown SAND and GRAVEL.



CLAY	Fine	Medium	Coarse	SAND	Medium	Coarse	GRAVEL	COBBLES	BOULDERS
	SILT								

Grading Analysis	
D85	9.4 mm
D60	3.7 mm
D10	245.0 µm
Uniformity Coefficient	15.0

Particle Proportions	
Cobbles + Boulders	-
Gravel	51.0%
Sand	46.0%
Silt	-
Clay	-

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

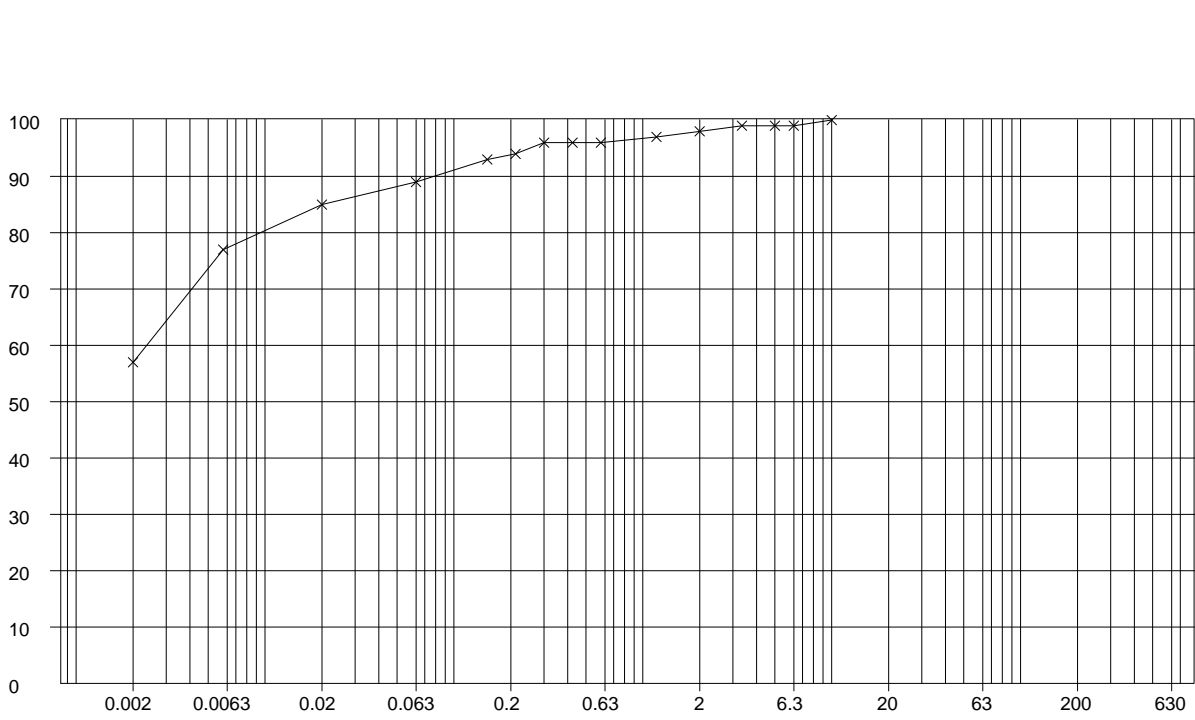


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	3.20	D5	Greenish grey silty CLAY with rare shell fragments.



Sieve / Particle Size	% Passing
10 mm	100.0
6.3 mm	99.0
5 mm	99.0
3.35 mm	99.0
2 mm	98.0
1.18 mm	97.0
600 µm	96.0
425 µm	96.0
300 µm	96.0
212 µm	94.0
150 µm	93.0
63 µm	89.0
20 µm	85.0
6 µm	77.0
2 µm	57.0

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	20.0 µm
D60	2.6 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	2.0%
Sand	9.2%
Silt	31.8%
Clay	57.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

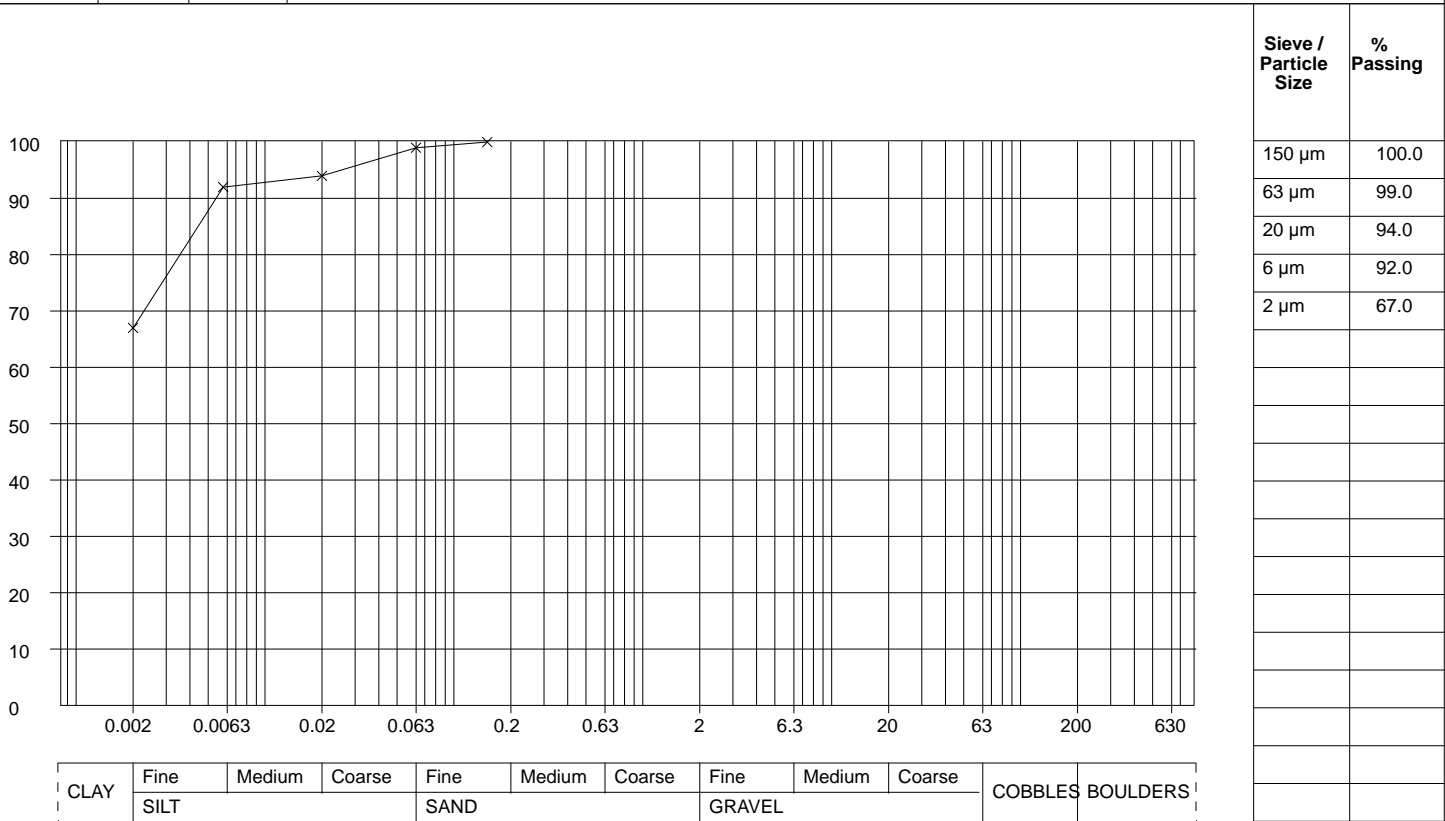


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	4.20	D7	Greyish brown silty CLAY.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	4.9 µm
D60	-
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	1.2%
Silt	31.8%
Clay	67.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

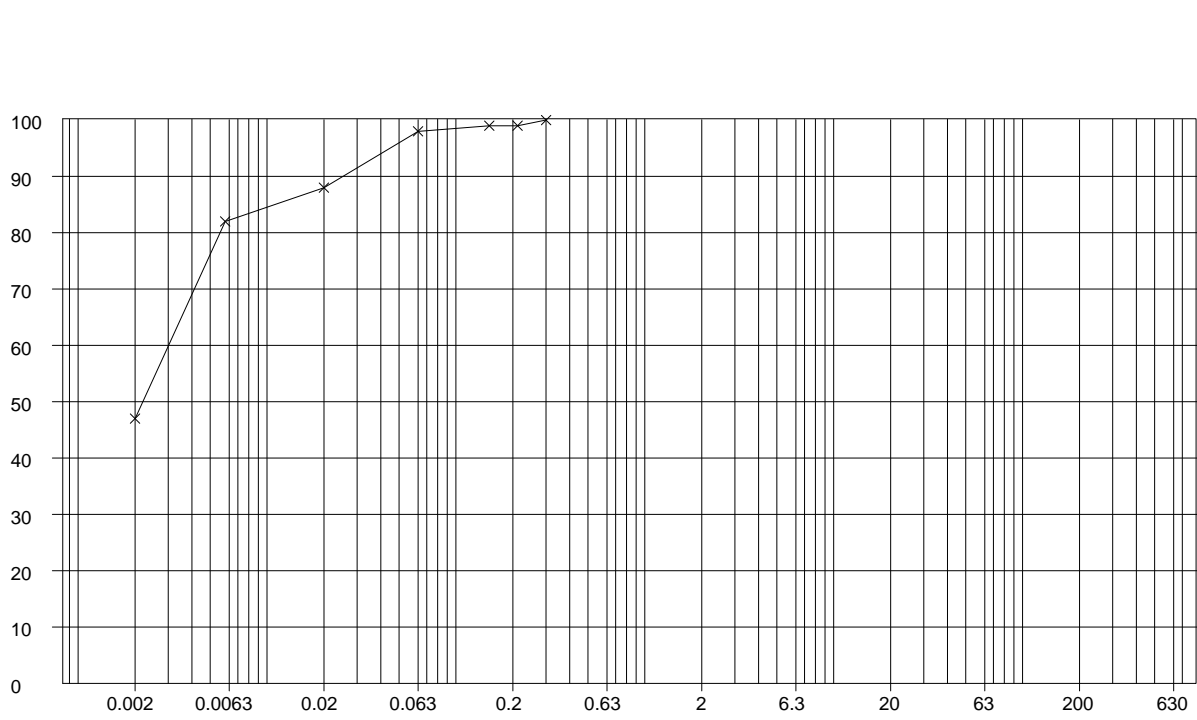


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	6.70	D11	Grey silty CLAY.



Sieve / Particle Size	% Passing
300 µm	100.0
212 µm	99.0
150 µm	99.0
63 µm	98.0
20 µm	88.0
6 µm	82.0
2 µm	47.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
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Grading Analysis	
D85	13.0 µm
D60	3.5 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	2.4%
Silt	50.6%
Clay	47.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution
Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette
Remarks :

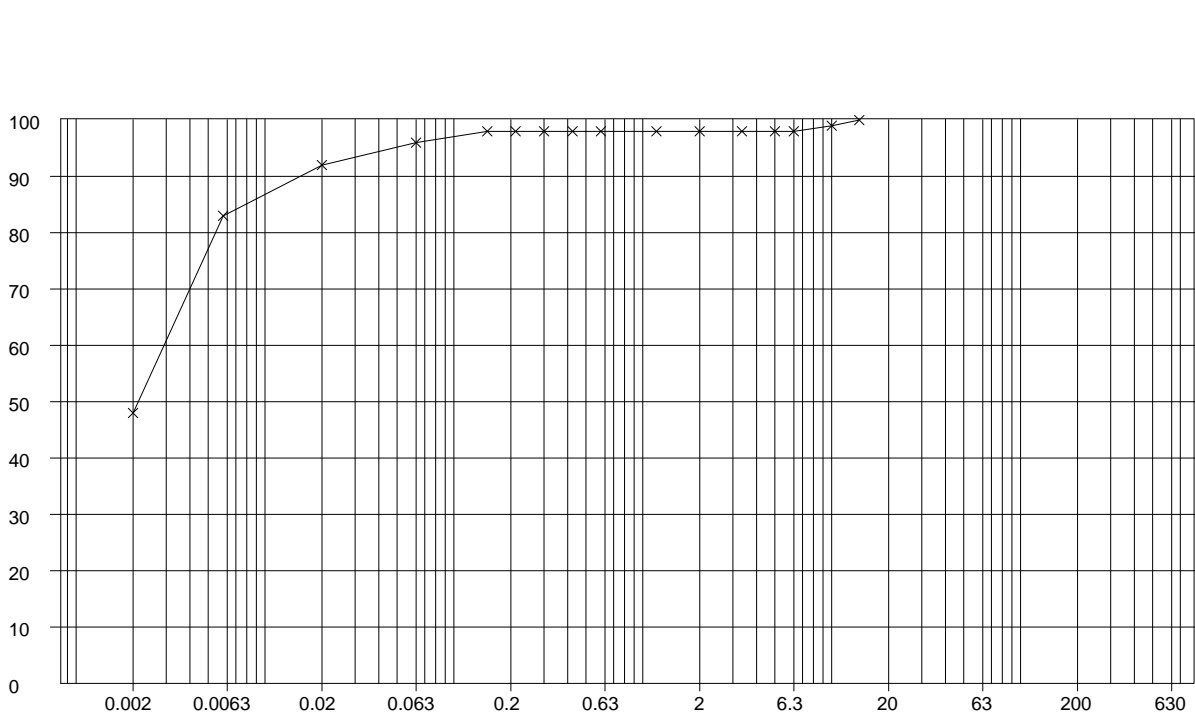


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	11.50	D15	Grey silty CLAY.



Sieve / Particle Size	% Passing
14 mm	100.0
10 mm	99.0
6.3 mm	98.0
5 mm	98.0
3.35 mm	98.0
2 mm	98.0
1.18 mm	98.0
600 µm	98.0
425 µm	98.0
300 µm	98.0
212 µm	98.0
150 µm	98.0
63 µm	96.0
20 µm	92.0
6 µm	83.0
2 µm	48.0

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	9.1 µm
D60	3.4 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	2.0%
Sand	2.2%
Silt	47.8%
Clay	48.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

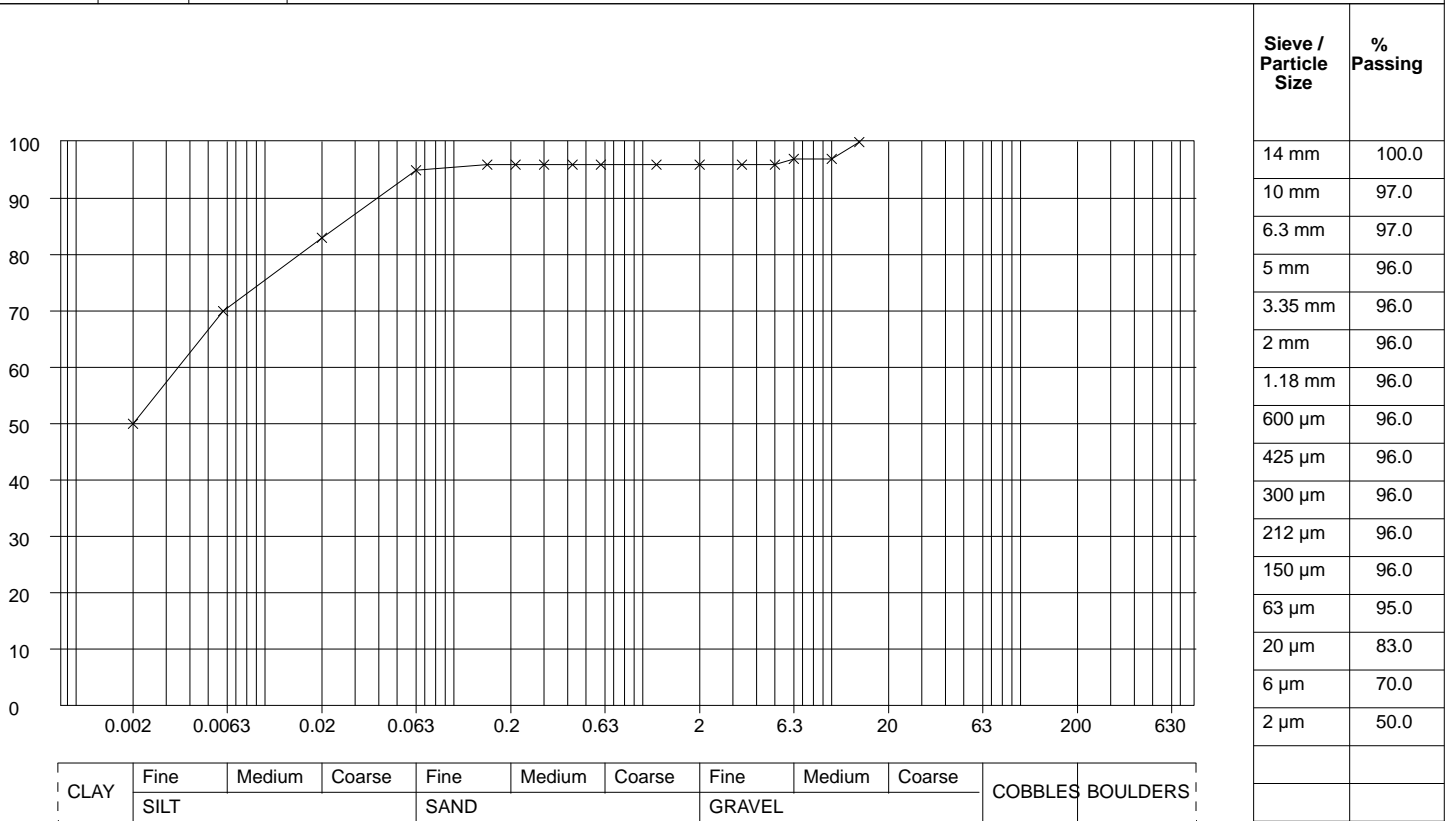


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	17.00	D18	Grey silty CLAY with rare gravel.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	27.2 µm
D60	4.0 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	4.0%
Sand	1.5%
Silt	44.5%
Clay	50.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

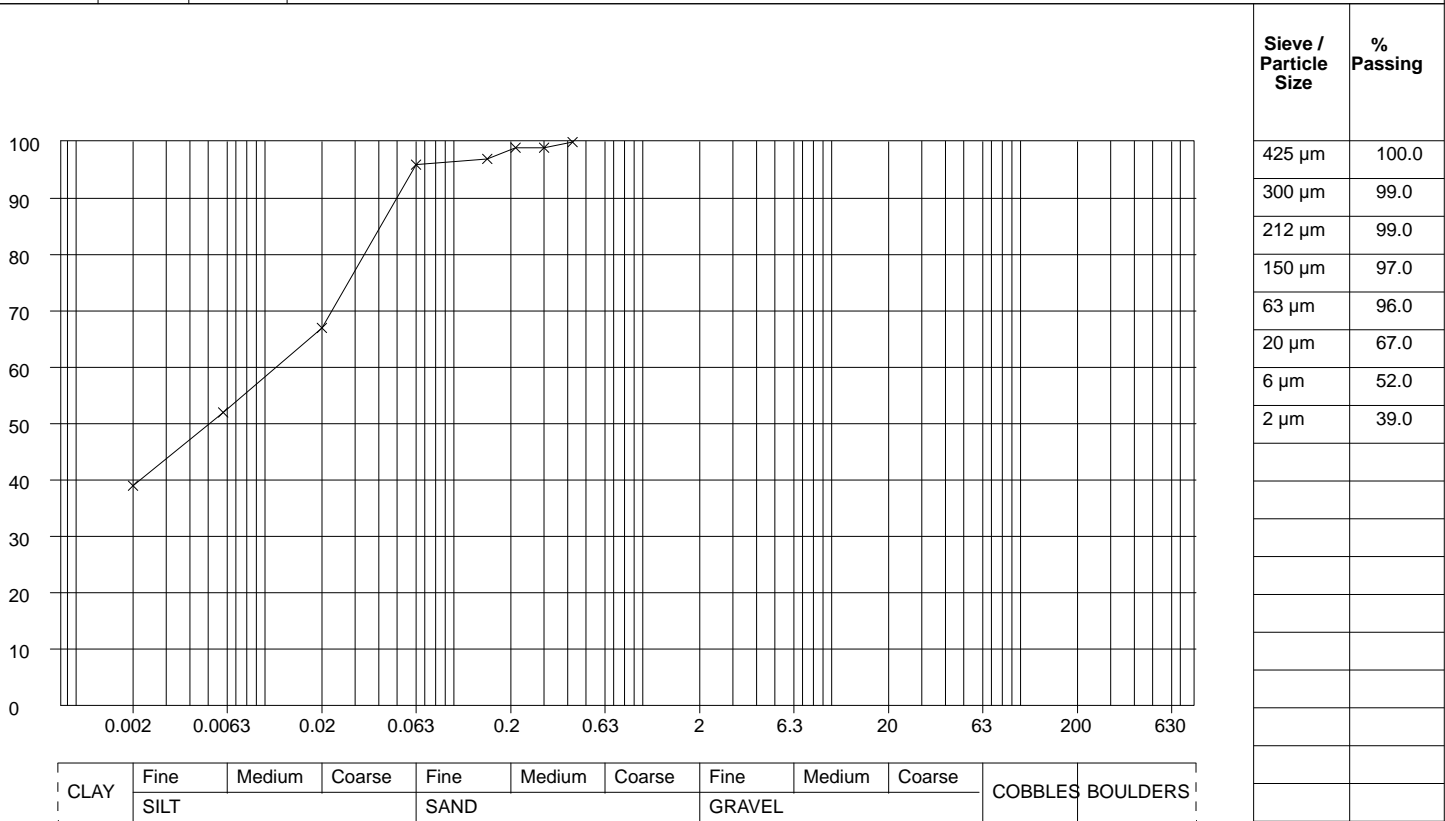


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	21.00	D21	Grey silty CLAY.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	46.7 µm
D60	13.5 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	5.2%
Silt	55.8%
Clay	39.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

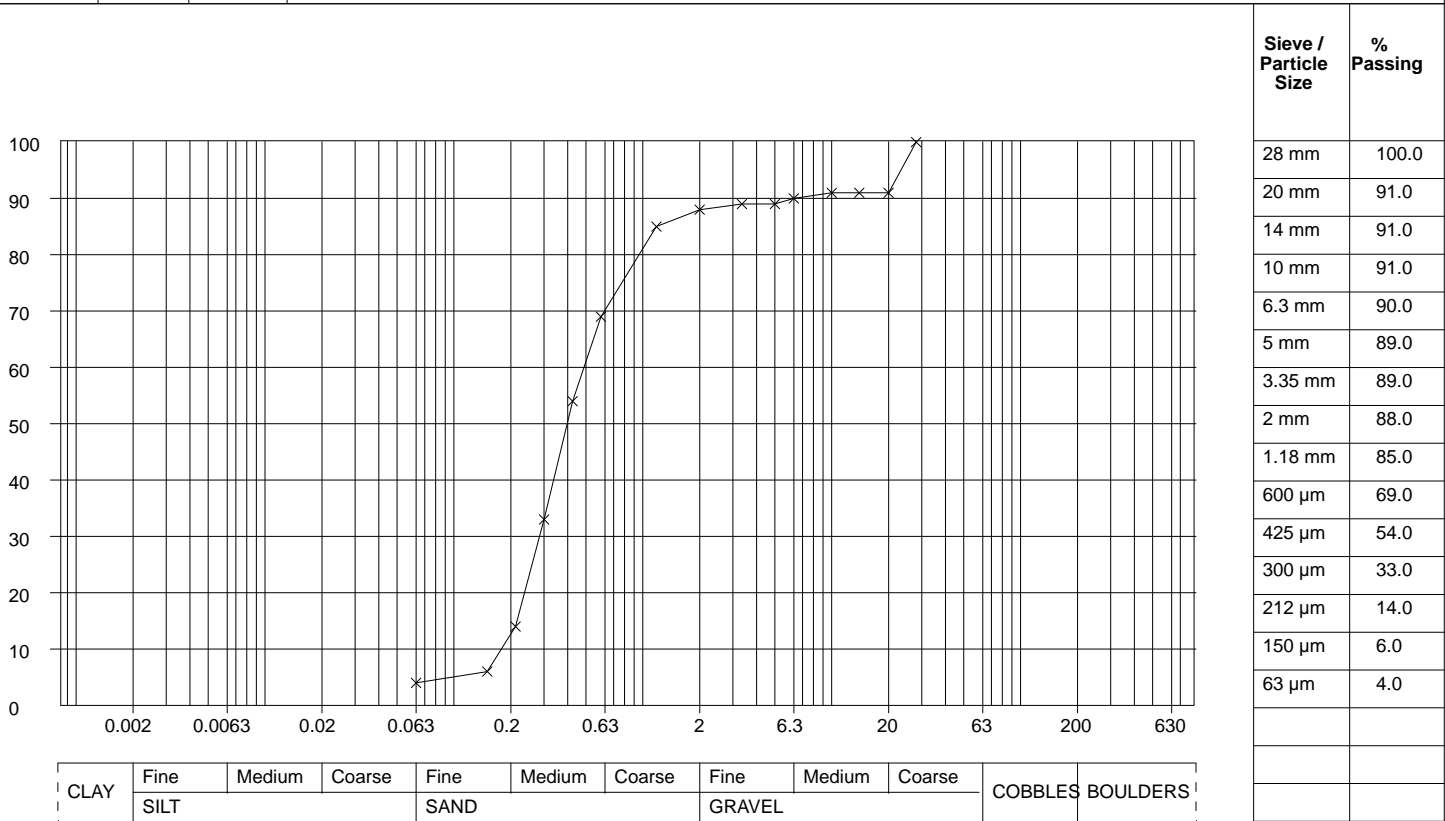


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	26.30	D23	Greenish grey slightly silty SAND with rare gravel.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	1.2 mm
D60	495.0 µm
D10	181.0 µm
Uniformity Coefficient	2.7

Particle Proportions	
Cobbles + Boulders	-
Gravel	12.0%
Sand	84.0%
Silt	-
Clay	-

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

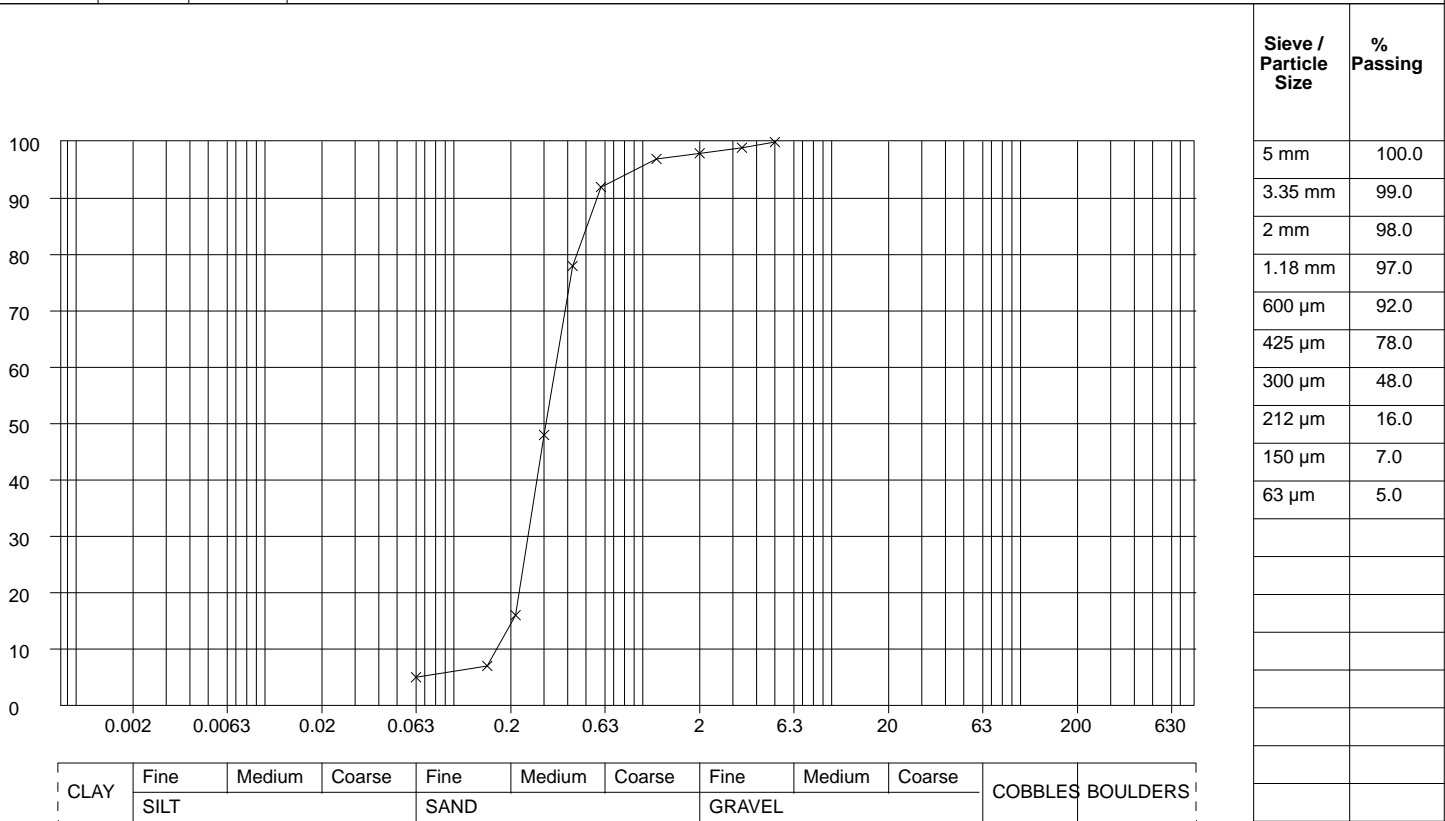


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	30.00	B6	Greenish grey slightly silty SAND.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	512.5 µm
D60	350.0 µm
D10	170.7 µm
Uniformity Coefficient	2.1

Particle Proportions	
Cobbles + Boulders	-
Gravel	2.0%
Sand	93.0%
Silt	-
Clay	-

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

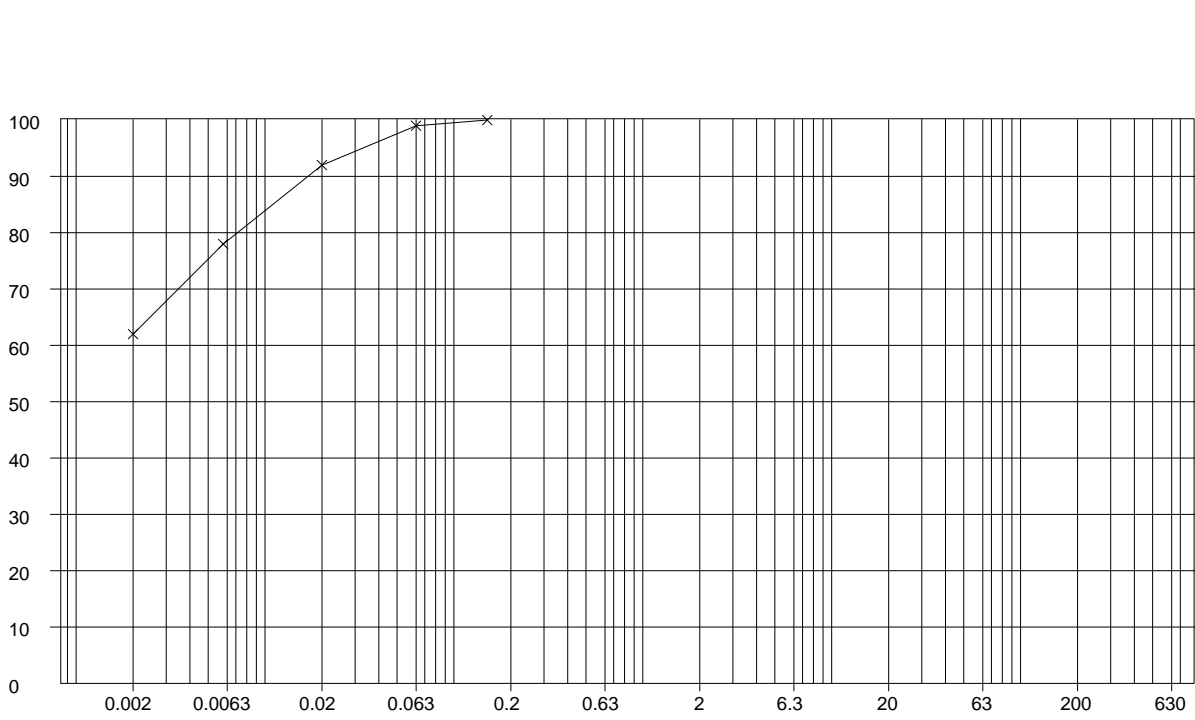


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	33.00	D26	Dark grey silty CLAY.



Sieve / Particle Size	% Passing
150 µm	100.0
63 µm	99.0
20 µm	92.0
6 µm	78.0
2 µm	62.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
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Grading Analysis	
D85	13.0 µm
D60	-
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	1.3%
Silt	36.7%
Clay	62.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

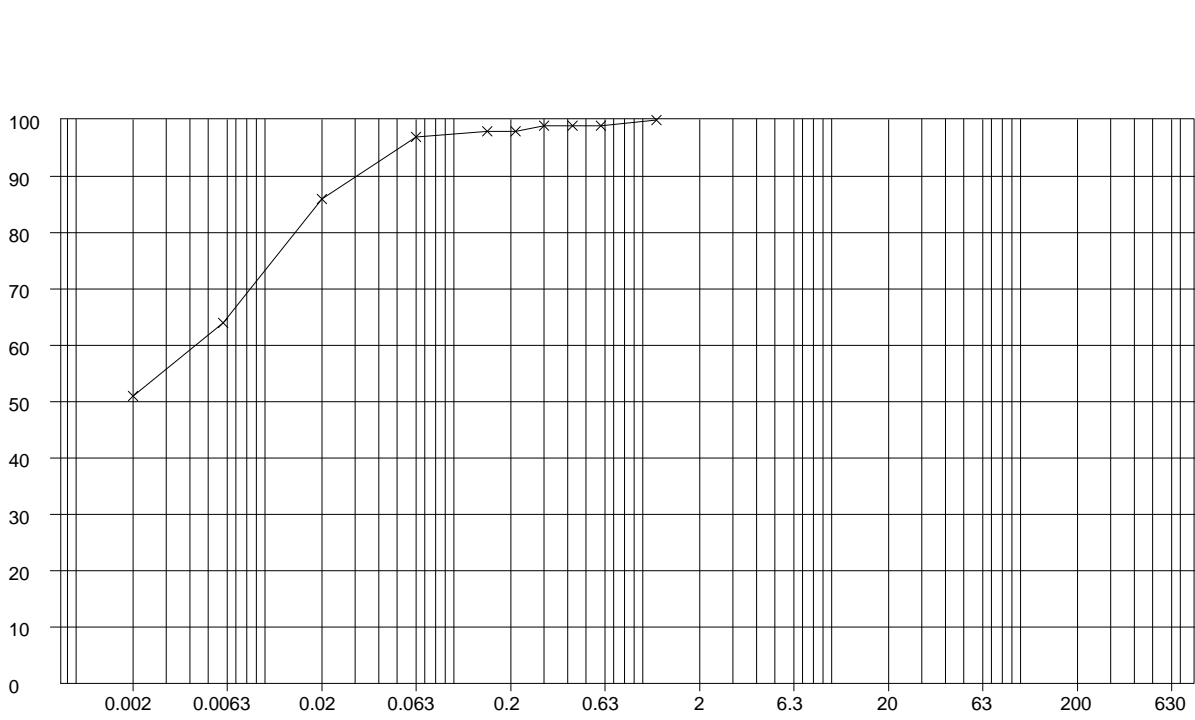


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	37.00	D29	Dark grey CLAY and SILT.



Sieve / Particle Size	% Passing
1.18 mm	100.0
600 µm	99.0
425 µm	99.0
300 µm	99.0
212 µm	98.0
150 µm	98.0
63 µm	97.0
20 µm	86.0
6 µm	64.0
2 µm	51.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	19.4 µm
D60	4.8 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	3.5%
Silt	45.5%
Clay	51.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

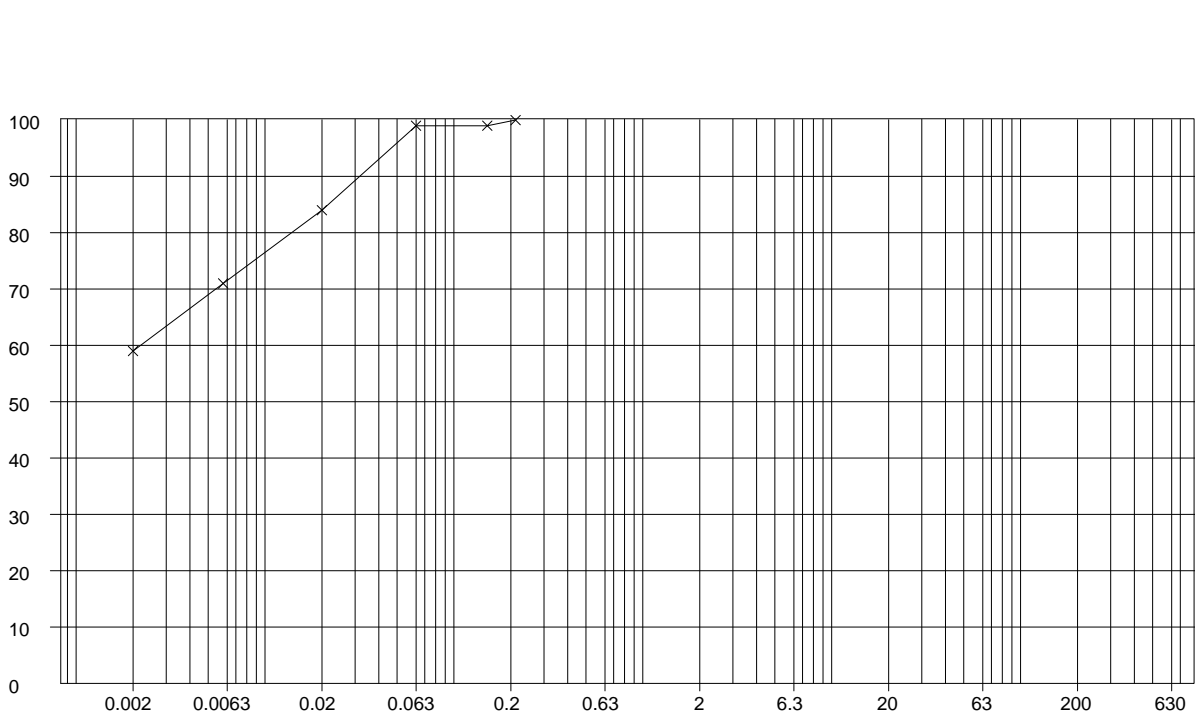


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH02	40.00	D30	Dark grey silty CLAY.



Sieve / Particle Size	% Passing
212 µm	100.0
150 µm	99.0
63 µm	99.0
20 µm	84.0
6 µm	71.0
2 µm	59.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	22.9 µm
D60	2.3 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	1.6%
Silt	39.4%
Clay	59.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

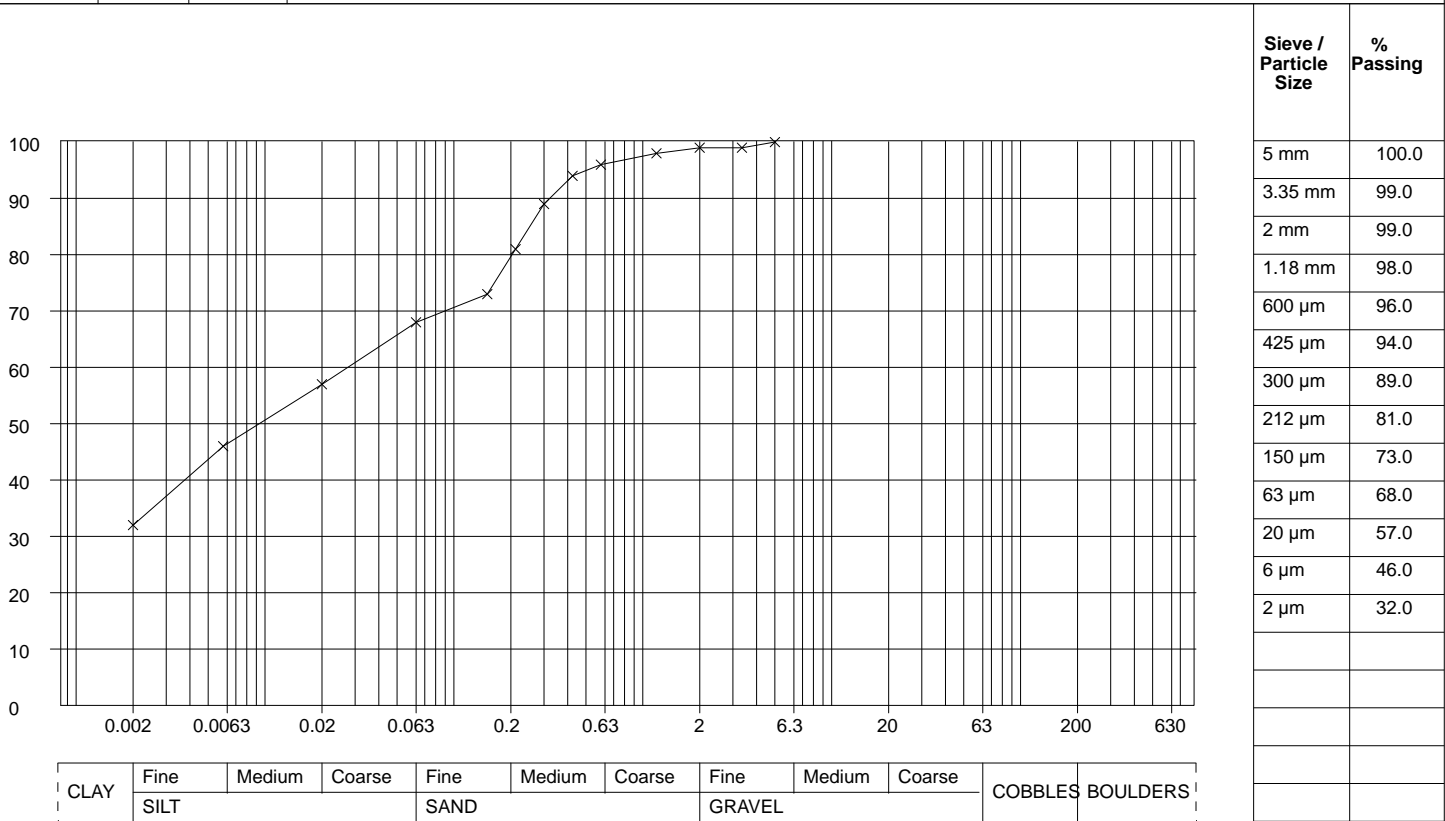


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH03	0.70	B3	Greyish brown slightly sandy silty CLAY with rare coarse sand sized and fine gravel sized chalk.



Grading Analysis	
D85	256.0 µm
D60	31.7 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	1.0%
Sand	31.5%
Silt	35.5%
Clay	32.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

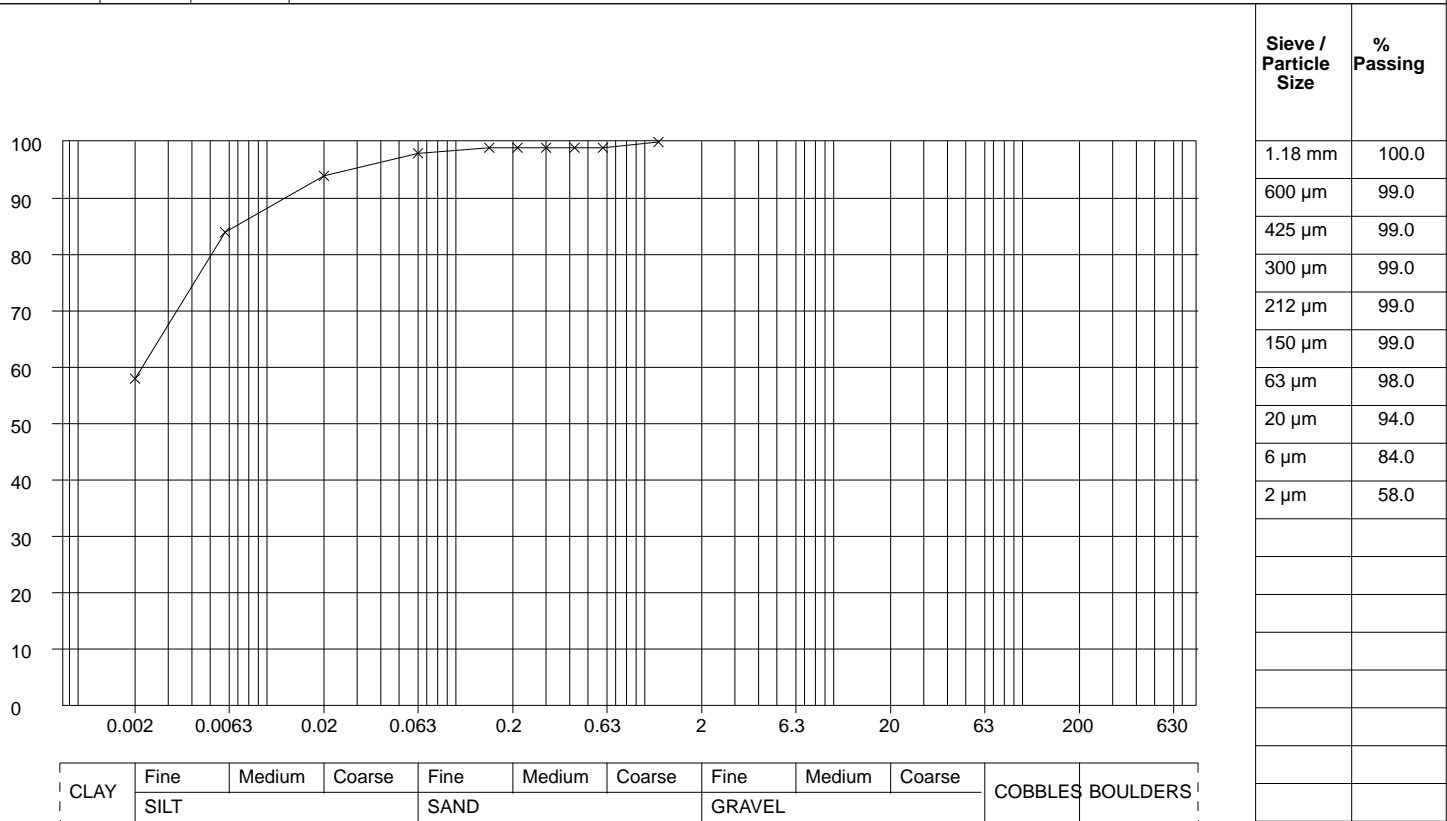


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH03	3.00	D8	Grey silty CLAY with black organic staining and rare sand sized gypsum crystals.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	7.4 µm
D60	2.3 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	2.2%
Silt	39.8%
Clay	58.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

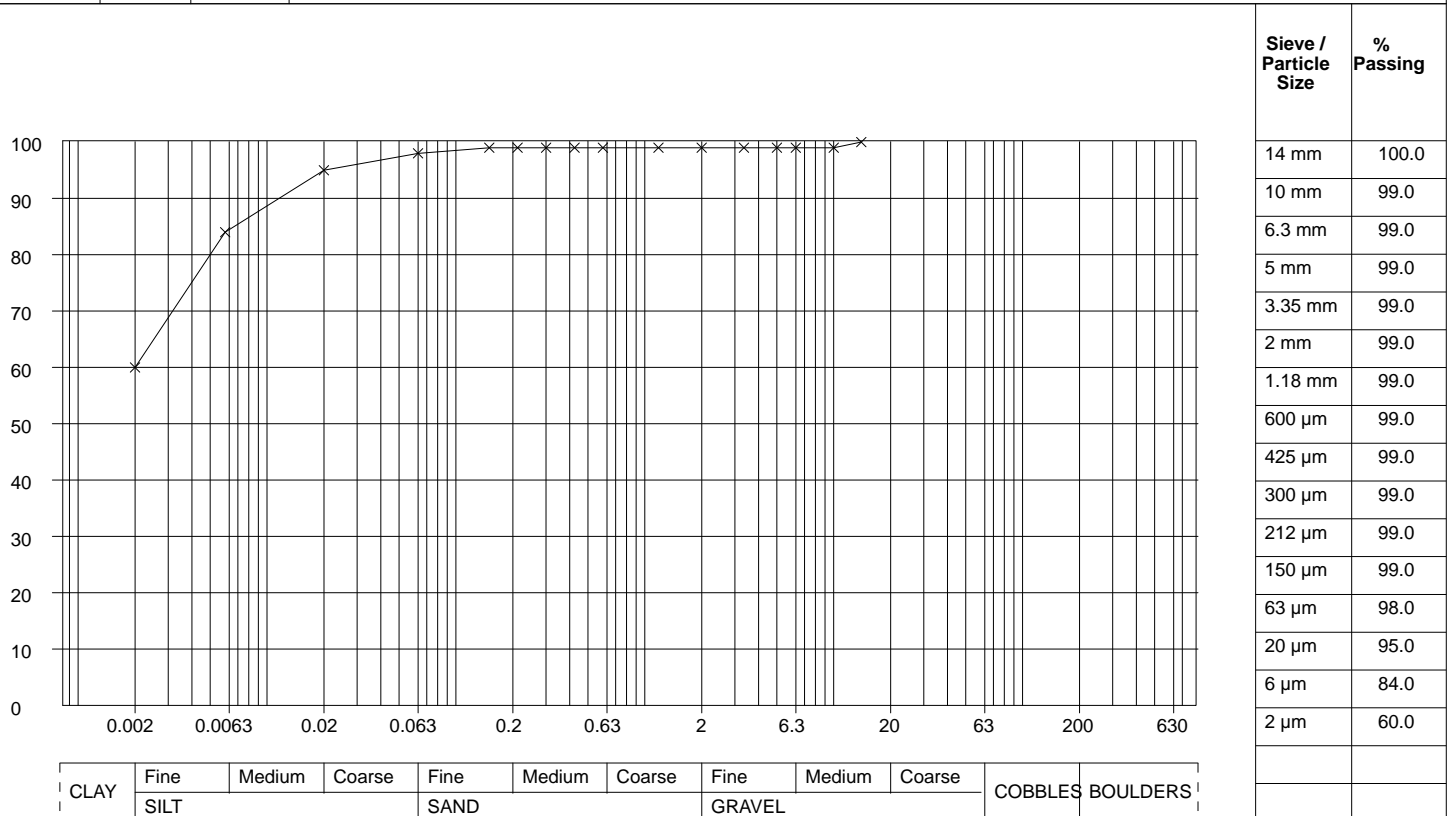


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH03	7.50	D13	Grey silty CLAY.



Grading Analysis	
D85	7.3 µm
D60	2.0 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	1.0%
Sand	1.1%
Silt	37.9%
Clay	60.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

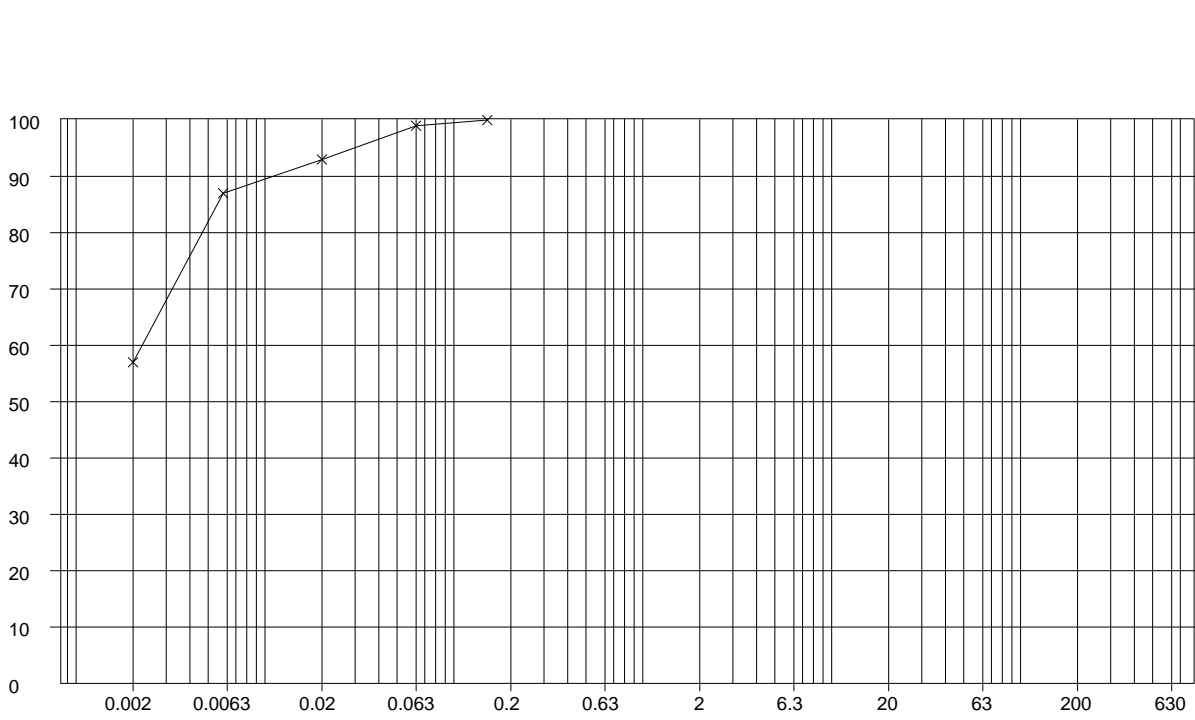


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH03	13.20	D17	Grey silty CLAY.



Sieve / Particle Size	% Passing
150 µm	100.0
63 µm	99.0
20 µm	93.0
6 µm	87.0
2 µm	57.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	5.7 µm
D60	2.4 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	1.3%
Silt	41.7%
Clay	57.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution
Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette
Remarks :

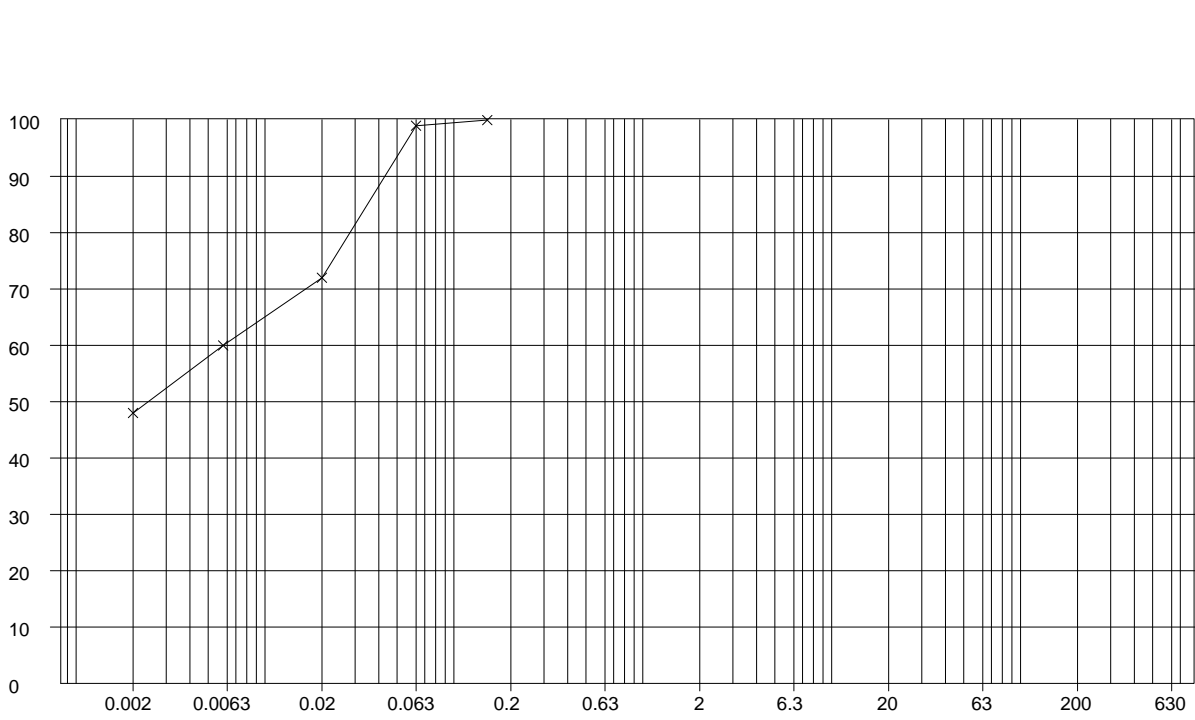


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH03	19.50	D22	Dark grey silty CLAY.



Sieve / Particle Size	% Passing
150 µm	100.0
63 µm	99.0
20 µm	72.0
6 µm	60.0
2 µm	48.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	40.7 µm
D60	6.0 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	2.1%
Silt	49.9%
Clay	48.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

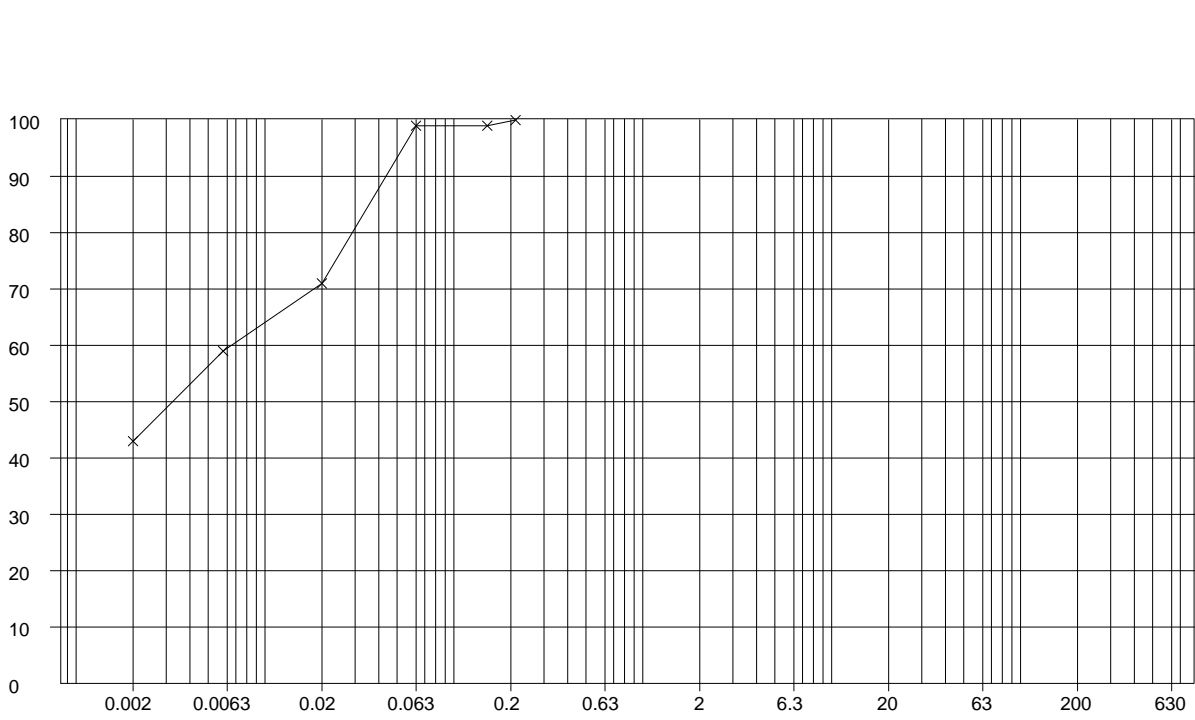


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH03	23.50	D25	Grey silty CLAY.



Sieve / Particle Size	% Passing
212 µm	100.0
150 µm	99.0
63 µm	99.0
20 µm	71.0
6 µm	59.0
2 µm	43.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	41.5 µm
D60	7.2 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	2.2%
Silt	54.8%
Clay	43.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution
Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette
Remarks :

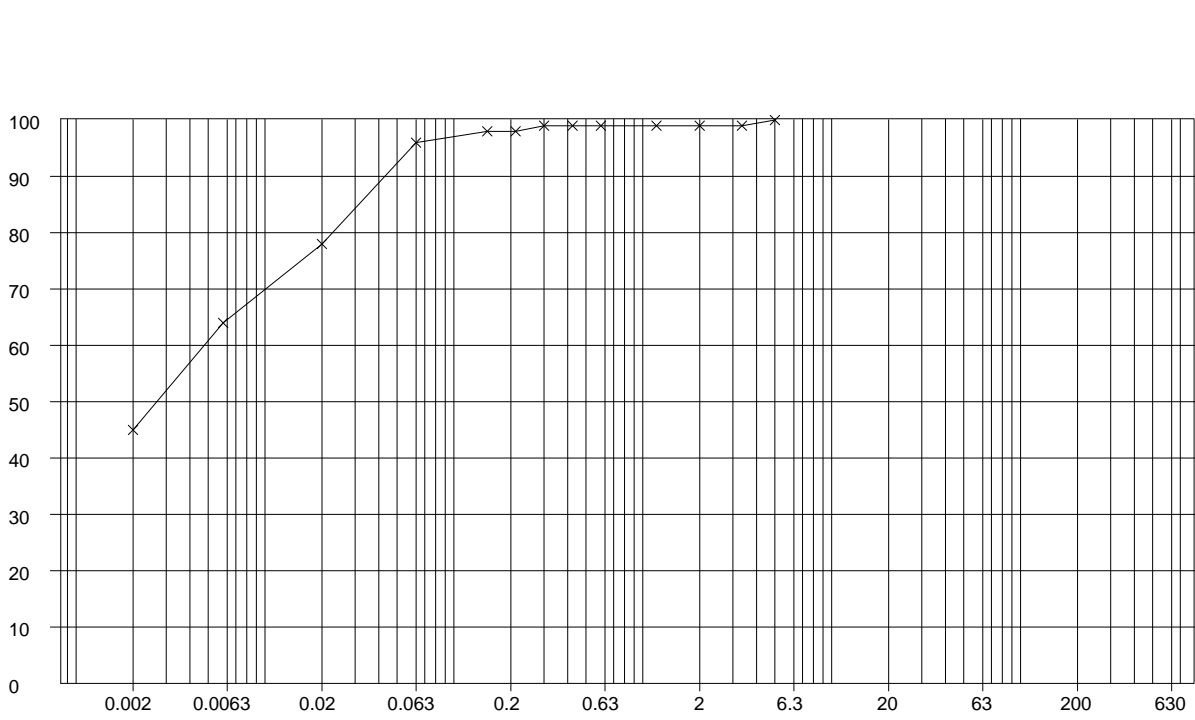


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH03	25.50	D27	Grey silty CLAY with rare shell fragments.



Sieve / Particle Size	% Passing
5 mm	100.0
3.35 mm	99.0
2 mm	99.0
1.18 mm	99.0
600 µm	99.0
425 µm	99.0
300 µm	99.0
212 µm	98.0
150 µm	98.0
63 µm	96.0
20 µm	78.0
6 µm	64.0
2 µm	45.0

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	36.7 µm
D60	5.2 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	1.0%
Sand	3.8%
Silt	50.2%
Clay	45.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution
Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette
Remarks :

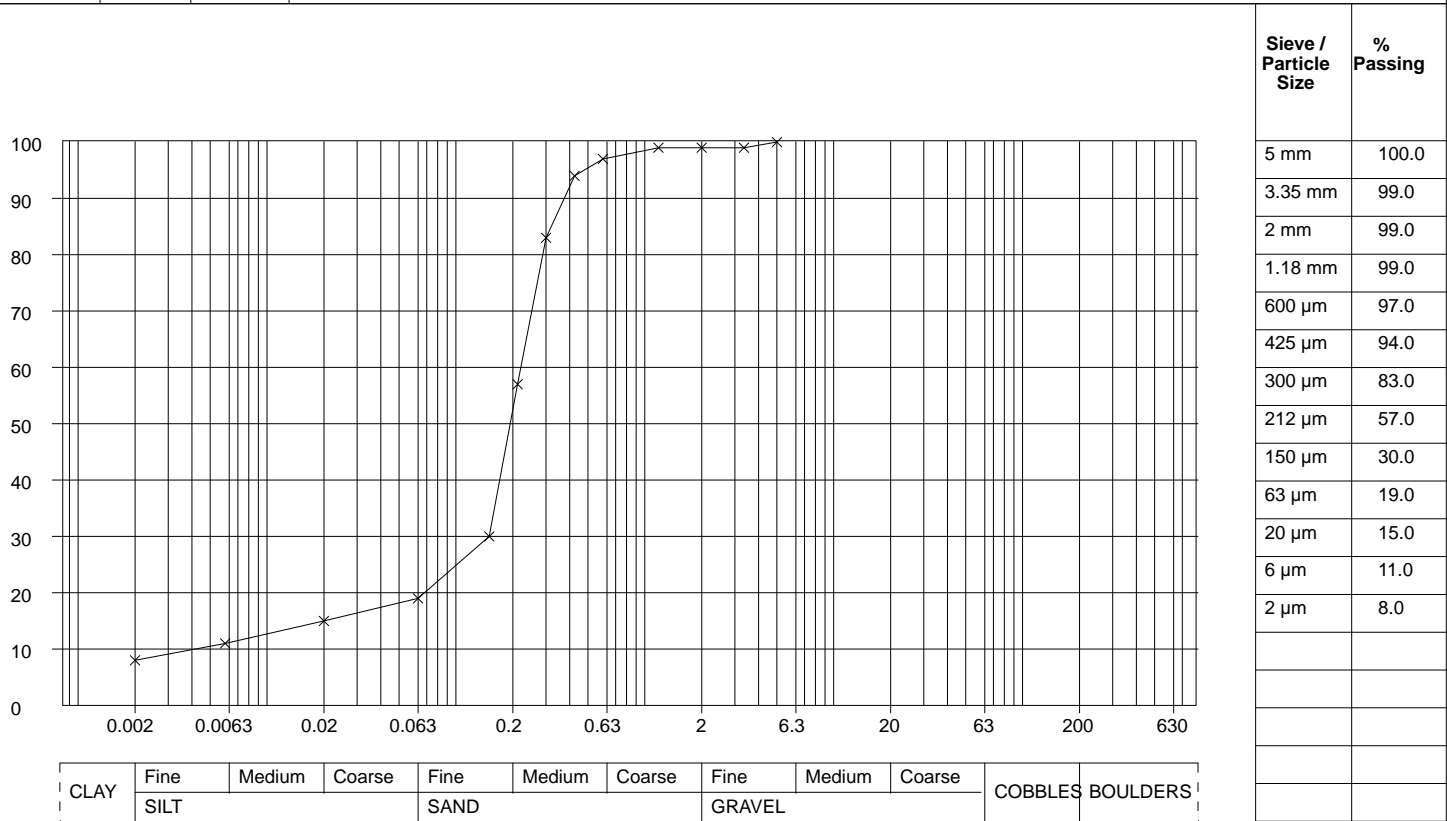


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH03	27.80	D30	Dark brown clayey silty SAND with rare pockets of black organic matter.



Grading Analysis	
D85	322.7 µm
D60	222.2 µm
D10	4.7 µm
Uniformity Coefficient	47.6

Particle Proportions	
Cobbles + Boulders	-
Gravel	1.0%
Sand	80.2%
Silt	10.8%
Clay	8.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution
Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette
Remarks :

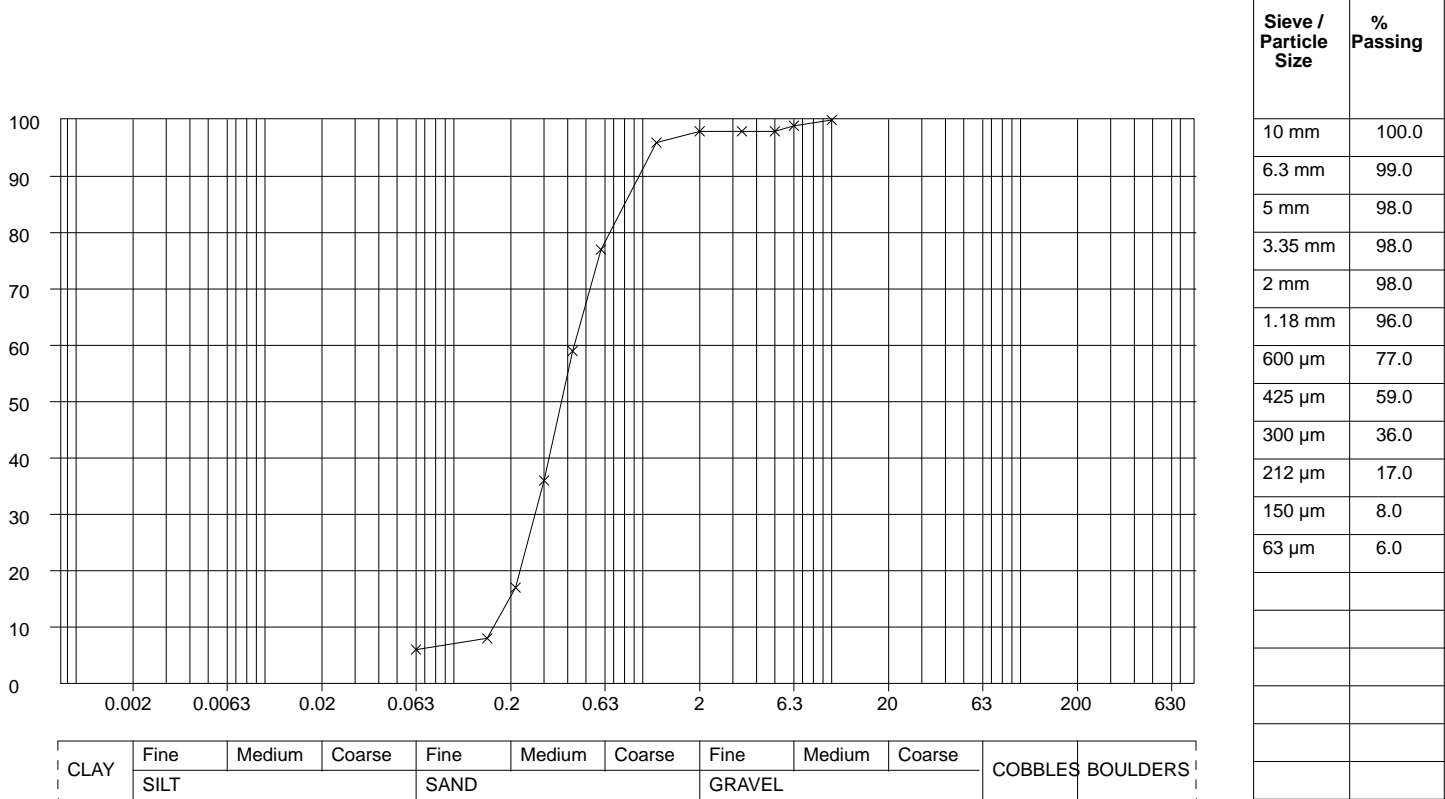


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH03	32.00	D33	Greenish grey slightly clayey SAND with rare fine gravel.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	844.2 µm
D60	434.7 µm
D10	163.8 µm
Uniformity Coefficient	2.7

Particle Proportions	
Cobbles + Boulders	-
Gravel	2.0%
Sand	92.0%
Silt	-
Clay	-

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

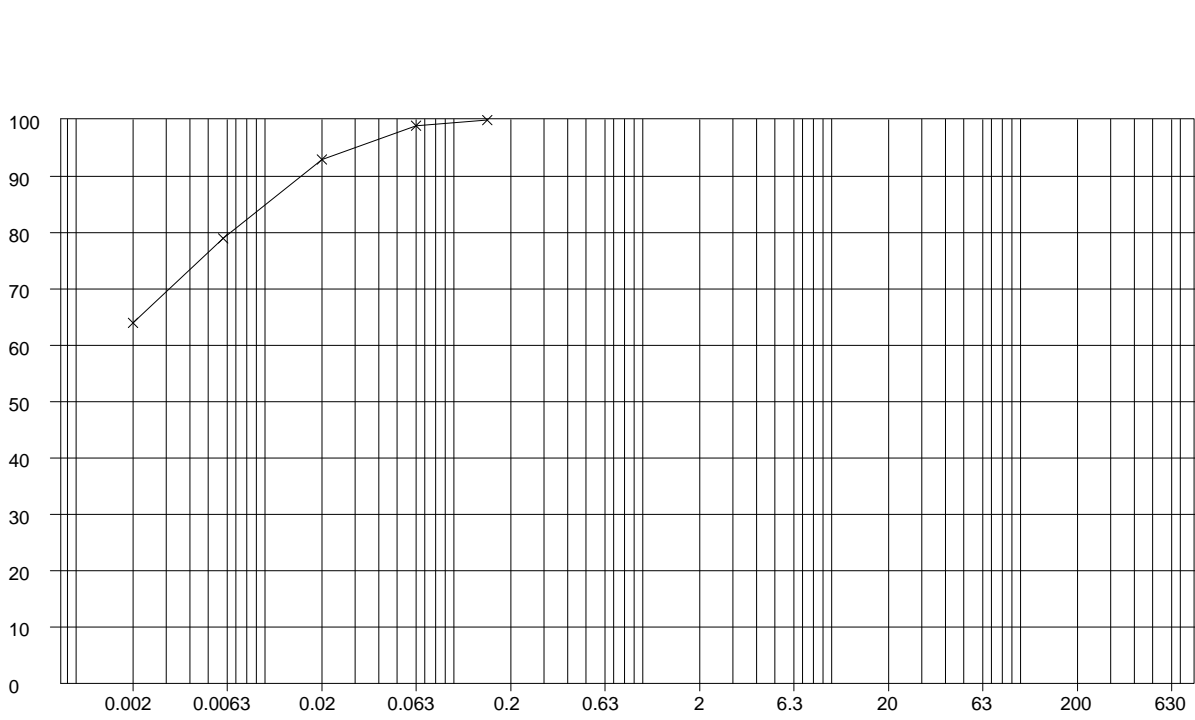


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH03	35.00	D36	Dark grey silty CLAY.



Sieve / Particle Size	% Passing
150 µm	100.0
63 µm	99.0
20 µm	93.0
6 µm	79.0
2 µm	64.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
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Grading Analysis	
D85	12.0 µm
D60	-
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	1.3%
Silt	34.7%
Clay	64.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution
Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette
Remarks :

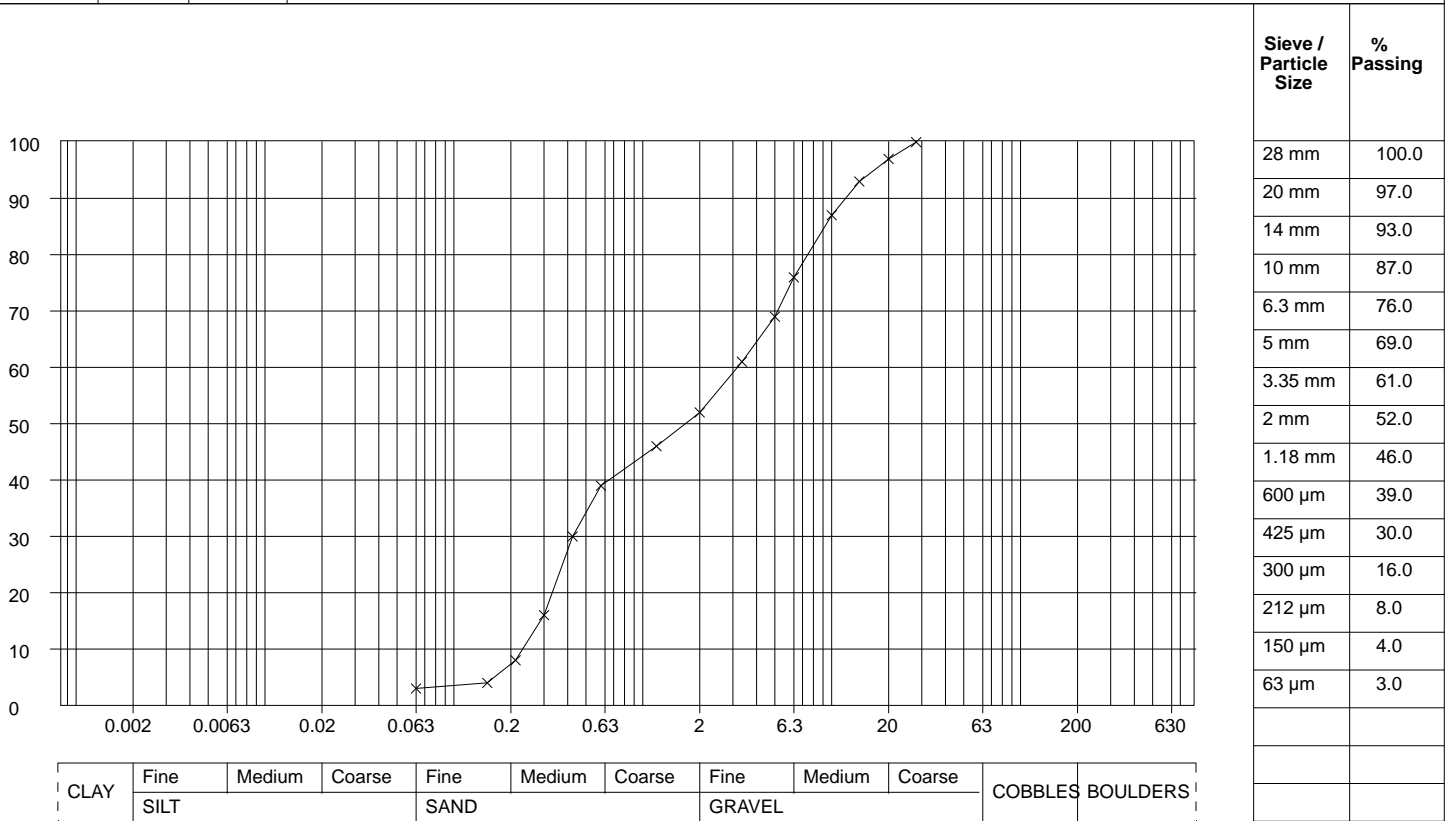


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH04	1.20	B3	Yellowish brown and light brown SAND and GRAVEL.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	9.3 mm
D60	3.2 mm
D10	234.0 µm
Uniformity Coefficient	13.7

Particle Proportions	
Cobbles + Boulders	-
Gravel	48.0%
Sand	49.0%
Silt	-
Clay	-

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

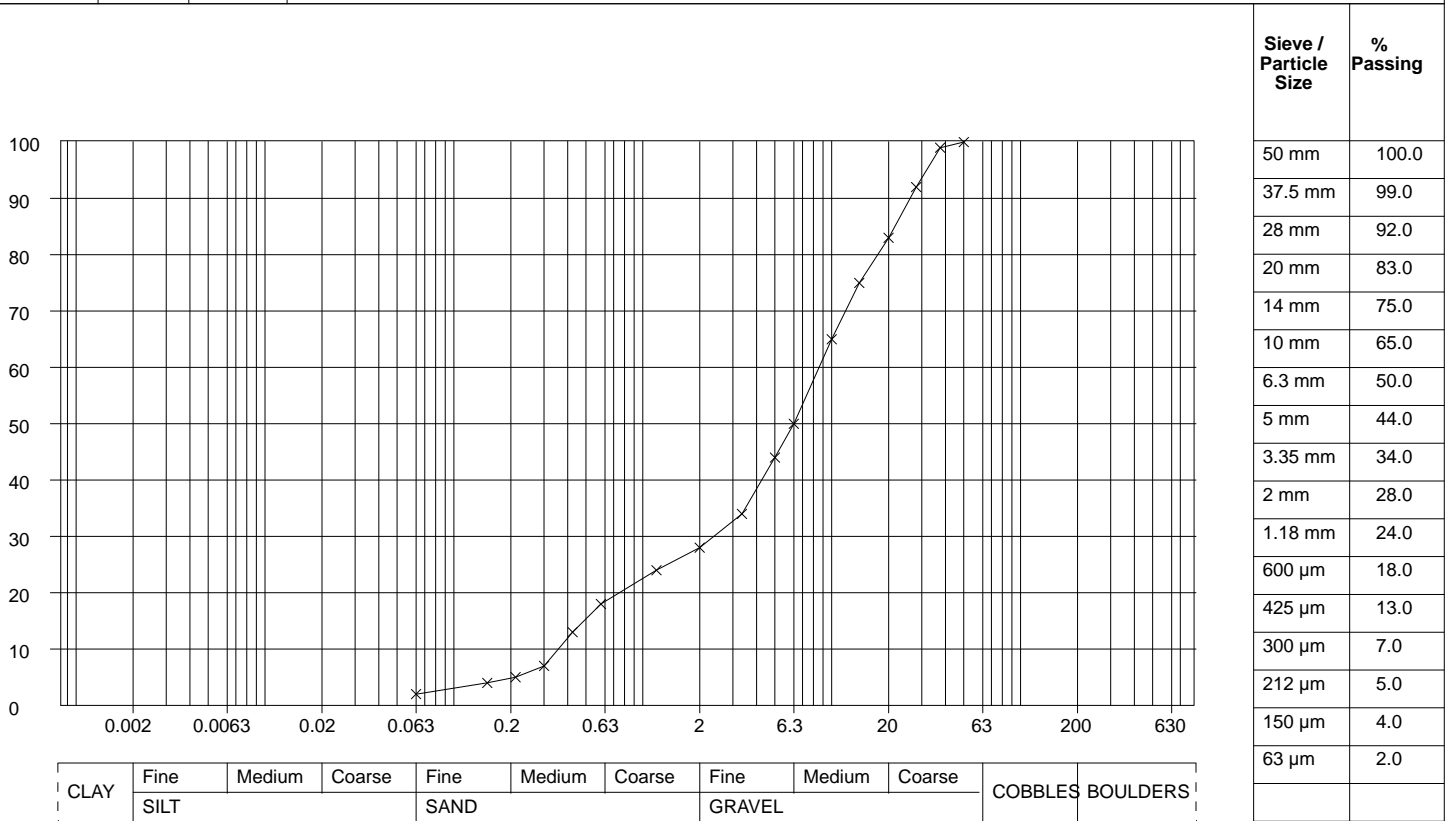


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH04	3.20	B5	Light brown very sandy GRAVEL.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	21.8 mm
D60	8.8 mm
D10	362.5 µm
Uniformity Coefficient	24.2

Particle Proportions	
Cobbles + Boulders	-
Gravel	72.0%
Sand	26.0%
Silt	-
Clay	-

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

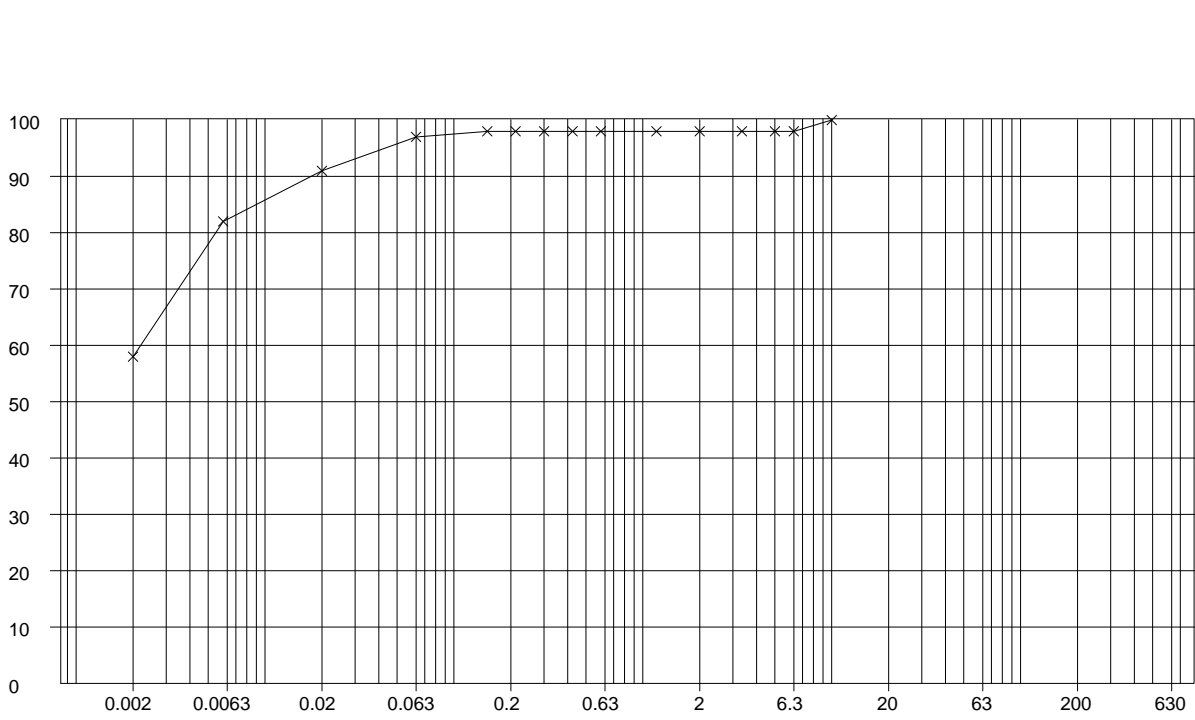


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH04	6.70	B6	Grey silty CLAY.



Sieve / Particle Size	% Passing
10 mm	100.0
6.3 mm	98.0
5 mm	98.0
3.35 mm	98.0
2 mm	98.0
1.18 mm	98.0
600 µm	98.0
425 µm	98.0
300 µm	98.0
212 µm	98.0
150 µm	98.0
63 µm	97.0
20 µm	91.0
6 µm	82.0
2 µm	58.0

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	10.7 µm
D60	2.3 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	2.0%
Sand	1.3%
Silt	38.7%
Clay	58.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

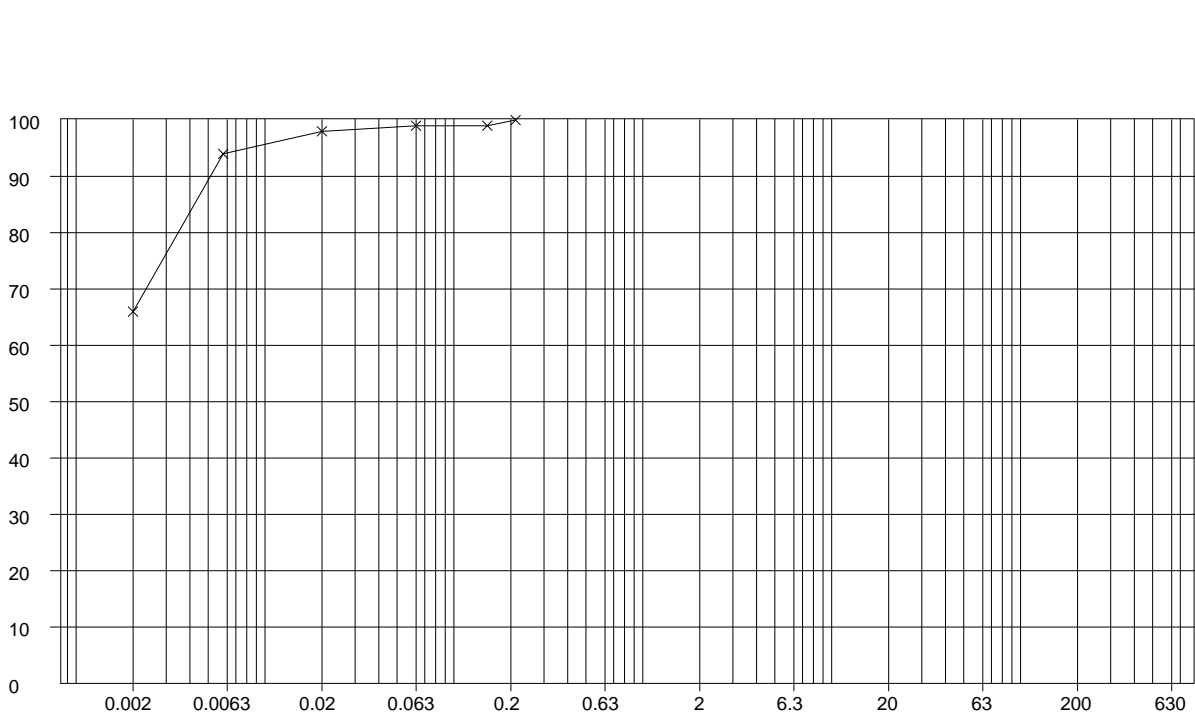


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH04	16.00	D13	Dark grey silty CLAY with rare shell fragments.



Sieve / Particle Size	% Passing
212 µm	100.0
150 µm	99.0
63 µm	99.0
20 µm	98.0
6 µm	94.0
2 µm	66.0

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	4.7 µm
D60	-
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	1.0%
Silt	33.0%
Clay	66.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

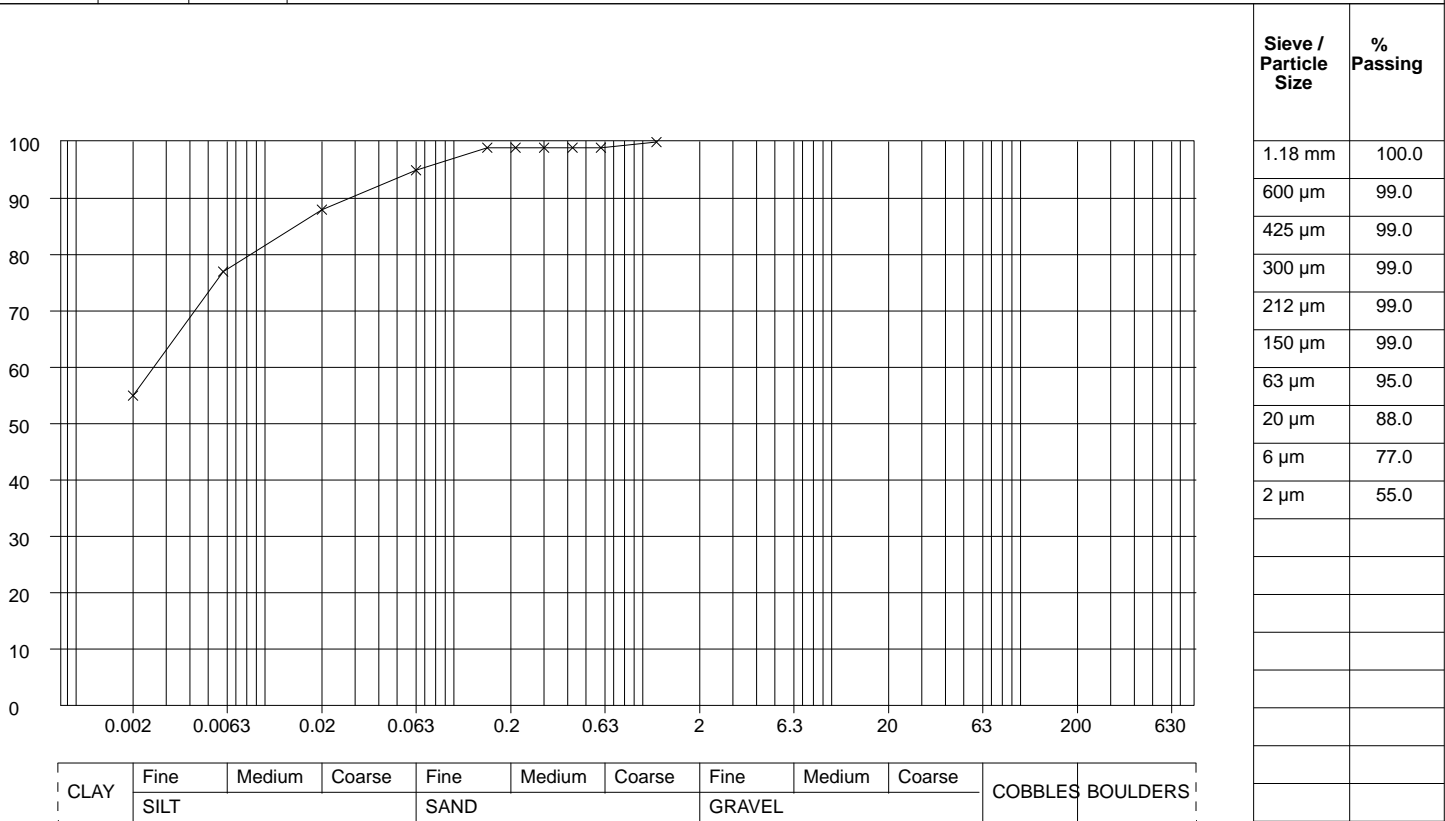


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH04	19.00	D15	Greyish brown silty CLAY with rare shell fragments.



CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	16.2 µm
D60	2.9 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	5.3%
Silt	39.7%
Clay	55.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

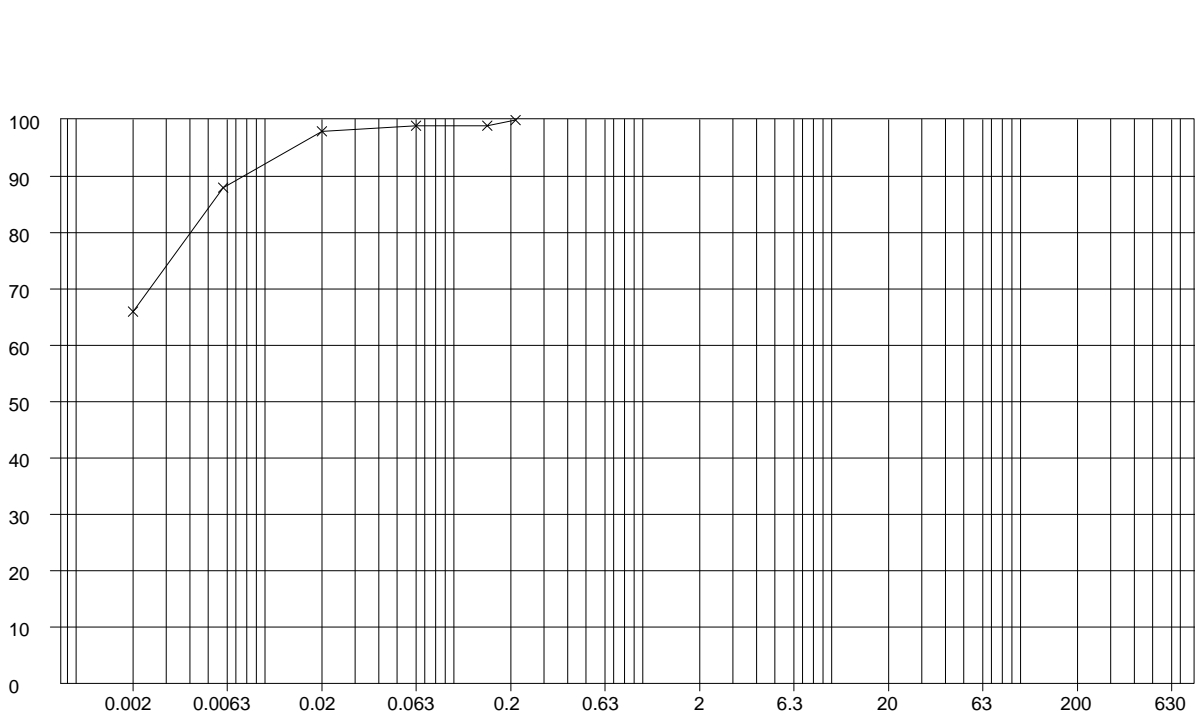


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH04	22.00	D17	Dark grey silty CLAY.



Sieve / Particle Size	% Passing
212 µm	100.0
150 µm	99.0
63 µm	99.0
20 µm	98.0
6 µm	88.0
2 µm	66.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	5.5 µm
D60	-
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	1.0%
Silt	33.0%
Clay	66.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

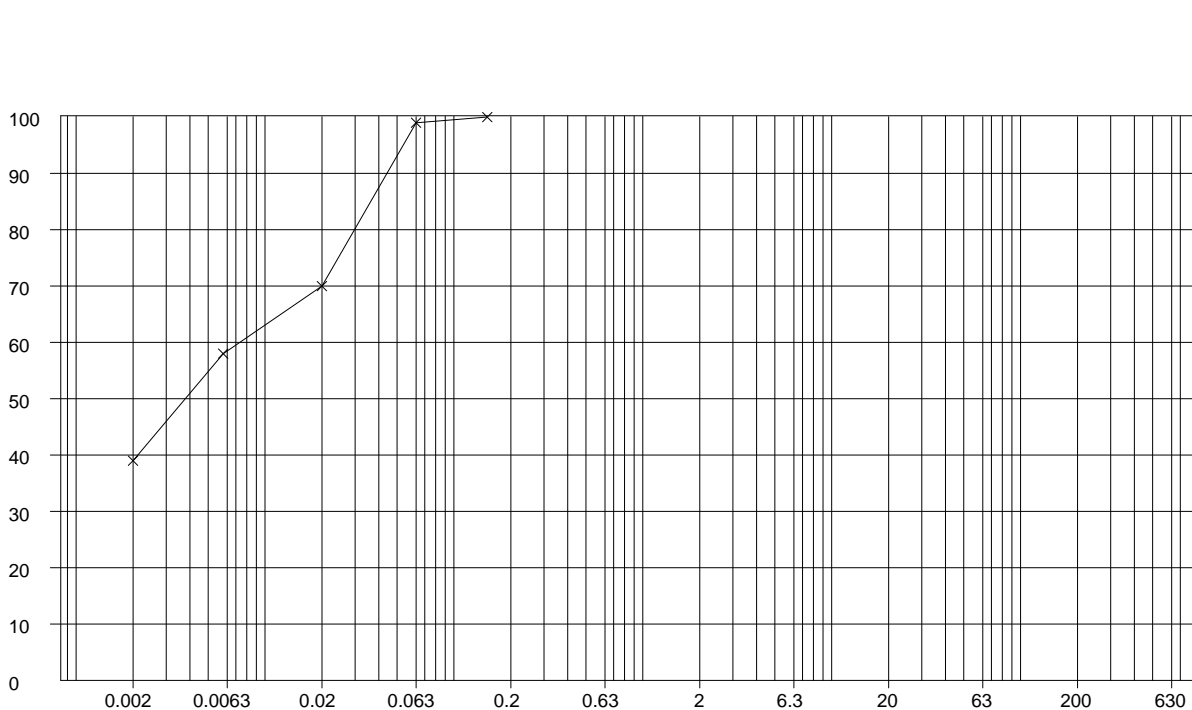


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH04	25.00	D19	Dark grey silty CLAY.



Sieve / Particle Size	% Passing
150 µm	100.0
63 µm	99.0
20 µm	70.0
6 µm	58.0
2 µm	39.0

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	42.2 µm
D60	8.3 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	2.2%
Silt	58.8%
Clay	39.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

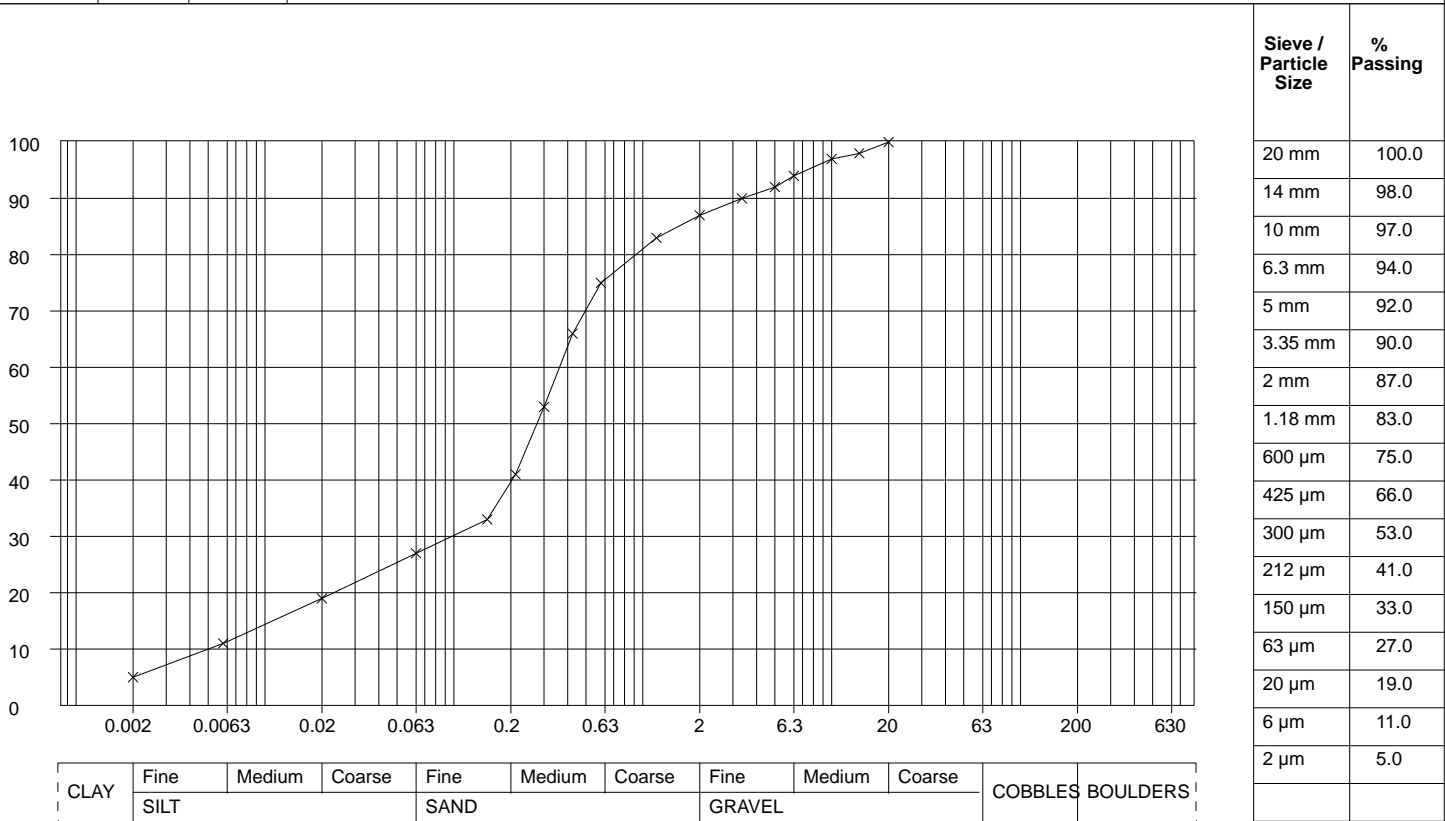


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH05	1.00	B3	Black gravelly sandy fibrous PEAT. Gravel includes shell fragments and rare plastic remains.



Grading Analysis	
D85	1.6 mm
D60	367.3 µm
D10	5.3 µm
Uniformity Coefficient	68.9

Particle Proportions	
Cobbles + Boulders	-
Gravel	13.0%
Sand	60.3%
Silt	21.7%
Clay	5.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

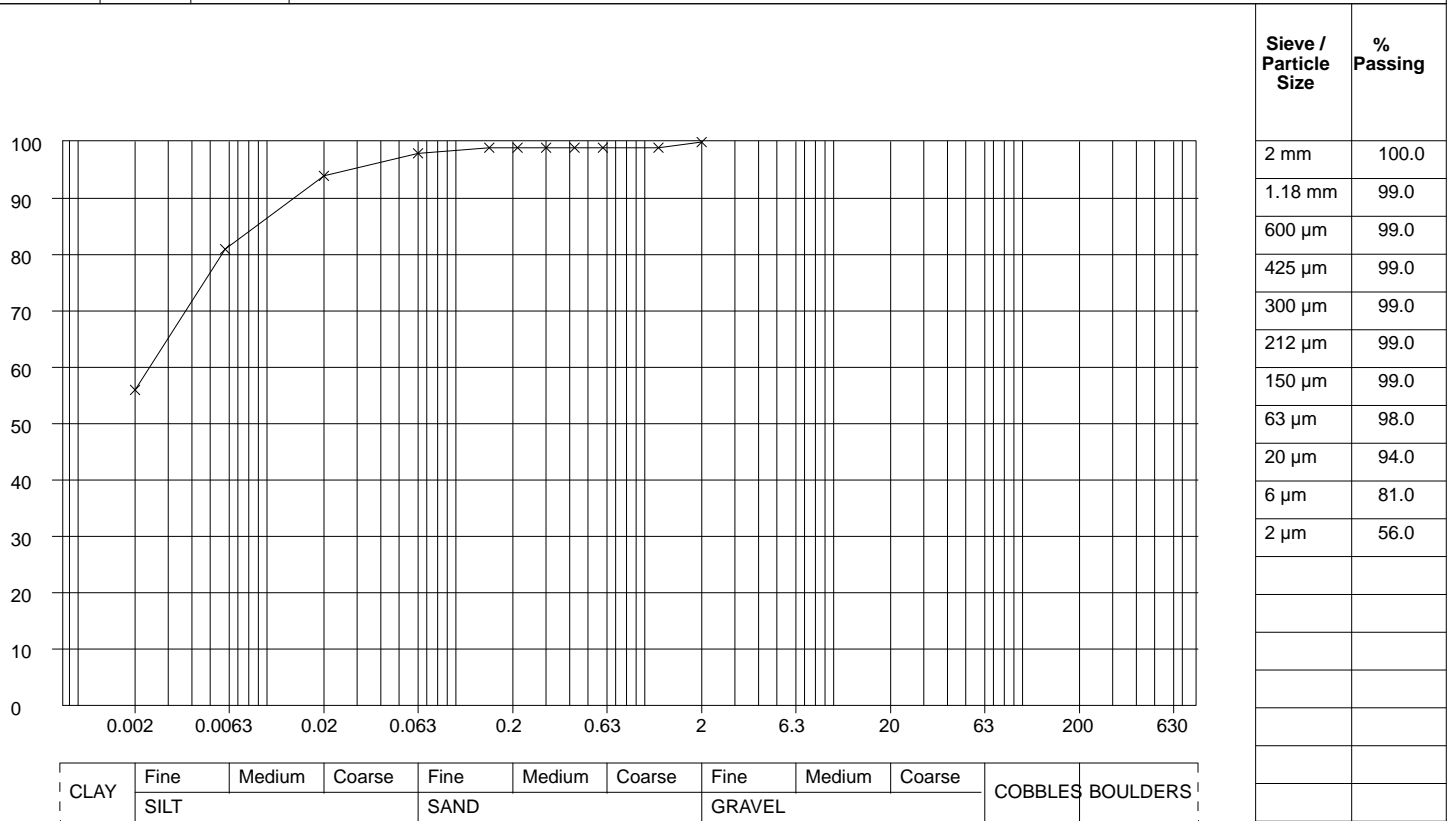


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH05	2.50	D9	Grey silty CLAY.



CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	10.3 μm
D60	2.6 μm
D10	<2.0 μm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	2.2%
Silt	41.8%
Clay	56.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

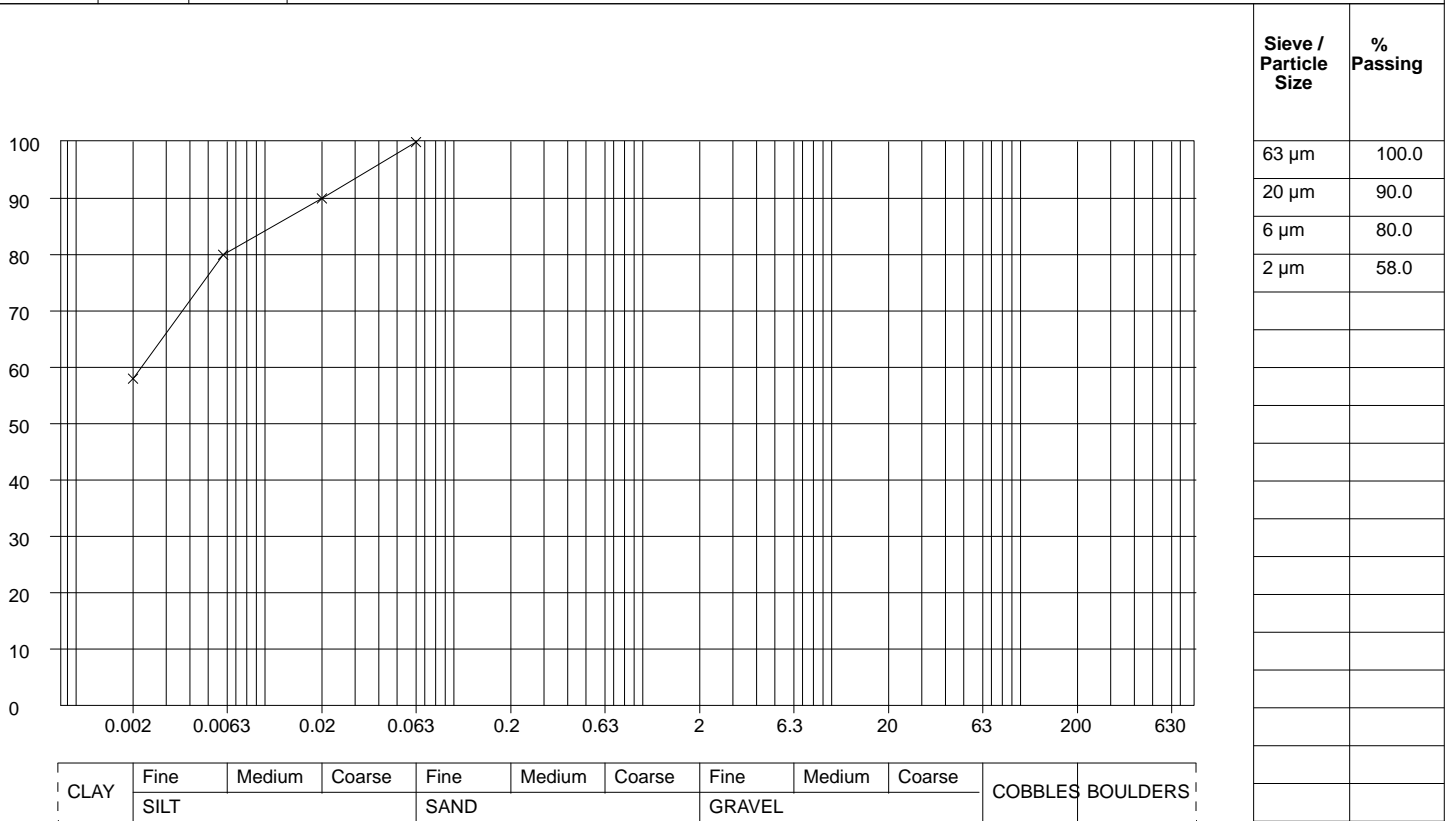


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH05	8.50	D17	Grey silty CLAY.



CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	13.0 µm
D60	2.4 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	0.4%
Silt	41.6%
Clay	58.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

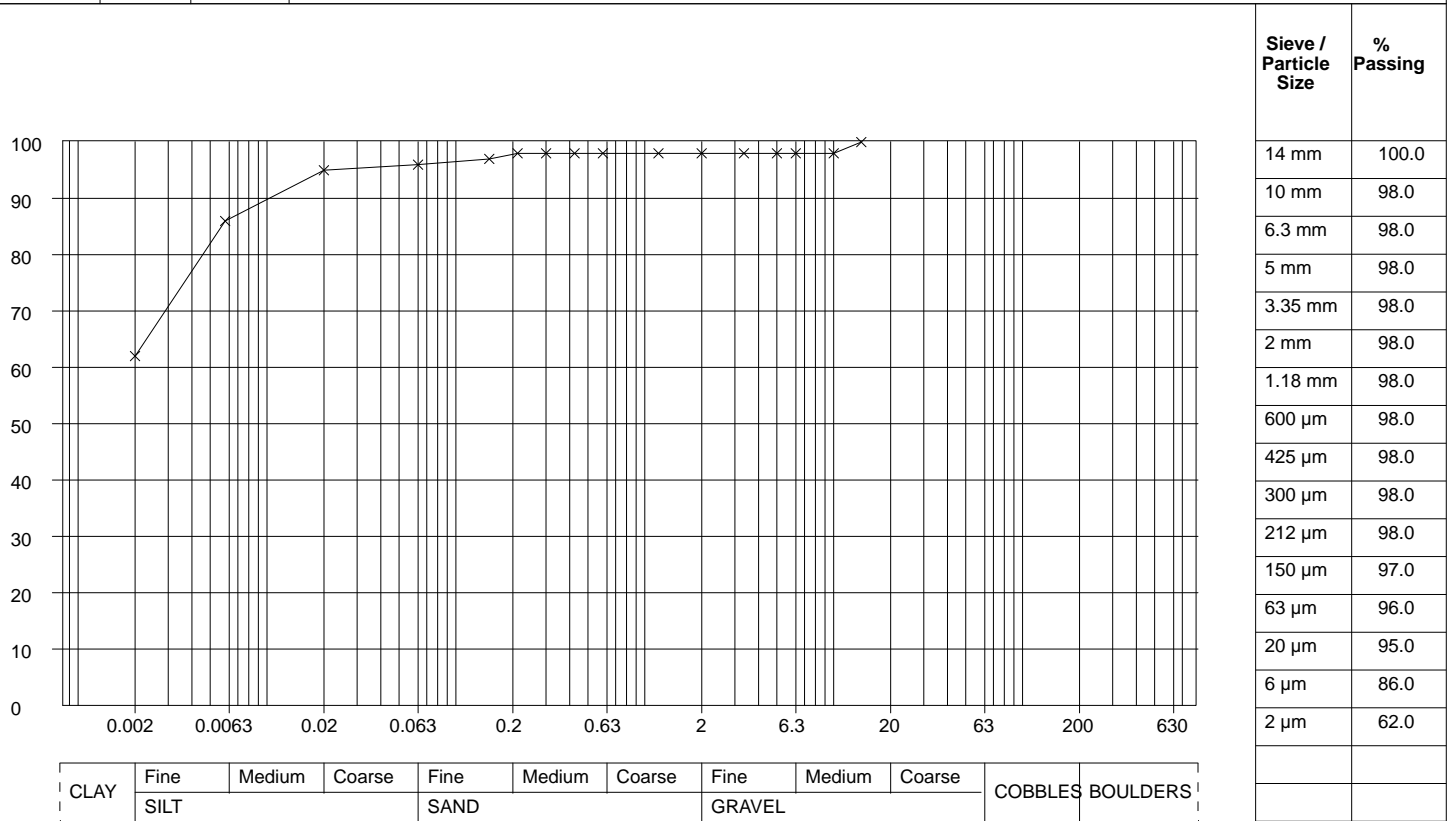


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH05	15.00	D22	Grey silty CLAY with rare shell fragments.



Grading Analysis	
D85	5.8 µm
D60	-
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	2.0%
Sand	2.0%
Silt	34.0%
Clay	62.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

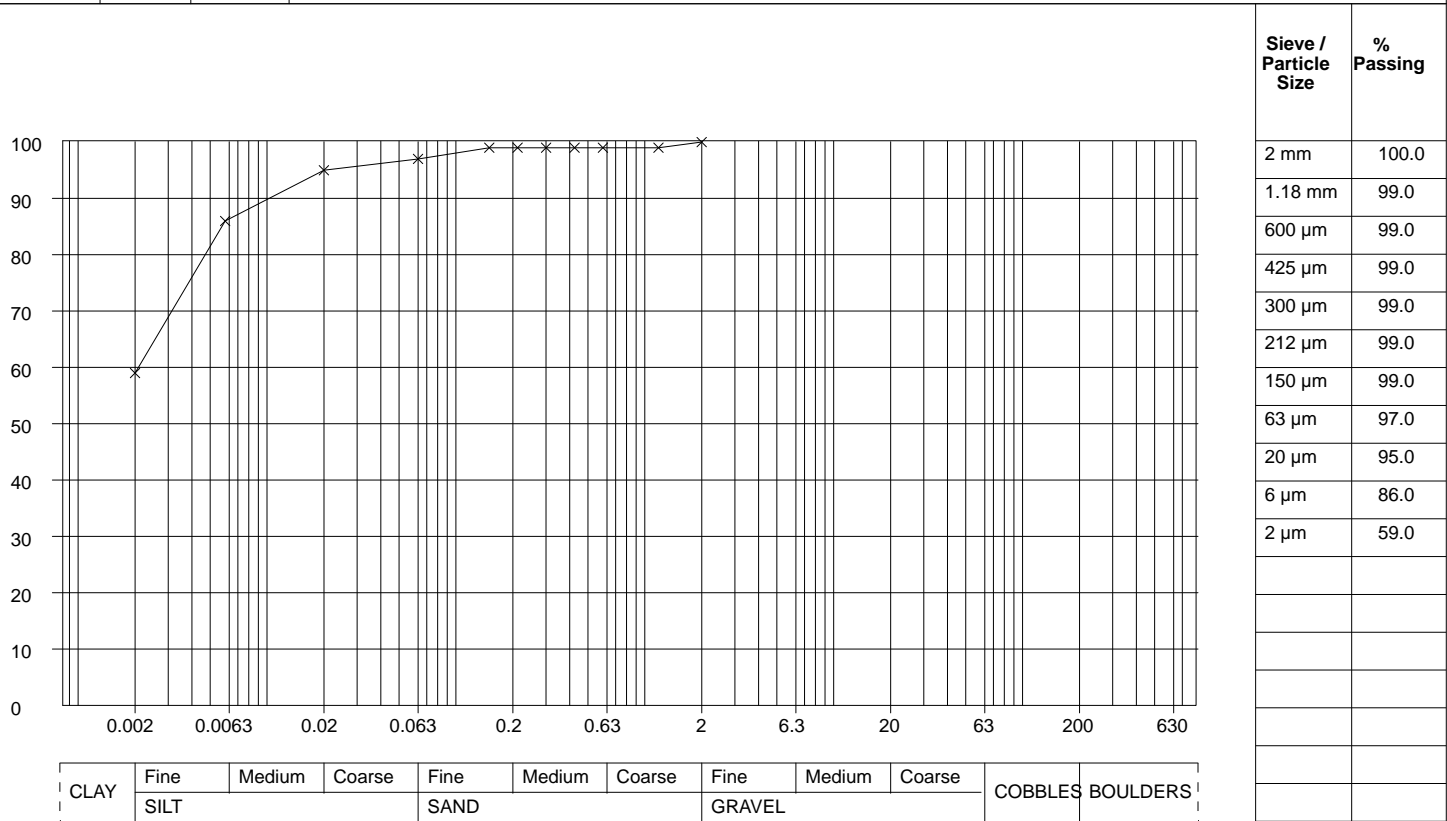


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH05	22.00	D27	Grey silty CLAY.



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	5.9 µm
D60	2.1 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	3.1%
Silt	37.9%
Clay	59.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :

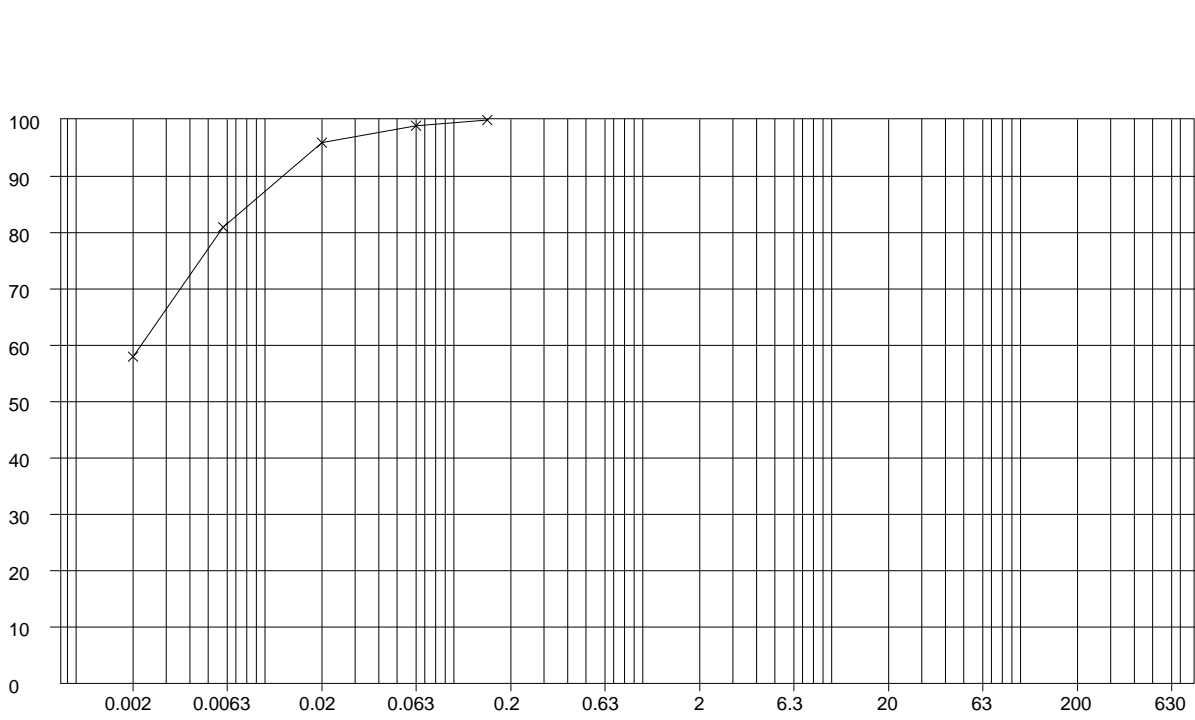


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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH05	28.00	D31	Dark grey silty CLAY.



Sieve / Particle Size	% Passing
150 µm	100.0
63 µm	99.0
20 µm	96.0
6 µm	81.0
2 µm	58.0

CLAY	Fine SILT	Medium	Coarse	Fine SAND	Medium	Coarse	Fine GRAVEL	Medium	Coarse	COBBLES	BOULDERS
------	-----------	--------	--------	-----------	--------	--------	-------------	--------	--------	---------	----------

Grading Analysis	
D85	9.7 µm
D60	2.3 µm
D10	<2.0 µm
Uniformity Coefficient	-

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	1.1%
Silt	40.9%
Clay	58.0%

Method of Preparation : BS EN ISO 17892:2016 Part 4. Determination of particle size distribution

Method of Test : BS EN ISO 17892: Part 4: 2016: Clause 5.2 Wet or dry sieve. Clause 5.4 Sedimentation by pipette

Remarks :



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**DETERMINATION OF DENSITY, MOISTURE CONTENT AND UNDRAINED SHEAR STRENGTH
IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE**

Borehole/ Trial Pit	Depth (m)	Sample	Moisture Content %	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kN/m ²)	Deviator Stress (kN/m ²)	Apparent Cohesion (kN/m ²)	Angle of Shearing Resistance (degrees)	Laboratory Description
BH01	17.00	CS4	28.9	2.02	1.57	1841	209	105		Stiff grey silty CLAY.
BH01	24.50	CS8	28.3	1.97	1.53	500	454	272		Very stiff grey silty CLAY.
BH02	12.20	CS3	26.9	2.04	1.60	250	355	177		Stiff grey silty CLAY
BH02	19.50	CS7	32.0	1.93	1.47	400	199	100		Stiff grey silty CLAY.
BH02	34.70	CS11	30.5	1.92	1.47	680	271	136		Stiff dark grey silty CLAY.
BH03	11.00	CS3	30.2	1.99	1.53	220	196	98		Firm to stiff fissured grey silty CLAY.
BH03	19.00	CS7	27.3	1.97	1.55	380	299	150		Very stiff fissured dark grey silty CLAY.
BH03	26.00	CS11	28.6	1.98	1.54	520	300	150		Very stiff fissured dark grey silty CLAY.
BH04	7.70	CS1	37.1	1.94	1.41	150	113	57		Stiff fissured dark grey silty CLAY.
BH04	11.00	CS3	33.1	1.94	1.46	220	104	52		Stiff fissured grey silty CLAY.
BH04	15.50	CS6	31.0	1.92	1.47	300	153	77		Very stiff fissured grey silty CLAY.
BH04	22.70	CS9	30.3	1.96	1.50	450	258	130		Very stiff fissured dark grey silty CLAY.
BH05	11.50	CS3	29.8	1.88	1.45	270	77	39		Stiff fissured dark grey silty CLAY.
BH05	13.70	CS5	30.4	1.95	1.49	280	180	90		Very stiff fissured grey silty CLAY.
BH05	20.00	CS8	32.6	1.95	1.47	400	184	92		Very stiff fissured grey silty CLAY.
BH05	29.00	CS12	25.0	2.02	1.61	580	872	440		Very stiff fissured dark grey silty CLAY.

Method of Preparation : BS EN ISO 17892:PART 1:2014:5.1 Test specimen preparation (moisture content). BS EN ISO 17892:PART 8:2018: 6.2 Preparation of undisturbed samples for testing

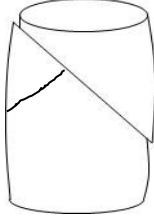
Method of Test : BS EN ISO 17892:PART 1:2014:5.2 Test execution (moisture content) and PART 2:2014 Determination of density. BS EN ISO 17892: PART 8: 2018: 6,7 + 8 Undrained shear strength (Single stage). BS 1377:PART 7:1990:9 Multistage loading

Remarks :

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH01
Sample No.: CS2
Depth (m): 12.40

Description:
Firm grey CLAY.

SPECIMEN DETAILS		
Depth within original sample		20 mm from top
Orientation within original sample		Vertical
TEST DETAILS		
Specimen Type and Preparation		C (Undisturbed)
Cell Preparation		Checks performed in accordance with Clause 3.5
Specimen Number		Single
Initial Diameter	mm	97.52
Initial Length	mm	200.35
Initial Water Content	%	28.7
Initial Wet Density	Mg/m ³	1.99
Drainage Conditions		One end and radial boundary
SATURATION STAGE		Method: Clause 5.2
Final Cell Pressure	kPa	425
Final Pore Pressure	kPa	405
Final Pore Pressure Parameter B		0.96
Duration	day(s)	2
CONSOLIDATION STAGE		
Cell Pressure	kPa	425
Back Pressure	kPa	300
Effective Pressure	kPa	125
Final Pore Pressure	kPa	300
Final Pore Pressure Dissipation	%	100
Duration	day(s)	2
SHEARING STAGE		
Cell Pressure	kPa	425
Rate of Axial Displacement	mm/min	0.0041
Initial Pore Pressure	kPa	300
Initial Effective Stress	kPa	125
CONDITIONS AT FAILURE	<i>criteria</i>	Maximum deviator stress
Pore Pressure	kPa	344
Minor Effective Principal Stress	kPa	81
Deviator Stress	kPa	120
Major Effective Principal Stress	kPa	201
Effective Principal Stress Ratio		2.47
Pore Pressure Parameter A		0.36
Axial Strain	%	4.9
Membrane & filter correction applied to Deviator Stress	kPa	4
Duration	day(s)	1
Final Water Content	%	28.2
Final Wet Density	Mg/m ³	2.04
EFFECTIVE STRESS PARAMETERS		
Cohesion	kPa	Not applicable
Angle of Shear Resistance	degrees	Not applicable
FAILURE SKETCH		

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Project Name:

**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09**

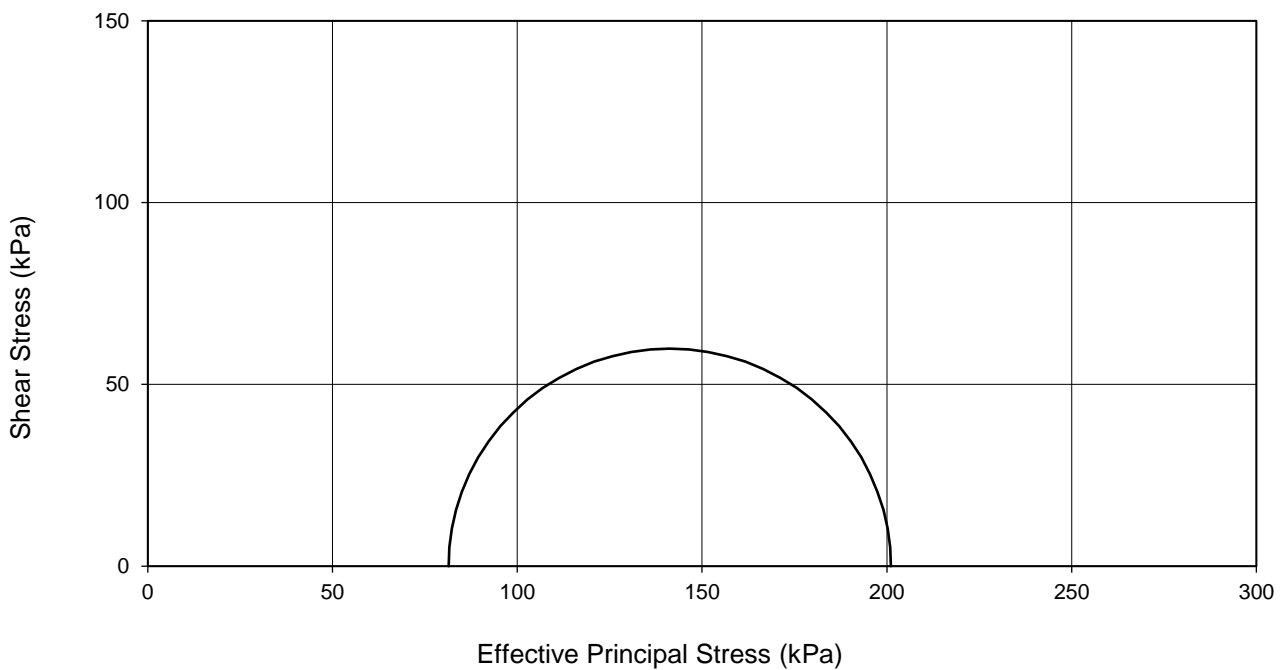
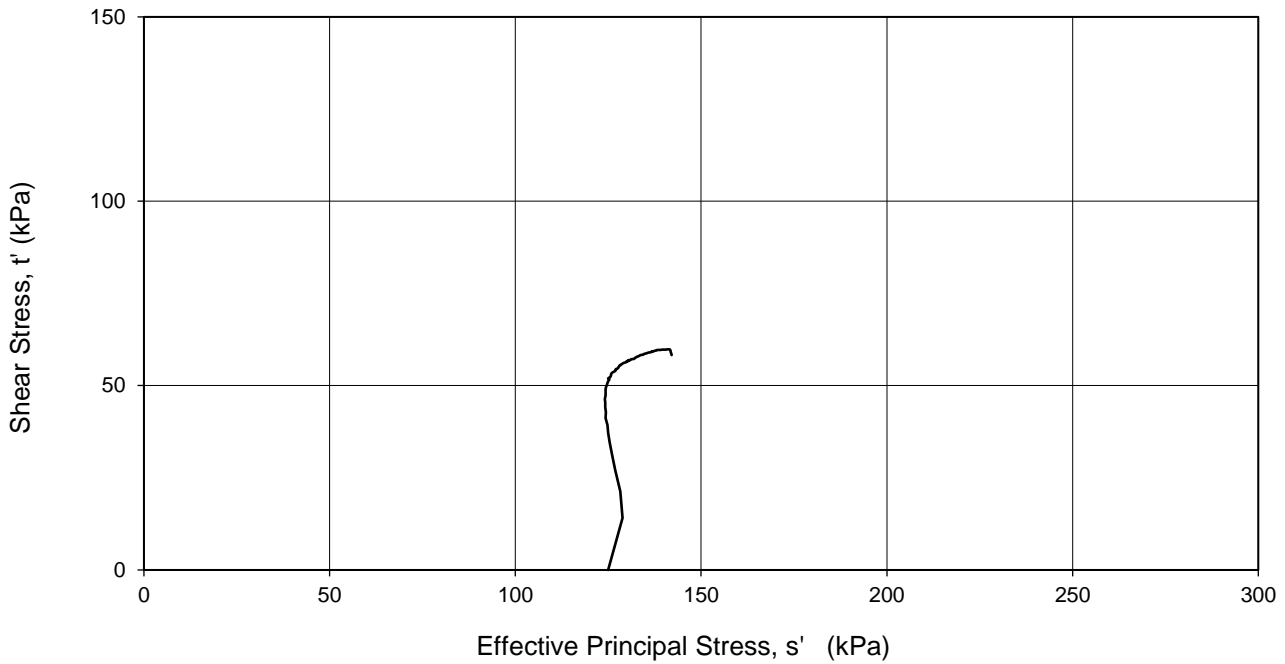
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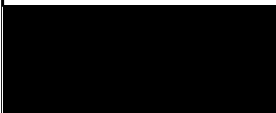

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH01
 Sample No.: CS2
 Depth (m): 12.40

Description:
 Firm grey CLAY.



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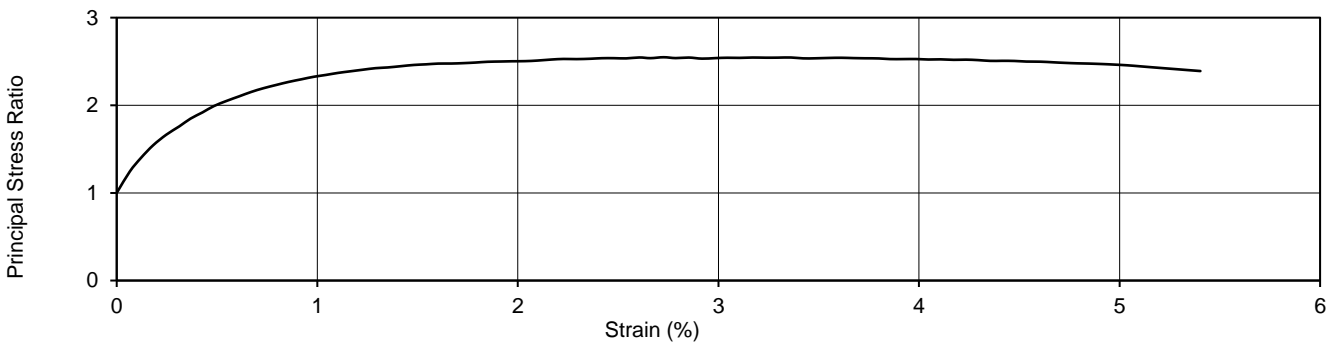
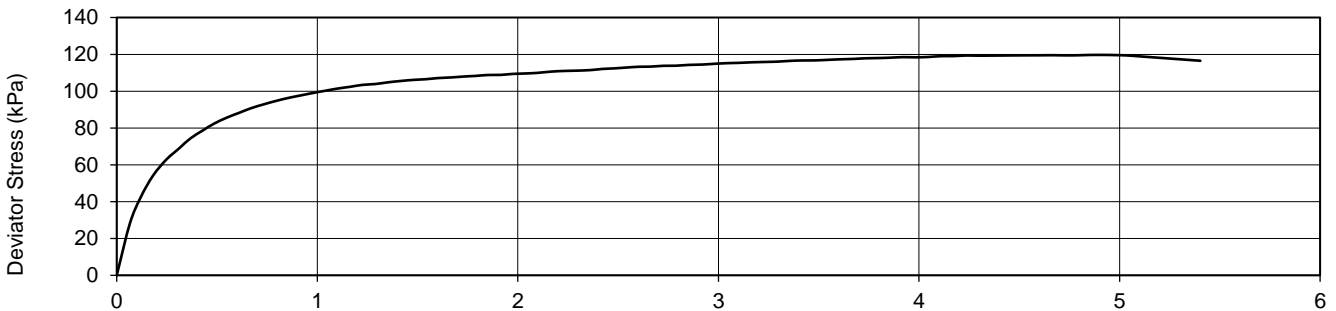
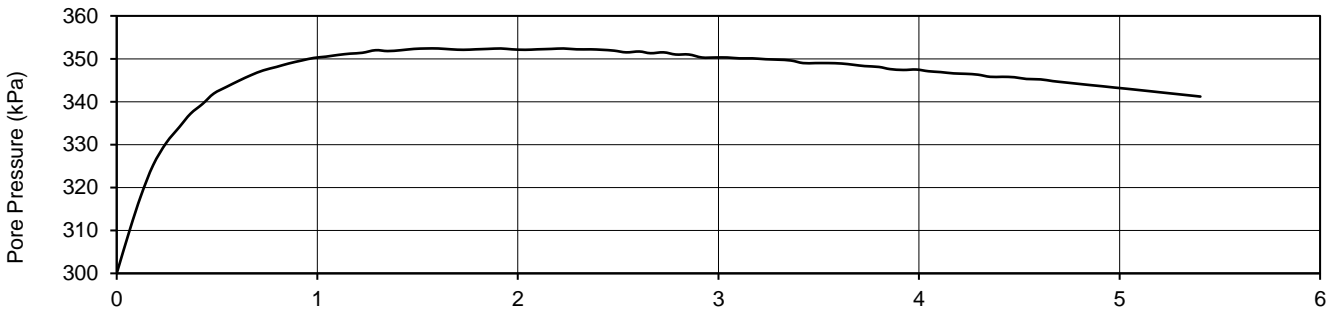
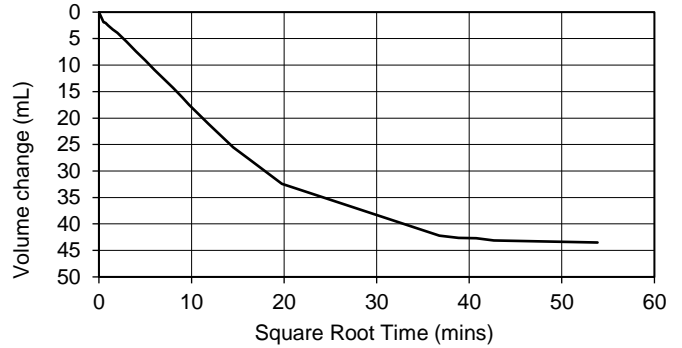
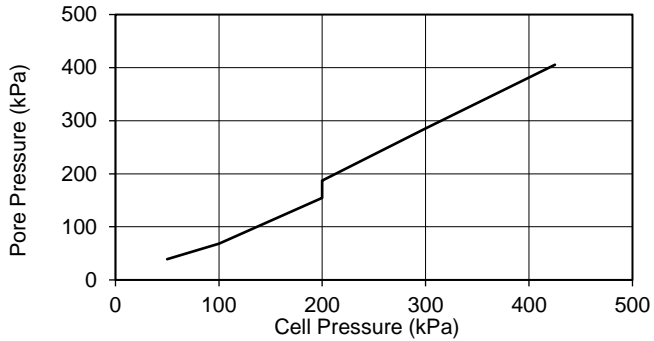
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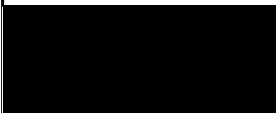


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH01
 Sample No.: CS2
 Depth (m): 12.40



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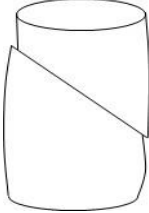
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH01
Sample No.: CS6
Depth (m): 20.50

Description:
Very stiff grey CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	20 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 101.93 200.28 27.7 1.97 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 500 476 0.99 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	500 300 200 300 100 2
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	500 0.0065 300 200
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 362 138 248 386 2.80 0.25 9.0 5 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	27.5 2.03
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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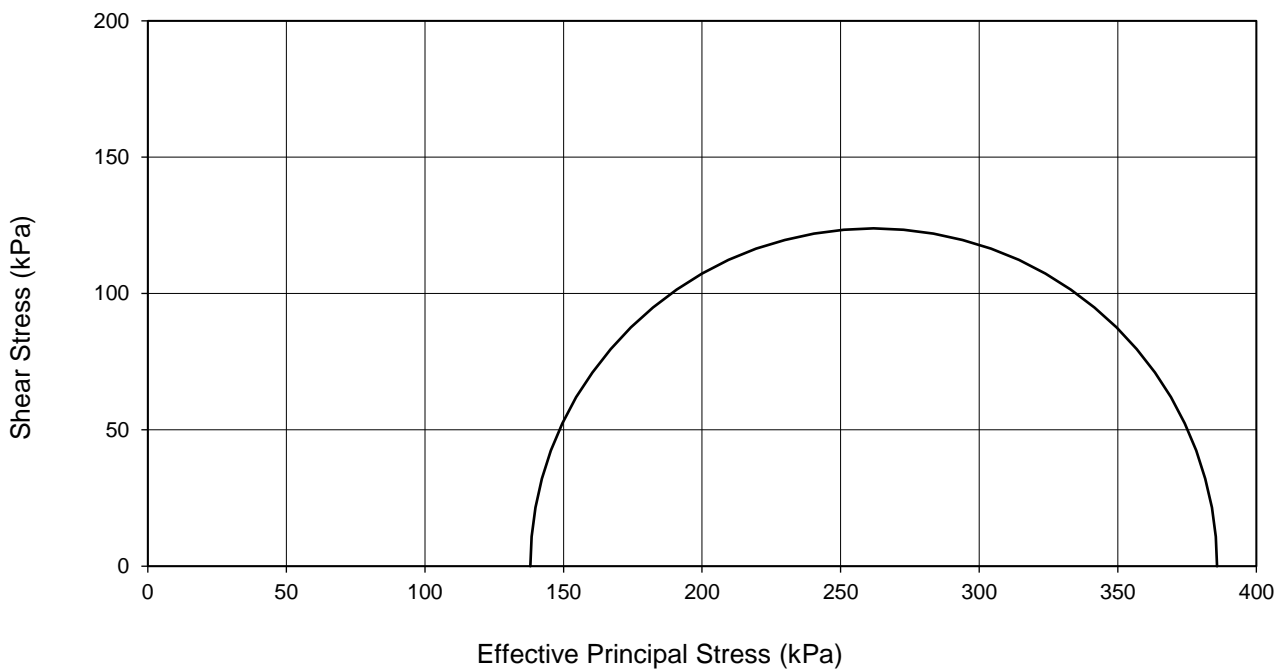
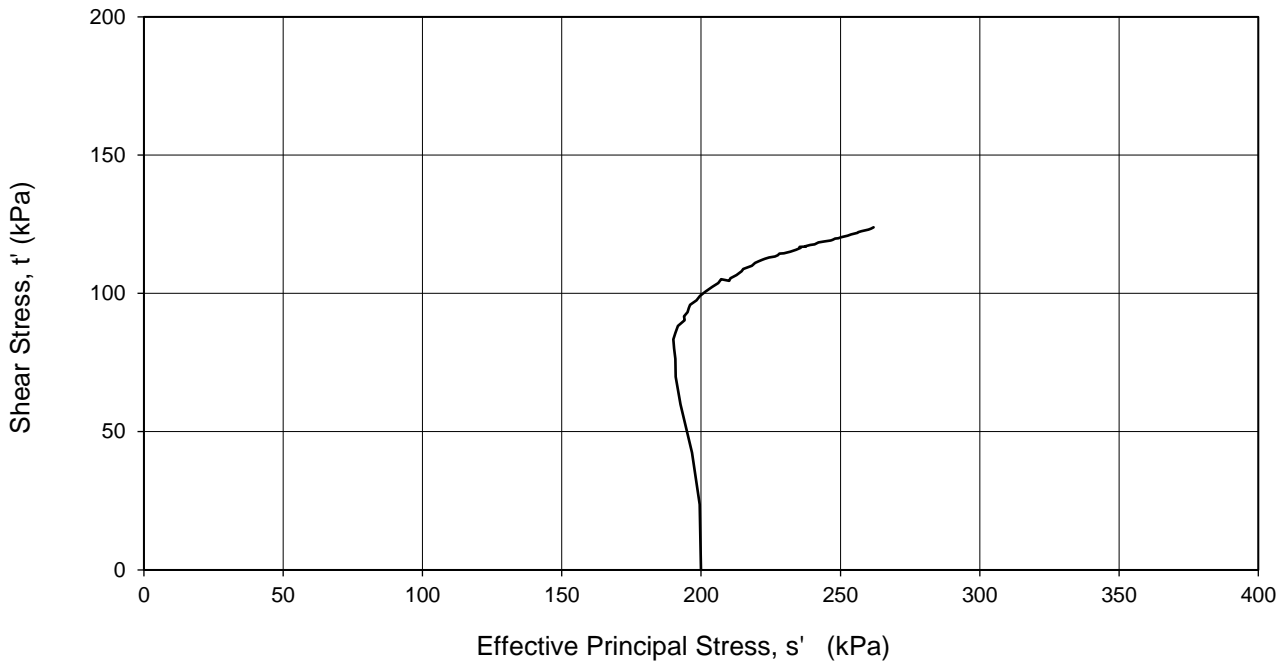
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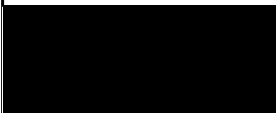

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH01
 Sample No.: CS6
 Depth (m): 20.50

Description:
 Very stiff grey CLAY.



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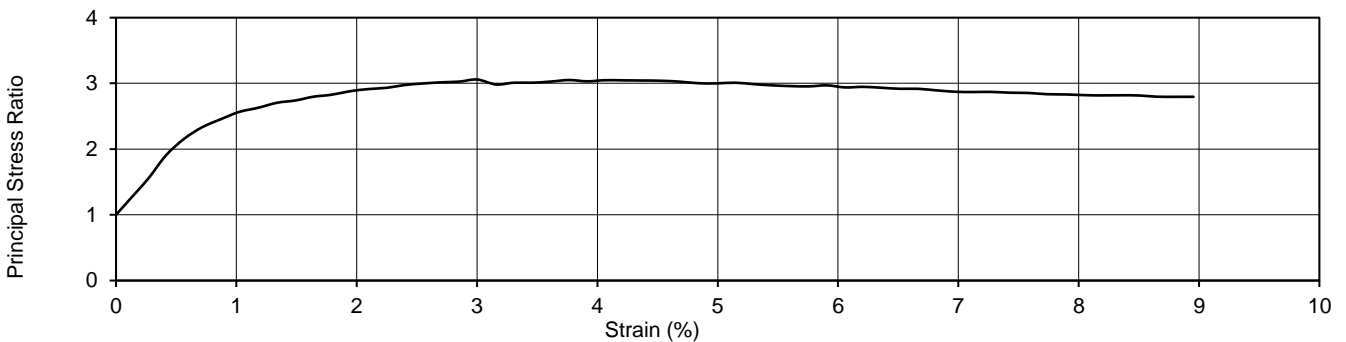
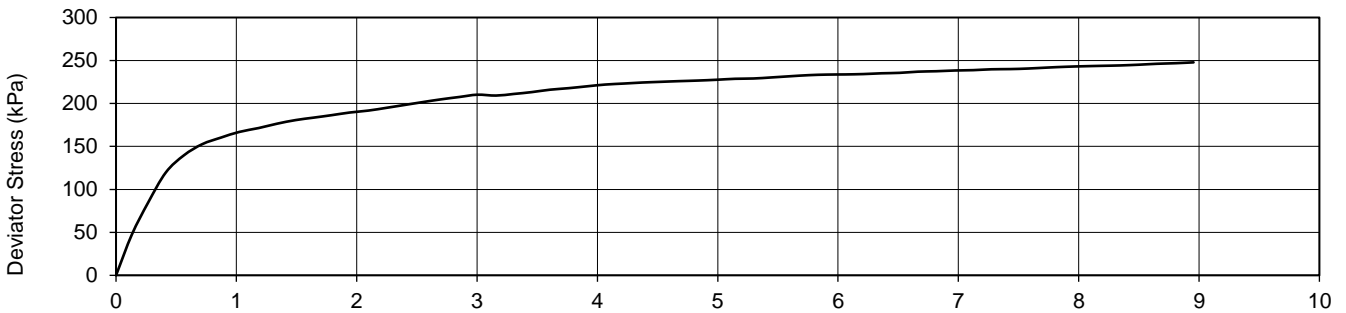
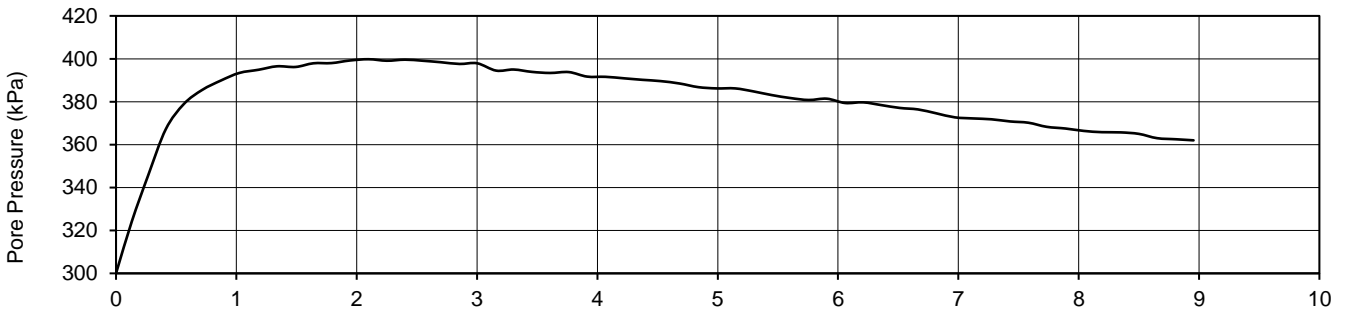
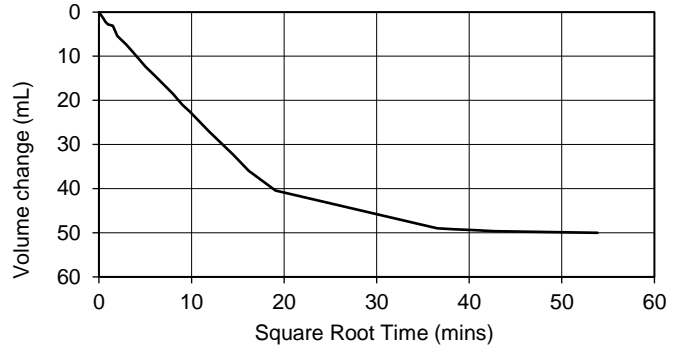
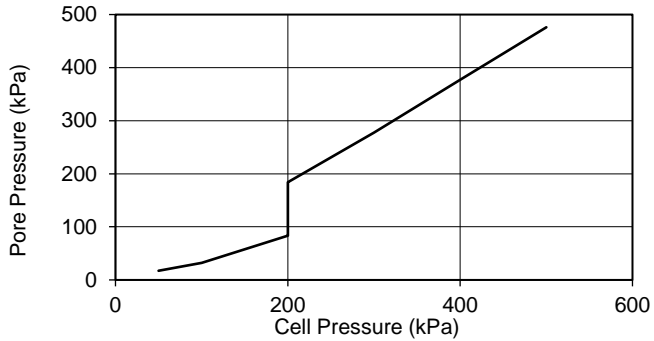
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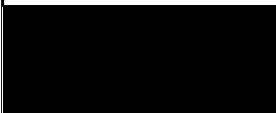


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH01
 Sample No.: CS6
 Depth (m): 20.50



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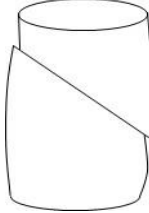
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH01
Sample No.: CS9
Depth (m): 28.30

Description:
Very stiff grey CLAY.

SPECIMEN DETAILS		
Depth within original sample		20 mm from top
Orientation within original sample		Vertical
TEST DETAILS		
Specimen Type and Preparation		U (Undisturbed)
Cell Preparation		Checks performed in accordance with Clause 3.5
Specimen Number		Single
Initial Diameter	mm	101.01
Initial Length	mm	200.89
Initial Water Content	%	28.0
Initial Wet Density	Mg/m ³	1.96
Drainage Conditions		One end and radial boundary
SATURATION STAGE		Method: Clause 5.2
Final Cell Pressure	kPa	580
Final Pore Pressure	kPa	554
Final Pore Pressure Parameter B		0.96
Duration	day(s)	2
CONSOLIDATION STAGE		
Cell Pressure	kPa	580
Back Pressure	kPa	300
Effective Pressure	kPa	280
Final Pore Pressure	kPa	300
Final Pore Pressure Dissipation	%	100
Duration	day(s)	2
SHEARING STAGE		
Cell Pressure	kPa	580
Rate of Axial Displacement	mm/min	0.0090
Initial Pore Pressure	kPa	300
Initial Effective Stress	kPa	280
CONDITIONS AT FAILURE	<i>criteria</i>	Maximum deviator stress
Pore Pressure	kPa	476
Minor Effective Principal Stress	kPa	104
Deviator Stress	kPa	379
Major Effective Principal Stress	kPa	483
Effective Principal Stress Ratio		4.64
Pore Pressure Parameter A		0.46
Axial Strain	%	1.8
Membrane & filter correction applied to Deviator Stress	kPa	4
Duration	day(s)	1
Final Water Content	%	27.4
Final Wet Density	Mg/m ³	2.02
EFFECTIVE STRESS PARAMETERS		
Cohesion	kPa	Not applicable
Angle of Shear Resistance	degrees	Not applicable
FAILURE SKETCH		

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Project Name:

**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09**

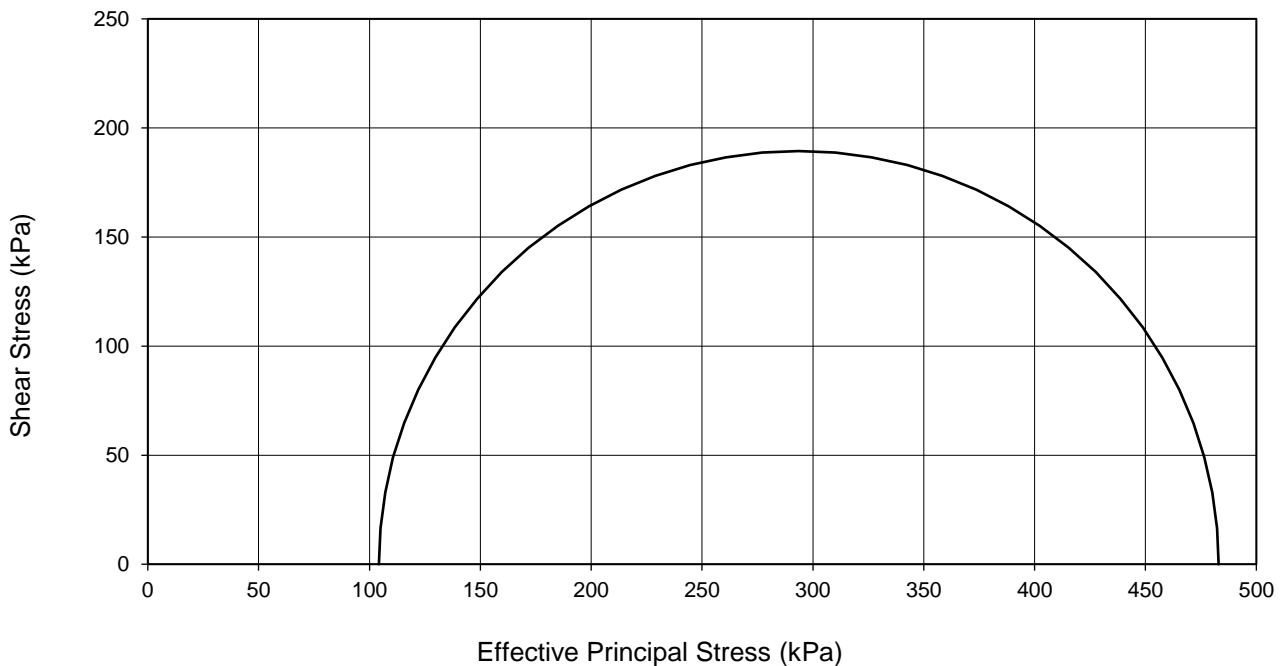
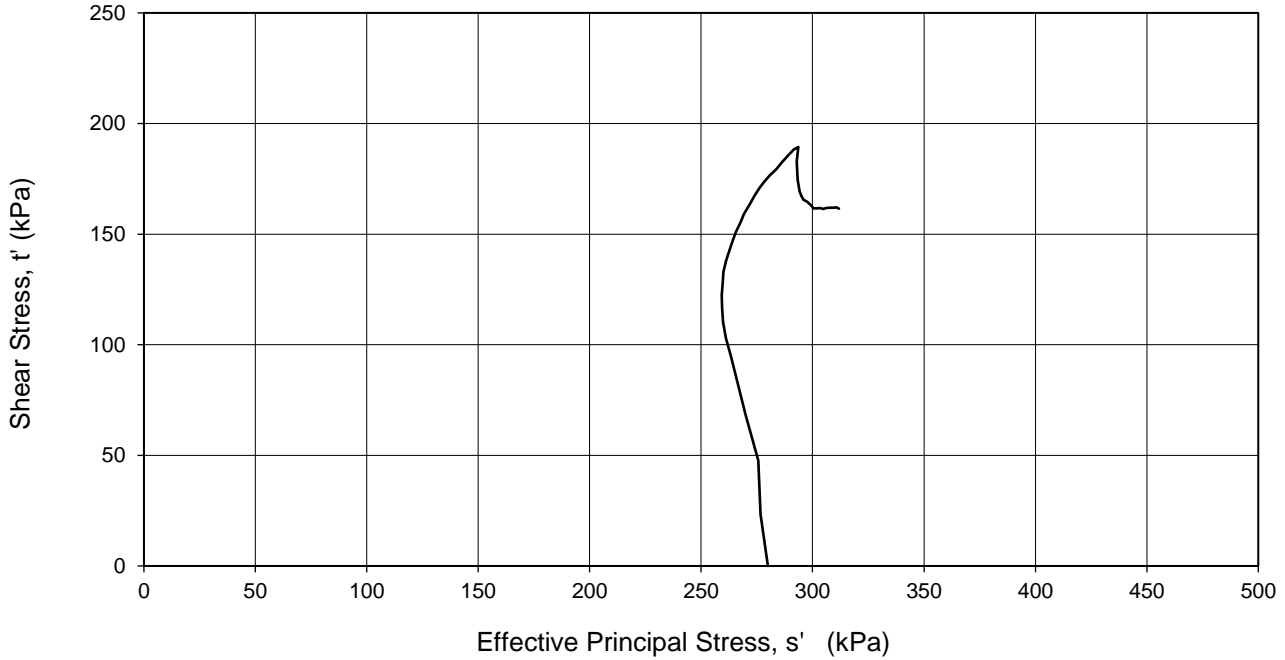
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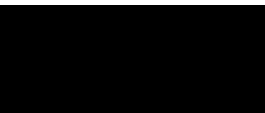

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH01
 Sample No.: CS9
 Depth (m): 28.30

Description:
 Very stiff grey CLAY.



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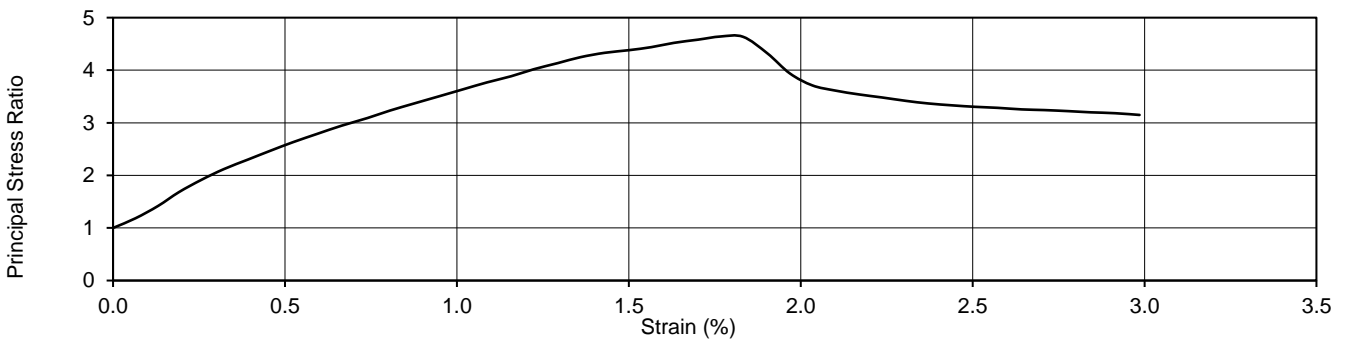
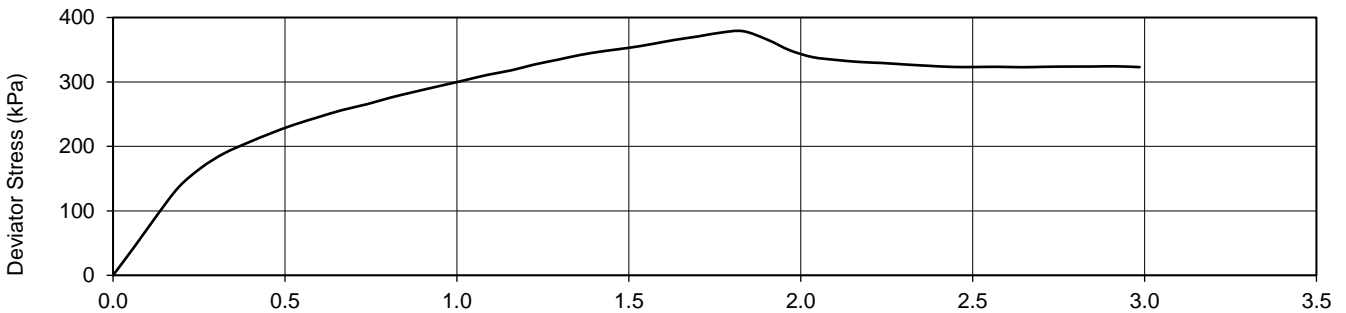
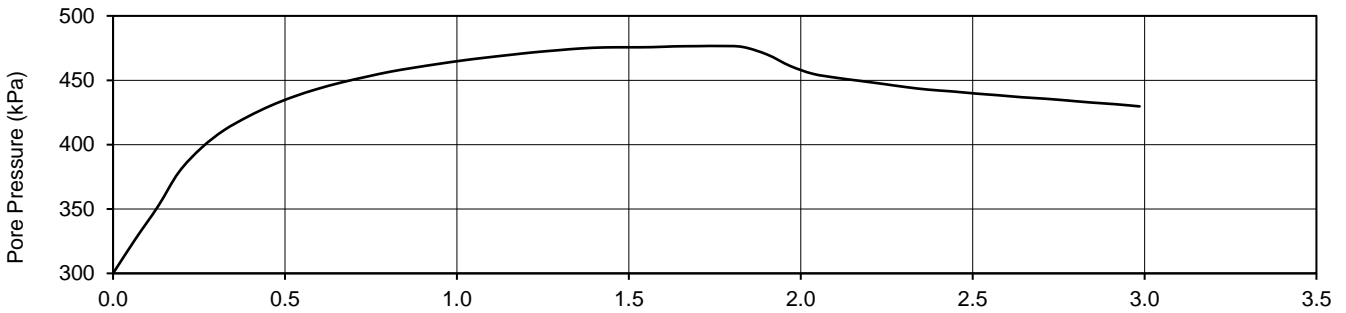
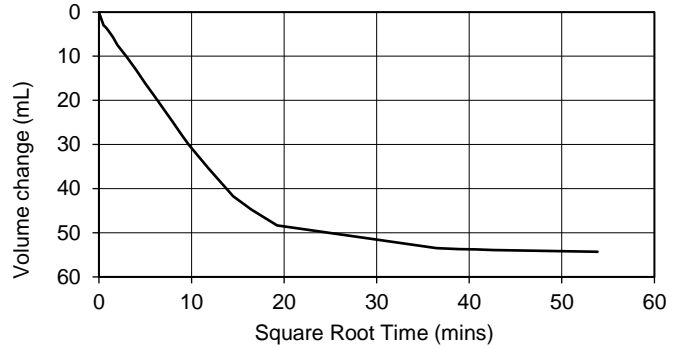
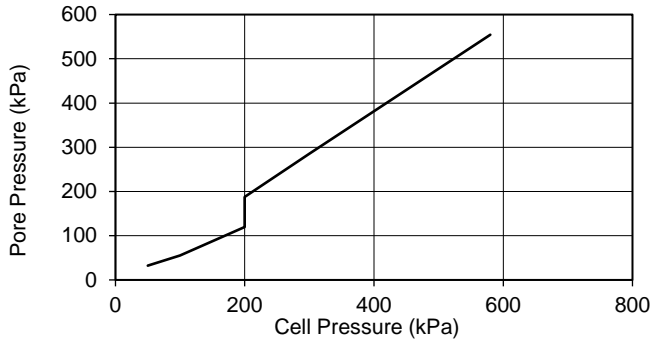
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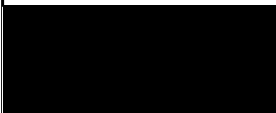


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH01
 Sample No.: CS9
 Depth (m): 28.30



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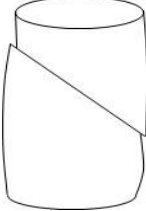
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02
Sample No.: CS1
Depth (m): 8.00

Description:
Stiff grey CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	20 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 102.80 201.66 32.5 1.92 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 380 356 0.96 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	380 300 80 300 100 1
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	380 0.0060 300 80
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 323 57 112 169 2.96 0.21 7.7 5 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	33.0 1.97
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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Project Name:

**CAMBRIDGE WWTP RELOCATION
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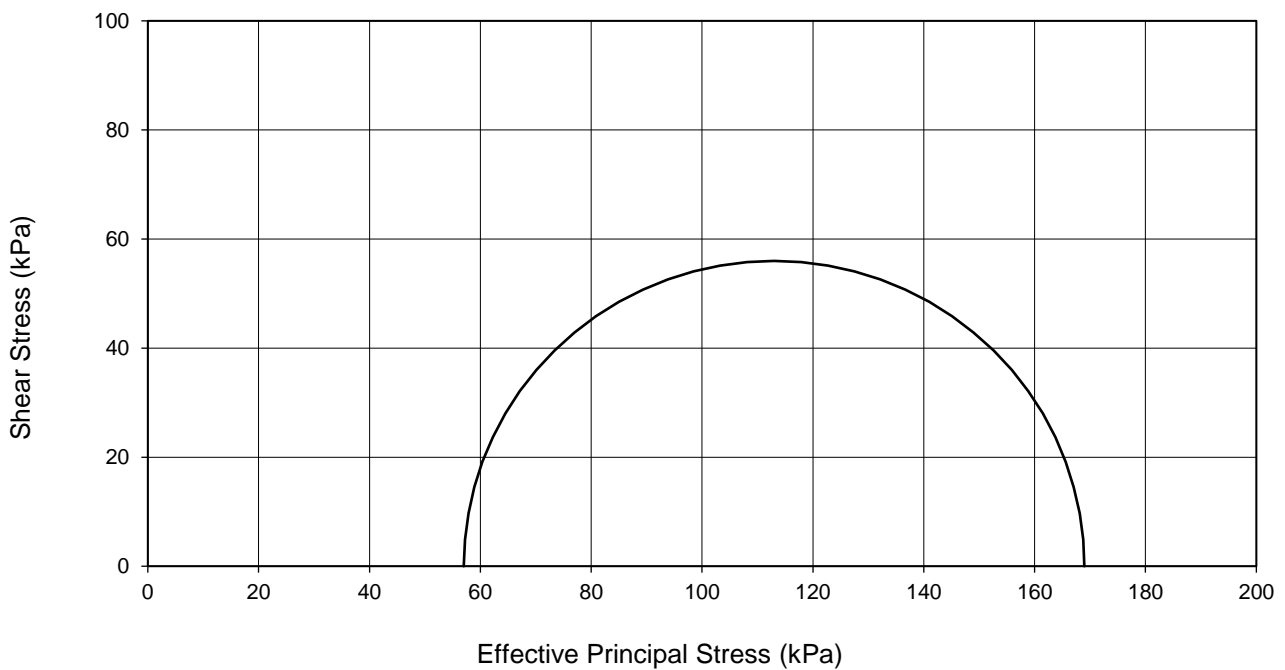
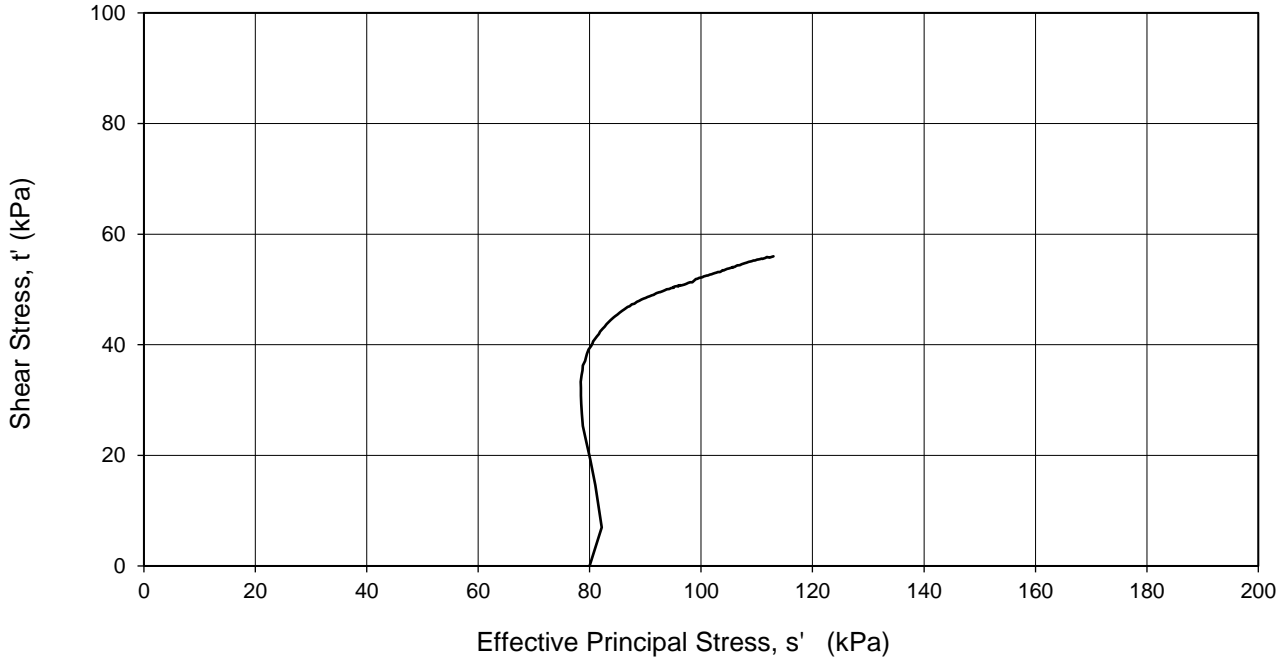
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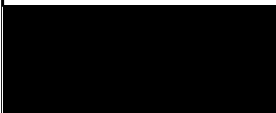

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02
 Sample No.: CS1
 Depth (m): 8.00

Description:
 Stiff grey CLAY.



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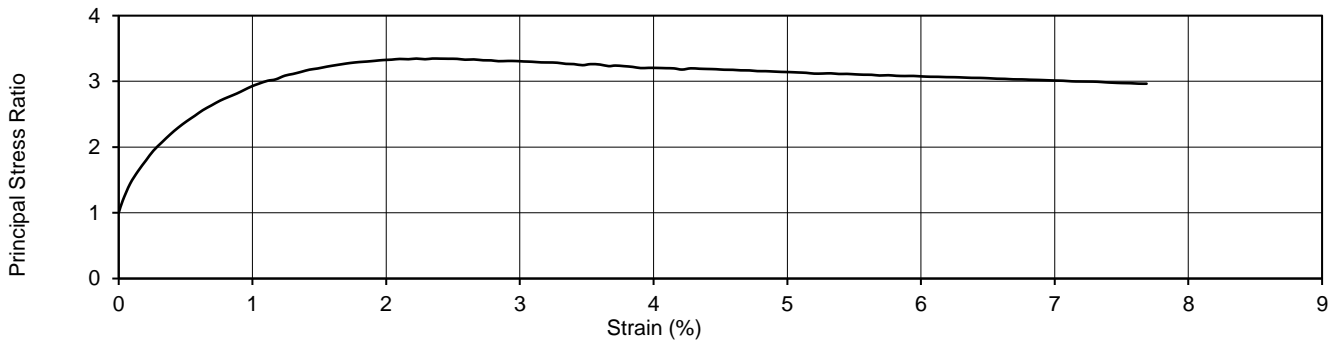
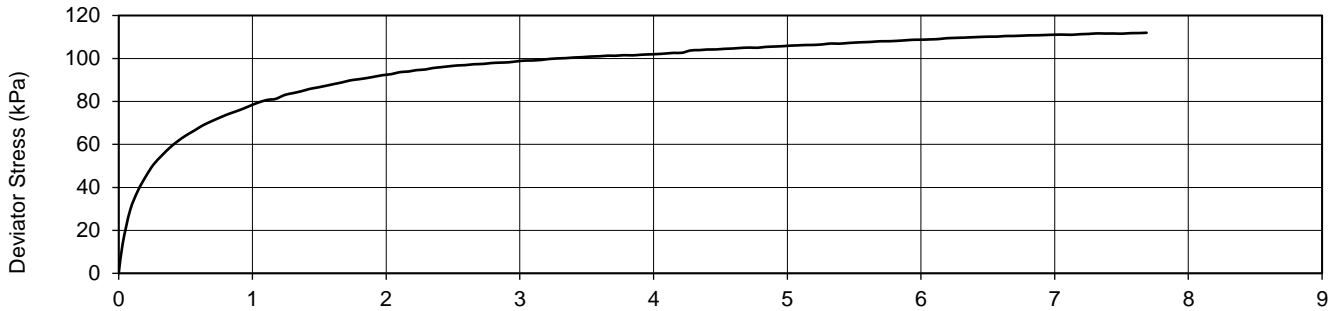
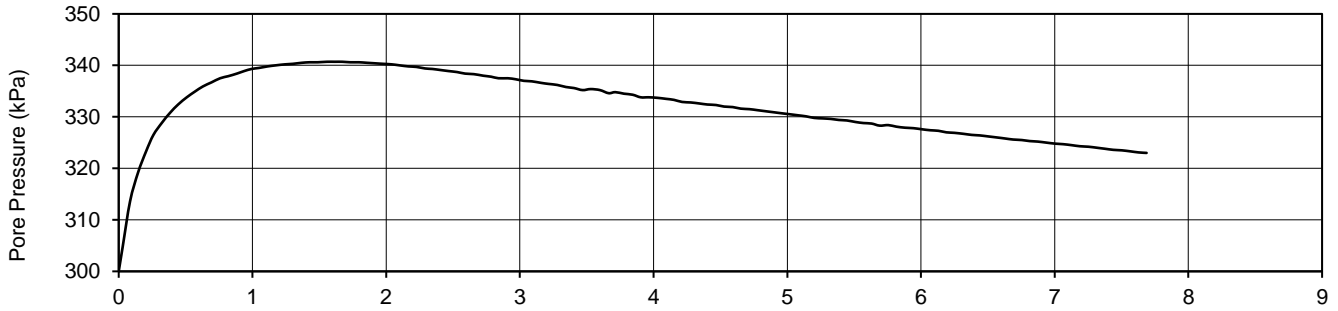
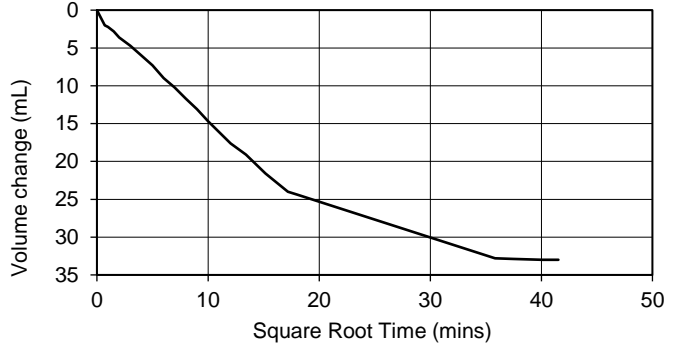
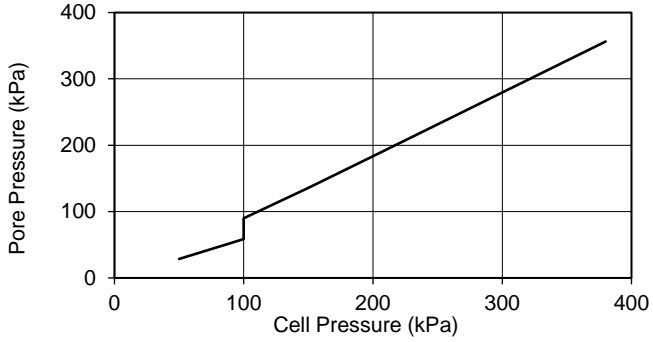
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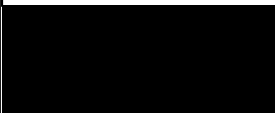


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02
 Sample No.: CS1
 Depth (m): 8.00



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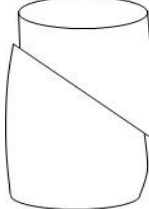
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02	Description: Stiff grey CLAY with rare shells.
Depth (m): 15.50	

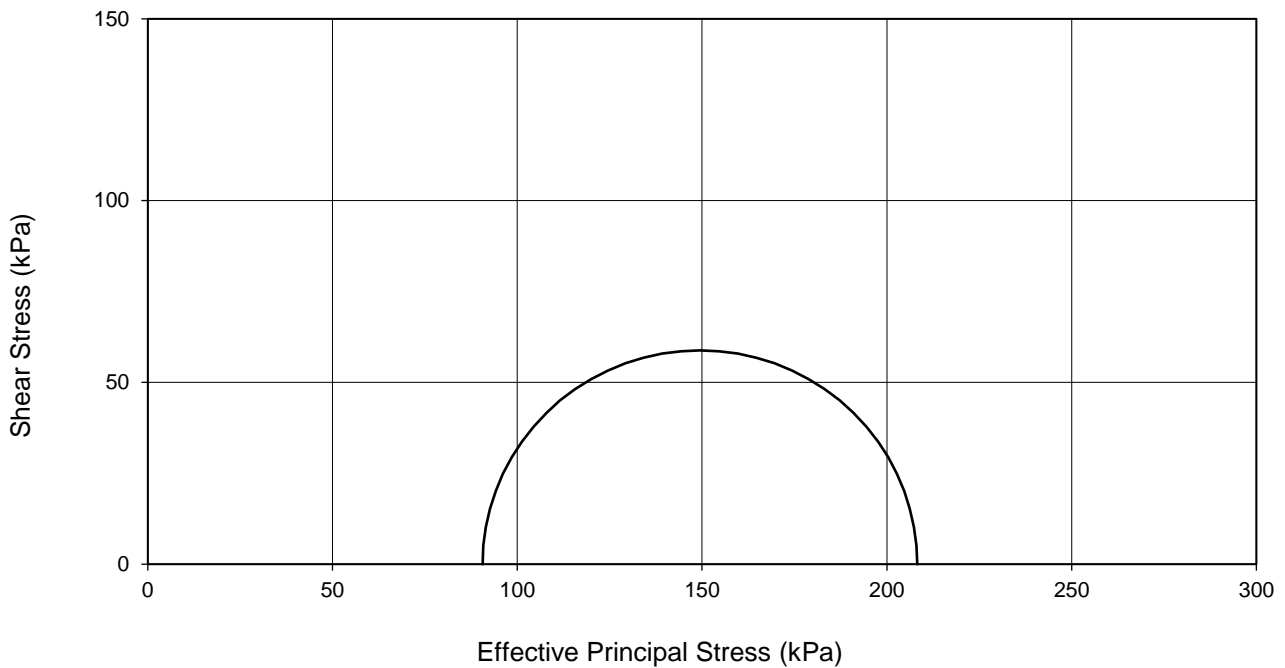
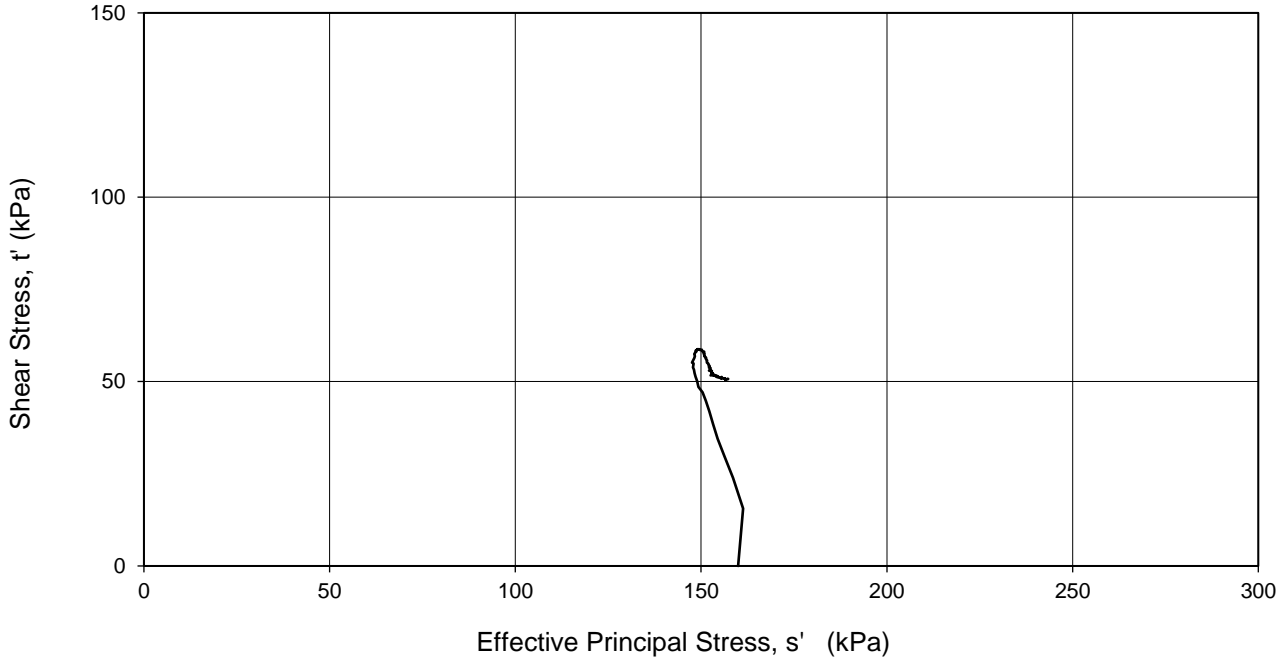
SPECIMEN DETAILS	
Depth within original sample	20 mm from top
Orientation within original sample	Vertical
TEST DETAILS	
Specimen Type and Preparation	C (Undisturbed)
Cell Preparation	Checks performed in accordance with Clause 3.5
Specimen Number	Single
Initial Diameter <i>mm</i>	102.33
Initial Length <i>mm</i>	201.82
Initial Water Content <i>%</i>	33.2
Initial Wet Density <i>Mg/m³</i>	1.94
Drainage Conditions	One end and radial boundary
SATURATION STAGE	Method: Clause 5.2
Final Cell Pressure <i>kPa</i>	460
Final Pore Pressure <i>kPa</i>	434
Final Pore Pressure Parameter B	0.97
Duration <i>day(s)</i>	2
CONSOLIDATION STAGE	
Cell Pressure <i>kPa</i>	460
Back Pressure <i>kPa</i>	300
Effective Pressure <i>kPa</i>	160
Final Pore Pressure <i>kPa</i>	300
Final Pore Pressure Dissipation <i>%</i>	100
Duration <i>day(s)</i>	1
SHEARING STAGE	
Cell Pressure <i>kPa</i>	460
Rate of Axial Displacement <i>mm/min</i>	0.0090
Initial Pore Pressure <i>kPa</i>	300
Initial Effective Stress <i>kPa</i>	160
CONDITIONS AT FAILURE <i>criteria</i>	Maximum deviator stress
Pore Pressure <i>kPa</i>	369
Minor Effective Principal Stress <i>kPa</i>	91
Deviator Stress <i>kPa</i>	118
Major Effective Principal Stress <i>kPa</i>	209
Effective Principal Stress Ratio	2.30
Pore Pressure Parameter A	0.59
Axial Strain <i>%</i>	0.5
Membrane & filter correction applied to Deviator Stress <i>kPa</i>	1
Duration <i>day(s)</i>	2
Final Water Content <i>%</i>	32.3
Final Wet Density <i>Mg/m³</i>	2.01
EFFECTIVE STRESS PARAMETERS	
Cohesion <i>kPa</i>	Not applicable
Angle of Shear Resistance <i>degrees</i>	Not applicable
FAILURE SKETCH	

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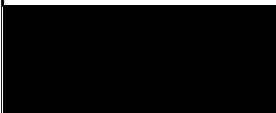
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02
Depth (m): 15.50

Description:
Stiff grey CLAY with rare shells.



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Project Number:

GEO / 31949

Project Name:

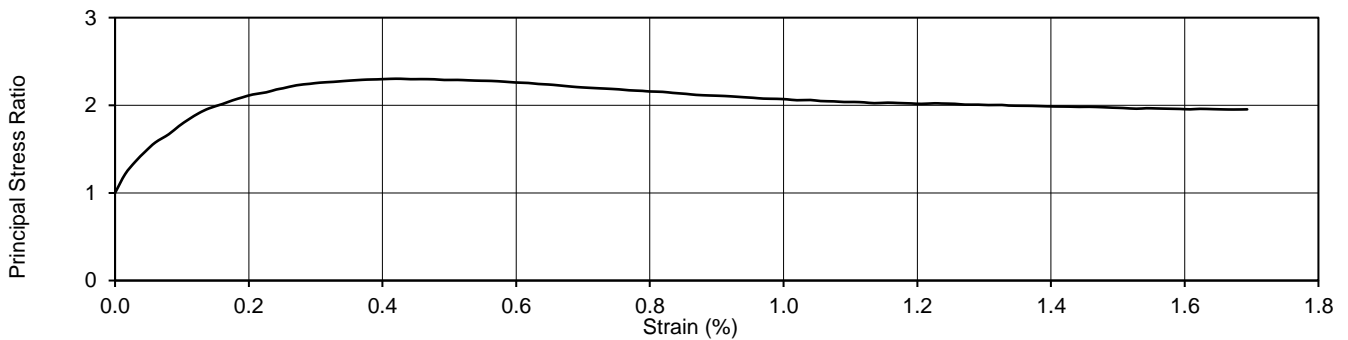
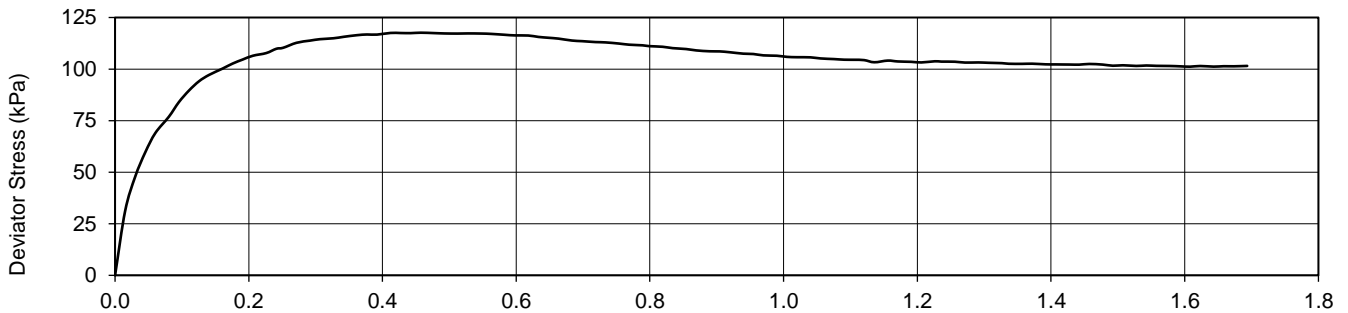
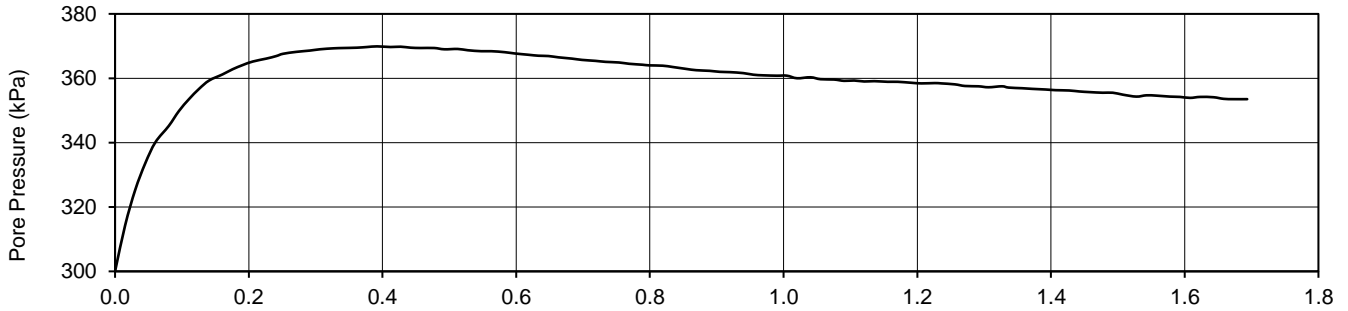
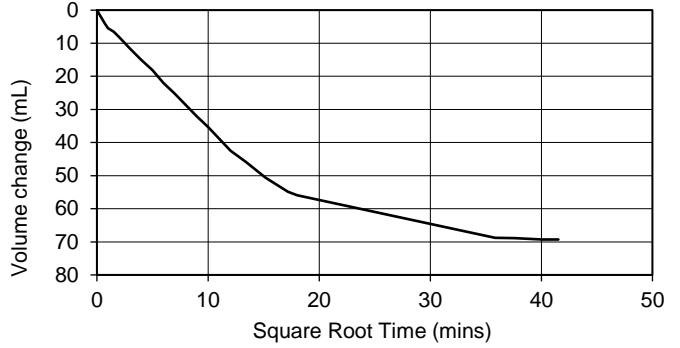
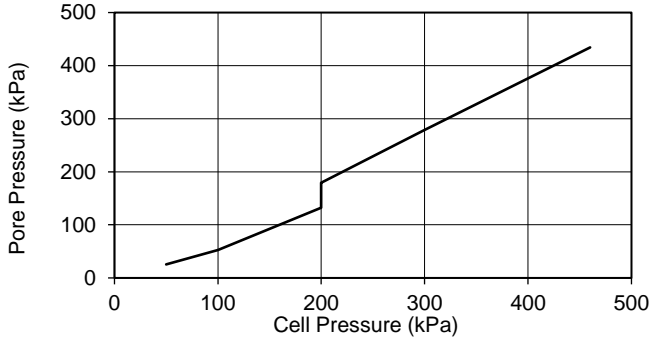
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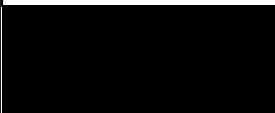


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02
Depth (m): 15.50



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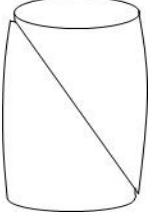
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02	Description: Stiff dark brown SILT.
Depth (m): 24.20	

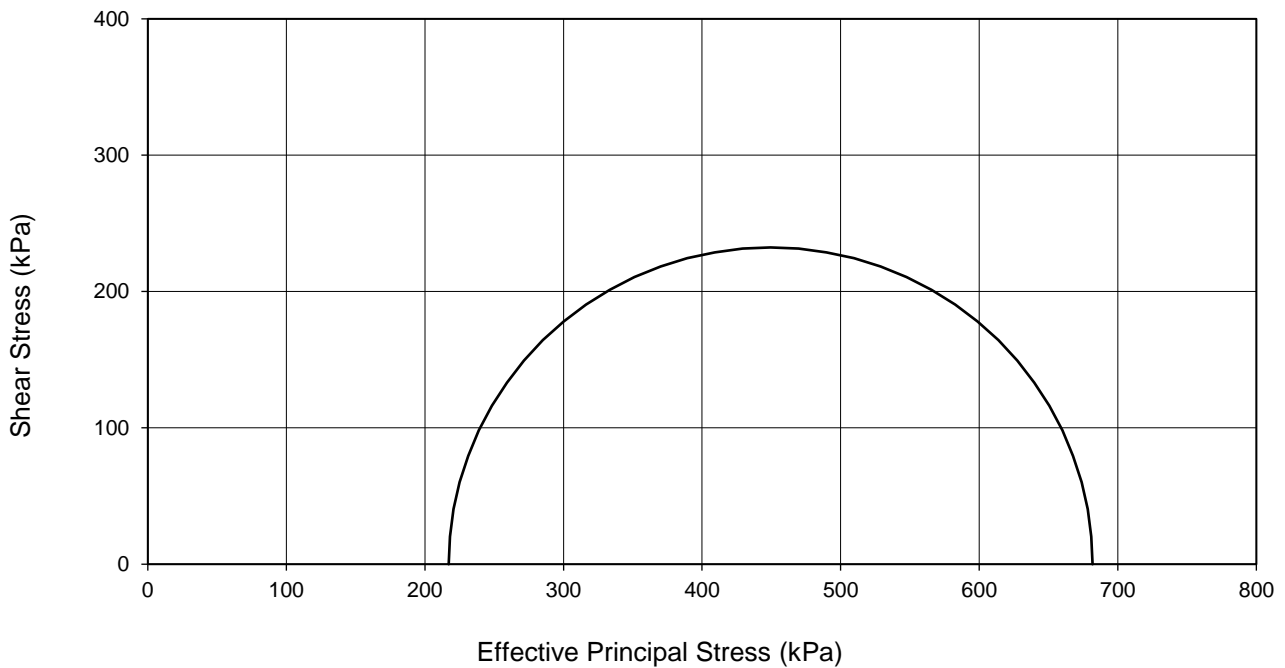
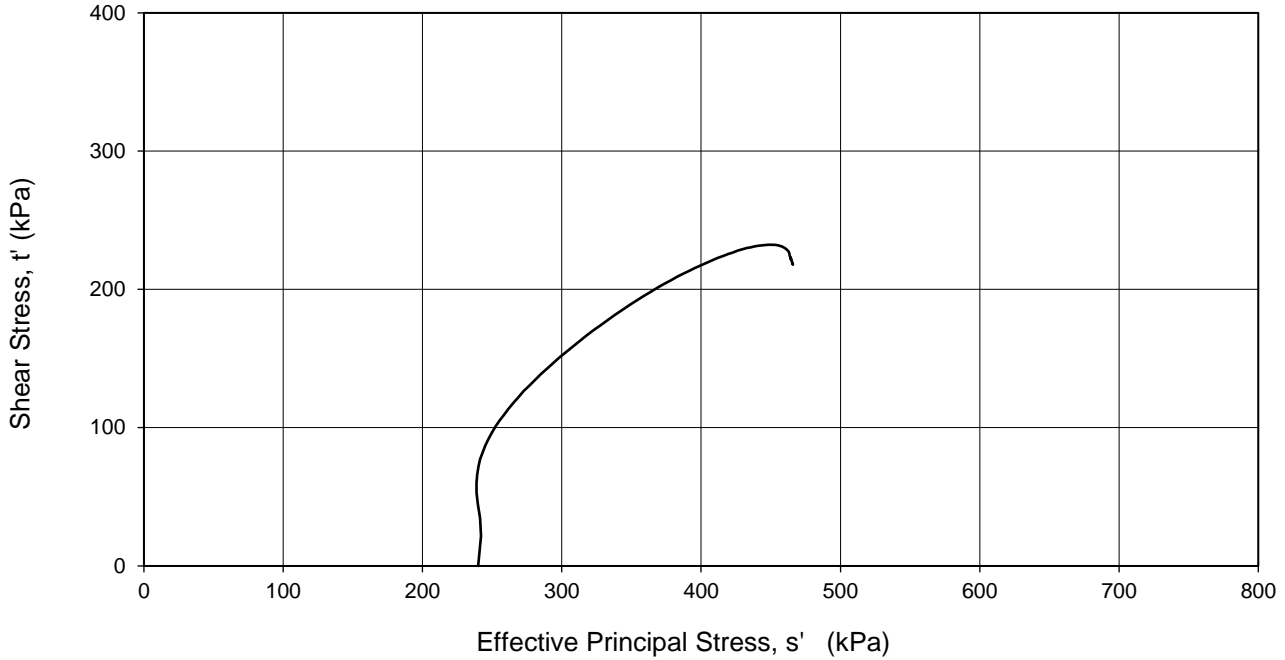
SPECIMEN DETAILS	
Depth within original sample	20 mm from top
Orientation within original sample	Vertical
TEST DETAILS	
Specimen Type and Preparation	C (Undisturbed)
Cell Preparation	Checks performed in accordance with Clause 3.5
Specimen Number	Single
Initial Diameter <i>mm</i>	103.37
Initial Length <i>mm</i>	201.88
Initial Water Content <i>%</i>	19.3
Initial Wet Density <i>Mg/m³</i>	2.10
Drainage Conditions	One end and radial boundary
SATURATION STAGE	Method: Clause 5.2
Final Cell Pressure <i>kPa</i>	540
Final Pore Pressure <i>kPa</i>	522
Final Pore Pressure Parameter B	0.99
Duration <i>day(s)</i>	2
CONSOLIDATION STAGE	
Cell Pressure <i>kPa</i>	540
Back Pressure <i>kPa</i>	300
Effective Pressure <i>kPa</i>	240
Final Pore Pressure <i>kPa</i>	300
Final Pore Pressure Dissipation <i>%</i>	100
Duration <i>day(s)</i>	1
SHEARING STAGE	
Cell Pressure <i>kPa</i>	540
Rate of Axial Displacement <i>mm/min</i>	0.012
Initial Pore Pressure <i>kPa</i>	300
Initial Effective Stress <i>kPa</i>	240
CONDITIONS AT FAILURE <i>criteria</i>	Maximum deviator stress
Pore Pressure <i>kPa</i>	323
Minor Effective Principal Stress <i>kPa</i>	217
Deviator Stress <i>kPa</i>	465
Major Effective Principal Stress <i>kPa</i>	682
Effective Principal Stress Ratio	3.14
Pore Pressure Parameter A	0.05
Axial Strain <i>%</i>	3.9
Membrane & filter correction applied to Deviator Stress <i>kPa</i>	4
Duration <i>day(s)</i>	1
Final Water Content <i>%</i>	18.3
Final Wet Density <i>Mg/m³</i>	2.18
EFFECTIVE STRESS PARAMETERS	
Cohesion <i>kPa</i>	Not applicable
Angle of Shear Resistance <i>degrees</i>	Not applicable
FAILURE SKETCH	

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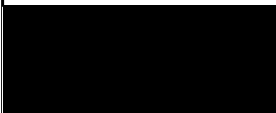
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02
Depth (m): 24.20

Description:
Stiff dark brown SILT.



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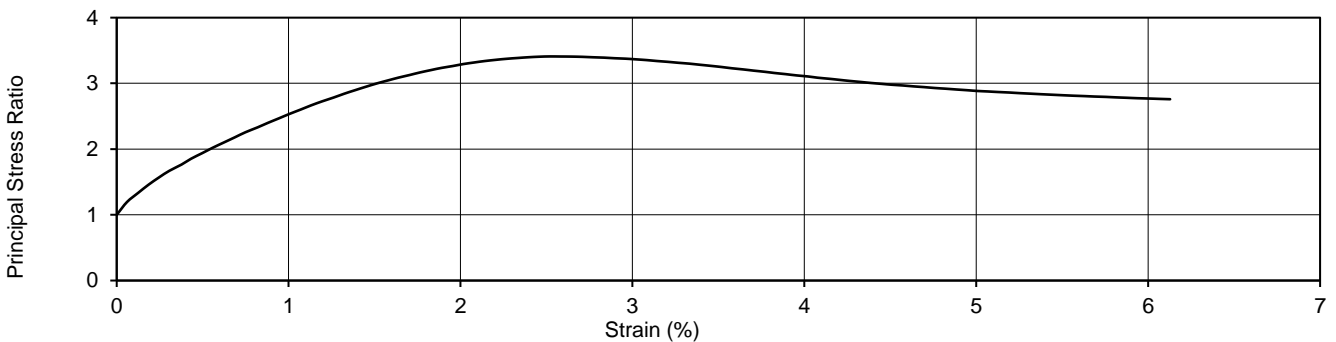
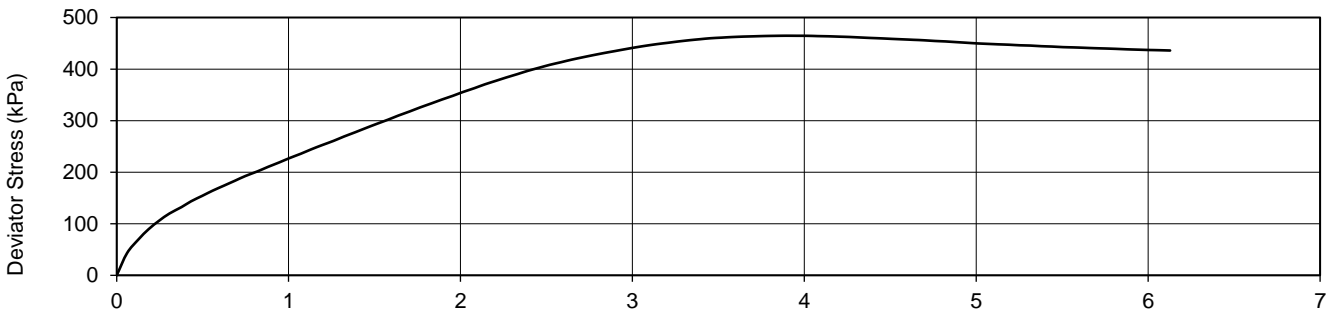
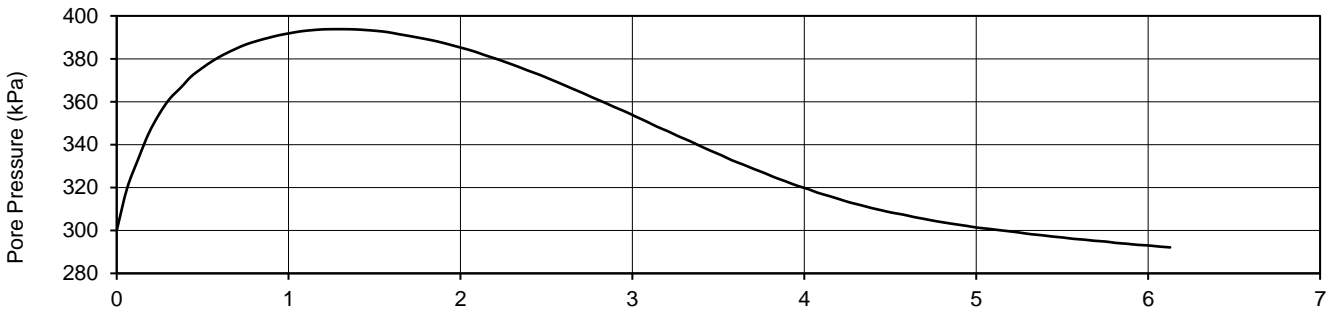
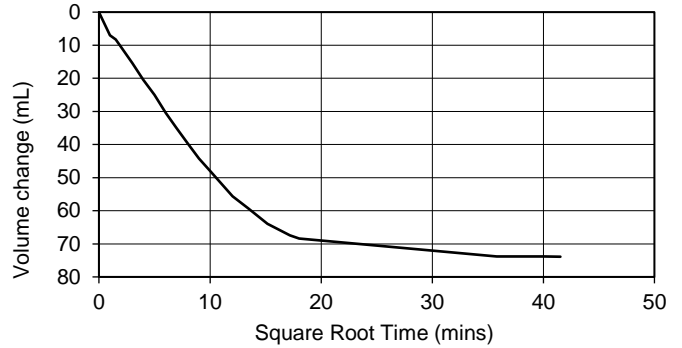
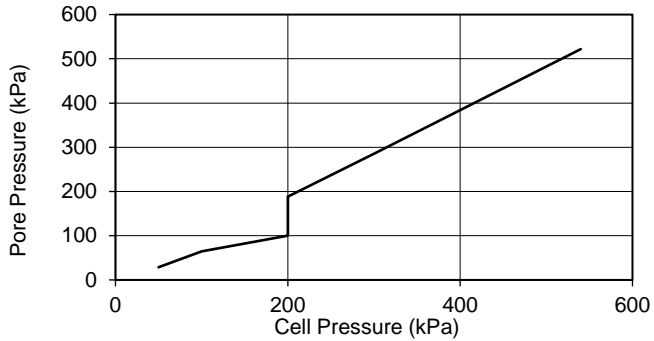
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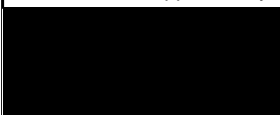


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02
Depth (m): 24.20



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Project Name:

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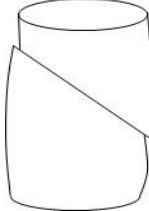
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02
Sample No.: CS13
Depth (m): 39.30

Description:
Very stiff grey CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	20 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 101.89 200.86 27.3 1.99 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 690 678 1.00 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	690 300 390 300 100 2
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	690 0.0020 300 390
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 556 134 413 547 4.09 0.62 1.6 3 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	26.8 2.05
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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Project Name:

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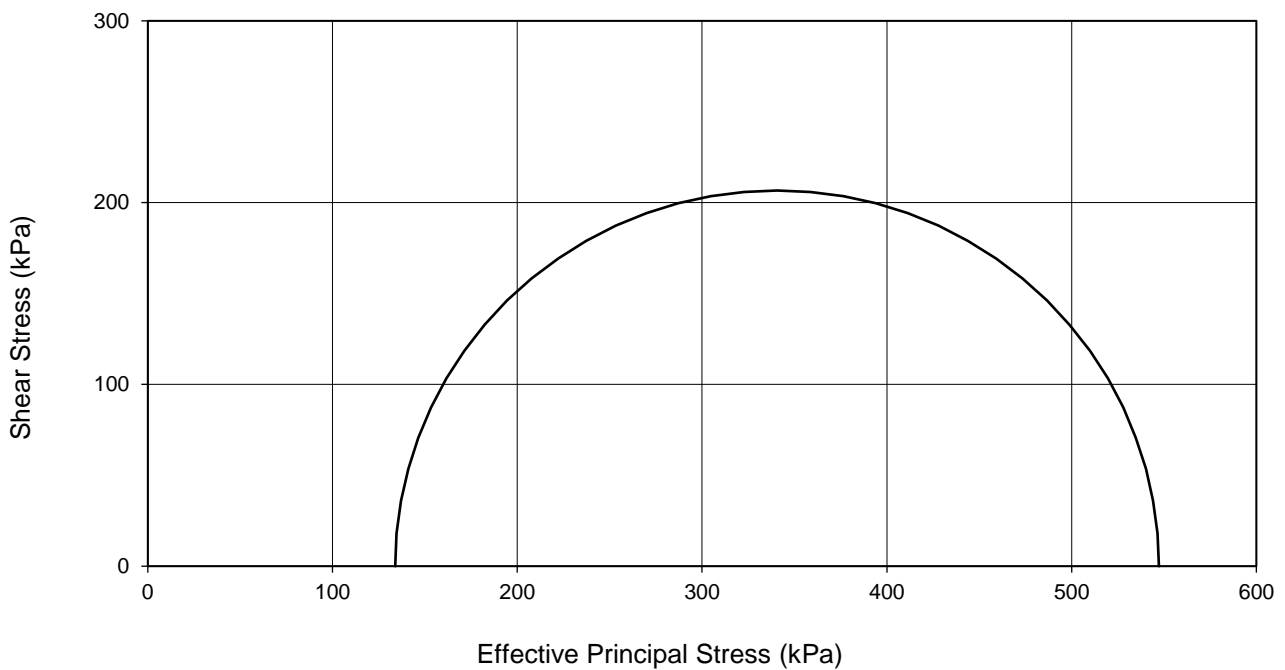
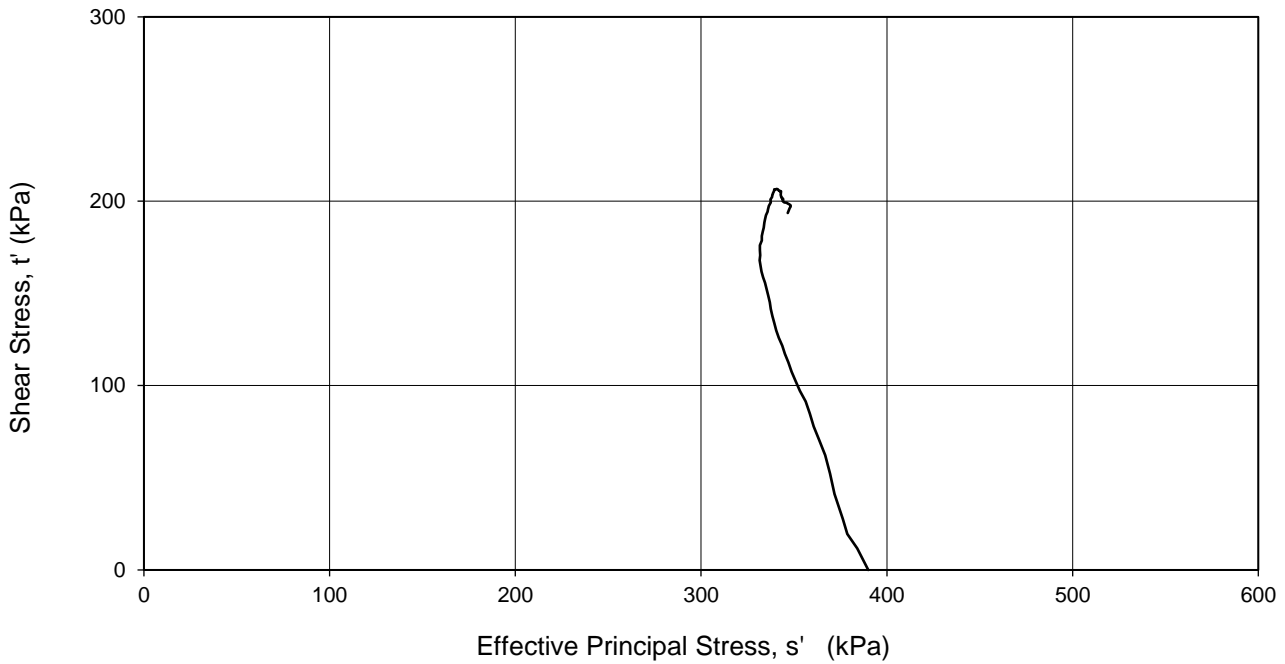
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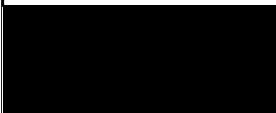

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02
 Sample No.: CS13
 Depth (m): 39.30

Description:
 Very stiff grey CLAY.



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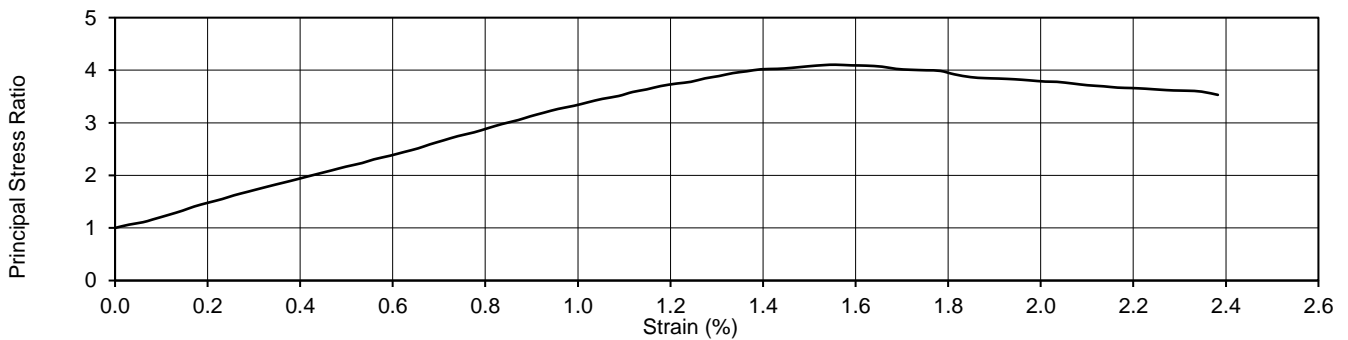
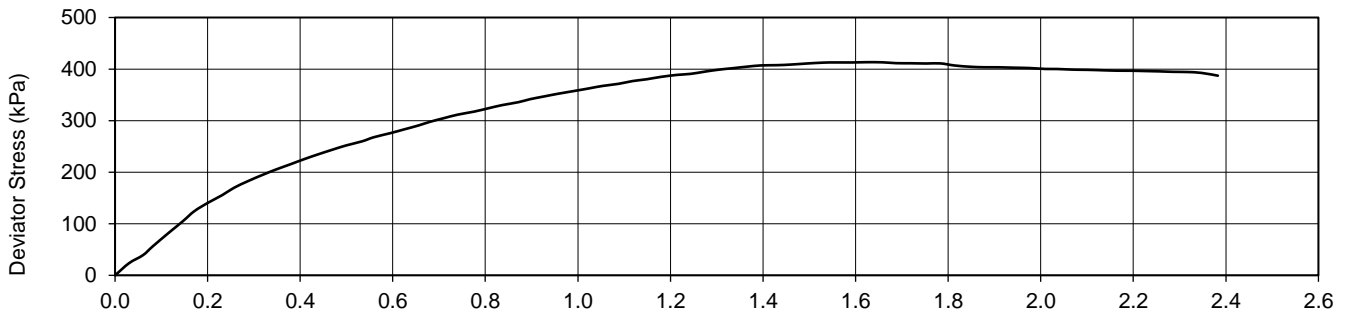
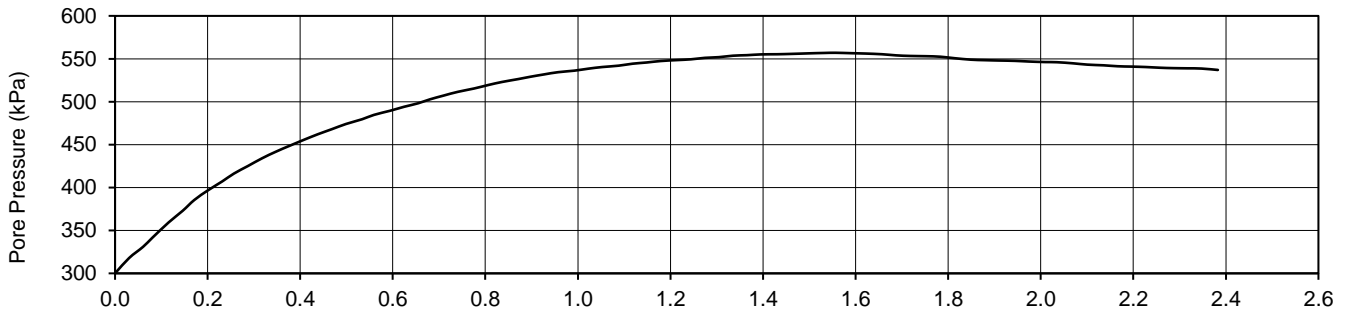
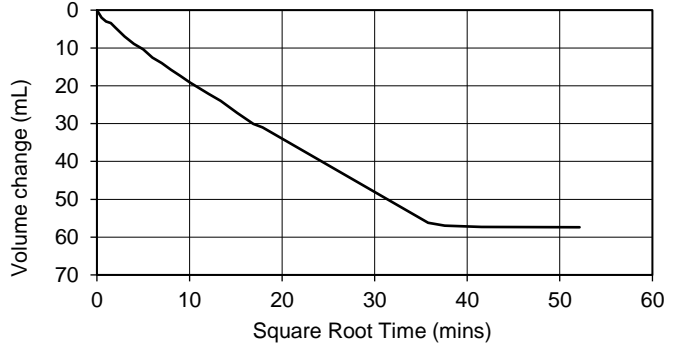
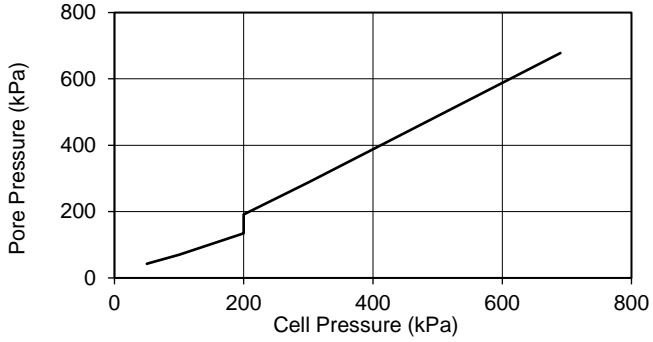
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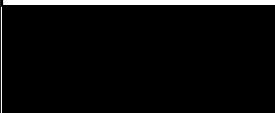


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH02
 Sample No.: CS13
 Depth (m): 39.30



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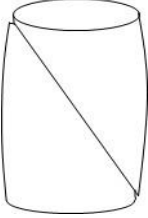
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
Sample No.: CS1
Depth (m): 6.30

Description:
Stiff dark grey CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	45 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 103.51 200.63 26.9 2.01 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 365 343 0.97 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	365 300 65 300 100 1
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	365 0.0041 300 65
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 316 49 151 200 4.10 0.11 5.3 4 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	28.0 2.05
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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Project Number:

GEO / 31786

Project Name:

**CAMBRIDGE WWTP RELOCATION
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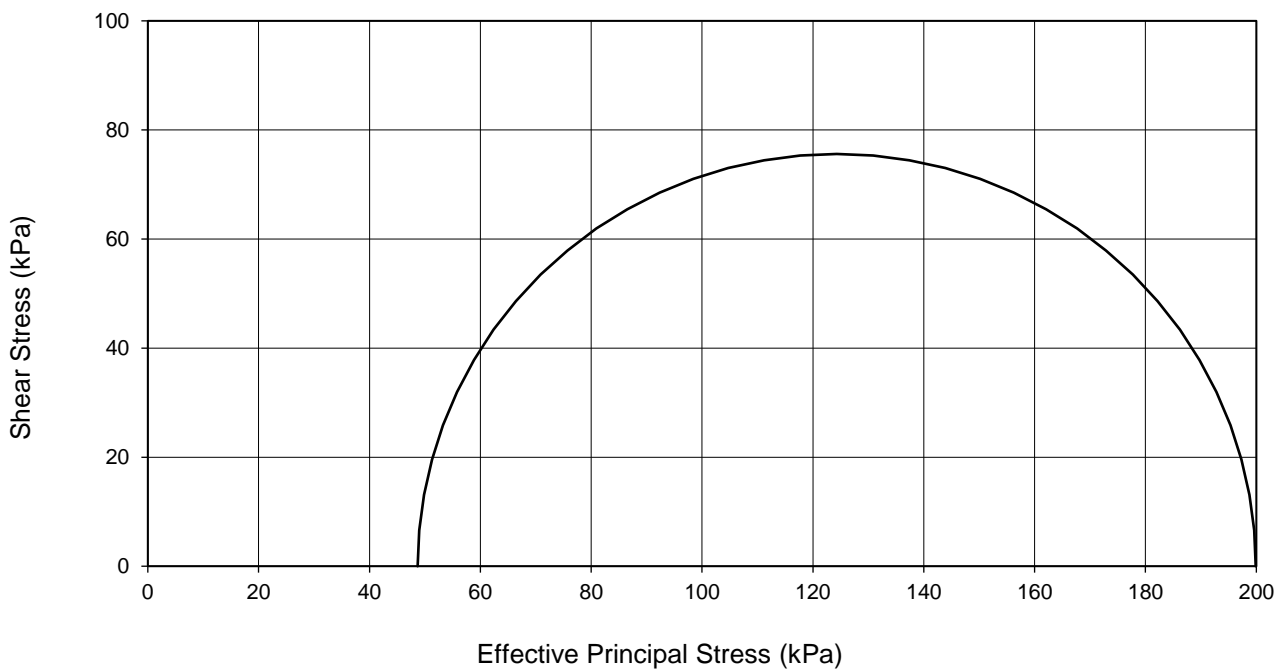
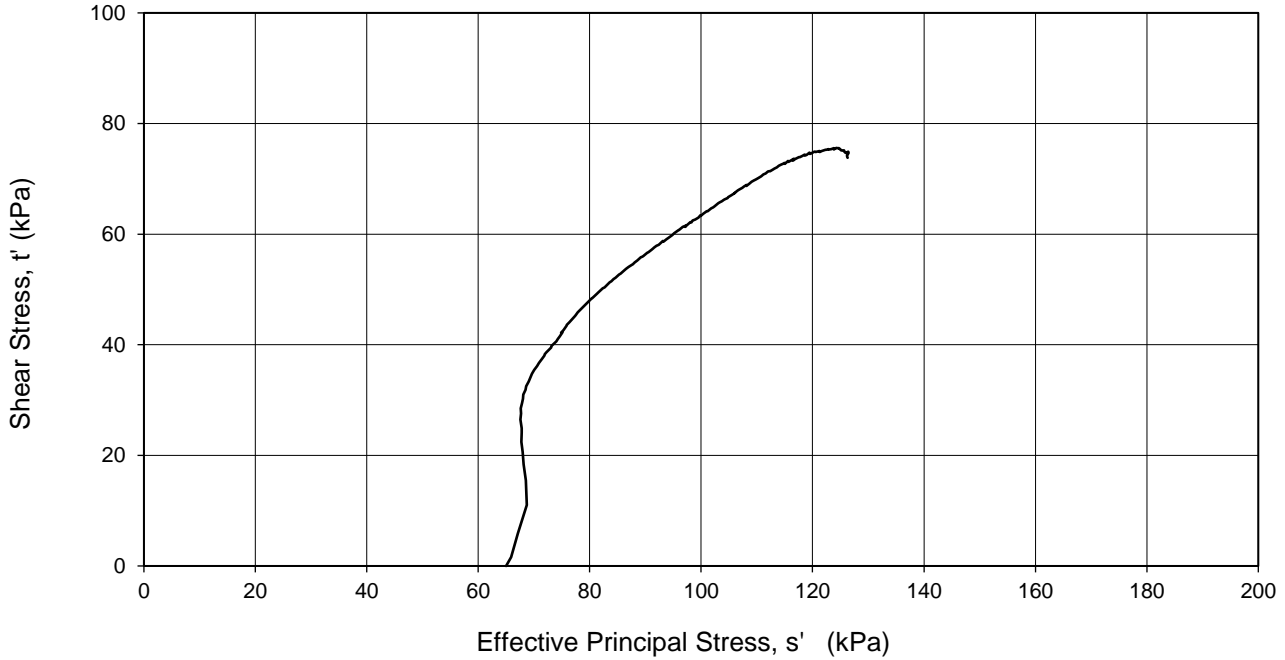
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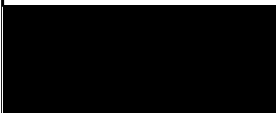

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
 Sample No.: CS1
 Depth (m): 6.30

Description:
 Stiff dark grey CLAY.



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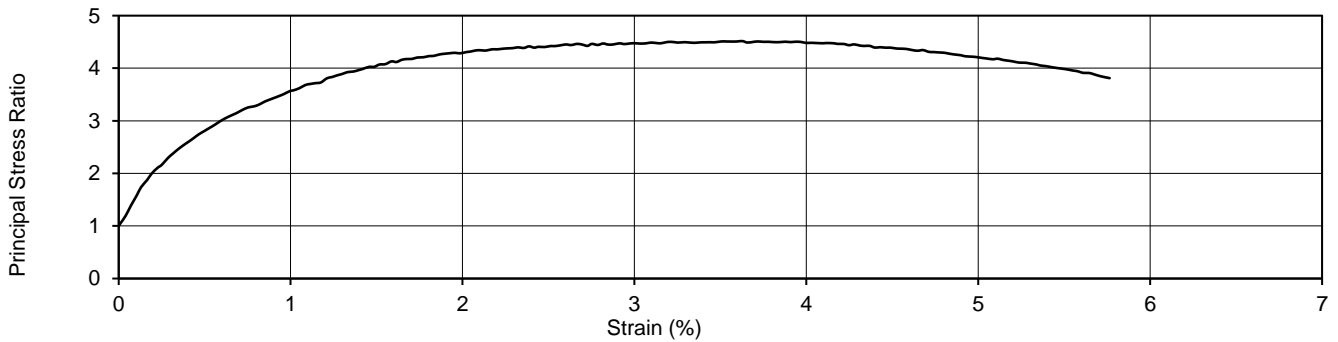
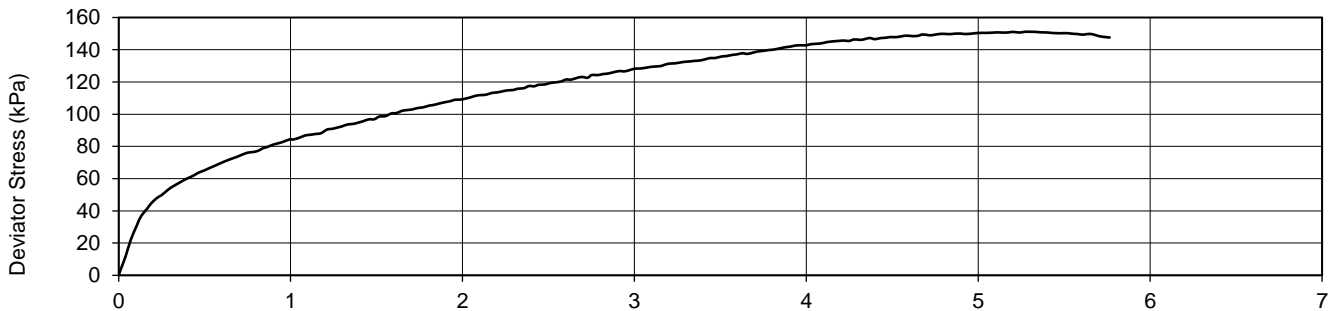
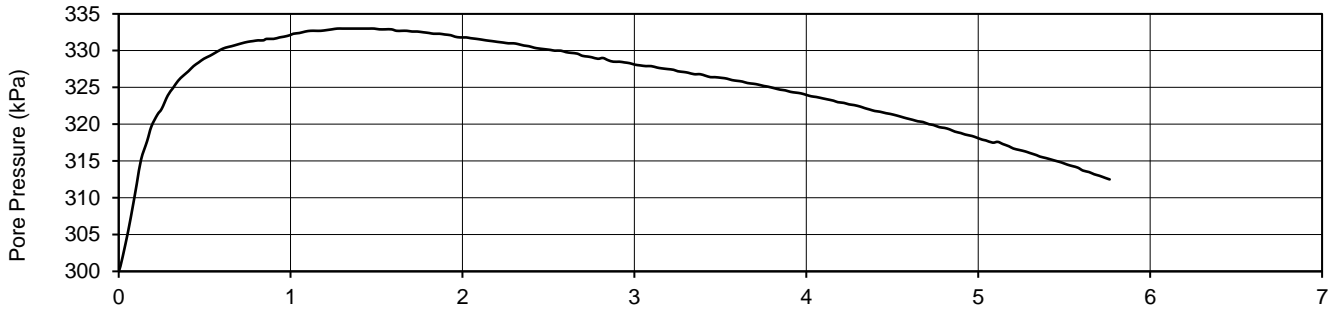
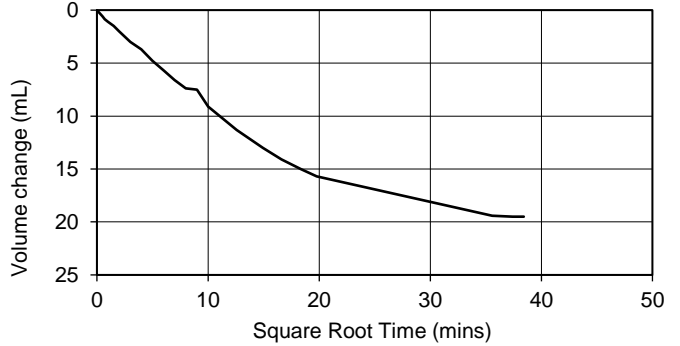
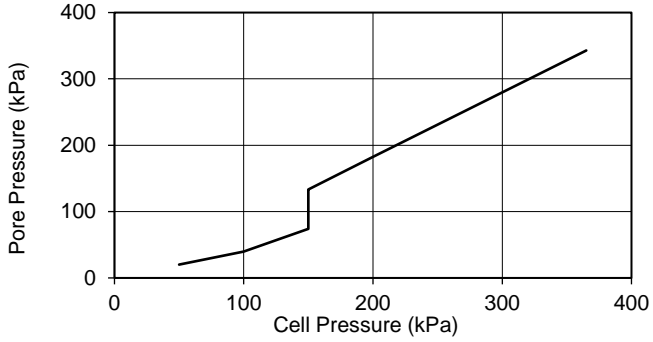
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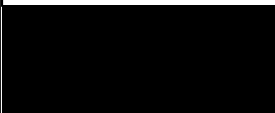


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
 Sample No.: CS1
 Depth (m): 6.30



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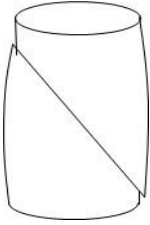
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
Sample No.: CS5
Depth (m): 15.10

Description:
Stiff dark grey CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	81 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 102.27 200.92 29.8 1.96 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 460 426 0.96 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	460 300 160 300 100 1
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	460 0.0024 300 160
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 384 76 227 303 3.97 0.37 3.9 4 3
Final Water Content % Final Wet Density <i>Mg/m³</i>	29.7 2.01
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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Project Name:

**CAMBRIDGE WWTP RELOCATION
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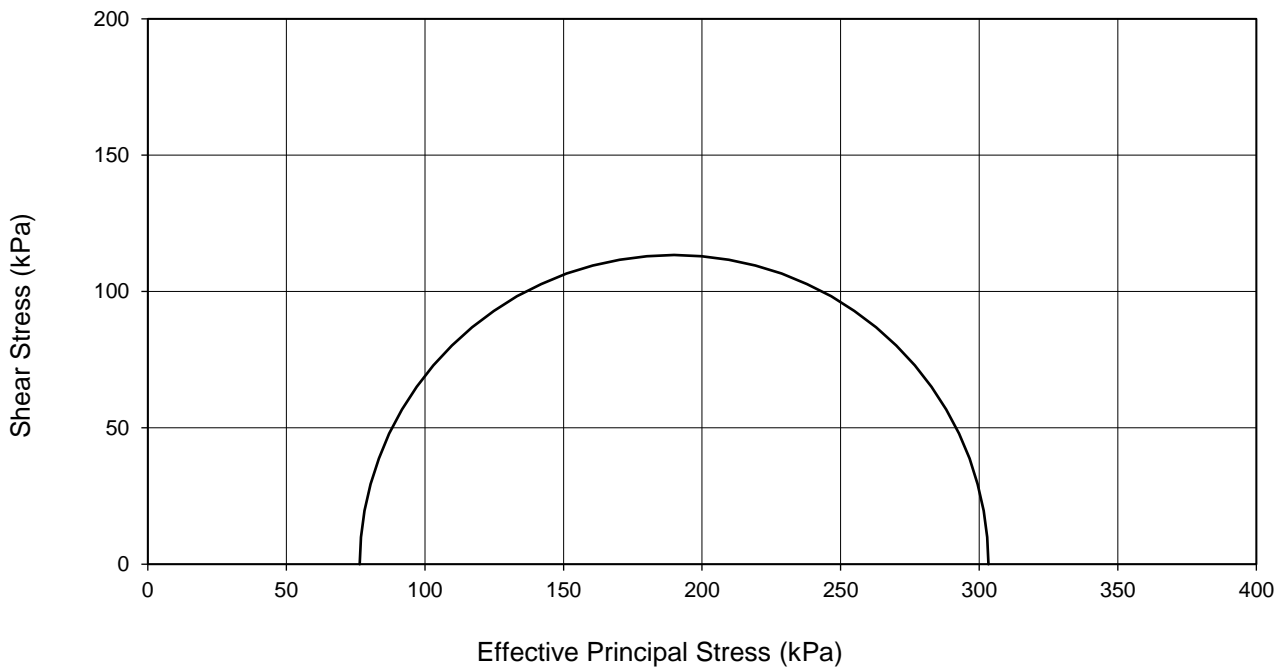
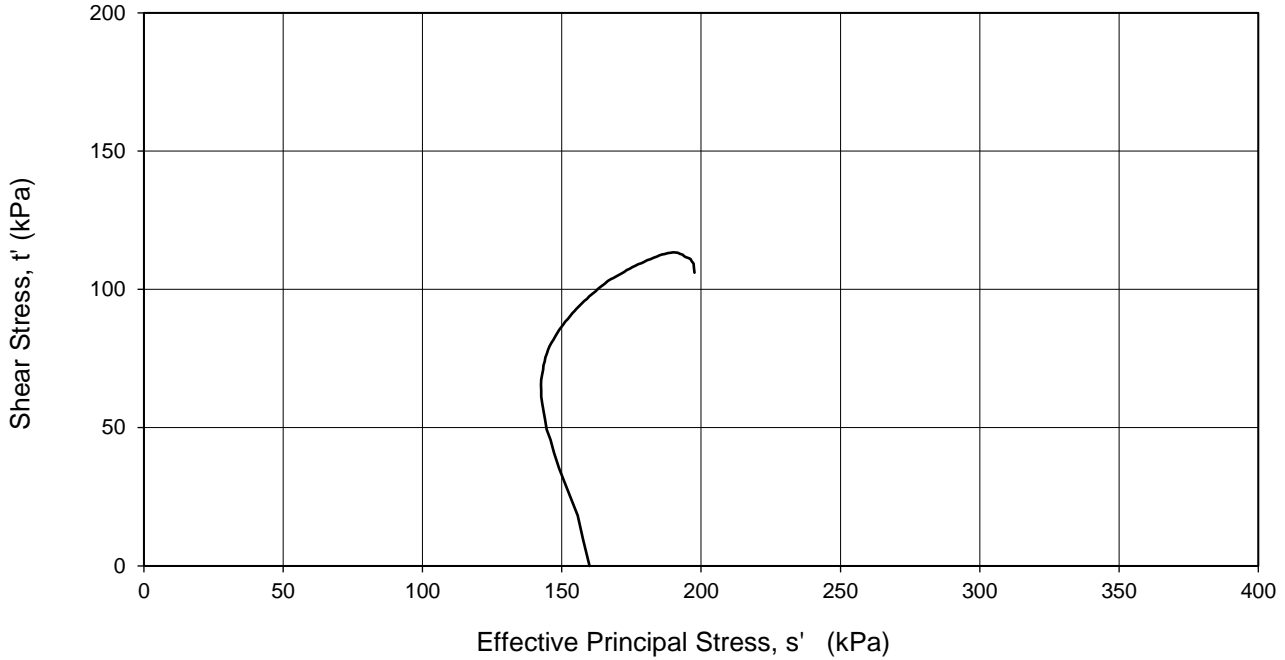
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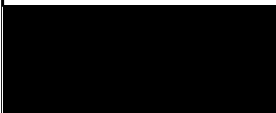

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
 Sample No.: CS5
 Depth (m): 15.10

Description:
 Stiff dark grey CLAY.



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Project Name:

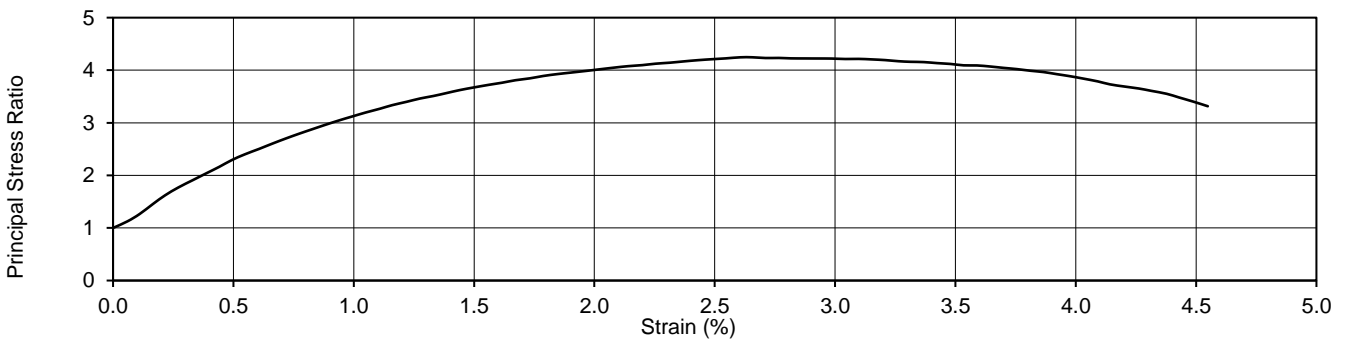
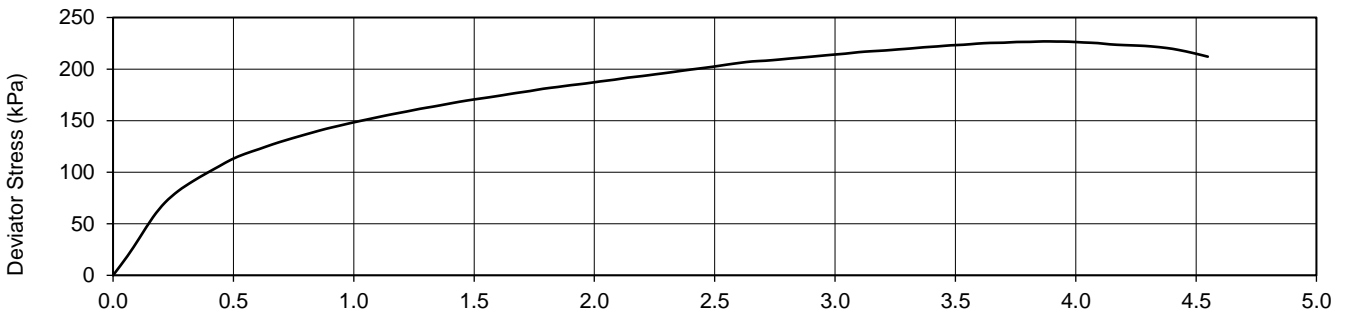
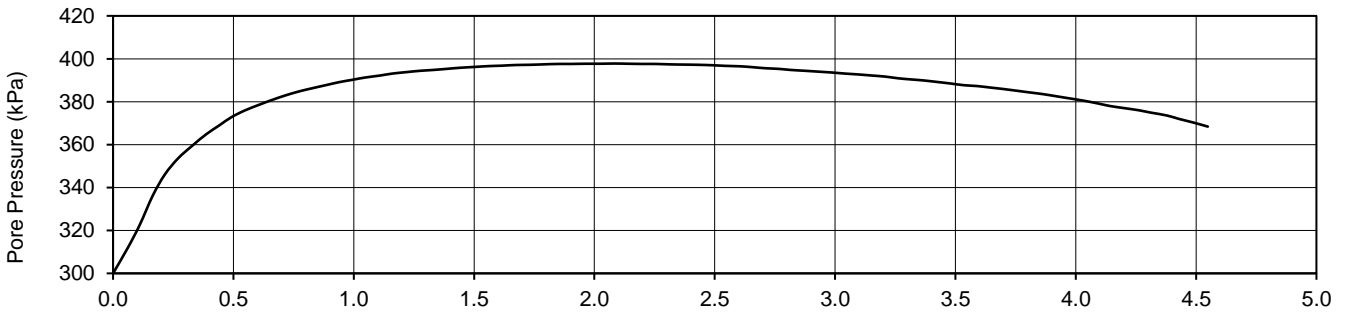
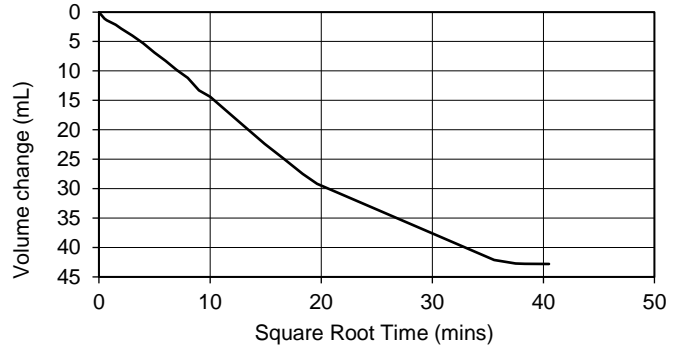
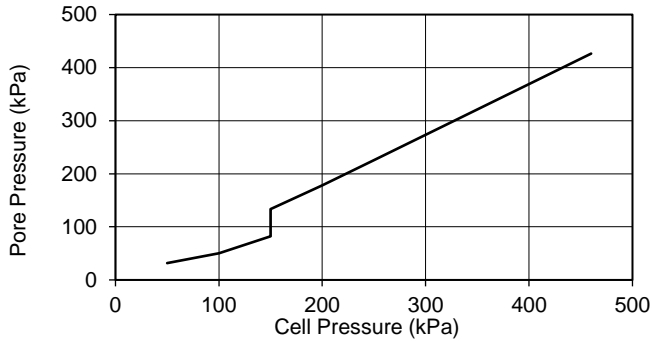
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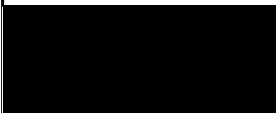


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
 Sample No.: CS5
 Depth (m): 15.10



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Project Number:

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Project Name:

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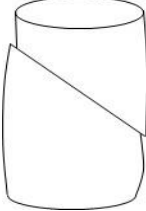
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
Sample No.: CS9
Depth (m): 22.70

Description:
Stiff dark grey CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	70 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 101.88 200.81 30.4 1.97 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 525 496 0.99 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	525 300 225 300 100 1
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	525 0.0030 300 225
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 410 115 210 325 2.83 0.52 2.5 4 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	29.3 2.04
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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GNB/20.245/00/06**

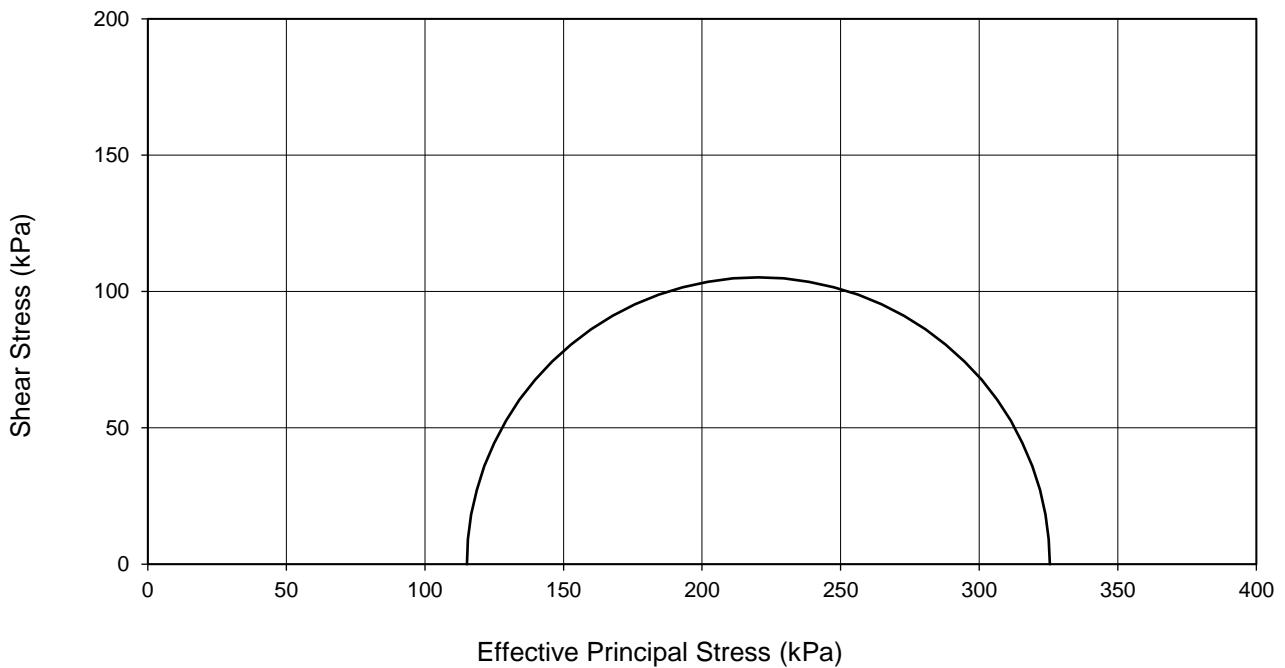
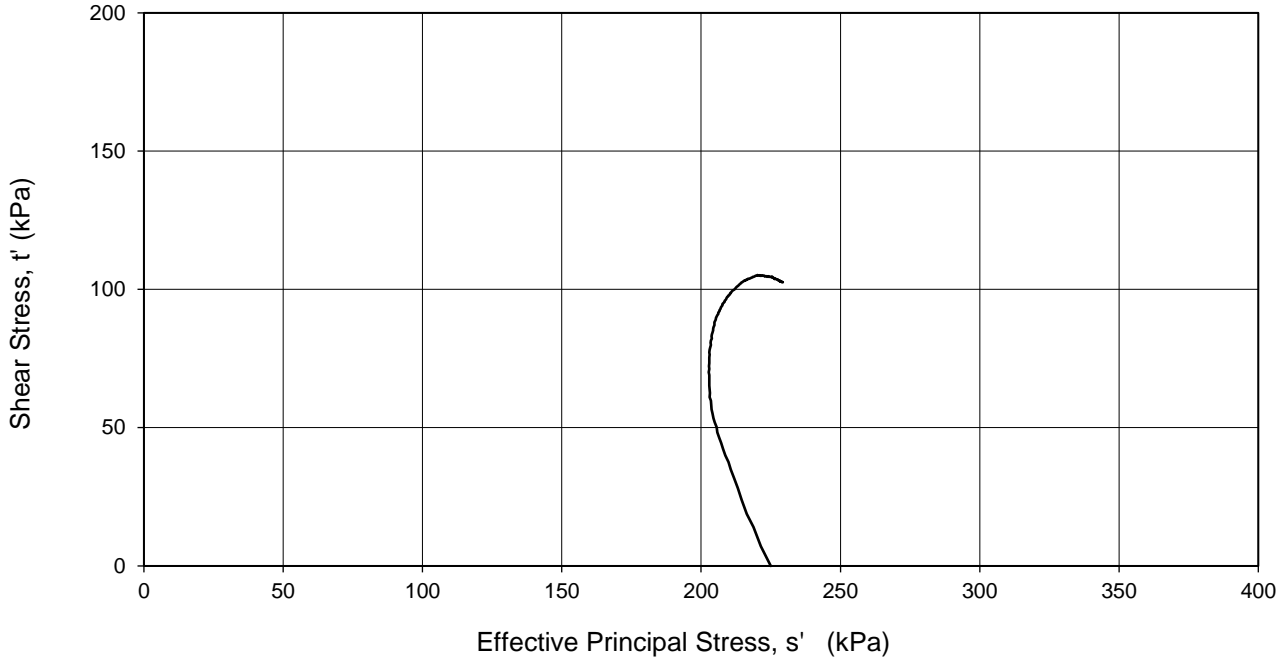
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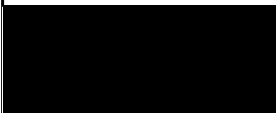

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
 Sample No.: CS9
 Depth (m): 22.70

Description:
 Stiff dark grey CLAY.



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Project Name:

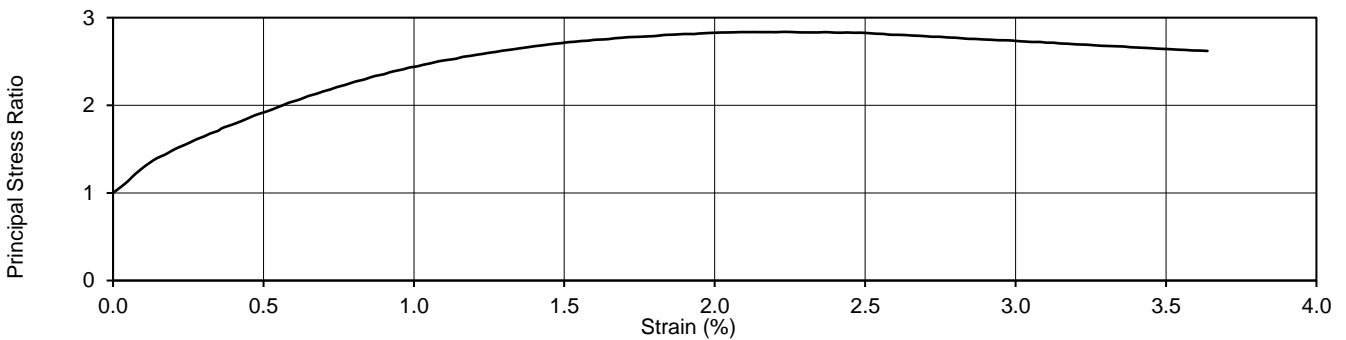
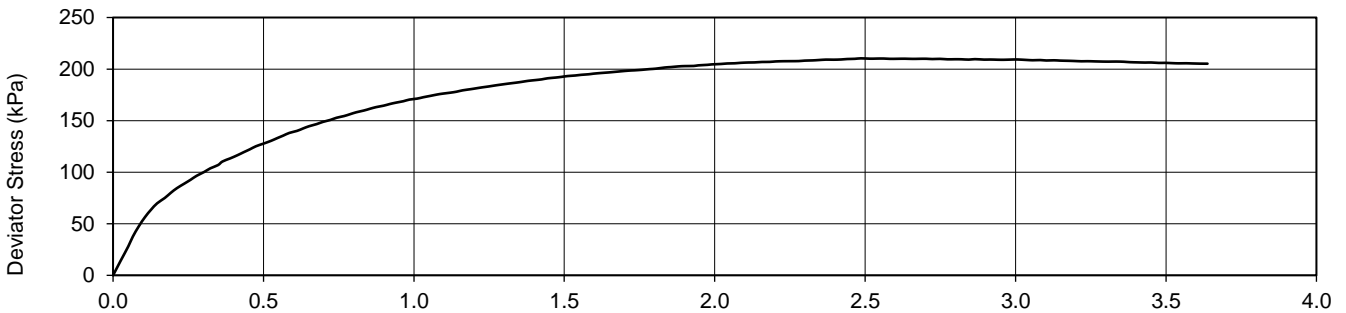
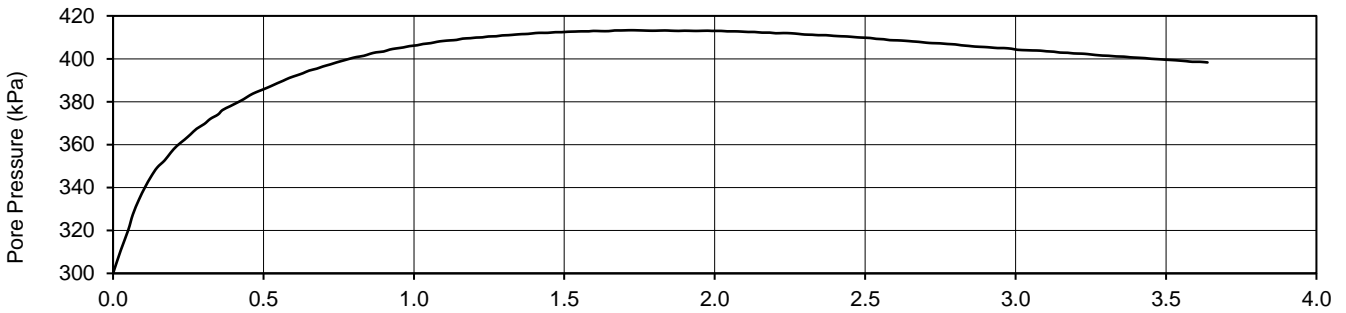
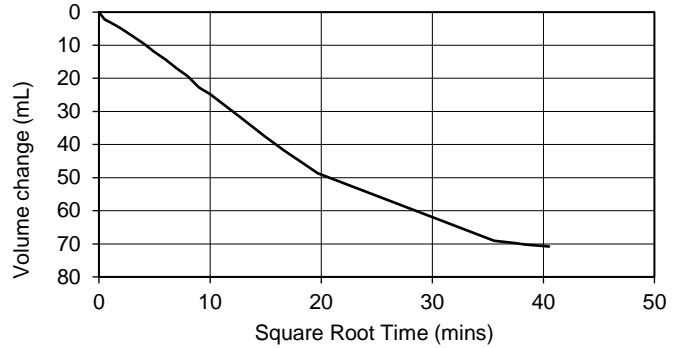
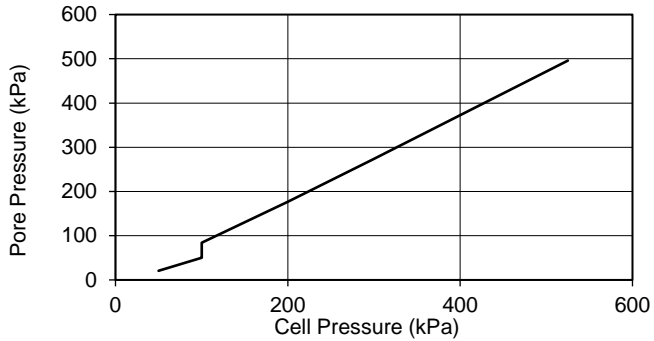
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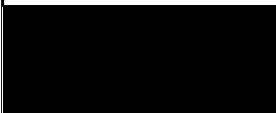


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
 Sample No.: CS9
 Depth (m): 22.70



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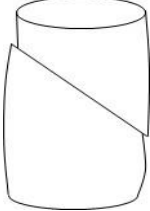
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
Sample No.: CS13
Depth (m): 36.20

Description:
Stiff dark grey silty CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	55 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 104.57 201.24 28.9 1.97 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 665 624 0.96 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	665 300 365 300 100 4
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	665 0.0012 300 365
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 481 184 235 419 2.28 0.77 2.5 4 4
Final Water Content % Final Wet Density <i>Mg/m³</i>	28.3 2.13
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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**CAMBRIDGE WWTP RELOCATION
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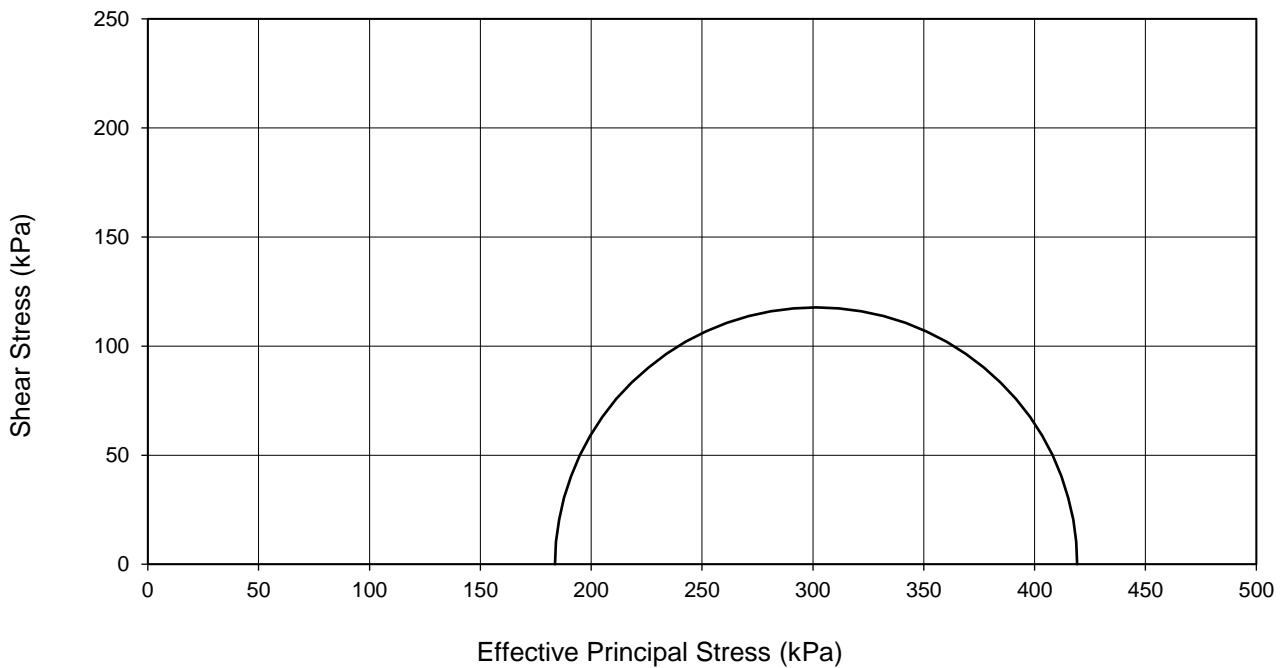
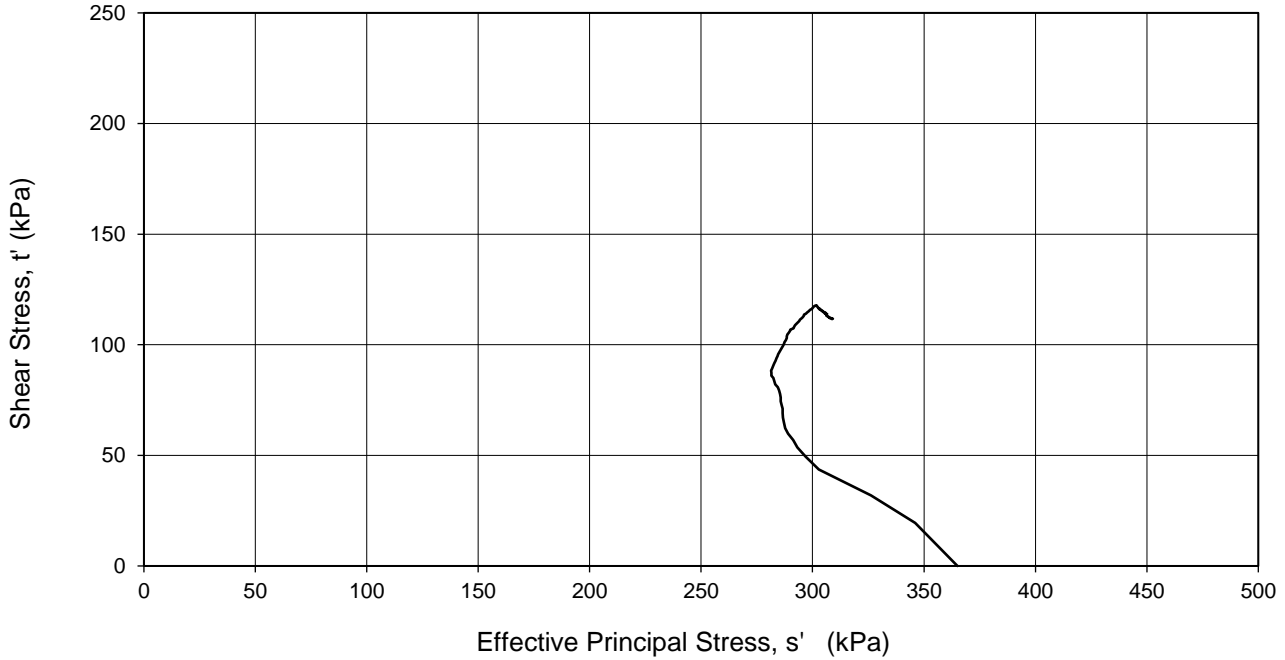
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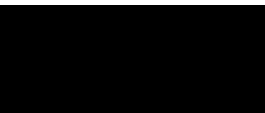

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
 Sample No.: CS13
 Depth (m): 36.20

Description:
 Stiff dark grey silty CLAY.



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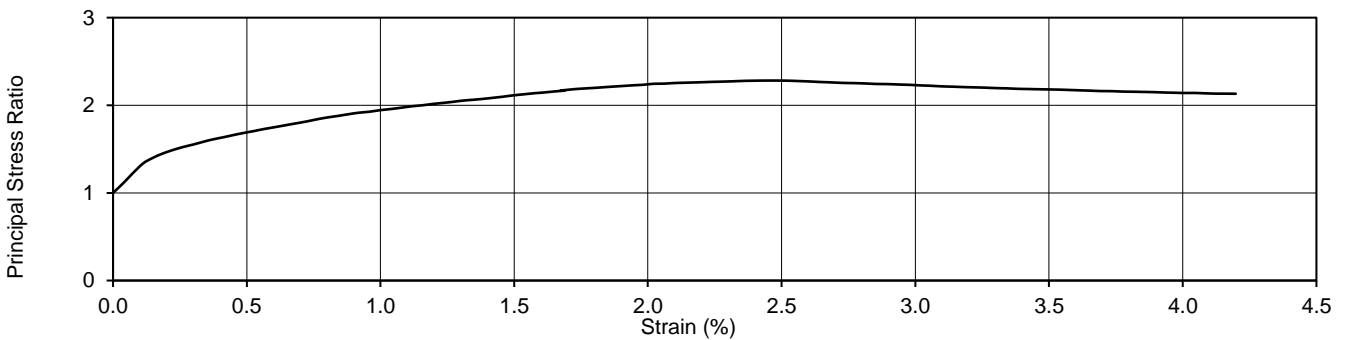
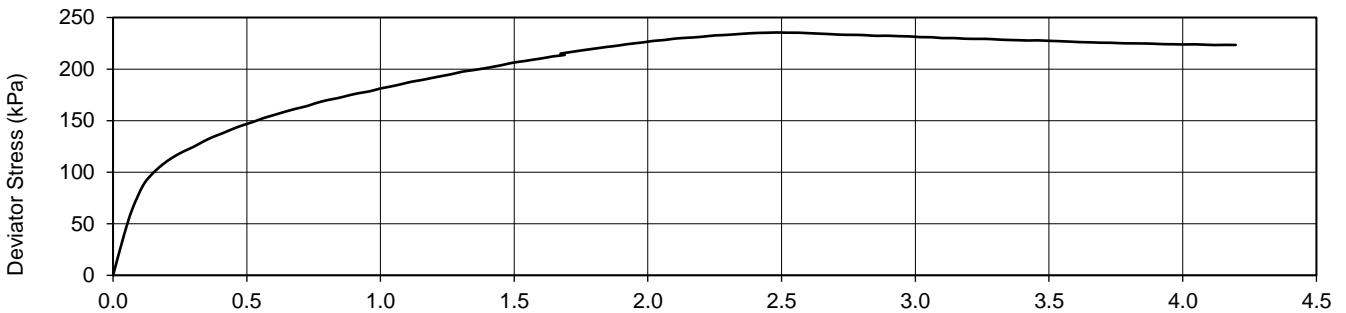
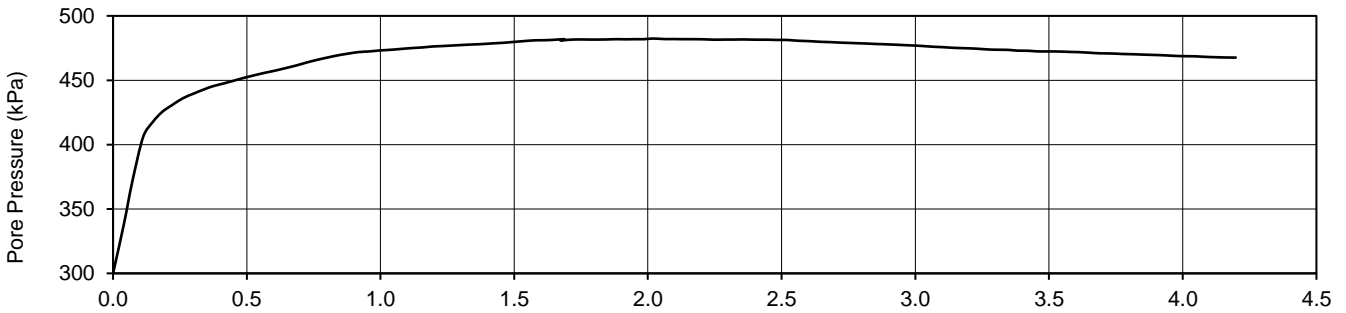
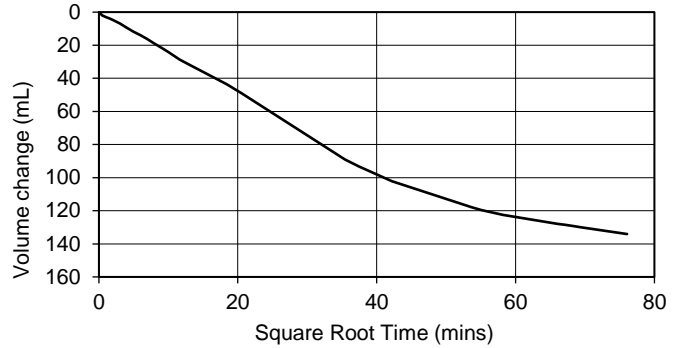
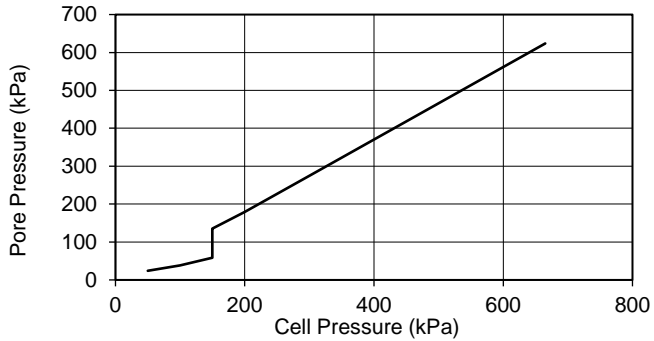
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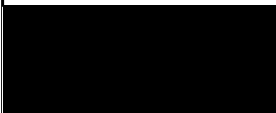


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH03
 Sample No.: CS13
 Depth (m): 36.20



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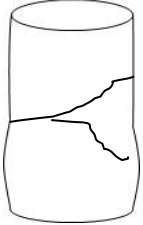
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
Sample No.: CS2
Depth (m): 10.00

Description:
Firm grey CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	20 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 100.08 200.94 31.9 1.97 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 400 386 0.99 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	400 300 100 300 100 2
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	400 0.0040 300 100
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 352 48 130 178 3.69 0.40 3.9 4 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	31.1 2.02
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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Project Name:

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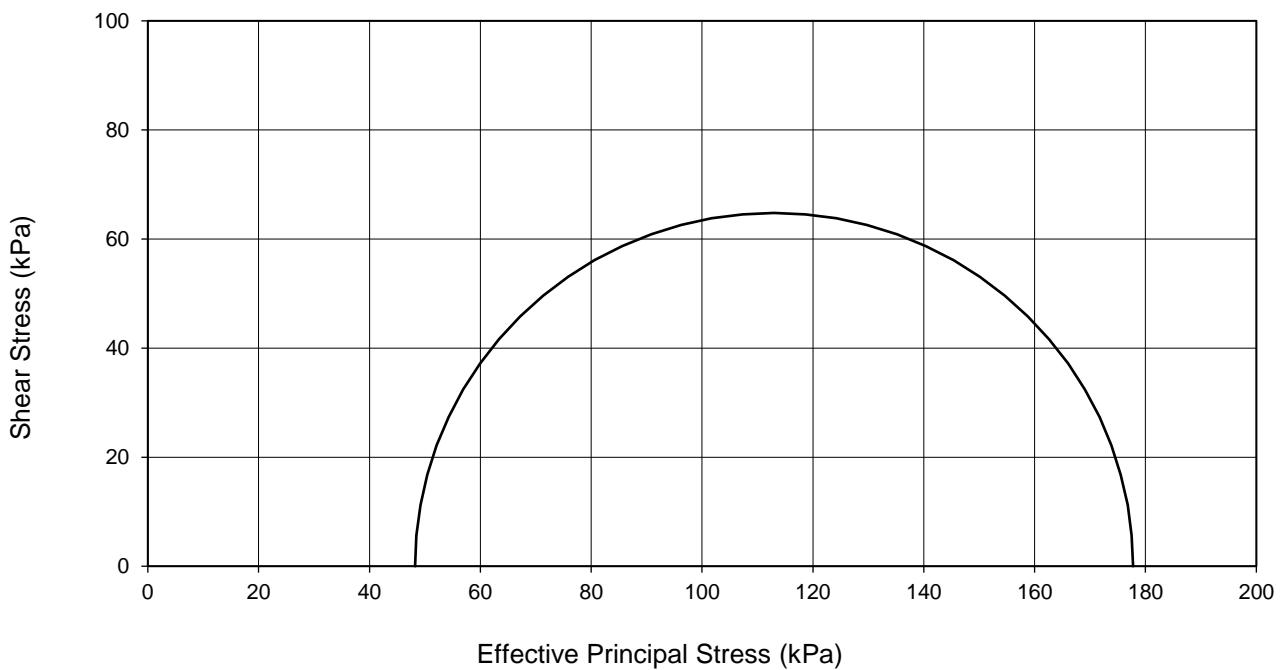
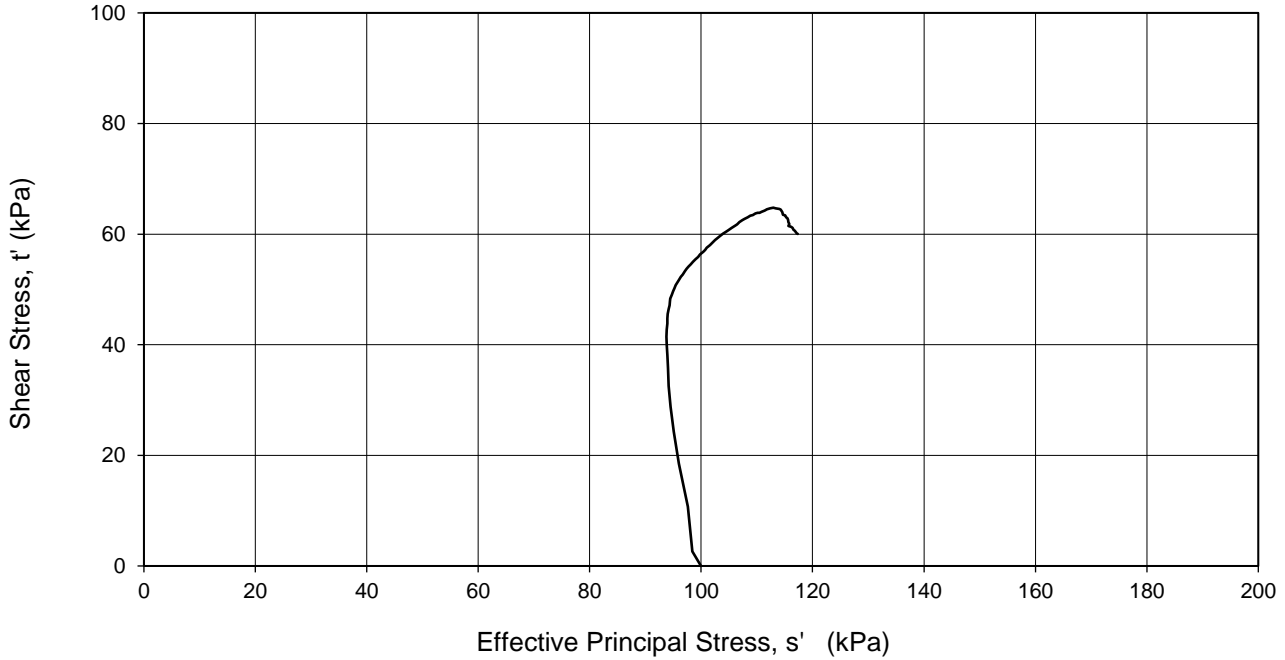
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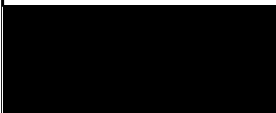

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
 Sample No.: CS2
 Depth (m): 10.00

Description:
 Firm grey CLAY.



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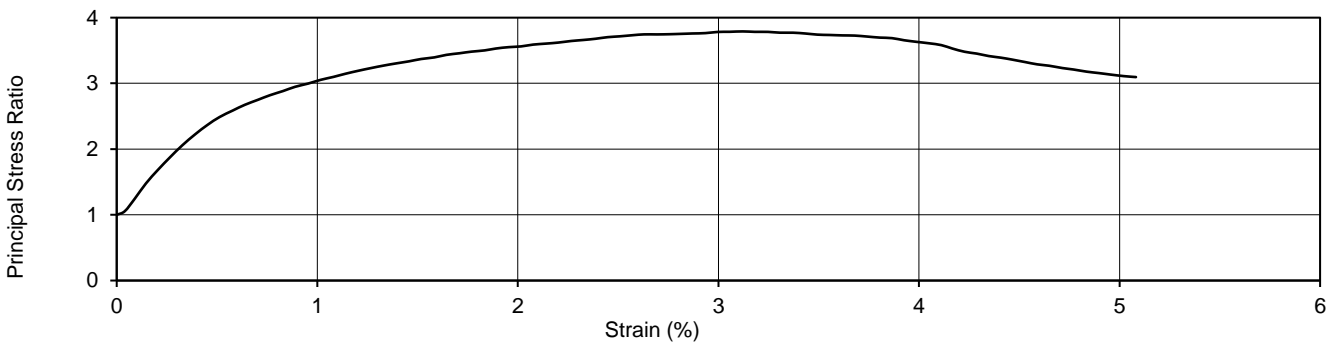
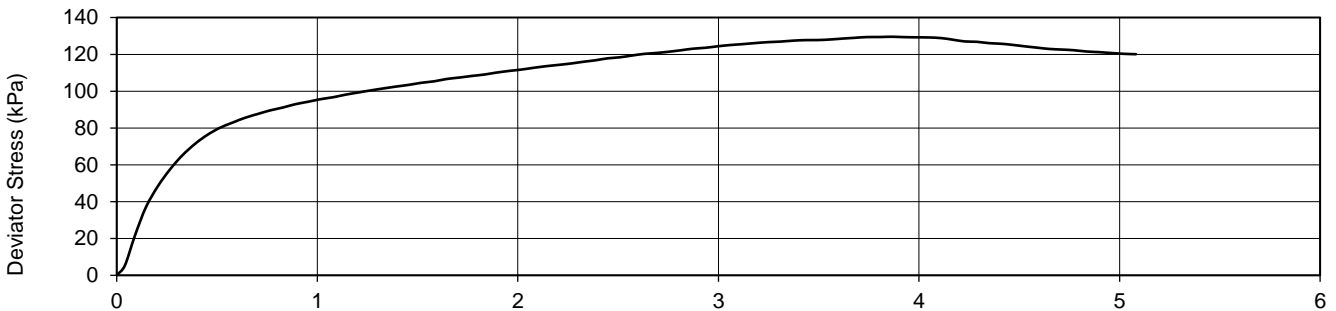
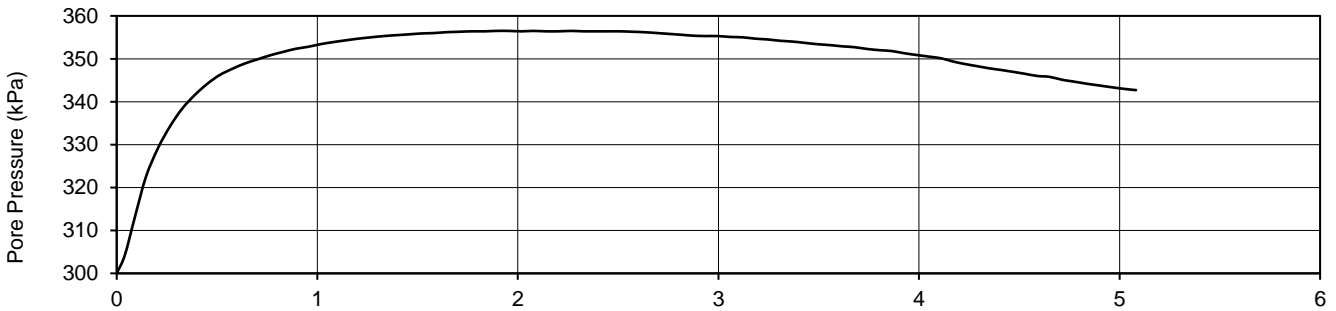
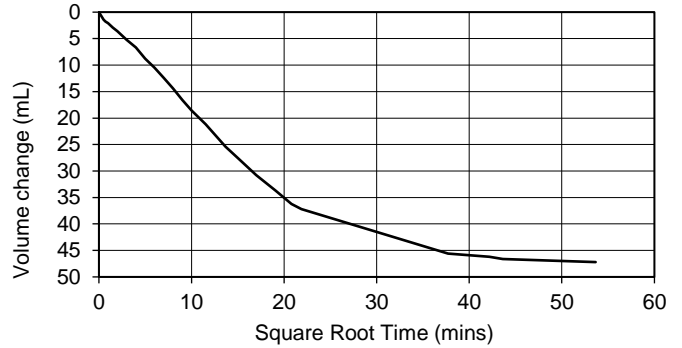
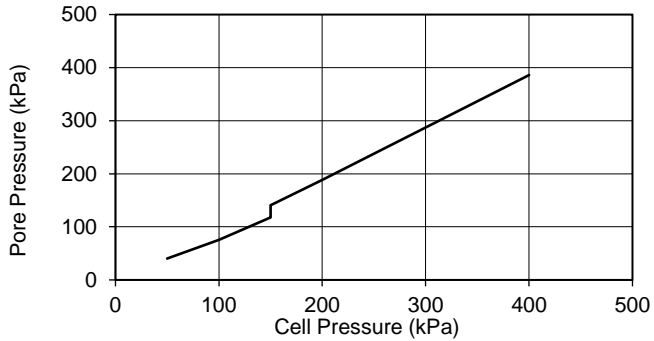
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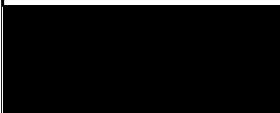


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
 Sample No.: CS2
 Depth (m): 10.00



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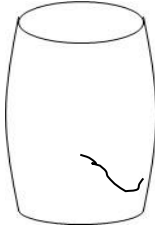
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
Sample No.: CS5
Depth (m): 14.00

Description:
Stiff grey slightly gravelly CLAY. Gravel is fine to medium.

SPECIMEN DETAILS		
Depth within original sample		20 mm from top
Orientation within original sample		Vertical
TEST DETAILS		
Specimen Type and Preparation		C (Undisturbed)
Cell Preparation		Checks performed in accordance with Clause 3.5
Specimen Number		Single
Initial Diameter	mm	102.06
Initial Length	mm	200.77
Initial Water Content	%	28.2
Initial Wet Density	Mg/m ³	1.98
Drainage Conditions		One end and radial boundary
SATURATION STAGE		Method: Clause 5.2
Final Cell Pressure	kPa	440
Final Pore Pressure	kPa	416
Final Pore Pressure Parameter B		0.97
Duration	day(s)	2
CONSOLIDATION STAGE		
Cell Pressure	kPa	440
Back Pressure	kPa	300
Effective Pressure	kPa	140
Final Pore Pressure	kPa	300
Final Pore Pressure Dissipation	%	100
Duration	day(s)	2
SHEARING STAGE		
Cell Pressure	kPa	440
Rate of Axial Displacement	mm/min	0.0040
Initial Pore Pressure	kPa	300
Initial Effective Stress	kPa	140
CONDITIONS AT FAILURE	<i>criteria</i>	Maximum deviator stress
Pore Pressure	kPa	359
Minor Effective Principal Stress	kPa	81
Deviator Stress	kPa	153
Major Effective Principal Stress	kPa	234
Effective Principal Stress Ratio		2.89
Pore Pressure Parameter A		0.39
Axial Strain	%	1.2
Membrane & filter correction applied to Deviator Stress	kPa	2
Duration	day(s)	2
Final Water Content	%	27.8
Final Wet Density	Mg/m ³	2.03
EFFECTIVE STRESS PARAMETERS		
Cohesion	kPa	Not applicable
Angle of Shear Resistance	degrees	Not applicable
FAILURE SKETCH		

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Project Name:

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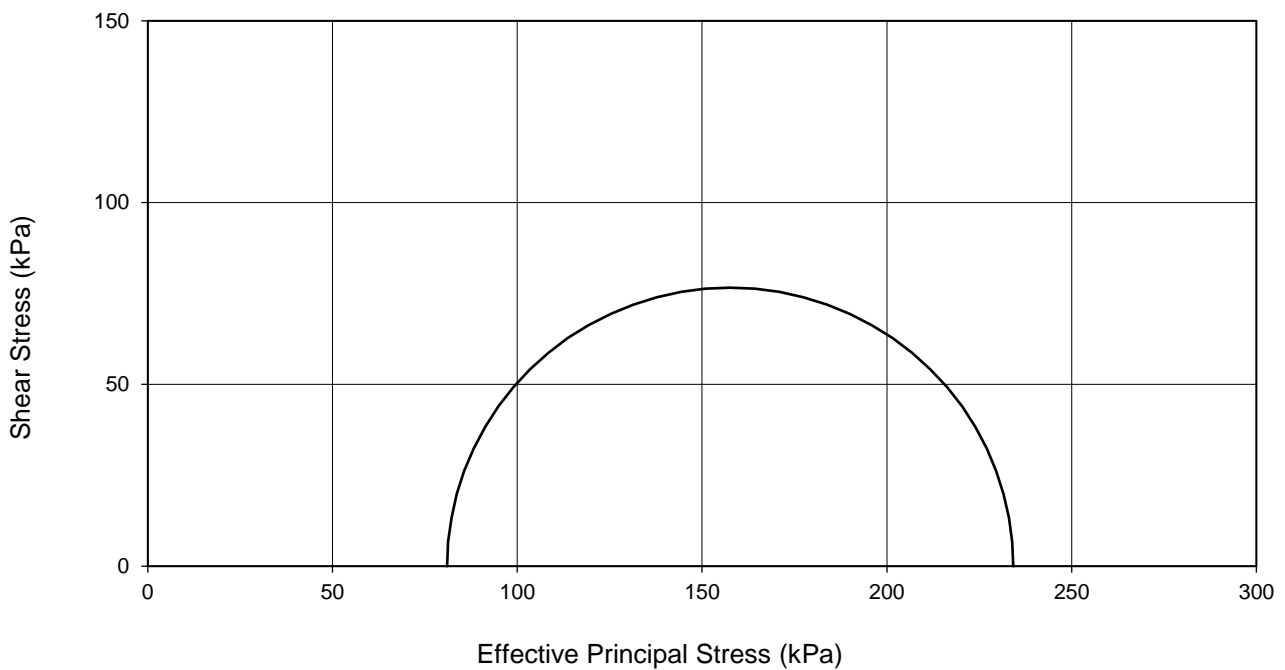
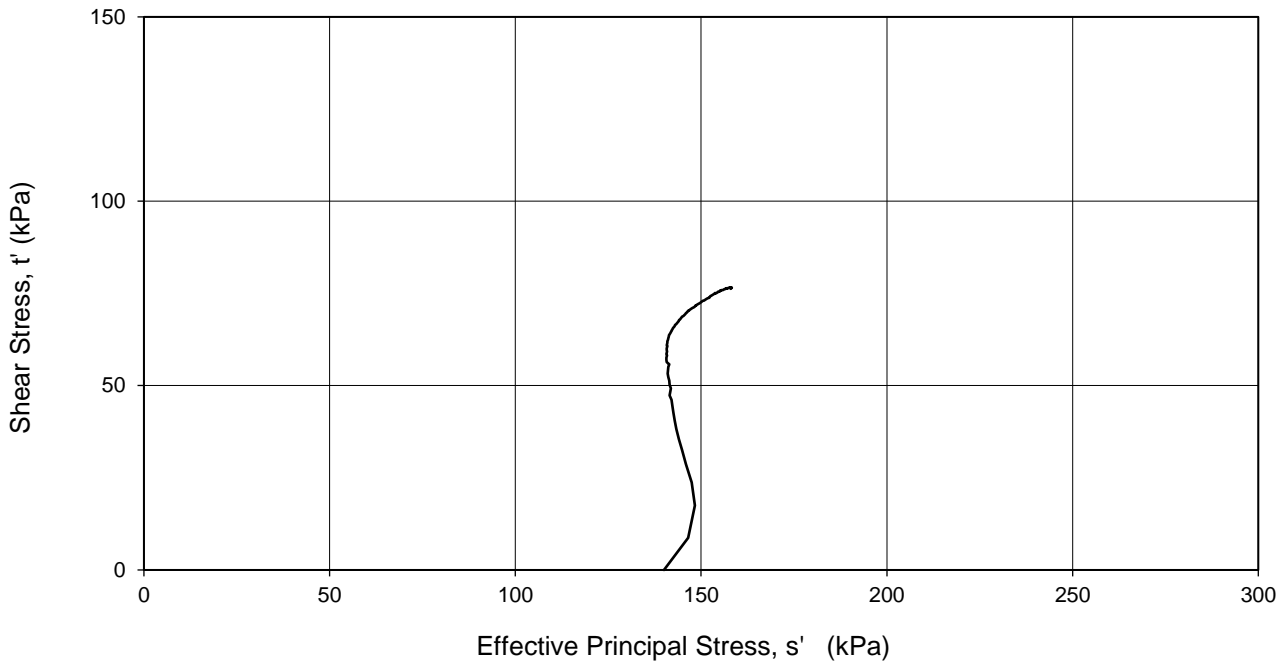
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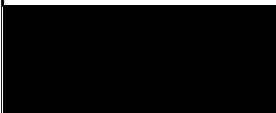

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
 Sample No.: CS5
 Depth (m): 14.00

Description:
 Stiff grey slightly gravelly CLAY. Gravel is ifne to medium.



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Project Name:

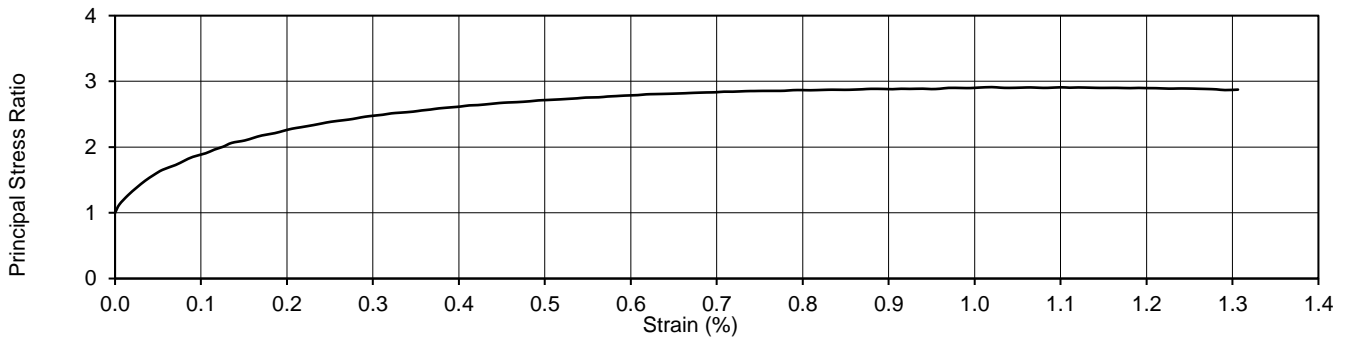
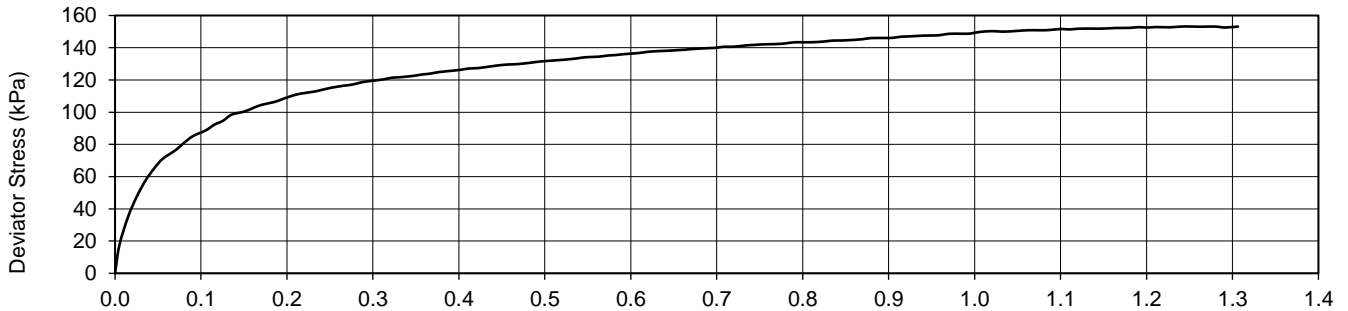
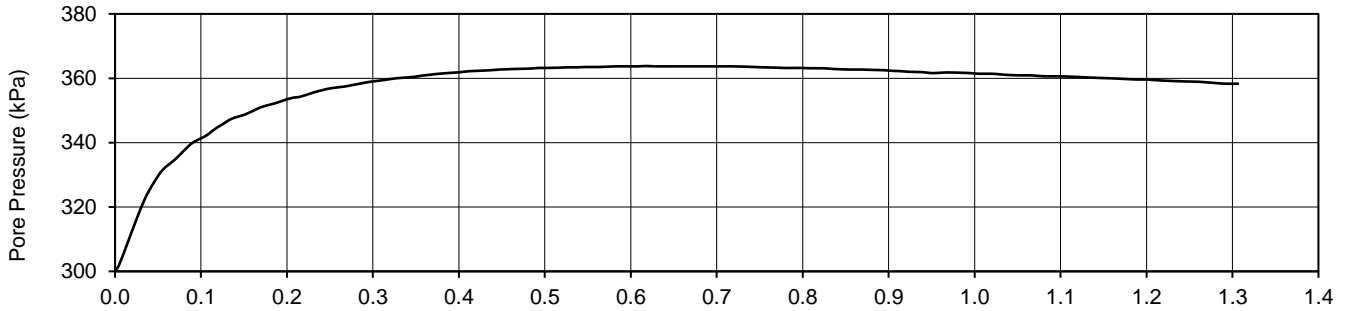
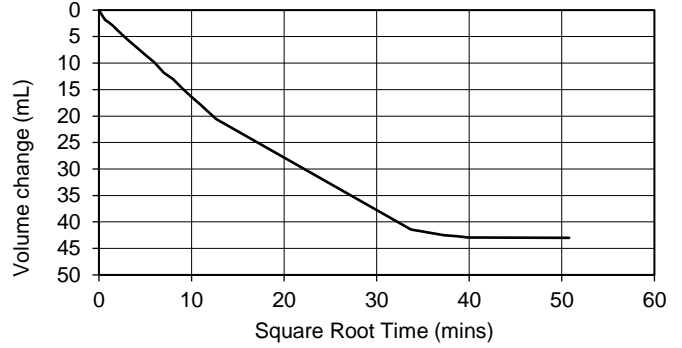
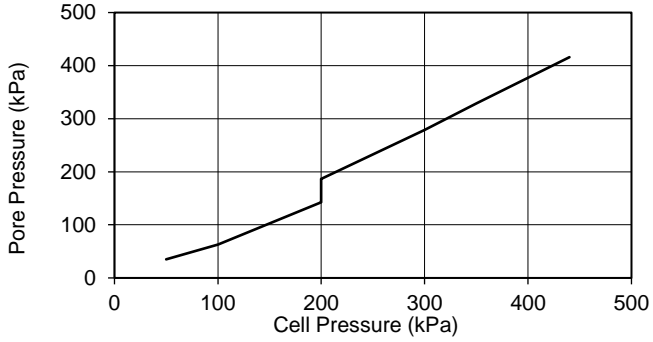
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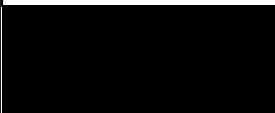


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
 Sample No.: CS5
 Depth (m): 14.00



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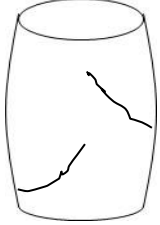
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
Sample No.: CS8
Depth (m): 19.50

Description:
Stiff grey CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	10 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 101.21 200.73 31.3 1.96 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 500 471 0.96 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	500 300 200 300 100 2
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	500 0.0048 300 200
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 403 97 234 331 3.41 0.44 2.9 4 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	30.7 2.02
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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Project Number:

GEO / 31731

Project Name:

**CAMBRIDGE WWTP RELOCATION
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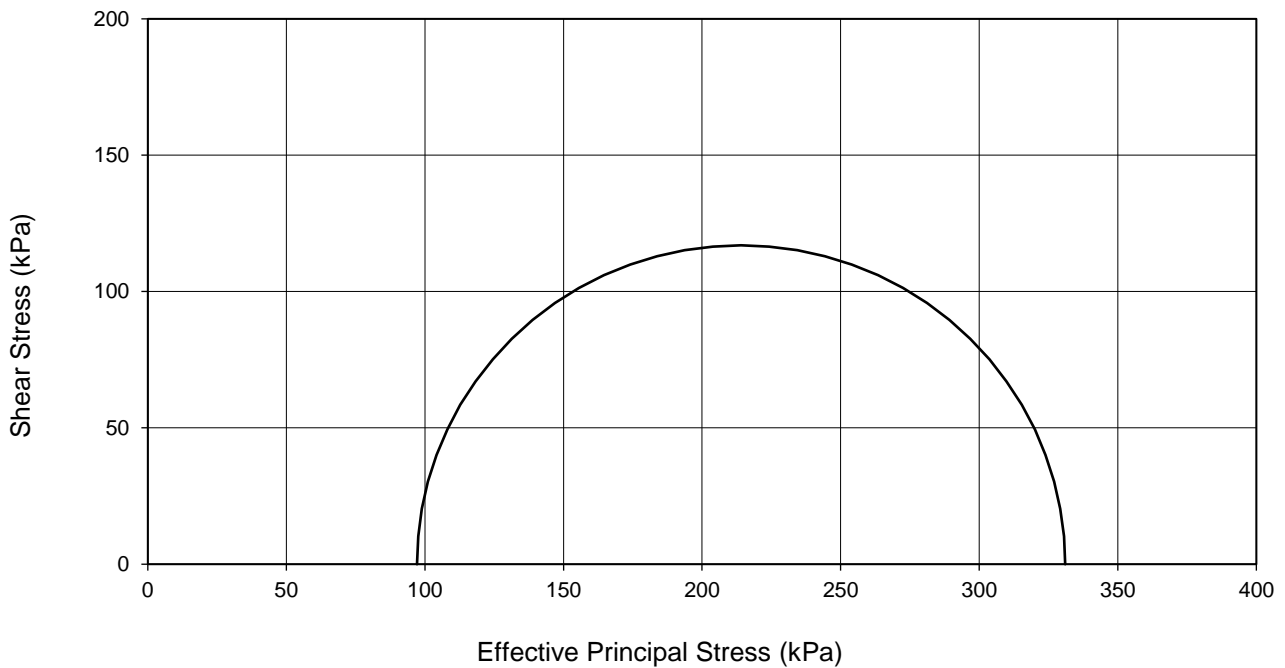
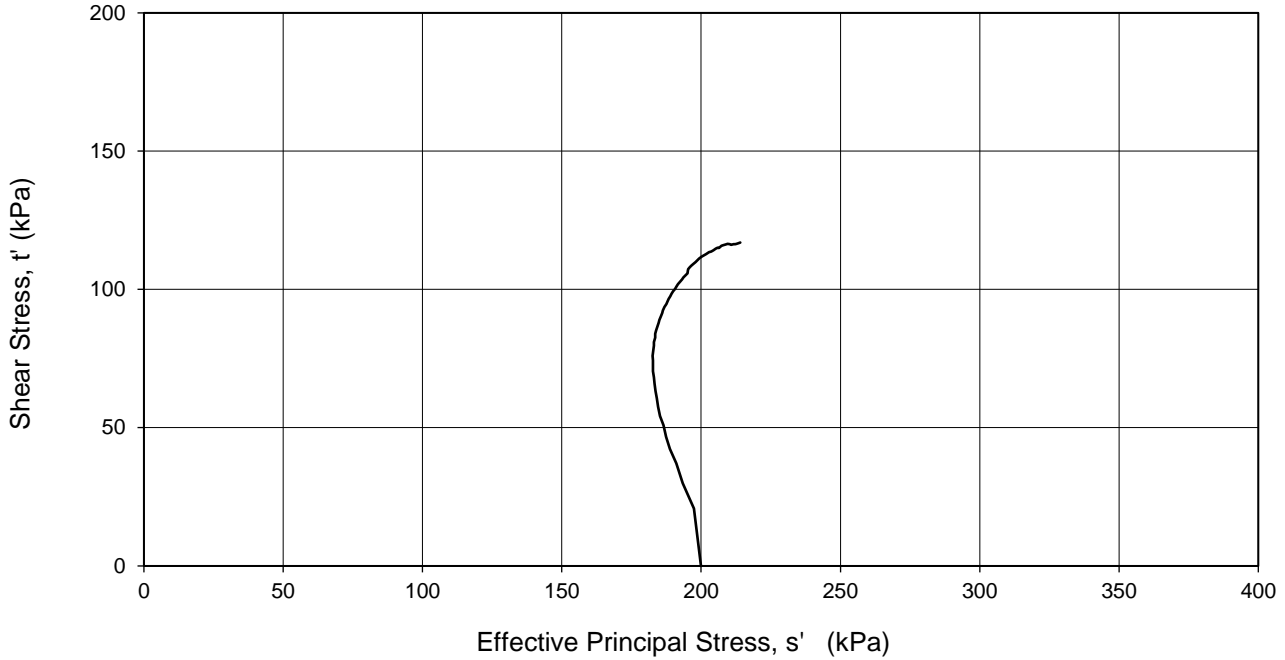
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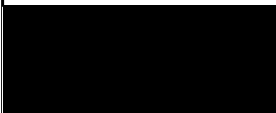

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
 Sample No.: CS8
 Depth (m): 19.50

Description:
 Stiff grey CLAY.



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Project Number:

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Project Name:

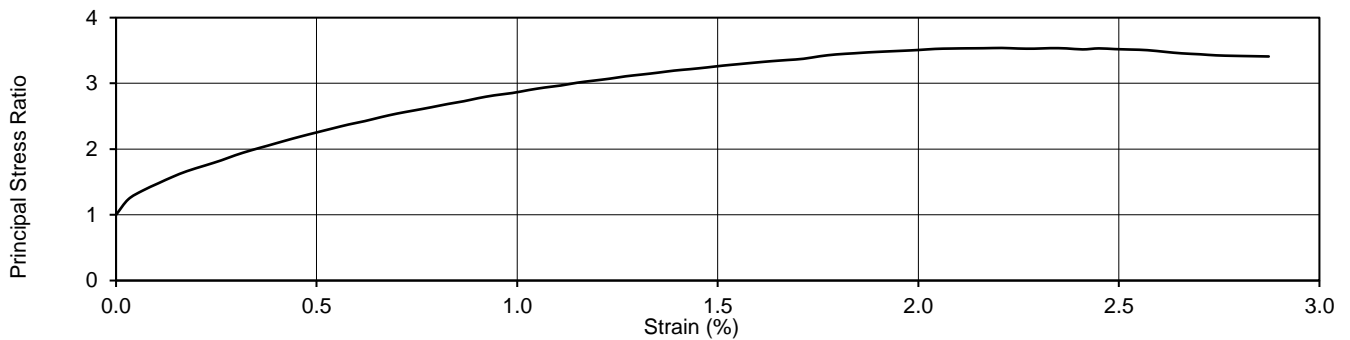
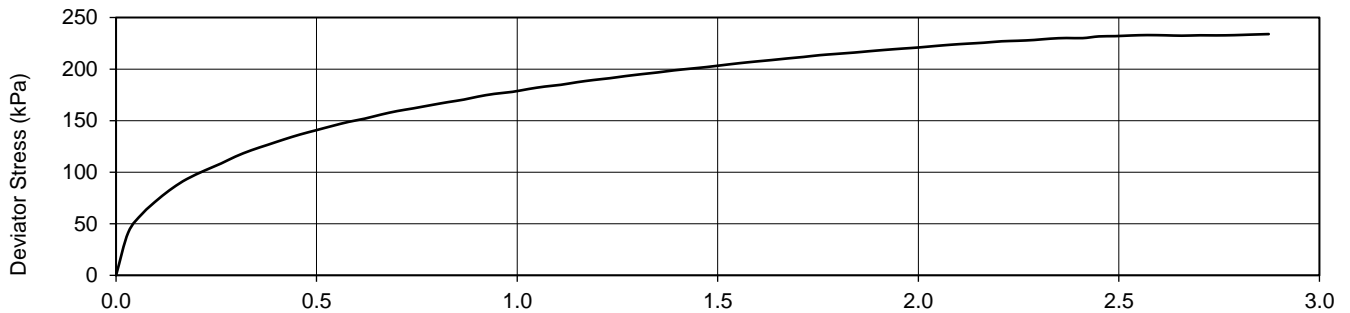
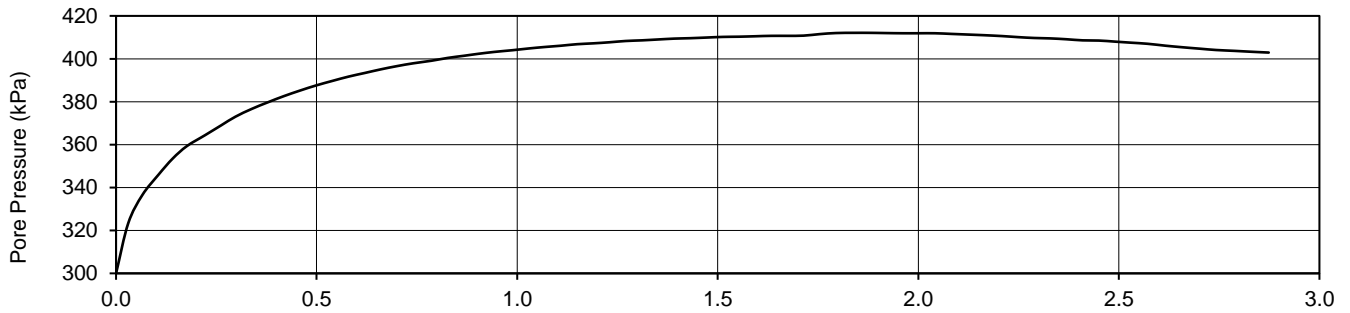
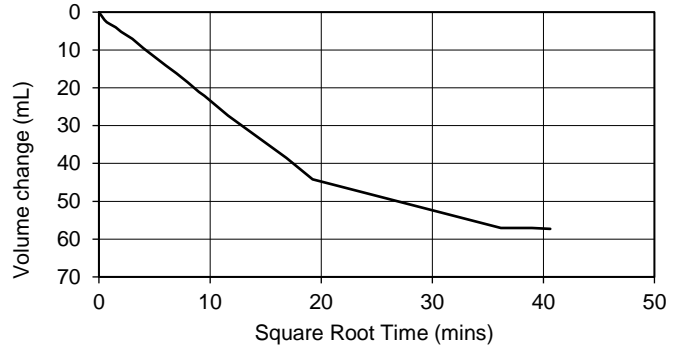
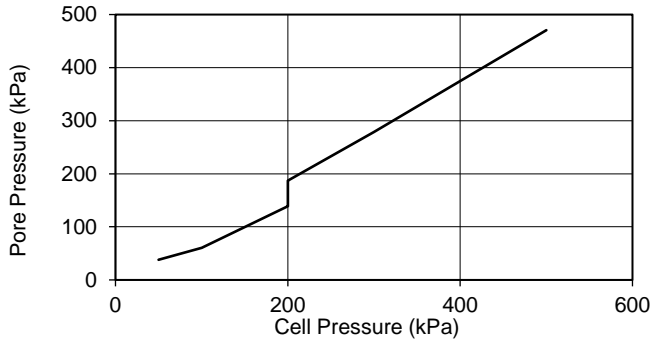
**CAMBRIDGE WWTP RELOCATION
 ADB/20.245/00/02**

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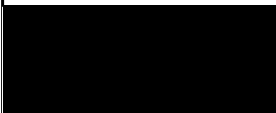


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
 Sample No.: CS8
 Depth (m): 19.50



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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
Sample No.: CS11
Depth (m): 28.70

Description:
Very stiff dark grey CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	10 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 98.28 201.74 26.6 2.01 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 600 567 0.95 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	600 300 300 300 100 2
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	600 0.0030 300 300
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 453 147 405 552 3.75 0.38 3.1 4 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	25.7 2.08
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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Project Name:

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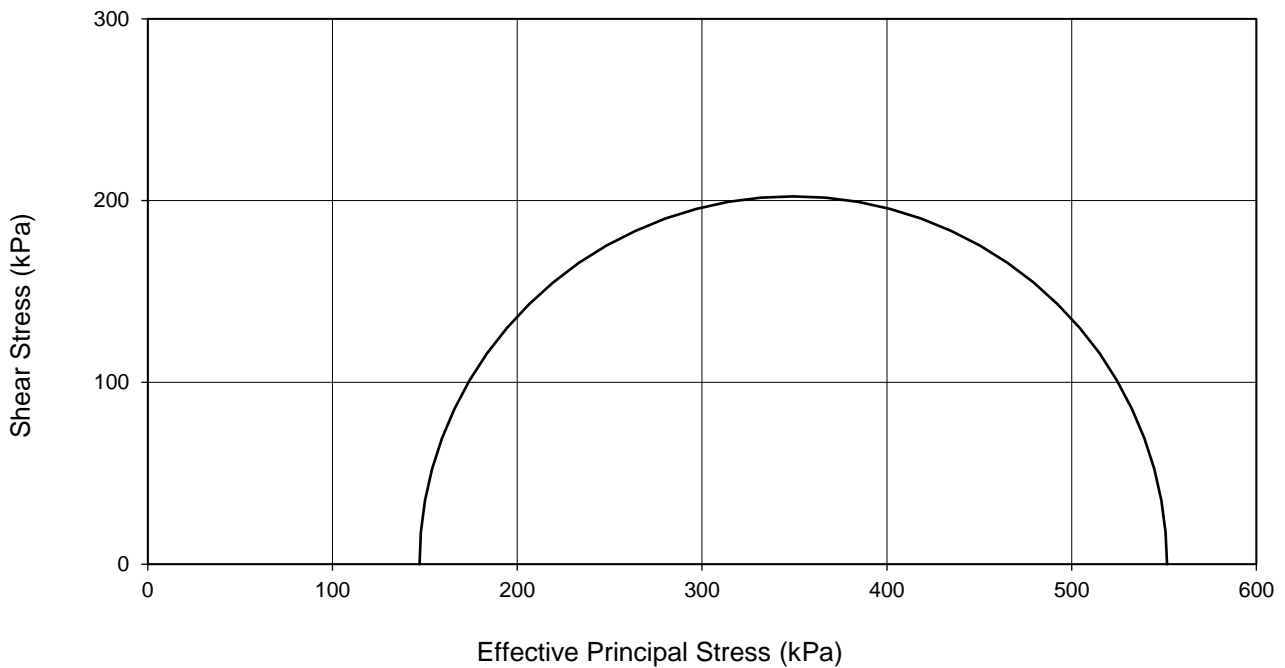
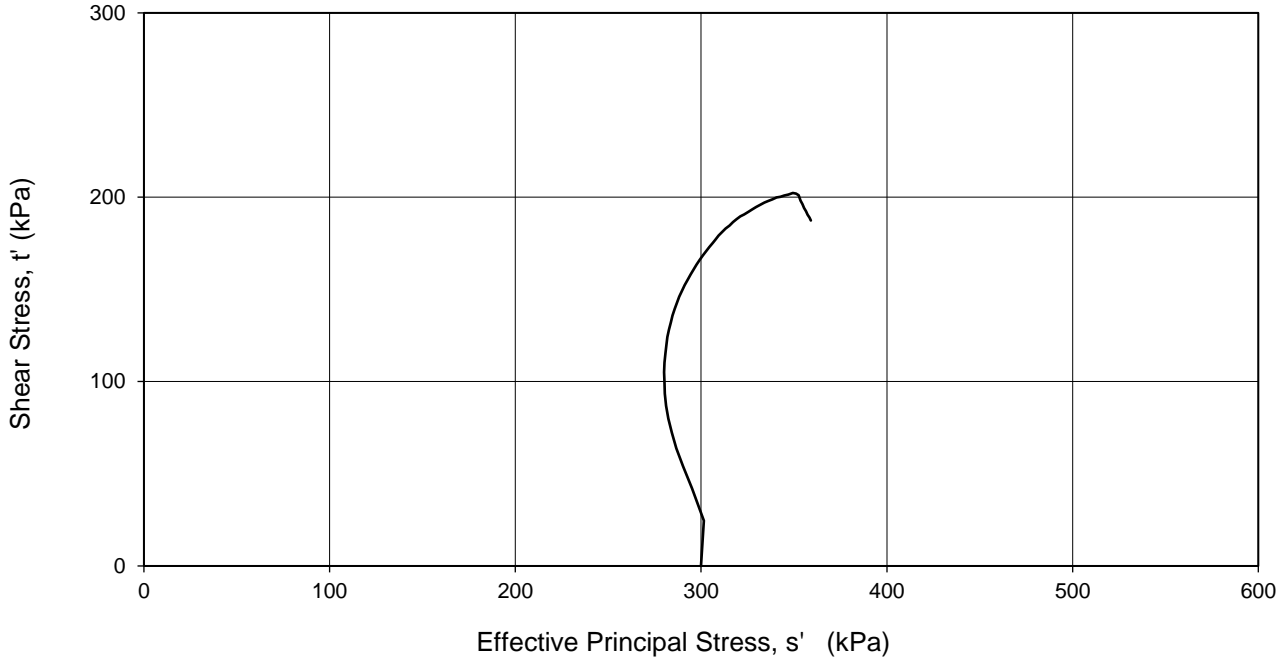
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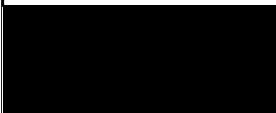
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
 Sample No.: CS11
 Depth (m): 28.70

Description:
 Very stiff dark grey CLAY.



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Project Number:

GEO / 31731

Project Name:

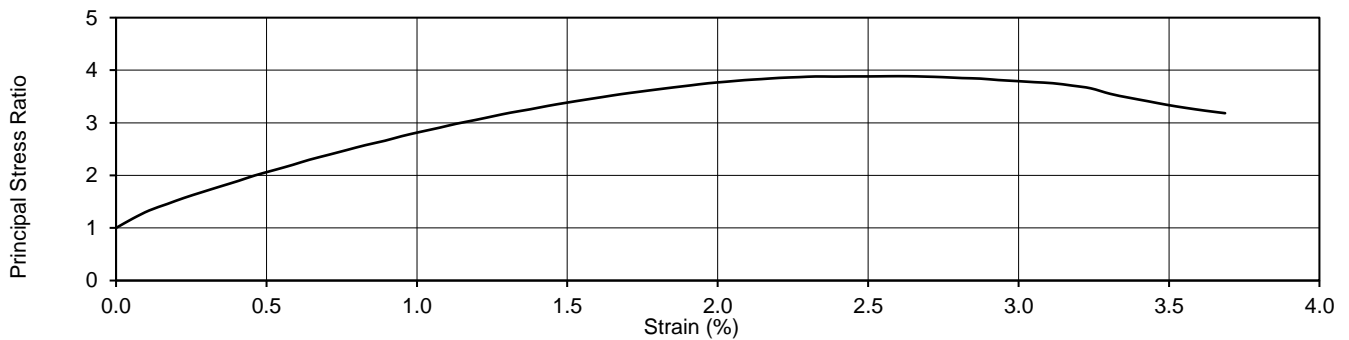
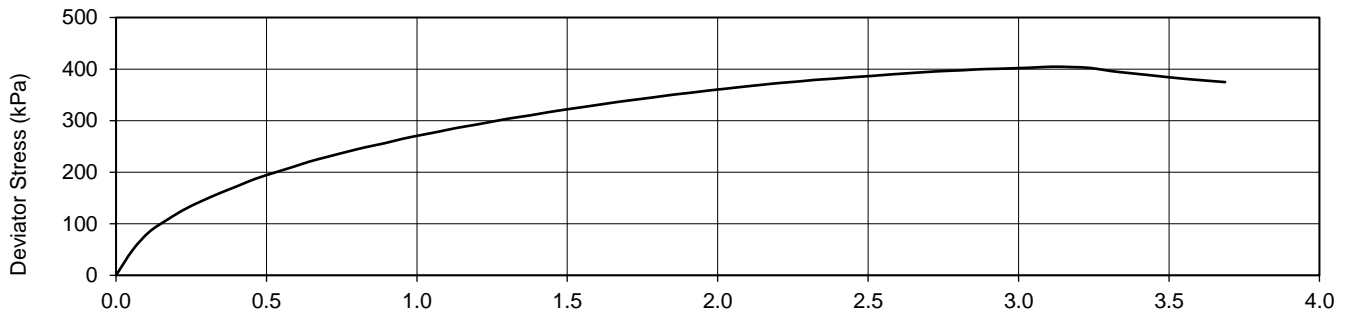
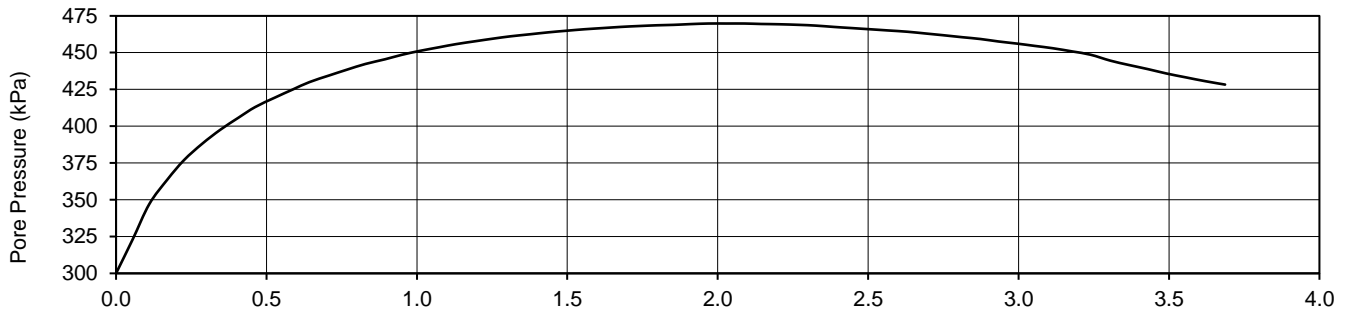
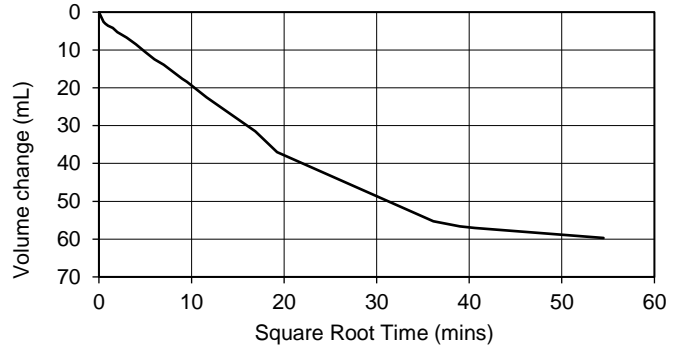
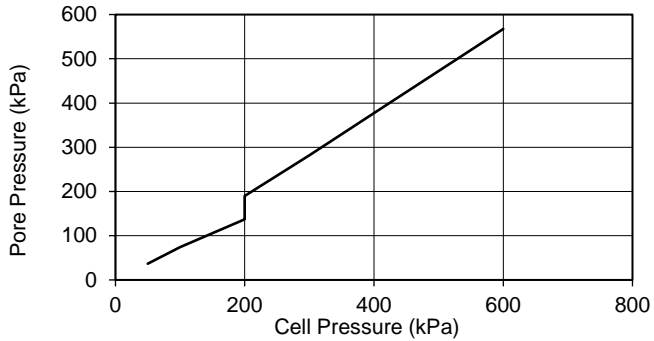
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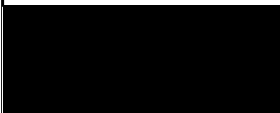


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH04
 Sample No.: CS11
 Depth (m): 28.70



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Project Name:

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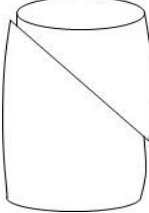
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH05
Sample No.: CS1
Depth (m): 6.90

Description:
Stiff grey slightly gravelly CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	10 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 101.96 201.45 30.9 1.90 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 370 346 0.98 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	370 300 70 300 100 2
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	370 0.0091 300 70
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum effective principal stress ratio 340 30 81 111 3.72 0.49 1.7 3 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	31.6 1.93
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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Project Name:

**CAMBRIDGE WWTP RELOCATION
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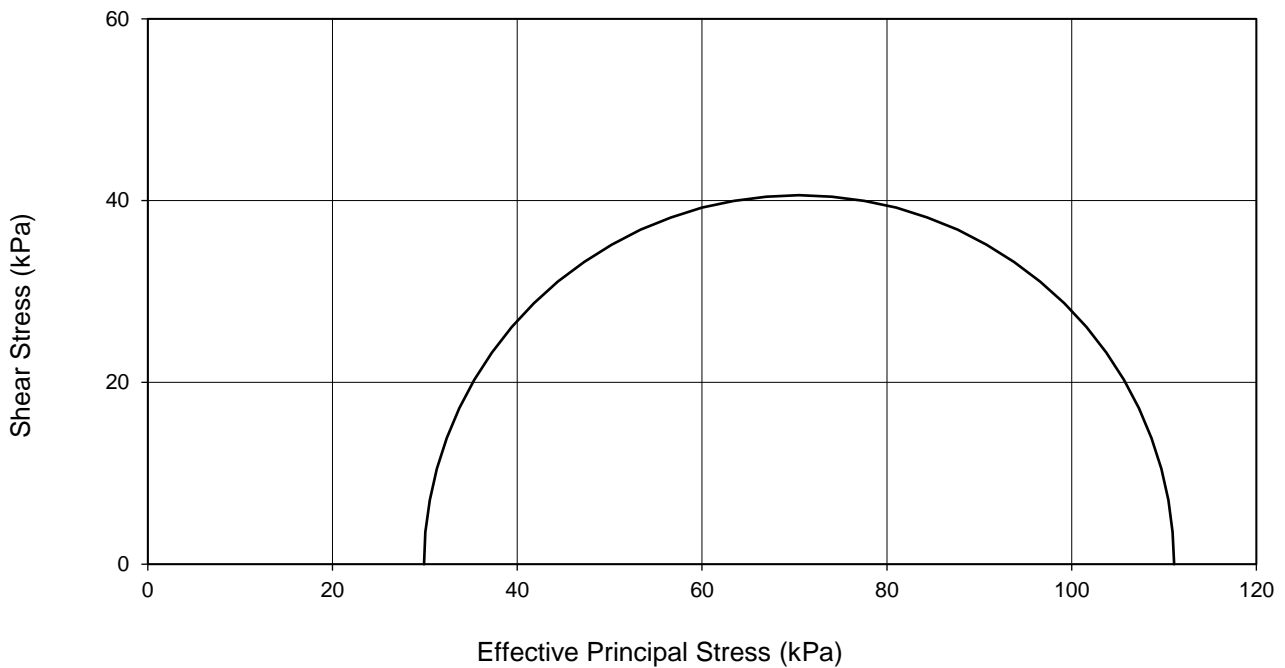
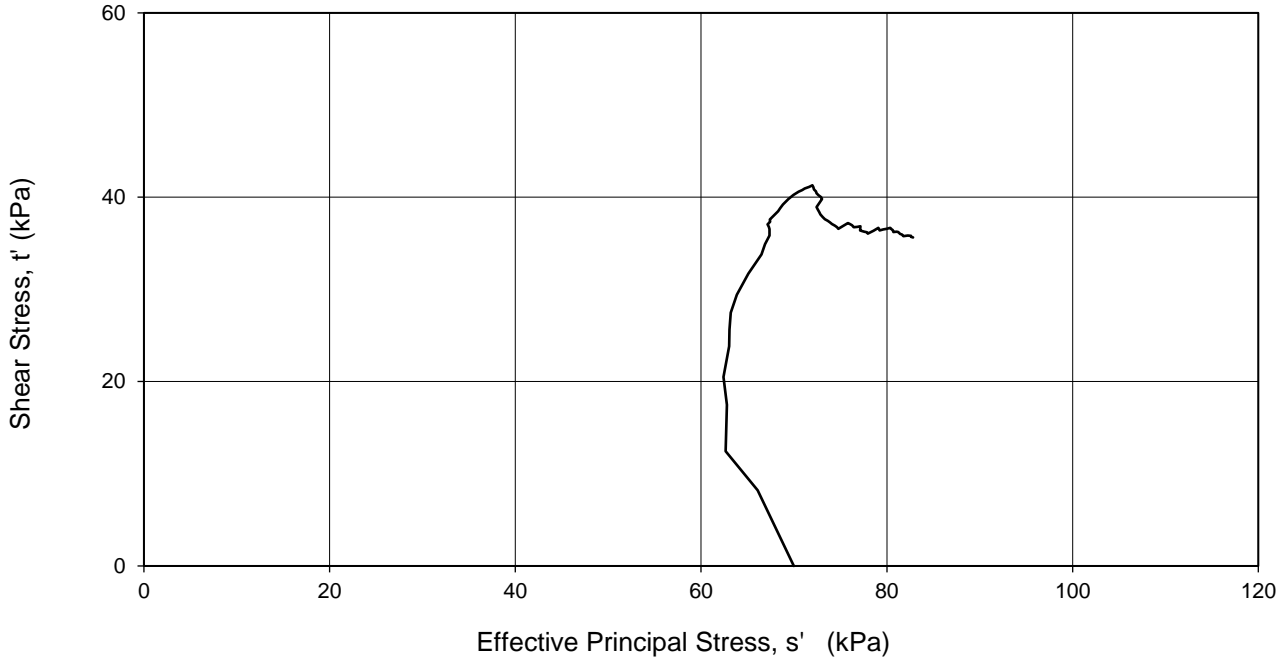
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05/10/2020



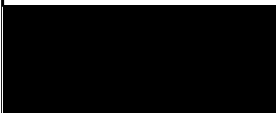

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH05
 Sample No.: CS1
 Depth (m): 6.90

Description:
 Stiff grey slightly gravelly CLAY.



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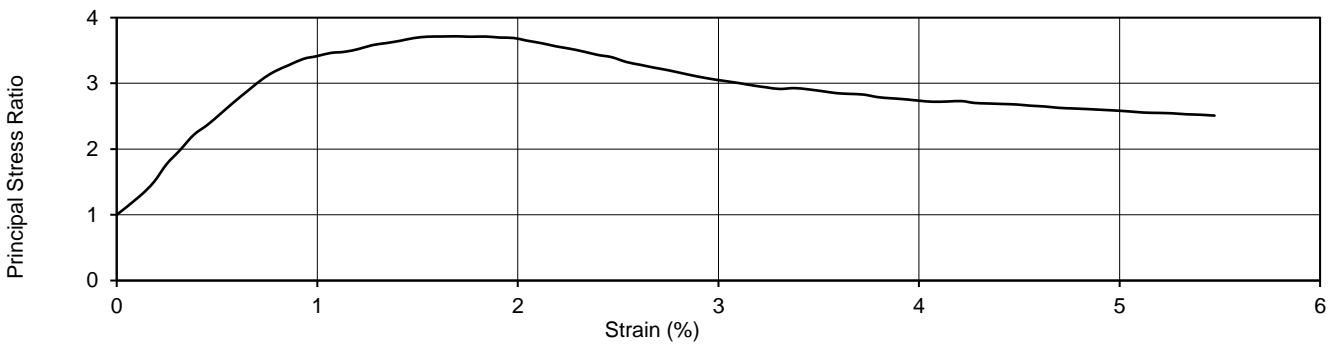
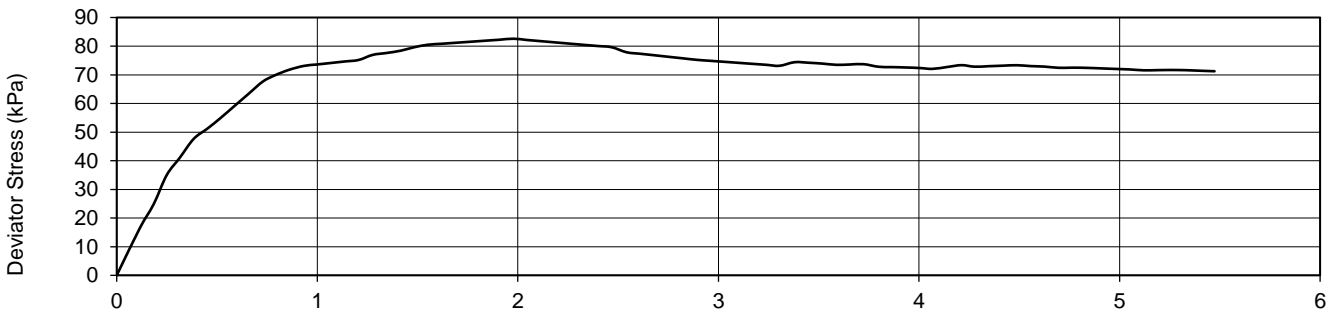
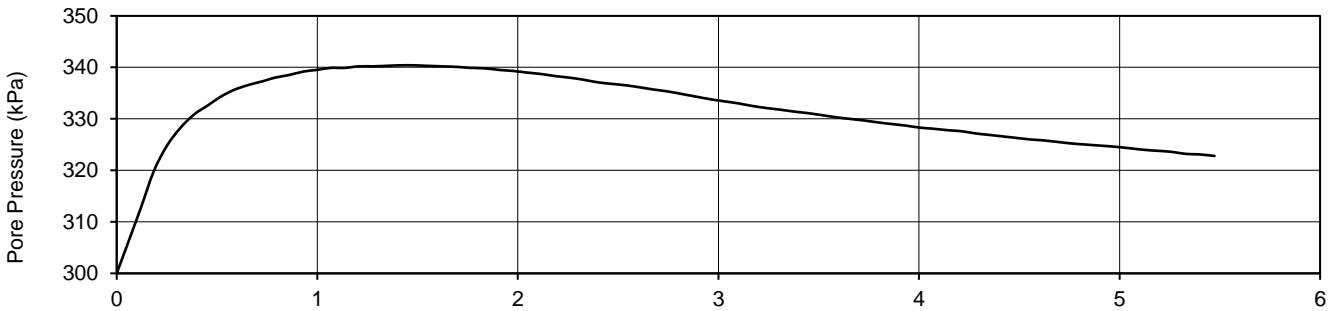
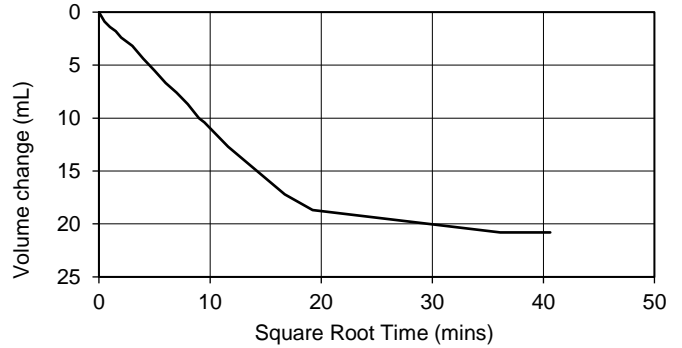
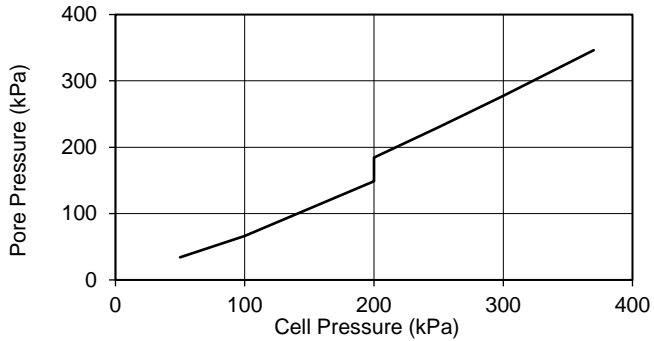
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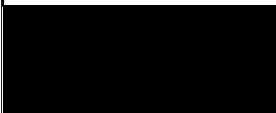


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH05
 Sample No.: CS1
 Depth (m): 6.90



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Project Name:

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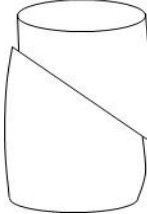
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH05
Sample No.: CS6
Depth (m): 17.00

Description:
Stiff grey CLAY

SPECIMEN DETAILS Depth within original sample Orientation within original sample	20 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 98.68 200.81 25.4 2.04 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 470 444 0.96 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	470 300 170 300 100 2
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	470 0.0060 300 170
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 381 89 196 285 3.20 0.41 3.7 4 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	25.6 2.12
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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Project Name:

**CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**

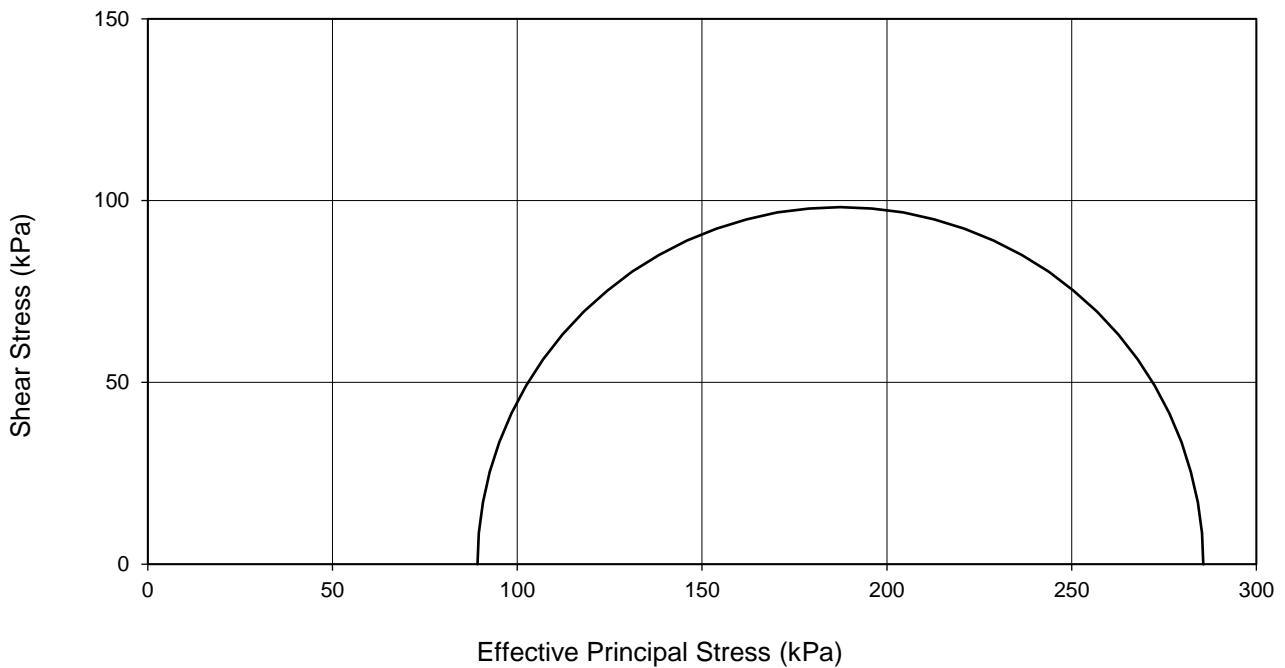
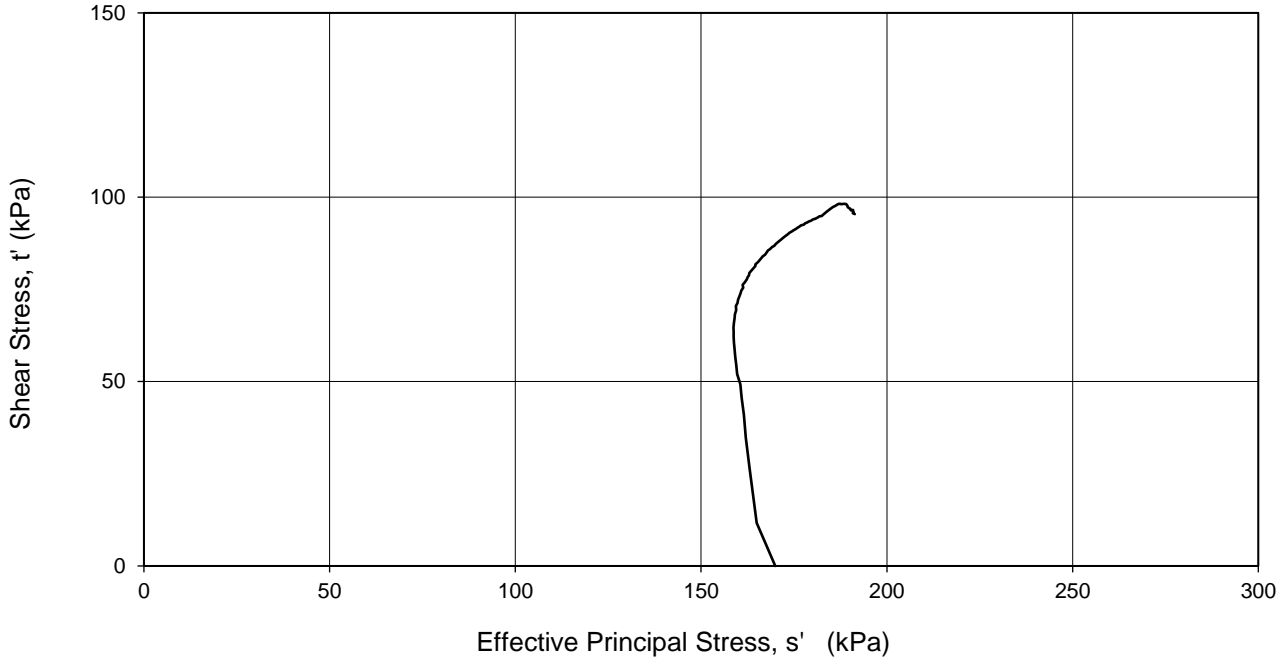
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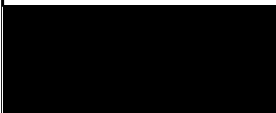

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH05
 Sample No.: CS6
 Depth (m): 17.00

Description:
 Stiff grey CLAY



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Project Name:

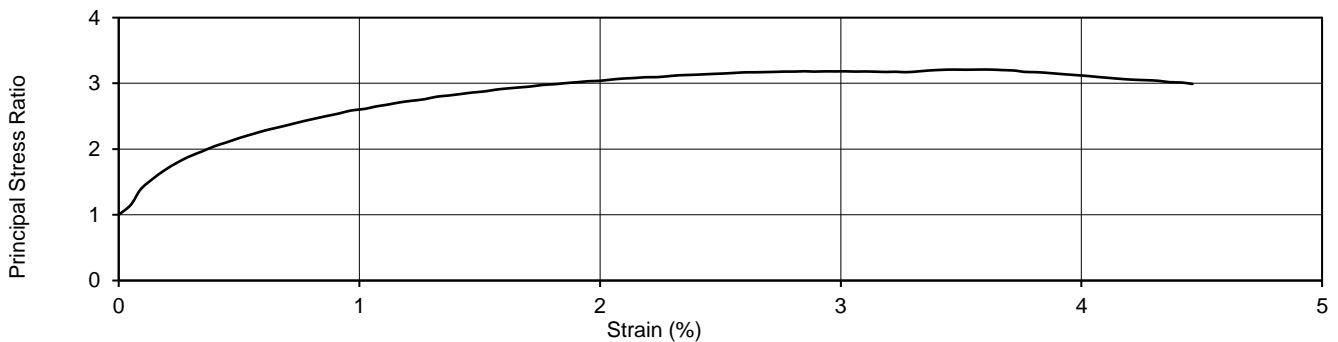
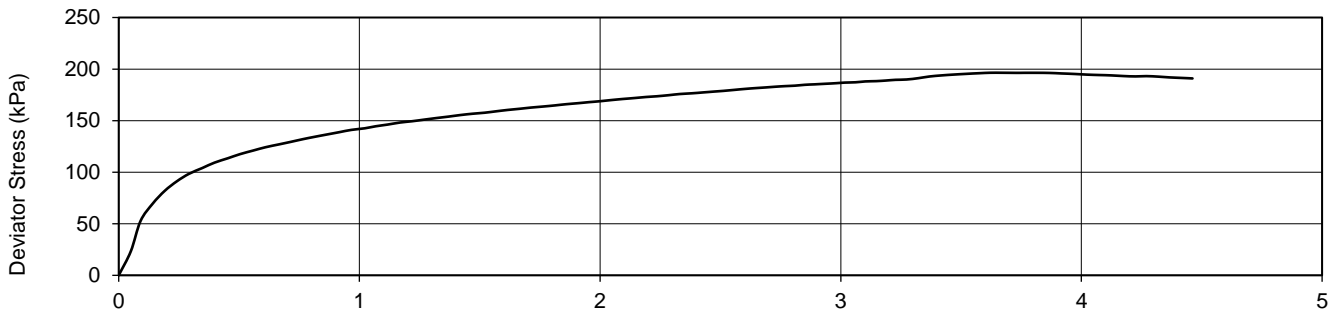
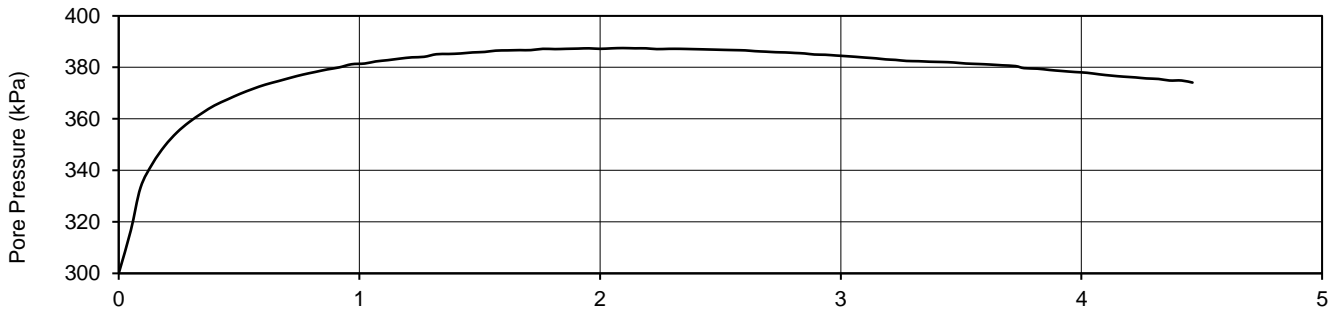
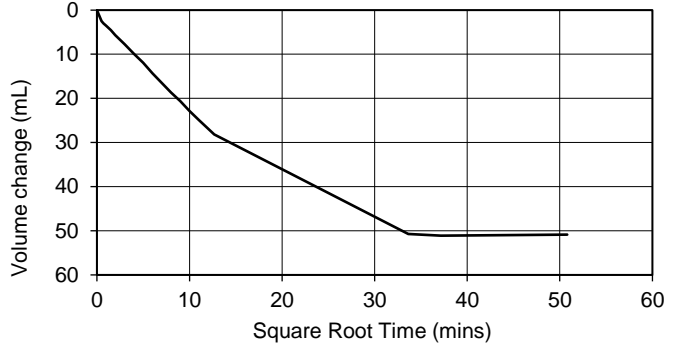
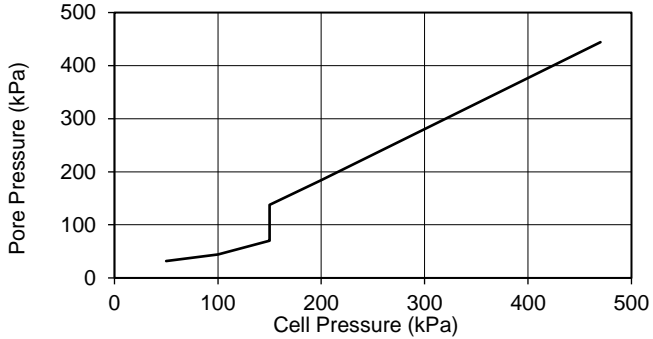
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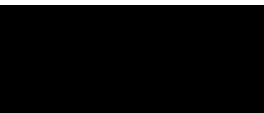


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH05
 Sample No.: CS6
 Depth (m): 17.00



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Project Number:

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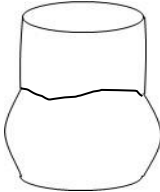
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CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH05
Sample No.: CS10
Depth (m): 24.50

Description:
Stiff grey CLAY.

SPECIMEN DETAILS Depth within original sample Orientation within original sample	30 mm from top Vertical
TEST DETAILS Specimen Type and Preparation Cell Preparation Specimen Number Initial Diameter <i>mm</i> Initial Length <i>mm</i> Initial Water Content % Initial Wet Density <i>Mg/m³</i> Drainage Conditions	C (Undisturbed) Checks performed in accordance with Clause 3.5 Single 97.37 200.27 23.9 1.99 One end and radial boundary
SATURATION STAGE Final Cell Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Parameter B Duration <i>day(s)</i>	Method: Clause 5.2 545 524 0.95 2
CONSOLIDATION STAGE Cell Pressure <i>kPa</i> Back Pressure <i>kPa</i> Effective Pressure <i>kPa</i> Final Pore Pressure <i>kPa</i> Final Pore Pressure Dissipation % Duration <i>day(s)</i>	545 300 245 300 100 2
SHEARING STAGE Cell Pressure <i>kPa</i> Rate of Axial Displacement <i>mm/min</i> Initial Pore Pressure <i>kPa</i> Initial Effective Stress <i>kPa</i>	545 0.0065 300 245
CONDITIONS AT FAILURE <i>criteria</i> Pore Pressure <i>kPa</i> Minor Effective Principal Stress <i>kPa</i> Deviator Stress <i>kPa</i> Major Effective Principal Stress <i>kPa</i> Effective Principal Stress Ratio Pore Pressure Parameter A Axial Strain % Membrane & filter correction applied to Deviator Stress <i>kPa</i> Duration <i>day(s)</i>	Maximum deviator stress 470 75 449 524 6.99 0.38 2.3 4 2
Final Water Content % Final Wet Density <i>Mg/m³</i>	24.1 2.06
EFFECTIVE STRESS PARAMETERS Cohesion <i>kPa</i> Angle of Shear Resistance <i>degrees</i>	Not applicable Not applicable
FAILURE SKETCH	

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Project Number:

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Project Name:

**CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**

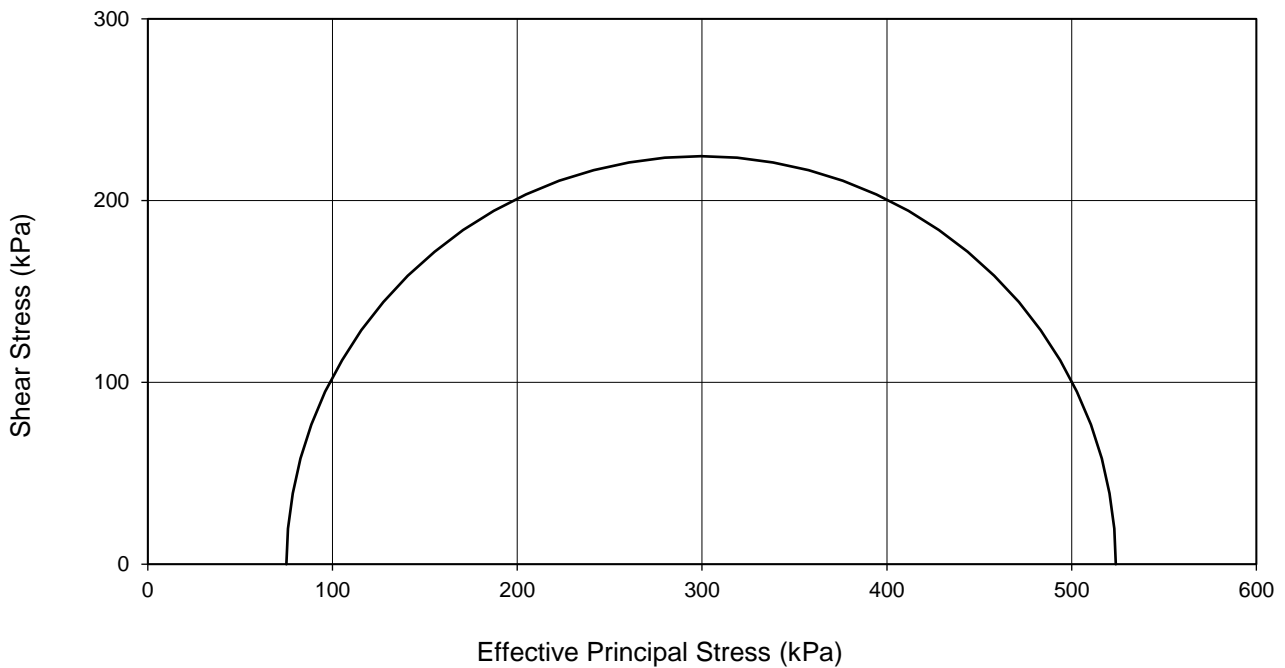
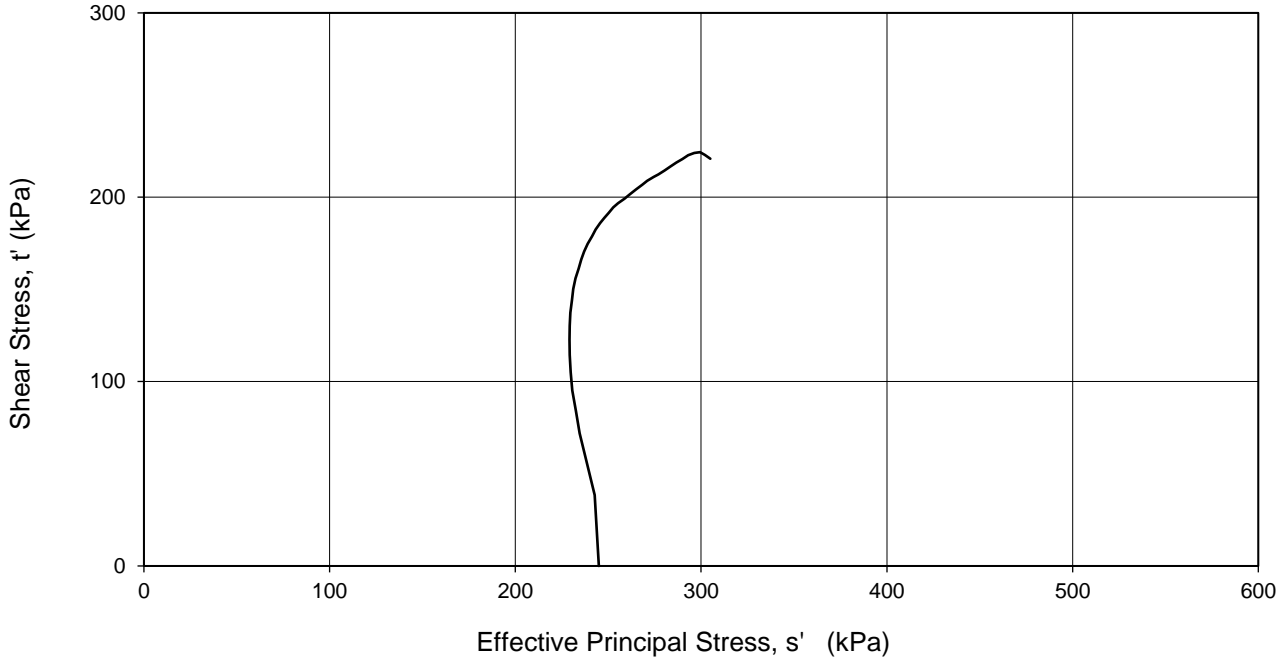
P Heritage - Project Manager
05/10/2020



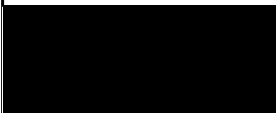

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH05
 Sample No.: CS10
 Depth (m): 24.50

Description:
 Stiff grey CLAY.



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Project Number:

GEO / 31731

Project Name:

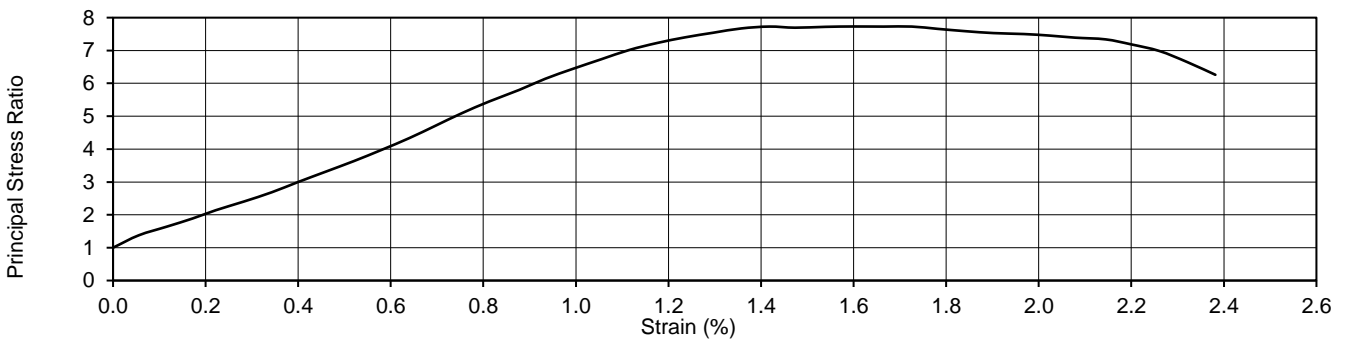
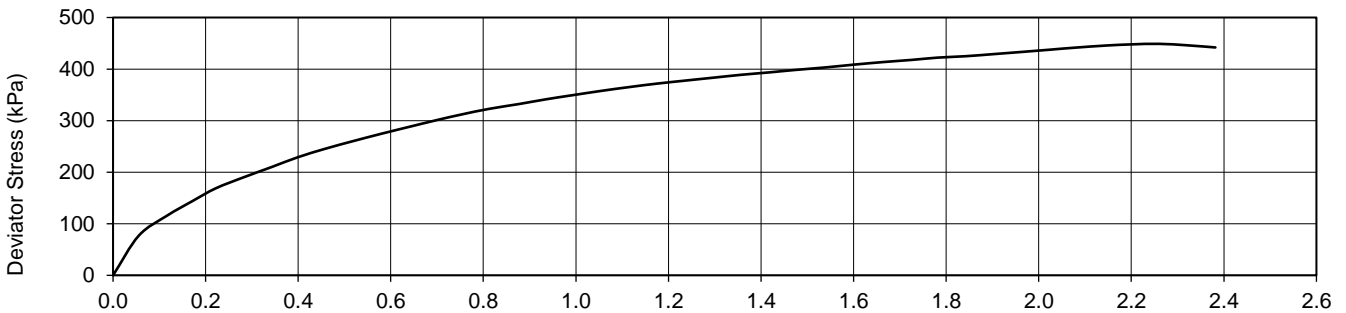
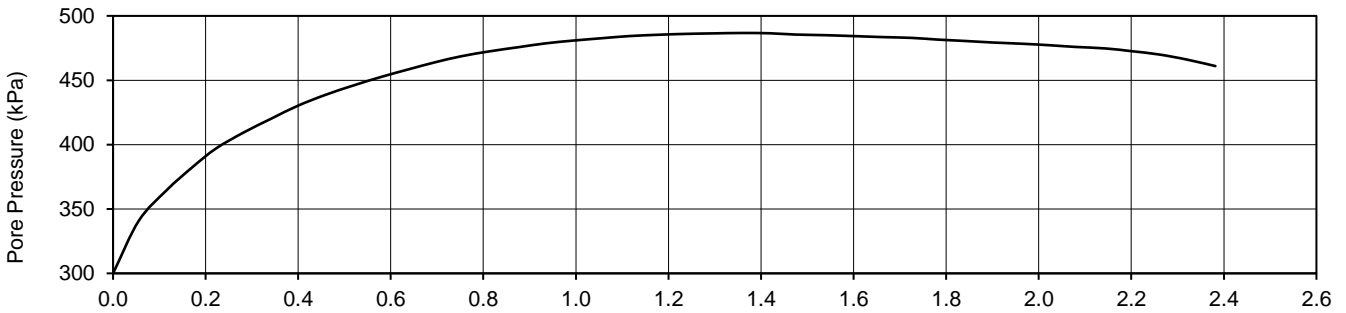
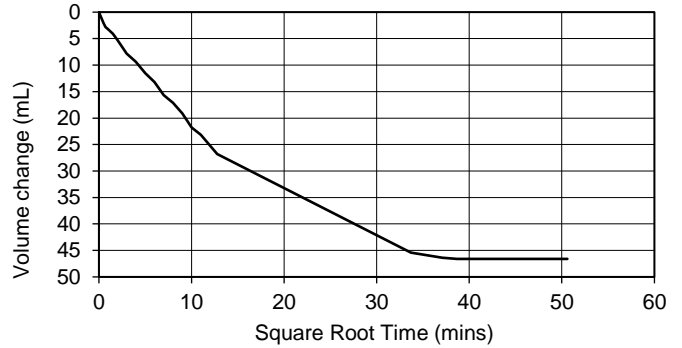
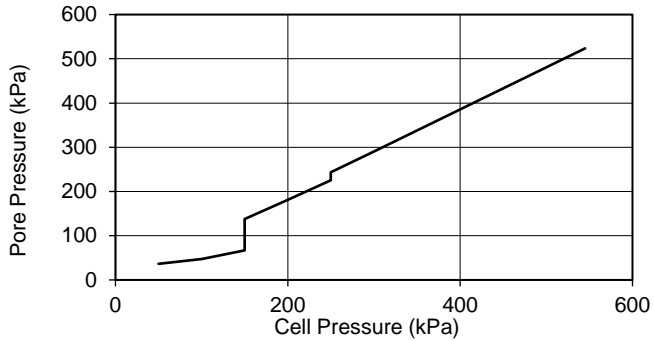
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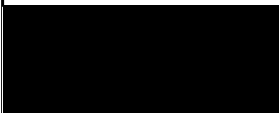


CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST WITH MEASUREMENT OF PORE PRESSURE

Borehole No.: BH05
 Sample No.: CS10
 Depth (m): 24.50



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Project Name:

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ADB/20.245/00/02**




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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
BH03	CS14	38.20	Weak grey MARL. Slightly weathered	8.8	77.7	2.37	2.18	100.50	202.50	2.0	83.7	10.6		12/10/20	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 13/10/2020	Project Number: <b style="text-align: center;">GEO / 31786 Project Name: <b style="text-align: center;">CAMBRIDGE WWTP RELOCATION GNB/20.245/00/06	 
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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.: BH03
 Sample Ref.: CS14
 Depth (m): 38.20

Description:
 Weak grey MARL. Slightly weathered

Diameter
Height
Bulk Density
Dry Density
Water Content

100.50 mm
202.50 mm
2.37 Mg/m ³
2.18 Mg/m ³
8.8 %

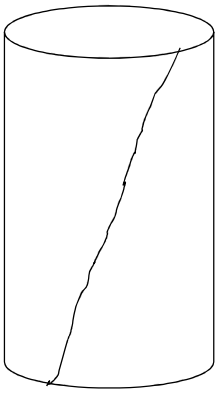
Degree of Saturation: 77.7 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Test results

Unconfined Compressive Strength
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

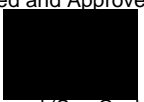
10.6 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used

Failure Sketch Mode of failure: Diagonal shearing

Solid lines for material failures. Dashed lines for apparent weakness failure.
Angle of foliation/Horizontal: 0° Angle of shear plane/Horizontal: 110°
Sample type C

Date tested: 12/10/2020

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

 C Clergeaud (Snr. Geologist)
 Date: 13/10/2020

Project Number:
GEO / 31786
 Project Name:
CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06



1481 - Pinhole BH01_05.00 D8 D - 31909-372027_XLSM

DISPERSIBILITY - PINHOLE METHOD

Location	BH01	Description Cream CLAY.
Sample Ref	D8	
Depth (m)	5.00	
Sample Type	D	

PINHOLE TEST:

As Received Water Content: 22.2 %
(BS EN ISO 17892-1:2014)

Initial Conditions: Remoulding: At plastic limit by kneading
Water Content: 21.8 %
Plastic Limit: 22 % *approx*
Bulk density: 2.04 Mg/m³
Dry density: 1.67 Mg/m³

0 *approximate % material was retained on BS 2mm sieve.*

Flow data:

Head (mm)	Flow Rate (mL/s)	Flow Duration (min)	Cloudiness (descriptive)
50	0.18	5	Perfectly clear
180	0.52	5	Perfectly clear
380	0.98	5	Clear
1020	1.93	5	Clear

Hole: 1.0 mm uniform intact diameter after test (approximately).

Final Conditions: Water Content: 21.9 %

Dispersive Classification: ND1



Project Number:

GEO / 31909

Project Name:

**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09**



DISPERSIBILITY - PINHOLE METHOD

Location	BH01	Description	
Sample Ref	D22	Grey CLAY.	
Depth (m)	18.00		
Sample Type	D		

PINHOLE TEST:

As Received Water Content: 26.8 %
(BS EN ISO 17892-1:2014)

Initial Conditions: Remoulding: At plastic limit by kneading
 Water Content: 28.5 %
 Plastic Limit: 30 % *approx*
 Bulk density: 1.93 Mg/m³
 Dry density: 1.50 Mg/m³

0 *approximate* % material was retained on BS 2mm sieve.

Flow data:

Head (mm)	Flow Rate (mL/s)	Flow Duration (min)	Cloudiness (descriptive)
50	0.07	5	Perfectly clear
180	0.14	5	Perfectly clear
380	0.22	5	Clear
1020	0.89	5	Clear

Hole: 1.0 mm uniform intact diameter after test (approximately).

Final Conditions: Water Content: 28.6 %

Dispersive Classification: ND1

Project Number:

GEO / 31909

Project Name:

**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09**

GEOLABS®

DISPERSIBILITY - PINHOLE METHOD

Location BH02
 Sample Ref D21
 Depth (m) 21.00
 Sample Type D

Description
 Grey CLAY.

PINHOLE TEST:

As Received Water Content: 27.3 %
 (BS EN ISO 17892-1:2014)

Initial Conditions: Remoulding: At plastic limit by kneading
 Water Content: 28.9 %
 Plastic Limit: 29 % *approx*
 Bulk density: 1.93 Mg/m³
 Dry density: 1.50 Mg/m³

0 *approximate % material was retained on BS 2mm sieve.*

Flow data:

Head (mm)	Flow Rate (mL/s)	Flow Duration (min)	Cloudiness (descriptive)
50	0.02	5	Perfectly clear
180	0.05	5	Perfectly clear
380	0.06	5	Clear
1020	0.58	5	Clear

Hole: 1.0 mm uniform intact diameter after test (approximately).

Final Conditions: Water Content: 29.0 %

Dispersive Classification: ND1

Project Number:

GEO / 31949

Project Name:

**CAMBRIDGE WWTP RELOCATION
 GNB/20.245/00/10**

GEOLABS®

20/11/2020

1481 - Pinhole BH04 09.00 D9 D - 31731-370141.XLSM

DISPERSIBILITY - PINHOLE METHOD

Location	BH04	Description Grey CLAY.
Sample Ref	D9	
Depth (m)	9.00	
Sample Type	D	

PINHOLE TEST:

As Received Water Content: 33.3 %
(BS EN ISO 17892-1:2014)

Initial Conditions: Remoulding: At plastic limit by kneading
 Water Content: 31.1 %
 Plastic Limit: 31 % *approx*
 Bulk density: 1.88 *Mg/m³*
 Dry density: 1.43 *Mg/m³*

0 *approximate % material was retained on BS 2mm sieve.*

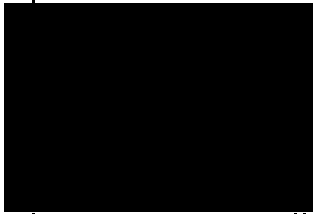
Flow data:

Head (mm)	Flow Rate (mL/s)	Flow Duration (min)	Cloudiness (descriptive)
50	0.10	5	Clear
180	0.24	5	Clear
380	0.41	5	Clear
1020	1.35	5	Clear

Hole: 1.0 mm uniform intact diameter after test (approximately).

Final Conditions: Water Content: 31.6 %

Dispersive Classification: ND1



Project Number:

GEO / 31731

Project Name:

**CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



1481 - Pinhole BH05 20.00 CS8 C - 31731-369335.XLSM

DISPERSIBILITY - PINHOLE METHOD

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Location</td> <td>BH05</td> </tr> <tr> <td>Sample Ref</td> <td>CS8</td> </tr> <tr> <td>Depth (m)</td> <td>20.00</td> </tr> <tr> <td>Sample Type</td> <td>C</td> </tr> </table>	Location	BH05	Sample Ref	CS8	Depth (m)	20.00	Sample Type	C	Description Grey CLAY.
Location	BH05								
Sample Ref	CS8								
Depth (m)	20.00								
Sample Type	C								

PINHOLE TEST:

As Received Water Content: 33.8 %
 (BS EN ISO 17892-1:2014)

Initial Conditions:

Remoulding:	At plastic limit by kneading
Water Content:	33.9 %
Plastic Limit:	34 % <i>approx</i>
Bulk density:	1.83 Mg/m ³
Dry density:	1.37 Mg/m ³

0 *approximate* % material was retained on BS 2mm sieve.

Flow data:

Head (mm)	Flow Rate (mL/s)	Flow Duration (min)	Cloudiness (descriptive)
50	0.05	5	Perfectly clear
180	0.10	5	Perfectly clear
380	0.25	5	Perfectly clear
1020	0.80	5	Perfectly clear

Hole: 1.0 mm uniform intact diameter after test (approximately).

Final Conditions: Water Content: 34.4 %

Dispersive Classification: ND1



Project Number:

GEO / 31731

Project Name:

**CAMBRIDGE WWTP RELOCATION
 ADB/20.245/00/02**



1481 - Crumb BH01 01.70 D3 D - 31909-372024.XLSM

DISPERSIBILITY - CRUMB METHOD

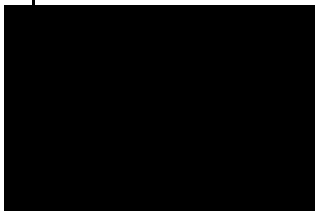
Location	BH01	Description Light brown and light grey fine sandy silty CLAY.
Sample Ref	D3	
Depth (m)	1.70	
Sample Type	D	

Test Conditions & Reagent Used

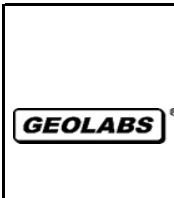
Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number:	GEO / 31909
Project Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/09



1481 - Crumb BH01 11.70 D17 D - 31909-373052.XLSM

DISPERSIBILITY - CRUMB METHOD

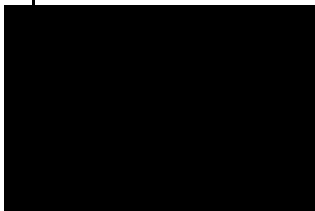
Location	BH01	Description	
Sample Ref	D17	Dark grey CLAY.	
Depth (m)	11.70		
Sample Type	D		

Test Conditions & Reagent Used

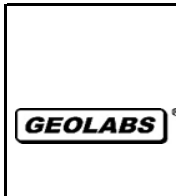
Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number: **GEO / 31909**
Project Name: **CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09**



DISPERSIBILITY - CRUMB METHOD

Location	BH02
Sample Ref	D3
Depth (m)	2.10
Sample Type	D

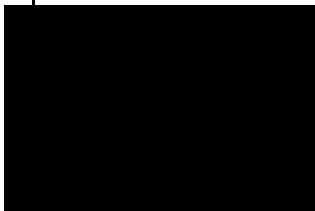
Description	Grey mottled greyish brown CLAY.
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Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
 0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number:	GEO / 31949
Project Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/10



DISPERSIBILITY - CRUMB METHOD

Location	BH02
Sample Ref	D13
Depth (m)	7.50
Sample Type	D

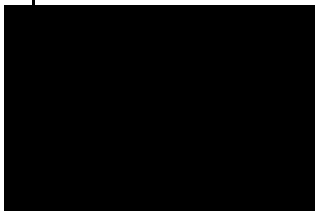
Description	Grey CLAY.
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Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
 0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number:	GEO / 31949
Project Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/10



1481 - Crumb BH03 04.50 D11 D - 31786-371125.XLSM

DISPERSIBILITY - CRUMB METHOD

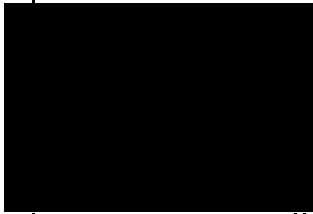
Location	BH03	Description Grey silty CLAY.
Sample Ref	D11	
Depth (m)	4.50	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number: **GEO / 31786**
Project Name: **CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06**



1481 - Crumb BH03 12.00 D16 D - 31786-371116.XLSM

DISPERSIBILITY - CRUMB METHOD

Location	BH03	Description Grey silty CLAY.
Sample Ref	D16	
Depth (m)	12.00	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number:

GEO / 31786

Project Name:

**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06**



1481 - Crumb BH03 25.50 D27 D - 31786-371122.XLSM

DISPERSIBILITY - CRUMB METHOD

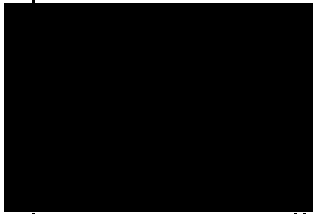
Location	BH03	Description Grey silty CLAY with rare shell fragments.
Sample Ref	D27	
Depth (m)	25.50	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number: **GEO / 31786**
Project Name: **CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06**



1481 - Crumb BH03 35.00 D36 D - 31786-371106.XLSM

DISPERSIBILITY - CRUMB METHOD

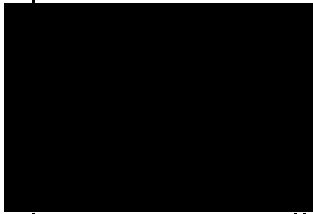
Location	BH03	Description Dark grey silty CLAY.
Sample Ref	D36	
Depth (m)	35.00	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number:

GEO / 31786

Project Name:

**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06**



1481 - Crumb BH04 15.00 D12 D - 31731-370133.XLSM

DISPERSIBILITY - CRUMB METHOD

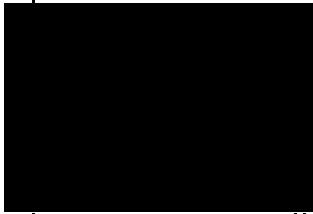
Location	BH04	Description Grey silty CLAY.
Sample Ref	D12	
Depth (m)	15.00	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number: **GEO / 31731**
Project Name: **CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



1481 - Crumb BH04 19.00 D15 D - 31731-370145.XLSM

DISPERSIBILITY - CRUMB METHOD

Location	BH04	Description Greyish brown silty CLAY with rare shell fragments.
Sample Ref	D15	
Depth (m)	19.00	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number: **GEO / 31731**

Project Name: **CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



1481 - Crumb BH04 21.00 D16 D - 31731-370138.XLSM

DISPERSIBILITY - CRUMB METHOD

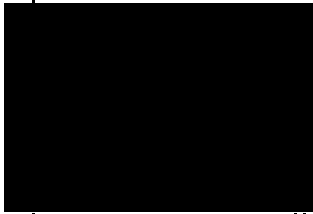
Location	BH04	Description Greyish brown silty CLAY.
Sample Ref	D16	
Depth (m)	21.00	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number:

GEO / 31731

Project Name:

**CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



1481 - Crumb BH04 25.00 D19 D - 31731-370137.XLSM

BS1377 : Part 5 : 1990 Clause 6.3

DISPERSIBILITY - CRUMB METHOD

Location	BH04	Description Dark grey silty CLAY.
Sample Ref	D19	
Depth (m)	25.00	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 2 - Slight reaction: a very slight cloudiness visible



Project Number:

GEO / 31731

Project Name:

**CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



1481 - Crumb BH05 07.50 D16 D - 31731-370151.XLSM

DISPERSIBILITY - CRUMB METHOD

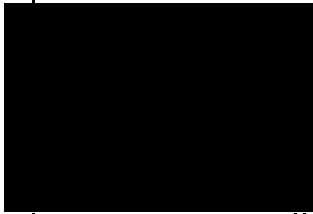
Location	BH05	Description Grey silty CLAY.
Sample Ref	D16	
Depth (m)	7.50	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number: **GEO / 31731**
Project Name: **CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



1481 - Crumb BH05 10.00 D18 D - 31731-370153.XLSM

DISPERSIBILITY - CRUMB METHOD

Location	BH05	Description Grey clayey SILT.
Sample Ref	D18	
Depth (m)	10.00	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number: **GEO / 31731**
Project Name: **CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



1481 - Crumb BH05 26.80 D29 D - 31731-370161.XLSM

DISPERSIBILITY - CRUMB METHOD

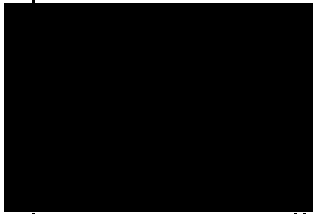
Location	BH05	Description Dark grey CLAY.
Sample Ref	D29	
Depth (m)	26.80	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 1 - no reaction: no cloudiness visible, some slaking



Project Number: **GEO / 31731**

Project Name: **CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



1481 - Crumb BH05 29.80 D32 D - 31731-370162.XLSM

DISPERSIBILITY - CRUMB METHOD

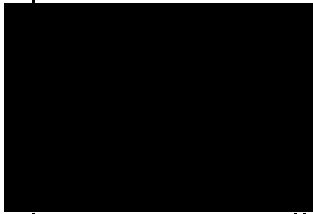
Location	BH05	Description Dark greyish brown silty CLAY with rare shell fragments.
Sample Ref	D32	
Depth (m)	29.80	
Sample Type	D	

Test Conditions & Reagent Used

Test performed in accordance with clause 6.3 of BS 1377-5:1990
0.001 M sodium hydroxide solution used as reagent.

Observation

Classification : GRADE 2 - Slight reaction: a very slight cloudiness visible



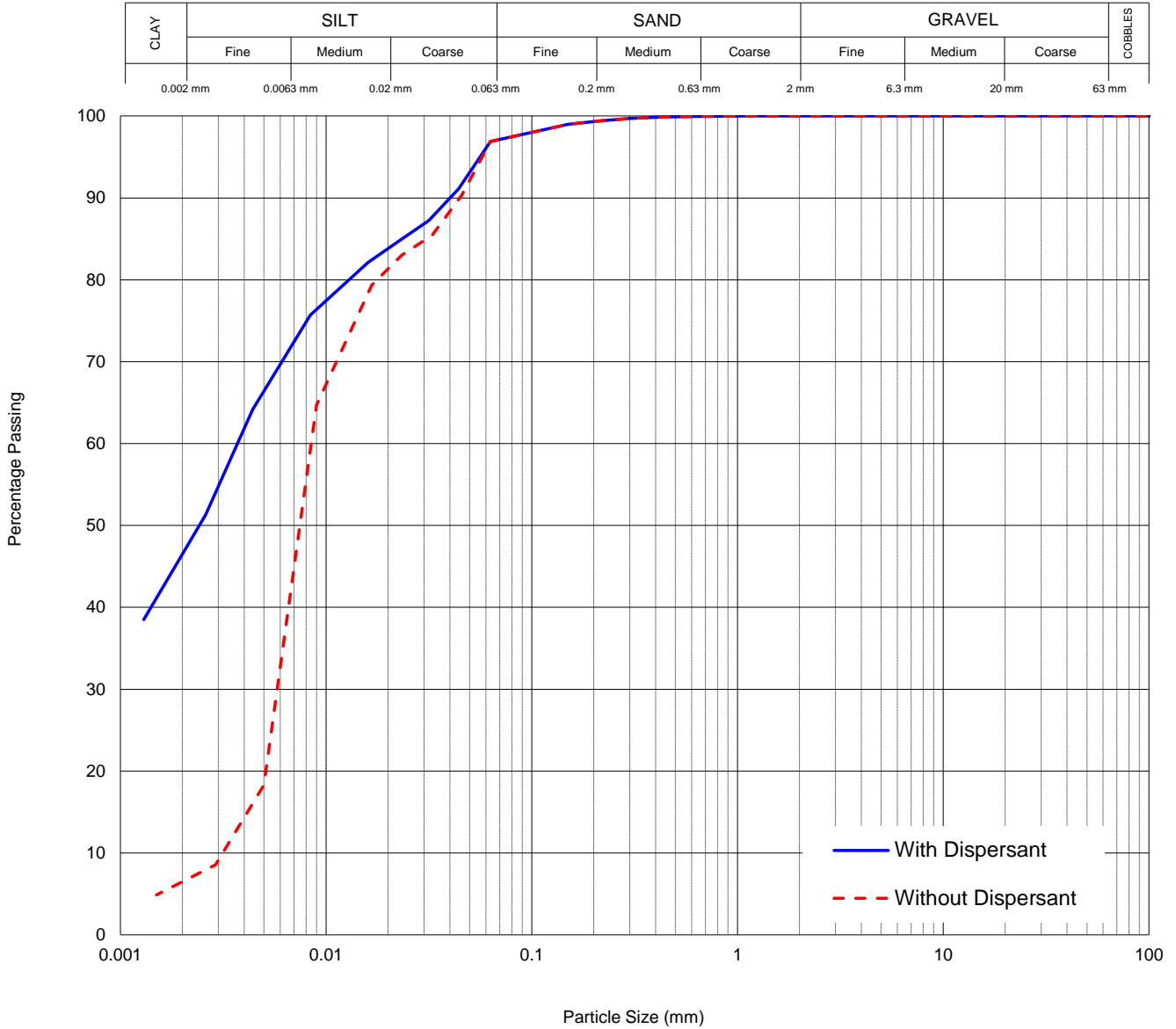
Project Number: **GEO / 31731**
Project Name: **CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



DISPERSIBILITY - DISPERSION METHOD

BH / TP No.	BH01
Sample Ref	D12
Depth (m)	7.00
Sample Type	D

Description
Light grey slightly sandy, very clayey SILT.



Without Dispersant	%	6
With Dispersant	%	45
Dispersion	%	13

Project Number:

GEO / 31909

Project Name:

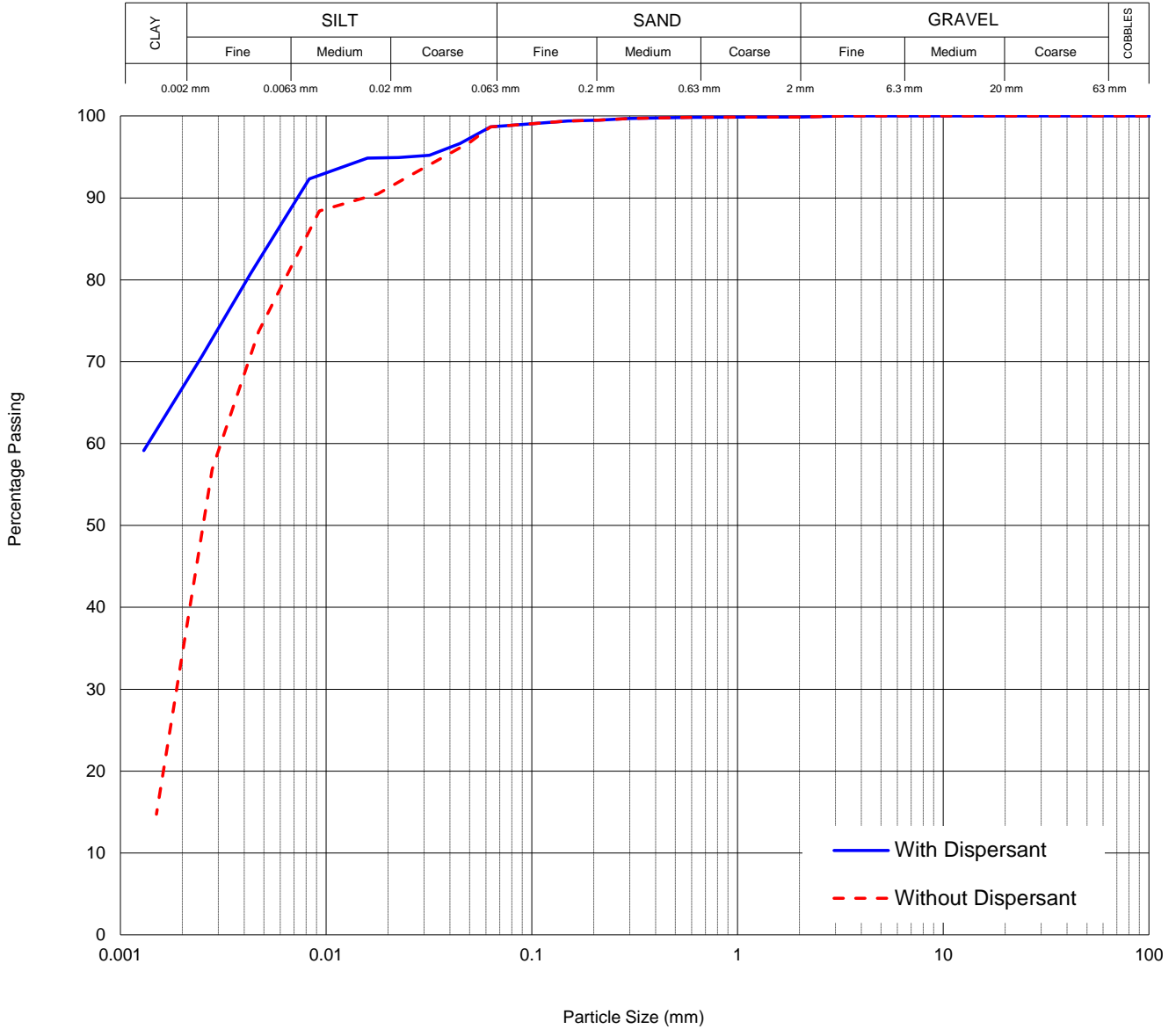
**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09**



DISPERSIBILITY - DISPERSION METHOD

BH / TP No.	BH01
Sample Ref	D26
Depth (m)	25.70
Sample Type	D

Description
Dark grey slightly sandy silty CLAY.



Without Dispersant	%	31
With Dispersant	%	66
Dispersion	%	47

Project Number:

GEO / 31909

Project Name:

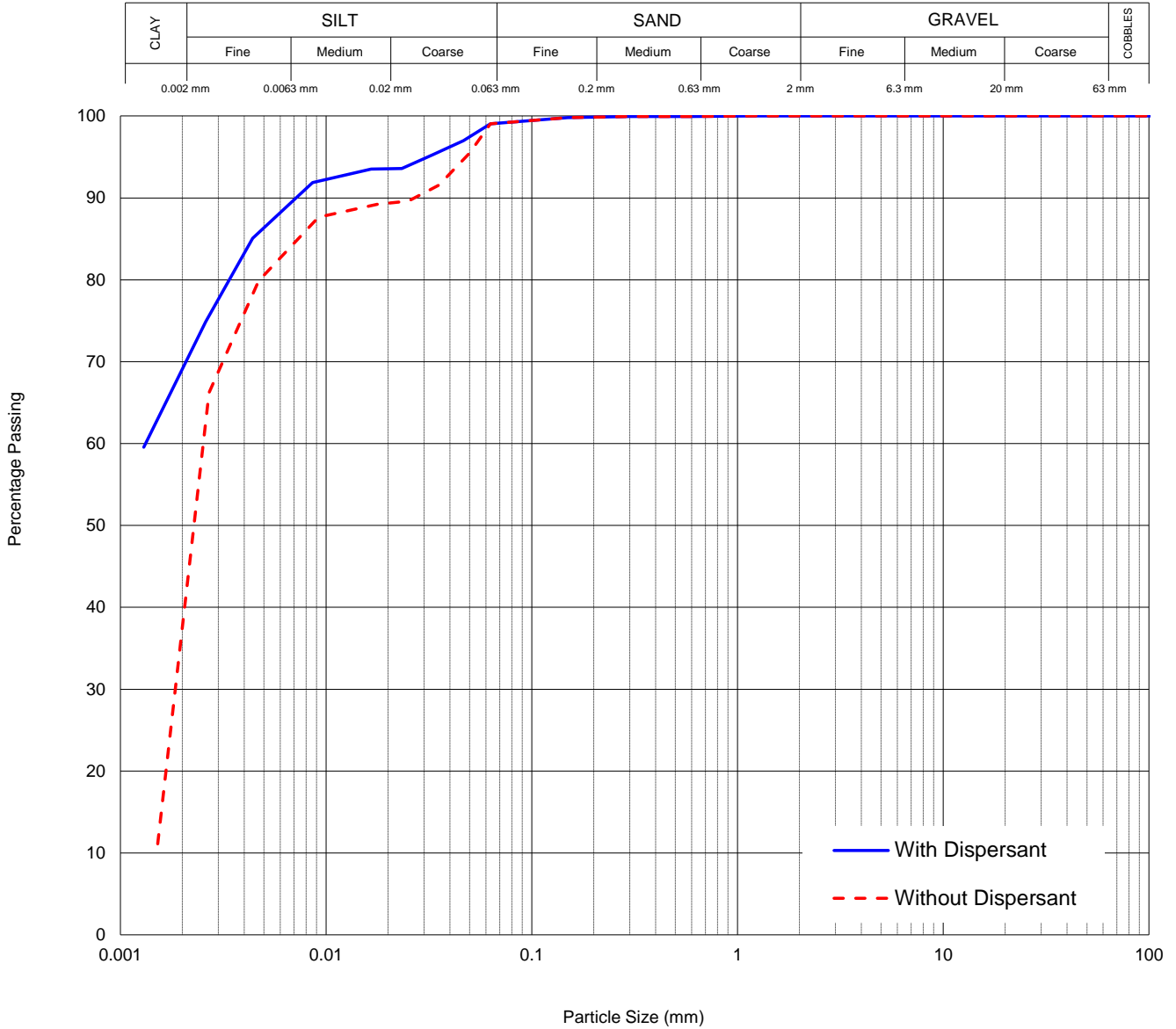
**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09**



DISPERSIBILITY - DISPERSION METHOD

BH / TP No. BH02
 Sample Ref D7
 Depth (m) 4.20
 Sample Type D

Description
 Dark grey slightly sandy, silty CLAY.



Without Dispersant	%	33
With Dispersant	%	68
Dispersion	%	49

Project Number:

GEO / 31949

Project Name:

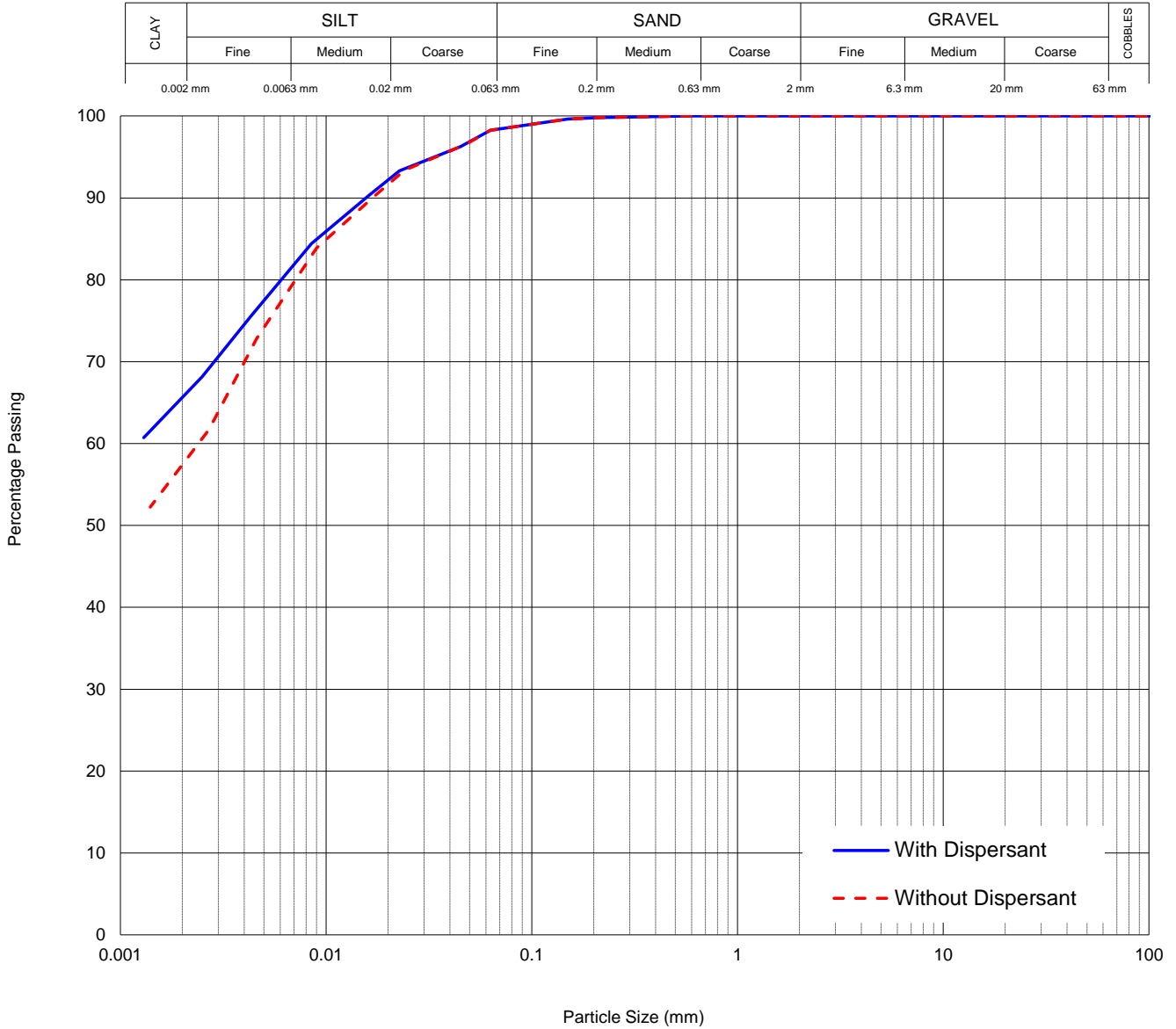
**CAMBRIDGE WWTP RELOCATION
 GNB/20.245/00/10**



DISPERSIBILITY - DISPERSION METHOD

BH / TP No.	BH02
Sample Ref	D17
Depth (m)	16.00
Sample Type	D

Description
Grey slightly sandy, silty CLAY.



Without Dispersant	%	57
With Dispersant	%	65
Dispersion	%	88

Project Number:

GEO / 31949

Project Name:

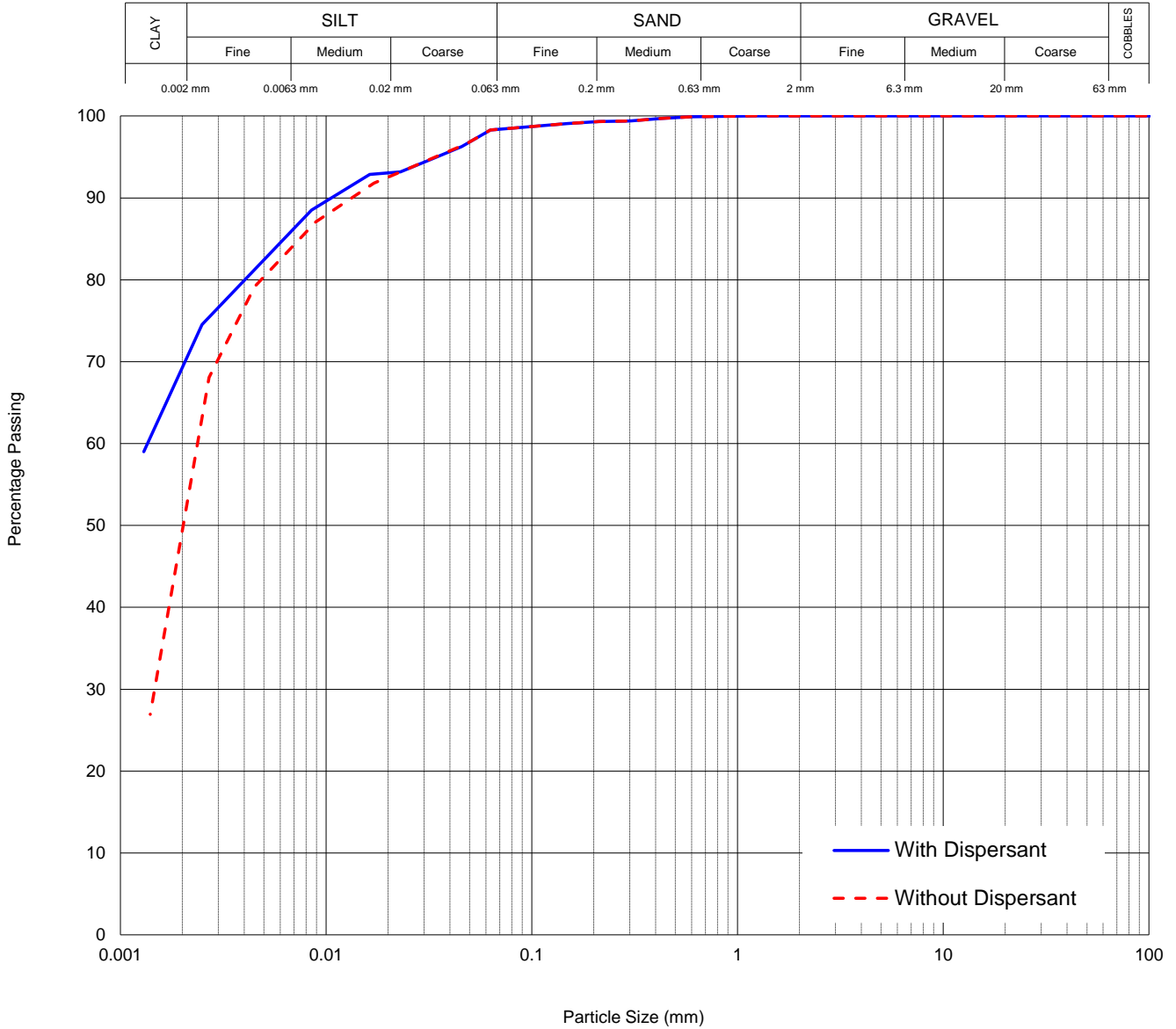
**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/10**



DISPERSIBILITY - DISPERSION METHOD

BH / TP No.	BH02
Sample Ref	D27
Depth (m)	34.00
Sample Type	D

Description	Dark grey slightly sandy, silty CLAY.
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Without Dispersant	%	46
With Dispersant	%	68
Dispersion	%	68

Project Number:

GEO / 31949

Project Name:

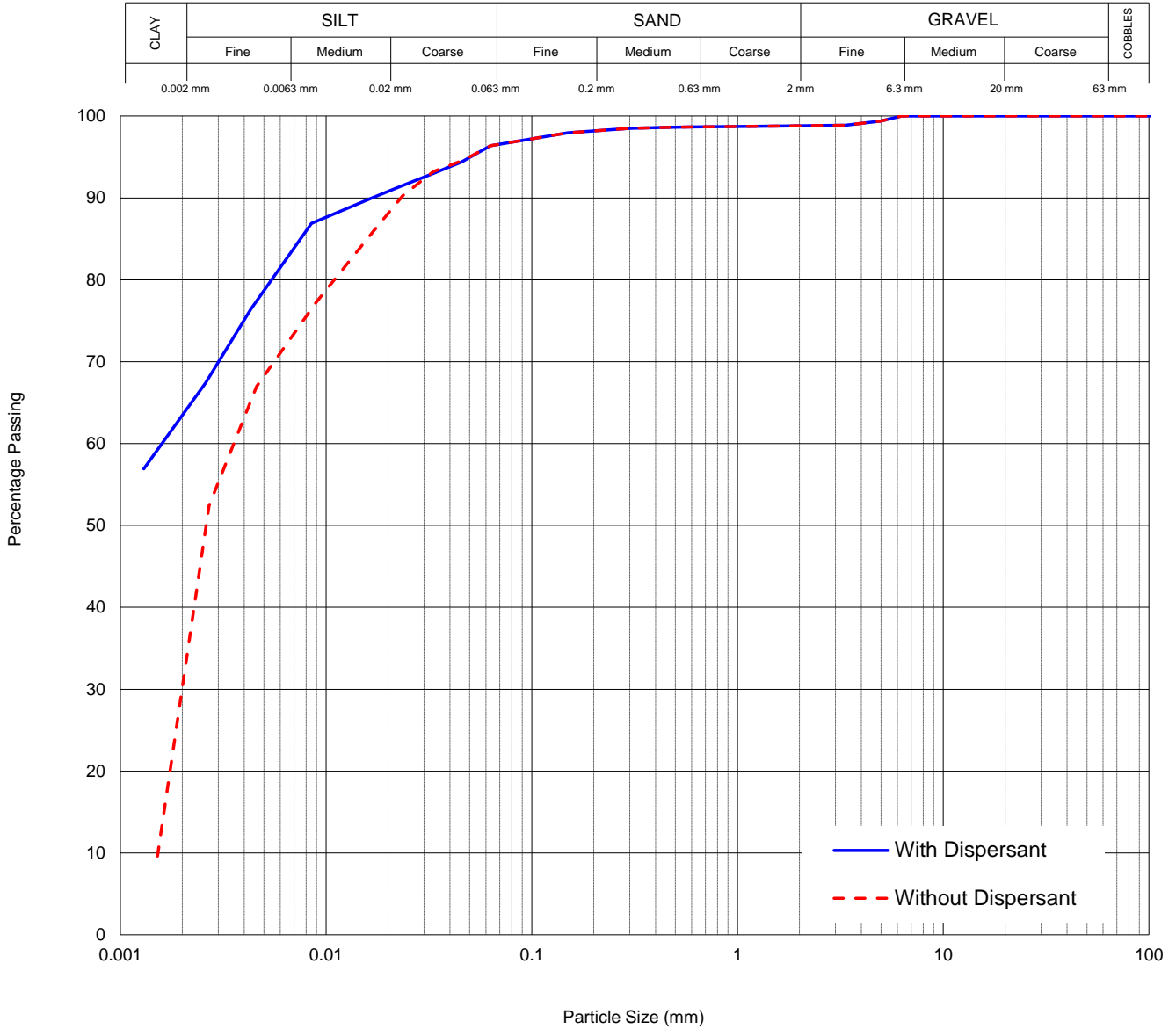
**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/10**



DISPERSIBILITY - DISPERSION METHOD

BH / TP No.	BH03
Sample Ref	D22
Depth (m)	19.50
Sample Type	D

Description	Grey slightly sandy silty CLAY with rare fine to medium gravel.
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Without Dispersant	%	27
With Dispersant	%	63
Dispersion	%	43

Project Number:

GEO / 31786

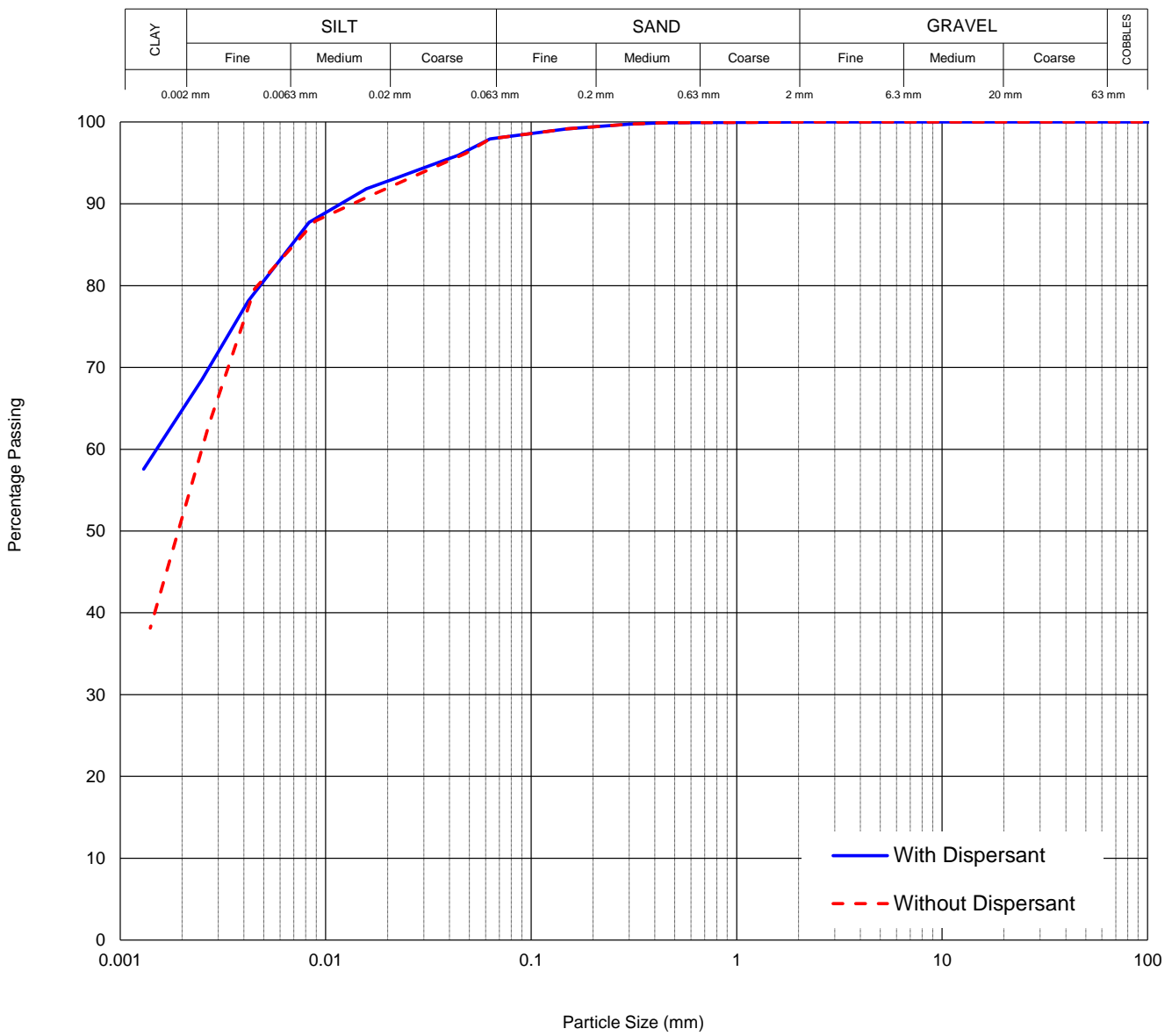
Project Name:

**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06**



DISPERSIBILITY - DISPERSION METHOD

BH / TP No. Sample Ref Depth (m) Sample Type	BH04 D11 13.00 D	Description Grey slightly sandy silty CLAY.
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Without Dispersant	%	50
With Dispersant	%	64
Dispersion	%	78

Project Number: **GEO / 31731**

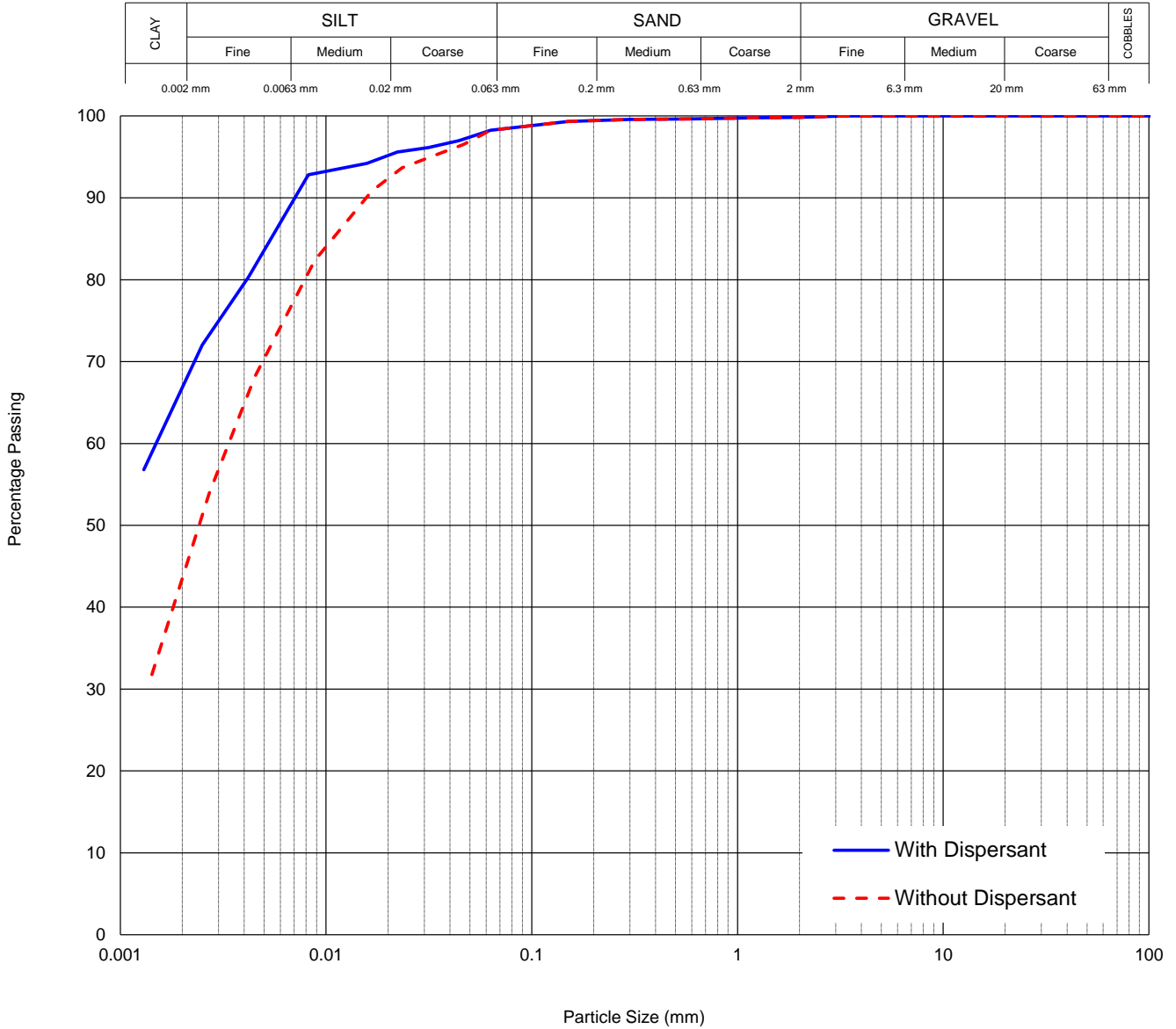
Project Name: **CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



DISPERSIBILITY - DISPERSION METHOD

BH / TP No.	BH05
Sample Ref	D21
Depth (m)	14.60
Sample Type	D

Description
Grey slightly sandy silty CLAY.



Without Dispersant	%	42
With Dispersant	%	66
Dispersion	%	64

Project Number:

GEO / 31731

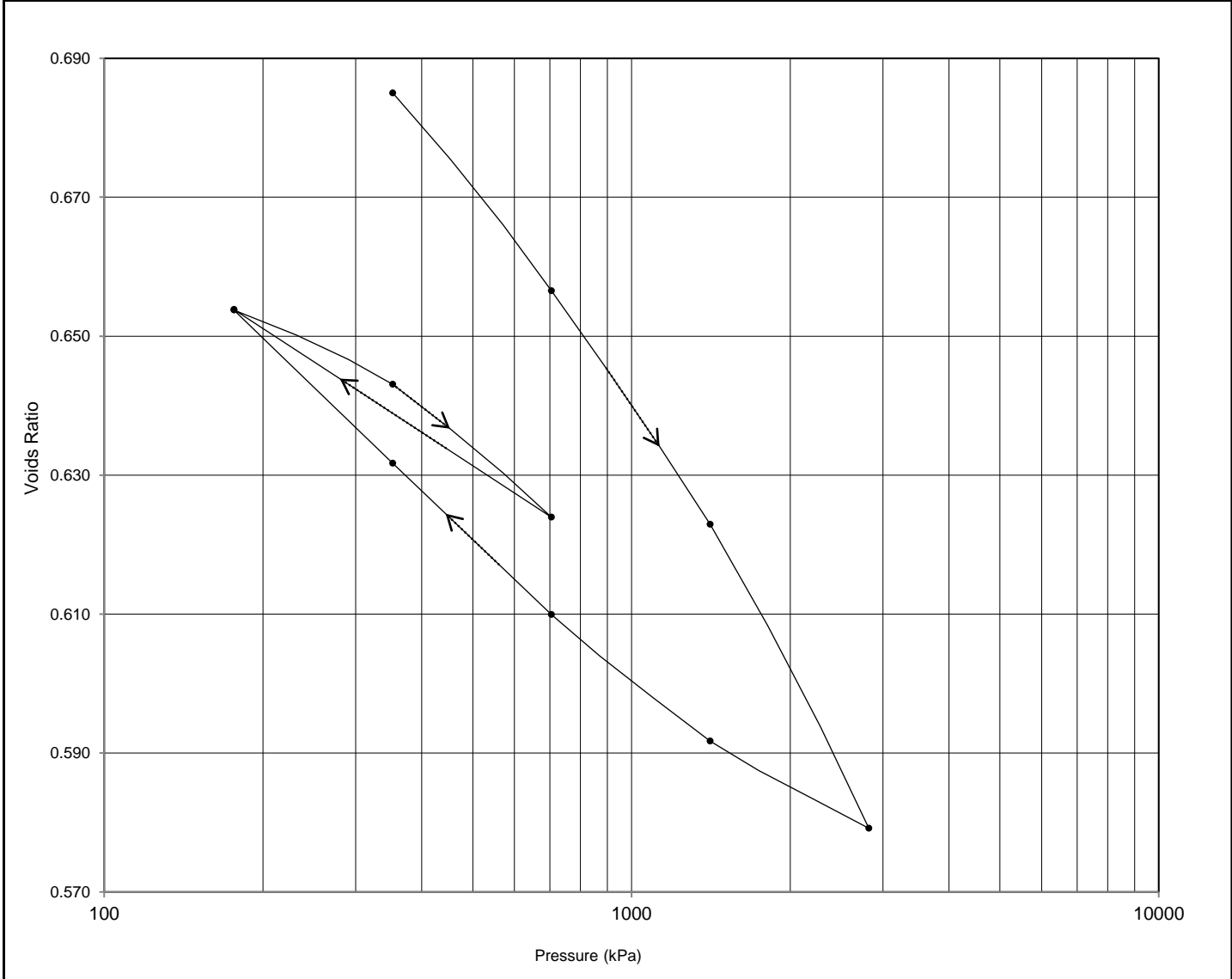
Project Name:

**CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



INCREMENTAL LOADING OEDOMETER TEST

Location	BH01	Description: Very stiff fissured dark grey silty CLAY with rare fine gravel.
Sample Ref.	CS3	
Depth (m)	14.10	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:

Height	(mm)	16.99	Water Content	(%)	27.8	(from trimmings)
Diameter	(mm)	74.48	Voids Ratio		0.724	
Area	(mm ²)	4357	Bulk Density	(Mg/m ³)	2.00	
Volume	(cm ³)	74.02	Dry Density	(Mg/m ³)	1.57	
Laboratory Temperature	(°C)	20.1	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31909
	Test Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/09



11/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location BH01
 Sample Ref. CS3
 Depth (m) 14.10
 Sample Type C
 Depth within original (mm) 10
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Very stiff fissured dark grey silty CLAY with rare fine gravel.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 353	0.065	2.9	t50	2.53	0.685
353 - 705	0.048	1.9	t50	3.70	0.657
705 - 1410	0.029	2.7	t50	2.52	0.623
1410 - 2820	0.019	3.0	t50	2.17	0.579
2820 - 1410	0.0056	1 (Sv)	t50	2.31	0.592
1410 - 705	0.016	1.6 (Sv)	t50	3.96	0.610
705 - 353	0.038	0.75 (Sv)	t50	8.84	0.632
353 - 176	0.076	0.42 (Sv)	t50	16.1	0.654
176 - 353	0.036	1.1	t50	6.53	0.643
353 - 705	0.033	1.3	t50	5.12	0.624
705 - 176	0.035	0.86 (Sv)	t50	7.86	0.654

C

t Number:

GEO / 31909

t Name:

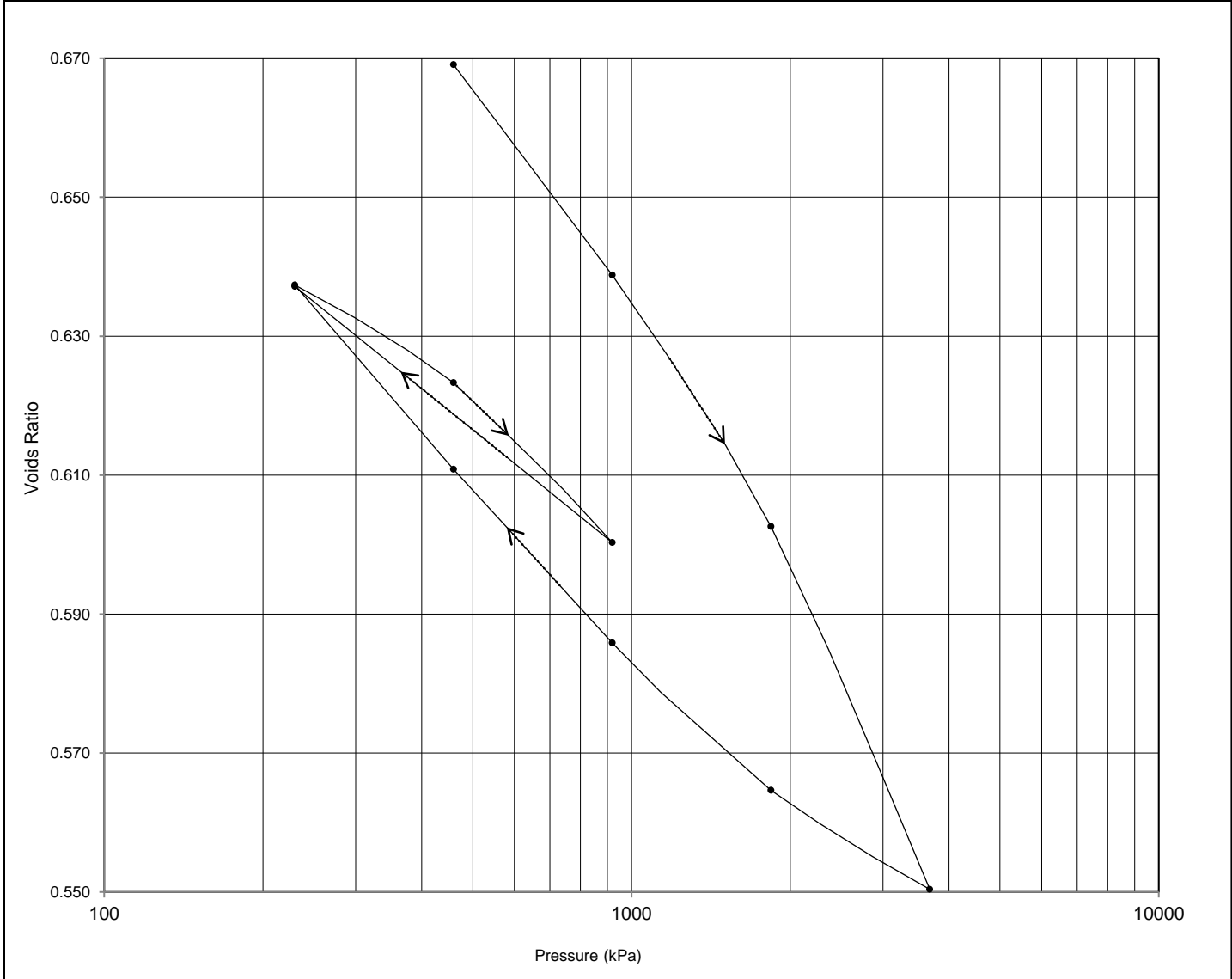
CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09

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11/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH01	Description: Very stiff dark grey fissured silty CLAY with rare fine to medium gravel.
Sample Ref.	CS5	
Depth (m)	18.40	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:					
Height	(mm)	17.99	Water Content (%)	27.9	(from trimmings)
Diameter	(mm)	63.36	Voids Ratio	0.726	
Area	(mm ²)	3153	Bulk Density (Mg/m ³)	2.00	
Volume	(cm ³)	56.72	Dry Density (Mg/m ³)	1.56	
Laboratory Temperature	(°C)	20.8	Particle density (Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation (%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31909
	Test Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/09



INCREMENTAL LOADING OEDOMETER TEST

Location BH01
 Sample Ref. CS5
 Depth (m) 18.40
 Sample Type C
 Depth within original (mm) 10
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Very stiff dark grey fissured silty CLAY with rare fine to medium gravel.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 460	0.072	1.8	t50	4.61	0.669
460 - 920	0.039	1.8	t50	4.23	0.639
920 - 1840	0.024	3.0	t50	2.51	0.603
1840 - 3680	0.018	4.2	t50	1.69	0.550
3680 - 1840	0.0050	2.9 (Sv)	t50	2.40	0.565
1840 - 920	0.015	1.4 (Sv)	t50	5.11	0.586
920 - 460	0.034	0.70 (Sv)	t50	10.3	0.611
460 - 230	0.072	0.42 (Sv)	t50	17.7	0.637
230 - 460	0.037	1.3	t50	5.97	0.623
460 - 920	0.031	1.4	t50	5.16	0.600
920 - 230	0.033	0.80 (Sv)	t50	9.31	0.637

C

t Number:

GEO / 31909

t Name:

CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09

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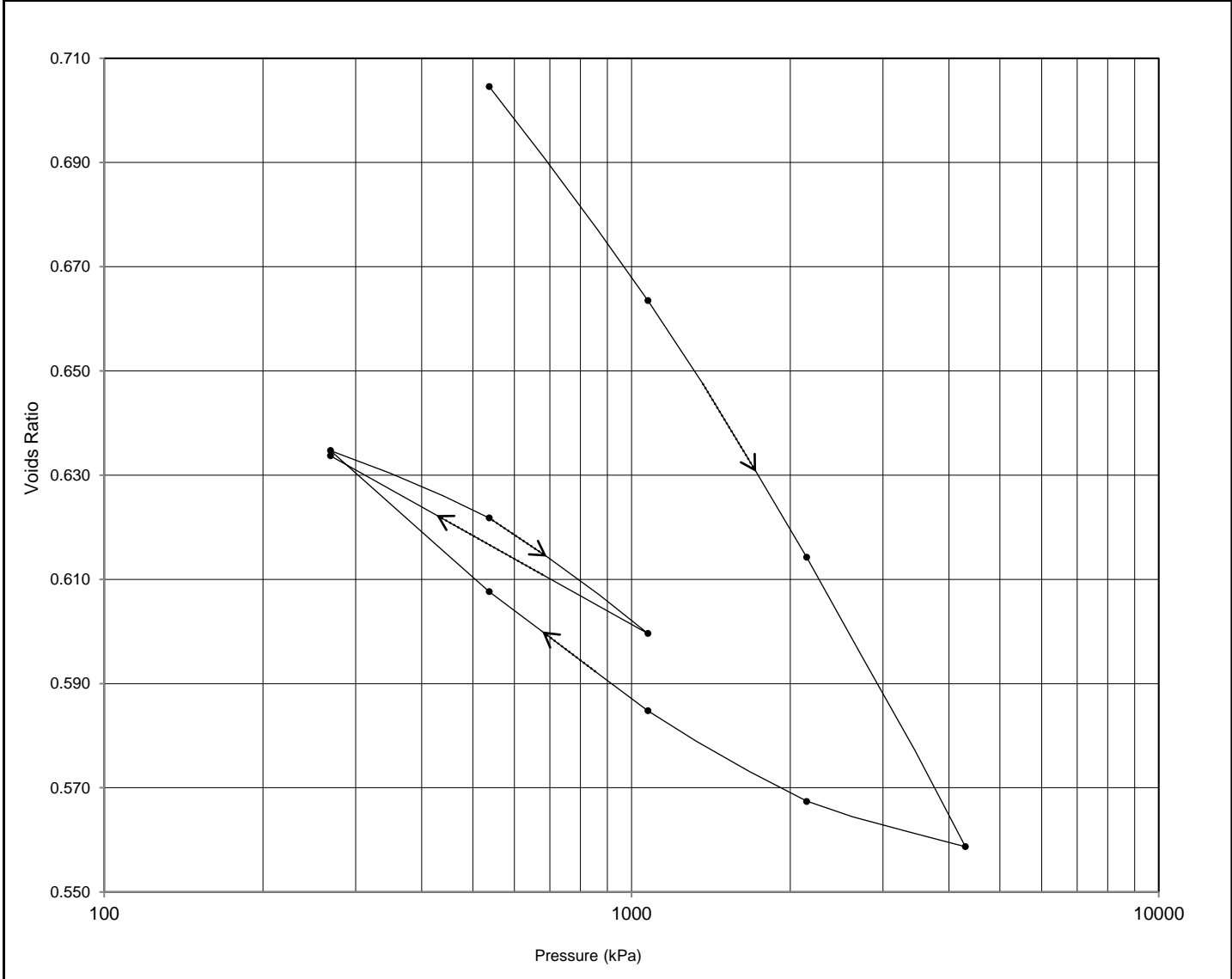
11/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH01
Sample Ref.	CS7
Depth (m)	21.50
Sample Type	C
Depth within original (mm)	10
Orientation within original	Vertical
Specimen preparation	Undisturbed

Description:

Very stiff fissured dark grey silty CLAY with rare fine gravel.



Initial Conditions:

Height	(mm)	17.98	Water Content	(%)	29.9	(from trimmings)
Diameter	(mm)	63.35	Voids Ratio		0.814	
Area	(mm ²)	3152	Bulk Density	(Mg/m ³)	1.93	
Volume	(cm ³)	56.67	Dry Density	(Mg/m ³)	1.49	
Laboratory Temperature	(°C)	21.2	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	99.4	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31909
	Test Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/09



11/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location BH01
 Sample Ref. CS7
 Depth (m) 21.50
 Sample Type C
 Depth within original (mm) 10
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Very stiff fissured dark grey silty CLAY with rare fine gravel.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 538	0.11	2.4	t50	3.23	0.705
538 - 1075	0.045	2.5	t50	2.85	0.663
1075 - 2150	0.028	2.5	t50	2.75	0.614
2150 - 4300	0.016	3.2	t50	1.99	0.559
4300 - 2150	0.0026	5.4 (Sv)	t50	1.15	0.567
2150 - 1075	0.010	1.5 (Sv)	t50	4.32	0.585
1075 - 538	0.027	0.90 (Sv)	t50	7.27	0.608
538 - 269	0.063	0.42 (Sv)	t50	15.9	0.635
269 - 538	0.029	1.6	t50	4.25	0.622
538 - 1075	0.025	1.6	t50	4.16	0.600
1075 - 269	0.026	0.94 (Sv)	t50	7.14	0.634

C

t Number:

GEO / 31909

t Name:

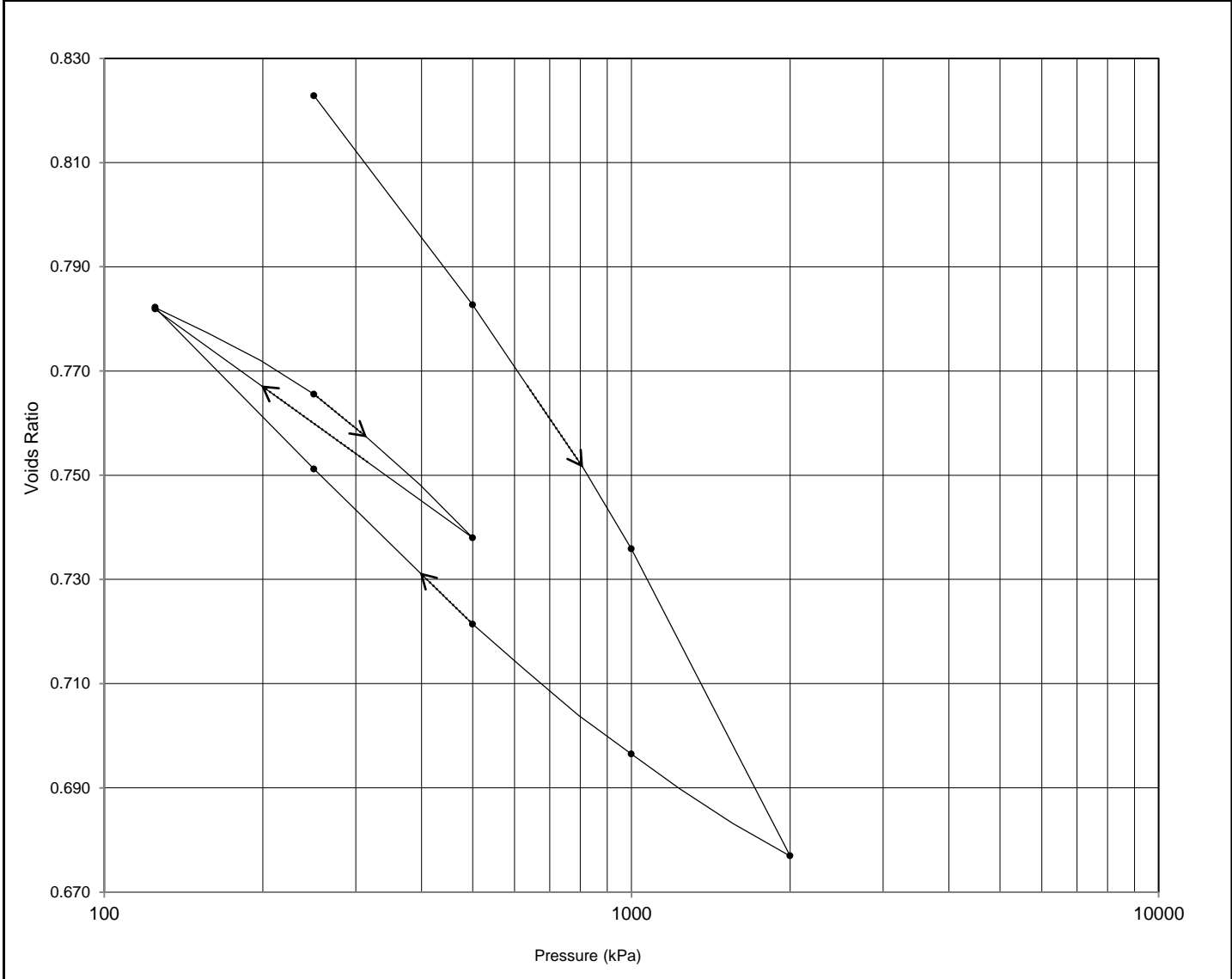
CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09

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11/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH02	Description: Stiff fissured dark grey CLAY with rare belemnites.
Sample Ref.	CS2	
Depth (m)	10.00	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:

Height	(mm)	16.99	Water Content	(%)	32.3	Initial *	Final	30.8	(* from trimmings)
Diameter	(mm)	74.97	Voids Ratio		0.877				
Area	(mm ²)	4414	Bulk Density	(Mg/m ³)	1.90				
Volume	(cm ³)	75.00	Dry Density	(Mg/m ³)	1.44				
Laboratory Temperature	(°C)	18.5	Particle density	(Mg/m ³)	2.70	(Assumed)			
			Degree of Saturation	(%)	99.4				

Results have been corrected for equipment deformation

C — < J A	Test Number:	GEO / 31949
	Test Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/10
	19/11/2020	



INCREMENTAL LOADING OEDOMETER TEST

Location BH02
 Sample Ref. CS2
 Depth (m) 10.00
 Sample Type C
 Depth within original (mm) 10
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Stiff fissured dark grey CLAY with rare belemnites.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 250	0.12	2.5	t50	2.87	0.823
250 - 500	0.088	1.7	t50	4.12	0.783
500 - 1000	0.053	1.8	t50	3.59	0.736
1000 - 2000	0.034	2.1	t50	3.01	0.677
2000 - 1000	0.012	2.9 (Sv)	t50	2.06	0.696
1000 - 500	0.029	1.3 (Sv)	t50	4.94	0.721
500 - 250	0.069	0.56 (Sv)	t50	11.4	0.751
250 - 125	0.14	0.38 (Sv)	t50	17.3	0.782
125 - 250	0.075	1.0	t50	6.53	0.766
250 - 500	0.062	1.2	t50	5.68	0.738
500 - 125	0.067	0.72 (Sv)	t50	9.14	0.782

C

t Number:

GEO / 31949

t Name:

CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/10

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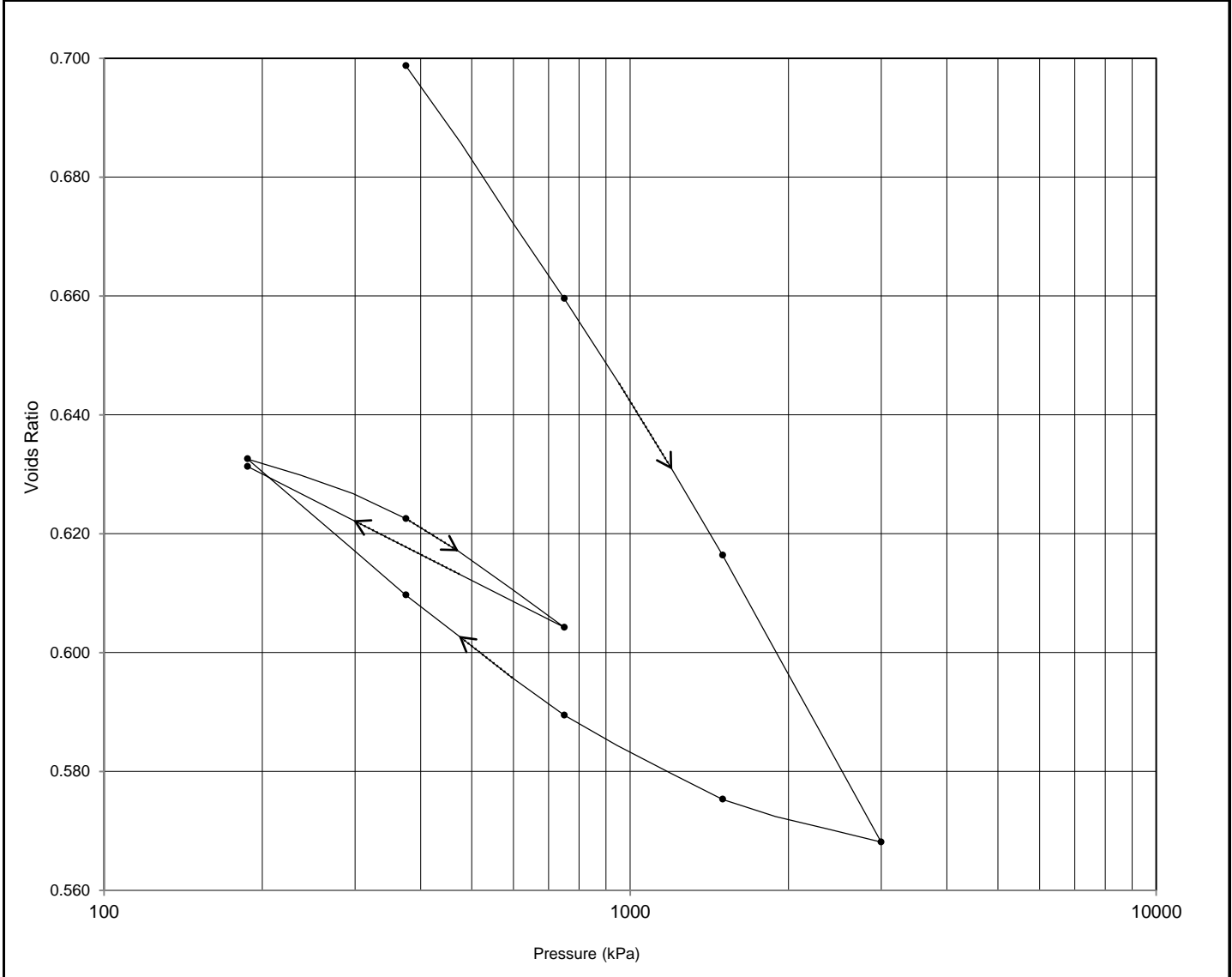
19/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH02
Sample Ref.	CS4
Depth (m)	14.00
Sample Type	C
Depth within original (mm)	15
Orientation within original	Vertical
Specimen preparation	Undisturbed

Description:

Stiff fissured dark grey mottled brownish grey CLAY with rare weak medium mudstone gravel.



Initial Conditions:			Initial *	Final	
Height	(mm)	16.80	Water Content (%)	28.9	26.6 (* from trimmings)
Diameter	(mm)	74.89	Voids Ratio	0.785	
Area	(mm ²)	4405	Bulk Density (Mg/m ³)	1.95	
Volume	(cm ³)	74.00	Dry Density (Mg/m ³)	1.51	
Laboratory Temperature	(°C)	18.4	Particle density (Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation (%)	99.5	

Results have been corrected for equipment deformation

C — < J A	t Number: t Name:	GEO / 31949 CAMBRIDGE WWTP RELOCATION GNB/20.245/00/10
	Results have been corrected for equipment deformation	
	19/11/2020	



INCREMENTAL LOADING OEDOMETER TEST

Location BH02
 Sample Ref. CS4
 Depth (m) 14.00
 Sample Type C
 Depth within original (mm) 15
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Stiff fissured dark grey mottled brownish grey CLAY with rare weak medium mudstone gravel.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 375	0.13	3.8	t50	1.86	0.699
375 - 750	0.061	3.9	t50	1.66	0.660
750 - 1500	0.035	4.5	t50	1.39	0.616
1500 - 3000	0.020	4.4	t50	1.34	0.568
3000 - 1500	0.0031	7.7 (Sv)	t50	0.743	0.575
1500 - 750	0.012	3.7 (Sv)	t50	1.54	0.589
750 - 375	0.034	1.5 (Sv)	t50	3.85	0.610
375 - 187.5	0.076	0.71 (Sv)	t50	8.57	0.633
187.5 - 375	0.033	2.6	t50	2.36	0.623
375 - 750	0.030	3.1	t50	1.92	0.604
750 - 187.5	0.030	1.5 (Sv)	t50	3.91	0.631

Test Number:

GEO / 31949

Test Name:

**CAMBRIDGE WWTP RELOCATION
 GNB/20.245/00/10**

GEOLABS



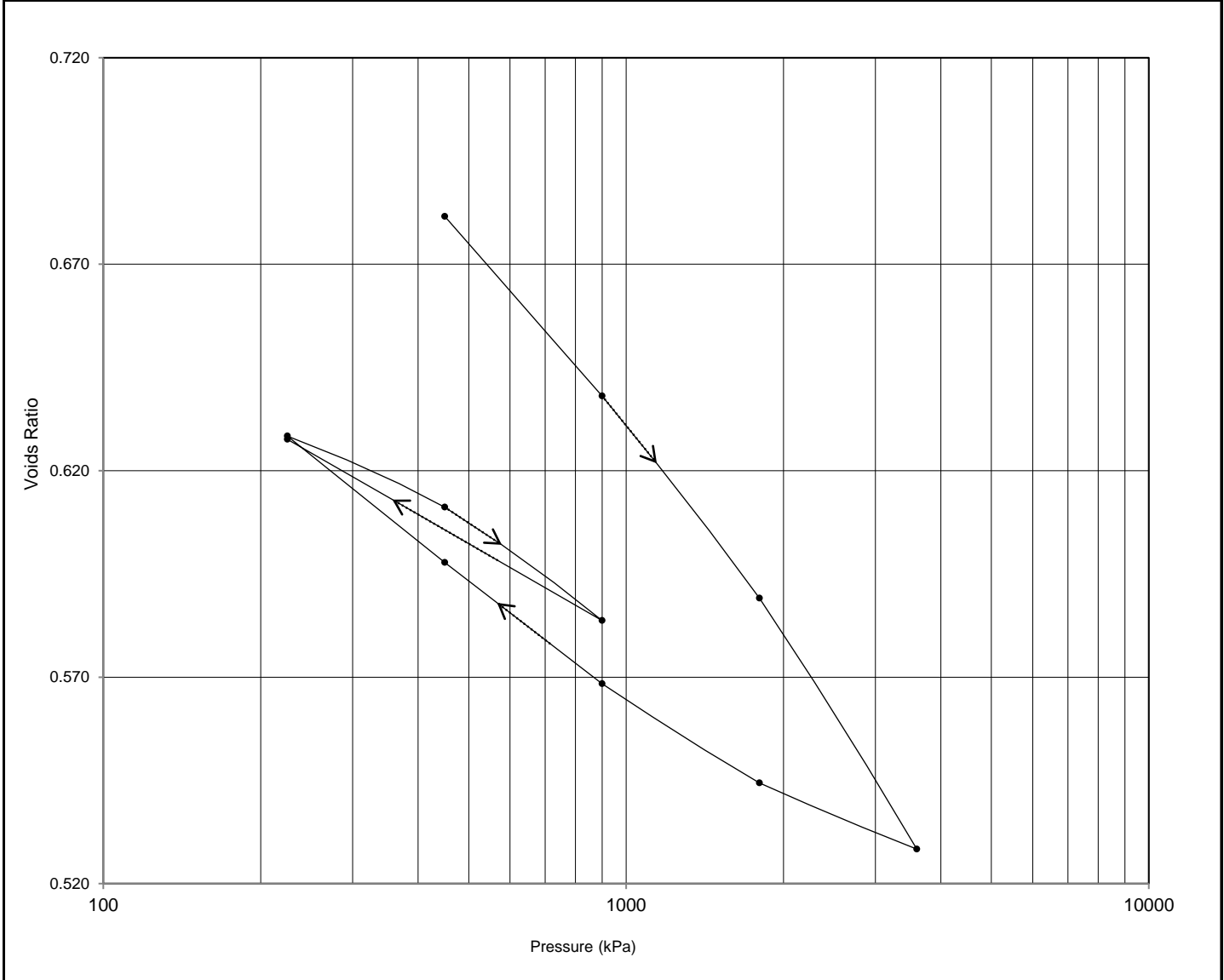
19/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH02
Sample Ref.	CS6
Depth (m)	17.50
Sample Type	C
Depth within original (mm)	10
Orientation within original	Vertical
Specimen preparation	Undisturbed

Description:

Very stiff fissured dark grey silty CLAY with rare fine to medium gravel.



Initial Conditions:

Height	(mm)	16.51	Water Content	(%)	31.4	(from trimmings)
Diameter	(mm)	63.38	Voids Ratio		0.791	
Area	(mm ²)	3155	Bulk Density	(Mg/m ³)	1.98	
Volume	(cm ³)	52.09	Dry Density	(Mg/m ³)	1.51	
Laboratory Temperature	(°C)	20.3	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31949
	Test Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/10



INCREMENTAL LOADING OEDOMETER TEST

Location BH02
 Sample Ref. CS6
 Depth (m) 17.50
 Sample Type C
 Depth within original (mm) 10
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Very stiff fissured dark grey silty CLAY with rare fine to medium gravel.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 450	0.14	1.5	t50	4.30	0.682
450 - 900	0.057	1.7	t50	3.62	0.638
900 - 1800	0.033	1.8	t50	3.22	0.589
1800 - 3600	0.021	1.6	t50	3.32	0.528
3600 - 1800	0.0058	2.6 (Sv)	t50	2.04	0.544
1800 - 900	0.017	1.2 (Sv)	t50	4.60	0.568
900 - 450	0.042	0.62 (Sv)	t50	8.97	0.598
450 - 225	0.085	0.32 (Sv)	t50	18.0	0.628
225 - 450	0.047	0.84	t50	6.93	0.611
450 - 900	0.038	1.1	t50	5.35	0.584
900 - 225	0.041	0.69 (Sv)	t50	8.23	0.628

C

t Number:

GEO / 31949

t Name:

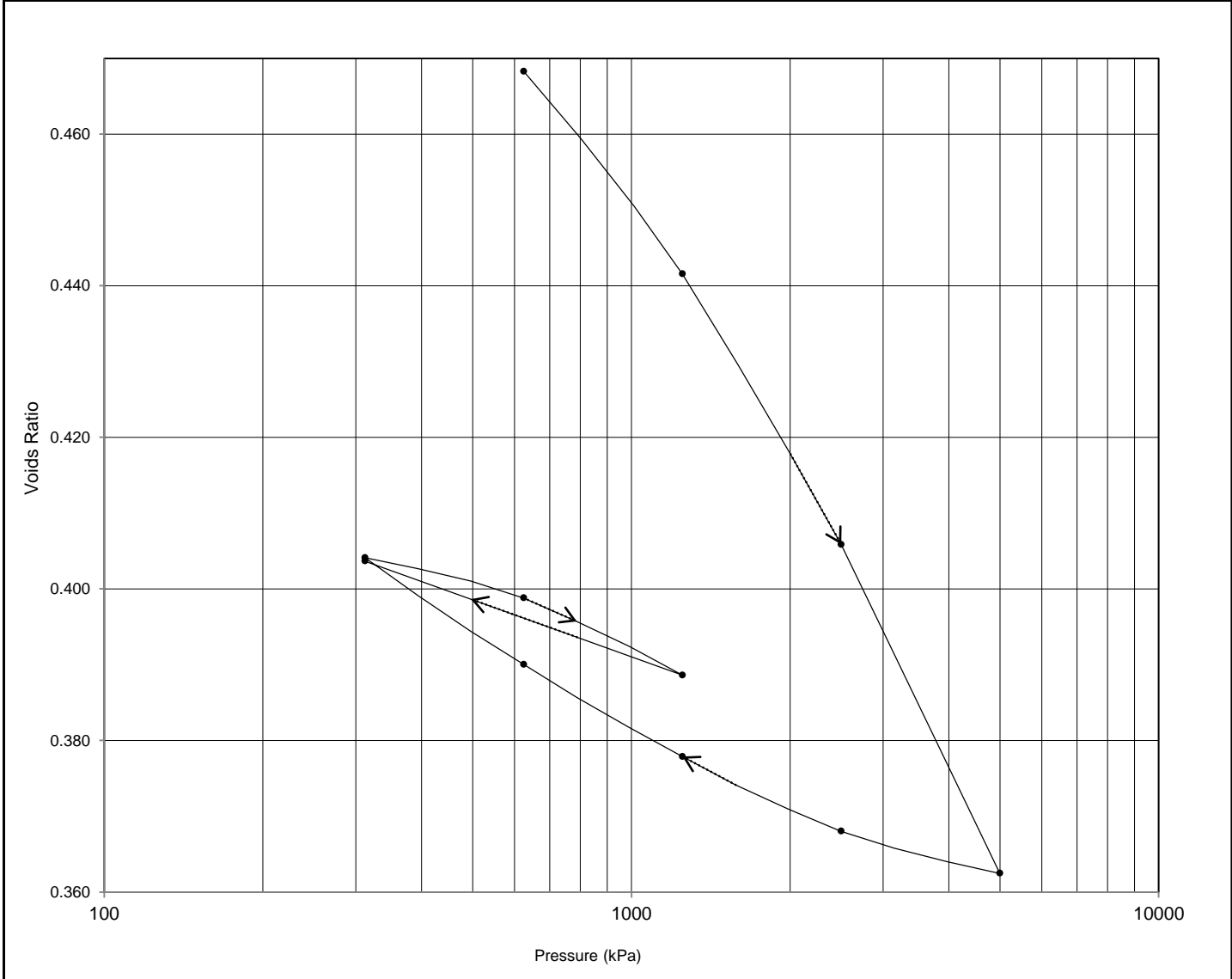
CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/10

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14/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH02	Description: Very stiff thinly laminated dark grey mottled brownish grey very sandy silty CLAY. Sand is fine to medium.
Sample Ref.	CS8	
Depth (m)	23.00	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:				Initial *	Final	
Height	(mm)	17.00	Water Content	(%)	21.0	18.3 (* from trimmings)
Diameter	(mm)	49.99	Voids Ratio		0.521	
Area	(mm ²)	1963	Bulk Density	(Mg/m ³)	2.15	
Volume	(cm ³)	33.37	Dry Density	(Mg/m ³)	1.78	
Laboratory Temperature	(°C)	18.2	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C — < J A	Test Number:	GEO / 31949
	Test Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/10
	19/11/2020	



INCREMENTAL LOADING OEDOMETER TEST

Location BH02
 Sample Ref. CS8
 Depth (m) 23.00
 Sample Type C
 Depth within original (mm) 10
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Very stiff thinly laminated dark grey mottled brownish grey very sandy silty CLAY. Sand is fine to medium.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 625	0.055	14	t50	0.526	0.468
625 - 1250	0.029	8.3	t50	0.827	0.442
1250 - 2500	0.020	3.2	t50	2.07	0.406
2500 - 5000	0.012	1.4	t50	4.41	0.362
5000 - 2500	0.0016	4.5 (Sv)	t50	1.35	0.368
2500 - 1250	0.0058	1.8 (Sv)	t50	3.34	0.378
1250 - 625	0.014	0.60 (Sv)	t50	10.3	0.390
625 - 312.5	0.032	0.37 (Sv)	t50	17.2	0.404
312.5 - 625	0.012	2.2	t50	2.88	0.399
625 - 1250	0.012	2.0	t50	3.15	0.389
1250 - 312.5	0.012	0.88 (Sv)	t50	7.18	0.404

C

t Number:

GEO / 31949

t Name:

CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/10

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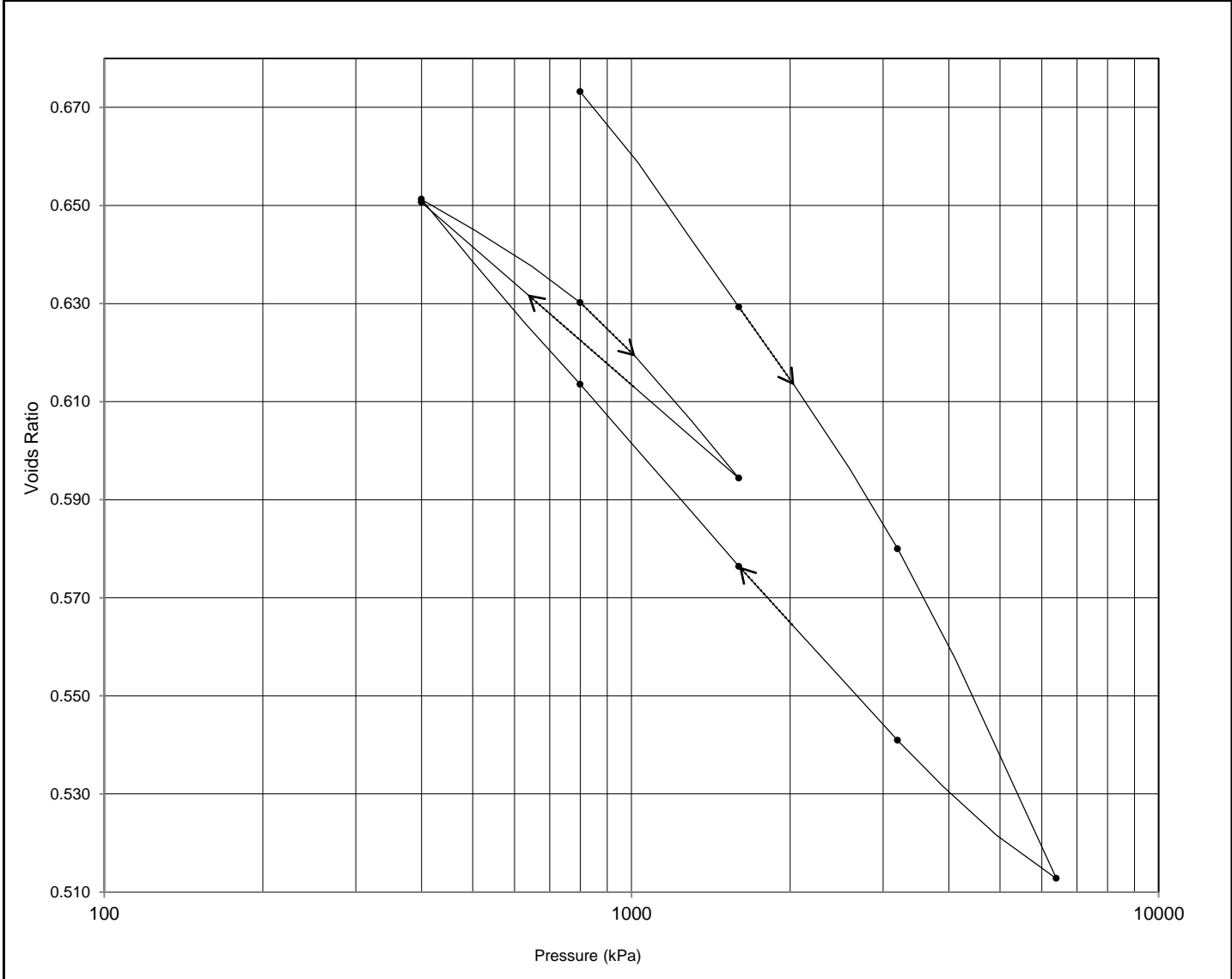
19/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH02
Sample Ref.	CS10
Depth (m)	31.70
Sample Type	C
Depth within original (mm)	10
Orientation within original	Vertical
Specimen preparation	Undisturbed

Description:

Stiff fissured dark grey CLAY.



Initial Conditions:				Initial *	Final	
Height	(mm)	17.01	Water Content	(%)	29.5	27.5 (* from trimmings)
Diameter	(mm)	49.88	Voids Ratio		0.736	
Area	(mm ²)	1954	Bulk Density	(Mg/m ³)	2.01	
Volume	(cm ³)	33.24	Dry Density	(Mg/m ³)	1.55	
Laboratory Temperature	(°C)	17.9	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

	Test Number:	GEO / 31949
	Test Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/10
	Client:	



INCREMENTAL LOADING OEDOMETER TEST

Location	BH02	Description: Stiff fissured dark grey CLAY.
Sample Ref.	CS10	
Depth (m)	31.70	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 800	0.046	0.19	t50	38.1	0.673
800 - 1600	0.033	0.16	t50	43.8	0.629
1600 - 3200	0.019	0.19	t50	33.0	0.580
3200 - 6400	0.013	0.18	t50	33.9	0.513
6400 - 3200	0.0058	0.25 (Sv)	t50	23.2	0.541
3200 - 1600	0.014	0.15 (Sv)	t50	40.2	0.576
1600 - 800	0.029	0.091 (Sv)	t50	69.4	0.614
800 - 400	0.058	0.066 (Sv)	t50	100.2	0.651
400 - 800	0.032	0.17	t50	40.1	0.630
800 - 1600	0.027	0.15	t50	43.0	0.594
1600 - 400	0.029	0.12 (Sv)	t50	56.2	0.651

C

t Number:

GEO / 31949

t Name:

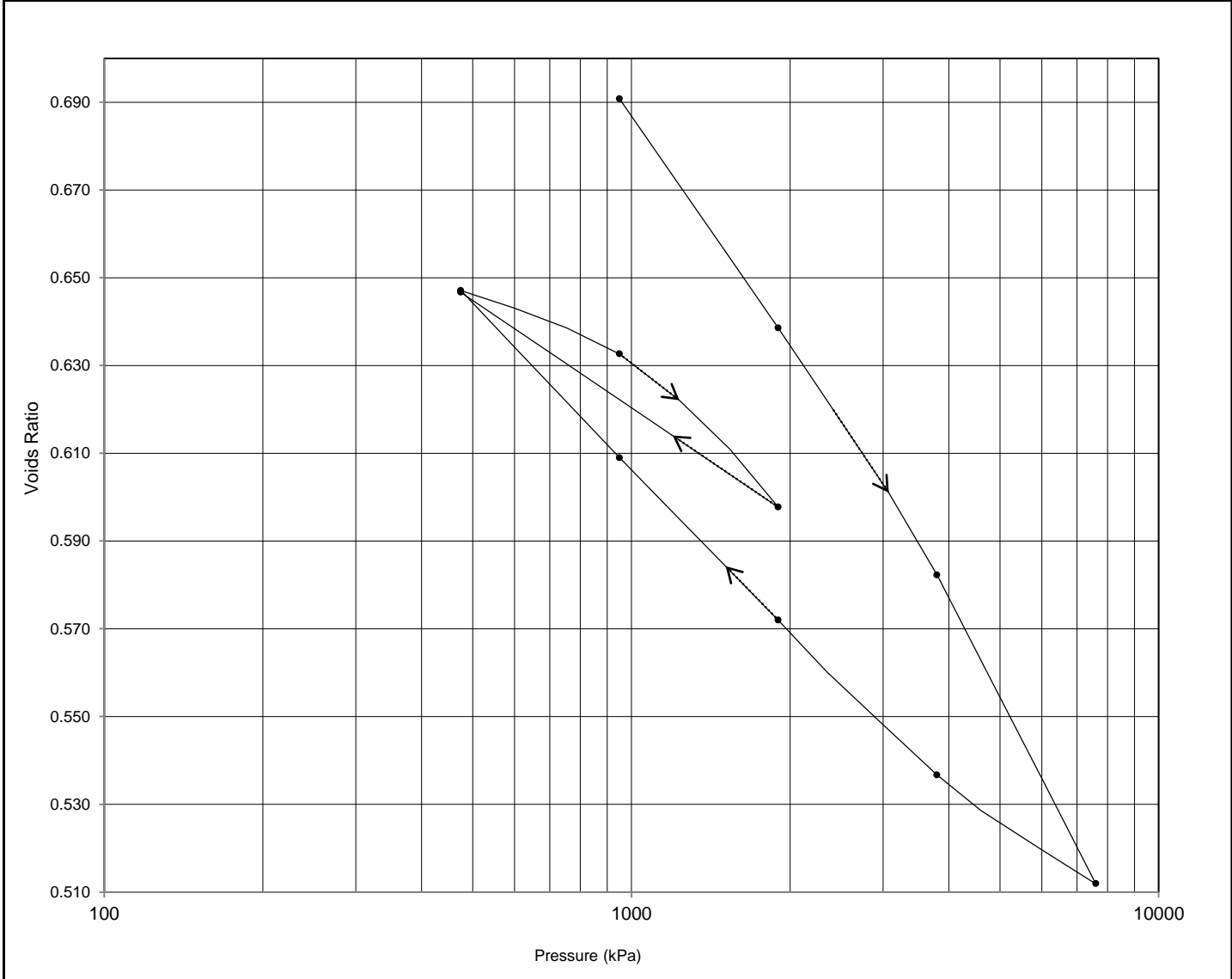
CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/10

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19/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH02	Description: Very stiff fissured dark grey CLAY.
Sample Ref.	CS12	
Depth (m)	37.60	
Sample Type	C	
Depth within original (mm)	5	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:				Initial *	Final	
Height	(mm)	17.01	Water Content	(%)	29.6	28.1 (* from trimmings)
Diameter	(mm)	38.08	Voids Ratio		0.781	
Area	(mm ²)	1139	Bulk Density	(Mg/m ³)	1.96	
Volume	(cm ³)	19.37	Dry Density	(Mg/m ³)	1.52	
Laboratory Temperature	(°C)	18.1	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C — < J A	Test Number:	GEO / 31949
	Test Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/10
	19/11/2020	



INCREMENTAL LOADING OEDOMETER TEST

Location	BH02	Description: Very stiff fissured dark grey CLAY.
Sample Ref.	CS12	
Depth (m)	37.60	
Sample Type	C	
Depth within original (mm)	5	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 950	0.054	0.27	t50	26.5	0.691
950 - 1900	0.033	0.19	t50	34.5	0.638
1900 - 3800	0.018	0.19	t50	31.6	0.582
3800 - 7600	0.012	0.15	t50	36.7	0.512
7600 - 3800	0.0043	0.23 (Sv)	t50	23.8	0.537
3800 - 1900	0.012	0.12 (Sv)	t50	47.2	0.572
1900 - 950	0.025	0.082 (Sv)	t50	72.8	0.609
950 - 475	0.050	0.059 (Sv)	t50	107	0.647
475 - 950	0.018	0.20	t50	31.7	0.633
950 - 1900	0.023	0.13	t50	48.3	0.598
1900 - 475	0.021	0.093 (Sv)	t50	66.7	0.647

C [REDACTED] t Number:

GEO / 31949

[REDACTED] t Name:

**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/10**

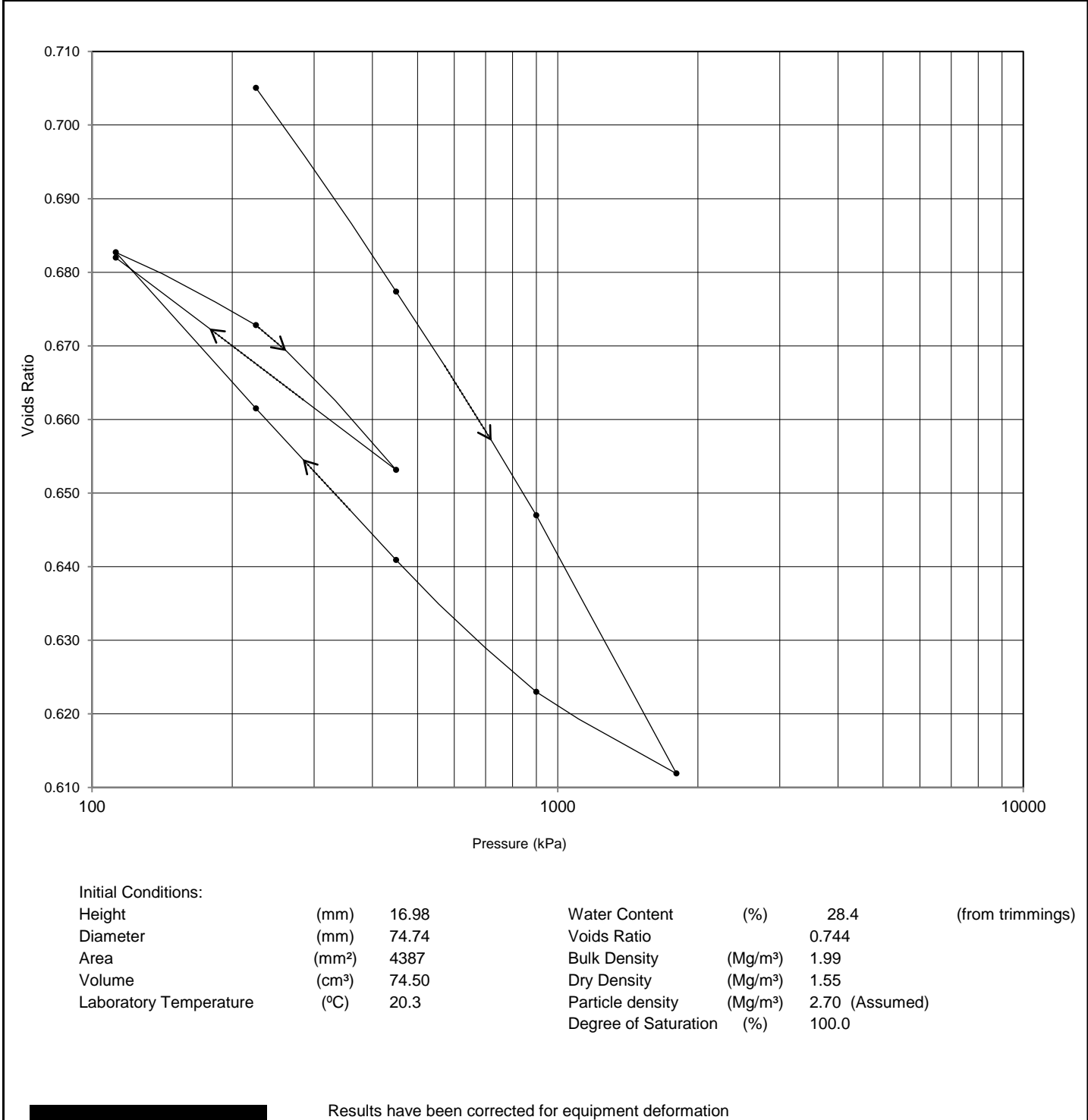
GEOLABS®



19/11/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH03	Description: Very stiff fissured greenish grey silty CLAY.
Sample Ref.	CS2	
Depth (m)	9.10	
Sample Type	C	
Depth within original (mm)	5	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:

Height	(mm)	16.98	Water Content	(%)	28.4	(from trimmings)
Diameter	(mm)	74.74	Voids Ratio		0.744	
Area	(mm ²)	4387	Bulk Density	(Mg/m ³)	1.99	
Volume	(cm ³)	74.50	Dry Density	(Mg/m ³)	1.55	
Laboratory Temperature	(°C)	20.3	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31786
	Test Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/06
	Test Date:	16/10/2020



INCREMENTAL LOADING OEDOMETER TEST

Location BH03
 Sample Ref. CS2
 Depth (m) 9.10
 Sample Type C
 Depth within original (mm) 5
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Very stiff fissured greenish grey silty CLAY.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 225	0.10	2.7	t50	2.70	0.705
225 - 450	0.072	2.4	t50	2.92	0.677
450 - 900	0.040	3.5	t50	1.95	0.647
900 - 1800	0.024	5.8	t50	1.12	0.612
1800 - 900	0.0076	7.0 (Sv)	t90	3.91	0.623
900 - 450	0.025	2.8 (Sv)	t50	2.35	0.641
450 - 225	0.056	1.1 (Sv)	t50	6.32	0.661
225 - 112.5	0.11	0.63 (Sv)	t50	10.9	0.683
112.5 - 225	0.052	2.0	t50	3.47	0.673
225 - 450	0.052	2.2	t50	3.12	0.653
450 - 112.5	0.052	1.5 (Sv)	t50	4.68	0.682

C

t Number:

GEO / 31786

t Name:

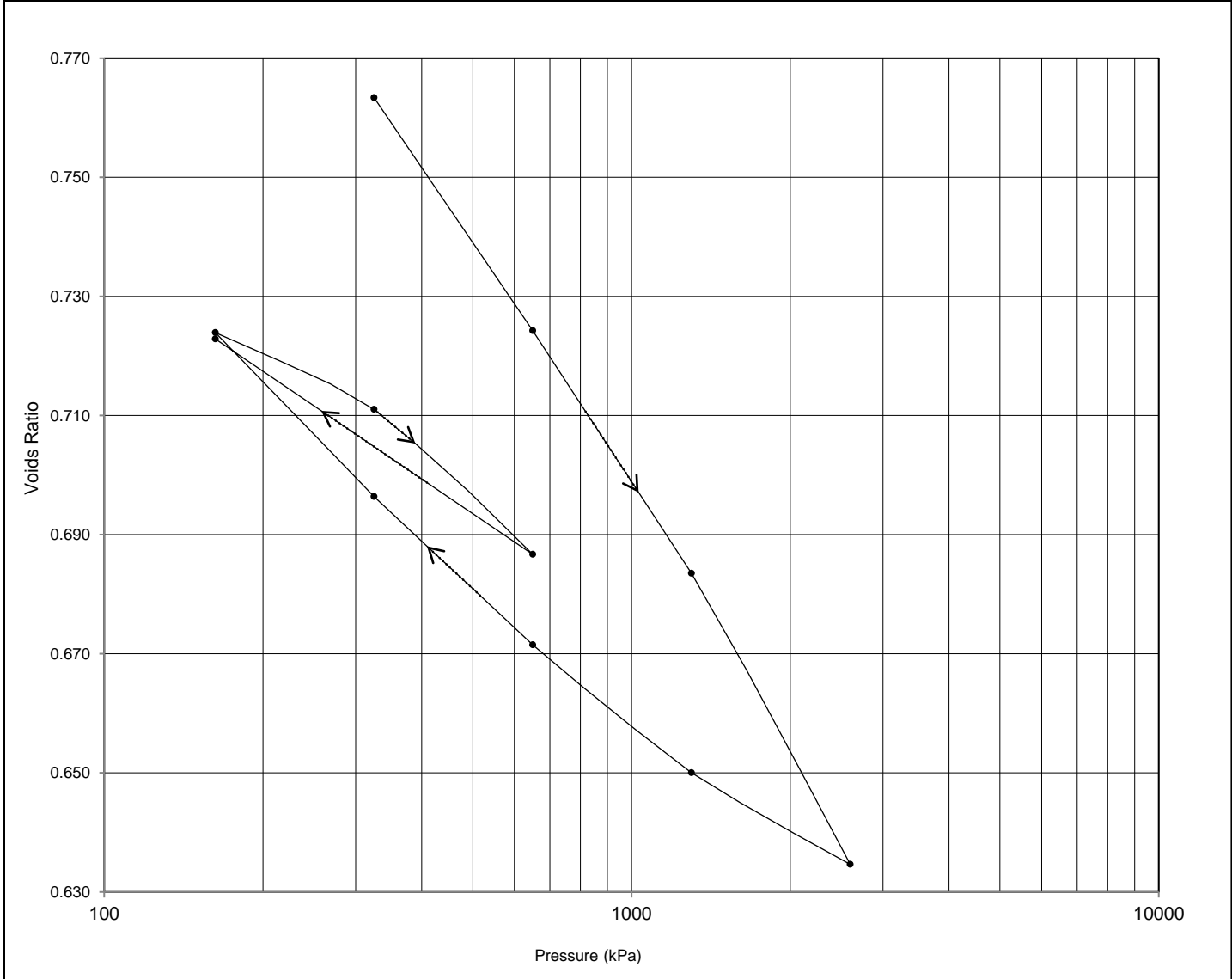
CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06

GEOLABS[®]

16/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH03	Description: Very stiff fissured greenish grey silty CLAY.
Sample Ref.	CS4	
Depth (m)	12.50	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:

Height	(mm)	16.88	Water Content	(%)	30.4	(from trimmings)
Diameter	(mm)	74.70	Voids Ratio		0.819	
Area	(mm ²)	4383	Bulk Density	(Mg/m ³)	1.94	
Volume	(cm ³)	73.98	Dry Density	(Mg/m ³)	1.48	
Laboratory Temperature	(°C)	20.4	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31786
	Test Name:	CAMBRIDGE WWTP RELOCATION
		GNB/20.245/00/06



INCREMENTAL LOADING OEDOMETER TEST

Location BH03
 Sample Ref. CS4
 Depth (m) 12.50
 Sample Type C
 Depth within original (mm) 10
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Very stiff fissured greenish grey silty CLAY.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 325	0.094	2.2	t50	3.32	0.763
325 - 650	0.068	1.9	t50	3.57	0.724
650 - 1300	0.036	2.4	t50	2.70	0.683
1300 - 2600	0.022	3.5	t50	1.77	0.635
2600 - 1300	0.0072	6.5 (Sv)	t90	3.95	0.650
1300 - 650	0.020	1.6 (Sv)	t50	3.96	0.672
650 - 325	0.046	0.75 (Sv)	t50	8.43	0.696
325 - 162.5	0.100	0.37 (Sv)	t50	17.5	0.724
162.5 - 325	0.046	1.2	t50	5.55	0.711
325 - 650	0.044	1.3	t50	4.89	0.687
650 - 162.5	0.044	0.89 (Sv)	t50	7.30	0.723

C

t Number:

GEO / 31786

t Name:

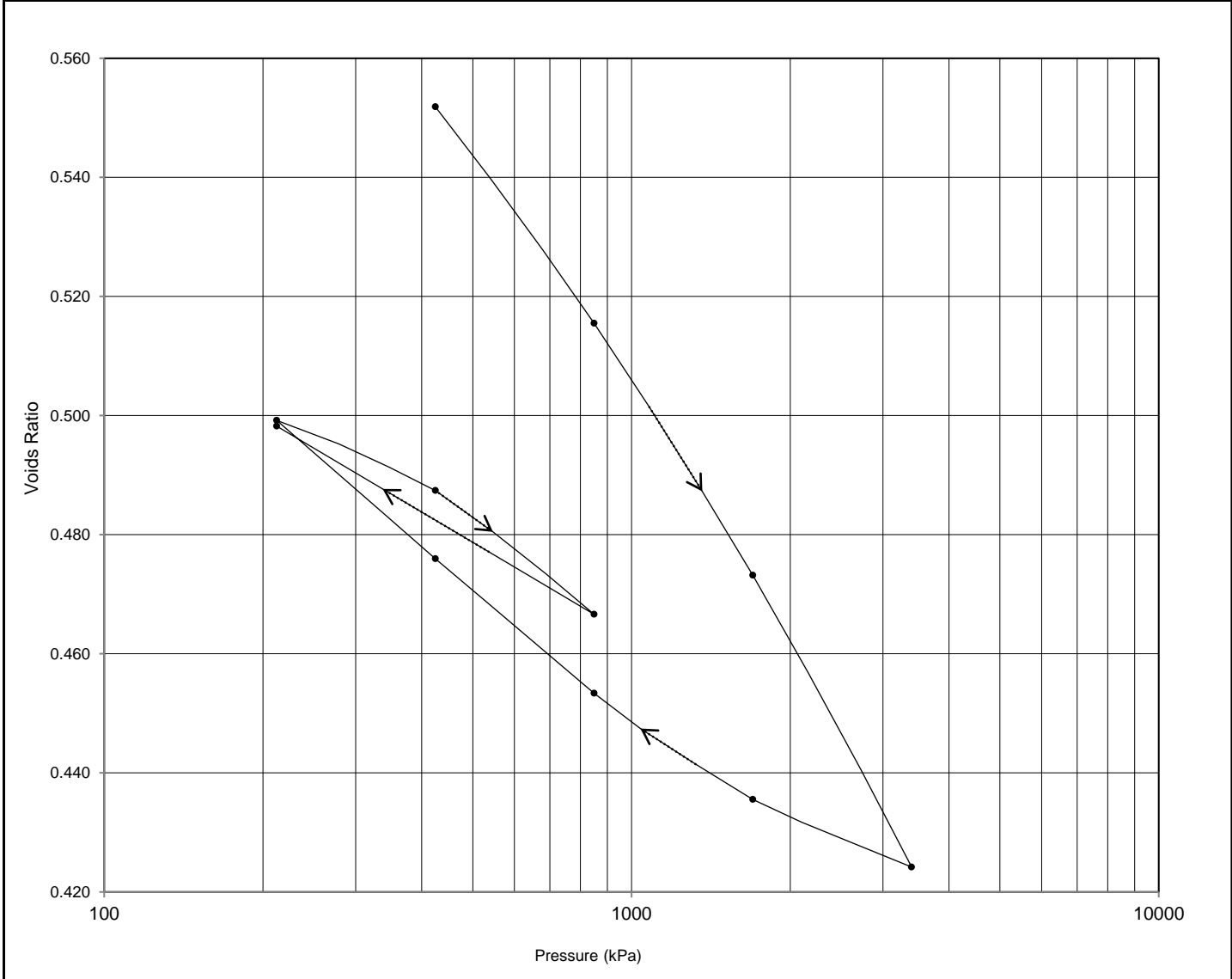
CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06

GEOLABS[®]

16/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH03	Description: Very stiff fissured dark grey silty CLAY.
Sample Ref.	CS6	
Depth (m)	17.00	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:

Height	(mm)	16.70	Water Content	(%)	24.9	(from trimmings)
Diameter	(mm)	63.54	Voids Ratio		0.652	
Area	(mm ²)	3171	Bulk Density	(Mg/m ³)	2.04	
Volume	(cm ³)	52.95	Dry Density	(Mg/m ³)	1.63	
Laboratory Temperature	(°C)	19.8	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31786
	Test Name:	CAMBRIDGE WWTP RELOCATION
		GNB/20.245/00/06



28/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location BH03
 Sample Ref. CS6
 Depth (m) 17.00
 Sample Type C
 Depth within original (mm) 10
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Very stiff fissured dark grey silty CLAY.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 425	0.14	2.3	t50	2.95	0.552
425 - 850	0.055	3.0	t50	2.09	0.516
850 - 1700	0.033	3.4	t50	1.75	0.473
1700 - 3400	0.020	3.5	t50	1.59	0.424
3400 - 1700	0.0047	5.4 (Sv)	t50	1.001	0.436
1700 - 850	0.015	2.5 (Sv)	t50	2.24	0.453
850 - 425	0.037	1.4 (Sv)	t50	4.18	0.476
425 - 212.5	0.074	0.66 (Sv)	t50	8.89	0.499
212.5 - 425	0.037	1.9	t50	3.10	0.487
425 - 850	0.033	2.3	t50	2.54	0.467
850 - 212.5	0.034	1.4 (Sv)	t50	4.25	0.498

C

t Number:

GEO / 31786

t Name:

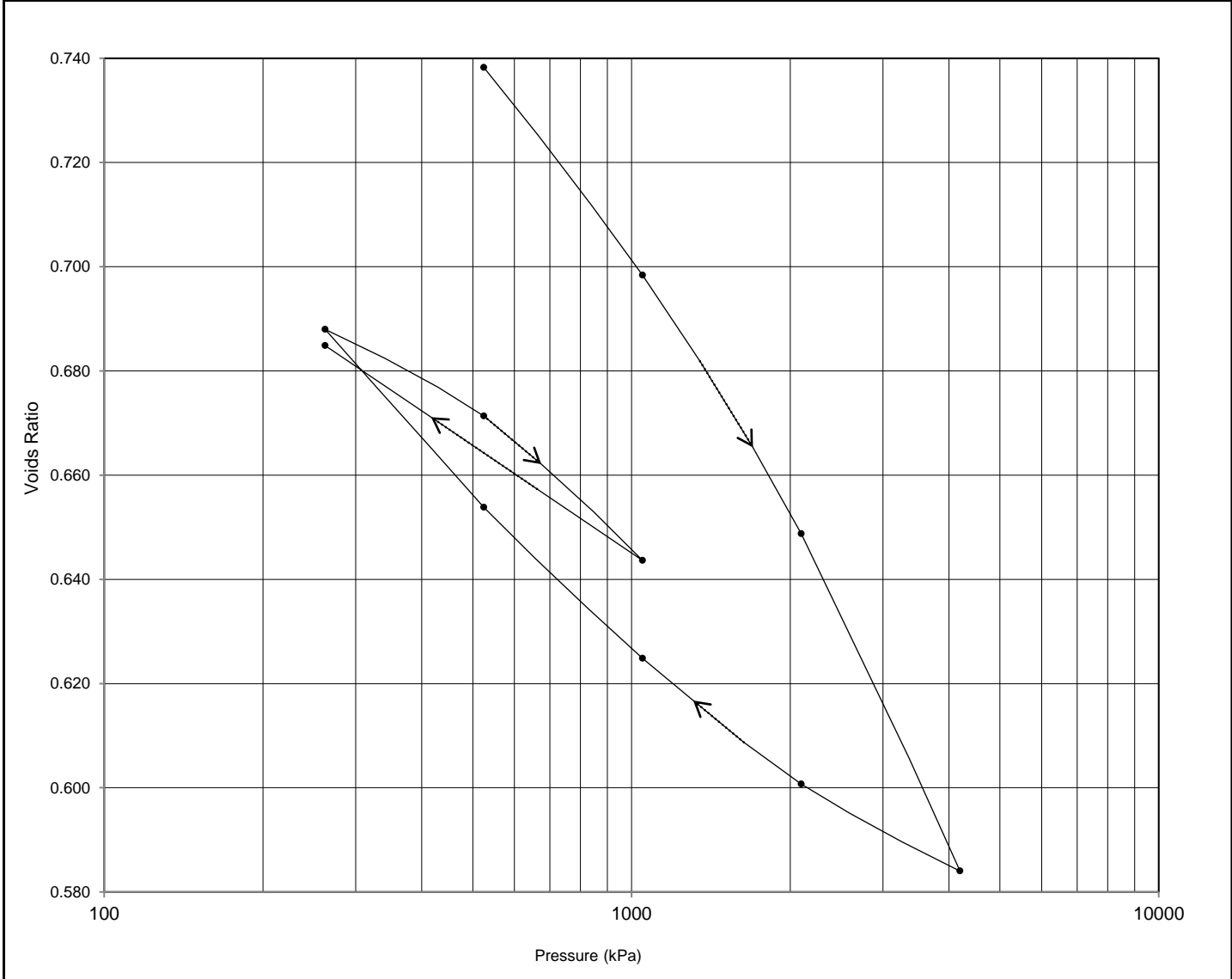
CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06

GEOLABS[®]

28/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH03	Description: Stiff fissured dark grey silty CLAY.
Sample Ref.	CS8	
Depth (m)	21.10	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:

Height	(mm)	17.00	Water Content	(%)	31.7	(from trimmings)
Diameter	(mm)	50.40	Voids Ratio		0.827	
Area	(mm ²)	1995	Bulk Density	(Mg/m ³)	1.95	
Volume	(cm ³)	33.92	Dry Density	(Mg/m ³)	1.48	
Laboratory Temperature	(°C)	20.6	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31786
	Test Name:	CAMBRIDGE WWTP RELOCATION GNB/20.245/00/06
	28/10/2020	



INCREMENTAL LOADING OEDOMETER TEST

Location	BH03	Description: Stiff fissured dark grey silty CLAY.
Sample Ref.	CS8	
Depth (m)	21.10	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 525	0.093	1.7	t50	4.09	0.738
525 - 1050	0.044	1.5	t50	4.33	0.698
1050 - 2100	0.028	1.6	t50	3.96	0.649
2100 - 4200	0.019	1.6	t50	3.57	0.584
4200 - 2100	0.0050	2.5 (Sv)	t50	2.32	0.601
2100 - 1050	0.014	1.2 (Sv)	t50	5.06	0.625
1050 - 525	0.034	0.61 (Sv)	t50	9.93	0.654
525 - 262.5	0.079	0.33 (Sv)	t50	19.0	0.688
262.5 - 525	0.038	0.94	t50	6.77	0.671
525 - 1050	0.032	1.1	t50	5.75	0.644
1050 - 262.5	0.032	0.72 (Sv)	t50	8.60	0.685

C

t Number:

GEO / 31786

t Name:

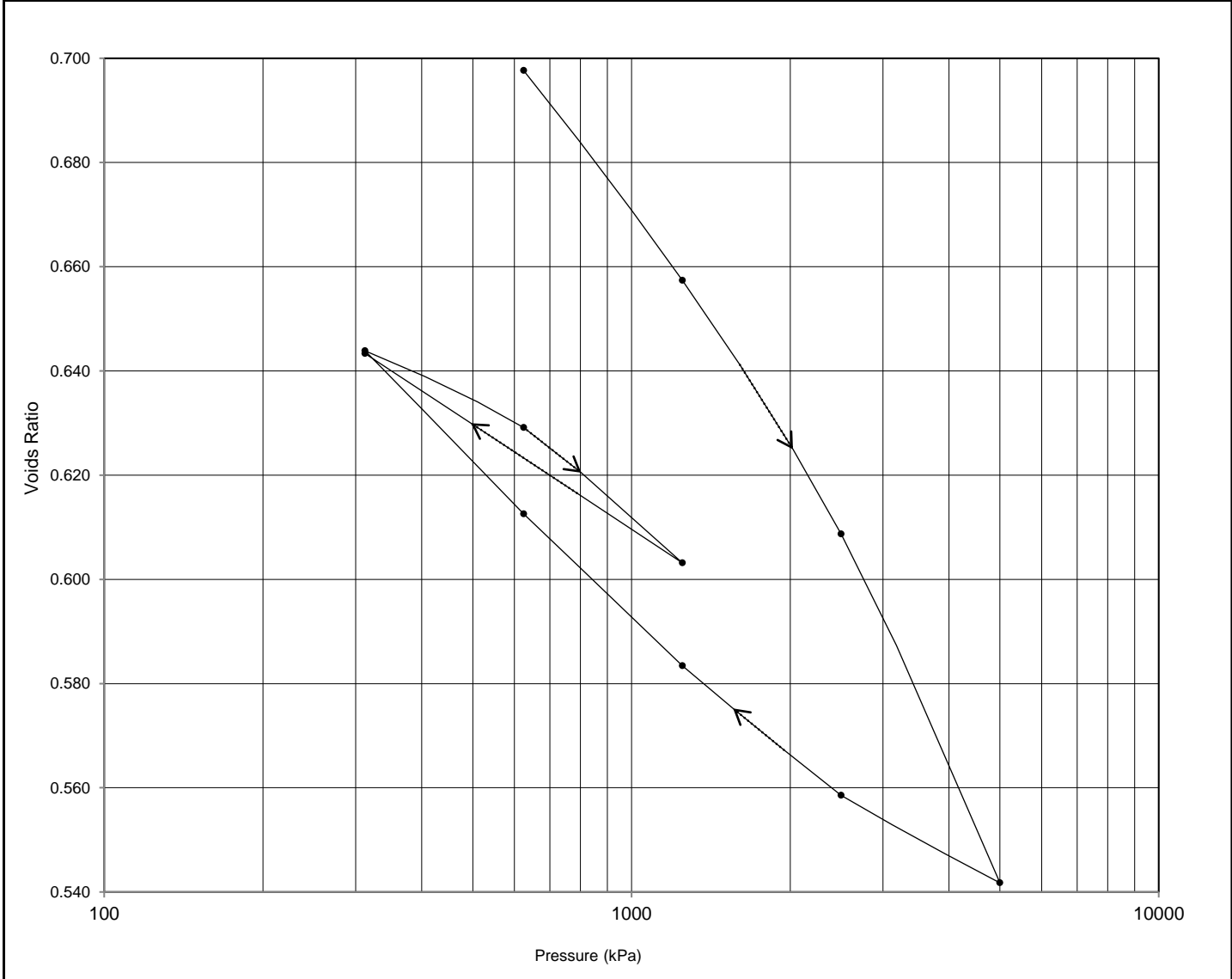
CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06

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28/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH03	Description: Stiff fissured dark grey silty CLAY.
Sample Ref.	CS10	
Depth (m)	24.50	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:

Height	(mm)	17.00	Water Content	(%)	30.6	(from trimmings)
Diameter	(mm)	50.00	Voids Ratio		0.795	
Area	(mm ²)	1963	Bulk Density	(Mg/m ³)	1.96	
Volume	(cm ³)	33.38	Dry Density	(Mg/m ³)	1.50	
Laboratory Temperature	(°C)	19.7	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31786
	Test Name:	CAMBRIDGE WWTP RELOCATION
		GNB/20.245/00/06



INCREMENTAL LOADING OEDOMETER TEST

Location	BH03	Description: Stiff fissured dark grey silty CLAY.
Sample Ref.	CS10	
Depth (m)	24.50	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 625	0.087	1.5	t50	4.71	0.698
625 - 1250	0.038	1.6	t50	4.01	0.657
1250 - 2500	0.023	1.8	t50	3.44	0.609
2500 - 5000	0.017	1.4	t50	4.28	0.542
5000 - 2500	0.0044	2.0 (Sv)	t50	2.83	0.559
2500 - 1250	0.013	1.3 (Sv)	t50	4.32	0.583
1250 - 625	0.029	0.62 (Sv)	t50	9.58	0.613
625 - 312.5	0.062	0.35 (Sv)	t50	17.4	0.644
312.5 - 625	0.029	1.1	t50	5.78	0.629
625 - 1250	0.025	1.0	t50	5.86	0.603
1250 - 312.5	0.027	0.84 (Sv)	t50	7.33	0.643

C

t Number:

GEO / 31786

t Name:

CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06

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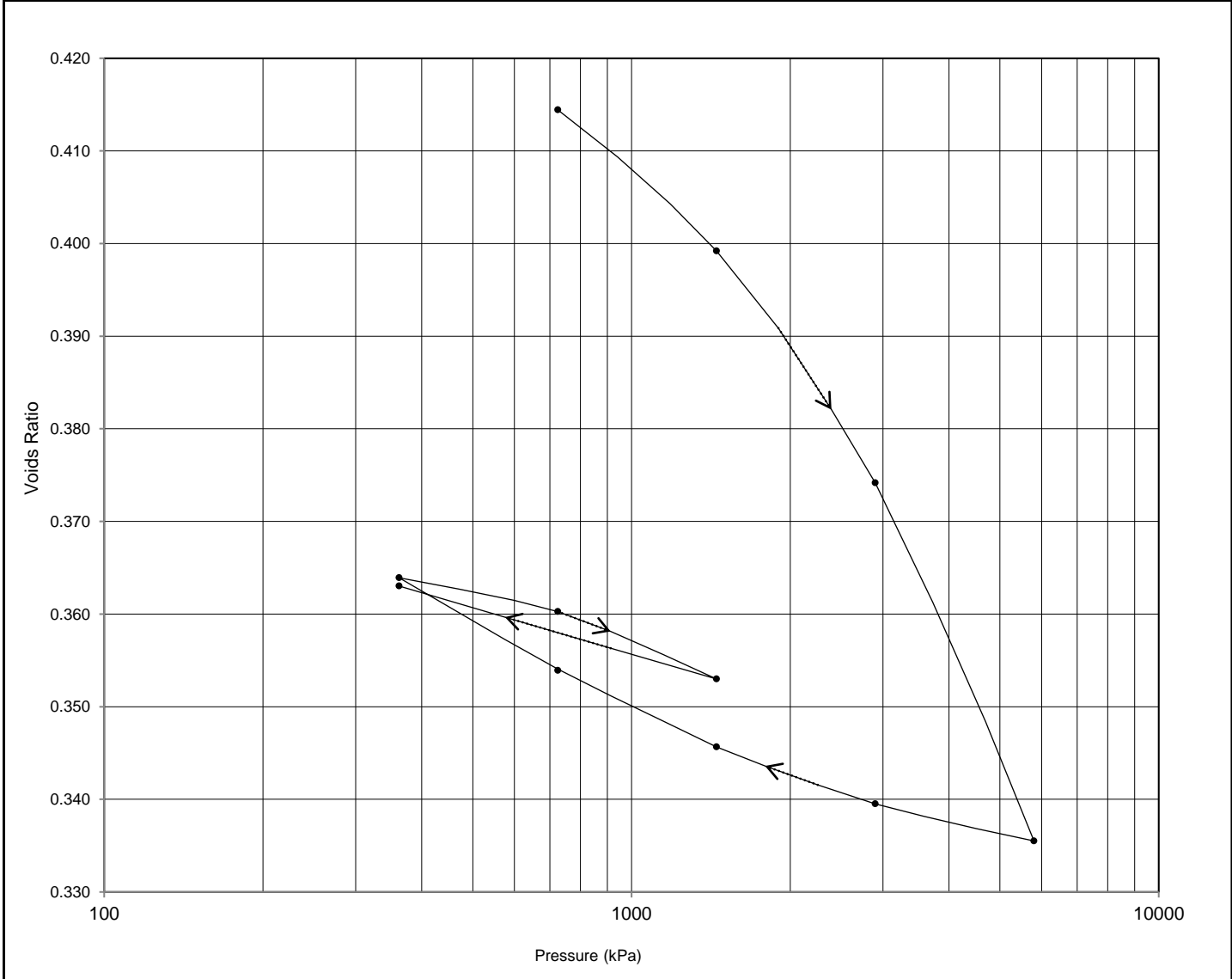
28/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH03
Sample Ref.	CS12
Depth (m)	29.00
Sample Type	C
Depth within original (mm)	15
Orientation within original	Vertical
Specimen preparation	Undisturbed

Description:

Stiff fissured very dark grey very sandy silty CLAY. Sand is fine to medium.



Initial Conditions:

Height	(mm)	18.00	Water Content	(%)	16.8	(from trimmings)
Diameter	(mm)	49.92	Voids Ratio		0.462	
Area	(mm ²)	1957	Bulk Density	(Mg/m ³)	2.16	
Volume	(cm ³)	35.23	Dry Density	(Mg/m ³)	1.85	
Laboratory Temperature	(°C)	20.6	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	98.3	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31786
	Test Name:	CAMBRIDGE WWTP RELOCATION
		GNB/20.245/00/06



INCREMENTAL LOADING OEDOMETER TEST

Location BH03
 Sample Ref. CS12
 Depth (m) 29.00
 Sample Type C
 Depth within original (mm) 15
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Stiff fissured very dark grey very sandy silty CLAY. Sand is fine to medium.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 725	0.045	23	t90	1.53	0.414
725 - 1450	0.015	18	t90	1.89	0.399
1450 - 2900	0.012	18	t90	1.80	0.374
2900 - 5800	0.0097	18	t90	1.68	0.336
5800 - 2900	0.0010	38 (Sv)	t90	0.783	0.340
2900 - 1450	0.0032	24 (Sv)	t90	1.27	0.346
1450 - 725	0.0085	27 (Sv)	t90	1.12	0.354
725 - 362.5	0.020	21 (Sv)	t90	1.45	0.364
362.5 - 725	0.0074	17	t90	1.85	0.360
725 - 1450	0.0074	21	t90	1.50	0.353
1450 - 362.5	0.0068	25 (Sv)	t90	1.24	0.363

C

t Number:

GEO / 31786

t Name:

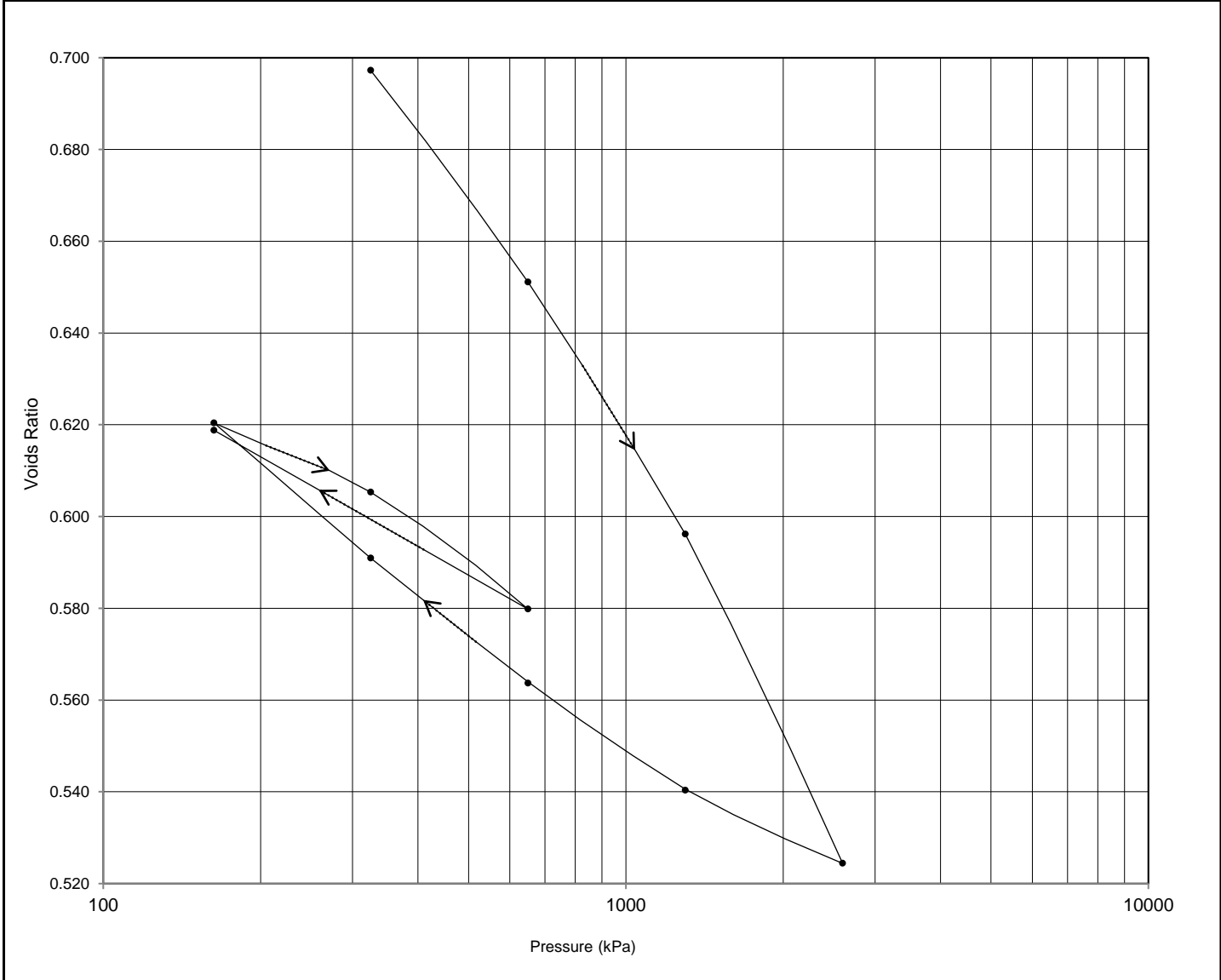
CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/06

GEOLABS[®]

28/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH04	Description: Stiff grey fissured silty CLAY with rare fine gravel.
Sample Ref.	CS4	
Depth (m)	12.50	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:

Height	(mm)	17.00	Water Content	(%)	31.0	(from trimmings)
Diameter	(mm)	75.81	Voids Ratio		0.799	
Area	(mm ²)	4514	Bulk Density	(Mg/m ³)	1.97	
Volume	(cm ³)	76.73	Dry Density	(Mg/m ³)	1.50	
Laboratory Temperature	(°C)	22.3	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31731
	Test Name:	CAMBRIDGE WWTP RELOCATION
		ADB/20.245/00/02



INCREMENTAL LOADING OEDOMETER TEST

Location	BH04	Description: Stiff grey fissured silty CLAY with rare fine gravel.
Sample Ref.	CS4	
Depth (m)	12.50	
Sample Type	C	
Depth within original (mm)	10	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 325	0.17	1.6	t50	4.32	0.697
325 - 650	0.084	1.6	t50	4.00	0.651
650 - 1300	0.051	2.4	t50	2.60	0.596
1300 - 2600	0.035	2.7	t50	2.12	0.524
2600 - 1300	0.0080	2.6 (Sv)	t50	2.13	0.540
1300 - 650	0.023	1.2 (Sv)	t50	4.79	0.564
650 - 325	0.054	0.56 (Sv)	t50	10.2	0.591
325 - 163	0.11	0.33 (Sv)	t50	18.1	0.620
163 - 325	0.057	0.86	t50	7.02	0.605
325 - 650	0.049	1.02	t50	5.78	0.580
650 - 163	0.051	0.69 (Sv)	t50	8.61	0.619

C

t Number:

GEO / 31731

t Name:

CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02

GEOLABS[®]

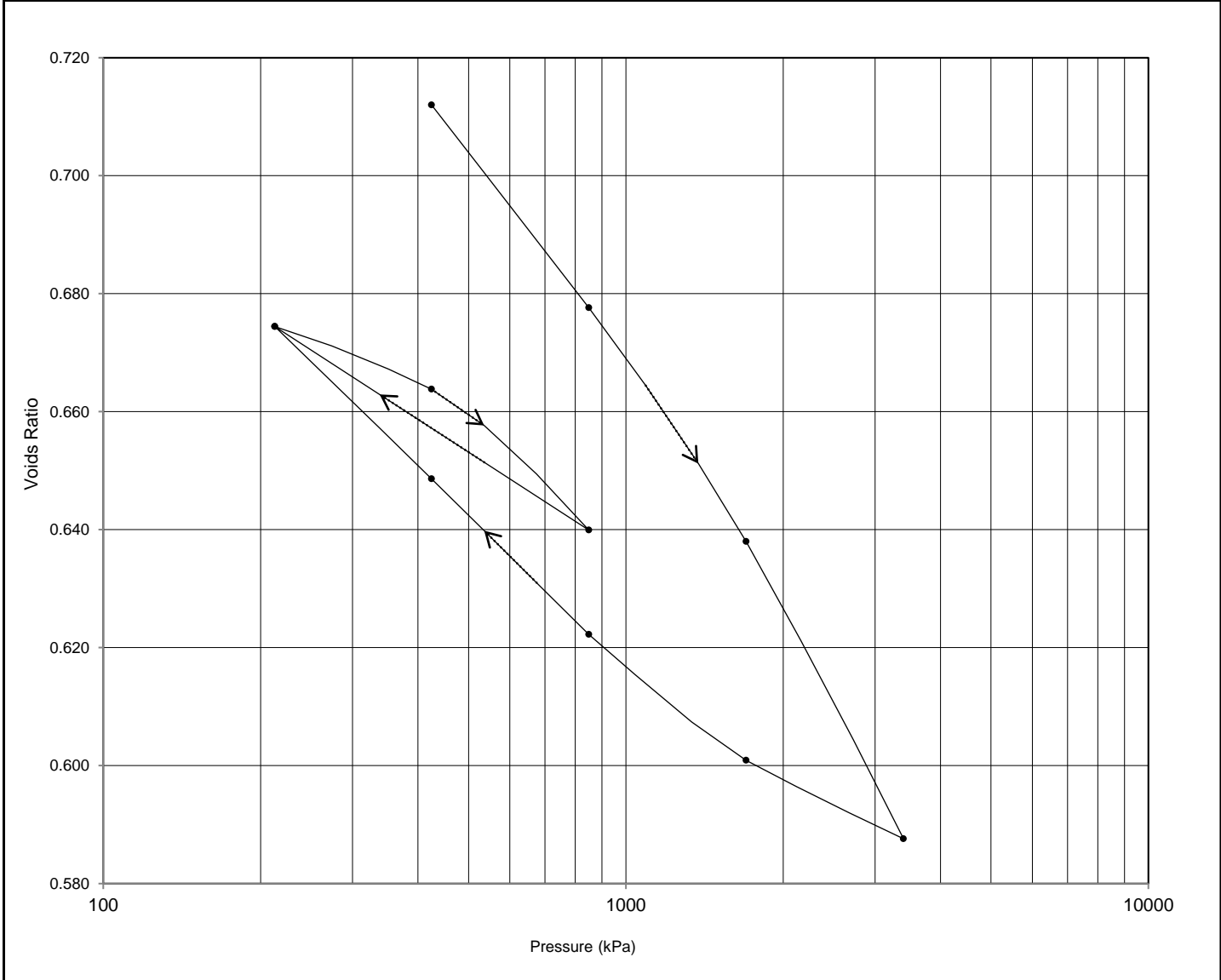
08/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH04
Sample Ref.	CS7
Depth (m)	17.00
Sample Type	C
Depth within original (mm)	5
Orientation within original	Vertical
Specimen preparation	Undisturbed

Description:

Stiff grey fissured silty CLAY with rare fine to medium gravel.



Initial Conditions:

Height	(mm)	18.00	Water Content	(%)	30.3	(from trimmings)
Diameter	(mm)	63.38	Voids Ratio		0.809	
Area	(mm ²)	3155	Bulk Density	(Mg/m ³)	1.94	
Volume	(cm ³)	56.79	Dry Density	(Mg/m ³)	1.49	
Laboratory Temperature	(°C)	20.4	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31731
	Test Name:	CAMBRIDGE WWTP RELOCATION ADB/20.245/00/02



12/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH04	Description: Stiff grey fissured silty CLAY with rare fine to medium gravel.
Sample Ref.	CS7	
Depth (m)	17.00	
Sample Type	C	
Depth within original (mm)	5	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 425	0.13	2.4	t50	3.34	0.712
425 - 850	0.047	2.0	t50	3.69	0.678
850 - 1700	0.028	2.6	t50	2.77	0.638
1700 - 3400	0.018	2.5	t50	2.70	0.588
3400 - 1700	0.0049	8.2 (Sv)	t50	0.801	0.601
1700 - 850	0.016	1.9 (Sv)	t50	3.57	0.622
850 - 425	0.038	0.79 (Sv)	t50	8.71	0.649
425 - 213	0.074	0.40 (Sv)	t50	17.6	0.674
213 - 425	0.030	1.5	t50	4.77	0.664
425 - 850	0.034	1.2	t50	6.00	0.640
850 - 213	0.033	0.94 (Sv)	t50	7.52	0.674

C

t Number:

GEO / 31731

t Name:

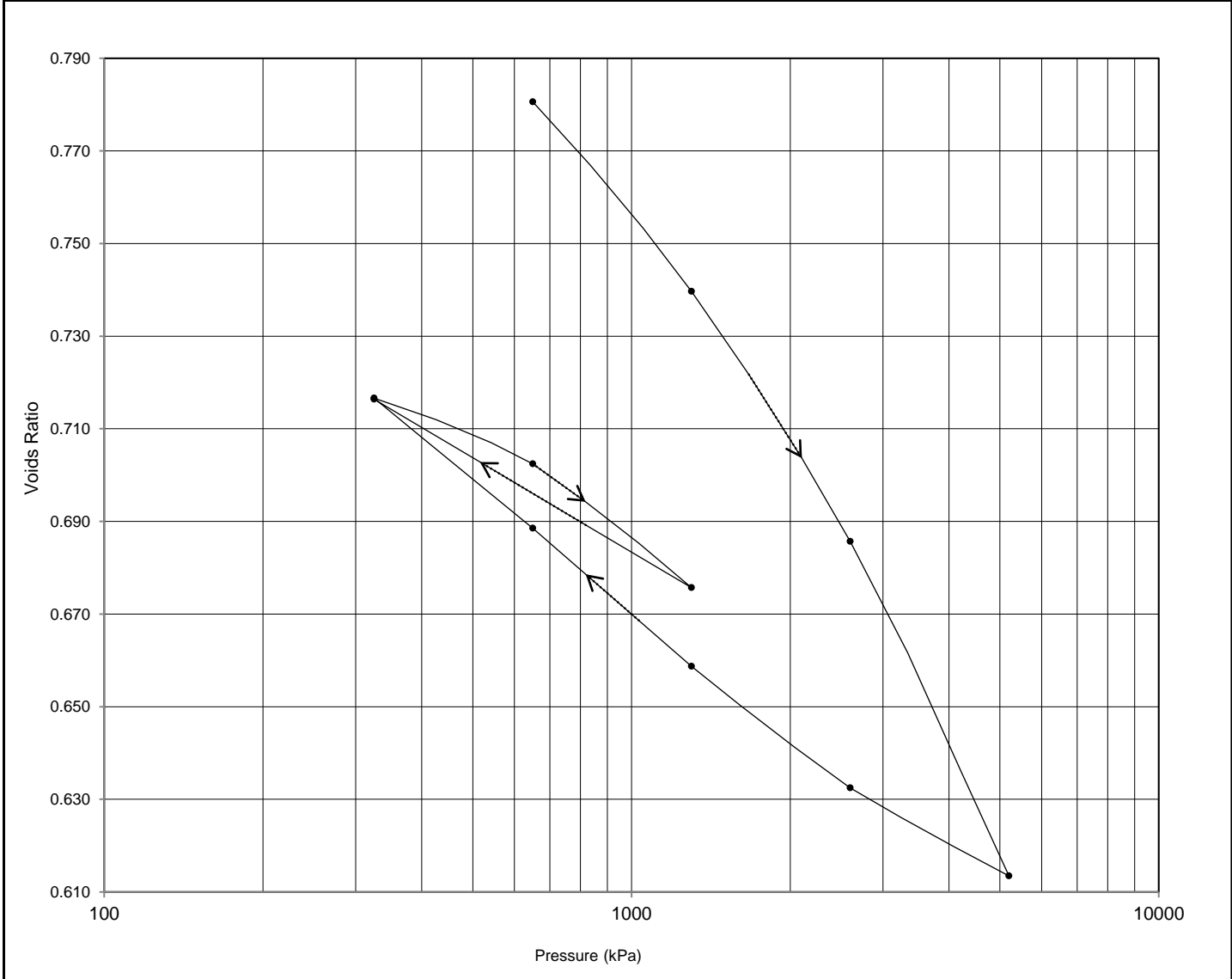
CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02

GEOLABS[®]

12/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH04	Description: Very stiff fissured silty CLAY with rare shell remains.
Sample Ref.	CS10	
Depth (m)	25.70	
Sample Type	C	
Depth within original (mm)	5	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:

Height	(mm)	17.00	Water Content	(%)	32.9	(from trimmings)
Diameter	(mm)	50.00	Voids Ratio		0.862	
Area	(mm ²)	1963	Bulk Density	(Mg/m ³)	1.93	
Volume	(cm ³)	33.38	Dry Density	(Mg/m ³)	1.45	
Laboratory Temperature	(°C)	20.9	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31731
	Test Name:	CAMBRIDGE WWTP RELOCATION ADB/20.245/00/02



INCREMENTAL LOADING OEDOMETER TEST

Location BH04
 Sample Ref. CS10
 Depth (m) 25.70
 Sample Type C
 Depth within original (mm) 5
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Very stiff fissured silty CLAY with rare shell remains.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 650	0.068	1.4	t50	5.19	0.781
650 - 1300	0.035	1.3	t50	5.06	0.740
1300 - 2600	0.024	1.2	t50	5.40	0.686
2600 - 5200	0.016	0.60	t50	9.82	0.613
5200 - 2600	0.0045	1.3 (Sv)	t50	4.49	0.632
2600 - 1300	0.012	0.53 (Sv)	t50	11.1	0.659
1300 - 650	0.028	0.29 (Sv)	t50	20.7	0.689
650 - 325	0.051	0.19 (Sv)	t50	33.4	0.717
325 - 650	0.025	0.52	t50	12.2	0.702
650 - 1300	0.024	0.51	t50	12.1	0.676
1300 - 325	0.025	0.39 (Sv)	t50	16.0	0.716

C

t Number:

GEO / 31731

t Name:

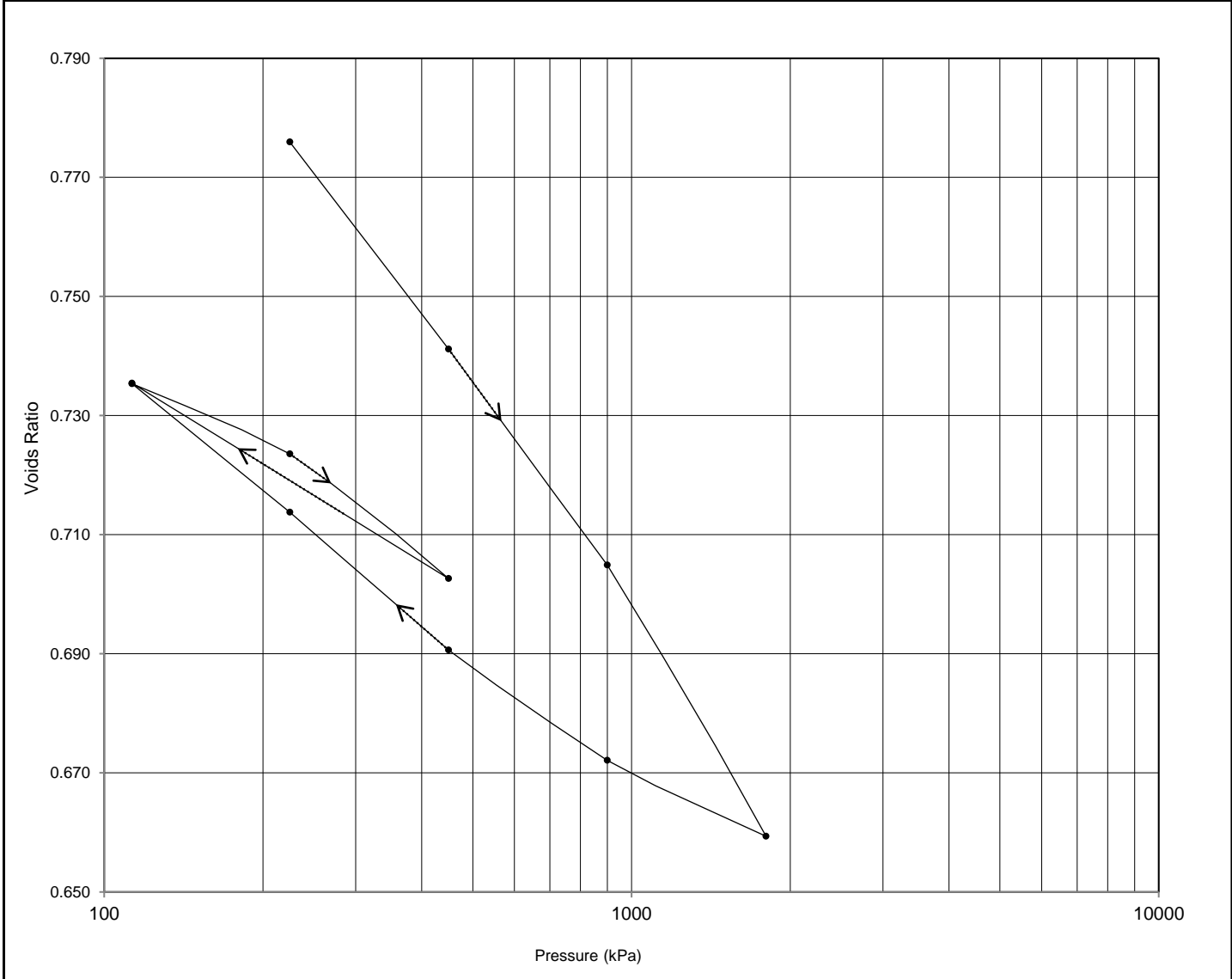
CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02

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12/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH05	Description: Stiff fissured grey silty CLAY with rare fine gravel.
Sample Ref.	CS2	
Depth (m)	9.10	
Sample Type	C	
Depth within original (mm)	5	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:			
Height	(mm)	16.47	Water Content (%) 30.8 (from trimmings)
Diameter	(mm)	75.98	Voids Ratio 0.835
Area	(mm ²)	4534	Bulk Density (Mg/m ³) 1.93
Volume	(cm ³)	74.68	Dry Density (Mg/m ³) 1.47
Laboratory Temperature	(°C)	21.0	Particle density (Mg/m ³) 2.70 (Assumed)
			Degree of Saturation (%) 99.8

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31731
	Test Name:	CAMBRIDGE WWTP RELOCATION ADB/20.245/00/02



INCREMENTAL LOADING OEDOMETER TEST

Location BH05
 Sample Ref. CS2
 Depth (m) 9.10
 Sample Type C
 Depth within original (mm) 5
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Stiff fissured grey silty CLAY with rare fine gravel.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 225	0.14	5.4	t50	1.27	0.776
225 - 450	0.087	4.6	t50	1.39	0.741
450 - 900	0.046	5.2	t50	1.20	0.705
900 - 1800	0.030	5.7	t50	1.03	0.659
1800 - 900	0.0085	6.0 (Sv)	t50	0.963	0.672
900 - 450	0.025	2.6 (Sv)	t50	2.24	0.691
450 - 225	0.061	1.2 (Sv)	t50	4.96	0.714
225 - 113	0.11	0.57 (Sv)	t50	10.9	0.735
113 - 225	0.061	1.5	t50	4.15	0.724
225 - 450	0.054	1.9	t50	3.16	0.703
450 - 113	0.057	1.3 (Sv)	t50	4.85	0.735

C

t Number:

GEO / 31731

t Name:

CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02

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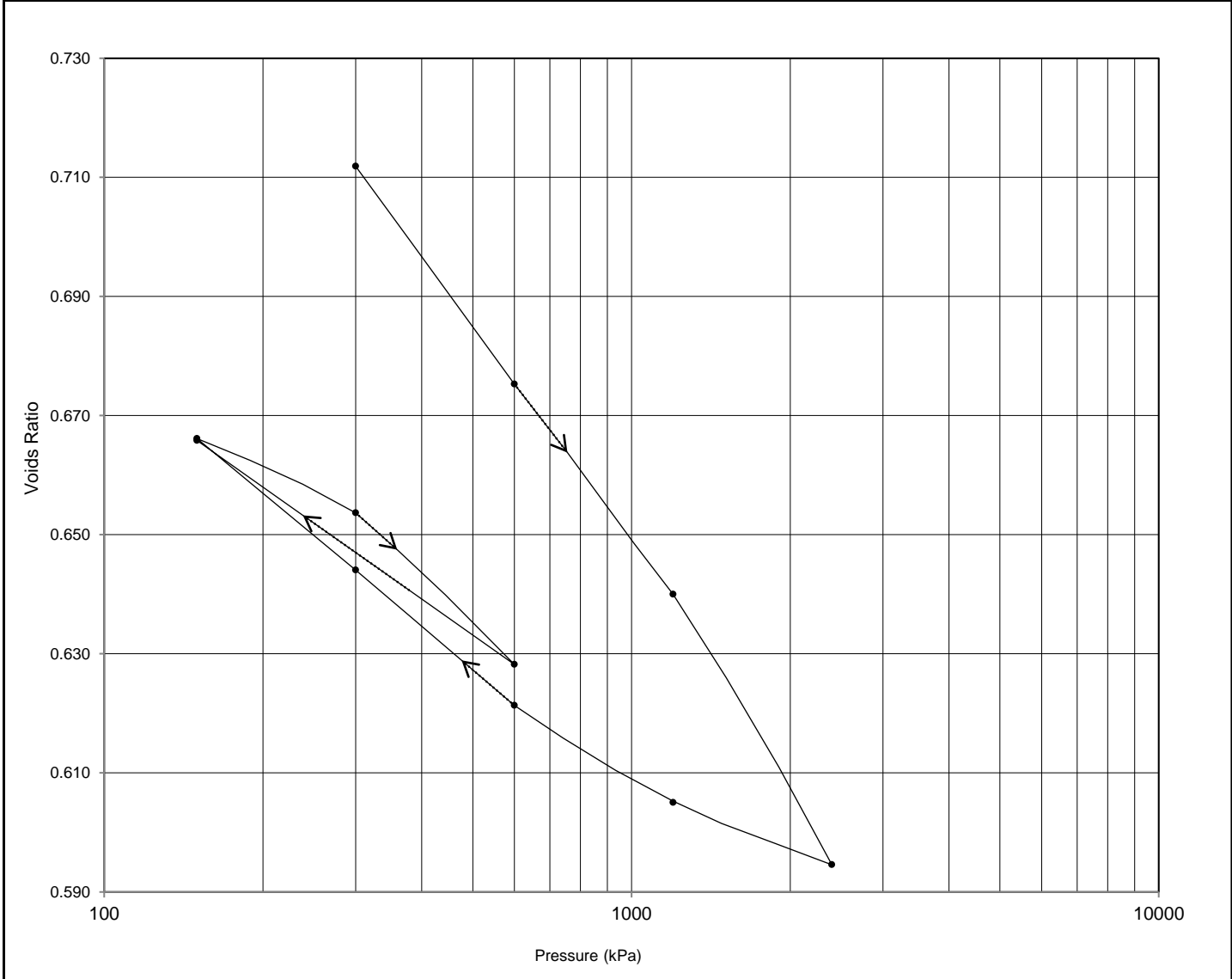
12/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH05
Sample Ref.	CS4
Depth (m)	12.40
Sample Type	C
Depth within original (mm)	10
Orientation within original	Vertical
Specimen preparation	Undisturbed

Description:

Very stiff grey thinly laminated silty CLAY.



Initial Conditions:

Height	(mm)	16.97	Water Content	(%)	27.8	(from trimmings)
Diameter	(mm)	75.91	Voids Ratio		0.772	
Area	(mm ²)	4526	Bulk Density	(Mg/m ³)	1.95	
Volume	(cm ³)	76.80	Dry Density	(Mg/m ³)	1.52	
Laboratory Temperature	(°C)	21.1	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	97.1	

Results have been corrected for equipment deformation

Test Number: **GEO / 31731**

Test Name: **CAMBRIDGE WWTP RELOCATION**
ADB/20.245/00/02



INCREMENTAL LOADING OEDOMETER TEST

Location BH05
 Sample Ref. CS4
 Depth (m) 12.40
 Sample Type C
 Depth within original (mm) 10
 Orientation within original Vertical
 Specimen preparation Undisturbed

Description:

Very stiff grey thinly laminated silty CLAY.

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 300	0.11	4.4	t50	1.64	0.712
300 - 600	0.071	4.2	t50	1.64	0.675
600 - 1200	0.035	5.9	t50	1.12	0.640
1200 - 2400	0.023	7.7	t50	0.812	0.595
2400 - 1200	0.0055	3.6 (Sv)	t50	1.68	0.605
1200 - 600	0.017	2.4 (Sv)	t50	2.55	0.621
600 - 300	0.047	1.2 (Sv)	t50	5.51	0.644
300 - 150	0.090	0.66 (Sv)	t50	9.95	0.666
150 - 300	0.050	1.6	t50	4.01	0.654
300 - 600	0.051	2.3	t50	2.83	0.628
600 - 150	0.051	1.2 (Sv)	t50	5.27	0.666

C

t Number:

GEO / 31731

t Name:

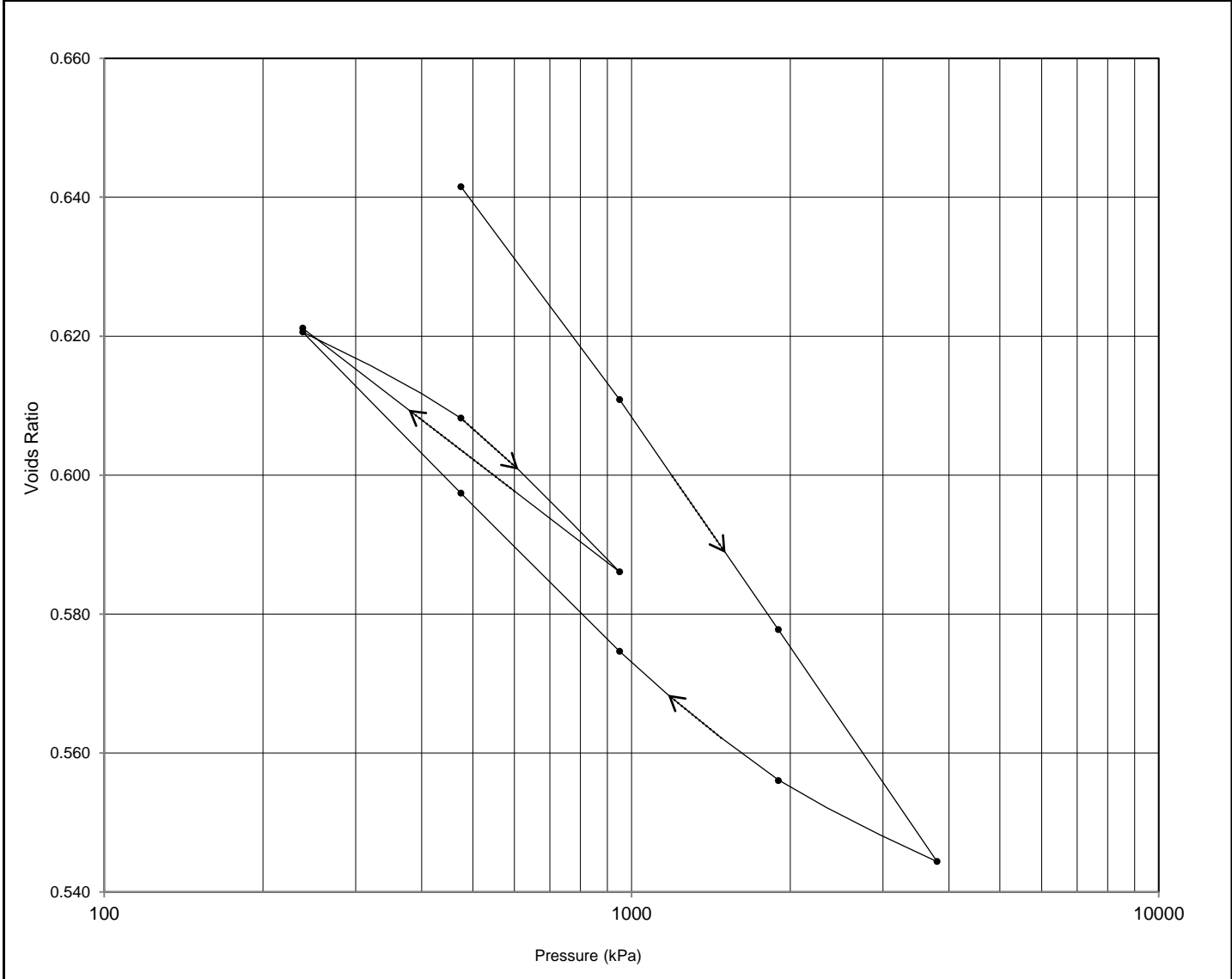
CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02

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12/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH05	Description: Very stiff fissured dark grey silty CLAY. Note: Some patching required due to removal of gravel.
Sample Ref.	CS7	
Depth (m)	18.50	
Sample Type	C	
Depth within original (mm)	5	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	



Initial Conditions:

Height	(mm)	16.57	Water Content	(%)	28.5	(from trimmings)
Diameter	(mm)	63.40	Voids Ratio		0.755	
Area	(mm ²)	3157	Bulk Density	(Mg/m ³)	1.98	
Volume	(cm ³)	52.31	Dry Density	(Mg/m ³)	1.54	
Laboratory Temperature	(°C)	20.3	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	100.0	

Results have been corrected for equipment deformation

C	Test Number:	GEO / 31731
	Test Name:	CAMBRIDGE WWTP RELOCATION ADB/20.245/00/02



INCREMENTAL LOADING OEDOMETER TEST

Location	BH05	Description: Very stiff fissured dark grey silty CLAY. Note: Some patching required due to removal of gravel.
Sample Ref.	CS7	
Depth (m)	18.50	
Sample Type	C	
Depth within original (mm)	5	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 475	0.14	1.3	t50	4.97	0.641
475 - 950	0.039	1.6	t50	3.77	0.611
950 - 1900	0.022	2.2	t50	2.64	0.578
1900 - 3800	0.011	2.9	t50	1.94	0.544
3800 - 1900	0.0040	3.3 (Sv)	t50	1.69	0.556
1900 - 950	0.013	1.6 (Sv)	t50	3.54	0.575
950 - 475	0.030	0.85 (Sv)	t50	6.83	0.597
475 - 238	0.061	0.48 (Sv)	t50	12.6	0.621
238 - 475	0.032	1.2	t50	4.90	0.608
475 - 950	0.029	1.5	t50	4.04	0.586
950 - 238	0.031	1.6 (Sv)	t50	3.82	0.621

C

t Number:

GEO / 31731

t Name:

CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02

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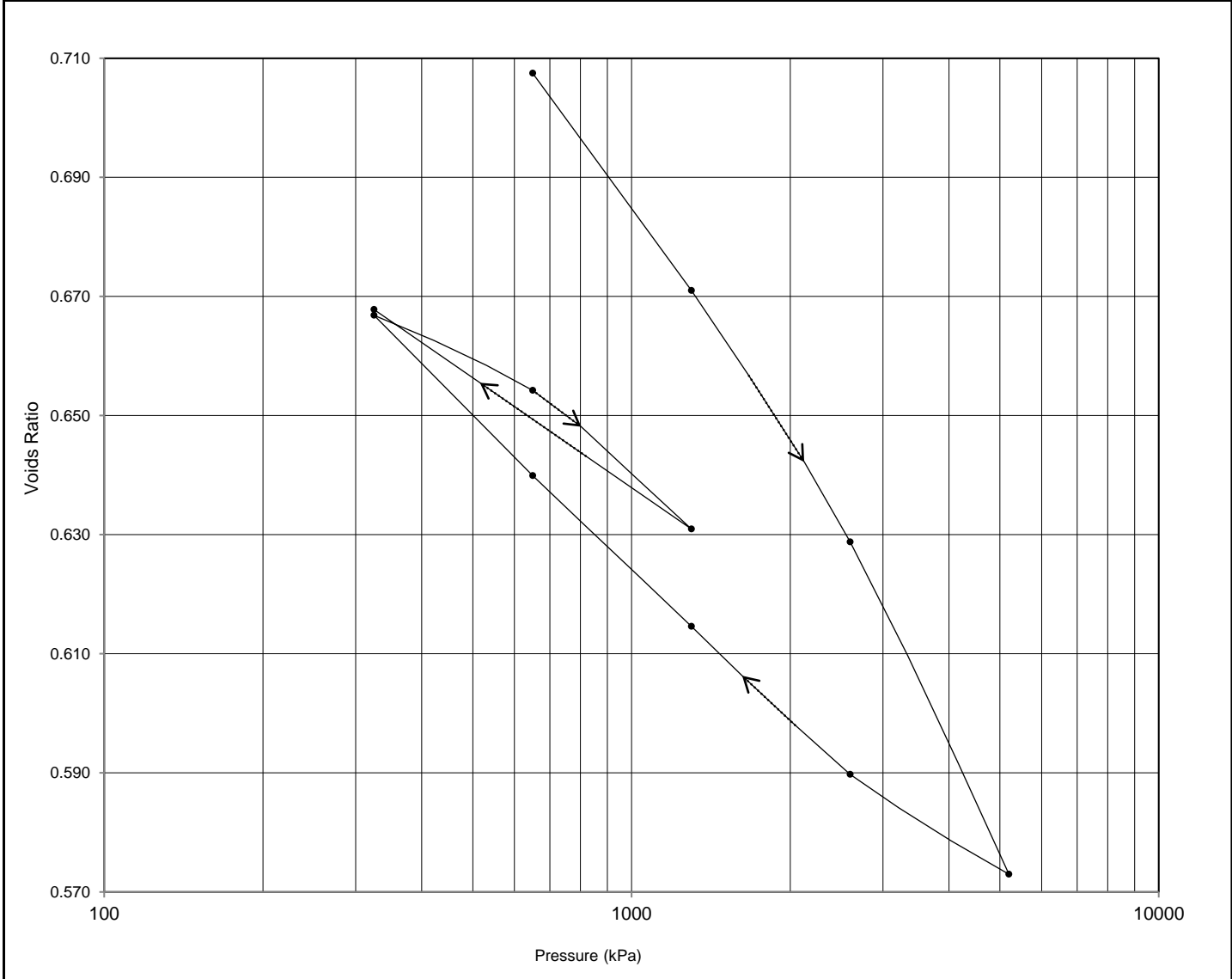
19/10/2020

INCREMENTAL LOADING OEDOMETER TEST

Location	BH05
Sample Ref.	CS11
Depth (m)	26.00
Sample Type	C
Depth within original (mm)	5
Orientation within original	Vertical
Specimen preparation	Undisturbed

Description:

Very stiff fissured dark grey silty CLAY.



Initial Conditions:

Height	(mm)	16.91	Water Content	(%)	28.2	(from trimmings)
Diameter	(mm)	49.95	Voids Ratio		0.794	
Area	(mm ²)	1960	Bulk Density	(Mg/m ³)	1.93	
Volume	(cm ³)	33.14	Dry Density	(Mg/m ³)	1.51	
Laboratory Temperature	(°C)	20.6	Particle density	(Mg/m ³)	2.70 (Assumed)	
			Degree of Saturation	(%)	96.0	

Results have been corrected for equipment deformation

Test Number: **GEO / 31731**

Test Name: **CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02**



INCREMENTAL LOADING OEDOMETER TEST

Location	BH05	Description: Very stiff fissured dark grey silty CLAY.
Sample Ref.	CS11	
Depth (m)	26.00	
Sample Type	C	
Depth within original (mm)	5	
Orientation within original	Vertical	
Specimen preparation	Undisturbed	

Pressure Range (kPa)	m_v (m ² /MN)	c_v (m ² /year)	Time Fitting		Voids Ratio
			Method	minutes	
0 - 650	0.074	2.5	t50	2.85	0.707
650 - 1300	0.033	1.4	t50	4.59	0.671
1300 - 2600	0.019	1.4	t50	4.45	0.629
2600 - 5200	0.013	1.3	t50	4.66	0.573
5200 - 2600	0.0041	2.2 (Sv)	t50	2.67	0.590
2600 - 1300	0.012	0.91 (Sv)	t50	6.53	0.615
1300 - 650	0.024	0.56 (Sv)	t50	10.9	0.640
650 - 325	0.051	0.28 (Sv)	t50	22.8	0.667
325 - 650	0.023	1.0	t50	6.23	0.654
650 - 1300	0.022	0.73	t50	8.52	0.631
1300 - 325	0.023	0.59 (Sv)	t50	10.6	0.668

C

t Number:

GEO / 31731

t Name:

CAMBRIDGE WWTP RELOCATION
ADB/20.245/00/02

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19/10/2020

ANALYSIS BY X-RAY DIFFRACTION

BH/TP Ref.: BH01 Sample Ref.: CS3 Depth (m): 14.10	Description Very stiff dark grey fissured silty CLAY with rare fine gravel.
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Petrographic Analysis by X-ray Diffraction

X-ray diffraction (XRD) – Whole rock & Clay fraction analysis

Whole sample analysis

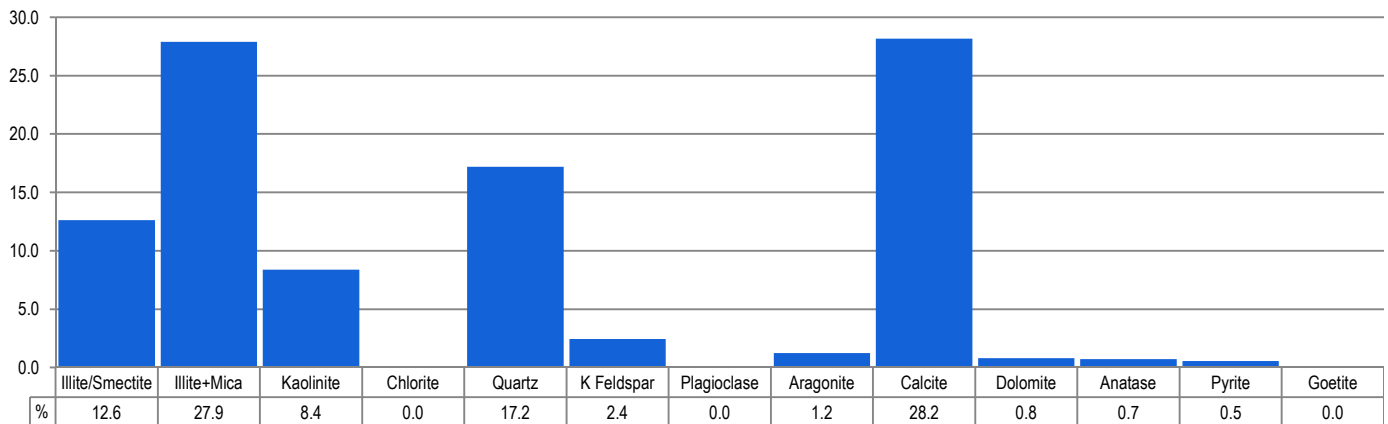
Whole rock analysis was carried out using a PANalytical X'Pert3 Diffractometer employing copper ka radiation ($\lambda=0.15406\text{nm}$). The samples were continuously spun during data collection and were scanned using a step size of $0.013^\circ 2\theta$ between the range of $4.5\text{--}75^\circ 2\theta$ and a count time of 53.295 seconds per step. Phase identification using XRD is achieved by comparing the diffraction pattern obtained from the unknown, to a standard database that is compiled by the International Centre for Diffraction Data (ICDD). If and when a positive identification is made, the presence of the constituent is indicated by a stick pattern that is superimposed on the XRD diffractogram.

Clay fraction analysis

The clay size fraction was extracted from a different sub-sample. The samples were mounted before analysis by XRD using a Phillips PW1730 generator with a Phillips 1030 goniometer with graphite monochromator and PW1170 automatic sample changer. The samples were measured from $3\text{--}35^\circ 2\theta$ using copper K α radiation, 4 scans, air-dried, after glycerolaton and after heating to 400°C and 550°C . Interpretation was carried out using "Traces" and "Search+match" software.

Size fraction: Whole sample

Weight % by mineral phase



Size fraction: Clay minerals Wt. (<2um) % = 34.8

Illite/smectite			Illite			Kaolinite			Chlorite			Quartz		Calcite		
% A	% B	Order	% Illite	% A	% B	Crys	% A	% B	Crys	% A	% B	Crys	% A	% B	% A	% B
36.3	12.6	RI	30-50	24.1	8.4	P	24.2	8.4	M	TR	TR	P	1.4	0.5	14.1	4.9

- | | | |
|---|---|---|
| A Weight % relevant size fraction
B Weight % bulk sample | Mixed-layer Ordering:
RI Randomly Interstratified (R0)
O Ordered Interstratification (R1)
LR Long-range Ordering (R3) | Crystallinity:
VW Very Well Crystallised
W Well Crystallised
M Moderately Crystallised
P Poorly Crystallised |
|---|---|---|

C	Subject number: GEO/31909 Subject Name: CAMBRIDGE WWTP RELOCATION GNB/20.245/00/09	
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ANALYSIS BY X-RAY DIFFRACTION

BH/TP Ref.: BH01 Sample Ref.: CS8 Depth (m): 24.50	Description Very stiff grey silty CLAY.
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Petrographic Analysis by X-ray Diffraction

X-ray diffraction (XRD) – Whole rock & Clay fraction analysis

Whole sample analysis

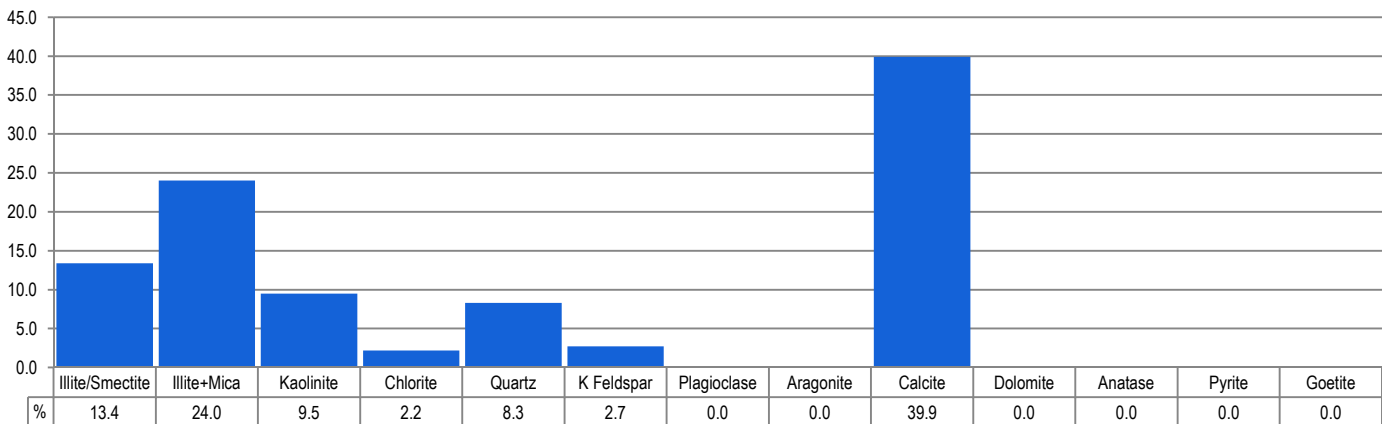
Whole rock analysis was carried out using a PANalytical X'Pert3 Diffractometer employing copper ka radiation ($\lambda=0.15406\text{nm}$). The samples were continuously spun during data collection and were scanned using a step size of $0.013^\circ 2\theta$ between the range of $4.5\text{--}75^\circ 2\theta$ and a count time of 53.295 seconds per step. Phase identification using XRD is achieved by comparing the diffraction pattern obtained from the unknown, to a standard database that is compiled by the International Centre for Diffraction Data (ICDD). If and when a positive identification is made, the presence of the constituent is indicated by a stick pattern that is superimposed on the XRD diffractogram.

Clay fraction analysis

The clay size fraction was extracted from a different sub-sample. The samples were mounted before analysis by XRD using a Phillips PW1730 generator with a Phillips 1030 goniometer with graphite monochromator and PW1170 automatic sample changer. The samples were measured from $3\text{--}35^\circ 2\theta$ using copper K α radiation, 4 scans, air-dried, after glycerolaton and after heating to 400°C and 550°C . Interpretation was carried out using "Traces" and "Search+match" software.

Size fraction: Whole sample

Weight % by mineral phase



Size fraction: Clay minerals Wt. (<2um) % = 46.5

Illite/smectite			Illite			Kaolinite			Chlorite			Quartz		Calcite		
% A	% B	Order	% Illite	% A	% B	Crys	% A	% B	Crys	% A	% B	Crys	% A	% B	% A	% B
28.6	13.3	R/O	50-70	23.4	10.9	P	20.4	9.5	M	4.8	2.2	P	1.1	0.5	21.7	10.1

- | | | |
|---|---|---|
| A Weight % relevant size fraction
B Weight % bulk sample | Mixed-layer Ordering:
RI Randomly Interstratified (R0)
O Ordered Interstratification (R1)
LR Long-range Ordering (R3) | Crystallinity:
VW Very Well Crystallised
W Well Crystallised
M Moderately Crystallised
P Poorly Crystallised |
|---|---|---|

C	Subject number: GEO/31909 Subject Name: CAMBRIDGE WWTP RELOCATION GNB/20.245/00/09	
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ANALYSIS BY X-RAY DIFFRACTION

BH/TP Ref.: BH02
Sample Ref.: CS8
Depth (m): 23.00

Description
 Very stiff dark grey mottled brownish grey thinly laminated silty very sandy CLAY. Sand is fine to medium.

Petrographic Analysis by X-ray Diffraction

X-ray diffraction (XRD) – Whole rock & Clay fraction analysis

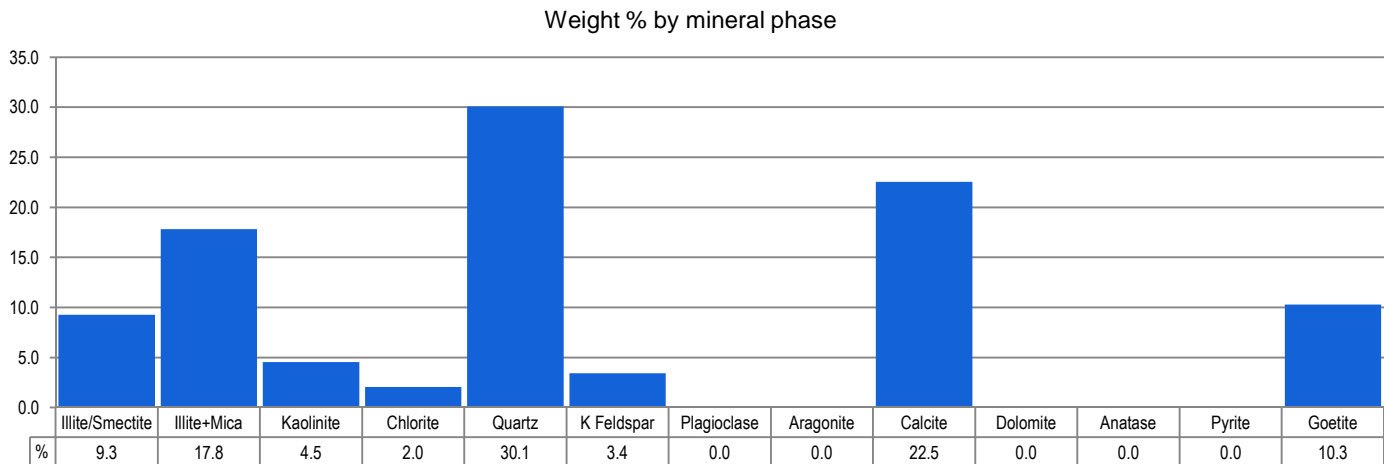
Whole sample analysis

Whole rock analysis was carried out using a PANalytical X'Pert3 Diffractometer employing copper ka radiation ($\lambda=0.15406\text{nm}$). The samples were continuously spun during data collection and were scanned using a step size of $0.013^\circ 2\theta$ between the range of $4.5\text{-}75^\circ 2\theta$ and a count time of 53.295 seconds per step. Phase identification using XRD is achieved by comparing the diffraction pattern obtained from the unknown, to a standard database that is compiled by the International Centre for Diffraction Data (ICDD). If and when a positive identification is made, the presence of the constituent is indicated by a stick pattern that is superimposed on the XRD diffractogram.

Clay fraction analysis

The clay size fraction was extracted from a different sub-sample. The samples were mounted before analysis by XRD using a Phillips PW1730 generator with a Phillips 1030 goniometer with graphite monochromator and PW1170 automatic sample changer. The samples were measured from $3\text{-}35^\circ 2\theta$ using copper K α radiation, 4 scans, air-dried, after glycerolaton and after heating to 400°C and 550°C . Interpretation was carried out using "Traces" and "Search+match" software.

Size fraction: Whole sample



Size fraction: Clay minerals Wt. (<2um) % = 25.6

Illite/smectite			Illite			Kaolinite			Chlorite			Quartz		Calcite		
% A	% B	Order	% Illite	% A	% B	Crys	% A	% B	Crys	% A	% B	Crys	% A	% B	% A	% B
36.2	9.3	RI	30-50	25.4	6.5	P	17.4	4.5	M	7.6	1.9	P	1.9	0.5	11.6	3.0

- | | | |
|--|---|---|
| <p>A Weight % relevant size fraction</p> <p>B Weight % bulk sample</p> | <p>Mixed-layer Ordering:</p> <p>RI Randomly Interstratified (R0)</p> <p>O Ordered Interstratification (R1)</p> <p>LR Long-range Ordering (R3)</p> | <p>Crystallinity:</p> <p>VW Very Well Crystallised</p> <p>W Well Crystallised</p> <p>M Moderately Crystallised</p> <p>P Poorly Crystallised</p> |
|--|---|---|

Project number: **GEO/31949**
 Project Name: **CAMBRIDGE WWTP RELOCATION**
GNB/20.245/00/10



ANALYSIS BY X-RAY DIFFRACTION

BH/TP Ref.: BH02
Sample Ref.: CS11
Depth (m): 34.70

Description
 Very stiff dark grey mottled brownish grey thinly laminated silty very sandy CLAY. Sand is fine to medium

Petrographic Analysis by X-ray Diffraction

X-ray diffraction (XRD) – Whole rock & Clay fraction analysis

Whole sample analysis

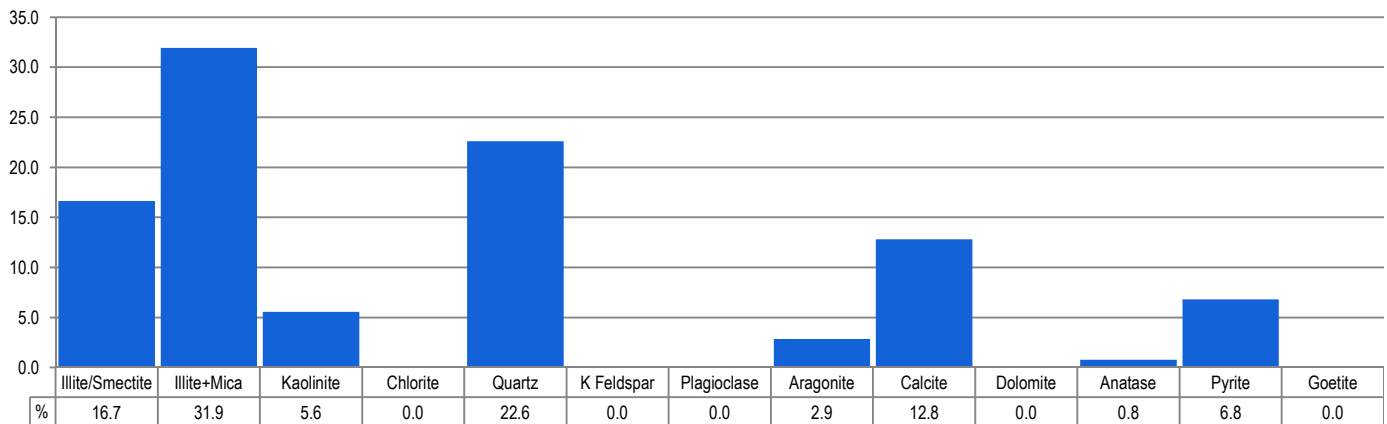
Whole rock analysis was carried out using a PANalytical X'Pert3 Diffractometer employing copper ka radiation ($\lambda=0.15406\text{nm}$). The samples were continuously spun during data collection and were scanned using a step size of $0.013^\circ 2\theta$ between the range of $4.5-75^\circ 2\theta$ and a count time of 53.295 seconds per step. Phase identification using XRD is achieved by comparing the diffraction pattern obtained from the unknown, to a standard database that is compiled by the International Centre for Diffraction Data (ICDD). If and when a positive identification is made, the presence of the constituent is indicated by a stick pattern that is superimposed on the XRD diffractogram.

Clay fraction analysis

The clay size fraction was extracted from a different sub-sample. The samples were mounted before analysis by XRD using a Phillips PW1730 generator with a Phillips 1030 goniometer with graphite monochromator and PW1170 automatic sample changer. The samples were measured from $3-35^\circ 2\theta$ using copper $K\alpha$ radiation, 4 scans, air-dried, after glycerolaton and after heating to 400°C and 550°C . Interpretation was carried out using "Traces" and "Search+match" software.

Size fraction: Whole sample

Weight % by mineral phase



Size fraction: Clay minerals Wt. (<2um) % = 34.8

Illite/smectite			Illite			Kaolinite			Chlorite			Quartz		Calcite		
% A	% B	Order	% Illite	% A	% B	Crys	% A	% B	Crys	% A	% B	Crys	% A	% B	% A	% B
48.0	16.7	RI	30-50	31.3	10.9	M	16.2	5.6	M	TR	TR	P	2.2	0.8	2.2	0.8

- | | | |
|---|---|---|
| A Weight % relevant size fraction
B Weight % bulk sample | Mixed-layer Ordering:
RI Randomly Interstratified (R0)
O Ordered Interstratification (R1)
LR Long-range Ordering (R3) | Crystallinity:
VW Very Well Crystallised
W Well Crystallised
M Moderately Crystallised
P Poorly Crystallised |
|---|---|---|

C
[REDACTED]
 Subject number: **GEO/31949**
 Subject Name: **CAMBRIDGE WWTP RELOCATION**
GNB/20.245/00/10



ANALYSIS BY X-RAY DIFFRACTION

BH/TP Ref.: BH03
Sample Ref.: CS12
Depth (m): 29.00

Petrographic Analysis by X-ray Diffraction

X-ray diffraction (XRD) – Whole rock & Clay fraction analysis

Whole sample analysis

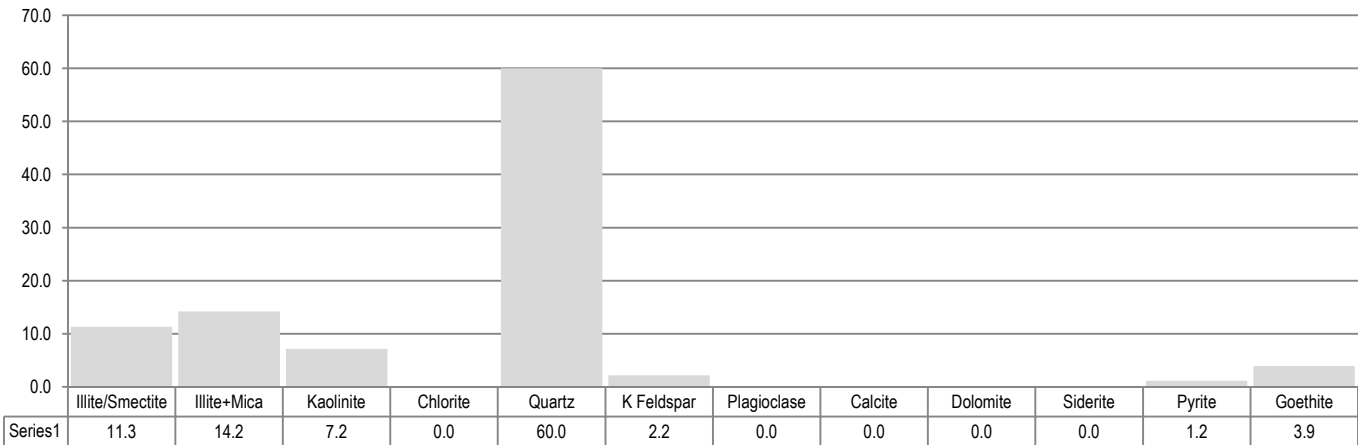
Whole rock analysis was carried out using a PANalytical X'Pert3 Diffractometer employing copper ka radiation ($\lambda=0.15406\text{nm}$). The samples were continuously spun during data collection and were scanned using a step size of $0.013^\circ 2\theta$ between the range of $4.5\text{-}75^\circ 2\theta$ and a count time of 53.295 seconds per step. Phase identification using XRD is achieved by comparing the diffraction pattern obtained from the unknown, to a standard database that is compiled by the International Centre for Diffraction Data (ICDD). If and when a positive identification is made, the presence of the constituent is indicated by a stick pattern that is superimposed on the XRD diffractogram.

Clay fraction analysis

The clay size fraction was extracted from a different sub-sample. The samples were mounted before analysis by XRD using a Phillips PW1730 generator with a Phillips 1030 goniometer with graphite monochromator and PW1170 automatic sample changer. The samples were measured from $3\text{-}35^\circ 2\theta$ using copper K α radiation, 4 scans, air-dried, after glycerolaton and after heating to 400°C and 550°C . Interpretation was carried out using "Traces" and "Search+match" software.

Size fraction: Whole sample

Weight % by mineral phase



Size fraction: Clay minerals Wt. (<2um) % = 24.6

Illite/smectite			Illite			Kaolinite			Chlorite			Quartz		Siderite		
% A	% B	Order	% Illite	% A	% B	Crys	% A	% B	Crys	% A	% B	Crys	% A	% B	% A	% B
45.9	11.3	RI	30-50	21.6	5.3	M	29.4	7.2	M	TR	TR	P	3.1	0.8	0.0	0.0

- | | | |
|--|---|---|
| <p>A Weight % relevant size fraction</p> <p>B Weight % bulk sample</p> | <p>Mixed-layer Ordering:</p> <p>RI Randomly Interstratified (R0)</p> <p>O Ordered Interstratification (R1)</p> <p>LR Long-range Ordering (R3)</p> | <p>Crystallinity:</p> <p>VW Very Well Crystallised</p> <p>W Well Crystallised</p> <p>M Moderately Crystallised</p> <p>P Poorly Crystallised</p> |
|--|---|---|

Project number: **GEO/31786**
 Project Name: **CAMBRIDGE WWTP RELOCATION
 GNB/20.245/00/06**



ANALYSIS BY X-RAY DIFFRACTION

BH/TP Ref.: BH03
Sample Ref.: D34
Depth (m): 32.90

Petrographic Analysis by X-ray Diffraction

X-ray diffraction (XRD) – Whole rock & Clay fraction analysis

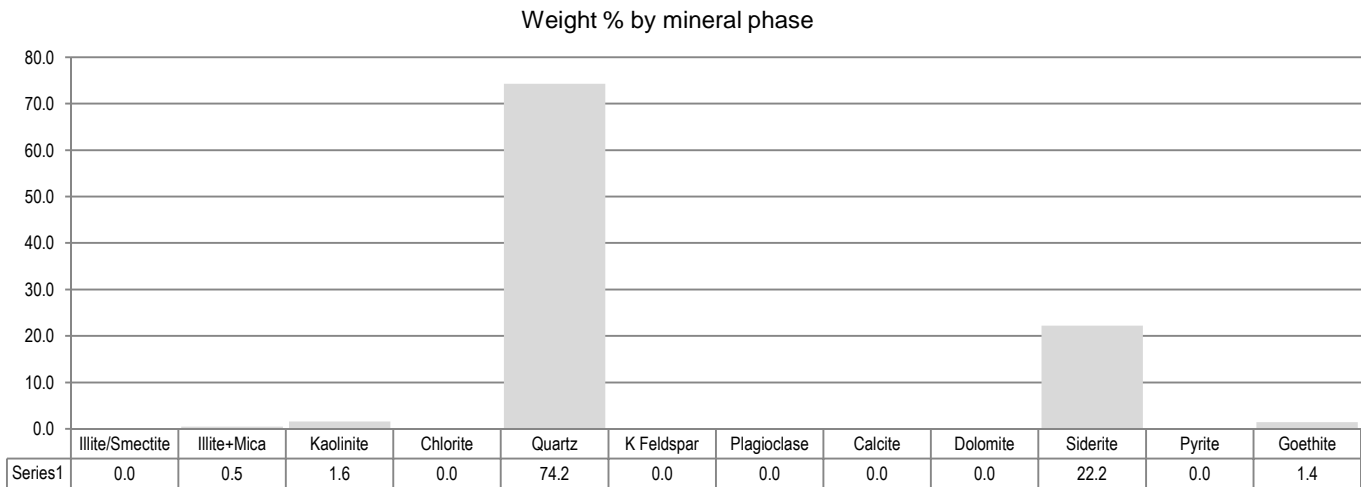
Whole sample analysis

Whole rock analysis was carried out using a PANalytical X'Pert3 Diffractometer employing copper ka radiation ($\lambda=0.15406\text{nm}$). The samples were continuously spun during data collection and were scanned using a step size of $0.013^\circ 2\theta$ between the range of $4.5\text{-}75^\circ 2\theta$ and a count time of 53.295 seconds per step. Phase identification using XRD is achieved by comparing the diffraction pattern obtained from the unknown, to a standard database that is compiled by the International Centre for Diffraction Data (ICDD). If and when a positive identification is made, the presence of the constituent is indicated by a stick pattern that is superimposed on the XRD diffractogram.

Clay fraction analysis

The clay size fraction was extracted from a different sub-sample. The samples were mounted before analysis by XRD using a Phillips PW1730 generator with a Phillips 1030 goniometer with graphite monochromator and PW1170 automatic sample changer. The samples were measured from $3\text{-}35^\circ 2\theta$ using copper K α radiation, 4 scans, air-dried, after glycerolaton and after heating to 400°C and 550°C . Interpretation was carried out using "Traces" and "Search+match" software.

Size fraction: Whole sample



Size fraction: Clay minerals Wt. (<2um) % = 2.3

Illite/smectite		Illite		Kaolinite			Chlorite			Quartz		Siderite		
% A	% B	Order	% Illite	% A	% B	Crys	% A	% B	Crys	% A	% B	Crys	% A	% B
0.0	0.0		20.2	0.5		P	71.1	1.6	P	0.0	0.0		1.3	TR
													7.4	0.2

- | | | |
|--|---|---|
| <p>A Weight % relevant size fraction</p> <p>B Weight % bulk sample</p> | <p>Mixed-layer Ordering:</p> <p>RI Randomly Interstratified (R0)</p> <p>O Ordered Interstratification (R1)</p> <p>LR Long-range Ordering (R3)</p> | <p>Crystallinity:</p> <p>VW Very Well Crystallised</p> <p>W Well Crystallised</p> <p>M Moderately Crystallised</p> <p>P Poorly Crystallised</p> |
|--|---|---|

Project number: **GEO/31786**
 Project Name: **CAMBRIDGE WWTP RELOCATION
 GNB/20.245/00/06**



ANALYSIS BY X-RAY DIFFRACTION

BH/TP Ref.: BH04
Sample Ref.: CS2
Depth (m): 10.00

Petrographic Analysis by X-ray Diffraction

X-ray diffraction (XRD) – Whole rock & Clay fraction analysis

Whole sample analysis

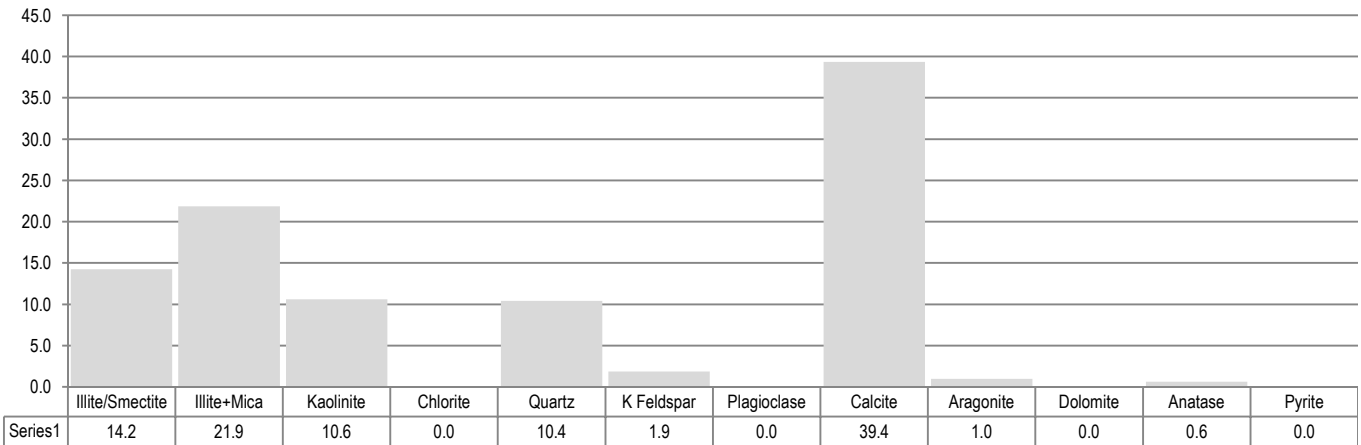
Whole rock analysis was carried out using a PANalytical X'Pert3 Diffractometer employing copper ka radiation ($\lambda=0.15406\text{nm}$). The samples were continuously spun during data collection and were scanned using a step size of $0.013^\circ 2\theta$ between the range of $4.5\text{-}75^\circ 2\theta$ and a count time of 53.295 seconds per step. Phase identification using XRD is achieved by comparing the diffraction pattern obtained from the unknown, to a standard database that is compiled by the International Centre for Diffraction Data (ICDD). If and when a positive identification is made, the presence of the constituent is indicated by a stick pattern that is superimposed on the XRD diffractogram.

Clay fraction analysis

The clay size fraction was extracted from a different sub-sample. The samples were mounted before analysis by XRD using a Phillips PW1730 generator with a Phillips 1030 goniometer with graphite monochromator and PW1170 automatic sample changer. The samples were measured from $3\text{-}35^\circ 2\theta$ using copper K α radiation, 4 scans, air-dried, after glycerolaton and after heating to 400°C and 550°C . Interpretation was carried out using "Traces" and "Search+match" software.

Size fraction: Whole sample

Weight % by mineral phase



Size fraction: Clay minerals Wt. (<2um) % = 46.2

Illite/smectite			Illite			Kaolinite			Chlorite			Calcite		
% A	% B	Order	% Illite	% A	% B	Crys	% A	% B	Crys	% A	% B	Crys	% A	% B
30.7	14.2	RI	30-50	20.1	9.3	P	22.9	10.6	M	TR	TR	P	26.3	12.2

- | | | |
|--|---|---|
| <p>A Weight % relevant size fraction</p> <p>B Weight % bulk sample</p> | <p>Mixed-layer Ordering:</p> <p>RI Randomly Interstratified (R0)</p> <p>O Ordered Interstratification (R1)</p> <p>LR Long-range Ordering (R3)</p> | <p>Crystallinity:</p> <p>VW Very Well Crystallised</p> <p>W Well Crystallised</p> <p>M Moderately Crystallised</p> <p>P Poorly Crystallised</p> |
|--|---|---|

Project number: **GEO/31731**
 Project Name: **CAMBRIDGE WWTP RELOCATION**
ADB/20.245/00/02



ANALYSIS BY X-RAY DIFFRACTION

BH/TP Ref.: BH04
Sample Ref.: CS5
Depth (m): 14.00

Petrographic Analysis by X-ray Diffraction

X-ray diffraction (XRD) – Whole rock & Clay fraction analysis

Whole sample analysis

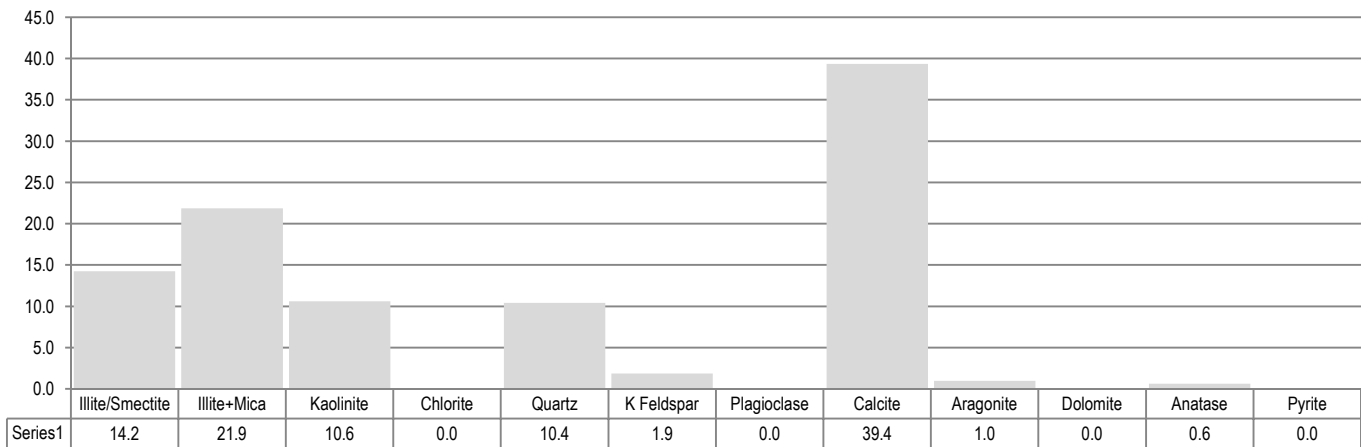
Whole rock analysis was carried out using a PANalytical X'Pert3 Diffractometer employing copper ka radiation ($\lambda=0.15406\text{nm}$). The samples were continuously spun during data collection and were scanned using a step size of $0.013^\circ 2\theta$ between the range of $4.5\text{-}75^\circ 2\theta$ and a count time of 53.295 seconds per step. Phase identification using XRD is achieved by comparing the diffraction pattern obtained from the unknown, to a standard database that is compiled by the International Centre for Diffraction Data (ICDD). If and when a positive identification is made, the presence of the constituent is indicated by a stick pattern that is superimposed on the XRD diffractogram.

Clay fraction analysis

The clay size fraction was extracted from a different sub-sample. The samples were mounted before analysis by XRD using a Phillips PW1730 generator with a Phillips 1030 goniometer with graphite monochromator and PW1170 automatic sample changer. The samples were measured from $3\text{-}35^\circ 2\theta$ using copper K α radiation, 4 scans, air-dried, after glycerolaton and after heating to 400°C and 550°C . Interpretation was carried out using "Traces" and "Search+match" software.

Size fraction: Whole sample

Weight % by mineral phase



Size fraction: Clay minerals Wt. (<2um) % = 51.8

Illite/smectite			Illite			Kaolinite			Chlorite			Calcite		
% A	% B	Order	% Illite	% A	% B	Crys	% A	% B	Crys	% A	% B	Crys	% A	% B
28.9	15.0	RI	30-50	25.1	13.0	P	27.0	14.0	M	TR	TR	P	19.0	9.9

- | | | |
|--|---|---|
| <p>A Weight % relevant size fraction</p> <p>B Weight % bulk sample</p> | <p>Mixed-layer Ordering:</p> <p>RI Randomly Interstratified (R0)</p> <p>O Ordered Interstratification (R1)</p> <p>LR Long-range Ordering (R3)</p> | <p>Crystallinity:</p> <p>VW Very Well Crystallised</p> <p>W Well Crystallised</p> <p>M Moderately Crystallised</p> <p>P Poorly Crystallised</p> |
|--|---|---|

Project number: **GEO/31731**
 Project Name: **CAMBRIDGE WWTP RELOCATION
 ADB/20.245/00/02**



ANALYSIS BY X-RAY DIFFRACTION

BH/TP Ref.: BH05
Sample Ref.: CS6
Depth (m): 17.00

Petrographic Analysis by X-ray Diffraction

X-ray diffraction (XRD) – Whole rock & Clay fraction analysis

Whole sample analysis

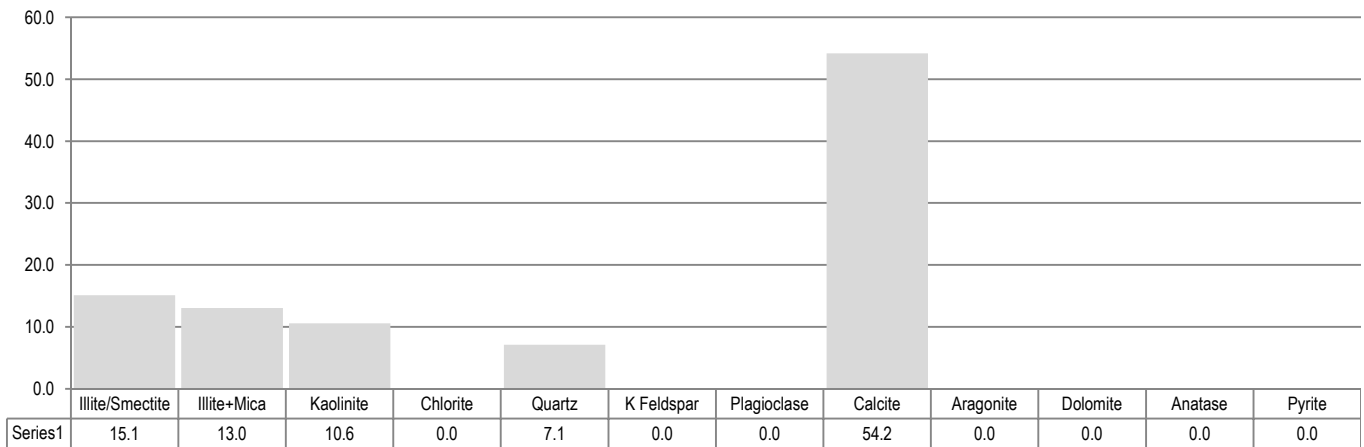
Whole rock analysis was carried out using a PANalytical X'Pert3 Diffractometer employing copper ka radiation ($\lambda=0.15406\text{nm}$). The samples were continuously spun during data collection and were scanned using a step size of $0.013^\circ 2\theta$ between the range of $4.5\text{-}75^\circ 2\theta$ and a count time of 53.295 seconds per step. Phase identification using XRD is achieved by comparing the diffraction pattern obtained from the unknown, to a standard database that is compiled by the International Centre for Diffraction Data (ICDD). If and when a positive identification is made, the presence of the constituent is indicated by a stick pattern that is superimposed on the XRD diffractogram.

Clay fraction analysis

The clay size fraction was extracted from a different sub-sample. The samples were mounted before analysis by XRD using a Phillips PW1730 generator with a Phillips 1030 goniometer with graphite monochromator and PW1170 automatic sample changer. The samples were measured from $3\text{-}35^\circ 2\theta$ using copper K α radiation, 4 scans, air-dried, after glycerolaton and after heating to 400°C and 550°C . Interpretation was carried out using "Traces" and "Search+match" software.

Size fraction: Whole sample

Weight % by mineral phase



Size fraction: Clay minerals Wt. (<2um) % = 44.1

Illite/smectite			Illite				Kaolinite			Chlorite			Calcite	
% A	% B	Order	% Illite	% A	% B	Crys	% A	% B	Crys	% A	% B	Crys	% A	% B
34.3	15.1	R/O	50-70	21.1	9.3	P	24.0	10.6	M	TR	TR	P	20.6	9.1

- | | | |
|--|---|---|
| <p>A Weight % relevant size fraction</p> <p>B Weight % bulk sample</p> | <p>Mixed-layer Ordering:</p> <p>RI Randomly Interstratified (R0)</p> <p>O Ordered Interstratification (R1)</p> <p>LR Long-range Ordering (R3)</p> | <p>Crystallinity:</p> <p>VW Very Well Crystallised</p> <p>W Well Crystallised</p> <p>M Moderately Crystallised</p> <p>P Poorly Crystallised</p> |
|--|---|---|

Project number: **GEO/31731**
 Project Name: **CAMBRIDGE WWTP RELOCATION
 ADB/20.245/00/02**



ANALYSIS BY X-RAY DIFFRACTION

BH/TP Ref.: BH05
Sample Ref.: CS10
Depth (m): 24.50

Petrographic Analysis by X-ray Diffraction

X-ray diffraction (XRD) – Whole rock & Clay fraction analysis

Whole sample analysis

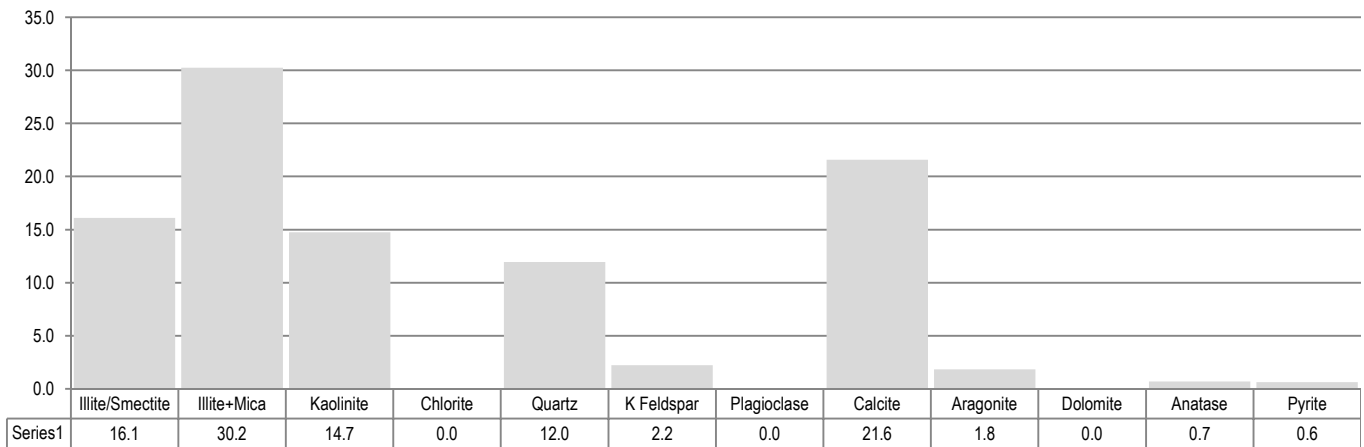
Whole rock analysis was carried out using a PANalytical X'Pert3 Diffractometer employing copper ka radiation ($\lambda=0.15406\text{nm}$). The samples were continuously spun during data collection and were scanned using a step size of $0.013^\circ 2\theta$ between the range of $4.5\text{-}75^\circ 2\theta$ and a count time of 53.295 seconds per step. Phase identification using XRD is achieved by comparing the diffraction pattern obtained from the unknown, to a standard database that is compiled by the International Centre for Diffraction Data (ICDD). If and when a positive identification is made, the presence of the constituent is indicated by a stick pattern that is superimposed on the XRD diffractogram.

Clay fraction analysis

The clay size fraction was extracted from a different sub-sample. The samples were mounted before analysis by XRD using a Phillips PW1730 generator with a Phillips 1030 goniometer with graphite monochromator and PW1170 automatic sample changer. The samples were measured from $3\text{-}35^\circ 2\theta$ using copper $K\alpha$ radiation, 4 scans, air-dried, after glycerolaton and after heating to 400°C and 550°C . Interpretation was carried out using "Traces" and "Search+match" software.

Size fraction: Whole sample

Weight % by mineral phase



Size fraction: Clay minerals Wt. (<2um) % = 50.2

Illite/smectite				Illite		Kaolinite			Chlorite			Calcite		
% A	% B	Order	% Illite	% A	% B	Crys	% A	% B	Crys	% A	% B	Crys	% A	% B
32.2	16.1	RI	30-50	25.8	12.9	P	29.3	14.7	M	TR	TR	P	12.7	6.4

- | | | |
|--|---|---|
| <p>A Weight % relevant size fraction</p> <p>B Weight % bulk sample</p> | <p>Mixed-layer Ordering:</p> <p>RI Randomly Interstratified (R0)</p> <p>O Ordered Interstratification (R1)</p> <p>LR Long-range Ordering (R3)</p> | <p>Crystallinity:</p> <p>VW Very Well Crystallised</p> <p>W Well Crystallised</p> <p>M Moderately Crystallised</p> <p>P Poorly Crystallised</p> |
|--|---|---|

Project number: **GEO/31731**
 Project Name: **CAMBRIDGE WWTP RELOCATION**
ADB/20.245/00/02



SUMMARY OF ANALYTICAL CHEMISTRY TESTS

Location	Depth m	Sample Ref	Sample Type	Redox Potential mV									
BH01	14.10	CS3	C	1.9									
BH01	24.50	CS8	C	-14.0									
BH02	3.20	D5	D	3.6									
BH02	23.00	CS8	C	14.0									
BH03	29.00	CS12	C	12.0									
BH03	32.90	D34	D	15.0									
BH04	10.00	CS2	C	78.0									
BH04	14.00	CS5	C	58.0									
BH05	17.00	CS6	C	56.0									
BH05	24.50	CS10	C	63.0									

Tested by Chemtest Ltd : UKAS No 2183

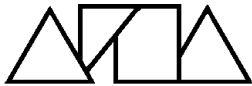
Project Number:

GEO / 31909

Project Name:

**CAMBRIDGE WWTP RELOCATION
GNB/20.245/00/09**

GEOLABS®



Site : Cambridge WWTP Relocation

Client : Anglian Water Services Limited

Engineer : Mott Macdonald

Job Number
20.245

Sheet
1 / 1

**DETERMINATION OF pH, SULPHATE CONTENT AND TOTAL SULPHUR OF SOIL AND GROUNDWATER
AND MAGNESIUM, CHLORIDE, AMMONIA AND NITRATE CONTENT**

Borehole/ Trial Pit	Depth (m)	Sample	Concentration of Sulphate			Total Sulphur %	Magnesium mg/l	Ammonium NH4 mg/l	Water Soluble Chloride mg/l	Water Soluble Nitrate mg/l	pH	Design Class	Laboratory Description
			Soil		Ground Water g /l								
			Total SO4 %	SO3 in 2:1 water:soil g /l									
BH01	0.80	D2		0.10						8.6	DS-1	Dark brown clayey silty SAND with rare gravel and rootlets.	
BH01	3.50	D5		<0.01						8.7	DS-1	Light brown and rare yellowish brown fine sandy clayey SILT.	
BH01	5.70	W1			0.01	10	0.35		0.90	7.7	DS-1	Light grey fine sandy clayey SILT.	
BH01	8.00	D13		<0.01						8.5	DS-1	Light grey clayey SILT.	
BH01	16.00	D21		0.21						8.4	DS-1	Grey clayey fine sandy SILT with rare gravel and shell.	
BH01	22.70	D24		0.33						8.5	DS-1	Grey SILT and CLAY.	
BH02	2.20	W1			0.02	7	1.30		9.60	8.6	DS-1	Grey SILT and CLAY.	
BH02	3.60	D6		0.16						8.4	DS-1	Greenish grey silty CLAY with rare shell fragments.	
BH02	7.50	D13		0.69						8.2	DS-2	Greyish brown silty CLAY.	
BH02	13.50	D16		0.08						8.9	DS-1	Grey silty CLAY.	
BH02	23.80	D22		0.20						8.3	DS-1	Grey silty CLAY with rare gravel.	
BH02	34.00	D27		0.49						9.1	DS-2	Greenish grey slightly silty SAND with rare gravel.	
BH03	3.00	D8		1.48						8.3	DS-3	Stiff dark grey silty CLAY.	
BH03	4.40	W1			0.01	4	1.20		8.90	8.6	DS-1	Water sample	
BH03	10.00	D15		0.78						8.9	DS-2	Grey silty CLAY.	
BH03	18.00	D21		0.23						8.8	DS-1	Grey silty CLAY.	
BH03	25.50	D27		0.25						8.8	DS-1	Dark grey silty CLAY.	
BH03	37.50	D37		0.20						9.3	DS-1	Dark brown clayey silty SAND with rare pockets of black organic matter.	
BH04	1.52	W1			0.01	10	0.77		1.80	8.1	DS-1	Yellowish brown and light brown SAND and GRAVEL.	
BH04	2.20	B4		0.01						8.1	DS-1	Light brown sandy gravel	
BH04	4.70	D5		0.11						8.0	DS-1	Light brown very sandy GRAVEL.	
BH04	16.00	D13		0.13						8.7	DS-1	Grey silty CLAY.	
BH04	28.00	D21		0.17						8.8	DS-1	Greyish brown silty CLAY with rare shell fragments.	
BH05	1.10	W1			0.01	17	0.85		<0.05	7.8	DS-1	Black gravelly sandy fibrous PEAT. Gravel includes shell fragments and rare plastic remains.	
BH05	3.00	D10		0.39						7.8	DS-1	Grey silty CLAY.	
BH05	5.00	D14		0.15						8.1	DS-1	Grey clay	
BH05	13.00	D20		0.16						8.3	DS-1	Grey silty CLAY.	
BH05	22.00	D27		0.24						8.4	DS-1	Grey silty CLAY with rare shell fragments.	
BH05	28.00	D31										Stiff grey CLAY.	

Method of Preparation : BS 1377:PART 1:1990:7.5 Preparation of soil for chemical tests BS 1377:PART 3:1990:5.2, 5.3, 5.4 & 9.4

Method of Test : Lab in-house methods based on BS1377: Part 3 for contents of water sol sulphate, pH, chloride and magnesium. Lab in-house method based on MEWAM (EA, 2006) for total sulphur

Remarks : Classification relates to Design Sulphate Class of BRE Special Digest 1 (2005)



Gill Bond
AF Howland Associates Ltd
The Old Exchange
Newmarket Road
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Norfolk
NR4 6UF

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 20-11167

Site Reference: Cambridge WWTP Relocation - AFHA Suites

Project / Job Ref: 20.245

Order No: GNB/20.245/00/08

Sample Receipt Date: 25/09/2020

Sample Scheduled Date: 25/09/2020

Report Issue Number: 1

Reporting Date: 06/10/2020


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.



DETS Ltd
 Unit 1, Rose Lane Industrial Estate
 Rose Lane
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 Tel : 01622 850410



Soil Analysis Certificate					
DETS Report No: 20-11167	Date Sampled	21/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH01			
Project / Job Ref: 20.245	Additional Refs	ES3			
Order No: GNB/20.245/00/08	Depth (m)	1.00			
Reporting Date: 06/10/2020	DETS Sample No	501417			

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected			
pH	pH Units	N/a	MCERTS	8.3			
Total Cyanide	mg/kg	< 2	NONE	< 2			
Free Cyanide	mg/kg	< 2	NONE	< 2			
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	238			
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.24			
Organic Matter	%	< 0.1	MCERTS	1.1			
Total Organic Carbon (TOC)	%	< 0.1	MCERTS	0.7			
Arsenic (As)	mg/kg	< 2	MCERTS	5			
Barium (Ba)	mg/kg	< 2.5	MCERTS	22			
Beryllium (Be)	mg/kg	< 0.5	MCERTS	< 0.5			
W/S Boron	mg/kg	< 1	NONE	< 1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2			
Chromium (Cr)	mg/kg	< 2	MCERTS	10			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	10			
Iron (Fe)	mg/kg	< 50	NONE	12540			
Lead (Pb)	mg/kg	< 3	MCERTS	9			
Manganese (Mn)	mg/kg	< 5	NONE	756			
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1			
Molybdenum (Mo)	mg/kg	< 1	MCERTS	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	11			
Selenium (Se)	mg/kg	< 2	MCERTS	< 3			
Vanadium (V)	mg/kg	< 1	MCERTS	16			
Zinc (Zn)	mg/kg	< 3	MCERTS	23			
Magnesium	mg/kg	< 50	NONE	2080			

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
 Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 20-11167	Date Sampled	21/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH01				
Project / Job Ref: 20.245	Additional Refs	ES3				
Order No: GNB/20.245/00/08	Depth (m)	1.00				
Reporting Date: 06/10/2020	DETS Sample No	501417				

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1			
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1			
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1			
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1			
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6			



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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 20-11167	Date Sampled	21/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH01				
Project / Job Ref: 20.245	Additional Refs	ES3				
Order No: GNB/20.245/00/08	Depth (m)	1.00				
Reporting Date: 06/10/2020	DETS Sample No	501417				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01			
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05			
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2			
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2			
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3			
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3			
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10			
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21			
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01			
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05			
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2			
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2			
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2			
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3			
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10			
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21			
Total >C5 - C35	mg/kg	< 42	NONE	< 42			



DETS Ltd
 Unit 1, Rose Lane Industrial Estate
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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-11167	Date Sampled	21/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH01				
Project / Job Ref: 20.245	Additional Refs	ES3				
Order No: GNB/20.245/00/08	Depth (m)	1.00				
Reporting Date: 06/10/2020	DETS Sample No	501417				

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



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 Unit 1, Rose Lane Industrial Estate
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Soil Analysis Certificate - Speciated Phenols						
DETS Report No: 20-11167	Date Sampled	21/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH01				
Project / Job Ref: 20.245	Additional Refs	ES3				
Order No: GNB/20.245/00/08	Depth (m)	1.00				
Reporting Date: 06/10/2020	DETS Sample No	501417				

Determinand	Unit	RL	Accreditation				
2, 3, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 3, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 3-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 4, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 6-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
3, 4, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
3, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
3, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
3-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
3-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
4-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
4-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
m-cresol (3-methylphenol)	mg/kg	< 0.1	NONE	< 0.1			
o-cresol (2-methylphenol)	mg/kg	< 0.1	NONE	< 0.1			
p-cresol (4-methylphenol)	mg/kg	< 0.15	NONE	< 0.15			
phenol	mg/kg	< 0.1	NONE	< 0.1			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 20-11167	
AF Howland Associates Ltd	
Site Reference: Cambridge WWTP Relocation - AFHA Suites	
Project / Job Ref: 20.245	
Order No: GNB/20.245/00/08	
Reporting Date: 06/10/2020	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
501417	BH01	ES3	1.00	9.6	Brown loamy sand with vegetation

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

Insufficient Sample ^{U/S}

Unsuitable Sample ^{U/S}

Soil Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No:	20-11167
AF Howland Associates Ltd	
Site Reference:	Cambridge WWTP Relocation - AFHA Suites
Project / Job Ref:	20.245
Order No:	GNB/20.245/00/08
Reporting Date:	06/10/2020

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 diphénylcarbazine 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	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 LOM (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



Gill Bond
AF Howland Associates Ltd
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DETS Report No: 20-10996

Site Reference: Cambridge WWTP Relocation - AFHA Suites

Project / Job Ref: 20.245


Order No: GNB/20.245/00/07

Sample Receipt Date: 22/09/2020

Sample Scheduled Date: 22/09/2020

Report Issue Number: 1

Reporting Date: 02/10/2020


Kevin Old
General Manager

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

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Soil Analysis Certificate					
DETS Report No: 20-10996	Date Sampled	14/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/07	Depth (m)	0.50			
Reporting Date: 02/10/2020	DETS Sample No	500463			

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected			
pH	pH Units	N/a	MCERTS	8.6			
Total Cyanide	mg/kg	< 2	NONE	< 2			
Free Cyanide	mg/kg	< 2	NONE	< 2			
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	40			
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.04			
Organic Matter	%	< 0.1	MCERTS	1.2			
Total Organic Carbon (TOC)	%	< 0.1	MCERTS	0.7			
Arsenic (As)	mg/kg	< 2	MCERTS	10			
Barium (Ba)	mg/kg	< 2.5	MCERTS	53			
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.7			
W/S Boron	mg/kg	< 1	NONE	< 1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2			
Chromium (Cr)	mg/kg	< 2	MCERTS	24			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	10			
Iron (Fe)	mg/kg	< 50	NONE	22010			
Lead (Pb)	mg/kg	< 3	MCERTS	15			
Manganese (Mn)	mg/kg	< 5	NONE	346			
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1			
Molybdenum (Mo)	mg/kg	< 1	MCERTS	1.3			
Nickel (Ni)	mg/kg	< 3	MCERTS	20			
Selenium (Se)	mg/kg	< 2	MCERTS	< 3			
Vanadium (V)	mg/kg	< 1	MCERTS	37			
Zinc (Zn)	mg/kg	< 3	MCERTS	34			
Magnesium	mg/kg	< 50	NONE	21900			

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
 Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 20-10996	Date Sampled	14/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/07	Depth (m)	0.50				
Reporting Date: 02/10/2020	DETS Sample No	500463				

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1			
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1			
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1			
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1			
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6			



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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 20-10996	Date Sampled	14/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/07	Depth (m)	0.50				
Reporting Date: 02/10/2020	DETS Sample No	500463				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01			
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05			
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2			
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2			
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3			
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3			
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10			
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21			
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01			
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05			
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2			
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2			
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2			
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3			
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10			
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21			
Total >C5 - C35	mg/kg	< 42	NONE	< 42			



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-10996	Date Sampled	14/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/07	Depth (m)	0.50				
Reporting Date: 02/10/2020	DETS Sample No	500463				

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



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Soil Analysis Certificate - Speciated Phenols						
DETS Report No: 20-10996	Date Sampled	14/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/07	Depth (m)	0.50				
Reporting Date: 02/10/2020	DETS Sample No	500463				

Determinand	Unit	RL	Accreditation				
2, 3, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 3, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 3-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 4, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 6-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
3, 4, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
3, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
3, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
3-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
3-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
4-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
4-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
m-cresol (3-methylphenol)	mg/kg	< 0.1	NONE	< 0.1			
o-cresol (2-methylphenol)	mg/kg	< 0.1	NONE	< 0.1			
p-cresol (4-methylphenol)	mg/kg	< 0.15	NONE	< 0.15			
phenol	mg/kg	< 0.1	NONE	< 0.1			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Leachate Analysis Certificate						
DETS Report No: 20-10996	Date Sampled	14/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/07	Depth (m)	0.50				
Reporting Date: 02/10/2020	DETS Sample No	500464				

Determinand	Unit	RL	Accreditation				
Complex Cyanide	ug/l	< 5	NONE	< 5			
Magnesium	mg/l	< 0.1	ISO17025	0.6			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - TPH CWG Banded						
DETS Report No: 20-10996	Date Sampled	14/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/07	Depth (m)	0.50				
Reporting Date: 02/10/2020	DETS Sample No	500464				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10			
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10			
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10			
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10			
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10			
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10			
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10			
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70			
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10			
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10			
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10			
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10			
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10			
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10			
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10			
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70			
Total >C5 - C35	ug/l	< 140	NONE	< 140			



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Leachate Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-10996	Date Sampled	14/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/07	Depth (m)	0.50				
Reporting Date: 02/10/2020	DETS Sample No	500464				

Determinand	Unit	RL	Accreditation				
Benzene	ug/l	< 1	ISO17025	< 1			
Toluene	ug/l	< 5	ISO17025	< 5			
Ethylbenzene	ug/l	< 5	ISO17025	< 5			
p & m-xylene	ug/l	< 10	ISO17025	< 10			
o-xylene	ug/l	< 5	ISO17025	< 5			
MTBE	ug/l	< 10	ISO17025	< 10			



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Leachate Analysis Certificate - Speciated Phenols					
DETS Report No: 20-10996	Date Sampled	14/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/07	Depth (m)	0.50			
Reporting Date: 02/10/2020	DETS Sample No	500464			

Determinand	Unit	RL	Accreditation				
2, 3, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 3, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 3-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 4, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 4-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 5-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 6-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
2-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
3, 4, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
3, 4-xyleneol	ug/l	< 0.1	NONE	< 0.1			
3, 5-xyleneol	ug/l	< 0.1	NONE	< 0.1			
3-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
3-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
4-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
4-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
m-cresol (3-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
o-cresol (2-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
p-cresol (4-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
phenol	ug/l	< 0.1	NONE	< 0.1			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - BS EN 12457:2 (10:1 Single Stage)					
DETS Report No: 20-10996	Date Sampled	14/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/07	Depth (m)	0.50			
Reporting Date: 02/10/2020	DETS Sample No	500464			

Determinand	Unit	RL	Accreditation				
pH	pH Units	N/a	NONE	8.3			
Free Cyanide	ug/l	< 5	NONE	< 5			
Sulphate as SO ₄	mg/l	< 1	ISO17025	< 1			
Ammoniacal Nitrogen as NH ₄	ug/l	< 50	NONE	66			
Chloride	mg/l	< 1	ISO17025	< 1			
Nitrate as NO ₃	mg/l	< 0.5	ISO17025	0.6			
Hardness - Total	mgCaCO ₃ /l	< 1	NONE	23.5			
Arsenic	ug/l	< 5	ISO17025	< 5			
Barium	ug/l	< 5	ISO17025	< 5			
Beryllium	ug/l	< 3	ISO17025	< 3			
Boron	ug/l	< 5	ISO17025	30			
Cadmium	ug/l	< 0.4	ISO17025	< 0.4			
Chromium	ug/l	< 5	ISO17025	< 5			
Chromium (hexavalent)	ug/l	< 20	NONE	< 20			
Copper	ug/l	< 5	ISO17025	8			
Iron	ug/l	< 5	ISO17025	371			
Lead	ug/l	< 5	ISO17025	< 5			
Manganese	ug/l	< 5	ISO17025	< 5			
Mercury	ug/l	< 0.05	ISO17025	< 0.05			
Molybdenum	ug/l	< 5	ISO17025	< 5			
Nickel	ug/l	< 5	ISO17025	< 5			
Selenium	ug/l	< 5	ISO17025	< 5			
Vanadium	ug/l	< 5	ISO17025	< 5			
Zinc	ug/l	< 2	ISO17025	3			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - Speciated PAH - BS EN 12457:2 (10:1 Single Stage)					
DETS Report No: 20-10996	Date Sampled	14/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH02			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/07	Depth (m)	0.50			
Reporting Date: 02/10/2020	DETS Sample No	500464			

Determinand	Unit	RL	Accreditation				
Naphthalene	ug/l	< 0.01	NONE	0.02			
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01			
Acenaphthene	ug/l	< 0.01	NONE	0.01			
Fluorene	ug/l	< 0.01	NONE	< 0.01			
Phenanthrene	ug/l	< 0.01	NONE	0.03			
Anthracene	ug/l	< 0.01	NONE	< 0.01			
Fluoranthene	ug/l	< 0.01	NONE	0.02			
Pyrene	ug/l	< 0.01	NONE	0.01			
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01			
Chrysene	ug/l	< 0.01	NONE	< 0.01			
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01			
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01			
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01			
Benzo(ghi)perylene	ug/l	< 0.01	NONE	< 0.01			
Total EPA-16 PAHs	ug/l	< 0.01	NONE	0.09			



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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 20-10996	
AF Howland Associates Ltd	
Site Reference: Cambridge WWTP Relocation - AFHA Suites	
Project / Job Ref: 20.245	
Order No: GNB/20.245/00/07	
Reporting Date: 02/10/2020	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
500463	BH02	ES2	0.50	10.3	Light brown sandy clay

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

Insufficient Sample ^{U/S}

Unsuitable Sample ^{U/S}



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Soil Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No:	20-10996
AF Howland Associates Ltd	
Site Reference:	Cambridge WWTP Relocation - AFHA Suites
Project / Job Ref:	20.245
Order No:	GNB/20.245/00/07
Reporting Date:	02/10/2020

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 diphénylcarbazine 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	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 LOM (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:	20-10996
AF Howland Associates Ltd	
Site Reference:	Cambridge WWTP Relocation - AFHA Suites
Project / Job Ref:	20.245
Order No:	GNB/20.245/00/07
Reporting Date:	02/10/2020

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	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 detection	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 (all: 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 LOM (all: 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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DETS Report No: 20-10484

Site Reference: Cambridge WWTP Relocation - AFHA Suites

Project / Job Ref: 20.245

Order No: GNB/20.245/00/04

Sample Receipt Date: 11/09/2020

Sample Scheduled Date: 11/09/2020

Report Issue Number: 1

Reporting Date: 22/09/2020


Dave Ashworth
Technical Manager

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

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Soil Analysis Certificate					
DETS Report No: 20-10484	Date Sampled	07/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/04	Depth (m)	0.50			
Reporting Date: 22/09/2020	DETS Sample No	498131			

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected			
pH	pH Units	N/a	MCERTS	8.1			
Total Cyanide	mg/kg	< 2	NONE	< 2			
Free Cyanide	mg/kg	< 2	NONE	< 2			
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	16			
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.02			
Organic Matter	%	< 0.1	MCERTS	1			
Total Organic Carbon (TOC)	%	< 0.1	MCERTS	0.6			
Arsenic (As)	mg/kg	< 2	MCERTS	9			
Barium (Ba)	mg/kg	< 2.5	MCERTS	49			
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.7			
W/S Boron	mg/kg	< 1	NONE	< 1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2			
Chromium (Cr)	mg/kg	< 2	MCERTS	19			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	9			
Iron (Fe)	mg/kg	< 50	NONE	25570			
Lead (Pb)	mg/kg	< 3	MCERTS	12			
Manganese (Mn)	mg/kg	< 5	NONE	309			
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1			
Molybdenum (Mo)	mg/kg	< 1	MCERTS	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	16			
Selenium (Se)	mg/kg	< 2	MCERTS	< 3			
Vanadium (V)	mg/kg	< 1	MCERTS	36			
Zinc (Zn)	mg/kg	< 3	MCERTS	36			
Magnesium	mg/kg	< 50	NONE	2500			

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
 Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 20-10484	Date Sampled	07/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/04	Depth (m)	0.50				
Reporting Date: 22/09/2020	DETS Sample No	498131				

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1			
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1			
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1			
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1			
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6			



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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 20-10484	Date Sampled	07/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/04	Depth (m)	0.50				
Reporting Date: 22/09/2020	DETS Sample No	498131				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01			
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05			
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2			
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2			
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3			
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3			
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10			
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21			
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01			
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05			
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2			
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2			
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2			
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3			
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10			
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21			
Total >C5 - C35	mg/kg	< 42	NONE	< 42			



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-10484	Date Sampled	07/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/04	Depth (m)	0.50				
Reporting Date: 22/09/2020	DETS Sample No	498131				

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



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Soil Analysis Certificate - Speciated Phenols					
DETS Report No: 20-10484	Date Sampled	07/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/04	Depth (m)	0.50			
Reporting Date: 22/09/2020	DETS Sample No	498131			

Determinand	Unit	RL	Accreditation				
2, 3, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 3, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 3-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 4, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 6-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
3, 4, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
3, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
3, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
3-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
3-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
4-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
4-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
m-cresol (3-methylphenol)	mg/kg	< 0.1	NONE	< 0.1			
o-cresol (2-methylphenol)	mg/kg	< 0.1	NONE	< 0.1			
p-cresol (4-methylphenol)	mg/kg	< 0.15	NONE	< 0.15			
phenol	mg/kg	< 0.1	NONE	< 0.1			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Leachate Analysis Certificate						
DETS Report No: 20-10484	Date Sampled	07/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/04	Depth (m)	0.50				
Reporting Date: 22/09/2020	DETS Sample No	498132				

Determinand	Unit	RL	Accreditation				
Complex Cyanide	ug/l	< 5	NONE	< 5			
Magnesium	mg/l	< 0.1	ISO17025	0.4			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - TPH CWG Banded						
DETS Report No: 20-10484	Date Sampled	07/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/04	Depth (m)	0.50				
Reporting Date: 22/09/2020	DETS Sample No	498132				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10			
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10			
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10			
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10			
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10			
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10			
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10			
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70			
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10			
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10			
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10			
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10			
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10			
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10			
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10			
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70			
Total >C5 - C35	ug/l	< 140	NONE	< 140			



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Leachate Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-10484	Date Sampled	07/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/04	Depth (m)	0.50				
Reporting Date: 22/09/2020	DETS Sample No	498132				

Determinand	Unit	RL	Accreditation				
Benzene	ug/l	< 1	ISO17025	< 1			
Toluene	ug/l	< 5	ISO17025	< 5			
Ethylbenzene	ug/l	< 5	ISO17025	< 5			
p & m-xylene	ug/l	< 10	ISO17025	< 10			
o-xylene	ug/l	< 5	ISO17025	< 5			
MTBE	ug/l	< 10	ISO17025	< 10			



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Leachate Analysis Certificate - Speciated Phenols					
DETS Report No: 20-10484	Date Sampled	07/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/04	Depth (m)	0.50			
Reporting Date: 22/09/2020	DETS Sample No	498132			

Determinand	Unit	RL	Accreditation				
2, 3, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 3, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 3-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 4, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 4-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 5-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 6-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
2-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
3, 4, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
3, 4-xyleneol	ug/l	< 0.1	NONE	< 0.1			
3, 5-xyleneol	ug/l	< 0.1	NONE	< 0.1			
3-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
3-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
4-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
4-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
m-cresol (3-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
o-cresol (2-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
p-cresol (4-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
phenol	ug/l	< 0.1	NONE	< 0.1			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - BS EN 12457:2 (10:1 Single Stage)					
DETS Report No: 20-10484	Date Sampled	07/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/04	Depth (m)	0.50			
Reporting Date: 22/09/2020	DETS Sample No	498132			

Determinand	Unit	RL	Accreditation				
pH	pH Units	N/a	NONE	8.6			
Free Cyanide	ug/l	< 5	NONE	< 5			
Sulphate as SO ₄	mg/l	< 1	ISO17025	2			
Ammoniacal Nitrogen as NH ₄	ug/l	< 50	NONE	76			
Chloride	mg/l	< 1	ISO17025	2			
Nitrate as NO ₃	mg/l	< 0.5	ISO17025	1.3			
Hardness - Total	mgCaCO ₃ /l	< 1	NONE	39.4			
Arsenic	ug/l	< 5	ISO17025	< 5			
Barium	ug/l	< 5	ISO17025	6			
Beryllium	ug/l	< 3	ISO17025	< 3			
Boron	ug/l	< 5	ISO17025	28			
Cadmium	ug/l	< 0.4	ISO17025	< 0.4			
Chromium	ug/l	< 5	ISO17025	< 5			
Chromium (hexavalent)	ug/l	< 20	NONE	< 20			
Copper	ug/l	< 5	ISO17025	< 5			
Iron	ug/l	< 5	ISO17025	703			
Lead	ug/l	< 5	ISO17025	< 5			
Manganese	ug/l	< 5	ISO17025	< 5			
Mercury	ug/l	< 0.05	ISO17025	< 0.05			
Molybdenum	ug/l	< 5	ISO17025	< 5			
Nickel	ug/l	< 5	ISO17025	< 5			
Selenium	ug/l	< 5	ISO17025	< 5			
Vanadium	ug/l	< 5	ISO17025	< 5			
Zinc	ug/l	< 2	ISO17025	3			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - Speciated PAH - BS EN 12457:2 (10:1 Single Stage)					
DETS Report No: 20-10484	Date Sampled	07/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH03			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/04	Depth (m)	0.50			
Reporting Date: 22/09/2020	DETS Sample No	498132			

Determinand	Unit	RL	Accreditation				
Naphthalene	ug/l	< 0.01	NONE	0.05			
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01			
Acenaphthene	ug/l	< 0.01	NONE	0.02			
Fluorene	ug/l	< 0.01	NONE	0.02			
Phenanthrene	ug/l	< 0.01	NONE	0.04			
Anthracene	ug/l	< 0.01	NONE	< 0.01			
Fluoranthene	ug/l	< 0.01	NONE	0.02			
Pyrene	ug/l	< 0.01	NONE	0.01			
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01			
Chrysene	ug/l	< 0.01	NONE	< 0.01			
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01			
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01			
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01			
Benzo(ghi)perylene	ug/l	< 0.01	NONE	< 0.01			
Total EPA-16 PAHs	ug/l	< 0.01	NONE	0.16			



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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 20-10484	
AF Howland Associates Ltd	
Site Reference: Cambridge WWTP Relocation - AFHA Suites	
Project / Job Ref: 20.245	
Order No: GNB/20.245/00/04	
Reporting Date: 22/09/2020	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
498131	BH03	ES2	0.50	10.4	Brown sandy clay with stones

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

Insufficient Sample ^{U/S}

Unsuitable Sample ^{U/S}



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Soil Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 20-10484	
AF Howland Associates Ltd	
Site Reference: Cambridge WWTP Relocation - AFHA Suites	
Project / Job Ref: 20.245	
Order No: GNB/20.245/00/04	
Reporting Date: 22/09/2020	

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 diphénylcarbazine 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	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 LOM (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:	20-10484
AF Howland Associates Ltd	
Site Reference:	Cambridge WWTP Relocation - AFHA Suites
Project / Job Ref:	20.245
Order No:	GNB/20.245/00/04
Reporting Date:	22/09/2020

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	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 detection	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 (all: 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 LOM (all: 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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DETS Report No: 20-10299

Site Reference: Cambridge WWTP Relocation - AFHA Suites

Project / Job Ref: 20.245

Order No: GNB/20.245/00/03

Sample Receipt Date: 08/09/2020

Sample Scheduled Date: 08/09/2020

Report Issue Number: 1

Reporting Date: 18/09/2020

[REDACTED]

Dave Ashworth
Technical Manager

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

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Soil Analysis Certificate					
DETS Report No: 20-10299	Date Sampled	02/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/03	Depth (m)	0.50			
Reporting Date: 18/09/2020	DETS Sample No	497101			

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected			
pH	pH Units	N/a	MCERTS	7.7			
Total Cyanide	mg/kg	< 2	NONE	< 2			
Free Cyanide	mg/kg	< 2	NONE	< 2			
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	174			
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.17			
Organic Matter	%	< 0.1	MCERTS	2.7			
Total Organic Carbon (TOC)	%	< 0.1	MCERTS	1.5			
Arsenic (As)	mg/kg	< 2	MCERTS	8			
Barium (Ba)	mg/kg	< 2.5	MCERTS	64			
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.5			
W/S Boron	mg/kg	< 1	NONE	1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2			
Chromium (Cr)	mg/kg	< 2	MCERTS	22			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	16			
Iron (Fe)	mg/kg	< 50	NONE	18180			
Lead (Pb)	mg/kg	< 3	MCERTS	31			
Manganese (Mn)	mg/kg	< 5	NONE	348			
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1			
Molybdenum (Mo)	mg/kg	< 1	MCERTS	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	14			
Selenium (Se)	mg/kg	< 2	MCERTS	< 3			
Vanadium (V)	mg/kg	< 1	MCERTS	30			
Zinc (Zn)	mg/kg	< 3	MCERTS	137			
Magnesium	mg/kg	< 50	NONE	2710			

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
 Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 20-10299	Date Sampled	02/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/03	Depth (m)	0.50				
Reporting Date: 18/09/2020	DETS Sample No	497101				

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	0.68			
Anthracene	mg/kg	< 0.1	MCERTS	0.13			
Fluoranthene	mg/kg	< 0.1	MCERTS	1.73			
Pyrene	mg/kg	< 0.1	MCERTS	1.60			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.84			
Chrysene	mg/kg	< 0.1	MCERTS	0.90			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	1.13			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.39			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.94			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.58			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.13			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.54			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	9.6			



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Soil Analysis Certificate - TPH CWG Banded

DETS Report No: 20-10299	Date Sampled	02/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/03	Depth (m)	0.50				
Reporting Date: 18/09/2020	DETS Sample No	497101				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01			
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05			
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2			
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2			
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3			
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3			
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10			
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21			
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01			
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05			
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2			
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2			
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2			
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	5			
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	22			
Aromatic (C5 - C35)	mg/kg	< 21	NONE	27			
Total >C5 - C35	mg/kg	< 42	NONE	< 42			



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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-10299	Date Sampled	02/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/03	Depth (m)	0.50				
Reporting Date: 18/09/2020	DETS Sample No	497101				

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



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Soil Analysis Certificate - Speciated Phenols						
DETS Report No: 20-10299	Date Sampled	02/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/03	Depth (m)	0.50				
Reporting Date: 18/09/2020	DETS Sample No	497101				

Determinand	Unit	RL	Accreditation				
2, 3, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 3, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 3-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 4, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2, 6-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
2-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
2-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
3, 4, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1			
3, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
3, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1			
3-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
3-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
4-ethylphenol	mg/kg	< 0.1	NONE	< 0.1			
4-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1			
m-cresol (3-methylphenol)	mg/kg	< 0.1	NONE	< 0.1			
o-cresol (2-methylphenol)	mg/kg	< 0.1	NONE	< 0.1			
p-cresol (4-methylphenol)	mg/kg	< 0.15	NONE	< 0.15			
phenol	mg/kg	< 0.1	NONE	< 0.1			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Leachate Analysis Certificate						
DETS Report No: 20-10299	Date Sampled	02/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/03	Depth (m)	0.50				
Reporting Date: 18/09/2020	DETS Sample No	497102				

Determinand	Unit	RL	Accreditation				
Complex Cyanide	ug/l	< 5	NONE	< 5			
Magnesium	mg/l	< 0.1	ISO17025	0.8			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - TPH CWG Banded						
DETS Report No: 20-10299	Date Sampled	02/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/03	Depth (m)	0.50				
Reporting Date: 18/09/2020	DETS Sample No	497102				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10			
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10			
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10			
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10			
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10			
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10			
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10			
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70			
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10			
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10			
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10			
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10			
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10			
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10			
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10			
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70			
Total >C5 - C35	ug/l	< 140	NONE	< 140			



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Leachate Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-10299	Date Sampled	02/09/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/03	Depth (m)	0.50				
Reporting Date: 18/09/2020	DETS Sample No	497102				

Determinand	Unit	RL	Accreditation				
Benzene	ug/l	< 1	ISO17025	< 1			
Toluene	ug/l	< 5	ISO17025	< 5			
Ethylbenzene	ug/l	< 5	ISO17025	< 5			
p & m-xylene	ug/l	< 10	ISO17025	< 10			
o-xylene	ug/l	< 5	ISO17025	< 5			
MTBE	ug/l	< 10	ISO17025	< 10			



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Leachate Analysis Certificate - Speciated Phenols					
DETS Report No: 20-10299	Date Sampled	02/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/03	Depth (m)	0.50			
Reporting Date: 18/09/2020	DETS Sample No	497102			

Determinand	Unit	RL	Accreditation				
2, 3, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 3, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 3-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 4, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 4-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 5-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 6-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
2-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
3, 4, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
3, 4-xyleneol	ug/l	< 0.1	NONE	< 0.1			
3, 5-xyleneol	ug/l	< 0.1	NONE	< 0.1			
3-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
3-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
4-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
4-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
m-cresol (3-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
o-cresol (2-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
p-cresol (4-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
phenol	ug/l	< 0.1	NONE	< 0.1			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - BS EN 12457:2 (10:1 Single Stage)					
DETS Report No: 20-10299	Date Sampled	02/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/03	Depth (m)	0.50			
Reporting Date: 18/09/2020	DETS Sample No	497102			

Determinand	Unit	RL	Accreditation				
pH	pH Units	N/a	NONE	8.1			
Free Cyanide	ug/l	< 5	NONE	< 5			
Sulphate as SO ₄	mg/l	< 1	ISO17025	10			
Ammoniacal Nitrogen as NH ₄	ug/l	< 50	NONE	177			
Chloride	mg/l	< 1	ISO17025	2			
Nitrate as NO ₃	mg/l	< 0.5	ISO17025	1.5			
Hardness - Total	mgCaCO ₃ /l	< 1	NONE	56.2			
Arsenic	ug/l	< 5	ISO17025	< 5			
Barium	ug/l	< 5	ISO17025	< 5			
Beryllium	ug/l	< 3	ISO17025	< 3			
Boron	ug/l	< 5	ISO17025	39			
Cadmium	ug/l	< 0.4	ISO17025	< 0.4			
Chromium	ug/l	< 5	ISO17025	< 5			
Chromium (hexavalent)	ug/l	< 20	NONE	< 20			
Copper	ug/l	< 5	ISO17025	9			
Iron	ug/l	< 5	ISO17025	17			
Lead	ug/l	< 5	ISO17025	< 5			
Manganese	ug/l	< 5	ISO17025	< 5			
Mercury	ug/l	< 0.05	ISO17025	< 0.05			
Molybdenum	ug/l	< 5	ISO17025	< 5			
Nickel	ug/l	< 5	ISO17025	< 5			
Selenium	ug/l	< 5	ISO17025	< 5			
Vanadium	ug/l	< 5	ISO17025	9			
Zinc	ug/l	< 2	ISO17025	6			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - Speciated PAH - BS EN 12457:2 (10:1 Single Stage)					
DETS Report No: 20-10299	Date Sampled	02/09/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH04			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/03	Depth (m)	0.50			
Reporting Date: 18/09/2020	DETS Sample No	497102			

Determinand	Unit	RL	Accreditation				
Naphthalene	ug/l	< 0.01	NONE	< 0.01			
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01			
Acenaphthene	ug/l	< 0.01	NONE	< 0.01			
Fluorene	ug/l	< 0.01	NONE	< 0.01			
Phenanthrene	ug/l	< 0.01	NONE	0.02			
Anthracene	ug/l	< 0.01	NONE	< 0.01			
Fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Pyrene	ug/l	< 0.01	NONE	< 0.01			
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01			
Chrysene	ug/l	< 0.01	NONE	< 0.01			
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01			
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01			
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01			
Benzo(ghi)perylene	ug/l	< 0.01	NONE	< 0.01			
Total EPA-16 PAHs	ug/l	< 0.01	NONE	0.02			



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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 20-10299	
AF Howland Associates Ltd	
Site Reference: Cambridge WWTP Relocation - AFHA Suites	
Project / Job Ref: 20.245	
Order No: GNB/20.245/00/03	
Reporting Date: 18/09/2020	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
497101	BH04	ES2	0.50	6.8	Brown loamy sand with stones and brick

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

Insufficient Sample ^{U/S}

Unsuitable Sample ^{U/S}



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Soil Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 20-10299	
AF Howland Associates Ltd	
Site Reference: Cambridge WWTP Relocation - AFHA Suites	
Project / Job Ref: 20.245	
Order No: GNB/20.245/00/03	
Reporting Date: 18/09/2020	

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 diphénylcarbazine 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	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 LOM (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:	20-10299
AF Howland Associates Ltd	
Site Reference:	Cambridge WWTP Relocation - AFHA Suites
Project / Job Ref:	20.245
Order No:	GNB/20.245/00/03
Reporting Date:	18/09/2020

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	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 detection	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 (all: 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 LOM (all: 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



Gill Bond
AF Howland Associates Ltd
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DETS Report No: 20-10101

Site Reference: Cambridge WWTP Relocation

Project / Job Ref: 20.245

Order No: GNB/20.245/00/01

Sample Receipt Date: 03/09/2020

Sample Scheduled Date: 03/09/2020

Report Issue Number: 1

Reporting Date: 15/09/2020


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.



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Soil Analysis Certificate					
DETS Report No: 20-10101	Date Sampled	24/08/20	24/08/20		
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05	BH05		
Project / Job Ref: 20.245	Additional Refs	ES2	ES4		
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70	1.80 - 2.00		
Reporting Date: 15/09/2020	DETS Sample No	496351	496353		

Determinand	Unit	RL	Accreditation				
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected		
pH	pH Units	N/a	MCERTS	8.1	8.0		
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2		
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2		
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	25	114		
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	0.03	0.11		
Organic Matter	%	< 0.1	MCERTS	2.1	1.8		
Total Organic Carbon (TOC)	%	< 0.1	MCERTS	1.2	1		
Arsenic (As)	mg/kg	< 2	MCERTS	5	4		
Barium (Ba)	mg/kg	< 2.5	MCERTS	30	33		
Beryllium (Be)	mg/kg	< 0.5	MCERTS	< 0.5	< 0.5		
W/S Boron	mg/kg	< 1	NONE	< 1	< 1		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	11	10		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	10	21		
Iron (Fe)	mg/kg	< 50	NONE	11100	23020		
Lead (Pb)	mg/kg	< 3	MCERTS	5	10		
Manganese (Mn)	mg/kg	< 5	NONE	175	371		
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1		
Molybdenum (Mo)	mg/kg	< 1	MCERTS	< 1	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	9	18		
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3		
Vanadium (V)	mg/kg	< 1	MCERTS	19	12		
Zinc (Zn)	mg/kg	< 3	MCERTS	33	30		
Magnesium	mg/kg	< 50	NONE	905	2450		

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
 Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs

DETS Report No: 20-10101	Date Sampled	24/08/20	24/08/20			
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied			
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05	BH05			
Project / Job Ref: 20.245	Additional Refs	ES2	ES4			
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70	1.80 - 2.00			
Reporting Date: 15/09/2020	DETS Sample No	496351	496353			

Determinand	Unit	RL	Accreditation				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6		



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Soil Analysis Certificate - TPH CWG Banded					
DETS Report No: 20-10101	Date Sampled	24/08/20	24/08/20		
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05	BH05		
Project / Job Ref: 20.245	Additional Refs	ES2	ES4		
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70	1.80 - 2.00		
Reporting Date: 15/09/2020	DETS Sample No	496351	496353		

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01		
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05		
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2		
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2		
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3		
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3		
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10		
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21		
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01		
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05		
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2		
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2		
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2		
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3		
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10		
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	< 21		
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42		



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Soil Analysis Certificate - BTEX / MTBE					
DETS Report No: 20-10101	Date Sampled	24/08/20	24/08/20		
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05	BH05		
Project / Job Ref: 20.245	Additional Refs	ES2	ES4		
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70	1.80 - 2.00		
Reporting Date: 15/09/2020	DETS Sample No	496351	496353		

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



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Soil Analysis Certificate - Speciated Phenols					
DETS Report No: 20-10101	Date Sampled	24/08/20	24/08/20		
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied		
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05	BH05		
Project / Job Ref: 20.245	Additional Refs	ES2	ES4		
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70	1.80 - 2.00		
Reporting Date: 15/09/2020	DETS Sample No	496351	496353		

Determinand	Unit	RL	Accreditation				
2, 3, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
2, 3, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
2, 3-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
2, 4, 6-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
2, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
2, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
2, 6-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
2-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
2-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
3, 4, 5-trimethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
3, 4-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
3, 5-xyleneol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
3-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
3-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
4-ethylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
4-isopropylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
m-cresol (3-methylphenol)	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
o-cresol (2-methylphenol)	mg/kg	< 0.1	NONE	< 0.1	< 0.1		
p-cresol (4-methylphenol)	mg/kg	< 0.15	NONE	< 0.15	< 0.15		
phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C



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Leachate Analysis Certificate						
DETS Report No: 20-10101	Date Sampled	24/08/20				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05				
Project / Job Ref: 20.245	Additional Refs	ES2				
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70				
Reporting Date: 15/09/2020	DETS Sample No	496352				

Determinand	Unit	RL	Accreditation				
Complex Cyanide	ug/l	< 5	NONE	< 5			
Magnesium	mg/l	< 0.1	ISO17025	0.2			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - TPH CWG Banded					
DETS Report No: 20-10101	Date Sampled	24/08/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70			
Reporting Date: 15/09/2020	DETS Sample No	496352			

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10			
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10			
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10			
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10			
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10			
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10			
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10			
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70			
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10			
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10			
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10			
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10			
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10			
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10			
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10			
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70			
Total >C5 - C35	ug/l	< 140	NONE	< 140			



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Leachate Analysis Certificate - BTEX / MTBE					
DETS Report No: 20-10101	Date Sampled	24/08/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70			
Reporting Date: 15/09/2020	DETS Sample No	496352			

Determinand	Unit	RL	Accreditation				
Benzene	ug/l	< 1	ISO17025	< 1			
Toluene	ug/l	< 5	ISO17025	< 5			
Ethylbenzene	ug/l	< 5	ISO17025	< 5			
p & m-xylene	ug/l	< 10	ISO17025	< 10			
o-xylene	ug/l	< 5	ISO17025	< 5			
MTBE	ug/l	< 10	ISO17025	< 10			



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Leachate Analysis Certificate - Speciated Phenols					
DETS Report No: 20-10101	Date Sampled	24/08/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70			
Reporting Date: 15/09/2020	DETS Sample No	496352			

Determinand	Unit	RL	Accreditation				
2, 3, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 3, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 3-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 4, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
2, 4-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 5-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2, 6-xyleneol	ug/l	< 0.1	NONE	< 0.1			
2-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
2-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
3, 4, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1			
3, 4-xyleneol	ug/l	< 0.1	NONE	< 0.1			
3, 5-xyleneol	ug/l	< 0.1	NONE	< 0.1			
3-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
3-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
4-ethylphenol	ug/l	< 0.1	NONE	< 0.1			
4-isopropylphenol	ug/l	< 0.1	NONE	< 0.1			
m-cresol (3-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
o-cresol (2-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
p-cresol (4-methylphenol)	ug/l	< 0.1	NONE	< 0.1			
phenol	ug/l	< 0.1	NONE	< 0.1			

Subcontracted analysis ⁽⁵⁾



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Leachate Analysis Certificate - BS EN 12457:2 (10:1 Single Stage)			
DETS Report No: 20-10101	Date Sampled	24/08/20	
AF Howland Associates Ltd	Time Sampled	None Supplied	
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05	
Project / Job Ref: 20.245	Additional Refs	ES2	
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70	
Reporting Date: 15/09/2020	DETS Sample No	496352	

Determinand	Unit	RL	Accreditation				
pH	pH Units	N/a	NONE	8.3			
Free Cyanide	ug/l	< 5	NONE	< 5			
Sulphate as SO ₄	mg/l	< 1	ISO17025	2			
Ammoniacal Nitrogen as NH ₄	ug/l	< 50	NONE	113			
Chloride	mg/l	< 1	ISO17025	1			
Nitrate as NO ₃	mg/l	< 0.5	ISO17025	1.1			
Hardness - Total	mgCaCO ₃ /l	< 1	NONE	42.9			
Arsenic	ug/l	< 5	ISO17025	< 5			
Barium	ug/l	< 5	ISO17025	< 5			
Beryllium	ug/l	< 3	ISO17025	< 3			
Boron	ug/l	< 5	ISO17025	16			
Cadmium	ug/l	< 0.4	ISO17025	< 0.4			
Chromium	ug/l	< 5	ISO17025	< 5			
Chromium (hexavalent)	ug/l	< 20	NONE	< 20			
Copper	ug/l	< 5	ISO17025	< 5			
Iron	ug/l	< 5	ISO17025	85			
Lead	ug/l	< 5	ISO17025	< 5			
Manganese	ug/l	< 5	ISO17025	< 5			
Mercury	ug/l	< 0.05	ISO17025	< 0.05			
Molybdenum	ug/l	< 5	ISO17025	< 5			
Nickel	ug/l	< 5	ISO17025	< 5			
Selenium	ug/l	< 5	ISO17025	< 5			
Vanadium	ug/l	< 5	ISO17025	< 5			
Zinc	ug/l	< 2	ISO17025	< 2			

Subcontracted analysis ⁽³⁾



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Leachate Analysis Certificate - Speciated PAH - BS EN 12457:2 (10:1 Single Stage)					
DETS Report No: 20-10101	Date Sampled	24/08/20			
AF Howland Associates Ltd	Time Sampled	None Supplied			
Site Reference: Cambridge WWTP Relocation	TP / BH No	BH05			
Project / Job Ref: 20.245	Additional Refs	ES2			
Order No: GNB/20.245/00/01	Depth (m)	0.50 - 0.70			
Reporting Date: 15/09/2020	DETS Sample No	496352			

Determinand	Unit	RL	Accreditation				
Naphthalene	ug/l	< 0.01	NONE	< 0.01			
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01			
Acenaphthene	ug/l	< 0.01	NONE	< 0.01			
Fluorene	ug/l	< 0.01	NONE	< 0.01			
Phenanthrene	ug/l	< 0.01	NONE	< 0.01			
Anthracene	ug/l	< 0.01	NONE	< 0.01			
Fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Pyrene	ug/l	< 0.01	NONE	< 0.01			
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01			
Chrysene	ug/l	< 0.01	NONE	< 0.01			
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01			
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01			
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01			
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01			
Benzo(ghi)perylene	ug/l	< 0.01	NONE	< 0.01			
Total EPA-16 PAHs	ug/l	< 0.01	NONE	< 0.01			



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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 20-10101	
AF Howland Associates Ltd	
Site Reference: Cambridge WWTP Relocation	
Project / Job Ref: 20.245	
Order No: GNB/20.245/00/01	
Reporting Date: 15/09/2020	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
496351	BH05	ES2	0.50 - 0.70	13.2	Brown sandy gravel with stones
496353	BH05	ES4	1.80 - 2.00	24.7	Brown clay

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

Insufficient Sample ^{U/S}

Unsuitable Sample ^{U/S}



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Soil Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 20-10101	
AF Howland Associates Ltd	
Site Reference: Cambridge WWTP Relocation	
Project / Job Ref: 20.245	
Order No: GNB/20.245/00/01	
Reporting Date: 15/09/2020	

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	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: 20-10101	
AF Howland Associates Ltd	
Site Reference: Cambridge WWTP Relocation	
Project / Job Ref: 20.245	
Order No: GNB/20.245/00/01	
Reporting Date: 15/09/2020	

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	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 colorimetry	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 detection	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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DETS Report No: 20-12389

Site Reference: Cambridge WWTP Relocation - AFHA Suites

Project / Job Ref: 20.245

Order No: GNB/20.245/00/11

Sample Receipt Date: 21/10/2020

Sample Scheduled Date: 21/10/2020

Report Issue Number: 1

Reporting Date: 27/10/2020

[REDACTED]

Kevin Old
General Manager

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

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Water Analysis Certificate						
DETS Report No: 20-12389	Date Sampled	16/10/20	16/10/20	16/10/20	16/10/20	16/10/20
AF Howland Associates Ltd	Time Sampled	1500	1310	1600	1200	1050
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH01	BH02	BH03	BH04	BH05
Project / Job Ref: 20.245	Additional Refs	W1	W1	W1	W1	W1
Order No: GNB/20.245/00/11	Depth (m)	5.70	2.20	4.40	1.52	1.10
Reporting Date: 27/10/2020	DETS Sample No	506443	506444	506445	506446	506447

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	ISO17025	7.6	8.6	8.6	8.0	7.7
Complex Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Free Cyanide	ug/l	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Sulphate as SO ₄	mg/l	< 1	ISO17025	191	200	135	65	84
Ammoniacal Nitrogen as NH ₄	ug/l	< 50	NONE	319	1230	1220	773	859
Chloride	mg/l	< 1	ISO17025	68	78	27	30	36
Nitrate as NO ₃	mg/l	< 0.5	ISO17025	1	9.6	9	1.7	< 0.5
Hardness - Total	mgCaCO ₃ /l	< 1	NONE	360	96	46.1	179	338
Total Dissolved Solids	mg/l	< 1	NONE	541	529	437	327	430
Arsenic (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Barium (dissolved)	ug/l	< 5	ISO17025	90	24	19	44	197
Beryllium (dissolved)	ug/l	< 3	ISO17025	< 3	< 3	< 3	< 3	< 3
Boron (dissolved)	ug/l	< 5	ISO17025	48	65	73	143	103
Cadmium (dissolved)	ug/l	< 0.4	ISO17025	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Chromium (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chromium (hexavalent)	ug/l	< 20	NONE	< 20	< 20	< 20	< 20	< 20
Copper (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Iron (dissolved)	ug/l	< 5	ISO17025	< 5	8	< 5	< 5	< 5
Lead (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Manganese (dissolved)	ug/l	< 5	ISO17025	74	11	< 5	49	72
Mercury (dissolved)	ug/l	< 0.05	ISO17025	< 0.05	0.89	0.37	0.16	< 0.05
Molybdenum (dissolved)	ug/l	< 5	ISO17025	6.7	19.2	15.4	< 5	< 5
Nickel (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Selenium (dissolved)	ug/l	< 5	ISO17025	8	26	35	< 5	< 5
Vanadium (dissolved)	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Zinc (dissolved)	ug/l	< 2	ISO17025	3	10	5	< 2	3
Magnesium (dissolved)	mg/l	< 0.1	ISO17025	9.5	7	3.6	10	17.6

Subcontracted analysis ^(S)
 Insufficient sample ^{I/S}
 Unsuitable Sample ^{U/S}



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Water Analysis Certificate - Speciated PAH						
DETS Report No: 20-12389	Date Sampled	16/10/20	16/10/20	16/10/20	16/10/20	16/10/20
AF Howland Associates Ltd	Time Sampled	1500	1310	1600	1200	1050
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH01	BH02	BH03	BH04	BH05
Project / Job Ref: 20.245	Additional Refs	W1	W1	W1	W1	W1
Order No: GNB/20.245/00/11	Depth (m)	5.70	2.20	4.40	1.52	1.10
Reporting Date: 27/10/2020	DETS Sample No	506443	506444	506445	506446	506447

Determinand	Unit	RL	Accreditation					
Naphthalene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	ug/l	< 0.01	NONE	< 0.01	0.01	0.02	< 0.01	< 0.01
Fluorene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	< 0.01	NONE	< 0.01	0.02	0.02	< 0.01	< 0.01
Anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	0.01	< 0.01	< 0.01
Pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	ug/l	0.008	NONE	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
Total EPA-16 PAHs	ug/l	< 0.01	NONE	< 0.01	0.03	0.05	< 0.01	< 0.01



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Water Analysis Certificate - TPH CWG Banded						
DETS Report No: 20-12389	Date Sampled	16/10/20	16/10/20	16/10/20	16/10/20	16/10/20
AF Howland Associates Ltd	Time Sampled	1500	1310	1600	1200	1050
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH01	BH02	BH03	BH04	BH05
Project / Job Ref: 20.245	Additional Refs	W1	W1	W1	W1	W1
Order No: GNB/20.245/00/11	Depth (m)	5.70	2.20	4.40	1.52	1.10
Reporting Date: 27/10/2020	DETS Sample No	506443	506444	506445	506446	506447

Determinand	Unit	RL	Accreditation						
Aliphatic >C5 - C6	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C6 - C8	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C12 - C16	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C21 - C34	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	ug/l	< 70	NONE	< 70	< 70	< 70	< 70	< 70	< 70
Aromatic >C5 - C7	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C7 - C8	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C8 - C10	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C10 - C12	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C12 - C16	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C16 - C21	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C21 - C35	ug/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C35)	ug/l	< 70	NONE	< 70	< 70	< 70	< 70	< 70	< 70
Total >C5 - C35	ug/l	< 140	NONE	< 140	< 140	< 140	< 140	< 140	< 140



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Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-12389	Date Sampled	16/10/20	16/10/20	16/10/20	16/10/20	16/10/20
AF Howland Associates Ltd	Time Sampled	1500	1310	1600	1200	1050
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH01	BH02	BH03	BH04	BH05
Project / Job Ref: 20.245	Additional Refs	W1	W1	W1	W1	W1
Order No: GNB/20.245/00/11	Depth (m)	5.70	2.20	4.40	1.52	1.10
Reporting Date: 27/10/2020	DETS Sample No	506443	506444	506445	506446	506447

Determinand	Unit	RL	Accreditation						
Benzene	ug/l	< 1	ISO17025	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5	< 5
p & m-xylene	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10	< 10
o-xylene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5	< 5
MTBE	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10	< 10



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Water Analysis Certificate - Speciated Phenols						
DETS Report No: 20-12389	Date Sampled	16/10/20	16/10/20	16/10/20	16/10/20	16/10/20
AF Howland Associates Ltd	Time Sampled	1500	1310	1600	1200	1050
Site Reference: Cambridge WWTP Relocation - AFHA Suites	TP / BH No	BH01	BH02	BH03	BH04	BH05
Project / Job Ref: 20.245	Additional Refs	W1	W1	W1	W1	W1
Order No: GNB/20.245/00/11	Depth (m)	5.70	2.20	4.40	1.52	1.10
Reporting Date: 27/10/2020	DETS Sample No	506443	506444	506445	506446	506447

Determinand	Unit	RL	Accreditation					
2, 3, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 3, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 3-xyleneol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 4, 6-trimethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 4-xyleneol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 5-xyleneol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2, 6-xyleneol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-ethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-isopropylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 4, 5-trimethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 4-xyleneol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3, 5-xyleneol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-ethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-isopropylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-ethylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-isopropylphenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m-cresol (3-methylphenol)	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
o-cresol (2-methylphenol)	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
p-cresol (4-methylphenol)	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
phenol	ug/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1



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Water Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No:	20-12389
AF Howland Associates Ltd	
Site Reference:	Cambridge WWTP Relocation - AFHA Suites
Project / Job Ref:	20.245
Order No:	GNB/20.245/00/11
Reporting Date:	27/10/2020

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	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 detection	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 (all: 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 LOM (all: 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

APPENDIX D: WATER QUALITY MONITORING RECORDS



WATER QUALITY PARAMETER READINGS

Project: Cambridge WWTP Relocation

Client: Anglain Water Services Limited

Engineer: Mott MacDonald Limited

Position: BH01

Date: 06/11/2020

Operative: AHm

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 755044

Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
1	7.28	55.74	931.54	1230.61	0.62	799.90	1073.49	2.67	24.47	12.28	1034.65
2	7.27	55.14	932.38	1231.58	0.62	800.53	1072.52	2.64	24.23	12.28	1034.68
3	7.28	54.54	932.12	1231.04	0.62	800.18	1072.82	2.61	24.00	12.29	1034.65
4	7.28	53.91	931.86	1231.08	0.62	800.20	1073.12	2.59	23.78	12.27	1034.65
5	7.28	53.36	931.46	1230.37	0.61	799.74	1073.59	2.57	23.57	12.28	1034.63
6	7.28	52.87	931.00	1230.12	0.61	799.58	1074.12	2.55	23.37	12.27	1034.67
7	7.28	52.43	930.68	1229.59	0.61	799.23	1074.49	2.53	23.19	12.27	1034.64
8	7.28	52.35	930.61	1229.50	0.61	799.18	1074.56	2.52	23.16	12.27	1034.64
9	7.28	51.93	930.29	1229.25	0.61	799.01	1075.29	2.51	22.89	12.27	1034.69
10	7.28	51.58	929.98	1228.78	0.61	798.56	1075.68	2.50	22.81	12.27	1034.64
11	7.28	51.26	929.65	1228.53	0.61	798.38	1075.83	2.48	22.76	12.26	1034.64
12	7.28	50.96	929.52	1228.28	0.61	798.52	1075.71	2.47	22.69	12.27	1034.64
13	7.28	50.48	929.61	1228.32	0.61	798.42	1075.75	2.47	22.65	12.26	1034.64
14	7.28	50.24	929.75	1228.40	0.61	798.46	1075.56	2.46	22.58	12.27	1034.65
15	7.28	50.05	930.03	1228.87	0.61	798.77	1075.24	2.46	22.56	12.27	1034.63
16	7.28	49.88	930.27	1229.02	0.61	798.86	1074.96	2.45	22.51	12.27	1034.66
17	7.28	49.73	930.35	1229.24	0.61	799.01	1074.87	2.45	22.51	12.27	1034.67
18	7.28	49.54	930.40	1228.65	0.61	798.62	1074.80	2.46	22.63	12.29	1034.66
19	7.28	49.19	925.89	1223.23	0.61	795.10	1080.04	2.48	22.79	12.27	1034.63
20	7.28	48.64	927.24	1225.29	0.61	796.44	1078.47	2.49	22.81	12.26	1034.66
21	7.28	48.04	926.98	1225.20	0.61	796.38	1078.77	2.49	22.84	12.26	1034.66
22	7.29	47.51	926.34	1224.44	0.61	795.89	1079.52	2.49	22.82	12.25	1034.66
23	7.29	47.01	925.57	1223.95	0.61	795.57	1080.41	2.48	22.74	12.24	1034.64
24	7.29	46.92	925.43	1223.83	0.61	795.49	1080.58	2.48	22.73	12.23	1034.64
25	7.29	46.50	925.25	1223.64	0.61	795.36	1080.79	2.47	22.67	12.23	1034.66
26	7.29	46.19	925.16	1223.89	0.61	795.34	1081.10	2.47	22.56	12.22	1034.63
27	7.29	45.86	924.97	1223.61	0.61	795.53	1081.16	2.46	22.52	12.22	1034.62
28	7.29	45.31	924.93	1223.72	0.61	795.43	1081.20	2.45	22.48	12.21	1034.62
29	7.29	45.02	924.90	1223.71	0.61	795.41	1081.44	2.45	22.43	12.21	1034.63



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
30	7.29	44.81	924.65	1223.67	0.61	795.39	1081.51	2.44	22.36	12.21	1034.65
31	7.29	44.58	924.73	1223.85	0.61	795.50	1081.40	2.44	22.31	12.21	1034.63
32	7.29	44.38	924.90	1224.18	0.61	795.72	1081.19	2.43	22.27	12.20	1034.70
33	7.29	44.20	924.99	1224.27	0.61	795.77	1081.09	2.43	22.23	12.20	1034.64
34	7.29	44.05	924.97	1224.22	0.61	795.74	1081.12	2.42	22.20	12.20	1034.66
35	7.29	43.89	913.99	1209.69	0.60	786.30	1094.12	2.42	22.13	12.20	1034.63
36	7.29	43.39	931.60	1232.23	0.62	800.95	1073.46	2.44	22.41	12.23	1034.63
37	7.28	42.28	930.98	1231.43	0.62	800.43	1074.14	2.46	22.53	12.23	1034.65
38	7.28	41.12	932.08	1232.95	0.62	801.42	1072.87	2.45	22.42	12.22	1034.65
39	7.29	40.07	931.51	1232.23	0.62	800.95	1073.53	2.43	22.29	12.22	1034.65
40	7.29	39.20	931.21	1231.97	0.62	800.78	1073.87	2.41	22.13	12.22	1034.63
41	7.29	38.37	930.90	1231.45	0.62	800.44	1074.23	2.40	22.03	12.22	1034.63
42	7.29	37.60	930.36	1230.87	0.62	800.07	1074.85	2.40	21.96	12.22	1034.62
43	7.29	36.90	930.30	1230.65	0.61	799.92	1074.92	2.39	21.92	12.22	1034.62
44	7.29	36.76	930.27	1230.59	0.61	799.88	1074.96	2.39	21.92	12.22	1034.62
45	7.30	36.13	930.39	1230.71	0.62	799.96	1074.60	2.38	21.84	12.22	1034.62
46	7.30	35.06	930.58	1231.34	0.62	800.37	1074.29	2.38	21.85	12.22	1034.62
47	7.30	34.57	930.84	1231.46	0.62	800.45	1074.27	2.38	21.83	12.22	1034.61
48	7.30	34.10	930.55	1231.07	0.62	800.19	1074.63	2.38	21.83	12.22	1034.64
49	7.30	33.71	930.43	1230.90	0.62	800.09	1074.77	2.38	21.84	12.22	1034.63
50	7.30	33.34	930.31	1230.74	0.62	799.98	1074.91	2.38	21.85	12.22	1034.62
51	7.30	33.01	930.36	1230.87	0.62	800.07	1074.86	2.38	21.85	12.22	1034.61
52	7.30	32.70	930.39	1230.98	0.62	800.14	1074.82	2.38	21.84	12.21	1034.61
53	7.30	32.37	930.30	1230.88	0.62	800.07	1074.93	2.39	21.88	12.21	1034.61
54	7.30	32.08	930.65	1231.24	0.62	800.31	1074.52	2.39	21.87	12.22	1034.61
55	7.29	32.25	931.30	1231.87	0.62	800.71	1073.77	2.41	22.05	12.23	1034.58
56	7.29	31.84	930.58	1231.20	0.62	800.28	1074.60	2.43	22.27	12.22	1034.61
57	7.29	31.22	930.53	1231.11	0.62	800.22	1074.66	2.43	22.29	12.22	1034.59
58	7.29	30.79	927.88	1227.98	0.61	798.19	1077.73	2.42	22.18	12.20	1034.59
59	7.29	30.31	927.79	1227.96	0.61	798.17	1077.84	2.41	22.06	12.20	1034.58
60	7.29	30.22	927.65	1227.81	0.61	798.08	1077.99	2.40	22.03	12.20	1034.58
61	7.29	29.86	928.49	1229.00	0.61	798.85	1076.41	2.39	21.76	12.20	1034.58
62	7.29	29.50	929.05	1229.62	0.61	799.31	1076.28	2.37	21.67	12.20	1034.58
63	7.30	29.12	929.12	1229.71	0.61	798.52	1077.28	2.36	21.61	12.20	1034.59
64	7.30	28.34	928.26	1228.33	0.61	798.36	1077.72	2.36	21.58	12.21	1034.63
65	7.30	27.90	927.84	1228.05	0.61	798.23	1077.80	2.36	21.58	12.20	1034.62
66	7.30	27.57	928.04	1228.50	0.61	798.53	1077.55	2.36	21.61	12.19	1034.64
67	7.30	27.33	927.99	1228.40	0.61	798.46	1077.59	2.36	21.63	12.20	1034.63



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
68	7.30	27.08	928.36	1228.98	0.61	798.83	1077.17	2.36	21.64	12.19	1034.62
69	7.30	26.84	928.38	1228.90	0.61	798.78	1077.15	2.36	21.63	12.20	1034.63
70	7.30	26.61	928.48	1229.10	0.61	798.91	1077.02	2.36	21.63	12.19	1034.64
71	7.30	26.38	927.40	1227.78	0.61	798.06	1078.29	2.36	21.65	12.19	1034.64
72	7.29	26.52	931.45	1232.94	0.62	801.41	1073.59	2.38	21.83	12.20	1034.63
73	7.29	26.16	932.03	1233.82	0.62	801.98	1072.92	2.39	21.85	12.19	1034.59
74	7.29	25.81	931.14	1232.70	0.62	801.25	1073.96	2.38	21.80	12.19	1034.62
75	7.29	25.46	930.52	1231.85	0.62	800.70	1074.67	2.37	21.73	12.19	1034.61
76	7.29	25.40	930.38	1231.65	0.62	800.57	1074.84	2.37	21.71	12.19	1034.61
77	7.29	25.02	930.52	1231.85	0.62	800.70	1075.31	2.36	21.54	12.19	1034.61
78	7.29	24.68	929.98	1231.16	0.62	800.07	1075.54	2.34	21.46	12.19	1034.64
79	7.29	24.38	929.77	1230.84	0.61	799.97	1075.61	2.34	21.41	12.19	1034.64
80	7.30	23.79	929.70	1230.41	0.61	799.77	1075.76	2.33	21.34	12.19	1034.62
81	7.30	23.54	929.58	1230.36	0.61	799.73	1075.82	2.32	21.29	12.20	1034.63
82	7.30	23.38	929.79	1230.60	0.61	799.89	1075.52	2.32	21.28	12.20	1034.62
83	7.30	23.21	929.93	1230.99	0.62	800.14	1075.35	2.32	21.25	12.20	1034.62
84	7.30	23.07	929.98	1230.97	0.62	800.13	1075.29	2.32	21.25	12.20	1034.65
85	7.30	22.94	930.26	1231.31	0.62	800.35	1074.97	2.32	21.22	12.20	1034.61
86	7.30	22.80	929.82	1230.53	0.61	799.85	1075.48	2.31	21.18	12.21	1034.64
87	7.30	22.66	929.80	1230.79	0.62	800.01	1075.51	2.31	21.17	12.20	1034.60
88	7.30	22.56	929.82	1230.60	0.61	799.89	1075.48	2.31	21.18	12.20	1034.61
89	7.30	22.49	929.63	1230.62	0.61	799.90	1075.70	2.31	21.16	12.19	1034.57
90	7.30	22.38	929.60	1230.36	0.61	799.73	1075.73	2.31	21.18	12.20	1034.61
91	7.30	22.30	929.79	1230.70	0.61	799.95	1075.52	2.31	21.21	12.20	1034.63
92	7.30	22.25	929.80	1230.58	0.61	799.88	1075.50	2.32	21.23	12.20	1034.66
93	7.30	22.24	929.81	1230.58	0.61	799.88	1075.49	2.32	21.24	12.20	1034.67
94	7.30	22.25	929.79	1230.73	0.61	799.98	1075.59	2.33	21.31	12.20	1034.62
95	7.30	22.24	929.72	1230.54	0.61	800.27	1074.89	2.32	21.30	12.20	1034.63
96	7.30	22.30	930.33	1231.18	0.62	800.03	1075.05	2.32	21.29	12.21	1034.63
97	7.30	22.44	930.19	1230.84	0.62	800.03	1074.96	2.32	21.27	12.21	1034.68
98	7.30	22.53	930.19	1230.74	0.62	799.98	1075.04	2.32	21.25	12.22	1034.63
99	7.30	22.61	930.17	1230.74	0.62	799.98	1075.07	2.32	21.26	12.21	1034.64
100	7.30	22.68	930.22	1231.00	0.62	800.15	1075.01	2.32	21.26	12.21	1034.63
101	7.30	22.78	930.32	1230.88	0.62	800.07	1074.90	2.32	21.26	12.22	1034.63
102	7.30	22.94	930.30	1230.95	0.62	800.12	1074.92	2.32	21.26	12.21	1034.67
103	7.30	23.07	930.27	1230.85	0.62	800.05	1074.96	2.32	21.28	12.21	1034.67
104	7.30	23.21	930.19	1230.89	0.62	800.08	1075.05	2.32	21.28	12.21	1034.62
105	7.30	23.39	930.10	1230.75	0.62	799.99	1075.16	2.32	21.30	12.21	1034.65



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
106	7.30	23.57	930.03	1230.89	0.62	800.08	1075.23	2.33	21.34	12.20	1034.62
107	7.30	23.79	930.02	1230.69	0.61	799.95	1075.24	2.33	21.34	12.21	1034.66
108	7.30	24.01	930.01	1230.97	0.62	800.13	1075.26	2.33	21.34	12.20	1034.58
109	7.30	24.18	929.97	1230.68	0.61	799.94	1075.30	2.33	21.35	12.21	1034.65
110	7.30	24.21	929.96	1230.65	0.61	799.92	1075.31	2.33	21.35	12.21	1034.66
111	7.30	24.36	929.96	1230.85	0.62	800.05	1075.23	2.33	21.38	12.20	1034.66
112	7.30	24.47	930.03	1230.77	0.62	800.13	1075.18	2.33	21.39	12.21	1034.62
113	7.30	24.55	930.08	1230.96	0.62	800.04	1075.12	2.34	21.38	12.20	1034.63
114	7.30	24.60	930.13	1230.84	0.62	800.21	1075.04	2.34	21.40	12.21	1034.66
115	7.30	24.60	930.28	1231.01	0.62	800.17	1074.94	2.34	21.41	12.20	1034.66
116	7.30	24.59	930.33	1231.15	0.62	800.25	1074.89	2.34	21.42	12.21	1034.68
117	7.30	24.60	930.37	1231.09	0.62	800.21	1074.84	2.34	21.44	12.21	1034.64
118	7.30	24.60	930.37	1231.20	0.62	800.28	1074.84	2.34	21.47	12.21	1034.64
119	7.30	24.58	930.31	1230.98	0.62	800.14	1074.91	2.34	21.48	12.21	1034.63
120	7.30	24.54	930.36	1231.04	0.62	800.18	1074.85	2.35	21.49	12.21	1034.67
121	7.30	24.51	930.43	1231.15	0.62	800.25	1074.78	2.35	21.50	12.21	1034.60
122	7.30	24.47	930.45	1231.11	0.62	800.22	1074.74	2.35	21.52	12.21	1034.64
123	7.30	24.42	930.51	1231.24	0.62	800.31	1074.68	2.35	21.53	12.21	1034.64
124	7.30	24.36	930.59	1231.20	0.62	800.28	1074.59	2.35	21.54	12.22	1034.65
125	7.30	24.35	930.60	1231.21	0.62	800.28	1074.57	2.35	21.54	12.22	1034.65
126	7.30	24.28	930.57	1231.27	0.62	800.32	1074.62	2.35	21.55	12.21	1034.62
127	7.30	24.20	930.44	1230.96	0.62	800.12	1074.68	2.35	21.57	12.22	1034.64
128	7.30	24.15	930.51	1231.29	0.62	800.34	1074.70	2.35	21.57	12.21	1034.64
129	7.30	24.09	930.49	1231.05	0.62	800.37	1074.73	2.36	21.58	12.22	1034.63
130	7.30	24.02	930.46	1231.32	0.62	800.23	1074.74	2.35	21.56	12.21	1034.62
131	7.30	23.92	930.46	1231.41	0.62	800.41	1074.71	2.35	21.56	12.21	1034.63
132	7.30	23.86	930.58	1231.28	0.62	800.33	1074.60	2.35	21.54	12.21	1034.67
133	7.30	23.87	930.58	1231.56	0.62	800.51	1074.60	2.35	21.56	12.20	1034.59
134	7.30	23.83	930.64	1231.34	0.62	800.37	1074.53	2.35	21.53	12.21	1034.63
135	7.30	23.81	930.67	1231.59	0.62	800.54	1074.49	2.35	21.51	12.21	1034.63
136	7.30	23.79	930.70	1231.33	0.62	800.36	1074.47	2.35	21.49	12.22	1034.63
137	7.30	23.78	930.73	1231.60	0.62	800.54	1074.43	2.34	21.48	12.21	1034.65
138	7.30	23.78	930.74	1231.33	0.62	800.37	1074.41	2.34	21.44	12.22	1034.59
139	7.30	23.79	930.77	1231.59	0.62	800.53	1074.38	2.34	21.45	12.21	1034.64
140	7.30	23.75	930.81	1231.39	0.62	800.40	1074.33	2.34	21.41	12.22	1034.65
141	7.30	23.72	930.87	1231.68	0.62	800.59	1074.26	2.33	21.36	12.21	1034.66
142	7.30	23.69	930.89	1231.43	0.62	800.43	1074.24	2.33	21.36	12.22	1034.63
143	7.30	23.63	930.89	1231.63	0.62	800.56	1074.25	2.33	21.35	12.22	1034.63



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
144	7.30	23.62	930.89	1231.64	0.62	800.57	1074.25	2.33	21.35	12.22	1034.63
145	7.30	23.61	930.98	1231.45	0.62	800.45	1074.14	2.32	21.31	12.23	1034.63
146	7.30	23.57	930.99	1231.76	0.62	800.65	1074.08	2.32	21.26	12.22	1034.61
147	7.30	23.55	931.02	1231.46	0.62	800.62	1074.09	2.32	21.26	12.23	1034.63
148	7.30	23.53	931.02	1231.70	0.62	800.41	1074.14	2.32	21.23	12.22	1034.64
149	7.30	23.54	930.98	1231.40	0.62	800.58	1074.15	2.31	21.21	12.23	1034.63
150	7.30	23.51	930.98	1231.32	0.62	800.37	1074.14	2.31	21.19	12.22	1034.62
151	7.30	23.48	930.98	1231.66	0.62	800.58	1074.14	2.31	21.18	12.22	1034.63
152	7.30	23.47	930.96	1231.30	0.62	800.34	1074.16	2.31	21.16	12.23	1034.62
153	7.30	23.40	931.00	1231.63	0.62	800.56	1074.12	2.31	21.14	12.22	1034.61
154	7.30	23.40	931.00	1231.37	0.62	800.39	1074.12	2.30	21.12	12.23	1034.64
155	7.30	23.38	930.99	1231.52	0.62	800.48	1074.13	2.30	21.11	12.22	1034.63
156	7.30	23.35	930.97	1231.27	0.62	800.33	1074.15	2.30	21.08	12.23	1034.64
157	7.30	23.31	930.95	1231.46	0.62	800.45	1074.17	2.30	21.07	12.22	1034.62
158	7.30	23.29	930.93	1231.24	0.62	800.31	1074.19	2.30	21.04	12.23	1034.62
159	7.30	23.26	930.91	1231.34	0.62	800.37	1074.21	2.29	21.03	12.23	1034.59
160	7.30	23.23	930.90	1231.31	0.62	800.35	1074.23	2.29	21.02	12.23	1034.58
161	7.30	23.21	930.86	1231.20	0.62	800.28	1074.28	2.29	20.99	12.23	1034.65
162	7.30	23.18	930.86	1231.30	0.62	800.34	1074.27	2.29	20.97	12.23	1034.65
163	7.30	23.18	930.86	1231.31	0.62	800.35	1074.28	2.29	20.97	12.22	1034.65
164	7.30	23.14	930.89	1231.23	0.62	800.30	1074.25	2.28	20.93	12.23	1034.66
165	7.30	23.12	930.88	1231.38	0.62	800.40	1074.31	2.28	20.89	12.22	1034.64
166	7.30	23.05	930.84	1231.46	0.62	800.45	1074.26	2.28	20.88	12.23	1034.66
167	7.30	23.02	930.89	1231.20	0.62	800.28	1074.23	2.28	20.87	12.22	1034.68
168	7.30	22.96	930.89	1231.48	0.62	800.46	1074.24	2.28	20.86	12.23	1034.61
169	7.30	22.95	930.89	1231.20	0.62	800.28	1074.24	2.27	20.82	12.23	1034.64
170	7.30	22.90	930.90	1231.53	0.62	800.49	1074.23	2.27	20.82	12.22	1034.65
171	7.30	22.87	930.90	1231.23	0.62	800.30	1074.23	2.27	20.79	12.23	1034.64
172	7.30	22.84	930.90	1231.51	0.62	800.48	1074.23	2.27	20.80	12.22	1034.63
173	7.30	22.81	930.91	1231.26	0.62	800.32	1074.22	2.27	20.79	12.23	1034.62
174	7.30	22.76	930.94	1231.55	0.62	800.51	1074.19	2.26	20.76	12.22	1034.64
175	7.30	22.73	930.93	1231.33	0.62	800.36	1074.20	2.26	20.75	12.23	1034.64
176	7.30	22.69	930.89	1231.42	0.62	800.42	1074.24	2.26	20.73	12.22	1034.63
177	7.30	22.67	930.85	1231.30	0.62	800.34	1074.28	2.26	20.72	12.22	1034.64
178	7.30	22.63	930.88	1231.35	0.62	800.38	1074.25	2.26	20.71	12.22	1034.62
179	7.30	22.62	930.88	1231.35	0.62	800.38	1074.25	2.26	20.71	12.22	1034.62
180	7.30	22.59	930.91	1231.30	0.62	800.34	1074.25	2.25	20.68	12.23	1034.64
181	7.30	22.53	930.89	1231.39	0.62	800.36	1074.23	2.25	20.66	12.22	1034.63



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
182	7.30	22.47	930.90	1231.33	0.62	800.43	1074.25	2.25	20.67	12.23	1034.61
183	7.30	22.39	930.89	1231.29	0.62	800.34	1074.27	2.25	20.65	12.22	1034.62
184	7.30	22.38	930.87	1231.48	0.62	800.46	1074.28	2.25	20.63	12.23	1034.64
185	7.30	22.33	930.85	1231.26	0.62	800.32	1074.28	2.25	20.61	12.23	1034.58
186	7.30	22.29	930.83	1231.37	0.62	800.39	1074.31	2.25	20.60	12.22	1034.62
187	7.30	22.27	930.89	1231.38	0.62	800.40	1074.24	2.25	20.58	12.22	1034.59
188	7.30	22.24	930.92	1231.51	0.62	800.48	1074.21	2.24	20.57	12.22	1034.57
189	7.30	22.18	930.93	1231.41	0.62	800.42	1074.19	2.24	20.56	12.22	1034.57
190	7.30	22.15	930.95	1231.46	0.62	800.45	1074.17	2.24	20.56	12.22	1034.63
191	7.30	22.13	930.97	1231.48	0.62	800.46	1074.14	2.24	20.54	12.22	1034.63
192	7.30	22.11	930.99	1231.50	0.62	800.47	1074.13	2.24	20.53	12.22	1034.62
193	7.30	22.08	931.00	1231.41	0.62	800.42	1074.12	2.24	20.51	12.23	1034.58
194	7.30	22.07	931.00	1231.40	0.62	800.41	1074.12	2.24	20.50	12.23	1034.57
195	7.30	22.03	931.02	1231.64	0.62	800.57	1074.05	2.24	20.48	12.22	1034.62
196	7.30	22.03	931.06	1231.44	0.62	800.44	1074.06	2.23	20.47	12.23	1034.59
197	7.30	22.00	931.04	1231.69	0.62	800.45	1074.00	2.23	20.47	12.22	1034.57
198	7.30	21.98	931.10	1231.48	0.62	800.63	1073.96	2.23	20.46	12.23	1034.62
199	7.30	21.94	931.14	1231.56	0.62	800.53	1073.87	2.23	20.46	12.22	1034.64
200	7.30	21.94	931.29	1231.84	0.62	800.70	1073.78	2.23	20.43	12.23	1034.65
201	7.30	21.91	931.36	1231.67	0.62	800.59	1073.70	2.23	20.41	12.23	1034.64
202	7.30	21.89	931.43	1231.94	0.62	800.76	1073.62	2.23	20.42	12.23	1034.63
203	7.30	21.90	931.47	1231.73	0.62	800.62	1073.57	2.22	20.37	12.24	1034.64
204	7.30	21.87	931.49	1231.96	0.62	800.78	1073.55	2.22	20.38	12.23	1034.68
205	7.30	21.87	931.48	1231.68	0.62	800.59	1073.56	2.22	20.37	12.24	1034.62
206	7.30	21.87	931.49	1231.91	0.62	800.74	1073.55	2.22	20.36	12.23	1034.57
207	7.30	21.86	931.52	1231.72	0.62	800.62	1073.51	2.22	20.36	12.24	1034.62
208	7.30	21.85	931.57	1231.94	0.62	800.76	1073.46	2.22	20.33	12.23	1034.64
209	7.30	21.85	931.55	1231.68	0.62	800.59	1073.48	2.22	20.32	12.24	1034.61
210	7.30	21.83	931.55	1231.81	0.62	800.67	1073.48	2.22	20.32	12.24	1034.62
211	7.30	21.81	931.54	1231.59	0.62	800.54	1073.49	2.21	20.31	12.24	1034.59
212	7.30	21.82	931.59	1231.76	0.62	800.64	1073.44	2.21	20.30	12.24	1034.61
213	7.30	21.84	931.61	1231.72	0.62	800.62	1073.41	2.21	20.29	12.24	1034.59
214	7.30	21.81	931.63	1231.83	0.62	800.69	1073.39	2.21	20.28	12.24	1034.57
215	7.30	21.80	931.63	1231.84	0.62	800.70	1073.39	2.21	20.28	12.24	1034.57
216	7.30	21.81	931.64	1231.74	0.62	800.63	1073.34	2.21	20.27	12.24	1034.57
217	7.30	21.80	931.67	1231.83	0.62	800.71	1073.27	2.21	20.24	12.24	1034.58
218	7.30	21.81	931.73	1231.87	0.62	800.69	1073.25	2.21	20.24	12.24	1034.58
219	7.30	21.79	931.75	1231.94	0.62	800.76	1073.12	2.21	20.24	12.25	1034.58



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
220	7.30	21.75	931.90	1231.96	0.62	800.78	1073.07	2.21	20.23	12.25	1034.58
221	7.30	21.77	931.94	1231.91	0.62	800.74	1073.03	2.20	20.22	12.25	1034.63
222	7.30	21.75	931.97	1232.08	0.62	800.85	1073.00	2.20	20.22	12.25	1034.59
223	7.30	21.74	932.08	1231.87	0.62	800.72	1072.87	2.20	20.19	12.26	1034.56
224	7.30	21.75	932.12	1232.07	0.62	800.84	1072.83	2.20	20.21	12.25	1034.61
225	7.30	21.76	932.15	1231.78	0.62	800.65	1072.79	2.20	20.19	12.26	1034.57
226	7.30	21.73	932.14	1231.91	0.62	800.74	1072.81	2.20	20.18	12.26	1034.63
227	7.30	21.78	932.12	1231.60	0.62	800.54	1072.82	2.20	20.18	12.27	1034.58
228	7.30	21.74	932.09	1231.72	0.62	800.62	1072.86	2.20	20.18	12.26	1034.61
229	7.30	21.75	932.09	1231.45	0.62	800.44	1072.86	2.20	20.16	12.27	1034.59
230	7.30	21.76	932.10	1231.70	0.62	800.60	1072.85	2.20	20.16	12.26	1034.58
231	7.30	21.77	932.11	1231.50	0.62	800.48	1072.83	2.20	20.16	12.27	1034.59
232	7.30	21.77	932.11	1231.49	0.62	800.47	1072.83	2.20	20.16	12.27	1034.59
233	7.30	21.77	932.08	1231.69	0.62	800.60	1072.82	2.20	20.16	12.26	1034.59
234	7.30	21.78	932.12	1231.46	0.62	800.45	1072.76	2.19	20.13	12.27	1034.56
235	7.30	21.79	932.18	1231.78	0.62	800.52	1072.64	2.19	20.12	12.27	1034.55
236	7.30	21.79	932.35	1231.79	0.62	800.65	1072.55	2.19	20.12	12.28	1034.60
237	7.30	21.81	932.44	1231.57	0.62	800.52	1072.46	2.19	20.11	12.27	1034.57
238	7.30	21.81	932.54	1231.81	0.62	800.68	1072.34	2.19	20.11	12.28	1034.59
239	7.30	21.81	932.61	1231.59	0.62	800.54	1072.26	2.19	20.08	12.29	1034.57
240	7.30	21.83	932.62	1231.75	0.62	800.64	1072.25	2.19	20.09	12.29	1034.58
241	7.30	21.84	932.68	1231.60	0.62	800.54	1072.18	2.19	20.07	12.29	1034.54
242	7.30	21.85	932.67	1231.67	0.62	800.59	1072.19	2.19	20.07	12.29	1034.56
243	7.30	21.84	932.70	1231.62	0.62	800.56	1072.16	2.19	20.07	12.29	1034.56
244	7.30	21.86	932.72	1231.72	0.62	800.62	1072.14	2.18	20.05	12.29	1034.61
245	7.30	21.87	932.77	1231.64	0.62	800.56	1072.08	2.18	20.06	12.30	1034.61
246	7.30	21.86	932.80	1231.73	0.62	800.62	1072.05	2.18	20.06	12.29	1034.61
247	7.30	21.86	932.87	1231.77	0.62	800.65	1071.96	2.18	20.04	12.30	1034.58
248	7.30	21.89	932.86	1231.65	0.62	800.57	1071.97	2.18	20.03	12.30	1034.56
249	7.30	21.89	932.86	1231.63	0.62	800.56	1071.97	2.18	20.02	12.30	1034.56
250	7.30	21.88	932.92	1231.64	0.62	800.57	1071.91	2.18	20.03	12.30	1034.56
251	7.30	21.88	932.92	1231.55	0.62	800.51	1071.88	2.18	20.03	12.30	1034.54
252	7.30	21.89	932.94	1231.62	0.62	800.37	1071.85	2.18	20.02	12.30	1034.56
253	7.30	21.91	932.97	1231.35	0.62	800.50	1071.88	2.18	20.02	12.31	1034.65
254	7.30	21.96	932.93	1231.20	0.62	800.29	1071.89	2.18	20.01	12.31	1034.58
255	7.30	21.95	933.01	1231.51	0.62	800.48	1071.80	2.18	20.01	12.31	1034.59
256	7.30	21.95	933.05	1231.31	0.62	800.35	1071.76	2.18	19.99	12.32	1034.61
257	7.30	21.97	933.13	1231.57	0.62	800.52	1071.67	2.18	19.99	12.31	1034.56



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
258	7.30	21.98	933.20	1231.42	0.62	800.43	1071.58	2.18	19.99	12.32	1034.58
259	7.30	22.00	933.31	1231.61	0.62	800.55	1071.46	2.18	19.99	12.32	1034.59
260	7.30	22.02	933.37	1231.52	0.62	800.49	1071.39	2.18	19.99	12.32	1034.58
261	7.30	22.04	933.39	1231.60	0.62	800.54	1071.37	2.17	19.98	12.32	1034.55
262	7.30	22.04	933.43	1231.36	0.62	800.38	1071.32	2.17	19.98	12.33	1034.55
263	7.30	22.06	933.51	1231.66	0.62	800.58	1071.23	2.17	19.97	12.33	1034.59
264	7.30	22.05	933.57	1231.41	0.62	800.41	1071.16	2.17	19.98	12.34	1034.55
265	7.30	22.09	933.65	1231.67	0.62	800.59	1071.07	2.17	19.97	12.33	1034.57
266	7.30	22.10	933.66	1231.70	0.62	800.60	1071.05	2.17	19.97	12.33	1034.57
267	7.30	22.13	933.71	1231.39	0.62	800.40	1071.00	2.17	19.96	12.34	1034.56
268	7.30	22.11	933.75	1231.60	0.62	800.54	1070.95	2.17	19.97	12.34	1034.55
269	7.30	22.15	933.76	1231.30	0.62	800.35	1070.89	2.17	19.97	12.35	1034.54
270	7.30	22.17	933.81	1231.54	0.62	800.28	1070.89	2.17	19.95	12.34	1034.57
271	7.30	22.17	933.81	1231.22	0.62	800.44	1070.87	2.17	19.95	12.35	1034.54
272	7.30	22.17	933.79	1231.17	0.62	800.28	1070.91	2.17	19.95	12.35	1034.51
273	7.30	22.19	933.82	1231.49	0.62	800.47	1070.87	2.17	19.95	12.34	1034.51
274	7.30	22.19	933.81	1231.17	0.62	800.26	1070.89	2.17	19.94	12.35	1034.54
275	7.30	22.18	933.69	1231.29	0.62	800.34	1071.01	2.17	19.94	12.35	1034.54
276	7.30	22.20	933.88	1231.25	0.62	800.31	1070.81	2.17	19.94	12.35	1034.51
277	7.30	22.22	933.89	1231.55	0.62	800.51	1070.79	2.17	19.93	12.35	1034.55
278	7.30	22.23	934.07	1231.55	0.62	800.50	1070.59	2.17	19.93	12.35	1034.51
279	7.30	22.24	934.15	1231.96	0.62	800.77	1070.49	2.17	19.94	12.34	1034.51
280	7.30	22.24	934.15	1231.72	0.62	800.62	1070.49	2.17	19.94	12.35	1034.56
281	7.30	22.26	934.19	1232.03	0.62	800.82	1070.45	2.17	19.94	12.34	1034.56
282	7.30	22.27	934.16	1231.77	0.62	800.65	1070.48	2.17	19.93	12.35	1034.58
283	7.30	22.26	934.13	1231.90	0.62	800.73	1070.51	2.17	19.93	12.34	1034.56
284	7.30	22.27	934.07	1231.62	0.62	800.56	1070.58	2.17	19.92	12.35	1034.57
285	7.30	22.30	934.02	1231.76	0.62	800.65	1070.64	2.17	19.91	12.34	1034.54
286	7.30	22.30	934.00	1231.65	0.62	800.57	1070.67	2.17	19.91	12.35	1034.56
287	7.30	22.30	933.99	1231.64	0.62	800.56	1070.67	2.17	19.91	12.35	1034.56
288	7.30	22.31	933.94	1231.68	0.62	800.59	1070.74	2.17	19.92	12.34	1034.56
289	7.30	22.32	933.93	1231.60	0.62	800.60	1070.75	2.16	19.89	12.35	1034.56
290	7.30	22.36	933.93	1231.69	0.62	800.43	1070.79	2.17	19.91	12.34	1034.55
291	7.30	22.36	933.89	1231.43	0.62	800.59	1070.83	2.17	19.90	12.35	1034.49
292	7.30	22.38	933.85	1231.45	0.62	800.45	1070.91	2.16	19.88	12.34	1034.55
293	7.30	22.42	933.78	1231.72	0.62	800.62	1070.92	2.16	19.89	12.34	1034.55
294	7.30	22.44	933.75	1231.46	0.62	800.45	1070.95	2.16	19.89	12.34	1034.56
295	7.30	22.46	933.75	1231.76	0.62	800.64	1070.95	2.16	19.88	12.33	1034.55



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
296	7.30	22.50	933.72	1231.46	0.62	800.45	1070.98	2.16	19.89	12.34	1034.50
297	7.30	22.53	933.71	1231.66	0.62	800.58	1070.99	2.16	19.88	12.33	1034.55
298	7.30	22.56	933.72	1231.43	0.62	800.43	1070.98	2.16	19.86	12.34	1034.55
299	7.30	22.57	933.75	1231.67	0.62	800.59	1070.95	2.16	19.87	12.34	1034.56
300	7.30	22.61	933.77	1231.48	0.62	800.46	1070.92	2.16	19.86	12.34	1034.53



WATER QUALITY PARAMETER READINGS

Project: Cambridge WWTP Relocation

Client: Anglain Water Services Limited

Engineer: Mott MacDonald Limited

Position: BH02

Date: 06/11/2020

Operative: AHm

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 755044

Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
1	8.36	167.07	822.60	1092.95	0.54	710.41	1215.63	3.15	28.79	12.04	1033.98
2	8.36	166.94	822.64	1092.98	0.54	710.44	1215.60	3.11	28.39	12.05	1033.98
3	8.36	166.84	822.59	1092.85	0.54	710.36	1215.68	3.07	28.01	12.05	1033.95
4	8.36	166.72	822.55	1092.81	0.54	710.33	1215.73	3.03	27.66	12.05	1034.00
5	8.36	166.63	822.53	1092.84	0.54	710.34	1215.77	2.99	27.35	12.05	1033.98
6	8.36	166.55	822.50	1092.72	0.54	710.27	1215.81	2.96	27.06	12.05	1033.95
7	8.36	166.51	822.49	1092.83	0.54	710.34	1215.82	2.94	26.81	12.05	1033.98
8	8.37	166.46	822.51	1092.70	0.54	710.26	1215.79	2.91	26.59	12.05	1033.98
9	8.37	166.37	822.51	1092.91	0.54	710.39	1215.79	2.89	26.40	12.05	1034.03
10	8.37	166.34	822.62	1092.84	0.54	710.34	1215.62	2.87	26.22	12.05	1034.01
11	8.37	166.27	822.63	1093.05	0.54	710.48	1215.62	2.85	26.04	12.05	1033.96
12	8.37	166.26	822.63	1093.07	0.54	710.50	1215.61	2.85	26.01	12.05	1033.95
13	8.37	166.23	822.63	1092.80	0.54	710.32	1215.62	2.83	25.85	12.06	1033.96
14	8.37	166.17	822.64	1093.10	0.54	710.51	1215.60	2.81	25.70	12.05	1033.96
15	8.35	167.11	820.05	1089.63	0.54	708.26	1220.20	2.80	25.28	12.05	1034.01
16	8.34	167.73	819.43	1091.34	0.54	710.24	1218.92	2.73	24.87	11.96	1033.98
17	8.35	167.40	820.42	1092.81	0.54	710.70	1217.92	2.70	24.58	11.95	1033.96
18	8.35	167.07	821.07	1092.99	0.54	710.47	1218.19	2.67	24.33	11.96	1034.01
19	8.35	166.86	820.90	1092.87	0.54	710.36	1218.20	2.65	24.11	11.97	1034.03
20	8.36	166.65	820.97	1093.06	0.54	710.49	1218.07	2.63	23.93	11.97	1033.98
21	8.36	166.45	820.74	1092.57	0.54	710.17	1218.42	2.61	23.75	11.97	1033.97
22	8.36	166.29	821.03	1093.10	0.54	710.51	1217.98	2.59	23.62	11.97	1033.97
23	8.36	166.18	821.17	1093.08	0.54	710.50	1217.77	2.58	23.49	11.98	1033.98
24	8.36	166.08	821.20	1093.30	0.54	710.64	1217.74	2.57	23.42	11.97	1033.98
25	8.37	165.98	821.20	1093.06	0.54	710.49	1217.73	2.56	23.31	11.98	1033.96
26	8.37	165.92	821.25	1093.32	0.54	710.66	1217.65	2.55	23.23	11.97	1033.95
27	8.37	165.86	821.22	1093.03	0.54	710.47	1217.70	2.54	23.17	11.98	1033.95
28	8.37	165.84	821.21	1093.00	0.54	710.45	1217.71	2.54	23.15	11.98	1033.95
29	8.37	165.78	821.23	1093.27	0.54	710.62	1217.69	2.53	23.10	11.97	1034.03



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
30	8.37	165.75	821.20	1092.95	0.54	710.42	1217.73	2.53	23.05	11.98	1033.98
31	8.34	167.08	819.82	1092.56	0.54	710.16	1220.52	2.54	23.07	11.93	1034.02
32	8.35	167.01	819.26	1092.25	0.54	709.96	1220.12	2.53	23.04	11.91	1034.01
33	8.35	166.76	819.60	1092.95	0.54	710.55	1219.40	2.52	22.93	11.91	1033.99
34	8.35	166.25	820.07	1093.61	0.54	710.86	1218.81	2.51	22.86	11.92	1033.98
35	8.36	166.08	819.97	1092.81	0.54	710.33	1219.51	2.50	22.80	11.92	1034.00
36	8.36	165.94	819.97	1092.70	0.54	710.26	1219.55	2.49	22.71	11.93	1033.99
37	8.36	165.83	820.07	1092.79	0.54	710.31	1219.40	2.49	22.67	11.93	1034.05
38	8.36	165.75	820.07	1092.67	0.54	710.24	1219.41	2.48	22.63	11.94	1034.02
39	8.36	165.65	820.15	1092.79	0.54	710.31	1219.29	2.48	22.59	11.94	1033.97
40	8.37	165.60	820.50	1093.16	0.54	710.56	1218.77	2.47	22.54	11.94	1033.97
41	8.37	165.53	820.06	1092.71	0.54	710.26	1219.42	2.47	22.52	11.94	1033.95
42	8.37	165.49	820.00	1092.39	0.54	710.05	1219.51	2.47	22.50	11.94	1034.00
43	8.37	165.42	820.16	1092.80	0.54	710.32	1219.28	2.47	22.46	11.94	1034.00
44	8.37	165.39	819.99	1092.33	0.54	710.02	1219.53	2.46	22.42	11.95	1033.97
45	8.37	165.34	819.95	1092.49	0.54	710.12	1219.59	2.46	22.40	11.94	1034.00
46	8.37	165.32	819.94	1092.29	0.54	709.99	1219.59	2.46	22.37	11.95	1033.97
47	8.37	165.31	819.94	1092.27	0.54	709.98	1219.60	2.46	22.37	11.95	1033.97
48	8.35	166.40	819.20	1092.40	0.54	710.06	1220.70	2.47	22.46	11.91	1034.03
49	8.35	166.35	819.24	1092.68	0.54	710.24	1219.98	2.47	22.47	11.90	1034.00
50	8.35	166.12	819.68	1093.38	0.54	710.69	1220.44	2.47	22.53	11.89	1033.95
51	8.36	166.00	819.37	1092.89	0.54	710.63	1219.93	2.48	22.56	11.90	1033.95
52	8.36	165.72	819.71	1092.97	0.54	710.45	1220.11	2.48	22.56	11.90	1033.94
53	8.36	165.59	819.72	1092.93	0.54	710.41	1219.94	2.48	22.56	11.90	1033.95
54	8.36	165.52	819.84	1093.31	0.54	710.65	1219.75	2.48	22.56	11.91	1034.00
55	8.36	165.51	819.83	1093.06	0.54	710.49	1219.76	2.48	22.57	11.91	1034.02
56	8.36	165.44	819.80	1093.21	0.54	710.59	1219.81	2.48	22.54	11.91	1034.00
57	8.36	165.40	819.85	1093.01	0.54	710.46	1219.74	2.47	22.53	11.92	1033.94
58	8.36	165.38	819.88	1093.29	0.54	710.64	1219.69	2.48	22.53	11.91	1033.98
59	8.35	166.16	819.91	1093.39	0.54	710.70	1219.65	2.48	22.56	11.90	1033.97
60	8.35	165.93	819.86	1093.48	0.54	710.76	1219.73	2.49	22.62	11.90	1034.01
61	8.35	165.85	819.91	1093.38	0.54	710.70	1219.65	2.49	22.66	11.90	1034.00
62	8.36	165.69	819.86	1093.45	0.54	710.74	1219.72	2.49	22.70	11.90	1034.04
63	8.36	165.53	820.46	1094.11	0.54	711.17	1218.82	2.50	22.74	11.91	1034.01
64	8.36	165.39	820.05	1093.62	0.54	710.85	1219.44	2.50	22.77	11.90	1033.99
65	8.36	165.36	820.02	1093.57	0.54	710.82	1219.48	2.50	22.77	11.90	1033.98
66	8.36	165.31	819.82	1093.26	0.54	710.62	1219.78	2.50	22.77	11.90	1033.96
67	8.35	165.82	818.51	1092.04	0.54	709.82	1221.74	2.50	22.78	11.89	1034.03



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
68	8.35	165.95	818.90	1093.05	0.54	710.48	1221.14	2.52	22.90	11.87	1034.02
69	8.36	165.71	819.21	1093.30	0.54	710.39	1221.52	2.50	22.77	11.87	1034.00
70	8.36	165.56	818.69	1092.92	0.54	710.35	1221.49	2.50	22.70	11.86	1033.99
71	8.36	165.34	818.68	1093.40	0.54	710.70	1221.11	2.49	22.64	11.86	1033.96
72	8.36	165.27	819.09	1093.36	0.54	710.68	1220.84	2.48	22.58	11.87	1033.95
73	8.37	165.17	818.99	1093.36	0.54	710.68	1221.01	2.48	22.53	11.86	1033.97
74	8.37	165.09	819.01	1093.12	0.54	710.53	1220.99	2.47	22.49	11.87	1034.02
75	8.37	165.02	819.05	1093.25	0.54	710.61	1220.93	2.47	22.44	11.87	1033.99
76	8.37	164.95	818.98	1093.08	0.54	710.50	1221.02	2.46	22.40	11.87	1033.98
77	8.37	164.91	818.99	1093.08	0.54	710.50	1221.01	2.46	22.37	11.87	1034.02
78	8.37	164.85	818.98	1093.08	0.54	710.50	1221.03	2.46	22.35	11.87	1033.98
79	8.37	164.80	819.02	1093.00	0.54	710.45	1220.97	2.45	22.31	11.88	1033.99
80	8.37	164.79	819.02	1092.99	0.54	710.44	1220.96	2.45	22.30	11.88	1033.99
81	8.37	164.71	819.09	1093.17	0.54	710.56	1220.87	2.45	22.29	11.87	1033.94
82	8.37	164.69	819.10	1093.05	0.54	710.48	1220.86	2.45	22.28	11.88	1033.96
83	8.37	164.68	819.08	1093.11	0.54	710.52	1220.86	2.45	22.23	11.88	1034.00
84	8.37	164.63	819.10	1093.01	0.54	710.53	1220.87	2.44	22.21	11.88	1033.97
85	8.37	164.62	819.09	1093.12	0.54	710.37	1220.93	2.44	22.20	11.88	1033.99
86	8.37	164.60	819.05	1093.07	0.54	710.49	1220.90	2.44	22.18	11.88	1034.01
87	8.37	164.53	819.08	1092.86	0.54	710.36	1220.88	2.44	22.17	11.88	1033.96
88	8.37	164.53	819.08	1093.06	0.54	710.49	1220.88	2.44	22.16	11.88	1034.00
89	8.37	164.52	819.09	1092.87	0.54	710.37	1220.87	2.44	22.15	11.88	1033.99
90	8.37	164.52	819.11	1093.09	0.54	710.51	1220.83	2.44	22.16	11.88	1034.02
91	8.37	164.50	819.09	1092.81	0.54	710.32	1220.87	2.43	22.13	11.89	1034.00
92	8.37	164.51	819.08	1092.99	0.54	710.44	1220.88	2.43	22.11	11.88	1033.96
93	8.37	164.48	819.09	1092.78	0.54	710.30	1220.87	2.43	22.10	11.89	1033.95
94	8.37	164.47	819.14	1093.05	0.54	710.48	1220.79	2.43	22.11	11.88	1033.97
95	8.37	164.46	819.15	1093.08	0.54	710.50	1220.78	2.43	22.12	11.88	1033.97
96	8.37	164.49	819.18	1092.85	0.54	710.35	1220.74	2.43	22.11	11.89	1033.96
97	8.37	164.45	819.28	1093.22	0.54	710.59	1220.58	2.43	22.10	11.88	1033.92
98	8.37	164.46	819.28	1093.00	0.54	710.45	1220.57	2.43	22.10	11.89	1033.91
99	8.37	164.44	819.29	1093.16	0.54	710.50	1220.53	2.43	22.07	11.88	1033.95
100	8.37	164.42	819.32	1093.09	0.54	710.59	1220.50	2.43	22.08	11.89	1033.95
101	8.37	164.45	819.34	1093.21	0.54	710.50	1220.50	2.42	22.06	11.88	1033.96
102	8.37	164.44	819.34	1093.15	0.54	710.54	1220.50	2.42	22.06	11.89	1033.91
103	8.37	164.45	819.35	1093.09	0.54	710.51	1220.49	2.42	22.05	11.89	1033.94
104	8.37	164.45	819.34	1093.10	0.54	710.51	1220.50	2.42	22.04	11.89	1033.99
105	8.37	164.45	819.38	1093.18	0.54	710.57	1220.44	2.42	22.06	11.89	1033.96



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
106	8.37	164.43	819.43	1093.11	0.54	710.52	1220.36	2.42	22.04	11.89	1033.98
107	8.37	164.45	819.45	1093.29	0.54	710.64	1220.33	2.42	22.05	11.89	1033.94
108	8.37	164.43	819.47	1093.13	0.54	710.54	1220.31	2.42	22.04	11.89	1033.96
109	8.37	164.45	819.47	1093.35	0.54	710.67	1220.31	2.42	22.05	11.89	1033.97
110	8.37	164.46	819.47	1093.13	0.54	710.53	1220.30	2.42	22.04	11.89	1033.94
111	8.37	164.46	819.47	1093.10	0.54	710.52	1220.30	2.42	22.04	11.89	1033.93
112	8.37	164.44	819.48	1093.40	0.54	710.71	1220.28	2.42	22.05	11.88	1033.96
113	8.37	164.48	819.50	1093.10	0.54	710.52	1220.26	2.42	22.03	11.90	1033.94
114	8.37	164.46	819.52	1093.39	0.54	710.70	1220.19	2.42	22.03	11.89	1033.96
115	8.37	164.49	819.55	1093.18	0.54	710.80	1220.09	2.42	22.03	11.89	1033.95
116	8.37	164.48	819.61	1093.52	0.54	710.79	1219.81	2.42	22.02	11.89	1033.99
117	8.37	164.49	819.80	1093.78	0.54	710.96	1219.76	2.42	22.02	11.89	1033.96
118	8.37	164.48	819.83	1093.63	0.54	710.86	1219.72	2.42	22.03	11.89	1033.94
119	8.37	164.49	819.86	1093.70	0.54	710.90	1219.72	2.42	22.02	11.89	1033.99
120	8.37	164.51	819.86	1093.72	0.54	710.92	1219.73	2.42	22.05	11.89	1033.97
121	8.37	164.49	819.87	1093.68	0.54	710.89	1219.71	2.42	22.06	11.89	1033.98
122	8.37	164.50	819.86	1093.68	0.54	710.89	1219.72	2.42	22.03	11.89	1033.95
123	8.37	164.49	819.86	1093.69	0.54	710.90	1219.72	2.42	22.03	11.89	1033.95
124	8.37	164.51	819.88	1093.76	0.54	710.94	1219.69	2.42	22.04	11.89	1033.94
125	8.37	164.51	819.88	1093.62	0.54	710.86	1219.69	2.42	22.04	11.89	1033.91
126	8.37	164.53	819.92	1093.82	0.54	710.99	1219.63	2.42	22.04	11.89	1033.92
127	8.37	164.52	819.90	1093.65	0.54	710.88	1219.66	2.42	22.04	11.89	1033.93
128	8.37	164.51	819.90	1093.64	0.54	710.86	1219.66	2.42	22.04	11.90	1033.93
129	8.37	164.53	819.90	1093.82	0.54	710.98	1219.67	2.42	22.03	11.89	1033.96
130	8.37	164.54	820.07	1093.85	0.54	711.14	1219.42	2.42	22.04	11.90	1033.89
131	8.37	164.55	820.07	1094.07	0.54	711.02	1219.37	2.42	22.03	11.89	1033.89
132	8.37	164.56	820.09	1094.13	0.54	711.17	1219.37	2.42	22.03	11.90	1033.90
133	8.37	164.56	820.05	1093.79	0.54	710.96	1219.44	2.42	22.02	11.89	1033.85
134	8.37	164.57	820.07	1094.05	0.54	711.13	1219.41	2.42	22.03	11.89	1033.88
135	8.37	164.57	820.07	1093.84	0.54	711.00	1219.41	2.42	22.02	11.90	1033.95
136	8.37	164.58	820.11	1094.07	0.54	711.15	1219.35	2.42	22.03	11.89	1033.94
137	8.37	164.55	820.24	1094.09	0.54	711.16	1219.16	2.42	22.03	11.90	1033.93
138	8.37	164.55	820.31	1094.25	0.54	711.26	1219.06	2.42	22.04	11.89	1033.90
139	8.37	164.57	820.31	1094.27	0.54	711.27	1219.05	2.42	22.05	11.89	1033.92
140	8.37	164.57	820.33	1094.22	0.54	711.25	1219.03	2.42	22.04	11.89	1033.92
141	8.37	164.59	820.31	1094.32	0.54	711.31	1219.05	2.42	22.03	11.89	1033.95
142	8.37	164.59	820.33	1094.17	0.54	711.21	1219.02	2.42	22.04	11.90	1033.87
143	8.37	164.60	820.35	1094.35	0.54	711.33	1218.99	2.42	22.05	11.89	1033.93



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
144	8.37	164.60	820.35	1094.37	0.54	711.34	1218.99	2.42	22.06	11.89	1033.94
145	8.37	164.61	820.35	1094.18	0.54	711.22	1218.99	2.42	22.05	11.90	1033.94
146	8.37	164.60	820.35	1094.37	0.54	711.34	1218.99	2.42	22.06	11.89	1033.92
147	8.37	164.61	820.36	1094.16	0.54	711.20	1218.98	2.42	22.05	11.90	1033.93
148	8.37	164.62	820.34	1094.38	0.54	711.34	1218.94	2.42	22.04	11.89	1033.90
149	8.37	164.62	820.39	1094.28	0.54	711.28	1219.11	2.42	22.06	11.90	1033.87
150	8.37	164.61	820.25	1094.00	0.54	711.10	1219.16	2.42	22.06	11.89	1033.93
151	8.37	164.63	820.25	1094.25	0.54	711.26	1219.14	2.42	22.06	11.90	1033.93
152	8.37	164.63	820.21	1093.96	0.54	711.07	1219.19	2.42	22.04	11.90	1033.94
153	8.37	164.61	820.20	1094.18	0.54	711.22	1219.22	2.43	22.07	11.89	1033.92
154	8.37	164.62	820.19	1093.93	0.54	711.05	1219.22	2.42	22.07	11.90	1033.95
155	8.37	164.63	820.20	1094.15	0.54	711.20	1219.21	2.43	22.07	11.89	1033.93
156	8.37	164.62	820.21	1093.93	0.54	711.06	1219.20	2.42	22.06	11.90	1033.95
157	8.37	164.61	820.12	1094.01	0.54	711.11	1219.33	2.42	22.07	11.89	1033.91
158	8.37	164.62	820.10	1093.86	0.54	711.01	1219.37	2.42	22.06	11.90	1033.96
159	8.37	164.65	820.09	1093.91	0.54	711.04	1219.38	2.43	22.08	11.89	1033.93
160	8.37	164.62	820.02	1093.79	0.54	710.96	1219.49	2.43	22.08	11.90	1033.92
161	8.37	164.63	819.82	1093.45	0.54	710.74	1219.77	2.43	22.09	11.90	1033.94
162	8.37	164.63	819.79	1093.39	0.54	710.70	1219.82	2.43	22.09	11.90	1033.94
163	8.37	164.65	819.71	1093.48	0.54	710.76	1219.94	2.43	22.08	11.89	1033.92
164	8.37	164.63	819.59	1093.09	0.54	710.51	1220.12	2.43	22.09	11.90	1033.94
165	8.37	164.66	819.62	1093.35	0.54	710.68	1220.02	2.43	22.09	11.89	1033.89
166	8.37	164.65	819.66	1093.24	0.54	710.68	1220.09	2.43	22.10	11.90	1033.91
167	8.37	164.67	819.61	1093.34	0.54	710.53	1220.08	2.43	22.12	11.89	1033.92
168	8.37	164.67	819.62	1093.37	0.54	710.68	1220.08	2.43	22.10	11.90	1033.90
169	8.37	164.67	819.63	1093.13	0.54	710.53	1220.07	2.43	22.11	11.89	1033.92
170	8.37	164.65	819.60	1093.34	0.54	710.67	1220.11	2.43	22.10	11.89	1033.92
171	8.37	164.66	819.58	1093.08	0.54	710.50	1220.13	2.43	22.11	11.90	1033.88
172	8.37	164.68	819.60	1093.32	0.54	710.66	1220.11	2.43	22.10	11.89	1033.95
173	8.37	164.68	819.55	1093.06	0.54	710.49	1220.18	2.43	22.12	11.90	1033.91
174	8.37	164.67	819.55	1093.22	0.54	710.60	1220.19	2.43	22.12	11.89	1033.92
175	8.37	164.68	819.55	1093.09	0.54	710.51	1220.18	2.43	22.13	11.90	1033.90
176	8.37	164.67	819.57	1093.19	0.54	710.57	1220.15	2.43	22.13	11.90	1033.89
177	8.37	164.67	819.46	1093.00	0.54	710.45	1220.32	2.43	22.13	11.90	1033.91
178	8.37	164.71	819.62	1093.24	0.54	710.61	1220.08	2.43	22.15	11.90	1033.88
179	8.37	164.72	819.64	1093.27	0.54	710.62	1220.05	2.43	22.15	11.90	1033.87
180	8.37	164.67	819.65	1093.30	0.54	710.64	1220.03	2.43	22.15	11.90	1033.87
181	8.36	164.70	819.63	1093.17	0.54	710.56	1220.07	2.43	22.15	11.90	1033.85



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
182	8.36	164.69	819.64	1093.32	0.54	710.66	1220.03	2.44	22.16	11.89	1033.83
183	8.36	164.70	819.66	1093.23	0.54	710.62	1220.16	2.44	22.16	11.90	1033.85
184	8.36	164.71	819.56	1093.25	0.54	710.55	1220.02	2.44	22.17	11.89	1033.89
185	8.36	164.70	819.66	1093.44	0.54	710.73	1220.01	2.44	22.16	11.90	1033.87
186	8.36	164.72	819.68	1093.19	0.54	710.57	1219.98	2.44	22.16	11.90	1033.88
187	8.36	164.74	819.49	1093.14	0.54	710.54	1220.27	2.44	22.19	11.89	1033.86
188	8.36	164.74	819.42	1092.82	0.54	710.33	1220.38	2.44	22.19	11.90	1033.84
189	8.36	164.76	819.35	1092.99	0.54	710.44	1220.47	2.44	22.20	11.89	1033.86
190	8.36	164.75	819.33	1092.71	0.54	710.26	1220.52	2.44	22.20	11.90	1033.87
191	8.36	164.74	819.33	1092.97	0.54	710.43	1220.51	2.44	22.21	11.89	1033.84
192	8.36	164.74	819.33	1092.99	0.54	710.45	1220.51	2.44	22.21	11.89	1033.84
193	8.36	164.75	819.35	1092.73	0.54	710.28	1220.48	2.44	22.21	11.90	1033.87
194	8.36	164.76	819.32	1092.97	0.54	710.43	1220.53	2.44	22.22	11.89	1033.93
195	8.36	164.77	819.38	1092.81	0.54	710.32	1220.24	2.44	22.21	11.90	1033.85
196	8.36	164.77	819.51	1093.16	0.54	710.32	1220.43	2.44	22.23	11.89	1033.85
197	8.36	164.75	819.38	1092.82	0.54	710.41	1220.46	2.44	22.25	11.90	1033.89
198	8.36	164.80	819.36	1092.65	0.54	710.23	1220.60	2.44	22.25	11.89	1033.84
199	8.36	164.78	819.24	1092.78	0.54	710.30	1220.65	2.44	22.25	11.90	1033.85
200	8.36	164.79	819.25	1092.69	0.54	710.25	1220.62	2.44	22.25	11.90	1033.85
201	8.36	164.81	819.01	1092.39	0.54	710.05	1220.99	2.44	22.25	11.90	1033.82
202	8.36	164.81	819.00	1092.38	0.54	710.05	1221.00	2.45	22.29	11.90	1033.81
203	8.36	164.82	818.98	1092.35	0.54	710.03	1221.03	2.45	22.28	11.90	1033.85
204	8.36	164.83	818.98	1092.38	0.54	710.05	1221.03	2.45	22.27	11.90	1033.78
205	8.36	164.84	818.97	1092.31	0.54	710.00	1221.04	2.45	22.27	11.90	1033.87
206	8.36	164.83	819.23	1092.71	0.54	710.26	1220.66	2.45	22.28	11.90	1033.88
207	8.36	164.82	818.94	1092.23	0.54	709.95	1221.09	2.45	22.29	11.90	1033.87
208	8.36	164.84	818.86	1092.22	0.54	709.94	1221.20	2.45	22.30	11.90	1033.84
209	8.36	164.83	818.83	1092.13	0.54	709.89	1221.25	2.45	22.30	11.90	1033.85
210	8.36	164.84	818.83	1092.13	0.54	709.88	1221.26	2.45	22.30	11.90	1033.85
211	8.36	164.85	818.79	1092.17	0.54	709.91	1221.32	2.45	22.32	11.89	1033.90
212	8.36	164.86	818.78	1092.12	0.54	709.88	1221.33	2.45	22.31	11.90	1033.91
213	8.36	164.86	818.82	1092.25	0.54	709.96	1221.27	2.45	22.31	11.89	1033.88
214	8.36	164.87	818.82	1092.12	0.54	709.87	1221.28	2.45	22.33	11.90	1033.88
215	8.36	164.87	818.82	1092.23	0.54	709.85	1221.25	2.45	22.34	11.89	1033.85
216	8.36	164.90	818.83	1092.08	0.54	709.92	1221.31	2.45	22.34	11.90	1033.88
217	8.36	164.89	818.83	1092.02	0.54	709.82	1221.26	2.46	22.35	11.89	1033.88
218	8.36	164.89	818.85	1092.31	0.54	710.00	1221.23	2.46	22.34	11.89	1033.89
219	8.36	164.90	818.80	1092.03	0.54	709.82	1221.29	2.46	22.37	11.90	1033.86



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
220	8.36	164.90	818.83	1092.29	0.54	709.99	1221.26	2.46	22.35	11.89	1033.84
221	8.36	164.91	818.81	1092.06	0.54	709.84	1221.28	2.46	22.37	11.90	1033.89
222	8.36	164.91	818.81	1092.23	0.54	709.95	1221.28	2.46	22.37	11.89	1033.85
223	8.36	164.91	818.81	1092.11	0.54	709.87	1221.28	2.46	22.40	11.90	1033.88
224	8.36	164.91	818.97	1092.43	0.54	710.08	1221.04	2.46	22.38	11.89	1033.90
225	8.36	164.93	819.02	1092.47	0.54	710.10	1220.97	2.46	22.40	11.90	1033.86
226	8.36	164.96	819.07	1092.50	0.54	710.12	1220.90	2.46	22.40	11.90	1033.89
227	8.36	164.96	819.08	1092.53	0.54	710.14	1220.89	2.46	22.40	11.90	1033.89
228	8.36	164.97	819.08	1092.53	0.54	710.15	1220.88	2.46	22.40	11.90	1033.89
229	8.36	164.97	819.04	1092.39	0.54	710.05	1220.94	2.46	22.38	11.90	1033.85
230	8.36	164.95	818.89	1092.35	0.54	710.03	1220.92	2.46	22.41	11.89	1033.86
231	8.36	164.96	819.05	1092.33	0.54	710.20	1220.92	2.46	22.42	11.90	1033.85
232	8.36	164.98	819.06	1092.61	0.54	710.03	1220.90	2.46	22.42	11.89	1033.87
233	8.36	164.97	819.06	1092.62	0.54	710.19	1220.92	2.47	22.44	11.90	1033.88
234	8.36	164.98	819.07	1092.43	0.54	710.08	1220.90	2.47	22.44	11.90	1033.87
235	8.36	165.00	819.05	1092.58	0.54	710.18	1220.92	2.47	22.45	11.89	1033.89
236	8.36	165.00	818.87	1092.19	0.54	709.92	1221.20	2.47	22.45	11.90	1033.90
237	8.36	164.99	818.76	1092.15	0.54	709.90	1221.36	2.47	22.45	11.89	1033.90
238	8.36	165.00	818.87	1092.29	0.54	709.99	1221.19	2.47	22.46	11.89	1033.87
239	8.36	165.03	818.93	1092.25	0.54	709.96	1221.10	2.47	22.47	11.90	1033.88
240	8.36	165.02	818.92	1092.36	0.54	710.04	1221.12	2.47	22.49	11.89	1033.91
241	8.36	165.03	818.93	1092.18	0.54	709.92	1221.11	2.47	22.48	11.90	1033.88
242	8.36	165.06	818.94	1092.43	0.54	710.08	1221.10	2.47	22.49	11.89	1033.88
243	8.36	165.07	818.94	1092.46	0.54	710.10	1221.09	2.47	22.49	11.89	1033.88
244	8.36	165.05	818.96	1092.20	0.54	709.93	1221.06	2.47	22.49	11.90	1033.85
245	8.35	165.06	819.32	1092.94	0.54	710.41	1220.53	2.47	22.50	11.89	1033.89
246	8.36	165.06	819.36	1092.88	0.54	710.37	1220.47	2.47	22.51	11.90	1033.87
247	8.35	165.05	819.13	1092.67	0.54	710.23	1220.81	2.47	22.52	11.89	1033.90
248	8.35	165.06	819.25	1092.68	0.54	710.25	1220.67	2.48	22.54	11.90	1033.85
249	8.35	165.07	819.23	1092.77	0.54	710.30	1220.59	2.48	22.54	11.90	1033.86
250	8.35	165.08	819.27	1092.69	0.54	710.25	1220.60	2.48	22.55	11.90	1033.83
251	8.35	165.09	819.32	1092.92	0.54	710.40	1220.52	2.48	22.56	11.89	1033.87
252	8.35	165.07	819.25	1092.64	0.54	710.22	1220.63	2.48	22.56	11.90	1033.87
253	8.35	165.08	819.25	1092.83	0.54	710.34	1220.64	2.48	22.57	11.89	1033.87
254	8.35	165.07	819.26	1092.66	0.54	710.23	1220.61	2.48	22.58	11.90	1033.87
255	8.35	165.08	819.25	1092.82	0.54	710.33	1220.63	2.48	22.58	11.89	1033.86
256	8.35	165.12	819.26	1092.71	0.54	710.26	1220.62	2.48	22.59	11.90	1033.87
257	8.35	165.11	819.26	1092.87	0.54	710.37	1220.62	2.48	22.60	11.89	1033.91



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
258	8.35	165.09	819.25	1092.68	0.54	710.24	1220.62	2.48	22.60	11.90	1033.93
259	8.35	165.10	819.20	1092.72	0.54	710.26	1220.70	2.48	22.60	11.90	1033.87
260	8.35	165.10	819.19	1092.71	0.54	710.26	1220.71	2.48	22.60	11.89	1033.86
261	8.35	165.12	819.16	1092.63	0.54	710.21	1220.76	2.48	22.62	11.90	1033.85
262	8.35	165.10	819.22	1092.62	0.54	710.21	1220.68	2.49	22.63	11.90	1033.92
263	8.35	165.11	819.22	1092.77	0.54	710.30	1220.67	2.49	22.64	11.89	1033.87
264	8.35	165.13	819.22	1092.60	0.54	710.36	1220.62	2.49	22.65	11.90	1033.88
265	8.35	165.13	819.26	1092.85	0.54	710.06	1220.87	2.49	22.65	11.89	1033.88
266	8.35	165.14	819.09	1092.40	0.54	710.21	1220.92	2.49	22.66	11.90	1033.82
267	8.35	165.15	819.06	1092.62	0.54	710.06	1220.90	2.49	22.65	11.89	1033.87
268	8.35	165.14	819.07	1092.66	0.54	710.22	1220.89	2.49	22.66	11.90	1033.85
269	8.35	165.16	819.05	1092.38	0.54	710.04	1220.93	2.49	22.66	11.90	1033.89
270	8.35	165.16	819.07	1092.59	0.54	710.18	1220.89	2.49	22.70	11.89	1033.85
271	8.35	165.17	819.06	1092.46	0.54	710.10	1220.91	2.49	22.69	11.90	1033.88
272	8.35	165.16	819.07	1092.52	0.54	710.14	1220.90	2.49	22.70	11.90	1033.83
273	8.35	165.18	819.06	1092.54	0.54	710.15	1220.91	2.50	22.71	11.89	1033.87
274	8.35	165.19	819.17	1092.58	0.54	710.18	1220.76	2.49	22.71	11.90	1033.85
275	8.35	165.21	819.25	1092.88	0.54	710.37	1220.63	2.50	22.71	11.89	1033.82
276	8.35	165.19	819.35	1092.77	0.54	710.30	1220.48	2.49	22.70	11.90	1033.80
277	8.35	165.20	819.21	1092.84	0.54	710.34	1220.69	2.50	22.71	11.89	1033.80
278	8.35	165.22	819.20	1092.57	0.54	710.17	1220.71	2.50	22.74	11.90	1033.88
279	8.35	165.23	819.19	1092.53	0.54	710.15	1220.72	2.50	22.74	11.90	1033.89
280	8.35	165.23	819.15	1092.75	0.54	710.29	1220.78	2.50	22.74	11.89	1033.86
281	8.35	165.23	819.16	1092.51	0.54	710.13	1220.77	2.50	22.76	11.90	1033.82
282	8.35	165.22	819.18	1092.75	0.54	710.29	1220.74	2.50	22.76	11.89	1033.88
283	8.35	165.24	819.17	1092.54	0.54	710.15	1220.71	2.50	22.77	11.90	1033.84
284	8.35	165.26	819.20	1092.69	0.54	710.17	1220.74	2.50	22.76	11.90	1033.79
285	8.35	165.27	819.17	1092.64	0.54	710.21	1220.74	2.50	22.76	11.90	1033.80
286	8.35	165.27	819.18	1092.72	0.54	710.27	1220.73	2.50	22.77	11.90	1033.79
287	8.35	165.26	819.18	1092.59	0.54	710.18	1220.73	2.50	22.77	11.90	1033.82
288	8.35	165.28	819.23	1092.84	0.54	710.34	1220.65	2.50	22.79	11.89	1033.80
289	8.35	165.27	819.15	1092.52	0.54	710.14	1220.77	2.50	22.79	11.90	1033.79
290	8.35	165.28	819.15	1092.72	0.54	710.27	1220.78	2.50	22.79	11.89	1033.76
291	8.35	165.29	819.15	1092.54	0.54	710.15	1220.77	2.51	22.81	11.90	1033.79
292	8.35	165.30	819.17	1092.70	0.54	710.25	1220.75	2.51	22.81	11.89	1033.79
293	8.35	165.31	819.47	1093.00	0.54	710.45	1220.30	2.51	22.82	11.90	1033.77
294	8.35	165.31	819.52	1093.06	0.54	710.49	1220.23	2.51	22.82	11.90	1033.77
295	8.35	165.30	819.51	1093.04	0.54	710.48	1220.24	2.51	22.81	11.90	1033.77



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
296	8.35	165.30	819.47	1093.11	0.54	710.52	1220.31	2.51	22.83	11.89	1033.79
297	8.35	165.31	819.47	1093.00	0.54	710.45	1220.28	2.51	22.85	11.90	1033.81
298	8.35	165.32	819.49	1093.15	0.54	710.43	1220.26	2.51	22.86	11.89	1033.79
299	8.35	165.35	819.50	1092.99	0.54	710.57	1220.23	2.51	22.87	11.90	1033.77
300	8.35	165.35	819.52	1092.69	0.54	710.26	1220.60	2.51	22.87	11.89	1033.78
301	8.35	165.39	819.23	1092.81	0.54	710.33	1220.69	2.51	22.88	11.90	1033.83



WATER QUALITY PARAMETER READINGS

Project: Cambridge WWTP Relocation

Client: Anglain Water Services Limited

Engineer: Mott MacDonald Limited

Position: BH03

Date: 06/11/2020

Operative: AHm

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 755044

Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
1	8.64	174.93	702.06	940.04	0.46	611.03	1424.38	2.57	23.36	11.75	1033.07
2	8.64	174.86	702.04	940.24	0.46	611.16	1424.43	2.52	22.88	11.74	1033.14
3	8.64	175.21	701.92	939.82	0.46	610.88	1424.66	2.48	22.46	11.75	1033.12
4	8.64	174.98	701.90	940.03	0.46	611.02	1424.71	2.43	22.02	11.74	1033.08
5	8.64	174.99	701.92	939.95	0.46	610.97	1424.96	2.38	21.60	11.74	1033.11
6	8.64	174.87	701.77	939.99	0.46	611.00	1424.93	2.34	21.21	11.73	1033.11
7	8.64	175.02	701.79	939.88	0.46	610.93	1424.75	2.30	20.56	11.74	1033.09
8	8.64	175.19	701.88	940.17	0.46	610.99	1424.64	2.23	20.25	11.73	1033.07
9	8.64	175.38	701.93	939.94	0.46	610.95	1424.91	2.21	20.06	11.74	1033.07
10	8.62	175.92	701.76	939.69	0.46	610.80	1425.01	2.18	19.82	11.74	1033.11
11	8.63	175.71	701.86	939.96	0.46	610.97	1424.79	2.16	19.58	11.74	1033.09
12	8.63	175.48	701.60	939.42	0.46	610.62	1425.32	2.14	19.37	11.75	1033.09
13	8.64	175.24	701.63	939.63	0.46	610.76	1425.26	2.11	19.17	11.74	1033.09
14	8.64	175.01	701.71	939.57	0.46	610.72	1425.10	2.09	19.00	11.75	1033.07
15	8.64	174.96	701.76	939.73	0.46	610.83	1424.98	2.07	18.81	11.74	1033.05
16	8.64	175.24	701.78	939.65	0.46	610.77	1424.95	2.05	18.63	11.75	1033.09
17	8.64	175.03	701.70	939.49	0.46	610.67	1425.12	2.04	18.48	11.75	1033.12
18	8.64	174.88	701.68	939.44	0.46	610.64	1425.15	2.02	18.35	11.75	1033.08
19	8.64	174.85	701.67	939.43	0.46	610.63	1425.16	2.02	18.32	11.75	1033.07
20	8.64	174.69	701.72	939.48	0.46	610.66	1425.06	2.00	18.19	11.75	1033.11
21	8.64	174.62	701.71	939.33	0.46	610.56	1425.10	1.99	18.07	11.76	1033.05
22	8.64	174.56	701.85	939.69	0.46	610.80	1424.81	1.98	17.95	11.75	1033.09
23	8.64	174.57	701.65	939.37	0.46	610.59	1425.18	1.96	17.72	11.75	1033.08
24	8.64	174.50	701.65	939.32	0.46	610.63	1425.09	1.94	17.62	11.75	1033.08
25	8.65	174.50	701.71	939.42	0.46	610.54	1424.99	1.93	17.51	11.75	1033.09
26	8.65	174.48	701.76	939.23	0.46	610.49	1425.20	1.92	17.43	11.76	1033.08
27	8.65	174.55	701.89	939.20	0.46	610.48	1424.74	1.91	17.36	11.76	1033.07
28	8.65	174.85	701.94	939.44	0.46	610.63	1424.62	1.91	17.33	11.77	1033.08
29	8.64	174.96	701.86	939.11	0.46	610.42	1424.78	1.91	17.30	11.77	1033.07



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
30	8.64	174.97	702.18	939.67	0.46	610.79	1424.15	1.90	17.26	11.77	1033.09
31	8.63	175.15	702.00	939.15	0.46	610.45	1424.50	1.90	17.25	11.78	1033.09
32	8.63	175.20	701.93	939.29	0.46	610.54	1424.64	1.90	17.25	11.77	1033.08
33	8.63	175.27	701.93	939.22	0.46	610.49	1424.64	1.90	17.24	11.77	1033.06
34	8.63	175.06	701.80	939.11	0.46	610.42	1424.90	1.90	17.22	11.77	1033.01
35	8.63	175.03	701.78	939.09	0.46	610.41	1424.94	1.90	17.21	11.77	1033.00
36	8.63	175.00	701.72	938.90	0.46	610.28	1425.08	1.89	17.18	11.77	1033.03
37	8.63	175.17	701.88	939.05	0.46	610.38	1424.74	1.89	17.15	11.78	1033.03
38	8.62	175.65	701.75	938.95	0.46	610.31	1425.02	1.88	17.10	11.77	1033.03
39	8.62	175.72	701.74	938.76	0.46	610.20	1425.04	1.88	17.10	11.78	1033.04
40	8.63	175.60	701.73	938.97	0.46	610.21	1424.92	1.88	17.06	11.77	1033.04
41	8.62	175.67	701.80	938.79	0.46	610.26	1425.04	1.88	17.06	11.78	1033.05
42	8.62	175.57	701.74	938.87	0.46	610.27	1424.55	1.87	17.02	11.78	1033.11
43	8.63	175.31	701.91	938.94	0.46	610.31	1424.64	1.87	16.97	11.79	1033.05
44	8.63	175.13	701.87	938.70	0.46	610.15	1424.77	1.86	16.93	11.78	1033.08
45	8.63	175.05	701.93	938.84	0.46	610.25	1424.64	1.86	16.90	11.79	1033.07
46	8.63	174.99	701.91	938.75	0.46	610.18	1424.68	1.86	16.87	11.79	1033.04
47	8.63	174.92	701.97	938.57	0.46	610.07	1424.57	1.85	16.82	11.80	1033.06
48	8.63	174.83	701.95	938.70	0.46	610.16	1424.60	1.85	16.79	11.80	1033.05
49	8.63	174.87	702.02	938.53	0.46	610.05	1424.46	1.84	16.74	11.81	1033.04
50	8.63	174.92	702.10	938.78	0.46	610.21	1424.30	1.84	16.69	11.80	1033.07
51	8.63	174.93	702.11	938.81	0.46	610.23	1424.27	1.84	16.68	11.80	1033.07
52	8.63	175.13	702.10	938.57	0.46	610.07	1424.29	1.83	16.64	11.81	1033.07
53	8.63	175.32	702.23	938.78	0.46	610.21	1424.03	1.83	16.60	11.81	1033.04
54	8.63	175.27	702.27	938.75	0.46	610.18	1423.96	1.82	16.57	11.81	1033.05
55	8.63	175.13	702.31	938.72	0.46	610.17	1423.87	1.82	16.54	11.81	1033.06
56	8.63	175.08	702.28	938.77	0.46	610.20	1423.93	1.82	16.51	11.81	1033.04
57	8.63	174.96	702.21	938.49	0.46	610.02	1424.14	1.81	16.44	11.82	1033.03
58	8.63	174.83	702.18	938.65	0.46	609.96	1424.18	1.81	16.42	11.81	1033.03
59	8.63	174.83	702.16	938.51	0.46	610.02	1424.46	1.81	16.41	11.82	1033.02
60	8.64	174.82	702.02	938.42	0.46	609.97	1424.29	1.80	16.37	11.81	1033.08
61	8.64	174.81	702.17	938.66	0.46	610.13	1424.15	1.80	16.38	11.82	1033.07
62	8.63	175.01	702.32	938.62	0.46	610.10	1423.84	1.80	16.34	11.82	1033.07
63	8.63	175.17	702.29	938.59	0.46	610.08	1423.92	1.80	16.32	11.82	1033.08
64	8.63	175.12	702.27	938.53	0.46	610.05	1423.95	1.80	16.31	11.82	1033.06
65	8.63	175.06	702.33	938.52	0.46	610.04	1423.84	1.79	16.29	11.82	1033.07
66	8.64	175.04	702.35	938.55	0.46	610.06	1423.79	1.79	16.28	11.82	1033.08
67	8.64	175.00	702.38	938.34	0.46	609.92	1423.74	1.79	16.27	11.83	1033.07



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
68	8.64	175.02	702.30	938.37	0.46	609.94	1423.90	1.79	16.25	11.83	1033.09
69	8.64	175.05	702.29	938.21	0.46	609.84	1423.92	1.79	16.24	11.83	1033.10
70	8.64	175.04	702.36	938.47	0.46	610.01	1423.77	1.79	16.24	11.83	1033.10
71	8.64	175.03	702.38	938.50	0.46	610.03	1423.74	1.79	16.24	11.83	1033.10
72	8.64	175.01	702.46	938.38	0.46	609.95	1423.57	1.79	16.24	11.84	1033.08
73	8.64	174.95	702.52	938.62	0.46	610.10	1423.46	1.79	16.23	11.83	1033.04
74	8.64	174.95	702.54	938.34	0.46	610.02	1423.50	1.78	16.21	11.84	1033.05
75	8.64	174.91	702.50	938.47	0.46	609.82	1423.59	1.78	16.18	11.84	1033.05
76	8.64	174.89	702.45	938.19	0.46	609.97	1423.53	1.78	16.20	11.84	1033.09
77	8.64	174.85	702.48	938.35	0.46	609.94	1423.49	1.78	16.18	11.84	1033.09
78	8.64	174.85	702.51	938.44	0.46	609.99	1423.46	1.78	16.19	11.84	1033.07
79	8.64	174.87	702.52	938.34	0.46	609.92	1423.44	1.78	16.19	11.84	1033.05
80	8.64	174.86	702.57	938.38	0.46	609.95	1423.34	1.78	16.19	11.84	1033.02
81	8.64	174.87	702.55	938.29	0.46	609.89	1423.39	1.78	16.18	11.85	1033.00
82	8.64	174.86	702.58	938.23	0.46	609.85	1423.32	1.78	16.18	11.85	1033.04
83	8.64	174.85	702.64	938.32	0.46	609.91	1423.21	1.78	16.18	11.85	1033.03
84	8.64	174.85	702.71	938.25	0.46	609.86	1423.06	1.78	16.18	11.86	1033.01
85	8.64	174.81	702.78	938.36	0.46	609.93	1422.93	1.78	16.19	11.86	1032.99
86	8.64	174.80	702.79	938.37	0.46	609.94	1422.90	1.78	16.19	11.86	1032.99
87	8.64	174.78	702.83	938.18	0.46	609.81	1422.82	1.78	16.18	11.87	1033.00
88	8.64	174.80	702.87	938.37	0.46	609.94	1422.74	1.78	16.18	11.86	1033.03
89	8.64	174.78	702.95	938.16	0.46	609.81	1422.47	1.78	16.18	11.87	1033.00
90	8.64	174.75	703.01	938.36	0.46	609.78	1422.39	1.78	16.16	11.87	1033.02
91	8.64	174.75	703.04	938.14	0.46	609.84	1422.32	1.78	16.17	11.88	1032.97
92	8.64	174.77	703.06	938.02	0.46	609.72	1422.36	1.78	16.16	11.88	1033.03
93	8.64	174.75	703.08	938.00	0.46	609.70	1422.30	1.78	16.16	11.89	1033.03
94	8.64	174.79	703.10	938.05	0.46	609.74	1422.28	1.78	16.16	11.89	1033.00
95	8.64	174.75	703.10	937.88	0.46	609.62	1422.28	1.77	16.15	11.89	1033.04
96	8.64	174.75	703.13	938.04	0.46	609.73	1422.21	1.78	16.17	11.89	1032.99
97	8.64	174.73	703.15	937.87	0.46	609.62	1422.17	1.77	16.15	11.90	1033.03
98	8.64	174.73	703.15	938.01	0.46	609.70	1422.18	1.78	16.16	11.89	1032.99
99	8.64	174.74	703.17	937.80	0.46	609.57	1422.13	1.78	16.17	11.90	1032.99
100	8.64	174.71	703.21	938.02	0.46	609.72	1422.04	1.78	16.18	11.89	1033.00
101	8.64	174.72	703.27	937.90	0.46	609.64	1421.94	1.78	16.19	11.90	1033.00
102	8.64	174.71	703.33	938.10	0.46	609.77	1421.81	1.78	16.19	11.90	1032.98
103	8.64	174.71	703.34	938.13	0.46	609.78	1421.79	1.78	16.19	11.90	1032.98
104	8.64	174.70	703.34	937.93	0.46	609.66	1421.79	1.78	16.21	11.90	1032.89
105	8.64	174.71	703.35	937.96	0.46	609.68	1421.78	1.78	16.22	11.90	1032.98



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
106	8.64	174.70	703.39	937.89	0.46	609.63	1421.57	1.78	16.23	11.91	1032.94
107	8.64	174.68	703.45	938.05	0.46	609.68	1421.48	1.78	16.21	11.91	1032.98
108	8.64	174.67	703.49	937.97	0.46	609.65	1421.50	1.78	16.22	11.91	1032.96
109	8.64	174.69	703.48	937.92	0.46	609.65	1421.53	1.78	16.22	11.91	1032.97
110	8.64	174.67	703.47	937.79	0.46	609.56	1421.52	1.78	16.21	11.91	1032.97
111	8.64	174.68	703.48	937.92	0.46	609.65	1421.50	1.78	16.21	11.91	1032.96
112	8.64	174.68	703.47	937.75	0.46	609.54	1421.53	1.78	16.19	11.92	1033.00
113	8.64	174.66	703.45	937.88	0.46	609.62	1421.57	1.78	16.20	11.91	1032.97
114	8.64	174.67	703.48	937.75	0.46	609.54	1421.51	1.78	16.20	11.92	1033.00
115	8.64	174.66	703.51	937.99	0.46	609.69	1421.45	1.78	16.20	11.91	1032.97
116	8.64	174.66	703.51	937.79	0.46	609.57	1421.44	1.78	16.21	11.92	1032.95
117	8.64	174.67	703.55	938.05	0.46	609.73	1421.36	1.78	16.22	11.91	1032.98
118	8.64	174.67	703.62	937.96	0.46	609.67	1421.22	1.78	16.23	11.92	1032.97
119	8.64	174.70	703.64	938.09	0.46	609.76	1421.18	1.78	16.25	11.92	1032.99
120	8.64	174.70	703.65	938.10	0.46	609.77	1421.16	1.78	16.25	11.92	1032.99
121	8.64	174.68	703.65	937.96	0.46	609.67	1421.15	1.78	16.25	11.92	1032.95
122	8.64	174.70	703.68	938.05	0.46	609.73	1421.11	1.79	16.26	11.92	1033.00
123	8.64	174.70	703.69	937.88	0.46	609.62	1421.08	1.78	16.26	11.93	1032.95
124	8.64	174.71	703.68	938.04	0.46	609.73	1421.04	1.79	16.26	11.92	1032.97
125	8.64	174.72	703.71	937.87	0.46	609.73	1420.98	1.79	16.26	11.93	1032.96
126	8.64	174.71	703.74	938.03	0.46	609.68	1420.91	1.78	16.26	11.92	1032.96
127	8.64	174.72	703.77	938.01	0.46	609.70	1420.88	1.79	16.27	11.93	1032.94
128	8.64	174.71	703.68	937.77	0.46	609.55	1421.10	1.79	16.27	11.93	1032.95
129	8.64	174.73	703.68	937.73	0.46	609.52	1421.11	1.79	16.27	11.93	1032.94
130	8.64	174.74	703.72	937.85	0.46	609.60	1421.03	1.79	16.27	11.93	1032.94
131	8.64	174.74	703.70	937.63	0.46	609.46	1421.05	1.78	16.27	11.94	1032.93
132	8.64	174.74	703.73	937.85	0.46	609.60	1421.01	1.79	16.28	11.93	1032.95
133	8.64	174.75	703.76	937.66	0.46	609.48	1420.94	1.79	16.29	11.94	1032.97
134	8.64	174.77	703.76	937.85	0.46	609.60	1420.93	1.79	16.28	11.93	1032.96
135	8.64	174.76	703.78	937.63	0.46	609.46	1420.91	1.79	16.29	11.94	1032.94
136	8.64	174.76	703.78	937.60	0.46	609.44	1420.90	1.79	16.30	11.94	1032.94
137	8.64	174.75	703.81	937.85	0.46	609.60	1420.84	1.79	16.28	11.93	1032.93
138	8.64	174.77	703.82	937.66	0.46	609.48	1420.82	1.79	16.29	11.94	1032.94
139	8.64	174.74	703.82	937.87	0.46	609.48	1420.74	1.79	16.28	11.93	1032.93
140	8.64	174.78	703.86	937.67	0.46	609.59	1420.75	1.79	16.28	11.94	1032.97
141	8.64	174.77	703.86	937.83	0.46	609.51	1420.71	1.79	16.29	11.94	1032.95
142	8.64	174.76	703.87	937.76	0.46	609.54	1420.77	1.79	16.28	11.94	1032.93
143	8.64	174.77	703.83	937.56	0.46	609.42	1420.79	1.78	16.27	11.94	1032.92



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
144	8.64	174.76	703.85	937.68	0.46	609.49	1420.76	1.79	16.28	11.94	1032.92
145	8.64	174.78	703.85	937.65	0.46	609.47	1420.76	1.79	16.27	11.95	1032.95
146	8.64	174.78	703.88	937.68	0.46	609.49	1420.69	1.79	16.27	11.95	1032.94
147	8.64	174.78	703.87	937.72	0.46	609.52	1420.71	1.78	16.26	11.94	1032.94
148	8.64	174.79	703.89	937.58	0.46	609.42	1420.68	1.78	16.27	11.95	1032.94
149	8.64	174.80	703.88	937.72	0.46	609.52	1420.69	1.79	16.27	11.94	1032.93
150	8.64	174.78	703.88	937.55	0.46	609.41	1420.70	1.78	16.27	11.95	1032.92
151	8.64	174.81	703.89	937.73	0.46	609.52	1420.67	1.79	16.28	11.94	1032.91
152	8.64	174.81	703.90	937.75	0.46	609.54	1420.67	1.79	16.28	11.94	1032.91
153	8.64	174.81	703.90	937.54	0.46	609.40	1420.66	1.79	16.28	11.95	1032.94
154	8.64	174.81	703.90	937.73	0.46	609.53	1420.66	1.79	16.27	11.94	1032.94
155	8.64	174.81	703.87	937.50	0.46	609.37	1420.71	1.79	16.28	11.95	1032.92
156	8.64	174.80	703.83	937.61	0.46	609.45	1420.80	1.78	16.27	11.95	1032.92
157	8.64	174.78	703.85	937.49	0.46	609.37	1420.82	1.79	16.28	11.95	1032.92
158	8.64	174.79	703.82	937.55	0.46	609.39	1420.77	1.79	16.28	11.95	1032.92
159	8.64	174.78	703.84	937.47	0.46	609.35	1420.78	1.79	16.29	11.95	1032.96
160	8.64	174.78	703.84	937.47	0.46	609.36	1420.78	1.79	16.27	11.95	1032.92
161	8.64	174.78	703.83	937.46	0.46	609.35	1420.79	1.79	16.28	11.95	1032.94
162	8.64	174.79	703.84	937.57	0.46	609.42	1420.78	1.79	16.28	11.95	1032.97
163	8.64	174.78	703.84	937.42	0.46	609.32	1420.77	1.79	16.28	11.95	1032.92
164	8.64	174.80	703.85	937.61	0.46	609.45	1420.76	1.79	16.30	11.95	1032.95
165	8.64	174.79	703.84	937.43	0.46	609.33	1420.78	1.79	16.30	11.95	1032.96
166	8.64	174.81	703.83	937.60	0.46	609.44	1420.79	1.79	16.30	11.95	1032.96
167	8.64	174.80	703.83	937.40	0.46	609.31	1420.80	1.79	16.32	11.95	1032.98
168	8.64	174.78	703.84	937.56	0.46	609.41	1420.78	1.79	16.31	11.95	1032.97
169	8.64	174.78	703.84	937.57	0.46	609.42	1420.77	1.79	16.31	11.95	1032.97
170	8.64	174.78	703.83	937.40	0.46	609.31	1420.81	1.79	16.31	11.95	1032.98
171	8.64	174.79	703.83	937.51	0.46	609.38	1420.79	1.79	16.31	11.95	1032.95
172	8.64	174.79	703.82	937.43	0.46	609.33	1420.85	1.79	16.32	11.95	1032.96
173	8.64	174.78	703.80	937.42	0.46	609.32	1420.84	1.79	16.32	11.95	1032.96
174	8.64	174.79	703.81	937.42	0.46	609.33	1420.87	1.79	16.34	11.95	1032.93
175	8.64	174.79	703.79	937.48	0.46	609.36	1420.84	1.79	16.34	11.95	1032.95
176	8.64	174.79	703.81	937.50	0.46	609.38	1420.84	1.79	16.33	11.95	1032.98
177	8.64	174.78	703.79	937.45	0.46	609.34	1420.87	1.79	16.35	11.95	1032.95
178	8.64	174.76	703.78	937.42	0.46	609.33	1420.89	1.79	16.34	11.95	1032.97
179	8.64	174.78	703.80	937.53	0.46	609.39	1420.85	1.79	16.35	11.95	1032.96
180	8.64	174.79	703.81	937.41	0.46	609.32	1420.85	1.79	16.35	11.95	1032.93
181	8.64	174.76	703.79	937.48	0.46	609.36	1420.89	1.79	16.34	11.95	1032.94



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
182	8.64	174.76	703.77	937.38	0.46	609.30	1420.92	1.79	16.36	11.95	1032.94
183	8.64	174.77	703.77	937.51	0.46	609.38	1420.91	1.79	16.35	11.95	1032.93
184	8.64	174.77	703.77	937.33	0.46	609.26	1420.92	1.79	16.36	11.95	1032.94
185	8.64	174.77	703.77	937.53	0.46	609.39	1420.92	1.79	16.35	11.95	1032.98
186	8.64	174.76	703.77	937.55	0.46	609.41	1420.92	1.79	16.35	11.94	1032.99
187	8.64	174.75	703.76	937.32	0.46	609.26	1420.93	1.79	16.34	11.95	1032.94
188	8.64	174.78	703.74	937.48	0.46	609.36	1420.98	1.80	16.36	11.95	1032.95
189	8.64	174.78	703.74	937.38	0.46	609.30	1420.98	1.80	16.37	11.95	1032.95
190	8.64	174.76	703.73	937.40	0.46	609.31	1421.07	1.80	16.36	11.95	1032.94
191	8.64	174.75	703.70	937.37	0.46	609.22	1421.12	1.80	16.37	11.95	1032.93
192	8.64	174.78	703.70	937.47	0.46	609.35	1421.08	1.80	16.37	11.95	1032.89
193	8.64	174.76	703.70	937.26	0.46	609.22	1421.06	1.80	16.38	11.94	1032.90
194	8.64	174.78	703.67	937.41	0.46	609.32	1421.12	1.80	16.38	11.95	1032.91
195	8.64	174.75	703.69	937.27	0.46	609.22	1421.08	1.80	16.38	11.95	1032.96
196	8.64	174.75	703.67	937.42	0.46	609.33	1421.11	1.80	16.39	11.94	1032.92
197	8.64	174.74	703.67	937.23	0.46	609.20	1421.12	1.80	16.37	11.95	1032.91
198	8.64	174.76	703.67	937.41	0.46	609.32	1421.12	1.80	16.37	11.95	1032.92
199	8.64	174.75	703.65	937.22	0.46	609.20	1421.17	1.80	16.39	11.95	1032.92
200	8.64	174.74	703.65	937.38	0.46	609.30	1421.16	1.80	16.38	11.95	1032.89
201	8.64	174.74	703.66	937.31	0.46	609.25	1421.14	1.80	16.38	11.95	1032.90
202	8.64	174.74	703.66	937.31	0.46	609.25	1421.14	1.80	16.38	11.95	1032.90
203	8.64	174.76	703.66	937.30	0.46	609.24	1421.13	1.80	16.38	11.95	1032.91
204	8.64	174.75	703.64	937.35	0.46	609.28	1421.18	1.80	16.40	11.95	1032.92
205	8.64	174.73	703.66	937.25	0.46	609.21	1421.15	1.80	16.38	11.95	1032.93
206	8.64	174.74	703.62	937.37	0.46	609.29	1421.20	1.80	16.39	11.94	1032.92
207	8.64	174.72	703.63	937.18	0.46	609.31	1421.23	1.80	16.40	11.95	1032.90
208	8.64	174.74	703.61	937.38	0.46	609.18	1421.21	1.80	16.40	11.94	1032.92
209	8.64	174.72	703.63	937.21	0.46	609.31	1421.19	1.80	16.40	11.95	1032.90
210	8.64	174.73	703.64	937.22	0.46	609.20	1421.21	1.80	16.39	11.94	1032.88
211	8.64	174.70	703.61	937.35	0.46	609.28	1421.25	1.80	16.39	11.94	1032.90
212	8.64	174.73	703.63	937.29	0.46	609.24	1421.21	1.80	16.40	11.95	1032.89
213	8.64	174.71	703.62	937.32	0.46	609.26	1421.22	1.80	16.39	11.95	1032.97
214	8.64	174.71	703.62	937.30	0.46	609.24	1421.22	1.80	16.40	11.95	1032.91
215	8.64	174.72	703.61	937.33	0.46	609.27	1421.25	1.80	16.40	11.94	1032.90
216	8.64	174.73	703.60	937.21	0.46	609.19	1421.27	1.80	16.39	11.95	1032.93
217	8.64	174.73	703.60	937.20	0.46	609.18	1421.27	1.80	16.39	11.95	1032.94
218	8.64	174.72	703.61	937.32	0.46	609.26	1421.25	1.80	16.40	11.95	1032.93
219	8.64	174.71	703.61	937.26	0.46	609.22	1421.24	1.80	16.40	11.95	1032.93



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
220	8.64	174.71	703.59	937.24	0.46	609.21	1421.27	1.80	16.41	11.95	1032.89
221	8.64	174.69	703.57	937.25	0.46	609.21	1421.29	1.80	16.40	11.95	1032.97
222	8.64	174.71	703.59	937.26	0.46	609.25	1421.33	1.80	16.42	11.95	1032.92
223	8.64	174.71	703.56	937.16	0.46	609.16	1421.32	1.80	16.40	11.94	1032.98
224	8.64	174.70	703.57	937.33	0.46	609.27	1421.34	1.80	16.41	11.95	1032.95
225	8.64	174.70	703.56	937.13	0.46	609.14	1421.37	1.80	16.41	11.94	1032.93
226	8.64	174.71	703.57	937.38	0.46	609.30	1421.33	1.80	16.40	11.95	1032.95
227	8.64	174.70	703.56	937.15	0.46	609.15	1421.35	1.80	16.40	11.95	1032.93
228	8.64	174.67	703.54	937.31	0.46	609.25	1421.39	1.80	16.42	11.94	1032.94
229	8.64	174.68	703.55	937.15	0.46	609.15	1421.37	1.80	16.42	11.95	1032.97
230	8.64	174.69	703.54	937.30	0.46	609.25	1421.39	1.80	16.43	11.94	1032.93
231	8.64	174.70	703.54	937.13	0.46	609.14	1421.39	1.80	16.41	11.95	1032.94
232	8.64	174.70	703.52	937.25	0.46	609.21	1421.43	1.80	16.42	11.94	1032.94
233	8.64	174.68	703.52	937.17	0.46	609.16	1421.43	1.80	16.42	11.95	1032.94
234	8.64	174.68	703.52	937.21	0.46	609.19	1421.43	1.80	16.44	11.94	1032.94
235	8.64	174.68	703.51	937.21	0.46	609.19	1421.43	1.80	16.44	11.94	1032.94
236	8.64	174.69	703.60	937.37	0.46	609.29	1421.25	1.80	16.43	11.94	1032.96
237	8.64	174.69	703.52	937.20	0.46	609.18	1421.42	1.80	16.43	11.95	1032.94
238	8.64	174.69	703.50	937.23	0.46	609.20	1421.47	1.80	16.45	11.94	1032.95
239	8.64	174.69	703.51	937.18	0.46	609.16	1421.46	1.80	16.43	11.95	1032.88
240	8.64	174.67	703.50	937.24	0.46	609.14	1421.47	1.80	16.44	11.94	1032.93
241	8.64	174.67	703.50	937.15	0.46	609.16	1421.50	1.80	16.43	11.95	1032.93
242	8.64	174.67	703.48	937.19	0.46	609.17	1421.51	1.80	16.44	11.94	1032.92
243	8.64	174.66	703.46	937.19	0.46	609.18	1421.54	1.80	16.44	11.94	1032.93
244	8.63	174.65	703.46	937.16	0.46	609.15	1421.54	1.80	16.45	11.94	1032.90
245	8.64	174.67	703.47	937.25	0.46	609.21	1421.52	1.81	16.46	11.94	1032.92
246	8.64	174.65	703.48	937.08	0.46	609.10	1421.51	1.80	16.44	11.95	1032.92
247	8.64	174.65	703.38	937.11	0.46	609.12	1421.70	1.81	16.45	11.94	1032.92
248	8.64	174.64	703.30	936.85	0.46	608.95	1421.87	1.80	16.44	11.95	1032.95
249	8.64	174.64	703.31	937.07	0.46	609.09	1421.84	1.80	16.45	11.94	1032.93
250	8.64	174.65	703.31	936.87	0.46	608.97	1421.84	1.81	16.45	11.95	1032.88
251	8.64	174.63	703.30	937.06	0.46	609.09	1421.86	1.81	16.46	11.94	1032.89
252	8.64	174.62	703.30	937.07	0.46	609.10	1421.87	1.81	16.46	11.94	1032.89
253	8.64	174.63	703.30	936.84	0.46	608.94	1421.87	1.81	16.46	11.95	1032.89
254	8.64	174.64	703.30	937.02	0.46	609.06	1421.87	1.81	16.47	11.94	1032.85
255	8.64	174.63	703.27	936.86	0.46	608.96	1421.92	1.81	16.48	11.95	1032.89
256	8.64	174.63	703.28	937.00	0.46	609.05	1421.95	1.81	16.47	11.94	1032.84
257	8.64	174.65	703.26	936.87	0.46	608.97	1421.95	1.81	16.47	11.94	1032.88



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
258	8.64	174.62	703.26	936.95	0.46	608.92	1421.94	1.81	16.47	11.94	1032.93
259	8.63	174.65	703.27	936.81	0.46	609.01	1421.93	1.81	16.47	11.95	1032.89
260	8.63	174.62	703.27	936.88	0.46	608.98	1421.97	1.81	16.50	11.94	1032.87
261	8.64	174.64	703.26	936.86	0.46	608.96	1421.96	1.81	16.49	11.94	1032.92
262	8.64	174.62	703.25	936.98	0.46	609.03	1421.97	1.81	16.48	11.94	1032.91
263	8.64	174.63	703.25	936.84	0.46	608.95	1421.96	1.81	16.51	11.95	1032.88
264	8.63	174.61	703.24	936.97	0.46	609.03	1421.99	1.81	16.51	11.94	1032.92
265	8.64	174.64	703.25	936.78	0.46	608.90	1421.97	1.81	16.50	11.95	1032.92
266	8.64	174.62	703.23	936.97	0.46	609.03	1422.01	1.81	16.51	11.94	1032.91
267	8.63	174.63	703.22	936.80	0.46	608.92	1422.02	1.81	16.50	11.95	1032.90
268	8.63	174.63	703.23	936.98	0.46	609.04	1422.00	1.81	16.52	11.94	1032.92
269	8.63	174.63	703.24	937.00	0.46	609.05	1422.00	1.81	16.52	11.94	1032.92
270	8.64	174.61	703.23	936.77	0.46	608.90	1422.01	1.81	16.52	11.95	1032.91
271	8.64	174.62	703.21	936.92	0.46	609.00	1422.04	1.81	16.51	11.94	1032.92
272	8.64	174.61	703.22	936.84	0.46	608.94	1422.05	1.81	16.52	11.94	1032.90
273	8.64	174.61	703.21	936.81	0.46	608.92	1422.07	1.81	16.52	11.94	1032.93
274	8.63	174.60	703.20	936.89	0.46	608.89	1422.10	1.82	16.54	11.94	1032.90
275	8.63	174.64	703.19	936.75	0.46	608.99	1422.10	1.82	16.54	11.95	1032.87
276	8.63	174.61	703.19	936.71	0.46	608.87	1422.09	1.81	16.53	11.94	1032.91
277	8.63	174.60	703.33	937.12	0.46	609.13	1421.81	1.82	16.55	11.94	1032.87
278	8.63	174.61	703.18	936.72	0.46	608.87	1422.11	1.81	16.54	11.95	1032.90
279	8.63	174.61	703.15	936.89	0.46	608.98	1422.18	1.82	16.56	11.94	1032.90
280	8.63	174.61	703.16	936.71	0.46	608.86	1422.15	1.82	16.56	11.95	1032.93
281	8.63	174.61	703.15	936.89	0.46	608.98	1422.17	1.82	16.56	11.94	1032.94
282	8.64	174.60	703.16	936.74	0.46	608.88	1422.15	1.82	16.57	11.94	1032.93
283	8.63	174.59	703.15	936.85	0.46	608.95	1422.17	1.82	16.56	11.94	1032.90
284	8.63	174.60	703.45	937.16	0.46	609.16	1421.58	1.82	16.58	11.94	1032.87
285	8.63	174.60	703.49	937.27	0.46	609.22	1421.49	1.82	16.57	11.94	1032.84
286	8.63	174.60	703.51	937.29	0.46	609.24	1421.44	1.82	16.57	11.94	1032.84
287	8.64	174.59	703.53	937.34	0.46	609.27	1421.41	1.82	16.58	11.94	1032.84
288	8.63	174.62	703.53	937.21	0.46	609.19	1421.40	1.82	16.60	11.95	1032.90
289	8.63	174.61	703.49	937.34	0.46	609.27	1421.45	1.82	16.59	11.94	1032.89
290	8.63	174.58	703.51	937.18	0.46	609.16	1421.57	1.82	16.60	11.95	1032.88
291	8.63	174.61	703.45	937.33	0.46	609.13	1421.51	1.82	16.60	11.94	1032.86
292	8.64	174.61	703.48	937.30	0.46	609.23	1421.52	1.82	16.62	11.95	1032.90
293	8.63	174.58	703.50	937.26	0.46	609.22	1421.46	1.82	16.61	11.94	1032.90
294	8.63	174.60	703.47	937.20	0.46	609.18	1421.52	1.82	16.61	11.94	1032.90
295	8.63	174.59	703.46	937.27	0.46	609.22	1421.54	1.82	16.63	11.94	1032.93



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
296	8.63	174.57	703.46	937.21	0.46	609.19	1421.55	1.82	16.63	11.94	1032.93
297	8.63	174.57	703.48	937.30	0.46	609.24	1421.51	1.83	16.63	11.94	1032.91
298	8.63	174.57	703.47	937.20	0.46	609.18	1421.53	1.82	16.63	11.94	1032.89
299	8.64	174.57	703.47	937.31	0.46	609.25	1421.52	1.83	16.64	11.94	1032.89
300	8.63	174.57	703.46	937.19	0.46	609.18	1421.54	1.83	16.64	11.94	1032.92



WATER QUALITY PARAMETER READINGS

Project: Cambridge WWTP Relocation

Client: Anglain Water Services Limited

Engineer: Mott MacDonald Limited

Position: BH04

Date: 06/11/2020

Operative: AHm

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 755044

Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
1	7.83	225.68	523.20	688.62	0.34	447.60	1911.48	5.14	47.18	12.42	1035.94
2	7.83	225.75	523.15	688.65	0.34	447.71	1911.47	5.14	47.17	12.42	1035.94
3	7.82	225.80	523.16	688.66	0.34	447.63	1911.50	5.14	47.18	12.41	1035.99
4	7.82	225.94	523.14	688.62	0.34	447.60	1911.55	5.13	47.11	12.42	1035.96
5	7.82	225.99	523.15	688.58	0.34	447.58	1911.50	5.13	47.14	12.42	1035.95
6	7.82	226.04	523.13	688.59	0.34	447.58	1911.56	5.14	47.16	12.42	1035.95
7	7.82	226.10	523.12	688.66	0.34	447.63	1911.61	5.14	47.17	12.41	1035.95
8	7.82	226.16	523.10	688.68	0.34	447.64	1911.68	5.14	47.14	12.41	1035.95
9	7.82	226.21	523.10	688.66	0.34	447.63	1911.69	5.13	47.09	12.41	1035.95
10	7.82	226.26	523.09	688.60	0.34	447.59	1911.71	5.13	47.12	12.42	1035.96
11	7.82	226.31	523.06	688.50	0.34	447.53	1911.81	5.13	47.08	12.42	1035.96
12	7.82	226.40	523.07	688.60	0.34	447.59	1911.80	5.13	47.10	12.41	1035.97
13	7.82	226.44	523.07	688.63	0.34	447.61	1911.81	5.13	47.10	12.41	1035.95
14	7.82	226.50	523.07	688.61	0.34	447.60	1911.78	5.13	47.10	12.41	1035.99
15	7.82	226.51	523.07	688.61	0.34	447.59	1911.78	5.13	47.10	12.41	1036.00
16	7.82	226.58	523.07	688.52	0.34	447.54	1911.80	5.13	47.08	12.42	1035.95
17	7.82	226.64	523.07	688.50	0.34	447.52	1911.85	5.13	47.09	12.42	1035.94
18	7.82	226.68	523.05	688.54	0.34	447.55	1908.37	5.13	47.14	12.42	1035.96
19	7.81	227.24	523.99	689.71	0.34	448.44	1904.24	5.14	47.02	12.42	1035.94
20	7.80	227.91	525.15	689.98	0.34	448.56	1903.17	5.09	46.79	12.49	1035.95
21	7.79	227.84	525.39	689.91	0.34	448.45	1903.28	5.06	46.52	12.51	1035.95
22	7.79	227.71	525.44	689.98	0.34	448.49	1903.16	5.02	46.18	12.52	1035.90
23	7.79	227.68	525.44	690.03	0.34	448.52	1903.17	4.99	45.91	12.51	1035.98
24	7.79	227.63	525.40	689.97	0.34	448.48	1903.33	4.97	45.71	12.51	1035.95
25	7.79	227.58	525.29	689.78	0.34	448.36	1903.73	4.94	45.48	12.51	1035.96
26	7.79	227.58	525.18	689.57	0.34	448.22	1904.09	4.93	45.34	12.52	1035.98
27	7.79	227.56	525.11	689.43	0.34	448.13	1904.36	4.91	45.19	12.52	1035.98
28	7.79	227.55	525.12	689.57	0.34	448.22	1904.31	4.91	45.12	12.51	1035.94
29	7.79	227.59	525.17	689.69	0.34	448.30	1904.15	4.89	44.95	12.51	1035.95



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
30	7.79	227.60	525.02	689.56	0.34	448.21	1904.68	4.88	44.90	12.51	1035.96
31	7.79	227.55	525.02	689.61	0.34	448.25	1904.68	4.87	44.80	12.50	1035.95
32	7.78	227.65	525.02	689.62	0.34	448.25	1904.69	4.86	44.73	12.50	1035.96
33	7.78	227.67	525.02	689.63	0.34	448.26	1904.68	4.86	44.72	12.50	1035.96
34	7.78	228.13	527.17	692.10	0.34	449.87	1896.93	4.85	44.63	12.52	1035.97
35	7.77	227.99	526.18	690.52	0.34	448.84	1900.17	4.83	44.16	12.54	1035.96
36	7.77	227.74	526.18	690.34	0.34	448.72	1900.72	4.80	44.04	12.55	1035.94
37	7.78	227.58	526.13	690.39	0.34	448.66	1901.19	4.77	43.92	12.54	1035.95
38	7.78	227.47	525.99	690.26	0.34	448.67	1901.30	4.76	43.83	12.54	1035.96
39	7.78	227.38	526.06	690.37	0.34	448.74	1900.93	4.75	43.70	12.54	1035.93
40	7.78	227.32	525.89	690.07	0.34	448.54	1901.54	4.73	43.58	12.54	1035.95
41	7.78	227.19	525.86	690.02	0.34	448.51	1901.66	4.73	43.49	12.54	1035.95
42	7.78	227.15	525.83	690.02	0.34	448.51	1901.76	4.72	43.40	12.54	1035.97
43	7.78	227.11	525.85	690.12	0.34	448.58	1901.70	4.70	43.28	12.54	1035.89
44	7.78	227.03	525.77	690.21	0.34	448.64	1901.96	4.69	43.19	12.53	1035.91
45	7.78	226.97	525.74	690.28	0.34	448.68	1902.07	4.69	43.16	12.52	1035.90
46	7.79	226.93	525.65	690.21	0.34	448.64	1902.42	4.68	43.07	12.52	1035.92
47	7.79	226.89	493.66	648.24	0.32	421.35	2026.91	4.68	43.04	12.52	1035.90
48	7.78	226.94	517.69	679.59	0.33	441.74	1932.47	4.67	43.00	12.53	1035.91
49	7.77	227.59	520.53	683.12	0.33	444.03	1921.42	4.67	43.00	12.54	1035.91
50	7.77	227.70	522.40	685.54	0.34	445.60	1914.09	4.67	43.00	12.54	1035.91
51	7.76	227.78	522.42	685.40	0.34	445.51	1914.19	4.64	42.73	12.55	1035.94
52	7.75	227.87	522.58	685.64	0.34	445.67	1913.24	4.61	42.21	12.55	1035.92
53	7.75	227.67	522.67	685.77	0.34	445.66	1913.59	4.56	41.98	12.55	1035.96
54	7.76	227.40	522.58	685.63	0.34	445.53	1913.90	4.54	41.83	12.55	1035.93
55	7.76	227.23	522.50	685.48	0.34	445.55	1913.76	4.53	41.67	12.55	1035.95
56	7.76	227.32	522.65	685.71	0.34	445.71	1913.31	4.51	41.55	12.56	1035.98
57	7.76	227.11	522.70	685.87	0.34	445.82	1913.15	4.51	41.48	12.55	1035.92
58	7.76	226.92	522.62	685.85	0.34	445.80	1913.45	4.50	41.40	12.54	1035.91
59	7.76	226.73	522.56	685.75	0.34	445.74	1913.66	4.49	41.35	12.54	1035.96
60	7.76	226.59	522.60	685.71	0.34	445.71	1913.51	4.48	41.27	12.55	1036.01
61	7.76	226.49	522.76	685.92	0.34	445.85	1912.91	4.48	41.20	12.55	1035.94
62	7.76	226.44	522.78	685.97	0.34	445.88	1912.84	4.47	41.15	12.54	1035.98
63	7.77	226.38	522.63	685.88	0.34	445.82	1913.41	4.47	41.10	12.54	1035.92
64	7.76	226.72	522.67	685.98	0.34	445.89	1913.27	4.47	41.10	12.54	1035.97
65	7.75	226.89	522.86	686.03	0.34	445.92	1912.57	4.45	40.96	12.55	1035.98
66	7.75	226.92	522.88	685.94	0.34	445.86	1912.49	4.43	40.79	12.55	1035.99
67	7.75	226.93	522.89	685.92	0.34	445.85	1912.44	4.43	40.75	12.56	1035.99



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
68	7.75	226.62	523.16	686.27	0.34	446.07	1911.85	4.41	40.60	12.56	1036.02
69	7.75	226.37	523.07	686.18	0.34	446.02	1912.11	4.40	40.37	12.55	1035.96
70	7.75	226.24	522.98	686.16	0.34	446.11	1911.86	4.37	40.26	12.55	1035.97
71	7.75	226.06	523.05	686.32	0.34	446.10	1911.88	4.36	40.14	12.55	1035.96
72	7.76	225.82	523.05	686.29	0.34	446.09	1911.82	4.35	40.03	12.55	1035.98
73	7.76	225.69	523.03	686.22	0.34	446.04	1911.95	4.34	39.95	12.55	1035.97
74	7.76	225.57	522.99	686.16	0.34	446.01	1912.09	4.33	39.86	12.55	1035.95
75	7.76	225.47	523.00	686.26	0.34	446.07	1912.05	4.33	39.81	12.54	1035.95
76	7.76	225.38	522.96	686.35	0.34	446.13	1912.19	4.32	39.77	12.54	1035.97
77	7.76	225.30	522.92	686.35	0.34	446.13	1912.33	4.32	39.73	12.53	1035.97
78	7.76	225.24	523.06	686.55	0.34	446.26	1911.82	4.31	39.70	12.53	1035.98
79	7.76	225.30	523.13	686.58	0.34	446.28	1911.58	4.31	39.66	12.54	1035.94
80	7.75	225.62	523.74	687.31	0.34	446.75	1909.35	4.31	39.65	12.54	1035.95
81	7.75	225.76	524.04	687.54	0.34	446.90	1908.26	4.30	39.58	12.55	1035.94
82	7.75	225.59	524.06	687.58	0.34	446.93	1908.18	4.29	39.48	12.55	1035.97
83	7.74	225.57	524.07	687.59	0.34	446.93	1908.15	4.29	39.46	12.55	1035.98
84	7.75	225.40	524.09	687.69	0.34	447.00	1908.06	4.26	39.25	12.54	1035.93
85	7.74	225.26	523.97	687.63	0.34	446.96	1908.59	4.25	39.01	12.54	1035.91
86	7.74	225.13	523.94	687.57	0.34	446.95	1908.45	4.24	38.92	12.54	1035.95
87	7.74	225.11	523.99	687.62	0.34	446.90	1908.45	4.22	38.83	12.54	1035.93
88	7.74	225.04	523.99	687.56	0.34	446.91	1908.44	4.21	38.73	12.55	1035.94
89	7.74	224.83	523.99	687.89	0.34	447.13	1907.95	4.20	38.69	12.54	1035.95
90	7.74	224.70	524.16	688.00	0.34	447.20	1907.78	4.20	38.62	12.54	1035.95
91	7.74	224.56	524.21	688.03	0.34	447.22	1907.65	4.19	38.60	12.53	1035.97
92	7.75	224.44	524.06	687.73	0.34	447.03	1908.17	4.19	38.57	12.54	1035.98
93	7.75	224.31	524.01	687.71	0.34	447.01	1908.35	4.19	38.56	12.54	1035.97
94	7.75	224.20	523.93	687.60	0.34	446.94	1908.67	4.18	38.49	12.54	1035.97
95	7.75	224.13	523.91	687.73	0.34	447.02	1908.72	4.18	38.47	12.53	1035.95
96	7.75	224.04	523.89	687.80	0.34	447.07	1908.79	4.18	38.47	12.52	1035.94
97	7.75	223.96	523.97	687.86	0.34	447.11	1908.50	4.18	38.45	12.53	1035.96
98	7.75	223.94	523.89	687.69	0.34	447.00	1908.81	4.17	38.38	12.53	1035.97
99	7.75	223.88	523.89	687.65	0.34	446.98	1908.80	4.17	38.33	12.53	1035.97
100	7.75	223.81	523.72	687.49	0.34	446.87	1909.43	4.16	38.31	12.53	1035.98
101	7.75	223.80	523.77	687.66	0.34	446.98	1909.22	4.16	38.31	12.52	1035.97
102	7.75	223.80	523.77	687.68	0.34	446.99	1909.22	4.16	38.30	12.52	1035.97
103	7.75	223.77	523.85	687.83	0.34	447.09	1909.18	4.16	38.25	12.52	1035.93
104	7.75	223.75	523.79	687.74	0.34	446.96	1909.36	4.16	38.19	12.52	1035.96
105	7.75	223.74	523.74	687.62	0.34	446.95	1909.23	4.15	38.17	12.52	1035.96



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
106	7.75	223.71	523.77	687.62	0.34	446.97	1909.22	4.14	38.12	12.52	1035.95
107	7.75	223.69	523.78	687.76	0.34	447.04	1909.16	4.14	38.11	12.52	1035.90
108	7.75	223.67	523.79	687.83	0.34	447.09	1909.17	4.15	38.13	12.52	1035.95
109	7.75	223.65	523.76	687.85	0.34	447.10	1909.28	4.14	38.10	12.51	1035.97
110	7.75	223.65	523.76	687.84	0.34	447.10	1909.28	4.14	38.09	12.51	1035.93
111	7.75	223.62	523.77	687.78	0.34	447.05	1909.22	4.14	38.08	12.52	1035.98
112	7.75	223.60	523.74	687.68	0.34	446.99	1909.36	4.14	38.06	12.52	1035.94
113	7.75	223.60	523.75	687.76	0.34	447.04	1909.32	4.13	38.03	12.51	1035.98
114	7.75	223.57	523.73	687.83	0.34	447.09	1909.38	4.13	38.01	12.51	1035.95
115	7.75	223.55	523.73	687.88	0.34	447.12	1909.37	4.13	38.02	12.51	1035.96
116	7.75	223.56	523.84	688.02	0.34	447.21	1908.97	4.14	38.03	12.51	1035.96
117	7.75	223.53	523.88	687.98	0.34	447.19	1908.83	4.13	38.02	12.51	1035.98
118	7.75	223.52	523.90	687.97	0.34	447.18	1908.76	4.14	38.06	12.51	1035.93
119	7.75	223.48	523.89	687.93	0.34	447.16	1908.81	4.14	38.09	12.52	1035.98
120	7.75	223.48	523.88	687.93	0.34	447.15	1908.82	4.14	38.10	12.52	1035.99
121	7.75	223.44	523.85	687.91	0.34	447.14	1908.93	4.14	38.12	12.51	1035.94
122	7.75	223.40	523.83	687.92	0.34	447.15	1909.04	4.15	38.16	12.51	1035.92
123	7.75	223.38	523.82	688.04	0.34	447.26	1908.95	4.16	38.21	12.50	1035.95
124	7.75	223.32	523.85	688.10	0.34	447.23	1909.09	4.16	38.23	12.50	1035.94
125	7.75	223.31	523.81	688.04	0.34	447.18	1909.17	4.16	38.24	12.50	1035.88
126	7.75	223.25	523.79	687.93	0.34	447.15	1909.14	4.16	38.30	12.51	1035.96
127	7.75	223.24	523.80	688.04	0.34	447.23	1908.82	4.16	38.28	12.51	1035.96
128	7.75	223.24	523.88	688.13	0.34	447.29	1908.80	4.17	38.30	12.51	1035.97
129	7.75	223.25	523.90	688.24	0.34	447.35	1908.78	4.17	38.33	12.50	1035.96
130	7.75	223.24	523.94	688.31	0.34	447.40	1908.62	4.17	38.35	12.50	1035.92
131	7.75	223.25	523.91	688.25	0.34	447.37	1908.73	4.17	38.37	12.50	1035.91
132	7.75	223.26	523.90	688.18	0.34	447.31	1908.77	4.17	38.38	12.50	1035.93
133	7.75	223.27	523.90	688.13	0.34	447.28	1908.75	4.18	38.40	12.51	1035.95
134	7.75	223.29	523.91	688.16	0.34	447.30	1908.71	4.17	38.39	12.50	1035.94
135	7.75	223.29	523.99	688.35	0.34	447.43	1908.43	4.18	38.44	12.50	1035.95
136	7.75	223.32	523.97	688.37	0.34	447.44	1908.49	4.18	38.45	12.50	1035.95
137	7.75	223.32	523.88	688.27	0.34	447.38	1908.83	4.18	38.46	12.50	1035.99
138	7.75	223.32	523.87	688.25	0.34	447.37	1908.88	4.18	38.46	12.49	1036.00
139	7.75	223.35	523.85	688.18	0.34	447.32	1908.94	4.19	38.49	12.50	1036.00
140	7.75	223.35	523.87	688.11	0.34	447.27	1908.89	4.19	38.52	12.50	1036.00
141	7.75	223.37	523.86	688.18	0.34	447.31	1908.90	4.19	38.52	12.50	1035.92
142	7.75	223.37	523.87	688.28	0.34	447.38	1908.87	4.20	38.58	12.50	1035.98
143	7.75	223.41	523.88	688.30	0.34	447.39	1908.85	4.20	38.59	12.49	1035.95



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
144	7.75	223.40	523.87	688.26	0.34	447.37	1908.85	4.20	38.61	12.50	1035.94
145	7.75	223.44	523.86	688.19	0.34	447.32	1908.89	4.20	38.62	12.50	1035.95
146	7.75	223.44	523.89	688.19	0.34	447.32	1908.79	4.20	38.61	12.50	1035.97
147	7.75	223.46	523.79	688.05	0.34	447.23	1909.18	4.20	38.64	12.50	1035.92
148	7.75	223.45	523.72	688.04	0.34	447.23	1909.42	4.21	38.68	12.50	1035.92
149	7.75	223.49	523.70	688.08	0.34	447.25	1909.48	4.21	38.67	12.49	1035.91
150	7.75	223.47	523.72	688.15	0.34	447.30	1909.42	4.21	38.70	12.49	1035.95
151	7.75	223.50	523.73	688.12	0.34	447.28	1909.39	4.21	38.72	12.49	1035.94
152	7.75	223.53	523.69	688.00	0.34	447.20	1909.52	4.21	38.72	12.50	1035.92
153	7.75	223.53	523.67	687.94	0.34	447.16	1909.59	4.21	38.73	12.50	1035.90
154	7.75	223.54	523.67	687.92	0.34	447.15	1909.61	4.21	38.74	12.50	1035.90
155	7.75	223.54	523.68	688.02	0.34	447.21	1909.55	4.22	38.76	12.49	1035.94
156	7.75	223.58	523.68	688.12	0.34	447.28	1909.49	4.22	38.80	12.49	1035.95
157	7.75	223.60	523.70	688.13	0.34	447.28	1909.54	4.22	38.82	12.49	1035.96
158	7.75	223.62	523.69	688.01	0.34	447.31	1909.00	4.22	38.84	12.50	1035.96
159	7.75	223.65	523.83	688.16	0.34	447.32	1909.07	4.23	38.87	12.50	1035.92
160	7.75	223.68	523.82	688.20	0.34	447.33	1909.26	4.23	38.89	12.49	1035.93
161	7.75	223.71	523.79	688.27	0.34	447.37	1909.19	4.23	38.91	12.49	1035.92
162	7.75	223.71	523.82	688.26	0.34	447.37	1909.07	4.24	38.95	12.49	1035.95
163	7.75	223.72	523.82	688.18	0.34	447.31	1909.07	4.24	38.97	12.50	1035.93
164	7.75	223.77	523.80	688.15	0.34	447.30	1909.11	4.24	38.97	12.50	1035.94
165	7.75	223.76	523.80	688.20	0.34	447.33	1909.12	4.24	38.99	12.49	1035.92
166	7.75	223.78	523.79	688.27	0.34	447.37	1909.16	4.24	39.01	12.49	1035.91
167	7.75	223.80	523.80	688.30	0.34	447.40	1909.12	4.25	39.06	12.49	1035.93
168	7.75	223.81	523.80	688.28	0.34	447.38	1909.13	4.25	39.09	12.49	1035.92
169	7.75	223.85	523.87	688.31	0.34	447.40	1908.86	4.25	39.12	12.49	1035.94
170	7.75	223.86	523.84	688.21	0.34	447.34	1908.98	4.26	39.16	12.50	1035.92
171	7.75	223.86	523.84	688.20	0.34	447.33	1908.98	4.26	39.17	12.50	1035.92
172	7.75	223.87	524.01	688.50	0.34	447.52	1908.18	4.26	39.21	12.49	1035.92
173	7.75	223.89	524.07	688.65	0.34	447.66	1908.05	4.27	39.24	12.49	1035.92
174	7.75	223.90	524.09	688.72	0.34	447.61	1908.13	4.27	39.30	12.49	1035.91
175	7.75	223.91	524.07	688.41	0.34	447.47	1908.51	4.28	39.36	12.49	1035.93
176	7.75	223.94	524.03	688.45	0.34	447.50	1908.32	4.28	39.39	12.49	1035.93
177	7.75	223.94	524.03	688.50	0.34	447.52	1908.30	4.28	39.37	12.49	1035.97
178	7.75	223.97	524.03	688.56	0.34	447.56	1908.29	4.29	39.42	12.49	1035.94
179	7.75	223.98	524.02	688.62	0.34	447.60	1908.31	4.29	39.47	12.49	1035.94
180	7.75	223.99	524.05	688.60	0.34	447.59	1908.21	4.29	39.45	12.49	1035.94
181	7.75	224.00	524.07	688.55	0.34	447.56	1908.15	4.29	39.45	12.49	1035.94



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
182	7.75	224.01	524.03	688.46	0.34	447.50	1908.28	4.30	39.51	12.50	1035.97
183	7.75	224.03	524.07	688.55	0.34	447.56	1908.15	4.30	39.50	12.49	1035.94
184	7.75	224.05	524.06	688.62	0.34	447.61	1908.20	4.30	39.53	12.49	1035.96
185	7.75	224.08	524.07	688.67	0.34	447.64	1908.15	4.30	39.57	12.49	1035.99
186	7.75	224.06	524.08	688.57	0.34	447.57	1908.12	4.30	39.56	12.49	1035.99
187	7.75	224.06	524.08	688.56	0.34	447.56	1908.12	4.30	39.56	12.49	1035.99
188	7.75	224.09	524.09	688.53	0.34	447.54	1908.05	4.30	39.56	12.50	1035.96
189	7.75	224.10	524.08	688.52	0.34	447.54	1908.11	4.31	39.56	12.50	1035.95
190	7.75	224.09	524.08	688.63	0.34	447.64	1908.11	4.31	39.58	12.49	1035.97
191	7.75	224.13	524.08	688.62	0.34	447.61	1908.11	4.31	39.61	12.49	1035.95
192	7.75	224.14	524.10	688.54	0.34	447.55	1908.03	4.31	39.62	12.49	1035.96
193	7.75	224.18	524.10	688.52	0.34	447.54	1908.05	4.31	39.64	12.50	1035.96
194	7.75	224.18	524.11	688.55	0.34	447.56	1908.01	4.31	39.63	12.50	1035.96
195	7.75	224.21	524.11	688.68	0.34	447.64	1908.00	4.32	39.68	12.49	1035.92
196	7.75	224.21	524.08	688.66	0.34	447.63	1908.10	4.32	39.67	12.49	1035.94
197	7.75	224.21	524.09	688.63	0.34	447.61	1908.08	4.32	39.68	12.49	1035.96
198	7.75	224.23	524.23	688.74	0.34	447.68	1907.56	4.32	39.68	12.49	1035.98
199	7.75	224.25	524.25	688.70	0.34	447.65	1907.49	4.32	39.68	12.50	1035.94
200	7.75	224.27	524.24	688.73	0.34	447.67	1907.52	4.32	39.68	12.50	1035.96
201	7.75	224.28	524.27	688.85	0.34	447.75	1907.43	4.32	39.68	12.49	1035.96
202	7.75	224.30	524.28	688.91	0.34	447.79	1907.40	4.32	39.70	12.49	1035.93
203	7.75	224.29	524.28	688.94	0.34	447.81	1907.37	4.32	39.71	12.49	1035.89
204	7.75	224.29	524.28	688.95	0.34	447.81	1907.36	4.32	39.71	12.49	1035.88
205	7.75	224.32	524.29	688.91	0.34	447.79	1907.34	4.32	39.72	12.49	1035.92
206	7.75	224.33	524.29	688.79	0.34	447.71	1907.32	4.32	39.73	12.50	1035.93
207	7.75	224.36	524.30	688.78	0.34	447.77	1907.19	4.32	39.76	12.50	1035.93
208	7.75	224.37	524.33	688.98	0.34	447.84	1907.16	4.33	39.76	12.49	1035.94
209	7.75	224.39	524.33	688.99	0.34	447.85	1907.19	4.32	39.76	12.49	1035.92
210	7.75	224.42	524.35	688.94	0.34	447.81	1907.14	4.33	39.78	12.49	1035.94
211	7.75	224.41	524.34	688.86	0.34	447.76	1907.18	4.32	39.76	12.49	1035.95
212	7.75	224.45	524.33	688.83	0.34	447.74	1907.18	4.33	39.81	12.50	1035.90
213	7.75	224.46	524.33	688.88	0.34	447.77	1907.18	4.33	39.82	12.49	1035.95
214	7.75	224.48	524.29	688.89	0.34	447.78	1907.35	4.33	39.84	12.49	1035.94
215	7.75	224.49	524.30	688.96	0.34	447.83	1907.29	4.33	39.83	12.49	1035.90
216	7.75	224.49	524.28	688.91	0.34	447.79	1907.37	4.34	39.87	12.49	1035.87
217	7.75	224.53	524.30	688.86	0.34	447.76	1907.32	4.33	39.85	12.49	1035.91
218	7.75	224.54	524.31	688.81	0.34	447.73	1907.27	4.34	39.87	12.50	1035.92
219	7.75	224.54	524.34	688.86	0.34	447.76	1907.18	4.33	39.86	12.50	1035.92



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
220	7.75	224.57	524.35	688.92	0.34	447.80	1907.14	4.34	39.87	12.49	1035.94
221	7.75	224.59	524.34	688.99	0.34	447.84	1907.15	4.34	39.90	12.49	1035.91
222	7.75	224.60	524.34	689.00	0.34	447.85	1907.15	4.34	39.90	12.49	1035.91
223	7.75	224.63	524.36	689.02	0.34	447.86	1907.09	4.34	39.90	12.49	1035.86
224	7.75	224.66	524.36	688.97	0.34	447.83	1907.13	4.34	39.94	12.49	1035.92
225	7.75	224.67	524.35	688.88	0.34	447.79	1906.94	4.34	39.92	12.50	1035.87
226	7.75	224.70	524.40	688.97	0.34	447.83	1906.99	4.35	39.96	12.50	1035.87
227	7.75	224.72	524.39	689.05	0.34	447.88	1906.92	4.35	39.95	12.49	1035.86
228	7.75	224.74	524.38	689.09	0.34	447.91	1907.01	4.35	39.97	12.49	1035.88
229	7.75	224.76	524.39	689.08	0.34	447.90	1907.00	4.35	39.95	12.49	1035.92
230	7.75	224.78	524.55	689.24	0.34	448.01	1906.40	4.34	39.94	12.49	1035.88
231	7.75	224.80	524.57	689.20	0.34	447.98	1906.34	4.35	39.95	12.49	1035.92
232	7.75	224.82	524.69	689.32	0.34	448.06	1905.89	4.35	39.97	12.50	1035.94
233	7.75	224.85	524.45	689.05	0.34	447.88	1906.75	4.35	39.98	12.49	1035.92
234	7.75	224.87	524.48	689.19	0.34	447.97	1906.67	4.35	39.99	12.49	1035.90
235	7.75	224.90	524.50	689.27	0.34	448.03	1906.57	4.35	40.01	12.48	1035.88
236	7.75	224.90	524.27	688.91	0.34	447.79	1907.40	4.35	40.03	12.49	1035.87
237	7.75	224.92	524.48	689.08	0.34	447.90	1906.67	4.35	40.03	12.49	1035.88
238	7.75	224.95	524.21	688.73	0.34	447.67	1907.64	4.35	40.01	12.49	1035.87
239	7.75	224.98	524.20	688.77	0.34	447.70	1907.67	4.35	40.04	12.49	1035.84
240	7.75	224.98	524.18	688.75	0.34	447.69	1907.73	4.35	40.04	12.49	1035.84
241	7.75	225.01	524.23	688.85	0.34	447.88	1907.11	4.36	40.07	12.49	1035.87
242	7.75	225.03	524.35	689.04	0.34	447.89	1907.06	4.35	40.02	12.49	1035.87
243	7.75	225.06	524.49	689.13	0.34	447.94	1906.60	4.35	40.03	12.49	1035.87
244	7.75	225.09	524.49	689.09	0.34	447.91	1906.62	4.36	40.05	12.49	1035.86
245	7.75	225.11	524.50	689.13	0.34	447.93	1906.58	4.36	40.05	12.49	1035.86
246	7.75	225.17	524.50	689.23	0.34	448.00	1906.59	4.36	40.05	12.49	1035.90
247	7.75	225.19	524.47	689.25	0.34	448.01	1906.68	4.36	40.04	12.48	1035.91
248	7.75	225.20	524.46	689.15	0.34	447.95	1906.71	4.36	40.08	12.49	1035.91
249	7.74	225.25	524.43	689.06	0.34	447.89	1906.84	4.36	40.06	12.49	1035.88
250	7.75	225.25	524.64	689.33	0.34	448.07	1906.09	4.36	40.07	12.49	1035.86
251	7.75	225.26	524.69	689.46	0.34	448.15	1905.87	4.36	40.04	12.49	1035.87
252	7.74	225.31	524.17	688.85	0.34	447.76	1907.79	4.36	40.06	12.48	1035.85
253	7.74	225.31	523.87	688.48	0.34	447.51	1908.86	4.36	40.08	12.48	1035.87
254	7.74	225.32	524.00	688.58	0.34	447.58	1908.39	4.36	40.06	12.49	1035.85
255	7.75	225.31	523.93	688.41	0.34	447.47	1908.65	4.36	40.06	12.49	1035.88
256	7.75	225.31	523.93	688.39	0.34	447.46	1908.66	4.36	40.06	12.49	1035.88
257	7.74	225.35	523.93	688.41	0.34	447.47	1908.66	4.36	40.08	12.49	1035.83



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
258	7.75	225.37	523.63	688.14	0.34	447.29	1909.95	4.36	40.08	12.48	1035.86
259	7.75	225.38	523.56	688.09	0.34	447.13	1910.57	4.37	40.13	12.48	1035.86
260	7.75	225.37	523.41	687.90	0.34	447.14	1910.41	4.36	40.12	12.48	1035.85
261	7.75	225.38	523.42	687.78	0.34	447.06	1910.48	4.36	40.10	12.48	1035.85
262	7.75	225.42	523.47	687.82	0.34	447.08	1910.33	4.36	40.13	12.49	1035.82
263	7.75	225.43	523.48	687.88	0.34	447.12	1910.29	4.36	40.10	12.49	1035.82
264	7.75	225.46	523.46	687.94	0.34	447.16	1910.35	4.36	40.10	12.48	1035.86
265	7.74	225.47	523.46	687.97	0.34	447.18	1910.35	4.37	40.13	12.48	1035.85
266	7.75	225.48	523.45	687.92	0.34	447.15	1910.41	4.37	40.15	12.48	1035.85
267	7.75	225.50	523.48	687.87	0.34	447.12	1910.30	4.36	40.13	12.49	1035.84
268	7.75	225.52	523.43	687.78	0.34	447.06	1910.47	4.36	40.13	12.49	1035.84
269	7.75	225.53	523.42	687.79	0.34	447.07	1910.53	4.37	40.15	12.49	1035.85
270	7.75	225.54	523.40	687.82	0.34	447.09	1910.59	4.37	40.14	12.48	1035.84
271	7.75	225.57	523.47	687.99	0.34	447.19	1910.33	4.37	40.14	12.48	1035.84
272	7.75	225.57	523.49	688.03	0.34	447.22	1910.25	4.37	40.14	12.48	1035.85
273	7.75	225.57	523.50	688.04	0.34	447.23	1910.23	4.37	40.14	12.48	1035.85
274	7.75	225.59	523.47	687.93	0.34	447.15	1910.33	4.37	40.18	12.48	1035.80
275	7.74	225.62	523.47	687.85	0.34	447.10	1910.32	4.37	40.19	12.49	1035.85
276	7.74	225.63	523.28	687.60	0.34	447.08	1910.61	4.37	40.20	12.49	1035.83
277	7.75	225.66	523.38	687.80	0.34	447.07	1910.93	4.37	40.17	12.48	1035.83
278	7.74	225.70	523.31	687.81	0.34	447.07	1910.98	4.37	40.20	12.48	1035.85
279	7.75	225.70	523.32	687.75	0.34	447.04	1910.87	4.37	40.21	12.48	1035.84
280	7.74	225.73	523.60	688.04	0.34	447.23	1909.85	4.37	40.22	12.49	1035.84
281	7.74	225.75	523.62	688.06	0.34	447.24	1909.80	4.37	40.19	12.49	1035.83
282	7.74	225.77	523.57	688.05	0.34	447.24	1909.96	4.37	40.21	12.48	1035.87
283	7.74	225.79	523.33	687.83	0.34	447.09	1910.85	4.38	40.22	12.48	1035.82
284	7.74	225.82	523.22	687.71	0.34	447.01	1911.25	4.38	40.22	12.48	1035.84
285	7.74	225.82	523.22	687.66	0.34	446.98	1911.23	4.37	40.20	12.48	1035.84
286	7.74	225.86	523.25	687.65	0.34	446.97	1911.13	4.37	40.19	12.48	1035.85
287	7.74	225.89	523.21	687.51	0.34	446.88	1911.28	4.37	40.21	12.49	1035.80
288	7.74	225.90	523.20	687.49	0.34	446.87	1911.30	4.37	40.21	12.49	1035.79
289	7.74	225.90	523.28	687.69	0.34	447.00	1911.03	4.37	40.20	12.48	1035.85
290	7.74	225.93	523.03	687.42	0.34	446.83	1911.99	4.37	40.18	12.48	1035.80
291	7.74	225.95	523.00	687.41	0.34	446.74	1912.30	4.37	40.17	12.48	1035.82
292	7.74	225.97	522.93	687.30	0.34	446.68	1912.35	4.37	40.15	12.48	1035.87
293	7.74	226.02	522.92	687.25	0.34	446.71	1912.08	4.37	40.16	12.48	1035.85
294	7.74	226.03	523.09	687.41	0.34	446.82	1911.69	4.37	40.18	12.49	1035.80
295	7.74	226.06	522.92	687.25	0.34	446.71	1912.35	4.37	40.15	12.48	1035.85



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
296	7.74	226.08	522.91	687.32	0.34	446.75	1912.37	4.37	40.16	12.48	1035.85
297	7.74	226.08	522.91	687.35	0.34	446.78	1912.36	4.37	40.16	12.47	1035.86
298	7.74	226.09	522.87	687.24	0.34	446.71	1912.51	4.37	40.14	12.48	1035.90
299	7.74	226.12	522.72	686.93	0.34	446.50	1913.06	4.37	40.16	12.48	1035.87
300	7.74	226.15	522.72	686.94	0.34	446.51	1913.07	4.36	40.12	12.48	1035.85
301	7.74	226.17	522.69	686.99	0.34	446.54	1913.17	4.37	40.13	12.48	1035.85



WATER QUALITY PARAMETER READINGS

Project: Cambridge WWTP Relocation

Client: Anglain Water Services Limited

Engineer: Mott MacDonald Limited

Position: BH05

Date: 06/11/2020

Operative: AHm

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 755044

Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
1	7.64	325.22	669.86	884.17	0.44	574.71	1492.92	6.90	63.18	12.31	1036.53
2	7.62	325.01	671.91	886.71	0.44	576.36	1488.30	6.86	62.82	12.32	1036.53
3	7.62	324.96	672.30	887.19	0.44	576.68	1487.43	6.85	62.75	12.32	1036.53
4	7.61	324.75	672.83	887.83	0.44	577.09	1486.25	6.81	62.40	12.32	1036.52
5	7.60	324.21	672.90	887.91	0.44	577.14	1486.10	6.78	62.13	12.32	1036.50
6	7.60	323.13	672.96	888.01	0.44	577.21	1485.97	6.74	61.77	12.32	1036.48
7	7.60	321.85	673.17	888.35	0.44	577.43	1485.51	6.70	61.40	12.32	1036.55
8	7.59	320.37	672.80	887.85	0.44	577.10	1486.32	6.67	61.08	12.32	1036.50
9	7.60	318.82	672.62	887.56	0.44	576.91	1486.73	6.63	60.70	12.32	1036.49
10	7.60	317.20	672.66	887.46	0.44	576.85	1486.43	6.60	60.43	12.33	1036.49
11	7.60	315.68	672.75	887.56	0.44	576.91	1486.57	6.56	59.90	12.33	1036.52
12	7.60	314.33	672.69	887.42	0.44	576.71	1486.88	6.51	59.67	12.33	1036.47
13	7.60	313.14	672.55	887.24	0.44	576.73	1486.87	6.49	59.42	12.33	1036.47
14	7.60	311.19	672.55	887.32	0.44	576.76	1486.87	6.47	59.27	12.33	1036.50
15	7.60	310.18	672.47	887.30	0.44	576.75	1487.06	6.45	59.13	12.33	1036.50
16	7.60	309.33	672.34	887.14	0.44	576.64	1487.34	6.44	58.96	12.32	1036.49
17	7.60	308.54	672.36	887.12	0.44	576.63	1487.31	6.42	58.82	12.33	1036.51
18	7.59	307.58	673.42	888.37	0.44	577.44	1484.96	6.41	58.69	12.33	1036.49
19	7.57	304.74	677.33	893.40	0.44	580.71	1476.38	6.36	58.27	12.34	1036.53
20	7.56	301.09	679.00	895.62	0.44	582.15	1472.76	6.29	57.63	12.34	1036.47
21	7.55	300.40	679.43	896.18	0.44	582.52	1471.82	6.28	57.52	12.34	1036.46
22	7.55	296.63	677.71	893.72	0.44	580.92	1475.57	6.22	57.04	12.35	1036.47
23	7.55	293.08	677.85	894.11	0.44	581.17	1475.26	6.17	56.53	12.34	1036.47
24	7.54	289.56	677.65	893.66	0.44	580.88	1475.69	6.13	56.16	12.34	1036.50
25	7.54	286.35	677.37	893.43	0.44	580.73	1476.29	6.09	55.83	12.34	1036.52
26	7.53	283.31	677.32	893.22	0.44	580.59	1476.41	6.06	55.49	12.35	1036.50
27	7.53	280.32	677.30	893.22	0.44	580.59	1476.46	6.02	55.18	12.34	1036.52
28	7.53	277.63	676.73	892.52	0.44	580.14	1477.70	6.00	54.95	12.34	1036.51
29	7.53	275.39	677.25	893.06	0.44	580.49	1478.29	5.97	54.54	12.35	1036.53



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
30	7.53	273.76	676.51	892.22	0.44	580.18	1477.42	5.93	54.37	12.34	1036.50
31	7.53	272.50	676.87	892.51	0.44	580.18	1477.49	5.92	54.22	12.35	1036.52
32	7.53	271.50	676.82	892.57	0.44	580.11	1477.36	5.90	54.08	12.34	1036.51
33	7.53	269.93	676.86	892.62	0.44	580.19	1477.41	5.90	54.05	12.35	1036.50
34	7.53	268.92	676.89	892.57	0.44	580.17	1477.34	5.89	53.94	12.35	1036.48
35	7.53	267.82	676.91	892.60	0.44	580.19	1477.31	5.87	53.81	12.35	1036.51
36	7.53	266.74	676.90	892.61	0.44	580.19	1477.33	5.86	53.73	12.35	1036.46
37	7.53	265.67	676.82	892.37	0.44	580.04	1477.50	5.86	53.68	12.35	1036.50
38	7.53	264.63	676.73	892.42	0.44	580.08	1477.69	5.85	53.58	12.35	1036.51
39	7.53	263.68	676.77	892.27	0.44	579.97	1477.61	5.84	53.55	12.36	1036.49
40	7.53	263.50	676.77	892.25	0.44	579.96	1477.60	5.84	53.54	12.36	1036.48
41	7.53	262.61	676.78	892.47	0.44	580.11	1477.59	5.84	53.48	12.35	1036.51
42	7.53	261.75	676.82	892.34	0.44	580.02	1477.50	5.83	53.44	12.35	1036.48
43	7.53	260.48	677.32	893.12	0.44	580.53	1476.41	5.82	53.35	12.35	1036.52
44	7.53	258.21	677.74	893.97	0.44	581.08	1475.49	5.80	53.14	12.34	1036.50
45	7.52	255.79	677.85	894.30	0.44	581.29	1475.26	5.77	52.83	12.33	1036.49
46	7.51	253.20	677.86	894.61	0.44	581.50	1475.23	5.73	52.50	12.32	1036.50
47	7.51	250.88	677.90	894.58	0.44	581.48	1475.50	5.69	51.95	12.32	1036.52
48	7.50	248.50	677.74	894.62	0.44	581.50	1475.68	5.67	51.66	12.31	1036.52
49	7.50	246.10	677.66	894.38	0.44	581.63	1475.33	5.62	51.44	12.31	1036.50
50	7.49	241.60	677.81	894.67	0.44	581.56	1475.18	5.60	51.26	12.30	1036.50
51	7.49	239.16	677.78	894.70	0.44	581.56	1475.39	5.58	51.11	12.31	1036.49
52	7.49	236.82	677.74	894.62	0.44	581.50	1475.49	5.56	50.95	12.31	1036.51
53	7.49	234.67	677.89	894.77	0.44	581.60	1475.17	5.55	50.79	12.31	1036.52
54	7.49	232.70	677.74	894.80	0.44	581.62	1475.49	5.54	50.70	12.30	1036.50
55	7.49	231.13	677.77	894.67	0.44	581.53	1475.42	5.52	50.56	12.31	1036.50
56	7.49	229.77	677.75	894.84	0.44	581.65	1475.46	5.51	50.46	12.30	1036.47
57	7.49	228.44	677.73	894.64	0.44	581.51	1475.52	5.50	50.33	12.31	1036.50
58	7.49	228.19	677.72	894.61	0.44	581.50	1475.54	5.49	50.31	12.31	1036.51
59	7.49	226.90	677.78	894.83	0.44	581.64	1475.41	5.48	50.16	12.30	1036.49
60	7.49	225.79	677.79	894.83	0.44	581.64	1475.37	5.47	50.10	12.30	1036.53
61	7.48	224.77	677.77	894.67	0.44	581.54	1475.44	5.46	50.01	12.31	1036.48
62	7.48	223.82	677.71	894.74	0.44	581.58	1475.55	5.45	49.94	12.30	1036.55
63	7.48	222.93	677.70	894.53	0.44	581.45	1475.57	5.45	49.89	12.31	1036.53
64	7.48	222.15	677.72	894.74	0.44	581.52	1475.49	5.43	49.74	12.30	1036.54
65	7.48	220.67	677.74	894.77	0.44	581.60	1475.40	5.42	49.66	12.31	1036.52
66	7.49	219.82	677.84	894.90	0.44	581.68	1475.26	5.41	49.58	12.30	1036.51
67	7.49	219.10	677.80	894.67	0.44	581.53	1475.37	5.41	49.55	12.31	1036.53



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
68	7.49	218.42	677.76	894.80	0.44	581.62	1475.45	5.40	49.46	12.30	1036.52
69	7.49	217.75	677.76	894.60	0.44	581.49	1475.45	5.39	49.36	12.31	1036.53
70	7.49	217.10	677.76	894.72	0.44	581.57	1475.45	5.39	49.34	12.30	1036.51
71	7.49	216.98	677.76	894.73	0.44	581.57	1475.45	5.39	49.33	12.30	1036.51
72	7.49	216.45	677.79	894.67	0.44	581.54	1475.39	5.38	49.28	12.31	1036.51
73	7.49	215.89	677.82	894.76	0.44	581.59	1475.31	5.37	49.19	12.31	1036.48
74	7.49	215.44	677.80	894.80	0.44	581.62	1475.36	5.37	49.16	12.30	1036.54
75	7.49	215.01	677.80	894.67	0.44	581.53	1475.36	5.37	49.13	12.31	1036.52
76	7.49	214.61	677.83	894.86	0.44	581.66	1475.30	5.36	49.11	12.30	1036.50
77	7.49	214.23	677.81	894.65	0.44	581.53	1475.34	5.36	49.07	12.31	1036.52
78	7.49	213.89	677.80	894.80	0.44	581.62	1475.37	5.36	49.05	12.30	1036.52
79	7.49	213.56	677.84	894.75	0.44	581.59	1475.28	5.35	49.03	12.31	1036.49
80	7.49	213.25	677.84	894.81	0.44	581.63	1475.07	5.35	49.04	12.31	1036.48
81	7.49	212.99	677.93	894.96	0.44	581.62	1475.10	5.35	48.97	12.30	1036.53
82	7.49	212.73	677.92	894.82	0.44	581.76	1475.09	5.35	48.95	12.31	1036.54
83	7.49	212.30	677.92	894.76	0.44	581.60	1475.14	5.34	48.90	12.30	1036.49
84	7.49	212.04	677.94	894.98	0.44	581.74	1475.07	5.34	48.93	12.31	1036.49
85	7.49	211.78	677.96	894.87	0.44	581.66	1475.02	5.34	48.91	12.31	1036.50
86	7.49	211.56	677.97	894.94	0.44	581.71	1474.98	5.34	48.89	12.31	1036.53
87	7.49	211.32	677.99	895.01	0.44	581.75	1474.96	5.34	48.89	12.30	1036.52
88	7.49	211.08	677.97	894.87	0.44	581.67	1475.00	5.34	48.87	12.31	1036.53
89	7.49	210.86	677.97	895.02	0.44	581.76	1474.99	5.34	48.89	12.30	1036.55
90	7.49	210.81	677.97	895.03	0.44	581.77	1475.00	5.34	48.90	12.30	1036.56
91	7.49	210.58	677.99	894.85	0.44	581.65	1474.96	5.34	48.92	12.31	1036.54
92	7.49	210.38	678.28	895.33	0.44	581.96	1474.32	5.34	48.90	12.31	1036.52
93	7.49	210.16	678.31	895.35	0.44	581.98	1474.24	5.34	48.93	12.31	1036.54
94	7.49	209.96	678.32	895.33	0.44	581.97	1474.22	5.34	48.89	12.31	1036.53
95	7.49	209.75	678.32	895.43	0.44	582.03	1474.24	5.34	48.87	12.31	1036.53
96	7.49	209.57	678.32	895.27	0.44	581.93	1474.23	5.34	48.92	12.31	1036.51
97	7.49	209.40	678.35	895.49	0.44	582.07	1474.17	5.34	48.89	12.30	1036.55
98	7.49	209.21	678.33	895.32	0.44	581.96	1474.21	5.34	48.87	12.31	1036.53
99	7.49	209.06	678.35	895.47	0.44	582.06	1474.02	5.33	48.86	12.31	1036.52
100	7.49	208.90	678.42	895.44	0.44	582.04	1474.15	5.34	48.84	12.31	1036.51
101	7.49	208.73	678.36	895.42	0.44	582.01	1474.19	5.33	48.80	12.31	1036.51
102	7.49	208.58	678.34	895.40	0.44	581.93	1474.22	5.33	48.79	12.31	1036.49
103	7.49	208.25	678.32	895.44	0.44	582.03	1474.17	5.32	48.75	12.31	1036.53
104	7.49	208.09	678.36	895.32	0.44	581.95	1474.14	5.32	48.76	12.31	1036.51
105	7.49	207.95	678.29	895.38	0.44	582.00	1474.30	5.33	48.80	12.31	1036.57



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
106	7.49	207.78	678.34	895.27	0.44	581.93	1474.19	5.33	48.82	12.31	1036.56
107	7.49	207.63	678.33	895.44	0.44	582.04	1474.21	5.33	48.78	12.31	1036.54
108	7.49	207.60	678.33	895.47	0.44	582.05	1474.21	5.33	48.78	12.30	1036.54
109	7.49	207.48	678.33	895.24	0.44	581.90	1474.22	5.32	48.69	12.31	1036.58
110	7.49	207.35	678.32	895.43	0.44	582.03	1474.24	5.32	48.69	12.31	1036.52
111	7.49	207.18	678.32	895.26	0.44	581.92	1474.24	5.32	48.71	12.31	1036.53
112	7.49	207.07	678.38	895.43	0.44	582.03	1474.10	5.32	48.69	12.31	1036.54
113	7.49	206.92	678.33	895.31	0.44	581.95	1474.22	5.31	48.66	12.31	1036.56
114	7.49	206.78	678.31	895.34	0.44	581.97	1474.29	5.31	48.64	12.31	1036.52
115	7.49	206.65	678.29	895.35	0.44	581.98	1474.57	5.31	48.60	12.31	1036.52
116	7.49	206.52	678.16	895.02	0.44	582.18	1473.98	5.31	48.58	12.31	1036.52
117	7.49	206.39	678.43	895.62	0.44	581.78	1475.11	5.29	48.41	12.30	1036.54
118	7.49	204.48	677.92	895.62	0.44	582.12	1474.98	5.26	48.18	12.30	1036.50
119	7.48	203.30	678.01	895.86	0.44	582.30	1474.92	5.24	47.95	12.28	1036.51
120	7.48	202.09	677.95	896.32	0.44	582.61	1475.02	5.23	47.80	12.25	1036.50
121	7.47	200.89	677.99	896.47	0.44	582.70	1474.94	5.21	47.61	12.24	1036.48
122	7.47	199.82	678.04	896.66	0.44	582.83	1474.83	5.19	47.45	12.24	1036.52
123	7.47	199.62	678.05	896.69	0.44	582.85	1474.81	5.19	47.42	12.23	1036.52
124	7.47	198.80	678.03	896.57	0.44	582.77	1474.86	5.17	47.31	12.24	1036.55
125	7.46	198.14	678.07	896.60	0.44	582.79	1474.77	5.16	47.17	12.24	1036.54
126	7.46	197.49	678.05	896.57	0.44	582.77	1474.81	5.14	47.03	12.24	1036.52
127	7.46	196.90	678.13	896.59	0.44	582.78	1474.65	5.13	46.93	12.24	1036.51
128	7.46	196.33	678.11	896.64	0.44	582.82	1474.69	5.13	46.86	12.24	1036.55
129	7.46	195.73	678.07	896.47	0.44	582.71	1475.01	5.11	46.63	12.25	1036.53
130	7.46	195.09	677.96	896.46	0.44	582.55	1475.14	5.09	46.55	12.24	1036.50
131	7.46	194.36	677.90	896.22	0.44	582.42	1475.80	5.08	46.46	12.25	1036.50
132	7.46	192.86	677.61	897.60	0.44	583.43	1473.30	5.07	46.35	12.24	1036.52
133	7.46	191.05	680.09	899.87	0.44	584.91	1470.16	5.06	46.21	12.24	1036.53
134	7.45	188.89	681.37	901.57	0.44	586.02	1467.56	5.03	45.98	12.22	1036.51
135	7.44	185.90	681.08	901.21	0.44	585.79	1468.26	5.00	45.72	12.21	1036.52
136	7.44	182.90	680.95	901.07	0.44	585.70	1468.54	4.97	45.42	12.21	1036.52
137	7.44	180.23	680.83	900.95	0.44	585.62	1468.80	4.94	45.13	12.21	1036.53
138	7.44	177.96	680.84	900.96	0.44	585.63	1468.77	4.91	44.82	12.21	1036.53
139	7.44	177.51	680.84	900.96	0.44	585.62	1468.78	4.90	44.76	12.21	1036.53
140	7.44	175.70	680.56	900.62	0.44	585.41	1469.37	4.88	44.58	12.21	1036.52
141	7.44	173.95	680.45	900.46	0.44	585.30	1469.61	4.86	44.39	12.21	1036.51
142	7.44	172.25	680.77	900.91	0.44	585.59	1468.93	4.84	44.23	12.21	1036.50
143	7.44	170.47	680.84	901.00	0.44	585.65	1468.77	4.83	44.10	12.21	1036.52



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
144	7.44	168.79	680.88	901.01	0.44	585.66	1468.68	4.81	43.95	12.21	1036.49
145	7.44	167.38	680.89	901.03	0.44	585.67	1468.67	4.80	43.85	12.21	1036.53
146	7.44	165.99	680.91	900.96	0.44	585.65	1468.69	4.78	43.64	12.21	1036.54
147	7.44	164.69	680.88	900.99	0.44	585.61	1468.51	4.76	43.52	12.21	1036.52
148	7.44	163.58	680.96	900.93	0.44	585.75	1468.40	4.76	43.45	12.22	1036.53
149	7.44	161.88	681.01	900.82	0.44	585.54	1468.55	4.75	43.38	12.21	1036.50
150	7.44	161.09	680.87	900.90	0.44	585.59	1468.72	4.74	43.29	12.22	1036.50
151	7.44	160.49	680.90	900.75	0.44	585.48	1468.65	4.73	43.21	12.22	1036.55
152	7.44	160.00	680.83	900.83	0.44	585.54	1468.79	4.72	43.16	12.21	1036.47
153	7.44	159.53	681.02	900.89	0.44	585.58	1468.39	4.72	43.12	12.22	1036.52
154	7.45	159.05	681.07	901.11	0.44	585.72	1468.27	4.71	43.07	12.22	1036.58
155	7.45	158.96	681.09	901.15	0.44	585.75	1468.23	4.71	43.07	12.21	1036.59
156	7.45	158.45	681.10	900.97	0.44	585.63	1468.21	4.70	42.99	12.22	1036.48
157	7.45	157.98	681.13	901.18	0.44	585.77	1468.15	4.70	42.95	12.22	1036.50
158	7.45	157.58	681.00	900.81	0.44	585.53	1468.42	4.70	42.94	12.22	1036.53
159	7.45	157.27	680.91	900.90	0.44	585.58	1468.61	4.69	42.89	12.22	1036.55
160	7.45	157.04	680.90	900.70	0.44	585.45	1468.65	4.69	42.84	12.22	1036.53
161	7.45	156.85	680.93	900.94	0.44	585.61	1468.58	4.69	42.86	12.21	1036.54
162	7.45	156.69	680.93	900.78	0.44	585.51	1468.58	4.68	42.81	12.22	1036.50
163	7.45	156.56	680.93	900.95	0.44	585.50	1468.58	4.68	42.78	12.21	1036.52
164	7.45	156.42	680.93	900.98	0.44	585.62	1468.57	4.68	42.78	12.22	1036.56
165	7.45	156.38	680.96	900.81	0.44	585.52	1468.53	4.67	42.71	12.22	1036.58
166	7.45	156.35	680.96	900.97	0.44	585.63	1468.52	4.67	42.68	12.22	1036.54
167	7.45	156.35	681.00	900.86	0.44	585.56	1468.43	4.66	42.63	12.22	1036.53
168	7.45	156.34	680.99	901.01	0.44	585.65	1468.46	4.66	42.62	12.21	1036.51
169	7.45	156.36	680.96	900.82	0.44	585.53	1468.52	4.66	42.61	12.22	1036.54
170	7.45	156.36	680.95	900.80	0.44	585.52	1468.53	4.66	42.61	12.22	1036.54
171	7.45	156.37	680.96	900.97	0.44	585.63	1468.52	4.66	42.57	12.21	1036.52
172	7.45	156.39	680.94	900.80	0.44	585.52	1468.55	4.65	42.53	12.22	1036.49
173	7.45	156.42	680.91	900.92	0.44	585.60	1468.62	4.65	42.53	12.21	1036.54
174	7.45	156.49	680.92	900.77	0.44	585.50	1468.59	4.65	42.51	12.22	1036.50
175	7.45	156.52	680.90	900.89	0.44	585.58	1468.65	4.65	42.52	12.21	1036.51
176	7.45	156.64	680.92	900.76	0.44	585.49	1468.61	4.65	42.48	12.22	1036.51
177	7.45	156.71	680.92	900.88	0.44	585.52	1468.55	4.64	42.41	12.22	1036.48
178	7.45	156.82	680.94	900.82	0.44	585.61	1468.60	4.64	42.41	12.22	1036.51
179	7.45	156.87	680.92	900.82	0.44	585.54	1468.55	4.64	42.37	12.21	1036.48
180	7.45	157.00	680.94	900.88	0.44	585.58	1468.61	4.64	42.37	12.22	1036.48
181	7.45	157.05	680.93	900.81	0.44	585.53	1468.60	4.63	42.34	12.22	1036.48



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
182	7.45	157.13	680.90	900.87	0.44	585.57	1468.64	4.64	42.38	12.22	1036.50
183	7.45	157.17	680.87	900.77	0.44	585.50	1468.72	4.63	42.34	12.22	1036.52
184	7.45	157.19	680.85	900.69	0.44	585.45	1468.75	4.63	42.34	12.22	1036.51
185	7.45	157.24	680.88	900.84	0.44	585.54	1468.68	4.63	42.32	12.22	1036.49
186	7.45	157.25	680.89	900.86	0.44	585.56	1468.67	4.63	42.31	12.22	1036.48
187	7.45	157.28	680.87	900.73	0.44	585.47	1468.70	4.63	42.31	12.22	1036.48
188	7.45	157.35	680.86	900.86	0.44	585.56	1468.72	4.63	42.28	12.21	1036.49
189	7.45	157.38	680.85	900.66	0.44	585.43	1468.76	4.62	42.26	12.22	1036.47
190	7.45	157.40	680.85	900.79	0.44	585.51	1468.76	4.62	42.23	12.22	1036.48
191	7.45	157.49	680.83	900.62	0.44	585.40	1468.80	4.62	42.25	12.22	1036.48
192	7.45	157.54	680.81	900.81	0.44	585.53	1468.83	4.62	42.23	12.21	1036.47
193	7.45	157.57	680.82	900.63	0.44	585.41	1468.77	4.62	42.20	12.22	1036.48
194	7.45	157.62	680.84	900.82	0.44	585.54	1468.76	4.62	42.14	12.21	1036.47
195	7.45	157.66	680.84	900.73	0.44	585.52	1468.64	4.61	42.16	12.22	1036.48
196	7.45	157.74	680.90	900.79	0.44	585.56	1468.71	4.61	42.14	12.22	1036.48
197	7.45	157.84	680.87	900.67	0.44	585.44	1468.78	4.61	42.09	12.21	1036.49
198	7.45	157.90	680.84	900.86	0.44	585.56	1468.77	4.61	42.09	12.22	1036.52
199	7.45	157.99	680.88	900.75	0.44	585.49	1468.70	4.60	42.05	12.22	1036.50
200	7.45	158.06	680.90	900.91	0.44	585.59	1468.65	4.60	42.04	12.21	1036.53
201	7.45	158.13	680.90	900.76	0.44	585.50	1468.64	4.60	42.02	12.22	1036.48
202	7.45	158.18	680.88	900.92	0.44	585.60	1468.70	4.60	42.01	12.21	1036.49
203	7.45	158.19	680.87	900.93	0.44	585.61	1468.70	4.60	42.01	12.21	1036.49
204	7.45	158.27	680.83	900.69	0.44	585.45	1468.79	4.59	41.97	12.22	1036.48
205	7.45	158.35	680.83	900.87	0.44	585.57	1468.79	4.59	41.96	12.21	1036.48
206	7.45	158.41	680.78	900.64	0.44	585.42	1468.91	4.59	41.93	12.22	1036.53
207	7.45	158.49	680.77	900.74	0.44	585.48	1468.92	4.59	41.95	12.21	1036.52
208	7.45	158.55	680.74	900.68	0.44	585.44	1468.99	4.59	41.93	12.21	1036.47
209	7.45	158.64	680.74	900.65	0.44	585.42	1468.98	4.59	41.92	12.22	1036.50
210	7.45	158.72	680.77	900.78	0.44	585.51	1468.93	4.59	41.91	12.21	1036.53
211	7.45	158.80	680.76	900.67	0.44	585.59	1468.79	4.58	41.84	12.22	1036.49
212	7.45	158.88	680.83	900.89	0.44	585.74	1468.16	4.58	41.89	12.21	1036.54
213	7.45	158.94	681.12	901.14	0.44	585.85	1468.14	4.58	41.85	12.22	1036.52
214	7.45	159.11	681.17	901.21	0.44	585.80	1468.06	4.58	41.84	12.21	1036.49
215	7.45	159.20	681.18	901.39	0.44	585.91	1468.05	4.58	41.86	12.21	1036.48
216	7.45	159.27	681.19	901.26	0.44	585.82	1468.03	4.58	41.83	12.22	1036.48
217	7.45	159.35	681.19	901.44	0.44	585.93	1468.02	4.58	41.85	12.21	1036.49
218	7.45	159.41	681.20	901.30	0.44	585.85	1468.00	4.58	41.83	12.21	1036.51
219	7.45	159.49	681.21	901.49	0.44	585.97	1467.97	4.58	41.83	12.21	1036.48



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
220	7.45	159.51	681.22	901.51	0.44	585.98	1467.96	4.58	41.83	12.21	1036.48
221	7.45	159.59	681.23	901.30	0.44	585.85	1467.93	4.57	41.80	12.22	1036.47
222	7.45	159.66	681.23	901.50	0.44	585.97	1467.92	4.57	41.79	12.21	1036.50
223	7.45	159.73	681.25	901.35	0.44	585.88	1467.90	4.57	41.80	12.22	1036.48
224	7.45	159.81	681.24	901.49	0.44	585.97	1467.91	4.57	41.75	12.21	1036.47
225	7.45	159.87	681.25	901.37	0.44	585.89	1467.90	4.57	41.78	12.21	1036.49
226	7.45	159.92	681.23	901.48	0.44	585.96	1467.95	4.57	41.78	12.21	1036.50
227	7.45	160.00	681.22	901.34	0.44	585.87	1467.95	4.57	41.78	12.21	1036.49
228	7.45	160.09	681.22	901.45	0.44	585.92	1467.96	4.57	41.73	12.21	1036.48
229	7.45	160.19	681.22	901.42	0.44	585.93	1467.97	4.56	41.71	12.21	1036.47
230	7.45	160.33	681.23	901.48	0.44	585.96	1467.93	4.56	41.70	12.21	1036.48
231	7.45	160.42	681.22	901.44	0.44	585.93	1467.95	4.56	41.68	12.21	1036.50
232	7.45	160.49	681.22	901.49	0.44	585.97	1467.96	4.56	41.66	12.21	1036.50
233	7.45	160.58	681.25	901.49	0.44	585.97	1467.88	4.56	41.64	12.21	1036.47
234	7.45	160.65	681.06	901.31	0.44	585.85	1468.31	4.55	41.61	12.21	1036.49
235	7.45	160.66	681.03	901.28	0.44	585.83	1468.37	4.55	41.60	12.21	1036.49
236	7.45	160.73	680.91	900.98	0.44	585.64	1468.63	4.56	41.63	12.21	1036.52
237	7.45	160.83	680.97	901.22	0.44	585.79	1468.49	4.55	41.59	12.20	1036.50
238	7.45	160.89	680.95	901.01	0.44	585.66	1468.53	4.55	41.55	12.21	1036.48
239	7.45	161.00	680.97	901.24	0.44	585.81	1468.49	4.55	41.57	12.20	1036.44
240	7.45	161.08	680.97	901.04	0.44	585.68	1468.49	4.55	41.56	12.21	1036.52
241	7.45	161.15	681.18	901.51	0.44	585.98	1468.04	4.54	41.51	12.20	1036.48
242	7.45	161.21	681.02	901.09	0.44	585.71	1468.38	4.54	41.50	12.21	1036.50
243	7.45	161.29	680.95	901.20	0.44	585.78	1468.71	4.54	41.44	12.20	1036.50
244	7.45	161.38	680.86	900.90	0.44	585.71	1468.71	4.54	41.44	12.21	1036.49
245	7.45	161.49	680.87	900.96	0.44	585.64	1468.75	4.53	41.40	12.21	1036.51
246	7.45	161.57	680.85	901.08	0.44	585.71	1468.54	4.53	41.40	12.21	1036.52
247	7.45	161.66	680.98	901.24	0.44	585.80	1468.45	4.53	41.36	12.21	1036.48
248	7.45	161.72	681.04	901.14	0.44	585.74	1468.33	4.52	41.34	12.21	1036.54
249	7.45	161.80	681.05	901.32	0.44	585.86	1468.32	4.52	41.33	12.21	1036.50
250	7.45	161.89	681.05	901.15	0.44	585.75	1468.32	4.52	41.34	12.21	1036.51
251	7.45	161.98	681.06	901.33	0.44	585.87	1468.30	4.52	41.30	12.20	1036.48
252	7.45	162.07	681.05	901.14	0.44	585.74	1468.32	4.52	41.29	12.21	1036.50
253	7.45	162.12	681.06	901.33	0.44	585.86	1468.30	4.51	41.23	12.21	1036.49
254	7.45	162.13	681.06	901.35	0.44	585.87	1468.30	4.51	41.22	12.20	1036.49
255	7.45	162.21	681.05	901.11	0.44	585.72	1468.32	4.51	41.25	12.21	1036.50
256	7.45	162.29	681.06	901.34	0.44	585.87	1468.29	4.52	41.26	12.20	1036.51
257	7.45	162.36	681.07	901.13	0.44	585.73	1468.28	4.51	41.25	12.21	1036.50



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
258	7.45	162.44	681.07	901.34	0.44	585.87	1468.28	4.51	41.19	12.21	1036.51
259	7.45	162.51	681.08	901.12	0.44	585.73	1468.26	4.51	41.19	12.22	1036.52
260	7.45	162.60	681.08	901.35	0.44	585.88	1468.22	4.51	41.17	12.21	1036.51
261	7.45	162.65	681.10	901.16	0.44	585.76	1468.28	4.51	41.14	12.21	1036.55
262	7.45	162.72	681.07	901.25	0.44	585.73	1468.25	4.50	41.11	12.21	1036.55
263	7.45	162.87	681.08	901.35	0.44	585.87	1468.13	4.50	41.12	12.22	1036.51
264	7.45	162.94	681.11	901.19	0.44	585.77	1468.17	4.50	41.11	12.22	1036.56
265	7.45	163.01	681.13	901.33	0.44	585.87	1468.15	4.50	41.09	12.21	1036.56
266	7.45	163.10	681.13	901.21	0.44	585.79	1468.16	4.50	41.10	12.21	1036.55
267	7.45	163.16	681.15	901.31	0.44	585.85	1468.10	4.49	41.07	12.21	1036.53
268	7.45	163.23	681.07	901.13	0.44	585.74	1468.29	4.49	41.05	12.21	1036.53
269	7.45	163.24	681.05	901.11	0.44	585.72	1468.31	4.49	41.05	12.21	1036.53
270	7.45	163.32	681.14	901.33	0.44	585.87	1468.14	4.49	41.00	12.21	1036.55
271	7.45	163.38	681.22	901.40	0.44	585.91	1467.96	4.49	41.02	12.21	1036.53
272	7.45	163.45	681.25	901.38	0.44	585.90	1467.90	4.49	41.00	12.21	1036.52
273	7.45	163.50	681.41	901.72	0.44	586.12	1467.54	4.49	41.01	12.21	1036.53
274	7.45	163.58	681.42	901.55	0.44	586.01	1467.52	4.48	40.98	12.22	1036.50
275	7.45	163.62	681.42	901.73	0.44	586.12	1467.52	4.48	40.97	12.21	1036.51
276	7.45	163.72	681.42	901.56	0.44	586.02	1467.41	4.48	40.95	12.22	1036.50
277	7.45	163.75	681.47	901.79	0.45	586.06	1467.34	4.48	40.92	12.21	1036.49
278	7.45	163.84	681.50	901.80	0.45	586.16	1467.44	4.48	40.92	12.22	1036.55
279	7.45	163.94	681.46	901.61	0.44	586.05	1467.43	4.48	40.92	12.21	1036.51
280	7.45	164.00	681.47	901.78	0.45	586.15	1467.42	4.48	40.91	12.22	1036.50
281	7.45	164.08	681.47	901.65	0.44	586.07	1467.42	4.48	40.90	12.22	1036.49
282	7.45	164.14	681.43	901.76	0.45	586.14	1467.50	4.47	40.89	12.21	1036.50
283	7.45	164.21	681.34	901.53	0.44	586.00	1467.69	4.47	40.86	12.21	1036.56
284	7.45	164.22	681.33	901.51	0.44	585.98	1467.72	4.47	40.86	12.21	1036.57
285	7.45	164.27	681.41	901.66	0.44	586.08	1467.55	4.47	40.85	12.21	1036.54
286	7.45	164.33	681.43	901.68	0.44	586.09	1467.51	4.47	40.83	12.21	1036.54
287	7.45	164.40	681.44	901.68	0.44	586.09	1467.49	4.47	40.83	12.21	1036.56
288	7.45	164.48	681.39	901.64	0.44	586.07	1467.59	4.47	40.83	12.21	1036.55
289	7.45	164.52	681.38	901.56	0.44	586.02	1467.62	4.46	40.79	12.21	1036.51
290	7.45	164.56	681.37	901.60	0.44	586.04	1467.63	4.46	40.80	12.21	1036.54
291	7.45	164.64	681.37	901.52	0.44	585.99	1467.64	4.46	40.77	12.21	1036.51
292	7.45	164.68	681.37	901.60	0.44	586.04	1467.64	4.46	40.75	12.21	1036.50
293	7.45	164.75	681.38	901.55	0.44	586.01	1467.63	4.46	40.72	12.21	1036.49
294	7.45	164.79	681.37	901.65	0.44	586.12	1467.25	4.46	40.75	12.21	1036.50
295	7.45	164.85	681.55	901.74	0.45	586.15	1467.50	4.46	40.71	12.22	1036.50



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
296	7.45	164.91	681.43	901.43	0.44	585.93	1467.72	4.46	40.73	12.21	1036.52
297	7.45	164.99	681.33	901.59	0.44	586.03	1467.76	4.46	40.71	12.22	1036.48
298	7.45	165.08	681.44	901.58	0.44	586.03	1467.48	4.45	40.71	12.21	1036.49
299	7.45	165.10	681.51	901.86	0.45	586.21	1467.34	4.46	40.71	12.21	1036.53
300	7.45	165.16	681.61	901.83	0.45	586.19	1467.12	4.46	40.71	12.21	1036.56
301	7.45	165.18	681.65	901.99	0.45	586.29	1467.04	4.46	40.72	12.21	1036.53



WATER QUALITY PARAMETER READINGS

Project: Cambridge WWTP Relocation

Client: Anglain Water Services Limited

Engineer: Mott MacDonald Limited

Position: BH01

Date: 16/11/2020

Operative: DGWD

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 755044

Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
1	7.21	325.96	920.61	1266.04	0.63	822.93	1085.48	10.53	89.17	10.71	1014.60
2	7.21	325.96	920.61	1266.04	0.63	822.93	1085.48	10.53	89.17	10.71	1014.60
3	7.19	313.43	919.13	1258.10	0.63	817.76	1087.98	9.25	83.89	10.86	1014.57
4	7.19	308.73	919.14	1254.62	0.63	815.50	1087.97	8.90	80.83	10.89	1014.62
5	7.17	292.76	920.40	1239.76	0.62	805.84	1086.49	8.04	73.99	11.00	1014.58
6	7.18	273.81	921.27	1239.28	0.62	805.53	1085.46	7.27	66.96	11.53	1014.62
7	7.18	259.70	921.06	1238.05	0.62	804.73	1085.71	6.65	61.30	11.59	1014.60
8	7.19	248.63	921.30	1238.15	0.62	804.80	1085.42	6.13	56.46	11.60	1014.61
9	7.19	240.61	921.40	1238.02	0.62	804.71	1085.30	5.71	52.63	11.61	1014.61
10	7.19	233.71	920.92	1237.01	0.62	804.06	1085.88	5.36	49.43	11.62	1014.64
11	7.19	227.34	921.29	1236.81	0.62	803.92	1085.43	5.06	46.65	11.64	1014.63
12	7.20	221.29	921.67	1236.98	0.62	804.04	1084.99	4.78	44.15	11.65	1014.65
13	7.20	216.22	921.49	1236.01	0.62	803.40	1085.20	4.56	42.09	11.68	1014.62
14	7.20	211.46	921.58	1236.35	0.62	803.63	1085.09	4.36	40.22	11.67	1014.72
15	7.20	207.26	920.87	1235.09	0.62	802.81	1085.94	4.16	38.45	11.68	1014.70
16	7.21	203.83	921.20	1236.03	0.62	803.42	1085.54	4.01	37.00	11.66	1014.71
17	7.21	200.86	921.10	1235.64	0.62	803.17	1085.65	3.87	35.74	11.67	1014.70
18	7.21	198.22	921.28	1235.93	0.62	803.35	1086.07	3.75	34.67	11.67	1014.69
19	7.21	197.70	921.30	1235.94	0.62	803.36	1086.15	3.73	34.45	11.67	1014.69
20	7.21	195.37	920.70	1235.30	0.62	802.95	1086.10	3.63	32.68	11.67	1014.69
21	7.22	191.24	920.89	1235.08	0.62	802.80	1085.90	3.46	31.90	11.67	1014.73
22	7.22	189.07	921.12	1235.25	0.62	802.91	1085.63	3.39	31.28	11.68	1014.68
23	7.22	187.09	921.15	1235.14	0.62	802.84	1085.60	3.32	30.67	11.69	1014.65
24	7.22	185.24	920.96	1234.52	0.62	802.44	1085.83	3.26	30.14	11.70	1014.71
25	7.23	183.29	920.79	1234.02	0.62	802.11	1086.03	3.21	29.64	11.71	1014.67
26	7.23	181.39	920.84	1234.14	0.62	802.19	1085.97	3.16	29.21	11.71	1014.69
27	7.23	179.71	920.83	1234.13	0.62	802.18	1085.97	3.12	28.80	11.71	1014.68
28	7.23	178.27	920.63	1233.63	0.62	801.86	1086.21	3.08	28.44	11.72	1014.67
29	7.23	176.93	920.55	1233.55	0.62	801.81	1086.31	3.04	28.11	11.72	1014.67
30	7.23	175.75	920.16	1232.83	0.62	801.34	1086.77	3.01	27.81	11.72	1014.70
31	7.23	174.62	920.15	1233.55	0.62	801.80	1086.77	2.98	27.56	11.70	1014.65



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
32	7.23	174.41	920.14	1233.62	0.62	801.86	1086.80	2.98	27.51	11.70	1014.64
33	7.23	173.24	919.92	1233.53	0.62	801.97	1087.05	2.93	27.06	11.69	1014.69
34	7.23	172.18	919.91	1233.78	0.61	799.50	1086.54	2.88	26.68	11.68	1014.70
35	7.22	166.92	920.35	1230.79	0.61	799.86	1086.29	2.84	26.31	11.82	1014.73
36	7.22	163.78	920.17	1230.33	0.61	799.72	1086.74	2.81	26.05	11.81	1014.71
37	7.23	161.27	920.36	1230.66	0.61	799.93	1086.53	2.80	25.90	11.80	1014.70
38	7.24	158.99	920.36	1230.61	0.61	799.90	1086.53	2.78	25.73	11.80	1014.74
39	7.24	157.23	920.38	1231.04	0.61	800.17	1086.50	2.77	25.64	11.79	1014.70
40	7.24	155.49	920.28	1230.69	0.61	799.95	1086.62	2.76	25.54	11.79	1014.70
41	7.24	153.87	920.38	1231.08	0.61	800.20	1086.51	2.75	25.48	11.79	1014.70
42	7.24	152.47	920.43	1231.03	0.61	800.17	1086.45	2.75	25.45	11.79	1014.73
43	7.24	151.14	920.01	1230.98	0.61	800.14	1086.95	2.74	25.39	11.77	1014.76
44	7.24	150.01	920.09	1230.78	0.61	800.01	1086.86	2.74	25.34	11.78	1014.79
45	7.24	148.87	920.12	1231.04	0.61	800.18	1086.81	2.73	25.28	11.78	1014.80
46	7.24	147.84	919.86	1230.60	0.61	799.89	1087.13	2.73	25.25	11.78	1014.82
47	7.24	146.75	919.92	1230.90	0.61	800.08	1087.06	2.73	25.22	11.77	1014.83
48	7.25	145.79	919.84	1230.62	0.61	799.90	1086.91	2.73	25.23	11.78	1014.80
49	7.25	144.90	920.03	1231.06	0.61	800.11	1086.93	2.73	25.21	11.77	1014.78
50	7.25	144.73	920.06	1231.11	0.61	800.13	1086.93	2.73	25.21	11.77	1014.78
51	7.25	143.91	920.03	1230.99	0.61	800.61	1086.52	2.72	25.16	11.77	1014.78
52	7.25	143.75	920.03	1231.01	0.61	800.69	1086.47	2.72	25.16	11.77	1014.78
53	7.25	143.59	920.04	1231.02	0.61	800.76	1086.41	2.72	25.15	11.77	1014.78
54	7.25	143.43	920.05	1231.03	0.61	800.84	1086.36	2.72	25.14	11.77	1014.78
55	7.25	141.90	920.49	1230.97	0.61	800.08	1086.65	2.71	25.05	11.77	1014.85
56	7.25	140.65	920.35	1231.24	0.61	800.31	1086.58	2.71	25.07	11.78	1014.84
57	7.25	139.57	920.13	1231.41	0.61	800.41	1086.82	2.71	25.07	11.76	1014.83
58	7.25	138.68	920.28	1231.42	0.61	800.42	1086.62	2.71	25.06	11.77	1014.83
59	7.25	138.05	919.59	1230.96	0.61	800.12	1087.44	2.71	25.04	11.76	1014.86
60	7.25	137.44	919.61	1231.04	0.61	800.18	1087.42	2.71	25.05	11.75	1014.83
61	7.25	136.86	919.73	1231.29	0.61	800.34	1087.27	2.71	25.04	11.75	1014.83
62	7.25	136.26	919.64	1231.24	0.61	800.30	1087.38	2.70	25.01	11.75	1014.85
63	7.25	135.73	919.51	1231.00	0.61	800.15	1087.30	2.70	25.02	11.75	1014.82
64	7.25	135.63	919.49	1230.96	0.61	800.12	1087.29	2.70	25.02	11.75	1014.82
65	7.25	135.16	919.71	1231.66	0.61	800.60	1086.90	2.70	24.98	11.74	1014.84
66	7.25	134.70	920.05	1231.73	0.62	800.78	1087.20	2.70	24.98	11.75	1014.82
67	7.25	133.88	919.80	1231.57	0.61	800.53	1087.45	2.70	24.97	11.73	1014.81
68	7.25	133.45	919.50	1231.85	0.62	800.70	1087.57	2.70	24.97	11.74	1014.79
69	7.25	133.07	919.49	1231.52	0.61	800.49	1087.57	2.70	24.96	11.74	1014.87
70	7.25	132.73	919.35	1231.66	0.61	800.58	1087.72	2.70	24.96	11.72	1014.88



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
71	7.25	132.38	919.56	1231.74	0.62	800.63	1087.48	2.70	24.92	11.73	1014.87
72	7.25	131.99	919.35	1231.70	0.61	800.60	1087.72	2.70	24.93	11.72	1014.92
73	7.25	131.65	919.44	1231.80	0.62	800.67	1087.61	2.70	24.93	11.72	1014.88
74	7.25	131.32	919.37	1231.92	0.62	800.75	1087.70	2.70	24.93	11.72	1014.89
75	7.25	131.01	919.35	1231.80	0.62	800.67	1087.72	2.70	24.92	11.72	1014.89
76	7.25	130.77	919.44	1232.15	0.62	800.90	1087.62	2.70	24.90	11.71	1014.90
77	7.25	130.49	919.45	1232.10	0.62	800.87	1087.61	2.70	24.90	11.71	1014.90
78	7.25	130.24	919.44	1232.21	0.62	800.94	1087.62	2.69	24.89	11.71	1014.89
79	7.25	129.96	919.32	1232.04	0.62	800.82	1087.76	2.69	24.88	11.71	1014.91
80	7.25	129.70	919.39	1232.10	0.62	800.86	1087.68	2.69	24.85	11.71	1014.92
81	7.25	129.65	919.39	1232.10	0.62	800.86	1087.68	2.69	24.84	11.71	1014.92
82	7.25	129.41	919.33	1232.20	0.62	800.94	1087.70	2.69	24.84	11.71	1014.90
83	7.25	128.88	919.36	1232.37	0.62	801.04	1087.64	2.69	24.82	11.71	1014.86
84	7.25	128.62	919.43	1232.24	0.62	800.96	1087.63	2.69	24.81	11.70	1014.89
85	7.25	128.35	919.65	1232.68	0.62	801.24	1087.37	2.68	24.80	11.70	1014.92
86	7.25	128.12	919.74	1232.64	0.62	801.21	1087.26	2.68	24.80	11.71	1014.88
87	7.25	127.85	919.74	1232.92	0.62	801.39	1087.26	2.68	24.80	11.70	1014.88
88	7.25	127.58	919.63	1232.51	0.62	801.13	1087.39	2.68	24.77	11.71	1014.88
89	7.25	127.34	919.67	1232.80	0.62	801.32	1087.35	2.68	24.74	11.70	1014.88
90	7.25	127.06	919.67	1232.58	0.62	801.18	1087.34	2.68	24.74	11.71	1014.90
91	7.25	126.81	919.70	1232.88	0.62	801.37	1087.31	2.68	24.73	11.70	1014.88
92	7.25	126.53	919.77	1232.68	0.62	801.24	1087.23	2.68	24.74	11.71	1014.86
93	7.25	126.27	919.78	1232.96	0.62	801.42	1087.22	2.68	24.72	11.70	1014.87
94	7.25	126.02	919.80	1232.74	0.62	801.28	1087.19	2.67	24.71	11.71	1014.90
95	7.25	125.75	919.76	1232.80	0.62	801.32	1087.24	2.67	24.70	11.71	1014.90
96	7.25	125.50	919.74	1232.69	0.62	801.25	1087.26	2.67	24.68	11.71	1014.93
97	7.25	125.23	919.75	1232.66	0.62	801.23	1087.25	2.67	24.68	11.71	1014.91
98	7.25	125.18	919.75	1232.65	0.62	801.22	1087.25	2.67	24.68	11.71	1014.91
99	7.25	124.93	919.75	1232.82	0.62	801.24	1087.22	2.67	24.68	11.70	1014.92
100	7.25	124.67	919.78	1232.69	0.62	801.42	1087.12	2.67	24.65	11.71	1014.85
101	7.25	124.19	919.86	1232.96	0.62	801.24	1087.16	2.67	24.66	11.70	1014.88
102	7.25	123.92	919.80	1232.91	0.62	801.38	1087.20	2.67	24.64	11.70	1014.84
103	7.25	123.69	919.81	1232.64	0.62	801.21	1087.18	2.67	24.64	11.71	1014.88
104	7.25	123.48	919.86	1233.02	0.62	801.46	1087.12	2.67	24.64	11.70	1014.89
105	7.25	123.21	919.81	1232.67	0.62	801.24	1087.18	2.67	24.64	11.71	1014.85
106	7.25	122.95	919.80	1232.92	0.62	801.40	1087.19	2.67	24.63	11.70	1014.86
107	7.25	122.72	919.86	1232.75	0.62	801.29	1087.13	2.66	24.62	11.71	1014.87
108	7.25	122.46	919.91	1233.08	0.62	801.50	1087.06	2.67	24.63	11.70	1014.86
109	7.25	122.22	919.88	1232.78	0.62	801.31	1087.10	2.66	24.61	11.71	1014.90



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
110	7.25	121.98	919.89	1233.04	0.62	801.48	1087.09	2.67	24.63	11.70	1014.88
111	7.25	121.74	919.85	1232.70	0.62	801.26	1087.14	2.66	24.60	11.71	1014.88
112	7.25	121.50	919.88	1233.03	0.62	801.47	1087.10	2.66	24.59	11.70	1014.91
113	7.25	121.24	919.85	1232.70	0.62	801.25	1087.14	2.66	24.58	11.71	1014.89
114	7.25	121.03	919.83	1232.94	0.62	801.41	1087.25	2.66	24.59	11.70	1014.92
115	7.25	120.79	919.75	1232.57	0.62	801.17	1087.21	2.66	24.60	11.71	1014.89
116	7.25	120.74	919.74	1232.53	0.62	801.14	1087.21	2.66	24.60	11.71	1014.88
117	7.25	120.54	919.78	1232.91	0.62	801.19	1087.18	2.66	24.57	11.70	1014.89
118	7.25	120.08	919.81	1232.64	0.62	801.46	1087.13	2.66	24.57	11.71	1014.84
119	7.25	119.86	919.81	1232.66	0.62	801.25	1087.18	2.66	24.56	11.70	1014.88
120	7.25	119.65	919.84	1233.00	0.62	801.45	1087.14	2.66	24.57	11.71	1014.90
121	7.23	120.51	919.74	1231.67	0.61	800.59	1087.26	2.66	24.55	11.74	1014.92
122	7.23	119.94	918.97	1230.38	0.61	799.75	1088.18	2.65	24.47	11.75	1014.94
123	7.24	118.53	919.08	1230.73	0.61	799.97	1088.05	2.64	24.39	11.74	1014.93
124	7.24	117.63	919.09	1231.17	0.61	800.26	1088.03	2.64	24.37	11.73	1014.91
125	7.25	117.05	918.96	1231.11	0.61	800.22	1088.19	2.63	24.35	11.73	1014.90
126	7.24	116.61	918.95	1231.16	0.61	800.25	1088.20	2.63	24.32	11.72	1014.94
127	7.25	116.04	919.12	1231.39	0.61	800.41	1088.00	2.63	24.33	11.72	1014.93
128	7.25	115.62	919.15	1231.56	0.61	800.51	1087.96	2.63	24.33	11.72	1014.94
129	7.25	115.15	919.18	1231.71	0.61	800.61	1087.92	2.63	24.31	11.72	1014.92
130	7.25	114.79	919.10	1231.72	0.61	800.62	1088.47	2.63	24.34	11.71	1014.90
131	7.25	114.71	919.09	1231.72	0.61	800.62	1088.55	2.63	24.34	11.71	1014.90
132	7.25	114.41	918.66	1231.32	0.61	800.40	1088.43	2.63	24.33	11.71	1014.94
133	7.25	114.14	918.76	1231.37	0.61	800.38	1088.56	2.64	24.34	11.71	1014.94
134	7.25	113.68	918.64	1231.37	0.61	800.39	1088.49	2.64	24.34	11.70	1014.96
135	7.25	113.33	918.81	1231.75	0.61	800.63	1088.36	2.64	24.36	11.71	1014.93
136	7.25	113.12	918.86	1231.63	0.61	800.56	1088.31	2.64	24.35	11.70	1014.91
137	7.25	112.91	918.87	1232.00	0.62	800.80	1088.29	2.64	24.35	11.69	1014.95
138	7.25	112.73	918.85	1231.66	0.61	800.58	1088.32	2.64	24.35	11.70	1014.99
139	7.25	112.56	918.75	1231.82	0.62	800.69	1088.44	2.64	24.37	11.69	1014.93
140	7.25	112.45	918.74	1231.63	0.61	800.56	1088.45	2.64	24.38	11.70	1014.94
141	7.25	112.37	918.75	1231.84	0.62	800.70	1088.43	2.64	24.41	11.69	1014.90
142	7.26	112.24	918.74	1231.63	0.61	800.56	1088.44	2.64	24.38	11.70	1014.94
143	7.26	112.16	918.71	1231.94	0.62	800.76	1088.49	2.64	24.39	11.69	1014.90
144	7.25	112.09	918.70	1231.69	0.61	800.60	1088.49	2.64	24.39	11.70	1014.88
145	7.25	112.01	918.63	1231.96	0.62	800.77	1088.57	2.64	24.41	11.68	1014.92
146	7.26	111.94	918.70	1231.98	0.62	800.79	1088.49	2.64	24.40	11.69	1014.95
147	7.26	111.87	918.72	1232.16	0.62	800.90	1088.47	2.64	24.41	11.68	1014.93
148	7.26	111.80	918.77	1232.17	0.62	800.90	1088.42	2.64	24.43	11.68	1014.86



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
149	7.26	111.78	918.78	1232.18	0.62	800.90	1088.41	2.64	24.43	11.68	1014.85
150	7.25	111.70	918.78	1232.15	0.62	800.95	1088.49	2.64	24.41	11.68	1014.94
151	7.26	111.59	918.70	1232.23	0.62	800.90	1088.42	2.64	24.41	11.68	1014.89
152	7.25	111.44	918.76	1232.34	0.62	801.02	1088.47	2.64	24.39	11.68	1014.93
153	7.26	111.33	918.72	1232.09	0.62	800.86	1088.45	2.64	24.39	11.68	1014.94
154	7.26	111.25	918.70	1232.33	0.62	801.02	1088.50	2.65	24.43	11.68	1014.94
155	7.25	111.14	918.70	1232.14	0.62	800.89	1088.50	2.64	24.42	11.68	1014.89
156	7.25	111.02	918.69	1232.32	0.62	801.01	1088.50	2.65	24.42	11.68	1014.87
157	7.25	110.93	918.72	1232.19	0.62	800.92	1088.47	2.65	24.43	11.68	1014.86
158	7.25	110.81	918.68	1232.36	0.62	801.03	1088.52	2.65	24.43	11.67	1014.87
159	7.25	110.73	918.63	1232.16	0.62	800.90	1088.58	2.65	24.42	11.68	1014.94
160	7.25	110.63	918.60	1232.27	0.62	800.98	1088.61	2.65	24.43	11.67	1014.93
161	7.25	110.51	918.58	1232.14	0.62	800.89	1088.63	2.65	24.43	11.68	1014.97
162	7.25	110.40	918.61	1232.43	0.62	801.08	1088.60	2.65	24.43	11.67	1014.90
163	7.25	110.30	918.63	1232.28	0.62	800.98	1088.58	2.65	24.44	11.67	1014.90
164	7.25	110.21	918.64	1232.55	0.62	801.15	1088.57	2.65	24.45	11.67	1014.95
165	7.25	110.10	918.64	1232.31	0.62	801.00	1088.61	2.65	24.46	11.67	1014.92
166	7.25	110.08	918.65	1232.29	0.62	800.99	1088.62	2.65	24.47	11.67	1014.92
167	7.25	109.97	918.60	1232.56	0.62	801.02	1088.53	2.65	24.45	11.66	1014.95
168	7.25	109.90	918.67	1232.36	0.62	801.21	1088.58	2.65	24.47	11.67	1014.95
169	7.25	109.68	918.63	1232.39	0.62	801.07	1088.51	2.65	24.48	11.66	1014.99
170	7.25	109.57	918.67	1232.69	0.62	801.25	1088.53	2.65	24.49	11.67	1014.92
171	7.25	109.50	918.72	1232.47	0.62	801.10	1088.47	2.65	24.50	11.67	1014.86
172	7.25	109.40	918.70	1232.72	0.62	801.27	1088.49	2.66	24.51	11.66	1014.91
173	7.25	109.28	918.68	1232.41	0.62	801.07	1088.52	2.66	24.51	11.67	1014.90
174	7.25	109.18	918.66	1232.71	0.62	801.26	1088.54	2.66	24.52	11.66	1014.91
175	7.25	109.07	918.69	1232.50	0.62	801.13	1088.50	2.66	24.52	11.67	1014.90
176	7.25	108.99	918.68	1232.70	0.62	801.25	1088.52	2.66	24.54	11.66	1014.84
177	7.25	108.89	918.69	1232.55	0.62	801.16	1088.51	2.66	24.55	11.67	1014.84
178	7.25	108.81	918.73	1232.73	0.62	801.27	1088.46	2.66	24.56	11.66	1014.89
179	7.25	108.71	918.76	1232.65	0.62	801.22	1088.43	2.66	24.56	11.67	1014.88
180	7.25	108.59	918.75	1232.70	0.62	801.25	1088.44	2.66	24.56	11.67	1014.91
181	7.25	108.49	918.74	1232.70	0.62	801.25	1088.44	2.66	24.56	11.67	1014.90
182	7.25	108.47	918.74	1232.70	0.62	801.25	1088.44	2.66	24.56	11.67	1014.90
183	7.25	108.39	918.77	1232.65	0.62	801.31	1088.44	2.66	24.59	11.67	1014.91
184	7.25	108.31	918.75	1232.78	0.62	801.24	1088.43	2.66	24.58	11.66	1014.92
185	7.25	108.16	918.75	1232.67	0.62	801.29	1088.45	2.67	24.59	11.67	1014.90
186	7.25	108.08	918.74	1232.62	0.62	801.21	1088.45	2.67	24.60	11.66	1014.89
187	7.25	107.99	918.73	1232.73	0.62	801.28	1088.46	2.67	24.61	11.67	1014.91



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
188	7.25	107.93	918.76	1232.58	0.62	801.17	1088.43	2.66	24.58	11.67	1014.94
189	7.25	107.85	918.71	1232.76	0.62	801.29	1088.48	2.66	24.59	11.66	1014.91
190	7.25	107.79	918.75	1232.60	0.62	801.19	1088.44	2.66	24.59	11.67	1014.95
191	7.25	107.73	918.72	1232.78	0.62	801.31	1088.47	2.67	24.60	11.66	1014.93
192	7.25	107.66	918.79	1232.66	0.62	801.23	1088.38	2.67	24.60	11.67	1014.92
193	7.25	107.59	918.74	1232.84	0.62	801.35	1088.45	2.67	24.59	11.66	1014.96
194	7.25	107.52	918.72	1232.57	0.62	801.17	1088.48	2.66	24.59	11.67	1014.91
195	7.25	107.46	918.70	1232.78	0.62	801.31	1088.49	2.66	24.58	11.66	1014.86
196	7.25	107.40	918.61	1232.43	0.62	801.08	1088.60	2.66	24.59	11.67	1014.86
197	7.25	107.34	918.67	1232.77	0.62	801.30	1088.54	2.66	24.57	11.66	1014.87
198	7.25	107.29	918.65	1232.49	0.62	801.12	1088.56	2.66	24.56	11.67	1014.86
199	7.25	107.22	918.63	1232.71	0.62	801.26	1088.61	2.66	24.56	11.66	1014.85
200	7.25	107.17	918.60	1232.42	0.62	801.28	1088.60	2.66	24.55	11.67	1014.86
201	7.25	107.16	918.59	1232.39	0.62	801.29	1088.60	2.66	24.55	11.67	1014.86
202	7.25	107.09	918.61	1232.73	0.62	801.07	1088.57	2.66	24.55	11.66	1014.82
203	7.25	107.01	918.64	1232.78	0.62	801.30	1088.56	2.66	24.56	11.67	1014.83
204	7.25	106.95	918.60	1232.44	0.62	801.09	1088.61	2.66	24.53	11.66	1014.84
205	7.25	106.90	918.60	1232.75	0.62	801.29	1088.61	2.66	24.54	11.66	1014.83
206	7.25	106.83	918.54	1232.45	0.62	801.10	1088.69	2.66	24.56	11.66	1014.90
207	7.25	106.81	918.59	1232.78	0.62	801.31	1088.63	2.66	24.54	11.66	1014.91
208	7.25	106.75	918.52	1232.47	0.62	801.11	1088.71	2.66	24.53	11.66	1014.89
209	7.25	106.71	918.51	1232.69	0.62	801.25	1088.73	2.66	24.53	11.66	1014.87
210	7.25	106.65	918.52	1232.43	0.62	801.08	1088.71	2.66	24.51	11.66	1014.89
211	7.25	106.64	918.49	1232.64	0.62	801.21	1088.75	2.66	24.51	11.66	1014.86
212	7.25	106.59	918.48	1232.43	0.62	801.08	1088.75	2.66	24.52	11.66	1014.86
213	7.25	106.53	918.48	1232.69	0.62	801.25	1088.76	2.66	24.51	11.65	1014.86
214	7.25	106.50	918.49	1232.47	0.62	801.11	1088.76	2.65	24.50	11.66	1014.85
215	7.25	106.49	918.49	1232.45	0.62	801.09	1088.76	2.65	24.50	11.66	1014.85
216	7.25	106.45	918.48	1232.75	0.62	801.10	1088.75	2.66	24.50	11.65	1014.86
217	7.25	106.42	918.49	1232.48	0.62	801.32	1088.75	2.65	24.47	11.66	1014.87
218	7.25	106.32	918.49	1232.46	0.62	801.11	1088.76	2.65	24.48	11.65	1014.92
219	7.25	106.29	918.44	1232.73	0.62	801.28	1088.81	2.65	24.47	11.66	1014.85
220	7.25	106.25	918.44	1232.51	0.62	801.13	1088.81	2.65	24.45	11.66	1014.91
221	7.25	106.19	918.44	1232.78	0.62	801.31	1088.80	2.65	24.45	11.65	1014.92
222	7.25	106.15	918.42	1232.57	0.62	801.17	1088.83	2.65	24.46	11.66	1014.89
223	7.25	106.14	918.43	1232.83	0.62	801.34	1088.81	2.65	24.46	11.65	1014.93
224	7.25	106.08	918.41	1232.55	0.62	801.16	1088.84	2.65	24.44	11.66	1014.89
225	7.25	106.07	918.42	1232.76	0.62	801.29	1088.83	2.65	24.44	11.65	1014.89
226	7.25	106.03	918.39	1232.65	0.62	801.22	1088.86	2.65	24.45	11.65	1014.89



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
227	7.25	105.97	918.40	1232.76	0.62	801.30	1088.85	2.65	24.43	11.65	1014.90
228	7.25	105.94	918.37	1232.64	0.62	801.22	1088.89	2.65	24.41	11.65	1014.93
229	7.25	105.91	918.40	1232.77	0.62	801.30	1088.85	2.65	24.42	11.65	1014.88
230	7.25	105.85	918.36	1232.66	0.62	801.23	1088.90	2.65	24.42	11.65	1014.93
231	7.25	105.83	918.39	1232.72	0.62	801.27	1088.91	2.65	24.41	11.65	1014.92
232	7.25	105.82	918.39	1232.72	0.62	801.27	1088.92	2.65	24.41	11.65	1014.92
233	7.25	105.80	918.35	1232.61	0.62	801.20	1088.91	2.65	24.40	11.65	1014.92
234	7.25	105.75	918.35	1232.74	0.62	801.20	1088.94	2.64	24.40	11.65	1014.89
235	7.25	105.70	918.39	1232.75	0.62	801.28	1088.86	2.64	24.39	11.65	1014.90
236	7.25	105.66	918.34	1232.68	0.62	801.24	1088.93	2.64	24.38	11.65	1014.90
237	7.25	105.64	918.35	1232.70	0.62	801.25	1088.91	2.64	24.38	11.65	1014.91
238	7.25	105.59	918.34	1232.80	0.62	801.32	1088.92	2.64	24.37	11.65	1014.90
239	7.25	105.57	918.34	1232.72	0.62	801.27	1088.92	2.64	24.37	11.65	1014.88
240	7.25	105.54	918.35	1232.77	0.62	801.30	1088.91	2.64	24.37	11.65	1014.86
241	7.25	105.52	918.33	1232.79	0.62	801.32	1088.93	2.64	24.37	11.64	1014.88
242	7.25	105.48	918.36	1232.78	0.62	801.30	1088.90	2.64	24.36	11.65	1014.86
243	7.25	105.45	918.33	1232.84	0.62	801.35	1088.93	2.64	24.37	11.64	1014.86
244	7.25	105.41	918.32	1232.70	0.62	801.25	1088.95	2.64	24.33	11.65	1014.85
245	7.25	105.37	918.36	1232.88	0.62	801.37	1088.91	2.64	24.34	11.64	1014.87
246	7.25	105.37	918.36	1232.90	0.62	801.39	1088.91	2.64	24.34	11.64	1014.87
247	7.25	105.33	918.35	1232.75	0.62	801.41	1088.87	2.64	24.33	11.65	1014.79
248	7.25	105.30	918.38	1232.93	0.62	801.30	1088.91	2.64	24.34	11.64	1014.85
249	7.25	105.27	918.35	1232.84	0.62	801.34	1088.93	2.64	24.33	11.65	1014.84
250	7.25	105.27	918.37	1232.75	0.62	801.29	1088.89	2.64	24.33	11.64	1014.78
251	7.25	105.22	918.35	1232.91	0.62	801.39	1088.90	2.64	24.31	11.64	1014.85
252	7.25	105.20	918.34	1232.75	0.62	801.29	1088.92	2.63	24.31	11.65	1014.83
253	7.25	105.17	918.33	1232.90	0.62	801.38	1088.94	2.64	24.32	11.64	1014.84
254	7.25	105.14	918.33	1232.78	0.62	801.31	1088.93	2.64	24.32	11.65	1014.81
255	7.25	105.14	918.32	1232.90	0.62	801.39	1088.95	2.64	24.32	11.64	1014.77
256	7.25	105.11	918.30	1232.72	0.62	801.27	1088.97	2.64	24.31	11.65	1014.81
257	7.25	105.08	918.30	1232.89	0.62	801.38	1088.97	2.64	24.31	11.64	1014.76
258	7.25	105.06	918.30	1232.74	0.62	801.28	1088.97	2.64	24.31	11.65	1014.82
259	7.25	105.05	918.25	1232.88	0.62	801.37	1089.03	2.64	24.31	11.64	1014.84
260	7.25	105.03	918.29	1232.78	0.62	801.31	1088.98	2.63	24.29	11.64	1014.77
261	7.25	105.03	918.31	1232.94	0.62	801.41	1088.96	2.63	24.29	11.64	1014.75
262	7.25	105.03	918.29	1232.79	0.62	801.31	1088.96	2.63	24.29	11.64	1014.79
263	7.25	104.99	918.30	1232.95	0.62	801.32	1089.00	2.63	24.27	11.64	1014.76
264	7.25	104.98	918.30	1232.96	0.62	801.31	1089.00	2.63	24.27	11.64	1014.76
265	7.25	104.96	918.27	1232.80	0.62	801.43	1088.96	2.63	24.26	11.64	1014.77



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
266	7.25	104.94	918.29	1232.82	0.62	801.34	1088.98	2.63	24.27	11.64	1014.77
267	7.25	104.96	918.30	1233.05	0.62	801.48	1088.97	2.63	24.29	11.64	1014.83
268	7.25	104.92	918.30	1232.81	0.62	801.33	1088.97	2.63	24.28	11.64	1014.83
269	7.25	104.94	918.30	1232.99	0.62	801.45	1088.97	2.63	24.26	11.64	1014.89
270	7.25	104.91	918.29	1232.79	0.62	801.31	1088.98	2.63	24.27	11.64	1014.83
271	7.25	104.87	918.30	1233.04	0.62	801.47	1088.97	2.63	24.27	11.64	1014.74
272	7.25	104.87	918.27	1232.74	0.62	801.28	1089.01	2.63	24.28	11.64	1014.73
273	7.25	104.85	918.28	1233.04	0.62	801.47	1088.99	2.63	24.26	11.64	1014.70
274	7.25	104.85	918.30	1232.81	0.62	801.33	1088.97	2.63	24.24	11.64	1014.70
275	7.25	104.81	918.27	1232.97	0.62	801.43	1089.01	2.63	24.26	11.64	1014.70
276	7.25	104.83	918.28	1232.81	0.62	801.33	1089.00	2.63	24.25	11.64	1014.68
277	7.25	104.82	918.24	1233.01	0.62	801.46	1089.04	2.63	24.26	11.63	1014.64
278	7.25	104.81	918.27	1232.80	0.62	801.32	1089.01	2.63	24.24	11.64	1014.65
279	7.25	104.80	918.25	1232.99	0.62	801.44	1089.03	2.63	24.26	11.64	1014.70
280	7.25	104.78	918.24	1232.79	0.62	801.31	1089.07	2.63	24.25	11.64	1014.63
281	7.25	104.76	918.21	1232.94	0.62	801.41	1089.08	2.63	24.24	11.64	1014.71
282	7.25	104.75	918.21	1232.95	0.62	801.42	1089.08	2.63	24.24	11.63	1014.72
283	7.25	104.78	918.20	1232.78	0.62	801.44	1089.09	2.63	24.23	11.64	1014.71
284	7.25	104.76	918.20	1232.76	0.62	801.30	1089.10	2.63	24.22	11.63	1014.69
285	7.25	104.75	918.18	1232.94	0.62	801.41	1089.12	2.63	24.21	11.64	1014.71
286	7.25	104.77	918.16	1232.75	0.62	801.29	1089.14	2.63	24.22	11.64	1014.68
287	7.25	104.76	918.17	1232.91	0.62	801.39	1089.12	2.63	24.22	11.63	1014.67
288	7.25	104.76	918.18	1232.81	0.62	801.33	1089.11	2.62	24.21	11.64	1014.69
289	7.25	104.73	918.20	1233.00	0.62	801.45	1089.09	2.63	24.22	11.63	1014.65
290	7.25	104.76	918.20	1232.89	0.62	801.38	1089.08	2.63	24.22	11.64	1014.76
291	7.25	104.75	918.19	1232.97	0.62	801.43	1089.10	2.62	24.21	11.63	1014.76
292	7.25	104.76	918.20	1233.01	0.62	801.46	1089.08	2.63	24.23	11.63	1014.72
293	7.25	104.72	918.21	1233.00	0.62	801.45	1089.08	2.62	24.20	11.63	1014.69
294	7.25	104.73	918.21	1232.97	0.62	801.43	1089.07	2.62	24.21	11.63	1014.72
295	7.25	104.74	918.15	1232.92	0.62	801.40	1089.14	2.62	24.21	11.63	1014.74
296	7.25	104.74	918.18	1233.05	0.62	801.48	1089.11	2.62	24.21	11.63	1014.71
297	7.25	104.74	918.21	1232.90	0.62	801.39	1089.11	2.63	24.20	11.64	1014.72
298	7.25	104.74	918.22	1232.89	0.62	801.38	1089.10	2.63	24.20	11.64	1014.72
299	7.25	104.74	918.19	1233.15	0.62	801.38	1089.08	2.62	24.20	11.63	1014.72
300	7.25	104.76	918.20	1232.91	0.62	801.57	1089.09	2.62	24.21	11.64	1014.75



WATER QUALITY PARAMETER READINGS

Project: Cambridge WWTP Relocation

Client: Anglain Water Services Limited

Engineer: Mott MacDonald Limited

Position: BH02

Date: 16/11/2020

Operative: DGWD

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 755044

Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
1	8.26	279.86	800.30	1080.31	0.54	702.20	1249.53	6.35	58.37	11.43	1016.58
2	8.26	279.86	800.30	1080.31	0.54	702.20	1249.53	6.35	58.37	11.43	1016.58
3	8.23	281.51	800.01	1077.90	0.53	700.16	1250.24	6.19	54.19	11.50	1016.55
4	8.24	281.10	799.88	1077.34	0.54	700.69	1249.69	5.74	52.46	11.52	1016.58
5	8.25	280.27	800.26	1077.81	0.53	700.62	1249.55	5.55	50.88	11.51	1016.59
6	8.25	279.65	800.30	1078.04	0.54	700.73	1249.52	5.40	49.54	11.51	1016.54
7	8.26	279.24	800.32	1078.01	0.54	700.71	1249.50	5.29	48.54	11.51	1016.59
8	8.26	279.05	800.29	1077.90	0.54	700.64	1249.55	5.21	47.78	11.52	1016.61
9	8.26	278.87	800.25	1078.08	0.54	700.75	1249.61	5.13	47.11	11.51	1016.59
10	8.26	278.76	800.24	1077.85	0.53	700.60	1249.63	5.08	46.58	11.52	1016.57
11	8.26	278.44	800.27	1078.07	0.54	700.74	1249.58	5.03	46.12	11.51	1016.56
12	8.26	278.34	800.16	1077.81	0.53	700.58	1249.75	4.99	45.78	11.51	1016.55
13	8.26	278.31	800.14	1077.78	0.53	700.56	1249.78	4.98	45.71	11.51	1016.55
14	8.27	278.06	800.19	1078.05	0.54	700.73	1249.70	4.93	45.25	11.51	1016.57
15	8.27	277.81	800.12	1077.79	0.53	700.57	1249.81	4.89	44.88	11.51	1016.55
16	8.27	277.53	800.32	1078.23	0.54	700.85	1249.50	4.86	44.59	11.51	1016.57
17	8.27	277.38	800.15	1077.78	0.53	700.56	1249.77	4.84	44.38	11.51	1016.58
18	8.27	277.24	800.18	1078.01	0.54	700.71	1249.74	4.82	44.07	11.51	1016.59
19	8.27	277.33	800.17	1077.82	0.53	700.58	1249.78	4.80	43.91	11.51	1016.57
20	8.27	277.24	800.14	1077.98	0.54	700.54	1249.77	4.78	43.81	11.51	1016.60
21	8.27	277.03	800.15	1077.77	0.54	700.73	1249.77	4.76	43.63	11.51	1016.59
22	8.27	276.88	800.18	1077.83	0.53	700.60	1249.72	4.74	43.53	11.50	1016.58
23	8.28	276.79	800.32	1078.27	0.54	700.88	1249.50	4.73	43.43	11.50	1016.57
24	8.28	276.69	800.37	1078.13	0.54	700.79	1249.42	4.72	43.33	11.51	1016.56
25	8.28	276.55	800.33	1078.35	0.54	700.93	1249.49	4.72	43.27	11.50	1016.58
26	8.28	276.47	800.23	1078.01	0.54	700.71	1249.64	4.71	43.24	11.51	1016.60
27	8.28	276.35	800.19	1078.23	0.54	700.85	1249.71	4.70	43.14	11.50	1016.60
28	8.28	276.29	800.22	1078.12	0.54	700.78	1249.66	4.70	43.10	11.50	1016.61
29	8.28	276.22	800.18	1078.13	0.54	700.78	1249.73	4.69	42.99	11.50	1016.64
30	8.28	276.20	800.17	1078.12	0.54	700.78	1249.73	4.68	42.97	11.50	1016.65



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
31	8.28	276.09	800.29	1078.19	0.54	700.83	1249.54	4.68	42.95	11.51	1016.58
32	8.28	276.04	800.22	1078.06	0.54	700.74	1249.66	4.68	42.90	11.51	1016.58
33	8.28	275.95	800.21	1078.23	0.54	700.85	1249.67	4.67	42.81	11.50	1016.58
34	8.28	275.87	800.24	1078.04	0.54	700.73	1249.58	4.66	42.75	11.51	1016.61
35	8.28	275.79	800.27	1078.33	0.54	700.91	1249.71	4.66	42.67	11.50	1016.59
36	8.28	275.74	800.19	1077.99	0.54	700.87	1249.70	4.64	42.59	11.51	1016.60
37	8.28	275.68	800.19	1078.23	0.54	700.70	1249.74	4.63	42.51	11.50	1016.64
38	8.28	275.56	800.16	1078.16	0.54	700.79	1249.88	4.63	42.50	11.51	1016.63
39	8.28	275.50	800.11	1077.97	0.54	700.68	1249.85	4.63	42.44	11.50	1016.61
40	8.28	275.45	800.13	1078.20	0.54	700.83	1249.80	4.62	42.39	11.50	1016.59
41	8.28	275.37	800.12	1078.06	0.54	700.74	1249.81	4.62	42.38	11.50	1016.59
42	8.28	275.31	800.10	1078.11	0.54	700.77	1249.84	4.61	42.33	11.50	1016.62
43	8.28	275.26	800.08	1078.08	0.54	700.75	1249.88	4.61	42.31	11.50	1016.60
44	8.28	275.19	800.07	1078.06	0.54	700.74	1249.90	4.61	42.31	11.50	1016.62
45	8.28	275.15	800.06	1078.02	0.54	700.71	1249.90	4.61	42.26	11.50	1016.67
46	8.28	275.09	800.05	1078.04	0.54	700.72	1249.92	4.61	42.25	11.50	1016.62
47	8.28	275.05	800.08	1078.15	0.54	700.80	1249.88	4.61	42.25	11.50	1016.65
48	8.28	275.04	800.08	1078.17	0.54	700.81	1249.87	4.61	42.25	11.50	1016.65
49	8.28	275.02	800.06	1077.98	0.54	700.69	1249.90	4.61	42.25	11.50	1016.63
50	8.28	274.95	800.04	1078.15	0.54	700.80	1249.94	4.60	42.22	11.49	1016.67
51	8.28	274.91	800.05	1077.95	0.54	700.67	1249.97	4.60	42.17	11.50	1016.62
52	8.28	274.87	800.02	1078.18	0.53	700.64	1249.99	4.60	42.18	11.49	1016.60
53	8.28	274.82	800.01	1078.20	0.54	700.82	1249.95	4.60	42.15	11.50	1016.60
54	8.28	274.75	800.03	1077.99	0.54	700.69	1249.96	4.60	42.19	11.49	1016.64
55	8.28	274.71	800.05	1078.20	0.54	700.83	1249.93	4.59	42.14	11.50	1016.63
56	8.28	274.68	800.07	1078.10	0.54	700.76	1249.89	4.59	42.15	11.50	1016.60
57	8.28	274.63	800.09	1078.25	0.54	700.87	1249.87	4.60	42.15	11.49	1016.62
58	8.28	274.60	800.06	1078.14	0.54	700.79	1249.91	4.59	42.14	11.50	1016.65
59	8.28	274.57	800.00	1078.11	0.54	700.77	1250.01	4.59	42.14	11.49	1016.59
60	8.28	274.52	800.05	1078.21	0.54	700.83	1249.92	4.59	42.10	11.49	1016.63
61	8.28	274.49	800.05	1078.10	0.54	700.77	1249.92	4.59	42.11	11.50	1016.62
62	8.28	274.46	800.06	1078.23	0.54	700.85	1249.91	4.59	42.09	11.49	1016.61
63	8.28	274.42	800.07	1078.12	0.54	700.78	1249.90	4.59	42.08	11.50	1016.65
64	8.28	274.41	800.07	1078.11	0.54	700.77	1249.89	4.59	42.08	11.50	1016.66
65	8.28	274.39	800.08	1078.30	0.54	700.90	1249.88	4.58	42.05	11.49	1016.64
66	8.28	274.37	800.10	1078.12	0.54	700.78	1249.85	4.58	42.02	11.50	1016.64
67	8.28	274.37	800.09	1078.38	0.54	700.94	1249.86	4.58	42.04	11.49	1016.61
68	8.28	274.33	800.18	1078.25	0.54	700.86	1249.89	4.58	42.01	11.50	1016.62
69	8.28	274.31	800.08	1078.39	0.54	700.77	1249.90	4.58	42.00	11.49	1016.61



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
70	8.28	274.25	800.06	1078.36	0.54	700.92	1249.89	4.58	41.98	11.50	1016.65
71	8.28	274.23	800.08	1078.16	0.54	700.80	1249.87	4.57	41.95	11.49	1016.62
72	8.28	274.21	800.11	1078.40	0.54	700.96	1249.82	4.57	41.94	11.49	1016.63
73	8.28	274.17	800.09	1078.18	0.54	700.82	1249.86	4.57	41.95	11.50	1016.62
74	8.28	274.14	800.09	1078.39	0.54	700.95	1249.87	4.57	41.91	11.49	1016.64
75	8.28	274.13	799.94	1077.99	0.54	700.69	1250.09	4.57	41.91	11.50	1016.63
76	8.28	274.11	800.08	1078.35	0.54	700.93	1249.88	4.57	41.88	11.49	1016.65
77	8.28	274.07	800.07	1078.21	0.54	700.84	1249.88	4.56	41.85	11.49	1016.62
78	8.28	274.06	800.05	1078.33	0.54	700.91	1249.92	4.56	41.85	11.49	1016.61
79	8.28	274.03	800.07	1078.19	0.54	700.82	1249.89	4.56	41.83	11.50	1016.59
80	8.28	274.03	800.07	1078.17	0.54	700.81	1249.88	4.56	41.83	11.50	1016.59
81	8.28	273.99	800.05	1078.38	0.54	700.95	1249.92	4.56	41.84	11.49	1016.64
82	8.28	273.97	800.08	1078.25	0.54	700.86	1249.88	4.56	41.81	11.49	1016.62
83	8.28	273.95	800.08	1078.45	0.54	700.99	1249.88	4.56	41.80	11.49	1016.59
84	8.28	273.90	800.06	1078.19	0.54	700.82	1249.88	4.56	41.76	11.49	1016.67
85	8.28	273.91	800.08	1078.47	0.54	701.00	1249.89	4.55	41.73	11.49	1016.64
86	8.28	273.87	800.07	1078.22	0.54	701.02	1249.89	4.55	41.75	11.49	1016.67
87	8.28	273.84	800.07	1078.27	0.54	700.89	1249.86	4.55	41.73	11.48	1016.71
88	8.28	273.81	800.09	1078.47	0.54	701.01	1249.86	4.55	41.74	11.49	1016.70
89	8.28	273.81	800.07	1078.27	0.54	700.88	1249.89	4.54	41.68	11.49	1016.70
90	8.28	273.78	800.05	1078.45	0.54	700.99	1249.92	4.55	41.71	11.48	1016.67
91	8.28	273.76	800.06	1078.36	0.54	700.93	1249.90	4.54	41.67	11.49	1016.66
92	8.28	273.75	800.08	1078.50	0.54	701.02	1249.87	4.54	41.67	11.48	1016.69
93	8.28	273.72	800.08	1078.36	0.54	700.93	1249.88	4.54	41.67	11.49	1016.65
94	8.28	273.70	800.10	1078.46	0.54	701.00	1249.85	4.54	41.65	11.49	1016.67
95	8.28	273.69	800.14	1078.53	0.54	701.04	1249.78	4.54	41.64	11.49	1016.64
96	8.28	273.68	800.15	1078.54	0.54	701.05	1249.77	4.54	41.64	11.49	1016.64
97	8.28	273.67	800.09	1078.49	0.54	701.02	1249.86	4.54	41.67	11.48	1016.64
98	8.28	273.65	800.09	1078.57	0.54	701.07	1249.86	4.54	41.63	11.48	1016.63
99	8.28	273.64	800.09	1078.42	0.54	700.97	1249.86	4.54	41.63	11.49	1016.63
100	8.28	273.60	800.13	1078.66	0.54	701.13	1249.79	4.54	41.65	11.48	1016.65
101	8.28	273.60	800.12	1078.43	0.54	700.98	1249.88	4.54	41.58	11.49	1016.61
102	8.28	273.56	800.07	1078.61	0.54	700.96	1249.82	4.54	41.61	11.48	1016.62
103	8.28	273.55	800.11	1078.42	0.54	701.11	1249.83	4.54	41.61	11.49	1016.64
104	8.28	273.53	800.11	1078.42	0.54	700.98	1249.81	4.53	41.59	11.48	1016.62
105	8.28	273.50	800.13	1078.68	0.54	701.14	1249.80	4.53	41.56	11.49	1016.65
106	8.28	273.47	800.14	1078.45	0.54	700.99	1249.78	4.53	41.57	11.48	1016.65
107	8.28	273.43	800.07	1078.50	0.54	701.02	1249.90	4.53	41.57	11.48	1016.66
108	8.28	273.43	800.05	1078.49	0.54	701.02	1249.93	4.53	41.53	11.48	1016.67



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
109	8.27	273.41	800.03	1078.50	0.54	701.03	1249.95	4.53	41.57	11.48	1016.68
110	8.28	273.39	800.04	1078.49	0.54	701.02	1249.93	4.53	41.53	11.48	1016.64
111	8.28	273.37	800.01	1078.53	0.54	701.04	1249.98	4.53	41.56	11.48	1016.66
112	8.27	273.36	799.96	1078.34	0.54	700.92	1250.06	4.53	41.54	11.48	1016.66
113	8.27	273.36	799.95	1078.32	0.54	700.91	1250.07	4.53	41.54	11.48	1016.66
114	8.27	273.35	799.96	1078.36	0.54	700.93	1250.06	4.53	41.50	11.48	1016.65
115	8.27	273.32	800.00	1078.46	0.54	701.00	1250.00	4.53	41.51	11.48	1016.64
116	8.27	273.30	800.07	1078.60	0.54	701.09	1249.89	4.53	41.53	11.48	1016.64
117	8.27	273.30	800.10	1078.53	0.54	701.04	1249.95	4.53	41.45	11.48	1016.64
118	8.27	273.28	800.04	1078.53	0.54	701.07	1249.92	4.52	41.43	11.48	1016.64
119	8.27	273.25	800.05	1078.57	0.54	701.00	1249.90	4.52	41.46	11.48	1016.69
120	8.27	273.21	800.07	1078.61	0.54	701.09	1249.90	4.52	41.42	11.48	1016.68
121	8.27	273.19	800.05	1078.38	0.54	700.94	1249.92	4.52	41.45	11.48	1016.66
122	8.27	273.18	800.05	1078.62	0.54	701.10	1249.92	4.52	41.42	11.48	1016.68
123	8.27	273.17	800.08	1078.42	0.54	700.97	1249.88	4.52	41.41	11.49	1016.67
124	8.27	273.16	800.07	1078.67	0.54	701.13	1249.90	4.52	41.41	11.48	1016.67
125	8.27	273.15	800.08	1078.46	0.54	701.00	1249.88	4.51	41.38	11.49	1016.63
126	8.27	273.12	800.09	1078.68	0.54	701.14	1249.86	4.52	41.41	11.48	1016.71
127	8.27	273.10	800.09	1078.48	0.54	701.01	1249.86	4.51	41.35	11.49	1016.67
128	8.27	273.09	800.09	1078.46	0.54	701.00	1249.85	4.51	41.35	11.49	1016.66
129	8.27	273.07	800.09	1078.69	0.54	701.15	1249.86	4.51	41.38	11.48	1016.71
130	8.27	273.04	800.07	1078.41	0.54	700.97	1249.89	4.51	41.37	11.49	1016.66
131	8.27	273.05	800.08	1078.69	0.54	701.15	1249.87	4.51	41.39	11.48	1016.69
132	8.27	273.04	800.10	1078.49	0.54	701.20	1249.82	4.51	41.34	11.49	1016.70
133	8.27	272.99	800.11	1078.74	0.54	700.99	1249.85	4.51	41.32	11.48	1016.69
134	8.27	272.95	800.10	1078.59	0.54	701.07	1250.04	4.51	41.30	11.49	1016.69
135	8.27	272.92	800.08	1078.44	0.54	700.98	1249.89	4.50	41.30	11.48	1016.67
136	8.27	272.91	800.07	1078.66	0.54	701.13	1249.89	4.50	41.30	11.48	1016.70
137	8.24	275.11	799.35	1077.55	0.53	700.41	1251.02	4.49	41.20	11.48	1016.73
138	8.25	274.20	798.95	1077.50	0.53	700.38	1251.65	4.48	41.09	11.46	1016.69
139	8.26	273.65	798.82	1077.40	0.53	700.31	1251.85	4.48	41.01	11.46	1016.70
140	8.27	273.37	798.82	1077.54	0.53	700.40	1251.85	4.47	40.96	11.46	1016.73
141	8.27	273.16	798.83	1077.68	0.53	700.49	1251.84	4.46	40.90	11.45	1016.75
142	8.27	272.99	799.10	1077.90	0.53	700.63	1251.40	4.46	40.88	11.46	1016.72
143	8.27	272.95	799.14	1077.93	0.53	700.66	1251.34	4.46	40.87	11.46	1016.71
144	8.27	272.82	798.88	1077.81	0.53	700.57	1251.76	4.46	40.82	11.45	1016.69
145	8.28	272.72	798.89	1077.58	0.53	700.42	1251.74	4.45	40.80	11.46	1016.74
146	8.28	272.61	798.92	1077.82	0.53	700.59	1251.69	4.45	40.77	11.45	1016.71
147	8.28	272.52	798.91	1077.57	0.53	700.42	1251.71	4.45	40.78	11.46	1016.71



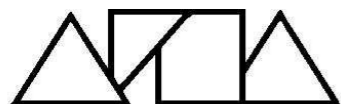
Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
148	8.28	272.43	798.92	1077.84	0.53	700.60	1251.72	4.45	40.78	11.45	1016.65
149	8.28	272.35	798.90	1077.59	0.53	700.64	1251.68	4.45	40.73	11.46	1016.70
150	8.28	272.20	798.92	1077.58	0.53	700.44	1251.67	4.44	40.72	11.45	1016.65
151	8.28	272.14	798.93	1077.83	0.53	700.59	1251.64	4.44	40.71	11.46	1016.68
152	8.28	272.10	798.93	1077.70	0.53	700.50	1251.67	4.44	40.73	11.46	1016.68
153	8.28	272.07	798.95	1077.78	0.53	700.55	1251.64	4.44	40.73	11.46	1016.69
154	8.28	272.02	798.97	1077.83	0.53	700.59	1251.62	4.45	40.73	11.45	1016.71
155	8.28	271.98	798.98	1077.79	0.53	700.56	1251.60	4.44	40.71	11.46	1016.68
156	8.28	271.96	799.01	1077.88	0.53	700.62	1251.56	4.44	40.69	11.45	1016.65
157	8.28	271.92	799.00	1077.72	0.53	700.52	1251.57	4.44	40.70	11.46	1016.67
158	8.28	271.92	799.00	1077.70	0.53	700.50	1251.57	4.44	40.70	11.46	1016.67
159	8.28	271.88	799.01	1077.94	0.53	700.66	1251.55	4.44	40.69	11.45	1016.73
160	8.28	271.84	799.01	1077.71	0.53	700.51	1251.54	4.44	40.68	11.46	1016.71
161	8.28	271.84	799.03	1078.00	0.53	700.70	1251.52	4.44	40.68	11.45	1016.72
162	8.28	271.80	799.05	1077.75	0.53	700.54	1251.49	4.44	40.65	11.46	1016.69
163	8.28	271.77	799.03	1077.96	0.53	700.53	1251.46	4.44	40.67	11.45	1016.67
164	8.28	271.77	799.06	1077.75	0.53	700.67	1251.50	4.44	40.66	11.46	1016.68
165	8.28	271.76	799.04	1077.66	0.53	700.49	1251.51	4.44	40.69	11.45	1016.71
166	8.28	271.73	799.05	1077.93	0.53	700.65	1251.49	4.44	40.69	11.46	1016.69
167	8.28	271.70	799.06	1077.73	0.53	700.53	1251.47	4.44	40.66	11.46	1016.67
168	8.28	271.68	799.04	1077.90	0.53	700.63	1251.50	4.44	40.69	11.46	1016.73
169	8.28	271.68	799.06	1077.77	0.53	700.55	1251.46	4.44	40.68	11.46	1016.75
170	8.28	271.65	799.04	1077.86	0.53	700.61	1251.50	4.44	40.68	11.46	1016.71
171	8.28	271.64	799.04	1077.73	0.53	700.53	1251.51	4.44	40.67	11.46	1016.74
172	8.28	271.62	799.06	1077.80	0.53	700.57	1251.47	4.44	40.67	11.46	1016.72
173	8.28	271.60	799.06	1077.88	0.53	700.62	1251.48	4.44	40.67	11.46	1016.75
174	8.28	271.62	799.05	1077.75	0.53	700.54	1251.48	4.44	40.69	11.46	1016.71
175	8.28	271.62	799.05	1077.74	0.53	700.53	1251.48	4.44	40.69	11.46	1016.70
176	8.28	271.56	799.03	1077.88	0.53	700.62	1251.51	4.44	40.69	11.46	1016.74
177	8.28	271.55	799.05	1077.68	0.53	700.49	1251.49	4.43	40.64	11.46	1016.70
178	8.28	271.56	799.05	1077.91	0.53	700.64	1251.48	4.44	40.65	11.46	1016.76
179	8.28	271.53	799.06	1077.73	0.53	700.52	1251.47	4.44	40.69	11.46	1016.78
180	8.28	271.52	799.04	1077.93	0.53	700.65	1251.48	4.44	40.70	11.45	1016.76
181	8.28	271.50	799.05	1077.68	0.53	700.66	1251.47	4.44	40.67	11.46	1016.72
182	8.28	271.49	799.06	1077.92	0.53	700.50	1251.50	4.44	40.66	11.46	1016.77
183	8.28	271.45	799.04	1077.97	0.53	700.67	1251.49	4.44	40.70	11.46	1016.75
184	8.28	271.45	799.03	1077.66	0.53	700.48	1251.52	4.44	40.68	11.45	1016.73
185	8.28	271.44	799.02	1077.92	0.53	700.65	1251.53	4.44	40.71	11.45	1016.73
186	8.28	271.44	799.04	1077.70	0.53	700.51	1251.51	4.44	40.69	11.46	1016.73



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
187	8.28	271.40	799.03	1077.88	0.53	700.62	1251.52	4.44	40.68	11.46	1016.73
188	8.28	271.40	799.02	1077.65	0.53	700.47	1251.53	4.44	40.68	11.46	1016.75
189	8.28	271.38	799.02	1077.87	0.53	700.61	1251.54	4.44	40.70	11.46	1016.71
190	8.28	271.36	799.03	1077.71	0.53	700.51	1251.51	4.44	40.69	11.46	1016.75
191	8.28	271.36	799.02	1077.86	0.53	700.61	1251.53	4.44	40.69	11.46	1016.71
192	8.28	271.35	799.02	1077.88	0.53	700.62	1251.53	4.44	40.69	11.46	1016.71
193	8.28	271.34	799.01	1077.73	0.53	700.52	1251.55	4.44	40.66	11.46	1016.75
194	8.28	271.34	799.01	1077.82	0.53	700.58	1251.55	4.44	40.68	11.46	1016.73
195	8.28	271.34	799.02	1077.81	0.53	700.57	1251.53	4.44	40.72	11.46	1016.71
196	8.28	271.29	799.01	1077.71	0.53	700.51	1251.52	4.44	40.69	11.46	1016.76
197	8.28	271.29	799.03	1077.95	0.53	700.66	1251.60	4.44	40.70	11.45	1016.75
198	8.28	271.28	798.98	1077.70	0.53	700.68	1251.54	4.44	40.71	11.46	1016.73
199	8.28	271.26	799.01	1077.68	0.53	700.51	1251.59	4.44	40.69	11.45	1016.74
200	8.28	271.24	798.97	1077.91	0.53	700.64	1251.61	4.44	40.72	11.46	1016.75
201	8.28	271.24	798.99	1077.67	0.53	700.48	1251.58	4.44	40.70	11.45	1016.76
202	8.28	271.22	798.98	1077.92	0.53	700.65	1251.59	4.44	40.70	11.45	1016.76
203	8.28	271.21	798.98	1077.72	0.53	700.52	1251.60	4.44	40.68	11.46	1016.75
204	8.28	271.20	798.97	1077.91	0.53	700.64	1251.61	4.44	40.69	11.45	1016.71
205	8.28	271.17	798.97	1077.70	0.53	700.51	1251.61	4.44	40.70	11.46	1016.76
206	8.28	271.17	798.99	1077.85	0.53	700.60	1251.59	4.44	40.73	11.45	1016.74
207	8.28	271.17	798.99	1077.86	0.53	700.61	1251.58	4.45	40.73	11.45	1016.74
208	8.28	271.15	798.98	1077.88	0.53	700.62	1251.59	4.44	40.72	11.45	1016.74
209	8.28	271.15	798.96	1077.74	0.53	700.53	1251.62	4.44	40.68	11.46	1016.74
210	8.28	271.13	798.95	1077.86	0.53	700.61	1251.65	4.45	40.73	11.45	1016.76
211	8.28	271.13	798.98	1077.77	0.53	700.55	1251.60	4.45	40.74	11.46	1016.74
212	8.28	271.10	798.97	1077.92	0.53	700.53	1251.61	4.45	40.73	11.45	1016.77
213	8.28	271.06	798.97	1077.93	0.53	700.64	1251.63	4.45	40.73	11.46	1016.74
214	8.28	271.05	798.95	1077.68	0.53	700.49	1251.64	4.45	40.75	11.45	1016.74
215	8.28	271.04	798.95	1077.92	0.53	700.65	1251.64	4.45	40.73	11.45	1016.79
216	8.28	271.03	798.94	1077.68	0.53	700.49	1251.65	4.45	40.76	11.46	1016.79
217	8.28	271.03	798.95	1077.94	0.53	700.66	1251.65	4.45	40.76	11.45	1016.78
218	8.28	271.01	798.93	1077.69	0.53	700.50	1251.67	4.44	40.71	11.46	1016.72
219	8.28	271.01	798.95	1077.94	0.53	700.66	1251.65	4.45	40.73	11.45	1016.76
220	8.28	270.97	798.94	1077.69	0.53	700.50	1251.67	4.45	40.73	11.46	1016.75
221	8.28	270.97	798.93	1077.91	0.53	700.64	1251.67	4.45	40.76	11.45	1016.76
222	8.28	270.97	798.94	1077.79	0.53	700.56	1251.65	4.45	40.76	11.45	1016.78
223	8.28	270.97	798.95	1077.78	0.53	700.56	1251.65	4.45	40.76	11.45	1016.78
224	8.28	270.93	798.94	1077.90	0.53	700.63	1251.65	4.45	40.76	11.45	1016.78
225	8.28	270.93	798.94	1077.76	0.53	700.55	1251.66	4.45	40.75	11.46	1016.78



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
226	8.28	270.90	798.93	1077.80	0.53	700.57	1251.68	4.45	40.76	11.45	1016.76
227	8.28	270.90	798.93	1077.75	0.53	700.53	1251.67	4.45	40.74	11.46	1016.77
228	8.28	270.91	798.92	1077.80	0.53	700.57	1251.67	4.45	40.76	11.45	1016.78
229	8.28	270.86	798.93	1077.89	0.53	700.48	1251.72	4.45	40.77	11.45	1016.76
230	8.28	270.85	798.90	1077.67	0.53	700.62	1251.68	4.45	40.77	11.46	1016.76
231	8.28	270.82	798.92	1077.63	0.53	700.47	1251.72	4.45	40.79	11.45	1016.76
232	8.28	270.81	798.92	1077.91	0.53	700.65	1251.69	4.46	40.82	11.45	1016.75
233	8.28	270.80	798.92	1077.69	0.53	700.50	1251.69	4.45	40.81	11.46	1016.76
234	8.28	270.77	798.92	1077.86	0.53	700.61	1251.70	4.45	40.79	11.45	1016.77
235	8.28	270.75	798.91	1077.70	0.53	700.51	1251.70	4.45	40.82	11.46	1016.78
236	8.28	270.73	798.92	1077.81	0.53	700.58	1251.69	4.46	40.83	11.45	1016.78
237	8.28	270.72	798.91	1077.67	0.53	700.48	1251.71	4.45	40.79	11.46	1016.79
238	8.28	270.72	798.91	1077.65	0.53	700.47	1251.71	4.45	40.78	11.46	1016.79
239	8.28	270.72	798.92	1077.85	0.53	700.60	1251.69	4.45	40.79	11.45	1016.78
240	8.28	270.67	798.93	1077.83	0.53	700.59	1251.68	4.46	40.84	11.45	1016.79
241	8.28	270.69	798.92	1077.75	0.53	700.54	1251.70	4.45	40.81	11.45	1016.77
242	8.28	270.63	798.91	1077.81	0.53	700.57	1251.70	4.46	40.84	11.45	1016.80
243	8.28	270.65	798.88	1077.71	0.53	700.51	1251.75	4.46	40.84	11.45	1016.76
244	8.28	270.65	798.84	1077.70	0.53	700.50	1251.82	4.46	40.86	11.45	1016.80
245	8.28	270.62	798.89	1077.67	0.53	700.48	1251.76	4.46	40.87	11.46	1016.74
246	8.28	270.57	798.88	1077.82	0.53	700.51	1251.74	4.46	40.85	11.45	1016.74
247	8.28	270.57	798.89	1077.71	0.53	700.58	1251.77	4.46	40.88	11.45	1016.72
248	8.28	270.55	798.89	1077.73	0.53	700.53	1251.74	4.46	40.89	11.45	1016.72
249	8.28	270.53	798.87	1077.77	0.53	700.55	1251.77	4.46	40.85	11.45	1016.75
250	8.28	270.52	798.86	1077.69	0.53	700.50	1251.79	4.46	40.89	11.45	1016.76
251	8.27	270.51	798.87	1077.84	0.53	700.60	1251.77	4.46	40.90	11.45	1016.77
252	8.27	270.48	798.87	1077.68	0.53	700.49	1251.77	4.46	40.89	11.45	1016.78
253	8.27	270.47	798.85	1077.85	0.53	700.60	1251.79	4.47	40.91	11.45	1016.73
254	8.27	270.46	798.85	1077.62	0.53	700.45	1251.80	4.47	40.92	11.46	1016.74
255	8.27	270.46	798.85	1077.59	0.53	700.43	1251.80	4.47	40.92	11.46	1016.74
256	8.27	270.43	798.86	1077.88	0.53	700.62	1251.78	4.46	40.90	11.45	1016.77
257	8.27	270.43	798.85	1077.62	0.53	700.45	1251.81	4.47	40.95	11.46	1016.74
258	8.27	270.39	798.86	1077.86	0.53	700.61	1251.79	4.47	40.94	11.45	1016.73
259	8.27	270.37	798.83	1077.58	0.53	700.43	1251.83	4.47	40.94	11.46	1016.76
260	8.27	270.37	798.82	1077.84	0.53	700.60	1251.81	4.47	41.00	11.45	1016.77
261	8.27	270.36	798.84	1077.60	0.53	700.58	1251.86	4.47	40.97	11.46	1016.74
262	8.27	270.33	798.81	1077.80	0.53	700.43	1251.85	4.47	40.98	11.45	1016.77
263	8.27	270.31	798.82	1077.86	0.53	700.60	1251.85	4.47	40.94	11.46	1016.78
264	8.27	270.30	798.83	1077.65	0.53	700.47	1251.83	4.47	40.98	11.45	1016.81



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
265	8.27	270.29	798.80	1077.82	0.53	700.58	1251.88	4.47	40.99	11.45	1016.80
266	8.27	270.25	798.80	1077.63	0.53	700.46	1251.88	4.47	40.98	11.45	1016.84
267	8.27	270.25	798.81	1077.77	0.53	700.55	1251.87	4.47	40.99	11.45	1016.81
268	8.27	270.21	798.80	1077.59	0.53	700.43	1251.87	4.47	41.00	11.45	1016.81
269	8.27	270.18	798.79	1077.77	0.53	700.55	1251.90	4.48	41.02	11.45	1016.78
270	8.27	270.20	798.78	1077.58	0.53	700.43	1251.92	4.48	41.03	11.45	1016.76
271	8.27	270.20	798.77	1077.56	0.53	700.41	1251.92	4.48	41.03	11.45	1016.76
272	8.27	270.20	798.76	1077.75	0.53	700.54	1251.93	4.48	41.04	11.45	1016.73
273	8.27	270.17	798.75	1077.68	0.53	700.49	1251.96	4.48	41.03	11.45	1016.75
274	8.27	270.12	798.62	1077.45	0.53	700.34	1252.16	4.48	41.04	11.45	1016.73
275	8.27	270.15	798.72	1077.66	0.53	700.45	1251.97	4.48	41.08	11.45	1016.75
276	8.27	270.13	798.75	1077.63	0.53	700.52	1251.97	4.48	41.09	11.45	1016.76
277	8.27	270.11	798.74	1077.73	0.53	700.42	1252.00	4.48	41.07	11.45	1016.74
278	8.27	270.07	798.72	1077.84	0.53	700.59	1251.97	4.49	41.10	11.45	1016.79
279	8.27	270.05	798.72	1077.62	0.53	700.45	1251.99	4.49	41.11	11.44	1016.81
280	8.24	272.09	797.44	1077.11	0.53	700.12	1254.01	4.49	41.05	11.41	1016.78
281	8.25	271.21	796.86	1076.99	0.53	700.04	1254.93	4.48	40.98	11.38	1016.80
282	8.26	270.70	796.83	1077.27	0.53	700.22	1254.97	4.48	41.00	11.37	1016.82
283	8.27	270.34	796.81	1077.06	0.53	700.09	1255.01	4.48	40.97	11.38	1016.82
284	8.27	270.15	796.79	1077.21	0.53	700.18	1255.04	4.48	41.00	11.37	1016.79
285	8.27	269.98	796.85	1077.31	0.53	700.25	1254.94	4.48	40.97	11.37	1016.79
286	8.26	270.82	796.94	1077.53	0.53	700.40	1254.79	4.48	40.94	11.37	1016.79
287	8.26	270.45	796.95	1077.72	0.53	700.52	1254.78	4.48	40.95	11.36	1016.82
288	8.26	270.43	796.95	1077.76	0.53	700.54	1254.78	4.48	40.95	11.36	1016.82
289	8.27	270.21	796.96	1077.51	0.53	700.38	1254.77	4.48	40.95	11.37	1016.78
290	8.27	269.98	796.96	1077.70	0.53	700.50	1254.77	4.48	40.99	11.36	1016.77
291	8.27	269.80	796.93	1077.50	0.53	700.37	1254.81	4.48	41.01	11.37	1016.81
292	8.27	269.66	796.95	1077.75	0.53	700.39	1254.76	4.48	41.01	11.36	1016.80
293	8.28	269.51	796.97	1077.55	0.53	700.59	1254.77	4.49	41.02	11.37	1016.79
294	8.28	269.30	796.96	1077.61	0.53	700.46	1254.68	4.48	41.00	11.36	1016.81
295	8.28	269.17	797.06	1077.92	0.53	700.65	1254.61	4.49	41.01	11.37	1016.83
296	8.28	269.08	797.09	1077.73	0.53	700.52	1254.56	4.48	41.01	11.36	1016.83
297	8.28	269.00	797.08	1077.94	0.53	700.66	1254.58	4.49	41.06	11.36	1016.81
298	8.28	268.96	797.07	1077.69	0.53	700.50	1254.59	4.49	41.01	11.37	1016.82
299	8.28	268.92	797.08	1077.88	0.53	700.62	1254.59	4.49	41.07	11.36	1016.78
300	8.28	268.86	797.07	1077.71	0.53	700.51	1254.60	4.49	41.02	11.37	1016.79



WATER QUALITY PARAMETER READINGS

Project: Cambridge WWTP Relocation

Client: Anglain Water Services Limited

Engineer: Mott MacDonald Limited

Position: BH03

Date: 16/11/2020

Operative: DGWD

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 755044

Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
1	8.35	279.82	798.53	1067.19	0.53	693.67	1252.63	9.11	80.46	11.82	1017.51
2	8.35	279.82	798.53	1067.19	0.53	693.67	1252.63	9.11	80.46	11.82	1017.51
3	8.36	279.34	798.32	1065.95	0.53	692.11	1253.27	8.70	77.37	11.85	1017.50
4	8.36	278.80	797.69	1064.39	0.53	691.80	1253.67	8.15	75.07	11.88	1017.47
5	8.36	279.18	801.02	1063.00	0.53	690.94	1248.43	7.82	72.59	12.10	1017.50
6	8.37	278.57	802.19	1060.65	0.53	689.42	1246.59	7.26	67.71	12.24	1017.50
7	8.38	277.69	802.70	1060.25	0.53	689.16	1245.80	6.76	63.11	12.28	1017.49
8	8.39	276.99	802.61	1059.82	0.53	688.89	1245.94	6.39	59.65	12.29	1017.48
9	8.39	276.79	802.53	1059.60	0.53	688.74	1246.06	6.09	56.83	12.30	1017.49
10	8.39	276.45	802.71	1059.71	0.53	688.81	1245.78	5.84	54.47	12.30	1017.50
11	8.39	276.40	802.74	1059.72	0.53	688.82	1245.74	5.79	54.01	12.30	1017.50
12	8.39	276.15	802.54	1059.54	0.53	688.70	1246.05	5.61	52.32	12.30	1017.50
13	8.39	275.78	802.53	1059.33	0.53	688.57	1246.05	5.45	50.91	12.31	1017.48
14	8.39	275.43	802.23	1058.75	0.53	688.19	1246.52	5.33	49.73	12.32	1017.51
15	8.40	275.26	802.09	1058.51	0.53	688.03	1246.75	5.22	48.76	12.32	1017.47
16	8.40	275.23	802.31	1058.51	0.53	688.03	1246.40	5.13	47.94	12.33	1017.50
17	8.40	274.90	802.38	1058.70	0.53	688.16	1246.45	5.06	47.23	12.32	1017.47
18	8.40	274.65	802.28	1058.22	0.53	688.04	1246.44	4.98	46.07	12.34	1017.48
19	8.40	274.43	802.28	1058.48	0.53	687.85	1246.42	4.88	45.54	12.33	1017.49
20	8.40	274.12	802.30	1058.29	0.53	687.87	1246.43	4.82	45.03	12.34	1017.53
21	8.41	273.92	802.26	1058.23	0.53	687.85	1246.47	4.77	44.57	12.34	1017.52
22	8.41	273.72	802.20	1058.25	0.53	687.86	1246.58	4.73	44.15	12.33	1017.53
23	8.41	273.53	802.30	1058.29	0.53	687.89	1246.41	4.69	43.81	12.34	1017.51
24	8.41	273.43	802.10	1058.04	0.53	687.72	1246.73	4.66	43.51	12.34	1017.54
25	8.41	273.27	802.25	1058.48	0.53	688.01	1246.50	4.63	43.22	12.33	1017.53
26	8.41	273.18	801.98	1057.76	0.53	687.54	1246.92	4.60	42.98	12.34	1017.51
27	8.41	273.15	801.94	1057.67	0.53	687.48	1246.97	4.60	42.93	12.34	1017.51
28	8.41	273.09	802.02	1057.99	0.53	687.69	1246.86	4.58	42.77	12.33	1017.49
29	8.41	272.99	801.71	1057.49	0.53	687.37	1247.34	4.56	42.60	12.34	1017.51
30	8.41	272.90	801.91	1058.17	0.53	687.81	1247.03	4.54	42.40	12.32	1017.55



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
31	8.42	272.74	801.97	1058.09	0.53	687.76	1246.93	4.52	42.19	12.33	1017.53
32	8.42	272.60	801.92	1058.37	0.53	687.94	1247.01	4.50	42.02	12.31	1017.58
33	8.42	272.49	801.74	1057.94	0.53	687.66	1247.29	4.48	41.82	12.32	1017.53
34	8.42	272.38	801.82	1058.26	0.53	687.87	1247.10	4.46	41.52	12.31	1017.53
35	8.42	272.29	801.87	1057.85	0.53	687.81	1247.18	4.44	41.42	12.33	1017.52
36	8.42	272.15	801.81	1057.83	0.53	687.61	1247.19	4.42	41.31	12.32	1017.50
37	8.42	272.07	801.87	1058.14	0.53	687.80	1247.09	4.42	41.23	12.33	1017.51
38	8.42	271.99	801.88	1058.05	0.53	687.73	1247.07	4.41	41.16	12.32	1017.55
39	8.42	271.94	801.83	1058.08	0.53	687.75	1247.15	4.40	41.06	12.32	1017.54
40	8.42	271.88	801.96	1058.13	0.53	687.78	1246.95	4.39	40.99	12.32	1017.53
41	8.42	271.84	801.93	1058.15	0.53	687.80	1247.00	4.38	40.92	12.32	1017.54
42	8.42	271.75	801.89	1058.17	0.53	687.81	1247.05	4.37	40.82	12.32	1017.50
43	8.42	271.74	801.88	1058.17	0.53	687.81	1247.07	4.37	40.80	12.32	1017.49
44	8.42	271.67	801.82	1057.98	0.53	687.69	1247.17	4.36	40.73	12.32	1017.55
45	8.42	271.60	801.66	1058.15	0.53	687.80	1247.41	4.36	40.66	12.31	1017.57
46	8.42	271.53	801.78	1058.12	0.53	687.78	1247.22	4.35	40.60	12.32	1017.52
47	8.42	271.47	801.71	1058.24	0.53	687.85	1247.34	4.34	40.52	12.31	1017.52
48	8.42	271.38	801.61	1057.90	0.53	687.64	1247.48	4.33	40.46	12.32	1017.52
49	8.42	271.32	801.63	1058.22	0.53	687.84	1247.46	4.33	40.42	12.31	1017.56
50	8.43	271.25	801.76	1058.03	0.53	687.72	1247.26	4.32	40.32	12.32	1017.58
51	8.43	271.20	801.80	1058.23	0.53	687.85	1247.19	4.32	40.29	12.31	1017.58
52	8.43	271.16	801.66	1057.84	0.53	687.60	1247.60	4.31	40.18	12.32	1017.57
53	8.43	271.11	801.53	1057.93	0.53	687.55	1247.66	4.30	40.10	12.31	1017.57
54	8.43	271.02	801.50	1058.03	0.53	687.71	1247.77	4.29	40.08	12.32	1017.55
55	8.43	270.98	801.40	1057.77	0.53	687.55	1247.83	4.29	40.01	12.30	1017.56
56	8.43	270.93	801.41	1058.07	0.53	687.75	1247.80	4.28	39.98	12.30	1017.56
57	8.43	270.88	801.41	1057.84	0.53	687.59	1247.80	4.28	39.91	12.31	1017.58
58	8.43	270.85	801.35	1058.01	0.53	687.70	1247.89	4.27	39.88	12.30	1017.58
59	8.43	270.83	801.31	1057.75	0.53	687.53	1247.96	4.26	39.80	12.31	1017.56
60	8.43	270.82	801.30	1057.72	0.53	687.52	1247.98	4.26	39.79	12.31	1017.56
61	8.43	270.78	801.30	1058.00	0.53	687.70	1247.98	4.26	39.76	12.30	1017.57
62	8.43	270.73	801.32	1057.75	0.53	687.54	1247.95	4.25	39.71	12.31	1017.54
63	8.43	270.70	801.30	1058.01	0.53	687.70	1247.97	4.25	39.66	12.30	1017.57
64	8.43	270.67	801.26	1057.72	0.53	687.52	1248.03	4.25	39.64	12.31	1017.55
65	8.43	270.64	801.24	1057.90	0.53	687.63	1248.06	4.24	39.60	12.30	1017.62
66	8.43	270.59	801.19	1057.79	0.53	687.56	1248.14	4.24	39.51	12.30	1017.58
67	8.43	270.56	801.19	1057.79	0.53	687.68	1248.12	4.23	39.50	12.30	1017.58
68	8.43	270.54	801.20	1057.82	0.53	687.60	1248.13	4.23	39.49	12.29	1017.59
69	8.43	270.50	801.11	1057.93	0.53	687.66	1248.27	4.23	39.46	12.30	1017.57



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
70	8.43	270.47	801.06	1057.66	0.53	687.48	1248.34	4.22	39.43	12.29	1017.57
71	8.42	270.44	801.02	1057.91	0.53	687.64	1248.42	4.22	39.37	12.29	1017.61
72	8.42	270.43	801.00	1057.72	0.53	687.51	1248.44	4.21	39.32	12.29	1017.57
73	8.42	270.40	801.05	1058.01	0.53	687.70	1248.37	4.21	39.29	12.28	1017.61
74	8.43	270.37	801.04	1057.80	0.53	687.57	1248.38	4.21	39.24	12.29	1017.61
75	8.43	270.33	801.03	1057.95	0.53	687.67	1248.40	4.20	39.21	12.29	1017.60
76	8.43	270.33	801.02	1057.96	0.53	687.67	1248.41	4.20	39.20	12.28	1017.60
77	8.43	270.32	800.97	1057.72	0.53	687.52	1248.49	4.20	39.19	12.29	1017.59
78	8.43	270.29	800.92	1057.84	0.53	687.60	1248.56	4.20	39.14	12.28	1017.60
79	8.42	270.26	800.87	1057.72	0.53	687.52	1248.65	4.19	39.07	12.29	1017.60
80	8.42	270.25	800.87	1057.77	0.53	687.57	1248.72	4.19	39.07	12.28	1017.57
81	8.42	270.24	800.82	1057.80	0.53	687.58	1248.70	4.18	39.01	12.28	1017.60
82	8.42	270.22	800.84	1057.91	0.53	687.65	1248.62	4.18	38.98	12.28	1017.60
83	8.42	270.18	800.92	1057.95	0.53	687.67	1248.55	4.18	38.97	12.28	1017.63
84	8.42	270.16	800.94	1057.97	0.53	687.68	1248.53	4.18	38.97	12.28	1017.62
85	8.42	270.15	800.96	1058.02	0.53	687.71	1248.50	4.18	38.99	12.28	1017.61
86	8.42	270.12	800.97	1058.14	0.53	687.79	1248.49	4.18	38.96	12.28	1017.58
87	8.42	270.12	800.96	1058.07	0.53	687.74	1248.50	4.18	38.95	12.28	1017.66
88	8.42	270.09	800.97	1058.13	0.53	687.79	1248.49	4.17	38.90	12.28	1017.58
89	8.42	270.09	800.97	1058.14	0.53	687.79	1248.49	4.17	38.89	12.28	1017.57
90	8.42	270.08	800.96	1058.09	0.53	687.76	1248.50	4.17	38.89	12.28	1017.65
91	8.42	270.06	800.92	1058.17	0.53	687.81	1248.56	4.17	38.88	12.27	1017.66
92	8.42	270.03	800.88	1057.98	0.53	687.68	1248.63	4.16	38.85	12.28	1017.64
93	8.42	270.02	800.92	1058.21	0.53	687.84	1248.57	4.17	38.86	12.27	1017.63
94	8.42	270.02	800.91	1058.08	0.53	687.75	1248.59	4.16	38.83	12.27	1017.66
95	8.42	270.01	800.88	1058.15	0.53	687.80	1248.62	4.16	38.79	12.27	1017.66
96	8.42	269.95	800.86	1058.08	0.53	687.75	1248.69	4.16	38.78	12.27	1017.67
97	8.42	269.96	800.84	1058.15	0.53	687.72	1248.70	4.16	38.76	12.27	1017.67
98	8.42	269.92	800.83	1058.04	0.53	687.81	1248.68	4.16	38.75	12.27	1017.66
99	8.42	269.89	800.81	1058.03	0.53	687.73	1248.74	4.15	38.74	12.27	1017.65
100	8.42	269.89	800.84	1058.21	0.53	687.84	1248.69	4.15	38.70	12.27	1017.68
101	8.42	269.85	800.82	1058.08	0.53	687.75	1248.72	4.15	38.69	12.27	1017.65
102	8.42	269.86	800.81	1058.24	0.53	687.86	1248.74	4.15	38.69	12.26	1017.66
103	8.42	269.85	800.82	1058.08	0.53	687.75	1248.72	4.14	38.64	12.27	1017.70
104	8.42	269.85	800.82	1058.06	0.53	687.74	1248.72	4.14	38.63	12.27	1017.71
105	8.42	269.81	800.82	1058.28	0.53	687.88	1248.72	4.14	38.64	12.26	1017.68
106	8.42	269.80	800.81	1058.06	0.53	687.74	1248.74	4.14	38.64	12.27	1017.67
107	8.42	269.77	800.81	1058.27	0.53	687.88	1248.73	4.14	38.62	12.26	1017.68
108	8.42	269.76	800.80	1058.02	0.53	687.71	1248.75	4.14	38.61	12.27	1017.67



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
109	8.42	269.76	800.80	1058.26	0.53	687.87	1248.75	4.14	38.58	12.26	1017.72
110	8.42	269.73	800.81	1058.04	0.53	687.72	1248.74	4.13	38.56	12.27	1017.71
111	8.42	269.71	800.79	1058.30	0.53	687.90	1248.81	4.14	38.53	12.26	1017.70
112	8.42	269.70	800.76	1058.02	0.53	687.87	1248.82	4.13	38.52	12.27	1017.70
113	8.42	269.66	800.76	1058.25	0.53	687.70	1248.87	4.12	38.46	12.26	1017.65
114	8.42	269.63	800.73	1058.21	0.53	687.82	1248.93	4.13	38.47	12.27	1017.68
115	8.42	269.61	800.69	1057.98	0.53	687.68	1248.93	4.12	38.45	12.26	1017.70
116	8.42	269.60	800.66	1058.14	0.53	687.79	1248.98	4.12	38.42	12.26	1017.70
117	8.42	269.58	800.61	1057.92	0.53	687.64	1249.05	4.12	38.42	12.27	1017.68
118	8.42	269.57	800.60	1058.14	0.53	687.79	1249.06	4.12	38.42	12.26	1017.69
119	8.42	269.57	800.60	1058.16	0.53	687.80	1249.07	4.12	38.42	12.26	1017.69
120	8.42	269.55	800.57	1057.90	0.53	687.63	1249.11	4.12	38.39	12.26	1017.69
121	8.42	269.52	800.52	1058.09	0.53	687.76	1249.19	4.12	38.40	12.25	1017.73
122	8.42	269.52	800.53	1057.88	0.53	687.62	1249.18	4.12	38.38	12.26	1017.70
123	8.42	269.51	800.49	1058.09	0.53	687.76	1249.23	4.11	38.34	12.25	1017.73
124	8.42	269.48	800.48	1057.86	0.53	687.61	1249.26	4.11	38.31	12.26	1017.75
125	8.42	269.48	800.48	1058.11	0.53	687.61	1249.26	4.11	38.30	12.25	1017.72
126	8.42	269.46	800.47	1057.89	0.53	687.79	1249.31	4.11	38.27	12.26	1017.73
127	8.42	269.44	800.44	1057.91	0.53	687.65	1249.31	4.10	38.26	12.25	1017.70
128	8.42	269.40	800.44	1057.93	0.53	687.66	1249.57	4.10	38.25	12.26	1017.71
129	8.42	269.39	800.28	1057.72	0.53	687.52	1249.59	4.10	38.22	12.26	1017.74
130	8.42	269.39	800.26	1057.94	0.53	687.66	1249.61	4.10	38.20	12.25	1017.73
131	8.42	269.39	800.26	1057.74	0.53	687.53	1249.59	4.10	38.18	12.26	1017.74
132	8.42	269.35	800.21	1057.93	0.53	687.65	1249.68	4.09	38.15	12.25	1017.76
133	8.42	269.36	800.20	1057.70	0.53	687.51	1249.69	4.09	38.14	12.25	1017.73
134	8.42	269.32	800.21	1057.97	0.53	687.68	1249.67	4.09	38.11	12.24	1017.75
135	8.42	269.31	800.17	1057.73	0.53	687.52	1249.73	4.09	38.11	12.25	1017.76
136	8.42	269.31	800.17	1057.71	0.53	687.51	1249.74	4.09	38.11	12.25	1017.76
137	8.42	269.28	800.18	1057.93	0.53	687.66	1249.72	4.09	38.08	12.24	1017.76
138	8.42	269.27	800.21	1057.74	0.53	687.53	1249.67	4.08	38.07	12.25	1017.73
139	8.42	269.24	800.19	1058.01	0.53	687.71	1249.70	4.08	38.06	12.24	1017.72
140	8.42	269.23	800.20	1057.77	0.53	687.55	1249.69	4.08	38.03	12.25	1017.76
141	8.42	269.21	800.05	1057.81	0.53	687.57	1249.93	4.08	38.03	12.24	1017.74
142	8.42	269.20	800.18	1057.80	0.53	687.57	1249.72	4.07	38.00	12.25	1017.75
143	8.42	269.19	800.19	1058.00	0.53	687.56	1249.71	4.08	38.01	12.24	1017.75
144	8.42	269.18	800.19	1057.80	0.53	687.70	1249.72	4.07	37.96	12.25	1017.76
145	8.42	269.17	800.18	1058.00	0.53	687.55	1249.79	4.07	37.96	12.24	1017.81
146	8.42	269.13	800.19	1058.06	0.53	687.73	1249.71	4.07	37.94	12.25	1017.80
147	8.42	269.10	800.20	1057.85	0.53	687.60	1249.68	4.07	37.91	12.25	1017.77



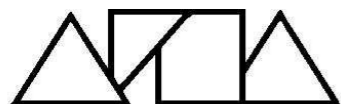
Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
148	8.42	269.10	800.20	1058.05	0.53	687.73	1249.69	4.07	37.93	12.24	1017.77
149	8.42	269.07	800.17	1057.84	0.53	687.60	1249.73	4.06	37.89	12.25	1017.78
150	8.42	269.07	800.16	1058.04	0.53	687.73	1249.74	4.06	37.87	12.24	1017.80
151	8.42	269.06	800.14	1057.78	0.53	687.56	1249.79	4.06	37.85	12.25	1017.79
152	8.42	269.05	800.06	1057.92	0.53	687.65	1249.90	4.06	37.85	12.24	1017.79
153	8.42	269.02	800.13	1057.79	0.53	687.57	1249.79	4.06	37.82	12.25	1017.80
154	8.42	269.02	800.14	1057.78	0.53	687.56	1249.78	4.06	37.82	12.25	1017.80
155	8.42	269.00	800.18	1058.09	0.53	687.76	1249.72	4.06	37.81	12.24	1017.81
156	8.42	268.99	800.16	1057.81	0.53	687.58	1249.75	4.06	37.82	12.25	1017.80
157	8.42	268.96	800.18	1058.09	0.53	687.76	1249.72	4.06	37.79	12.24	1017.78
158	8.42	268.97	800.18	1057.85	0.53	687.60	1249.72	4.05	37.77	12.25	1017.80
159	8.42	268.95	800.17	1058.07	0.53	687.75	1249.74	4.05	37.76	12.24	1017.81
160	8.42	268.95	800.17	1057.92	0.53	687.73	1249.74	4.05	37.75	12.24	1017.83
161	8.42	268.93	800.17	1057.83	0.53	687.60	1249.77	4.05	37.73	12.24	1017.78
162	8.42	268.92	800.17	1058.06	0.53	687.74	1249.73	4.05	37.73	12.25	1017.83
163	8.42	268.87	800.19	1057.87	0.53	687.61	1249.71	4.05	37.70	12.25	1017.78
164	8.42	268.86	800.19	1058.07	0.53	687.74	1249.70	4.05	37.71	12.24	1017.82
165	8.42	268.86	800.19	1057.94	0.53	687.66	1249.70	4.04	37.66	12.24	1017.81
166	8.42	268.83	800.14	1058.02	0.53	687.71	1249.77	4.04	37.66	12.24	1017.82
167	8.42	268.83	800.14	1058.03	0.53	687.72	1249.79	4.04	37.66	12.24	1017.82
168	8.42	268.83	800.15	1057.84	0.53	687.60	1249.77	4.04	37.65	12.25	1017.80
169	8.42	268.81	800.17	1058.03	0.53	687.72	1249.73	4.04	37.63	12.24	1017.82
170	8.42	268.79	800.15	1057.88	0.53	687.62	1249.77	4.04	37.63	12.24	1017.80
171	8.42	268.79	800.17	1058.03	0.53	687.72	1249.73	4.04	37.62	12.24	1017.81
172	8.42	268.74	800.17	1058.01	0.53	687.71	1249.74	4.03	37.59	12.24	1017.84
173	8.42	268.73	800.18	1057.99	0.53	687.68	1249.75	4.03	37.58	12.24	1017.82
174	8.42	268.72	800.16	1057.97	0.53	687.70	1249.78	4.03	37.57	12.24	1017.82
175	8.42	268.71	800.16	1057.96	0.53	687.68	1249.76	4.03	37.55	12.24	1017.80
176	8.42	268.67	800.15	1057.98	0.53	687.69	1249.76	4.03	37.53	12.24	1017.84
177	8.42	268.65	800.19	1058.00	0.53	687.70	1249.70	4.03	37.54	12.24	1017.86
178	8.42	268.63	800.20	1058.07	0.53	687.75	1249.69	4.03	37.52	12.24	1017.82
179	8.42	268.63	800.19	1057.95	0.53	687.67	1249.71	4.02	37.49	12.24	1017.82
180	8.42	268.62	800.21	1058.08	0.53	687.75	1249.68	4.02	37.49	12.24	1017.83
181	8.42	268.61	800.16	1057.88	0.53	687.62	1249.75	4.02	37.49	12.25	1017.84
182	8.42	268.61	800.24	1058.13	0.53	687.79	1249.63	4.02	37.48	12.24	1017.84
183	8.42	268.61	800.25	1058.16	0.53	687.81	1249.61	4.02	37.48	12.24	1017.84
184	8.42	268.57	800.43	1058.21	0.53	687.84	1249.33	4.02	37.48	12.25	1017.84
185	8.42	268.54	800.31	1058.26	0.53	687.87	1249.51	4.02	37.48	12.24	1017.85
186	8.42	268.53	800.17	1057.85	0.53	687.60	1249.73	4.02	37.47	12.25	1017.83



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
187	8.42	268.51	800.15	1058.00	0.53	687.70	1249.77	4.02	37.47	12.24	1017.84
188	8.42	268.51	800.13	1058.00	0.53	687.70	1249.79	4.02	37.47	12.24	1017.84
189	8.42	268.51	800.15	1057.80	0.53	687.57	1249.77		37.47	12.24	1017.83
190	8.42	268.46	800.26	1058.05	0.53	687.73	1249.60	4.02	37.43	12.24	1017.86
191	8.42	268.45	800.27	1058.06	0.53	687.74	1249.59	4.02	37.43	12.24	1017.86
192	8.42	268.44	800.29	1058.06	0.53	687.74	1249.54	4.02	37.44	12.24	1017.86
193	8.42	268.39	800.31	1058.04	0.53	687.72	1249.52	4.01	37.41	12.25	1017.84
194	8.42	268.39	800.28	1058.08	0.53	687.75	1249.56	4.02	37.42	12.24	1017.91
195	8.42	268.39	800.31	1058.09	0.53	687.76	1249.52	4.01	37.39	12.24	1017.88
196	8.42	268.36	800.31	1058.15	0.53	687.80	1249.51	4.02	37.42	12.24	1017.86
197	8.42	268.34	800.30	1057.99	0.53	687.69	1249.54	4.01	37.40	12.25	1017.85
198	8.42	268.32	800.30	1058.10	0.53	687.76	1249.52	4.01	37.41	12.24	1017.90
199	8.42	268.33	800.32	1058.06	0.53	687.79	1249.48	4.01	37.37	12.25	1017.87
200	8.42	268.28	800.33	1057.99	0.53	687.70	1249.49	4.01	37.41	12.24	1017.89
201	8.42	268.27	800.33	1057.98	0.53	687.69	1249.49	4.01	37.41	12.24	1017.89
202	8.42	268.26	800.33	1058.11	0.53	687.77	1249.48	4.01	37.38	12.25	1017.90
203	8.42	268.27	800.34	1058.01	0.53	687.70	1249.47	4.01	37.38	12.25	1017.90
204	8.42	268.24	800.32	1058.12	0.53	687.78	1249.51	4.01	37.37	12.24	1017.87
205	8.42	268.24	800.34	1058.02	0.53	687.71	1249.46	4.01	37.37	12.25	1017.85
206	8.42	268.20	800.33	1058.06	0.53	687.74	1249.48	4.01	37.35	12.25	1017.87
207	8.42	268.18	800.34	1057.98	0.53	687.69	1249.47	4.01	37.36	12.25	1017.83
208	8.42	268.17	800.38	1058.21	0.53	687.84	1249.41	4.01	37.35	12.24	1017.88
209	8.42	268.15	800.39	1058.02	0.53	687.72	1249.39	4.01	37.36	12.25	1017.85
210	8.42	268.12	800.43	1058.23	0.53	687.85	1249.33	4.00	37.32	12.25	1017.90
211	8.42	268.09	800.43	1058.08	0.53	687.75	1249.33	4.01	37.35	12.25	1017.90
212	8.42	268.11	800.45	1058.28	0.53	687.88	1249.31	4.01	37.34	12.24	1017.88
213	8.42	268.07	800.44	1058.06	0.53	687.91	1249.29	4.00	37.31	12.25	1017.89
214	8.41	268.08	800.46	1058.31	0.53	687.74	1249.32	4.00	37.32	12.24	1017.87
215	8.41	268.06	800.44	1058.07	0.53	687.90	1249.25	4.01	37.33	12.25	1017.88
216	8.41	268.03	800.48	1058.10	0.53	687.78	1249.26	4.01	37.34	12.24	1017.88
217	8.41	268.00	800.48	1058.26	0.53	687.87	1249.24	4.01	37.34	12.25	1017.87
218	8.41	268.00	800.49	1058.29	0.53	687.88	1249.24	4.01	37.34	12.25	1017.87
219	8.41	267.98	800.42	1058.08	0.53	687.75	1249.34	4.01	37.33	12.25	1017.86
220	8.41	267.97	800.41	1058.14	0.53	687.79	1249.37	4.01	37.35	12.25	1017.87
221	8.41	267.96	800.33	1057.96	0.53	687.67	1249.48	4.00	37.28	12.25	1017.88
222	8.41	267.93	800.32	1058.04	0.53	687.73	1249.51	4.00	37.31	12.25	1017.84
223	8.41	267.93	800.38	1058.09	0.53	687.76	1249.41	4.00	37.31	12.25	1017.85
224	8.41	267.90	800.37	1058.05	0.53	687.73	1249.42	4.00	37.30	12.25	1017.90
225	8.41	267.89	800.36	1058.03	0.53	687.72	1249.44	4.00	37.29	12.25	1017.92



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
226	8.41	267.87	800.35	1058.03	0.53	687.72	1249.45	4.00	37.30	12.25	1017.89
227	8.41	267.86	800.40	1058.11	0.53	687.77	1249.38	4.00	37.30	12.25	1017.87
228	8.41	267.85	800.40	1058.04	0.53	687.73	1249.38	4.00	37.30	12.25	1017.88
229	8.41	267.81	800.40	1058.13	0.53	687.78	1249.40	4.00	37.30	12.25	1017.87
230	8.41	267.80	800.39	1058.04	0.53	687.75	1249.41	4.00	37.31	12.25	1017.89
231	8.41	267.78	800.38	1058.07	0.53	687.81	1249.27	4.00	37.29	12.25	1017.86
232	8.41	267.75	800.47	1058.30	0.53	687.90	1249.12	4.00	37.29	12.25	1017.86
233	8.41	267.75	800.50	1058.13	0.53	687.79	1249.19	4.00	37.29	12.25	1017.88
234	8.41	267.75	800.51	1058.12	0.53	687.78	1249.20	4.00	37.28	12.25	1017.88
235	8.41	267.72	800.49	1058.28	0.53	687.88	1249.23	4.00	37.30	12.25	1017.89
236	8.41	267.70	800.50	1058.14	0.53	687.79	1249.22	4.00	37.32	12.25	1017.90
237	8.41	267.69	800.49	1058.34	0.53	687.92	1249.23	4.00	37.32	12.24	1017.86
238	8.41	267.69	800.50	1058.11	0.53	687.77	1249.22	4.01	37.33	12.25	1017.90
239	8.41	267.66	800.51	1058.37	0.53	687.94	1249.21	4.01	37.32	12.24	1017.87
240	8.41	267.63	800.50	1058.14	0.53	687.79	1249.22	4.00	37.28	12.25	1017.89
241	8.41	267.62	800.48	1058.32	0.53	687.91	1249.25	4.00	37.28	12.24	1017.90
242	8.41	267.60	800.44	1058.03	0.53	687.72	1249.32	4.00	37.30	12.25	1017.88
243	8.41	267.59	800.42	1058.25	0.53	687.73	1249.31	4.00	37.30	12.24	1017.89
244	8.41	267.53	800.44	1058.23	0.53	687.83	1249.32	4.00	37.31	12.25	1017.90
245	8.41	267.52	800.44	1058.24	0.53	687.85	1249.32	4.00	37.31	12.25	1017.90
246	8.41	267.55	800.44	1058.09	0.53	687.76	1249.32	4.01	37.33	12.25	1017.90
247	8.41	267.51	800.41	1058.27	0.53	687.87	1249.36	4.00	37.28	12.24	1017.90
248	8.41	267.49	800.43	1058.09	0.53	687.76	1249.33	4.00	37.28	12.25	1017.88
249	8.41	267.46	800.42	1058.29	0.53	687.89	1249.35	4.00	37.28	12.24	1017.86
250	8.41	267.47	800.38	1058.07	0.53	687.74	1249.41	4.00	37.31	12.25	1017.88
251	8.41	267.45	800.36	1058.26	0.53	687.87	1249.43	4.00	37.30	12.24	1017.89
252	8.41	267.43	800.38	1058.06	0.53	687.74	1249.40	4.00	37.30	12.25	1017.88
253	8.41	267.41	800.37	1058.27	0.53	687.88	1249.42	4.01	37.33	12.24	1017.87
254	8.41	267.39	800.33	1058.05	0.53	687.73	1249.49	4.00	37.29	12.25	1017.87
255	8.41	267.36	800.28	1058.20	0.53	687.83	1249.56	4.00	37.31	12.24	1017.88
256	8.41	267.33	800.17	1057.87	0.53	687.62	1249.74	4.01	37.33	12.25	1017.87
257	8.41	267.33	800.29	1058.19	0.53	687.82	1249.56	4.00	37.31	12.24	1017.90
258	8.41	267.33	800.23	1058.06	0.53	687.74	1249.64	4.01	37.34	12.24	1017.86
259	8.41	267.31	800.23	1058.10	0.53	687.78	1249.64	4.00	37.31	12.24	1017.88
260	8.41	267.27	800.23	1058.02	0.53	687.72	1249.67	4.01	37.33	12.24	1017.88
261	8.41	267.27	800.18	1058.14	0.53	687.79	1249.72	4.01	37.34	12.24	1017.87
262	8.41	267.27	800.18	1058.16	0.53	687.80	1249.72	4.01	37.35	12.24	1017.87
263	8.41	267.25	800.00	1057.77	0.53	687.55	1250.00	4.01	37.32	12.24	1017.86
264	8.41	267.21	799.95	1057.92	0.53	687.65	1250.08	4.01	37.36	12.23	1017.87



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
265	8.41	267.18	799.95	1057.66	0.53	687.48	1250.08	4.01	37.33	12.24	1017.88
266	8.41	267.19	799.94	1057.91	0.53	687.64	1250.09	4.01	37.34	12.23	1017.87
267	8.41	267.16	799.93	1057.66	0.53	687.48	1250.11	4.01	37.35	12.24	1017.89
268	8.41	267.15	799.91	1057.92	0.53	687.65	1250.14	4.01	37.35	12.23	1017.88
269	8.41	267.11	799.91	1057.69	0.53	687.50	1250.13	4.01	37.37	12.24	1017.88
270	8.41	267.11	800.04	1058.12	0.53	687.78	1249.94	4.01	37.34	12.23	1017.89
271	8.41	267.09	799.82	1057.61	0.53	687.44	1250.28	4.01	37.37	12.24	1017.87
272	8.41	267.07	799.81	1057.85	0.53	687.60	1250.30	4.01	37.33	12.23	1017.87
273	8.41	267.07	799.81	1057.64	0.53	687.64	1250.30	4.01	37.36	12.24	1017.87
274	8.41	267.03	799.81	1057.90	0.53	687.46	1250.34	4.01	37.37	12.23	1017.87
275	8.41	266.99	799.80	1057.89	0.53	687.61	1250.32	4.01	37.37	12.24	1017.86
276	8.41	266.99	799.78	1057.67	0.53	687.47	1250.35	4.01	37.39	12.23	1017.89
277	8.41	266.99	799.78	1057.63	0.53	687.46	1250.35	4.01	37.39	12.23	1017.89
278	8.41	266.97	799.73	1057.84	0.53	687.60	1250.42	4.01	37.38	12.22	1017.93
279	8.41	266.94	799.73	1057.63	0.53	687.46	1250.43	4.01	37.39	12.23	1017.88
280	8.41	266.94	799.73	1057.87	0.53	687.61	1250.42	4.02	37.40	12.22	1017.87
281	8.41	266.92	799.67	1057.59	0.53	687.43	1250.52	4.01	37.37	12.23	1017.88
282	8.41	266.91	799.67	1057.83	0.53	687.59	1250.52	4.02	37.40	12.22	1017.85
283	8.41	266.87	799.65	1057.63	0.53	687.46	1250.54	4.02	37.42	12.23	1017.86
284	8.41	266.86	799.63	1057.80	0.53	687.57	1250.58	4.01	37.39	12.22	1017.92
285	8.41	266.84	799.51	1057.45	0.53	687.34	1250.76	4.01	37.39	12.23	1017.94
286	8.41	266.85	799.59	1057.75	0.53	687.54	1250.68	4.02	37.39	12.22	1017.91
287	8.41	266.81	799.57	1057.60	0.53	687.54	1250.71	4.02	37.43	12.23	1017.87
288	8.41	266.76	799.55	1057.68	0.53	687.50	1250.74	4.02	37.42	12.22	1017.93
289	8.41	266.77	799.52	1057.68	0.53	687.50	1250.75	4.02	37.40	12.22	1017.93
290	8.41	266.77	799.52	1057.69	0.53	687.50	1250.75	4.02	37.40	12.22	1017.93
291	8.41	266.75	799.49	1057.64	0.53	687.47	1250.81	4.02	37.41	12.22	1017.88
292	8.41	266.73	799.47	1057.63	0.53	687.46	1250.83	4.02	37.41	12.22	1017.92
293	8.41	266.73	799.40	1057.65	0.53	687.47	1250.93	4.02	37.45	12.22	1017.90
294	8.41	266.71	799.61	1057.79	0.53	687.56	1250.60	4.02	37.44	12.22	1017.92
295	8.41	266.69	799.54	1057.87	0.53	687.62	1250.72	4.02	37.44	12.21	1017.90
296	8.41	266.67	799.45	1057.61	0.53	687.44	1250.87	4.02	37.45	12.22	1017.94
297	8.41	266.65	799.39	1057.76	0.53	687.55	1250.95	4.02	37.45	12.21	1017.86
298	8.41	266.63	799.35	1057.49	0.53	687.37	1251.01	4.02	37.46	12.22	1017.90
299	8.41	266.62	799.35	1057.74	0.53	687.53	1251.01	4.02	37.44	12.21	1017.93
300	8.41	266.60	799.34	1057.53	0.53	687.39	1251.03	4.02	37.47	12.22	1017.91



WATER QUALITY PARAMETER READINGS

Project: Cambridge WWTP Relocation

Client: Anglain Water Services Limited

Engineer: Mott MacDonald Limited

Position: BH04

Date: 16/11/2020

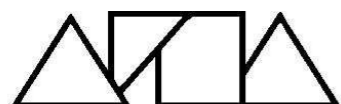
Operative: DGWD

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 755044

Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
1	7.56	262.83	564.89	755.09	0.37	490.81	1770.25	8.48	78.28	11.81	1016.79
2	7.56	262.83	564.89	755.09	0.37	490.81	1770.25	8.48	78.28	11.81	1016.79
3	7.56	262.45	564.50	754.50	0.37	490.13	1772.44	8.21	75.74	11.82	1016.76
4	7.57	261.86	564.21	753.26	0.37	489.60	1774.44	7.96	73.47	11.82	1016.72
5	7.57	261.53	563.21	752.85	0.37	489.35	1775.72	7.73	71.30	11.82	1016.73
6	7.57	261.25	562.92	752.71	0.37	489.26	1776.48	7.52	69.36	11.80	1016.77
7	7.58	261.00	563.05	752.79	0.37	489.31	1776.03	7.34	67.68	11.80	1016.77
8	7.58	260.76	563.00	752.55	0.37	489.16	1776.19	7.17	66.16	11.81	1016.73
9	7.58	260.54	562.75	752.13	0.37	488.89	1776.99	7.02	64.80	11.82	1016.74
10	7.58	260.30	562.52	751.74	0.37	488.63	1777.72	6.89	63.64	11.82	1016.77
11	7.59	260.09	562.37	751.49	0.37	488.47	1778.19	6.78	62.59	11.82	1016.74
12	7.59	260.05	562.34	751.44	0.37	488.43	1778.28	6.76	62.39	11.82	1016.74
13	7.59	259.84	562.32	751.29	0.37	488.34	1778.34	6.65	61.43	11.83	1016.76
14	7.59	259.64	562.59	751.59	0.37	488.53	1777.50	6.56	60.56	11.83	1016.74
15	7.59	259.47	562.74	751.76	0.37	488.64	1777.09	6.47	59.74	11.84	1016.73
16	7.59	259.26	562.72	751.88	0.37	488.57	1777.21	6.39	58.35	11.83	1016.75
17	7.60	259.08	562.68	751.66	0.37	488.42	1777.55	6.25	57.64	11.84	1016.75
18	7.60	258.75	562.57	751.43	0.37	488.42	1777.68	6.17	56.98	11.84	1016.73
19	7.60	258.58	562.61	751.21	0.37	488.29	1777.45	6.11	56.47	11.84	1016.73
20	7.60	258.42	562.65	751.22	0.37	488.29	1777.32	6.05	55.85	11.86	1016.73
21	7.60	258.27	562.66	751.11	0.37	488.22	1777.27	5.98	55.29	11.86	1016.72
22	7.61	258.13	562.67	750.91	0.37	488.09	1777.25	5.93	54.78	11.88	1016.75
23	7.61	257.96	562.59	750.84	0.37	488.05	1777.50	5.87	54.29	11.87	1016.71
24	7.61	257.84	562.38	750.43	0.37	487.78	1778.14	5.82	53.77	11.88	1016.72
25	7.61	257.69	562.20	750.15	0.37	487.60	1778.73	5.76	53.28	11.88	1016.70
26	7.61	257.56	562.04	750.03	0.37	487.52	1779.24	5.72	52.83	11.88	1016.80
27	7.61	257.43	561.97	749.82	0.37	487.38	1779.47	5.66	52.35	11.88	1016.76
28	7.61	257.40	561.95	749.79	0.37	487.36	1779.52	5.65	52.26	11.88	1016.76
29	7.61	257.32	561.93	749.92	0.37	487.45	1779.57	5.60	51.77	11.88	1016.78
30	7.61	257.19	561.92	749.84	0.37	487.40	1779.63	5.55	51.27	11.88	1016.78



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
31	7.61	257.10	561.94	749.79	0.37	487.36	1779.43	5.51	50.90	11.88	1016.78
32	7.61	257.00	561.98	749.85	0.37	487.40	1779.38	5.46	50.05	11.88	1016.78
33	7.61	256.90	561.99	749.59	0.37	487.29	1779.36	5.37	49.63	11.90	1016.79
34	7.61	256.80	562.00	749.66	0.37	487.15	1779.30	5.33	49.27	11.89	1016.79
35	7.61	256.61	562.02	749.47	0.37	487.14	1779.26	5.28	48.87	11.91	1016.76
36	7.61	256.55	562.03	749.40	0.37	487.11	1779.11	5.24	48.49	11.91	1016.76
37	7.61	256.47	562.06	749.21	0.37	486.98	1779.15	5.20	48.11	11.91	1016.79
38	7.61	256.40	562.12	749.35	0.37	487.08	1778.99	5.16	47.75	11.92	1016.80
39	7.62	256.33	562.16	749.22	0.37	487.00	1778.84	5.12	47.35	11.93	1016.78
40	7.62	256.27	562.25	749.24	0.37	487.00	1778.58	5.08	47.02	11.93	1016.76
41	7.61	256.21	562.31	749.41	0.37	487.12	1778.37	5.04	46.66	11.93	1016.75
42	7.62	256.14	562.44	749.38	0.37	487.09	1777.98	5.00	46.30	11.94	1016.75
43	7.62	256.09	562.53	749.42	0.37	487.12	1777.68	4.96	45.95	11.94	1016.77
44	7.62	256.03	562.64	749.59	0.37	487.23	1777.34	4.92	45.58	11.94	1016.79
45	7.62	256.02	562.66	749.62	0.37	487.25	1777.28	4.92	45.51	11.94	1016.80
46	7.62	255.94	562.76	749.52	0.37	487.19	1776.95	4.88	45.18	11.95	1016.75
47	7.62	255.87	562.86	749.51	0.37	487.18	1776.64	4.85	44.88	11.96	1016.78
48	7.62	255.82	562.92	749.59	0.37	487.23	1776.46	4.81	44.52	11.96	1016.76
49	7.62	255.71	562.93	749.35	0.37	487.08	1776.19	4.77	43.94	11.97	1016.76
50	7.62	255.68	563.00	749.30	0.37	487.16	1775.94	4.71	43.57	11.98	1016.77
51	7.62	255.55	563.08	749.32	0.37	487.06	1775.74	4.67	43.30	11.98	1016.76
52	7.62	255.50	563.26	749.33	0.37	487.06	1775.37	4.64	43.01	12.00	1016.73
53	7.62	255.46	563.23	749.29	0.37	487.04	1775.46	4.61	42.68	12.00	1016.81
54	7.62	255.40	563.26	749.15	0.37	486.95	1775.38	4.57	42.40	12.01	1016.77
55	7.62	255.36	563.31	748.99	0.37	486.84	1775.24	4.54	42.12	12.02	1016.79
56	7.62	255.29	563.34	749.03	0.37	486.87	1775.13	4.51	41.85	12.02	1016.75
57	7.62	255.23	563.36	748.87	0.37	486.76	1775.06	4.48	41.59	12.03	1016.79
58	7.62	255.17	563.40	748.74	0.37	486.68	1774.93	4.46	41.33	12.04	1016.80
59	7.62	255.12	563.42	748.81	0.37	486.73	1774.88	4.43	41.07	12.04	1016.83
60	7.62	255.11	563.42	748.81	0.37	486.73	1774.86	4.42	41.03	12.04	1016.83
61	7.60	255.35	566.46	751.23	0.37	488.30	1765.36	4.38	40.73	12.12	1016.80
62	7.57	257.69	566.58	747.65	0.37	485.97	1764.98	4.22	39.41	12.32	1016.81
63	7.58	256.63	566.38	747.45	0.37	485.84	1764.91	4.11	37.50	12.32	1016.80
64	7.59	255.93	566.59	747.49	0.37	485.84	1764.71	4.01	36.80	12.33	1016.77
65	7.59	255.39	566.67	747.32	0.37	485.75	1765.23	3.89	36.26	12.34	1016.81
66	7.60	255.18	566.53	747.37	0.37	485.79	1765.19	3.83	35.78	12.33	1016.81
67	7.59	255.26	566.65	747.40	0.37	485.81	1764.76	3.79	35.35	12.33	1016.81
68	7.60	254.96	566.57	747.42	0.37	485.82	1765.00	3.75	35.00	12.33	1016.82
69	7.60	254.75	566.44	747.32	0.37	485.76	1765.42	3.71	34.67	12.33	1016.78



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
70	7.60	254.58	566.53	747.27	0.37	485.73	1765.14	3.68	34.40	12.34	1016.80
71	7.60	254.53	566.53	747.33	0.37	485.77	1765.14	3.66	34.13	12.33	1016.80
72	7.60	254.36	566.43	747.19	0.37	485.67	1765.44	3.63	33.92	12.33	1016.79
73	7.60	254.15	566.49	747.20	0.37	485.68	1765.26	3.61	33.74	12.34	1016.81
74	7.61	254.01	566.26	747.03	0.37	485.57	1765.97	3.60	33.59	12.33	1016.82
75	7.61	253.98	566.23	747.01	0.37	485.55	1766.06	3.59	33.56	12.33	1016.82
76	7.61	253.83	566.40	747.44	0.37	485.83	1765.54	3.58	33.38	12.32	1016.83
77	7.61	253.73	566.27	747.07	0.37	485.59	1765.95	3.56	33.22	12.33	1016.90
78	7.61	253.64	566.27	746.99	0.37	485.54	1766.14	3.54	33.03	12.33	1016.89
79	7.61	253.55	566.21	747.10	0.37	485.53	1766.22	3.52	32.88	12.32	1016.89
80	7.61	253.39	566.18	746.98	0.37	485.56	1765.77	3.51	32.79	12.33	1016.89
81	7.61	253.15	566.32	747.14	0.37	485.64	1765.84	3.50	32.67	12.34	1016.90
82	7.61	253.03	566.30	747.20	0.37	485.68	1766.22	3.49	32.58	12.33	1016.90
83	7.61	252.95	566.22	747.03	0.37	485.57	1766.12	3.48	32.46	12.32	1016.85
84	7.61	252.81	566.18	746.95	0.37	485.52	1766.24	3.47	32.41	12.33	1016.80
85	7.61	252.72	566.27	747.29	0.37	485.74	1765.93	3.47	32.39	12.32	1016.82
86	7.61	252.64	566.23	747.15	0.37	485.65	1766.08	3.46	32.34	12.32	1016.81
87	7.61	252.53	566.34	747.26	0.37	485.72	1765.74	3.46	32.32	12.32	1016.79
88	7.61	252.44	566.24	747.24	0.37	485.71	1766.02	3.46	32.27	12.32	1016.84
89	7.61	252.38	566.32	747.25	0.37	485.71	1765.79	3.45	32.20	12.32	1016.85
90	7.61	252.31	566.19	746.98	0.37	485.54	1766.21	3.45	32.18	12.33	1016.84
91	7.61	252.29	566.17	746.94	0.37	485.51	1766.26	3.45	32.17	12.33	1016.84
92	7.61	252.23	566.16	746.98	0.37	485.54	1766.29	3.44	32.13	12.33	1016.82
93	7.61	252.14	566.14	747.06	0.37	485.59	1766.35	3.44	32.11	12.32	1016.84
94	7.61	252.08	566.11	746.97	0.37	485.53	1766.43	3.43	32.05	12.32	1016.83
95	7.62	252.04	566.11	747.00	0.37	485.55	1766.67	3.43	32.02	12.32	1016.85
96	7.61	251.98	566.04	747.07	0.37	485.56	1766.66	3.43	31.99	12.31	1016.87
97	7.61	251.83	566.04	746.94	0.37	485.51	1766.61	3.43	31.97	12.32	1016.85
98	7.61	251.77	566.06	747.01	0.37	485.56	1766.86	3.42	31.92	12.32	1016.82
99	7.62	251.71	565.98	747.04	0.37	485.58	1766.88	3.42	31.91	12.31	1016.81
100	7.62	251.67	566.02	747.04	0.37	485.57	1766.73	3.41	31.86	12.31	1016.84
101	7.61	251.62	565.99	747.15	0.37	485.64	1766.82	3.41	31.85	12.31	1016.85
102	7.61	251.60	565.92	747.07	0.37	485.60	1767.02	3.41	31.82	12.30	1016.83
103	7.61	251.53	565.91	746.93	0.37	485.50	1767.06	3.41	31.78	12.31	1016.81
104	7.61	251.51	565.91	747.03	0.37	485.57	1767.06	3.41	31.82	12.31	1016.78
105	7.61	251.48	565.88	747.03	0.37	485.57	1767.17	3.41	31.79	12.30	1016.82
106	7.61	251.42	565.76	746.74	0.37	485.38	1767.53	3.41	31.83	12.31	1016.83
107	7.61	251.38	565.69	746.75	0.37	485.39	1767.77	3.41	31.80	12.31	1016.90
108	7.61	251.33	565.61	746.88	0.37	485.47	1767.99	3.41	31.79	12.29	1016.88



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
109	7.61	251.32	565.60	746.91	0.37	485.49	1768.03	3.41	31.79	12.29	1016.88
110	7.61	251.29	565.56	746.88	0.37	485.47	1768.16	3.41	31.80	12.29	1016.87
111	7.61	251.24	565.56	746.92	0.37	485.50	1768.04	3.41	31.76	12.29	1016.89
112	7.61	251.18	565.60	747.21	0.37	485.66	1767.84	3.41	31.78	12.27	1016.87
113	7.61	251.15	565.66	747.18	0.37	485.53	1767.98	3.40	31.75	12.28	1016.91
114	7.61	251.08	565.62	746.96	0.37	485.55	1768.20	3.41	31.76	12.29	1016.87
115	7.61	251.00	565.55	746.91	0.37	485.50	1768.35	3.40	31.75	12.28	1016.95
116	7.61	250.96	565.44	746.77	0.37	485.40	1768.55	3.41	31.76	12.28	1016.91
117	7.61	250.91	565.42	746.99	0.37	485.54	1768.59	3.41	31.80	12.27	1016.88
118	7.61	250.89	565.42	747.03	0.37	485.57	1768.59	3.41	31.77	12.27	1016.90
119	7.61	250.84	565.30	746.72	0.37	485.37	1768.97	3.40	31.73	12.28	1016.90
120	7.61	250.76	565.21	746.72	0.37	485.37	1769.24	3.41	31.76	12.27	1016.90
121	7.61	250.73	565.21	746.85	0.37	485.45	1769.26	3.40	31.72	12.27	1016.88
122	7.61	250.69	565.20	746.78	0.37	485.41	1769.29	3.40	31.72	12.27	1016.89
123	7.61	250.67	565.22	746.83	0.37	485.44	1769.24	3.40	31.72	12.27	1016.84
124	7.61	250.60	565.22	747.02	0.37	485.56	1769.23	3.40	31.73	12.26	1016.87
125	7.61	250.59	565.22	747.05	0.37	485.58	1769.22	3.40	31.73	12.26	1016.87
126	7.61	250.58	565.17	746.98	0.37	485.54	1769.38	3.40	31.69	12.26	1016.90
127	7.61	250.52	565.11	746.86	0.37	485.46	1769.56	3.40	31.70	12.26	1016.87
128	7.61	250.50	565.09	747.09	0.37	485.61	1769.69	3.40	31.71	12.25	1016.90
129	7.61	250.43	565.07	747.08	0.37	485.57	1769.66	3.40	31.70	12.24	1016.89
130	7.61	250.39	565.08	747.03	0.37	486.39	1765.78	3.40	31.71	12.25	1016.89
131	7.59	252.22	566.30	747.18	0.37	485.73	1766.07	3.39	31.68	12.27	1016.89
132	7.58	251.50	566.26	747.19	0.37	485.68	1765.99	3.39	31.62	12.31	1016.89
133	7.59	251.08	566.24	747.30	0.37	485.75	1766.05	3.39	31.64	12.31	1016.85
134	7.60	250.74	566.08	747.21	0.37	485.69	1766.52	3.39	31.59	12.31	1016.90
135	7.60	250.53	566.10	747.14	0.37	485.64	1766.48	3.38	31.59	12.31	1016.86
136	7.60	250.33	566.06	747.13	0.37	485.63	1766.60	3.39	31.59	12.31	1016.92
137	7.61	250.15	566.07	747.28	0.37	485.73	1766.56	3.38	31.56	12.30	1016.91
138	7.61	250.03	566.04	747.20	0.37	485.68	1766.65	3.39	31.60	12.31	1016.90
139	7.61	249.93	565.96	747.09	0.37	485.61	1766.90	3.38	31.56	12.31	1016.90
140	7.61	249.84	565.92	747.18	0.37	485.67	1767.04	3.39	31.58	12.30	1016.90
141	7.61	249.82	565.91	747.19	0.37	485.68	1767.07	3.39	31.58	12.30	1016.90
142	7.61	249.72	565.88	747.09	0.37	485.61	1767.17	3.39	31.60	12.30	1016.89
143	7.61	249.67	565.95	747.12	0.37	485.63	1766.95	3.39	31.63	12.30	1016.90
144	7.61	249.51	565.97	747.32	0.37	485.76	1766.72	3.40	31.72	12.30	1016.95
145	7.61	249.42	566.02	747.33	0.37	485.55	1767.07	3.40	31.76	12.30	1016.93
146	7.61	249.38	565.91	747.00	0.37	485.65	1766.90	3.40	31.76	12.31	1016.96
147	7.61	249.22	565.96	747.18	0.37	485.68	1767.07	3.41	31.81	12.30	1016.93



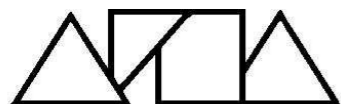
Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
148	7.61	249.10	565.89	747.01	0.37	485.56	1767.13	3.41	31.85	12.30	1016.97
149	7.61	249.03	565.93	747.11	0.37	485.62	1767.01	3.42	31.86	12.31	1016.97
150	7.61	248.94	565.94	747.26	0.37	485.72	1766.97	3.42	31.93	12.30	1016.97
151	7.61	248.90	565.92	747.15	0.37	485.65	1767.03	3.43	31.96	12.30	1016.95
152	7.61	248.83	565.91	747.15	0.37	485.65	1767.08	3.43	32.01	12.30	1016.96
153	7.61	248.81	565.91	747.22	0.37	485.69	1767.06	3.44	32.05	12.30	1016.96
154	7.61	248.73	565.97	747.20	0.37	485.68	1766.87	3.44	32.05	12.30	1016.95
155	7.61	248.72	565.94	747.11	0.37	485.62	1766.97	3.44	32.06	12.30	1016.98
156	7.61	248.66	565.90	747.21	0.37	485.68	1767.10	3.44	32.11	12.30	1016.96
157	7.61	248.65	565.89	747.22	0.37	485.69	1767.13	3.44	32.12	12.29	1016.96
158	7.61	248.60	565.90	747.24	0.37	485.71	1767.11	3.44	32.12	12.29	1016.99
159	7.61	248.57	565.87	747.06	0.37	485.59	1767.19	3.45	32.14	12.30	1016.99
160	7.61	248.50	565.83	747.16	0.37	485.66	1767.31	3.45	32.15	12.29	1016.91
161	7.61	248.46	565.79	747.22	0.37	485.69	1767.44	3.45	32.15	12.29	1016.96
162	7.61	248.45	565.79	747.10	0.37	485.64	1767.41	3.45	32.16	12.29	1016.95
163	7.61	248.37	565.80	747.13	0.37	485.76	1767.40	3.45	32.19	12.29	1016.95
164	7.61	248.25	565.80	747.29	0.37	485.75	1767.44	3.45	32.18	12.28	1016.95
165	7.61	248.20	565.78	747.17	0.37	485.66	1767.47	3.46	32.23	12.28	1016.99
166	7.61	248.14	565.76	747.19	0.37	485.68	1767.55	3.46	32.23	12.29	1016.98
167	7.61	248.09	565.78	747.34	0.37	485.77	1767.48	3.46	32.24	12.28	1016.95
168	7.61	248.03	565.77	747.21	0.37	485.68	1767.52	3.46	32.28	12.29	1016.95
169	7.61	248.01	565.75	747.14	0.37	485.64	1767.55	3.46	32.28	12.29	1016.93
170	7.61	247.96	565.74	747.29	0.37	485.74	1767.60	3.46	32.29	12.28	1016.97
171	7.61	247.93	565.75	747.31	0.37	485.75	1767.56	3.46	32.31	12.28	1016.93
172	7.61	247.89	565.75	747.22	0.37	485.70	1767.57	3.47	32.34	12.28	1016.91
173	7.61	247.88	565.75	747.21	0.37	485.69	1767.57	3.47	32.34	12.29	1016.91
174	7.61	247.84	565.73	747.32	0.37	485.76	1767.63	3.46	32.31	12.28	1016.93
175	7.61	247.82	565.74	747.37	0.37	485.79	1767.59	3.47	32.35	12.28	1016.93
176	7.61	247.78	565.74	747.22	0.37	485.69	1767.61	3.47	32.38	12.28	1016.98
177	7.61	247.73	565.73	747.28	0.37	485.80	1767.66	3.48	32.41	12.28	1016.99
178	7.61	247.71	565.72	747.39	0.37	485.77	1767.76	3.47	32.39	12.27	1017.03
179	7.61	247.67	565.69	747.33	0.37	485.66	1767.89	3.47	32.39	12.27	1017.00
180	7.61	247.57	565.65	747.35	0.37	485.77	1767.93	3.48	32.40	12.28	1016.98
181	7.61	247.57	565.62	747.32	0.37	485.76	1767.99	3.48	32.41	12.27	1016.96
182	7.61	247.50	565.60	747.24	0.37	485.71	1768.03	3.48	32.41	12.27	1016.92
183	7.61	247.47	565.56	747.26	0.37	485.72	1768.15	3.48	32.42	12.27	1016.91
184	7.61	247.45	565.51	747.33	0.37	485.77	1768.32	3.48	32.43	12.26	1016.95
185	7.61	247.43	565.55	747.37	0.37	485.79	1768.18	3.48	32.41	12.26	1016.95
186	7.61	247.39	565.56	747.33	0.37	485.76	1768.16	3.48	32.42	12.27	1016.98



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
187	7.61	247.34	565.58	747.50	0.37	485.87	1768.10	3.48	32.41	12.26	1016.96
188	7.61	247.32	565.59	747.57	0.37	485.92	1768.07	3.48	32.40	12.25	1016.98
189	7.61	247.31	565.59	747.60	0.37	485.94	1768.06	3.48	32.40	12.25	1016.98
190	7.61	247.26	565.60	747.45	0.37	485.85	1768.03	3.48	32.40	12.26	1016.96
191	7.61	247.21	565.61	747.60	0.37	485.94	1767.99	3.48	32.41	12.26	1016.92
192	7.61	247.21	565.62	747.69	0.37	486.00	1768.05	3.47	32.37	12.25	1016.92
193	7.61	247.19	565.59	747.48	0.37	485.87	1768.09	3.47	32.38	12.26	1016.90
194	7.61	247.15	565.58	747.49	0.37	485.97	1768.09	3.47	32.36	12.26	1016.90
195	7.61	247.09	565.58	747.55	0.37	485.91	1768.13	3.47	32.35	12.25	1016.92
196	7.61	247.06	565.58	747.50	0.37	485.87	1768.10	3.47	32.35	12.25	1016.93
197	7.61	247.03	565.59	747.66	0.37	485.98	1768.05	3.47	32.35	12.25	1016.98
198	7.59	248.00	566.00	747.72	0.37	486.02	1766.78	3.47	32.35	12.28	1016.95
199	7.58	249.09	565.99	747.27	0.37	485.72	1766.80	3.46	32.26	12.30	1016.92
200	7.59	248.22	565.86	747.29	0.37	485.74	1767.21	3.45	32.18	12.29	1016.90
201	7.59	247.98	565.94	747.46	0.37	485.85	1766.97	3.44	32.12	12.29	1016.91
202	7.60	247.67	565.81	747.15	0.37	485.65	1767.39	3.43	32.04	12.29	1016.92
203	7.60	247.42	565.79	747.20	0.37	485.68	1767.45	3.44	32.04	12.29	1016.95
204	7.60	247.18	565.79	747.30	0.37	485.74	1767.43	3.43	32.01	12.28	1016.92
205	7.60	246.99	565.90	747.32	0.37	485.76	1767.09	3.43	32.01	12.29	1016.95
206	7.61	246.87	565.84	747.25	0.37	485.71	1767.28	3.43	32.00	12.29	1016.97
207	7.61	246.75	565.79	747.33	0.37	485.76	1767.46	3.43	32.00	12.28	1016.91
208	7.61	246.73	565.77	747.34	0.37	485.77	1767.50	3.43	32.01	12.28	1016.90
209	7.61	246.68	565.78	747.25	0.37	485.71	1767.46	3.43	31.99	12.29	1016.96
210	7.61	246.59	565.71	747.07	0.37	485.59	1767.69	3.43	32.00	12.29	1016.98
211	7.61	246.48	565.77	747.29	0.37	485.75	1767.38	3.43	32.01	12.28	1016.95
212	7.61	246.28	565.81	747.16	0.37	485.66	1767.57	3.43	32.00	12.28	1016.97
213	7.61	246.18	565.77	747.34	0.37	485.77	1767.52	3.43	31.99	12.28	1016.97
214	7.61	246.11	565.75	747.33	0.37	485.77	1767.58	3.43	32.01	12.28	1016.93
215	7.61	246.07	565.72	747.17	0.37	485.66	1767.66	3.43	32.02	12.29	1016.96
216	7.61	245.96	565.72	747.29	0.37	485.74	1767.65	3.43	32.02	12.28	1016.98
217	7.61	245.89	565.75	747.38	0.37	485.79	1767.58	3.43	32.03	12.28	1016.97
218	7.61	245.82	565.69	747.27	0.37	485.72	1767.74	3.43	32.01	12.28	1016.99
219	7.61	245.75	565.69	747.15	0.37	485.65	1767.76	3.43	32.02	12.28	1016.98
220	7.61	245.73	565.68	747.13	0.37	485.63	1767.77	3.43	32.02	12.29	1016.98
221	7.61	245.69	565.72	747.34	0.37	485.77	1767.65	3.43	32.02	12.28	1016.96
222	7.61	245.64	565.71	747.41	0.37	485.82	1767.68	3.43	32.00	12.27	1016.96
223	7.61	245.59	565.69	747.23	0.37	485.70	1767.75	3.43	32.00	12.28	1016.93
224	7.61	245.53	565.66	747.34	0.37	485.77	1767.73	3.43	32.01	12.27	1016.92
225	7.61	245.47	565.70	747.42	0.37	485.82	1767.78	3.43	32.03	12.27	1016.90



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
226	7.61	245.44	565.68	747.22	0.37	485.77	1767.67	3.44	32.04	12.28	1016.98
227	7.61	245.40	565.72	747.32	0.37	485.84	1767.59	3.44	32.06	12.28	1016.93
228	7.61	245.29	565.73	747.29	0.37	485.75	1767.64	3.44	32.04	12.27	1016.93
229	7.61	245.24	565.73	747.34	0.37	485.77	1767.63	3.44	32.07	12.28	1016.95
230	7.61	245.19	565.68	747.42	0.37	485.82	1767.79	3.44	32.08	12.27	1016.96
231	7.61	245.14	565.67	747.36	0.37	485.79	1767.80	3.44	32.07	12.27	1016.99
232	7.61	245.12	565.66	747.25	0.37	485.71	1767.84	3.44	32.10	12.28	1016.93
233	7.61	245.07	565.66	747.38	0.37	485.80	1767.86	3.44	32.10	12.27	1016.91
234	7.61	245.04	565.67	747.41	0.37	485.82	1767.82	3.44	32.10	12.27	1016.92
235	7.61	245.01	565.65	747.32	0.37	485.75	1767.86	3.44	32.09	12.27	1016.96
236	7.61	245.00	565.65	747.30	0.37	485.74	1767.87	3.44	32.09	12.27	1016.97
237	7.61	244.95	565.67	747.42	0.37	485.83	1767.83	3.44	32.09	12.27	1016.96
238	7.61	244.92	565.64	747.48	0.37	485.86	1767.91	3.45	32.13	12.26	1016.98
239	7.61	244.88	565.66	747.38	0.37	485.80	1767.82	3.45	32.12	12.27	1016.93
240	7.61	244.86	565.67	747.34	0.37	485.87	1767.89	3.45	32.13	12.27	1016.90
241	7.61	244.80	565.65	747.48	0.37	485.84	1768.00	3.45	32.13	12.26	1016.89
242	7.61	244.69	565.61	747.34	0.37	485.77	1767.96	3.45	32.14	12.26	1016.90
243	7.61	244.66	565.62	747.51	0.37	485.88	1767.97	3.45	32.17	12.27	1016.93
244	7.61	244.63	565.60	747.47	0.37	485.86	1768.02	3.45	32.15	12.26	1016.98
245	7.61	244.61	565.61	747.35	0.37	485.78	1768.01	3.45	32.16	12.27	1016.93
246	7.61	244.58	565.59	747.46	0.37	485.85	1768.08	3.45	32.17	12.26	1016.92
247	7.61	244.57	565.57	747.46	0.37	485.85	1768.14	3.45	32.17	12.26	1016.95
248	7.61	244.53	565.58	747.33	0.37	485.77	1768.11	3.45	32.18	12.27	1016.95
249	7.61	244.51	565.57	747.42	0.37	485.82	1768.11	3.45	32.16	12.26	1016.91
250	7.61	244.46	565.56	747.49	0.37	485.87	1768.15	3.45	32.19	12.26	1016.90
251	7.61	244.45	565.56	747.51	0.37	485.88	1768.16	3.45	32.19	12.26	1016.90
252	7.61	244.44	565.57	747.38	0.37	485.80	1768.14	3.45	32.18	12.26	1016.88
253	7.61	244.40	565.53	747.33	0.37	485.77	1768.24	3.45	32.20	12.26	1016.90
254	7.61	244.37	565.51	747.51	0.37	485.88	1768.32	3.46	32.20	12.25	1016.90
255	7.61	244.33	565.48	747.32	0.37	485.76	1768.41	3.46	32.21	12.26	1016.90
256	7.61	244.29	565.48	747.36	0.37	485.87	1768.47	3.46	32.22	12.26	1016.90
257	7.61	244.30	565.46	747.50	0.37	485.83	1768.51	3.46	32.21	12.25	1016.90
258	7.61	244.23	565.45	747.40	0.37	485.81	1768.47	3.46	32.22	12.25	1016.89
259	7.61	244.20	565.45	747.56	0.37	485.92	1768.49	3.46	32.23	12.26	1016.89
260	7.61	244.18	565.44	747.48	0.37	485.87	1768.53	3.46	32.24	12.25	1016.91
261	7.61	244.16	565.43	747.38	0.37	485.80	1768.56	3.46	32.23	12.25	1016.93
262	7.61	244.13	565.42	747.55	0.37	485.91	1768.59	3.46	32.25	12.24	1016.90
263	7.61	244.09	565.42	747.52	0.37	485.88	1768.61	3.46	32.23	12.25	1016.93
264	7.61	244.09	565.42	747.44	0.37	485.84	1768.60	3.46	32.22	12.25	1016.90



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
265	7.61	244.07	565.38	747.56	0.37	485.91	1768.71	3.46	32.23	12.24	1016.88
266	7.61	244.05	565.37	747.51	0.37	485.88	1768.76	3.46	32.23	12.24	1016.90
267	7.61	244.01	565.34	747.39	0.37	485.81	1768.85	3.46	32.22	12.25	1016.90
268	7.61	244.00	565.35	747.53	0.37	485.89	1768.83	3.46	32.23	12.24	1016.91
269	7.61	243.99	565.35	747.54	0.37	485.90	1768.82	3.46	32.23	12.24	1016.91
270	7.61	243.98	565.36	747.57	0.37	485.92	1768.78	3.46	32.22	12.24	1016.91
271	7.61	243.94	565.36	747.46	0.37	485.85	1768.78	3.46	32.22	12.25	1016.92
272	7.61	243.91	565.38	747.64	0.37	485.94	1768.80	3.46	32.23	12.24	1016.89
273	7.61	243.91	565.36	747.61	0.37	485.85	1768.81	3.46	32.22	12.24	1016.88
274	7.61	243.88	565.35	747.65	0.37	485.97	1768.72	3.46	32.21	12.24	1016.89
275	7.61	243.87	565.38	747.64	0.37	485.97	1768.77	3.46	32.23	12.24	1016.83
276	7.61	243.84	565.38	747.52	0.37	485.89	1768.73	3.46	32.20	12.24	1016.89
277	7.61	243.83	565.39	747.65	0.37	485.97	1768.71	3.46	32.21	12.24	1016.90
278	7.61	243.82	565.36	747.65	0.37	485.97	1768.77	3.45	32.19	12.23	1016.91
279	7.61	243.78	565.37	747.54	0.37	485.90	1768.76	3.46	32.20	12.24	1016.92
280	7.61	243.77	565.37	747.63	0.37	485.96	1768.77	3.46	32.22	12.24	1016.90
281	7.61	243.75	565.37	747.69	0.37	486.00	1768.74	3.46	32.20	12.23	1016.91
282	7.61	243.76	565.38	747.59	0.37	485.93	1768.72	3.45	32.18	12.24	1016.89
283	7.61	243.71	565.38	747.58	0.37	485.93	1768.74	3.46	32.20	12.24	1016.90
284	7.61	243.70	565.37	747.57	0.37	485.92	1768.74	3.46	32.20	12.24	1016.90
285	7.61	243.70	565.38	747.74	0.37	486.03	1768.74	3.45	32.18	12.23	1016.87
286	7.61	243.68	565.38	747.57	0.37	485.92	1768.73	3.45	32.18	12.24	1016.93
287	7.61	243.66	565.39	747.66	0.37	485.98	1768.70	3.45	32.18	12.24	1016.85
288	7.61	243.63	565.38	747.73	0.37	486.03	1768.69	3.46	32.17	12.23	1016.91
289	7.61	243.62	565.39	747.60	0.37	485.94	1768.65	3.45	32.17	12.24	1016.91
290	7.61	243.62	565.40	747.61	0.37	486.04	1768.67	3.45	32.18	12.24	1016.92
291	7.61	243.55	565.40	747.62	0.37	485.96	1768.66	3.45	32.16	12.23	1016.90
292	7.61	243.54	565.40	747.62	0.37	485.96	1768.65	3.45	32.15	12.24	1016.90
293	7.61	243.53	565.41	747.79	0.37	486.06	1768.63	3.45	32.14	12.23	1016.90
294	7.61	243.51	565.42	747.74	0.37	486.03	1768.61	3.45	32.14	12.23	1016.87
295	7.61	243.49	565.42	747.65	0.37	485.97	1768.58	3.45	32.14	12.24	1016.90
296	7.61	243.48	565.43	747.80	0.37	486.07	1768.56	3.45	32.14	12.23	1016.86
297	7.61	243.44	565.43	747.81	0.37	486.08	1768.55	3.45	32.14	12.23	1016.88
298	7.61	243.45	565.43	747.66	0.37	485.98	1768.57	3.45	32.12	12.24	1016.88
299	7.61	243.42	565.45	747.76	0.37	486.04	1768.50	3.45	32.13	12.24	1016.91
300	7.61	243.39	565.46	747.86	0.37	486.11	1768.47	3.45	32.11	12.23	1016.87



WATER QUALITY PARAMETER READINGS

Project: Cambridge WWTP Relocation

Instrument Properties

Device Model = Aqua TROLL 500

Client: Anglain Water Services Limited

Device SN = 755044

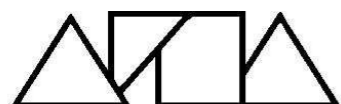
Engineer: Mott MacDonald Limited

Position: BH05

Date: 16/11/2020

Operative: DGWD

Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω-cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
1	7.29	287.24	668.36	907.94	0.45	590.16	1496.20	9.85	89.93	11.18	1016.46
2	7.29	287.24	668.36	907.94	0.45	590.16	1496.20	9.85	89.93	11.18	1016.46
3	7.29	285.48	668.53	907.94	0.45	590.16	1496.32	9.48	83.61	11.19	1016.39
4	7.30	284.22	668.33	907.28	0.45	587.34	1490.62	8.87	81.18	11.21	1016.40
5	7.28	279.95	671.05	900.89	0.44	585.42	1489.84	8.13	74.77	11.52	1016.36
6	7.30	275.54	671.09	900.05	0.44	585.01	1490.06	7.57	69.74	11.66	1016.41
7	7.30	271.98	671.09	899.88	0.44	584.92	1490.11	7.15	65.88	11.69	1016.40
8	7.30	268.98	671.05	899.68	0.44	584.80	1490.20	6.81	62.75	11.69	1016.36
9	7.30	266.13	670.95	899.34	0.44	584.57	1490.43	6.54	60.27	11.70	1016.42
10	7.31	263.40	671.03	899.17	0.44	584.46	1490.25	6.30	58.02	11.72	1016.43
11	7.31	260.94	671.09	899.03	0.44	584.37	1490.12	6.10	56.22	11.73	1016.45
12	7.31	258.51	671.15	899.17	0.44	584.46	1489.97	5.93	54.70	11.72	1016.43
13	7.31	256.09	670.98	898.67	0.44	584.14	1490.37	5.78	53.32	11.73	1016.47
14	7.32	253.90	671.03	898.72	0.44	584.17	1490.24	5.64	52.04	11.74	1016.43
15	7.32	251.84	671.00	898.59	0.44	584.08	1490.31	5.52	50.86	11.74	1016.45
16	7.32	249.82	671.13	898.48	0.44	584.01	1490.03	5.40	49.80	11.75	1016.45
17	7.32	248.03	671.04	898.48	0.44	584.01	1490.22	5.30	48.90	11.75	1016.43
18	7.32	247.68	671.03	898.48	0.44	584.01	1490.24	5.28	48.73	11.75	1016.43
19	7.32	245.89	671.12	898.38	0.44	583.95	1490.04	5.20	47.93	11.76	1016.50
20	7.32	243.99	670.90	898.21	0.44	583.84	1490.54	5.12	47.23	11.75	1016.49
21	7.33	242.21	670.87	898.13	0.44	583.78	1490.56	5.06	46.10	11.75	1016.45
22	7.33	240.56	670.89	898.17	0.44	583.81	1490.23	4.99	45.50	11.75	1016.43
23	7.33	239.00	671.04	898.19	0.44	583.79	1490.51	4.87	44.93	11.76	1016.46
24	7.33	236.10	670.92	897.82	0.44	583.58	1491.32	4.82	44.45	11.75	1016.46
25	7.33	234.65	670.69	897.87	0.44	583.62	1491.08	4.78	44.05	11.75	1016.48
26	7.33	233.31	670.85	898.17	0.44	583.81	1490.65	4.75	43.81	11.75	1016.44
27	7.33	231.92	670.75	897.80	0.44	583.57	1490.88	4.72	43.51	11.76	1016.45
28	7.33	230.70	670.83	898.19	0.44	583.82	1490.69	4.69	43.26	11.75	1016.48
29	7.34	229.46	670.75	897.91	0.44	583.64	1490.87	4.67	43.06	11.75	1016.48
30	7.33	228.42	670.83	898.14	0.44	583.79	1490.70	4.65	42.89	11.75	1016.46



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
31	7.33	227.41	670.85	897.94	0.44	583.66	1490.65	4.63	42.73	11.76	1016.45
32	7.33	227.22	670.86	897.92	0.44	583.65	1490.63	4.63	42.70	11.76	1016.45
33	7.34	226.01	670.73	897.99	0.44	583.70	1490.92	4.61	42.53	11.75	1016.50
34	7.34	224.95	670.56	897.61	0.44	583.44	1491.28	4.60	42.42	11.76	1016.49
35	7.33	223.91	670.74	897.96	0.44	583.67	1490.89	4.58	42.22	11.75	1016.47
36	7.34	222.78	670.77	897.91	0.44	583.64	1490.92	4.56	41.97	11.76	1016.50
37	7.34	221.61	670.73	897.82	0.44	583.81	1490.82	4.55	41.93	11.76	1016.51
38	7.34	220.49	670.77	898.17	0.44	583.51	1491.27	4.54	41.84	11.74	1016.54
39	7.34	218.62	670.57	897.93	0.44	583.63	1491.20	4.53	41.76	11.75	1016.50
40	7.34	217.57	670.46	897.51	0.44	583.38	1491.52	4.52	41.73	11.75	1016.55
41	7.34	216.58	670.61	897.98	0.44	583.69	1491.19	4.52	41.64	11.74	1016.54
42	7.34	215.64	670.54	897.73	0.44	583.52	1491.34	4.50	41.52	11.75	1016.54
43	7.34	214.73	670.31	897.62	0.44	583.45	1491.85	4.50	41.45	11.74	1016.53
44	7.34	213.88	670.29	897.46	0.44	583.35	1491.88	4.48	41.34	11.75	1016.50
45	7.34	213.08	670.62	897.97	0.44	583.68	1491.16	4.47	41.25	11.74	1016.51
46	7.34	212.34	670.50	897.68	0.44	583.49	1491.43	4.46	41.17	11.75	1016.51
47	7.34	211.50	670.37	897.77	0.44	583.55	1491.71	4.46	41.09	11.74	1016.55
48	7.34	210.71	670.59	897.92	0.44	583.65	1491.23	4.45	41.05	11.74	1016.51
49	7.34	209.87	670.52	897.90	0.44	583.63	1491.37	4.44	40.96	11.74	1016.49
50	7.34	209.71	670.52	897.90	0.44	583.63	1491.37	4.44	40.94	11.74	1016.49
51	7.34	208.95	670.49	897.83	0.44	583.59	1491.44	4.44	40.91	11.74	1016.50
52	7.34	208.22	670.38	897.78	0.44	583.56	1491.69	4.43	40.85	11.74	1016.51
53	7.34	207.44	670.49	898.05	0.44	583.73	1491.63	4.43	40.74	11.73	1016.54
54	7.35	206.73	670.42	897.88	0.44	583.46	1492.30	4.42	40.73	11.74	1016.52
55	7.35	205.38	670.12	897.63	0.44	583.44	1492.21	4.41	40.68	11.73	1016.55
56	7.35	204.67	670.10	897.75	0.44	583.53	1492.32	4.41	40.65	11.72	1016.59
57	7.35	204.03	670.28	897.86	0.44	583.61	1491.90	4.41	40.63	11.73	1016.52
58	7.35	203.42	670.37	898.18	0.44	583.82	1491.71	4.40	40.56	11.72	1016.54
59	7.35	202.83	670.30	897.92	0.44	583.65	1491.86	4.40	40.52	11.73	1016.51
60	7.32	203.88	670.38	897.19	0.44	583.17	1491.70	4.38	40.38	11.76	1016.51
61	7.32	202.71	670.25	896.81	0.44	582.93	1491.99	4.35	40.11	11.77	1016.54
62	7.33	201.48	670.43	897.26	0.44	583.22	1491.59	4.33	39.94	11.76	1016.54
63	7.33	200.29	670.12	896.80	0.44	582.92	1492.28	4.31	39.78	11.77	1016.57
64	7.34	199.16	670.18	897.09	0.44	583.11	1492.14	4.30	39.66	11.76	1016.55
65	7.34	198.37	670.15	896.96	0.44	583.02	1492.20	4.29	39.58	11.76	1016.59
66	7.34	198.21	670.16	896.96	0.44	583.02	1492.19	4.29	39.56	11.76	1016.59
67	7.34	197.27	670.19	897.17	0.44	583.16	1492.12	4.28	39.50	11.75	1016.59
68	7.34	196.47	670.15	897.04	0.44	583.08	1492.21	4.28	39.48	11.76	1016.60
69	7.35	195.71	670.02	897.18	0.44	583.08	1492.24	4.28	39.43	11.74	1016.61



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
70	7.35	195.01	670.13	897.06	0.44	583.29	1492.18	4.28	39.45	11.76	1016.60
71	7.35	194.30	670.16	897.36	0.44	583.16	1492.18	4.28	39.44	11.74	1016.62
72	7.35	193.09	670.18	897.53	0.44	583.38	1492.13	4.28	39.42	11.75	1016.58
73	7.35	192.36	670.13	897.27	0.44	583.22	1492.26	4.27	39.41	11.75	1016.61
74	7.35	191.83	669.96	897.31	0.44	583.25	1492.62	4.28	39.41	11.74	1016.63
75	7.35	191.24	669.94	897.08	0.44	583.10	1492.67	4.27	39.38	11.74	1016.60
76	7.35	190.69	670.03	897.42	0.44	583.32	1492.47	4.27	39.35	11.73	1016.64
77	7.35	190.09	670.11	897.35	0.44	583.28	1492.30	4.27	39.36	11.74	1016.66
78	7.35	189.55	670.01	897.41	0.44	583.32	1492.52	4.27	39.35	11.73	1016.68
79	7.35	189.08	670.01	897.32	0.44	583.26	1492.52	4.27	39.34	11.74	1016.69
80	7.35	188.50	670.07	897.60	0.44	583.44	1492.39	4.27	39.34	11.73	1016.67
81	7.35	188.40	670.08	897.64	0.44	583.47	1492.37	4.27	39.34	11.73	1016.67
82	7.35	187.83	669.94	897.33	0.44	583.26	1492.67	4.27	39.37	11.73	1016.70
83	7.35	187.29	670.03	897.66	0.44	583.48	1492.47	4.27	39.32	11.72	1016.71
84	7.35	186.83	669.88	897.38	0.44	583.30	1492.55	4.27	39.31	11.73	1016.73
85	7.35	186.37	669.98	897.76	0.44	583.47	1492.32	4.27	39.31	11.72	1016.70
86	7.35	185.49	670.10	897.82	0.44	583.58	1492.53	4.27	39.33	11.73	1016.72
87	7.35	185.02	669.93	897.56	0.44	583.42	1492.72	4.26	39.28	11.72	1016.71
88	7.35	184.54	669.89	897.66	0.44	583.48	1492.78	4.27	39.31	11.72	1016.70
89	7.35	184.07	669.83	897.42	0.44	583.32	1492.92	4.26	39.28	11.72	1016.73
90	7.35	183.64	669.77	897.63	0.44	583.46	1493.05	4.27	39.31	11.71	1016.71
91	7.35	183.20	669.74	897.44	0.44	583.34	1493.11	4.27	39.32	11.72	1016.75
92	7.36	182.76	669.65	897.49	0.44	583.37	1493.32	4.27	39.33	11.71	1016.76
93	7.36	182.36	669.65	897.44	0.44	583.33	1493.32	4.27	39.32	11.71	1016.75
94	7.36	181.98	669.66	897.54	0.44	583.40	1493.29	4.27	39.34	11.71	1016.76
95	7.35	181.60	669.74	897.59	0.44	583.43	1493.12	4.27	39.34	11.71	1016.75
96	7.35	181.53	669.75	897.60	0.44	583.44	1493.09	4.27	39.34	11.71	1016.75
97	7.35	181.18	669.72	897.47	0.44	583.36	1493.16	4.27	39.34	11.71	1016.76
98	7.35	180.85	669.87	897.77	0.44	583.55	1492.84	4.27	39.34	11.71	1016.79
99	7.35	180.49	669.80	897.65	0.44	583.51	1493.27	4.27	39.34	11.71	1016.72
100	7.36	180.17	669.66	897.70	0.44	583.36	1493.44	4.27	39.32	11.70	1016.74
101	7.35	179.86	669.60	897.48	0.44	583.49	1493.49	4.27	39.30	11.71	1016.75
102	7.35	179.57	669.57	897.67	0.44	583.43	1493.43	4.26	39.24	11.70	1016.73
103	7.35	179.04	669.57	897.80	0.44	583.56	1493.49	4.27	39.27	11.70	1016.75
104	7.35	178.80	669.52	897.54	0.44	583.40	1493.61	4.26	39.25	11.70	1016.76
105	7.35	178.52	669.51	897.71	0.44	583.51	1493.64	4.26	39.26	11.69	1016.78
106	7.35	178.28	669.44	897.49	0.44	583.37	1493.78	4.26	39.25	11.70	1016.74
107	7.35	178.04	669.49	897.76	0.44	583.55	1493.68	4.26	39.24	11.69	1016.75
108	7.35	177.81	669.44	897.49	0.44	583.37	1493.80	4.26	39.21	11.70	1016.78



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
109	7.35	177.59	669.45	897.76	0.44	583.54	1493.77	4.26	39.22	11.69	1016.78
110	7.35	177.37	669.42	897.54	0.44	583.40	1493.83	4.26	39.20	11.69	1016.80
111	7.35	177.17	669.40	897.72	0.44	583.52	1493.88	4.25	39.17	11.68	1016.78
112	7.35	177.13	669.39	897.74	0.44	583.53	1493.89	4.25	39.16	11.68	1016.78
113	7.35	176.95	669.34	897.50	0.44	583.37	1494.00	4.26	39.19	11.69	1016.75
114	7.35	176.75	669.32	897.65	0.44	583.47	1494.05	4.26	39.20	11.68	1016.78
115	7.35	176.55	669.35	897.49	0.44	583.37	1494.00	4.26	39.20	11.69	1016.77
116	7.35	176.35	669.35	897.77	0.44	583.55	1493.95	4.25	39.19	11.68	1016.82
117	7.35	176.19	669.37	897.61	0.44	583.61	1493.97	4.25	39.16	11.69	1016.83
118	7.35	176.00	669.36	897.84	0.44	583.52	1493.99	4.25	39.15	11.68	1016.79
119	7.35	175.79	669.35	897.81	0.44	583.57	1494.05	4.26	39.19	11.68	1016.80
120	7.35	175.44	669.32	897.73	0.44	583.52	1494.05	4.25	39.16	11.68	1016.74
121	7.35	175.28	669.36	897.86	0.44	583.61	1493.97	4.25	39.15	11.68	1016.81
122	7.35	175.10	669.33	897.81	0.44	583.57	1494.03	4.25	39.16	11.68	1016.87
123	7.35	174.93	669.28	897.69	0.44	583.50	1494.15	4.25	39.12	11.68	1016.82
124	7.35	174.77	669.21	897.77	0.44	583.55	1494.30	4.25	39.12	11.67	1016.80
125	7.35	174.57	669.20	897.73	0.44	583.53	1494.33	4.25	39.10	11.67	1016.83
126	7.35	174.42	669.17	897.73	0.44	583.53	1494.39	4.25	39.10	11.67	1016.81
127	7.35	174.24	669.17	897.70	0.44	583.50	1494.39	4.25	39.11	11.67	1016.84
128	7.35	174.06	669.22	897.74	0.44	583.53	1494.27	4.25	39.12	11.67	1016.79
129	7.35	173.89	669.22	897.74	0.44	583.53	1494.29	4.25	39.11	11.67	1016.81
130	7.35	173.75	669.21	897.82	0.44	583.58	1494.29	4.24	39.06	11.67	1016.78
131	7.35	173.73	669.21	897.83	0.44	583.59	1494.30	4.24	39.06	11.67	1016.78
132	7.35	173.55	669.13	897.72	0.44	583.52	1494.47	4.25	39.07	11.67	1016.76
133	7.35	173.41	669.11	897.81	0.44	583.58	1494.52	4.25	39.07	11.66	1016.81
134	7.35	173.22	669.13	897.72	0.44	583.52	1494.47	4.24	39.05	11.67	1016.77
135	7.35	173.04	669.14	897.90	0.44	583.63	1494.45	4.24	39.04	11.66	1016.82
136	7.35	172.88	669.16	897.76	0.44	583.70	1494.36	4.24	39.04	11.67	1016.80
137	7.35	172.75	669.18	897.99	0.44	583.58	1494.39	4.24	39.00	11.66	1016.79
138	7.35	172.43	669.17	898.00	0.44	583.69	1494.35	4.24	38.98	11.67	1016.84
139	7.35	172.27	669.15	897.79	0.44	583.56	1494.43	4.24	39.02	11.66	1016.82
140	7.35	172.11	669.18	898.05	0.44	583.73	1494.36	4.24	38.98	11.67	1016.82
141	7.35	171.95	669.16	897.81	0.44	583.58	1494.41	4.24	38.98	11.67	1016.80
142	7.35	171.80	669.13	898.05	0.44	583.73	1494.48	4.23	38.94	11.65	1016.83
143	7.35	171.65	669.11	897.84	0.44	583.59	1494.53	4.23	38.95	11.66	1016.82
144	7.35	171.53	669.09	898.05	0.44	583.73	1494.58	4.23	38.93	11.65	1016.79
145	7.35	171.37	669.09	897.89	0.44	583.63	1494.57	4.23	38.92	11.66	1016.79
146	7.35	171.24	669.08	898.06	0.44	583.74	1494.60	4.23	38.93	11.65	1016.80
147	7.35	171.08	669.09	897.91	0.44	583.64	1494.56	4.23	38.92	11.66	1016.72



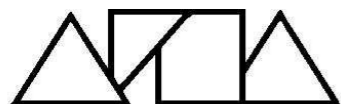
Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
148	7.35	170.94	669.09	898.09	0.44	583.76	1494.58	4.23	38.92	11.65	1016.79
149	7.35	170.83	669.12	897.97	0.44	583.68	1494.51	4.23	38.88	11.66	1016.70
150	7.35	170.81	669.12	897.96	0.44	583.67	1494.50	4.23	38.87	11.66	1016.69
151	7.35	170.64	669.13	898.15	0.44	583.80	1494.47	4.23	38.88	11.65	1016.73
152	7.35	170.52	669.13	897.99	0.44	583.70	1494.48	4.22	38.86	11.66	1016.69
153	7.35	170.41	669.13	898.07	0.44	583.74	1494.50	4.23	38.83	11.65	1016.69
154	7.35	170.27	669.12	898.02	0.44	583.75	1494.49	4.22	38.82	11.65	1016.71
155	7.35	170.00	669.13	898.01	0.44	583.71	1494.51	4.22	38.84	11.65	1016.72
156	7.35	169.90	669.13	897.99	0.44	583.69	1494.48	4.22	38.81	11.65	1016.73
157	7.35	169.80	669.13	898.11	0.44	583.77	1494.48	4.22	38.79	11.65	1016.71
158	7.35	169.67	669.11	897.97	0.44	583.68	1494.53	4.21	38.77	11.66	1016.74
159	7.35	169.57	669.10	898.07	0.44	583.74	1494.54	4.22	38.79	11.65	1016.73
160	7.35	169.44	669.09	897.95	0.44	583.67	1494.57	4.22	38.79	11.66	1016.73
161	7.35	169.32	669.09	898.14	0.44	583.79	1494.57	4.22	38.78	11.65	1016.72
162	7.35	169.22	669.09	897.97	0.44	583.68	1494.58	4.21	38.76	11.66	1016.75
163	7.35	169.08	669.10	898.16	0.44	583.81	1494.55	4.21	38.77	11.65	1016.72
164	7.35	169.05	669.10	898.18	0.44	583.82	1494.54	4.21	38.77	11.65	1016.72
165	7.35	168.96	669.10	898.00	0.44	583.70	1494.54	4.21	38.73	11.65	1016.70
166	7.35	168.84	669.08	898.12	0.44	583.78	1494.59	4.21	38.72	11.65	1016.63
167	7.35	168.71	669.07	897.96	0.44	583.67	1494.60	4.21	38.75	11.65	1016.69
168	7.35	168.63	669.07	898.14	0.44	583.64	1494.65	4.21	38.73	11.65	1016.65
169	7.35	168.48	669.05	897.92	0.44	583.80	1494.64	4.21	38.70	11.65	1016.67
170	7.35	168.39	669.06	898.15	0.44	583.67	1494.68	4.21	38.69	11.65	1016.65
171	7.35	168.18	669.04	898.18	0.44	583.81	1494.65	4.21	38.72	11.65	1016.65
172	7.35	168.07	669.02	898.00	0.44	583.70	1494.72	4.21	38.70	11.65	1016.63
173	7.35	167.95	669.02	898.13	0.44	583.78	1494.72	4.21	38.70	11.64	1016.63
174	7.35	167.86	669.01	897.97	0.44	583.68	1494.75	4.21	38.72	11.65	1016.62
175	7.35	167.75	669.01	898.16	0.44	583.80	1494.75	4.21	38.70	11.64	1016.62
176	7.35	167.64	669.00	897.99	0.44	583.69	1494.78	4.21	38.71	11.65	1016.58
177	7.35	167.55	668.99	898.14	0.44	583.79	1494.80	4.21	38.72	11.64	1016.63
178	7.35	167.46	669.01	898.05	0.44	583.73	1494.74	4.20	38.68	11.65	1016.70
179	7.35	167.44	669.02	898.05	0.44	583.73	1494.73	4.20	38.67	11.65	1016.71
180	7.35	167.33	669.02	898.19	0.44	583.82	1494.72	4.21	38.71	11.64	1016.63
181	7.35	167.23	669.00	898.02	0.44	583.71	1494.76	4.21	38.71	11.65	1016.59
182	7.35	167.12	669.01	898.18	0.44	583.82	1494.75	4.21	38.69	11.64	1016.58
183	7.35	167.02	669.04	898.06	0.44	583.74	1494.69	4.21	38.72	11.65	1016.56
184	7.35	166.94	669.04	898.18	0.44	583.76	1494.65	4.21	38.69	11.64	1016.59
185	7.35	166.82	669.05	898.10	0.44	583.82	1494.67	4.21	38.71	11.65	1016.61
186	7.35	166.74	669.05	898.18	0.44	583.75	1494.69	4.21	38.72	11.64	1016.53



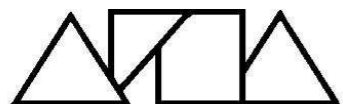
Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
187	7.35	166.54	669.04	898.17	0.44	583.80	1494.68	4.21	38.69	11.65	1016.59
188	7.35	166.44	669.02	898.07	0.44	583.74	1494.71	4.21	38.70	11.64	1016.54
189	7.35	166.32	669.03	898.12	0.44	583.78	1494.69	4.21	38.69	11.65	1016.50
190	7.35	166.23	669.02	898.10	0.44	583.77	1494.71	4.20	38.68	11.65	1016.56
191	7.35	166.12	669.01	898.13	0.44	583.78	1494.76	4.20	38.68	11.64	1016.57
192	7.35	166.05	669.04	898.09	0.44	583.76	1494.68	4.21	38.69	11.65	1016.51
193	7.35	165.95	669.05	898.17	0.44	583.81	1494.66	4.20	38.68	11.64	1016.54
194	7.35	165.85	669.03	898.14	0.44	583.79	1494.70	4.21	38.70	11.64	1016.52
195	7.35	165.77	669.03	898.15	0.44	583.80	1494.69	4.21	38.69	11.64	1016.52
196	7.35	165.68	669.04	898.08	0.44	583.75	1494.68	4.20	38.67	11.65	1016.49
197	7.35	165.66	669.04	898.07	0.44	583.75	1494.67	4.20	38.67	11.65	1016.49
198	7.35	165.58	669.05	898.19	0.44	583.82	1494.66	4.21	38.69	11.64	1016.53
199	7.35	165.51	669.02	898.02	0.44	583.71	1494.73	4.20	38.68	11.65	1016.49
200	7.35	165.40	669.04	898.25	0.44	583.86	1494.68	4.21	38.69	11.64	1016.47
201	7.35	165.30	669.04	898.02	0.44	583.71	1494.70	4.20	38.70	11.65	1016.47
202	7.35	165.24	669.03	898.20	0.44	583.68	1494.68	4.20	38.65	11.64	1016.44
203	7.35	165.12	669.04	897.98	0.44	583.84	1494.67	4.20	38.66	11.65	1016.47
204	7.35	164.97	669.04	897.92	0.44	583.66	1494.77	4.20	38.68	11.64	1016.46
205	7.35	164.88	669.00	898.14	0.44	583.80	1494.77	4.20	38.65	11.65	1016.50
206	7.35	164.80	668.99	897.93	0.44	583.65	1494.80	4.20	38.63	11.65	1016.50
207	7.35	164.72	668.96	898.11	0.44	583.77	1494.85	4.20	38.67	11.64	1016.47
208	7.35	164.63	668.95	897.88	0.44	583.63	1494.87	4.20	38.67	11.65	1016.44
209	7.35	164.55	668.95	898.10	0.44	583.76	1494.89	4.20	38.66	11.64	1016.46
210	7.35	164.46	668.95	897.90	0.44	583.64	1494.88	4.20	38.65	11.65	1016.44
211	7.35	164.39	668.95	898.09	0.44	583.76	1494.88	4.20	38.65	11.64	1016.47
212	7.35	164.33	668.91	897.87	0.44	583.61	1494.98	4.20	38.64	11.65	1016.44
213	7.35	164.22	668.91	898.04	0.44	583.72	1494.97	4.20	38.65	11.64	1016.48
214	7.35	164.14	668.89	897.86	0.44	583.61	1495.01	4.20	38.65	11.65	1016.44
215	7.35	164.12	668.89	897.85	0.44	583.60	1495.01	4.20	38.66	11.65	1016.43
216	7.35	164.05	668.87	898.02	0.44	583.71	1495.07	4.20	38.66	11.64	1016.47
217	7.35	163.98	668.86	897.85	0.44	583.60	1495.08	4.20	38.64	11.65	1016.48
218	7.35	163.89	668.85	898.00	0.44	583.70	1495.18	4.20	38.65	11.64	1016.46
219	7.35	163.82	668.82	897.76	0.44	583.69	1495.21	4.20	38.62	11.65	1016.44
220	7.35	163.75	668.80	897.97	0.44	583.52	1495.29	4.20	38.64	11.64	1016.43
221	7.35	163.59	668.77	897.97	0.44	583.67	1495.29	4.20	38.61	11.65	1016.43
222	7.35	163.53	668.76	897.74	0.44	583.53	1495.31	4.20	38.63	11.64	1016.48
223	7.35	163.45	668.73	897.92	0.44	583.65	1495.38	4.20	38.62	11.65	1016.48
224	7.35	163.38	668.70	897.69	0.44	583.50	1495.44	4.20	38.62	11.65	1016.49
225	7.35	163.31	668.69	897.91	0.44	583.64	1495.46	4.20	38.63	11.63	1016.46



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
226	7.35	163.21	668.70	897.73	0.44	583.52	1495.45	4.20	38.64	11.64	1016.47
227	7.35	163.16	668.69	897.90	0.44	583.64	1495.45	4.20	38.63	11.64	1016.49
228	7.35	163.10	668.68	897.75	0.44	583.54	1495.49	4.20	38.61	11.64	1016.48
229	7.35	163.04	668.68	897.93	0.44	583.66	1495.48	4.20	38.59	11.63	1016.51
230	7.35	162.97	668.67	897.76	0.44	583.54	1495.51	4.19	38.57	11.64	1016.50
231	7.35	162.92	668.66	897.96	0.44	583.67	1495.53	4.20	38.59	11.63	1016.48
232	7.35	162.84	668.66	897.85	0.44	583.60	1495.52	4.19	38.56	11.64	1016.50
233	7.35	162.82	668.66	897.85	0.44	583.60	1495.52	4.19	38.55	11.64	1016.50
234	7.35	162.76	668.67	897.95	0.44	583.67	1495.50	4.19	38.58	11.63	1016.47
235	7.35	162.69	668.67	897.86	0.44	583.61	1495.50	4.19	38.54	11.64	1016.47
236	7.35	162.64	668.66	897.98	0.44	583.69	1495.56	4.19	38.55	11.63	1016.42
237	7.35	162.58	668.65	897.94	0.44	583.66	1495.57	4.19	38.54	11.63	1016.41
238	7.35	162.51	668.64	897.93	0.44	583.73	1495.54	4.19	38.53	11.63	1016.43
239	7.35	162.40	668.65	898.05	0.44	583.65	1495.55	4.19	38.52	11.63	1016.48
240	7.35	162.32	668.65	898.06	0.44	583.73	1495.55	4.19	38.53	11.63	1016.52
241	7.35	162.26	668.65	897.98	0.44	583.69	1495.54	4.19	38.50	11.63	1016.44
242	7.35	162.22	668.83	898.28	0.44	583.88	1495.14	4.19	38.52	11.63	1016.48
243	7.35	162.15	668.72	898.10	0.44	583.77	1495.39	4.19	38.52	11.63	1016.50
244	7.35	162.09	668.64	898.08	0.44	583.75	1495.56	4.19	38.51	11.62	1016.50
245	7.35	162.06	668.67	898.06	0.44	583.74	1495.51	4.19	38.49	11.63	1016.48
246	7.35	161.99	668.68	898.13	0.44	583.79	1495.47	4.19	38.51	11.62	1016.50
247	7.35	161.93	668.69	898.08	0.44	583.75	1495.47	4.19	38.49	11.63	1016.48
248	7.35	161.87	668.69	898.12	0.44	583.78	1495.47	4.19	38.50	11.63	1016.52
249	7.35	161.82	668.69	898.05	0.44	583.73	1495.45	4.19	38.51	11.63	1016.48
250	7.35	161.73	668.71	898.20	0.44	583.83	1495.43	4.19	38.49	11.62	1016.51
251	7.35	161.72	668.71	898.22	0.44	583.84	1495.42	4.19	38.49	11.62	1016.51
252	7.35	161.71	668.69	898.03	0.44	583.72	1495.45	4.19	38.50	11.63	1016.47
253	7.35	161.66	668.71	898.23	0.44	583.85	1495.30	4.18	38.47	11.62	1016.50
254	7.35	161.58	668.76	898.12	0.44	583.89	1495.37	4.19	38.52	11.63	1016.50
255	7.35	161.53	668.73	898.05	0.44	583.74	1495.36	4.19	38.49	11.62	1016.50
256	7.35	161.47	668.75	898.29	0.44	583.89	1495.32	4.19	38.48	11.63	1016.51
257	7.35	161.43	668.74	898.05	0.44	583.73	1495.34	4.18	38.48	11.62	1016.46
258	7.35	161.37	668.76	898.29	0.44	583.89	1495.31	4.18	38.48	11.62	1016.51
259	7.35	161.32	668.76	898.07	0.44	583.75	1495.30	4.18	38.45	11.63	1016.55
260	7.35	161.28	668.78	898.24	0.44	583.86	1495.26	4.18	38.44	11.63	1016.52
261	7.35	161.25	668.76	898.11	0.44	583.77	1495.32	4.18	38.43	11.63	1016.56
262	7.35	161.20	668.77	898.20	0.44	583.83	1495.27	4.18	38.47	11.63	1016.49
263	7.35	161.15	668.79	898.13	0.44	583.79	1495.24	4.18	38.44	11.63	1016.54
264	7.35	161.11	668.82	898.23	0.44	583.85	1495.17	4.18	38.45	11.63	1016.50



Reading	pH	ORP (mV)	Actual Conductivity (µS/cm)	Specific Conductivity (µS/cm)	Salinity (PSU)	Total Dissolved Solids (ppm)	Resistivity (Ω·cm)	RDO Concentration (mg/L)	RDO Saturation (%Sat)	Temperature (°C)	Barometric Pressue (mbar)
265	7.35	161.05	668.82	898.26	0.44	583.87	1495.17	4.18	38.48	11.63	1016.51
266	7.35	161.01	668.82	898.14	0.44	583.79	1495.17	4.18	38.45	11.63	1016.52
267	7.35	161.01	668.82	898.13	0.44	583.78	1495.17	4.18	38.44	11.63	1016.52
268	7.35	160.98	668.83	898.33	0.44	583.91	1495.14	4.18	38.45	11.62	1016.51
269	7.35	160.94	668.89	898.21	0.44	583.84	1495.02	4.18	38.43	11.63	1016.51
270	7.35	160.88	668.78	898.25	0.44	583.86	1495.26	4.18	38.44	11.62	1016.54
271	7.35	160.83	668.85	898.15	0.44	583.80	1495.09	4.18	38.40	11.63	1016.55
272	7.35	160.81	668.88	898.36	0.44	583.78	1495.03	4.18	38.44	11.63	1016.54
273	7.35	160.74	668.89	898.13	0.44	583.97	1494.94	4.18	38.41	11.64	1016.56
274	7.35	160.68	668.89	898.13	0.44	583.80	1495.00	4.18	38.41	11.63	1016.53
275	7.35	160.63	668.94	898.39	0.44	583.96	1494.91	4.18	38.42	11.63	1016.52
276	7.35	160.60	668.94	898.22	0.44	583.84	1494.90	4.17	38.39	11.64	1016.54
277	7.35	160.56	668.93	898.33	0.44	583.92	1494.93	4.17	38.37	11.63	1016.57
278	7.35	160.50	668.89	898.17	0.44	583.81	1495.01	4.17	38.38	11.64	1016.59
279	7.35	160.48	668.88	898.28	0.44	583.88	1495.03	4.17	38.38	11.63	1016.55
280	7.35	160.46	668.88	898.10	0.44	583.77	1495.04	4.17	38.34	11.64	1016.56
281	7.35	160.42	668.89	898.28	0.44	583.88	1495.02	4.17	38.36	11.63	1016.56
282	7.35	160.38	668.90	898.16	0.44	583.80	1495.00	4.17	38.33	11.64	1016.54
283	7.35	160.33	668.90	898.25	0.44	583.86	1495.00	4.17	38.33	11.63	1016.55
284	7.35	160.32	668.90	898.25	0.44	583.86	1495.00	4.17	38.33	11.63	1016.55
285	7.35	160.31	668.87	898.09	0.44	583.76	1495.05	4.17	38.33	11.64	1016.56
286	7.35	160.26	668.87	898.23	0.44	583.85	1495.05	4.16	38.30	11.63	1016.58
287	7.35	160.23	668.87	898.04	0.44	583.73	1495.10	4.16	38.31	11.64	1016.60
288	7.35	160.20	668.85	898.07	0.44	583.71	1495.18	4.17	38.33	11.64	1016.61
289	7.35	160.16	668.82	898.02	0.44	583.67	1495.20	4.16	38.29	11.64	1016.59
290	7.35	160.08	668.81	897.93	0.44	583.65	1495.33	4.16	38.25	11.64	1016.57
291	7.35	160.06	668.71	897.83	0.44	583.59	1495.42	4.16	38.28	11.64	1016.58
292	7.35	160.03	668.69	897.85	0.44	583.61	1495.46	4.16	38.28	11.64	1016.60
293	7.35	160.01	668.60	897.68	0.44	583.49	1495.66	4.16	38.26	11.64	1016.59
294	7.35	159.97	668.59	897.77	0.44	583.55	1495.69	4.16	38.27	11.63	1016.58
295	7.35	159.93	668.57	897.73	0.44	583.52	1495.74	4.16	38.25	11.64	1016.62
296	7.35	159.91	668.55	897.74	0.44	583.53	1495.76	4.16	38.24	11.63	1016.59
297	7.35	159.89	668.51	897.62	0.44	583.45	1495.86	4.16	38.25	11.64	1016.62
298	7.35	159.85	668.48	897.75	0.44	583.53	1495.94	4.16	38.21	11.63	1016.59
299	7.35	159.84	668.47	897.60	0.44	583.44	1495.96	4.16	38.24	11.63	1016.61
300	7.35	159.83	668.46	897.59	0.44	583.43	1495.97	4.16	38.24	11.64	1016.61



Calibration Report

Instrument Aqua TROLL 500
Serial Number 755044
Created 10/14/2020

Sensor pH/ORP
Serial Number 742309
Last Calibrated 10/14/2020

Calibration Details

Calibration Point 1

pH of Buffer 7.02 pH
pH mV -14.2 mV
Temperature 19.27 °C

Pre Measurement

pH 7.21 pH
pH mV -14.4 mV

Post Measurement

pH 7.02 pH
pH mV -13.9 mV

Slope and Offset 1

Slope -58.02 mV/pH
Offset -13.0 mV

ORP

ORP Solution ZoBell's
Offset -6.0 mV
Temperature 18.63 °C
Pre Measurement 236.1 mV
Post Measurement 237.4 mV

Sensor Conductivity
Serial Number 754351
Last Calibrated 10/14/2020

Calibration Details

TDS Conversion Factor (ppm) 0.65
Cell Constant 1.014
Reference Temperature 25.00 °C

Pre Measurement

Actual Conductivity 1,258.9 $\mu\text{S}/\text{cm}$
Specific Conductivity 1,396.2 $\mu\text{S}/\text{cm}$

Post Measurement

Actual Conductivity 1,274.0 $\mu\text{S}/\text{cm}$
Specific Conductivity 1,413.0 $\mu\text{S}/\text{cm}$

Sensor RDO
Serial Number 751761
Last Calibrated Factory Defaults

APPENDIX E: IN-SITU PERMEABILITY TESTING RECORDS



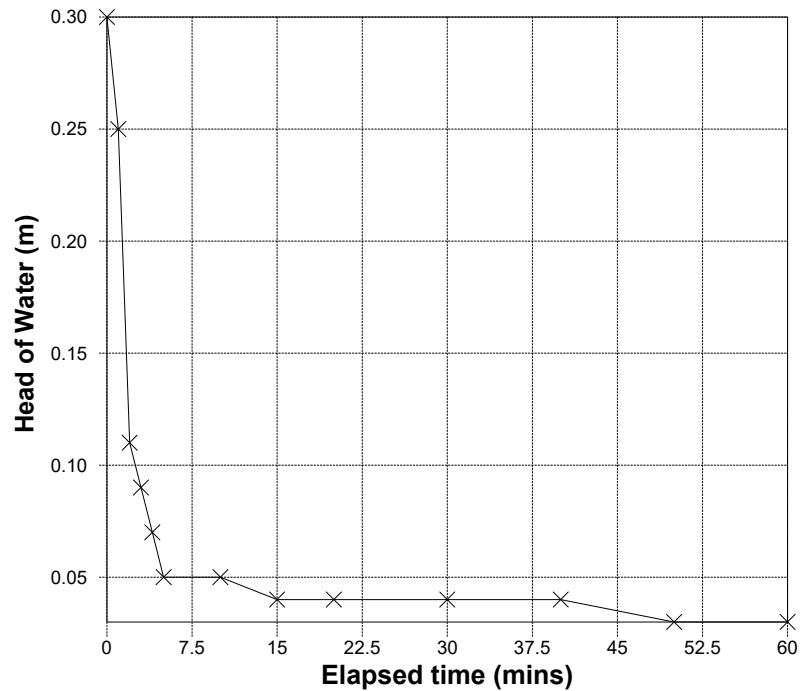


In Situ Permeability Type Rising Head	Test No. 1	Ground Level (mOD) 10.29	Client Anglian Water Services Limited	Job Number 20.245
	Location 549410 E 261505 N	Dates 16/10/2020	Engineer Mott Macdonald	Sheet 1/5

Height of Standpipe above ground level:	0.00 m
Depth to Base of Filter:	10.50 m bgl
Depth to Top of Filter:	3.00 m bgl
Depth to equilibrium water level:	5.70 m btoc
Test Length L:	7.50 m
Diameter of Test Length D:	0.05 m
Area of Test Section:	0.0020 m ²
Intake Factor F: (after BS 5930, figure 7)	9.4647

PERMEABILITY (after Hvorslev, 1951)
General Approach
H1 selected at t= 0.11 m (=t1 = 115.8 secs)
H2 selected at t= 0.034 m (=t2 = 3599.4 secs)
k = 6.99E-08 ms ⁻¹

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	6.000	0.300	1.000
1.00	5.950	0.250	0.833
2.00	5.810	0.110	0.367
3.00	5.790	0.090	0.300
4.00	5.770	0.070	0.233
5.00	5.750	0.050	0.167
10.00	5.750	0.050	0.167
15.00	5.740	0.040	0.133
20.00	5.740	0.040	0.133
30.00	5.740	0.040	0.133
40.00	5.740	0.040	0.133
50.00	5.730	0.030	0.100
60.00	5.730	0.030	0.100



Remarks

1. Rising head permeability test performed in the standpipe.

Key: bgl = Below Ground Level btoc = Below Top of Casing

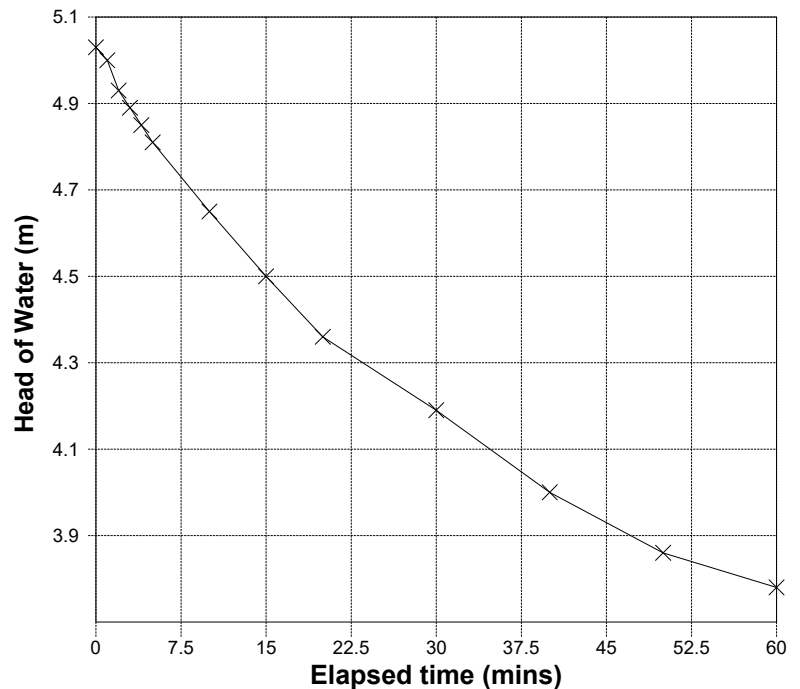


In Situ Permeability Type Rising Head	Test No. 1	Ground Level (mOD) 11.39	Client Anglian Water Services Limited	Job Number 20.245
	Location 545644 E 263054 N	Dates 16/10/2020	Engineer Mott Macdonald	Sheet 2/5

Height of Standpipe above ground level:	0.00 m
Depth to Base of Filter:	24.00 m bgl
Depth to Top of Filter:	22.00 m bgl
Depth to equilibrium water level:	2.20 m btoc
Test Length L:	2.00 m
Diameter of Test Length D:	0.05 m
Area of Test Section:	0.0020 m ²
Intake Factor F: (after BS 5930, figure 7)	3.2728

PERMEABILITY (after Hvorslev, 1951)
General Approach
H1 selected at t= 5.03 m (=t1 = 10.8 secs)
H2 selected at t= 3.783 m (=t2 = 3599.4 secs)
k = 4.76E-08 ms ⁻¹

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	7.230	5.030	1.000
1.00	7.200	5.000	0.994
2.00	7.130	4.930	0.980
3.00	7.090	4.890	0.972
4.00	7.050	4.850	0.964
5.00	7.010	4.810	0.956
10.00	6.850	4.650	0.924
15.00	6.700	4.500	0.895
20.00	6.560	4.360	0.867
30.00	6.390	4.190	0.833
40.00	6.200	4.000	0.795
50.00	6.060	3.860	0.767
60.00	5.980	3.780	0.751



Remarks

1. Rising head permeability test performed in the standpipe.

Key: bgl = Below Ground Level btoc = Below Top of Casing

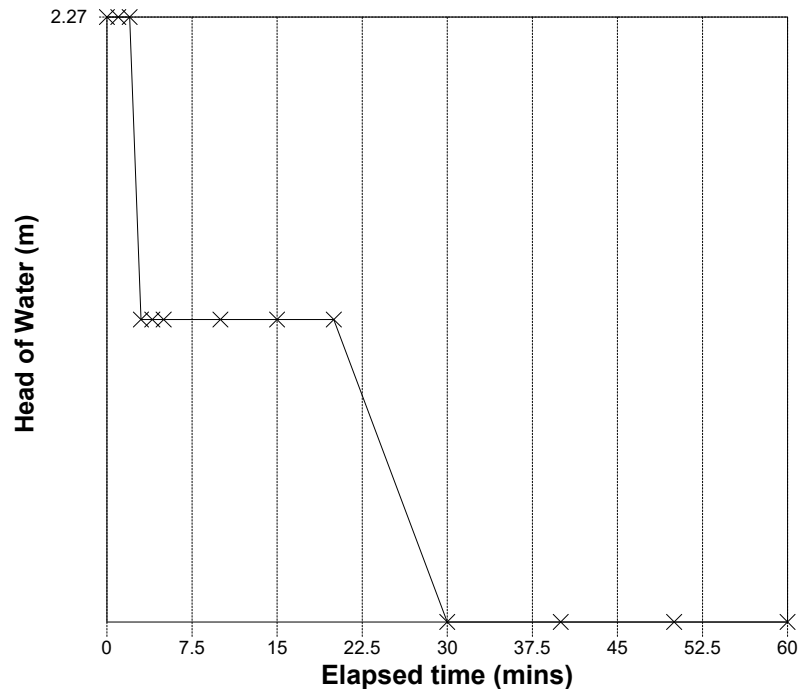


In Situ Permeability Type Rising Head	Test No. 2	Ground Level (mOD) 11.39	Client Anglian Water Services Limited	Job Number 20.245
	Location 545644 E 263054 N	Dates 30/09/2020	Engineer Mott Macdonald	Sheet 3/5

Height of casing above ground level:	0.00 m
Depth to Base of Borehole:	24.00 m bgl
Depth to Base of Casing:	21.90 m bgl
Depth to equilibrium water level:	0.00 m bgl
Test Length L:	2.10 m
Diameter of Test Length D:	0.17 m
Area of Test Section:	0.0222 m ²
Intake Factor F: (after condition F, figure 6, BS 5930)	45.2296

PERMEABILITY (after Hvorslev, 1951)
General Approach
H1 selected at t= 2.27 m (=t1 = 5.4 secs)
H2 selected at t= 2.254 m (=t2 = 3604.8 secs)
k = 9.63E-10 ms ⁻¹

Elapsed time (mins)	Depth to water (m bgl)	Head of Water, H (m)	Ht / Ho
0.00	2.270	2.270	1.000
1.00	2.270	2.270	1.000
2.00	2.270	2.270	1.000
3.00	2.265	2.265	0.998
4.00	2.265	2.265	0.998
5.00	2.265	2.265	0.998
10.00	2.265	2.265	0.998
15.00	2.265	2.265	0.998
20.00	2.265	2.265	0.998
30.00	2.260	2.260	0.996
40.00	2.260	2.260	0.996
50.00	2.260	2.260	0.996
60.00	2.260	2.260	0.996



Remarks

- Rising head permeability test performed in the borehole during drilling. 30/09/2020.
- Groundwater depth at start of the shift rose to 2.20 m at 7:30 am. 1/10/2020

Key: bgl = Below Ground Level btoc = Below Top of Casing

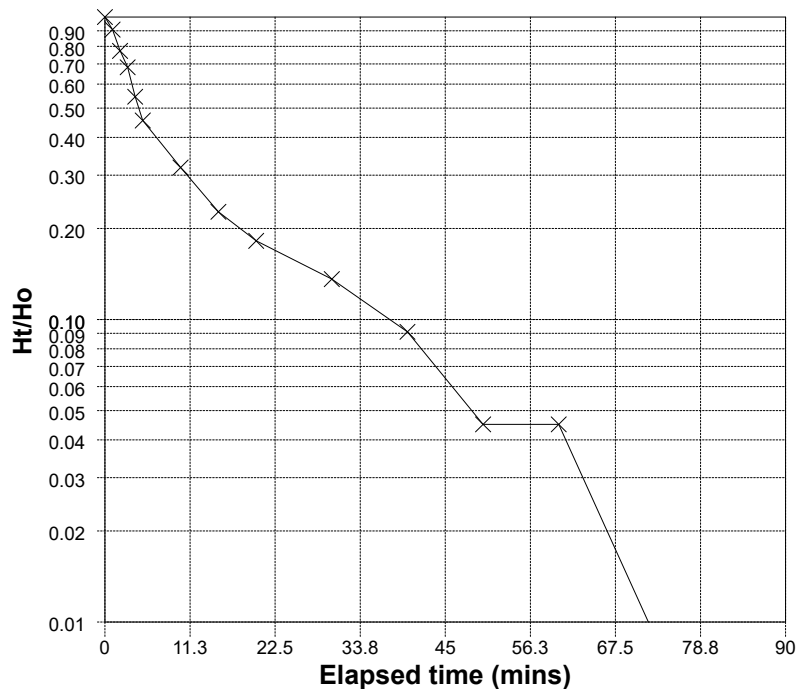


In Situ Permeability Type Rising Head	Test No. 1	Ground Level (mOD) 8.66	Client Anglian Water Services Limited	Job Number 20.245
	Location 547524 E 263839 N	Dates 11/09/2020	Engineer Mott Macdonald	Sheet 4/5

Height of casing above ground level:	1.00 m
Depth to Base of Borehole:	33.90 m bgl
Depth to Base of Casing:	5.00 m bgl
Depth to equilibrium water level:	3.30 m bgl
Test Length L:	28.90 m
Diameter of Test Length D:	0.15 m
Area of Test Section:	0.0167 m ²
Intake Factor F: (after condition F, figure 6, BS 5930)	694.4886

PERMEABILITY (after Hvorslev, 1951)	
Basic Time Lag Analysis	
The value T when $H_t/H_o = 0.37$ is the basic time lag, T	
T =	8.10
k =	4.96E-08 ms ⁻¹

Elapsed time (mins)	Depth to water (m bgl)	Head of Water, H (m)	Ht / Ho
0.00	5.500	2.200	1.000
1.00	5.300	2.000	0.909
2.00	5.000	1.700	0.773
3.00	4.800	1.500	0.682
4.00	4.500	1.200	0.545
5.00	4.300	1.000	0.455
10.00	4.000	0.700	0.318
15.00	3.800	0.500	0.227
20.00	3.700	0.400	0.182
30.00	3.600	0.300	0.136
40.00	3.500	0.200	0.091
50.00	3.400	0.100	0.045
60.00	3.400	0.100	0.045
90.00	3.300	0.000	0.000



Remarks

1. Rising head permeability test performed in the borehole during drilling. 11/09/2020.

Key: bgl = Below Ground Level btoc = Below Top of Casing

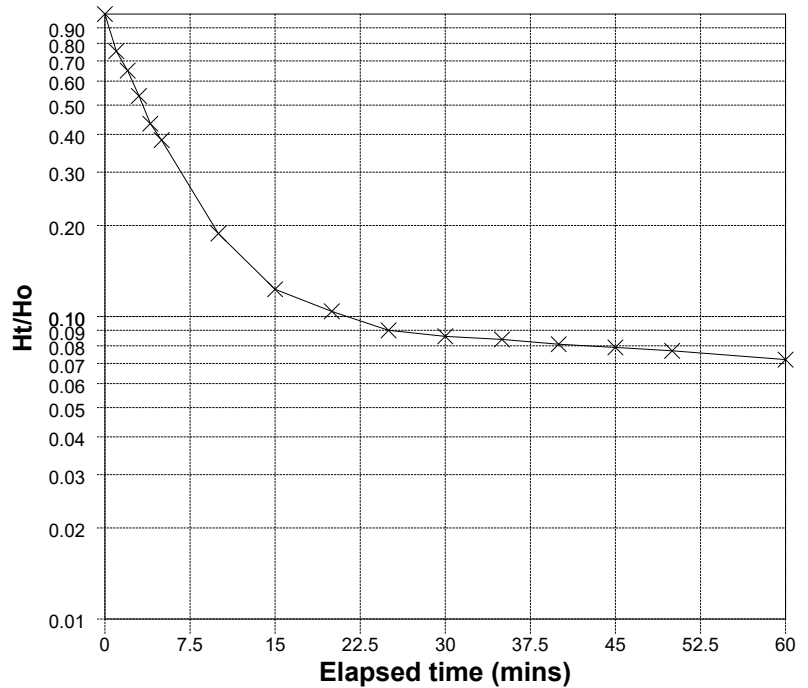


In Situ Permeability Type Rising Head	Test No. 2	Ground Level (mOD) 8.66	Client Anglian Water Services Limited	Job Number 20.245
	Location 547524 E 263839 N	Dates 06/11/2020	Engineer Mott Macdonald	Sheet 5/5

Height of Standpipe above ground level:	0.00 m
Depth to Base of Filter:	30.00 m bgl
Depth to Top of Filter:	27.50 m bgl
Depth to equilibrium water level:	4.15 m bgl
Test Length L:	2.50 m
Diameter of Test Length D:	0.05 m
Area of Test Section:	0.0020 m ²
Intake Factor F: (after BS 5930, figure 7)	3.8959

PERMEABILITY (after Hvorslev, 1951)	
Basic Time Lag Analysis	
The value T when $H_t/H_o = 0.37$ is the basic time lag, T	
T =	5.33
k =	1.57E-06 ms ⁻¹

Elapsed time (mins)	Depth to water (m bgl)	Head of Water, H (m)	Ht / Ho
0.00	8.460	4.310	1.000
1.00	7.400	3.250	0.754
2.00	6.950	2.800	0.650
3.00	6.460	2.310	0.536
4.00	6.020	1.870	0.434
5.00	5.800	1.650	0.383
10.00	4.960	0.810	0.188
15.00	4.680	0.530	0.123
20.00	4.600	0.450	0.104
25.00	4.540	0.390	0.090
30.00	4.520	0.370	0.086
35.00	4.510	0.360	0.084
40.00	4.500	0.350	0.081
45.00	4.490	0.340	0.079
50.00	4.480	0.330	0.077
60.00	4.460	0.310	0.072



Remarks

1. Rising head permeability test performed in the standpipe.

Key: bgl = Below Ground Level btoc = Below Top of Casing

APPENDIX F: ROCK CORE PHOTOGRAPHS



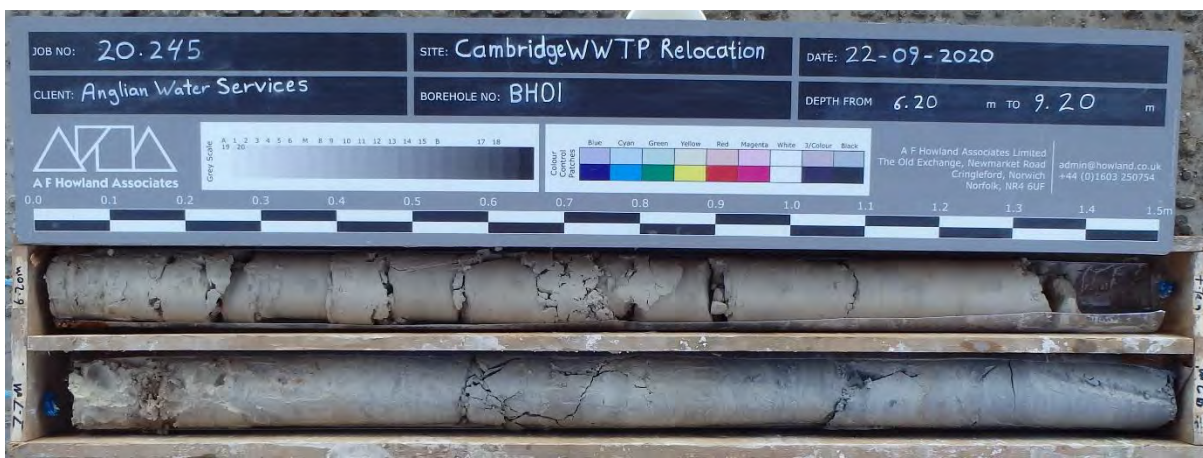
BH01 1.20 m to 4.00 m



BH01 4.00 m to 6.20 m



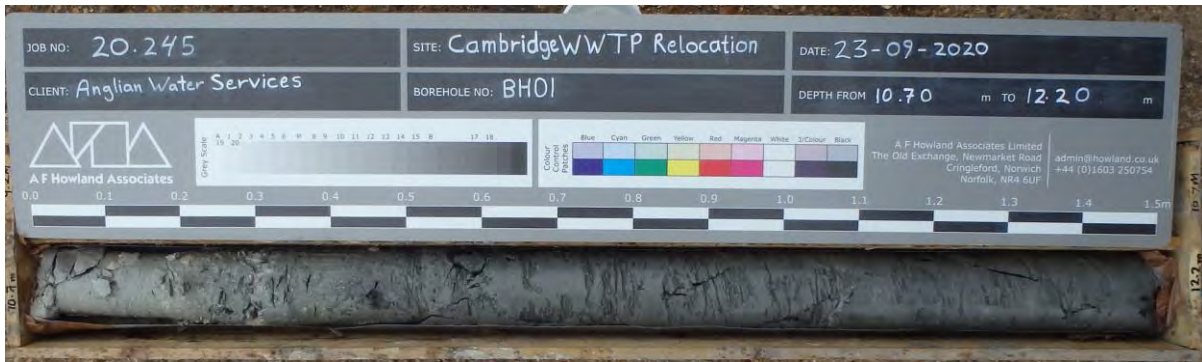
BH01 6.20 m to 9.20 m



BH01 9.20 m to 10.70 m



BH01 10.70 m to 12.20 m



BH01 12.20 m to 15.20 m



BH01 15.20 m to 18.20 m



BH01 18.20 m to 21.20 m



BH01 21.20 m to 24.20 m



BH01 24.20 m to 27.20 m



BH01 27.20 m to 30.20 m



BH02 1.20 m to 3.20 m



BH02 3.20 m to 5.20 m



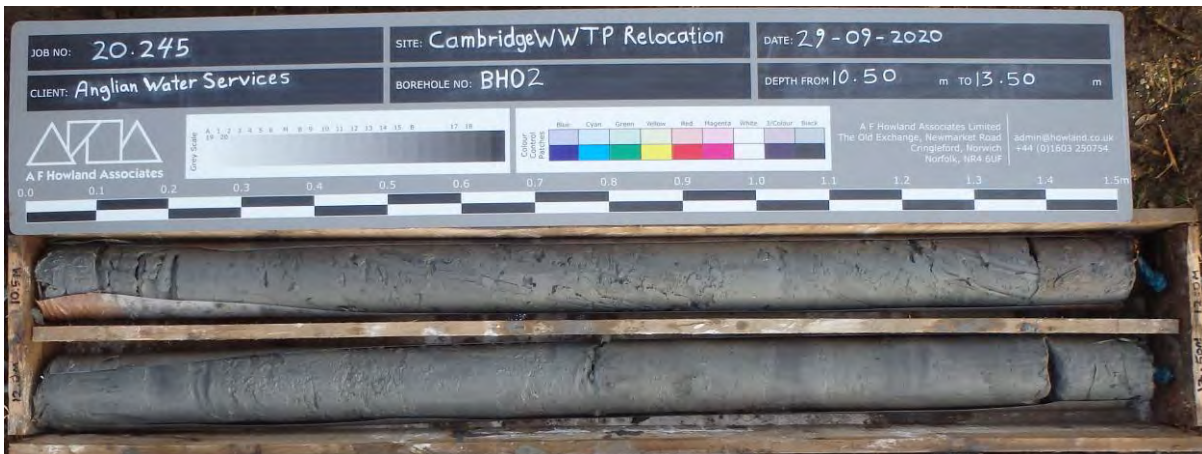
BH02 5.20 m to 7.50 m



BH02 7.50 m to 10.50 m



BH02 10.50 m to 13.50 m



BH02 13.50 m to 15.00 m



BH02 15.00 m to 18.00 m



BH02 18.00 m to 21.00 m



BH02 21.00 m to 24.00 m



BH02 24.00 m to 27.00 m



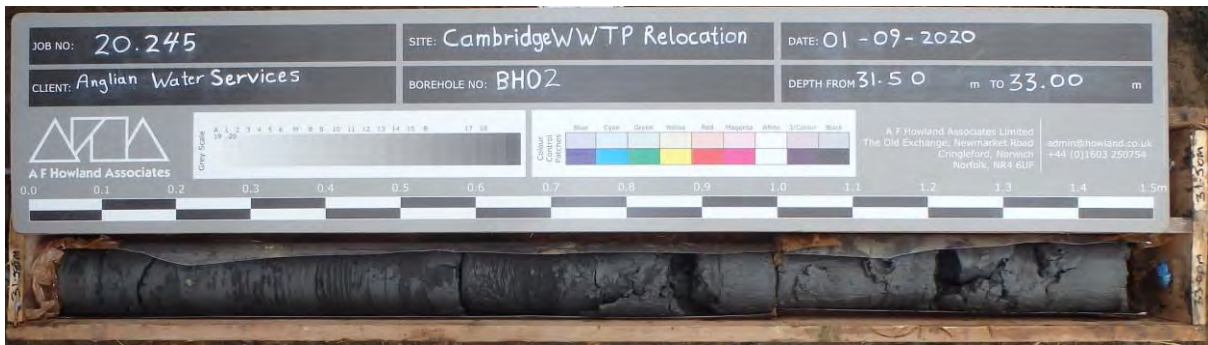
BH02 27.00 m to 30.00 m



BH02 30.00 m to 31.50 m



BH02 31.50 m to 33.00 m



BH02 33.00 m to 36.00 m



BH02 36.00 m to 39.00 m



BH02 39.00 m to 40.50 m



BH03 1.20 m to 2.00 m



BH03 2.00 m to 4.00 m



BH03 4.00 m to 5.00 m



BH03 5.00 m to 7.50 m



BH03 7.50 m to 10.50 m



BH03 10.50 m to 13.50 m



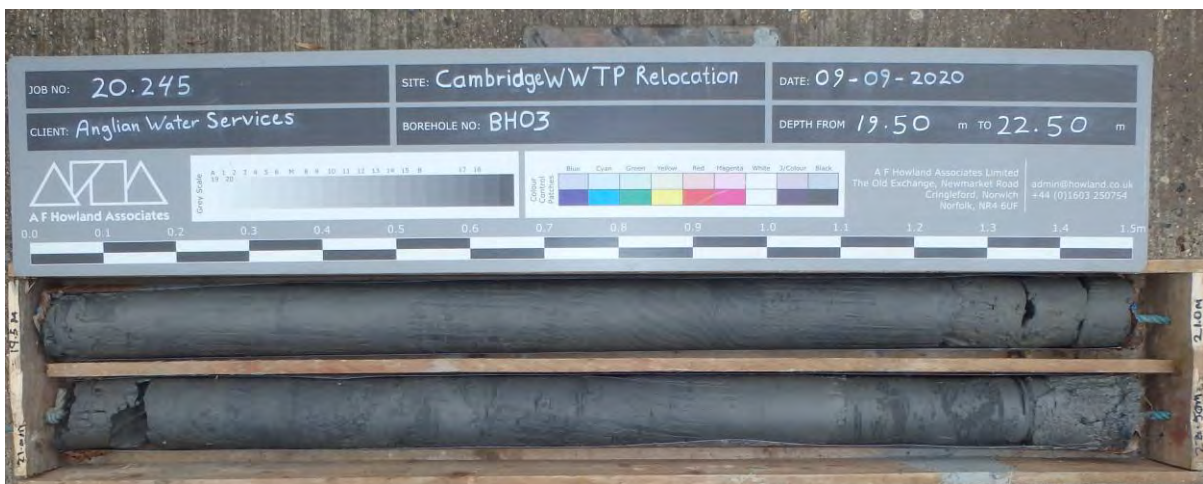
BH03 13.50 m to 16.50 m



BH03 16.50 m to 19.50 m



BH03 19.50 m to 22.50 m



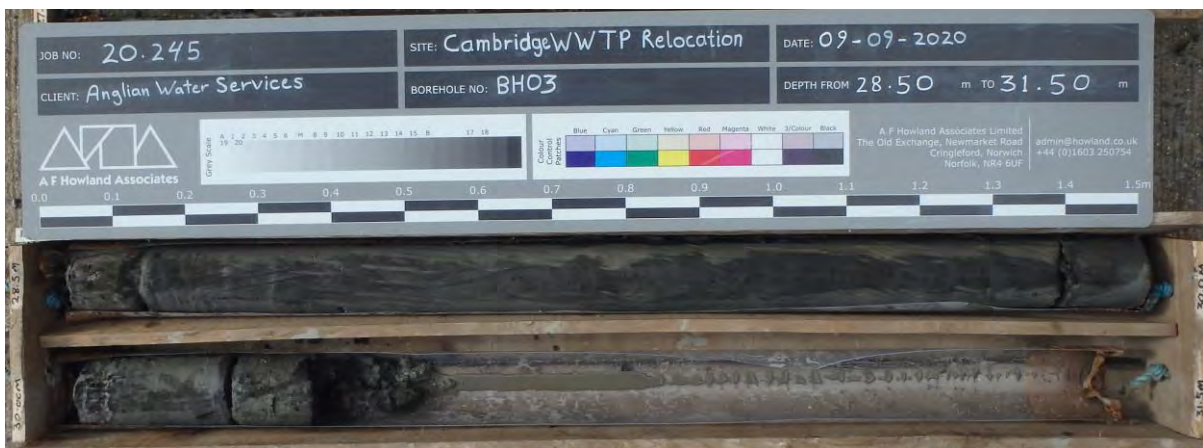
BH03 22.50 m to 25.50 m



BH03 25.50 m to 28.50 m



BH03 28.50 m to 31.50 m



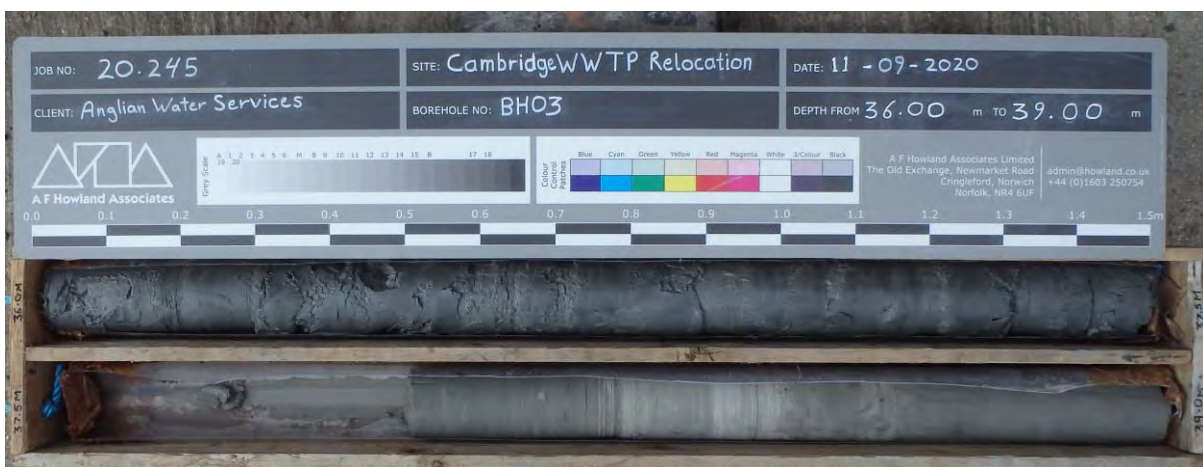
BH03 31.50 m to 33.00 m



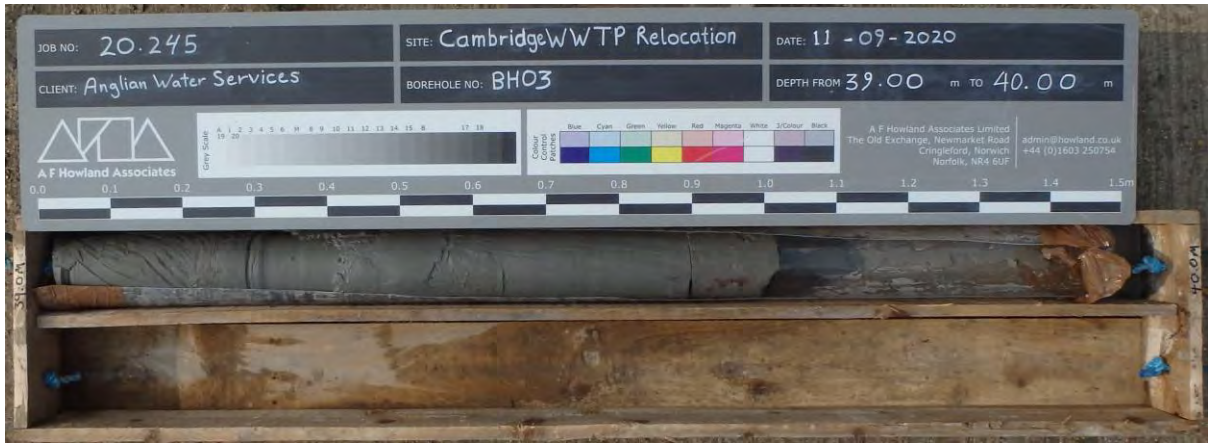
BH03 33.00 m to 36.00 m



BH03 36.00 m to 39.00 m



BH03 39.00 m to 40.00 m



BH04 1.20 m to 3.20 m



BH04 3.20 m to 5.20 m



BH04 5.20 m to 6.70 m



BH04 6.70 m to 7.50 m



BH04 7.50 m to 10.50 m



BH04 10.50 m to 13.50 m



BH04 13.50 m to 16.50 m



BH04 16.50 m to 19.50 m



BH04 19.50 m to 22.50 m



BH04 22.50 m to 25.50 m



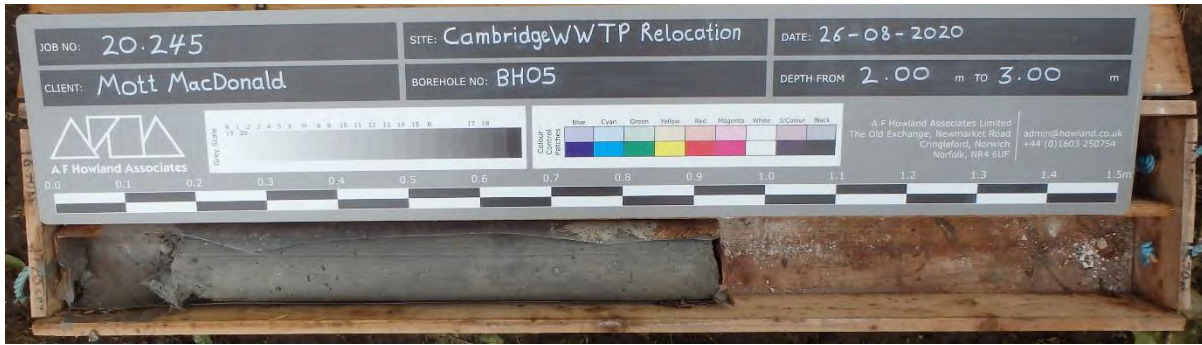
BH04 25.50 m to 28.50 m



BH04 28.50 m to 30.00 m



BH05 2.00 m to 3.00 m



BH05 3.00 m to 5.00 m



BH05 5.00 m to 6.50 m



BH05 6.50 m to 9.00 m



BH05 9.00 m to 12.00 m



BH05 12.00 m to 15.00 m



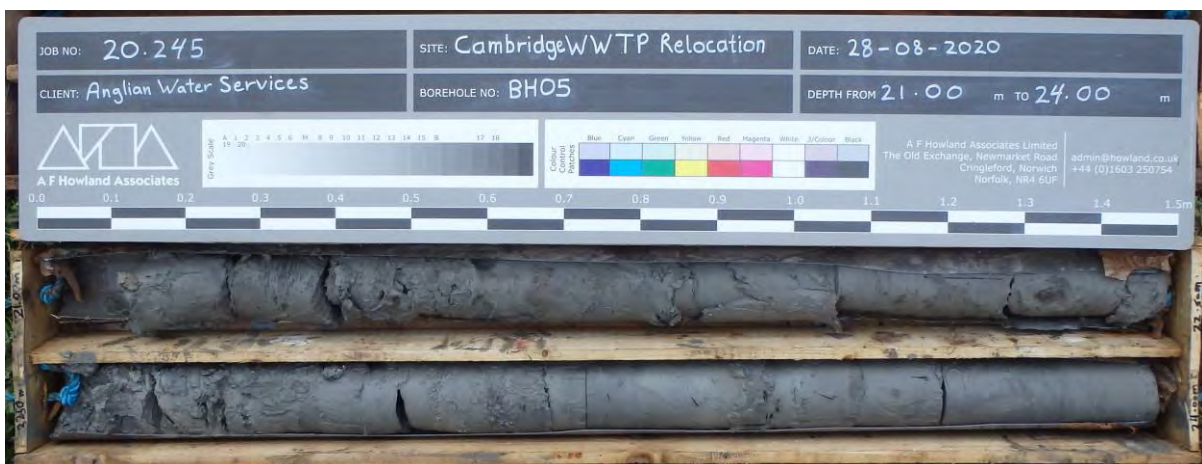
BH05 15.00 m to 18.00 m



BH05 18.00 m to 21.00 m



BH05 21.00 m to 24.00 m



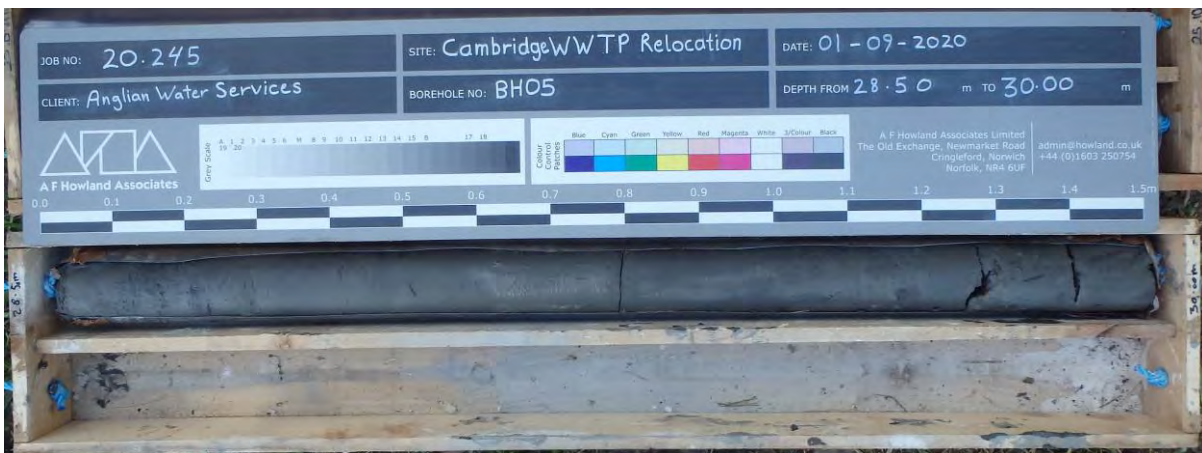
BH05 24.00 m to 27.00 m



BH05 27.00 m to 28.50 m



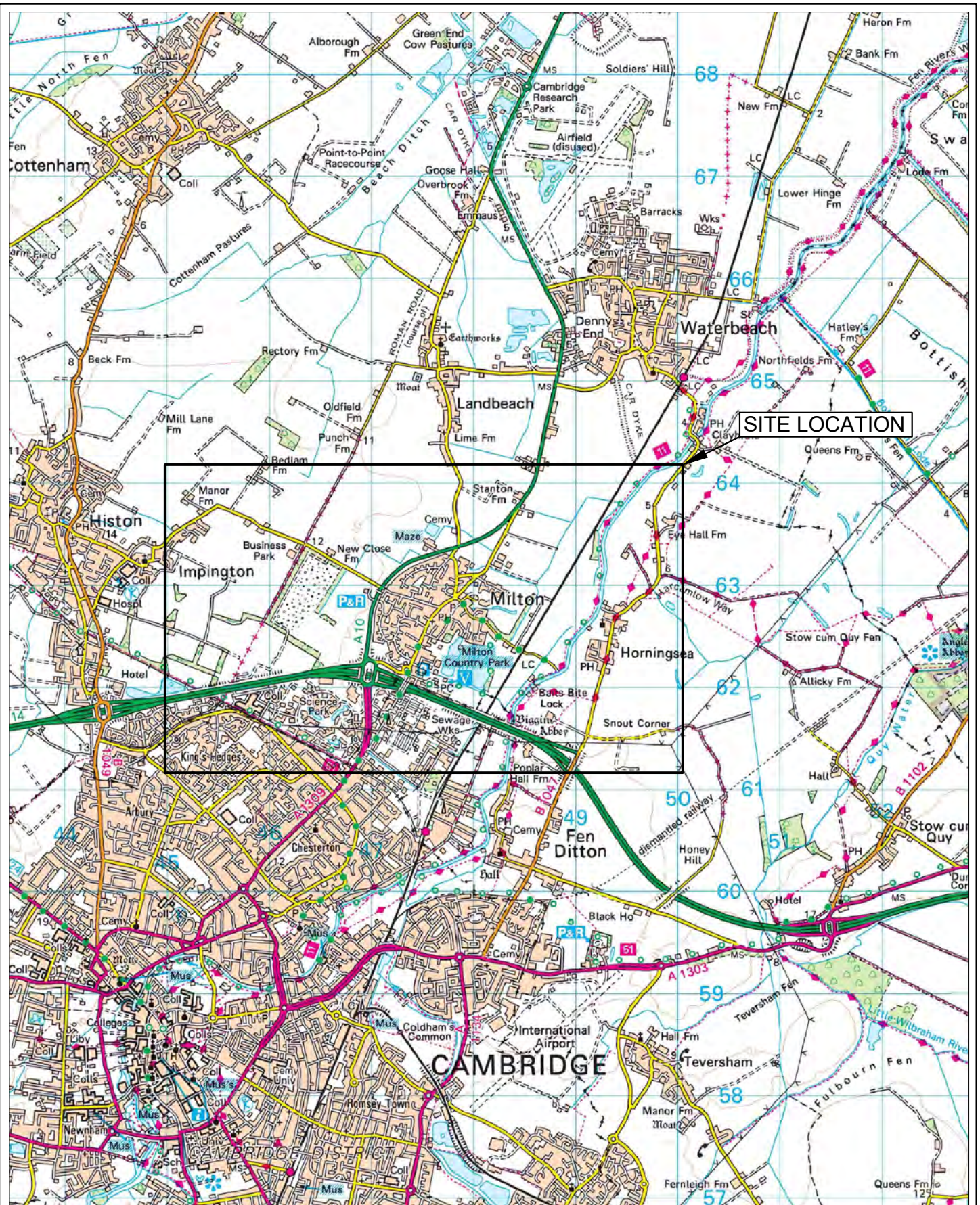
BH05 28.50 m to 30.00 m



APPENDIX G: DRAWINGS

Drawing 20.245/01	Site Location Plan
Drawing 20.245/02	Exploratory Hole Location Plan





North



Box indicates approximate location of drawing 20.245/02



A F Howland Associates
Geotechnical Engineers

Site: Cambridge WWTP Relocation

SITE LOCATION PLAN

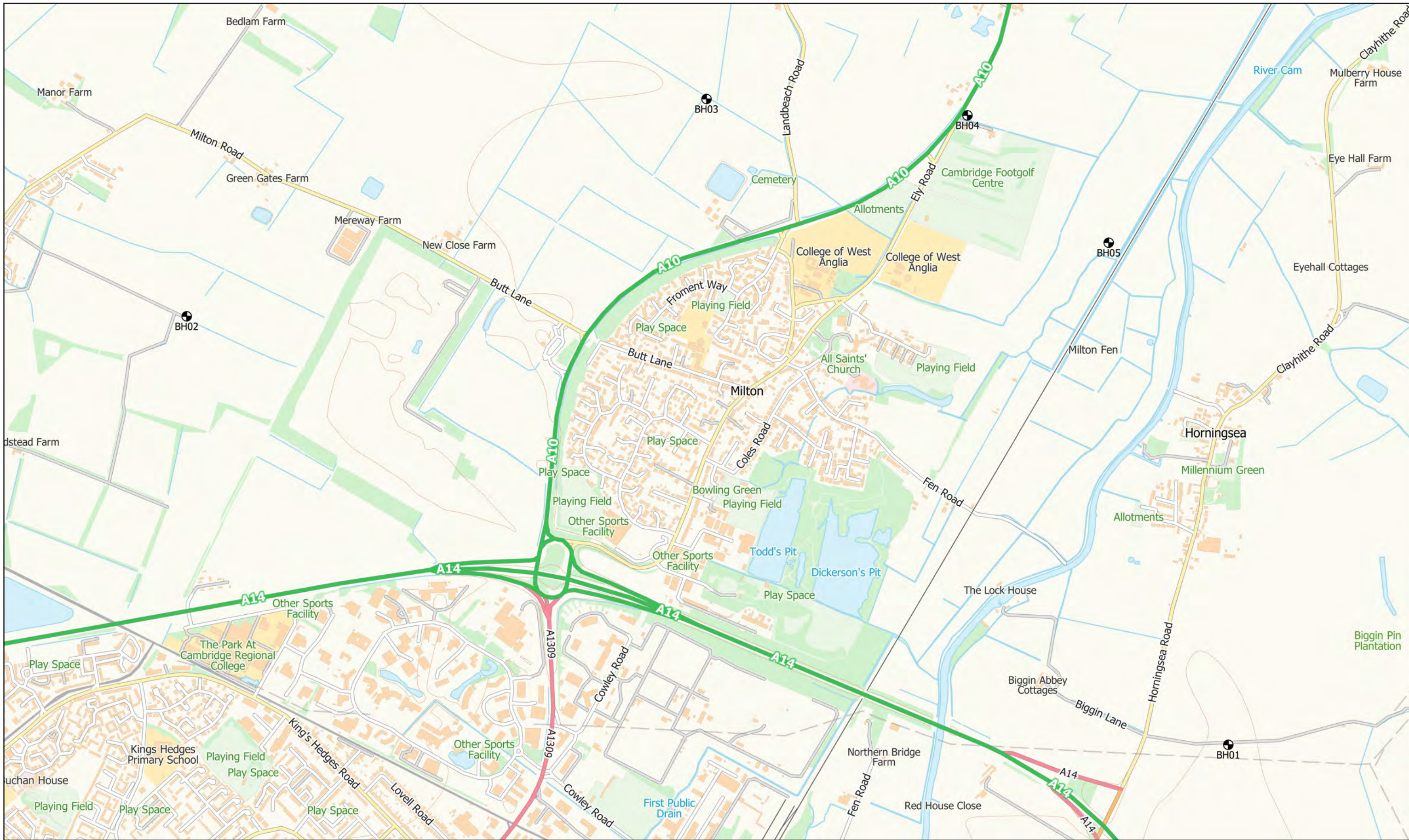
Client : Anglian Water Services Limited

Date : November 2020

Dwg : 20.245/01

Scale 1: 50,000 @ A4

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● Borehole location and reference



A F Howland Associates
Geotechnical Engineers

Site: Cambridge WWTP Relocation

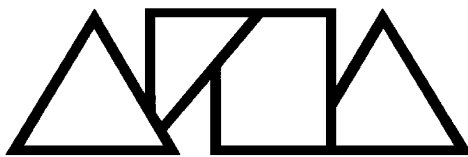
EXPLORATORY HOLE LOCATION PLAN

Client: Anglian Water Services Limited

Date: November 2020

Dwg: 20.245/02

Scale 1:12500 @ A3
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Writing to us at **Freepost: CWWTPR**

You can view all our DCO application documents and updates on the application on The Planning Inspectorate website:

<https://infrastructure.planninginspectorate.gov.uk/projects/eastern/cambridge-waste-water-treatment-plant-relocation/>

Get in touch

You can contact us by:



Emailing at info@cwwtpr.com



Calling our Freephone information line on **0808 196 1661**



Writing to us at **Freepost: CWWTPR**

You can view all our DCO application documents and updates on the application on The Planning Inspectorate website:

<https://infrastructure.planninginspectorate.gov.uk/projects/eastern/cambridge-waste-water-treatment-plant-relocation/>