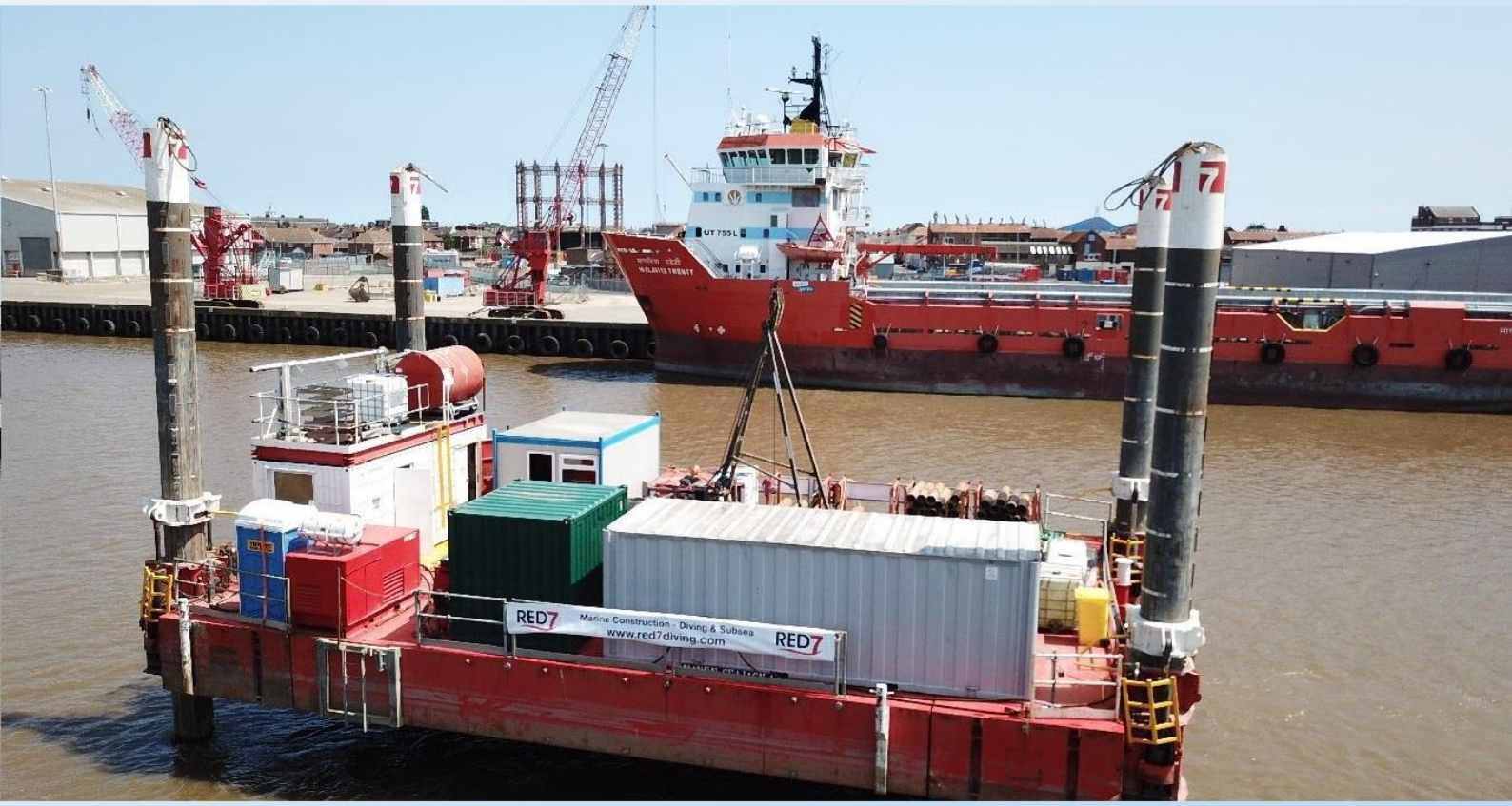
Annex C: Marine Sampling Factual Report

Norfolk County Council

GREAT YARMOUTH THIRD RIVER CROSSING

Offshore Ground Investigation - Factual Report



GYTRC-WSP-VGT-XX-RP-GE-0002
NOVEMBER 2018

CONFIDENTIAL

Norfolk County **Council**

GREAT YARMOUTH THIRD RIVER CROSSING

Offshore Ground Investigation - Factual Report

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DATE: NOVEMBER 2018

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1 INTRODUCTION

On the instructions and under the supervision of WSP (the Engineer), acting on behalf of Norfolk County Council (the Employer), a site investigation undertaken by Norfolk Partnership Laboratory (Main Contractor) and James and Milton Drilling Ltd (sub-contractor) at a single site crossing the River Yare in Great Yarmouth.

The Great Yarmouth Third Crossing Project comprises a bridge with a central bascule lifting section located centrally over River Yare, and the associated highway embankments, junctions and infrastructure. The proposed bridge alignment would provide an east-west connection between the Strategic Road Network (A47) and the South Denes Business Park, Enterprise Zone, Great Yarmouth Energy Park and the Outer Harbour, all of which are located on the South Denes peninsula

This factual report has been produced by WSP on behalf of Norfolk Partnership Laboratory for Norfolk County Council.

The objective of the investigation was to determine the ground, groundwater and ground contamination conditions at the site and to provide information that would assist the geotechnical and geoenvironmental design of the proposed works. The scope of the investigation was determined by WSP.

The site work at Great Yarmouth Third River Crossing was carried out between the 11th June 2018 and 04th July 2018 and comprised:

- Ten cable percussion boreholes
- Four in-situ pressuremeter tests
- In-situ and laboratory testing

The site plan Drawing Reference GYTRC-WSP-HGT-DR-GE-0006 is included in Appendix A.

2 THE SITE AND GEOLOGY

The site is located at an off-shore location over the River Yare, immediately south of Great Yarmouth town centre. The site is approximately bounded to the west by the port authority berths 31A to 31D and to the east by berths 14B to 13A. The site area covers approximately 0.01 km^2 of over water locations and is centred on National Grid reference 652320, 306005. The location of the site is shown on the appended site location plan, WSP drawing No. GYTRC-WSP-HGT-DR-GE-0006 included in Appendix A.

The British Geology Survey Map Sheet 162 (British Geological Survey, 1991) for Great Yarmouth indicates that the site is underlain by a variety of superficial deposits:

- Tidal river or creek deposits
- Breydon Formation
- Happisburgh Formation

Solid geology underlying the site is shown on the BGS website to comprise sand and gravel of the Crag Group, underlain by London Clay.

Groundsure (Groundsure, 2017) records no historical overwater workings on site. Only ground investigations associated with the quay/ wharf immediately adjacent to the River Yare have been undertaken adjacent to the site.

Extracts from geological map are included in Appendix B

3 METHOD OF INVESTIGATION

3.1 GENERAL

Details of in-situ sampling and testing carried out, together with the descriptions of the strata encountered, are given on the exploratory hole (borehole) records. The investigation was carried out in accordance with BS 5930:1999 (British Standard, 1999), BS EN ISO 14688-1:2018 (British Standard, 2018) and BS EN ISO 14689-1:2003 (British Standard, 2018).

Exploratory hole details including depths, surveyed coordinates and in situ testing locations are given in Appendix C.

All geotechnical samples were transported to the laboratories and offices of Norfolk Partnership Laboratory (NPL) for examination and testing as scheduled by the NPL and WSP. Chemical samples were couriered to the Envirolab laboratory in Cheshire for testing as scheduled by WSP.

3.2 UNEXPLODED ORDNANCE RISK MITIGATION SURVEY

At each borehole location, a magnetometer survey was undertaken in order to identify the possible presence of unexploded ordnance (UXO). The testing was carried out by using a magnetic anomaly locator magnetometer or by inspection, in accordance with the guidance provided in CIRIA C681 (CIRIA, 2009). The results of the risk mitigation survey carried out for the ground investigation are given in Appendix D.

The UXO surveys on site were carried out by MACC International.

A MAGNEX 120 LW device was used, which serves for locating ferromagnetic objects which are buried underground or underwater. A further important field of use of the Magnex 120 LW lies in the probing of boreholes where magnetic anomalies have been encountered at relatively great depths or in detections fields with a lot of surface bound interference.

A total of two borehole locations were terminated before reaching their scheduled depth due to high magnetometer readings. At these locations scanned depths were increased but readings remained high. The MACC UXO specialist on site advised that the exploratory holes should be terminated immediately following continuous high readings. A summary of the locations terminated due to high magnetometer readings are provided in the Table 1.

Table 1 - UXO Borehole Termination Summary

Location	Date	Termination Depth (m BGL)	Note
MBH1	11/06/2018	4.00	Location moved 4.0m away from original location
MBH5	20/06/2018	0.00	Location moved 3.0m away from original location

3.3 CONTAMINATED SITE PROCEDURES

The site was designated to be in the Institution of Civil Engineers Site Investigation Steering Group Yellow Category and appropriate protection measures were undertaken (Site Investigation Steering Group, 1993).

Hand held sampling tools were cleaned after each sample to prevent cross contamination between samples. Samples for chemical contamination testing were taken as appropriate for the intended analyses, as shown on the exploratory hole records.

Each borehole was cased, which was progressively reduced in diameter with depth. Environmental seals of bentonite pellets, adequately hydrated were installed with every change in casing diameter, in order to prevent downward migration of any contaminants within shallow Alluvial deposits at the river bed.

4 FACTUAL INFORMATION

4.1 CABLE PERCUSSION BORING

No information from land locations are included in this factual report. The land based ground investigation is presented in the 2018 Factual Report (REF:GYTRC-WSP-VGT-XX-RP-GE-0001).

4.2 MARINE CABLE PERCUSSION BORING

Ten cable percussion boreholes using three diameter casings 305mm, 250mm, 200mm and 150mm were sunk to depths below the riverbed level (bgl) between 1.00m and 41.70m using light cable tool percussion boring techniques. The borehole records are included in Appendix C.

The cable percussive boreholes are summarised in the table below:

Table 2 - Borehole Summary

Borehole ID	Date Completed	Depth (mbgl)	Location	Easting	Northing	Ground Level
MB01	12/06/2018	4.0	West Side of River Yare	652421	306010	-6.59
MB01A	19/06/2018	25.33	West Side of River Yare	652421	306014	-7.88
MB02	14/06/2018	40.60	West Side of River Yare	652432	305996	-7.87
MB03	18/06/2018	25.45	West Side of River Yare	652422	305978	-7.67
MB04	15/06/2018	1.00	West Side of River Yare	652434	305964	-8.10
MB04A	17/06/2018	41.70	West Side of River Yare	652435	305962	-7.99
MB05	21/06/2018	25.45	West Side of River Yare	652426	305946	-5.77
MB06	25/06/2018	25.60	East Side of River Yare	652494	306024	-6.56
MB07	27/06/2018	40.29	East Side of River Yare	652485	306003	-6.85
MB08	22/06/2018	25.44	East Side of River Yare	652499	305988	-6.70
MB09	04/07/2018	40.45	East Side of River Yare	652490	305973	-6.13
MB010	23/06/2018	25.44	East Side of River Yare	652502	305958	-5.87

A total of two locations, MB01 and MB04, were terminated before the scheduled depth due to an obstruction detected during drilling. Details of the termination are included on the log that are presented in Appendix C. A single borehole (BM05) was relocated before drilling was started due to high Magnetometer readings, as detailed in Section 3.2.

Disturbed samples were taken from the seabed sediment and after that at each change in soil type and at regular vertical intervals during boring in order to identify and give a record of the strata encountered. Environmental disturbed samples were also taken at varying depths within the boreholes which reduced in frequency at deeper depths.

In cohesive soils nominal 100mm diameter general purpose thin-wall driven open tube (U100) samples were taken and subsequently sealed to preserve their natural moisture content.

Standard penetration tests (SPT) using a split spoon (S) or a solid 60° cone (C) were carried out in granular deposits and alternating with U100 sampling in the cohesive materials. The results are shown on the borehole logs in Appendix C.

Where blowing sand were encountered during drilling, preventative measures were undertaken to reduce the negative effects of the blowing. This was achieved by altering the drilling method to reduce the build-up of negative pressures, as well as adding Drilling fluid, i.e. water or a 'Dandopol' polymer/water mix to aid drilling.

4.3 DYNAMIC WINDOW SAMPLING BOREHOLES

No dynamic window samples were undertaken as part of this ground investigation.

4.4 TRIAL PITTING

No Trial pits were undertaken as part of this ground investigation.

4.5 INSTRUMENTATION AND MONITORING

No installations for monitoring purposes were undertaken as part of this overwater ground investigation.

4.6 SITE SURVEY

A topographic survey was completed at locations along the west and east quay walls to aid in locating each off-shore borehole location and in manoeuvring the Jack up rig, prior to the start of the ground investigation. Each borehole was located during the manoeuvring of the jack up with the use of satellite locating equipment and the final surveyed location is derived from these individual surveys.

5 FIELD TESTING

5.1 STANDARD PENETRATION TESTING

Standard Penetration Tests (SPT's) were carried out using the split spoon (S) sampler or solid cone (C) attachment within the boreholes. The tests were carried out in accordance with BS EN ISO 22476-3:2005+A1:2011 (British Standard, 2006). The results are included on the appended borehole logs presented in Appendix C. The calibration / efficiency information for the relevant drilling rigs are summarised in the table below:

Table 3 - SPT Efficiency Ratings

SPT I.D	SPT Rod Type	Calibration Date	SPT Energy Ratio	Boreholes
D4000	Cable Percussive rig	17/11/2017	71.68	All Cable Percussive Boreholes

5.2 PRESSUREMETER TESTING

A total of 4 No. Pressuremeter Test locations were undertaken by Cambridge Insitu Limited, as set out by WSP on site. At each location testing was attempted at depths where suitably cohesive material was encountered. Details of the test results and interpretations are presented in Appendix E.

Tests had to be abandoned at many locations due to the borehole stability problems.

The locations of the pressuremeter testing completed is summarised in the table below.

Table 4 – Pressuremeter Testing Summary

Test ID	Date Completed	Depth (mbgl)	Remark	Easting	Northing	Riverbed Level
MBH 2	12/06/2018	13.5	Testing not completed - Arm 2 hits limit after one u/r cycle.	652432	305996	-7.87
MBH 2	13/06/2018	20.4	Test completed	652432	305996	-7.87
MBH 9	03/07/2018	23.0	Test completed	652490	305973	-6.13
MBH 9	04/7/2018	39.5	Test completed	652490	305973	-6.13

The scope of works included for 12 No. pressuremeter tests to be undertaken at 6 no. depths in boreholes MBH02 and MBH09. During drilling most of the scheduled test locations encountered ground conditions that were recorded as being too dense or not suitable for undertaking the test. Some locations where testing was attempted comprised low cohesive material and silty sands, which during the setting up of the tests blew around the equipment, resulting in the abandoning of the test. The methods for managing blowing sands during drilling could not be implemented during the setting up of the test equipment. Maintaining a head of water within the casing, with the use of a pump, could not be maintained during the assembly of the hydraulics and jacking system causing sand to blow within the casing around the testing apparatus before the test could be started.

The first test attempted in MBH2 at a depth of 13.50m was terminated after one reload cycle due to a sensor reaching the scale limit.

6 LABORATORY TESTING

6.1 GEOTECHNICAL LABORATORY TESTING

The laboratory testing schedules for geotechnical tests were prepared by WSP in coordination with the Norfolk Partnership Laboratory.

The information included in this report is taken from the results of tests undertaken by the NPL UKAS accredited testing laboratory No. 0920 and Terra Tek, UKAS accredited testing laboratory No. 0126. The results of the laboratory test certificates attached to this report may not include some of the data required by the test procedure. However, a full set of data is available from the NPL.

The following accredited test procedures were carried out:

- Natural Moisture Content
- Plasticity Index
- Liquid Limit
- Plastic limit
- Particle Size Distribution (PSD)
- Sedimentation
- Triaxial Testing (Quick Undrained Single Stage)

Testing was also scheduled and undertaken envirolab for sulphate suite in accordance with BRE Special Digest 1 (BRE, 2005), for which 57 No. tests were completed. Details of the testing included are listed below:

- Sulphate (total water soluble)
- Sulphate (acid soluble)
- Sulphur (Total)
- pH
- Ammonium (Water Sol 2:1)
- Chloride (Water Sol 2:1)
- Nitrate (Water Sol 2:1)
- Magnesium (Water Sol 2:1)

A summary of the completed testing is shown in the table below:

Table 5 - Geotechnical Laboratory Testing Summary

Test	Number	Standard
Natural Moisture Content	217	BS 1377: Part 2 :1990, Section 3
Liquid Limit/ Plasticity Index	31	BS1377-2:1990 Cl 4.3 BS1377-2:1990 Cl 5
Particle Size Distribution	200	BS 1377: Part 2 :1990, Section 9.1 & 9.4
Determination of Undrained Shear Strength - Definitive	33	BS1377: Part 7: 1990, Clause 8, Single Specimen

Geotechnical laboratory tests were carried out in the period between the June 2018 to August 2018. This report includes all completed geotechnical testing received up to 14th September 2018.

The geotechnical laboratory testing has been carried out in accordance with BS 1377: 1990 (British Standard, 1990) using calibrated equipment specified within the British Standard.

The geotechnical laboratory test results are included in this report as Appendix F.

6.2 CHEMICAL LABORATORY TESTING

Soil samples selected by WSP were tested against a geo-environmental testing suite as scheduled by WSP. The MCERTS accredited testing was undertaken by EnviroLab (UKAS Laboratory No. 1247).

The following accredited chemical testing test procedures were carried out on soil, water and for leachates:

Table 6 – Chemical Laboratory Testing Summary

Determinands	Soil	Soil Leachate
Metals (Arsenic, Boron, Cadmium, Chromium (total and hexavalent), Copper, Lead, Mercury, Nickel, Selenium and Zinc	✓	✓
pH	✓	✓
TPH CWG (GC-MS aliphatic/aromatic split) inc BTEX and MTBC	✓	✓
VOCs by GCMS (including vinyl chloride)	✓	
SVOCs by GCMS excluding PAHs	✓	✓
speciated PAH (USEPA 16)	✓	✓
Ammonia as N	✓	✓
Phenol	✓	✓
Soil Organic Matter	Selected samples	
Cyanide - total	✓	✓
Cyanide - free	✓	✓
PCB's EC7 Congeners	Selected samples	
PCB's WHO 12 Congeners	Selected samples	
Sulphate - total	✓	
Sulphate - water soluble, 2:1 extract	✓	✓
Asbestos (screen only)	Selected samples	
Total WAC Suite	Selected samples	

Determinands	Soil	Soil Leachate
Leachate prep		✓

In addition to the laboratory testing outlined above selected samples were tested against the Waste Acceptance Criteria (WAC) suite of contaminants for classification for potential offsite disposal. The WAC testing was undertaken between June 2017 to July 2018 by EnviroLab.

Details of the standards used and the test results are presented in the Laboratory Test Results included in Appendix G. All chemical testing will be submitted in AGS format with the electronic version of the report.

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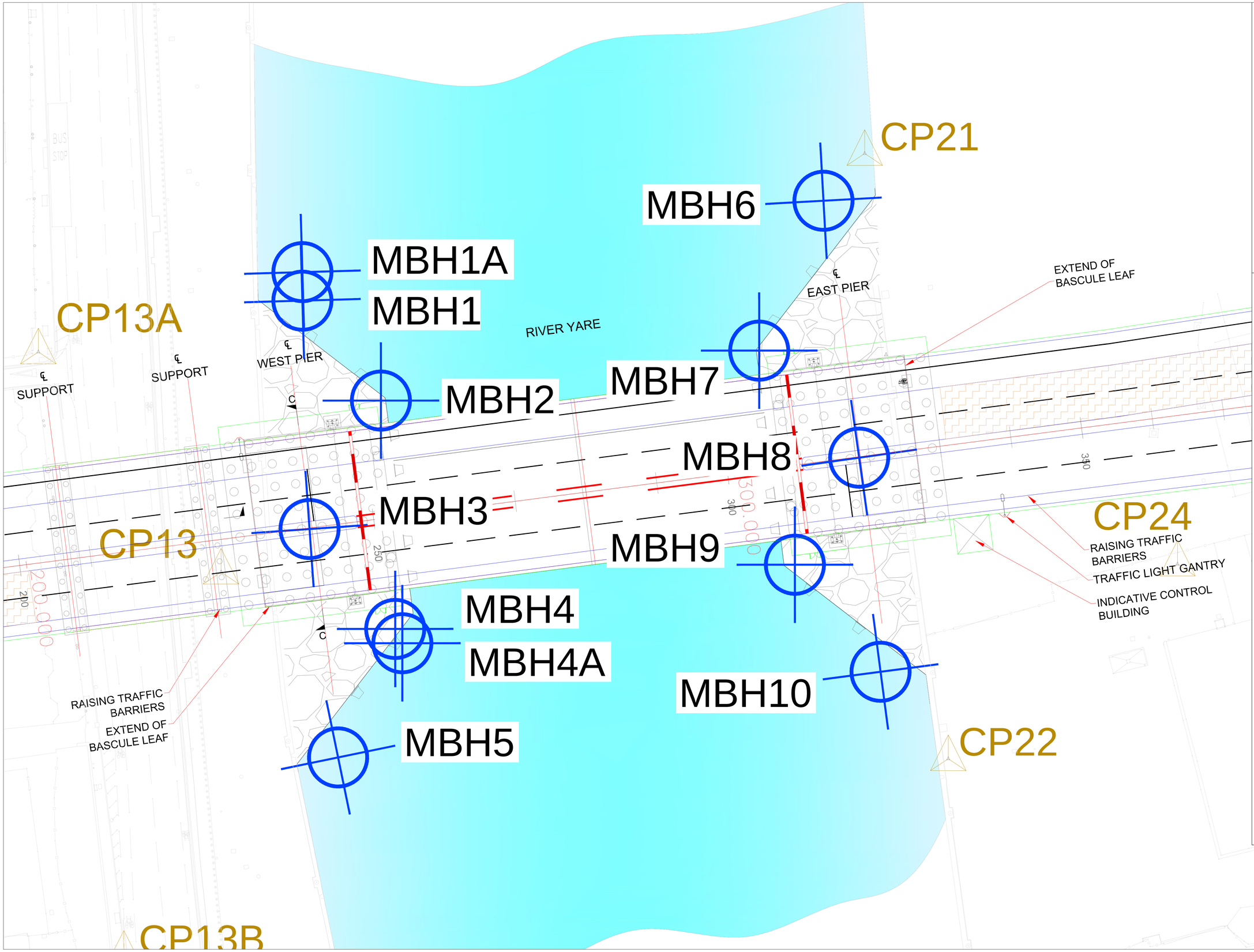
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Appendix A

SITE PLAN



KEY

MARINE BOREHOLE

SURVEY CONTROL POINTS (CP) (APPROX)

LOCATION CO-ORDINATES

	REF	EASTING	NORTHING
MARINE BOREHOLE	MB01	652421	306010
	MB01A	652421	306014
	MB02	652432	305996
	MB03	652422	305978
	MB04	652434	305964
	MB04A	652435	305962
	MB05	652426	305946
	MB06	652494	306024
	MB07	652485	306003
	MB08	652499	305988
	MB09	652490	305973
	MB010	652502	305958

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DRAWING TITLE

GREAT YARMOUTH THIRD RIVER CROSSING
PLAN SHOWING ACTUAL OFF-SHORE
EXPLORATORY HOLE LOCATIONS

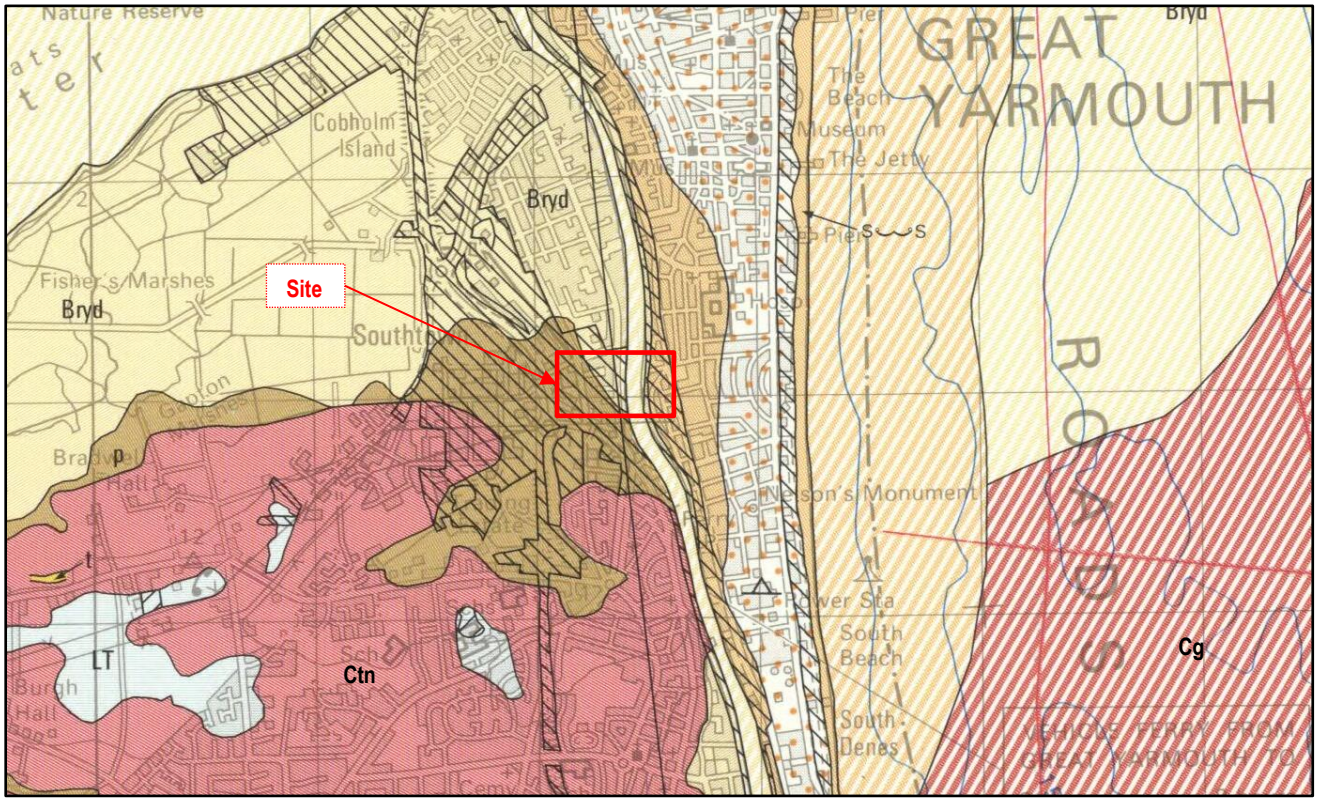
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Appendix B

GEOLOGICAL MAP

APPENDIX B



Key

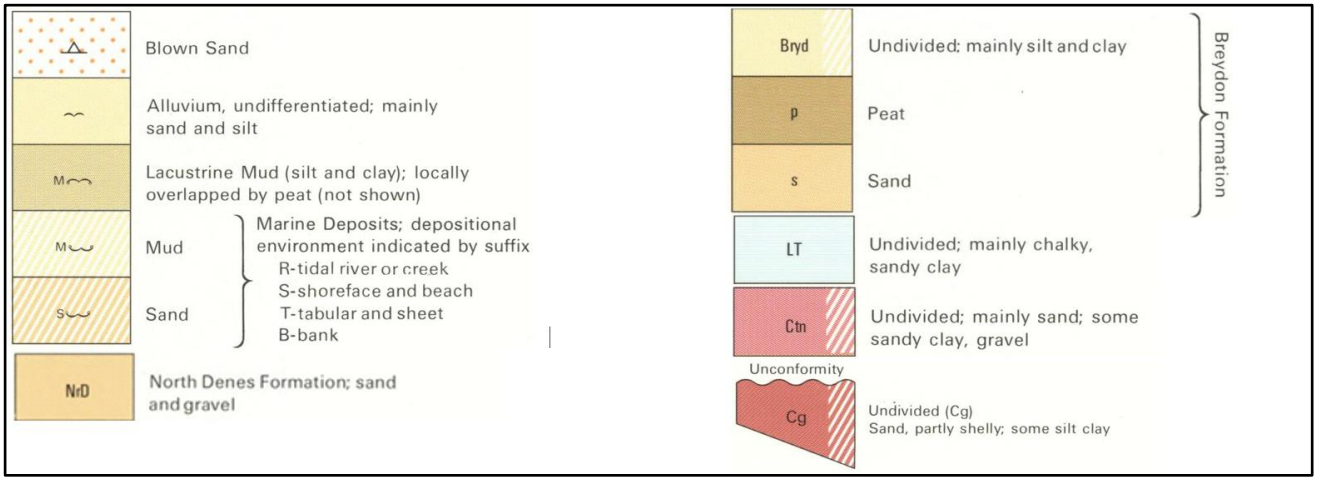


Figure 1- Quaternary and Pre-Quaternary Geology (C18/02 British Geological Survey © UKRI. All Rights Reserved 2018).

Appendix C

EXPLORATORY HOLE RECORDS

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 1 of 1

AGS

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB01
Carried out for	Community & Environmental Services	Date Started	12/06/2018	Date Finished	12/06/2018
Remarks:	Abandoned due to positive reading of UXO.	Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	4.00	Ground Level (m AOD)	-6.59	Drawn by	RK
		Co-ords	652421 - 306010			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very loose grey fine to medium angular to sub-rounded GRAVEL & silty fine SAND. Drillers Description. TIDAL RIVER or CREEK DEPOSITS					1							
			Medium dense dark greyish orange slightly gravelly fine to medium SAND, with occasional shell fragments, from 0.40m Gravel is fine to medium angular flint, brick & sandstone. TIDAL RIVER or CREEK DEPOSITS *With lenses of black & orange slightly sandy, slightly gravelly, clayey SILT, rapidly weathering to brown, from 0.60m* *Gravel is fine to medium angular flint & sandstone.*		0.40 0.80	1.00		2 3 4	15 S 14						
			Firm to stiff mottled grey & orange slightly gravelly, silty CLAY, with laminae of orangey grey silty fine SAND. Gravel is fine angular flint. TIDAL RIVER or CREEK DEPOSITS *Becoming mottled grey & orangey brown slightly silty CLAY from 1.20m* *Becoming mottled brown, orangery brown & light grey slightly gravelly, silty CLAY from 1.40m*		1.70			6 9							
			Olive slightly silty fine to medium SAND, weathering to brown. TIDAL RIVER or CREEK DEPOSITS *Becoming greyish brown fine to medium SAND from 2.10m*			2.00		8							
		305	Medium dense blackish orange silty slightly gravelly fine to medium SAND, rapidly weathering to brown, from 2.50m Gravel is fine angular flint. TIDAL RIVER or CREEK DEPOSITS *With lamina of grey slightly gravelly, sandy, silty CLAY, from 2.90m to 3.00m*		2.50	3.00		11 13	S 20						
		150	Laminated medium dense brown & orangey brown silty fine SAND & very soft light grey silty CLAY. HAPPISBURGH GLACIGENIC FORMATION		3.60 4.00	4.00		14	S 33						
						5.00									
						6.00									
						7.00									
						8.00									
						9.00									

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 1 of 3

AGS

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB01a
Carried out for	Community & Environmental Services	Date Started	19/06/2018	Date Finished	19/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.33	Ground Level (m AOD)	-7.88	Drawn by	RK
		Co-ords	652421 - 306014			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very soft black silty sandy CLAY. Drillers Description. TIDAL RIVER or CREEK DEPOSITS					1							
			Becoming soft grey gravelly, sandy, silty CLAY, from 1.00m *Gravel is fine to medium sub-rounded flint & quartz.*			1.00		2	S 35						
			Dense brownish grey gravelly, silty, clayey fine to medium SAND. Gravel is fine to medium sub-angular to sub-rounded flint. TIDAL RIVER or CREEK DEPOSITS		1.40			4							
			With black organic lenses from 2.20m			2.00		5							
								6	S 33						
								8							
			Very dense brown & olive slightly gravelly fine to medium SAND. Gravel is fine to medium angular to sub-rounded flint & sandstone. HAPPISBURGH GLACIGENIC FORMATION		2.50			9							
						3.00		10	S 50						
								12							
			With beds of very soft very sandy, silty, organic CLAY from 3.50m to 4.00m					13							
			Dense dark grey silty fine SAND. CRAG		4.00	4.00		14	S 44						
								16							
								17							
			Becoming medium dense with laminae & thin beds of brown fine sand & dark brown slightly silty fine sand from 4.00m			5.00		18	S 29						
								20							
								21							
			Becoming brown fine sand from 6.00m			6.00		22	S 29						
								23							
								24							
								25							
			Medium dense greyish brown silty fine SAND CRAG		7.00	7.00		27	S 28						
								28							
								29							
						8.00		32	S 24						
								33							
						9.00		34	S 28						
								36							
			Becoming brown from					37							
					10.00										

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB01a
Carried out for	Community & Environmental Services	Date Started	19/06/2018	Date Finished	19/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.33	Ground Level (m AOD)	-7.88	Drawn by	RK
		Co-ords	652421 - 306014			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Medium dense to dense orange & brown fine to medium SAND, some shell fragments. CRAG					38	S 27						
								40							
								41							
			Becoming pinkish brown with numerous shell fragments from 11.00m			11.00		42	S 33						
								43							
			With fine angular to sub-rounded flint & quartz GRAVEL from 11.50m					44							
						12.00		45	S 29						
					12.40			46							
			Dense to medium dense light & dark grey silty fine to medium SAND, with occasional shell fragments. CRAG					47							
						13.00		48	S 30						
								49							
		305						50							
			Becoming slightly silty from 14.00m			14.00		51	S 31						
								52							
								53							
			With thin beds of soft dark grey very clayey SILT from 15.00m to 15.45m			15.00		54	S 24						
								55							
								56							
			With lenses of soft grey slightly silty CLAY from 16.00m to 16.50m			16.00		57	S 24						
								58							
								59							
						17.00		60	S 41						
					17.50			61							
			Medium dense laminated & thinly bedded grey fine SAND, dark grey very sandy SILT & soft light grey silty CLAY, with occasional shell fragments. CRAG					62							
						18.00		63	S 34						
								64							
								65							
						19.00		66	S 45						
								67							
			With beds of grey silty fine to medium SAND from 19.5m					68							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB01a
Carried out for	Community & Environmental Services	Date Started	19/06/2018	Date Finished	19/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.33	Ground Level (m AOD)	-7.88	Drawn by	RK
		Co-ords	652421 - 306014			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Medium dense laminated & thinly bedded grey fine SAND, dark grey very sandy SILT & soft light grey silty CLAY, with occasional shell fragments. CRAG					69							
								70	S 48						
			Firm to stiff grey silty CLAY, with lenses of dark grey clayey SILT & light grey silty fine SAND. CRAG		20.60			71							
						21.00		72							
								73	74						
						22.00		75							
								76	S 33						
		200						77							
			Becoming stiff laminated grey silty CLAY from 23.00m			23.00		79 78							
			Very dense grey silty fine SAND, with lenses of firm grey CLAY. CRAG		23.70			80							
						24.00		81	S 50						
		150						82							
			Thinly bedded firm grey silty CLAY & light grey fine to medium SAND. CRAG		24.50			83							
						25.00		84	S 50						
					25.33										
						26.00									
						27.00									
						28.00									
						29.00									

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB02
Carried out for	Community & Environmental Services	Date Started	14/06/2018	Date Finished	14/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.60	Ground Level (m AOD)	-7.87	Drawn by	RK
		Co-ords	652432 - 305996			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very soft brownish grey slightly gravelly, sandy, silty CLAY, with numerous shell fragments. Gravel is fine to medium angular to sub-angular sandstone & flint. TIDAL RIVER or CREEK DEPOSITS			1.00		2							
			Becoming dense brown gravelly, silty fine to medium SAND, with lenses of soft grey CLAY, from 1.00m					3							
			Medium dense grey silty, gravelly fine to medium SAND, with occasional shell fragments. Gravel is fine to medium angular to sub-rounded sandstone, flint & brick. TIDAL RIVER or CREEK DEPOSITS		1.45			4	S 15						
			Becoming thinly bedded brown fine to medium SAND & light grey clayey, sandy SILT, from 2.00m			2.00		5							
			Medium dense brown fine to medium SAND, with occasional shell fragments. CRAG		2.30			8	S 49						
			Becoming greyish brown from 3.00m			3.00		9							
			Medium dense greyish brown fine SAND. CRAG		4.00	4.00		12	S 17						
			Medium dense brown slightly silty fine SAND. CRAG		5.00	5.00		13							
			Becoming dense from 7.00m			6.00		16	S 19						
			With laminae of reddish brown sandy SILT from 9.00m			7.00		17							
			Very soft greyish brown sandy, silty CLAY, with laminae & lenses of soft grey CLAY. CRAG		9.30	8.00		20	S 18						
						9.00		21							
								22	S 20						
								25							
								26	S 30						
								29							
								32	S 42						
								33							
								36	S 33						
								37							
								39							

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Borehole Log

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB02
Carried out for	Community & Environmental Services	Date Started	14/06/2018	Date Finished	14/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.60	Ground Level (m AOD)	-7.87	Drawn by	RK
		Co-ords	652432 - 305996			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Becoming very soft brown SILT from 10.00m					40	S 34						
			Laminated & thinly bedded orangey brown silty medium to coarse SAND, firm brown silty CLAY & reddish brown clayey SILT, with some shell fragments. CRAG		10.30			41							
			Very dense grey silty fine to coarse SAND, with numerous shell fragments. CRAG		11.00	11.00		42	S 50						
								43							
			With laminae of brownish grey very sandy SILT & light grey clayey SILT from 12.00m			12.00		45	S 25						
								46							
						13.00									
								47							
			Dense grey fine to medium SAND, with occasional shell fragments. CRAG		14.00	14.00		48							
								49							
								50	S 35						
						15.00		52							
			Becoming medium dense and slightly silty from 15.50m					53							
								54	S 27						
						16.00		55							
								56							
								57	S 22						
			With thin bed of slightly gravelly, silty CLAY from 17.00m			17.00		58							
								59							
								60	S 24						
						18.00		61							
			Laminated & thinly bedded grey slightly silty CLAY, dark grey clayey SILT, & grey silty fine SAND, with occasional shell fragments. CRAG		18.50			62							
		305						63	S 26						
						19.00		64							
			Stiff grey silty CLAY, with numerous laminae of light grey silty fine SAND. CRAG		19.20			65							
								66							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB02
Carried out for	Community & Environmental Services	Date Started	14/06/2018	Date Finished	14/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.60	Ground Level (m AOD)	-7.87	Drawn by	RK
		Co-ords	652432 - 305996			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Stiff grey silty CLAY, with numerous laminae of light grey silty fine SAND. CRAG					67							
						21.00		68							
								69							
								70							
			Stiff grey silty CLAY. CRAG		22.00	22.00		71							
						23.00		72 73	S 19						
			Very dense grey fine to medium SAND, with laminae & thin beds firm grey silty CLAY, & some shell fragments. CRAG		23.20			74							
						24.00		75							
		250				25.00		76	S 50						
								78							
						26.00		79							
			Very dense grey silty fine to medium SAND, with some shell fragments. CRAG		26.90	27.00		81	S 50						
								82							
			Becoming grey fine to medium SAND with laminae firm greenish grey silty CLAY, from 28.00m			28.00		83							
								84							
			Becoming clayey, silty fine to medium SAND from 29.00m			29.00		86	S 50						
								87							

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB02
Carried out for	Community & Environmental Services	Date Started	14/06/2018	Date Finished	14/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.60	Ground Level (m AOD)	-7.87	Drawn by	RK
		Co-ords	652432 - 305996			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests: MC%	LL	PL	MPI	Org.	CBR
			Becoming dense brownish grey fine to coarse SAND, with some shell fragments, from 31.00m to 33.30m			31.00		88							
								89							
								91	S 42						
								92							
						32.00		93							
								94							
						33.00		95	S 43						
								96							
			With lens soft dark grey silty CLAY from 34.00m			34.00		97							
			Becoming fine SAND & occasional shell fragments from 33.40m					98							
			Becoming very dense with thin beds of firm greenish grey clayey SILT & dark grey sandy SILT from 35.00m			35.00		100	S 50						
			Very stiff dark greyish brown fissured & laminated silty CLAY, with occasional gypsum crystals. LONDON CLAY		35.40			101							
		150						103							
						36.00		102							
			Very stiff greyish brown laminated CLAY, with some stiff laminae of grey slightly silty CLAY. LONDON CLAY		36.40			105							
								104							
						37.00		106							
								107							
						38.00		108	S 67						
			Becoming laminated dark grey slightly silty CLAY, with occasional gypsum crystal & some fine sub-rounded mudstone., from 39.00m			39.00		109							
								110							

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Borehole Log

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB02
Carried out for	Community & Environmental Services	Date Started	14/06/2018	Date Finished	14/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.60	Ground Level (m AOD)	-7.87	Drawn by	RK
		Co-ords	652432 - 305996			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very stiff greyish brown laminated CLAY, with some stiff laminae of grey slightly silty CLAY. LONDON CLAY		40.60	41.00 42.00 43.00 44.00 45.00 46.00 47.00 48.00 49.00		111 112							

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB03
Carried out for	Community & Environmental Services	Date Started	17/06/2018	Date Finished	18/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.45	Ground Level (m AOD)	-7.67	Drawn by	RK
		Co-ords	652422 - 305978			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very soft mottled black & grey very silty, sandy CLAY. Drillers Description. TIDAL RIVER or CREEK DEPOSITS					1							
						1.00		2	S 20						
			Laminated orange fine to medium SAND, reddish brown silty fine SAND, firm brown CLAY & soft grey silty CLAY. TIDAL RIVER or CREEK DEPOSITS		1.30			4							
			Firm brown gravelly, sandy, silty CLAY & dark orange clayey SILT. Gravel is fine angular flint. HAPPISBURGH GLACIGENIC FORMATION		1.50			5							
			Medium dense laminated light grey fine SAND, greenish grey fine SAND, firm orange clay & reddish brown sandy, silty CLAY. HAPPISBURGH GLACIGENIC FORMATION		2.00	2.00		6	S 13						
			Medium dense orangey brown fine to medium SAND. HAPPISBURGH GLACIGENIC FORMATION *With bed of brownish grey slightly organic, very silty, slightly gravelly fine SAND from 2.50m to 3.00m* *Gravel is fine angular to sub-rounded flint & siltstone* *Becoming fine brown sand from 2.50m*		2.30			8							
								9							
						3.00		10	S 46						
			Dense olive fine to medium SAND, rapidly weathering to brown HAPPISBURGH GLACIGENIC FORMATION		3.30			12							
								13							
			Very dense to dense brown & orangey brown fine to medium SAND. CRAG		4.00	4.00		14	S 66						
								16							
								17							
			With laminae of soft grey clay from 5.00m to 5.50m			5.00		18	S 48						
								20							
								21							
						6.00		22	S 38						
								24							
								25							
			Dense orangey brown silty fine SAND. CRAG		7.00	7.00		26	S 41						
								28							
			With lenses of firm brown CLAY from 7.50m to 9.50m					29							
						8.00		30	S 39						
								32							
								33							
						9.00		34	S 47						
								36							
			Medium dense brown silty fine SAND, with lenses of orangey brown clayey SILT. CRAG		9.50			37							

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Borehole Log

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB03
Carried out for	Community & Environmental Services	Date Started	17/06/2018	Date Finished	18/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.45	Ground Level (m AOD)	-7.67	Drawn by	RK
		Co-ords	652422 - 305978			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Becoming dense laminated orangey brown fine to medium SAND & brown sandy SILT, with some shell fragments from 11.00m			11.00		38							
								39	S 28						
								40							
			Becoming orangey brown slightly gravelly, silty fine to medium SAND from 11.30m					41							
			Gravel is fine sub-angular flint with numerous shell fragments.					42	S 36						
			Dense brown silty fine to medium SAND, with numerous shell fragments. CRAG		11.50			43							
			Becoming pinkish brown from 12.00m			12.00		44							
								45	S 31						
			Becoming greenish brown silty, slightly gravelly fine to medium SAND, with lenses of soft grey CLAY & numerous shell fragments, from 12.50m					46							
			Gravel is fine angular flint.			13.00		47	S 40						
			Dense to very dense grey & dark grey silty fine to medium SAND, with lenses of soft grey CLAY & numerous shell fragments. CRAG		13.40			48							
								49							
						14.00		50	S 42						
								51							
		305						52							
			Becoming light grey fine to medium SAND, with lenses of firm dark grey CLAY, from 15.00m			15.00		53	S 48						
								54							
								55							
						16.00		56	S 50						
								57							
								58							
						17.00		59	S 48						
								60							
								61							
			Thinly bedded very dense to dense brownish grey slightly gravelly fine to medium SAND. Gravel is fine angular flint, soft grey silty clay & dark grey clayey silt with shell fragments. CRAG		18.00	18.00		62	S 50						
								63							
								64							
						19.00		65	S 34						
								66							
			Firm to stiff grey silty CLAY, with laminae light grey silty fine SAND.		19.70			67							

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB03
Carried out for	Community & Environmental Services	Date Started	17/06/2018	Date Finished	18/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.45	Ground Level (m AOD) -7.67	Drawn by RK
		Co-ords	652422 - 305978		Checked by MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			CRAG					68							
								69							
			With laminae of dark grey clayey SILT from 21.00m			21.00									
								70							
								71							
			Very stiff laminated grey silty CLAY, with laminae light grey silty fine SAND.		22.00	22.00		72	S 50						
			CRAG					73							
								74							
						23.00									
			Dense grey very clayey, silty fine SAND, with some shell fragments.		23.20			75							
			CRAG					76							
		250				24.00			S 38						
								77							
								78							
						25.00		79	S 39						
					25.45										
						26.00									
						27.00									
						28.00									
						29.00									

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB04
Carried out for	Community & Environmental Services	Date Started	15/06/2018	Date Finished	15/06/2018
Remarks:	Abandoned due large concrete obstruction.	Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	1.00	Ground Level (m AOD)	-8.10	Drawn by	RK
		Co-ords	652434 - 305964			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Soft grey gravelly CLAY. Gravel is fine to medium angular flint, concrete & sandstone, with some shell fragments. TIDAL RIVER or CREEK DEPOSITS					1							
			Dark grey very gravelly, sandy CLAY, with some shell fragments. Gravel is fine to coarse angular flint & sandstone. TIDAL RIVER or CREEK DEPOSITS		0.50										
		305	MADE GROUND comprising brown very sandy fine to medium angular to sub-rounded flint, quartz, concrete & brick GRAVEL. MADE GROUND		0.80			2							
					1.00	1.00		4							
						2.00									
						3.00									
						4.00									
						5.00									
						6.00									
						7.00									
						8.00									
						9.00									

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB04a
Carried out for	Community & Environmental Services	Date Started	15/06/2018	Date Finished	17/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	41.70	Ground Level (m AOD)	-7.99	Drawn by	RK
		Co-ords	652435 - 305962			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Medium dense grey & brown gravelly fine to medium SAND. Gravel is fine to medium angular to sub-rounded, with occasional coarse gravel - of glass, flint, brick & wire. Drillers Description. TIDAL RIVER or CREEK DEPOSITS					1							
			Olive & greyish brown, cobbly, very gravelly fine to coarse SAND, with occasional shell fragments, rapidly weathering to brown. Gravel is angular to sub-rounded flint, concrete & glass. TIDAL RIVER or CREEK DEPOSITS		0.50										
			Dense olive ,weathering to brown, slightly gravelly fine to coarse SAND, with lenses of greenish grey silty CLAY. Gravel is fine to medium angular flint. HAPPISBURGH GLACIGENIC FORMATION		1.00	1.00		2							
								3							
								4							
						2.00		5	S 40						
			Medium dense olive, weathering to brown, gravelly fine to coarse SAND. Gravel is fine to medium angular to rounded flint & quartz. HAPPISBURGH GLACIGENIC FORMATION		2.50			7							
						3.00		8	S 33						
								10							
			Very dense brown slightly gravelly fine to medium SAND. Gravel is fine angular to sub-rounded flint & quartz. CRAG		3.50			11							
						4.00		12	S 50						
								14							
			Medium dense brown silty, slightly gravelly fine SAND. Gravel is fine angular flint. CRAG		4.50			15							
						5.00		16	S 26						
								18							
								19							
			Dense to very dense brown silty fine SAND. CRAG		6.00	6.00		20	S 36						
								21							
								22							
			With laminae of light brown fine SAND, greyish brown silty fine SAND & soft dark brown silty CLAY.			7.00		23	S 50						
								24							
								25							
			Very dense brown fine to medium SAND. CRAG		8.00	8.00		26	S 50						
								27							
								28							
			Becoming medium dense from 9.00m			9.00		29	S 27						
								30							
								31							
					10.00										

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB04a
Carried out for	Community & Environmental Services	Date Started	15/06/2018	Date Finished	17/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	41.70	Ground Level (m AOD)	-7.99	Drawn by	RK
		Co-ords	652435 - 305962			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Dense reddish brown fine to coarse SAND, with laminae of soft light grey silty CLAY. CRAG					32	S 36						
								34							
			Orangey brown silty fine to coarse SAND, with some shell fragments. CRAG		10.50			35							
			Very dense light brown fine to coarse SAND, with laminae of firm reddish brown silty CLAY & light grey silty CLAY, with numerous shell fragments. CRAG		11.00	11.00		36	S 50						
								37							
								38							
						12.00		39	S 35						
			Becoming dense with thin bed of brown fine to medium SAND, with some shell fragments from 12.30m					40							
			Dense grey fine to medium SAND, with numerous lenses of firm grey silty CLAY & dark grey clayey SILT, & some shell fragments. CRAG		12.50			41							
						13.00		42	S 45						
								43							
								44							
						14.00		45	S 45						
			Dense grey fine to medium SAND, with occasional shell fragments. CRAG		14.30			46							
								47							
						15.00		48	S 38						
								49							
								50							
						16.00			S 41						
			With some lenses of stiff silty CLAY from 16.30m					51	52						
						17.00			S 26						
			With fine angular flint GRAVEL from 17.30m					53							
								54							
						18.00		55	S 37						
		305	Firm grey sandy, silty CLAY. CRAG		18.30			56							
								57							
			With laminae of grey silty fine to medium SAND & dark grey clayey SILT from 19.00m			19.00		58	S 40						
								59							
								60							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB04a
Carried out for	Community & Environmental Services	Date Started	15/06/2018	Date Finished	17/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	41.70	Ground Level (m AOD) -7.99	Drawn by	RK
		Co-ords	652435 - 305962		Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Firm grey sandy, silty CLAY. CRAG					61	S 50						
								62							
								63							
						21.00									
			Very stiff grey silty CLAY, with laminae of light grey silty fine SAND. CRAG		21.20			64							
								65							
						22.00		66	S 23						
								67							
								68							
						23.00									
			Stiff slightly gravelly, sandy, silty CLAY, with some shell fragments. Gravel is medium sub-angular flint. CRAG		23.30			69							
			Becoming very stiff from 24.00m					70							
						24.00		71							
			Very dense to dense grey silty fine SAND with lenses of soft silty CLAY, & some shell fragments. CRAG		24.60			72							
								73							
						25.00		74							
								75							
			With thin beds of firm greenish-grey silty CLAY, dark grey clayey SILT & light grey fine SAND from 26.00m to 27.50m			26.00		76	S 50						
								77							
								78							
						27.00		79							
								80							
						28.00		81	S 39						
		250						82							
								83							
						29.00									
								84							
								85							
					30.00										

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 4 of 5

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB04a
Carried out for	Community & Environmental Services	Date Started	15/06/2018	Date Finished	17/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	41.70	Ground Level (m AOD)	-7.99	Drawn by	RK
		Co-ords	652435 - 305962			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Grey slightly gravelly fine to medium SAND, with occasional shell fragments. Gravel is fine sub-angular flint. CRAG					86	S 36						
								87							
								88							
						31.00		89							
								90							
			Becoming medium dense from 32.00m			32.00		91	S 18						
								92							
								93							
						33.00		94							
			Very dense dark grey silty fine to medium SAND, with lenses of soft silty CLAY & some shell fragments. CRAG		33.50			95							
						34.00		96	S 50						
								97							
								98							
						35.00		99							
			Becoming grey slightly clayey, silty fine SAND, with lenses of soft silty CLAY from 35.50m					100							
			With laminae & thin beds of stiff grey silty CLAY, light grey silty SAND & dark grey clayey SILT from 36.00m			36.00		101	S 50						
								102							
			Very soft grey very sandy, silty CLAY. CRAG		36.50			103							
						37.00		104							
		150						105							
			Very stiff brown laminated silty CLAY, with nodules of yellowish brown siltstone. LONDON CLAY		38.00	38.00		106	S 43						
			Very stiff laminated brown & grey silty CLAY. LONDON CLAY		38.50			107							
						39.00		108							
								109							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 5 of 5

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB04a
Carried out for	Community & Environmental Services	Date Started	15/06/2018	Date Finished	17/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	41.70	Ground Level (m AOD)	-7.99	Drawn by	RK
		Co-ords	652435 - 305962			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very stiff laminated brown & grey silty CLAY. LONDON CLAY				●	110	S 39						
						41.00									
							▭	111							
					41.70		●	112							
						42.00									
						43.00									
						44.00									
						45.00									
						46.00									
						47.00									
						48.00									
						49.00									

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 1 of 3

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB05
Carried out for	Community & Environmental Services	Date Started	20/06/2018	Date Finished	21/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.45	Ground Level (m AOD)	-5.77	Drawn by	RK
		Co-ords	652426 - 305946			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very soft grey silty CLAY. Drillers Description. TIDAL RIVER or CREEK DEPOSITS					2							
			Very soft dark grey very clayey, organic SILT. TIDAL RIVER or CREEK DEPOSITS		0.55										
			Soft dark grey very clayey, organic SILT & dark grey silty fine to medium SAND. TIDAL RIVER or CREEK DEPOSITS		1.00	1.00		3							
			Medium dense dark brownish grey gravelly fine to medium SAND, weathering to brown. Gravel is fine to coarse rounded flint & quartz. HAPPISBURGH GLACIGENIC FORMATION		1.30			5	S 15						
								6							
						2.00		7							
			Medium dense dark greyish brown fine to coarse SAND. HAPPISBURGH GLACIGENIC FORMATION *With fine to medium rounded to sub-rounded flint from 2.50m*		2.30			9	S 19						
								10							
						3.00		11							
								13	S 27						
			Medium dense olive silty fine to medium SAND, weathering to brown. HAPPISBURGH GLACIGENIC FORMATION		3.50			14							
						4.00		15							
								17	S 27						
								18							
			Dense olive, grey & brown slightly gravelly fine to medium SAND, weathering to brown. Gravel is fine rounded to sub-rounded flint & quartz. HAPPISBURGH GLACIGENIC FORMATION *Becoming silty from 5.50m*		5.00	5.00		19							
								21	S 31						
								22							
			Bedded dense olive silty fine SAND & reddish brown soft silty CLAY. HAPPISBURGH GLACIGENIC FORMATION		6.00	6.00		23							
								24	S 44						
			Dense brown fine to medium SAND. CRAG		6.50			25							
						7.00		26	S 47						
								27							
						8.00		28							
			Very dense orangey brown fine to medium SAND. CRAG		8.30			29	S 50						
								30							
						9.00		31							
								32	S 50						
			Very dense yellowish brown fine to medium SAND. CRAG		9.50			33							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 2 of 3

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB05
Carried out for	Community & Environmental Services	Date Started	20/06/2018	Date Finished	21/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.45	Ground Level (m AOD)	-5.77	Drawn by	RK
		Co-ords	652426 - 305946			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very dense yellowish brown fine to medium SAND. CRAG					34	S 50						
								36							
								37							
			Laminated & thinly bedded dense brown fine SAND & orangey brown sandy, silty CLAY. CRAG		11.00	11.00		38	S 34						
								39							
								40							
						12.00		41	S 40						
			Dense brown fine SAND. CRAG		12.30			42							
								43							
			With laminae of dark red & grey clayey SILT, brown fine to coarse SAND & grey sandy CLAY from 13.00m			13.00		44	S 50						
			Very dense orangey brown silty fine SAND, with lenses of soft brown CLAY & numerous shell fragments. CRAG		13.30			45							
								46							
						14.00		47	S 50						
			Becoming brown from 14.50m					48							
								49							
			Laminated & thinly bedded firm light grey silty CLAY, dark grey clayey SILT, dark grey silty fine SAND & orangey brown silty fine SAND, with some shell fragments. HAPPISBURGH GLACIGENIC FORMATION		15.00	15.00		50	S 50						
			With some fine to medium sub-angular flint & ironstone GRAVEL from 15.50m					51							
		305						52							
			Laminated firm light grey silty CLAY, light grey silty fine SAND & dark grey sandy SILT. HAPPISBURGH GLACIGENIC FORMATION		16.00	16.00		53	S 50						
								54							
								55							
			Very dense grey fine to medium SAND, with laminae of orangey grey clayey, sandy SILT. HAPPISBURGH GLACIGENIC FORMATION		17.00	17.00		56	S 50						
								57							
								58							
			Very dense grey silty fine SAND, with some shell fragments. CRAG		18.00	18.00		59	S 50						
								60							
								61							
			With some laminae of firm grey silty CLAY from 19.00m			19.00		62	S 50						
								63							
								64							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 3 of 3

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB05
Carried out for	Community & Environmental Services	Date Started	20/06/2018	Date Finished	21/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.45	Ground Level (m AOD)	-5.77	Drawn by	RK
		Co-ords	652426 - 305946			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			With laminae of firm grey silty CLAY & dark grey clayey SILT from 20.00m					65	S 48						
			Medium dense greyish brown fine to medium SAND with some shell fragments. CRAG		20.30			66							
								67							
						21.00									
			With lenses of firm grey silty CLAY & occasional shell fragments from 21.30m					68							
								69							
						22.00		70	S 21						
			Laminated stiff grey silty CLAY & light grey sandy SILT. CRAG		22.40			71							
								72							
						23.00		73							
			Stiff grey silty CLAY with laminae of light grey fine SAND. CRAG		23.40			74							
		250						75							
						24.00		76	S 33						
								77							
								78							
			Becoming laminated & thinly bedded grey silty fine to medium SAND & firm to stiff grey silty CLAY from 25.00m			25.00		79	S 36						
					25.45										
						26.00									
						27.00									
						28.00									
						29.00									

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

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AGS

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB06
Carried out for	Community & Environmental Services	Date Started	24/06/2018	Date Finished	25/07/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.60	Ground Level (m AOD)	-6.56	Drawn by	RK
		Co-ords	652494 - 306024			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Dark grey slightly silty, gravelly, organic fine to coarse SAND. Gravel is fine to coarse angular flint & coal with some shell fragments. TIDAL RIVER or CREEK DEPOSITS					2							
			Medium dense dark grey slightly gravelly, silty, organic fine to medium SAND, with occasional plastic, bone & rubber fragments. Gravel is fine to coarse angular to sub-rounded flint & concrete. TIDAL RIVER or CREEK DEPOSITS		0.50	1.00		3	S 22						
								5							
								6							
			Laminated & thinly bedded grey silty CLAY, orange clayey SILT & gravelly brown fine to medium SAND. Gravel is fine to medium sub-angular flint. TIDAL RIVER or CREEK DEPOSITS		2.00	2.00		7	S 22						
					2.30			9							
			Medium dense dark grey organic fine to medium SAND, with lenses of dark grey silty CLAY & occasional shell fragments. TIDAL RIVER or CREEK DEPOSITS					10							
			Dense brownish grey clayey, silty fine to medium SAND, with lenses of soft light grey silty CLAY. HAPPISBURGH GLACIGENIC FORMATION		3.00	3.00		11	S 39						
								13							
								14							
			Thinly bedded of soft grey silty CLAY, greyish brown silty fine SAND & orange silty fine SILT. HAPPISBURGH GLACIGENIC FORMATION		4.00	4.00		15	S 29						
								17							
								18							
						5.00		19	S 33						
								21							
								22							
			Dense to medium dense orangey brown fine SAND, with laminae & lenses of soft orange & grey silty CLAY. CRAG		6.00	6.00		23	S 36						
								24							
								25							
						7.00		26	S 18						
								27							
								28							
			Becoming greyish brown fine SAND, with laminae of orangey brown silty fine SAND from 8.00m			8.00		29	S 43						
								30							
								31							
			Laminated dense light grey silty fine SAND, brown fine SAND, orangey brown sandy SILT & reddish brown clayey SILT. CRAG		9.00	9.00		32	S 40						
								33							
								34							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB06
Carried out for	Community & Environmental Services	Date Started	24/06/2018	Date Finished	25/07/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.60	Ground Level (m AOD)	-6.56	Drawn by	RK
		Co-ords	652494 - 306024			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Becoming orangey brown silty fine SAND from 10.30m					35	S 44						
								37							
								38							
			Laminated & thinly bedded Very dense to denseorangey brown fine to medium SAND, soft light grey silty CLAY & reddish brown clayey SILT,		11.00	11.00		39	S 50						
			CRAG					40							
								41							
			With laminae of grey slightly clayey, sandy SILT, greyish brown sandy, silty CLAY & light grey silty SAND, with some shell fragments from 12.00m			12.00		42	S 43						
			Very dense brownish grey silty fine to medium SAND with lenses of soft grey silty CLAY and some shell fragments.		12.30			43							
			CRAG					44							
			Becoming laminated & thinly bedded soft light grey silty CLAY, grey fine to medium SAND & dark grey clayey SILT from 13.00m			13.00		45	S 50						
								46							
								47							
			Becoming slightly gravelly, clayey, silty fine to medium SAND from 14.00m *Gravel is fine to medium angular flint & sandstone.*			14.00		48	S 50						
			Very dense grey & brown silty fine to medium SAND, with some shell fragments.		14.30			49							
			CRAG					50							
						15.00		51	S 47						
								52							
		305						53							
						16.00		54	S 50						
								55							
								56							
						17.00		57	S 50						
								58							
								59							
						18.00		60	S 29						
			Dense to very dense grey fine SAND, with some shell fragments.		18.30			61							
			CRAG					62							
						19.00		63	S 43						
								64							
			With lenses of soft light grey silty CLAY from 19.50m					65							
					20.00										

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 3 of 3

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB06
Carried out for	Community & Environmental Services	Date Started	24/06/2018	Date Finished	25/07/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.60	Ground Level (m AOD)	-6.56	Drawn by	RK
		Co-ords	652494 - 306024			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Laminated & thinly bedded firm to stiff grey silty CLAY & brownish grey fine to medium SAND with some shell fragments. CRAG					66	S 50						
					20.30			67							
			Grey slightly silty fine SAND. CRAG					68							
						21.00									
			Stiff grey silty CLAY, with laminae of light grey silty fine SAND. CRAG		21.20			69							
								70							
								71							
						22.00		72							
								73	S 50						
			Becoming thinly bedded dark grey firm silty CLAY & Grey silty fine SAND from 23.00m					74							
						23.00									
								75							
								76							
								77							
			Laminated stiff grey silty CLAY, light grey fine SAND & dark grey clayey SILT. CRAG		24.00	24.00		78							
		250							S 27						
			Becoming very stiff from 24.30m					79							
								80							
						25.00									
								81							
			Laminated very stiff dark grey CLAY, with laminae of light grey fine SAND. CRAG		25.40										
					25.60			82							
						26.00									
						27.00									
						28.00									
						29.00									

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

AGS

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB07
Carried out for	Community & Environmental Services	Date Started	25/06/2018	Date Finished	27/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.29	Ground Level (m AOD)	-6.85	Drawn by	RK
		Co-ords	652485 - 306003			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Greyish brown very gravelly medium to coarse SAND, with occasional shell fragments. Gravel is fine to medium angular to sub-rounded flint & concrete. TIDAL RIVER or CREEK DEPOSITS					2							
			Grey silty fine to coarse SAND & fine to medium angular to sub-rounded flint & metal GRAVEL, with occasional shell fragments. TIDAL RIVER or CREEK DEPOSITS		0.50			3							
			Dense brown gravelly, silty fine to medium SAND, with laminae of soft light grey & orangey brown silty CLAY. Gravel is fine angular flint. TIDAL RIVER or CREEK DEPOSITS		1.00	1.00		4	S 35						
			Olive fine to coarse SAND, weathering to brown. HAPPISBURGH GLACIGENIC FORMATION		1.30			6							
			Olive silty, gravelly fine to medium SAND. Gravel is fine to medium angular to sub-rounded flint, weathering to brown. HAPPISBURGH GLACIGENIC FORMATION		1.50			7							
			Medium dense brown fine to medium SAND, with laminae of soft dark brown, orangey brown clayey SILT & light grey silty CLAY. HAPPISBURGH GLACIGENIC FORMATION		2.00	2.00		8	S 19						
			Dense olive fine to medium SAND weathering to brown, with some lens of soft brown silty CLAY. HAPPISBURGH GLACIGENIC FORMATION		2.30			10							
			Becoming laminated & thinly bedded light brown SAND, brown fine to medium SAND & light grey silty CLAY from 3.00m to 3.30m			3.00		11							
								12	S 38						
								14							
								15							
			Medium dense brown fine to medium SAND, with laminae of orangey brown sandy SILT & soft light grey silty CLAY. CRAG		4.00	4.00		16	S 24						
								18							
								19							
						5.00		20	S 31						
								22							
			Dense orangey brown fine to medium SAND, with laminae of dark brown clayey SILT. CRAG		5.50			23							
						6.00		24	S 40						
			Dense brown silty fine SAND. CRAG		6.30			25							
			Becoming fine to medium SAND from 6.50m					26							
			With laminae of dark brown clayey SILT & soft light grey silty CLAY from 7.00m			7.00		27	S 42						
								28							
			Dense brown fine to medium SAND. CRAG		7.50			29							
						8.00		30	S 45						
								31							
								32							
			Dense brown fine SAND. CRAG		9.00	9.00		33	S 43						
								34							
								35							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB07
Carried out for	Community & Environmental Services	Date Started	25/06/2018	Date Finished	27/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.29	Ground Level (m AOD)	-6.85	Drawn by	RK
		Co-ords	652485 - 306003			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			With laminae of reddish brown very sandy SILT from 10.00m					36							
								38	S 38						
			Very dense to dense orangey brown fine to medium SAND. CRAG		10.50			39							
						11.00		40	S 50						
			With laminae of brown fine SAND, reddish brown clayey SILT & light grey silty CLAY, with occasional ironstone nodules from 11.30m					41							
			Becoming brownish grey medium SAND from 11.50m					42							
		305				12.00		43	S 40						
			Becoming grey silty fine SAND from 12.00m					44							
			Very dense brownish grey fine to coarse SAND, with some shell fragments. CRAG		12.50			45							
			With laminae of dark grey sandy SILT & dark grey silty CLAY from 13.00m			13.00		46	S 50						
			Becoming light grey from 13.30m					47							
								48							
			With occasional fine angular flint GRAVEL from 14.00m			14.00		49	S 50						
			Very dense light grey fine to medium SAND, with occasional shell fragments. CRAG		14.30			50							
								51							
						15.00		52	S 50						
								53							
								54							
			With some fine to medium angular flint & limestone GRAVEL from 16.00m			16.00		55	S 50						
			Very dense brownish grey silty fine to medium SAND, with occasional shell fragments. CRAG		16.30			56							
								57							
			Very dense dark brownish grey clayey, silty fine SAND with some shell fragments. CRAG		17.00	17.00		58	S 50						
								59							
								60							
						18.00		61	S 50						
			With lenses of soft light grey silty CLAY from 18.30m					62							
								63							
			Stiff grey silty CLAY, with laminae of light grey sandy SILT. CRAG		18.90	19.00		64	S 23						
								65							
			With beds of firm grey silty CLAY & grey silty fine SAND from 19.50m					66							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 3 of 5

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB07
Carried out for	Community & Environmental Services	Date Started	25/06/2018	Date Finished	27/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.29	Ground Level (m AOD)	-6.85	Drawn by	RK
		Co-ords	652485 - 306003			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			With some shell fragments from 20.00m					67							
								68							
						21.00		69							
								70	S 41						
								71							
			With laminae of dark grey clayey SILT & light grey silty fine SAND from 21.50m					72							
			Grey fine to medium SAND, with lenses of soft grey silty CLAY. CRAG		22.00	22.00		73							
								74							
								75							
						23.00									
			Very dense grey clayey, silty fine SAND, with laminae & thin beds of firm grey silty CLAY. CRAG		23.30			76							
								77							
						24.00		78	S 50						
								79							
								80							
						25.00									
								81							
								82							
						26.00		83	S 50						
								84							
			Very dense grey clayey, silty SAND with beds of grey silty CLAY with some shell fragments. CRAG		26.50			85							
						27.00									
			With thin bed of grey silty fine to medium SAND, with occasional shell fragments from 27.30m					86							
			With fine to medium angular flint gravel from 27.50m					87							
						28.00		88	S 50						
								89							
								90							
						29.00									
								91							
								92							
					30.00										

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB07
Carried out for	Community & Environmental Services	Date Started	25/06/2018	Date Finished	27/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.29	Ground Level (m AOD)	-6.85	Drawn by	RK
		Co-ords	652485 - 306003			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very dense dark grey fine to medium SAND, with laminae of dark grey sandy SILT. CRAG					93	S 50						
								94							
								95							
		250				31.00									
								96							
								97							
						32.00		98	S 50						
			Very dense grey fine to medium SAND, with occasional shell fragments. CRAG		32.30			99							
								100							
						33.00									
								101							
								102							
						34.00		103	S 50						
								104							
								105							
						35.00		106							
								107							
			Very dense dark grey fine to medium SAND with laminae of dark grey sandy SILT & occasional shell fragments. CRAG		36.00	36.00		108	S 51						
								109							
								110							
						37.00									
			Very stiff greenish grey silty CLAY, grey silty CLAY, black clayey SILT & light grey silty fine SAND. LONDON CLAY		37.40			111							
								112							
		150				38.00		113							
			Very stiff dark brownish grey silty CLAY with phosphatic nodules. LONDON CLAY		38.60			114							
								115							
						39.00		116	S 50						
			With fine to medium rounded to angular flint gravel & phosphatic nodules from 39.30m					117							
			Stiff grey silty CLAY, with laminae of dark greyish black SILT.		39.80			118							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB07
Carried out for	Community & Environmental Services	Date Started	25/06/2018	Date Finished	27/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.29	Ground Level (m AOD) -6.85	Drawn by	RK
		Co-ords	652485 - 306003		Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			LONDON CLAY		40.29			119							
						41.00									
						42.00									
						43.00									
						44.00									
						45.00									
						46.00									
						47.00									
						48.00									
						49.00									

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 1 of 3

AGS

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB08
Carried out for	Community & Environmental Services	Date Started	21/06/2018	Date Finished	22/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.44	Ground Level (m AOD)	-6.70	Drawn by	RK
		Co-ords	652499 - 305988			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Dark greyish orange gravelly, sandy, silty CLAY, with numerous lenses of soft silty CLAY. Gravel is fine to medium angular to sub-rounded flint & wood. TIDAL RIVER or CREEK DEPOSITS					2							
								3							
			Thinly bedded medium dense brownish grey silty fine to medium SAND & orange brown clayey SILT. TIDAL RIVER or CREEK DEPOSITS		1.00	1.00		4							
			Grey silty fine to medium SAND weathering to brown with lenses of soft brown silty CLAY. HAPPISBURGH GLACIGENIC FORMATION		1.30			6	S 24						
								7							
								8							
			Brown fine to medium SAND, with lenses of soft grey silty CLAY. HAPPISBURGH GLACIGENIC FORMATION		2.00	2.00			S 31						
								10							
			Medium dense brownish grey fine to medium SAND, weathering to brown. HAPPISBURGH GLACIGENIC FORMATION		2.50			11							
			With laminae & thin beds of light brown & brown fine SAND, grey silty CLAY, dark brown gravelly, sandy SILT & firm orangey brown sandy, silty CLAY from 3.00m			3.00		12							
			Becoming grey from 3.30m					14	S 27						
			Dense grey slight gravelly fine to medium SAND, weathering to brown. Gravel is fine angular flint. HAPPISBURGH GLACIGENIC FORMATION		3.50			15							
						4.00		16							
								18	S 36						
								19							
			Dense to very dense olive fine to medium SAND weathering to brown. HAPPISBURGH GLACIGENIC FORMATION		5.00	5.00		20							
			With laminae of orangey brown & brown fine SAND & light grey & reddish brown sandy, silty CLAY from 5.30m					22	S 43						
								23							
			Becoming brown from 6.00m to 6.30m			6.00		24							
								25	S 60						
								26							
						7.00		27							
			Very dense brown fine to medium SAND. CRAG		7.20			28	S 60						
								29							
						8.00		30							
			With lenses of light grey soft silty CLAY from 8.30m to 8.50m					31	S 25						
								32							
						9.00		33							
								34	S 50						
			Dense to very dense brown silty fine SAND. CRAG		9.50			35							
		305													

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 2 of 3

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB08
Carried out for	Community & Environmental Services	Date Started	21/06/2018	Date Finished	22/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.44	Ground Level (m AOD)	-6.70	Drawn by	RK
		Co-ords	652499 - 305988			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			With laminae of firm orangey brown clayey SILT from 11.00m to 11.30m			11.00		36	S 38						
								37							
								38							
								39	S 50						
								40							
								41							
			With laminae & thin beds of brownish orange & orangey brown fine SAND & soft light grey & brown silty CLAY from 12.00m			12.00		42	S 36						
			Dense yellowish brown fine to medium SAND. CRAG		12.30			43							
								44							
						13.00		45	S 42						
			Dense brownish grey silty fine SAND, with laminae of dark grey soft silty CLAY. CRAG		13.30			47							
								48							
			Becoming medium dense with some fine to coarse sub-rounded flint GRAVEL & shell fragments from 14.00m			14.00		49	S 14						
			Medium dense light grey fine to coarse SAND, with lenses of stiff light grey silty CLAY, with occasional shell fragments. CRAG		14.30			50							
								51							
						15.00			S 18						
			Medium dense light grey fine to medium SAND, with occasional shell fragments. CRAG		15.30			52							
								53							
						16.00			S 18						
								54							
								55							
						17.00		56	S 13						
			With lenses of dark grey SAND from 17.30m					57							
								58							
						18.00		59	S 42						
								60							
			Medium dense grey SAND, with lenses of light grey soft silty CLAY. CRAG		19.00	19.00		62 61	S 27						
								63							
			Dark grey very clayey, very silty fine SAND, with lenses of firm grey silty CLAY. CRAG		19.60										

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 3 of 3

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB08
Carried out for	Community & Environmental Services	Date Started	21/06/2018	Date Finished	22/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.44	Ground Level (m AOD)	-6.70	Drawn by	RK
		Co-ords	652499 - 305988			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Dark grey very clayey, very silty fine SAND, with lenses of firm grey silty CLAY. CRAG					64							
			Stiff to very stiff grey silty CLAY, with numerous laminae of light grey silty fine SAND. CRAG		20.60	21.00		65 66 67 68	S 40						
			Stiff to very stiff grey silty CLAY, with laminae of dark grey silty CLAY. CRAG		22.60	22.00		69 71 70							
			Dense dark grey fine SAND, with occasional shell fragments. CRAG		23.30	23.00		72 73	S 36						
		250	Very soft grey sandy, silty CLAY, with occasional shell fragments. CRAG		24.00	24.00		75 76							
					25.44	25.00		74	S 50						
						26.00									
						27.00									
						28.00									
						29.00									

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 1 of 5

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB09
Carried out for	Community & Environmental Services	Date Started	02/07/2018	Date Finished	04/07/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.45	Ground Level (m AOD)	-6.13	Drawn by	RK
		Co-ords	652490 - 305973			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Brown gravelly medium to coarse SAND. Gravel is fine to coarse angular flint, coal & wood some shell fragments. TIDAL RIVER or CREEK DEPOSITS					2							
			Medium dense grey slightly gravelly, silty fine to coarse SAND, with some shell fragments. Gravel is fine angular flint. TIDAL RIVER or CREEK DEPOSITS		0.50			3							
			Becoming dark grey from 1.30m			1.00		5	S 13						
								6							
						2.00		7	S 16						
			Medium dense dark grey clayey, silty, gravelly orange fine to medium SAND with some shell fragments. Gravel is fine angular flint. TIDAL RIVER or CREEK DEPOSITS		2.30			9							
								10							
			Laminated dense light grey, brown, orangey brown & orange silty fine to medium SAND, light grey silty CLAY & black organic SILT. TIDAL RIVER or CREEK DEPOSITS		3.00	3.00		11	S 38						
			With thin bed of brownish grey fine to medium SAND from 3.30m					13							
			Dense dark grey slightly gravelly, silty fine to coarse SAND, with lenses of soft light grey silty CLAY & occasional shell fragment. Gravel is fine angular flint. TIDAL RIVER or CREEK DEPOSITS		3.50			14							
			With laminae of soft brown silty CLAY & dark greyish orange clayey SILT from 4.00m			4.00		15	S 33						
			Dark grey slightly organic fine to medium SAND, with occasional shell fragments. TIDAL RIVER or CREEK DEPOSITS		4.30 4.45			16							
			Dense brown clayey, silty, gravelly fine SAND with lenses of soft light grey silty CLAY & occasional shell fragments. Gravel is fine angular flint & sand stone. CRAG					17							
			With laminae & thin beds of brown silty fine SAND, orange sandy SILT & light grey silty CLAY from 5.00m			5.00		19	S 43						
			Very dense olive slightly silty fine SAND, weathering to brown. CRAG		5.30			21							
								22							
			Becoming laminated & thinly bedded brown silty fine SAND, orange sandy SILT & light grey silty CLAY from 6.00m to 6.30m			6.00		23	S 50						
								24							
								25							
			Dense brown silty fine SAND, with laminae of orange sandy SILT & soft light light grey silty CLAY. CRAG		7.00	7.00		26	S 39						
			Dense olive fine to medium SAND. CRAG		7.30			27							
								28							
			Dense olive silty fine SAND, brown fine SAND, orangey brown sandy SILT & soft light grey silty CLAY. CRAG		8.00	8.00		29	S 38						
			With some fine angular flint GRAVEL from 8.30m to 10.00m					30							
								31							
						9.00		32	S 40						
								33							
								34							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB09
Carried out for	Community & Environmental Services	Date Started	02/07/2018	Date Finished	04/07/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.45	Ground Level (m AOD)	-6.13	Drawn by	RK
		Co-ords	652490 - 305973			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Dense olive silty fine SAND, brown fine SAND, orangey brown sandy SILT & soft light grey silty CLAY. CRAG					35							
					10.30				S 36						
			Dense olive silty fine SAND, with lenses of soft grey CLAY, weathering to brown. CRAG					37							
								38							
			With laminae & thin beds of light brown silty fine SAND, orange & orangey brown very sandy SILT, reddish brown sandy SILT & light grey silty CLAY from 11.00m to 11.30m			11.00		39							
									S 46						
								40							
								41							
			Thinly bedded dense brown & light brown fine SAND. CRAG		12.00	12.00		42							
									S 42						
			Dense olive silty fine SAND. CRAG		12.30			43							
								44							
			Very dense olive silty fine to medium SAND, with lenses of reddish brown fine to medium SAND & soft grey CLAY. CRAG		13.00	13.00		45							
									S 50						
								46							
			Orange brown slightly gravelly, clayey, silty fine SAND. Gravel is fine angular flint. CRAG		13.50			47							
			Very dense light grey clayey, silty fine SAND, with thin beds of brown silty fine to medium SAND & laminae of soft light grey silty CLAY. CRAG		14.00	14.00		48							
									S 50						
								49							
			Blueish grey very clayey SILT, with thin beds of brown fine SAND. CRAG		14.50			50							
						15.00		51							
									S 50						
			Very dense brownish grey fine SAND with lenses of soft silty grey CLAY, & occasional shell fragments. CRAG		15.30			52							
								53							
						16.00		54							
									S 50						
								55							
								56							
			With thin beds of grey & brown fine to medium SAND with laminae of soft light grey silty CLAY from 17.00m to 17.30m			17.00		57							
									S 50						
								58							
								59							
			Very dense greyish brown fine to medium SAND. CRAG		18.00	18.00		60							
									S 50						
			Becoming slightly silty from 18.30m to 18.50m					61							
								62							
		305													
			Very dense grey silty fine to medium SAND. CRAG		19.00	19.00			S 50						
								63							
			Very dense grey silty fine to medium SAND, with thin beds of grey slightly sandy, very clayey SILT. CRAG		19.50			64							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 3 of 5

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB09
Carried out for	Community & Environmental Services	Date Started	02/07/2018	Date Finished	04/07/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.45	Ground Level (m AOD)	-6.13	Drawn by	RK
		Co-ords	652490 - 305973			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very dense grey silty fine to medium SAND, with thin beds of grey slightly sandy, very clayey SILT. CRAG					65	S 50						
								66							
								67							
						21.00									
			Firm to stiff blueish grey sandy, very clayey SILT, with laminae of black clayey SILT & light grey silty fine SAND. CRAG		21.20			68							
								69							
						22.00									
						23.00		70							
			Laminated & thin beds of stiff black gravelly, silty CLAY & grey slightly sandy, very clayey SILT. CRAG		23.50			71							
								72							
			With thin beds of brownish grey fine to medium SAND from 24.00m			24.00		73	S 50						
			Very dense dark grey silty fine to medium SAND, with lenses of soft grey silty CLAY & some shell fragments. CRAG		24.30			74							
								75							
						25.00		76							
								77							
						26.00		78	S 50						
			Very dense grey silty fine to medium SAND, with lenses of dark grey clayey SILT & occasional shell fragments. CRAG		26.30			79							
								80							
						27.00									
			With fine to medium sub-angular flint GRAVEL from 27.30m to 28.30m					81							
								82							
						28.00		83	S 50						
								84							
								85							
						29.00									
								86							
								87							
					30.00										

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 4 of 5

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB09
Carried out for	Community & Environmental Services	Date Started	02/07/2018	Date Finished	04/07/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.45	Ground Level (m AOD)	-6.13	Drawn by	RK
		Co-ords	652490 - 305973			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very dense brownish grey silty fine to medium SAND, with lenses of dark grey clayey SILT & occasional shell fragments. CRAG					88	S 50						
								89							
								90							
						31.00									
								91							
								92							
			With thin beds of grey very clayey, silty fine SAND from 32.00m			32.00		93	S 50						
								94							
			Brownish grey silty fine and medium SAND with occasional shell fragments. CRAG		32.50			95							
						33.00									
			Very dense grey slightly silty fine to medium SAND with some shell fragments. CRAG		33.30			96							
		250						97							
			With laminae of grey clayey, silty fine SAND & light grey clayey SILT from 34.00m to 36.30m			34.00		98	S 50						
								99							
								100							
						35.00									
								101							
								102							
						36.00		103	S 50						
								104							
								105							
						37.00									
			Laminated & thinly bedded stiff grey silty CLAY, stiff greenish grey clayey SILT, dark brown slightly clayey, very sandy SILT & dark grey silty fine SAND. CRAG		37.30			106							
								107							
								108							
			Stiff to very stiff grey & brown laminated fissured silty CLAY. LONDON CLAY		38.00	38.00		109							
								110							
			Very stiff grey & brown laminated fissured silty CLAY, with ironstone modules. LONDON CLAY		38.70			111							
		150				39.00									
					40.00										

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB09
Carried out for	Community & Environmental Services	Date Started	02/07/2018	Date Finished	04/07/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	40.45	Ground Level (m AOD)	-6.13	Drawn by	RK
		Co-ords	652490 - 305973			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very stiff brown laminated fissured silty CLAY. LONDON CLAY		40.45	41.00 42.00 43.00 44.00 45.00 46.00 47.00 48.00 49.00	●	112	S 47						

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

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Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB10
Carried out for	Community & Environmental Services	Date Started	22/06/2018	Date Finished	23/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.44	Ground Level (m AOD)	-5.87	Drawn by	RK
		Co-ords	652502 - 305958			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Medium dense dark grey silty fine to medium SAND, with lenses of light grey silty CLAY. TIDAL RIVER or CREEK DEPOSITS					1							
			With laminae of black organic material from 0.50m												
						1.00		2	S 13						
			Medium dense dark grey fine to medium SAND, with lenses of black organic material. TIDAL RIVER or CREEK DEPOSITS		1.30			4							
								5							
			With laminae & thin beds light grey & orangey brown silty fine SAND, brown clayey, silty fine SAND & dark grey fine to medium SAND from 2.00m			2.00		6	S 49						
			Dense dark grey slightly gravelly fine to medium orange SAND. Gravel is fine angular coal, wood & flint. TIDAL RIVER or CREEK DEPOSITS		2.30			8							
								9							
			Medium dense olive fine to medium SAND, with lenses of blackish organic material, weathering to brown. TIDAL RIVER or CREEK DEPOSITS		3.00	3.00		10	S 14						
			Medium dense grey gravelly, silty fine to medium SAND with lenses of soft grey silty CLAY. Gravel is fine angular flint, quartz & wood. TIDAL RIVER or CREEK DEPOSITS		3.30			12							
								13							
			Medium dense greyish brown slightly gravelly, silty fine SAND with laminae of soft light grey silty CLAY, dark brown clayey SILT & orangey brown silty fine SAND. Gravel is fine angular flint. TIDAL RIVER or CREEK DEPOSITS		4.00	4.00		14	S 29						
			Becoming olive from 4.50m					16							
								17							
			Dense grey slightly gravelly, silty fine SAND, with lenses of soft silty CLAY. Gravel is fine angular flint, wood & sandstone. TIDAL RIVER or CREEK DEPOSITS		5.00	5.00		18	S 32						
			Dense olive fine SAND, weathering to brown, with occasional shell fragments. CRAG		5.30			20							
								21							
			With lenses of brownish grey slightly gravelly silty fine SAND & soft light grey silty CLAY from 6.00m *Gravel is fine to medium angular to sub-rounded flint, wood & ironstone.* *Becoming laminated & thinly bedded orange silty fine SAND, brown silty fine to medium SAND, soft grey silty CLAY & dark brown clayey SILT from 6.15m*			6.00		22	S 42						
								23							
								24							
						7.00		25	S 42						
								26							
								27							
			Very dense olive fine SAND weathering to brown. CRAG		8.00	8.00		28	S 50						
			With lenses of soft light grey silty CLAY from 8.30m					29							
								30							
			Very dense brown fine SAND & grey silty fine SAND, with laminae of soft light grey silty CLAY & reddish brown clayey SILT. CRAG		9.00	9.00		31	S 50						
			Very dense olive fine to medium SAND, with lenses of soft light grey silty CLAY. CRAG		9.30			32							
								33							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB10
Carried out for	Community & Environmental Services	Date Started	22/06/2018	Date Finished	23/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.44	Ground Level (m AOD)	-5.87	Drawn by	RK
		Co-ords	652502 - 305958			Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			Very dense olive fine to medium SAND, with lenses of soft light grey silty CLAY. CRAG					34							
								36	S 45						
								37							
						11.00		38							
								39	S 50						
								40							
			Medium dense brownish grey fine SAND, weathering to brown. CRAG		12.00	12.00		41							
			With laminae of orange brown fine to medium SAND, soft grey silty CLAY & reddish brown clayey SILT from 12.15m to 12.30m					42	S 19						
								43							
			Becoming orange fine to medium SAND, with thin beds of brown silty fine SAND from 13.15m			13.00		44							
			Dense brown fine SAND, with lenses of soft orange silty CLAY. CRAG		13.30			46	S 45						
								47							
		305				14.00		48							
			With lenses of light grey cement stone from 14.15m					49	S 50						
			Very dense brown slightly gravelly fine to medium SAND. Gravel is greyish brown fine to medium angular flint, cement stone & ironstone. CRAG		14.30			50							
						15.00		51							
			Medium dense grey slightly silty, slightly gravelly fine to medium SAND. Gravel is fine angular to sub-angular silt stone. CRAG		15.50			52							
						16.00		53	S 18						
			Medium dense grey silty fine to medium SAND, with some shell fragments. CRAG		16.50			54							
						17.00		55	S 13						
			Becoming very dense with lenses of soft grey silty CLAY from 17.50m					56							
						18.00		57							
								58	S 50						
								59							
						19.00		60							
									S 50						
			Grey silty fine SAND with thin beds of firm to stiff grey silty CLAY & occasional shell fragments.		19.70			61							

NORFOLK PARTNERSHIP LABORATORY

Borehole Log

Sheet 3 of 3

Scheme	Gt Yarmouth 3rd River Crossing	Job No.	PZ1522D1	Borehole No.	MB10
Carried out for	Community & Environmental Services	Date Started	22/06/2018	Date Finished	23/06/2018
Remarks:		Type of Rig	Cable percussion (shell and auger)	Logged by	NP
		Depth (m)	25.44	Ground Level (m AOD)	-5.87
		Co-ords	652502 - 305958	Checked by	MLB

Backfill	Water	Casing	Description	Legend	Depth (m)	Scale	Sample Type	Sample No.	Field Tests	Laboratory Tests MC%	LL	PL	MPI	Org.	CBR
			CRAG					62 64							
			Dense dark grey clayey, silty fine SAND.		20.50			63							
			CRAG			21.00		65 66	S 37						
			Laminate & thinly bedded firm grey silty CLAY, grey silty fine SAND.		21.70										
			CRAG		22.00	22.00		67							
			Stiff grey silty CLAY, with laminae of light grey silty fine SAND & dark grey SILT.					68							
			CRAG			23.00		69							
								70	S 50						
						24.00		71							
		250	Very dense dark grey silty fine to medium SAND with thin beds of firm silty CLAY & numerous shell fragments.		24.50										
			CRAG			25.00		72	S 50						
					25.44										
						26.00									
						27.00									
						28.00									
						29.00									

Appendix D

UXO RISK MITIGATION SURVEY

Explosive Ordnance Desktop Threat Assessment

Site: **Southtown, Great Yarmouth**

Client: **WSP UK Limited**

Ref: **7307TA**

Date: **19th September 2017**

Dynasafe BACTEC Limited
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This Report has been produced in compliance with the Construction Industry Research and Information Association guidelines for the preparation of Detailed Risk Assessments in the management of UXO risks in the construction industry.

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Glossary of Terms

AAA	Anti-Aircraft Artillery
ARP	Air-raid Precautions
BDO	Bomb Disposal Officer
EOD	Explosive Ordnance Disposal (current term for “bomb” disposal)
HE	High Explosive
HG	Home Guard
IB	Incendiary Bomb
kg	Kilogram
LCC	London County Council
LM	Land Mine
LSA	Land Service Ammunition (includes grenades, mortars, etc.)
Luftwaffe	German Air Force
m bgl	Metres Below Ground Level
MoD	Ministry of Defence
OB	Oil Bomb
PM	Parachute Mine
RAF	Royal Air Force
RN	Royal Navy
SI	Site Investigation
SAA	Small Arms Ammunition (small calibre cartridges used in rifles & machine guns)
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
V-1	“Doodlebug” the first cruise type missile, used against London from June 1944. Also known as ‘Flying Bomb’.
V-2	The first ballistic missile, used against London from September 1944
WWI	First World War (1914 -1918)
WWII	Second World War (1939 – 1945)

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Executive Summary

The Site: The study area, centred on the approximate OS National Grid Reference: TG 52451 05820, is located in Great Yarmouth, approximately 10m north of Southtown Common Recreation Ground. The site is bound to the north by residential properties fronting Waveney Road, to the east by the Petersons Distribution Centre, to the south by residential properties fronting Alpha Road and to the west by the A12 Dual Carriageway

The study area is complex / varied, comprising industrial / commercial properties in the east and residential areas mixed with commercial units in the west, with the River Yare passing north to south through the site. The study area encompasses a number of highways; the A1243, Cromwell Road, Cromwell Crescent, Southtown Road, Queen Anne's Road, William Adams Way, Suffolk Road, Beccles Road and the A12. In the west, there is a variety of soft open ground including allotment gardens, residential gardens, areas of dense vegetation, mature woodland and the periphery of Southtown Common Recreation Ground.

Proposed Works: The proposed Site Investigation which shall include both onshore and offshore boreholes to a maximum depth of 50m bgl, CPT boreholes to a maximum depth of 30m bgl, trial pits to 3m bgl, observation trenches to 6m bgl and window samples to 6m bgl.

Risk Assessment Methodology: In accordance with CIRIA guidelines this assessment has carried out research, analysed the evidence and considered the risks that the site has been contaminated with unexploded ordnance; that such items remained on site; that they could be encountered during any intrusive works and the consequences that could result. Appropriate risk mitigation measures have been proposed.

Explosive Ordnance Risk Assessment: Taking into consideration the findings of this study, Dynasafe BACTEC considers the risk across the route to be heterogeneous and can therefore be divided into ***Low***, ***Medium*** and ***High*** Risk Zones.

German UXO:

- The site was located within central Great Yarmouth within an area of very high bombing density during WWII, with up to 8 x HE bombs likely to have landed on or adjacent to the site boundary. At least 12 further HE bombs are recorded within a 300m radius of the site. In addition, the site is likely to have been affected by 1kg incendiary bombing.
- The eastern extent of the site, comprising busy commercial / industrial areas would have been accessed on a daily basis thereby decreasing the risk of any UXB strike evidence going unnoticed. In addition, these areas may have been subject to post-raid checks for UXB entry holes.
- The western half of the site was occupied by large areas of ambiguous open ground and allotment gardens which are unlikely to have been accessed as regularly or frequently. Access to the allotments would have varied depending on the season and therefore, a UXB could conceivably have fallen here unobserved.
- Moreover, there are multiple areas of clearance and a ruin apparent on site, suggesting that these areas sustained serious bomb damage. As a result, the affected buildings will have been abandoned for a time, increasing the likelihood of subsequent UXO falling on site unnoticed. Therefore, it can be assumed that, for a time, significant quantities of rubble occupied this area and debris may have been strewn across the site, increasing the likelihood of a UXB remaining on site. However, had a UXB landed within the allotments, open ground soft, rubble, or area of open air storage on site it could have gone undetected. Note, that the entry hole of an SC50 (the most commonly deployed German HE bomb) could be as little as 20cm in diameter and therefore, easily obscured in dense vegetation.
- A UXB landing in the river during a night time raid will have been immediately obscured from view, beneath the waterline. Consequently, it is unlikely to have been observed, reported and mapped.
- A UXB entry hole within the river bank mud on site (revealed at low tide) is unlikely to have persisted; the next high tide filling in the hole with water and sediment. Even if evidence of a UXB was observed here and reported, it is highly unlikely to have been recovered by the local bomb disposal unit due to its insignificant location and the impracticalities of deep buried UXB removal in this environment.

British/Allied UXO:

- Due to its coastal location in south-eastern England, Great Yarmouth was considered vulnerable to German invasion and consequently, was well defended by Army and HG units, with River Yare and beaches fortified with static defences, minefields and gun positions.
- A group of WWII anti-invasion defences, including four pillboxes, a road block and a Spigot Mortar emplacement were present within the northern section of the site on the junction of Queen Anne's Road and

Southtown Road. The central element of the site was a substantial road block, designed to check the progress of tanks rather than act as a check point. Further defences were located within the site boundary, located at the westernmost end of Cromwell Road a Spigot Mortar position and associated Type 24 Pillbox were located.

- Although these defence installations were located on site, it is considered highly likely that the risk of shallow buried UXO has been mitigated on site due to post war development.

- Note, that four HAA batteries were situated within a 5km radius of the site during WWII. For the same reasons as given above, it is quite possible that an unexploded AA shell or rocket could have landed in the river on site and remained there.

The Risk that Unexploded Ordnance Remains on site: Land - Within the footprint of post-war ground works, the risk of small, shallow buried UXO (LSA, SAA, AA shells and German 1kg incendiaries) remaining will have been partly mitigated since any such items could have been encountered and removed during soil stripping / levelling, foundations etc.

Only within the volume of any post-war basement level bulk excavations and at the precise locations of any post-war pile foundations / boreholes, will the risk from deeper buried German HE UXBs have been completely mitigated. Therefore, it is conceivable that such a weapon could reside within virgin / untouched geology, beneath and amongst any such post-WWII ground works, down to the maximum bomb penetration depth. The risk from UXO contamination within the eastern extent of the site and pre-war buildings has been assessed as minimal and therefore the risk from UXO remaining is minimal.

River - It has been assessed that a HE UXB falling in the river will likely have achieved full burial within the overburden sediment and may also have penetrated the Crag Group bedrock. Consequently, such a UXB will have remained in situ up to the present day, largely unaffected by environmental conditions. Also, any large partially buried UXBs on site are less likely to be affected by environmental conditions as a result of their significant mass.

Tidal riverbed environments are mobile in nature and therefore as a result of water currents, any small items of UXO (British AA shells and German 1kg IBs) residing on or near the riverbed surface could experience migration. This is evidenced by the large quantity of munitions that are washed up on beaches around the UK, every year. The wider River Yare environment will have been subject to the same UXO contamination conditions as the site during WWII and therefore although riverbed UXO could have migrated out of the site since WWII, equally, additional UXO could have migrated into the site.

Bomb Penetration Assessment: It has been assessed that a 500kg bomb would have had an approximate maximum bomb penetration depth of between **8-10m** below WWII ground level. Penetration depth could potentially have been greater if the UXB was larger (though only 4% of German bombs used in WWII over Britain were of that size). Note that UXBs may be found at any depth between just below the WWII ground level and the maximum penetration depth.

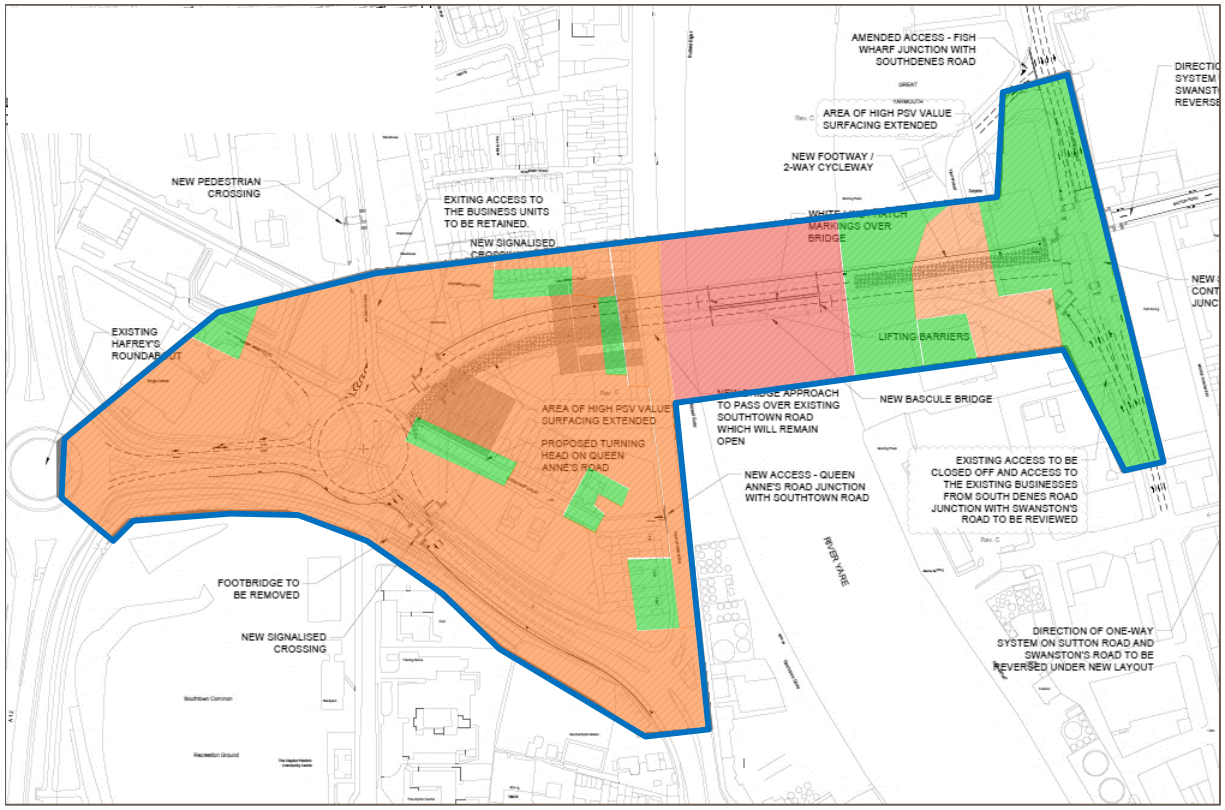
Recommended Risk Mitigation Measures: Dynasafe BACTEC believes the following risk mitigation measures should be deployed to support the proposed works at the Southtown, Great Yarmouth site:

- Site Specific Explosive Ordnance Safety and Awareness Briefings to all personnel conducting intrusive works.
- The Provision of Unexploded Ordnance Site Safety Instructions.
- Explosive Ordnance Disposal (EOD) Engineer presence on site to support shallow intrusive works.
- Handheld Intrusive Magnetometer Survey of all borehole locations down to the maximum bomb penetration depth.
- Non-Intrusive Magnetometer and Side Scan UXO Survey.
- Intrusive Magnetometer Survey - Down-hole Vallon Probing ahead of Marine Boreholes.

Further Recommended Measures should the Scope of Works Change:

- Intrusive Magnetometer Survey of all pile / boreholes locations down to the maximum bomb penetration depth.
- Pre-Piling Intrusive Magnetometer Survey: TFG Clearance ahead of Piling.
- Intrusive Magnetometer Survey: Down-hole Vallon Probing ahead of Piling.

Risk Map:



Low Risk Zone	Medium Risk Zone	High Risk Zone
Buildings and hard standing that survived the war intact.	• Open Soft Ground that would not have been accessed regularly nor frequently. • Areas of substantial bomb damage. • Buffer area to account for the "J-Curve" Effect.	The River Yare

Annexes

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Explosive Ordnance Threat Assessment

In Respect of

Southtown, Great Yarmouth

1 Introduction

1.1 Background

WSP UK Limited has commissioned Dynasafe BACTEC Limited to conduct an Explosive Ordnance Threat Assessment for the Southtown, Great Yarmouth site.

Unexploded Ordnance (UXO) presents a significant threat to construction projects in parts of the UK as a result of enemy actions during the two 20th Century World Wars and historic British and Allied military activity.

It is estimated that over 20% of the UK landmass has been used for military training at some point and between 2006 and 2009, over 15,000 items of mainly British / Allied ordnance (excluding small arms ammunition) were found on UK construction sites.

In addition, one of the legacies of the two World Wars is buried unexploded air-dropped bombs or anti-aircraft projectiles resulting from the failure of a proportion of such weapons to function as designed. It is commonly accepted that the failure rate of these munitions was approximately 10% and, depending on their shape, weight, velocity and ground conditions many penetrated the ground and came to rest at depth.

Intensive efforts were made during and after the war to locate and render safe all UXO but, unsurprisingly, not all were found and dealt with. This is evidenced by the regular, on-going discoveries of UXO during construction-related intrusive ground works.

As a result of a generally increased risk awareness amongst professionals involved in ground engineering works and proactive health and safety measures, the threat to life and limb from UXO has been minimised. However even the simple discovery of a suspected device during on-going works can cause considerable disruption to production and cause unwanted delays and expense.

Such risks can be more fully addressed by a better understanding of the site-specific threat and the implementation of appropriate risk mitigation measures.

2 Construction Industry Duties and Responsibilities

2.1 The UK Regulatory Environment

There is no specific legislation covering the management and control of the UXO risk in the UK construction industry but issues regarding health and safety are addressed under a number of regulatory instruments, as outlined below.

In practice, the regulations impose a responsibility on the construction industry to ensure that they discharge their obligations to protect those engaged in ground-intrusive operations (such as archaeology, site investigation, drilling, piling or excavations) from any reasonably foreseeable UXO risk.

2.2 The Health and Safety at Work Act, 1974

The Act places a duty of care on an employer to put in place safe systems of work to address, as far as is reasonably practicable, all risks (to employees and the general public) that are reasonably foreseeable.

2.3 Construction (Design and Management) Regulations 2015

CDM 2015 ensures that health and safety within the construction industry is continually improved:

- Works are sensibly planned and managed.
- Competent staff are engaged in the works.
- Risks are identified and managed.
- All parties cooperate and coordinate activities.
- Communication flows to those who require it.
- Workers are consulted and engaged about risks and how they are being managed.

In line with CDM 2015 legislation, Dynasafe BACTEC Limited are able to assist parties in their discharge of CDM duties as follows:

- Assist Principal Designers with pre-construction information and risk assessments
- Assist the Designer with the Designer's Risk Assessment.
- Issue UXO risks as have been identified, and manage risks accordingly.
- Assist the Principal Contractor with the construction phase information, in particular risk assessments and mitigation strategies.
- Plan, manage and monitor survey and clearance works under Dynasafe BACTEC Limited's control.

2.4 Other Legislation

Other relevant legislation includes the "Management of Health and Safety at Work Regulations 1999" and "The Corporate Manslaughter and Corporate Homicide Act 2007".

3 The Role of the Authorities and Commercial Contractors

3.1 The Authorities

The Police have the responsibilities for co-ordinating the emergency services in the case of an ordnance-related incident on a construction site. They will make an initial assessment (i.e. is there a risk that the find is ordnance or not?) and if they judge necessary impose a safety cordon and/or evacuation and call the military authorities (JSEODOC - Joint Services Explosive Ordnance Disposal Operations Centre) to arrange for investigation and/or disposal. In the absence of an EOD specialist on site many Police Officers will use the precautionary principle, impose cordon(s)/evacuation and await advice from the JSEODOC.

The priority given to the request by JSEODOC will depend on their judgement of the nature of the threat (ordnance, location, people and assets at risk) and the availability of resources. They will respond immediately or as resources are freed up. Depending on the on-site risk

assessment the item of ordnance may be removed or demolished (by controlled explosion) in situ. In the latter case additional cordons and/or evacuations may be necessary.

Note that the military authorities will only carry out further investigations or clearances in very high profile or high-risk situations. If there are regular ordnance finds on a site, the JSEODOC may not treat each occurrence as an emergency and will encourage the construction company to put in place alternative procedures (i.e. the appointment of a commercial contractor) to manage the situation and relieve pressure from the JSEOD disposal teams.

3.2 Commercial Contractors

In addition to pre-construction site surveys and follow-on clearance work, a commercial contractor is able to provide a reactive service on construction sites. The presence of a qualified EOD Engineer with ordnance recognition skills will avoid unnecessary call-outs to the authorities and the Contractor will be able to arrange for the removal and disposal of low risk ordnance. If high risk ordnance is discovered actions will be co-ordinated with the authorities with the objective of causing the minimum possible disruption to site operations whilst putting immediate, safe and appropriate measures in place.

4 This Report

4.1 Aims and Objectives

The aim of this report is to examine the possibility of encountering any explosive ordnance during any intrusive works at the Southtown, Great Yarmouth site. Risk mitigation measures will be recommended, if deemed necessary, to eliminate or reduce the threat from explosive ordnance during the envisaged works. The report follows the CIRIA Guidelines.

The following issues will be addressed in the report:

- The risk that the site was contaminated with unexploded ordnance.
- The risk that UXO remains on site.
- The risk that ordnance may be encountered during any intrusive works.
- The risk that ordnance may be initiated.
- The consequences of initiating or encountering ordnance.

Risk mitigation measures, appropriate to the assessed level of risk and site conditions, will be recommended if required.

4.2 Approach

In preparing this Explosive Ordnance Threat Assessment Report, Dynasafe BACTEC has considered general and, as far as possible, site specific factors including:

- Evidence of German bombing and delivery of UXBs.
- Site history, occupancy and conditions during WWII.
- The legacy of Allied military activity.
- Details of any known EOD clearance activity.
- The extent of any post war redevelopment.
- Scope of the current proposed works.

4.3 Sources of Information

Dynasafe BACTEC has carried out detailed historical research for this Explosive Ordnance Threat Assessment including accessing military records and archived material held in the public domain and in the MoD.

Material from the following sources has been consulted:

- The National Archives.
- Norfolk Record Office.
- Norfolk County Council.
- Landmark Maps.
- Peel Ports Great Yarmouth.
- Council for British Archaeology.
- Available material from 33 Engineer Regiment (EOD) Archive.
- Relevant information supplied by WSP UK Limited.
- Dynasafe BACTEC's extensive archives built up over many years of research and hands-on Explosive Ordnance Disposal activities in the UK.
- Open sources such as published books, local historical records and the internet.

4.4 General Considerations

This report is based upon research of historical evidence. Whilst every effort has been made to locate all relevant material Dynasafe BACTEC cannot be held responsible for any changes to the assessed level of risk or risk mitigation measures based on documentation or other information that may come to light at a later date.

The accuracy and comprehensiveness of wartime records is frequently difficult or impossible to verify. As a result, conclusions as to the exact location, quantity and nature of the ordnance threat can never be definitive but must be based on the accumulation and careful analysis of all accessible evidence. Dynasafe BACTEC cannot be held responsible for inaccuracies or gaps in the available historical information.

4.5 Bombing Records

During WWII, considerable efforts were expended in recording enemy air raids. Air Raid Precautions (ARP) wardens were responsible for making records of bomb strikes either through direct observation or by post-raid surveys. However, their immediate priority was to deal with casualties and limit damage, so it is to be expected that records are often incomplete and sometimes contradictory. Record keeping in the early days of bombing was not comprehensive and details of bombing in the early part of the war were sometimes destroyed in subsequent attacks. Some reports may cover a single attack, others a period of months or the entire war.

Records of raids that took place on sparsely or uninhabited areas were often based upon third party or hearsay information and are not always reliable; records of attacks on military or strategic targets were often maintained separately from the general records and have not always survived.

5 The Site

5.1 Site Location

The study area is located in Great Yarmouth, approximately 10m north of Southtown Common Recreation Ground. The site is bound to the north by residential properties fronting Waveney Road, to the east by the Petersons Distribution Centre, to the south by residential properties fronting Alpha Road and to the west by the A12 Dual Carriageway.

The site, centred on the approximate OS National Grid Reference: TG 52451 05820.

Site Location Maps are presented in ***Annex A***.

5.2 Site Description

The study area is complex / varied, comprising industrial / commercial properties in the east and residential areas mixed with commercial units in the west, with the River Yare passing north to south through the site.

The study area encompasses a number of highways; the A1243, Cromwell Road, Cromwell Crescent, Southtown Road, Queen Anne's Road, William Adams Way, Suffolk Road, Beccles Road and the A12.

In the west, there is a variety of soft open ground including allotment gardens, residential gardens, areas of dense vegetation, mature woodland and the periphery of Southtown Common Recreation Ground.

A Recent Aerial Photograph of the site is presented in ***Annex B***.

6 Scope of the Proposed Works

The proposed Site Investigation which shall include both onshore and offshore boreholes to a maximum depth of 50m bgl, CPT boreholes to a maximum depth of 30m bgl, trial pits to 3m bgl, observation trenches to 6m bgl and window samples to 6m bgl.

A Site Plan showing the proposed future development of the site is presented in ***Annex C***.

7 Ground Conditions

Published British Geological Survey (BGS) scale mapping indicates that the western extent of the site is underlain by superficial Breydon Formation (Peat), whilst the River Yare and the eastern extent of the site is underlain with Tidal River or Creek Deposits (Clay and Silt). Whereas the entirety of the site is underlain by Crag Group bedrock.

Data supplied by the WSP UK Limited, for a borehole sunk on land in 2007, records the following shallow geology on site:

- 1m of Made Ground.
- 3m of Sand (Tidal and River Creek Deposits).
- >10m of Sand (dense brown fine medium and coarse Sand – North Denes Formation).

A (marine) log (dated 2007) for a borehole sunk on site records the following shallow geology:

- 1.39m of Sand (shelly Sand with occasional silt/clay).

- >8.21m of Sand (Sand with layers of gravel).

8 Site History

Latest available pre-WWII and earliest available post-WWII OS maps were obtained from Landmark Maps. These are presented in ***Annex D*** and described below:

8.1 Pre-WWII

The 1927 (1:2,500 scale) map shows the site split into two halves by the River Yare. The eastern half is occupied by multiple industrial buildings, areas of open ground, unlabelled roadways and part of *Fish Wharf*. A rail siding supplying the Wharf is present in three locations within the eastern half of the site.

The western half of the site is predominantly occupied by residential properties, open ground and *Allotment Gardens*. The western half of the site is crossed by *Southtown Road, Queen Anne's Road, Cromwell Road* and smaller unlabelled roadways. The southern section of the site occupied the peripheries of *Southtown Common Recreation Ground*.

Note, that a 1927 (1: 2,500 scale) map was reviewed (not annexed) which shows the westernmost section of the site to be occupied by open ground.

8.2 Post-WWII

The 1949 (1:2,500 scale) map shows the eastern half of the site to have undergone two small areas of clearance, whilst the south-easternmost section of the site encroaches upon an area of redevelopment. No further major changes have occurred on this part of the site.

The western half of the site has sustained five areas of clearance across the site, whilst a single *Ruin* is located to the centre of the site. Note, the westernmost section of the site remains open ground.

Within the immediate surrounding area, a number of examples of clearance, redevelopment and ruins are noted. Such observations are often indicative of serious bomb damage on early post-WWII OS maps.

9 The Threat from German Aerial Bombing and Artillery Shelling

9.1 Conflict History of Great Yarmouth

9.1.1 First World War

9.1.1.1 Air Raids

A WWI bomb census map, shows that the town was subject to aerial bombardment. Note however that the map does not allow an accurate assessment of the bomb strike locations in relation to the study area due to the small scale and lack of detail.

Great Yarmouth suffered the first aerial bombardment in the UK, inflicted by Zeppelin L3 on 19th January 1915. Humberside is thought to have been the intended target, however, due to navigational difficulties, Great Yarmouth was attacked.

The Zeppelin reportedly dropped 10 bombs across the town; one of which landed outside the First and Last Tavern in Southgate Road by Fish Wharf. No casualties were sustained, the damage was confined to broken windows and a hole in the road. A second bomb landed adjacent to a riverside restaurant at Fish Wharf causing extensive damage, inflicted one

casualty from shattering glass. Therefore, as Fish Wharf occupies the eastern extent of the site it is likely that these bombs landed on site. However, no UXBs were noted.

9.1.1.2 Naval Bombardment

On the 25th April 1916 Lowestoft was attacked by the German Navy. Four large German battle cruisers (SMS Lützow, Derfflinger, Moltke and Von der Tann) supported by U-Boats bombarded the town with 6", 11" and 12" projectiles from a distance of approximately 6.5km. The attack commenced at 04:10 and lasted for 10 minutes.

The secondary target for this raid was to be Great Yarmouth however, the Royal Navy were made aware of the Germans actions and the British fleet engaged the German ships. This, coupled with heavy fog meant that only a few shells were fired at Great Yarmouth before the German warships pulled back.

9.1.1.3 Deductions

Although this study recognises the threat posed by WWI bombs and shells, it cannot be quantified to the same degree as the WWII threat due to the lack of complete and accurate incident records.

WWI bombs were generally smaller than those used in WWII and were dropped from a lower altitude, resulting in limited UXB penetration depths. Aerial bombing was often such a novelty at the time that it attracted public interest and even spectators to watch the raids in progress.

As only a few shells landed in Great Yarmouth it is unlikely that any failed to explode. Therefore, the risk of a German WWI unexploded bomb or shell landing on site unobserved, and subsequently going unreported, is considered minimal and therefore the risk from German WWI UXO is considered low and will not be further addressed in this report.

9.1.2 Second World War

The Luftwaffe reportedly carried out more bombing raids on Great Yarmouth than any other coastal town, due in part to the presence of an important port with a large fishing fleet and associated industries.

Moreover, due to the town's position on the east coast, where it was difficult to detect an incoming attack en route to the Midlands, it would have been vulnerable to 'tip and run' incidents, whereby an enemy aircraft under heavy AA fire or fighter interception would prematurely jettison its bomb load in order to evade the defences or indiscriminately deposit unused ordnance whilst returning to bases in northern Europe.

Consequently, the town was frequently attacked by German bombers. In a total of 237 properties were destroyed, 1,598 were severely damaged and subsequently demolished, 1,816 were seriously damaged but repairable and 19,818 were slightly damaged.

The available records of bombing incidents for Great Yarmouth are presented in the following sections.

9.2 Second World War Bombing Records

9.2.1 Bombing Statistics

The following table summarises the quantity of German bombs (excluding 1kg incendiaries and anti-personnel bombs) falling on the Municipal Borough of Great Yarmouth (within which the site was historically located) between 1940 and 1945: (source: National Archives)

Record of German Ordnance Dropped on the Municipal Borough of Great Yarmouth	
Area Acreage	3,598
High Explosive Bombs (all types)	910
Parachute Mines	9
Oil Bombs	1
Phosphorus Bombs	8
Fire Pot	10
V1 Flying Bomb	0
V2 Long Range Rocket	0
Total	938
Items Per 1,000 Acres	**260.7**

Evidence from a secondary source shows the statistics regarding the quantity of UXO dropped on Great Yarmouth[1]:

Record of German UXO Dropped on the Municipal Borough of Great Yarmouth	
High Explosive (all types)	221 (12)
Parachute Mines	7 (2)
Phosphorus Bombs	7 (1)
Fire Pot	10
Oil Bomb	1
V1 Flying Bomb	0
Unclassified HE Bombs	653 (60)

N.B. Number denoted in brackets are Unexploded Bombs

Detailed records of the quantity and locations of the 1kg incendiary and anti-personnel bombs were not routinely maintained by the authorities as they were frequently too numerous to record. However, an estimated 1,590 of these IBs were recorded in the Municipal Borough of Great Yarmouth.

Although the incendiaries are not particularly significant in the threat they pose, they nevertheless are items of ordnance that were designed to cause damage and inflict injury and should not be overlooked in assessing the general risk to personnel and equipment. The anti-personnel bombs were used in much smaller quantities and are rarely found today but are potentially more dangerous. This table does not include UXO found during or after WWII.

[1] Bowyer, M. *Air Raid the Emergency air offensive against East Anglia 1939-1945* (1986)

9.2.2 Great Yarmouth Bomb Plot Map

This Great Yarmouth Bomb Plot Map (presented in ***Annex E***) only records 28 raids between 11/10/1941 and 31/05/1944, taken from the National Archives. It records the closest HE bomb strike to be approximately 115m south-west of the site. Note, this map only depicts a small quantity of the ordnance dropped on the town as Luftwaffe activity was greater between the summers of 1940 and 1941.

9.2.3 Great Yarmouth Bomb Census Map

A bomb census map for the wider area included within a publication (*J. P. Foynes 1994*) was reviewed. A section of this small-scale map (presented in ***Annex F***) depicts the locations of bombs and mines dropped on Great Yarmouth throughout the duration of WWII.

It records approximately 8 x HE bomb strikes on or within the site boundary and multiple 1kg IBs to have fallen on site.

However, this map has very few geographical indicators and is of poor quality, therefore should not be considered an accurate representation of the distribution of bomb strikes in and around Great Yarmouth. Note, however it is possible to apply some accuracy when plotting the site due to the gas works location immediately to the east of the site.

9.2.4 WWII-era RAF Aerial Photography

Historical RAF aerial photography of the site was supplied by Norfolk County Council. A post-WWII image is presented in ***Annex F***.

This photography, was taken in 1946, and shows the site in its entirety, much as it appears in the OS Mapping. Although of small scale and low resolution it shows the western half of the site to be occupied by large areas of unused open ground, allotment gardens, hard-surfaced roadways and residential properties.

The eastern half of the site is occupied by a number of industrial buildings and hard-surfaced roadways, which appear to have survived the war intact. Note, that there are two smaller areas set back from the quayside which appear to be occupied by open soft ground which may have been used for the storage of materials during the war. An area of clearance is apparent within the western section of the site as is consistent to post-war OS Mapping, and is likely a result of bomb damage.

Note, no HE bomb craters are visible within the open soft ground, however, such features on worked ground (allotments) are likely to have been infilled during the war. Therefore, a UXB entry hole could have gone unnoticed on site.

9.2.5 Abandoned Bombs

A post-air raid survey of buildings, facilities and installations would have included a search for evidence of bomb entry holes. If evidence were encountered, Bomb Disposal Officer teams would normally have been requested to attempt to locate, render safe and dispose of the bomb. Occasionally evidence of UXBs was discovered but due to a relatively benign position, access problems or a shortage of resources the UXB could not be exposed and rendered safe. Such an incident may have been recorded and noted as an Abandoned Bomb.

Given the inaccuracy of WWII records and the fact that these bombs were ‘abandoned’, their locations cannot be considered definitive, nor the lists exhaustive. The MoD states that ‘action to make the devices safe would be taken only if it was thought they were unstable’. It should be noted that other than the ‘officially’ abandoned bombs, there will inevitably be UXBs that

were never recorded. Dynasafe BACTEC holds no records of officially registered abandoned bombs at or near the site.

9.3 Likelihood of Post-raid UXO Detection

Utilising the available historical bombing records as reviewed in *Section 9.2*, it is possible to make an assessment of the likelihood that evidence of UXO would have been noted on a site during the war and the incident dealt with or recorded at the time. Factors such as bombing density, frequency of access, ground cover, damage and failure rate have been taken into consideration.

9.3.1 Density of WWII Bombing

Bombing density is an important consideration for assessing the possibility that UXO remains in an area. A very high density can for example result in increased levels of damage sustained to structures, greater likelihood of errors in record keeping and a higher risk that UXBs fell over the area.

The site was located within an area of very high bombing density during WWII, with up to 8 x HE bombs likely to have landed on or adjacent to the site boundary. At least 12 further HE bombs are recorded within a 300m radius of the site. In addition, the site is likely to have been affected by 1kg incendiary bombing.

9.3.2 Damage

If structures on a site have been subject to significant bomb or fire damage, rubble and debris are likely to have been present; similarly, a HE bomb strike on open ground is likely to have resulted in a degree of soil disturbance. Under such conditions there is a greater risk of the entry holes of UXBs dropped during subsequent raids being obscured and going unnoticed.

A review of the historical resources suggests that many of the buildings on site survived the war largely intact. Note however, the available aerial photograph does not allow for an accurate assessment of bomb damage to all buildings.

Note, there are multiple areas of clearance apparent within the western section of the site, and a single ruin, suggesting that these areas sustained serious bomb damage. As a result, the affected buildings will have been abandoned for a time, increasing the likelihood of subsequent UXO falling on site unnoticed. Therefore, it can be assumed that, for a time, significant quantities of rubble occupied this area and debris may have been strewn across the site.

9.3.3 Frequency of Access

UXO at sites where human access was infrequent would have a higher chance of being overlooked than at those sites which were subject to greater occupancy. The importance of a site or facility to the war effort is also an important consideration as such sites are likely to have been both frequently accessed and are also likely to have been subject to post-raid checks for evidence of UXO.

The eastern extent of the site was occupied by Fish Wharf, comprising quayside areas and associated buildings / structures during the war. Note, however there is an area of open ground that may have possible been occupied by dense vegetation/bare earth or used for open air storage during the war. Therefore, decreasing the likelihood of regular / frequent access.

These busy commercial / industrial areas would have been accessed on a daily basis thereby decreasing the risk of any UXB strike evidence going unnoticed. In addition, these areas may have been subject to post-raid checks for UXB entry holes.

The western half of the site was occupied by large areas of ambiguous open ground and allotment gardens. These areas are unlikely to have been accessed as regularly or frequently as the developed portion of the site. Access to the allotments would have varied depending on the season and therefore a UXB could conceivably have fallen here unobserved. This is especially pertinent since many of the German air raids over Great Yarmouth took place at night. Furthermore, the undeveloped parts of the site would not have been subject to specific post-raid searches for UXO.

9.3.4 Ground Cover

The degree and type of groundcover present during WWII would have a significant effect on the visual evidence at ground level which may have indicated the presence of buried UXO.

Evidence of German UXO will have been obvious within the developed, undamaged parts of the study area, as a UXB strike to buildings and hard-standing will still have caused significant damage or an obvious, persistent entry hole, even without detonating. Following any such incident, the UXB would have been reported and subsequently exhumed / removed.

However, had a UXB landed within the allotments, open ground soft, rubble, or area of open air storage on site it could have gone undetected. Note, that the entry hole of an SC50 (the most commonly deployed German HE bomb) could be as little as 20cm in diameter and therefore, easily obscured in dense vegetation.

A UXB entry hole within the river bank mud on site (revealed at low tide) is unlikely to have persisted; the next high tide filling in the hole with water and sediment. Even if evidence of a UXB was observed, it is unlikely to have been reported due to its insignificant position.

A UXB striking the water on site will have been immediately obscured from view and therefore, is unlikely to have been observed, reported and mapped.

Also noteworthy is that during WWII German 1kg incendiary bombs were observed to penetrate to a significant depth when dropped into soft ground. The photograph presented in ***Annex H*** shows how such a sub-munition (known to have been deployed locally), could have remained undetected in the post-war period.

9.3.5 Bomb Failure Rate

There is no evidence to suggest that the bomb failure rate in the vicinity of the site would have been different from the “approximately 10%” figure normally used.

9.4 Generic Types of WWII German Air-delivered Ordnance

The nature and characteristics of the ordnance used by the Luftwaffe allows an informed assessment of the hazards posed by any unexploded items that may remain today. Detailed illustrations of German air delivered ordnance are presented at ***Annex I***.

- HE Bombs: In terms of weight of ordnance dropped, HE bombs were the most frequent weapon deployed. Most bombs were 50kg, 250kg or 500kg (overall weight, about half of which was the high explosive) though large bombs of up to 2,000kg were also used. HE bombs had the weight, velocity and shape to easily penetrate the ground intact if they failed to explode. Post-raid surveys would not always have spotted the entry hole or other indications that a bomb penetrated the ground and failed to explode and contemporary ARP documents describe the danger of assuming that damage, actually caused by a large UXB, was due to an exploded 50kg bomb. Unexploded HE bombs therefore present the greatest risk to present–day intrusive works.

- Blast Bombs/Parachute Mines: Blast bombs generally had a slow rate of descent and were extremely unlikely to have penetrated the ground. Non-retarded mines would have shattered on most ground types, if they had failed to explode. There have been extreme cases when these items have been found unexploded, but this was where the ground was either very soft or where standing water had reduced the impact. BACTEC does not consider there to be a significant threat from this type of munition on land.
- Large incendiary bombs: This type of bomb ranged in size from 36kg to 255kg and had a number of inflammable fill materials (including oil and white phosphorus), and a small explosive charge. They were designed to explode and burn close to the surface but their shape and weight meant that they did have penetration capability. If they penetrated the ground complete combustion did not always occur and in such cases, they remain a risk to intrusive works.
- 1kg Incendiary Bombs (IB): These bombs, which were jettisoned from air-dropped containers, were unlikely to penetrate the ground and in urban areas would usually have been located in post-raid surveys. However, if bombs did not initiate and fell in water or dense vegetation, or became mixed with rubble in bomb damaged areas they could have been overlooked. Some variants had explosive heads and these present a risk of detonation during intrusive works.
- Anti-personnel (AP) Bomblets: AP bombs had little ground penetration ability and should have been located by the post-raid survey unless they fell into water, dense vegetation or bomb rubble.
- Specialist Bombs (smoke, flare, etc): These types do not contain high explosive and therefore a detonation consequence is unlikely. They were not designed to penetrate the ground.

9.5 German Air-delivered Ordnance Failure Rate

Based on empirical evidence, it is generally accepted that 10% of the German HE bombs dropped during WWII failed to explode as designed. This estimate is probably based on the statistics of wartime recovered UXBs and therefore will not have taken account of the unknown numbers of UXBs that were not recorded at the time, and is probably an underestimate.

The reasons for failures include:

- Fuze or gain malfunction due to manufacturing fault, sabotage (by forced labour) or faulty installation.
- Clockwork mechanism failure in delayed action bombs.
- Failure of the bomber aircraft to arm the bombs (charge the electrical condensers which supplied the energy to initiate the detonation sequence) due to human error or equipment defect.
- Jettison of the bomb before it was armed or from a very low altitude. Most likely if the bomber was under attack or crashing.

War Office Statistics document that a daily average of 84 bombs which failed to function were dropped on civilian targets in Great Britain between 21st September 1940 and 5th July 1941. 1 in 12 of these (probably mostly fitted with time delay fuzes) exploded sometime after they fell - the remainder were unintentional failures.

There is no evidence to suggest that the bomb failure rate in the vicinity of the study area would have been different from the “approximately 10%” figure normally used.

From 1940 to 1945 bomb disposal teams dealt with a total of 50,000 explosive items of 50kg and over (i.e. German bombs), 7,000 AAA shells and 300,000 beach mines. These operations resulted in the deaths of 394 officers and men.

Media articles relating to recent German UXB finds on land and underwater are presented in ***Annex J***.

9.6 Initiation of Unexploded Bombs

Unexploded bombs do not spontaneously explode. All high explosive requires significant energy to create the conditions for detonation to occur. In the case of unexploded German bombs discovered within the construction site environment, there are a number of potential initiation mechanisms:

- Direct impact onto the main body of the bomb: Unless the fuze or fuze pocket is struck, there needs to be a significant impact (e.g. from piling or large and violent mechanical excavation) to initiate a buried iron bomb. Such violent action can cause the bomb to detonate.
- Re-starting the clock timer in the fuze: Only a small proportion of German WWII bombs employed clockwork fuzes. It is probable that significant corrosion has taken place within the fuze mechanism over the last 60 years that would prevent clockwork mechanisms from functioning, nevertheless it was reported that the fuze in a UXB dealt with by 33 EOD Regiment in Surrey in 2002 did re-commence.
- Induction of a static charge, causing a current in an electric fuze: The majority of German WWII bombs employed electric fuzes. It is probable that significant corrosion has taken place within the fuze mechanism over the last 60 years such that the fuze circuit could not be activated.
- Friction impact initiating the (shock-sensitive) fuze explosive: This is the most likely scenario resulting in the bomb detonating.

Annex K details UXB incidents where intrusive works have caused UXBs to detonate, resulting in death or injury and damage to plant.

10 Unexploded Bomb Penetration

10.1 General Considerations

The actual penetration depth of aerial delivered bombs into the ground will have been determined by the mass and shape of the bomb, the velocity and angle of the bomb on impact (dependent on the height of release) and the nature of the ground and ground cover; the softer the ground, the greater the potential penetration. Peat, alluvium and soft clays are easier to penetrate than gravel and sand. Bombs are brought to rest or are commonly deflected by bedrock or large boulders.

10.2 The “j” Curve Effect

An air-dropped bomb falling from normal bombing altitude (say 5,000m) into homogeneous ground will continue its line of flight but turn in an upwards curve towards the surface as it comes to rest. This offset from vertical is generally thought to be about one third of the penetration depth, but can be up to 15m depending on ground conditions or the bomb’s angle of impact.

10.3 Second World War UXB Land Penetration Studies

During WWII, the Ministry of Home Security undertook a major study on actual bomb penetration depths, carrying out statistical analysis on the measured depths of 1,328 bombs as reported by Bomb Disposal, mostly in the London area. They then came to conclusions as to the likely average and maximum depths of penetration of different sized bombs in different geological strata.

The median penetration of 430 x 50kg German bombs in London Clay was 4.6m and the maximum penetration observed for the SC50 bomb was 9m.

They concluded that the largest common German bomb, 500kg, had a likely penetration depth of 6m in sand or gravel but 8.7m in clay. The maximum observed depth for a 500kg bomb was 10.2m and for a 1,000kg bomb 12.7m. Theoretical calculations suggested that significantly greater penetration depths were probable.

10.4 Maximum Bomb Penetration Depth - Land

To assess the maximum bomb penetration depth at the eastern and western (land) extents of the site, the following parameters have been used:

- WWII Geology - 1m of Made Ground, >13m of Sand.
- Impact Angle and Velocity - 80-90^{O} from horizontal and 267 metres per second.
- Bomb Mass and Configuration - The 500kg SC (General Purpose) HE bomb, without retarder units or armour piercing nose. This was the largest of the common bombs used against Britain.

Taking into account the above-mentioned factors it has been assessed that a 500kg bomb would have had an approximate maximum bomb penetration depth of **8-10m** below WWII land level. Penetration depth could potentially have been greater if the UXB was larger (though only 4% of German bombs used in WWII over Britain were of that size). Note that UXBs may be found at any depth between just below the WWII ground level and the maximum penetration depth.

10.5 UXB Penetration through Water

UXB penetration of riverbed (through water) provides a more challenging scenario to model. The key considerations are:

- Bombs hit the water at the terminal velocity of air: 267 metres per second.
- Ignoring surface tension there will be an immediate loss of inertia due to rapid energy losses; sound, wave, splash, bubble formation and cavitation.
- The drag force rapidly decelerates the bomb. If there is sufficient water depth then acceleration will become 0m/s^2 and terminal velocity through water will be achieved: 11m/s.
- Once the terminal velocity in water is reached the bomb impacts the riverbed as a free-fall penetrator, not necessarily in a nose down orientation.

Analysis of the air-water-soil regime is complex. The current model assumes that 5m of water is required in order to achieve the terminal velocity in water of a 500kg UXB. Impacts at this speed will cause a penetration of 2.3m assuming a riverbed bearing capacity of 75kPa (*Department of The US Army, TM 5-855-1*). However, the bearing capacity of the riverbed sediment within the site boundary is not known.

In order to assess the bomb penetration depth within the river environment, the extreme water depth scenario must be considered; that is, the deepest point of the river at low tide. A current Admiralty Chart for the site was reviewed. This confirms the deepest Chart Datum water depth within the site boundary to be 4.3m.

As the depth is <5m, it can be assumed that a 500kg German UXB landing at any location within the river, at any time of day will strike the river bed with a force sufficient to impact the river bed in a vertical / nose down orientation. As opposed to the “tumbling” nature of items falling through the water column once the terminal velocity has been achieved.

However, the nature of the river sediment within the site boundary is not known both in terms of its precise composition and thickness. This, coupled with the lack of an accurate mathematical model for bomb behaviour through the water column, makes calculation of a maximum penetration depth value within the river environment impossible.

However, the significant decelerating effect caused by the water column on site indicates that even a large German UXB would not be able to penetrate a substantial distance into the Crag Group bedrock underlying the overburden sediment.

11 The Threat from British / Allied Military Ordnance

11.1 General

The following historical and modern facilities / activities / incidents have been considered:

- Army, Navy and RAF Bases / Installations
- Military Training Areas / Weapons Ranges
- Ordnance / Explosives Factories and Storage Depots
- Sites requisitioned for military use
- Military Fortifications and Coastal Defences
- Locations of Army Explosive Ordnance Clearance Tasks
- WWII Anti-Aircraft Batteries
- WWII Pipe Mined Locations and Beach Minefields

The most likely source of British / Allied ordnance is anti-aircraft fire/Home Guard activity, as discussed below.

11.2 Potential Sources of Explosive Ordnance

11.2.1 Anti-Aircraft Artillery

At the start of the war two types of AAA guns were deployed: Heavy Anti-Aircraft Artillery (HAA), using large calibre weapons such as the 3.7” QF (Quick Firing) gun and Light Anti-Aircraft Artillery (LAA) using smaller calibre weapons such as 40mm Bofors gun.

During the early war period, there was a severe shortage of AAA available and older WWI 3” and modified naval 4.5” guns were deployed alongside those available 3.7” weapons. The maximum ceiling height of fire at that time was around 11,000m (for the 3.7” gun and less for other weapons). As the war progressed improved variants of the 3.7” gun was introduced and, from 1942, large 5.25-inch weapons began to be brought into service. These had significantly improved ceiling heights of fire reaching over 18,000m.

The LAA batteries were intended to engage fast low flying aircraft and were typically deployed around airfields or strategic installations. These batteries were mobile and could be moved to new positions with relative ease when required. The most numerous of these was the 40mm Bofors gun which could fire up to 120 x 40mm HE shells per minute to over 1,800m.

The HAA projectiles were high explosive shells, usually fitted with a time delay or barometric pressure fuze to make them explode at a pre-determined height. Before the war all the clockwork fuses used by the Royal Artillery had come from Switzerland. When that source of supply was cut off, Britain had been forced to make its own. After four years of war, the country still lacked the engineering skills to produce a reliable fuse.

This resulted in a considerable number of AA projectiles either exploding prematurely, killing the gunners or failing to explode at all; falling to the ground as UXBs. In January 1944 more people in London were killed by HAA shells than by German bombs. Details of the most commonly deployed WWII AAA projectiles are shown below:

Gun type	Calibre	Shell Dimensions	Shell Weight	HE Fill Weight
3.7 Inch	94mm	94mm x 438mm	12.7kg	1.1kg
4.5 Inch	114mm	114mm x 578mm	24.7kg	1.7kg
40mm	40mm	40mm x 311mm	0.84kg	70g

Although the larger unexploded projectiles could enter the ground they did not have great penetration ability and are therefore likely to be found close to WWII ground level. These shells are frequently mistakenly identified as small German air-delivered bombs, but are differentiated by the copper driving band found in front of the base. With a high explosive fill and fragmentation hazard these items of UXO present a significant risk if encountered. The smaller 40mm projectiles are similar in appearance and effect to small arms ammunition and, although still dangerous, present a lower risk.

Four static HAA batteries were operational within 5km of the site during WWII. With four guns per battery, firing up to ten rounds a minute, HAA batteries could expend numerous shells during even short air raids and therefore as the town was frequently attacked by the Luftwaffe, the risk of unexploded HAA shell contamination within study area is elevated.

Numerous unexploded AA shells were recovered during and following WWII, and are still occasionally encountered on sites today. Illustrations of Anti-Aircraft projectiles and rockets are presented in ***Annex L***. Any unexploded AA shell landing in the river would have remained there for a time could have become subsequently buried in sediment.

11.2.2 Home Guard Activity

The Home Guard (HG) was a defence organisation of the British Army, operational between 1940 and 1944. It comprised 1.5 million local volunteers, otherwise ineligible for military service, and acted as a secondary defence force, in case of enemy invasion which was expected during 1940 and 1941. The HG guarded the coastal areas of Britain and other important facilities such as RAF airfields, weapons factories, explosives stores, radar sites, etc.

Due to its coastal location in south-eastern England, Great Yarmouth was considered vulnerable to German invasion and consequently was well defended by Army and HG units, with River Yare and beaches fortified with static defences, minefields and gun positions.

A group of WWII anti-invasion defences, including four pillboxes, a road block and a Spigot Mortar emplacement were present within the northern section of the site on the junction of

Queen Anne's Road and Southtown Road. The central element of the site was a substantial road block, designed to check the progress of tanks rather than act as a check point.

To the south, the road block was flanked by two pillboxes, a Type 22 on the easternmost extent of site boundary, and a Type 24 or variant pillbox on the north side of Queen Anne's Road. The defences were removed and the road resurfaced in August 1945.

Located at the westernmost end of Cromwell Road a Spigot Mortar position and associated Type 24 Pillbox were located. It can be assumed that the installation was sited to guard trackways and bridges across the drains that lay to the north of Queen Anne's Road.

Today, items of WWII ordnance related to the HG are occasionally encountered by members of the public and the construction industry. Experience has shown that the 'housekeeping' of WWII soldiers was often poor with items of faulty, surplus or expended ammunition often burnt, buried, misplaced or otherwise discarded on civilian land (see *Section 12.2*).

Furthermore, HG personnel are known to have purposefully buried caches of ammunition and weapons in tactical positions, to be exhumed and used in case of invasion. This is substantiated by several recent HG UXO finds (see ***Annex M***).

Details of the most commonly encountered WWII-era British ammunition (Land Service Ammunition and Small Arms Ammunition) are presented in ***Annex N*** and ***Annex O*** respectively.

12 Ordnance Clearance and Post-WWII Ground Works

12.1 General

The extent to which any ordnance clearance activities have taken place on site or extensive ground works have occurred is relevant since on the one hand they may indicate previous ordnance contamination but also may have reduced the risk that ordnance remains undiscovered.

12.2 EOD Bomb Disposal and Clearance Tasks

Dynasafe BACTEC holds a number of official records of explosive ordnance disposal operations during and following WWII, obtained from the Explosive Ordnance Disposal (EOD) Archive Information Office at 33 Engineer Regiment (EOD), British Army. However, no records could be found to indicate that any Army EOD tasks have taken place on site.

No evidence of Royal Navy EOD divers carrying out any UXO disposal tasks in the River Yare (in close proximity to the site) was found.

Note, however that two gardeners discovered a live grenade at Dicken Court (approximately 330m north-east of the site) during garden maintenance operations. This would have likely been buried by the HG as part of a cache that of weapons in case of invasion, and often occurred within vulnerable coastal areas.

12.3 Post War Redevelopment

The eastern half of the site has undergone two phases of post war redevelopment, the first in the 1970's and the second during the 1980's when the site took its current form. Whilst the western half of the site appears to have remained largely untouched since the war, apart from the A12 roundabout and A147 installation during the 1980's and larger commercial properties to the north and east of the site.

Note, that minor dredging works are reported to have occurred on the River Yare in the post-war period. However, the extents of which are unknown at the time of writing this report.

13 The Overall Explosive Ordnance Threat Assessment

13.1 General Considerations

Taking into account the quality of the historical evidence, the assessment of the overall threat to any intrusive works from UXO must evaluate the following risks:

- That the site was contaminated with unexploded ordnance
- That UXO remains on site
- That such items could be encountered during any intrusive works
- That ordnance may be activated by the works operations
- The consequences of encountering or initiating ordnance

13.2 The Risk that the Site was Contaminated with Unexploded Ordnance

For the reasons discussed in *Sections 9* and *11* Dynasafe BACTEC believes that there is a risk that UXO contaminated the study area. This is based on the following:

German UXO:

- The site was located within central Great Yarmouth within an area of very high bombing density during WWII, with up to 8 x HE bombs likely to have landed on or adjacent to the site boundary. At least 12 further HE bombs are recorded within a 300m radius of the site. In addition, the site is likely to have been affected by 1kg incendiary bombing.
- The eastern extent of the site, comprising busy commercial / industrial areas would have been accessed on a daily basis thereby decreasing the risk of any UXB strike evidence going unnoticed. In addition, these areas may have been subject to post-raid checks for UXB entry holes.
- The western half of the site was occupied by large areas of ambiguous open ground and allotment gardens which are unlikely to have been accessed as regularly or frequently. Access to the allotments would have varied depending on the season and therefore, a UXB could conceivably have fallen here unobserved.
- Moreover, there are multiple areas of clearance and a ruin apparent on site, suggesting that these areas sustained serious bomb damage. As a result, the affected buildings will have been abandoned for a time, increasing the likelihood of subsequent UXO falling on site unnoticed. Therefore, it can be assumed that, for a time, significant quantities of rubble occupied this area and debris may have been strewn across the site, increasing the likelihood of a UXB remaining on site. However, had a UXB landed within the allotments, open ground soft, rubble, or area of open air storage on site it could have gone undetected. Note, that the entry hole of an SC50 (the most commonly deployed German HE bomb) could be as little as 20cm in diameter and therefore, easily obscured in dense vegetation.
- A UXB landing in the river during a night time raid will have been immediately obscured from view, beneath the waterline. Consequently, it is unlikely to have been observed, reported and mapped.
- A UXB entry hole within the river bank mud on site (revealed at low tide) is unlikely to have persisted; the next high tide filling in the hole with water and sediment. Even if evidence of

a UXB was observed here and reported, it is highly unlikely to have been recovered by the local bomb disposal unit due to its insignificant location and the impracticalities of deep buried UXB removal in this environment.

British/Allied UXO:

- Due to its coastal location in south-eastern England, Great Yarmouth was considered vulnerable to German invasion and consequently, was well defended by Army and HG units, with River Yare and beaches fortified with static defences, minefields and gun positions.
- A group of WWII anti-invasion defences, including four pillboxes, a road block and a Spigot Mortar emplacement were present within the northern section of the site on the junction of Queen Anne's Road and Southtown Road. The central element of the site was a substantial road block, designed to check the progress of tanks rather than act as a check point. Further defences were located within the site boundary, located at the westernmost end of Cromwell Road a Spigot Mortar position and associated Type 24 Pillbox were located.
- Although these defence installations were located on site, it is considered highly likely that the risk of shallow buried UXO has been mitigated on site due to post war development.
- Note, that four HAA batteries were situated within a 5km radius of the site during WWII. For the same reasons as given above, it is quite possible that an unexploded AA shell or rocket could have landed in the river on site and remained there.

13.3 The Risk that Unexploded Ordnance Remains on Site

Land - Within the footprint of post-war ground works, the risk of small, shallow buried UXO (LSA, SAA, AA shells and German 1kg incendiaries) remaining will have been partly mitigated since any such items could have been encountered and removed during soil stripping / levelling, foundations etc.

Only within the volume of any post-war basement level bulk excavations and at the precise locations of any post-war pile foundations / boreholes, will the risk from deeper buried German HE UXBs have been completely mitigated. Therefore, it is conceivable that such a weapon could reside within virgin / untouched geology, beneath and amongst any such post-WWII ground works, down to the maximum bomb penetration depth.

The risk from UXO contamination within the eastern extent of the site and pre-war buildings has been assessed as minimal and therefore the risk from UXO remaining is minimal.

River - It has been assessed that a HE UXB falling in the river will likely have achieved full burial within the overburden sediment and may also have penetrated the Crag Group bedrock. Consequently, such a UXB will have remained in situ up to the present day, largely unaffected by environmental conditions. Also, any large partially buried UXBs on site are less likely to be affected by environmental conditions as a result of their significant mass.

Tidal riverbed environments are mobile in nature and therefore as a result of water currents, any small items of UXO (British AA shells and German 1kg IBs) residing on or near the riverbed surface could experience migration. This is evidenced by the large quantity of munitions that are washed up on beaches around the UK, every year. The wider River Yare environment will have been subject to the same UXO contamination conditions as the site during WWII and therefore although riverbed UXO could have migrated out of the site since WWII, equally, additional UXO could have migrated into the site.

13.4 The Risk that Ordnance may be Encountered during the Works

Land - The most likely scenarios under which a UXO could be encountered during construction works is during piling, drilling operations or bulk excavations for basement levels. The overall risk will depend on the extent of the works, such as the numbers of boreholes/piles (if required) and the volume of the excavations.

Since an air-dropped bomb may come to rest at any depth between just below ground level and its approximate penetration depth there is also a chance that such an item could be encountered during shallow excavations (for services or site investigations) into the original WWII ground level.

If the proposed works are due to be undertaken within post war fill material / made ground, the risk of encountering WWII UXBs is low. However, if works are to be undertaken below WWII ground level this risk is significantly higher.

The risk of UXO remaining within the eastern extent of the site and pre-war buildings has been assessed as minimal, therefore the risk from UXO being encountered during the proposed works is minimal.

River – Minor dredging works on the River Yare have been identified to have taken place, however it is not known to what extent these would have occurred within the site boundary. Therefore, these activities could have partly mitigated the risk from UXO within the river environment, however it is conceivable that UXO could have subsequently been washed into the site boundary. Therefore, the risk of encountering UXO during the proposed works remains partially unmitigated. The proposed investigatory works will be to a depth beyond the maximum bomb penetration depth, therefore if UXO is situated at the location of the borehole, it will be encountered.

13.5 The Risk that Ordnance may be Initiated

The risk that UXO could be initiated if encountered will depend on its condition, how it is found and the energy with which it is struck. The most violent activity on most construction sites is percussive piling. As a result, items that are shallow buried present a slightly lower risk than those that are deep buried, since the force of impact is usually lower and they are more likely to be observed – when immediate mitigating actions can be taken.

13.6 The Consequences of Encountering or Initiating Ordnance

Clearly the consequences of an inadvertent detonation of UXO during construction operations would be catastrophic with a serious risk to life, damage to plant and a total site shutdown during follow-up investigations.

Since the risk of initiating ordnance is significantly reduced if appropriate mitigation measures are undertaken, the most important consequence of the discovery of ordnance will be economic. This would be particularly so in the case of high profile locations and could involve the evacuation of the public.

The unexpected discovery of ordnance may require the closing of the site for any time between a few hours and a week with a potentially significant cost in lost time. Note also that the suspected find of ordnance, if handled solely through the authorities, may also involve loss of production since the first action of the Police in most cases will be to isolate the locale whilst awaiting military assistance, even if this turns out to have been unnecessary.

13.7 Dynasafe BACTEC's Assessment

Taking into consideration the findings of this study, Dynasafe BACTEC considers the risk on the site to be heterogeneous and can therefore be divided into ***Low***, ***Medium*** and ***High*** Risk Zones. These are described below and illustrated on a Risk Map, presented in ***Annex P***.

Low Risk Zone:

- Buildings and hard standing that survived the war intact.

	Level of Risk			
Type of Ordnance	**Negligible**	**Low**	**Medium**	**High**
German WWII High Explosive Bombs		✓		
German WWII 1kg Incendiary Bombs		✓		
British Anti-Aircraft Shells		✓		
British Small Arms and Land Service Ammunition		✓		

Medium Risk Zone:

- Open soft ground that would not have been accessed regularly nor frequently.
- Areas of substantial bomb damage.
- Buffer Area to incorporate the "J-Curve" Buffer Zone.

	Level of Risk			
Type of Ordnance	**Negligible**	**Low**	**Medium**	**High**
German WWII High Explosive Bombs			✓	
German WWII 1kg Incendiary Bombs		✓		
British Anti-Aircraft Shells		✓		
British Small Arms and Land Service Ammunition		✓		

High Risk Zone:

- Occupied by the River Yare.

	Level of Risk			
Type of Ordnance	**Negligible**	**Low**	**Medium**	**High**
German WWII High Explosive Bombs				✓
German WWII 1kg Incendiary Bombs			✓	
British Anti-Aircraft Shells			✓	
British Small Arms and Land Service Ammunition		✓		

14 Proposed Risk Mitigation Strategy

14.1 General

Dynasafe BACTEC believes the following risk mitigation measures should be deployed to support the proposed works at the Southtown, Great Yarmouth site.

14.2 Scope Specific Risk Mitigation Measures

All Risk Zones:

- **Site Specific Explosive Ordnance Safety and Awareness Briefings to all personnel conducting intrusive works:** A specialised briefing is always advisable when there is a possibility of explosive ordnance contamination. It is an essential component of the Health & Safety Plan for the site and conforms to requirements of CDM Regulations 2015. All personnel working on the site should be instructed on the identification of UXB, actions to be taken to alert site management and to keep people and equipment away from the hazard. Posters and information of a general nature on the UXB threat should be held in the site office for reference and as a reminder.
- **The Provision of Unexploded Ordnance Site Safety Instructions:** These written instructions contain information detailing actions to be taken in the event that unexploded ordnance is discovered. They are to be retained on site and will both assist in making a preliminary assessment of a suspect object and provide guidance on the immediate steps to be taken in the event that ordnance is believed to have been found.

Medium Risk Zones:

- **Explosive Ordnance Disposal (EOD) Engineer presence on site to support shallow intrusive works:** When on site the role of the EOD Engineer would include; monitoring works using visual recognition and instrumentation and immediate response to reports of suspicious objects or suspected items of ordnance that have been recovered by the ground workers on site; providing Explosive Ordnance Safety and Awareness briefings to any staff that have not received them earlier and advise staff of the need to modify working practices to take account of the ordnance threat, and finally to aid Incident Management which would involve liaison with the local authorities and Police should ordnance be identified and present an explosive hazard.
- ***Handheld Intrusive Magnetometer Survey of all borehole locations down to the maximum bomb penetration depth:*** As part of the EOD Engineer presence on site, Dynasafe BACTEC can deploy intrusive magnetometry techniques to provide staged clearance ahead of all the borehole locations.

High Risk Zone:

- **Non-Intrusive Magnetometer and Side Scan UXO Survey:** A Magnetometer and high-resolution Side Scan Survey should be conducted over the proposed works area to identify any ferrous anomalies (potential UXO) on or near to the riverbed surface. This will provide clear areas for the placement of barge legs or anchors. It also allows for the identification of non-ferrous near surface obstructions which may hamper the proposed works.
- **Intrusive Magnetometer Survey - Down-hole Vallon Probing ahead of Marine Boreholes:** A down-hole Vallon magnetometer is lowered to the estuary bed first to scan a radius for ferrous anomalies. Provided the river bed is clear, boreholing is conducted to 1m. Nonferrous sleeving must be used with the Vallon lowered down the sleeve to clear the next metre ahead of the borehole. This sequence is repeated until bomb penetration depth is reached, then boreholing can continue unrestricted. Sleeving would be expected to extend from the JU Barge deck to river bed to ensure drill bit relocates the borehole each time it is withdrawn.

14.3 Further Recommended Measures should the Scope of Works Change:

- **Intrusive Magnetometer Survey of all pile / boreholes locations down to the maximum bomb penetration depth:** Dynasafe BACTEC can deploy a range of intrusive magnetometry techniques to clear ahead of all the pile locations. The appropriate technique is governed by a number of factors, but most importantly the site's ground conditions. The appropriate survey methodology would be confirmed once the enabling works have been completed. A site meeting would be required between BACTEC and the client to determine the methodology suitable for this site. Target investigation or avoidance will be recommended as appropriate.
- **Pre-Piling Intrusive Magnetometer Survey: TFG Clearance ahead of Piling:** A TFG magnetometer survey probe will scan 1m at a time for ferrous anomalies ahead of a rotary drill. This process is repeated down to the max bomb penetration depth. If a ferrous mass is located the TFG survey would have to relocate however, this would clear the way prior to the borehole survey. Having cleared the location, piling can then be conducted on that position unrestricted.
- **Intrusive Magnetometer Survey: Down-hole Vallon Probing ahead of Piling:** A down-hole Vallon magnetometer is lowered to the estuary bed first to scan a radius for ferrous anomalies. Provided the river bed is clear, piling is conducted to 1m. Nonferrous sleeving must be used with the Vallon lowered down the sleeve to clear the next metre ahead of the borehole. This sequence is repeated until bomb penetration depth is reached, then piling can continue unrestricted.

Dynasafe BACTEC Limited 19th September 2017

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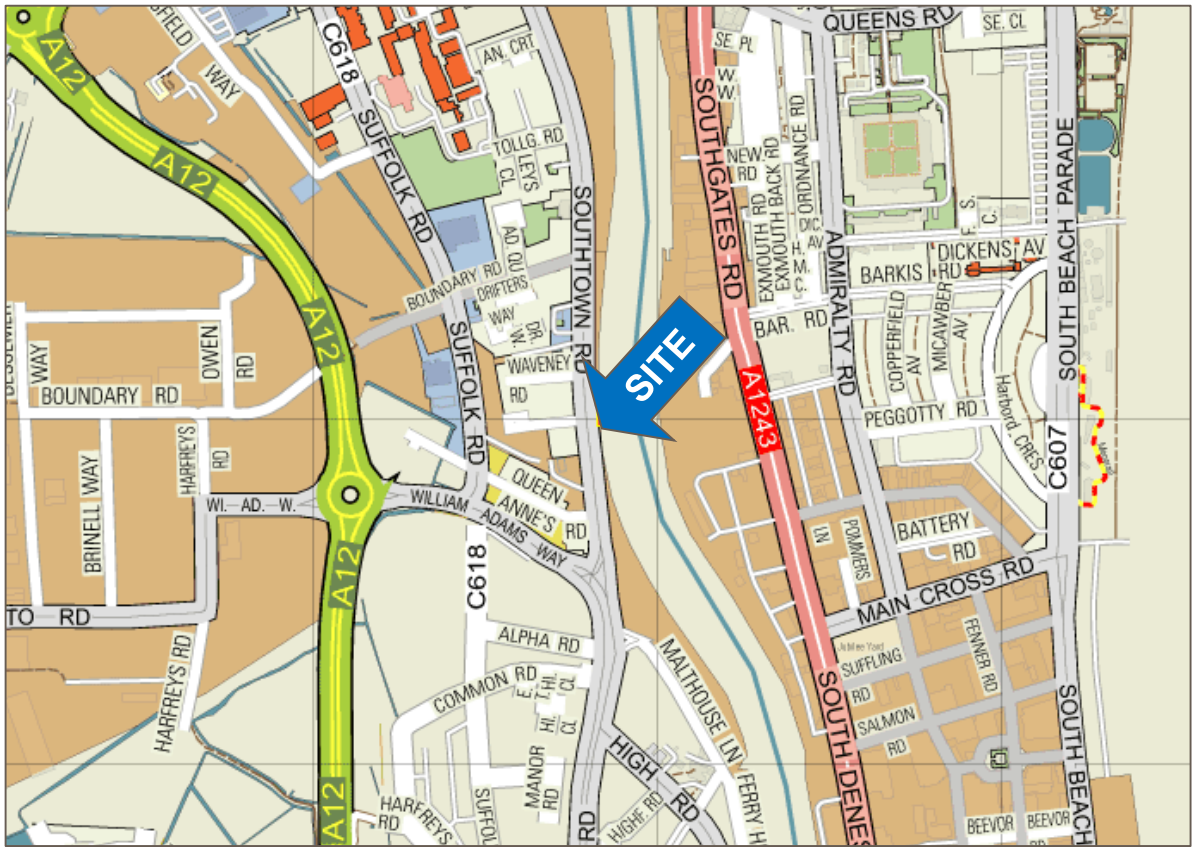
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North

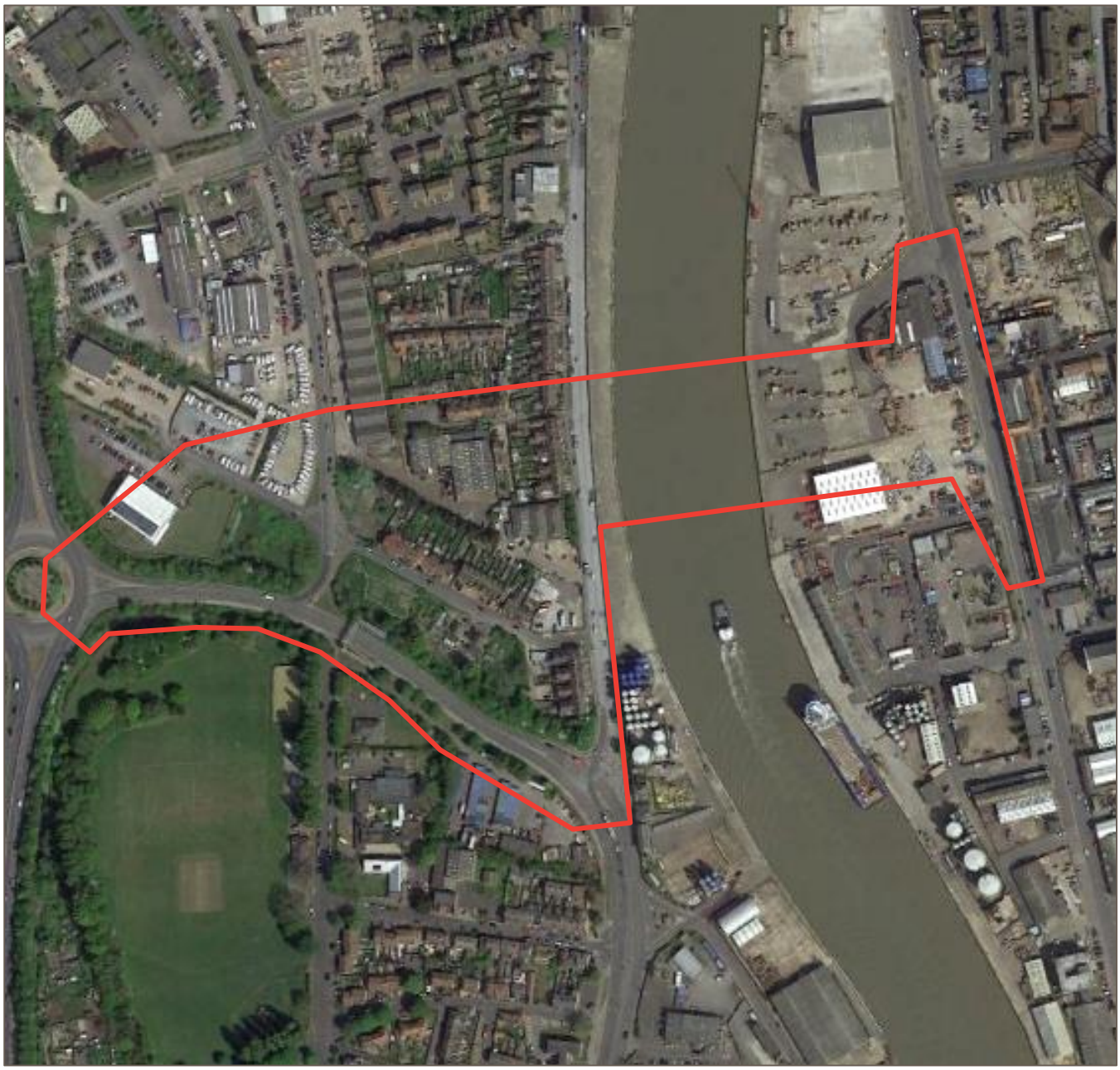




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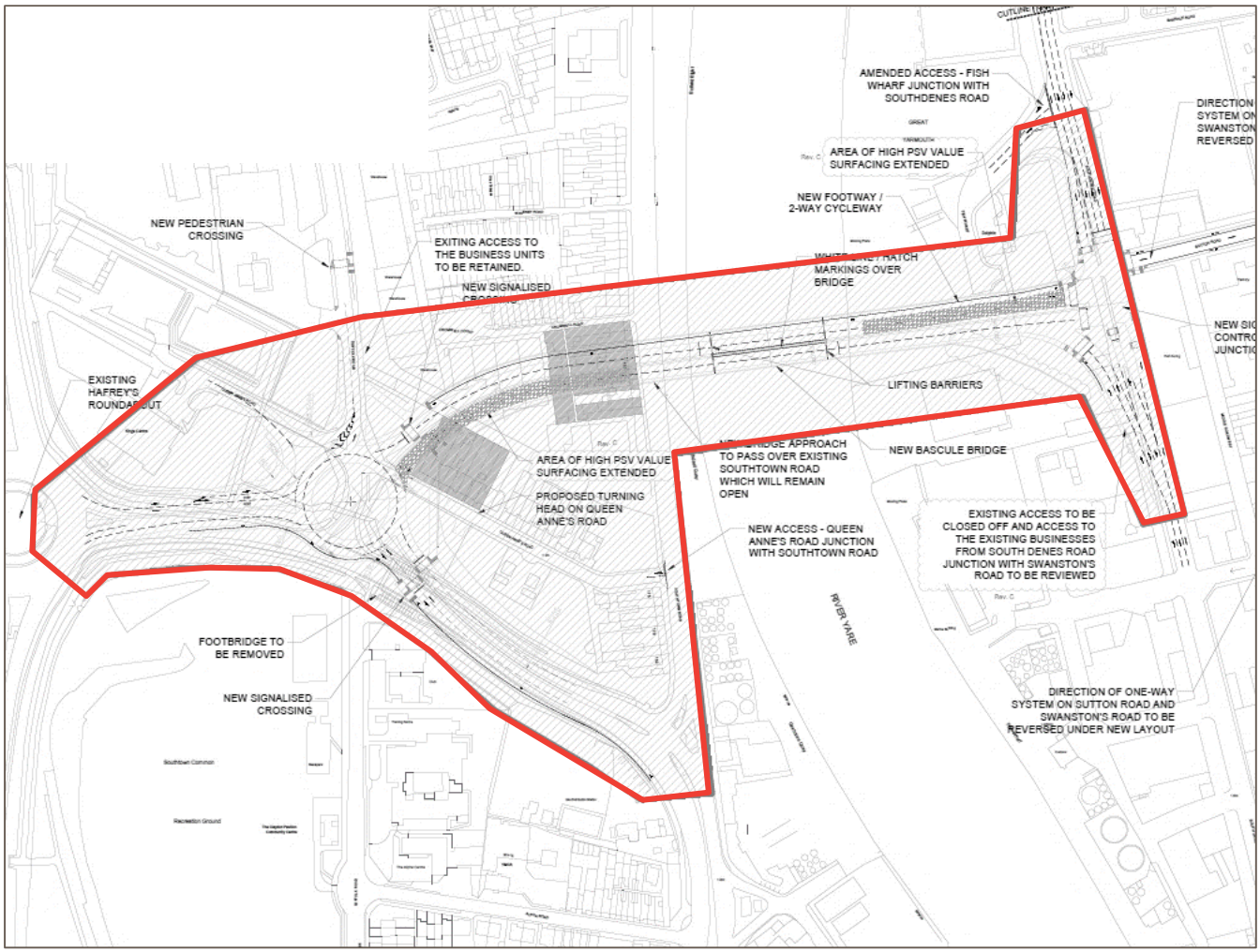


Approximate site boundary

Report Reference: 7307TA	Client: WSP UK Limited	DYNASAFE
	Project: Southtown, Great Yarmouth	

Source: Google Earth ™ Mapping Services

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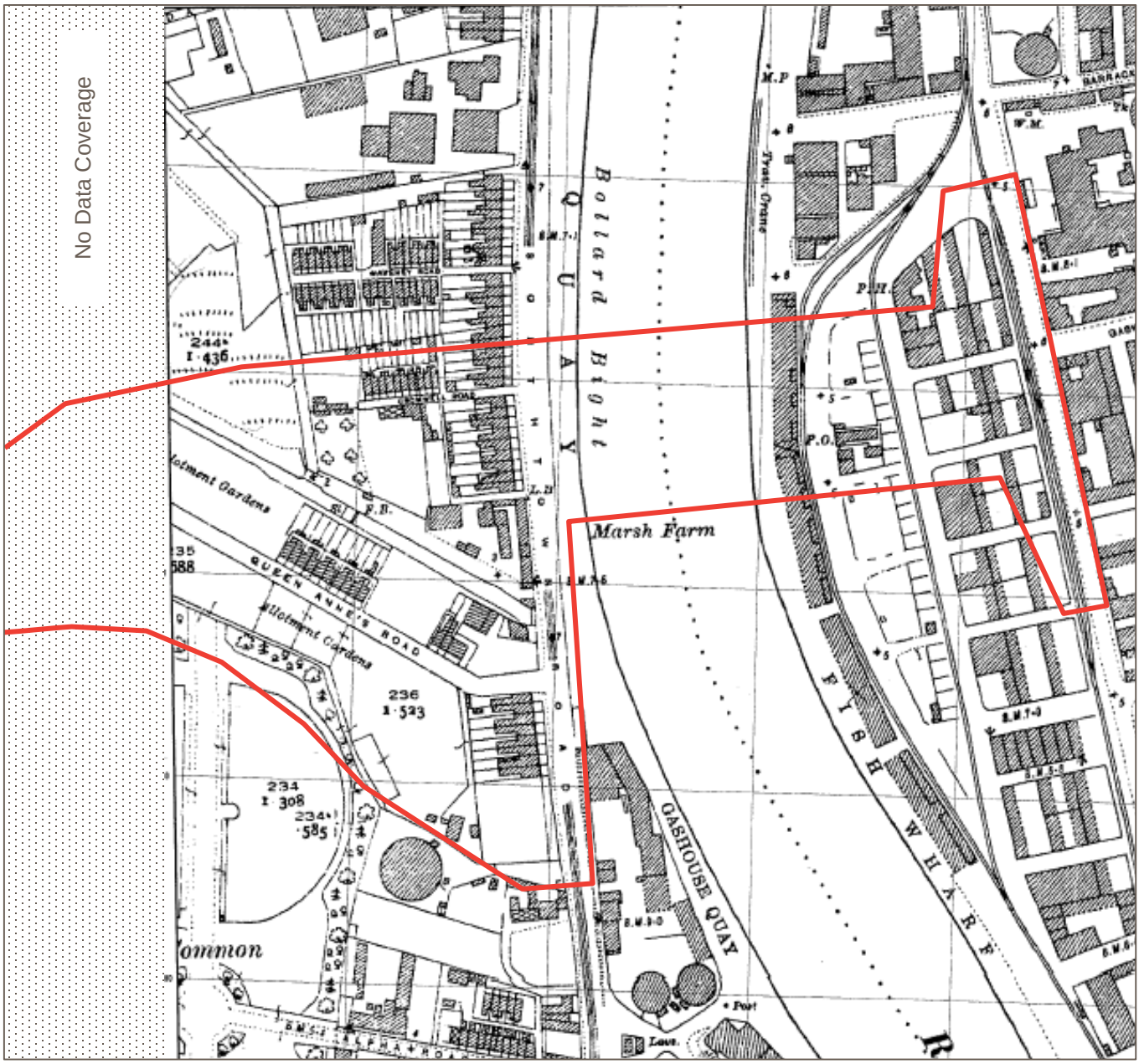


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	Project: Southtown, Great Yarmouth	

Source: WSP UK Limited

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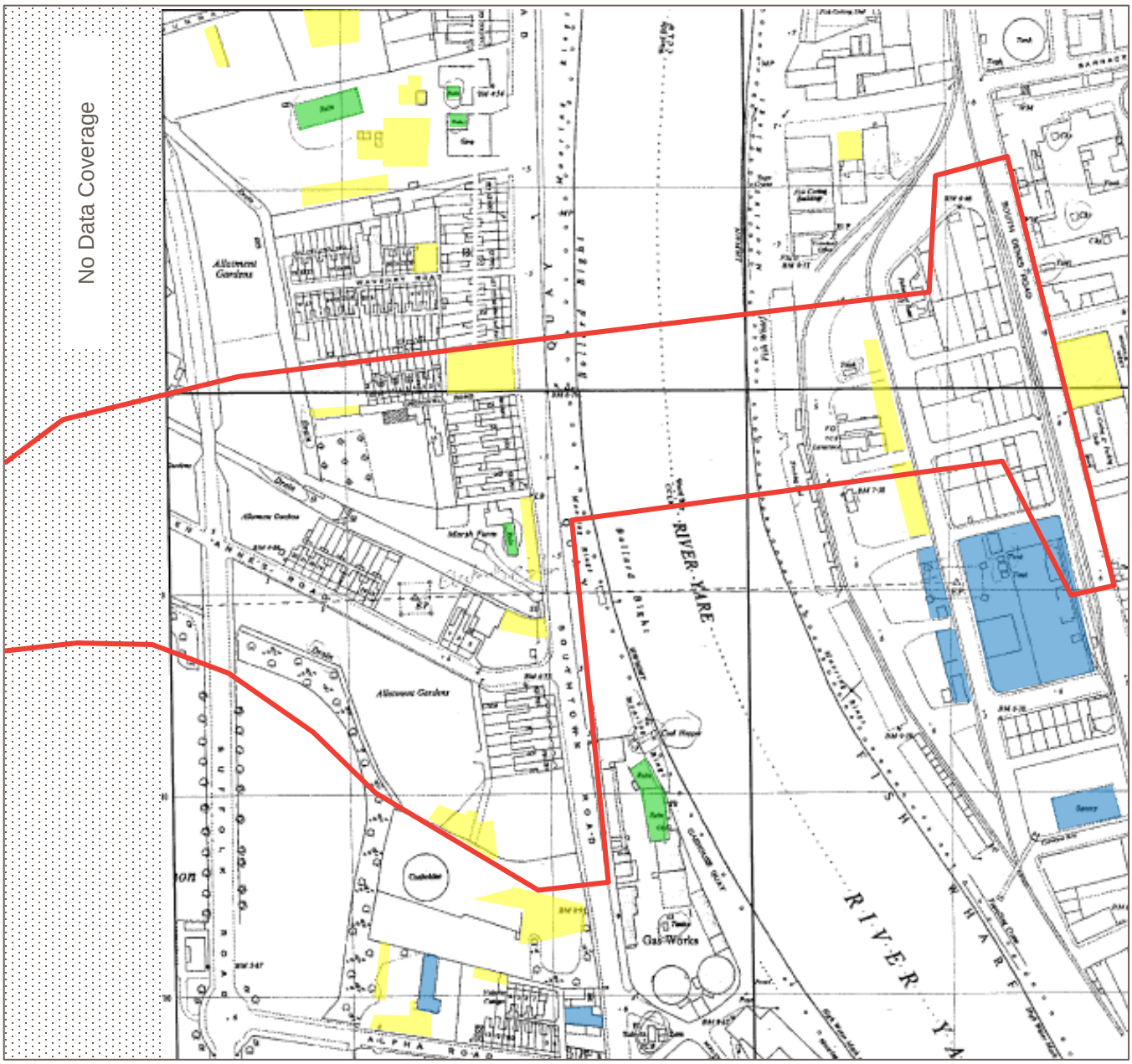


Approximate site boundary

Report Reference:	Client:	
7307TA	WSP UK Limited	DYNASAFE
	Project: Southtown, Great Yarmouth	

Source: Landmark Maps

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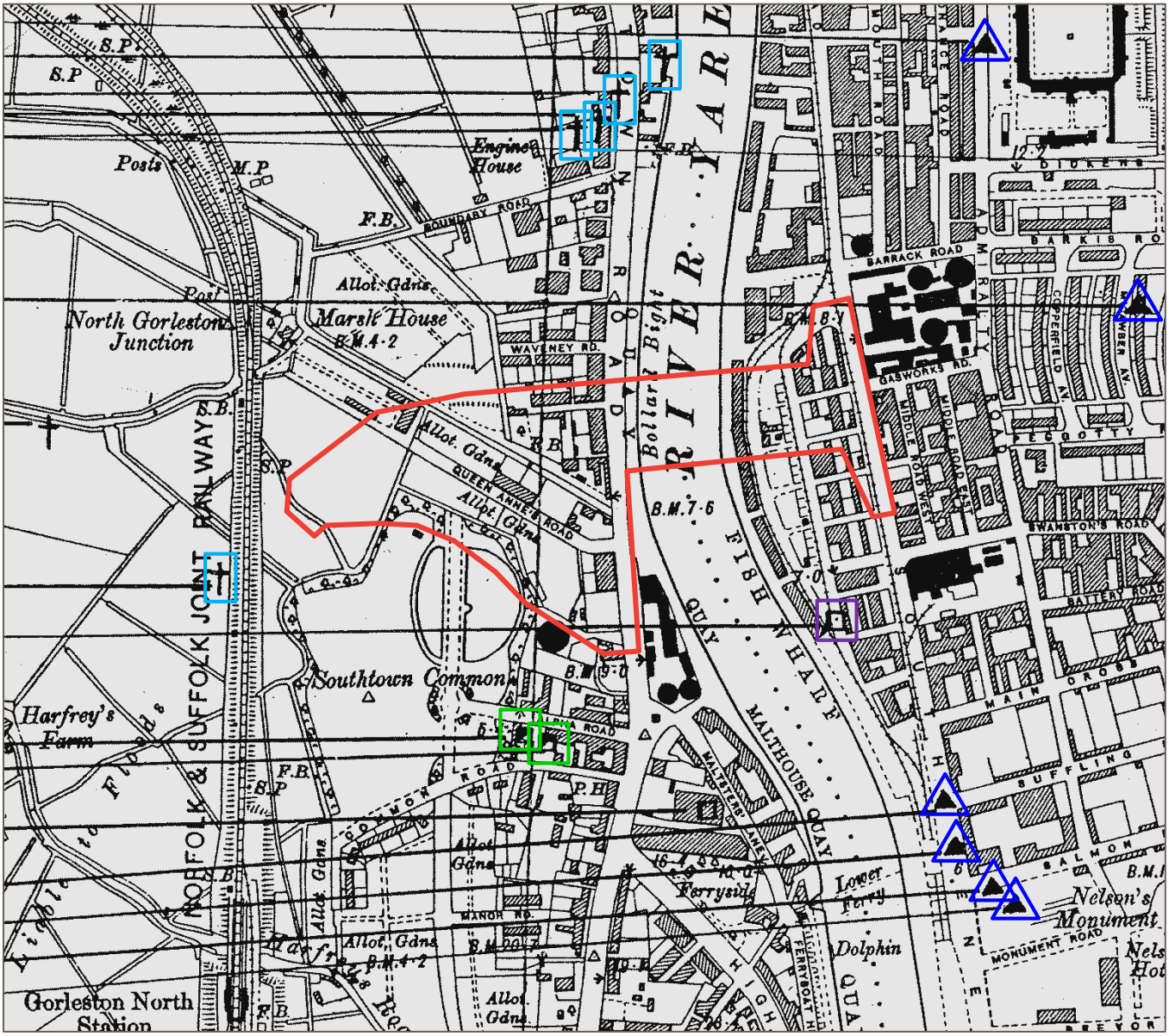


- Approximate site boundary
- Clearance
- Redevelopment
- Ruins

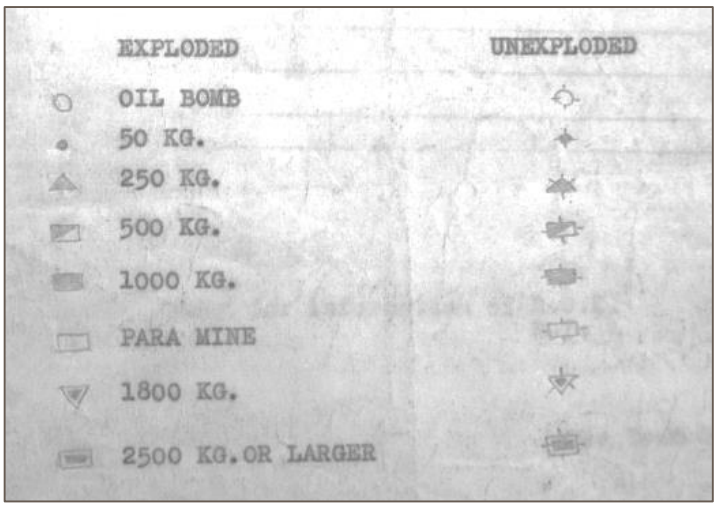
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Source: Landmark Maps

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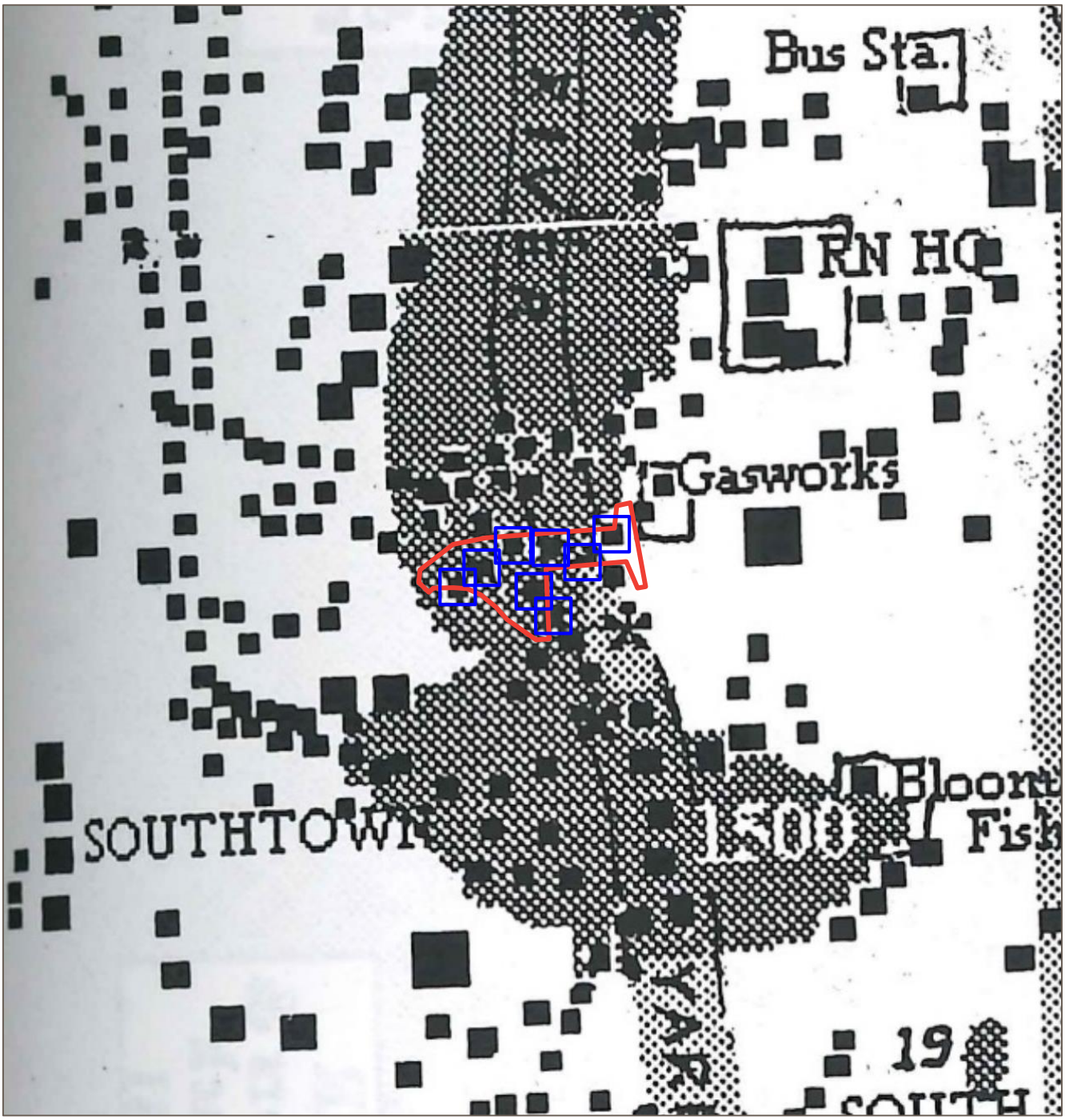
- Approximate site boundary
- 250kg HE bomb strike
- 500kg HE bomb strike
- Parachute Mine strike
- Unclassified HE bomb strike



Report Reference:	Client:	
7307TA	WSP UK Limited	DYNASAFE
	Project: Southtown, Great Yarmouth	

Source: The National Archives

North



Approximate site boundary

HE Bomb Strike

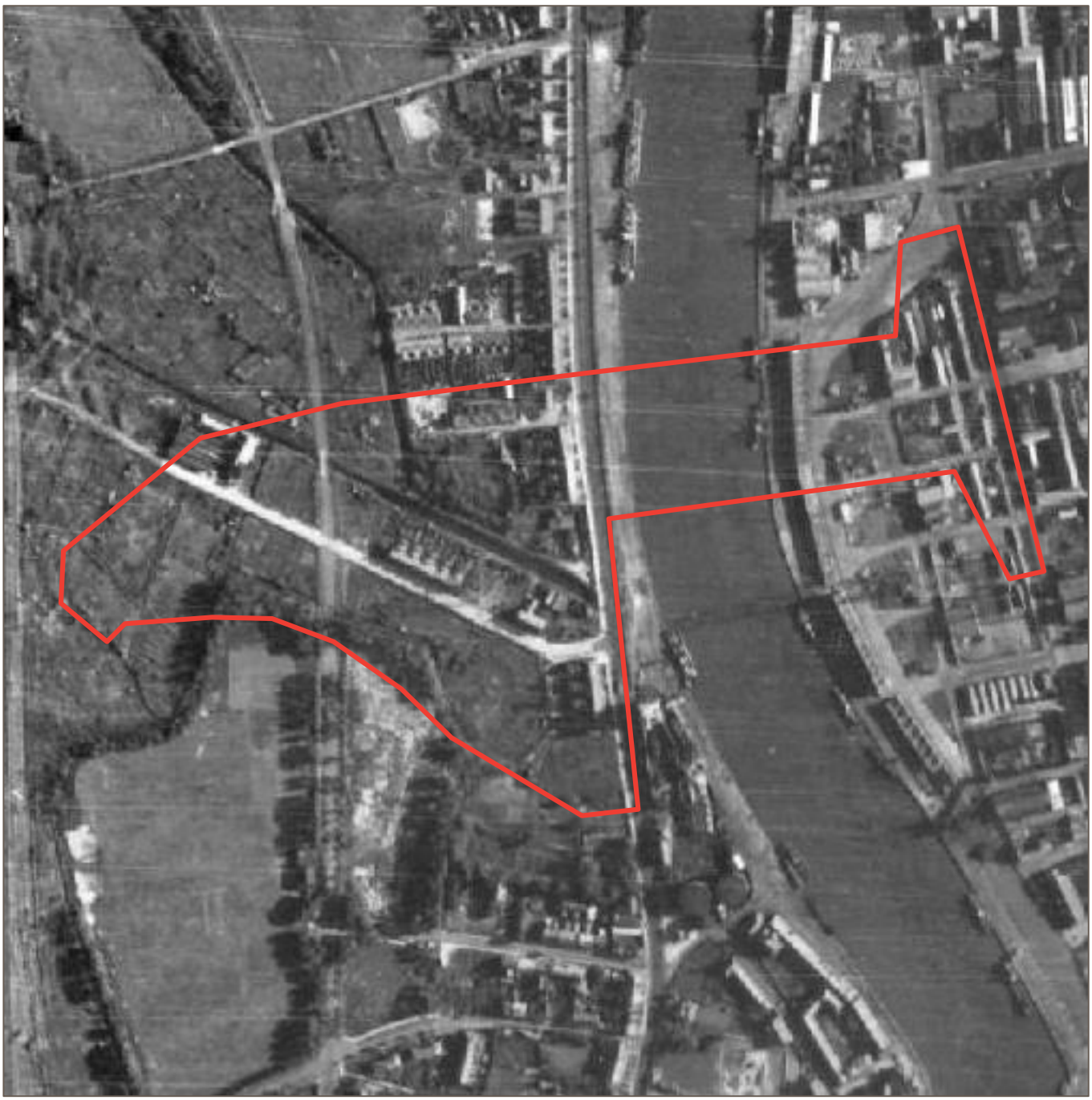
■ HE bomb
✲ Mine
▩ Incendiary bomb cluster (& number)

0 ½ 1 mile

Report Reference:	Client:	
7307TA	WSP UK Limited	DYNASAFE
	Project: Southtown, Great Yarmouth	

Source: Foynes J.P. The Battle of the East Coast (1939 – 1945) 1994

North



Approximate site boundary

Report Reference:	Client:	
7307TA	WSP UK Limited	DYNASAFE
	Project: Southtown, Great Yarmouth	

Source: Norfolk County Council





1kg German Incendiary Bomb next to a 30cm ruler

SC 50

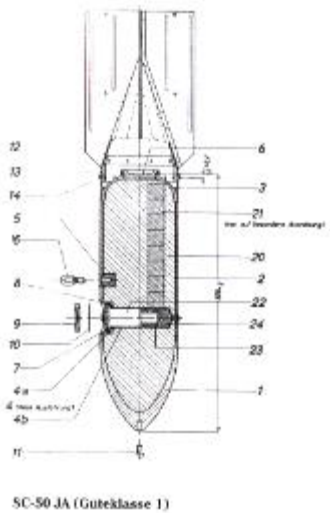
Bomb Weight:	40-54kg (110-119lb)
Explosive Weight:	c25kg (55lb)
Fuze Type:	Impact fuze/electro- mechanical time delay fuze
Bomb Dimensions:	1,090 x 280mm (42.9 x 11.0in)
Body Diameter:	200mm (7.87in)
Use:	Against lightly damageable materials, hangars, railway rolling stock, ammunition depots, light bridges and buildings up to three stories.
Remarks:	The smallest and most common conventional German bomb. Nearly 70% of bombs dropped on the UK were 50kg.



50kg bomb, London Docklands



Minus tail section



SC-50 JA (Guteklasse 1)

SC 250

Bomb weight:	245-256kg (540-564lb)
Explosive weight:	125-130kg (276-287lb)
Fuze type:	Electrical impact/mechanical time delay fuze.
Bomb dimensions:	1640 x 512mm (64.57 x 20.16in)
Body diameter:	368mm (14.5in)
Use:	Against railway installations, embankments, flyovers, underpasses, large buildings and below-ground installations.



250kg bomb, Hawkinge



SC 250 JA (Gütekl

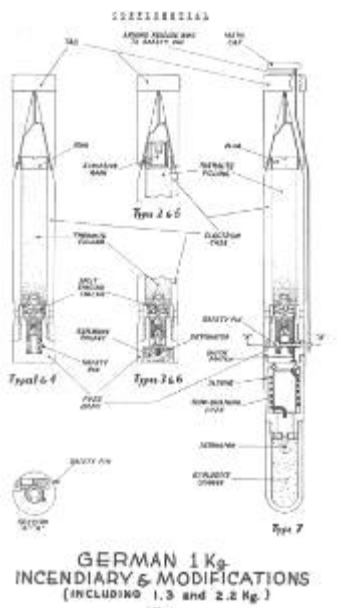
1kg Incendiary Bomb

Bomb weight:	1.0 and 1.3kg (2.2 and 2.87lb)
Filling:	680gm (1.3lb) Thermite
Fuze type:	Impact fuze
Bomb dimensions:	350 x 50mm (13.8 x 1.97in)
Body diameter:	50mm (1.97in)
Use:	As incendiary – dropped in clusters against towns and industrial complexes
Remarks:	Jettisoned from air-dropped containers. Magnesium alloy case. Sometimes fitted with high explosive charge





1. Scaffold pipe
2. Incendiary 1kg bomb
3. Incendiary bomb recently found on site in UK



The Telegraph

11:50AM GMT 24 Mar 2015

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Giant WWII bomb dug up by builders in London

A massive evacuation procedure is carried out in Bermondsey, south London, after the 1,000lb explosive measuring 5ft long was uncovered



Mother-of-two digs up unexploded WWII bomb in garden and casually flings it on the rubbish thinking it was an old exhaust pipe

- Carole Fisher-White, 56, unearthed a mortar shell in her back garden
- It was only when sons said it looked like a bomb that the penny dropped
- Royal Navy bomb disposal team called to defuse the device
- The 29mm Spigot Mortar was was an infantry anti-tank weapon
- Also known as the Blacker Bombard it was used by the Home Guard



Unexploded Second World War grenade discovered by a curious dog

By Charlotte Cox

Police and Army bomb disposal experts were called to the address in Peakdale Avenue, Heald Green.

A dog called Snoop has sniffed out a suspected Second World War grenade in a Stockport garden.

Police and Army bomb disposal experts were called to the address in Peakdale Avenue, Heald Green.

The took the grenade to nearby parkland and destroyed in a controlled explosion.



Page last updated at 14:23 GMT, Thursday, 5 June 2008 15:23 UK

BBC

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Unexploded bomb 'started to tick'

An unexploded World War II bomb started to tick and ooze liquid as experts tried to defuse it, police have said.

The large bomb was found in a river at Sugar House Lane, near Bromley-by-Bow Tube station in east London, on Monday.

Rush-hour travel was disrupted as overnight work to make the bomb safe continued into Thursday morning.



"It measures approximately the size and length of a man, and weighs around 1,000kg (2,200lb).

Express & Echo

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Road closed after German bomb found in Axminster garden

By Exeter Express and Echo | Posted: June 03, 2014



A major road in Axminster has been closed after an air-dropped German bomb was found in a garden.

Page last updated at 14:45 GMT, Friday, 22 May 2009 15:45 UK

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Building site WWII bomb exploded



Building site WWII bomb exploded

A controlled explosion has been carried out on a World War II bomb found on a building site in East Sussex.

The 110lb (50kg) SC50 bomb, thought to have been dropped from a German aircraft in 1940 or 1941, was found at the Hollenden House

Royal Navy clearance divers dispose of 70-year old German bomb

Posted on August 8, 2013



The team of four from the Southern Diving Unit 1 at HM Naval Base Devonport, Plymouth, blew up the air-dropped bomb in-situ in a controlled explosion where it was found by contractors for SW Water laying a mains in a field at St Eval Kart Circuit near Wadebridge, north Cornwall yesterday.

Report Reference:	Client:	
7307TA	WSP UK Limited	DYNASAFE
	Project: Southtown, Great Yarmouth	

Source: Various News Sources

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WW2 bomb found in Portsmouth harbour

22 February 2017 | Hampshire & Isle of Wight | Share



A World War Two bomb containing 290lb (131kg) of "high explosives" has been found in Portsmouth harbour.

The ordnance was discovered by a dredger in the water at about 03:00 GMT, the Royal Navy said.

Specialist divers at the scene said the bomb posed a "very serious threat". It was towed out to sea and detonated.

All ferries were stopped and trains between Portsmouth and Southsea station and Portsmouth Harbour were suspended, but have since started running again.

There were also extensive road closures in the area, affecting access to Gunwharf Quays.

The Royal Navy said the device, believed to be a German SC250 that weighs 500lb (227kg), was removed from the harbour before being "safely" blown up in the sea off the Isle of Wight.

Lt Mike St Pierre, the officer leading the bomb disposal team, had said: "Despite being old, these devices can pose a very serious threat."

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Portsmouth harbour is sealed off with hundreds of people evacuated and ferries halted after a 500lb unexploded WWII bomb was found on the sea bed

By JOSEPH CURTIS FOR MAILONLINE

PUBLISHED: 17:00, 16 November 2016 | **UPDATED:** 19:49, 16 November 2016



The Royal Navy today destroyed an unexploded 500lb German World War Two bomb which closed Portsmouth harbour for six hours when dredging workers discovered it on the sea bed.

Contractors completing works ready for the arrival of the Royal Navy's new 65,000 tonne state-of-the-art ship HMS Queen Elizabeth discovered the German UXB torpedo while dredging Portsmouth Harbour, Hampshire, this morning.

Bomb disposal experts rushed to the scene after it was brought to the surface while work was carried out west of Victory Jetty.

The bomb was towed from Portsmouth Harbour, Hants, out to open waters 1.5 miles east of the Isle of Wight.

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World War Two bomb removed from River Thames and exploded

20 January 2017 | London

Share



The device was identified as a German SD 50kg bomb

An unexploded 50kg World War Two bomb found in the River Thames has been removed and exploded.

The operation by the Royal Navy and Metropolitan Police forced Waterloo Bridge, Westminster Bridge and Victoria Embankment in central London to shut.

A Ministry of Defence spokesman said the WW2 device had been towed along the river to Tilbury, Essex, where it was safely detonated.

Police had been called to the river at 17:15 GMT on Thursday.

The device has been identified as a German SD 50kg bomb, a small armour-piercing ordnance dropped from an aircraft.

The Port of London Authority said the suspected bomb measured 2ft by 1ft (60cm x 30cm).

1994



Blown up by history

RESCUE workers search for survivors after a Second World War bomb exploded at a building site in Berlin, killing three people and injuring at least eight others.

A fire brigade spokesman said he feared the final death toll could be higher. One worker was still missing, believed to be trapped under a machine. "We've found human remains 100 metres away but we can't tell if they belong to the dead already found," the spokesman said.

The blast, set off by drilling work on Frankfurter Allee, one of east Berlin's busiest avenues, trapped workers under building machinery and sent huge chunks of concrete tumbling through the air.

A large office block was being built on the site of the explosion which sent shoppers scrambling for shelter and paralysed dense afternoon traffic. One eyewitness said: "There was a bang, then silence, and then it started raining stones and dirt."

Dozens of cars within a 250-metre radius were wrecked and the top two floors of a nearby apartment block caved in.

Radio reports claimed that the total number of injured stood at 14.

2008



World War II bomb kills three in Germany

Three people have been killed and six injured trying to defuse a World War II bomb in central Germany.

Workers building a sports stadium had earlier unearthed the bomb in the town of Goettingen.

It was not immediately clear why the bomb, reportedly weighing 500kg (1,100lb), had detonated.



Unexploded WWII bombs dropped by Allied planes are frequently found in Germany, though it is unusual for them to explode unexpectedly.

2010



2006



The bomb went off as the machine lifted up earth and debris

A World War Two bomb has exploded at a construction site near a west German town, killing a man and injuring eight others, police say.

Related

The explosion occurred after a digger accidentally struck the device during excavation work in Euskirchen in the state of North Rhine-Westphalia.

The machine's operator died on the spot. Two of those hurt were critically wounded, the dpa news agency reports.

2014

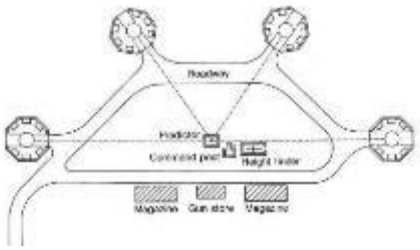
2006



Top Left: WWII bomb killed 3 and injured 8 in Berlin – 1994.
Middle Left: WWII bomb killed 3 in Goettingen, Germany – 2010.
Bottom Left: Excavator operator killed by WWII bomb in Euskirchen, Germany – 2014.
Top Right: WWII bomb injures 17 at construction site in Hattingen, Germany - 2008.
Middle Right: A highway construction worker in Germany accidentally struck a WWII bomb, killing himself and wrecking several passing cars - 2006.
Bottom Right: Destroyed piling rig and dump truck after detonation of WWII UXB in Austria - 2006.

3.7 inch Anti-Aircraft Projectile

Weight:	12.7kg (28lb)
Dimensions:	94 x 360mm (3.7 x 14.7in)
Carriage:	Mobile and Static Versions
Rate of Fire:	10-20 rounds per minute
Ceiling:	9-18,000m (29-59,000ft)
Muzzle Velocity:	792m/s (2,598ft/s)
Remarks:	4.5 inch projectiles were also commonly utilised



Layout plan for a typical HAA battery site.



This AA shell was uncovered on a construction site in North London in February 2009.



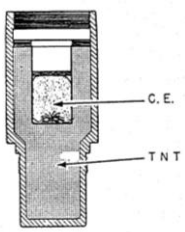
Hyde Park 1939 3.7 Inch QF gun on mobile mounting



3.7 inch AA Projectile Minus Fuze

Rockets / Unrotating Projectiles

Weight:	Overall: 24.5kg (54lb) Warhead: 1.94kg (4.28lb)
Dimensions:	1930mm x 82.6mm (76 x 3.25in)
Carriage:	Mobile – transported on trailers
Ceiling:	6770m (22,200ft)
Maximum Velocity:	457mps (1,500 fps)



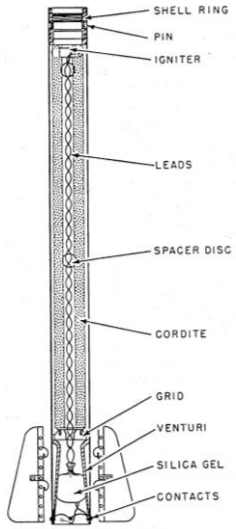
MK II HE Shell (3.5kg)



Rocket Battery in action



Home Guard soldiers load an anti-aircraft rocket at a 'Z' Battery



2" U.P AA Rocket

40mm Bofors Gun Projectile

Weight:	0.86kg (1.96lb)
Dimensions:	40mm x 310mm (1.6in x 12.2in)
Rate of Fire:	120 rounds per minute
Ceiling:	23,000ft (7000m)
Muzzle Velocity:	2,890 ft/s (881m/s)
Remarks:	Mobile batteries – normally few records of where these guns were located



Unexploded 40mm Bofors projectile



40mm Bofors gun and crew at Stanmore in Middlesex, 28 June 1940.



Report Reference:	Client:	
7307TA	WSP UK Limited	DYNASAFE
	Project: Southtown, Great Yarmouth	

Source: Dynasafe BACTEC Limited and various historical sources

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23 July 2010 Last updated at 18:28

Covert British troops 'could have buried' WWII devices

World War II incendiary devices found on a building site in Gloucestershire could have been left by covert British troops, according to researchers.



The bombs were put into vats of water to make them safe

More than 20 phosphorus bombs were unearthed in Birdlip after a digger hit one, causing it to burst into flames.

A former worker at the site said he saw a Home Guard officer burying objects there 65 years ago.

The Coleshill Auxiliary Research Team said auxiliary officers often used Home Guard uniforms as cover.

Thursday, September 10 2015

KM KentOnline

The UK's fastest-growing regional news network

Army bomb disposal team called to Blacksole Bridge in Herne Bay

Comments | 3

by Aidan Barlow abarlow@thekmgroup.co.uk 08 July 2015

It was like a scene from Dad's Army when Army bomb disposal experts found wartime explosives made by the Home Guard in makeshift bottles.

A team was called to the Blacksole Bridge in Herne Bay after the wartime bombs were found.

The team from the Royal Logistics Corps set up a 30 metre exclusion zone for pedestrians around the railway embankment after the suspected homemade phosphorous bombs were found.



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Treasure hunter stumbles on deadly Dad's Army bomb cache

By MAIL ONLINE REPORTER
Last updated at 4:06 PM on 9th July 2010

Comments (0) | Add to My Stories

A treasure hunter escaped serious injury when he unearthed a cache of bombs that were buried by the Home Guard during the darkest days of World War 2.

The weapons - primed to go off when they made contact with the air - were secreted on a beach by a Captain Mainwaring of the day.

Loaded with dangerous benzene and phosphorus, the Dad's Army-style team would have used them in battle against Nazi troops in the event of invasion.



'Are you sure that's wise?': The Home Guard's stash of bombs finally goes off, 70 years late

Eastbourne Herald

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VIDEO: Explosion after 80 grenades detonated in Eastbourne



16:31 Monday 13 April 2015

Marked 'AW Bomb 1940' the grenades were thought to have been phosphorus incendiary grenades created as improvised anti-tank weapons when Britain was facing invasion following the army's evacuation from Dunkirk in 1940.

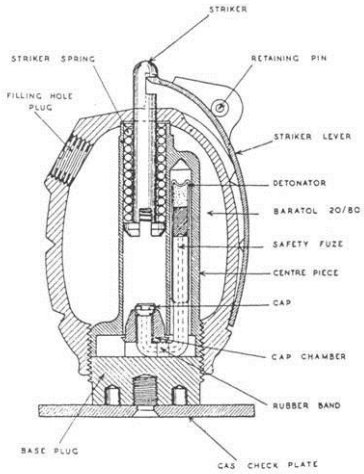
He said, "I remember the grenades being buried. It was part of the Home Guard stash, it was put there in case we were invaded. It had to be in 1943. There were a lot of them [stashes], they were all over the place."

No. 36 'Mills' Grenade

Weight:	0.7kg filled (1lb 6oz)
Type:	Hand or discharger, fragmentation
Dimensions:	95 x 61mm (3.7 x 2.4in)
Filling:	Alumatol, Amatol 2 or TNT
Remarks:	4 second hand-throwing fuse with approximate 30m range. First introduced May 1918.







Grenade, .303 inch rifle, No. 36M, Mark I.

No. 69 Grenade

Weight:	0.38kg filled (0.8lb)
Type:	Percussion/Blast
Date Introduced:	December 1940
Remarks:	Black Bakelite body. Blast rather than fragmentation type. After unscrewing the safety cap, a tape is held when throwing the grenade releasing the safety bolt in the throwing motion. Detection is problematic due to its very low metal content.





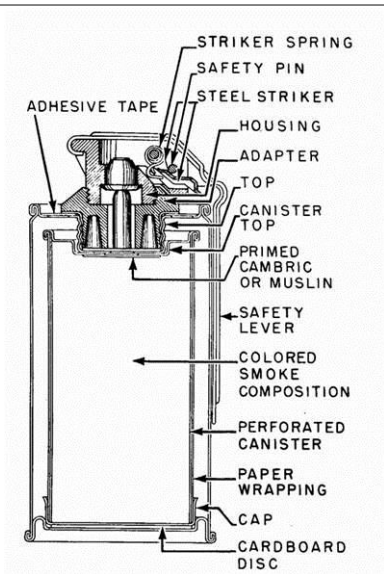


Typical Smoke Grenade

Dimensions:	Approx. 65 x 115mm (2.5 x 4.5in)
Type:	Smoke
Date Introduced:	Current MoD issue
Remarks:	Smoke grenades are used as ground-to-ground or ground-to-air signalling devices, target or landing zone marking devices, and screening devices for unit movement.







Source: Dynasafe BACTEC Limited and various historical sources

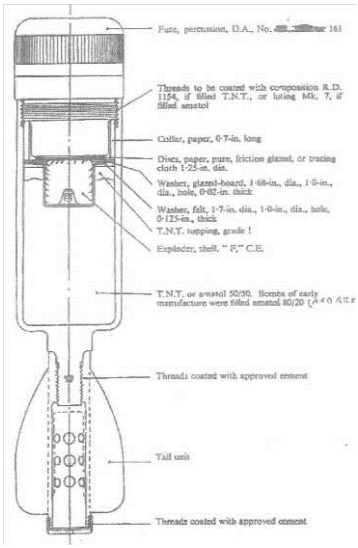
Typical 2 inch High Explosive Mortar

Bomb Weight:	1.02kg (2.25lb)
Type:	High Explosive
Dimensions:	51 x 290mm (2in x 11.4in)
Filling:	200g RDX/TNT
Maximum Range:	457m (500yds)
Remarks:	Fitted with an impact fuze which detonates the fuze booster charge (exploder) and, in turn, the high explosive charge. The main charge shatters the mortar bomb body, producing near optimum fragmentation and blast effect at the target.









Typical 3 inch Smoke Mortar

Type:	Smoke
Dimensions:	c490 x 76mm (19.3in x 3in)
Filling:	Typically white phosphorous
Maximum Range:	2515m (2,750yds)
Remarks:	On impact, the fuze functions and initiates the bursting charge. The bursting charge ruptures the mortar bomb body and disperses the white phosphorous filler. The white phosphorous produces smoke upon exposure to the air.



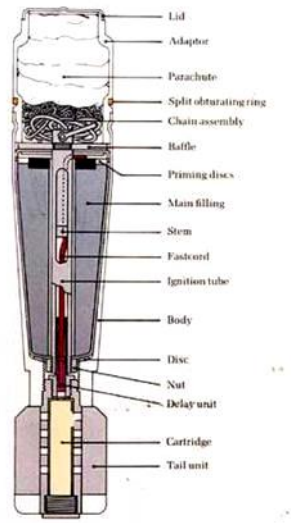


Typical 2 inch Illuminating Mortar

Type:	Illum.
Dimensions:	51 x 290mm
Filling:	Various
Remarks:	The expulsion charge ignites and ejects the candle assembly. A spring ejects the parachute from the tail cone. The parachute opens, slowing the descent of the burning candle which illuminates the target.







Report Reference:	Client:	
7307TA	WSP UK Limited	DYNASAFE
	Project: Southtown, Great Yarmouth	

Source: Dynasafe BACTEC Limited and various historical sources

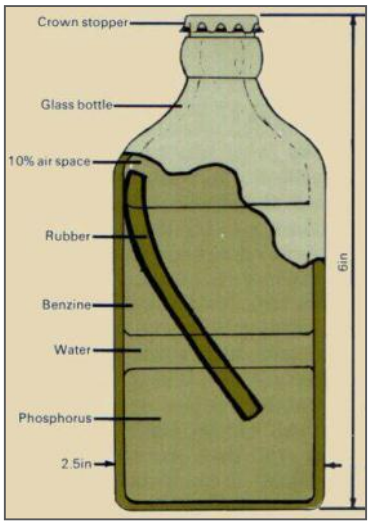
Self Igniting Phosphorous (SIP) Grenades

Filling: White Phosphorous and Benzene

Remarks: The grenade comprised a glass bottle with a total volume of approximately one pint. It was filled with White Phosphorus, benzene, a piece of rubber and water. Over time the rubber dissolved to create a sticky fluid which would self ignite when the bottle broke. Fired by hand or Northover Projector. Sometimes called the “A & W” (Albright & Wilson) grenade.





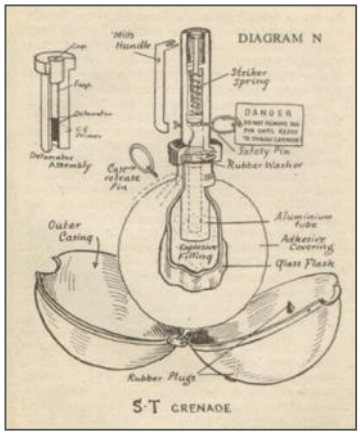


No 74 Grenade (Sticky Bomb)

Remarks: Designed as an anti-tank grenade and used by the Home Guard. The grenade consisted of a glass ball on the end of a Bakelite (plastic) handle. Inside the glass ball was an explosive filling whilst on the outside was a very sticky adhesive covering. Until used, this adhesive covering was encased in a metal outer casing.



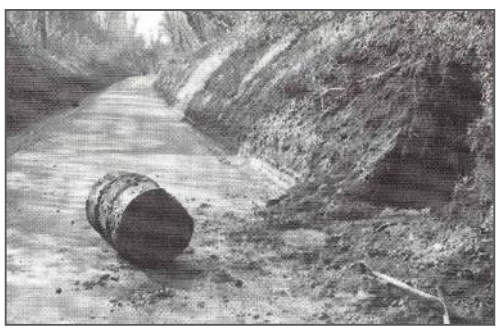


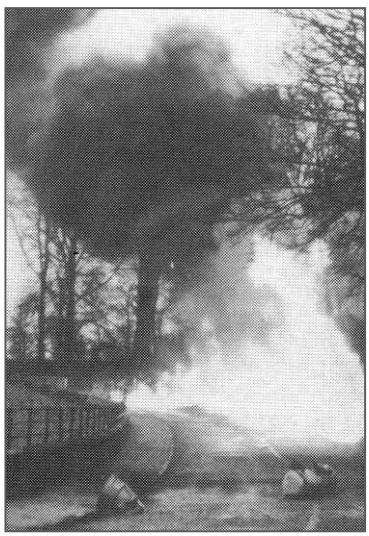


Flame Fougasse Bomb

Remarks: A Flame Fougasse was a weapon in which the projectile was a flammable liquid, typically a mixture of petrol and oil. It was usually constructed from a 40-gallon drum dug into the roadside and camouflaged. Ammonal provided the propellant charge which, when triggered, caused the weapon to shoot a flame 3m (10ft) wide and 27m (30 yards) long. Initially a mixture of 40% petrol and 60% gas oil was used, this was later replaced by an adhesive gel of tar, lime and petrol known as 5B.





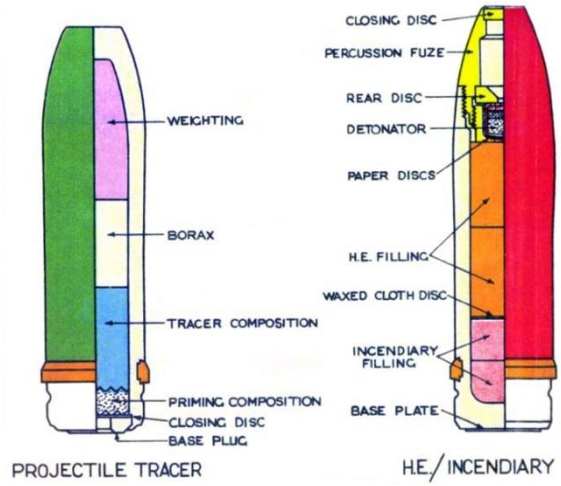


Report Reference:	Client:	
7307TA	WSP UK Limited	DYNASAFE
	Project: Southtown, Great Yarmouth	

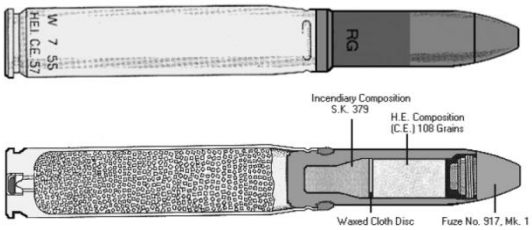
Source: Dynasafe BACTEC Limited and various historical sources

20mm Hispano HEI Ammunition

Type:	Live canon round
Markings:	Upper half of projectile painted 'buff' colour, lower half is red.
Cartridge Weight:	256 grams
Dimensions:	Total cartridge / projectile length - 182mm
Fuzed:	Contact fuze – No.253, No.254 or No.917
Filling:	108 grains of contact explosive + 68 grains of SR.379 incendiary composition.
Threat:	Explosives within unspent cartridge as well as the projectile.
Deployment:	Royal Navy, RAF and British Army Light Anti-Aircraft guns. Also RAF aircraft canons.
Remarks:	Cartridges are belted or supplied lose in cartons.







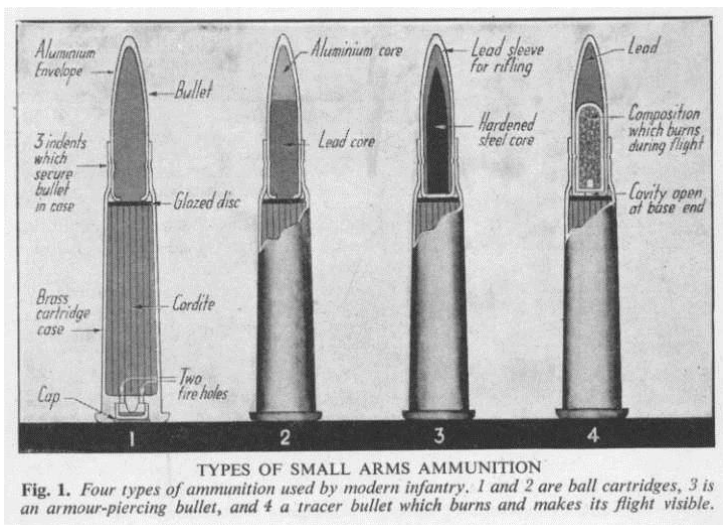
COLOUR IDENTIFICATION		
BRITISH		
NATURE OF SHELL	H.E. FILLING	COLOUR
H.E. TRACER	T.N.T.	
H.E.	T.N.T.	
PROJ. PRACTICE		
PROJ. TRACER		
H.E. INCENDIARY	T.N.T.	
H.E. INCENDIARY TRACER	T.N.T.	

.303" Ammunition

Type:	Rifle / machine gun round
Markings:	Regular round - none. Tracer round – red Primer
Bullet Weight:	150 - 180 grams
Dimensions:	Total cartridge /projectile length - 78mm
Filling:	Regular round – none. Tracer round - small incendiary fill
Threat:	Explosive cordite within unspent cartridge
Deployment:	Royal Navy, RAF and British Army Light Anti-Aircraft guns, machine guns and rifles. Standard British and Commonwealth military cartridge from 1889 until the 1950s.
Remarks:	Cartridges are belted or supplied lose in cartons.



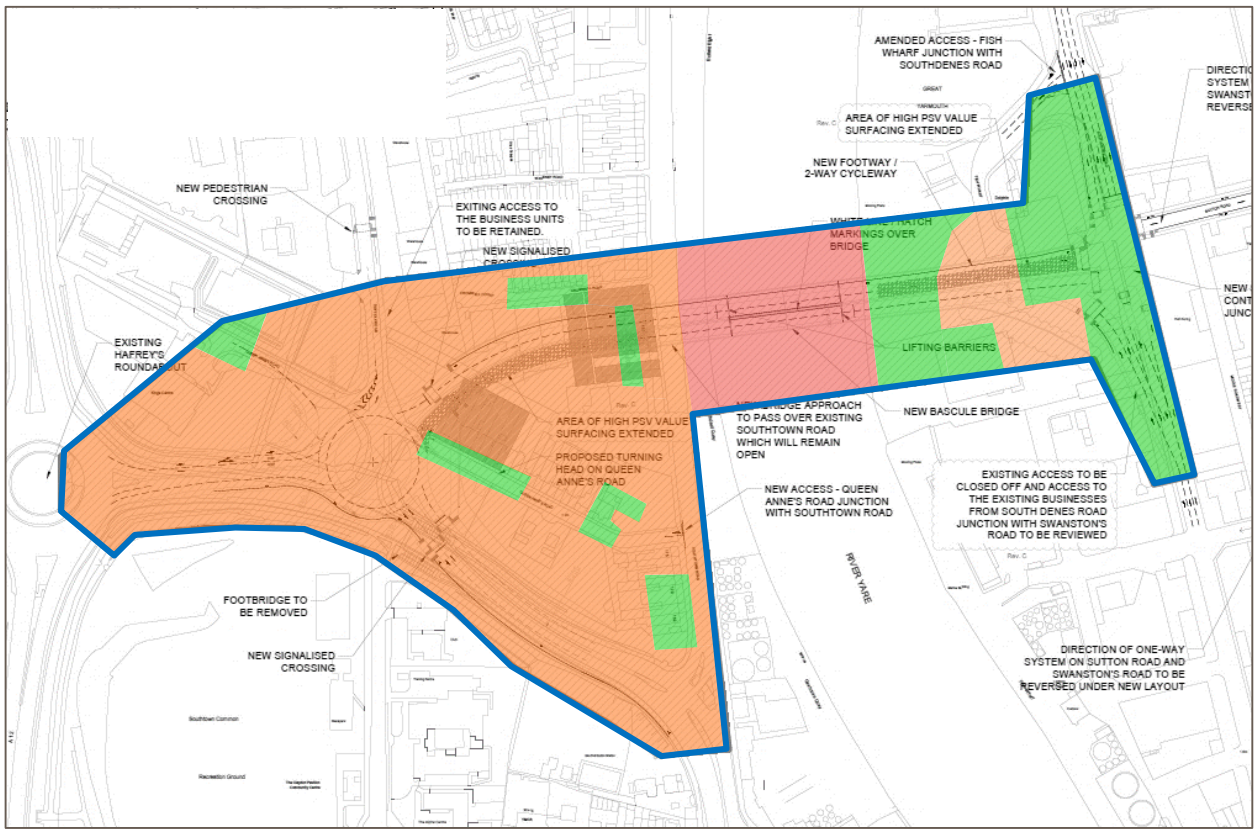




TYPES OF SMALL ARMS AMMUNITION

Fig. 1. *Four types of ammunition used by modern infantry. 1 and 2 are ball cartridges, 3 is an armour-piercing bullet, and 4 a tracer bullet which burns and makes its flight visible.*

North



Low Risk Zone	Medium Risk Zone	High Risk Zone
Buildings and hard standing that survived the war intact.	• Open Soft Ground that would not have been accessed regularly nor frequently. • Areas of substantial bomb damage. • Buffer area to account for the "J-Curve" Effect.	The River Yare

Scope Specific Risk Mitigation Measures:

All Risk Zone:
- Site Specific Explosive Ordnance Safety and Awareness Briefings to all personnel conducting intrusive works.
- The Provision of Unexploded Ordnance Site Safety Instructions.

Medium Risk Zone:
- Explosive Ordnance Disposal (EOD) Engineer presence on site to support shallow intrusive works.
- Handheld Intrusive Magnetometer Survey of all borehole locations down to the maximum bomb penetration depth

High Risk Zone:
- Non-Intrusive Magnetometer and Side Scan UXO Survey.
- Intrusive Magnetometer Survey - Down-hole Vallon Probing ahead of Marine Borehole.

Appendix E

PRESSUREMETER TESTING

Great Yarmouth Third River Crossing

Borehole: BH02

Date: 15th June 2018

Revision No: 1

Pressuremeter tests

Preliminary analysis

Report reference: CIR1420/18

Cambridge Insitu Limited

BH02 Test 1 - SUMMARY OF RESULTS
[File made with WinSitu Version 3.9.1.1]

[DETAILS OF TEST]
Project :
Site : Gt Yarmouth 3RC
Borehole : BH02
Test name : BH02 Test 1
Test date : 13 Jun 18
Test depth : 13.50 mBML
Water table : Nothing entered
Ambient PWP : Nothing entered
Material : Silty sand
Probe : Digital 3 arm weak rock self boring pressuremeter
Diameter : 88.1 mm
Data analysed using average arm displacement curve
A non-linear analysis of the rebound cycles has been carried out

Analysed by SDB on 15 Jun 18

Remarks: Deck to mud = 11m. Water depth = 8.4m above mudline. Flush coming up casing for most of drilling causing a cavity on one side. Arm 2 hits limit after one u/r cycle.

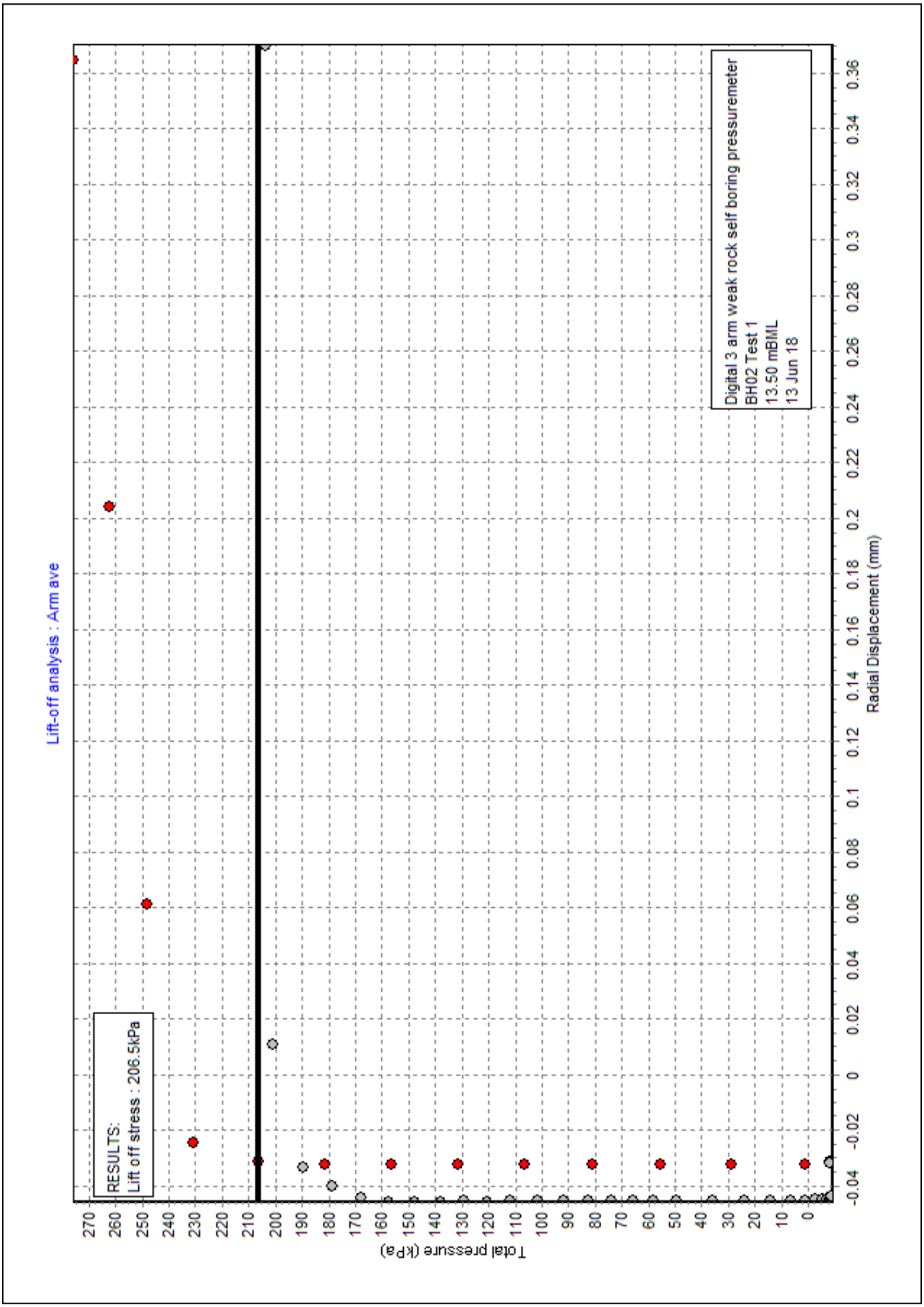
[RESULTS FOR CAVITY REFERENCE PRESSURE]
Po from Lift off (kPa) : "Arm ave=206.5"

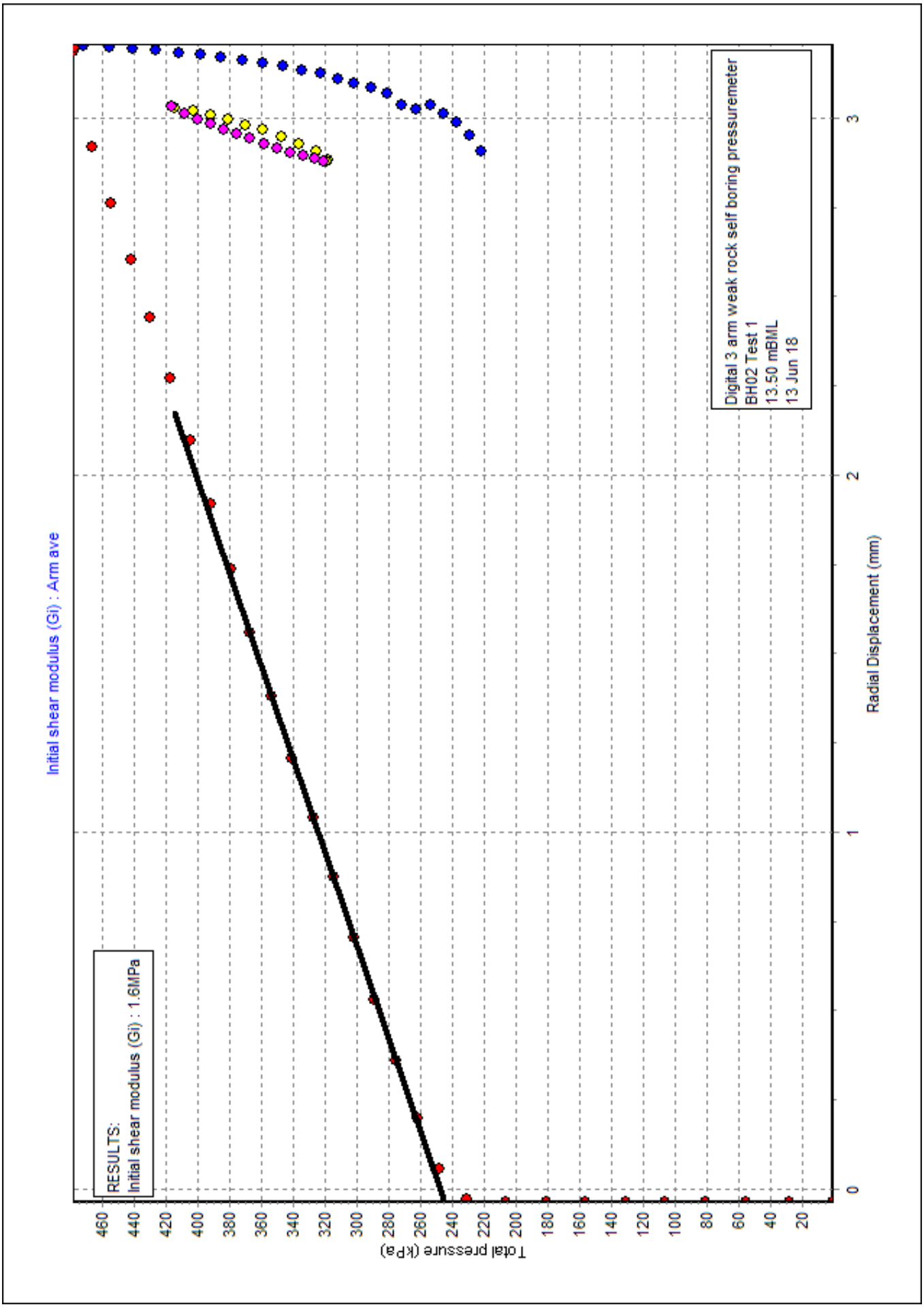
[LINEAR INTERPRETATION OF SHEAR MODULUS G]
Initial slope shear modulus (MPa) :"Arm ave=1.6"

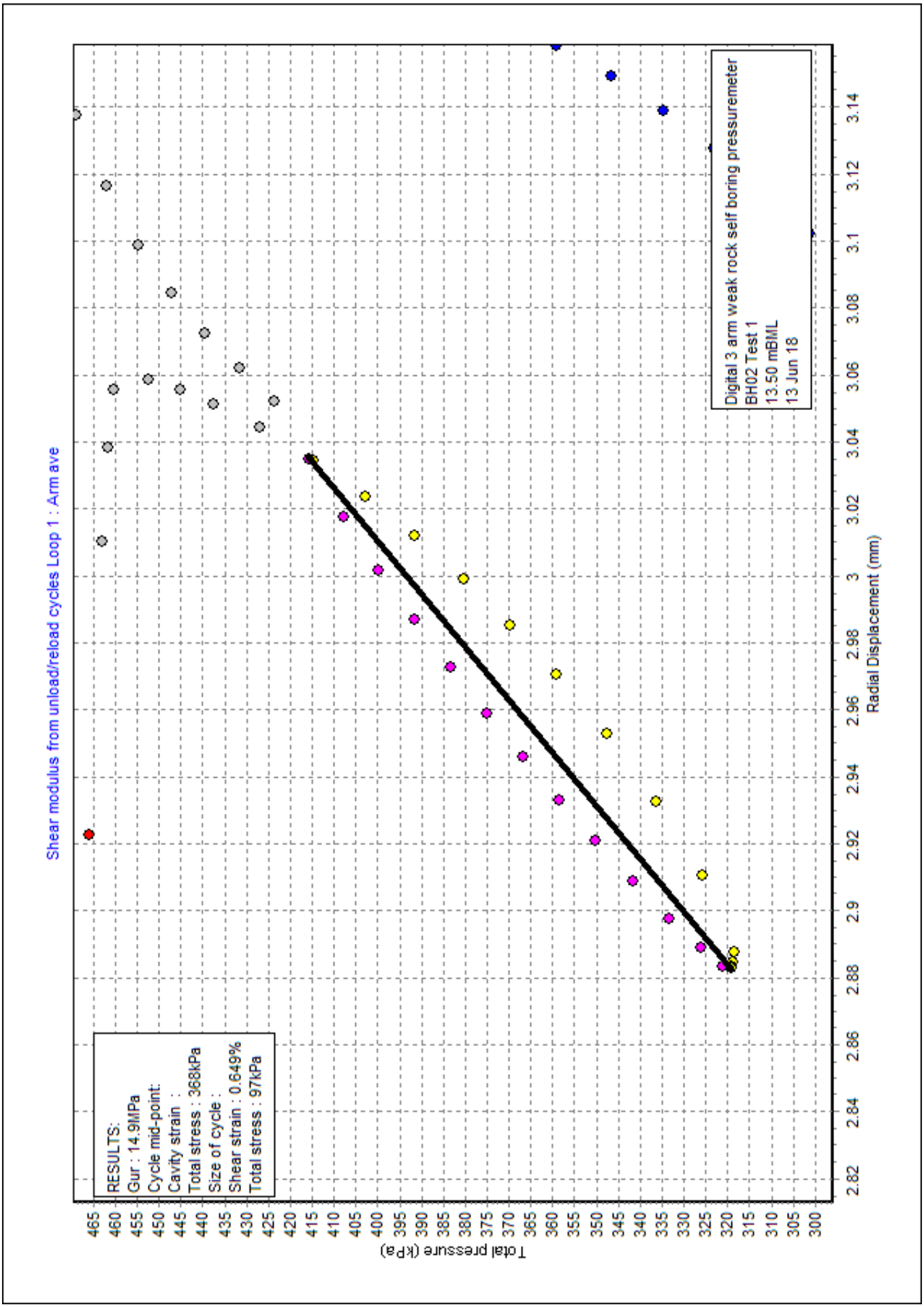
Axis	Loop No	Value (MPa)	Mean Strain (%)	Mean Pc (kPa)	dE (%)	dPc (kPa)
Arm ave	1	14.9		368	0.649	97

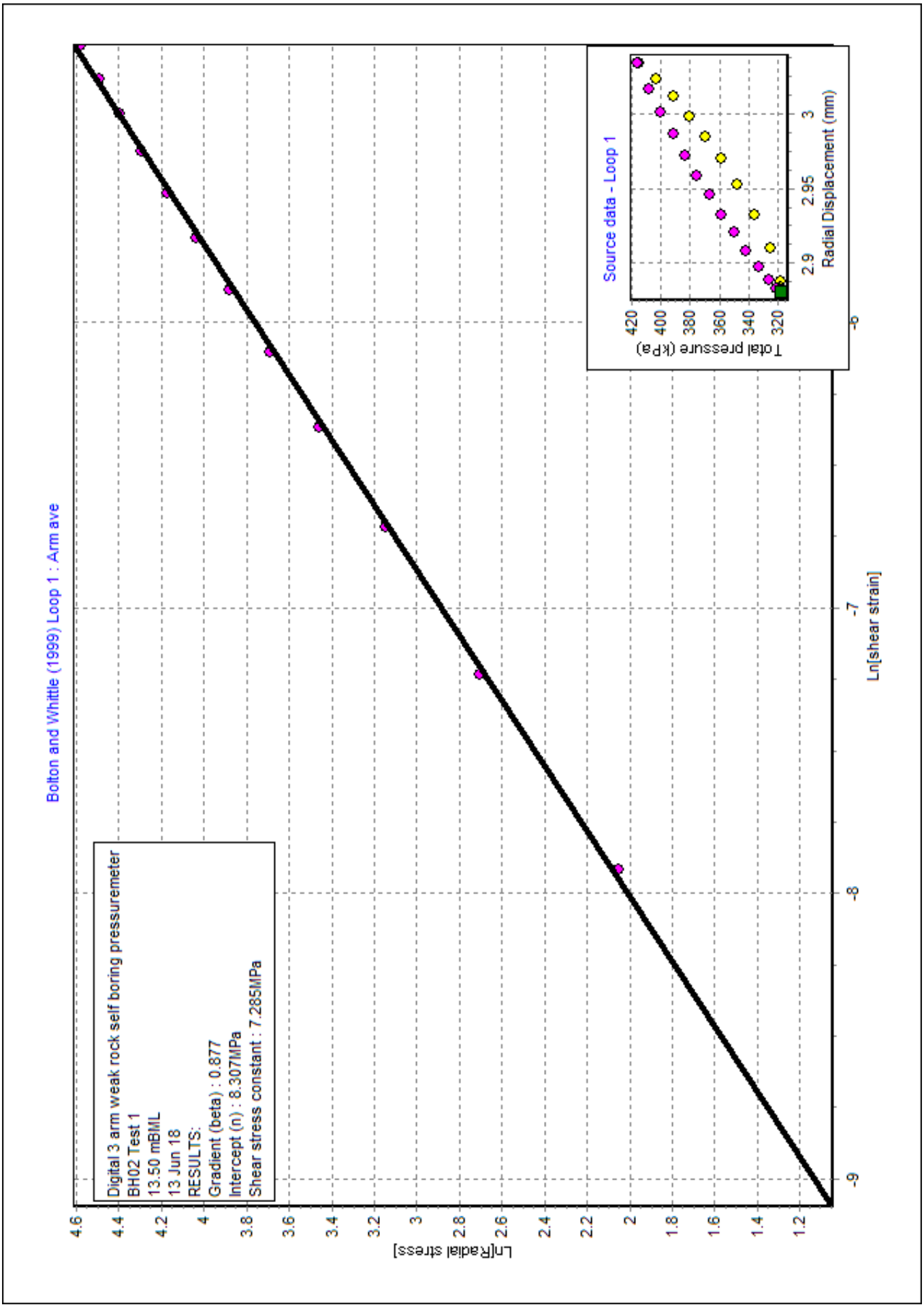
[UNDRAINED NON LINEAR INTERPRETATION OF SECANT SHEAR MODULUS]

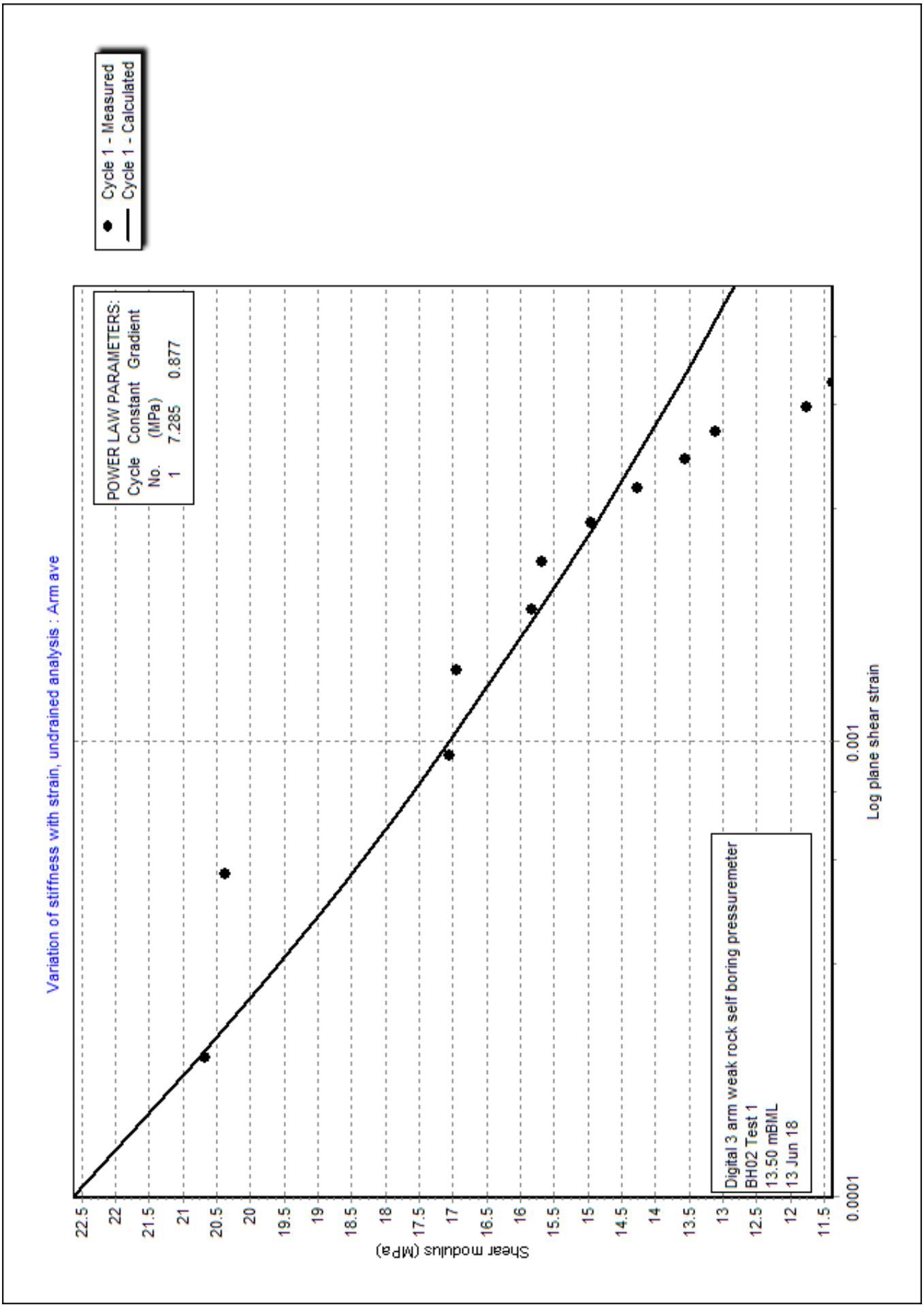
Axis	Loop No	Intercept (MPa)	Alpha (MPa)	Gradient
Arm ave	1	8.307	7.285	0.877

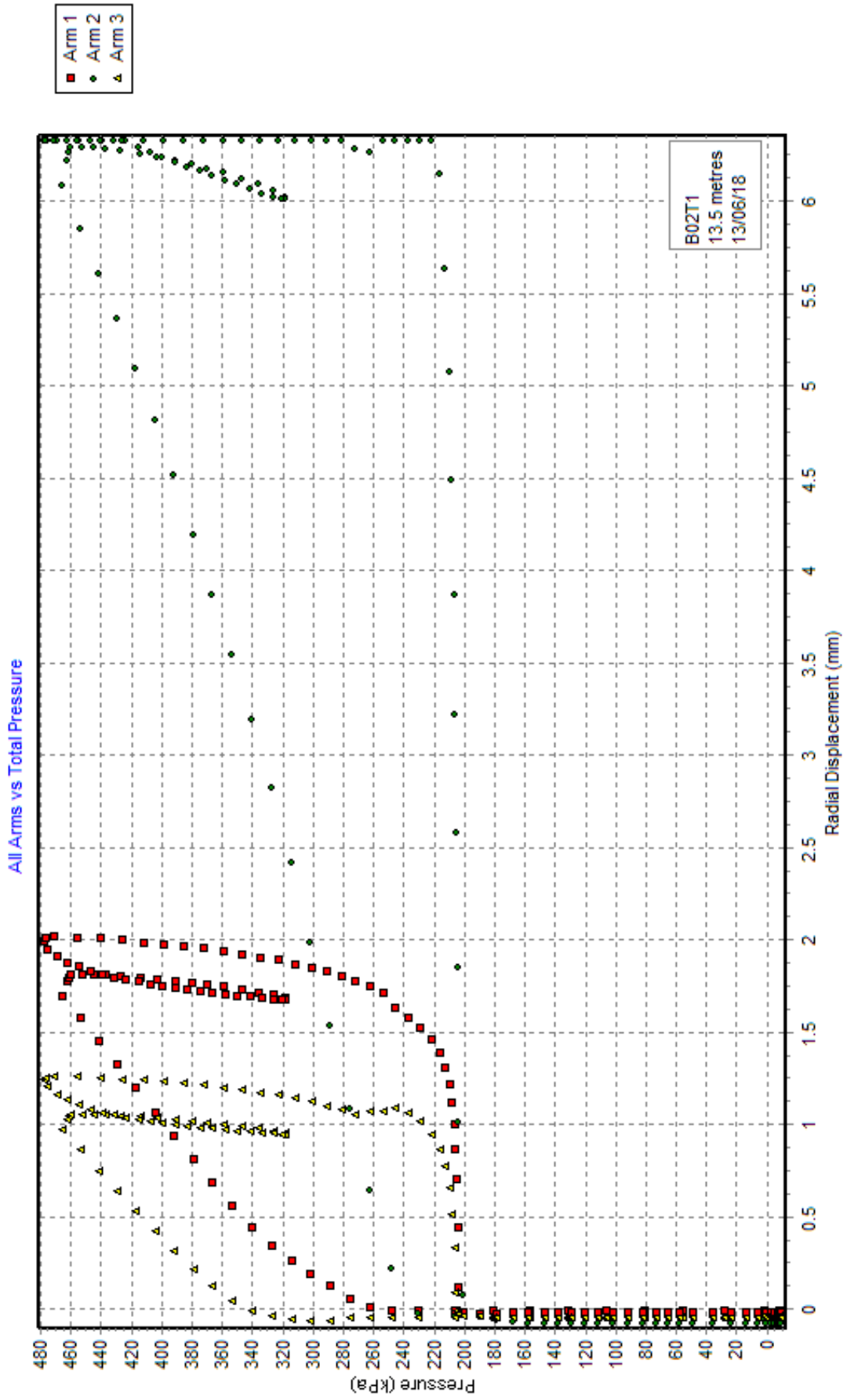

Lift-off analysis : Arm ave
RESULTS:
Lift off stress : 206.5kPa
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 1
13.50 mBML
13 Jun 18
Total pressure (kPa)
Radial Displacement (mm)

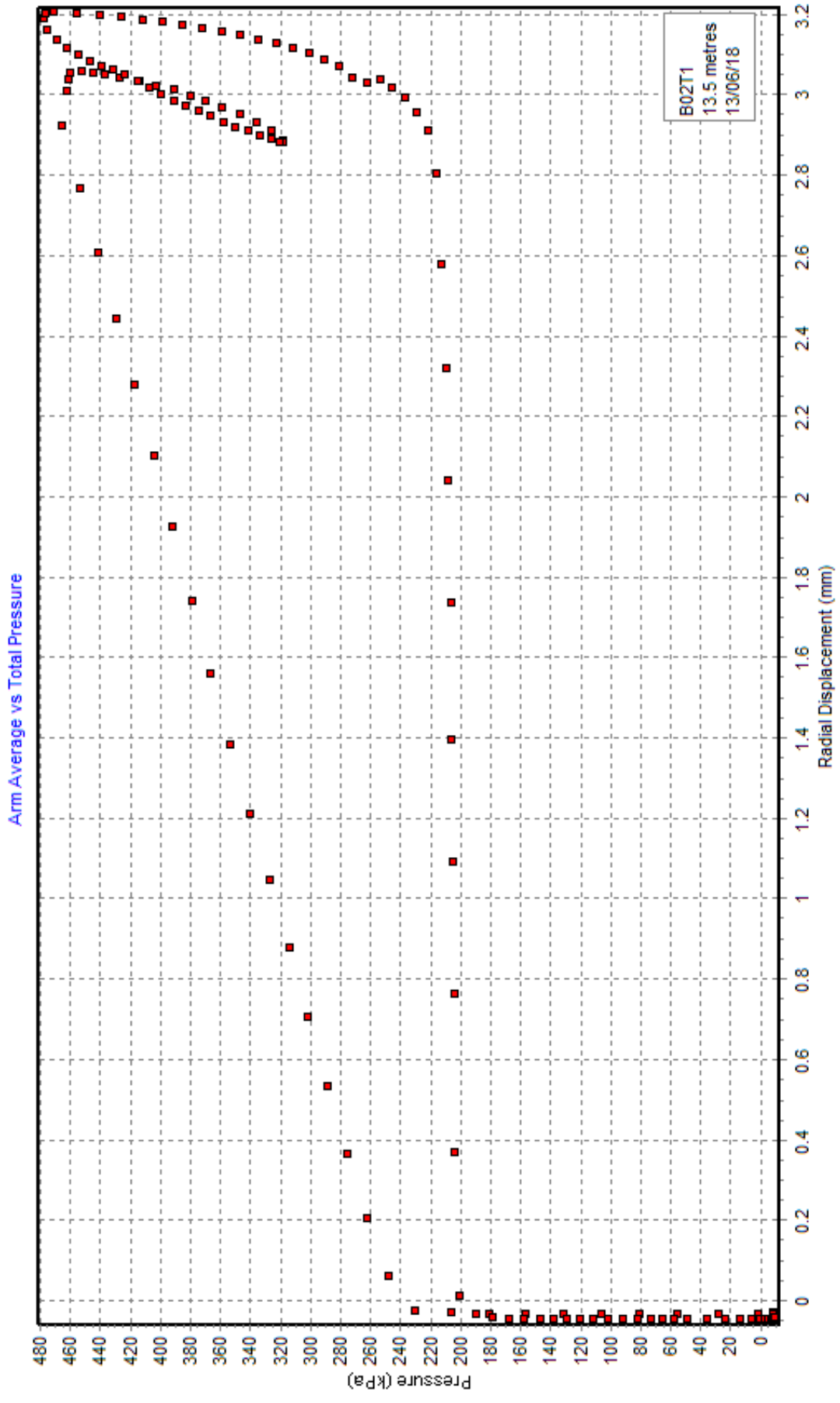

Digital 3 arm weak rock self boring pressuremeter
BH02 Test 1
13.50 mBML
13 Jun 18
RESULTS:
Initial shear modulus (Gi) : 1.6MPa
Initial shear modulus (Gi) : Arm ave
Total pressure (kPa)
Radial Displacement (mm)
460
440
420
400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
1
2
3

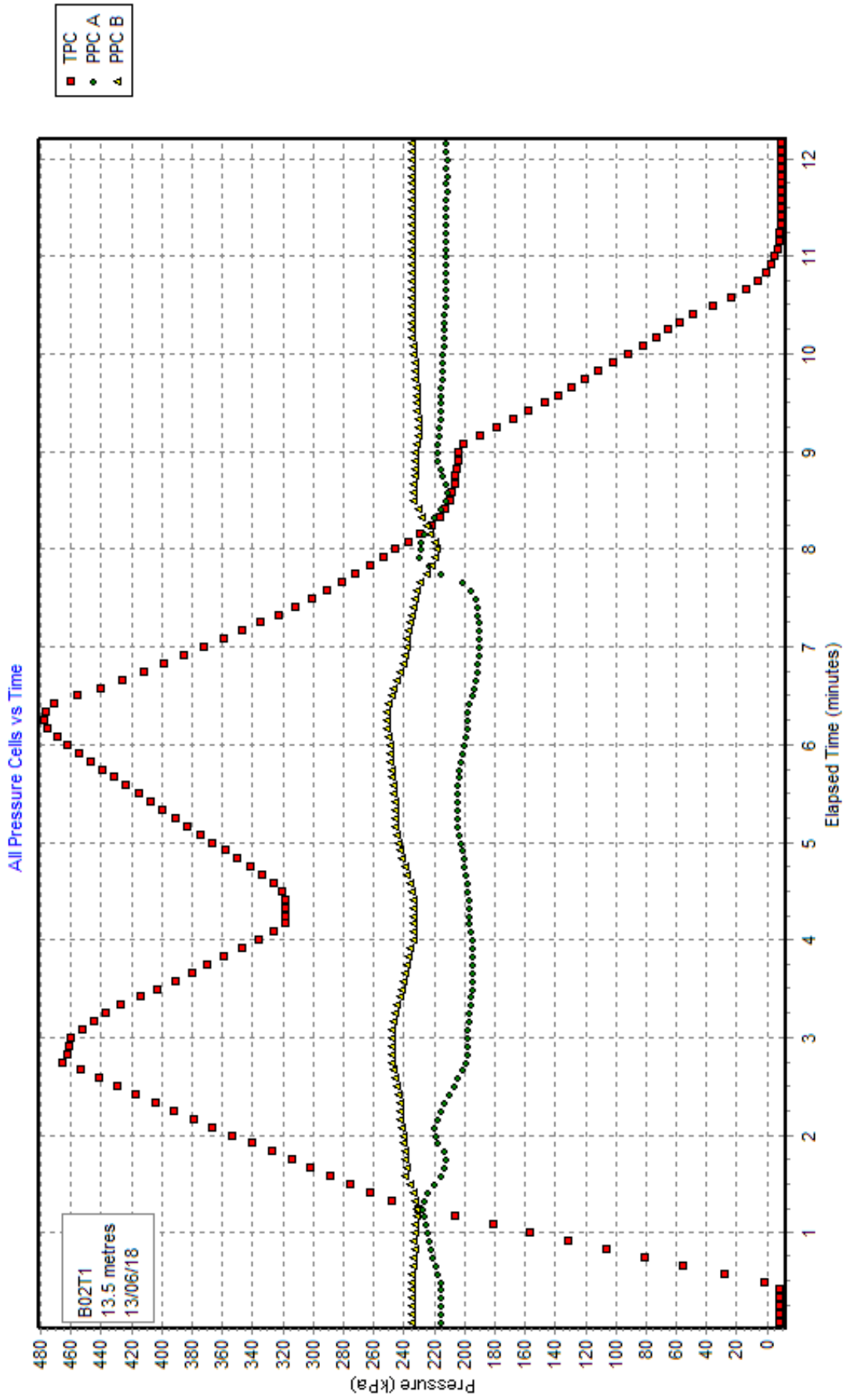

Shear modulus from unload/reload cycles Loop 1 : Arm ave
RESULTS:
Gur : 14.9MPa
Cycle mid-point:
Cavity strain :
Total stress : 368kPa
Size of cycle :
Shear strain : 0.649%
Total stress : 97kPa
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 1
13.50 mBML
13 Jun 18
Total pressure (kPa)
Radial Displacement (mm)

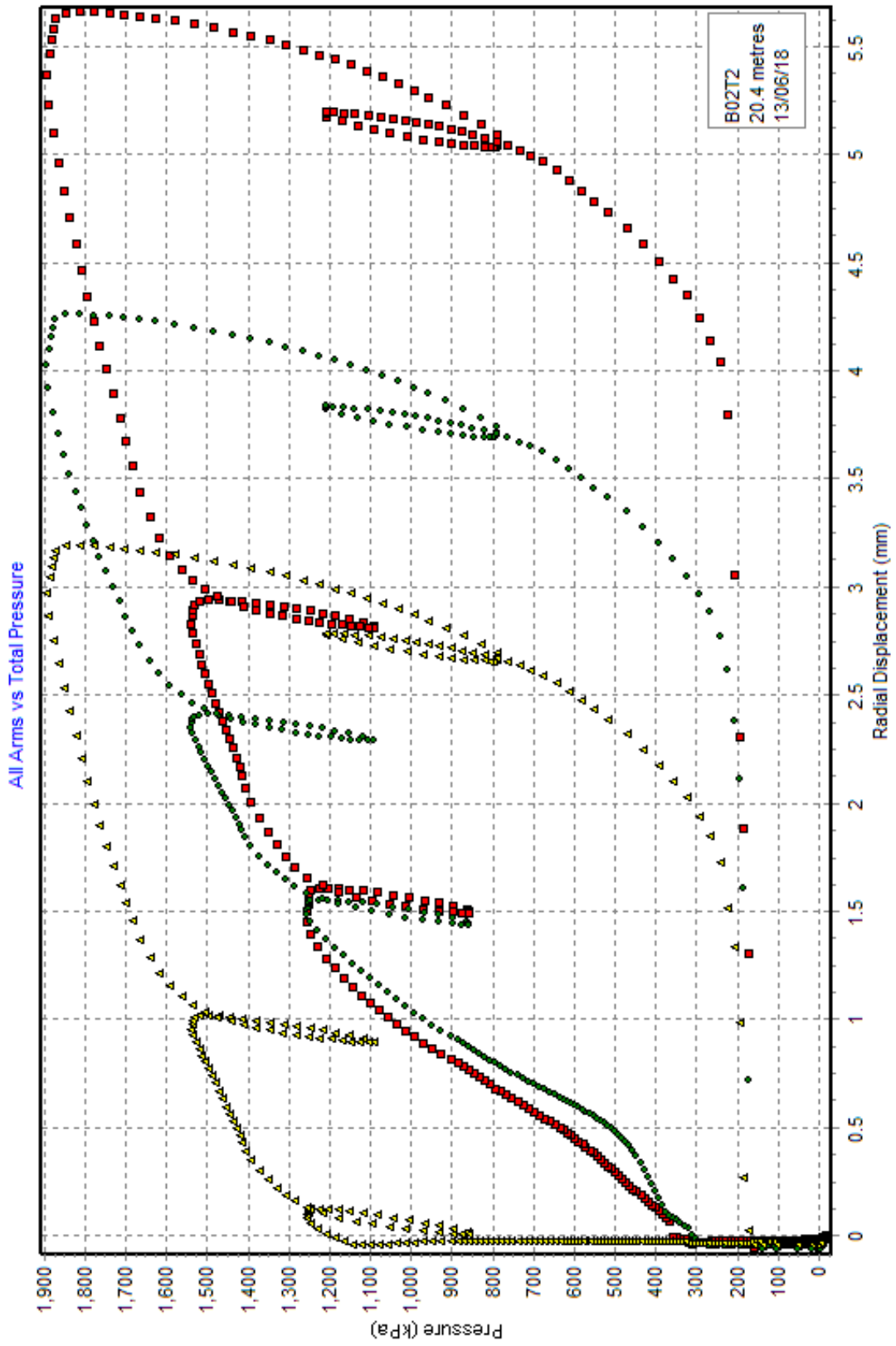

Bolton and Whittle (1999) Loop 1 : Arm ave
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 1
13.50 mBML
13 Jun 18
RESULTS:
Gradient (beta) : 0.877
Intercept (n) : 8.307MPa
Shear stress constant : 7.285MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 1
Total pressure (kPa)
Radial Displacement (mm)

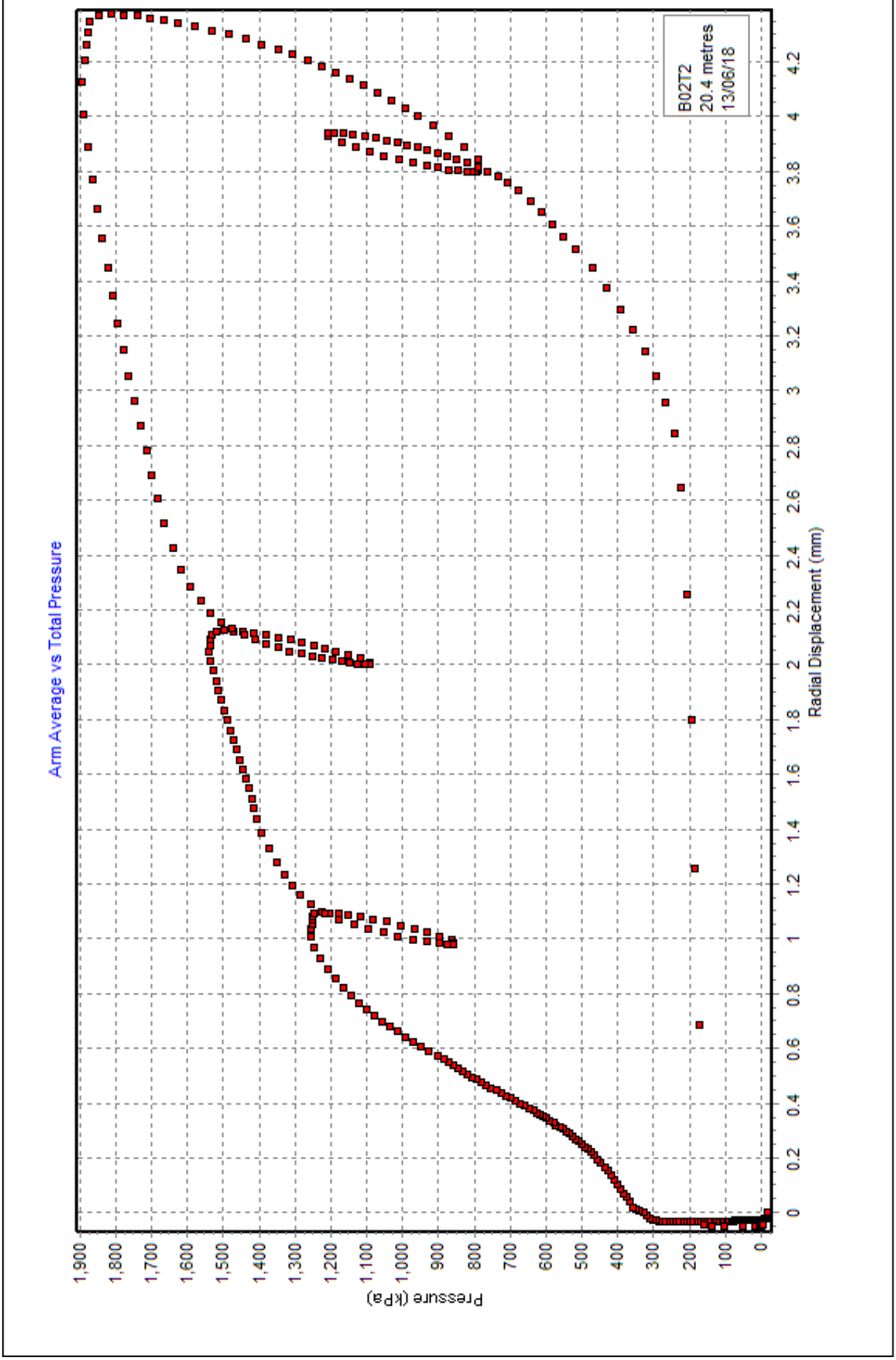

Cycle 1 - Measured
Cycle 1 - Calculated
POWER LAW PARAMETERS:
Cycle Constant Gradient
No. (MPa)
1 7.285 0.877
Variation of stiffness with strain, undrained analysis : Arm ave
Shear modulus (MPa)
Log plane shear strain
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 1
13.50 mBML
13 Jun 18

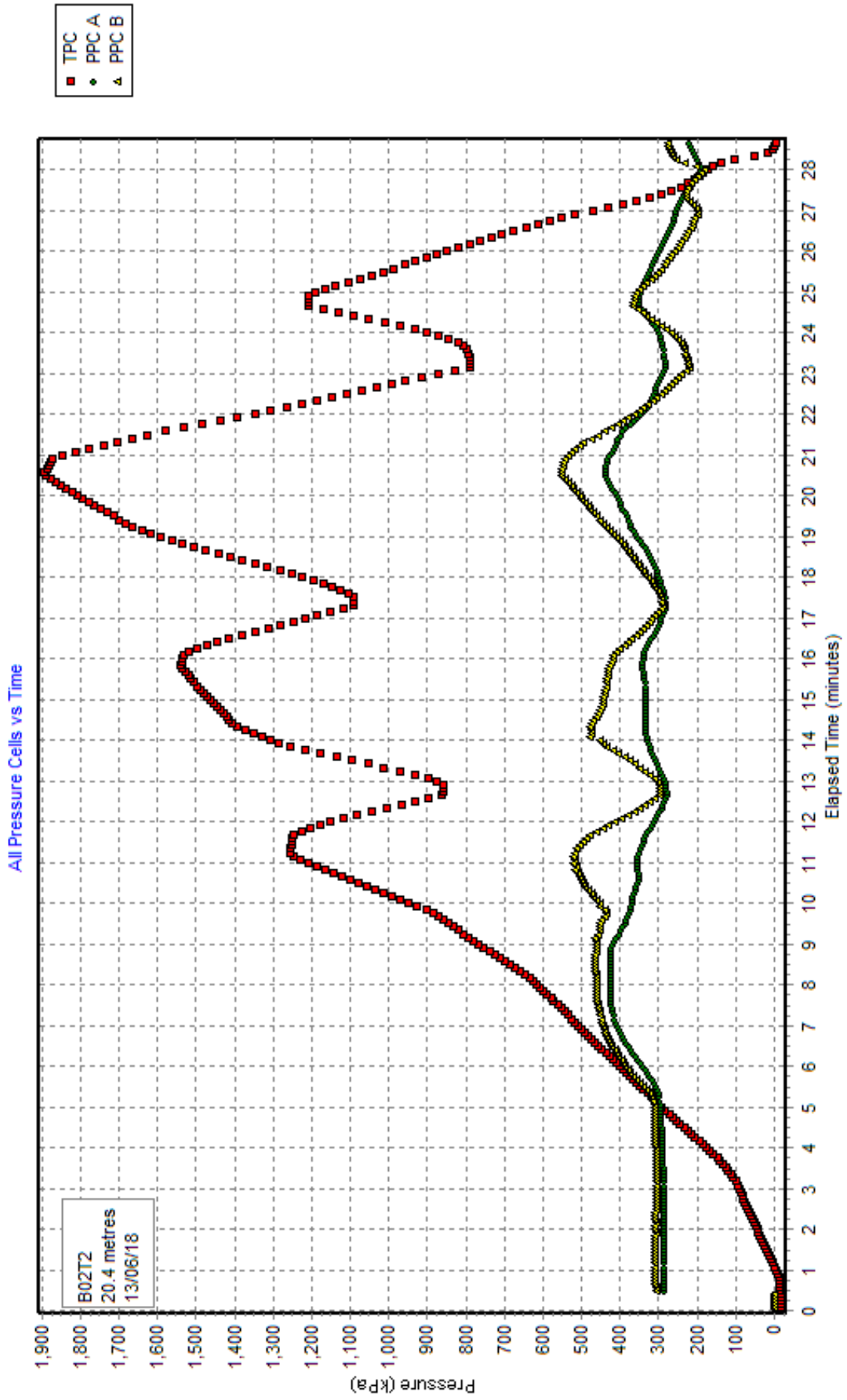

Arm 1
Arm 2
Arm 3
B02T1
13.5 metres
13/06/18
All Arms vs Total Pressure
Pressure (kPa)
Radial Displacement (mm)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6


Arm Average vs Total Pressure
Pressure (kPa)
Radial Displacement (mm)
B02T1
13.5 metres
13/06/18


All Pressure Cells vs Time
TPC
PPC A
PPC B
B02T1
13.5 metres
13/06/18
Pressure (kPa)
Elapsed Time (minutes)


Arm 1
Arm 2
Arm 3
B02T2
20.4 metres
13/06/18
All Arms vs Total Pressure
Pressure (kPa)
Radial Displacement (mm)
0
100
200
300
400
500
600
700
800
900
1,000
1,100
1,200
1,300
1,400
1,500
1,600
1,700
1,800
1,900
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5


B02T2
20.4 metres
13/06/18
Arm Average vs Total Pressure
Radial Displacement (mm)
Pressure (kPa)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2.2
2.4
2.6
2.8
3
3.2
3.4
3.6
3.8
4
4.2
0
100
200
300
400
500
600
700
800
900
1,000
1,100
1,200
1,300
1,400
1,500
1,600
1,700
1,800
1,900


TPC
PPC A
PPC B
All Pressure Cells vs Time
B02T2
20.4 metres
13/06/18
Pressure (kPa)
Elapsed Time (minutes)

Great Yarmouth 3rd River Crossing Pressuremeter Tests
BH02 Test 2 - SUMMARY OF RESULTS
[File made with WinSitu Version 3.9.1.1]

[DETAILS OF TEST]
Project :
Site : Gt Yarmouth 3RC
Borehole : BH02
Test name : BH02 Test 2
Test date : 13 Jun 18
Test depth : 20.40 Metres
Water table : Nothing entered
Ambient PWP : Nothing entered
Material : Sandy clay
Probe : Digital 3 arm weak rock self boring pressuremeter
Diameter : 88.1 mm
Data analysed using average arm displacement curve
A non-linear analysis of the rebound cycles has been carried out
The file includes results from a curve fitting analysis

Analysed by SDB on 15 Jun 18

Remarks:

[RESULTS FOR CAVITY REFERENCE PRESSURE]
Strain Origin (mm) : "Arm ave=0.87"
Po from Marsland & Randolph (kPa) : "Arm ave=554.5"
Po from Lift off (kPa) : "Arm ave=275.6"
Best estimate of Po (kPa) : "Arm ave=555.0"

[UNDRAINED STRENGTH PARAMETERS]
Gibson & Anderson 1961 - Cu (kPa) : "Arm ave=279.7"
Limit pressure (kPa) : "Arm ave=2471"
Jefferies 1988 - Cu (kPa) : "Arm ave=279.6"
Undrained yield stress (kPa) : "Arm ave=765.2"

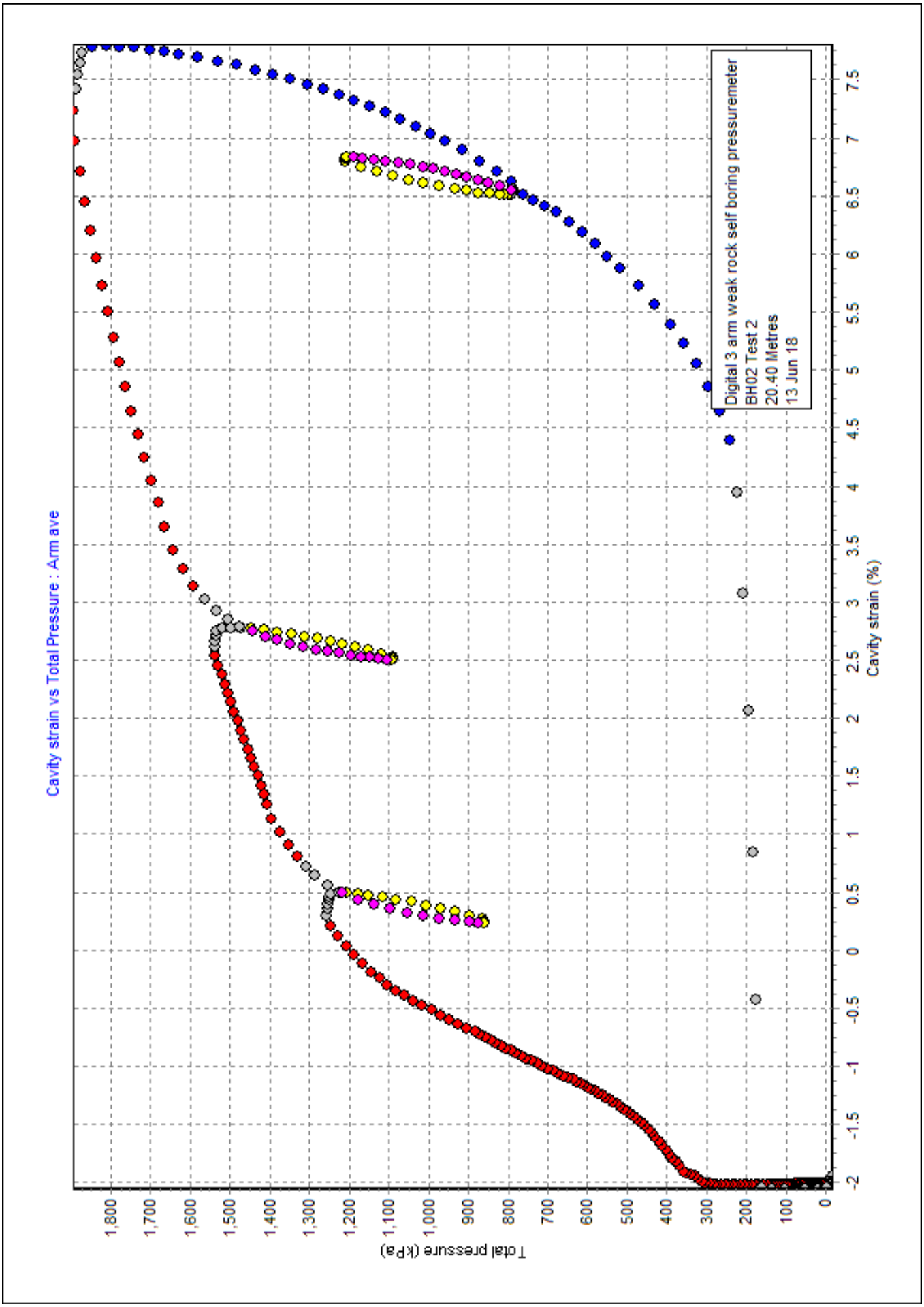
[LINEAR INTERPRETATION OF SHEAR MODULUS G]
Initial slope shear modulus (MPa) :"Arm ave=32.0"

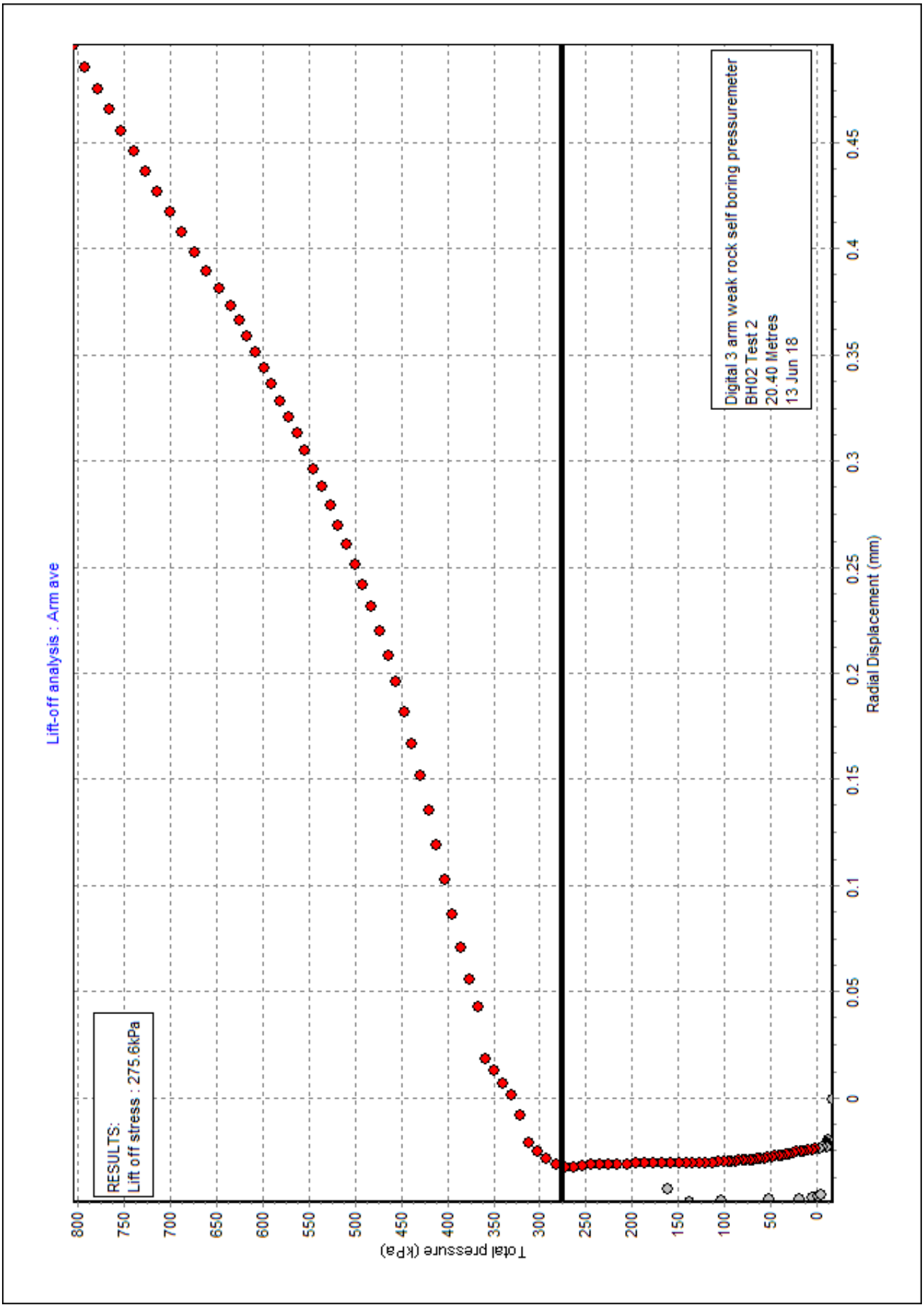
Axis	Loop No	Value (MPa)	Mean Strain (%)	Mean Pc (kPa)	dE (%)	dPc (kPa)
Arm ave	1	69.8	0.374	1038	0.509	357
Arm ave	2	72.1	2.648	1275	0.510	369
Arm ave	3	68.4	6.681	1001	0.601	412

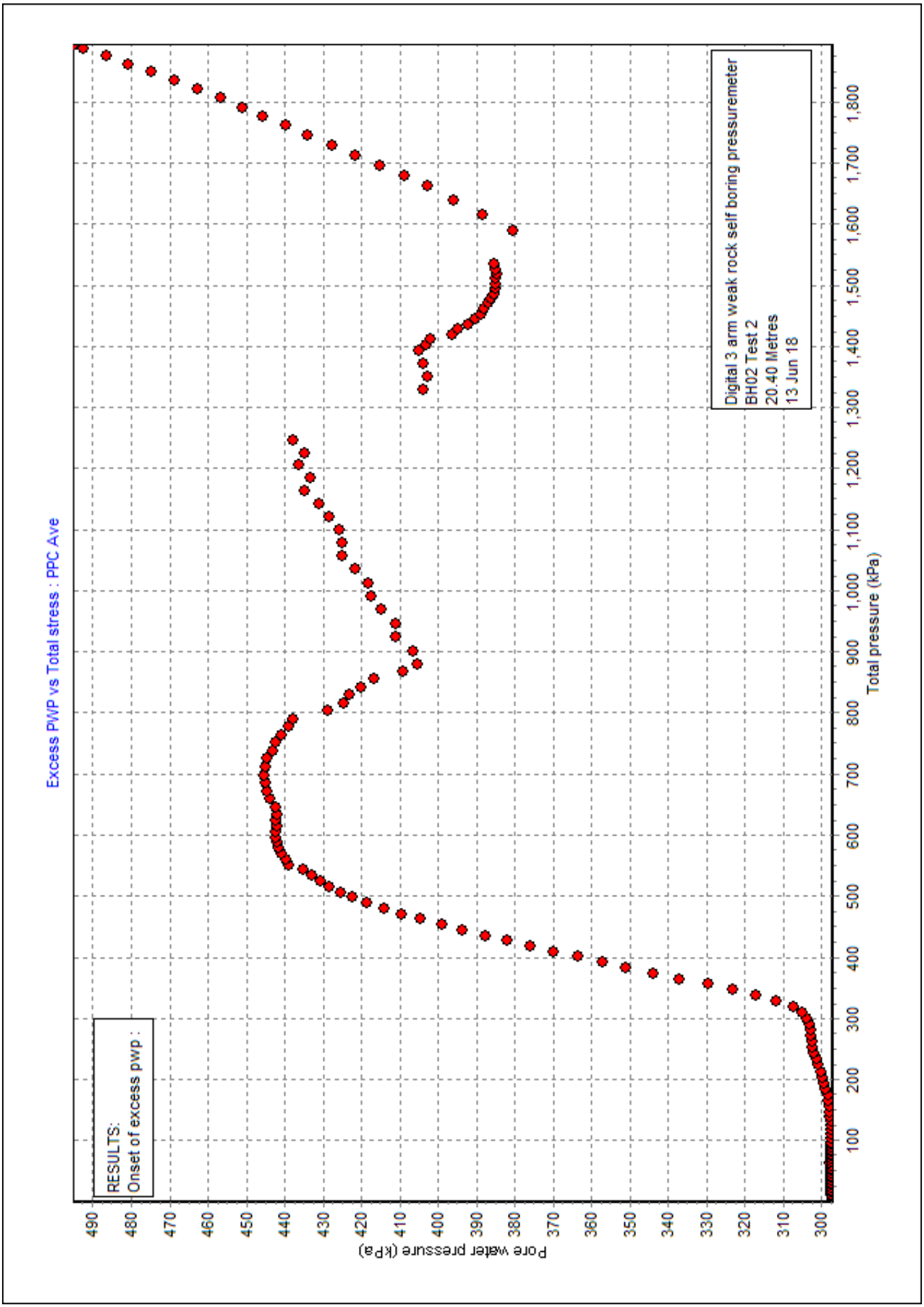
[UNDRAINED NON LINEAR INTERPRETATION OF SECANT SHEAR MODULUS]

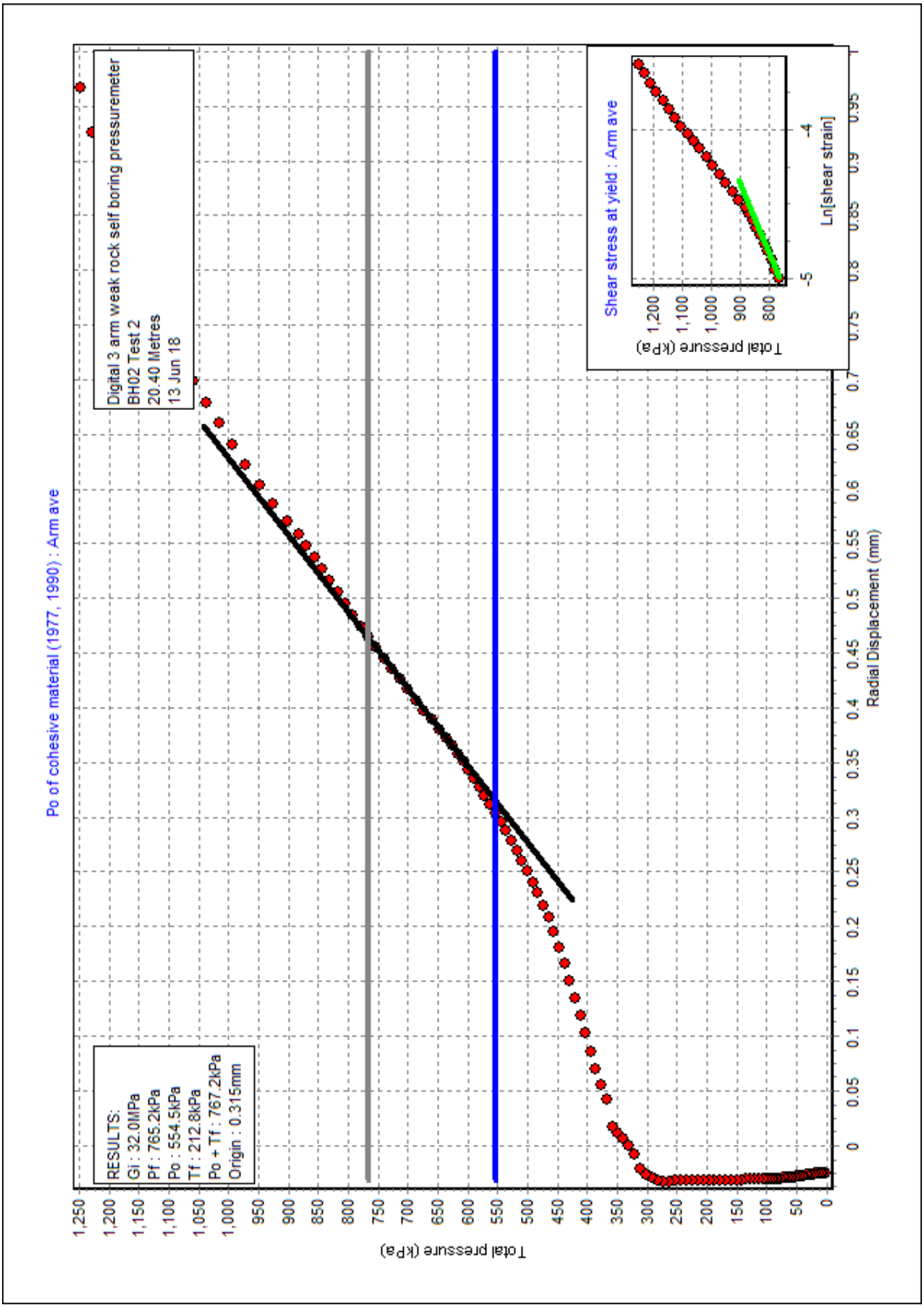
Axis	Loop No	Intercept (MPa)	Alpha (MPa)	Gradient
Arm ave	1	12.631	8.429	0.667
Arm ave	2	16.059	11.259	0.701
Arm ave	3	15.259	10.375	0.680

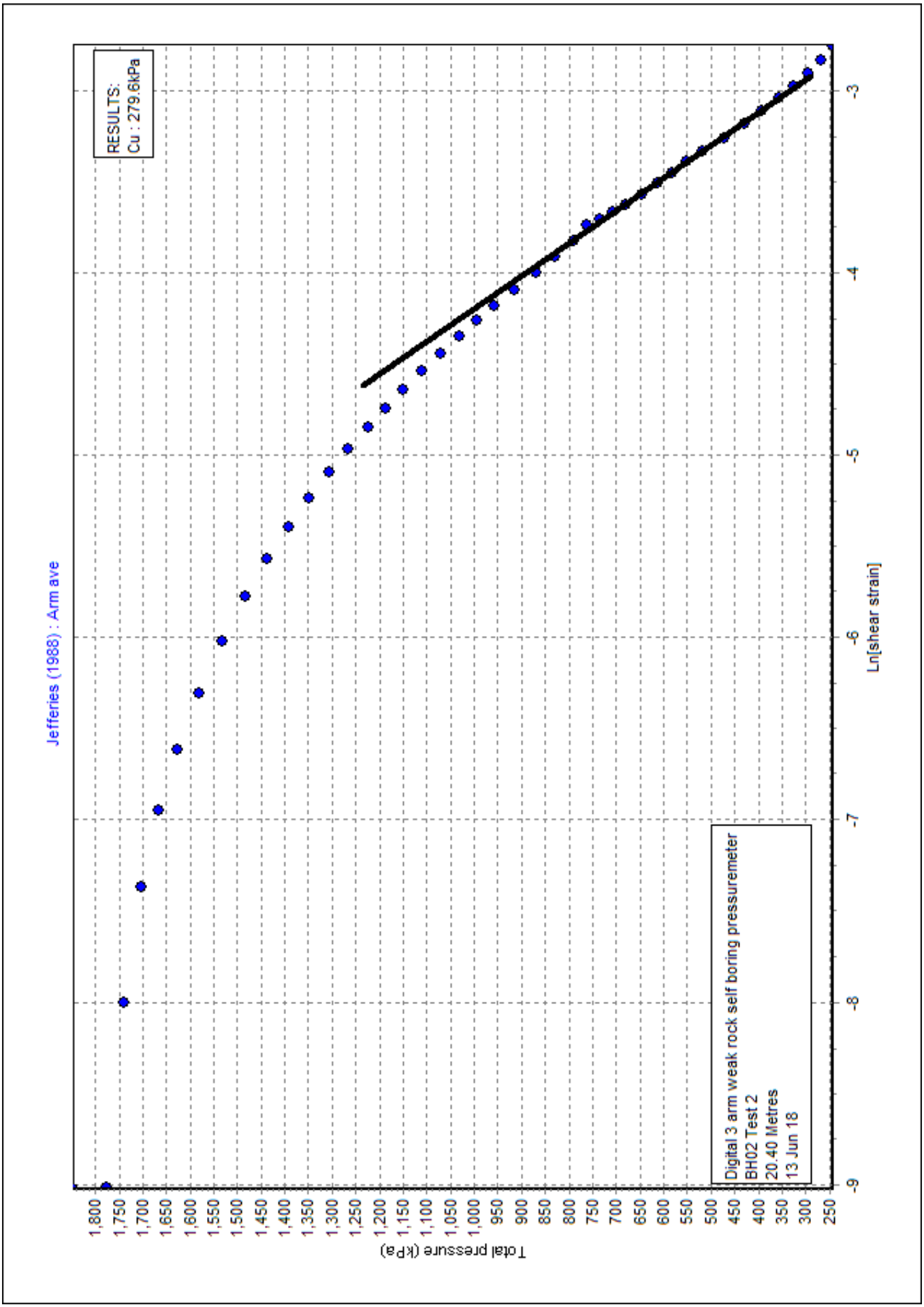
[PARAMETERS USED FOR UNDRAINED CURVE MODELLING]
{Axis is Arm ave}
Strain Origin (mm) : 0.87
Po (kPa) : 555
Cu (kPa) : 279.7
Limit pressure (kPa) : 2471
Non-linear exponent : 0.680
Calculated alpha (MPa) : 10.837
G at yield (MPa) : 60.6

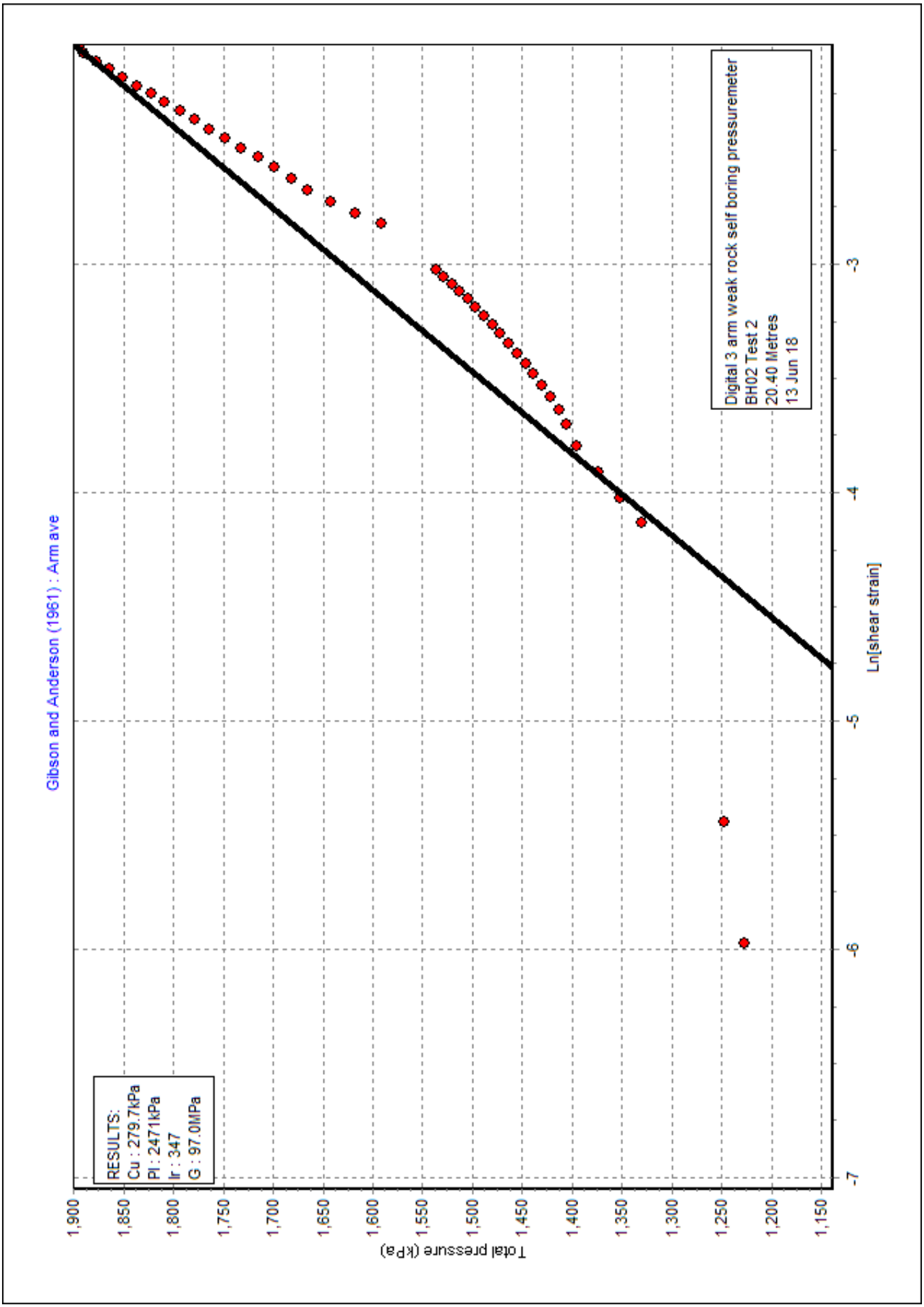

Cavity strain vs Total Pressure : Arm ave
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
Total pressure (kPa)
Cavity strain (%)
0
100
200
300
400
500
600
700
800
900
1,000
1,100
1,200
1,300
1,400
1,500
1,600
1,700
1,800
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5

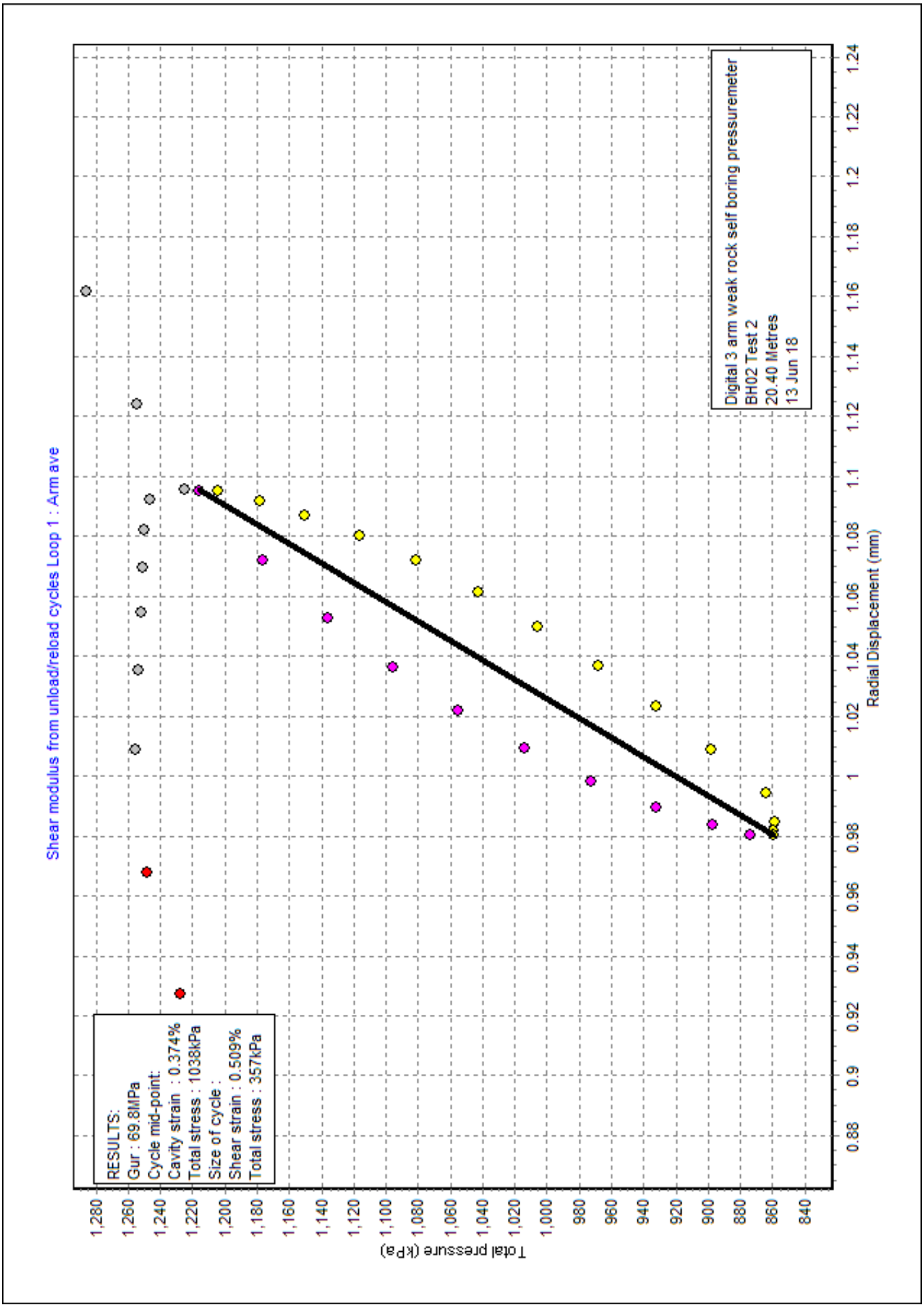

Lift-off analysis : Arm ave
RESULTS:
Lift off stress : 275.6kPa
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
Total pressure (kPa)
Radial Displacement (mm)
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45

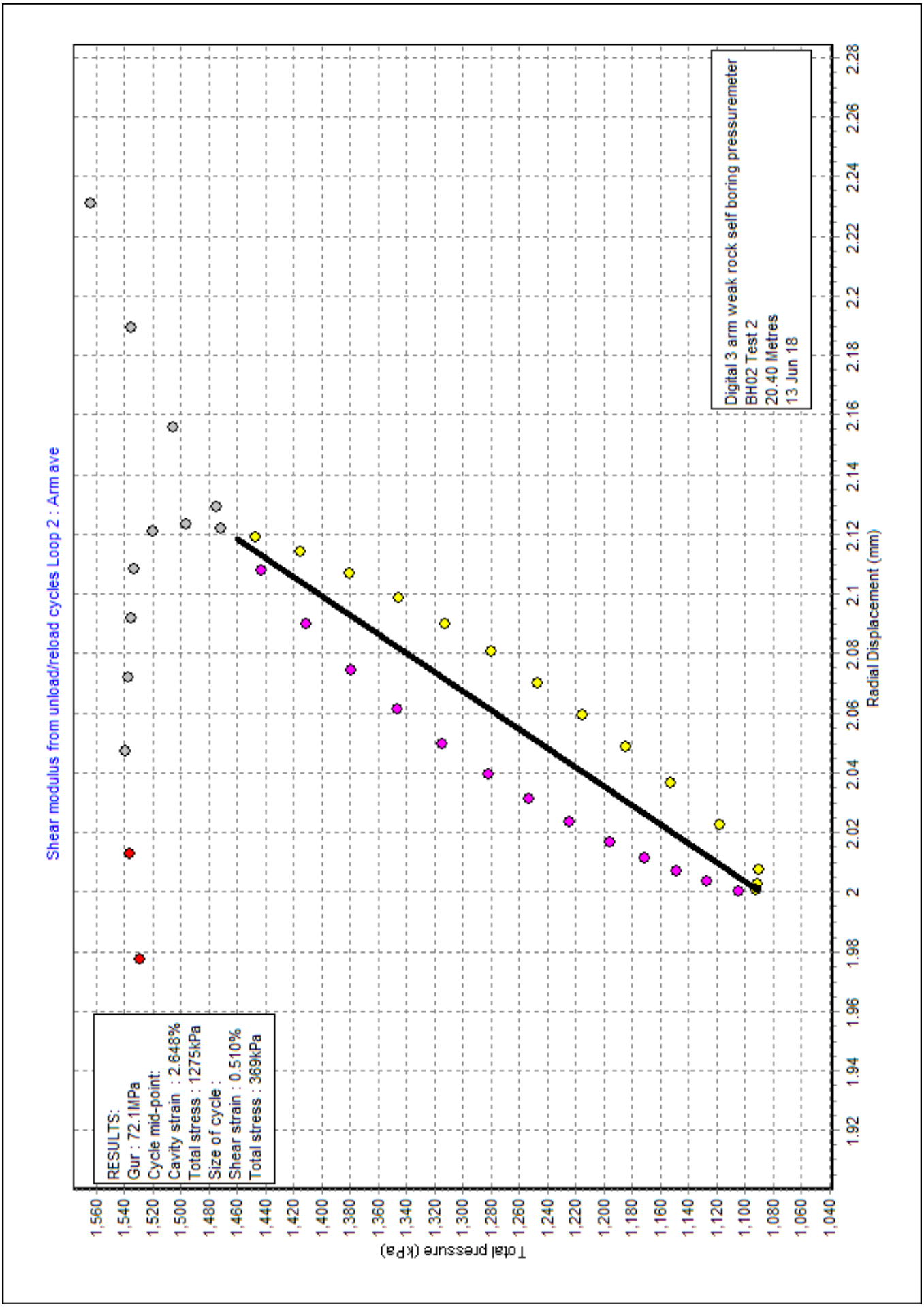

Excess PWP vs Total stress : PPC Ave
RESULTS:
Onset of excess pwp :
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
Pore water pressure (kPa)
Total pressure (kPa)
490
480
470
460
450
440
430
420
410
400
390
380
370
360
350
340
330
320
310
300
100
200
300
400
500
600
700
800
900
1,000
1,100
1,200
1,300
1,400
1,500
1,600
1,700
1,800

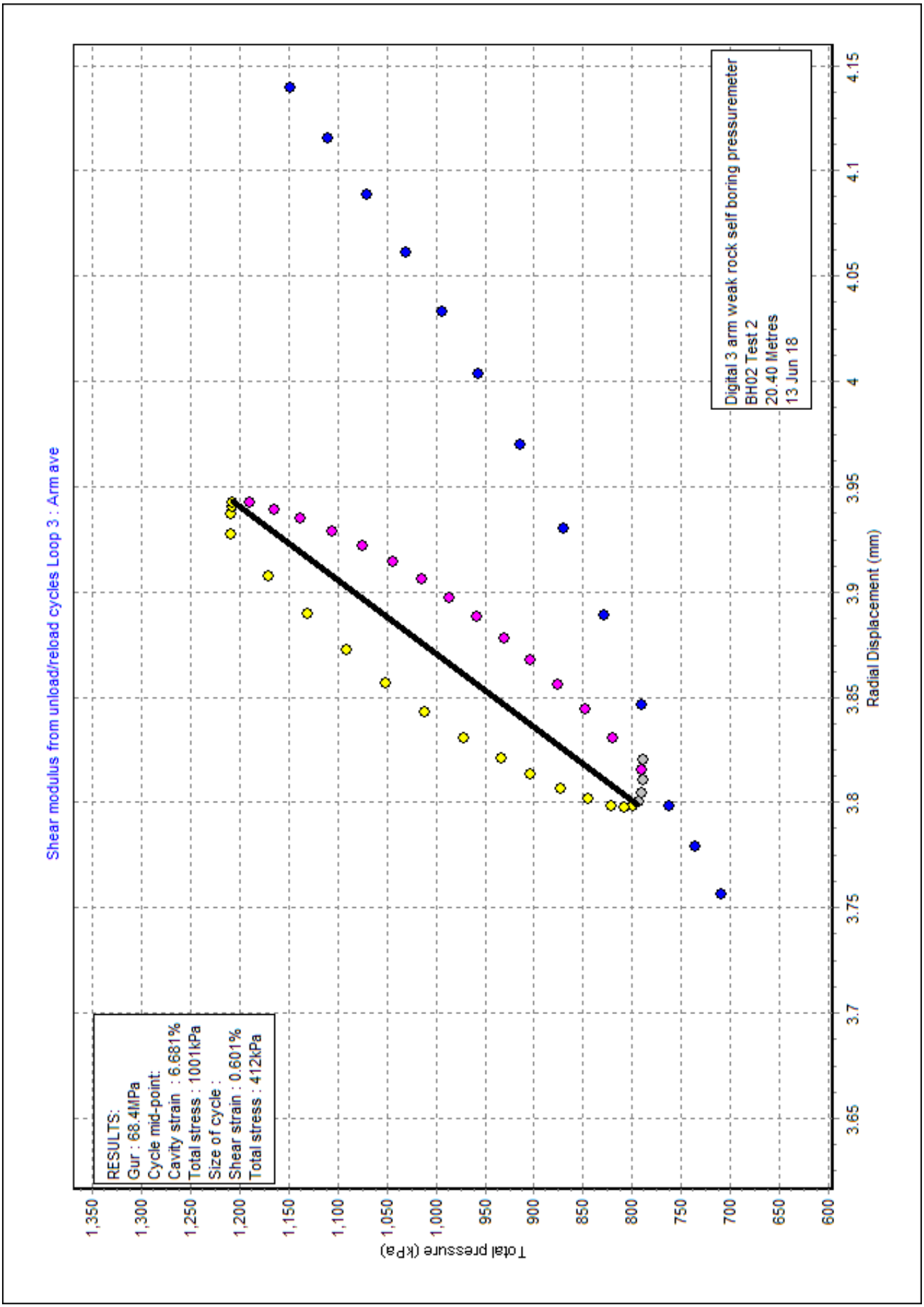

Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
RESULTS:
Gi : 32.0MPa
Pf : 765.2kPa
Po : 554.5kPa
Tf : 212.8kPa
Po + Tf : 767.2kPa
Origin : 0.315mm
Po of cohesive material (1977, 1990) : Arm ave
Total pressure (kPa)
Radial Displacement (mm)
Shear stress at yield : Arm ave
Total pressure (kPa)
Ln[shear strain]

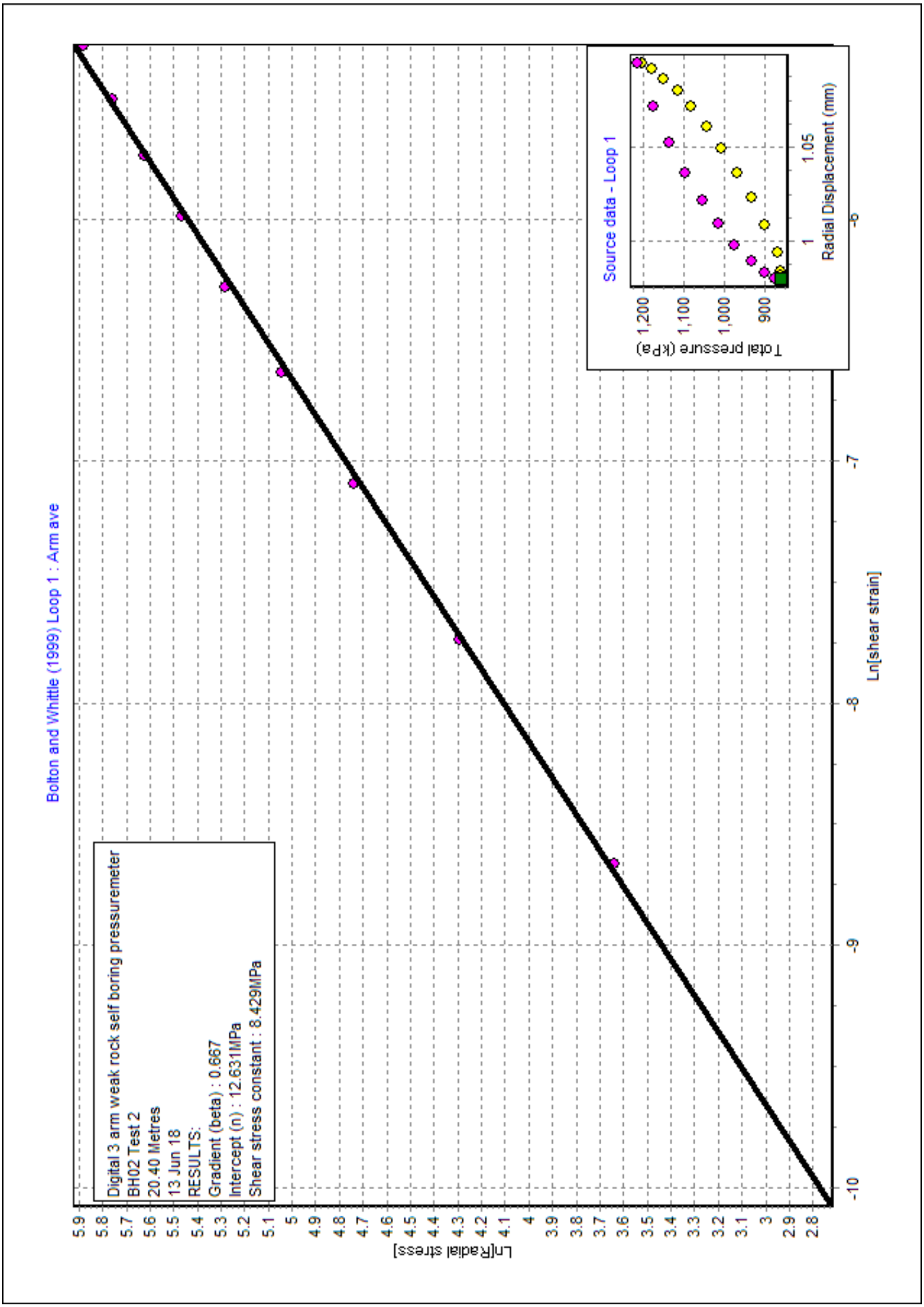

RESULTS:
Cu : 279.6kPa
Jefferies (1988) : Arm ave
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
Total pressure (kPa)
Ln[shear strain]
1,800
1,750
1,700
1,650
1,600
1,550
1,500
1,450
1,400
1,350
1,300
1,250
1,200
1,150
1,100
1,050
1,000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
-3
-4
-5
-6
-7
-8
-9

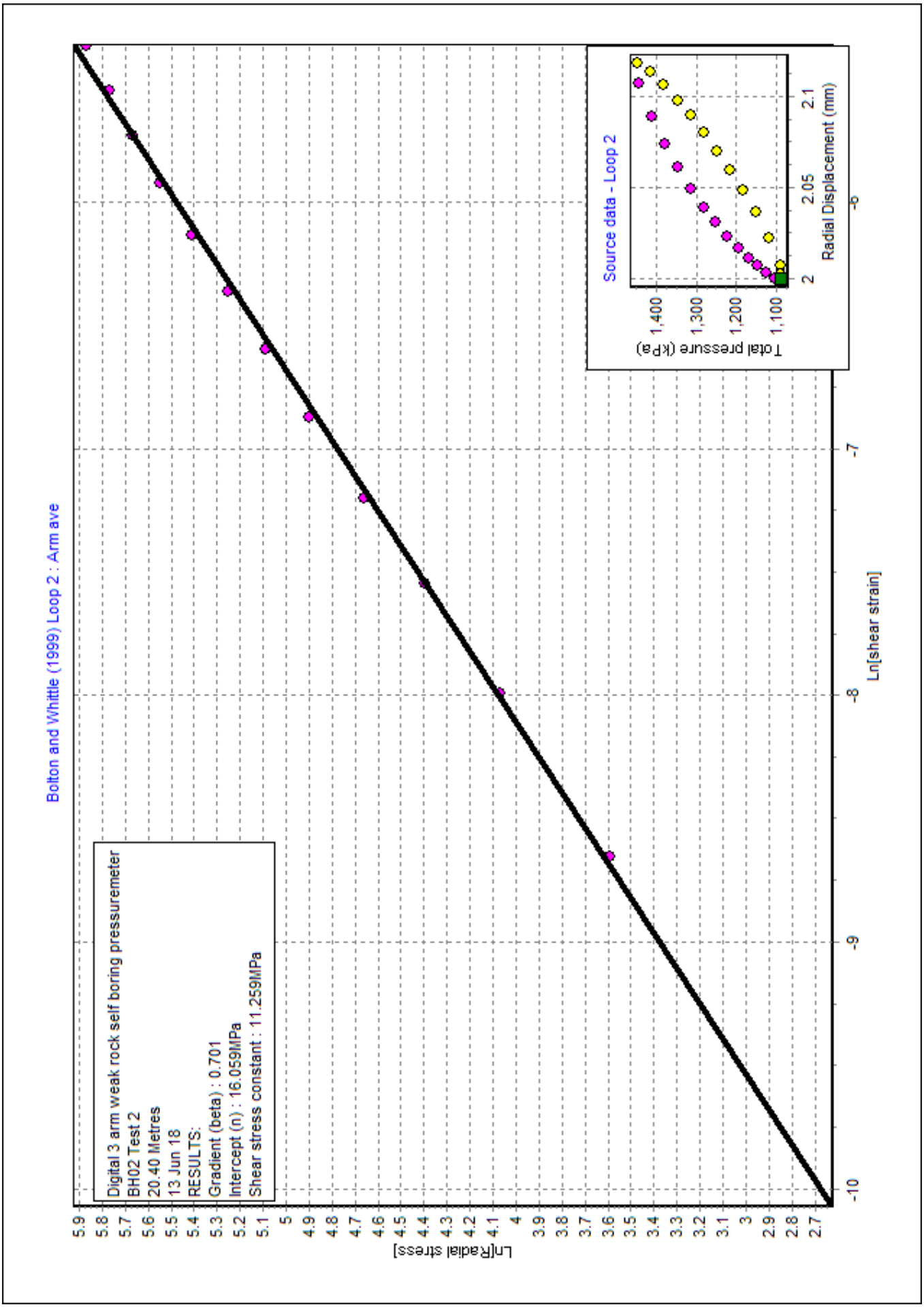

Gibson and Anderson (1961) : Arm ave
RESULTS:
Cu : 279.7kPa
Pl : 2471kPa
Ir : 347
G : 97.0MPa
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
Total pressure (kPa)
1,900
1,850
1,800
1,750
1,700
1,650
1,600
1,550
1,500
1,450
1,400
1,350
1,300
1,250
1,200
1,150
Ln[shear strain]
-3
-4
-5
-6
-7

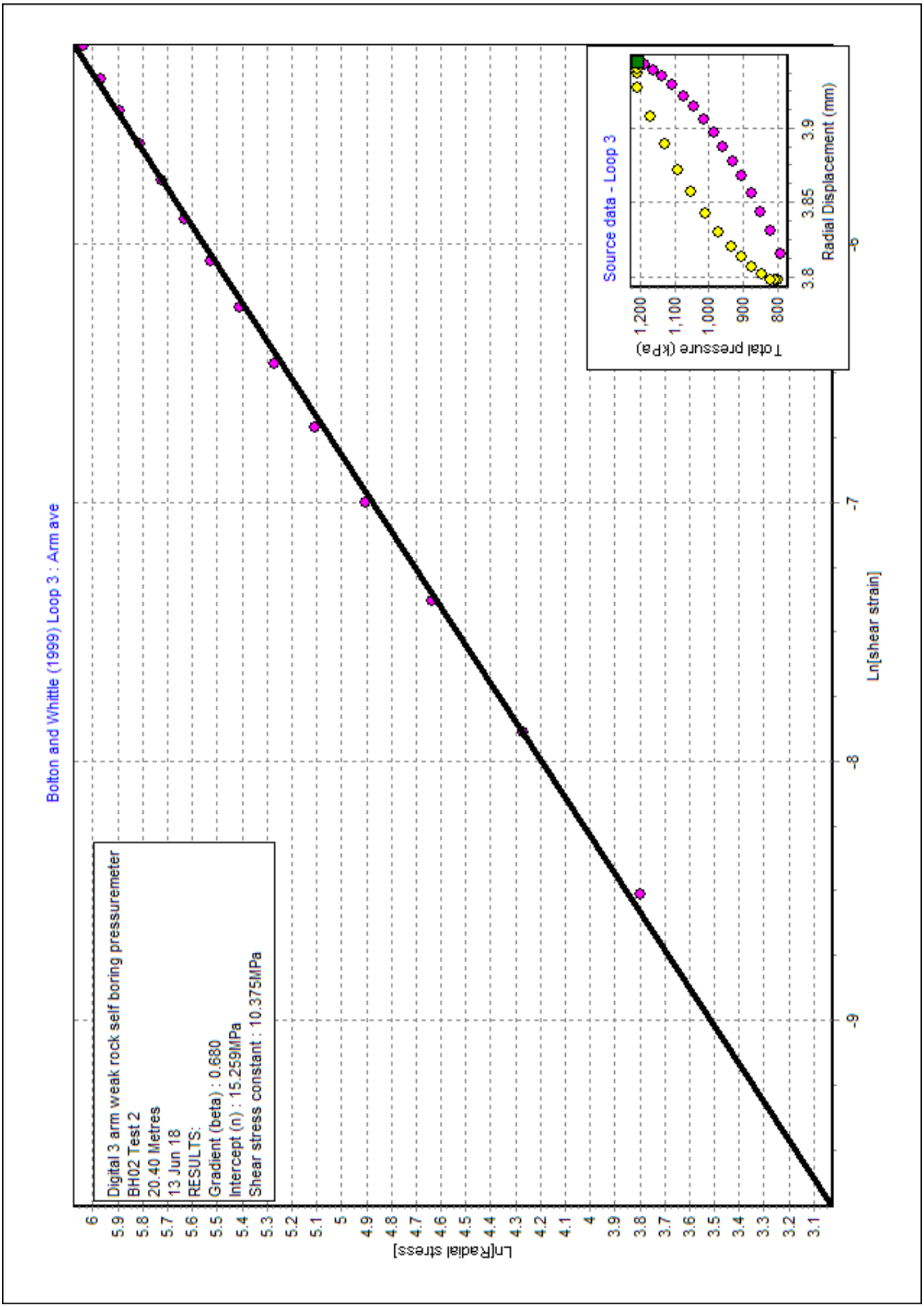

Shear modulus from unload/reload cycles Loop 1 : Arm ave
RESULTS:
Gur : 69.8MPa
Cycle mid-point:
Cavity strain : 0.374%
Total stress : 1038kPa
Size of cycle :
Shear strain : 0.509%
Total stress : 357kPa
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
Total pressure (kPa)
Radial Displacement (mm)

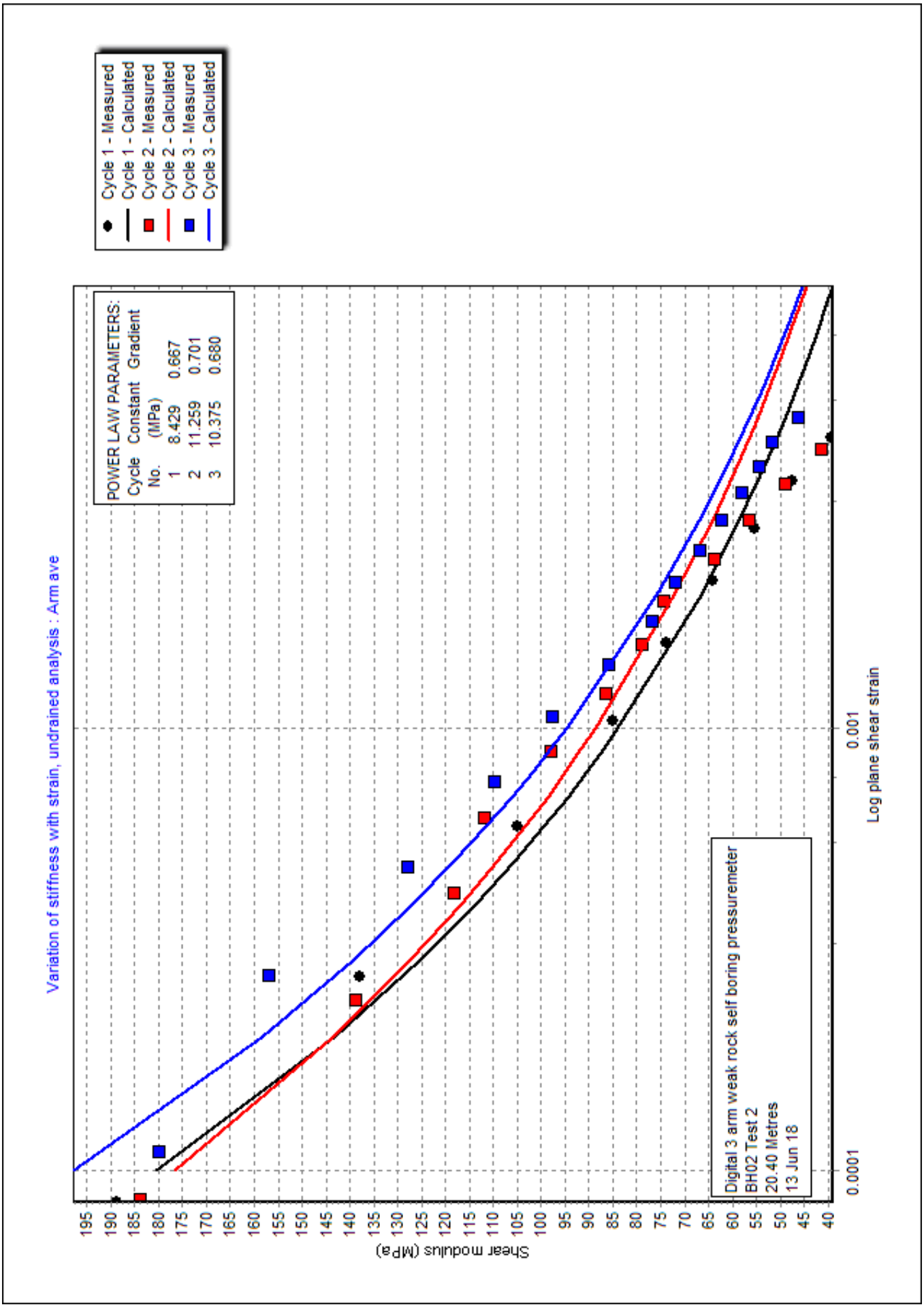

Shear modulus from unload/reload cycles Loop 2 : Arm ave
RESULTS:
Gur : 72.1MPa
Cycle mid-point:
Cavity strain : 2.648%
Total stress : 1275kPa
Size of cycle :
Shear strain : 0.510%
Total stress : 369kPa
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
Total pressure (kPa)
Radial Displacement (mm)

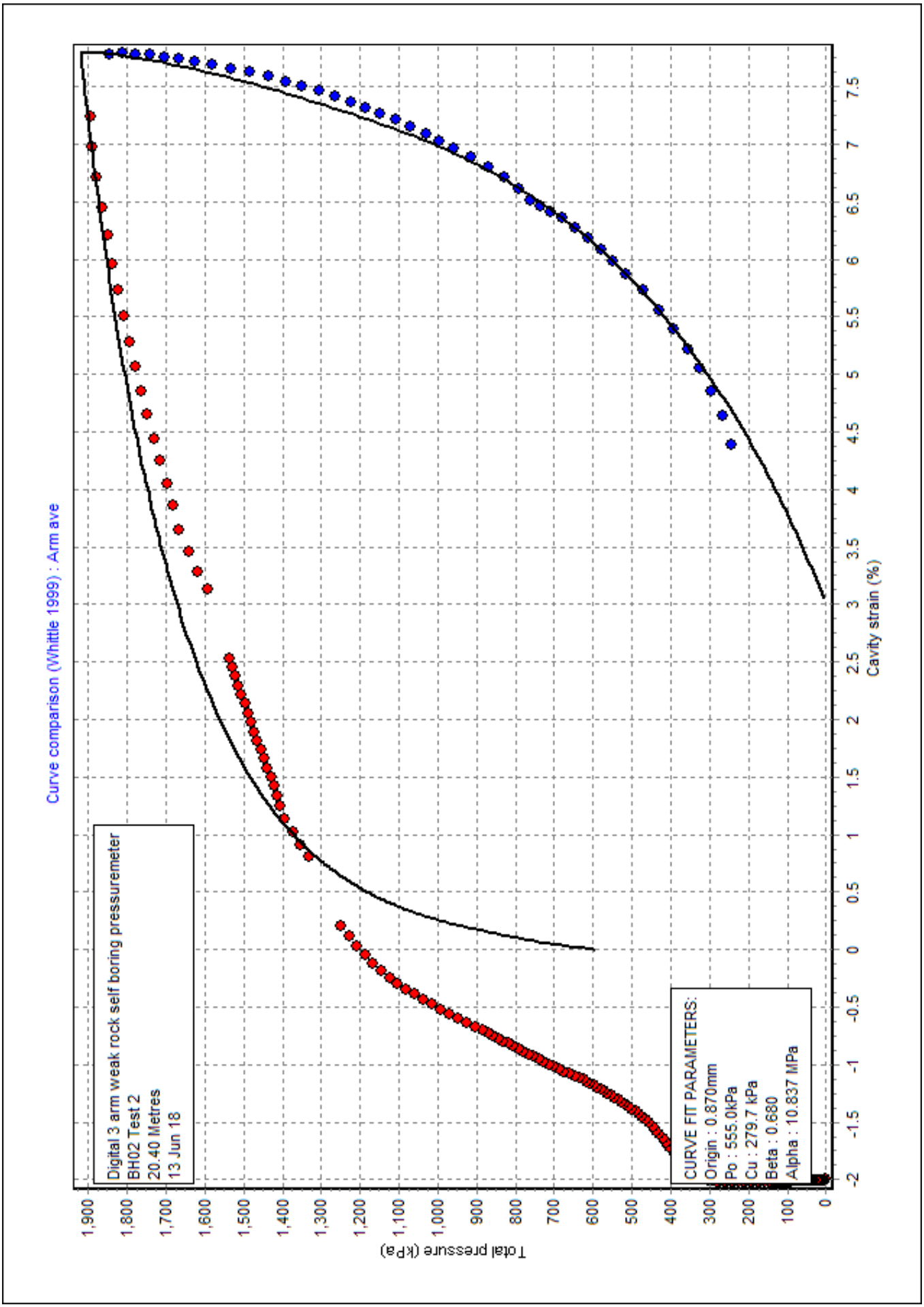

Shear modulus from unload/reload cycles Loop 3 : Arm ave
RESULTS:
Gur : 68.4MPa
Cycle mid-point:
Cavity strain : 6.681%
Total stress : 1001kPa
Size of cycle :
Shear strain : 0.601%
Total stress : 412kPa
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
Total pressure (kPa)
Radial Displacement (mm)
1,350
1,300
1,250
1,200
1,150
1,100
1,050
1,000
950
900
850
800
750
700
650
600
3.65
3.7
3.75
3.8
3.85
3.9
3.95
4
4.05
4.1
4.15


Bolton and Whittle (1999) Loop 1 : Arm ave
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
RESULTS:
Gradient (beta) : 0.667
Intercept (n) : 12.631MPa
Shear stress constant : 8.429MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 1
Total pressure (kPa)
Radial Displacement (mm)


Bolton and Whittle (1999) Loop 2 : Arm ave
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
RESULTS:
Gradient (beta) : 0.701
Intercept (n) : 16.059MPa
Shear stress constant : 11.259MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 2
Total pressure (kPa)
Radial Displacement (mm)


Bolton and Whittle (1999) Loop 3 : Arm ave
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
RESULTS:
Gradient (beta) : 0.680
Intercept (n) : 15.259MPa
Shear stress constant : 10.375MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 3
Total pressure (kPa)
Radial Displacement (mm)


Cycle 1 - Measured
Cycle 1 - Calculated
Cycle 2 - Measured
Cycle 2 - Calculated
Cycle 3 - Measured
Cycle 3 - Calculated
POWER LAW PARAMETERS:
Cycle No. Constant (MPa) Gradient
1 8.429 0.667
2 11.259 0.701
3 10.375 0.680
Variation of stiffness with strain, undrained analysis : Arm ave
Shear modulus (MPa)
Log plane shear strain
0.0001
0.001
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18


Curve comparison (Whittle 1999) : Arm ave
Digital 3 arm weak rock self boring pressuremeter
BH02 Test 2
20.40 Metres
13 Jun 18
CURVE FIT PARAMETERS:
Origin : 0.870mm
Po : 555.0kPa
Cu : 279.7 kPa
Beta : 0.680
Alpha : 10.837 MPa
Total pressure (kPa)
Cavity strain (%)

Great Yarmouth Third River Crossing

Borehole: MB09

Date: 13th July 2018

Revision No: 1

Pressuremeter tests

Preliminary analysis

Report reference: CIR1420/18

Cambridge Insitu Limited

MB09 Test 1 - SUMMARY OF RESULTS
[File made with WinSitu Version 3.9.1.1]

[DETAILS OF TEST]
Project :
Site : Gt Yarmouth 3RC
Borehole : MB09
Test name : MB09 Test 1
Test date : 3 Jul 18
Test depth : 23.00 Metres
Water table : Nothing entered
Ambient PWP : Nothing entered
Material : Sandy clay
Probe : Digital 3 arm weak rock self boring pressuremeter
Diameter : 88.1 mm
Data analysed using average arm displacement curve
A non-linear analysis of the rebound cycles has been carried out

Analysed by SDB on 13 Jul 18

Remarks:

[RESULTS FOR CAVITY REFERENCE PRESSURE]
Strain Origin (mm) : "Arm ave=0.20"
Po from Marsland & Randolph (kPa) : "Arm ave=587.5"
Po from Lift off (kPa) : "Arm ave=359.4"
Best estimate of Po (kPa) : "Arm ave=587.0"

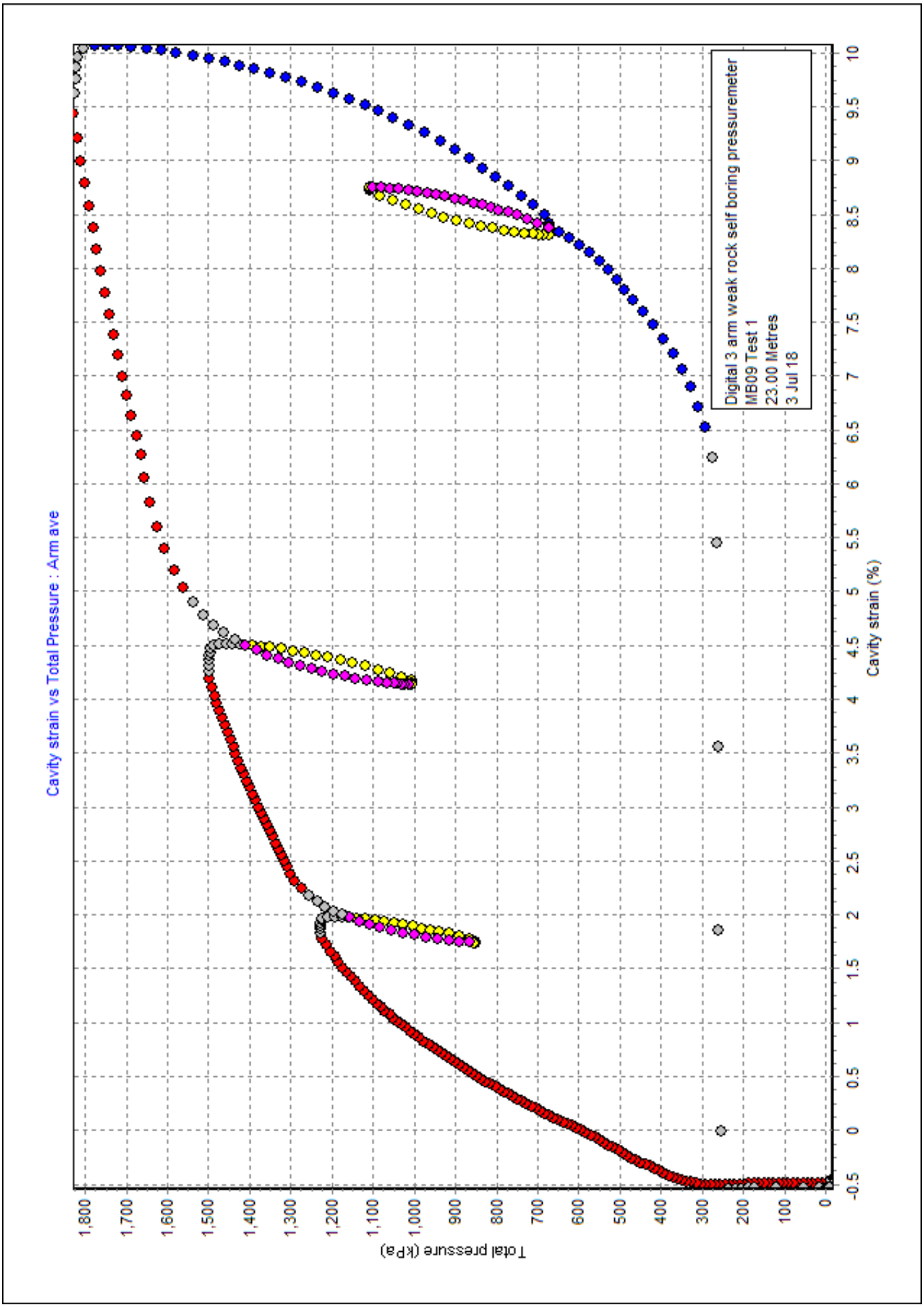
[UNDRAINED STRENGTH PARAMETERS]
Gibson & Anderson 1961 - Cu (kPa) : "Arm ave=389.1"
Limit pressure (kPa) : "Arm ave=2531"
Jefferies 1988 - Cu (kPa) : "Arm ave=240.6"
Undrained yield stress (kPa) : "Arm ave=680.9"

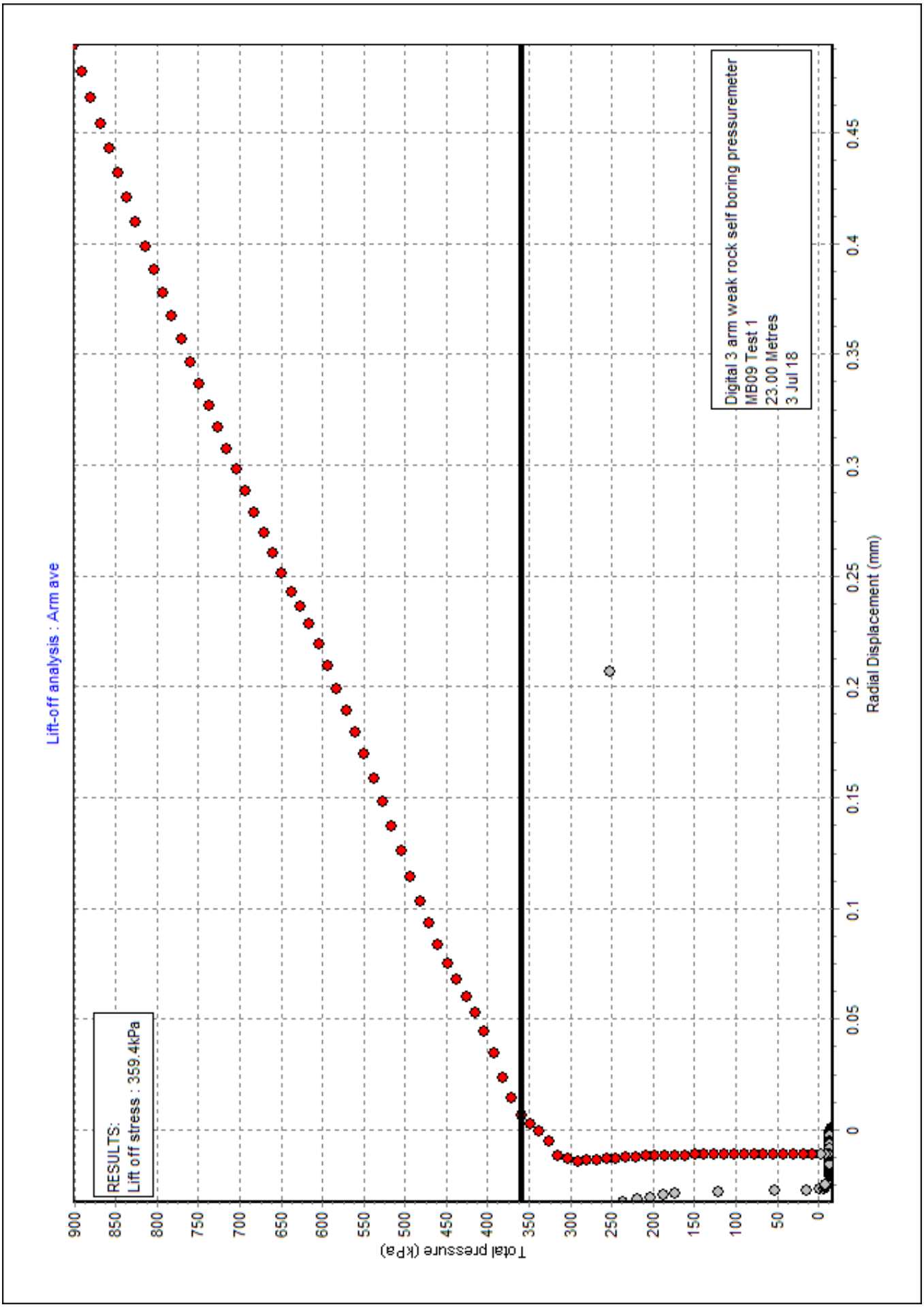
[LINEAR INTERPRETATION OF SHEAR MODULUS G]
Initial slope shear modulus (MPa) :"Arm ave=29.4"

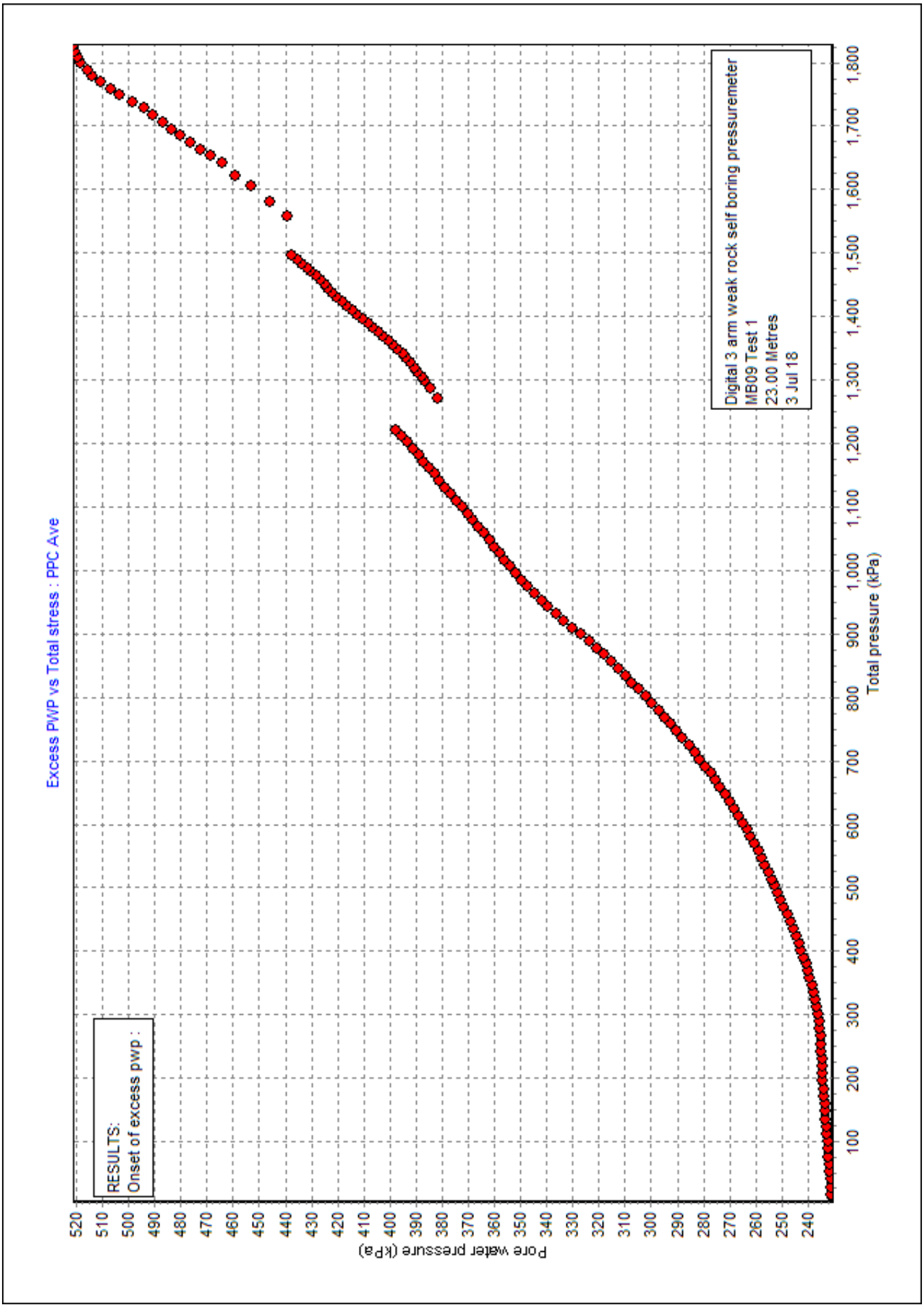
Axis	Loop No	Value (MPa)	Mean Strain (%)	Mean Pc (kPa)	dE (%)	dPc (kPa)
Arm ave	1	67.6	1.868	1005	0.453	307
Arm ave	2	58.1	4.331	1206	0.693	404
Arm ave	3	53.4	8.541	891	0.809	434

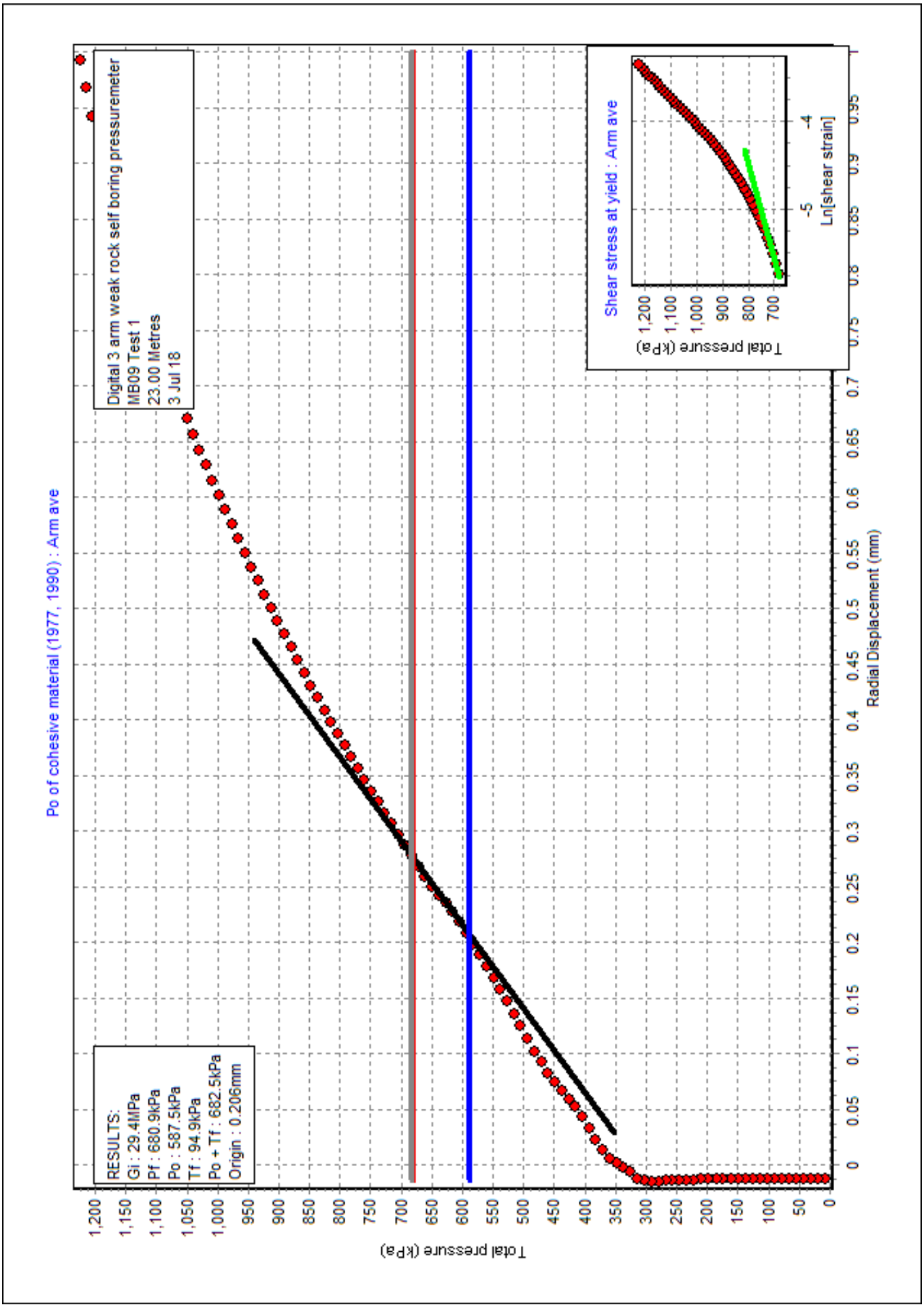
[UNDRAINED NON LINEAR INTERPRETATION OF SECANT SHEAR MODULUS]

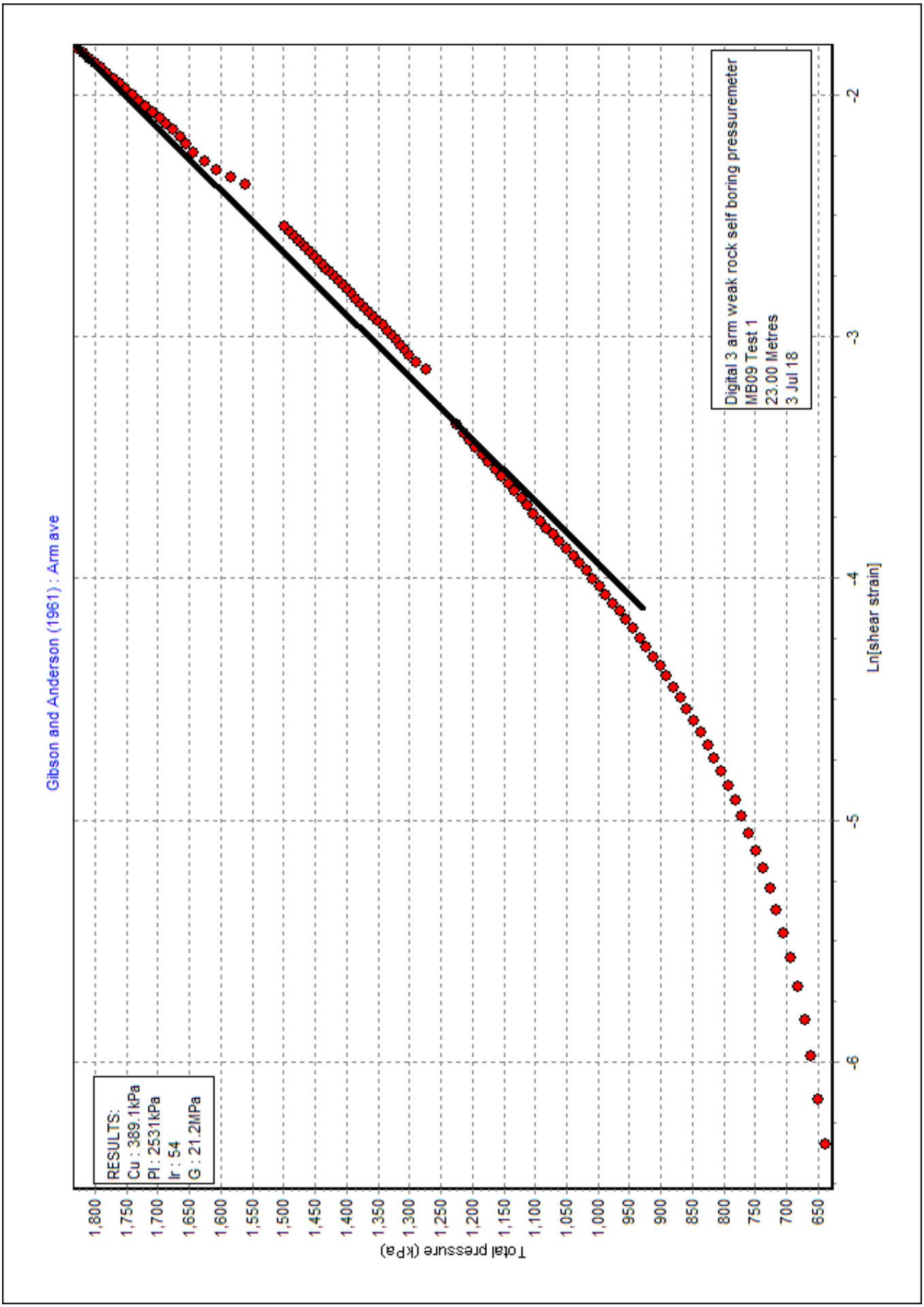
Axis	Loop No	Intercept (MPa)	Alpha (MPa)	Gradient
Arm ave	1	9.602	6.106	0.636
Arm ave	2	12.102	8.086	0.668
Arm ave	3	11.007	7.055	0.641

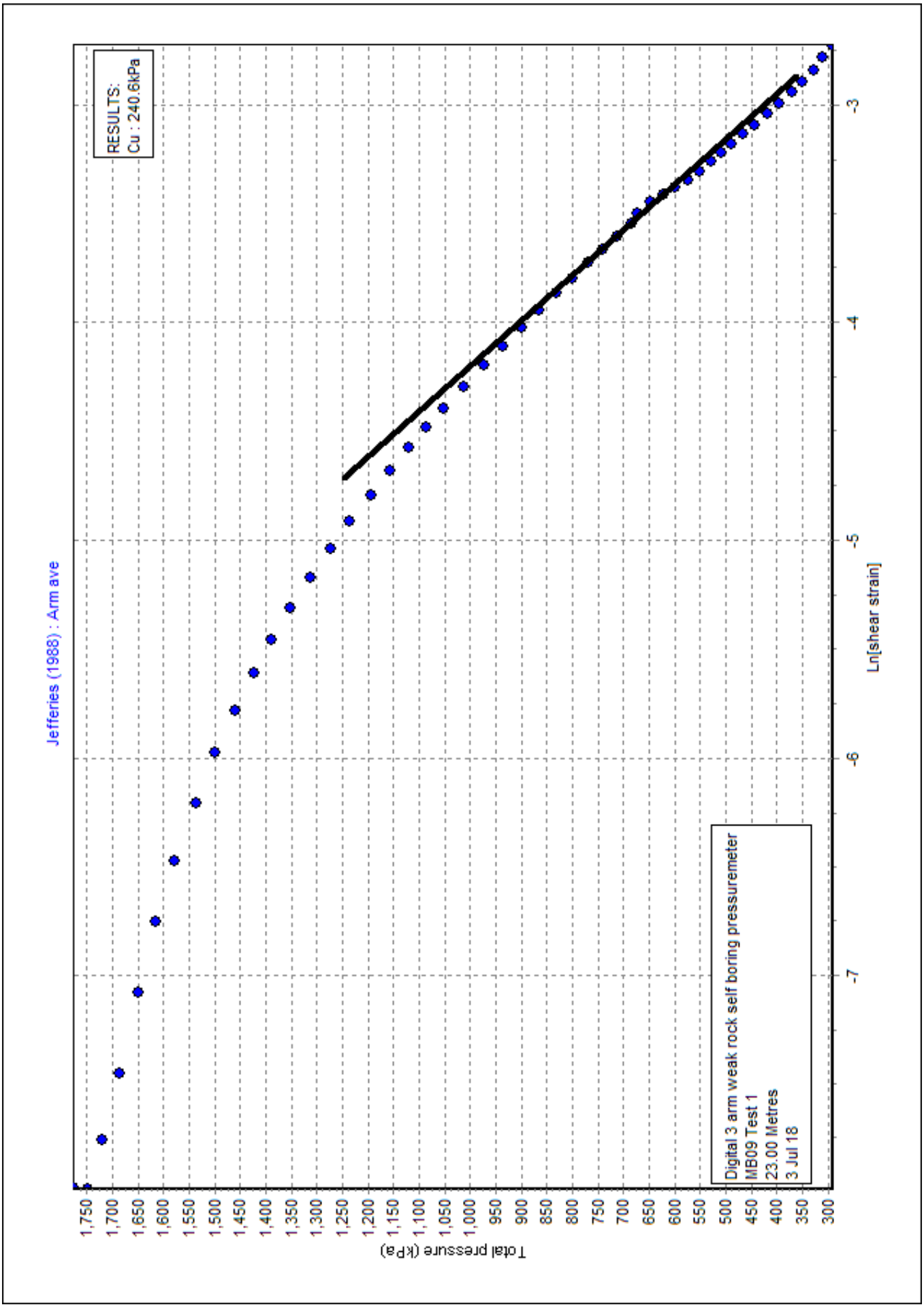

Cavity strain vs Total Pressure : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
Total pressure (kPa)
Cavity strain (%)
1,800
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
-0.5
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5
9
9.5
10

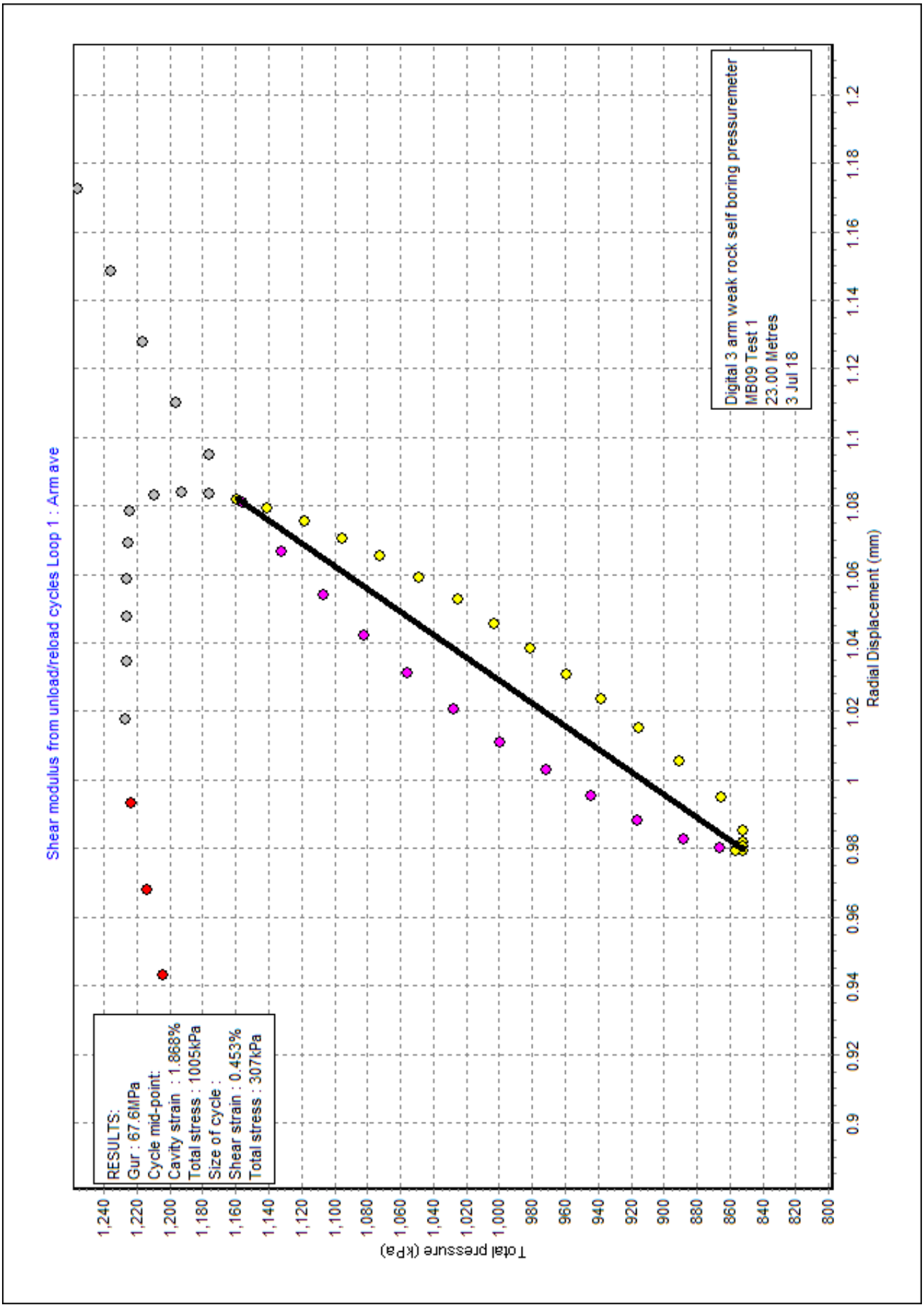

Lift-off analysis : Arm ave
RESULTS:
Lift off stress : 359.4kPa
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
Total pressure (kPa)
Radial Displacement (mm)
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0

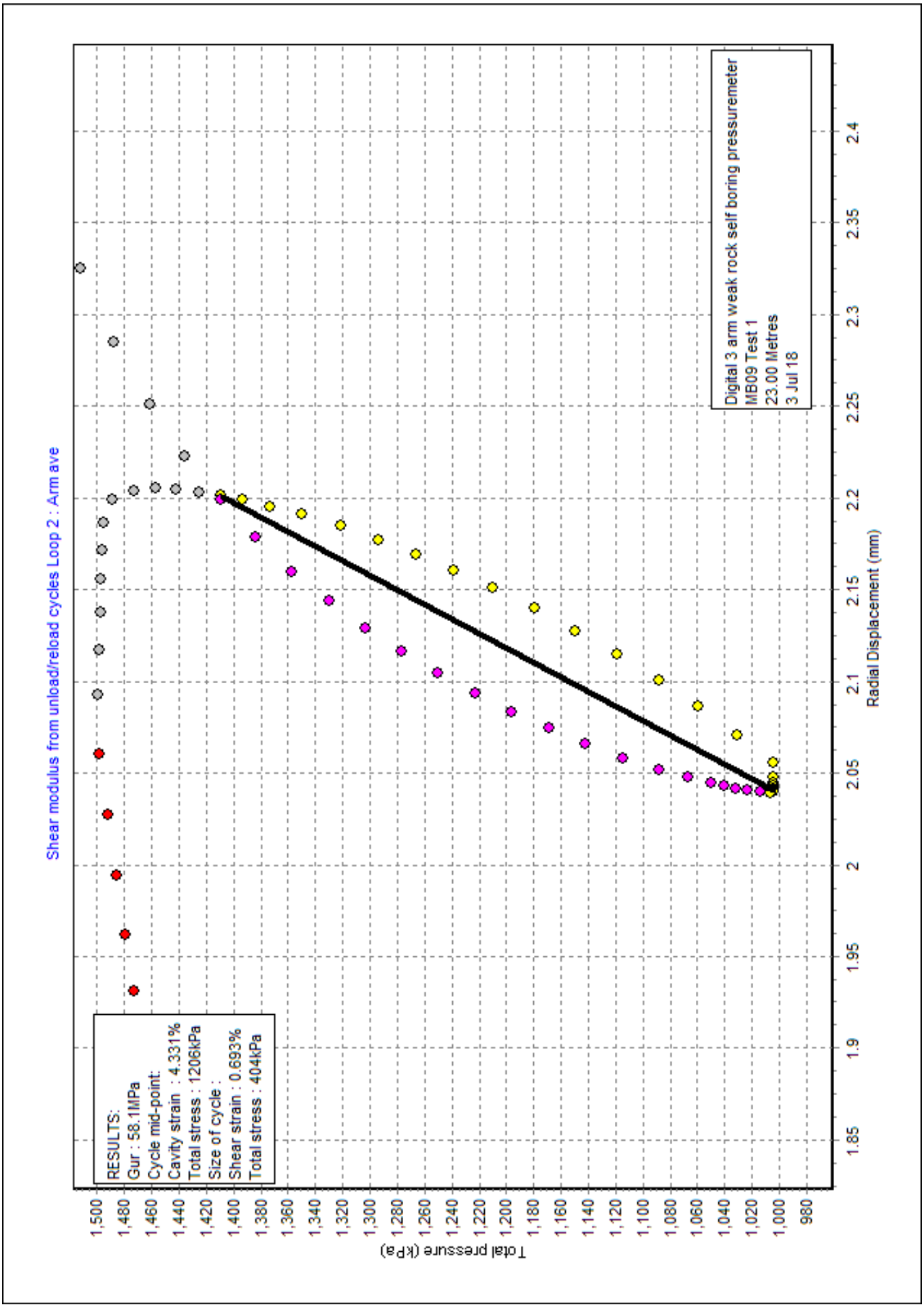

Excess PWP vs Total stress : PPC Ave
RESULTS:
Onset of excess pwp :
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
Pore water pressure (kPa)
Total pressure (kPa)
520
510
500
490
480
470
460
450
440
430
420
410
400
390
380
370
360
350
340
330
320
310
300
290
280
270
260
250
240
100
200
300
400
500
600
700
800
900
1,000
1,100
1,200
1,300
1,400
1,500
1,600
1,700
1,800

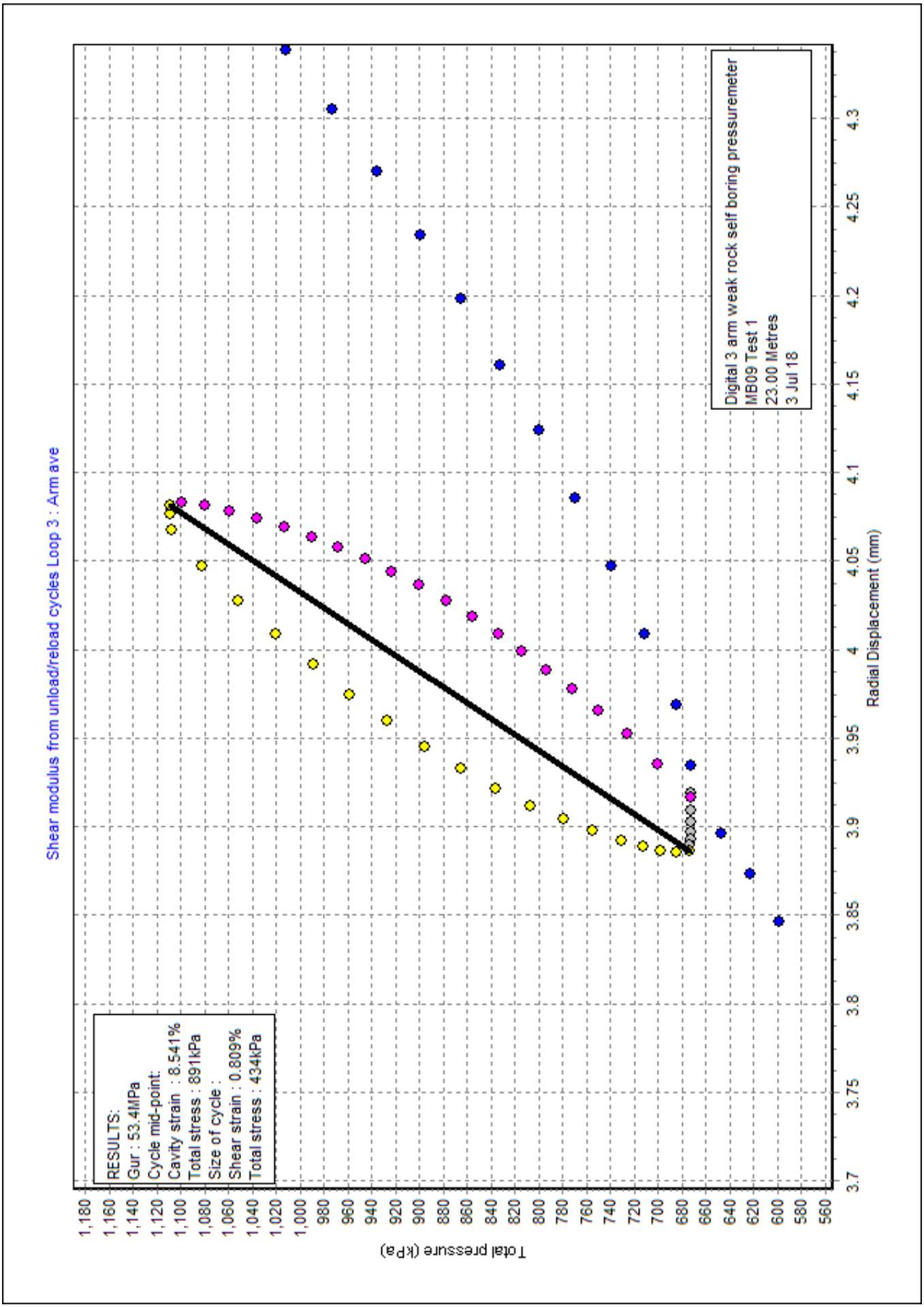

Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
RESULTS:
Gi : 29.4MPa
Pf : 680.9kPa
Po : 587.5kPa
Tf : 94.9kPa
Po + Tf : 682.5kPa
Origin : 0.206mm
Po of cohesive material (1977, 1990) : Arm ave
Total pressure (kPa)
Radial Displacement (mm)
Shear stress at yield : Arm ave
Total pressure (kPa)
Ln[shear strain]

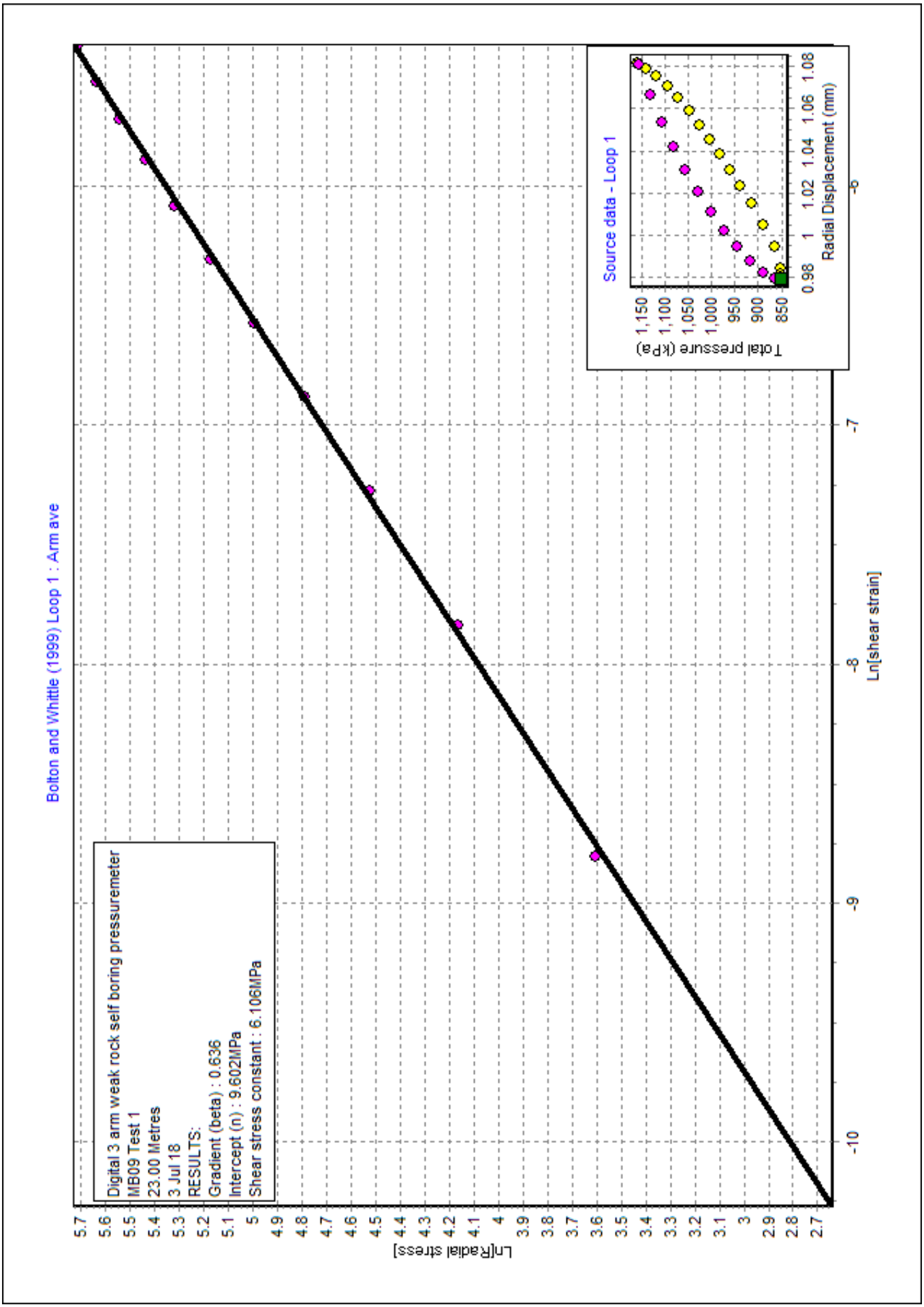

Gibson and Anderson (1961) : Arm ave
RESULTS:
Cu : 389.1kPa
Pl : 2531kPa
Ir : 54
G : 21.2MPa
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
Total pressure (kPa)
Ln[shear strain]
1,800
1,750
1,700
1,650
1,600
1,550
1,500
1,450
1,400
1,350
1,300
1,250
1,200
1,150
1,100
1,050
1,000
950
900
850
800
750
700
650
-2
-3
-4
-5
-6

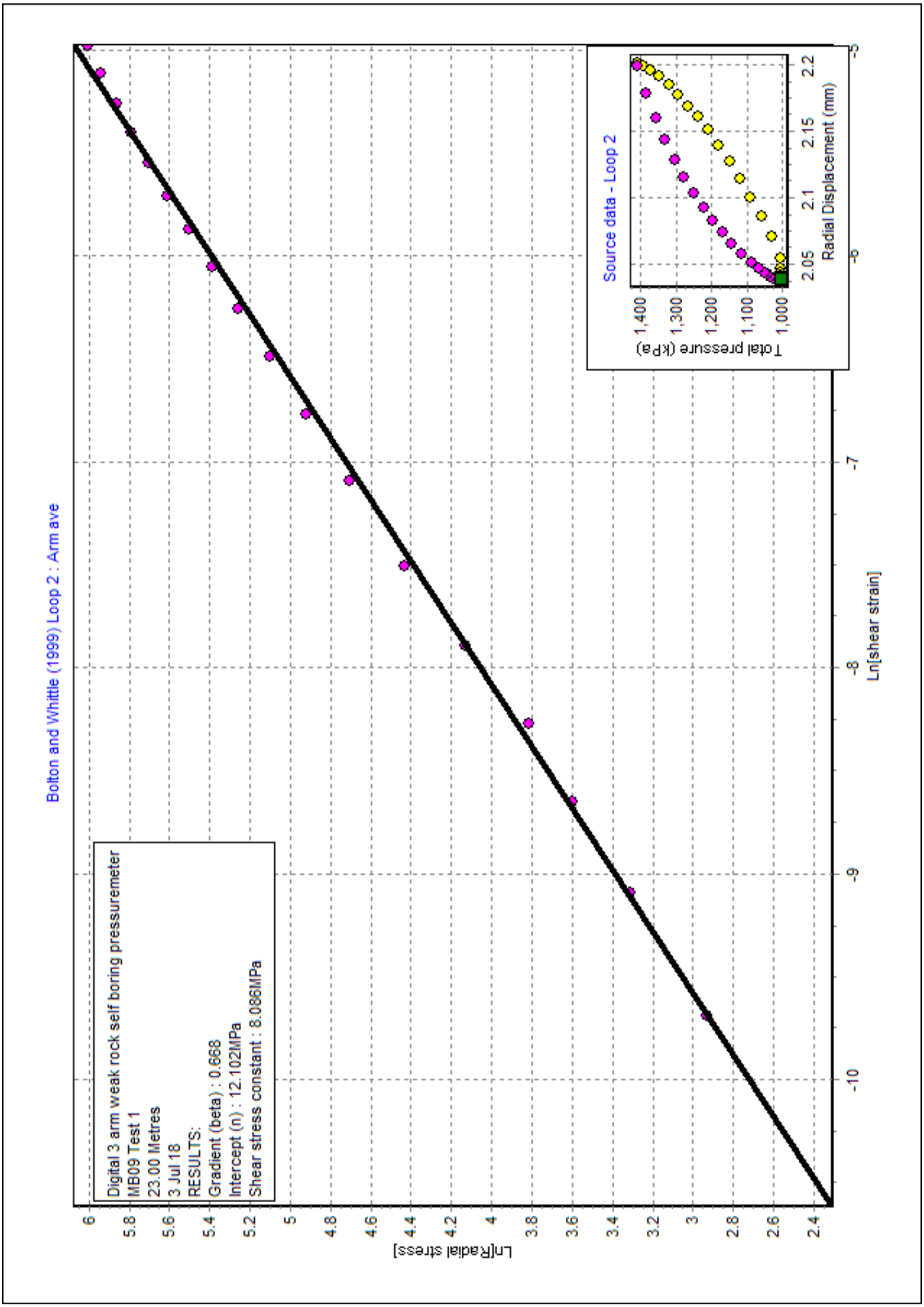

RESULTS:
Cu : 240.6kPa
Jefferies (1988) : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
Total pressure (kPa)
Ln[shear strain]
1,750
1,700
1,650
1,600
1,550
1,500
1,450
1,400
1,350
1,300
1,250
1,200
1,150
1,100
1,050
1,000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
-3
-4
-5
-6
-7

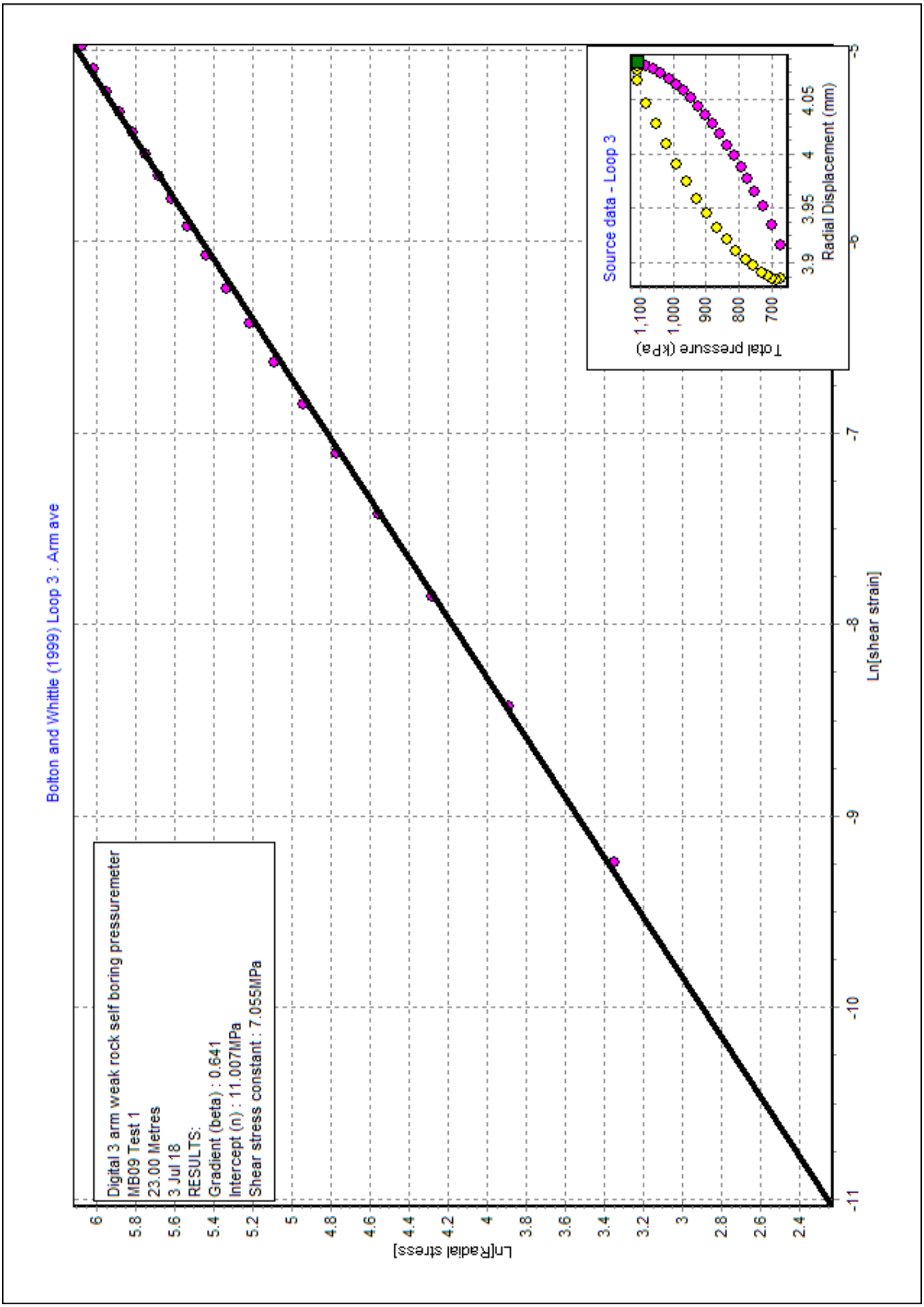

Shear modulus from unload/reload cycles Loop 1 : Arm ave
RESULTS:
Gur : 67.6MPa
Cycle mid-point:
Cavity strain : 1.868%
Total stress : 1005kPa
Size of cycle :
Shear strain : 0.453%
Total stress : 307kPa
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
Total pressure (kPa)
Radial Displacement (mm)

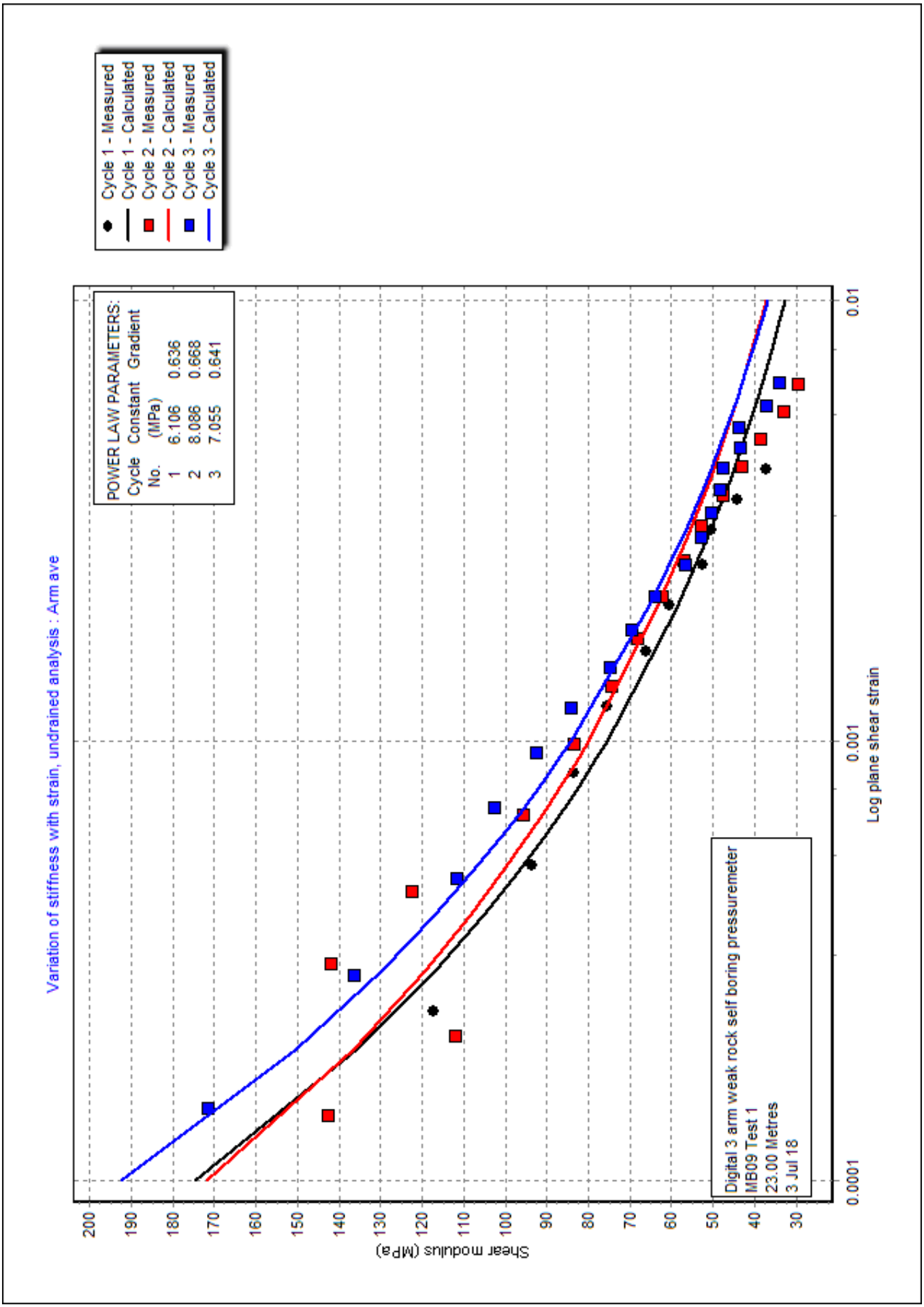

Shear modulus from unload/reload cycles Loop 2 : Arm ave
Total pressure (kPa)
Radial Displacement (mm)
RESULTS:
Gur : 58.1MPa
Cycle mid-point:
Cavity strain : 4.331%
Total stress : 1206kPa
Size of cycle :
Shear strain : 0.693%
Total stress : 404kPa
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18

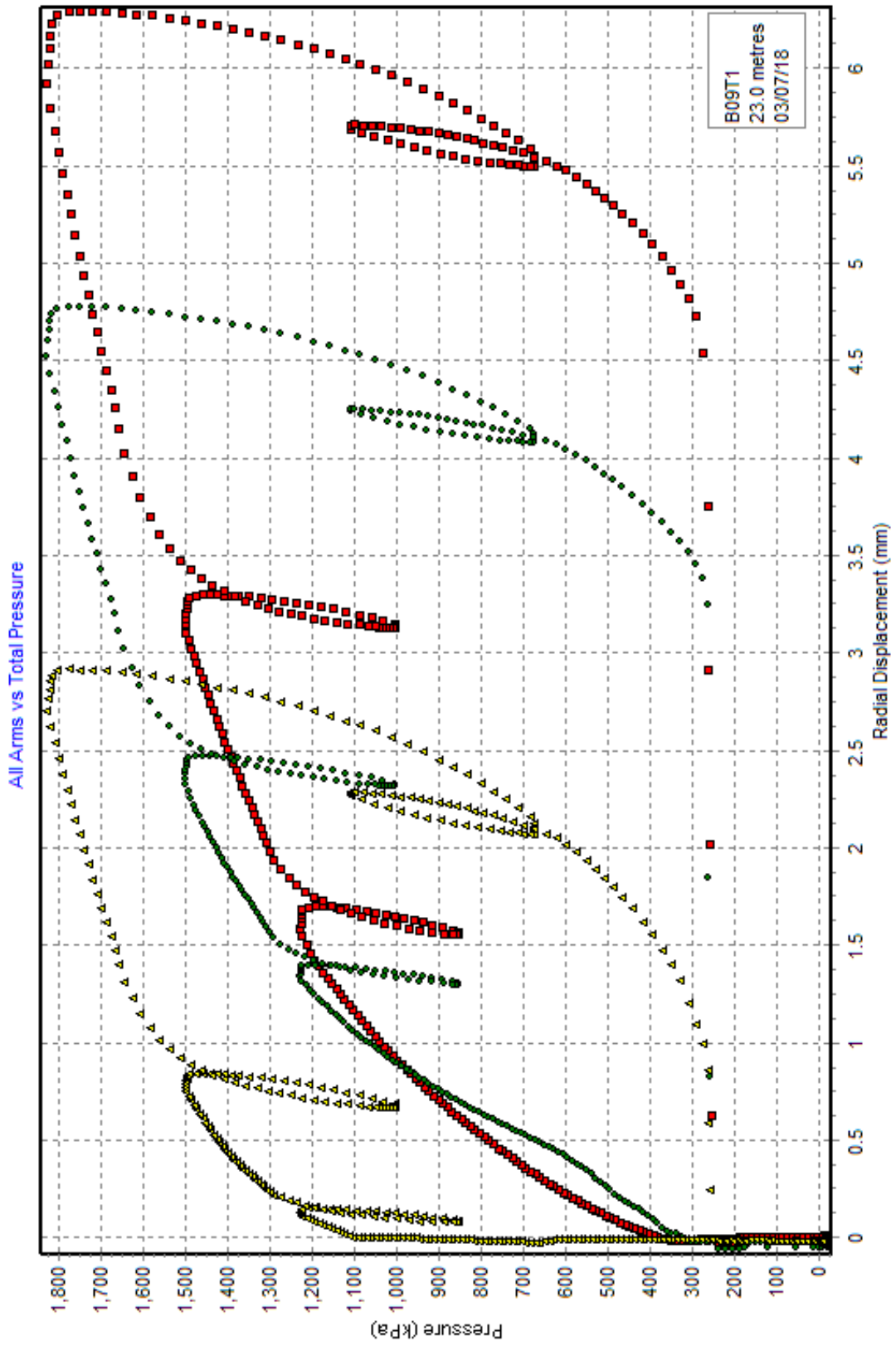

Shear modulus from unload/reload cycles Loop 3 : Arm ave
RESULTS:
Gur : 53.4MPa
Cycle mid-point:
Cavity strain : 8.541%
Total stress : 891kPa
Size of cycle :
Shear strain : 0.809%
Total stress : 434kPa
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
Total pressure (kPa)
Radial Displacement (mm)

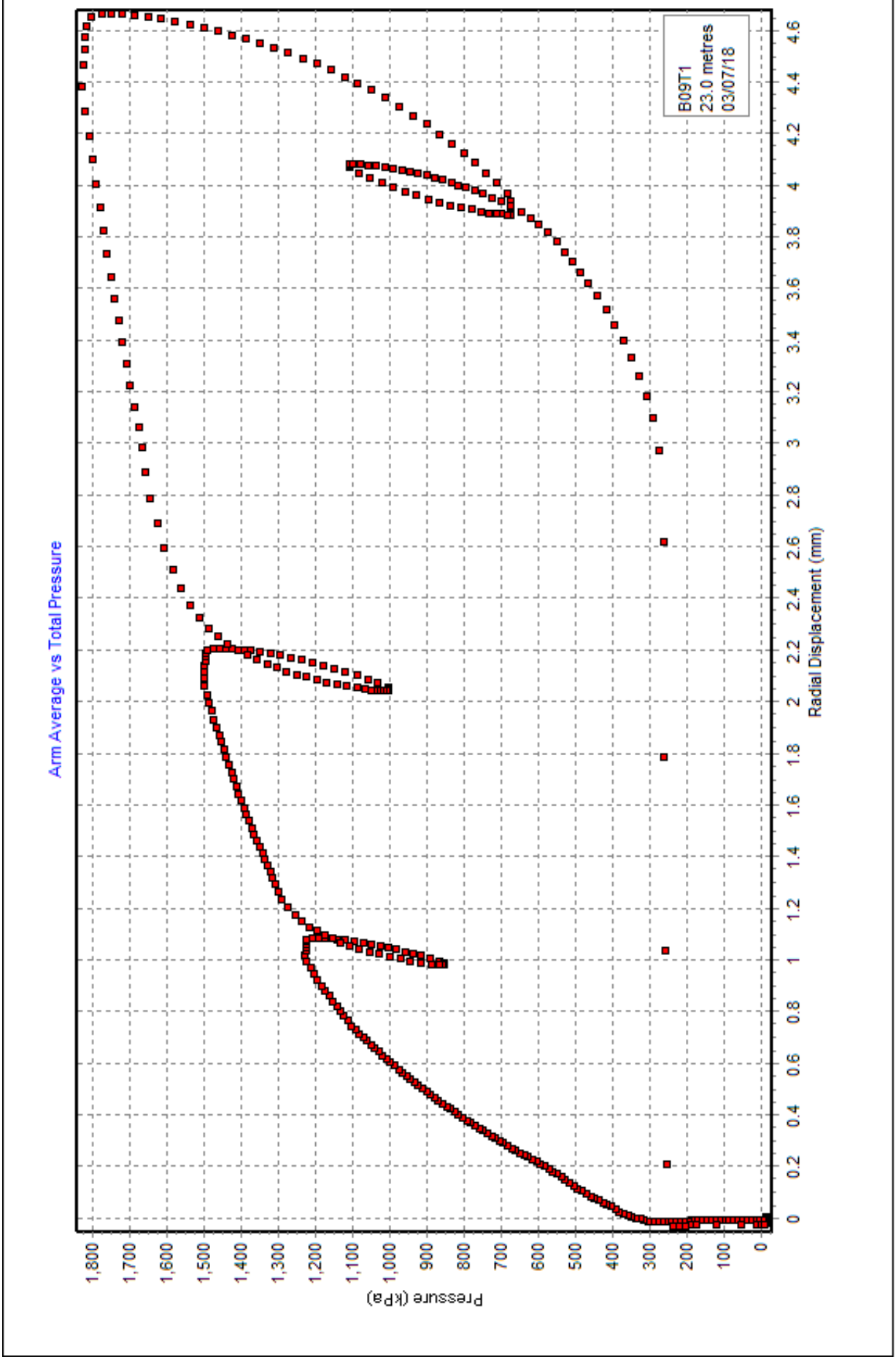

Bolton and Whittle (1999) Loop 1 : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
RESULTS:
Gradient (beta) : 0.636
Intercept (n) : 9.602MPa
Shear stress constant : 6.106MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 1
Total pressure (kPa)
Radial Displacement (mm)

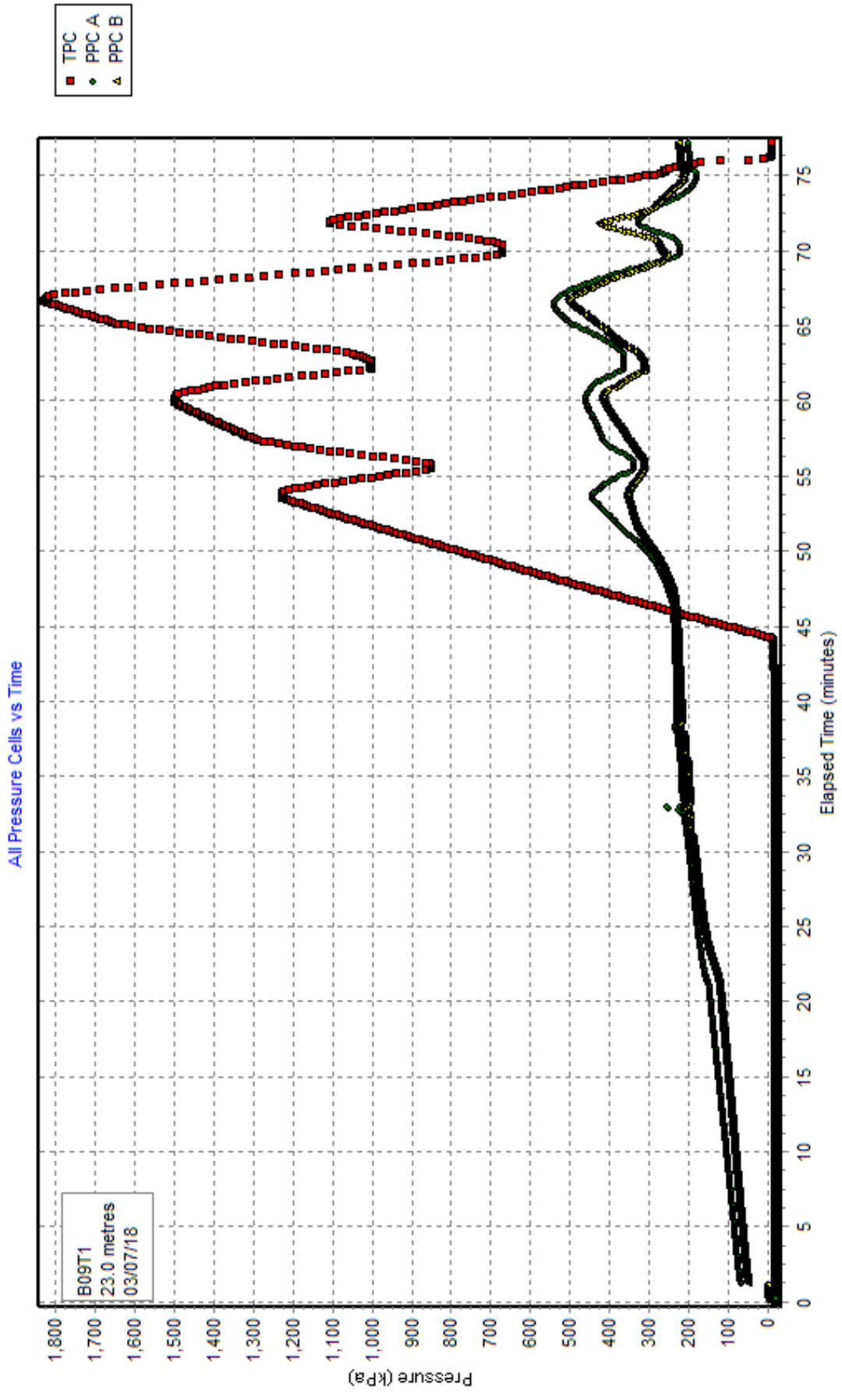

Bolton and Whittle (1999) Loop 2 : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
RESULTS:
Gradient (beta) : 0.668
Intercept (n) : 12.102MPa
Shear stress constant : 8.086MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 2
Total pressure (kPa)
Radial Displacement (mm)


Bolton and Whittle (1999) Loop 3 : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18
RESULTS:
Gradient (beta) : 0.641
Intercept (n) : 11.007MPa
Shear stress constant : 7.055MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 3
Total pressure (kPa)
Radial Displacement (mm)


Cycle 1 - Measured
Cycle 1 - Calculated
Cycle 2 - Measured
Cycle 2 - Calculated
Cycle 3 - Measured
Cycle 3 - Calculated
POWER LAW PARAMETERS:
Cycle No. Constant (MPa) Gradient
1 6.106 0.636
2 8.086 0.668
3 7.055 0.641
Variation of stiffness with strain, undrained analysis : Arm ave
Shear modulus (MPa)
Log plane shear strain
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 1
23.00 Metres
3 Jul 18


Arm 1
Arm 2
Arm 3
B09T1
23.0 metres
03/07/18
All Arms vs Total Pressure
Pressure (kPa)
Radial Displacement (mm)
0
100
200
300
400
500
600
700
800
900
1,000
1,100
1,200
1,300
1,400
1,500
1,600
1,700
1,800
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6


Arm Average vs Total Pressure
B09T1
23.0 metres
03/07/18
Radial Displacement (mm)
Pressure (kPa)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2.2
2.4
2.6
2.8
3
3.2
3.4
3.6
3.8
4
4.2
4.4
4.6
100
200
300
400
500
600
700
800
900
1,000
1,100
1,200
1,300
1,400
1,500
1,600
1,700
1,800


TPC
PPC A
PPC B
All Pressure Cells vs Time
B09T1
23.0 metres
03/07/18
Pressure (kPa)
Elapsed Time (minutes)
0
100
200
300
400
500
600
700
800
900
1,000
1,100
1,200
1,300
1,400
1,500
1,600
1,700
1,800
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75

Great Yarmouth 3rd River Crossing Pressuremeter Tests
MB09 Test 2 - SUMMARY OF RESULTS
[File made with WinSitu Version 3.9.1.1]

[DETAILS OF TEST]
Project :
Site : Gt Yarmouth 3RC
Borehole : MB09
Test name : MB09 Test 2
Test date : 4 Jul 18
Test depth : 39.50 Metres
Water table : Nothing entered
Ambient PWP : Nothing entered
Material : London Clay
Probe : Digital 3 arm weak rock self boring pressuremeter
Diameter : 88.1 mm
Data analysed using average arm displacement curve
A non-linear analysis of the rebound cycles has been carried out
The file includes results from a curve fitting analysis

Analysed by SDB on 13 Jul 18

Remarks: 0.5m of clay left in casing so drilled 1.5m.

[RESULTS FOR CAVITY REFERENCE PRESSURE]
Strain Origin (mm) : "Arm ave=0.38"
Po from Marsland & Randolph (kPa) : "Arm ave=814.6"
Po from Lift off (kPa) : "Arm ave=803.9"
Best estimate of Po (kPa) : "Arm ave=964.0"

[UNDRAINED STRENGTH PARAMETERS]
Gibson & Anderson 1961 - Cu (kPa) : "Arm ave=371.6"
Limit pressure (kPa) : "Arm ave=3129"
Jefferies 1988 - Cu (kPa) : "Arm ave=371.0"
Undrained yield stress (kPa) : "Arm ave=1038.1"

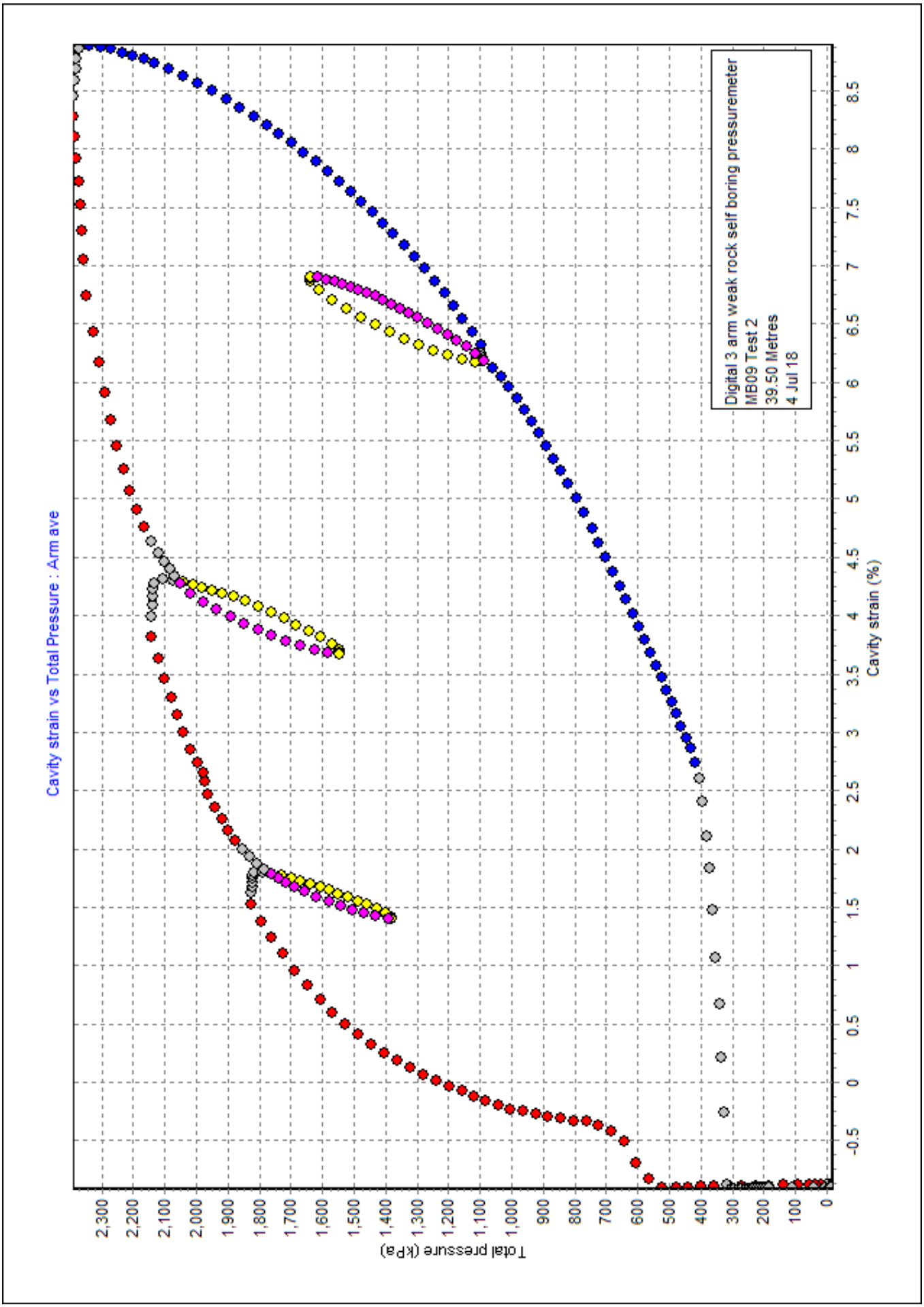
[LINEAR INTERPRETATION OF SHEAR MODULUS G]
Initial slope shear modulus (MPa) :"Arm ave=99.3"

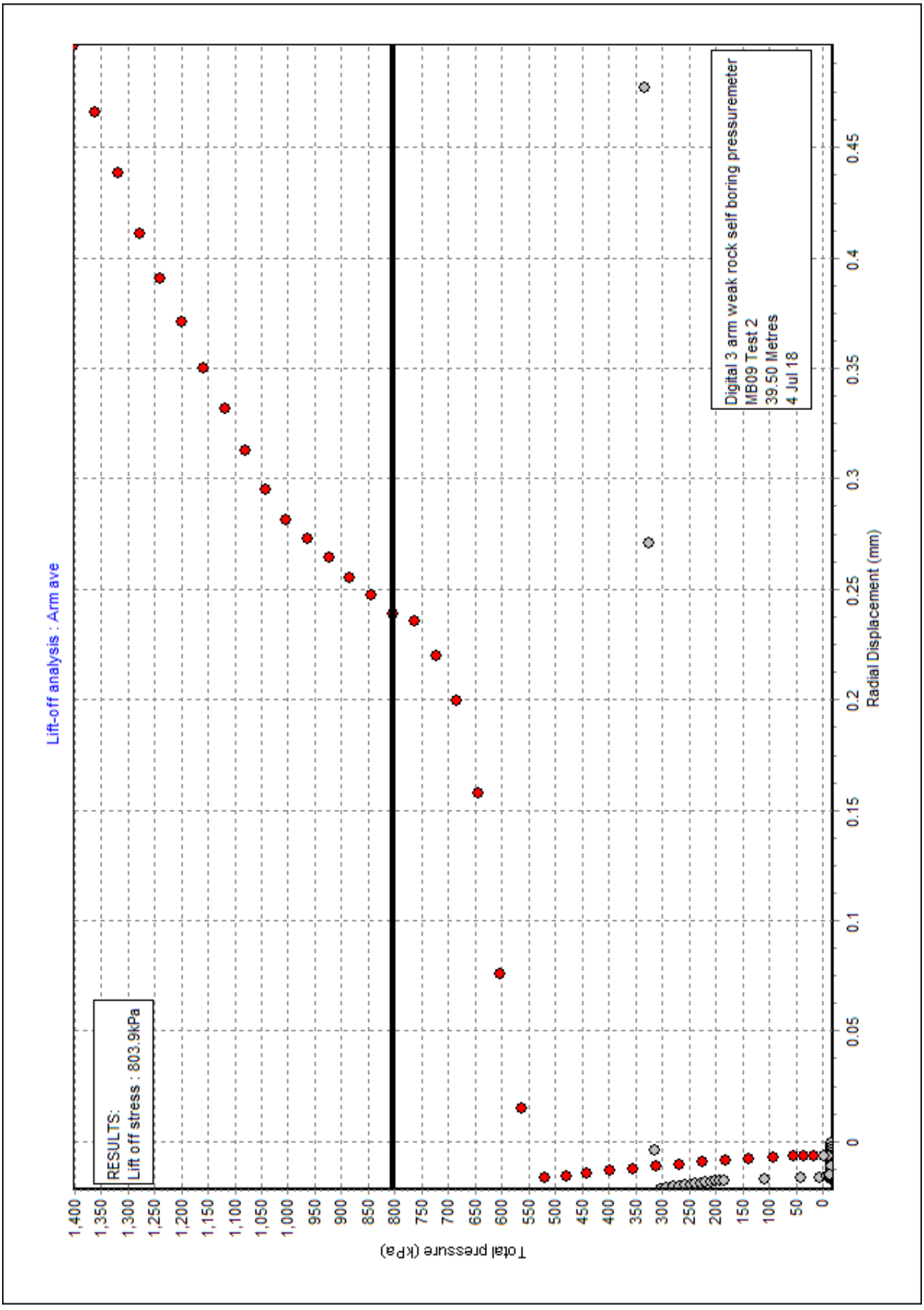
Axis	Loop No	Value (MPa)	Mean Strain (%)	Mean Pc (kPa)	dE (%)	dPc (kPa)
Arm ave	1	50.1	1.604	1571	0.760	382
Arm ave	2	42.8	3.987	1799	1.189	511
Arm ave	3	39.5	6.553	1368	1.362	542

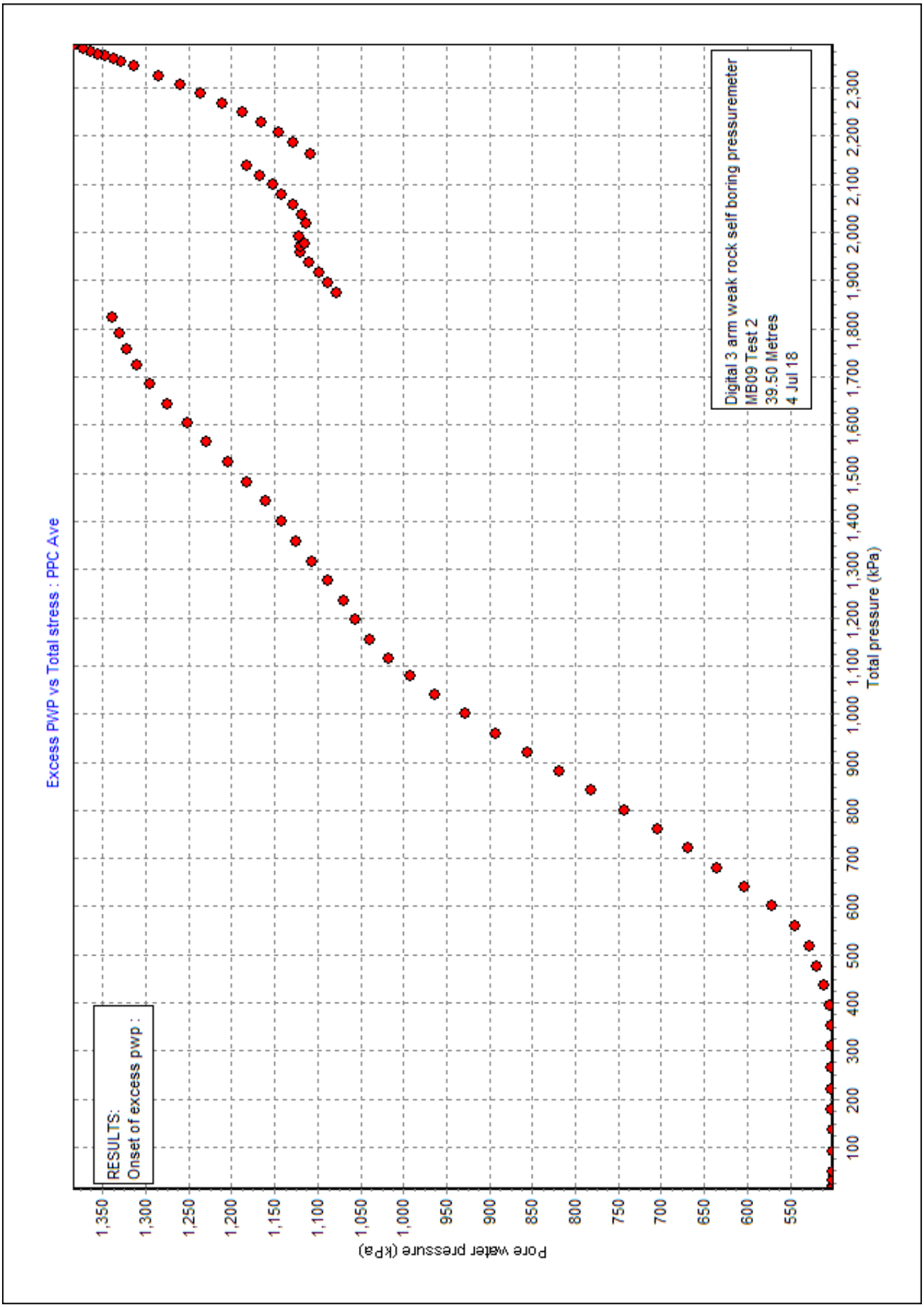
[UNDRAINED NON LINEAR INTERPRETATION OF SECANT SHEAR MODULUS]

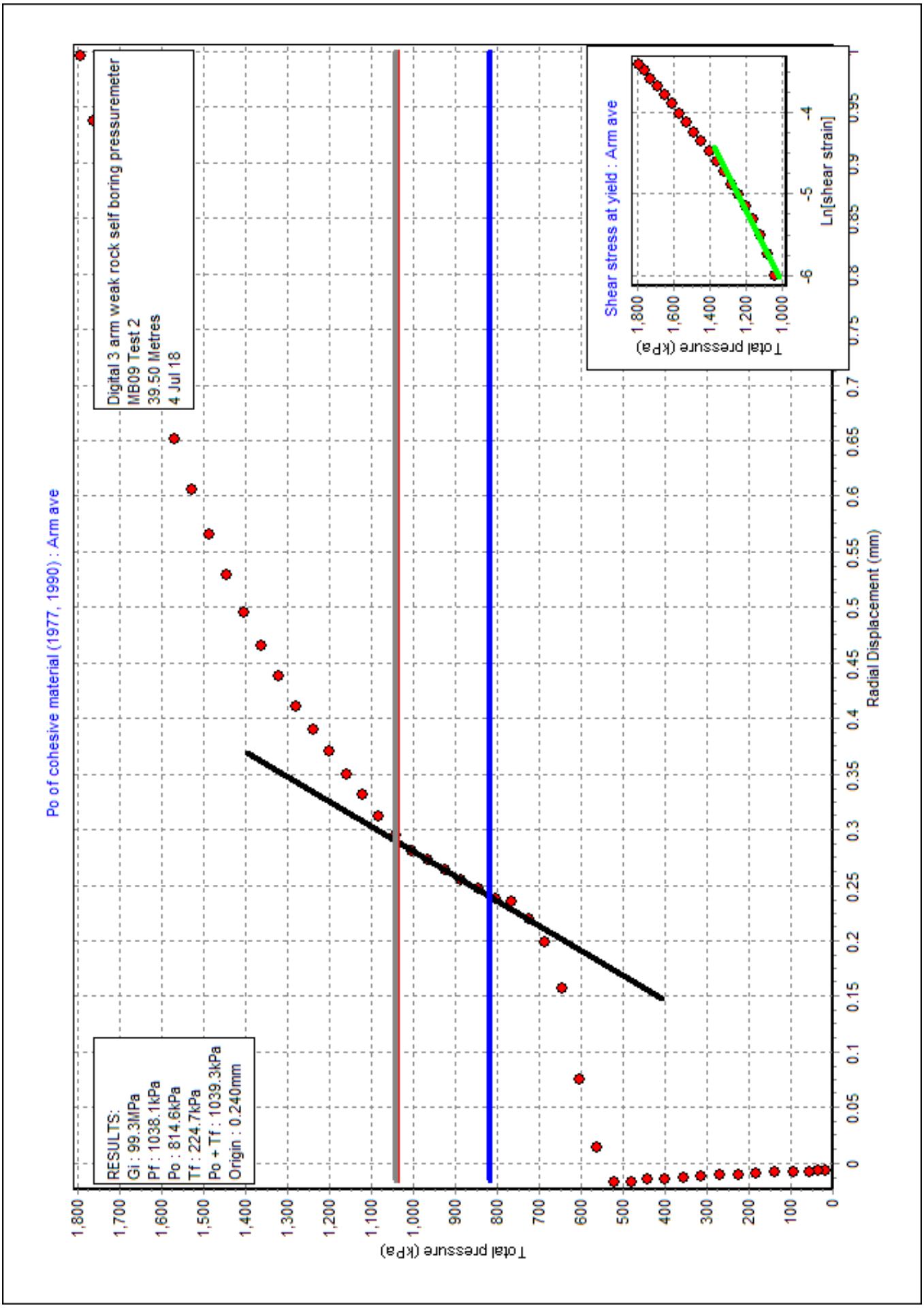
Axis	Loop No	Intercept (MPa)	Alpha (MPa)	Gradient
Arm ave	1	14.346	10.577	0.737
Arm ave	2	11.494	7.957	0.692
Arm ave	3	11.616	8.162	0.703

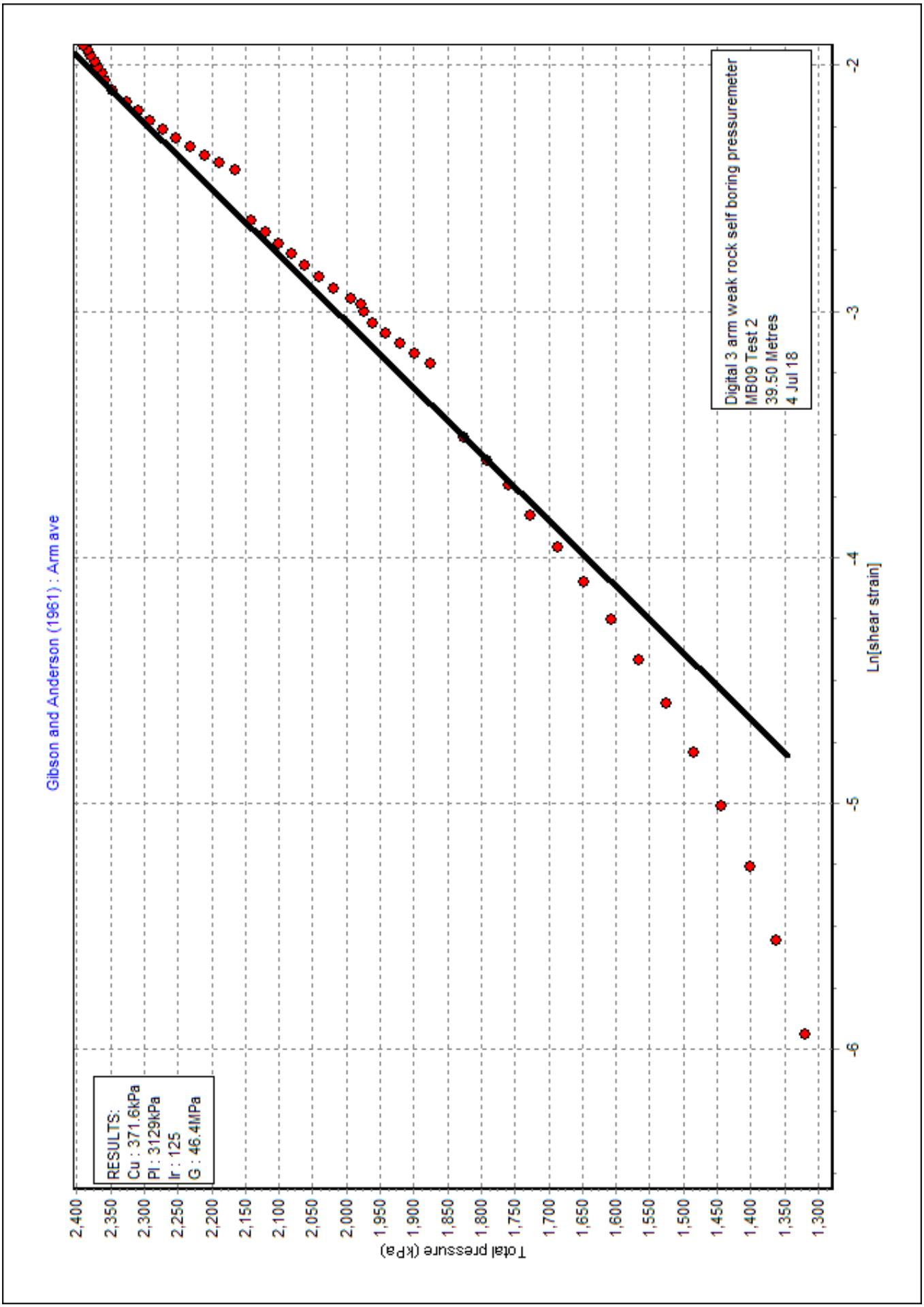
[PARAMETERS USED FOR UNDRAINED CURVE MODELLING]
{Axis is Arm ave}
Strain Origin (mm) : 0.38
Po (kPa) : 964
Cu (kPa) : 371.6
Limit pressure (kPa) : 3129
Non-linear exponent : 0.703
Calculated alpha (MPa) : 8.216
G at yield (MPa) : 30.4

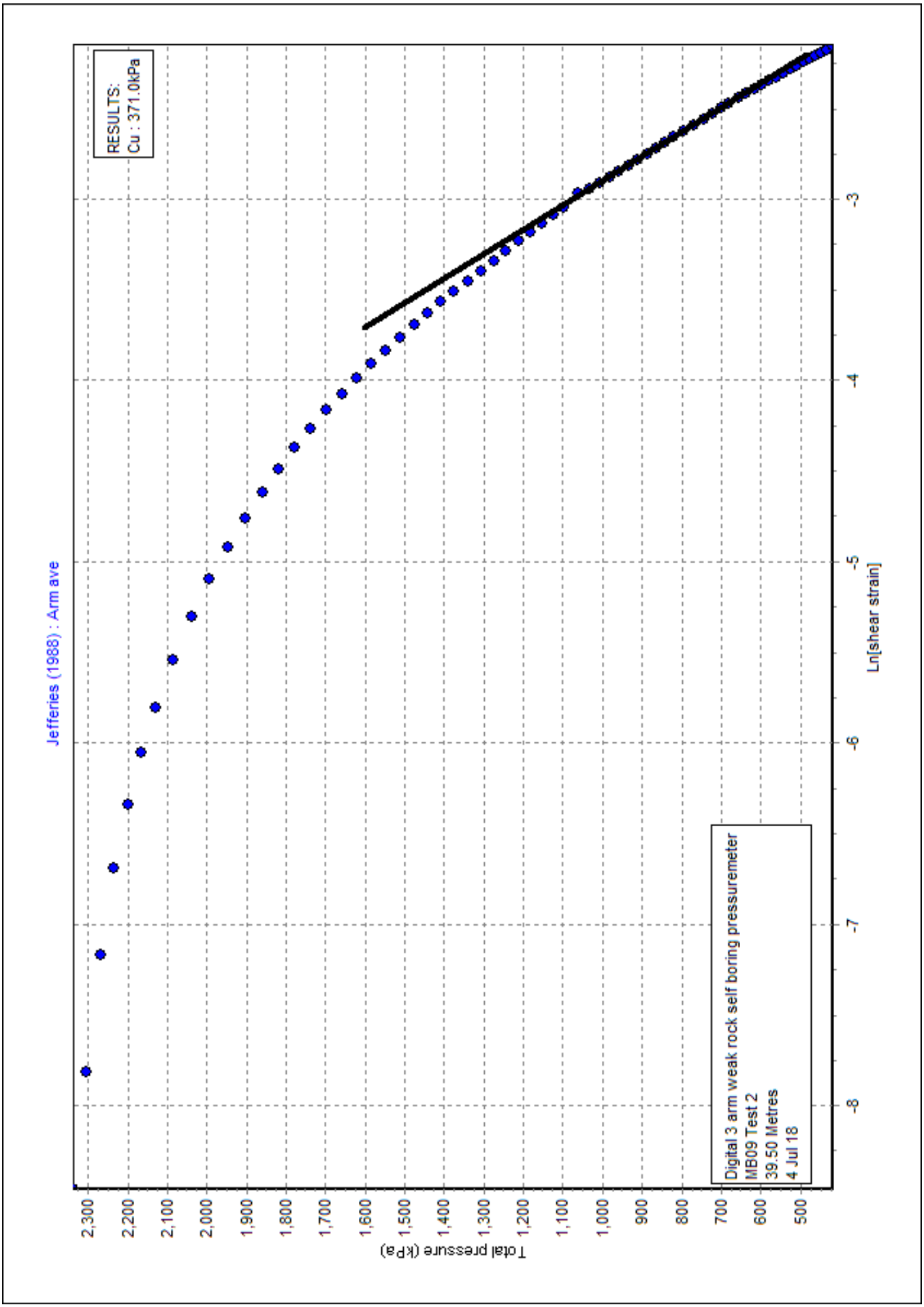

Cavity strain vs Total Pressure : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
Total pressure (kPa)
Cavity strain (%)
2,300
2,200
2,100
2,000
1,900
1,800
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
-0.5
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8
8.5

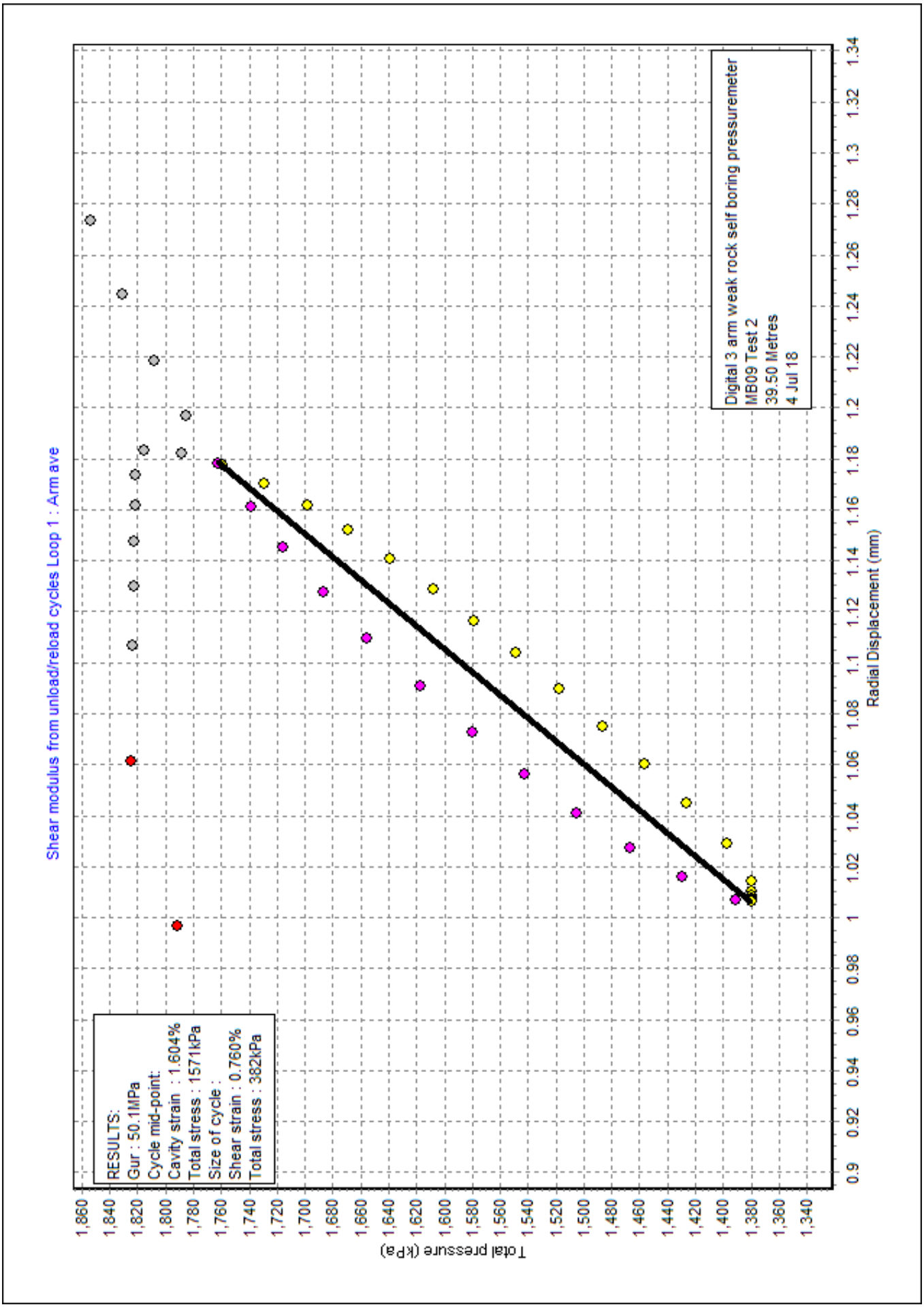

Lift-off analysis : Arm ave
RESULTS:
Lift off stress : 803.9kPa
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
Total pressure (kPa)
Radial Displacement (mm)
1,400
1,350
1,300
1,250
1,200
1,150
1,100
1,050
1,000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45

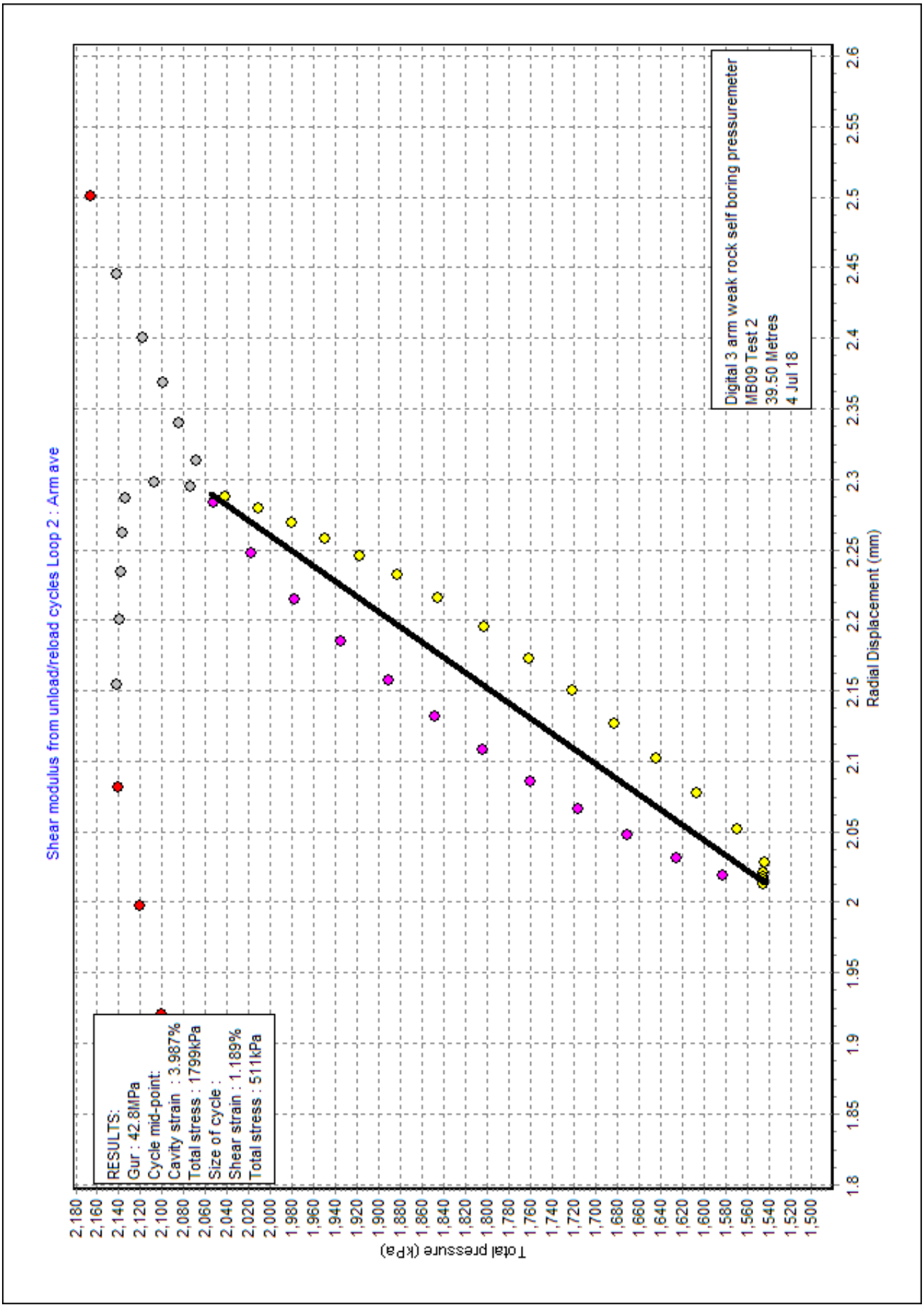

Excess PWP vs Total stress : PPC Ave
RESULTS:
Onset of excess pwp :
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
Pore water pressure (kPa)
Total pressure (kPa)
1,350
1,300
1,250
1,200
1,150
1,100
1,050
1,000
950
900
850
800
750
700
650
600
550
100
200
300
400
500
600
700
800
900
1,000
1,100
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1,600
1,700
1,800
1,900
2,000
2,100
2,200
2,300

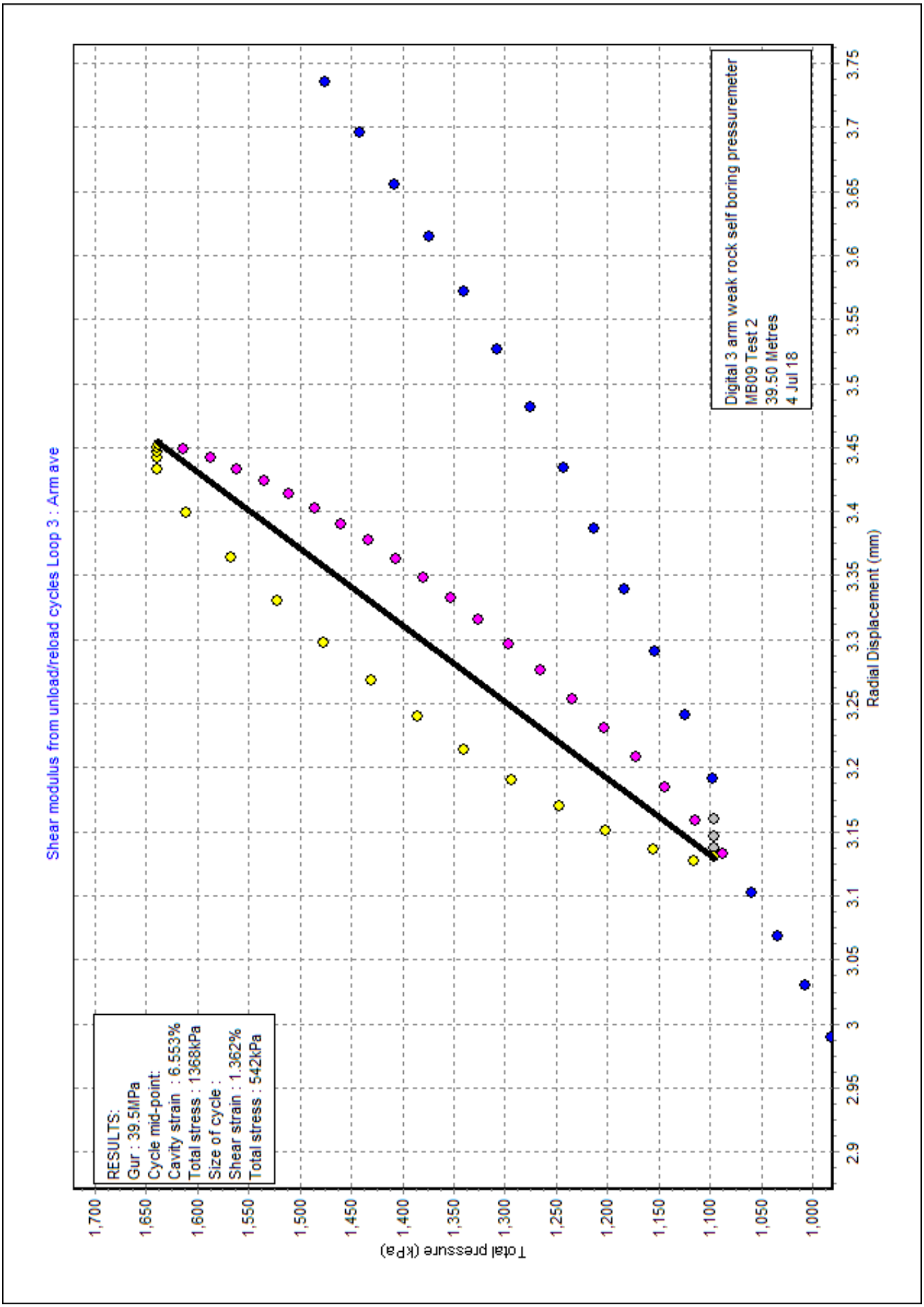

Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
RESULTS:
Gi : 99.3MPa
Pf : 1038.1kPa
Po : 814.6kPa
Tf : 224.7kPa
Po + Tf : 1039.3kPa
Origin : 0.240mm
Po of cohesive material (1977, 1990) : Arm ave
Total pressure (kPa)
Radial Displacement (mm)
Shear stress at yield : Arm ave
Total pressure (kPa)
Ln[shear strain]

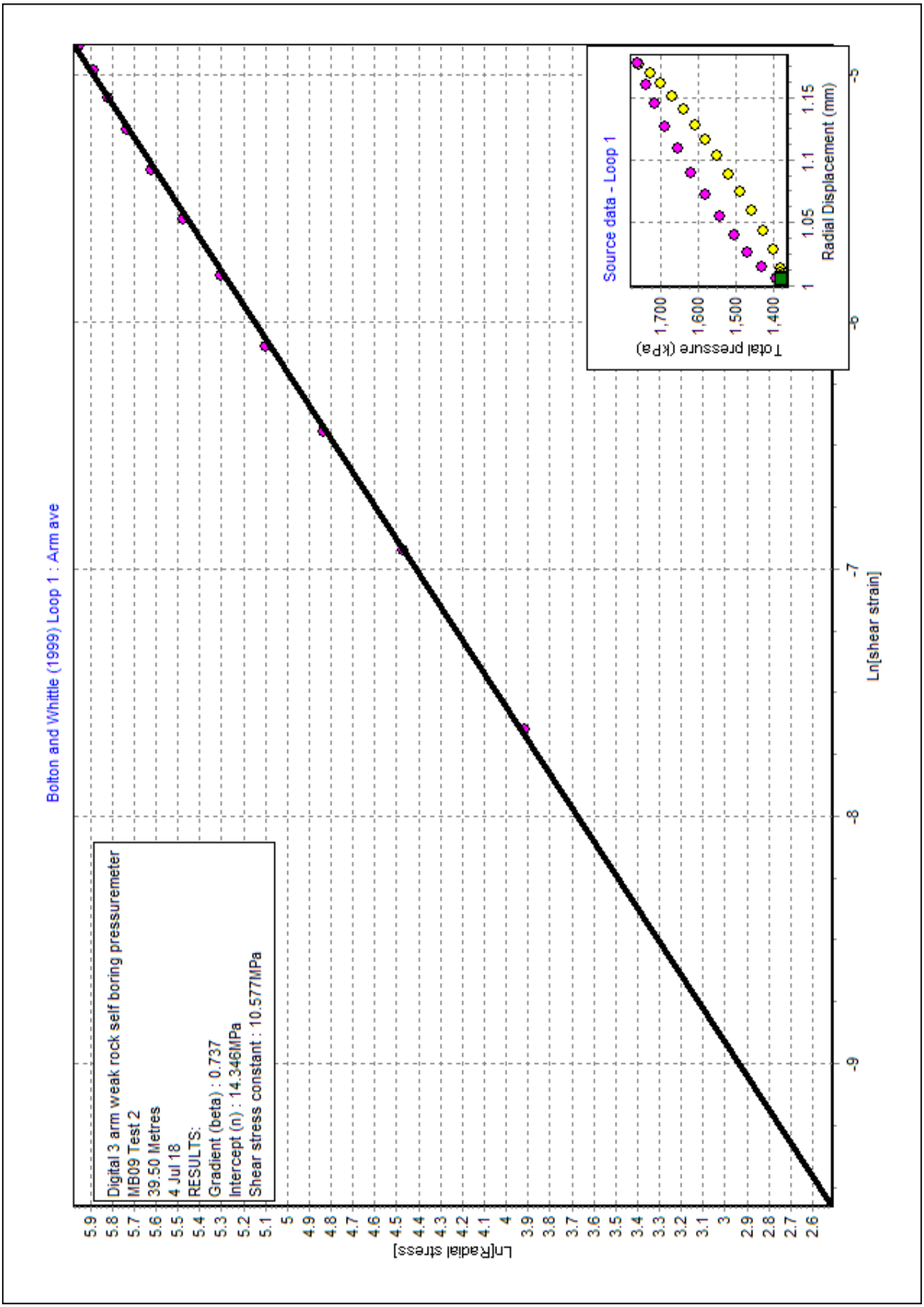

Gibson and Anderson (1961) : Arm ave
RESULTS:
Cu : 371.6kPa
Pl : 3129kPa
Ir : 125
G : 46.4MPa
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
Total pressure (kPa)
Ln[shear strain]
2,400
2,350
2,300
2,250
2,200
2,150
2,100
2,050
2,000
1,950
1,900
1,850
1,800
1,750
1,700
1,650
1,600
1,550
1,500
1,450
1,400
1,350
1,300
-2
-3
-4
-5
-6

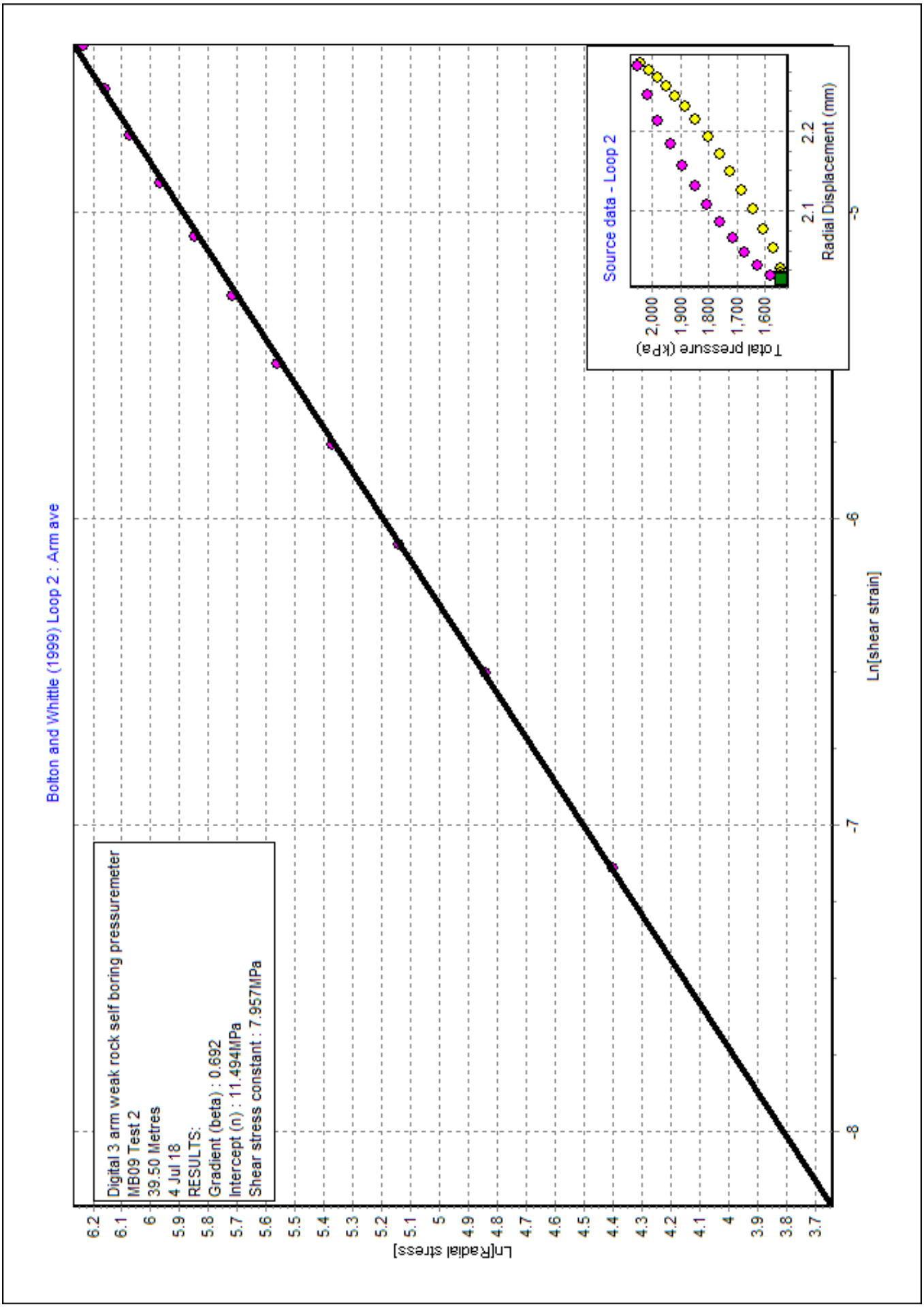

RESULTS:
Cu : 371.0kPa
Jefferies (1988) : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
Total pressure (kPa)
Ln[shear strain]
2,300
2,200
2,100
2,000
1,900
1,800
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
-3
-4
-5
-6
-7
-8

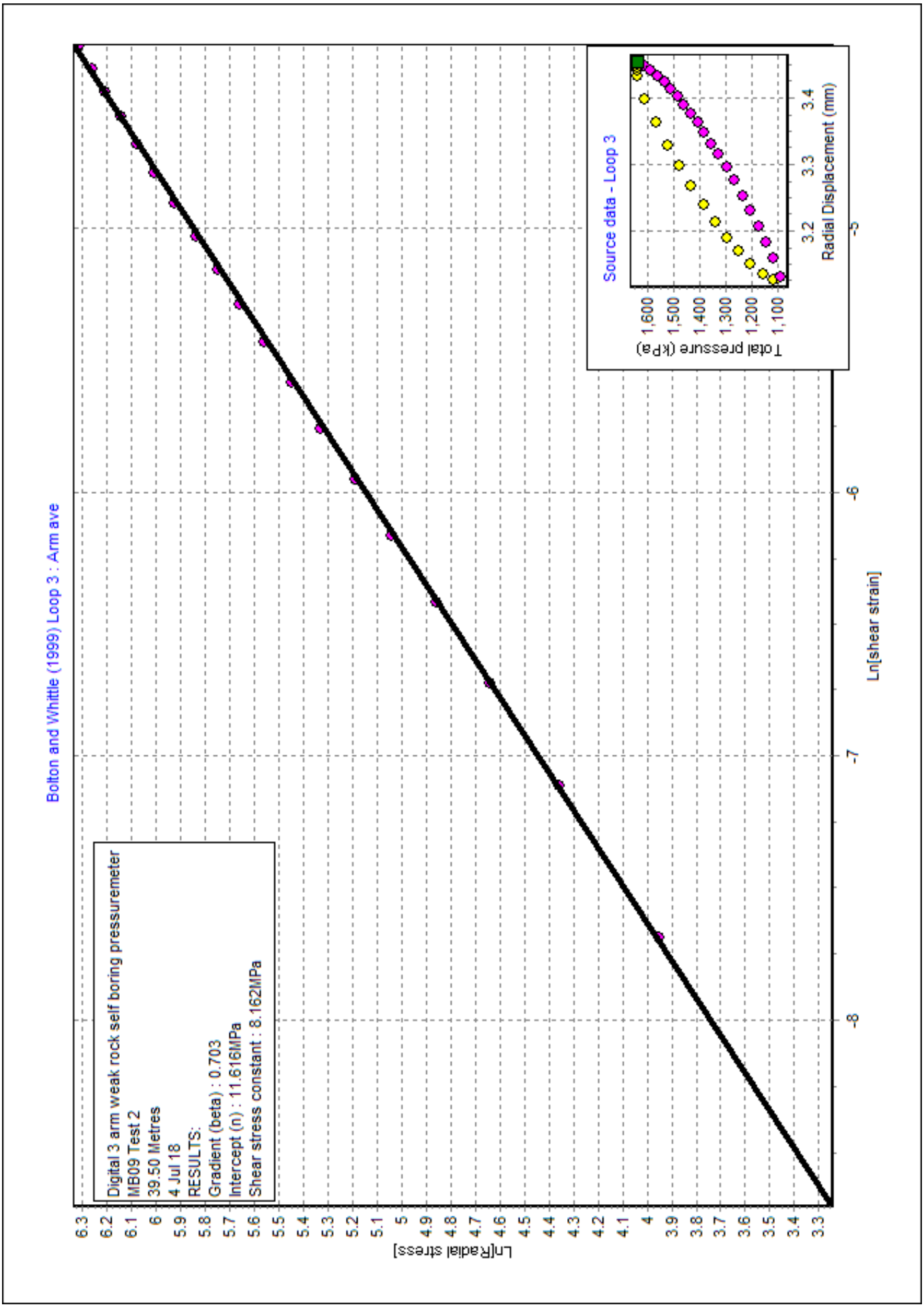

Shear modulus from unload/reload cycles Loop 1 : Arm ave
RESULTS:
Gur : 50.1MPa
Cycle mid-point:
Cavity strain : 1.604%
Total stress : 1571kPa
Size of cycle :
Shear strain : 0.760%
Total stress : 382kPa
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
Total pressure (kPa)
Radial Displacement (mm)

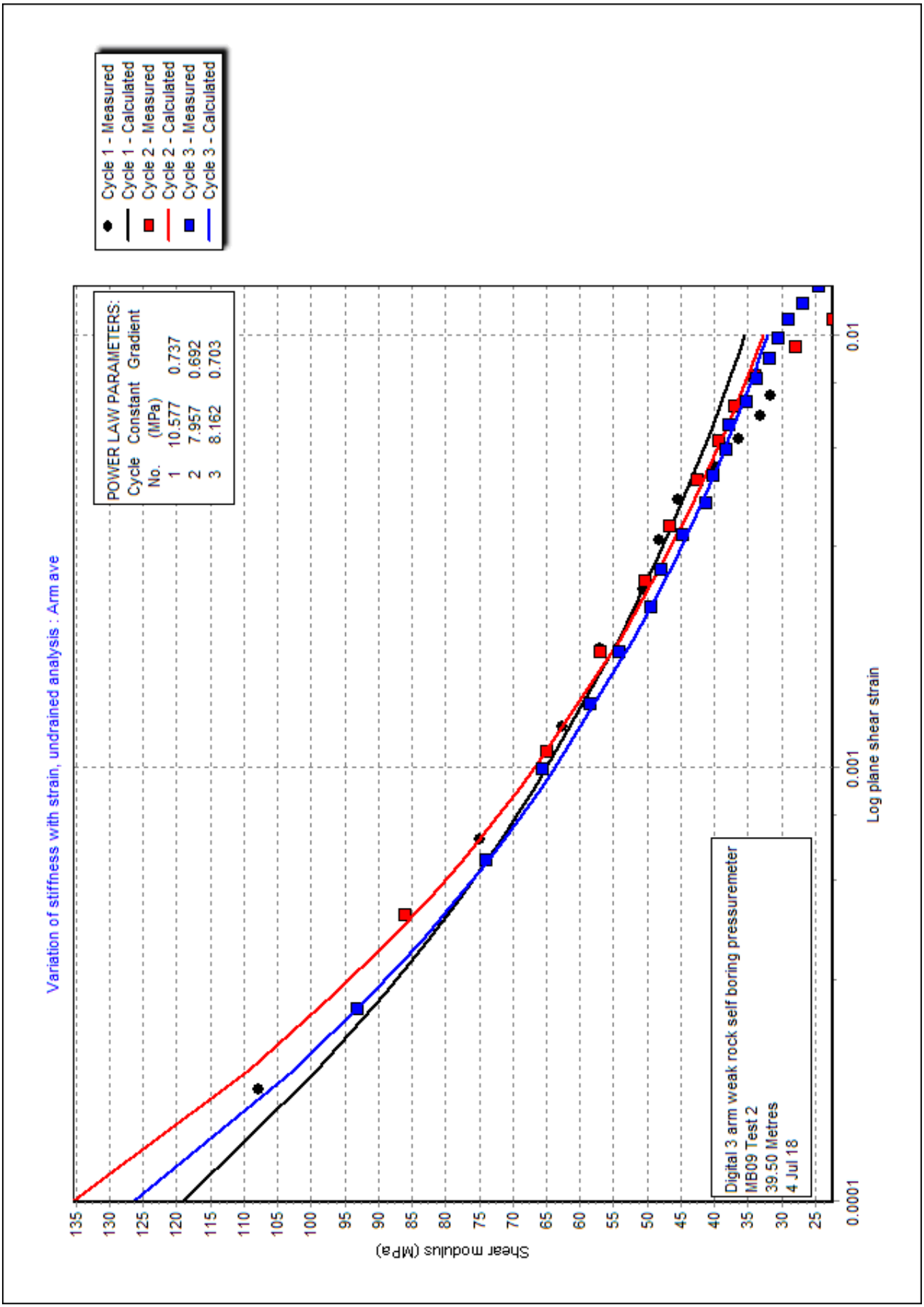

Shear modulus from unload/reload cycles Loop 2 : Arm ave
RESULTS:
Gur : 42.8MPa
Cycle mid-point:
Cavity strain : 3.987%
Total stress : 1799kPa
Size of cycle :
Shear strain : 1.189%
Total stress : 511kPa
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
Total pressure (kPa)
Radial Displacement (mm)

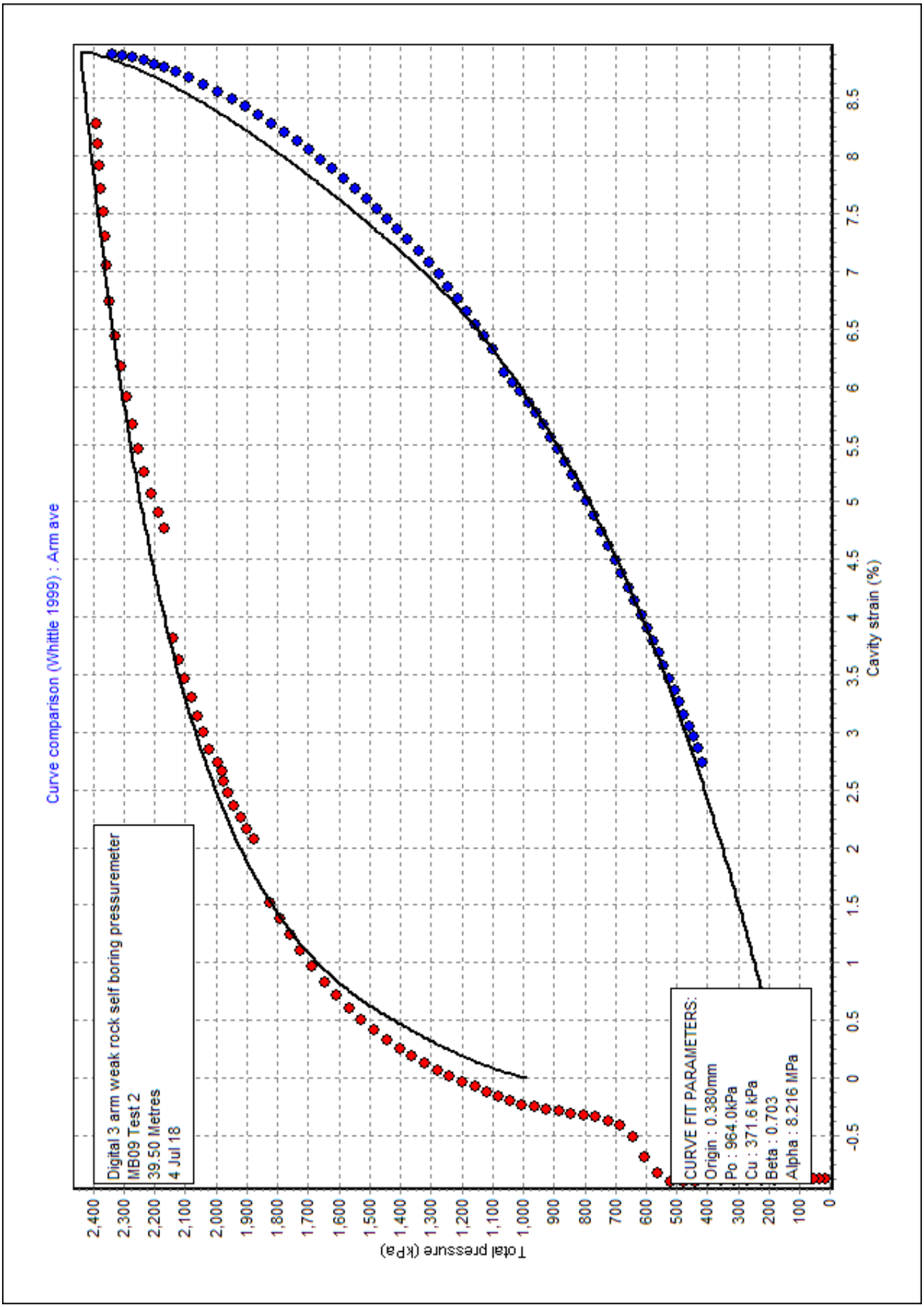

Shear modulus from unload/reload cycles Loop 3 : Arm ave
RESULTS:
Gur : 39.5MPa
Cycle mid-point:
Cavity strain : 6.553%
Total stress : 1368kPa
Size of cycle :
Shear strain : 1.362%
Total stress : 542kPa
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
Total pressure (kPa)
Radial Displacement (mm)
1,700
1,650
1,600
1,550
1,500
1,450
1,400
1,350
1,300
1,250
1,200
1,150
1,100
1,050
1,000
2.9
2.95
3
3.05
3.1
3.15
3.2
3.25
3.3
3.35
3.4
3.45
3.5
3.55
3.6
3.65
3.7
3.75

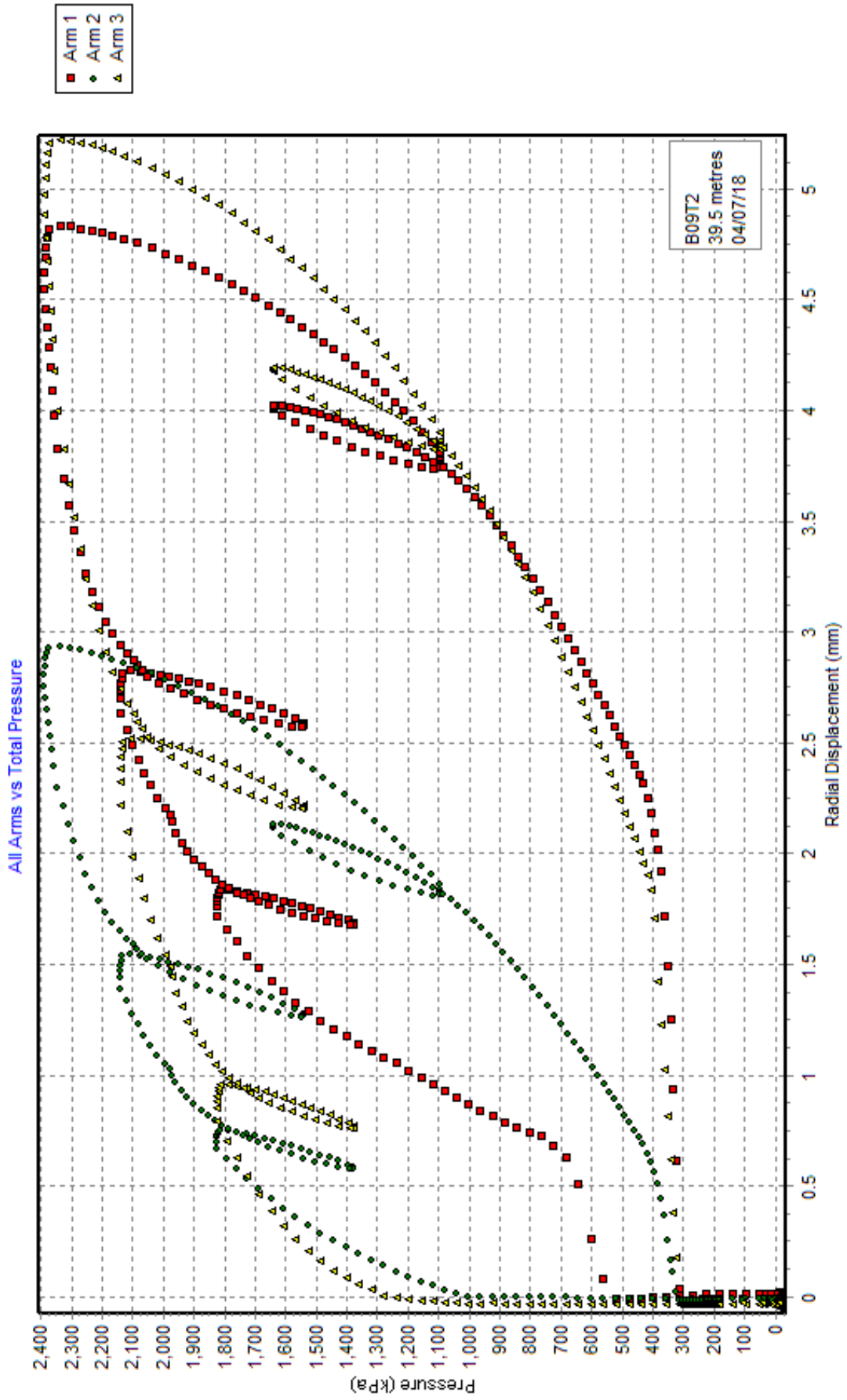

Bolton and Whittle (1999) Loop 1 : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
RESULTS:
Gradient (beta) : 0.737
Intercept (n) : 14.346MPa
Shear stress constant : 10.577MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 1
Total pressure (kPa)
Radial Displacement (mm)

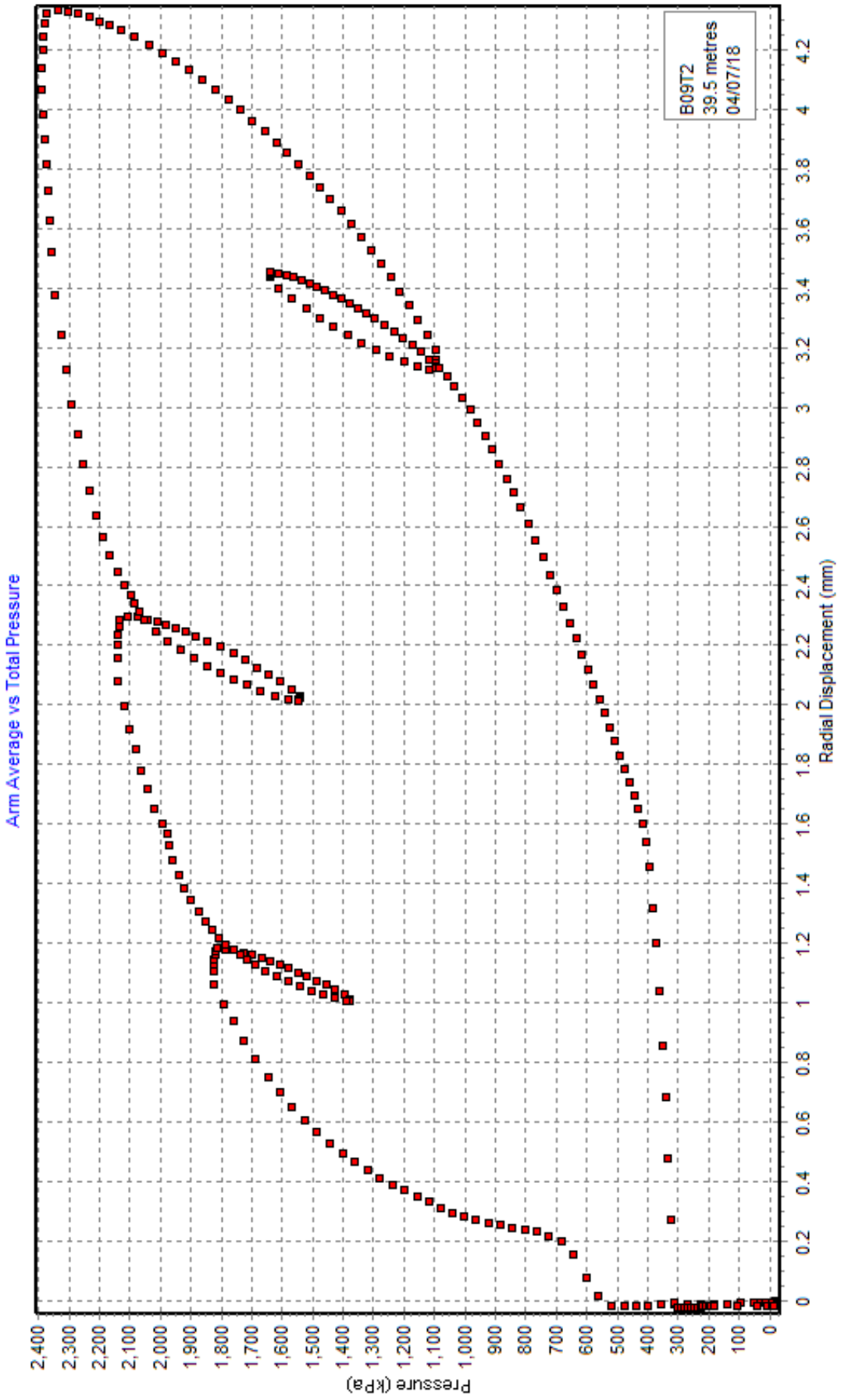

Bolton and Whittle (1999) Loop 2 : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
RESULTS:
Gradient (beta) : 0.692
Intercept (n) : 11.494MPa
Shear stress constant : 7.957MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 2
Total pressure (kPa)
Radial Displacement (mm)

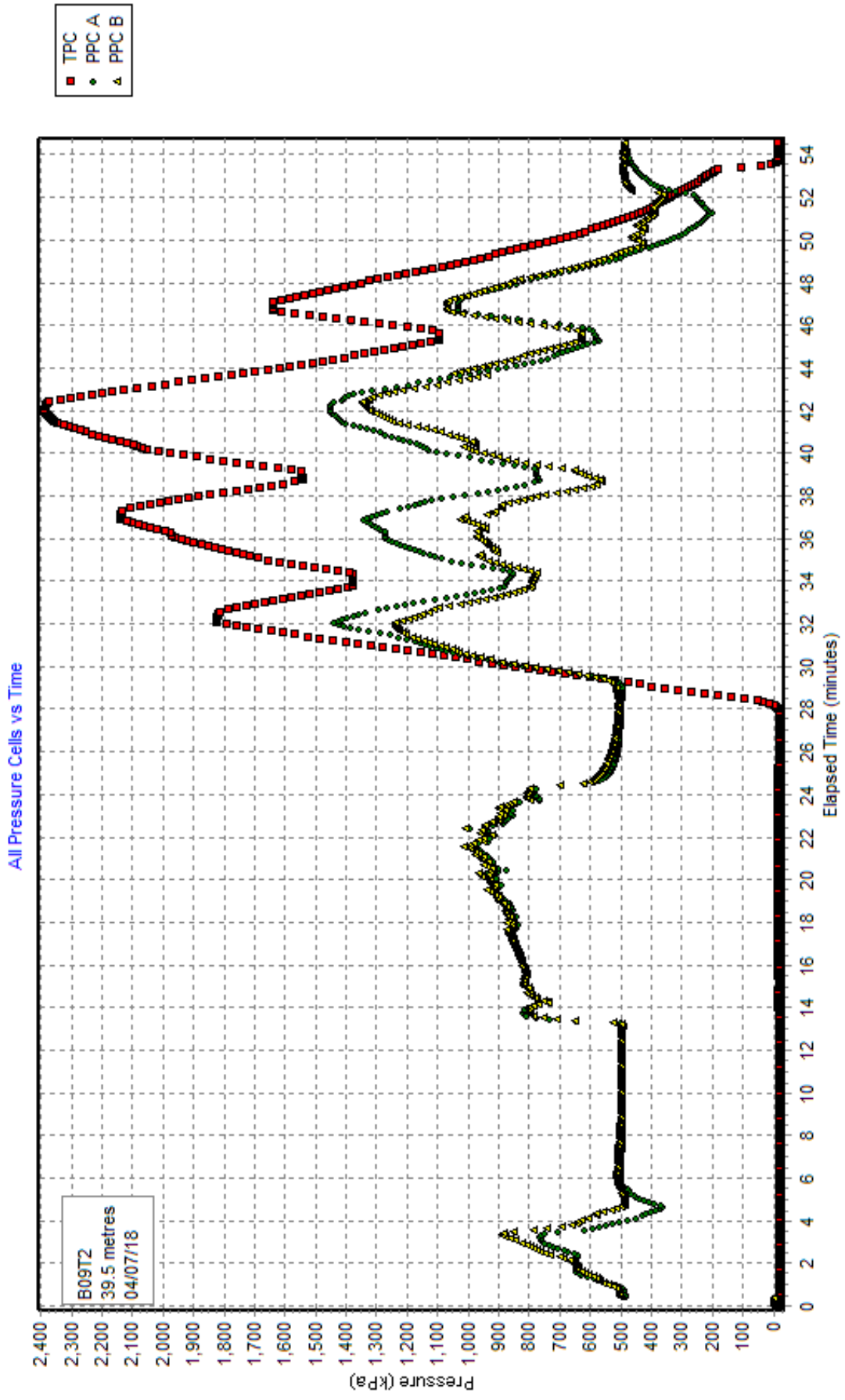

Bolton and Whittle (1999) Loop 3 : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
RESULTS:
Gradient (beta) : 0.703
Intercept (n) : 11.616MPa
Shear stress constant : 8.162MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 3
Total pressure (kPa)
Radial Displacement (mm)


Cycle 1 - Measured
Cycle 1 - Calculated
Cycle 2 - Measured
Cycle 2 - Calculated
Cycle 3 - Measured
Cycle 3 - Calculated
POWER LAW PARAMETERS:
Cycle No. Constant (MPa) Gradient
1 10.577 0.737
2 7.957 0.692
3 8.162 0.703
Variation of stiffness with strain, undrained analysis : Arm ave
Shear modulus (MPa)
Log plane shear strain
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18


Curve comparison (Whittle 1999) : Arm ave
Digital 3 arm weak rock self boring pressuremeter
MB09 Test 2
39.50 Metres
4 Jul 18
CURVE FIT PARAMETERS:
Origin : 0.380mm
Po : 964.0kPa
Cu : 371.6 kPa
Beta : 0.703
Alpha : 8.216 MPa
Total pressure (kPa)
Cavity strain (%)


Arm 1
Arm 2
Arm 3
B09T2
39.5 metres
04/07/18
All Arms vs Total Pressure
Pressure (kPa)
Radial Displacement (mm)
2,400
2,300
2,200
2,100
2,000
1,900
1,800
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5


Arm Average vs Total Pressure
Pressure (kPa)
Radial Displacement (mm)
B09T2
39.5 metres
04/07/18
2,400
2,300
2,200
2,100
2,000
1,900
1,800
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2.2
2.4
2.6
2.8
3
3.2
3.4
3.6
3.8
4
4.2


TPC
PPC A
PPC B
All Pressure Cells vs Time
B09T2
39.5 metres
04/07/18
Pressure (kPa)
Elapsed Time (minutes)

Appendix F

GEOTECHNICAL LABORATORY TEST

RESULTS

TERRA TEK Site Investigation & Laboratory Services

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No** **PZ1522D1**
Client	Norfolk County Council	
Engineer	Norfolk Partnership Laboratory	

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB01	0.50-1.00	15	B	338167	Very dark grey slightly sandy gravelly SILT/CLAY with an odour of hydrocarbons. Gravel is fine to coarse.	29
MB01	0.50	2	D	338163	Dark grey slightly clayey silty very gravelly SAND with occasional fine shell fragments. Gravel is fine to coarse. Sample has a distinct odour of hydrocarbons.	16
MB01	1.40	6	D	338164	Orange brown slightly sandy gravelly CLAY. Gravel is fine to medium.	37
MB01	1.50	9	D	338165	Yellowish brown mottled greyish brown slightly clayey slightly gravelly silty SAND with occasional fine shell fragments. Gravel is fine to medium with a strong smell of hydrocarbons.	21
MB01	2.50-3.00	13	B	338166	Grey slightly gravelly slightly clayey very silty SAND with a slight smell of hydrocarbons. Gravel is fine to medium.	31
MB01A	1.50-2.00	5	B	338168	Grey clayey silty gravelly SAND. Gravel is fine to coarse. Sample has a distinct smell of hydrocarbons.	19
MB01A	2.50-3.00	9	B	338169	Dark grey gravelly silty SAND with a slight odour of hydrocarbons. Gravel is fine to medium.	18
MB01A	3.50-4.00	13	B	338170	Greyish brown clayey silty gravelly SAND with a slight odour of hydrocarbons. Gravel is fine to medium.	14
MB01A	5.50-6.00	21	B	338171	Greyish brown slightly gravelly slightly clayey slightly silty SAND with an odour of hydrocarbons. Gravel is fine.	16
MB01A	6.50-7.00	25	B	338172	Yellow brown slightly sandy SILT with a slight odour of hydrocarbons.	22
MB01A	8.50-9.00	31	B	338173	Light greyish brown silty SAND with a slight smell of hydrocarbons.	18
MB01A	9.50-10.00	37	B	338174	Light brown silty SAND with a slight odour of hydrocarbons.	22
MB01A	10.50-11.00	41	B	338175	Light brown slightly silty SAND.	17
MB01A	11.50-12.00	44	B	338176	Brown slightly gravelly silty SAND with occasional fine shell fragments. Gravel is fine to medium.	16

Notes

Originator	Checked & Approved
LA	[redacted] 07/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK
Site Investigation & Laboratory Services

Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No **PZ1522D1**
Client	Norfolk County Council	
Engineer	Norfolk Partnership Laboratory	

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB01A	12.50-13.00	47	B	338177	Brown mottled grey clayey silty SAND with occasionl fine shell fragments.	18
MB01A	13.50-14.00	50	B	338178	Greyish brown silty SAND with occasional shell fragments.	19
MB01A	16.50-17.00	59	B	338179	Light greyish brown slightly silty SAND.	18
MB01A	18.50-19.00	65	B	338180	Grey clayey silty SAND with occasional fine shell fragments.	19
MB01A	19.50-20.00	68	B	338181	Grey very clayey SAND with occasional shell fragments.	16
MB01A	20.50-21.00	71	B	338182	Light grey slighly sandy SILT.	31
MB01A	21.60	73	D	338183	Grey slightly sandy SILT.	28
MB01A	22.50-23.00	77	B	338184	Olive grey slightly sandy silty CLAY.	32
MB01A	24.00-24.50	81	D	338185	Grey sandy SILT.	21
MB01A	24.30	82	D	338186	Grey slightly clayey silty SAND with rare fine shell fragments.	20
MB02	0.30	3	B	338187	Grey slightly gravelly sandy CLAY with pockets of orange brown sand. Gravel is fine to medium.	34
MB02	1.30-1.80	5	B	338188	Light brown silty gravelly SAND with some shell fragmetns. Gravel is fine to coarse.	17
MB02	2.30-2.80	9	B	338189	Greyish brown slightly gravelly slightly silty SAND with occasional shell fragments and a strong smell of hydrocarbons. Gravel is fine to medium.	21
MB02	3.30-3.80	13	B	338190	Light orange brown slightly silty SAND.	24

Notes

Originator	Checked & Approved
LA	[redacted] 07/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

TERRA TEK
Site Investigation & Laboratory Services

Site: GREAT YARMOUTH 3RD RIVER CROSSING
Client: Norfolk County Council
Engineer: Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB02	4.30-4.80	17	B	338191	Yellowish brown slightly silty SAND wit some shell fragments.	24
MB02	7.30-7.80	29	B	338192	Yellowish brown slightly silty SAND.	26
MB02	9.30-9.80	37	B	338193	Brown silty clayey SAND.	27
MB02	10.30-10.80	41	B	338194	Dark grey clayey silty SAND with a strong smell of hydrocarbons.	37
MB02	11.30-11.80	43	B	338195	Dark greyish brown silty SAND with ocassional fine shell fragments and a strong odour of hydrocarbons.	37
MB02	12.30-12.80	46	B	338196	Dark grey slightly clayey silty SAND with some fine to medium shell fragments and a strong odour of hydrocarbons.	26
MB02	13.50-14.00	47	B	338197	Grey slightly silty SAND with rare fine shell fragments.	25
MB02	14.50-15.00	50	B	338198	Grey silty SAND. Strong smell of hydrocarbons.	23
MB02	15.50-16.00	54	B	338199	Dark grey silty SAND with a smell of hydrocarbons.	22
MB02	16.50-17.00	57	B	338200	Grey SAND with occasional pockets of silt.	17
MB02	17.50-18.00	60	B	338201	Grey sandy SILT/CLAY with rare fine to medium shell fragments and an odour of hydrocarbons.	24
MB02	18.50-19.00	63	B	338202	Grey clayey silty SAND with rare fine shell fragments and a strong odour of hydrocarbons.	20
MB02	19.20-19.70	65	B	338203	Grey very sandy SILT with rare fine shell fragments.	21
MB02	21.60	70	D	338205	Grey SILT.	29

Notes

Originator	Checked & Approved
LA	[redacted] 07/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 07/09/2018 11:37:15

TERRA TEK Site Investigation & Laboratory Services

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB02	22.90	72	D	338206	Grey slightly sandy silty CLAY.	32
MB02	23.50-24.00	74	B	338207	Light grey slightly silty SAND with occasional fine shell fragments and one cobble.	20
MB02	27.30-27.80	82	B	338208	Grey slightly clayey slightly gravelly silty SAND. Gravel is fine to medium.	21
MB02	28.30-28.80	84	B	338209	Grey silty SAND with rare fine shell fragments.	21
MB02	29.30-29.80	87	B	338210	Grey silty SAND.	18
MB02	32.30-32.80	94	B	338211	Light grey slighly silty SAND with a strong smell of hydrocarbons.	21
MB02	33.30-33.80	96	B	338212	Grey silty SAND.	18
MB02	34.30-34.80	98	B	338213	Greyish brown slightly silty SAND.	22
MB02	36.00	102	D	338214	Dark grey slightly silty CLAY.	30
MB02	36.30-36.80	105	B	338215	Grey slightly sandy CLAY with rare fine gravel.	42
MB02	39.30-39.80	110	B	338216	Dark grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium.	35
MB03	1.50-2.00	5	B	338217	Greyish brown slightly gravelly very silty SAND with occasional shell fragments. Gravel is fine to medium. Smel of hydrocarbon.	32
MB03	2.50-3.00	9	B	338218	Yellowish brown silty gravelly SAND with shell fragments. Gravel is fine to coarse.	22
MB03	3.50-4.00	13	B	338219	Yellowish brown slightly silty SAND with occasional fine shell fragments.	22

Notes

Originator	Checked & Approved
LA	[redacted] 07/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 07/09/2018 11:37:30

TERRA TEK
Site Investigation & Laboratory Services

Site: GREAT YARMOUTH 3RD RIVER CROSSING
Client: Norfolk County Council
Engineer: Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB03	4.50-5.00	17	B	338220	Yellowish brown slightly silty SAND.	22
MB03	7.50-8.00	29	B	338221	Yellowish brown silty SAND.	24
MB03	8.50-9.00	33	B	338222	Yellowish brown slightly silty SAND.	21
MB03	11.50-12.00	43	B	338223	Yellowish brown slightly silty SAND with occasional fine shell fragments.	18
MB03	12.50	45	D	338224	Yellowish brown slightly silty SAND with occasional fine shell fragments.	19
MB03	13.50-14.00	49	B	338225	Light brown silty SAND with occasional fine shell fragments.	17
MB03	14.50-15.00	52	B	338226	Light brown silty SAND.	18
MB03	16.50-17.00	58	B	338227	Light brown slightly gravelly slightly silty SAND. Gravel is fine to medium.	19
MB03	18.50-19.00	64	B	338228	Grey clayey silty SAND with occasional fine to medium shell fragments.	17
MB03	19.70	67	D	338229	Grey slightly sandy silty CLAY.	31
MB03	21.00-21.50	70	B	338230	Light grey sandy SILT with rare fine shell fragments.	30
MB03	23.50-24.00	76	B	338231	Grey slightly clayey silty SAND.	19
MB03	24.50-25.00	77	B	338232	Light grey silty SAND with occasional shell fragments.	16
MB04	0.50-1.00	2	B	338233	Greyish brown mottled very dark grey slightly clayey silty very gravelly SAND with occasional fine to medium shell fragments. Gravel is fine to coarse.	19

Notes

Originator	Checked & Approved
LA	[redacted] 07/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 07/09/2018 11:37:46

TERRA TEK
Site Investigation & Laboratory Services

Site: GREAT YARMOUTH 3RD RIVER CROSSING
Client: Norfolk County Council
Engineer: Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB04	1.00	4	D	338234	Brown slightly silty very gravelly SAND with occasional fine to coarse shell fragments. Gravel is fine to coarse.	15
MB06	0.00-0.50	2	B	338235	Dark grey slightly silty SAND with occasional fine to medium shell fragments and a slight odour of hydrocarbons.	19
MB06	1.50-2.00	6	B	338236	Brown slightly silty SAND with occasional fine to medium shell fragments.	17
MB06	2.50-3.00	10	B	338237	Grey slightly gravelly very sandy SILT with an odour of hydrocarbons. Gravel is fine to medium.	25
MB06	3.50-4.00	14	B	338238	Greyish brown clayey silty SAND with an odour of hydrocarbons. Gravel is fine.	22
MB06	4.50-5.00	18	B	338239	Greyish brown slightly gravelly silty SAND with an odour of hydrocarbons. Gravel is fine.	20
MB06	7.50-8.00	28	B	338240	Yellowish brown silty SAND with a strong odour of hydrocarbons.	13
MB06	10.50-11.00	38	B	338241	Greyish brown silty SAND and strong smell of hydrocarbons.	12
MB06	13.50-14.00	47	B	338242	Greyish brown silty SAND. With occasional fine to medium shell fragments.	16
MB06	14.50-15.00	50	B	338243	Light greyish brown slightly silty SAND with occasional shell fragments.	18
MB06	17.50-18.00	59	B	338244	Light greyish brown slightly silty SAND with rare shell fragments.	19
MB06	19.50-20.00	65	B	338245	Light greyish brown silty SAND with rare shell fragments.	19
MB06	20.00	66	D	338246	Grey slightly sandy silty CLAY.	19
MB06	21.50-22.00	70	B	338247	Light grey slighly sandy SILT.	30

Notes

Originator	Checked & Approved
LA	[redacted] 07/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 07/09/2018 11:38:01

TERRA TEK
Site Investigation & Laboratory Services

Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No **PZ1522D1**
Client	Norfolk County Council	
Engineer	Norfolk Partnership Laboratory	

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB06	22.00-22.45	72	D	338248	Grey slightly sandy silty CLAY.	23
MB06	23.60	77	D	338249	Grey slightly sandy SILT.	25
MB06	24.45	78	D	338250	Grey silty CLAY.	25

Notes

Originator	Checked & Approved
LA	[redacted] 07/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

TERRA TEK Site Investigation & Laboratory Services

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB04A	1.00-1.50	3	B	338520	Orange brown slightly silty slightly gravelly SAND. Gravel is fine.	16
MB04A	2.50-3.00	7	B	338521	Orange brown slightly silty gravelly SAND with occasional shell fragments. Gravel is fine to medium.	16
MB04A	3.50-4.00	11	B	338522	Light orange brown slightly silty gravelly SAND. Gravel is fine to medium.	20
MB04A	4.50-5.00	15	B	338523	Yellowish brown slightly silty SAND.	22
MB04A	7.50-8.00	25	B	338524	Orange brown slightly silty SAND.	25
MB04A	10.50-11.00	35	B	338525	Orangey brown slightly silty SAND.	20
MB04A	12.50-13.00	41	B	338526	Grey mottled brown slightly gravelly clayey silty SAND. Gravel is fine.	15
MB04A	14.50-15.00	47	B	338527	Light brown slightly silty SAND.	13
MB04A	16.50-17.00	52	B	338528	Grey clayey silty SAND.	21
MB04A	17.50-18.00	54	B	338529	Light grey mottled light brown slightly gravelly silty SAND. Gravel is fine.	16
MB04A	18.50-19.00	57	B	338530	Brown slightly gravelly very sandy CLAY. Gravel is fine to medium.	26
MB04A	21.20	64	D	338531	Grey slightly sandy CLAY.	25
MB04A	21.50-22.00	65	B	338532	Grey mottled light brown slightly sandy CLAY.	33
MB04A	23.30	70	D	338533	Olive grey slightly sandy CLAY with some shell fragments.	33

Notes

Originator	Checked & Approved
ACW	[redacted] 11/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

TERRA TEK Site Investigation & Laboratory Services

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB04A	24.50-25.00	73	B	338534	Grey clayey silty SAND with rare fine gravel.	16
MB04A	26.50-27.00	78	B	338535	Brown slightly clayey silty SAND.	24
MB04A	29.50-30.00	85	B	338536	Dark grey mottled brown slightly clayey silty SAND.	18
MB04A	31.50-32.00	90	B	338537	Light brown slightly silty SAND.	16
MB04A	33.50-34.00	95	B	338538	Grey mottled brown slightly clayey silty SAND with rare fine gravel.	18
MB04A	35.50-36.00	100	B	338539	Dark brown mottled light brown clayey silty SAND. Dark brown mottled light brown slightly clayey silty SAND.	19
MB04A	37.50-38.00	105	B	338540	Very dark brown clayey silty SAND.	26
MB04A	38.00-38.45	106	D	338542	Orange brown slightly gravelly silty CLAY. Gravel is fine to medium.	29
MB04A	38.50-39.00	107	B	338541	Very dark grey mottled brown slightly sandy CLAY with rare fine gravel.	31
MB04A	40.00-40.45	110	D	338543	Brown silty CLAY.	51
MB05	1.50-2.00	6	B	338544	Light brown slightly silty SAND.	17
MB05	2.50-3.00	10	B	338545	Dark brown slightly gravelly slightly silty SAND. Gravel is fine to medium.	12
MB05	3.50-4.00	14	B	338546	Orange brown slightly gravelly slightly silty SAND.	15
MB05	4.50-5.00	18	B	338547	Orange brown slightly clayey slightly gravelly silty SAND. Gravel is fine to medium.	21

Notes

Originator	Checked & Approved
ACW	[redacted] 11/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 11/09/2018 11:27:05

TERRA TEK
Site Investigation & Laboratory Services

Site: GREAT YARMOUTH 3RD RIVER CROSSING
Client: Norfolk County Council
Engineer: Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB05	5.50-6.00	22	B	338548	Orangey brown slightly silty SAND with rare fine shell fragments.	21
MB05	6.50-7.00	25	B	338549	Orange brown slightly silty SAND.	17
MB05	8.50-9.00	30	B	338550	Light brown slightly silty SAND.	20
MB05	12.50-13.00	43	B	338551	Orange brown slightly silty SAND.	19
MB05	13.50-14.00	46	B	338552	Orange brown slightly gravelly silty SAND with occasional fine shell fragments. Gravel is fine to medium.	20
MB05	15.50-16.00	52	B	338553	Orange brown slightly gravelly very sandy CLAY with some fine shell fragments. Gravel is fine.	20
MB05	16.00-16.33	53	D	338554	Grey sandy CLAY/SILT.	25
MB05	16.50-17.00	55	B	338555	Dark brown clayey silty SAND.	16
MB05	18.50-19.00	61	B	338557	Dark brown clayey silty SAND.	19
MB05	19.50-20.00	64	B	338558	Light brown slightly silty SAND with rare fine gravel.	16
MB05	21.50-22.00	69	B	338559	Dark grey clayey silty SAND.	17
MB05	22.00-22.45	70	D	338560	Olive grey slightly sandy silty CLAY.	27
MB05	22.50-23.00	72	B	338561	Grey mottled light brown slightly gravelly sandy CLAY. Gravel is fine to medium.	29
MB05	23.50-24.00	75	B	338563	Olive mottled light brown slightly sandy CLAY.	33

Notes

Originator	Checked & Approved
ACW	[redacted] 11/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 11/09/2018 11:27:22

TERRA TEK Site Investigation & Laboratory Services

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB05	23.60	74	D	338562	Grey slightly sandy silty CLAY.	24
MB05	24.50-25.00	78	B	338564	Greyish brown slightly gravelly clayey silty SAND. Gravel is fine.	18
MB07	0.50-1.00	3	B	338565	Brown silty gravelly SAND. Gravel is fine to medium.	15
MB07	1.30	6	D	338566	Orange brown slightly silty SAND.	15
MB07	2.30	10	D	338567	Orange brown slightly silty SAND.	18
MB07	3.40-4.00	15	B	338568	Orange brown slightly gravelly slightly clayey silty SAND. Gravel is fine to medium.	19
MB07	5.30	22	D	338569	Light brown clayey silty SAND.	22
MB07	6.50-7.00	26	B	338570	Light brown slightly silty SAND with rare fine gravel.	20
MB07	8.50-9.00	32	B	338571	Brown slightly silty SAND.	21
MB07	10.50-11.00	39	B	338572	Light orange brown silty SAND.	21
MB07	11.30	41	D	338573	Brown slightly gravelly silty SAND. Gravel is fine to medium.	23
MB07	11.50-12.00	42	B	338574	Light brown slightly silty SAND with organic odour and rare fine gravel.	3.8
MB07	13.50-14.00	48	B	338575	Light brown slightly silty SAND with rare fine shell fragments.	19
MB07	15.50-16.00	54	B	338576	Brown slightly silty SAND with rare fine shell fragments.	17

Notes

Originator	Checked & Approved
ACW	[redacted] 11/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

TERRA TEK Site Investigation & Laboratory Services

Site: GREAT YARMOUTH 3RD RIVER CROSSING

Client: Norfolk County Council

Engineer: Norfolk Partnership Laboratory

Contract No PZ1522D1

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB07	18.50-19.00	63	B	338577	Brown slightly clayey silty SAND with rare fine gravel.	19
MB07	19.00-19.45	64	D	338578	Grey slightly sandy CLAY.	29
MB07	19.50-20.00	66	B	338579	Dark grey sandy CLAY.	27
MB07	20.60	69	D	338580	Grey slightly sandy SILT/CLAY.	30
MB07	21.00-21.45	70	D	338581	Grey slightly sandy silty CLAY.	22
MB07	24.50-25.00	80	B	338582	Dark grey clayey silty SAND with rare shell fragments.	18
MB07	25.50-26.00	82	B	338583	Grey mottled light brown clayey silty SAND with rare fine shell fragments.	18
MB07	27.50-28.00	87	B	338584	Dark grey slightly clayey slightly gravelly silty SAND. Gravel is fine.	20
MB07	28.50-29.00	90	B	338585	Light grey silty SAND with rare fine gravel.	18
MB07	30.50-31.00	95	B	338586	Light brown silty SAND.	19
MB07	33.50-34.00	102	B	338587	Dark brown slightly clayey slightly silty SAND.	14
MB07	34.50-35.00	105	B	338588	Light brown slightly silty SAND.	16
MB07	36.50-37.00	110	B	338589	Grey mottled brown slightly silty SAND.	21
MB07	37.50-38.00	112	B	338590	Olive mottled dark brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.	29

Notes

Originator	Checked & Approved
ACW	[redacted] 11/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

TERRA TEK
Site Investigation & Laboratory Services

Site GREAT YARMOUTH 3RD RIVER CROSSING

Client Norfolk County Council

Engineer Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB07	38.60	114	D	338591	Greyish brown slightly gravelly slightly sandy CLAY. Gravel is fine.	29
MB07	39.00-39.45	116	D	338592	Brown slightly sandy CLAY.	32
MB08	0.50-1.00	3	B	338593	Dark brown mottled very dark grey slightly gravelly clayey silty SAND. Gravel is fine.	30
MB08	1.50-2.00	7	B	338594	Orange brown slightly clayey silty gravelly SAND. Gravel is fine to medium.	20
MB08	4.50-5.00	19	B	338595	Orange brown SAND with pockets of dark grey silty sand.	15
MB08	7.50-8.00	29	B	338596	Orange brown slightly silty SAND.	23
MB08	9.50-10.00	35	B	338597	Orange brown slightly silty SAND	27
MB08	11.50-12.00	41	B	338598	Orange brown slightly silty SAND.	19
MB08	12.50-13.00	44	B	338599	Orange brown slightly gravelly slightly silty SAND. Gravel is fine to medium.	16
MB08	13.50-14.00	48	B	338601	Orange brown slightly silty gravelly SAND. Gravel is fine to medium.	17
MB08	15.50-16.00	53	B	338602	Brown silty SAND with rare fine gravel.	17
MB08	17.50-18.00	58	B	338603	Light brown slightly silty SAND.	13
MB08	18.90	62	D	338604	Grey slightly sandy CLAY.	31
MB08	19.30-19.70	63	B	338605	Grey clayey silty SAND.	57

Notes

Originator	Checked & Approved
ACW	[redacted] 09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

TERRA TEK
Site Investigation & Laboratory Services

Site GREAT YARMOUTH 3RD RIVER CROSSING

Client Norfolk County Council

Engineer Norfolk Partnership Laboratory

Contract No PZ1522D1

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB08	21.00-21.45	67	D	338606	Grey silt/CLAY.	25
MB08	22.00-22.60	71	B	338607	Greyish brown slightly sandy CLAY.	31
MB08	23.00-23.45	72	D	338608	Grey sandy silty CLAY.	25
MB08	24.00-24.50	75	B	338610	Brown slightly gravelly clayey silty SAND. Gravel is fine to medium.	24
MB08	25.00-25.4B	74	D	338609	Greyish brown silty SAND with rare fine to medium gravel.	23
MB09	0.50-1.00	3		338611	Light brown silty SAND with occasional fine to medium shell fragments.	18
MB09	1.50-2.00	6	B	338612	Brown slightly silty slightly gravelly SAND with some fine shell fragments. Gravel is fine to medium.	12
MB09	2.50-3.00	10	B	338613	Very dark grey mottled brown clayey silty gravelly SAND. Gravel is fine to medium.	17
MB09	3.50-4.00	14	B	338614	Greyish brown silty gravelly SAND. Gravel is fine to medium.	15
MB09	4.50-5.00	17	B	338615	Orange brown clayey silty SAND with occasional fine shell fragments.	22
MB09	5.30-6.00	22	B	338616	Greyish brown silty SAND with occasional fine to medium shell fragments.	17
MB09	6.50-7.00	25	B	338617	Orange brown slightly gravelly slightly silty SAND. Gravel is fine.	22
MB09	10.50-11.00	38	B	338618	Orange brown slightly gravelly silty SAND. Gravel is fine.	20
MB09	12.50-13.00	44	B	338651	Dark brown mottled orange brown silty SAND with rare fine gravel.	16

Notes

Originator	Checked & Approved
ACW	[redacted] 11/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

TERRA TEK
Site Investigation & Laboratory Services

Site GREAT YARMOUTH 3RD RIVER CROSSING

Client Norfolk County Council

Engineer Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB09	13.30	46	B	338652	Orange brown silty SAND with occasional fine gravel.	16
MB09	14.50-15.00	50	B	338619	Orange brown mottled dark grey slightly silty SAND.	19
MB09	17.50-18.00	59	B	338620	Orange brown slightly silty SAND.	18
MB09	18.50-19.00	62	B	338621	Light brown slightly silty SAND.	23
MB09	19.50-20.00	64	B	338622	Dark grey mottled brown slightly clayey silty SAND with occasional fine to medium shell fragments.	21
MB09	21.50-22.00	69	B	338623	Dark brown sandy CLAY.	38
MB09	23.50-24.00	72	B	338625	Dark grey mottled dark brown slightly sandy SILT/CLAY with rare fine gravel.	37
MB09	23.60	71	D	338624	Grey silty CLAY.	25
MB09	24.50-25.00	75	B	338626	Grey slightly gravelly clayey silty SAND. Gravel is fine to medium.	24
MB09	27.50-28.00	82	B	338627	Dark grey clayey silty SAND with some fine shell fragments.	19
MB09	28.50-29.00	85	B	338628	Greyish brown slightly clayey silty SAND.	18
MB09	31.50-32.00	92	B	338629	Dark grey silty SAND with rare fine shell fragments.	18
MB09	33.50-34.00	97	B	338630	Grey slightly silty SAND.	15
MB09	36.50-37.00	105	B	338631	Grey silty SAND.	15

Notes

Originator	Checked & Approved
ACW	[redacted] 09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 11/09/2018 11:28:47

TERRA TEK
Site Investigation & Laboratory Services

Site GREAT YARMOUTH 3RD RIVER CROSSING

Client Norfolk County Council

Engineer Norfolk Partnership Laboratory

Contract No **PZ1522D1**

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB09	37.40	107	B	338632	Dark brown slightly sandy SILT/CLAY.	36
MB09	40.00-40.45	112	B	338633	Dark brown mottled brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.	30
MB09	40.00-40.45	113	D	338634	Orange brown slightly sandy CLAY.	28
MB10	2.00	5	B	338635	Dark brown slightly gravelly silty SAND with pockets of organic material. Gravel is fine to medium.	31
MB10	4.00	13	B	338636	Dark grey mottled brown slightly silty SAND.	18
MB10	5.00	17	B	338637	Brown mottled dark grey silty gravelly SAND. Gravel is fine to medium.	16
MB10	7.00	24	B	338638	Light brown slightly silty SAND with rare fine gravel.	21
MB10	10.00	33	B	338639	Orange brown slightly silty SAND.	20
MB10	12.00	40	B	338640	Orange brown slightly silty SAND.	22
MB10	14.00	47	B	338641	Orange brown silty SAND.	15
MB10	14.50	49	B	338642	Orange brown slightly silty gravelly SAND. Gravel is fine to coarse.	19
MB10	15.50	51	B	338643	Orange brown slightly gravelly slightly silty SAND. Gravel is fine to medium.	16
MB10	17.50	55	B	338644	Light brown slightly silty SAND.	14
MB10	19.30	60	B	338645	Brown slightly silty SAND.	14

Notes

Originator	Checked & Approved
ACW	[redacted] 09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

TERRA TEK
Site Investigation & Laboratory Services

Site: GREAT YARMOUTH 3RD RIVER CROSSING
Client: Norfolk County Council
Engineer: Norfolk Partnership Laboratory

Contract No PZ1522D1

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m	Sample Ref	Sample Type			
MB10	20.50	63	D	338646	Grey very sandy SILT/CLAY.	18
MB10	21.50	65	D	338647	Grey sandy CLAY.	26
MB10	22.50	68	B	338648	Greyih brown slightly sandy CLAY with rare fine gravel.	38
MB10	23.37	69	D	338649	Grey slightly sandy silty CLAY.	22

Notes

Originator	Checked & Approved
ACW	[redacted] 11/09/2018

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

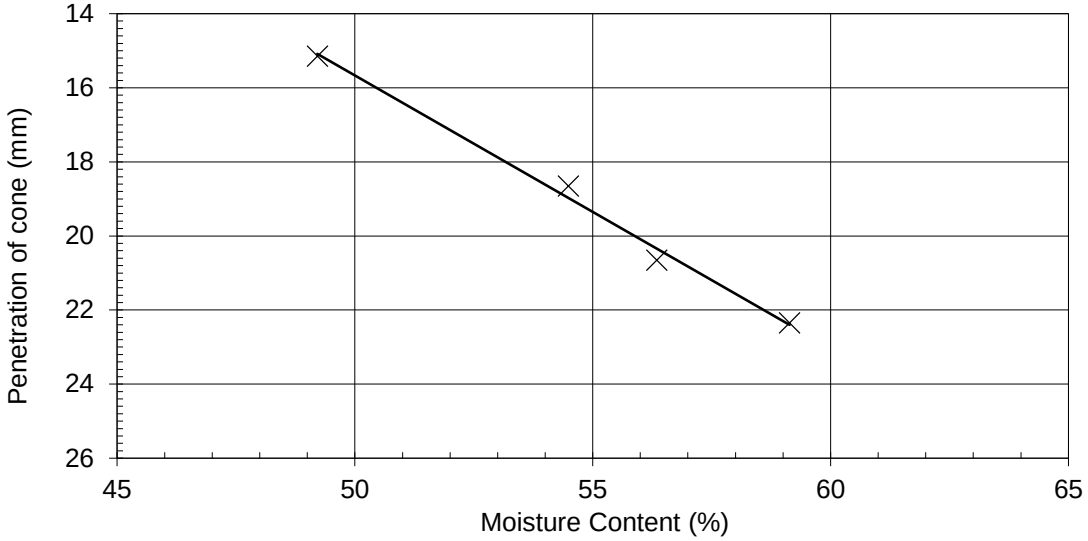
Unit 2 Springfield Road, Chesham, Bucks, HP51PW

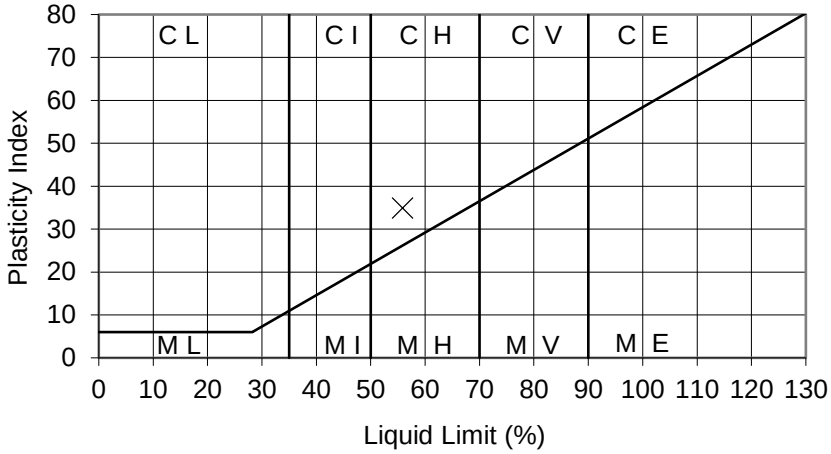
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB01
Engineer	Norfolk Partnership Laboratory	Sample Ref	6
		Depth (m)	1.40
		Sample Type	D

Non Engineering Description : Orange brown slightly sandy gravelly CLAY. Gravel is fine to medium.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	37	%
Percentage retained on 425µm sieve :	20	%
Liquid Limit :	56	%
Plastic Limit :	21	%
Plasticity Index :	35	
Equivalent moisture content of material passing 425µm sieve :	46	%
Liquidity Index :	0.71	

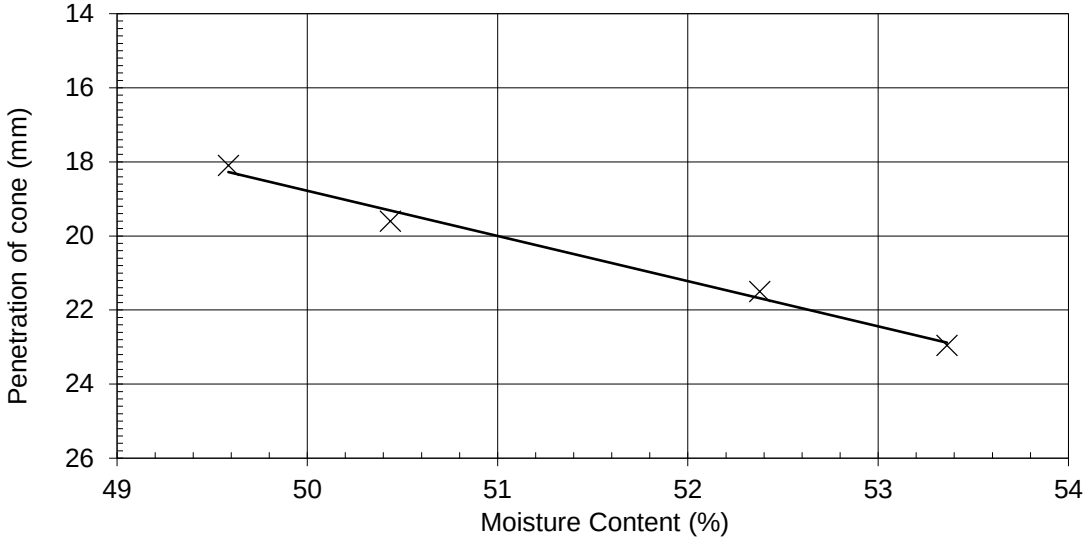
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 04/09/2018		Sheet 1 of 1

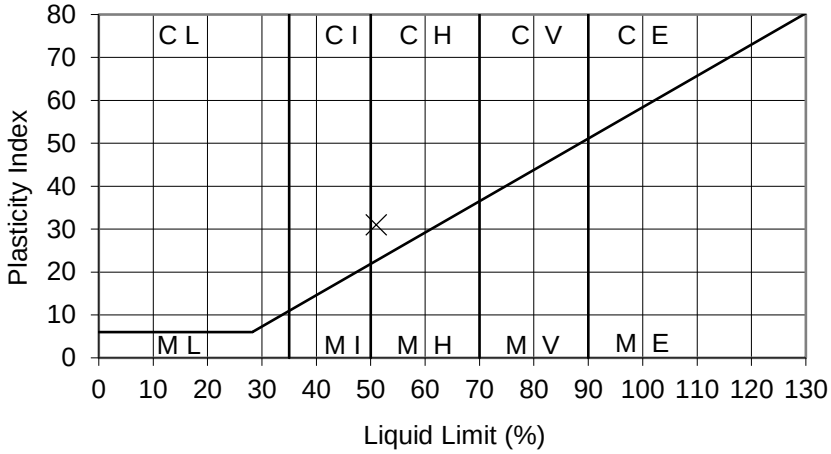
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	73
		Depth (m)	21.60
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	28	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	51	%
Plastic Limit :	20	%
Plasticity Index :	31	
Equivalent moisture content of material passing 425µm sieve :	28	%
Liquidity Index :	0.26	

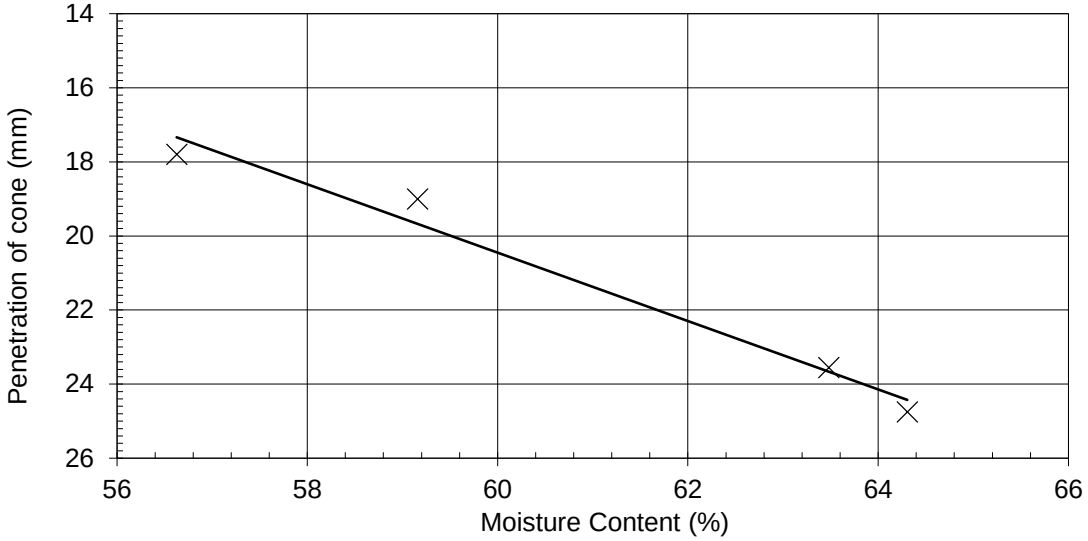
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 23/08/2018		Sheet 1 of 1

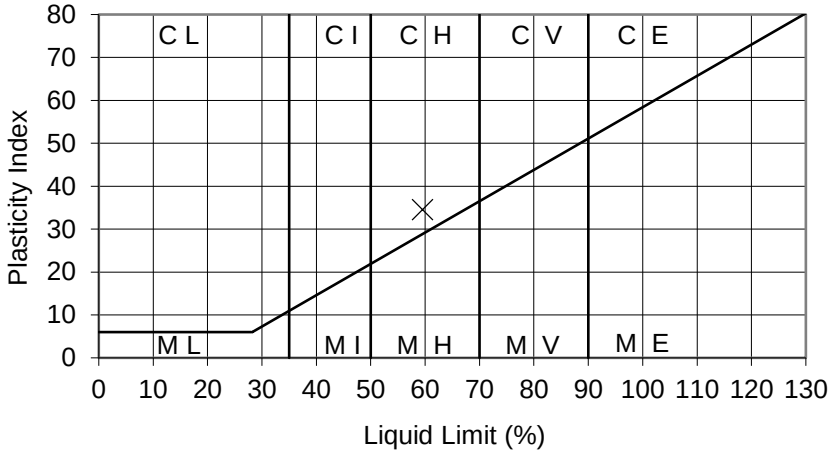
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	77
		Depth (m)	22.50-23.00
		Sample Type	B

Non Engineering Description : Olive grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	32	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	60	%
Plastic Limit :	25	%
Plasticity Index :	35	
Equivalent moisture content of material passing 425µm sieve :	32	%
Liquidity Index :	0.20	

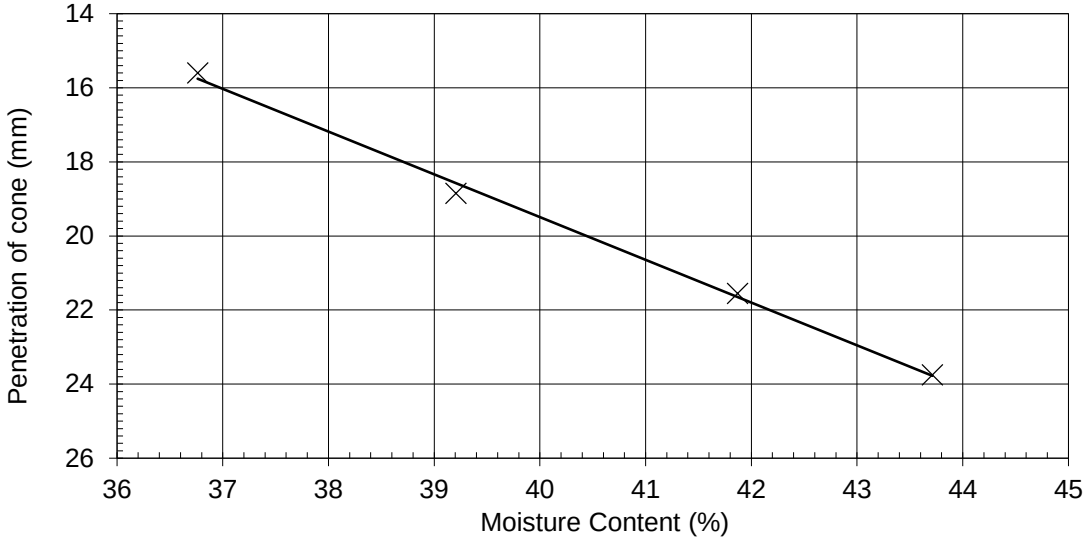
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	23/08/2018		Sheet 1 of 1

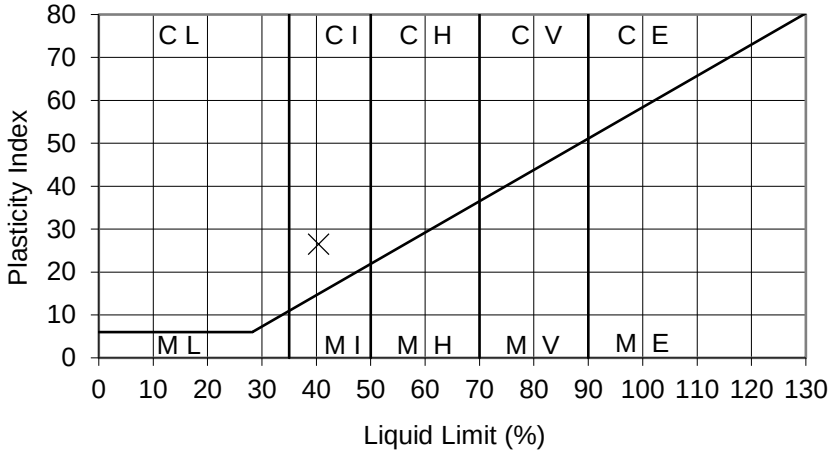
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	3
		Depth (m)	0.30
		Sample Type	B

Non Engineering Description : Grey slightly gravelly sandy CLAY with pockets of orange brown sand. Gravel is fine to medium.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	34	%
Percentage retained on 425µm sieve :	23	%
Liquid Limit :	40	%
Plastic Limit :	14	%
Plasticity Index :	26	
Equivalent moisture content of material passing 425µm sieve :	44	%
Liquidity Index :	1.15	

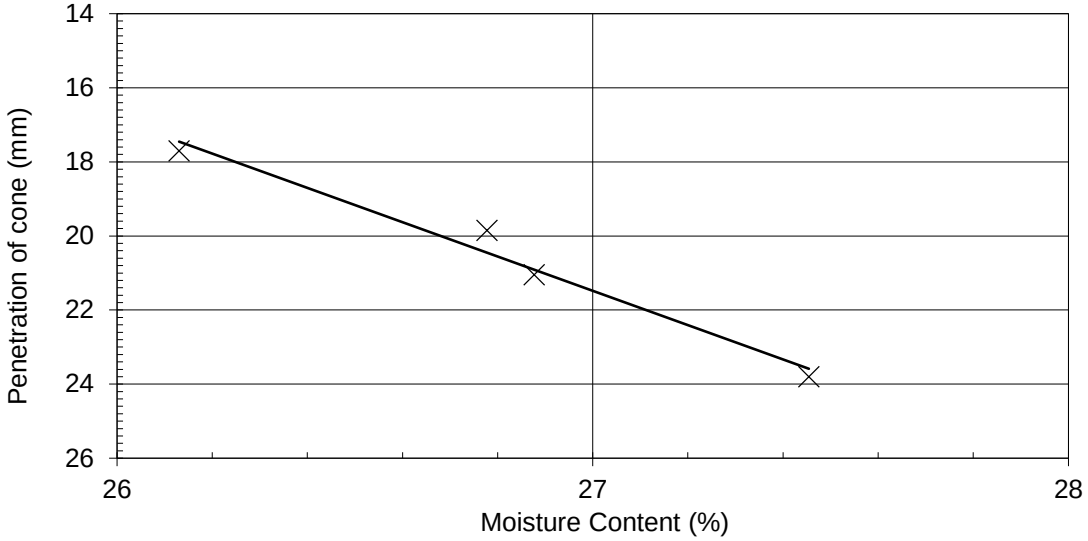
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted]/09/2018		Sheet 1 of 1

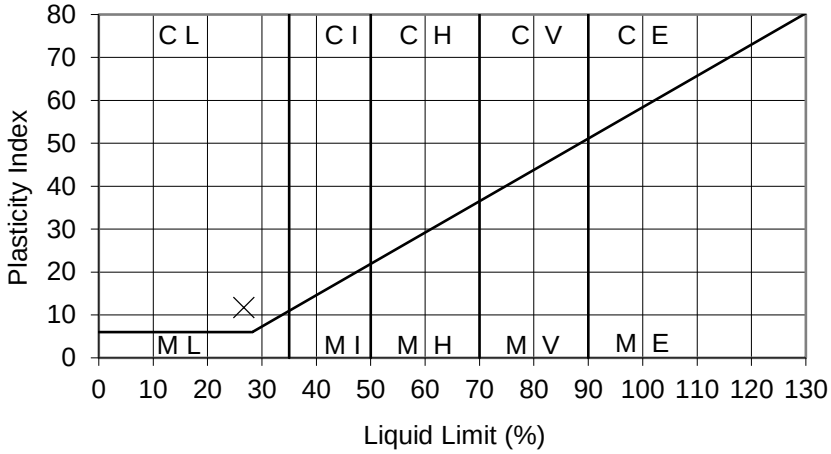
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	37
		Depth (m)	9.30-9.80
		Sample Type	B

Non Engineering Description : Brown silty clayey SAND.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	27	%
Percentage retained on 425µm sieve :	1	%
Liquid Limit :	27	%
Plastic Limit :	15	%
Plasticity Index :	12	
Equivalent moisture content of material passing 425µm sieve :	27	%
Liquidity Index :	1.00	

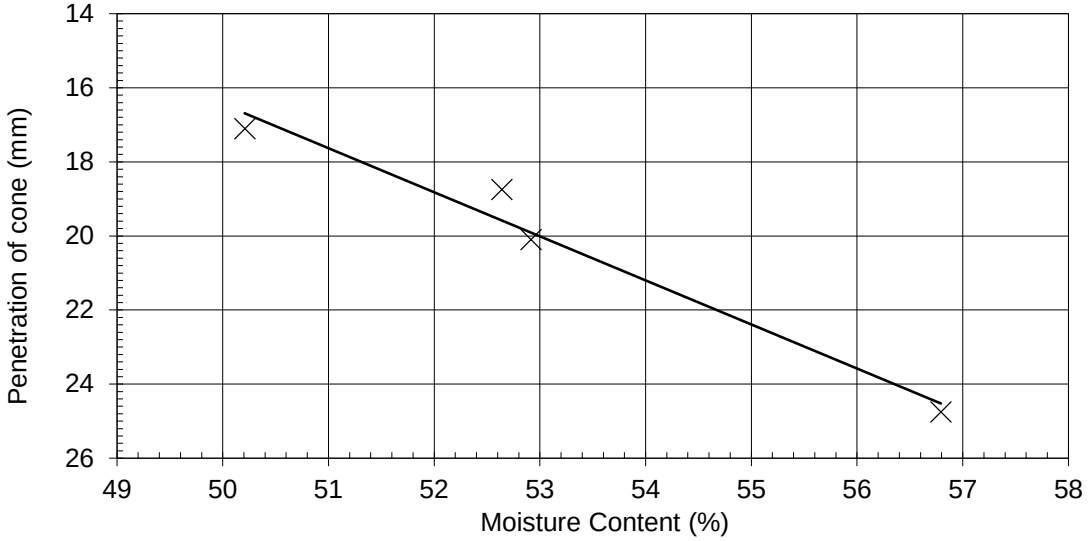
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 04/09/2018		Sheet 1 of 1

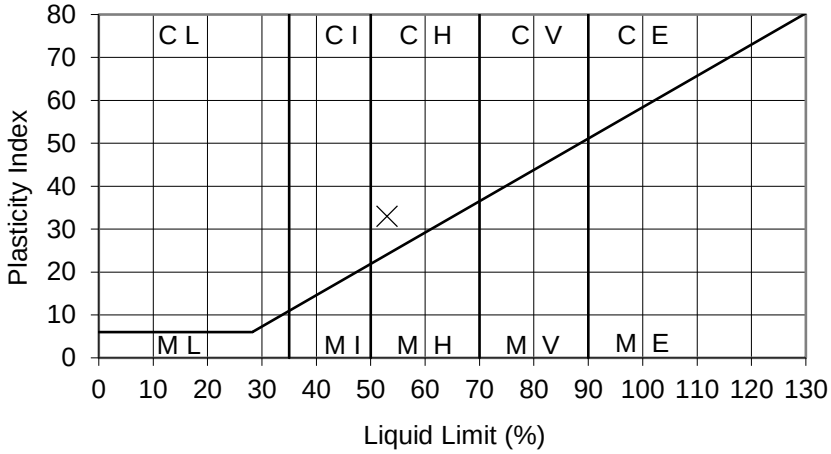
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	70
		Depth (m)	21.60
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	29	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	53	%
Plastic Limit :	20	%
Plasticity Index :	33	
Equivalent moisture content of material passing 425µm sieve :	29	%
Liquidity Index :	0.27	

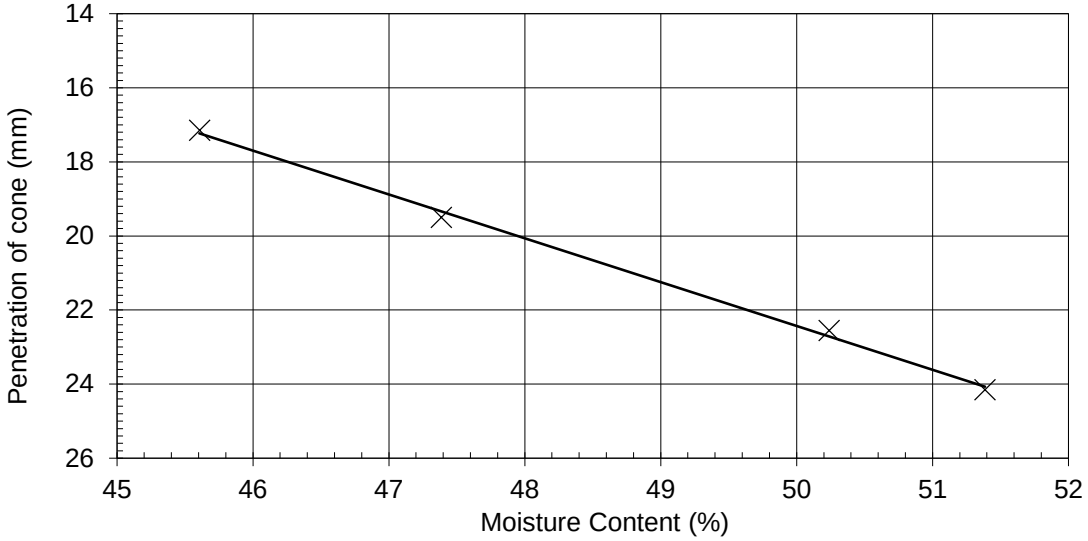
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 23/08/2018		Sheet 1 of 1

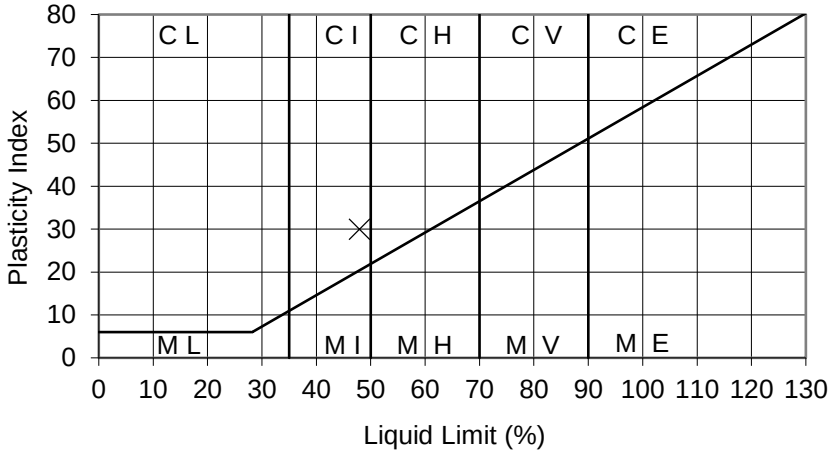
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	72
		Depth (m)	22.90
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	32	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	48	%
Plastic Limit :	18	%
Plasticity Index :	30	
Equivalent moisture content of material passing 425µm sieve :	32	%
Liquidity Index :	0.47	

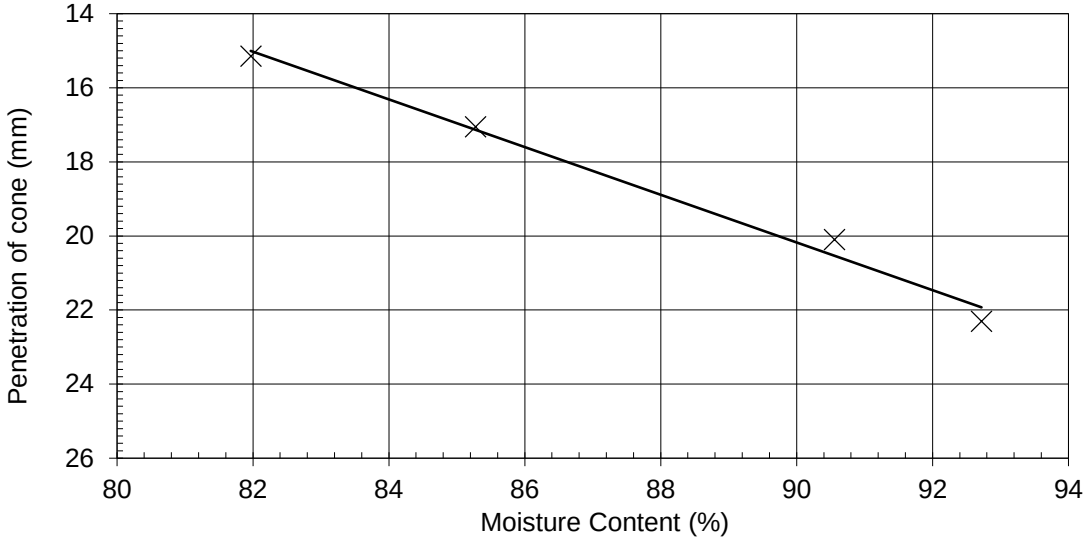
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 23/08/2018		Sheet 1 of 1

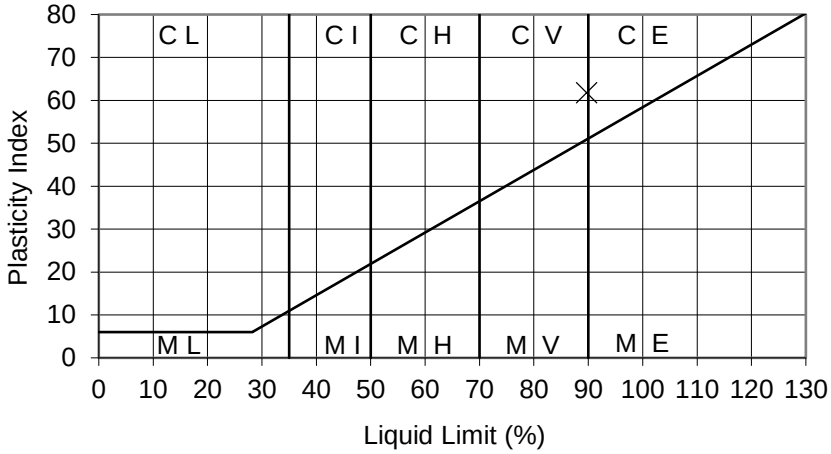
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	105
		Depth (m)	36.00
		Sample Type	D

Non Engineering Description : Dark grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	30	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	90	%
Plastic Limit :	28	%
Plasticity Index :	62	
Equivalent moisture content of material passing 425µm sieve :	30	%
Liquidity Index :	0.03	

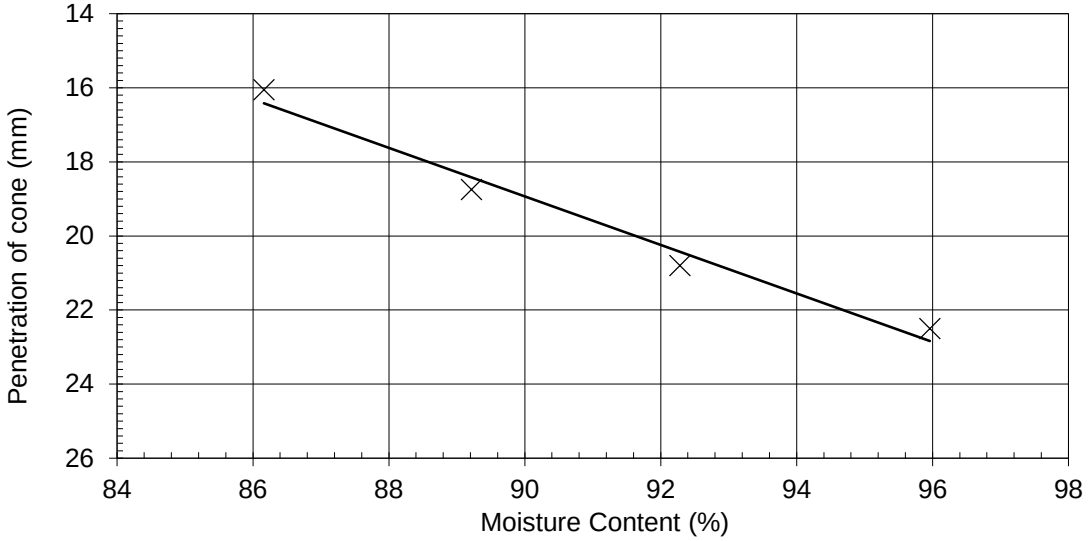
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	23/08/2018		Sheet 1 of 1

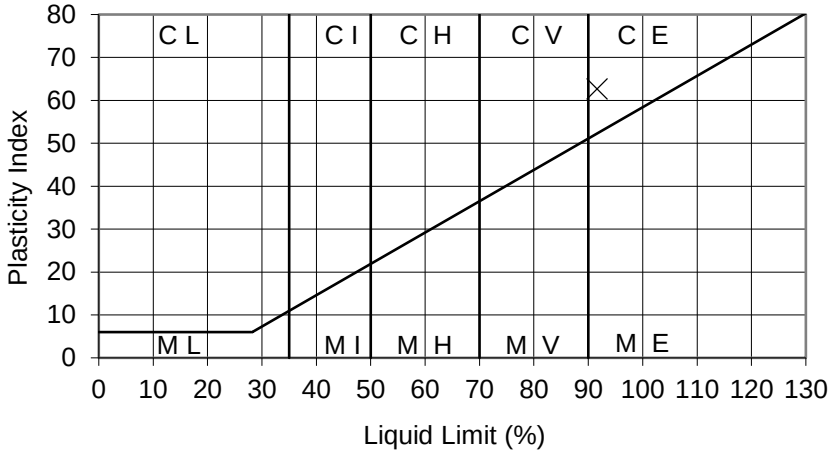
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	110
		Depth (m)	39.30-39.80
		Sample Type	B

Non Engineering Description : Dark grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	35	%
Percentage retained on 425µm sieve :	2	%
Liquid Limit :	92	%
Plastic Limit :	29	%
Plasticity Index :	63	
Equivalent moisture content of material passing 425µm sieve :	36	%
Liquidity Index :	0.11	

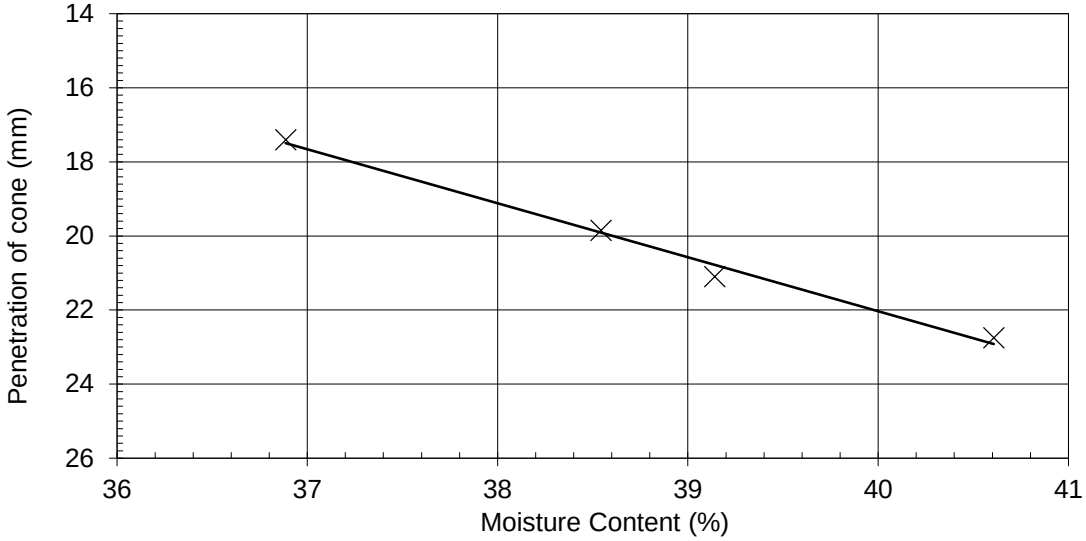
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 04/09/2018		Sheet 1 of 1

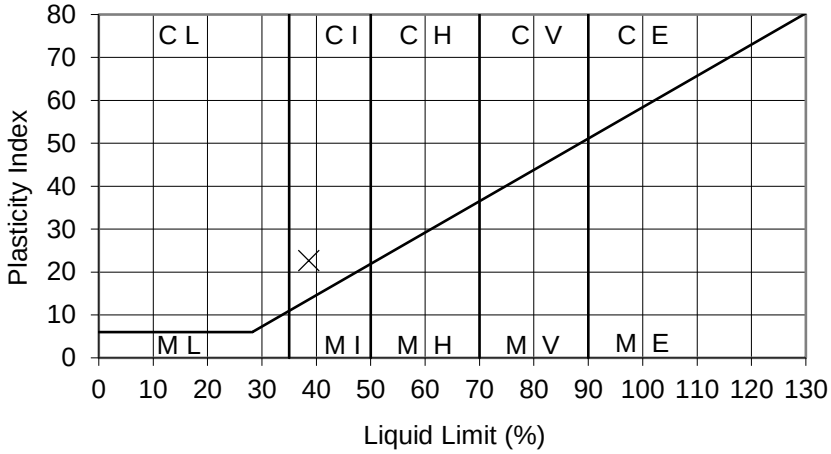
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	67
		Depth (m)	19.70
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	31	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	39	%
Plastic Limit :	16	%
Plasticity Index :	23	
Equivalent moisture content of material passing 425µm sieve :	31	%
Liquidity Index :	0.65	

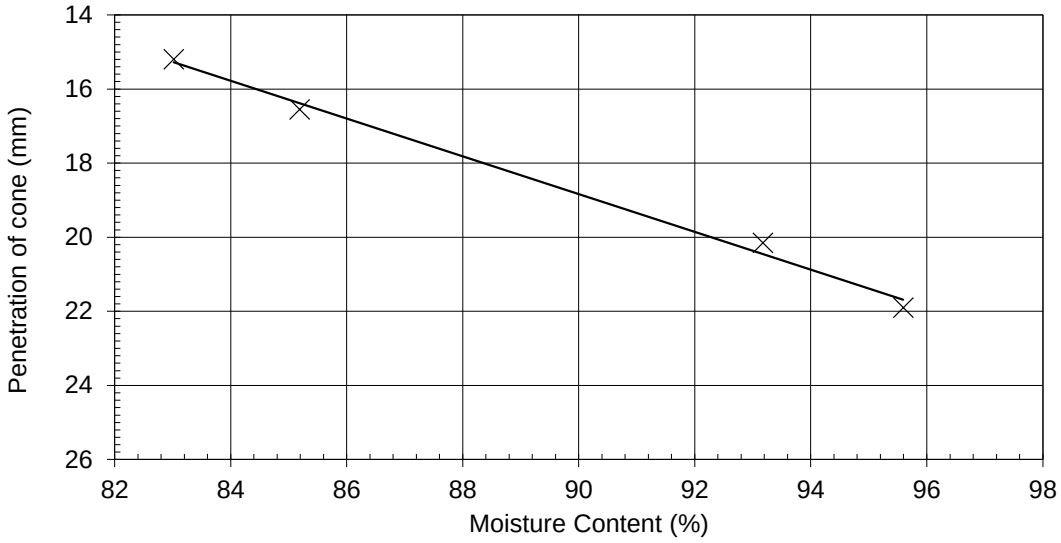
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 23/08/2018		Sheet 1 of 1

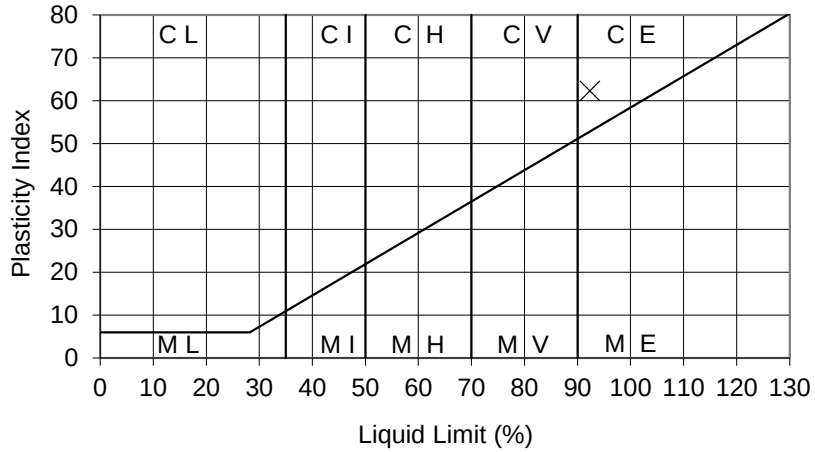
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	110
		Depth (m)	40.00-40.45
		Sample Type	D

Non Engineering Description : Brown slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	51	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	92	%
Plastic Limit :	30	%
Plasticity Index :	62	
Equivalent moisture content of material passing 425µm sieve :	51	%
Liquidity Index :	0.34	

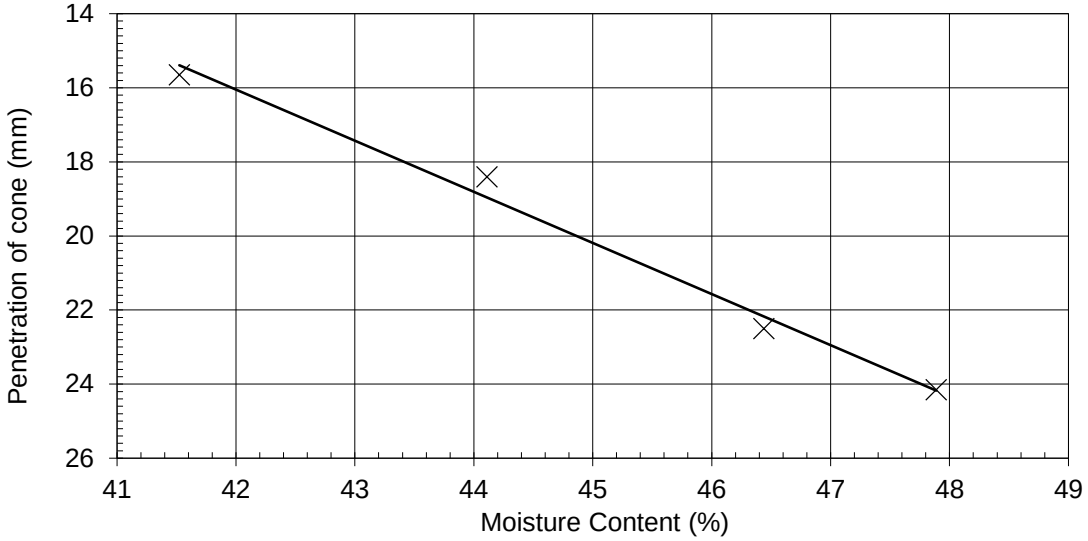
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
PD	[redacted]018		Sheet 1 of 1

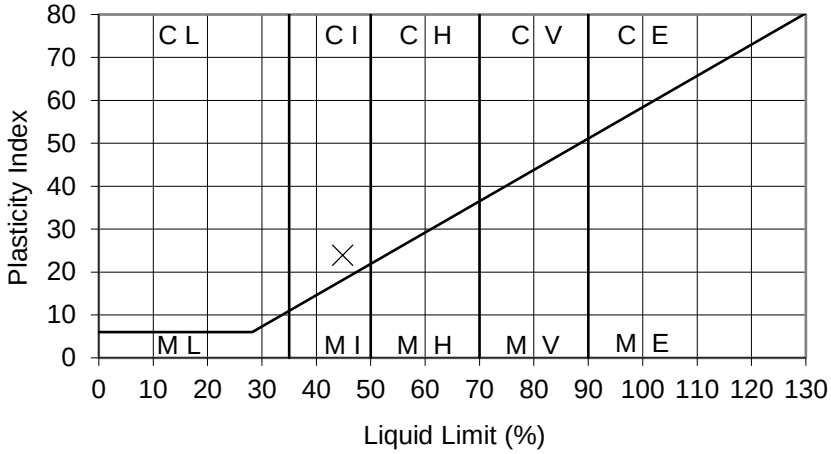
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	64
		Depth (m)	21.20
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	25	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	45	%
Plastic Limit :	21	%
Plasticity Index :	24	
Equivalent moisture content of material passing 425µm sieve :	25	%
Liquidity Index :	0.17	

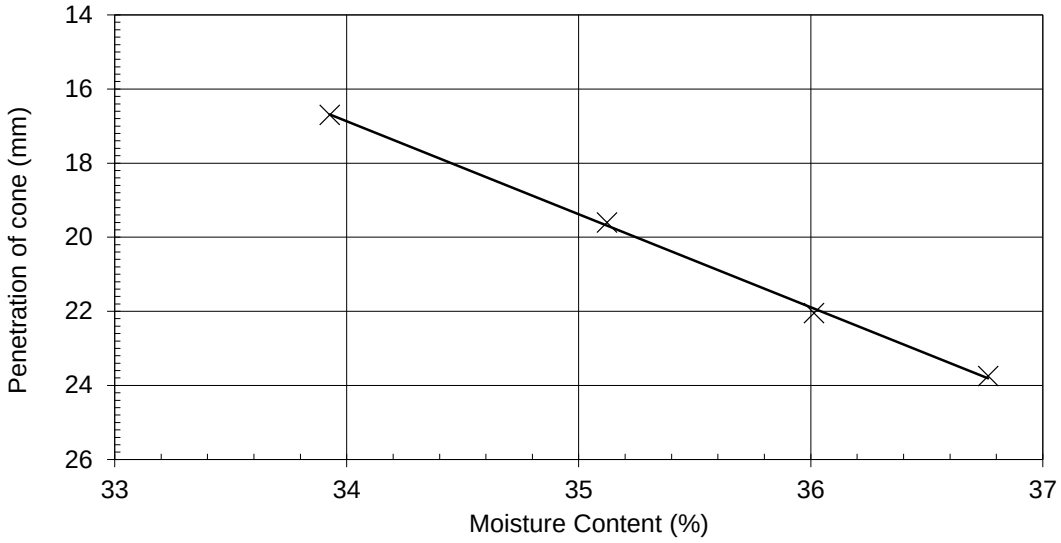
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 24/08/2018		Sheet 1 of 1

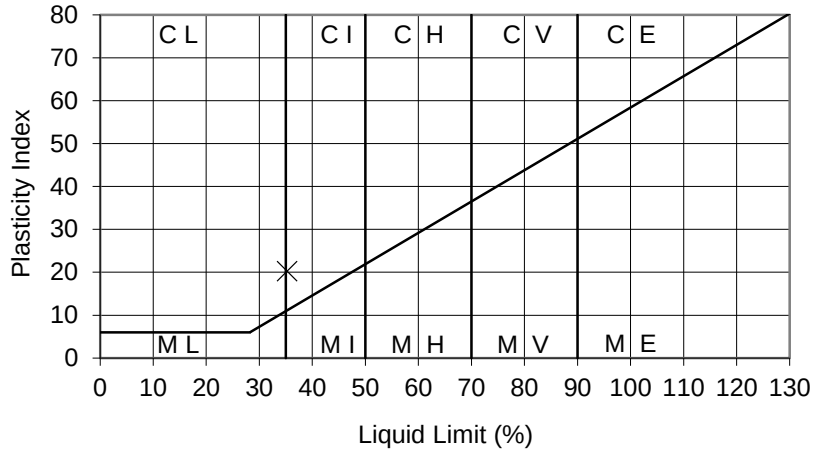
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	70
		Depth (m)	23.30
		Sample Type	D

Non Engineering Description : Olive grey slightly sandy CLAY with some shell fragments.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	33	%
Percentage retained on 425µm sieve :	25	%
Liquid Limit :	35	%
Plastic Limit :	15	%
Plasticity Index :	20	
Equivalent moisture content of material passing 425µm sieve :	44	%
Liquidity Index :	1.45	

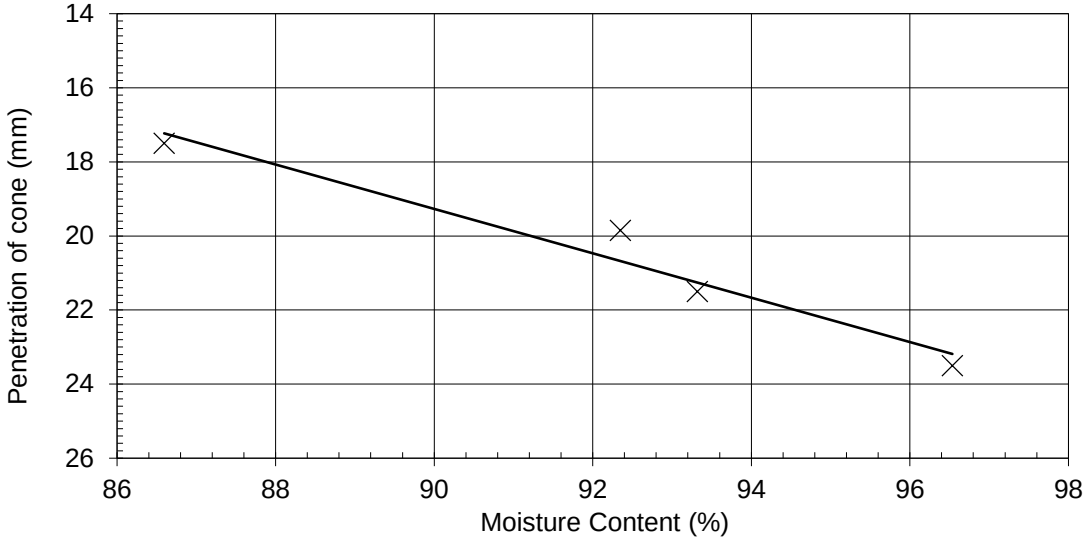
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 10/09/2018		Sheet 1 of 1

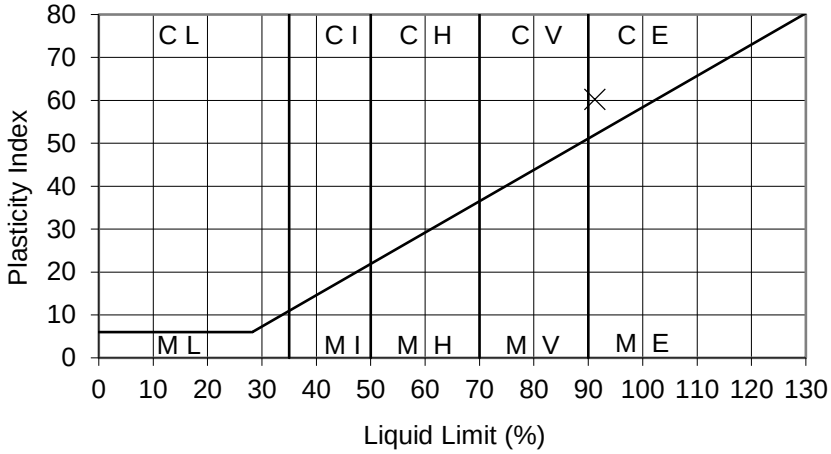
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	106
		Depth (m)	38.00-38.45
		Sample Type	D

Non Engineering Description : Orange brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	29	%
Percentage retained on 425µm sieve :	2	%
Liquid Limit :	91	%
Plastic Limit :	31	%
Plasticity Index :	60	
Equivalent moisture content of material passing 425µm sieve :	30	%
Liquidity Index :	-0.02	

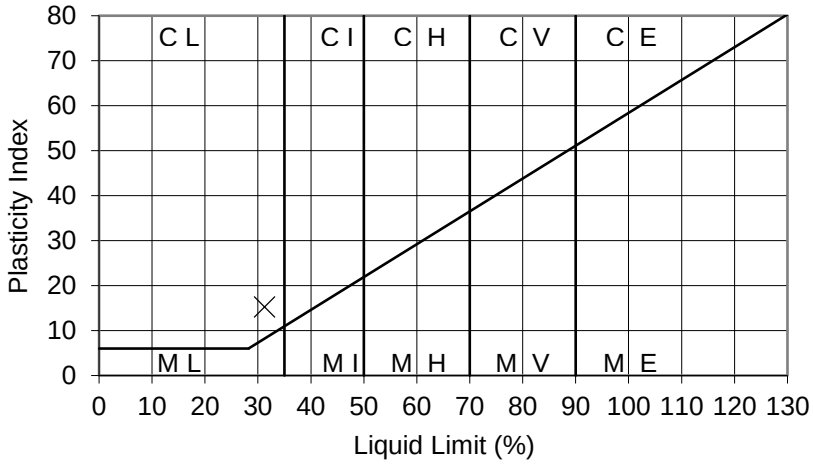
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 05/09/2018		Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	53
		Depth (m)	16.00-16.33
		Sample Type	D

Non Engineering Description : Grey sandy CLAY.

Preparation : Sample washed and air dried



Note: Insufficient material for a four point liquid limit test.

Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	25	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	31	%
Plastic Limit :	16	%
Plasticity Index :	15	
Equivalent moisture content of material passing 425µm sieve :	25	%
Liquidity Index :	0.60	

Originator	Checked & Approved
PD	[redacted] 05/09/2018

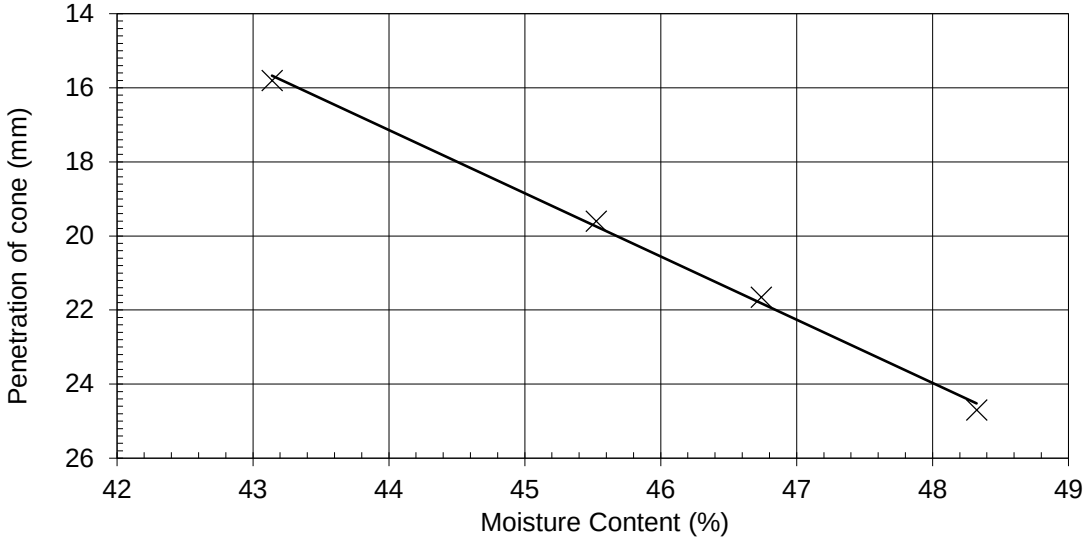
Liquid Limit (One Point Cone Penetrometer Method)
Plastic Limit, Plasticity Index & Liquidity Index
BS 1377:Part 2:Clause 4.4:1990
BS 1377:Part 2:Clause 5:1990

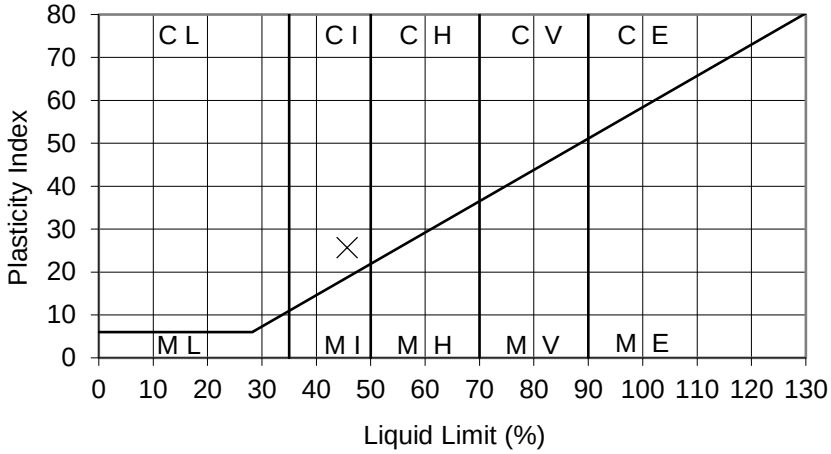
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	70
		Depth (m)	22.00-22.45
		Sample Type	D

Non Engineering Description : Olive grey slightly sandy CLAY.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	27	%
Percentage retained on 425µm sieve :	2	%
Liquid Limit :	46	%
Plastic Limit :	20	%
Plasticity Index :	26	
Equivalent moisture content of material passing 425µm sieve :	28	%
Liquidity Index :	0.31	

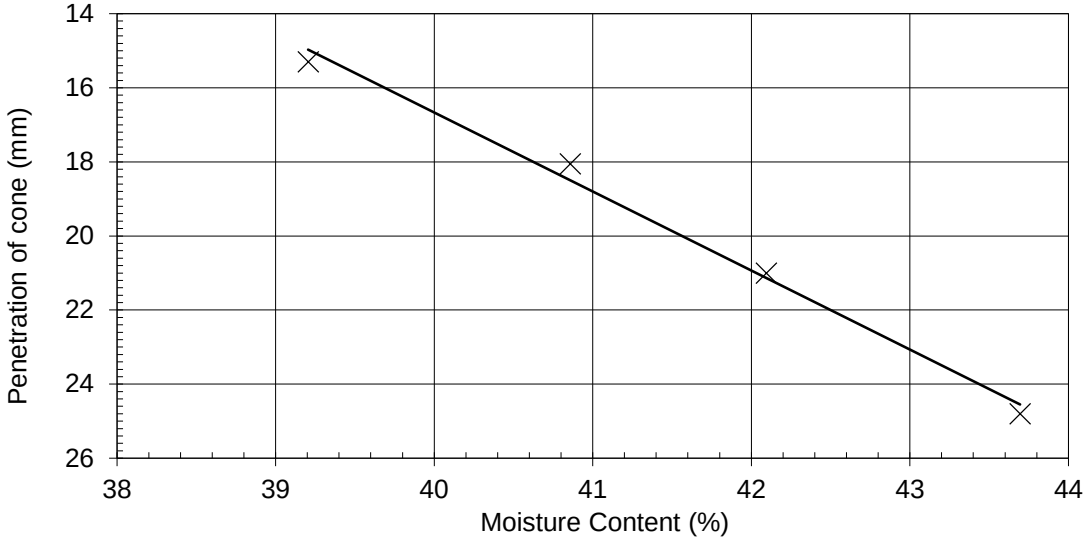
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 06/09/2018		Sheet 1 of 1

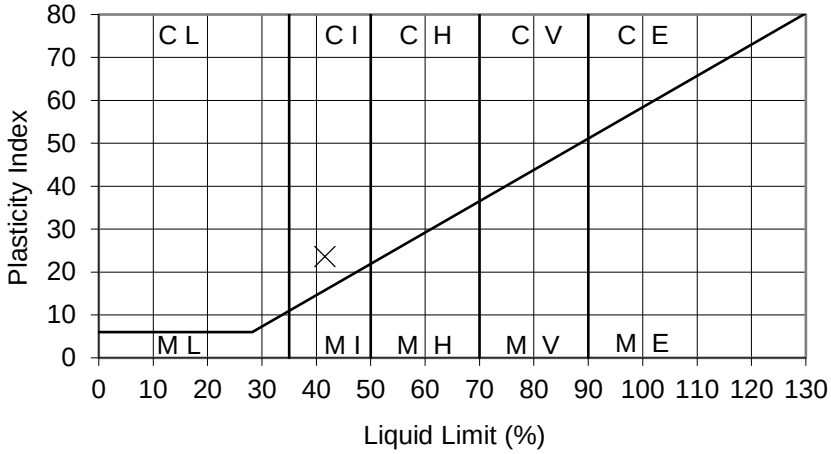
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	74
		Depth (m)	23.60
		Sample Type	D

Non Engineering Description : Grey slightly sandy sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	24	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	42	%
Plastic Limit :	18	%
Plasticity Index :	24	
Equivalent moisture content of material passing 425µm sieve :	24	%
Liquidity Index :	0.25	

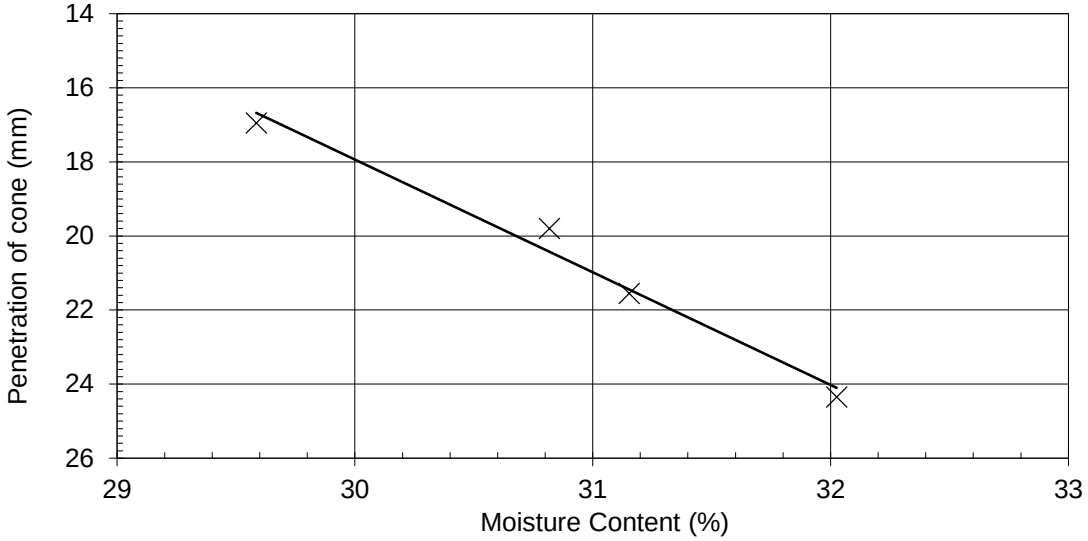
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 24/08/2018		Sheet 1 of 1

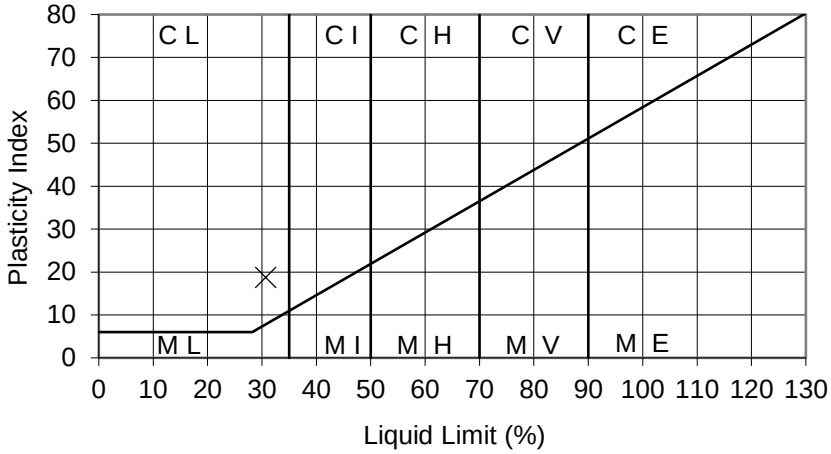
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	66
		Depth (m)	20.00
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	19	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	31	%
Plastic Limit :	12	%
Plasticity Index :	19	
Equivalent moisture content of material passing 425µm sieve :	19	%
Liquidity Index :	0.37	

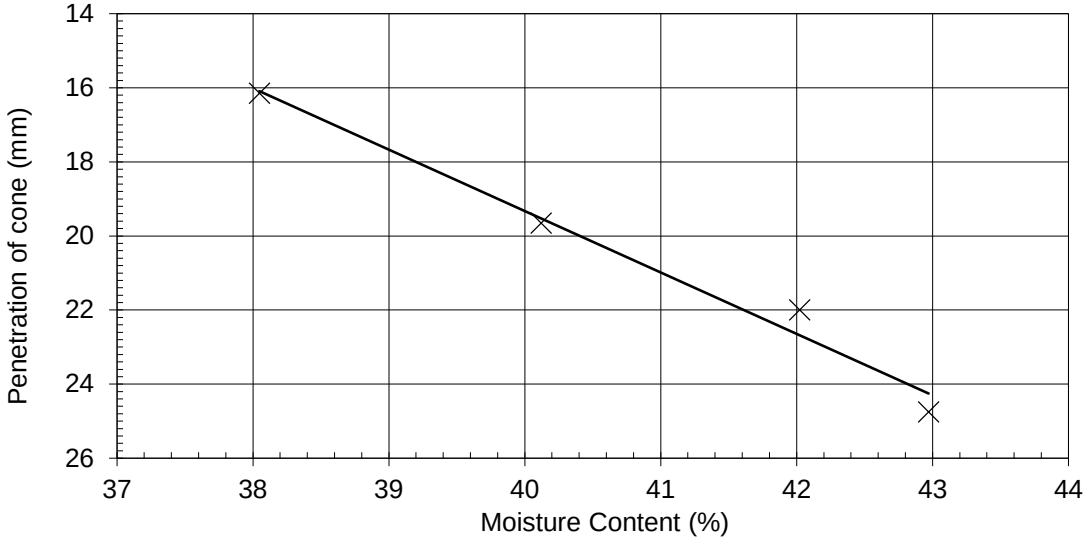
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	23/08/2018		Sheet 1 of 1

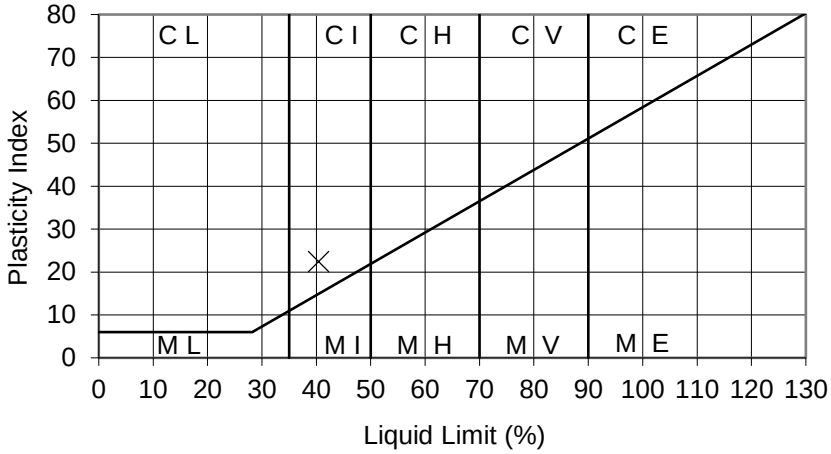
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	72
		Depth (m)	22.00-22.45
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	23	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	40	%
Plastic Limit :	18	%
Plasticity Index :	22	
Equivalent moisture content of material passing 425µm sieve :	23	%
Liquidity Index :	0.23	

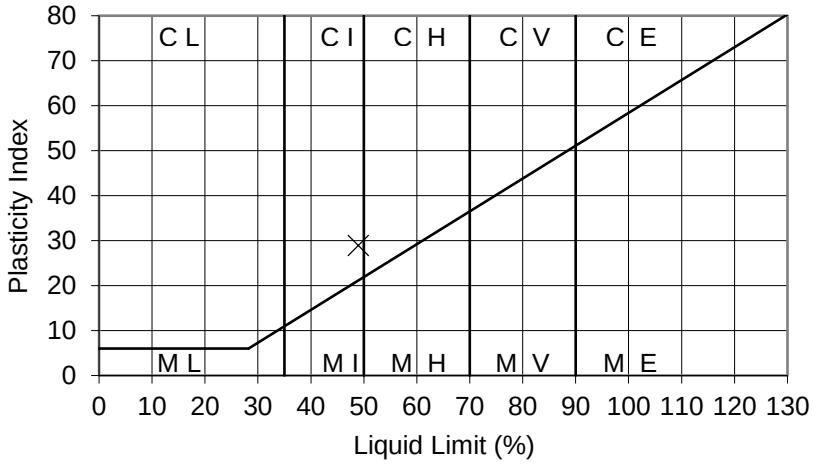
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 23/08/2018		Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	78
		Depth (m)	24.45
		Sample Type	D

Non Engineering Description : Grey sandy CLAY.

Preparation : Sample as received



Note: Insufficient material for a four point liquid limit test.

Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	25	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	49	%
Plastic Limit :	20	%
Plasticity Index :	29	
Equivalent moisture content of material passing 425µm sieve :	25	%
Liquidity Index :	0.17	

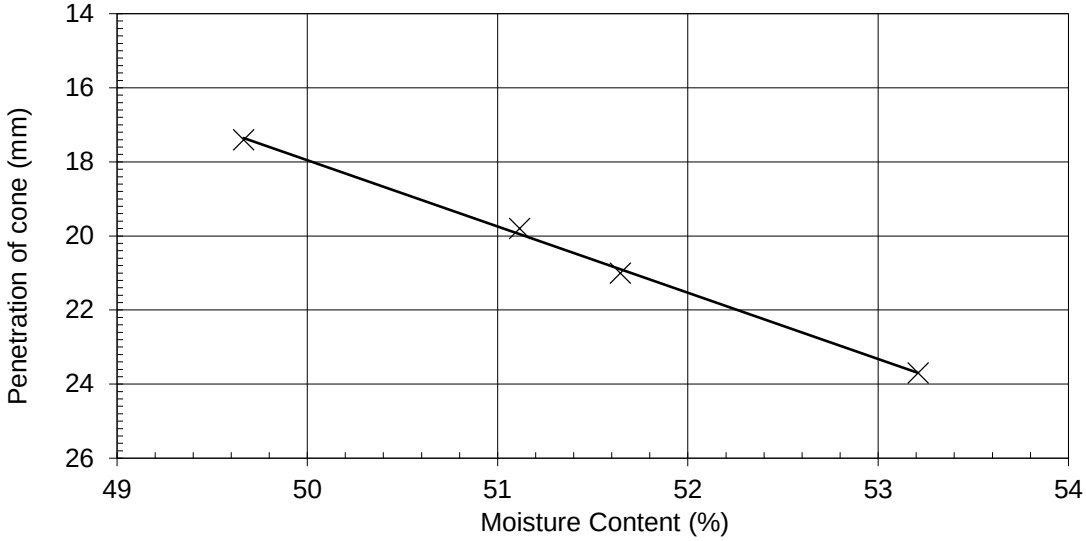
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PD	[redacted] 23/08/2018		Sheet 1 of 1

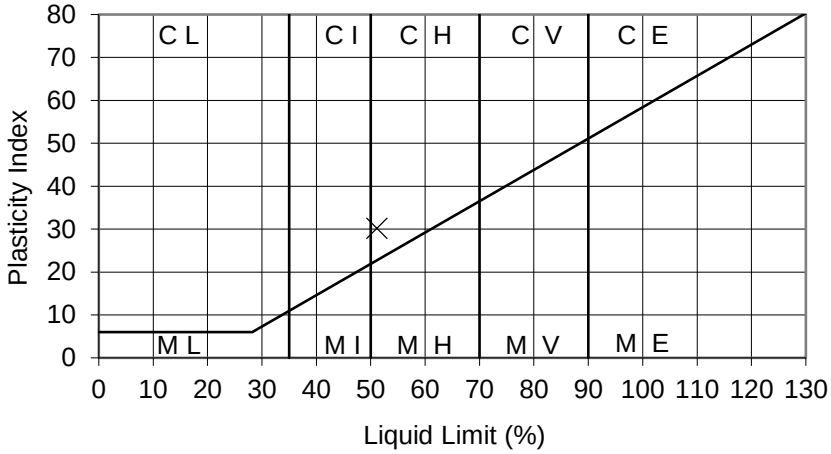
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	64
		Depth (m)	19.00-19.45
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	29	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	51	%
Plastic Limit :	21	%
Plasticity Index :	30	
Equivalent moisture content of material passing 425µm sieve :	29	%
Liquidity Index :	0.27	

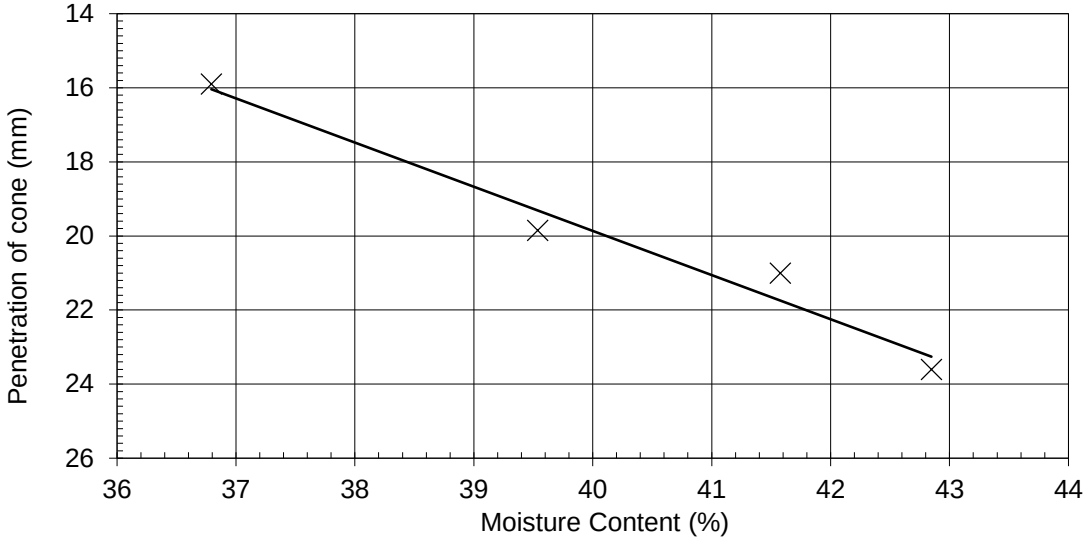
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 24/08/2018		Sheet 1 of 1

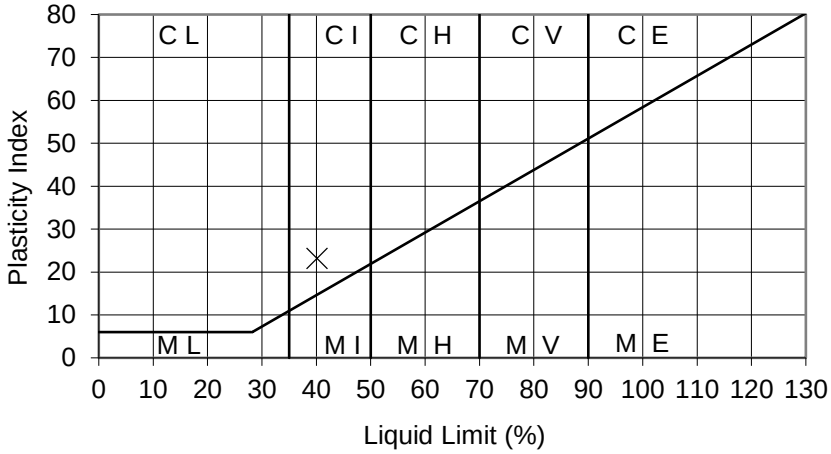
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	70
		Depth (m)	21.00-21.45
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	22	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	40	%
Plastic Limit :	17	%
Plasticity Index :	23	
Equivalent moisture content of material passing 425µm sieve :	22	%
Liquidity Index :	0.22	

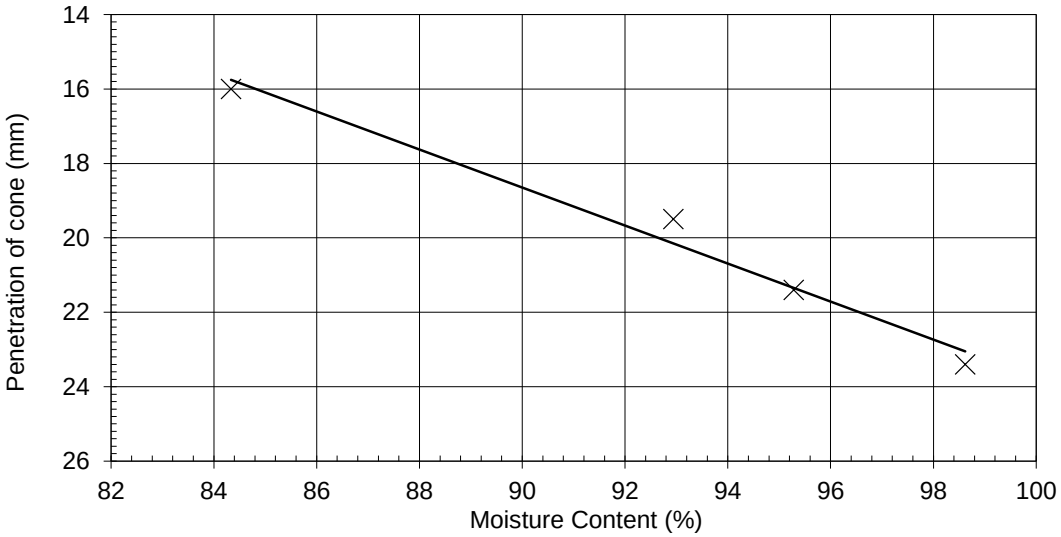
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 24/08/2018		Sheet 1 of 1

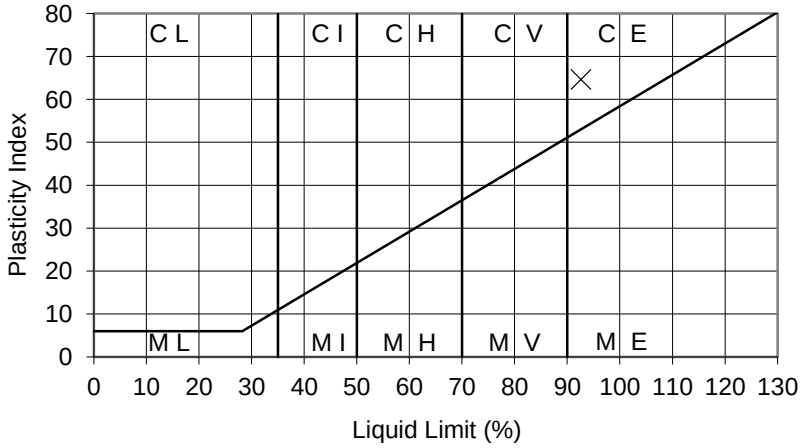
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	116
		Depth (m)	39.00-39.45
		Sample Type	D

Non Engineering Description : Brown slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	32	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	93	%
Plastic Limit :	28	%
Plasticity Index :	65	
Equivalent moisture content of material passing 425µm sieve :	32	%
Liquidity Index :	0.06	

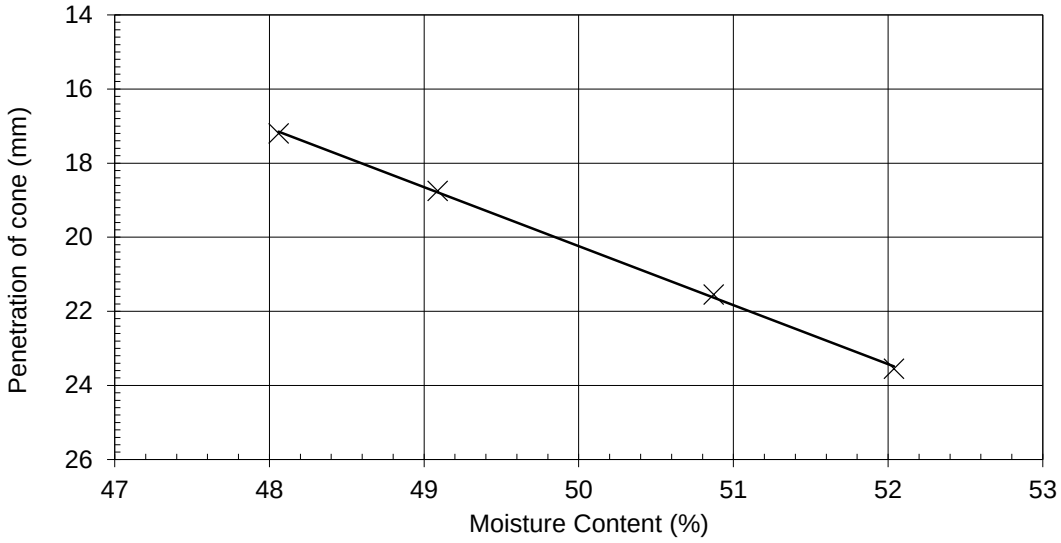
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
EH	[redacted] 10/09/2018		Sheet 1 of 1

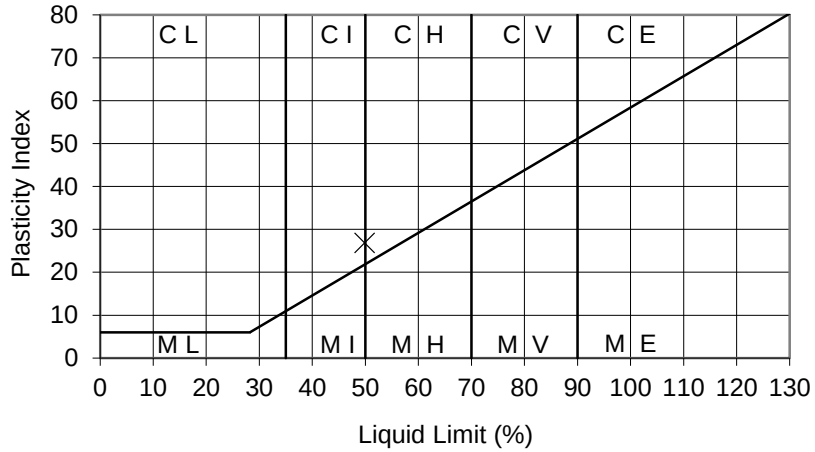
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	62
		Depth (m)	18.90
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	31	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	50	%
Plastic Limit :	23	%
Plasticity Index :	27	
Equivalent moisture content of material passing 425µm sieve :	31	%
Liquidity Index :	0.30	

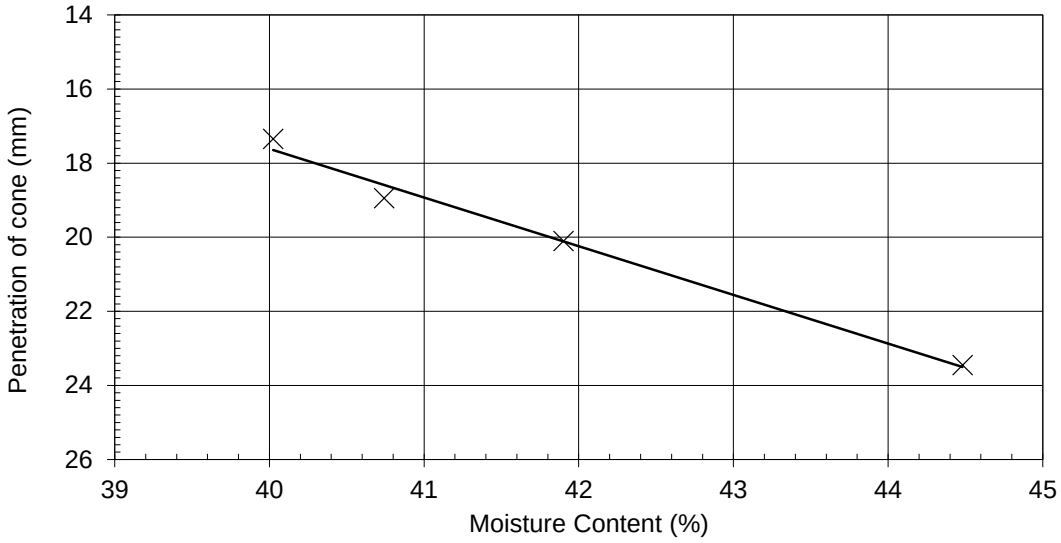
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PD	[redacted] 10/09/2018		Sheet 1 of 1

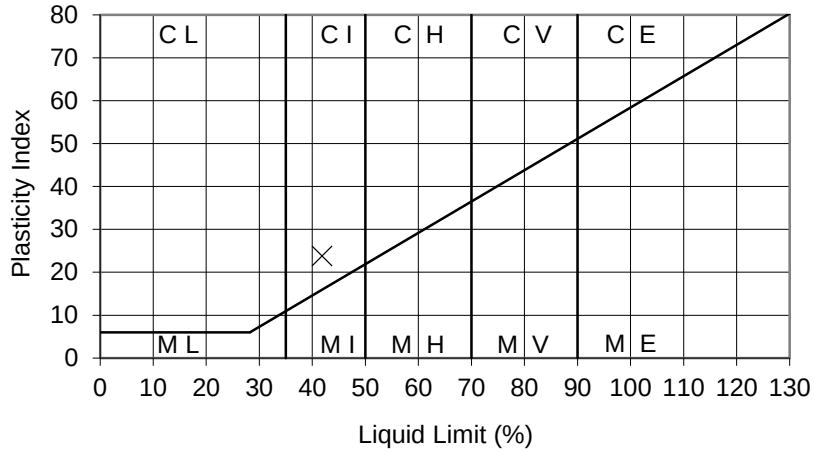
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	67
		Depth (m)	21.00-21.45
		Sample Type	D

Non Engineering Description : Grey SILT/CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	25	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	42	%
Plastic Limit :	18	%
Plasticity Index :	24	
Equivalent moisture content of material passing 425µm sieve :	25	%
Liquidity Index :	0.29	

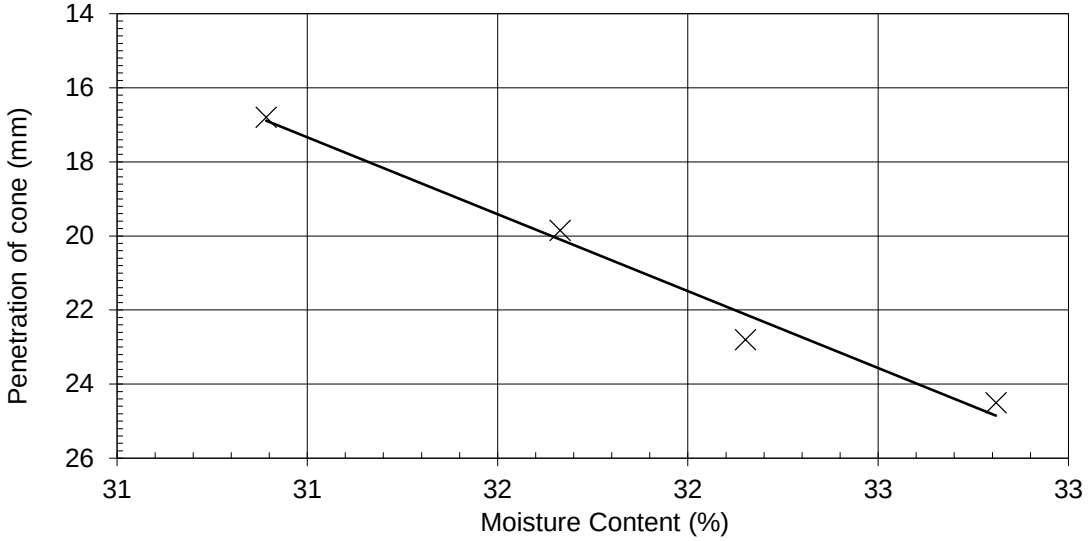
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PD	[redacted] 018		Sheet 1 of 1

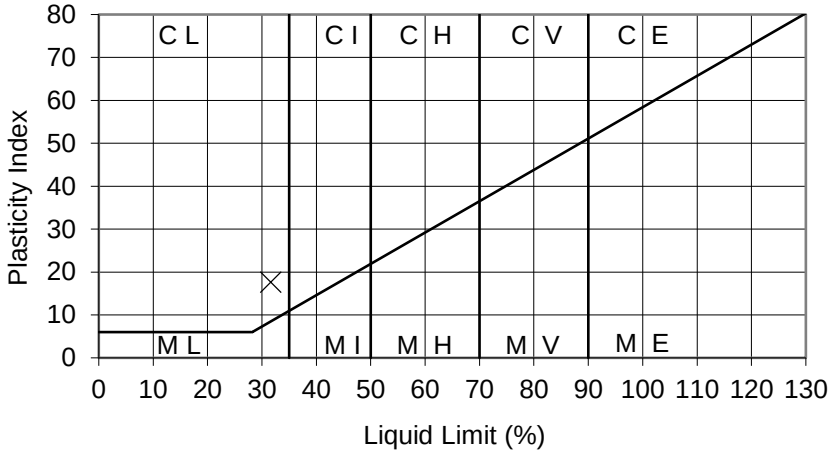
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	72
		Depth (m)	23.00-23.45
		Sample Type	D

Non Engineering Description : Grey sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	25	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	32	%
Plastic Limit :	14	%
Plasticity Index :	18	
Equivalent moisture content of material passing 425µm sieve :	25	%
Liquidity Index :	0.61	

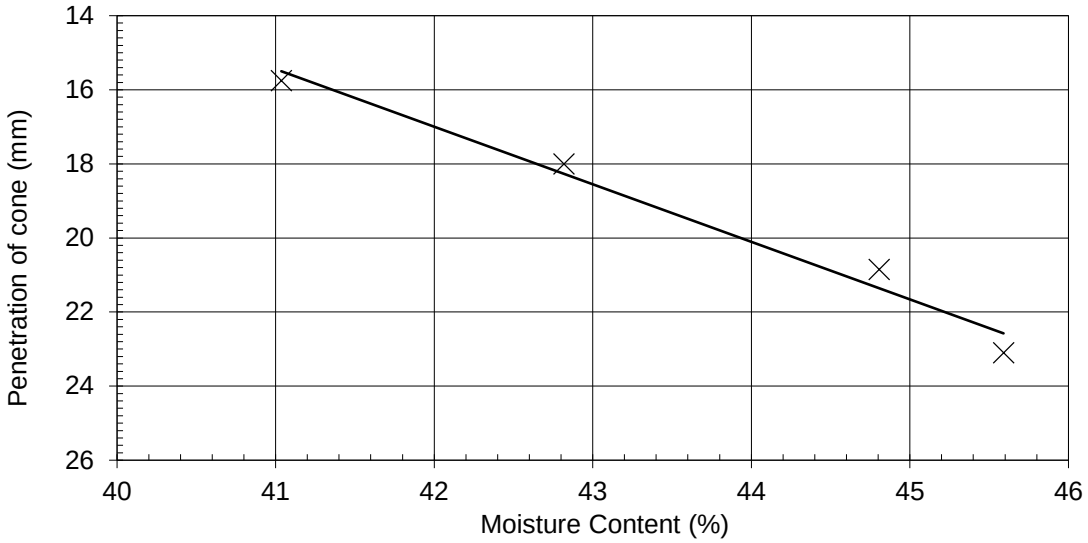
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 05/09/2018		Sheet 1 of 1

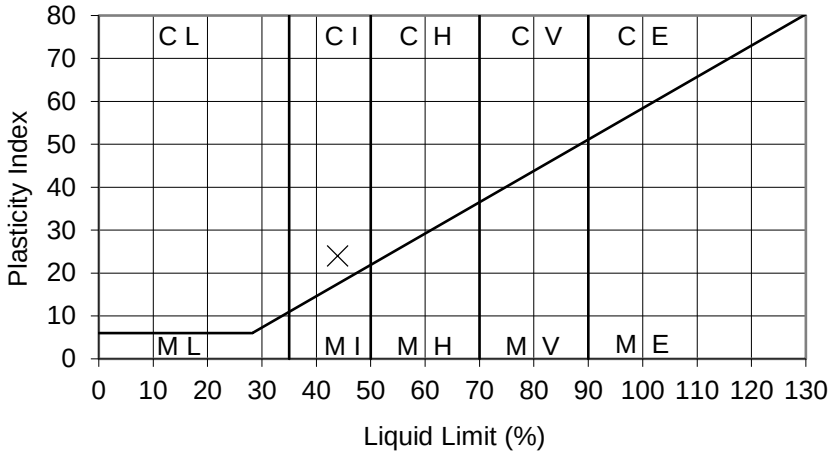
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	71
		Depth (m)	23.60
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	25	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	44	%
Plastic Limit :	20	%
Plasticity Index :	24	
Equivalent moisture content of material passing 425µm sieve :	25	%
Liquidity Index :	0.21	

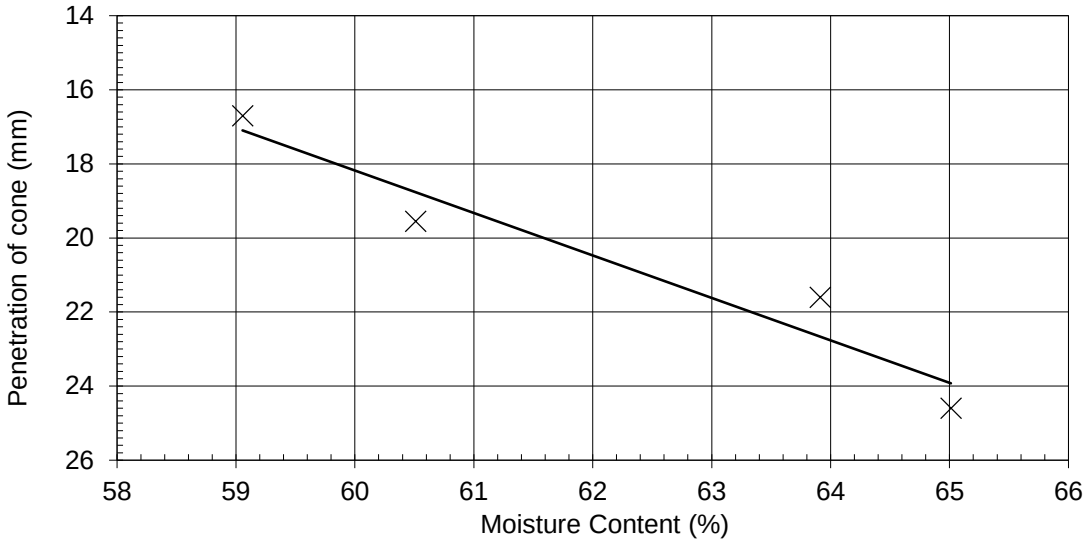
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted]/2018		Sheet 1 of 1

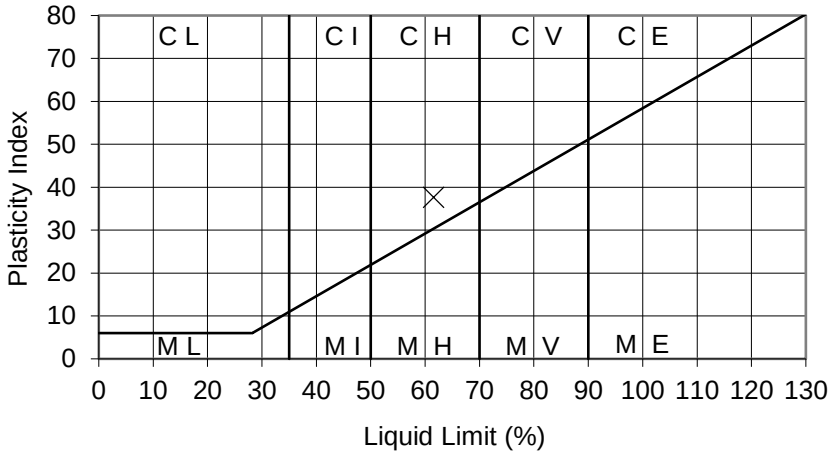
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	107
		Depth (m)	37.40
		Sample Type	B

Non Engineering Description : Brown slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	36	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	62	%
Plastic Limit :	24	%
Plasticity Index :	38	
Equivalent moisture content of material passing 425µm sieve :	36	%
Liquidity Index :	0.32	

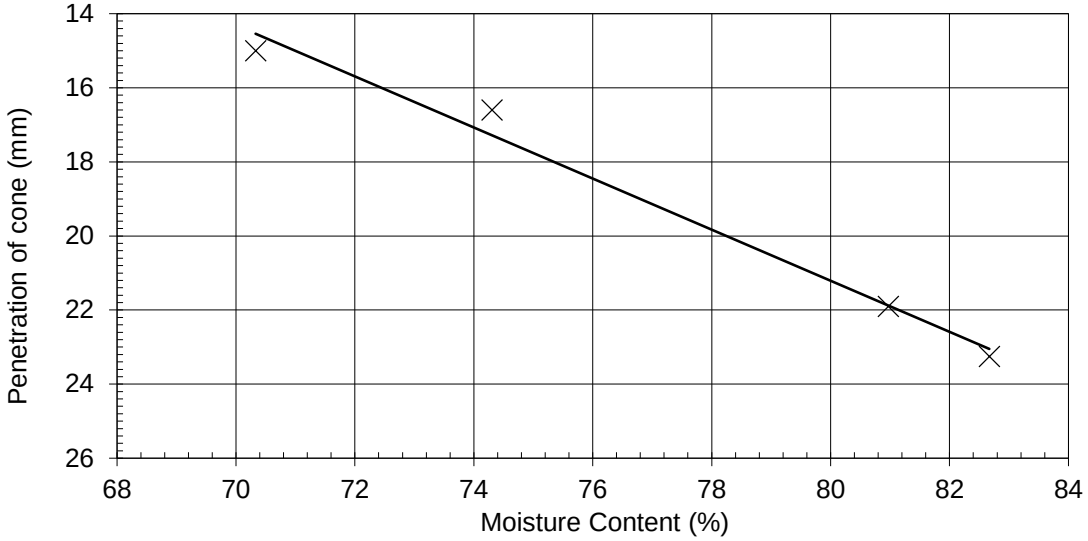
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
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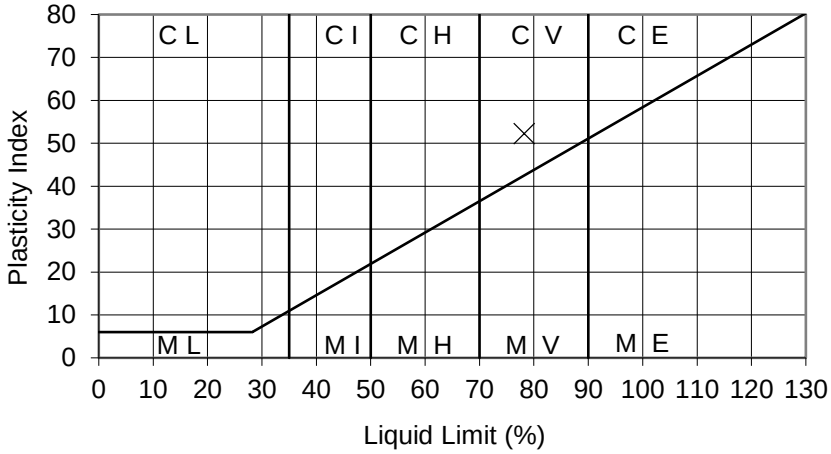
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	113
		Depth (m)	40.00-40.45
		Sample Type	D

Non Engineering Description : Orange brown slightly sandy CLAY.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	28	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	78	%
Plastic Limit :	26	%
Plasticity Index :	52	
Equivalent moisture content of material passing 425µm sieve :	28	%
Liquidity Index :	0.04	

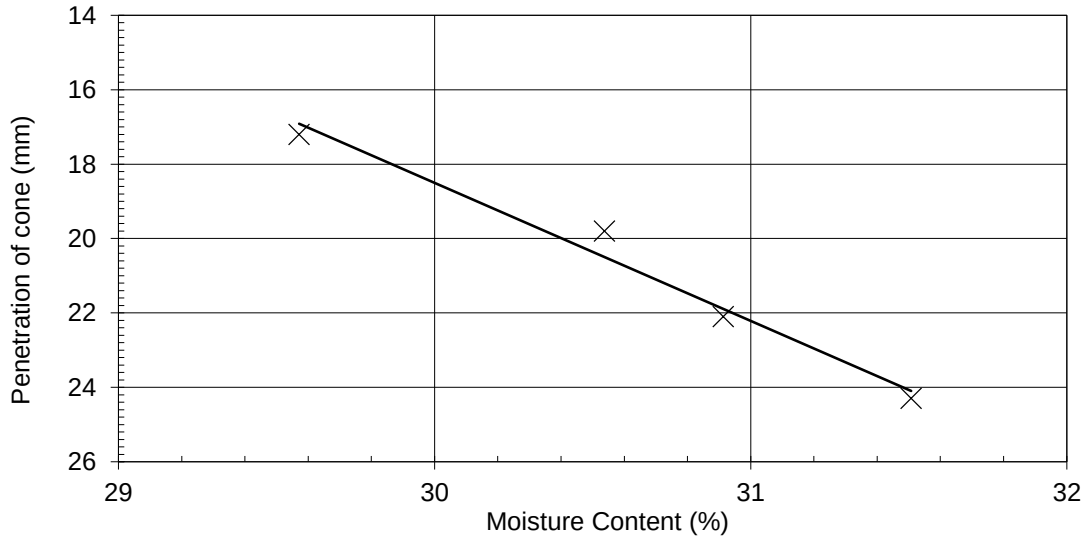
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
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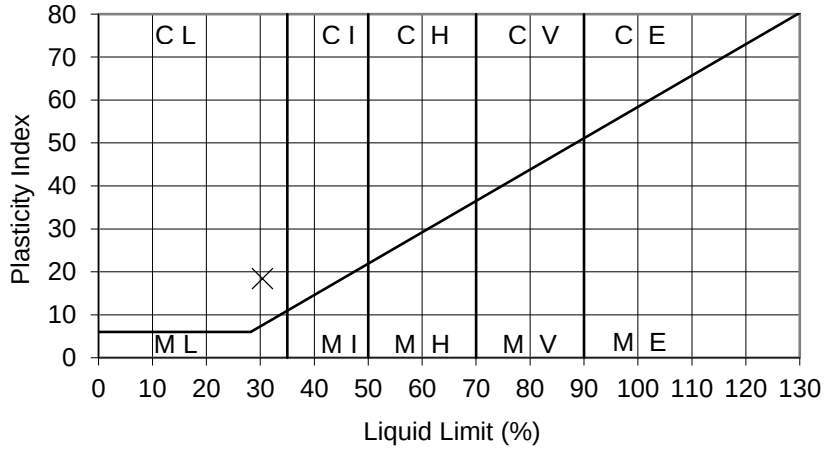
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	65
		Depth (m)	21.50
		Sample Type	D

Non Engineering Description : Grey sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	26	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	30	%
Plastic Limit :	12	%
Plasticity Index :	18	
Equivalent moisture content of material passing 425µm sieve :	26	%
Liquidity Index :	0.78	

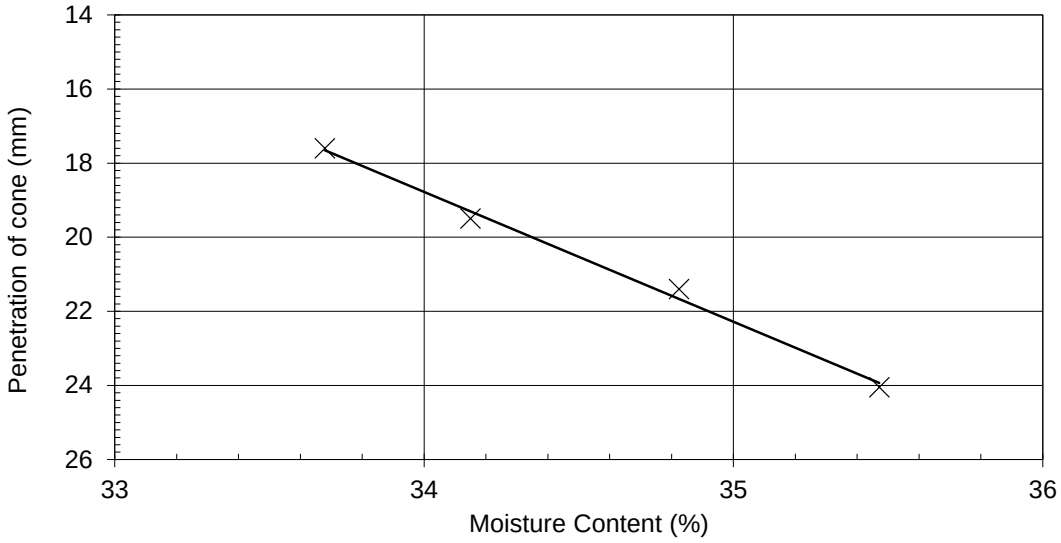
Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
EH	[redacted] 24/08/2018		Sheet 1 of 1

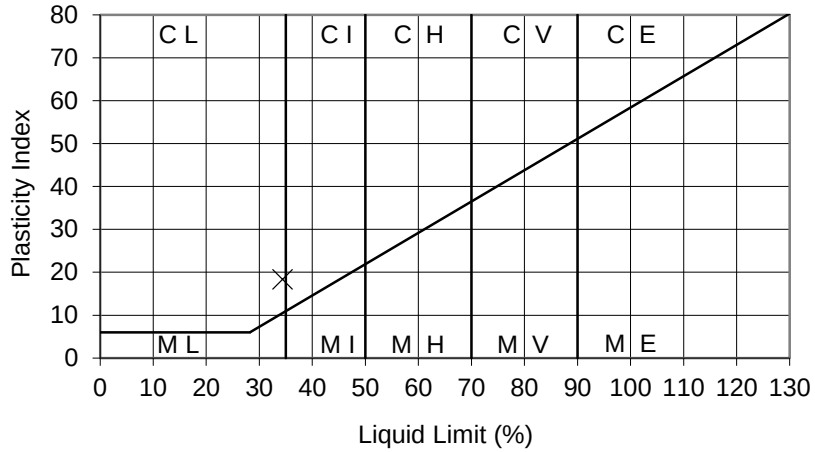
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole ID	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	69
		Depth (m)	23.37
		Sample Type	D

Non Engineering Description : Grey slightly sandy CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	22	%
Percentage retained on 425µm sieve :	2	%
Liquid Limit :	34	%
Plastic Limit :	16	%
Plasticity Index :	18	
Equivalent moisture content of material passing 425µm sieve :	22	%
Liquidity Index :	0.33	

Originator	Checked & Approved	**Liquid Limit (Four Point Cone Penetrometer Method)** **Plastic Limit, Plasticity Index & Liquidity Index** BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	
PD	[redacted] 10/09/2018		Sheet 1 of 1

Norfolk County Council
Norfolk Partnership Laboratory

NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457
Email: civil.laboratory@norfolk.gov.uk

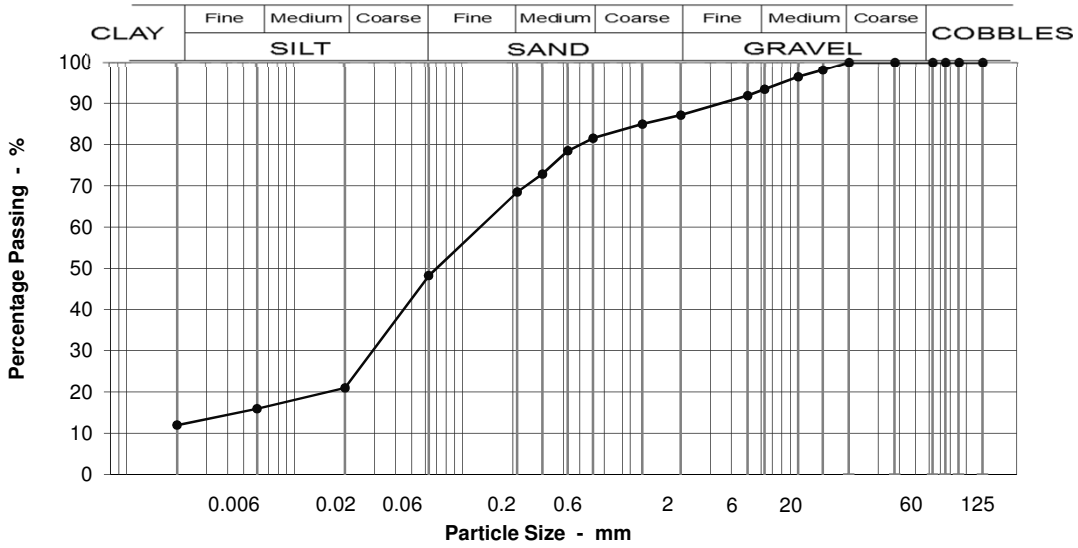
Community & Environmental Services
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2DH

Our reference No. NCCL2018062216-610
Our Project No PZ1522D1
Your Sample Ref 1
Your Project or Order No. PZ1522
Date Tested
Date Report Issued 20-Jul-18

Particle Size Distribution to BS 1377 : Part 2 :1990 Section 9

Scheme: Gt Yarmouth 3rd River Crossing
Location and orientation within sample not applicable

Location: MB01a @ 0m Specimen: 2
Bulk disturbed sample



Sieving

Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	98
10	96
6.3	93
5	92
2	87
1.18	85
0.600	82
0.425	78
0.300	73
0.212	68
0.063	48
0.020	21
0.006	16
0.002	12

Specification for Highway Works Classification

Table 6/2

Moisture content % 85

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	7
Fine GRAVEL	6
Coarse SAND	6
Medium SAND	13
Fine SAND	20
Silt & Clay	48

Grading Analysis	
D100	14
D60	0.15
D10	0.00
Uniformity Coefficient	>10 *

Description
Soft grey clayey gravelly very silty fine to coarse SAND. Gravel is fine to medium subrounded flint and quartz.

* Uniformity coefficient extrapolated

Test Code = 610

UKAS TESTING 0920

Simon Holden (Project Technician) [redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01
Engineer	Norfolk Partnership Laboratory	Sample Ref	15
		Depth (m)	0.50-1.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	97
20.0 mm	90
14.0 mm	82
10.0 mm	73
6.30 mm	65
5.00 mm	62
3.35 mm	58
2.00 mm	55
1.18 mm	53
600 µm	50
425 µm	46
300 µm	40
212 µm	37
150 µm	34
63 µm	29
20 µm	21
6 µm	14
2 µm	8

Non Engineering Description

Very dark grey slightly sandy gravelly SILT/CLAY with an odour of hydrocarbons. Gravel is fine to coarse.

Sample Proportions - %

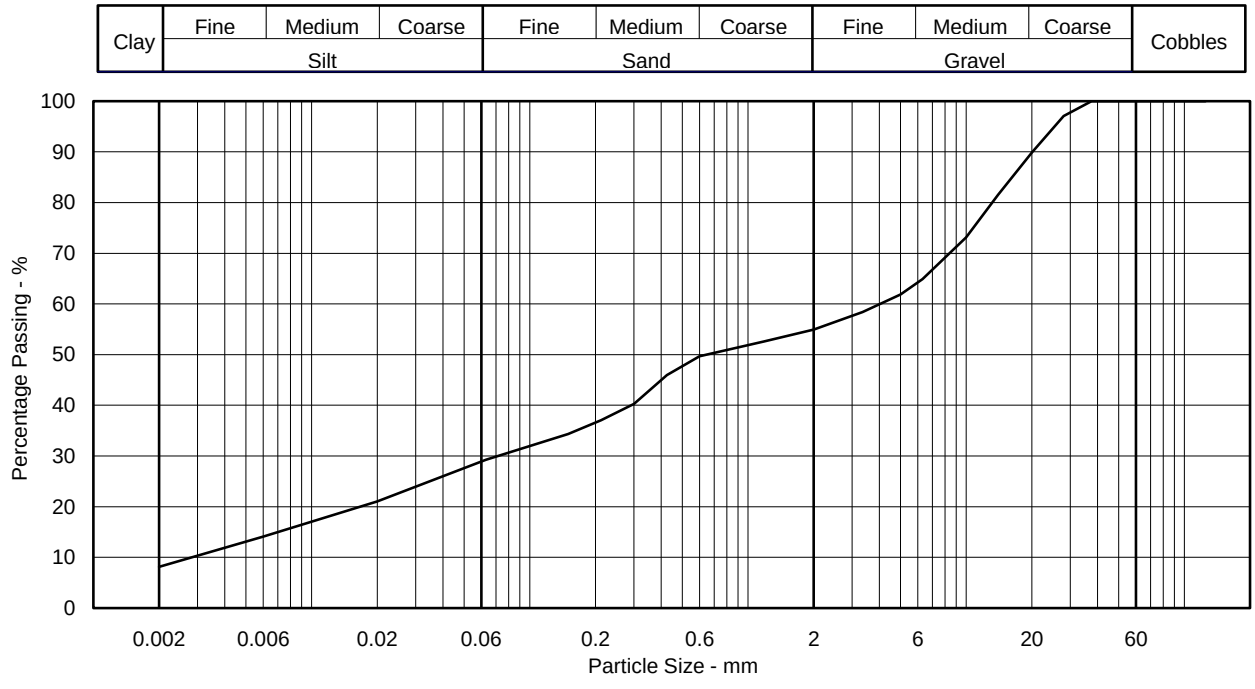
Cobbles	0.0
Gravel	45.1
Sand	26.2
Silt	20.6
Clay	8.1

Particle Diameter - mm

D100	38
D60	4.0
D10	0.0028
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	1428.6

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01
Engineer	Norfolk Partnership Laboratory	Sample Ref	2
		Depth (m)	0.50
		Sample Type	D

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	97
14.0 mm	91
10.0 mm	88
6.30 mm	79
5.00 mm	76
3.35 mm	72
2.00 mm	67
1.18 mm	64
600 µm	58
425 µm	50
300 µm	32
212 µm	18
150 µm	12
63 µm	8

Non Engineering Description

Dark grey slightly clayey silty very gravelly SAND with occasional fine shell fragments. Gravel is fine to coarse. Sample has a distinct odour of hydrocarbons.

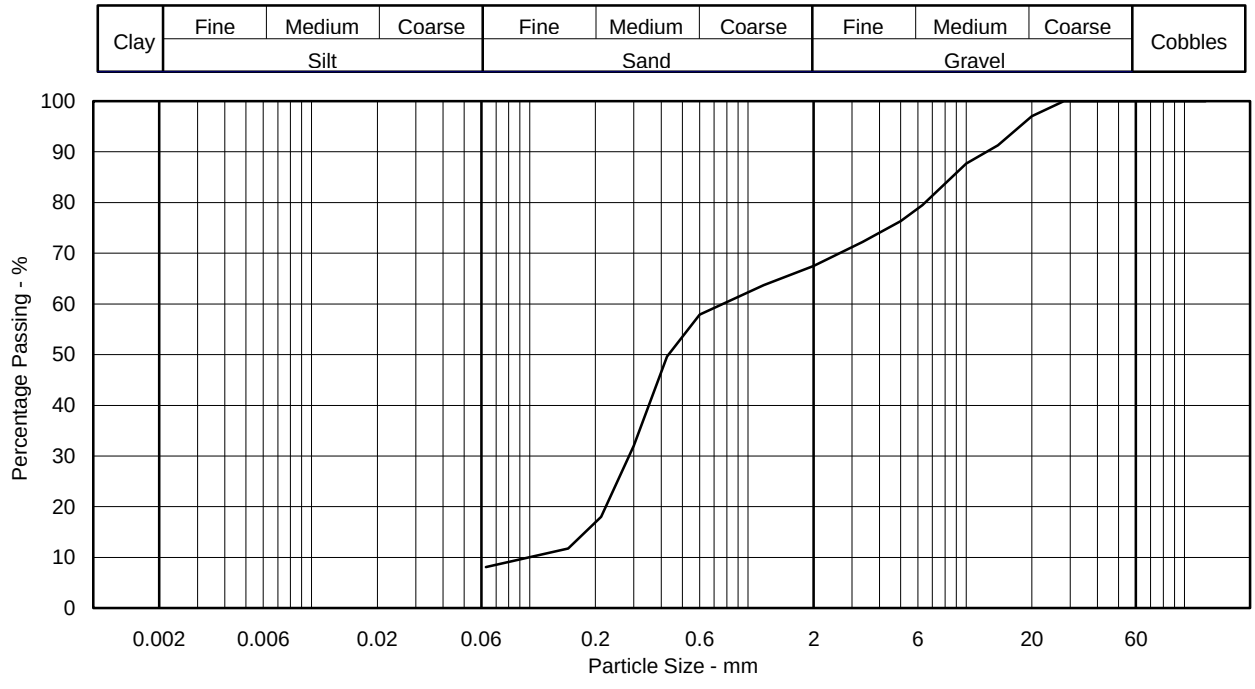
Sample Proportions - %

Cobbles	0.0
Gravel	32.5
Sand	59.4
Silt & Clay	8.1

Particle Diameter - mm

D100	28
D60	0.77
D10	0.099
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	7.8

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 04/09/2018 10:04:06

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB01
Sample Ref	9
Depth (m)	1.50
Sample Type	D

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	98
6.30 mm	96
5.00 mm	95
3.35 mm	94
2.00 mm	92
1.18 mm	90
600 µm	86
425 µm	81
300 µm	58
212 µm	36
150 µm	22
63 µm	14
20 µm	11
6 µm	8
2 µm	6

Non Engineering Description

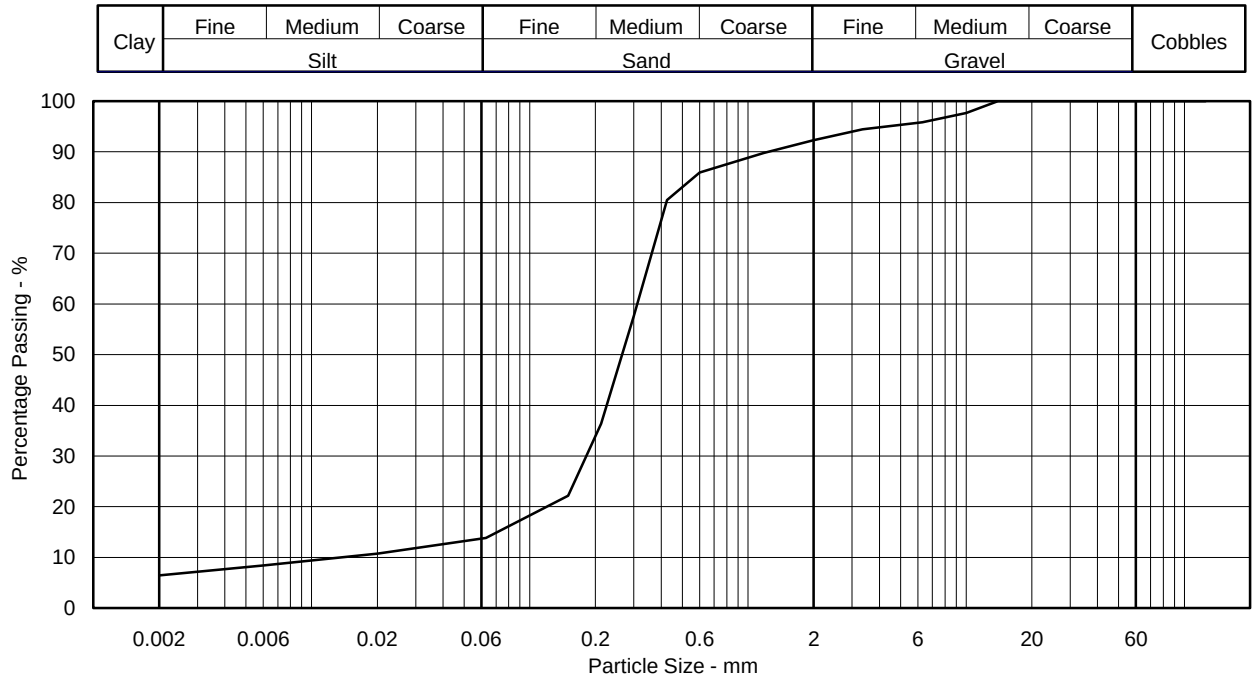
Yellowish brown mottled greyish brown clayey silty gravelly SAND with occasional fine shell fragments. Gravel is fine to medium with a strong smell of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	7.7
Sand	78.7
Silt	7.2
Clay	6.4

Particle Diameter - mm	
D100	14
D60	0.31
D10	0.014
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	22.1

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted]/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Version 058 - 10/06/2013
1260 - PSD MB01 02.50 13 B - C6474-338166.xls : Sample ID 338166

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01
Engineer	Norfolk Partnership Laboratory	Sample Ref	13
		Depth (m)	2.50-3.00
		Sample Type	B

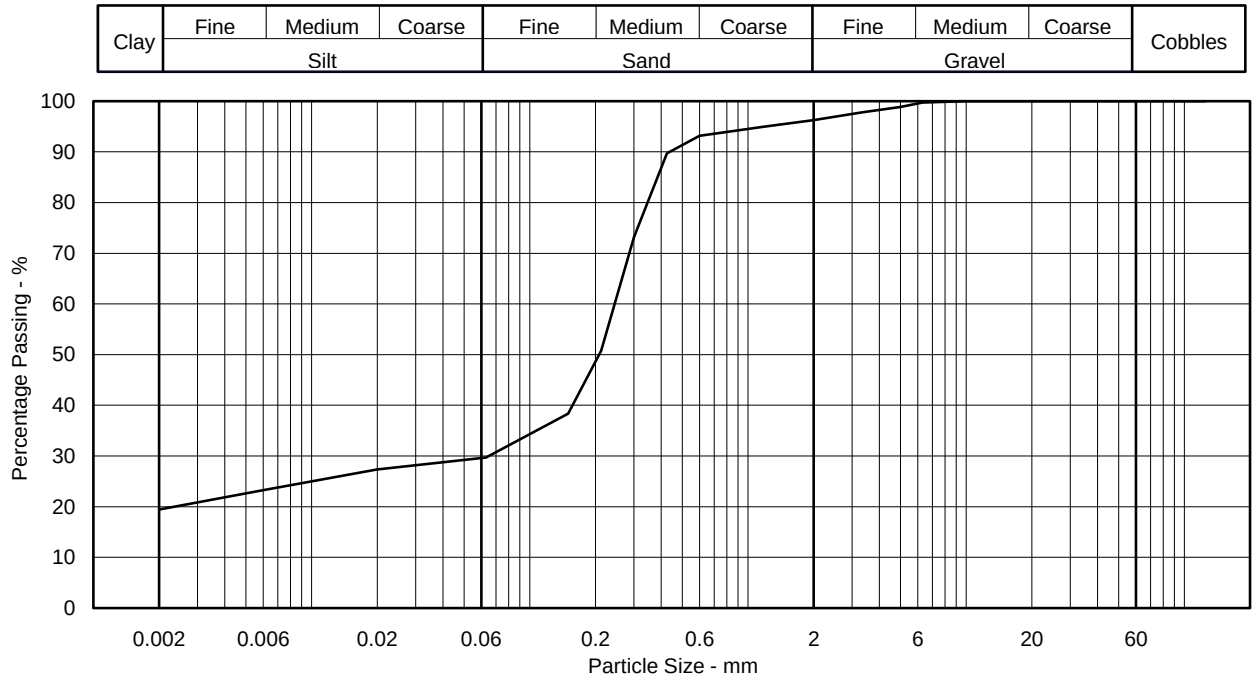
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	98
2.00 mm	96
1.18 mm	95
600 µm	93
425 µm	90
300 µm	73
212 µm	51
150 µm	38
63 µm	30
20 µm	27
6 µm	23
2 µm	19

Non Engineering Description
Grey slightly gravelly silty clayey SAND with a slight smell of hydrocarbons. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	3.7
Sand	66.7
Silt	10.1
Clay	19.4

Particle Diameter - mm	
D100	10
D60	0.24
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 04/09/2018 12:05:37

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	5
		Depth (m)	1.50-2.00
		Sample Type	B

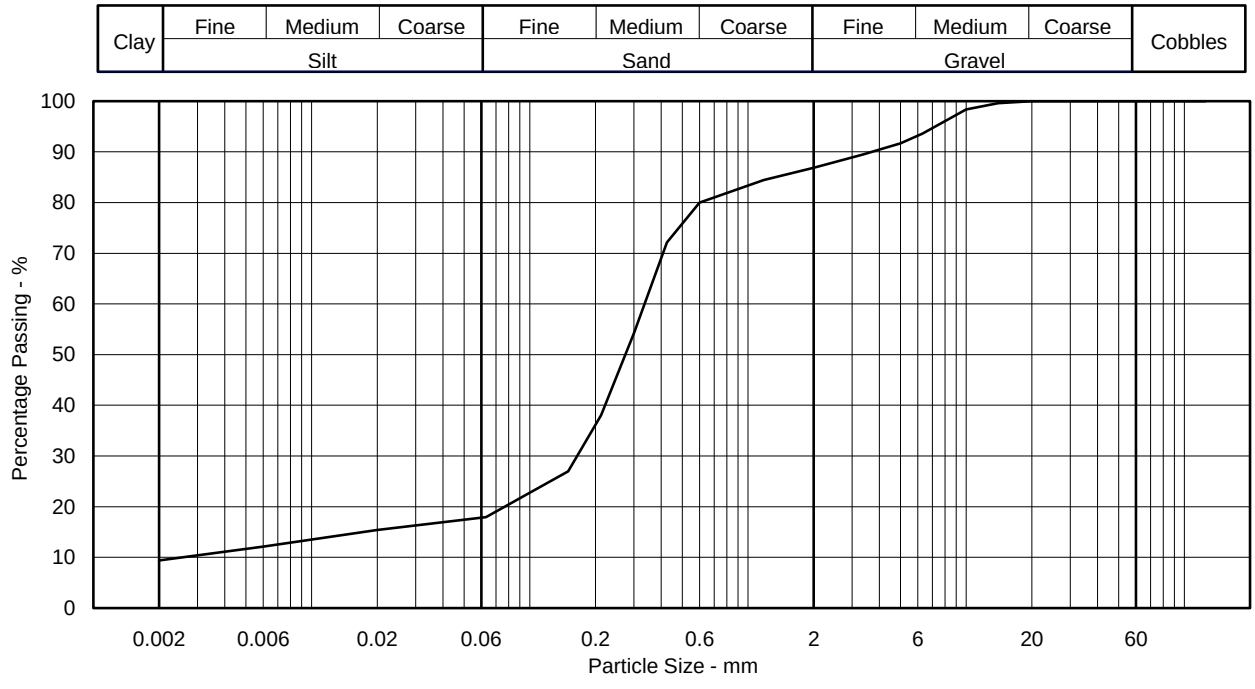
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	98
6.30 mm	94
5.00 mm	92
3.35 mm	89
2.00 mm	87
1.18 mm	84
600 µm	80
425 µm	72
300 µm	54
212 µm	38
150 µm	27
63 µm	18
20 µm	15
6 µm	12
2 µm	9

Non Engineering Description
Grey silty clayey gravelly SAND. Gravel is fine to coarse. Sample has a distinct smell of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	13.1
Sand	69.1
Silt	8.4
Clay	9.4

Particle Diameter - mm	
D100	20
D60	0.34
D10	0.0025
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	136.0

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 04/09/2018 10:13:01

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	9
		Depth (m)	2.50-3.00
		Sample Type	B

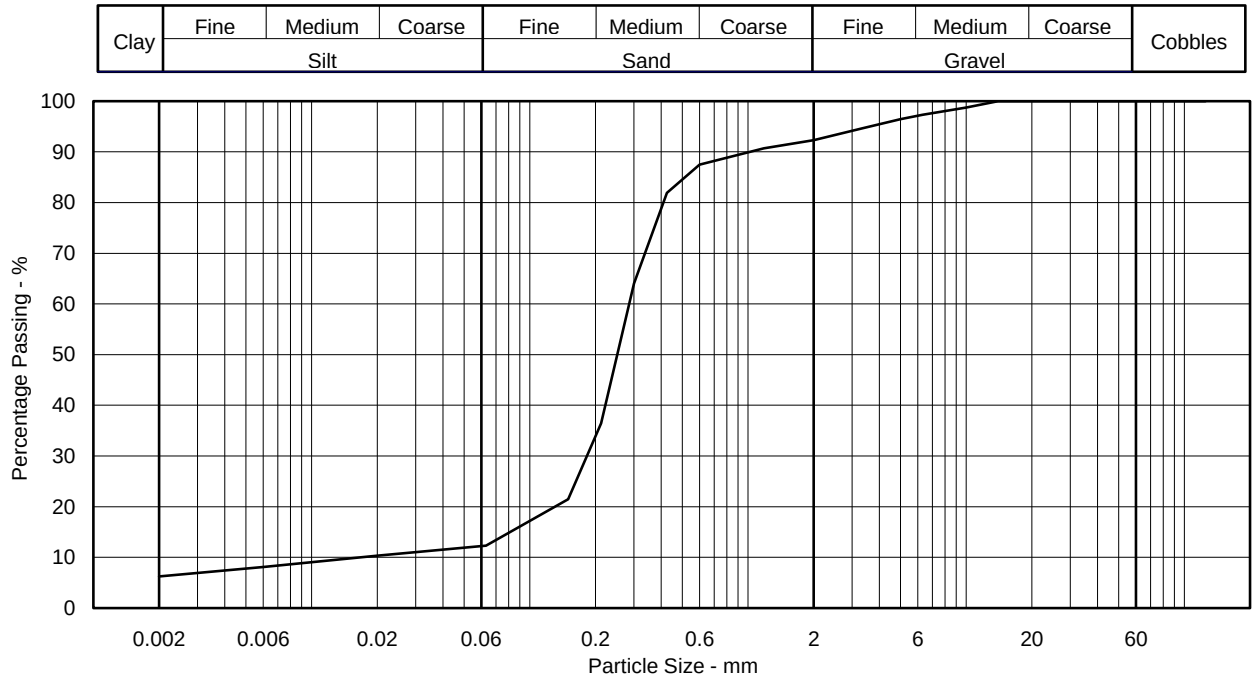
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	97
5.00 mm	96
3.35 mm	95
2.00 mm	92
1.18 mm	91
600 µm	87
425 µm	82
300 µm	64
212 µm	36
150 µm	21
63 µm	12
20 µm	10
6 µm	8
2 µm	6

Non Engineering Description
Dark grey silty clayey gravelly SAND with a slight odour of hydrocarbons. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	7.7
Sand	80.2
Silt	5.9
Clay	6.2

Particle Diameter - mm	
D100	14
D60	0.29
D10	0.017
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	17.1

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	13
		Depth (m)	3.50-4.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	99
10.0 mm	98
6.30 mm	94
5.00 mm	92
3.35 mm	89
2.00 mm	86
1.18 mm	83
600 µm	80
425 µm	74
300 µm	57
212 µm	32
150 µm	17
63 µm	10
20 µm	8
6 µm	7
2 µm	5

Non Engineering Description

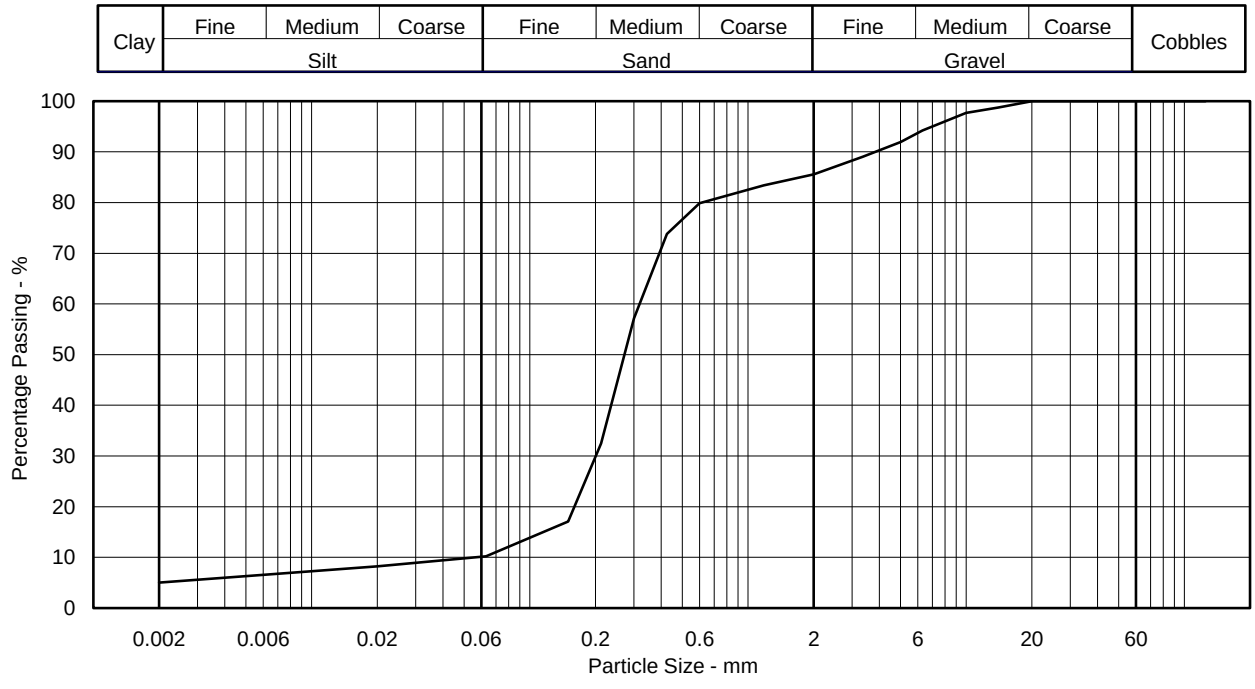
Greyish brown clayey silty gravelly SAND with a slight odour of hydrocarbons. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	14.4
Sand	75.5
Silt	5.0
Clay	5.0

Particle Diameter - mm	
D100	20
D60	0.32
D10	0.056
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	5.7

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	21
		Depth (m)	5.50-6.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	96
300 µm	90
212 µm	63
150 µm	25
63 µm	8
20 µm	6
6 µm	5
2 µm	4

Non Engineering Description

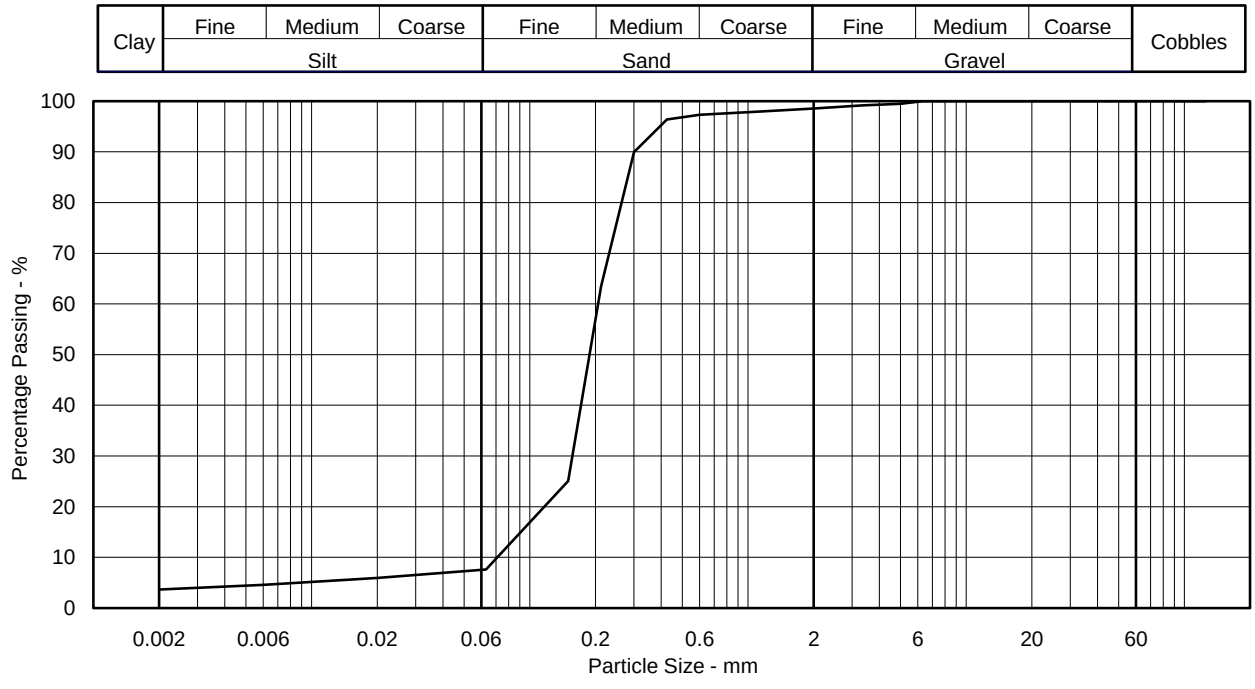
Greyish brown slightly gravelly slightly clayey slightly silty SAND with an odour of hydrocarbons. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.4
Sand	91.1
Silt	3.8
Clay	3.7

Particle Diameter - mm	
D100	6.3
D60	0.21
D10	0.071
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.0

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	25
		Depth (m)	6.50-7.00
		Sample Type	B

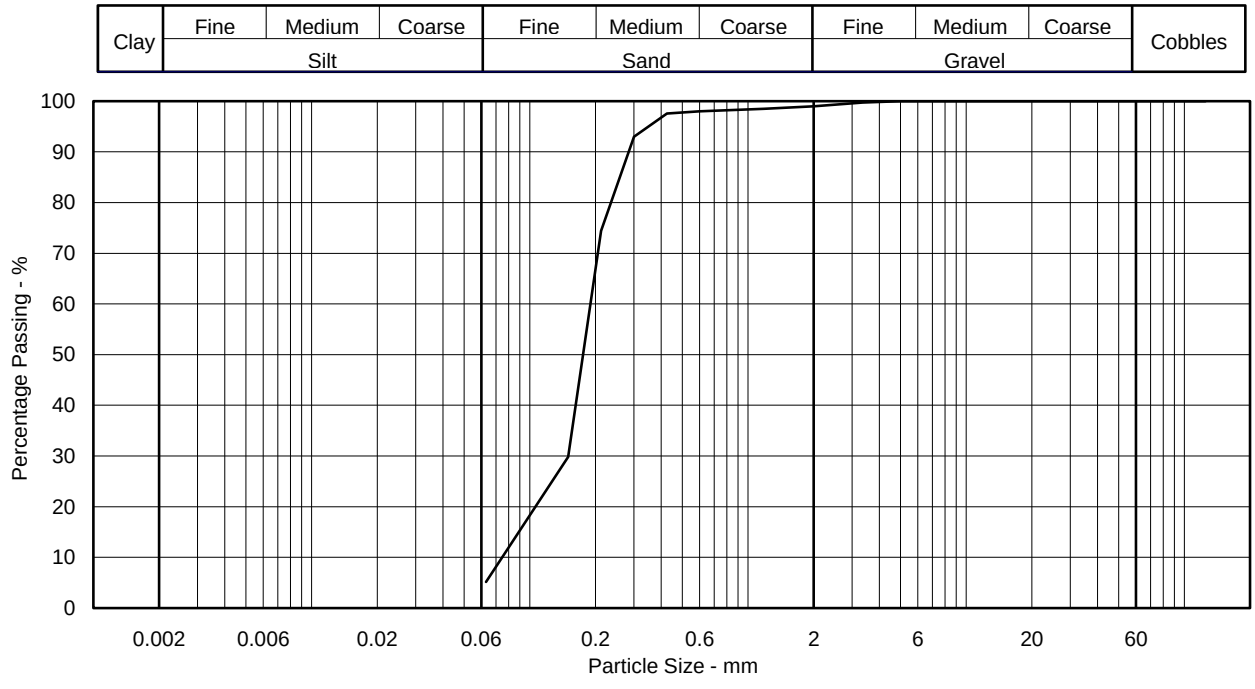
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	98
425 µm	98
300 µm	93
212 µm	74
150 µm	30
63 µm	5

Non Engineering Description
Yellow brown slightly gravelly silty SAND with a slight odour of hydrocarbons. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.0
Sand	93.8
Silt & Clay	5.2

Particle Diameter - mm	
D100	5.0
D60	0.19
D10	0.075
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 04/09/2018 10:33:54

Version 058 - 10/06/2013
1260 - PSD MB01A 08.50 31 B - C6474-338173.xls : Sample ID 338173

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	31
		Depth (m)	8.50-9.00
		Sample Type	B

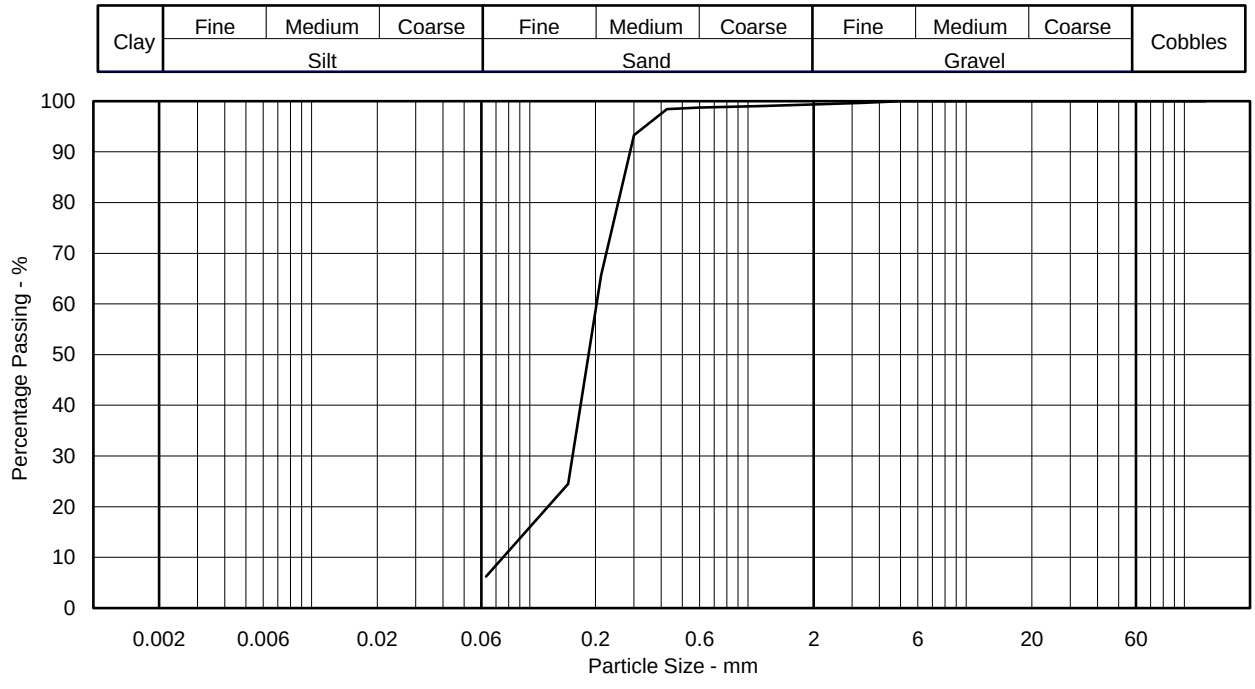
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	99
425 µm	98
300 µm	93
212 µm	66
150 µm	24
63 µm	6

Non Engineering Description
Light greyish brown silty SAND with a slight smell of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.7
Sand	93.1
Silt & Clay	6.2

Particle Diameter - mm	
D100	5.0
D60	0.20
D10	0.075
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.7

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 04/09/2018 10:34:58

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	37
		Depth (m)	9.50-10.00
		Sample Type	B

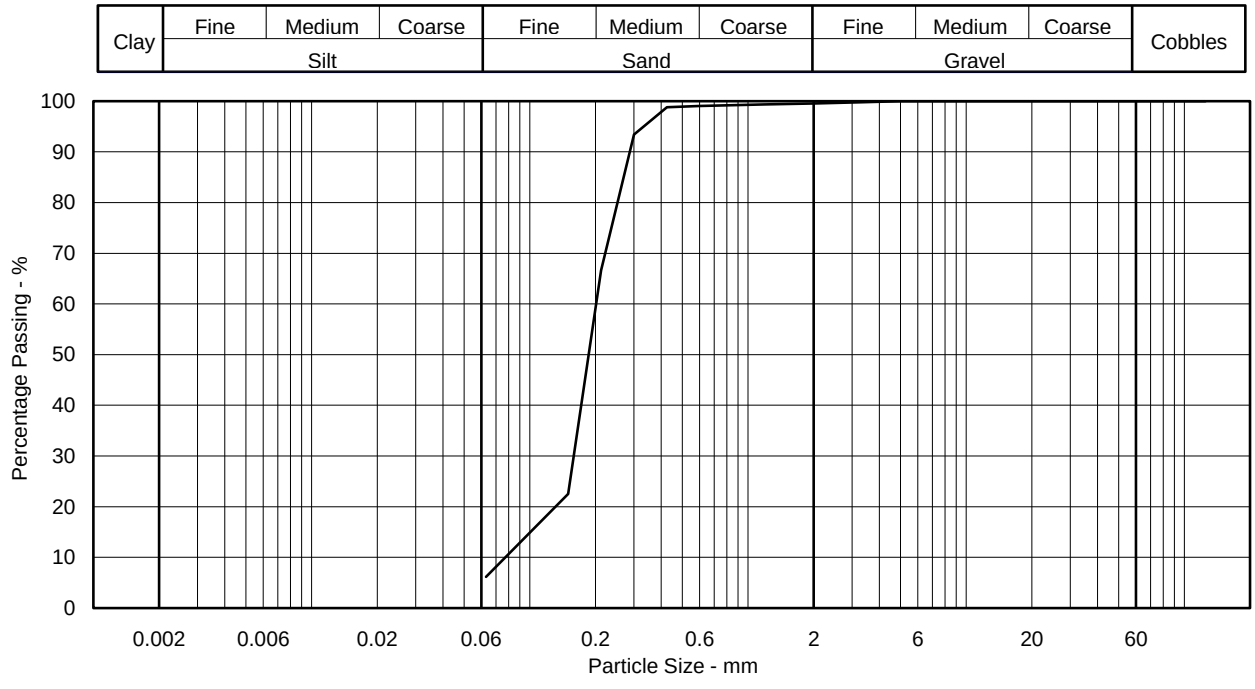
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	99
300 µm	93
212 µm	67
150 µm	22
63 µm	6

Non Engineering Description
Light brown silty SAND with a slight odour of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	93.4
Silt & Clay	6.2

Particle Diameter - mm	
D100	5.0
D60	0.20
D10	0.077
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.6

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	41
		Depth (m)	10.50-11.00
		Sample Type	B

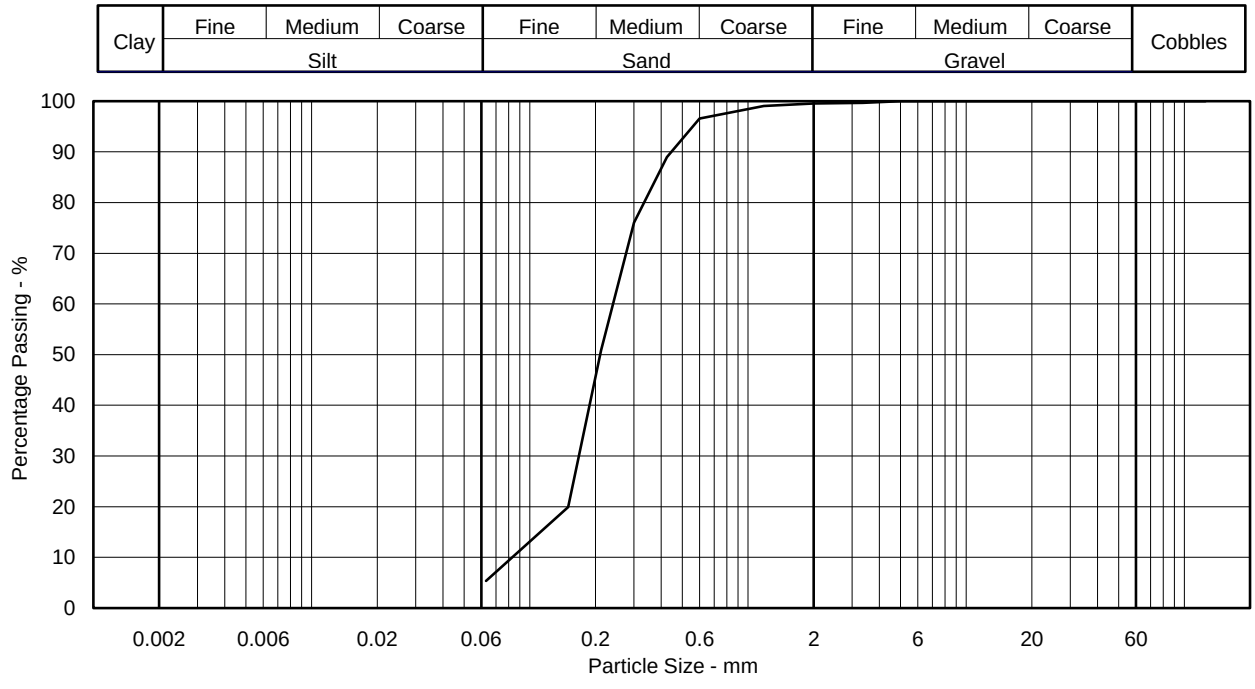
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	97
425 µm	89
300 µm	76
212 µm	51
150 µm	20
63 µm	5

Non Engineering Description
Light brown silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.5
Sand	94.2
Silt & Clay	5.4

Particle Diameter - mm	
D100	5.0
D60	0.24
D10	0.083
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.9

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Version 058 - 10/06/2013
1260 - PSD MB01A 11.50 44 B - C6474-338176.xls : Sample ID 338176

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	44
		Depth (m)	11.50-12.00
		Sample Type	B

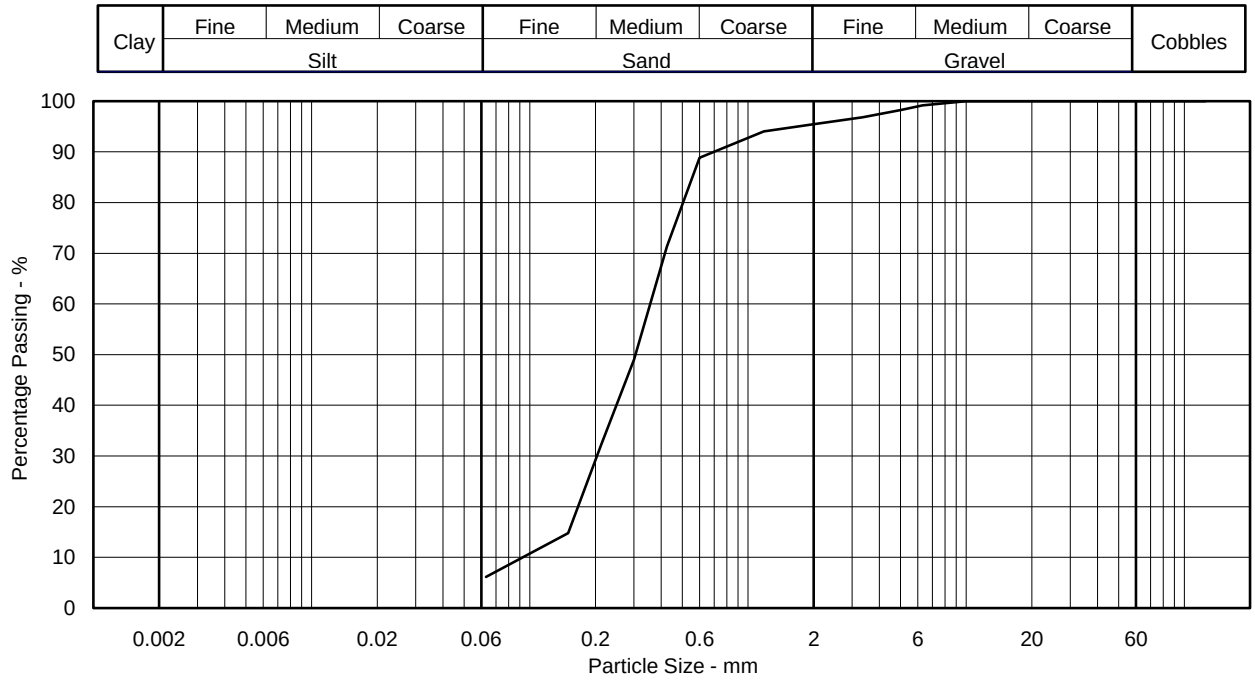
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	98
3.35 mm	97
2.00 mm	95
1.18 mm	94
600 µm	89
425 µm	71
300 µm	49
212 µm	32
150 µm	15
63 µm	6

Non Engineering Description
Brown slightly gravelly silty SAND with occasional fine shell fragments. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	4.6
Sand	89.3
Silt & Clay	6.1

Particle Diameter - mm	
D100	10
D60	0.36
D10	0.093
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.9

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Tk

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 04/09/2018 10:38:19

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	47
		Depth (m)	12.50-13.00
		Sample Type	B

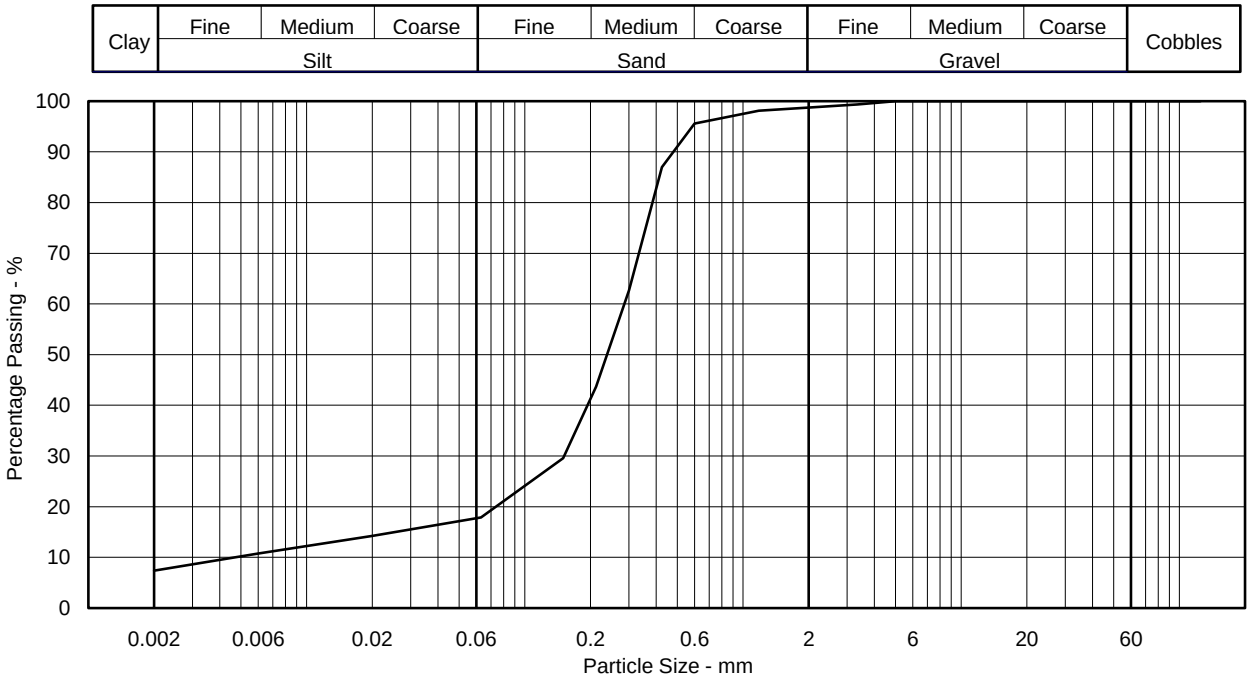
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	96
425 µm	87
300 µm	63
212 µm	44
150 µm	30
63 µm	18
20 µm	14
6 µm	11
2 µm	7

Non Engineering Description
Brown mottled grey clayey silty SAND with occasionl fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.3
Sand	81.1
Silt	10.2
Clay	7.4

Particle Diameter - mm	
D100	5.0
D60	0.29
D10	0.0047
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	61.7

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	50
		Depth (m)	13.50-14.00
		Sample Type	B

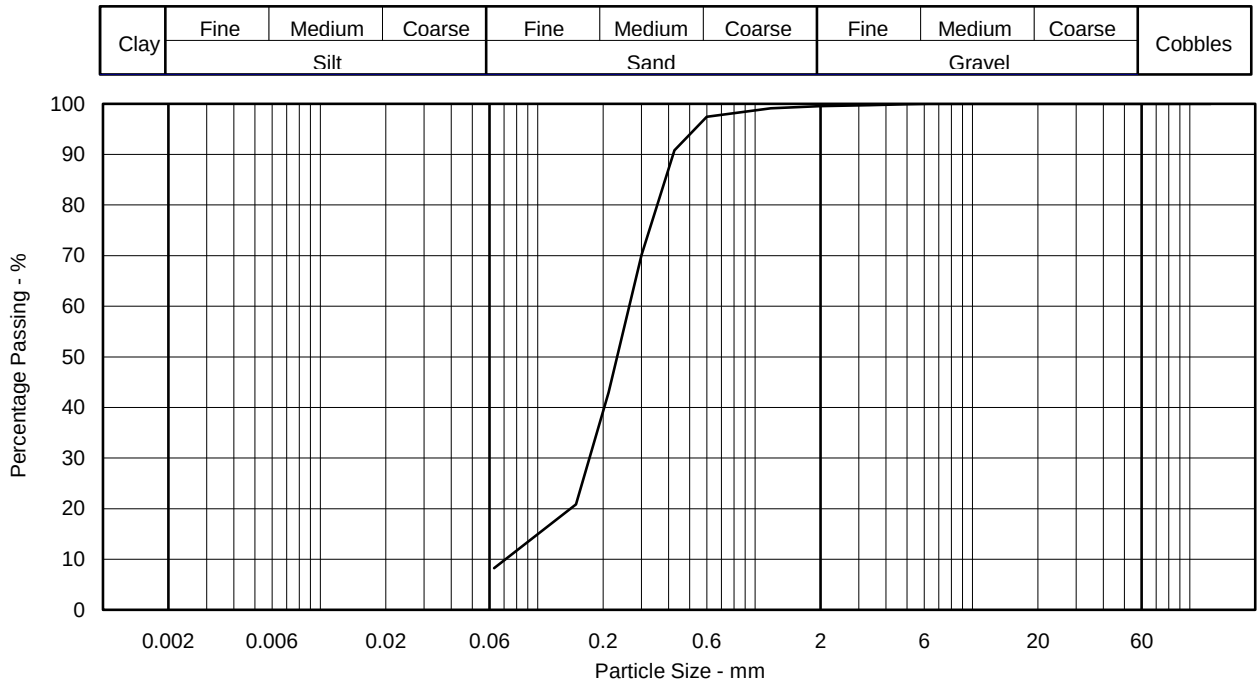
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	97
425 µm	91
300 µm	70
212 µm	43
150 µm	21
63 µm	8

Non Engineering Description
Greyish brown silty SAND with occasional shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.5
Sand	91.3
Silt & Clay	8.2

Particle Diameter - mm	
D100	6.3
D60	0.26
D10	0.071
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.7

Notes



Originator	Checked & Approved
EH	[redacted] 24/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	59
		Depth (m)	16.50-17.00
		Sample Type	B

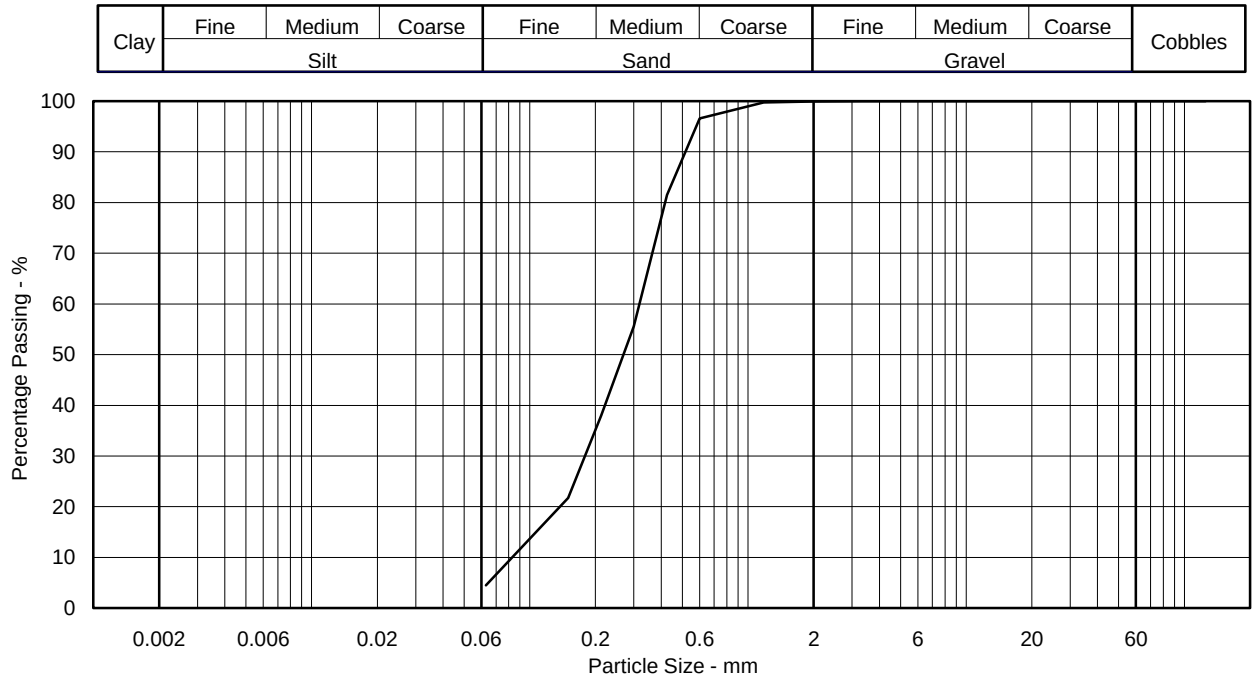
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	97
425 µm	82
300 µm	56
212 µm	38
150 µm	22
63 µm	4

Non Engineering Description
Light greyish brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.1
Sand	95.4
Silt & Clay	4.5

Particle Diameter - mm	
D100	3.4
D60	0.32
D10	0.083
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.9

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	65
		Depth (m)	18.50-19.00
		Sample Type	B

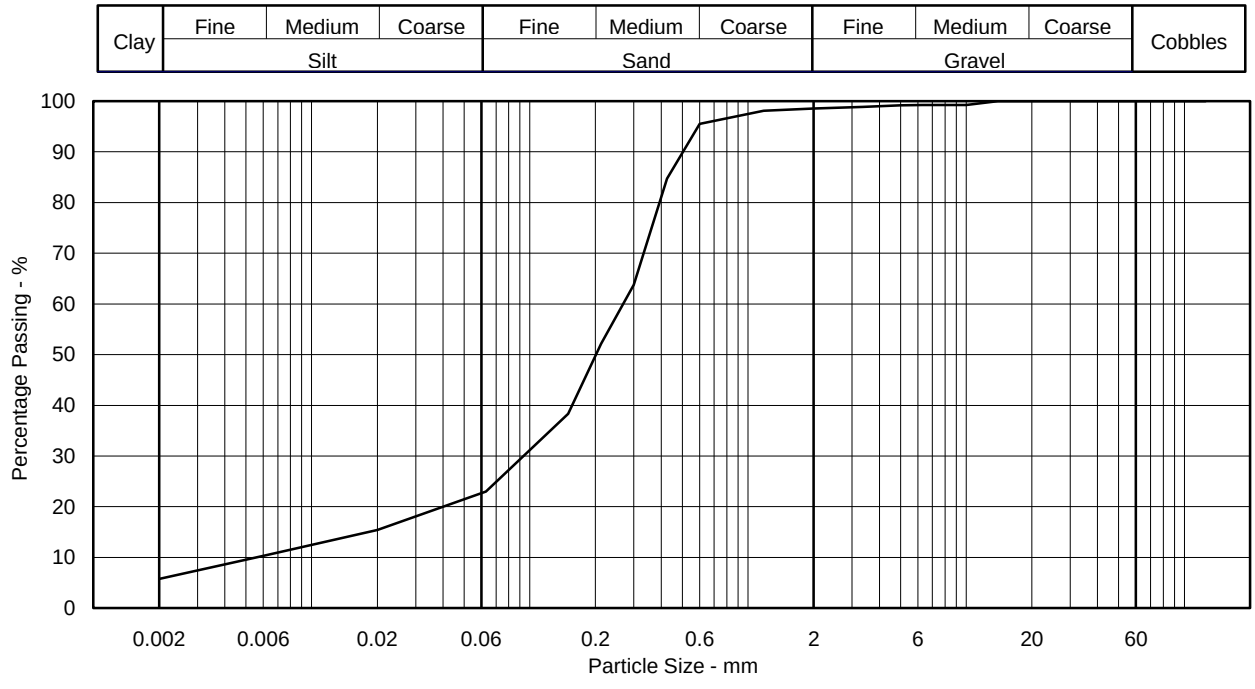
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	96
425 µm	85
300 µm	64
212 µm	52
150 µm	38
63 µm	23
20 µm	15
6 µm	10
2 µm	6

Non Engineering Description
Grey clayey silty SAND with occasional fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.5
Sand	76.1
Silt	16.7
Clay	5.8

Particle Diameter - mm	
D100	14
D60	0.27
D10	0.0055
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	49.1

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 04/09/2018 10:45:27

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	68
		Depth (m)	19.50-20.00
		Sample Type	B

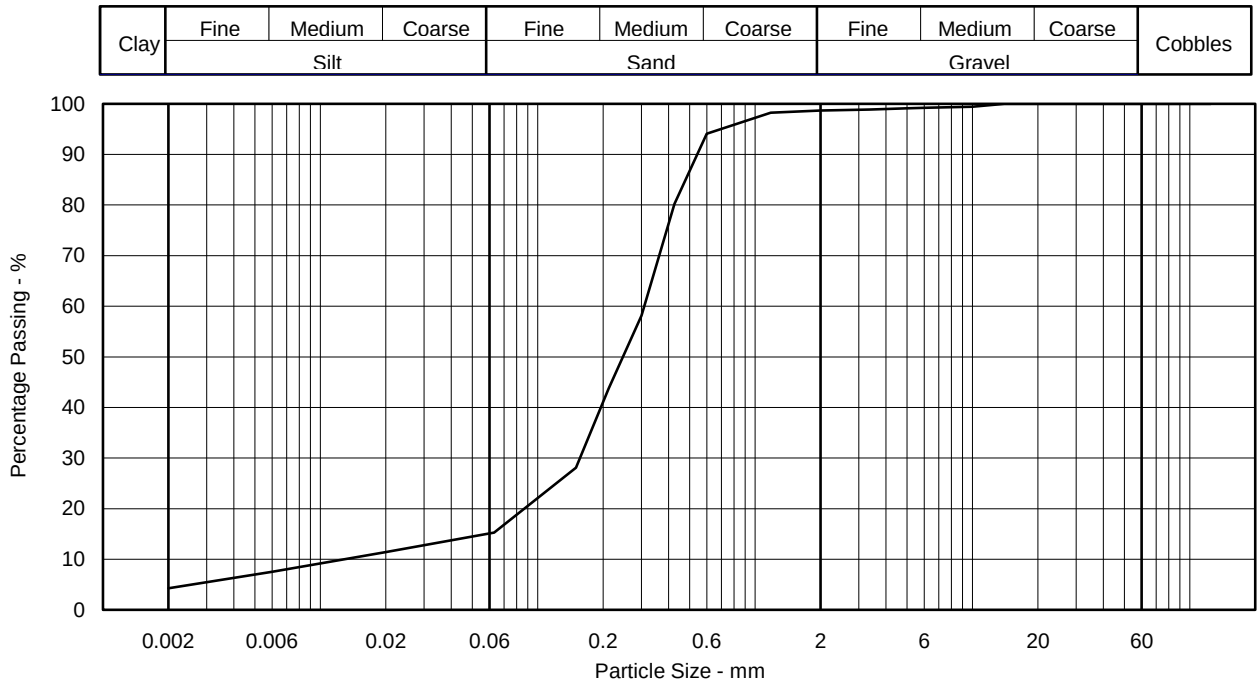
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	94
425 µm	80
300 µm	58
212 µm	44
150 µm	28
63 µm	15
20 µm	11
6 µm	7
2 µm	4

Non Engineering Description
Grey slightly clayey silty SAND with occasional fine to medium shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.3
Sand	83.7
Silt	10.7
Clay	4.3

Particle Diameter - mm	
D100	14
D60	0.31
D10	0.013
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	23.8

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
EH	[redacted]
EH	06/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	71
		Depth (m)	20.50-21.00
		Sample Type	B

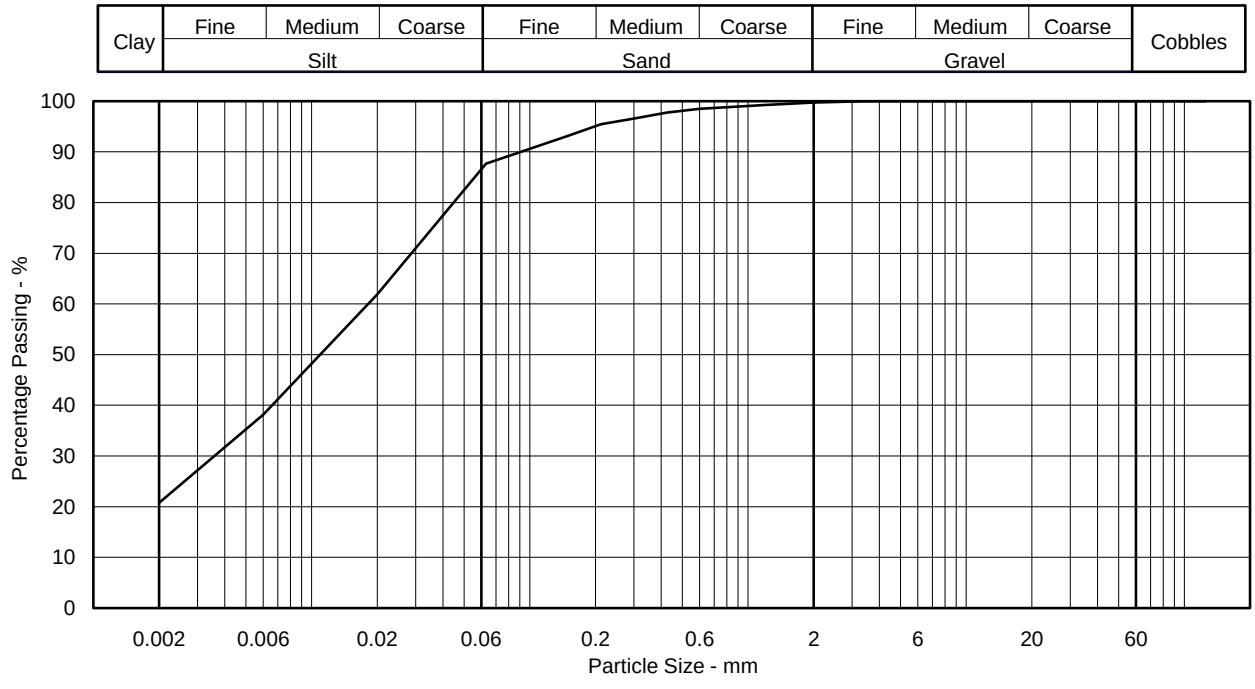
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	98
425 µm	98
300 µm	97
212 µm	95
150 µm	93
63 µm	88
20 µm	62
6 µm	38
2 µm	21

Non Engineering Description
Light grey slighly sandy SILT/CLAY.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	13.9
Silt	65.1
Clay	20.8

Particle Diameter - mm	
D100	5.0
D60	0.018
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	81
		Depth (m)	24.00-24.50
		Sample Type	D

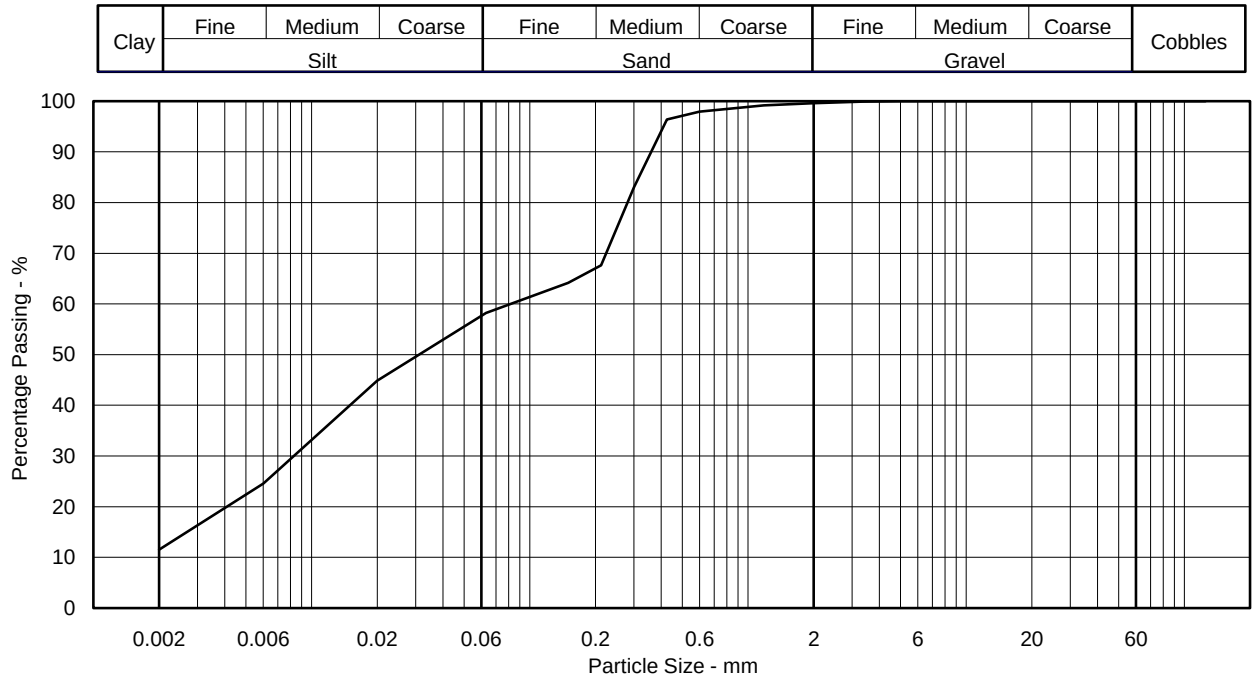
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	98
425 µm	96
300 µm	83
212 µm	68
150 µm	64
63 µm	58
20 µm	45
6 µm	25
2 µm	12

Non Engineering Description
Grey sandy SILT.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	42.3
Silt	45.8
Clay	11.5

Particle Diameter - mm	
D100	5.0
D60	0.082
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 06/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	82
		Depth (m)	24.30
		Sample Type	D

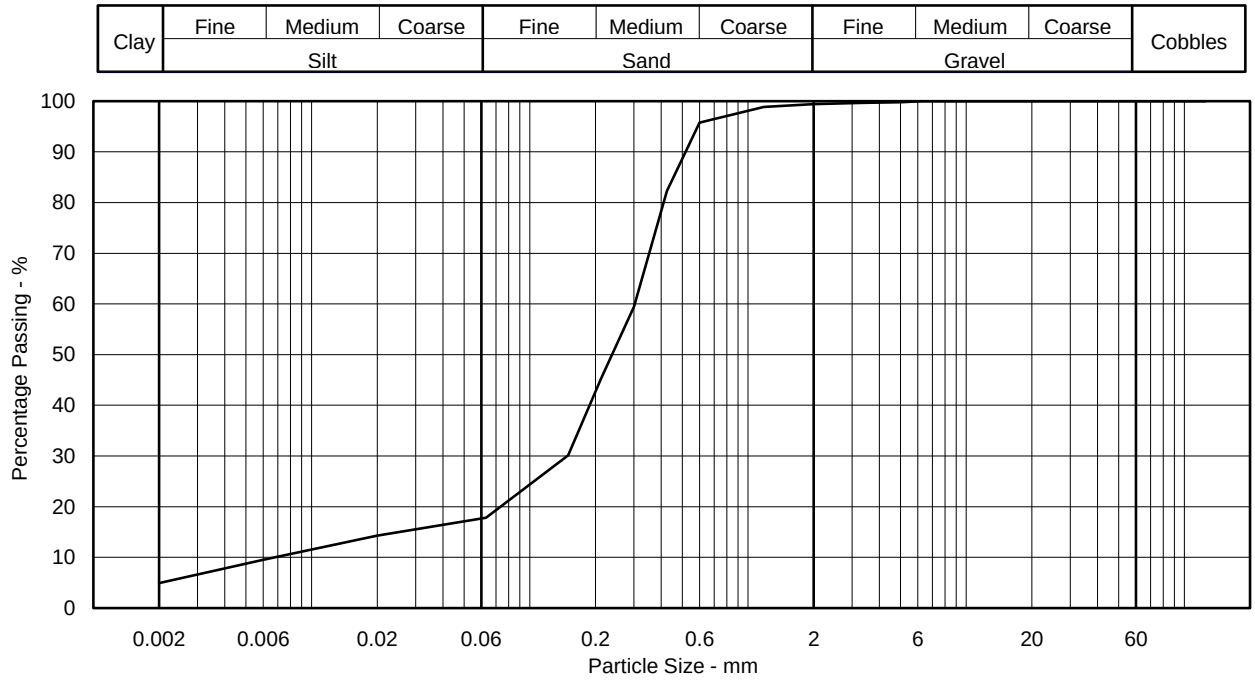
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	96
425 µm	82
300 µm	59
212 µm	45
150 µm	30
63 µm	18
20 µm	14
6 µm	10
2 µm	5

Non Engineering Description
Grey slightly clayey silty SAND with rare fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.6
Sand	81.8
Silt	12.7
Clay	4.9

Particle Diameter - mm	
D100	6.3
D60	0.30
D10	0.0067
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	44.8

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Norfolk County Council
Norfolk Partnership Laboratory

NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457
Email: civil.laboratory@norfolk.gov.uk

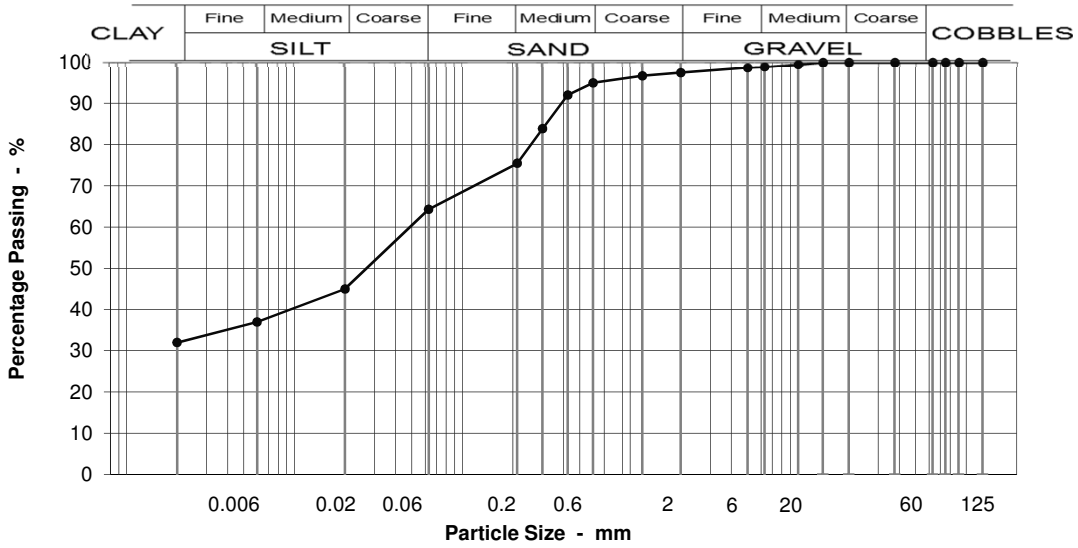
Community & Environmental Services
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2DH

Our reference No. NCCL2018062212-610
Our Project No PZ1522D1
Your Sample Ref 2
Your Project or Order No. PZ1522
Date Tested
Date Report Issued 20-Jul-18

Particle Size Distribution to BS 1377 : Part 2 :1990 Section 9

Scheme: Gt Yarmouth 3rd River Crossing
Location and orientation within sample not applicable

Location: MB02 @ 0m Specimen: 2
Disturbed sample



Sieving

Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	99
6.3	99
5	99
2	97
1.18	97
0.600	95
0.425	92
0.300	84
0.212	75
0.063	64
0.020	45
0.006	37
0.002	32

Specification for Highway Works Classification

Table 6/2

Moisture content % 37

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	1
Fine GRAVEL	1
Coarse SAND	2
Medium SAND	20
Fine SAND	11
Silt & Clay	64

Grading Analysis	
D100	10
D60	0.05
D10	0.00
Uniformity Coefficient	>10 *

Description
Soft brownish-grey very sandy, very silty CLAY.

* Uniformity coefficient extrapolated

Test Code = 610

UKAS TESTING 0920

Simon Holden (Project Technician) [redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	3
		Depth (m)	0.30
		Sample Type	B

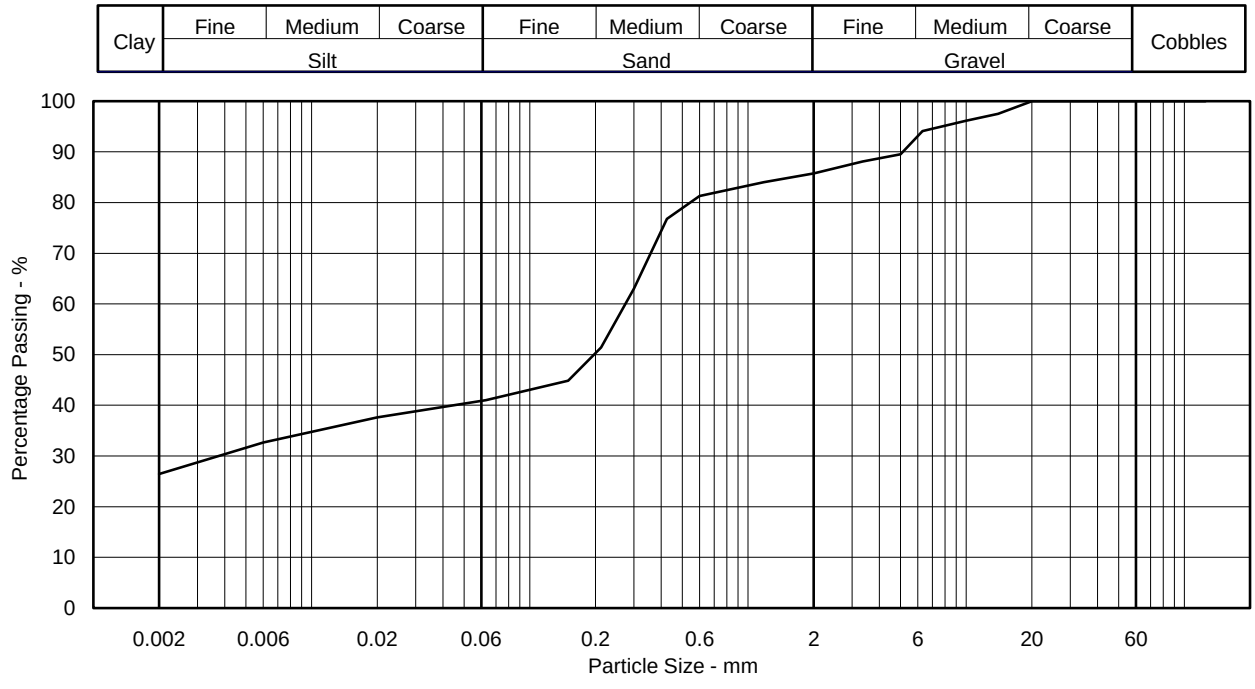
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	98
10.0 mm	96
6.30 mm	94
5.00 mm	90
3.35 mm	88
2.00 mm	86
1.18 mm	84
600 µm	81
425 µm	77
300 µm	63
212 µm	51
150 µm	45
63 µm	41
20 µm	38
6 µm	33
2 µm	26

Non Engineering Description
Grey slightly gravelly sandy CLAY with pockets of orange brown sand. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	14.3
Sand	45.0
Silt	14.3
Clay	26.4

Particle Diameter - mm	
D100	20
D60	0.27
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB02
Sample Ref	5
Depth (m)	1.30-1.80
Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	97
10.0 mm	94
6.30 mm	88
5.00 mm	86
3.35 mm	81
2.00 mm	78
1.18 mm	76
600 µm	73
425 µm	68
300 µm	50
212 µm	27
150 µm	15
63 µm	12
20 µm	10
6 µm	8
2 µm	6

Non Engineering Description

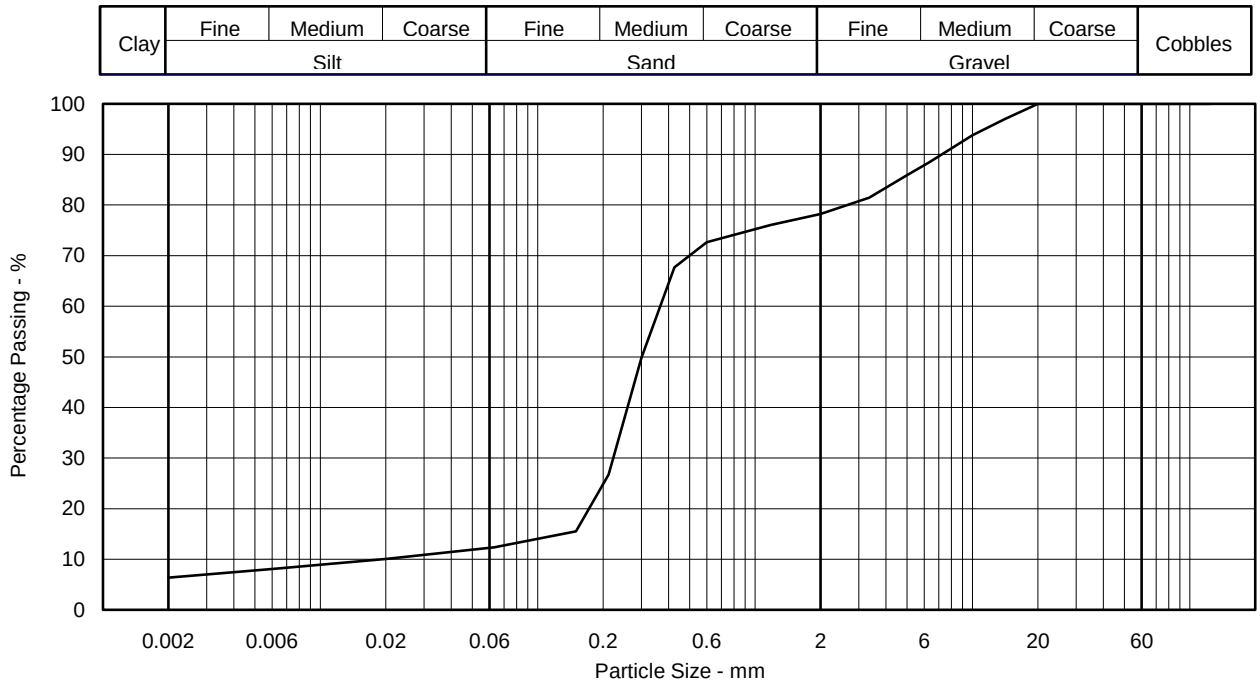
Light brown silty clayey very gravelly SAND with some shell fragments. Gravel is fine medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	21.8
Sand	66.1
Silt	5.8
Clay	6.4

Particle Diameter - mm	
D100	20
D60	0.37
D10	0.019
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	19.5

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
EH	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	9
		Depth (m)	2.30-2.80
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	98
5.00 mm	97
3.35 mm	97
2.00 mm	95
1.18 mm	94
600 µm	90
425 µm	86
300 µm	67
212 µm	40
150 µm	16
63 µm	5

Non Engineering Description

Greyish brown slightly gravelly slightly silty SAND with occasional shell fragments and a strong smell of hydrocarbons. Gravel is fine to medium.

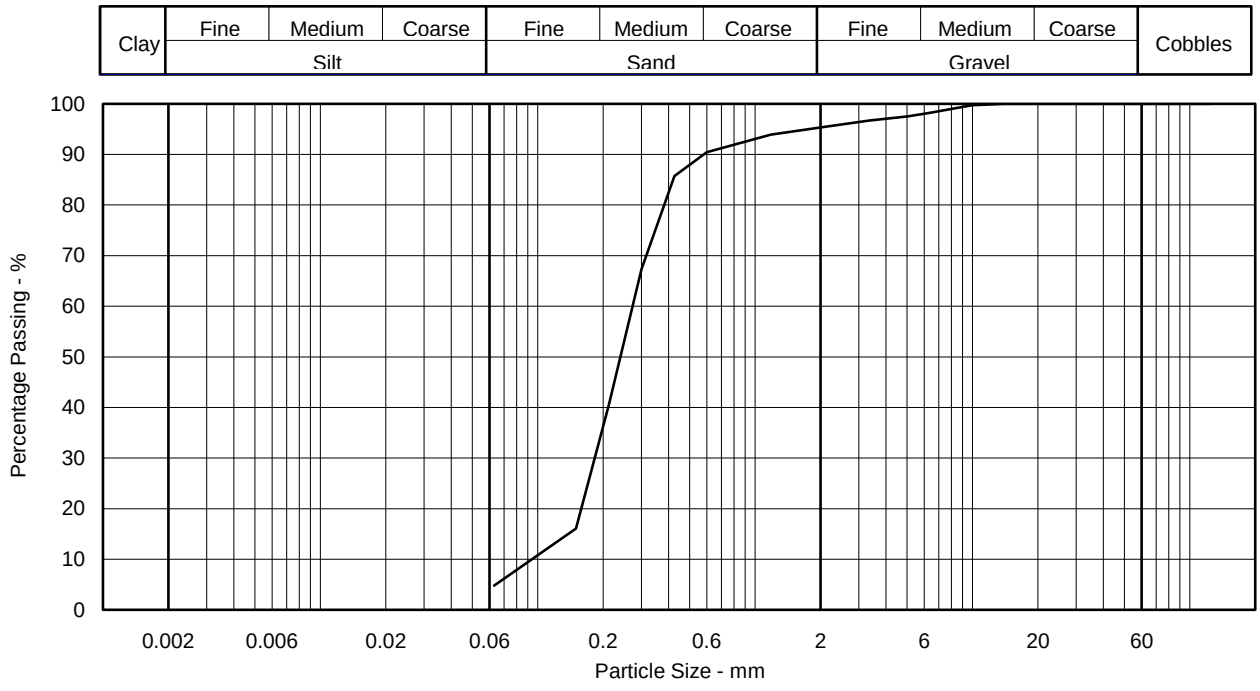
Sample Proportions - %

Cobbles	0.0
Gravel	4.7
Sand	90.5
Silt & Clay	4.8

Particle Diameter - mm

D100	14
D60	0.27
D10	0.094
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.9

Notes



Originator	Checked & Approved
EH	24/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	13
		Depth (m)	3.30-3.80
		Sample Type	B

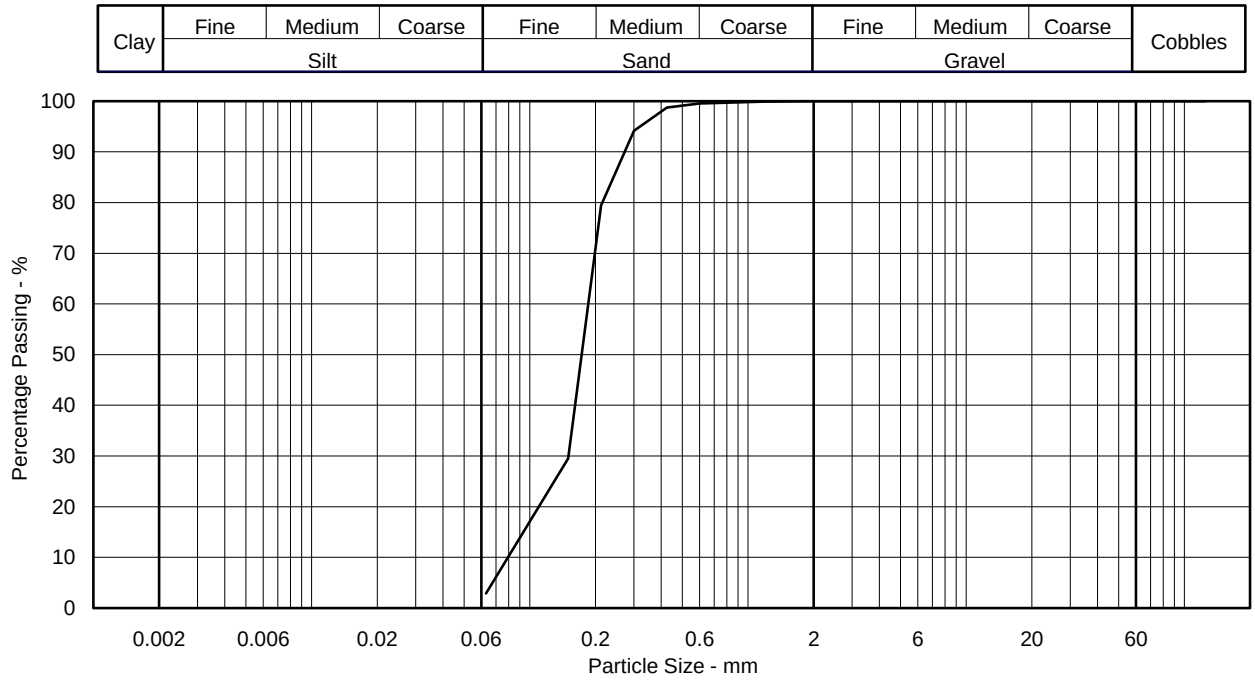
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	99
300 µm	94
212 µm	79
150 µm	29
63 µm	3

Non Engineering Description
Light orange brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.0
Sand	97.1
Silt & Clay	2.9

Particle Diameter - mm	
D100	2.0
D60	0.19
D10	0.079
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.4

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	17
		Depth (m)	4.30-4.80
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	98
425 µm	97
300 µm	94
212 µm	79
150 µm	25
63 µm	4

Non Engineering Description

Yellowish brown slightly silty SAND wit some shell fragments.

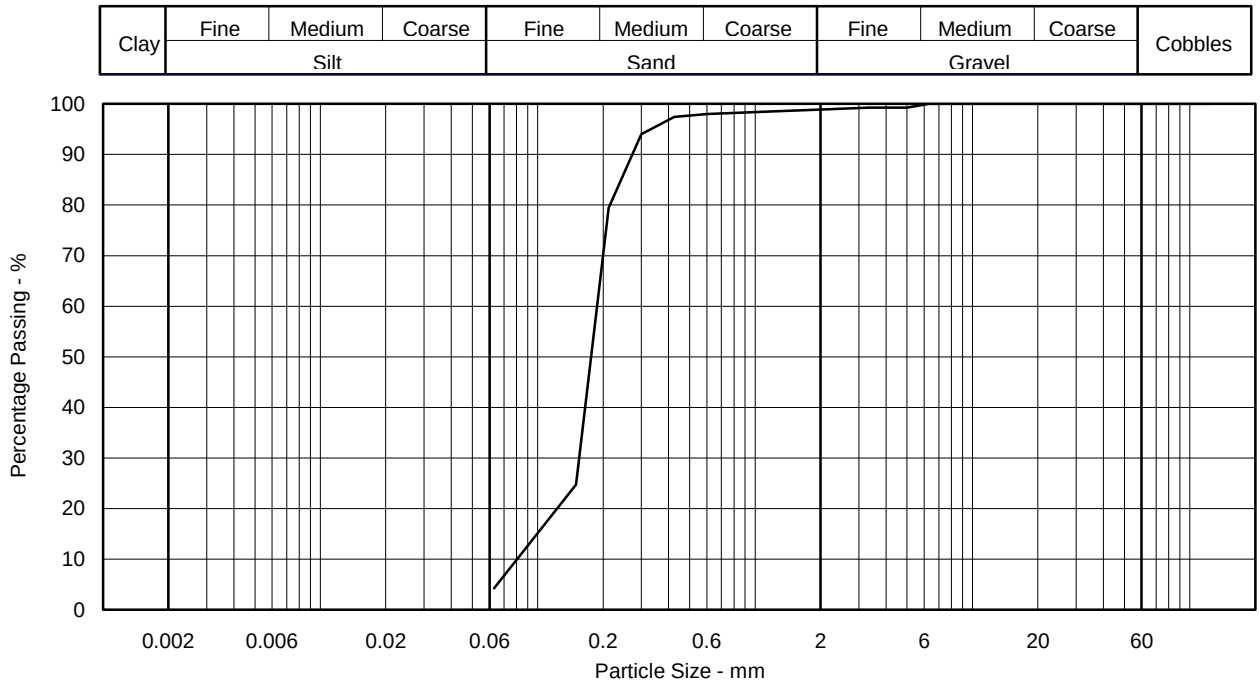
Sample Proportions - %

Cobbles	0.0
Gravel	1.1
Sand	94.6
Silt & Clay	4.2

Particle Diameter - mm

D100	6.3
D60	0.19
D10	0.080
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.4

Notes



Originator	Checked & Approved
EH	[redacted] 24/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	29
		Depth (m)	7.30-7.80
		Sample Type	B

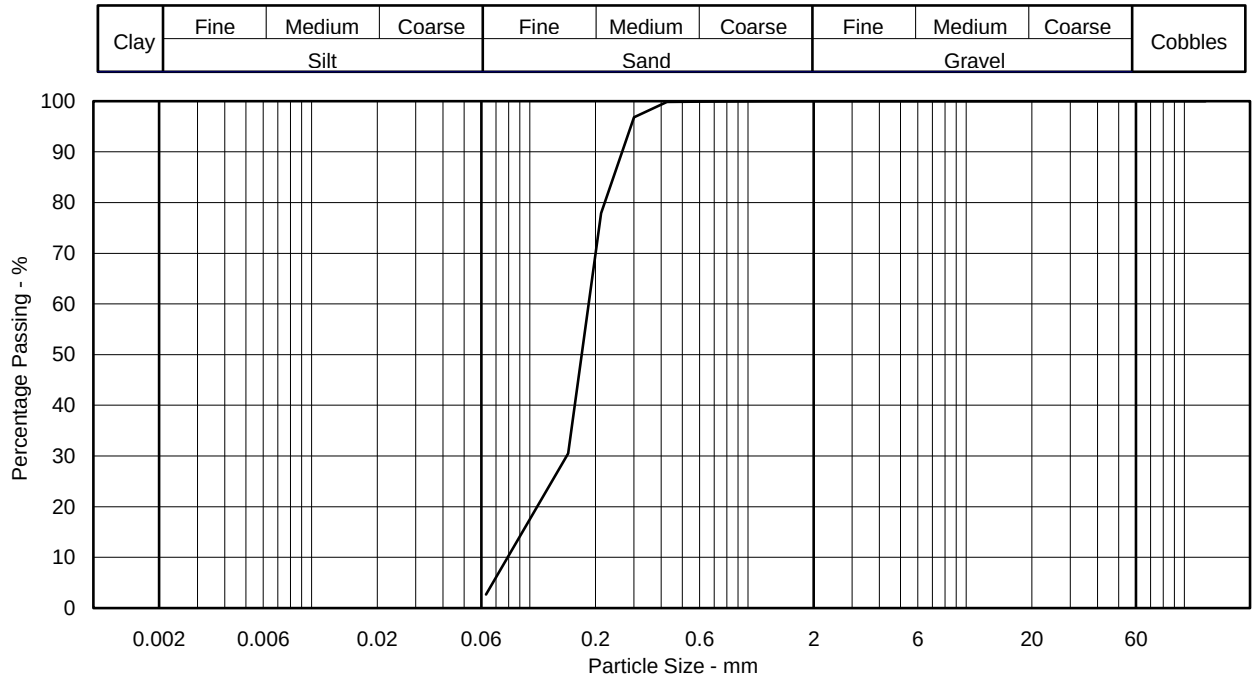
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	100
300 µm	97
212 µm	78
150 µm	31
63 µm	3

Non Engineering Description
Yellowish brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.0
Sand	97.3
Silt & Clay	2.7

Particle Diameter - mm	
D100	2.0
D60	0.19
D10	0.079
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.4

Notes



Originator	Checked & Approved
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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	37
		Depth (m)	9.30-9.80
		Sample Type	B

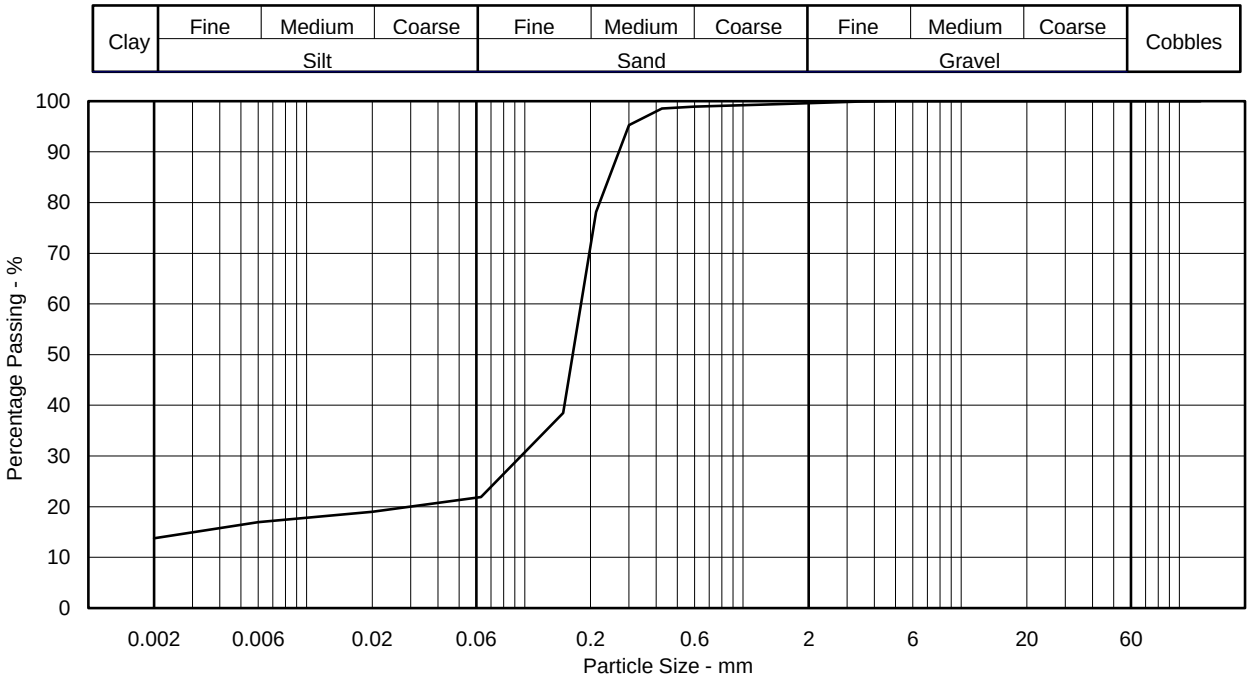
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	99
300 µm	95
212 µm	78
150 µm	38
63 µm	22
20 µm	19
6 µm	17
2 µm	14

Non Engineering Description
Brown silty clayey SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	77.9
Silt	8.0
Clay	13.8

Particle Diameter - mm	
D100	5.0
D60	0.18
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



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LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	41
		Depth (m)	10.30-10.80
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	97
300 µm	92
212 µm	80
150 µm	46
63 µm	25
20 µm	22
6 µm	16
2 µm	12

Non Engineering Description

Dark grey clayey silty SAND with a strong smell of hydrocarbons.

Sample Proportions - %

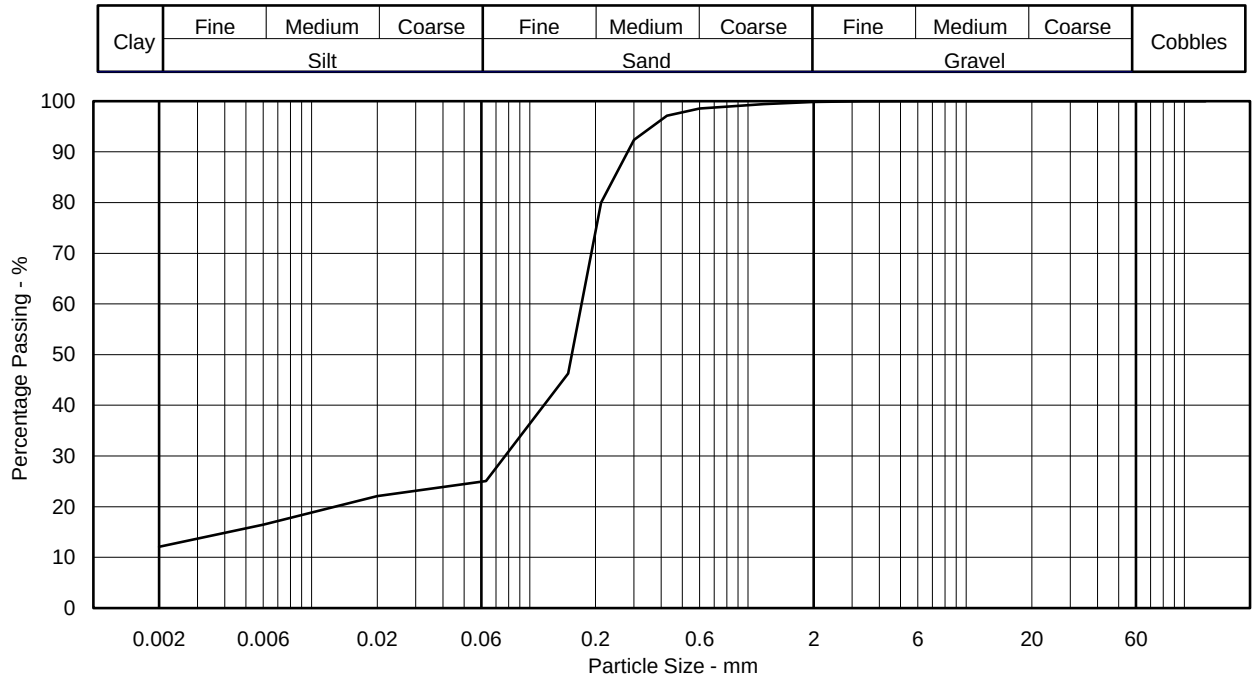
Cobbles	0.0
Gravel	0.1
Sand	75.0
Silt	12.7
Clay	12.1

Particle Diameter - mm

D100	5.0
D60	0.17
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes

Sedimentation sample not pre-treated



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LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	43
		Depth (m)	11.30-11.80
		Sample Type	B

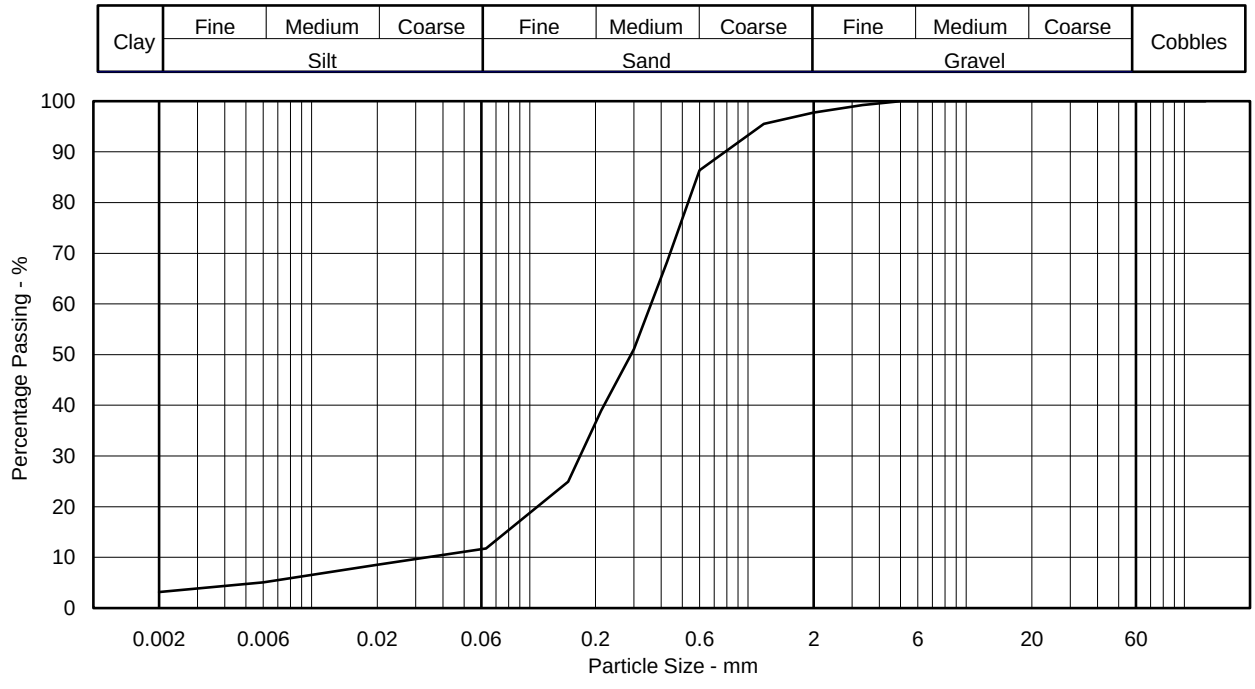
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	98
1.18 mm	96
600 µm	86
425 µm	68
300 µm	51
212 µm	39
150 µm	25
63 µm	12
20 µm	9
6 µm	5
2 µm	3

Non Engineering Description
Dark greyish brown slightly clayey silty SAND with ocassional fine shell fragments and a strong odour of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.2
Sand	86.2
Silt	8.4
Clay	3.2

Particle Diameter - mm	
D100	5.0
D60	0.36
D10	0.033
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	10.9

Notes
Sedimentation sample not pre-treated



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LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Version 058 - 10/06/2013
1260 - PSD MB02 12.30 46 B - C6474-338196.xls : Sample ID 338196

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	46
		Depth (m)	12.30-12.80
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	97
6.30 mm	96
5.00 mm	96
3.35 mm	94
2.00 mm	93
1.18 mm	92
600 µm	88
425 µm	78
300 µm	55
212 µm	36
150 µm	22
63 µm	12
20 µm	9
6 µm	7
2 µm	3

Non Engineering Description

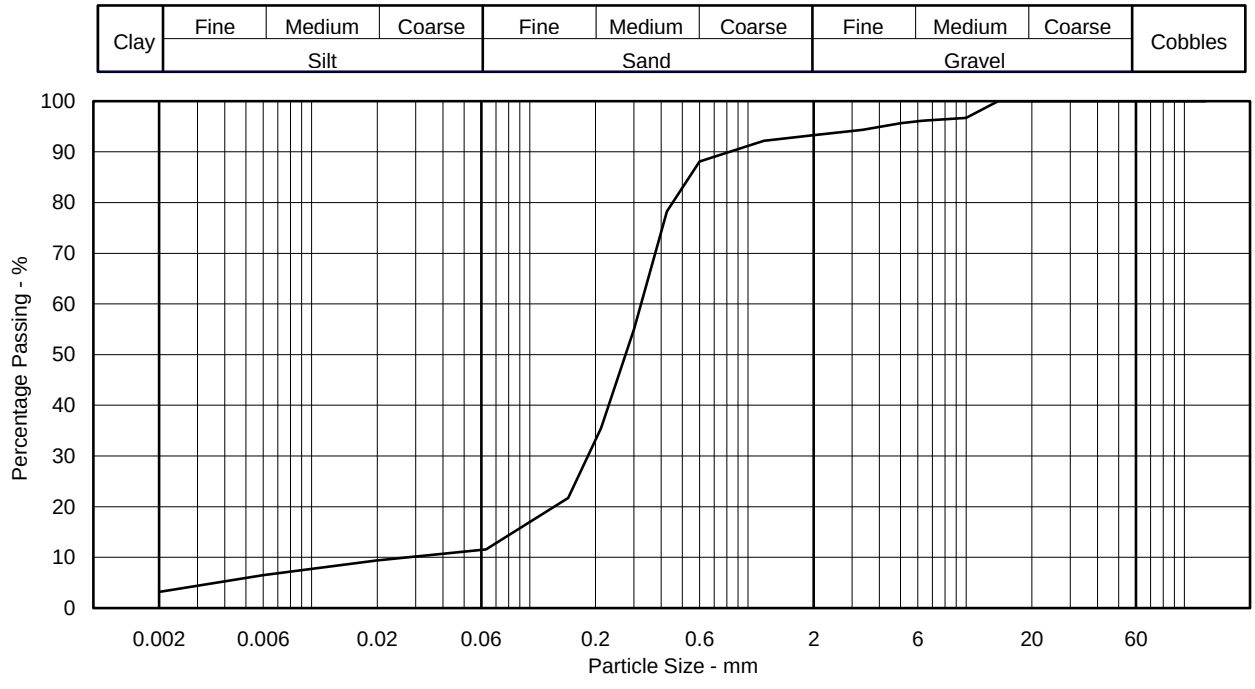
Dark grey slightly clayey silty SAND with some fine to medium shell fragments and a strong odour of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	6.7
Sand	81.9
Silt	8.3
Clay	3.2

Particle Diameter - mm	
D100	14
D60	0.32
D10	0.027
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	11.9

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

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Lab Project No C6474 : 29/08/2018 10:48:28

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	47
		Depth (m)	13.50-14.00
		Sample Type	B

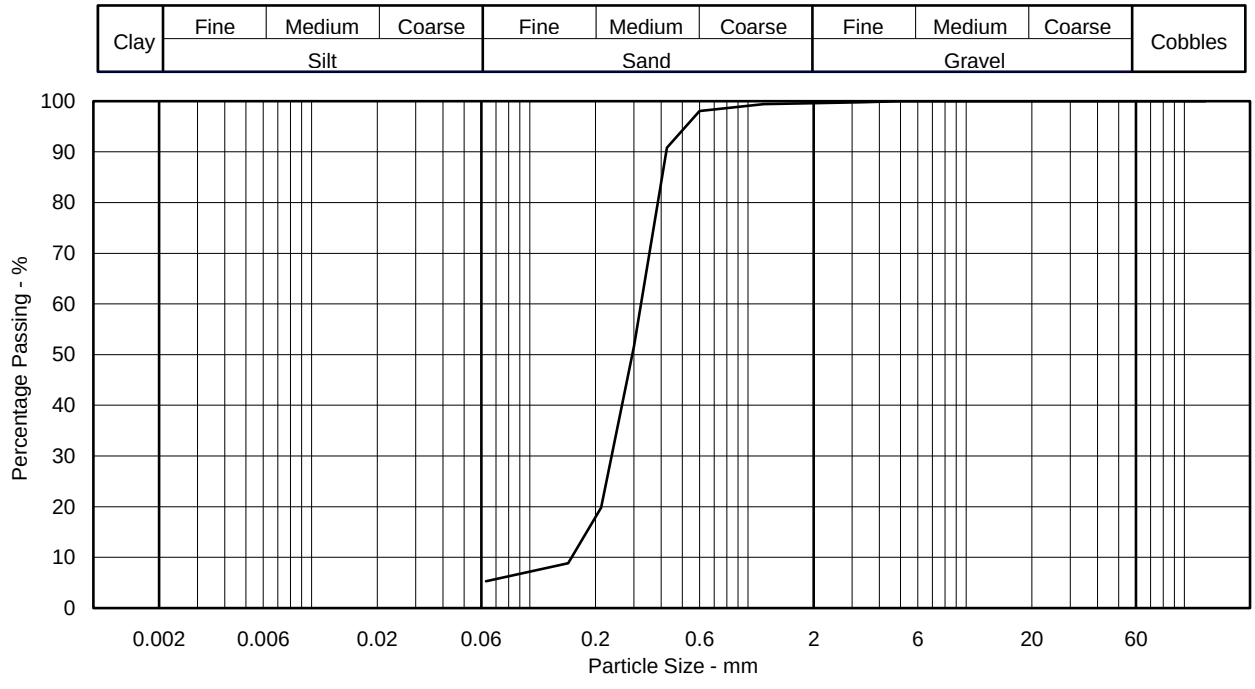
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	98
425 µm	91
300 µm	52
212 µm	20
150 µm	9
63 µm	5

Non Engineering Description
Grey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	94.3
Silt & Clay	5.3

Particle Diameter - mm	
D100	5.0
D60	0.32
D10	0.16
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.0

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	50
		Depth (m)	14.50-15.00
		Sample Type	B

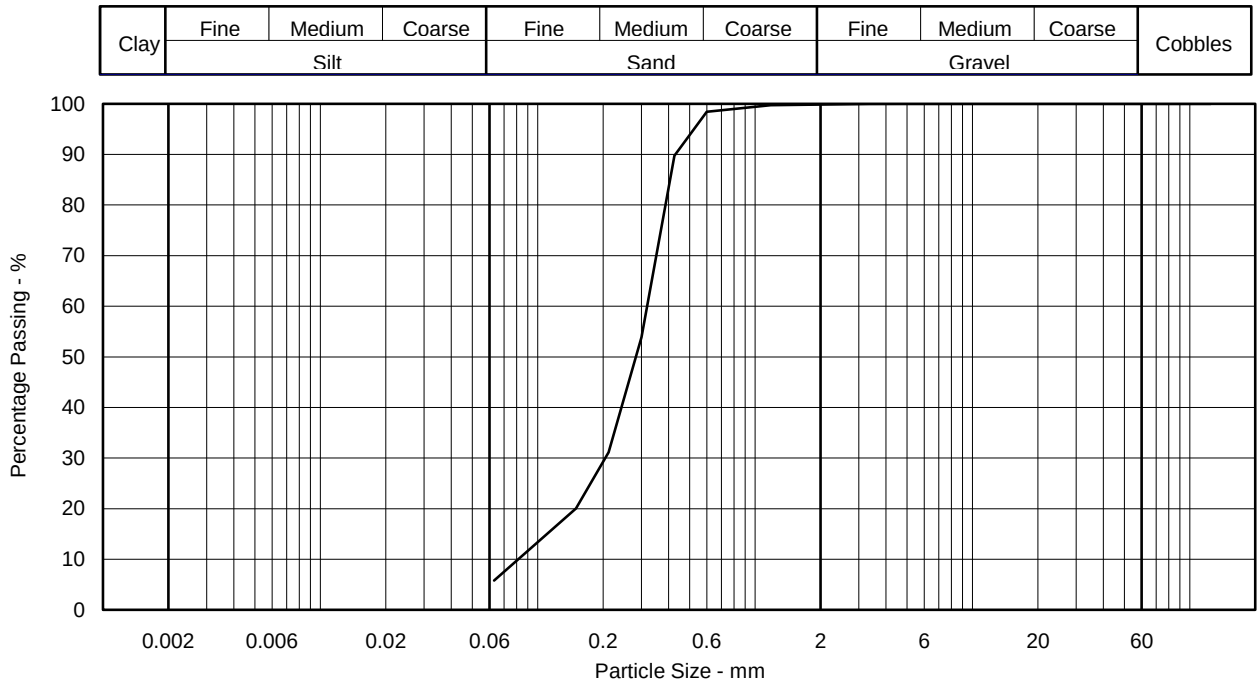
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	98
425 µm	90
300 µm	54
212 µm	31
150 µm	20
63 µm	6

Non Engineering Description
Grey silty SAND wiith a strong smell of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.1
Sand	94.1
Silt & Clay	5.8

Particle Diameter - mm	
D100	5.0
D60	0.32
D10	0.081
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	4.0

Notes



Originator	Checked & Approved
EH	[redacted] 24/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	54
		Depth (m)	15.50-16.00
		Sample Type	B

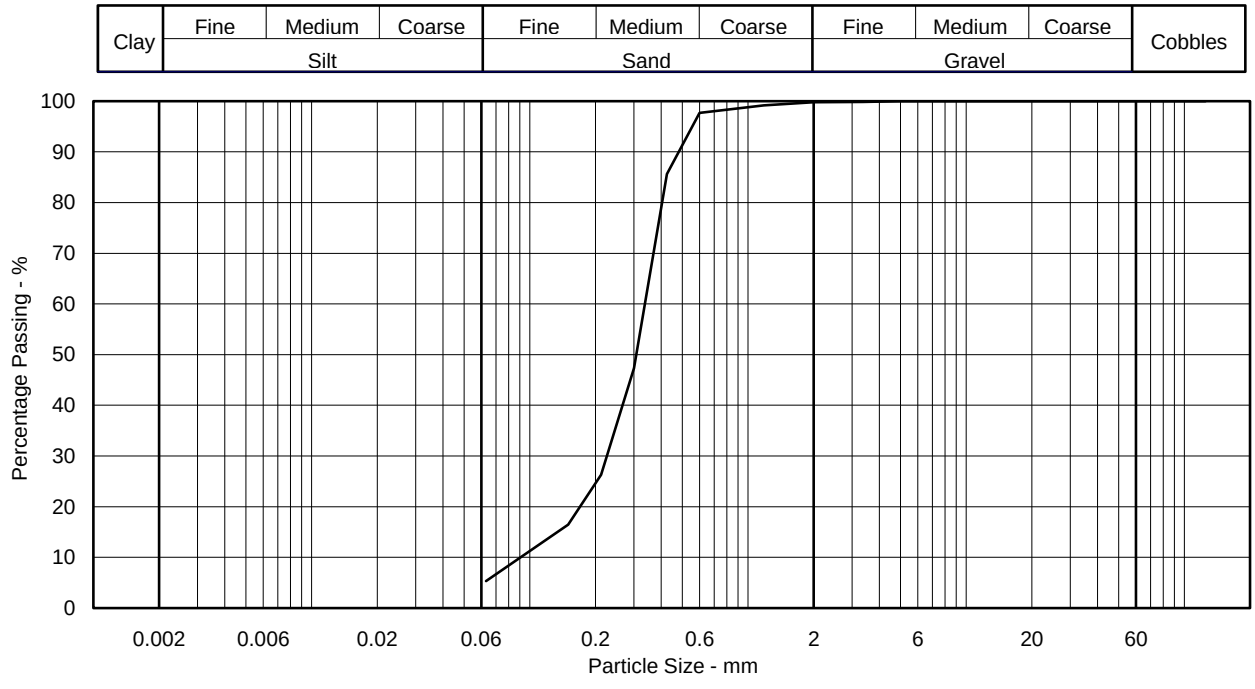
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	98
425 µm	86
300 µm	47
212 µm	26
150 µm	16
63 µm	5

Non Engineering Description
Dark grey silty SAND with a smell of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	94.4
Silt & Clay	5.3

Particle Diameter - mm	
D100	5.0
D60	0.34
D10	0.091
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.7

Notes



Originator	Checked & Approved
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PARTICLE SIZE DISTRIBUTION
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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	57
		Depth (m)	16.50-17.00
		Sample Type	B

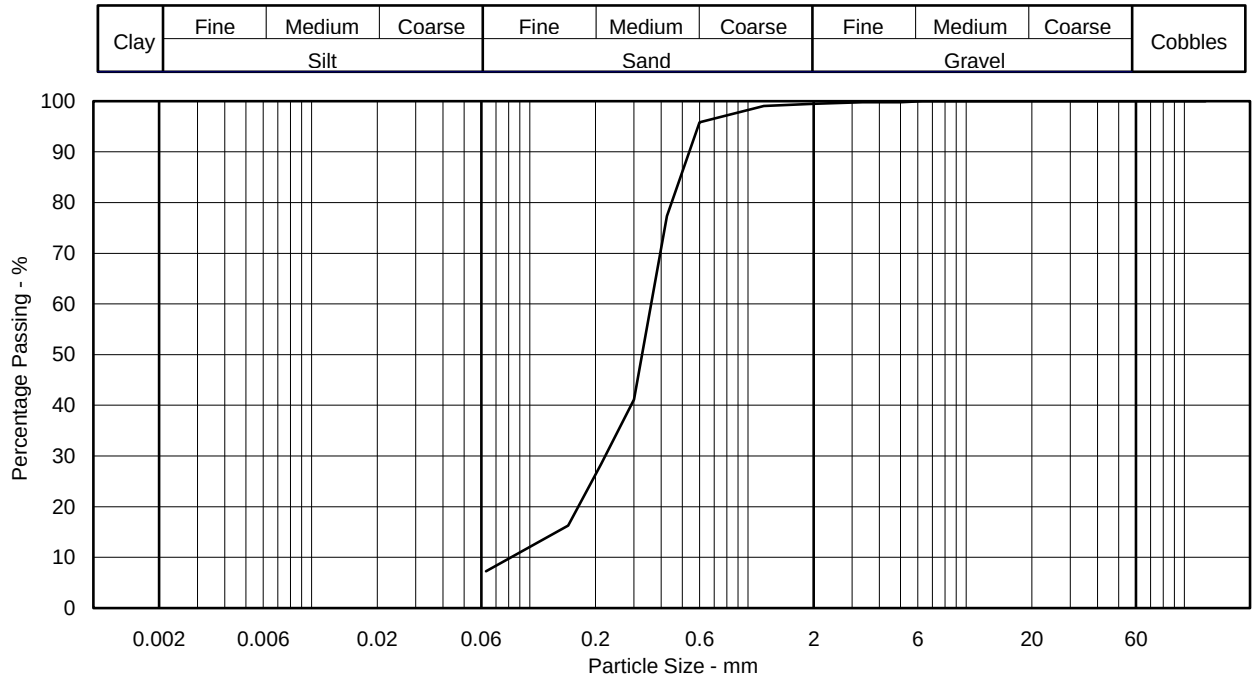
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	96
425 µm	77
300 µm	41
212 µm	28
150 µm	16
63 µm	7

Non Engineering Description
Grey SAND with occasional pockets of silt.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.5
Sand	92.2
Silt & Clay	7.3

Particle Diameter - mm	
D100	6.3
D60	0.36
D10	0.082
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	4.4

Notes



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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	63
		Depth (m)	18.50-19.00
		Sample Type	B

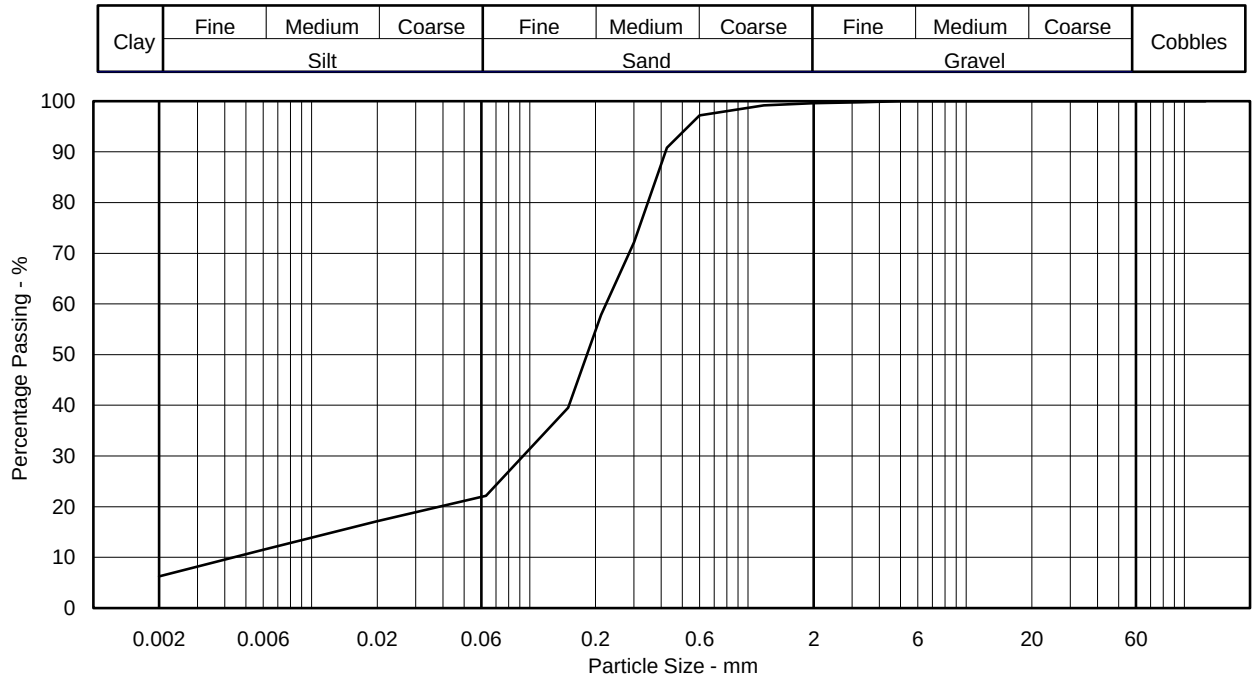
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	97
425 µm	91
300 µm	72
212 µm	58
150 µm	40
63 µm	22
20 µm	17
6 µm	12
2 µm	6

Non Engineering Description
Grey clayey silty SAND with a strong odour of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	77.8
Silt	15.6
Clay	6.3

Particle Diameter - mm	
D100	5.0
D60	0.22
D10	0.0044
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	50.0

Notes
Sedimentation sample not pre-treated



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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	65
		Depth (m)	19.20-19.70
		Sample Type	B

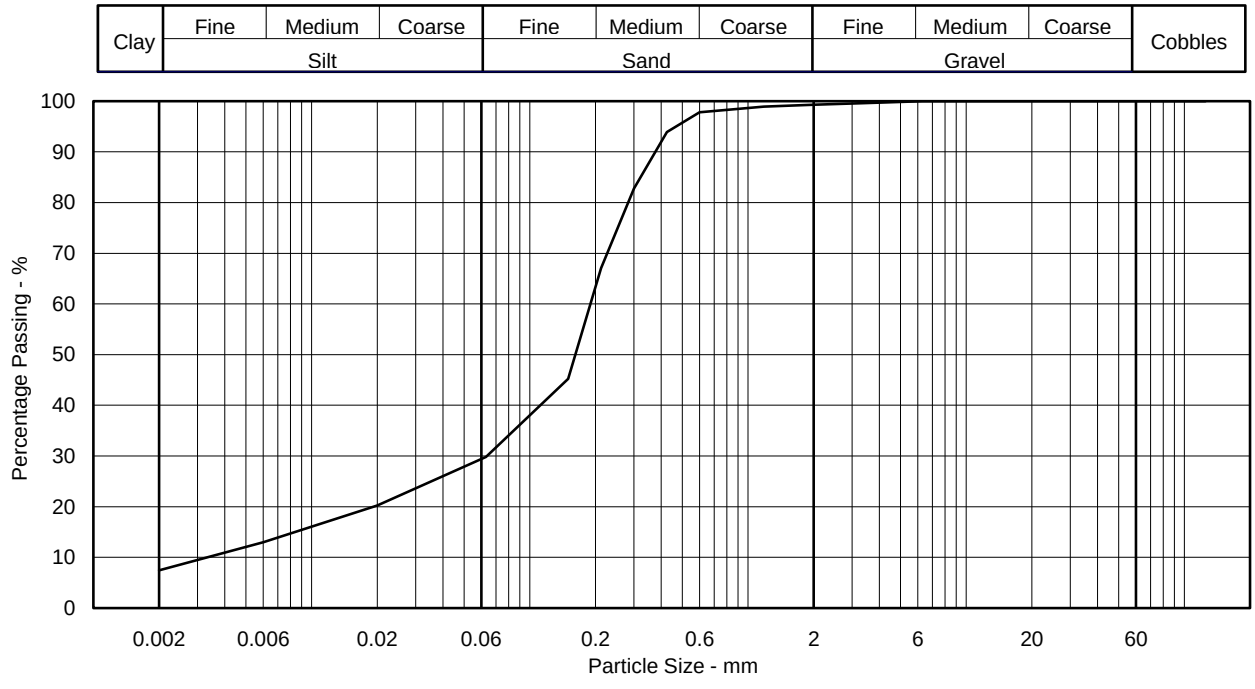
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	98
425 µm	94
300 µm	83
212 µm	67
150 µm	45
63 µm	30
20 µm	20
6 µm	13
2 µm	7

Non Engineering Description
Grey very sandy SILT/CLAY with rare fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.7
Sand	70.1
Silt	21.7
Clay	7.4

Particle Diameter - mm	
D100	6.3
D60	0.19
D10	0.0033
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	57.6

Notes
Sedimentation sample not pre-treated



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PARTICLE SIZE DISTRIBUTION

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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	74
		Depth (m)	23.50-24.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	98
1.18 mm	97
600 µm	95
425 µm	92
300 µm	79
212 µm	32
150 µm	8
63 µm	4

Non Engineering Description

Light grey slightly silty SAND with occasional fine shell fragments and one cobble.

Sample Proportions - %

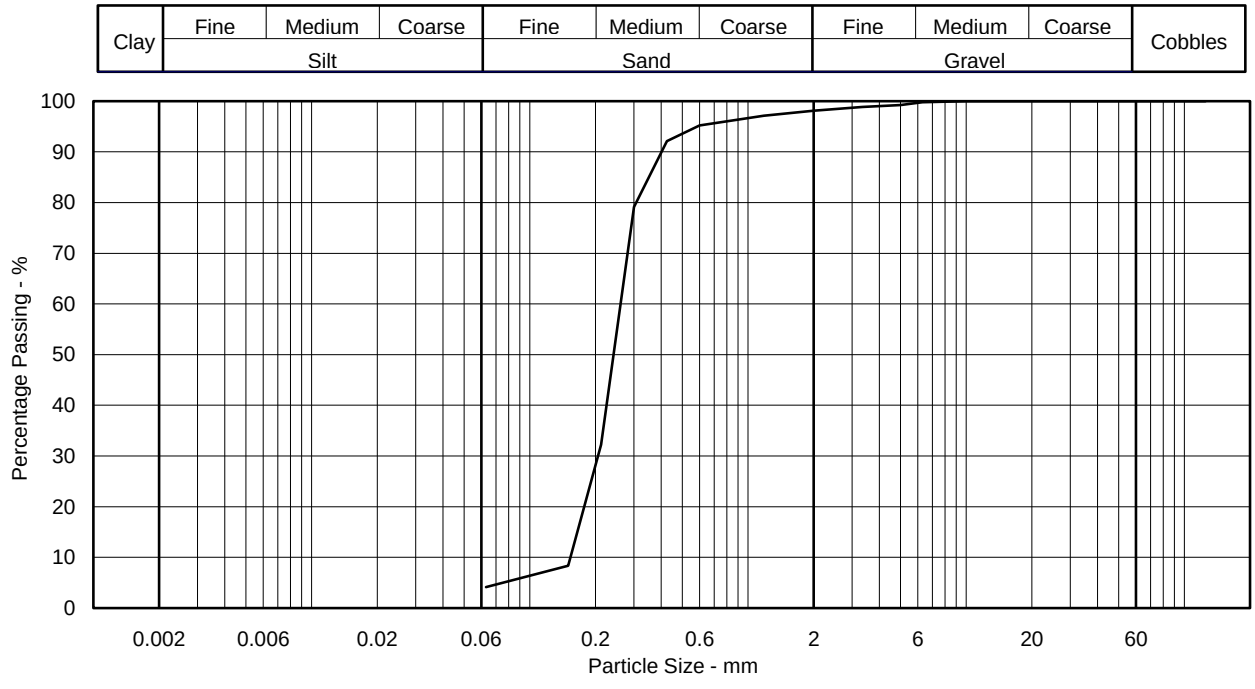
Cobbles	0.0
Gravel	1.9
Sand	94.0
Silt & Clay	4.1

Particle Diameter - mm

D100	10
D60	0.26
D10	0.15
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	1.7

Notes

Cobble weighing 2607.5g retained on the 90mm test sieve was removed from sample prior to testing.



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	82
		Depth (m)	27.30-27.80
		Sample Type	B

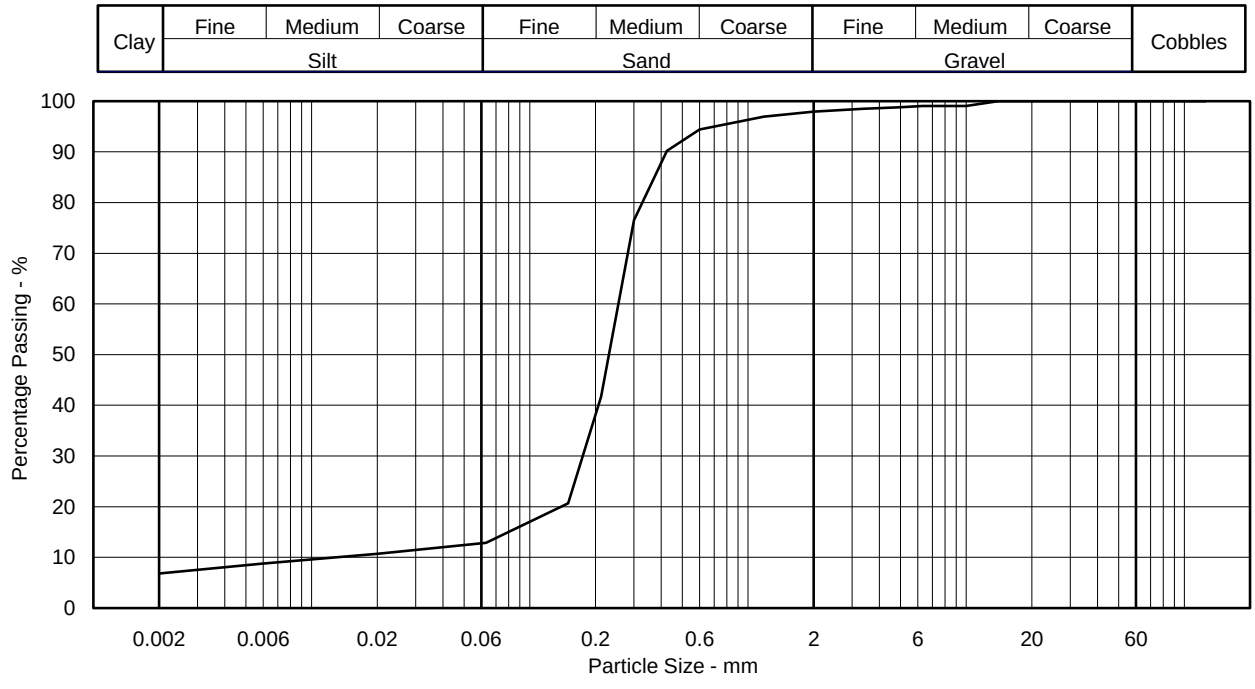
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	98
1.18 mm	97
600 µm	94
425 µm	90
300 µm	77
212 µm	42
150 µm	21
63 µm	13
20 µm	11
6 µm	9
2 µm	7

Non Engineering Description
Grey slightly gravelly silty clayey SAND. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.1
Sand	85.2
Silt	5.9
Clay	6.8

Particle Diameter - mm	
D100	14
D60	0.25
D10	0.013
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	19.2

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	84
		Depth (m)	28.30-28.80
		Sample Type	B

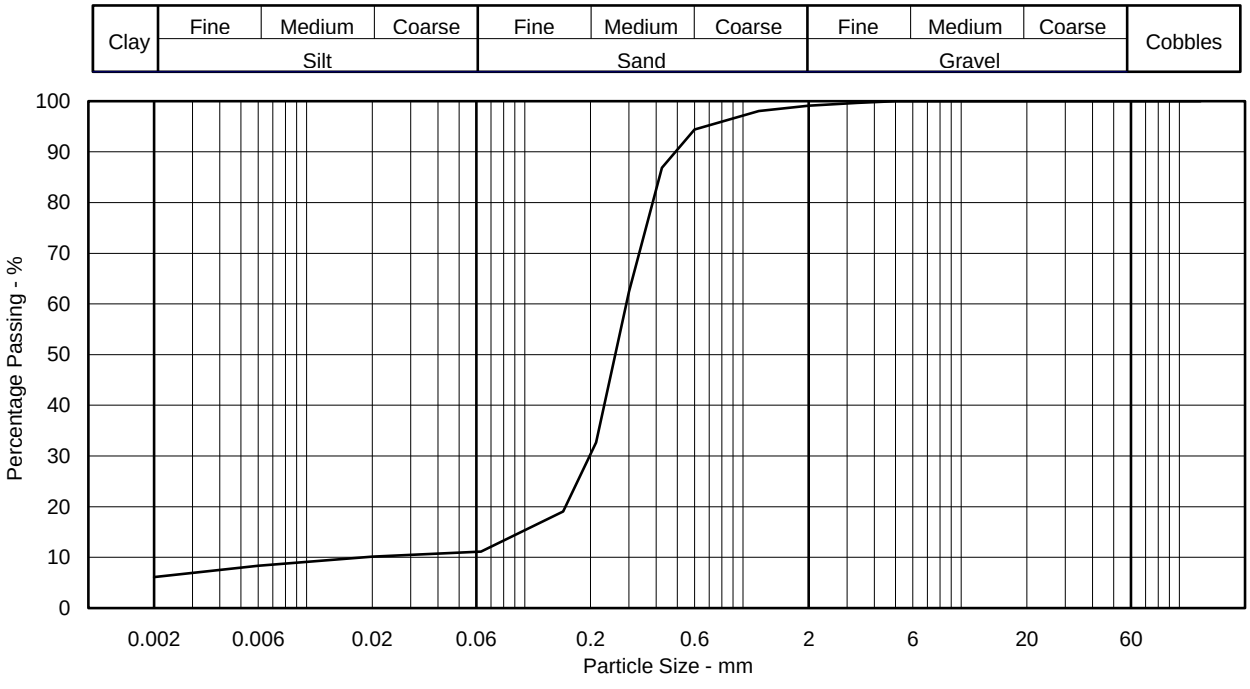
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	94
425 µm	87
300 µm	62
212 µm	33
150 µm	19
63 µm	11
20 µm	10
6 µm	8
2 µm	6

Non Engineering Description
Grey slightly silty clayey SAND with rare fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.9
Sand	88.0
Silt	4.9
Clay	6.1

Particle Diameter - mm	
D100	5.0
D60	0.29
D10	0.018
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	16.1

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	87
		Depth (m)	29.30-29.80
		Sample Type	B

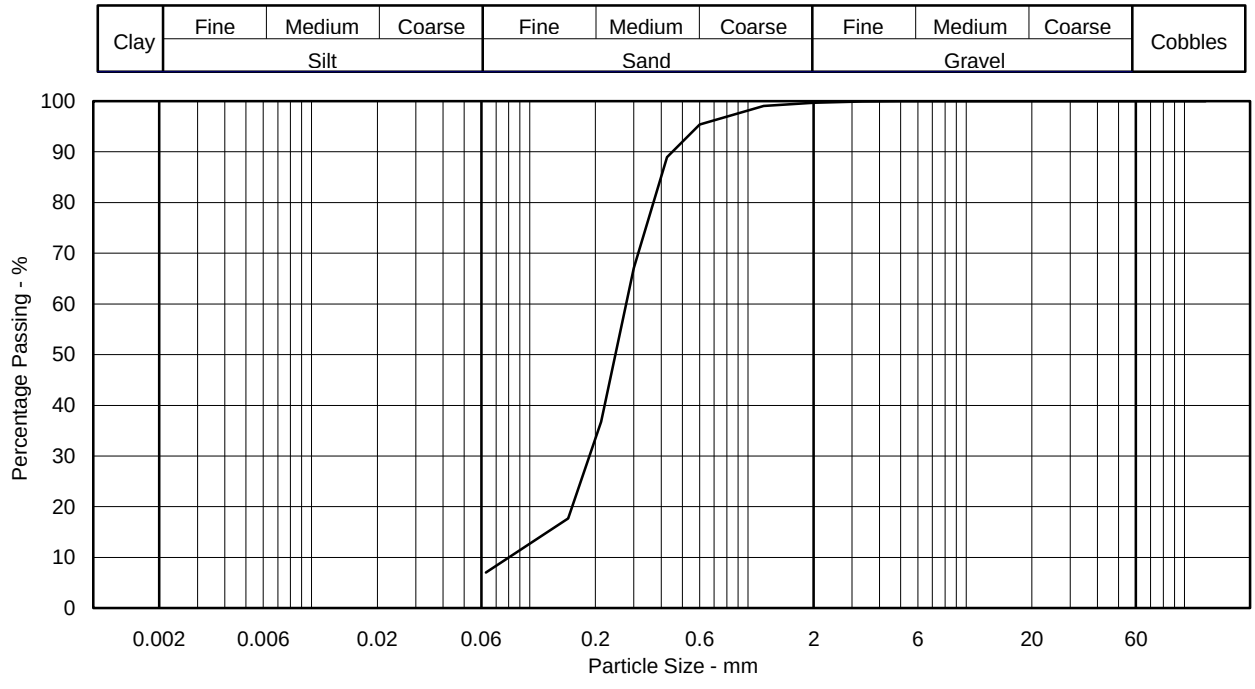
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	95
425 µm	89
300 µm	67
212 µm	37
150 µm	18
63 µm	7

Non Engineering Description
Grey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	92.7
Silt & Clay	7.0

Particle Diameter - mm	
D100	5.0
D60	0.28
D10	0.080
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.5

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	94
		Depth (m)	32.30-32.80
		Sample Type	B

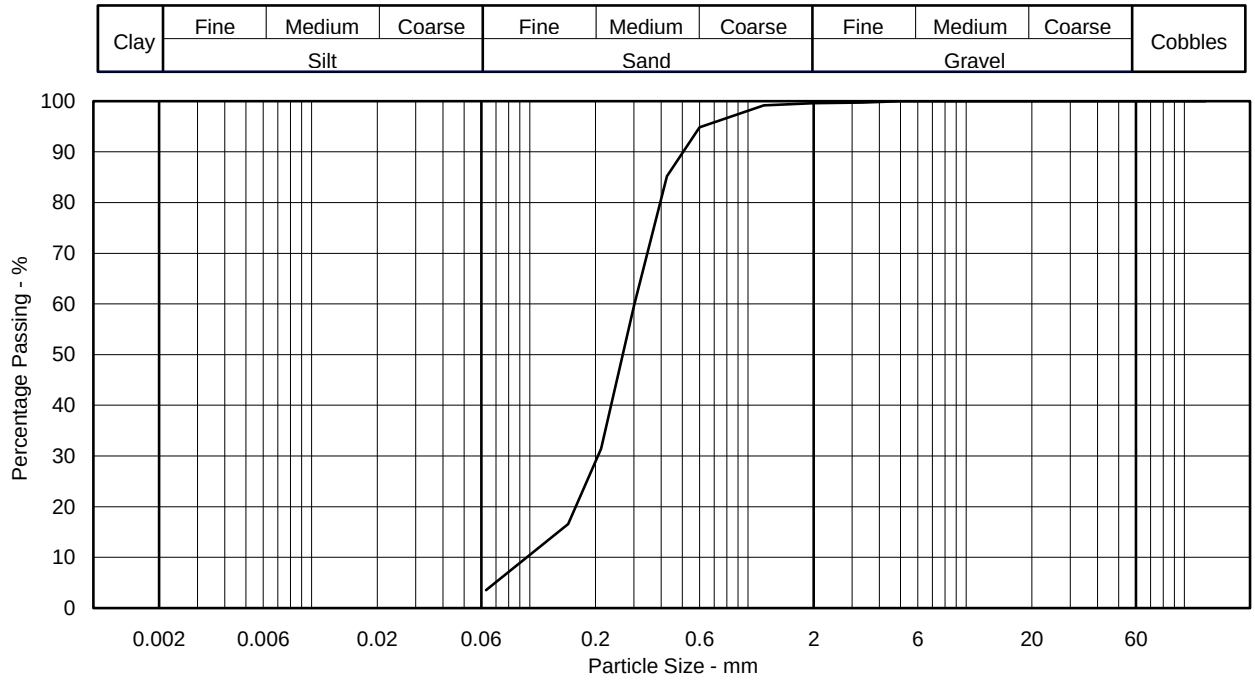
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	95
425 µm	85
300 µm	60
212 µm	31
150 µm	17
63 µm	4

Non Engineering Description
Light grey slighly silty SAND with a strong smell of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	96.1
Silt & Clay	3.5

Particle Diameter - mm	
D100	5.0
D60	0.30
D10	0.097
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.1

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	96
		Depth (m)	33.30-33.80
		Sample Type	B

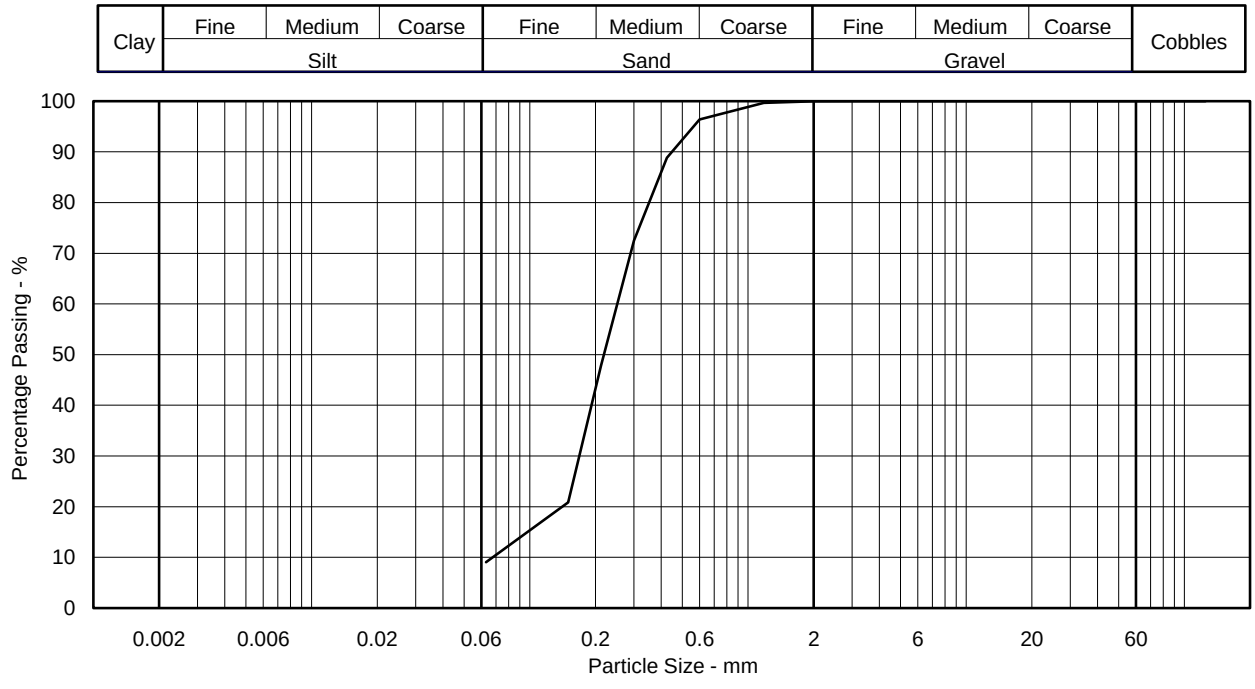
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	96
425 µm	89
300 µm	72
212 µm	48
150 µm	21
63 µm	9

Non Engineering Description
Grey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.0
Sand	90.9
Silt & Clay	9.1

Particle Diameter - mm	
D100	3.4
D60	0.25
D10	0.068
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.7

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	98
		Depth (m)	34.30-34.80
		Sample Type	B

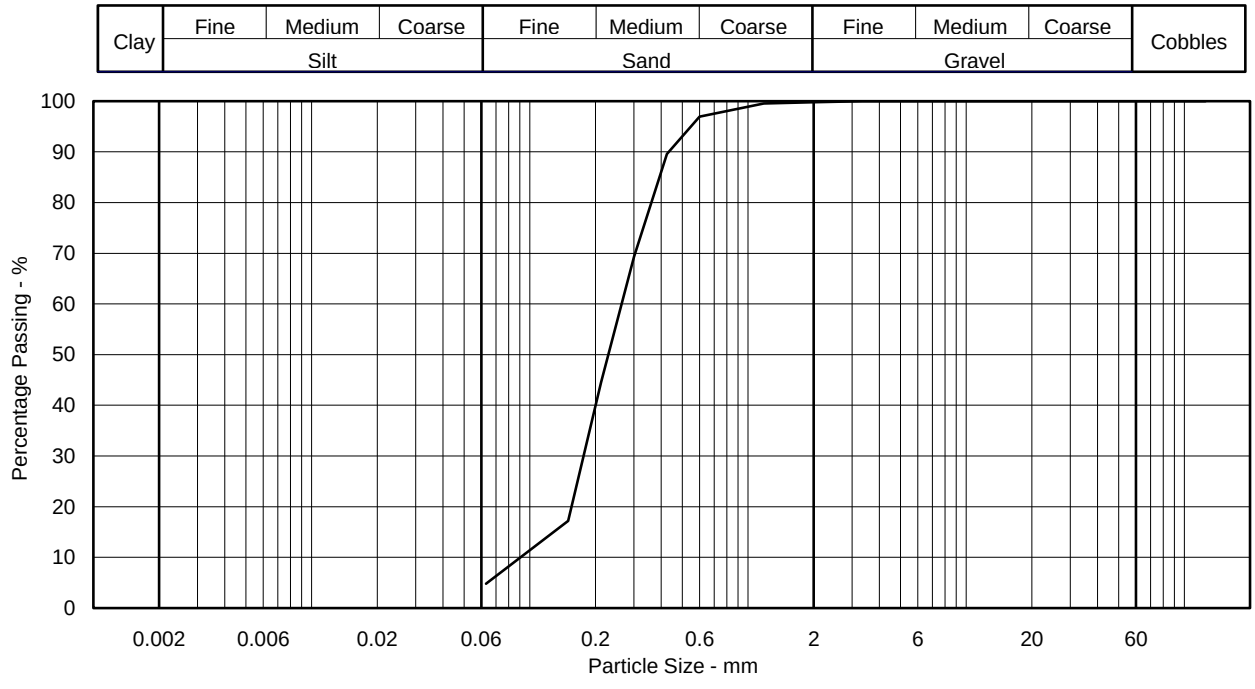
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	97
425 µm	90
300 µm	69
212 µm	45
150 µm	17
63 µm	5

Non Engineering Description
Greyish brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	95.0
Silt & Clay	4.8

Particle Diameter - mm	
D100	3.4
D60	0.26
D10	0.091
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.9

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	105
		Depth (m)	36.30-36.80
		Sample Type	B

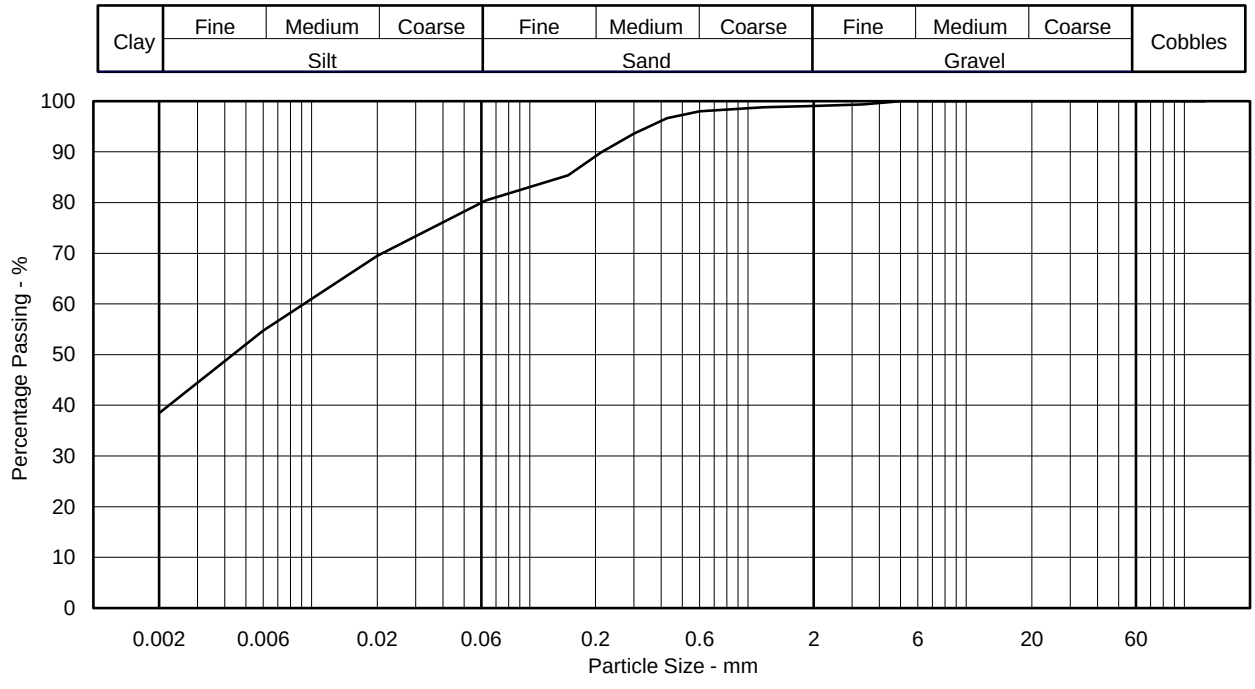
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	98
425 µm	97
300 µm	94
212 µm	90
150 µm	85
63 µm	80
20 µm	69
6 µm	55
2 µm	38

Non Engineering Description
Grey slightly sandy CLAY with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.0
Sand	19.4
Silt	41.2
Clay	38.5

Particle Diameter - mm	
D100	5.0
D60	0.0092
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	110
		Depth (m)	39.30-39.80
		Sample Type	B

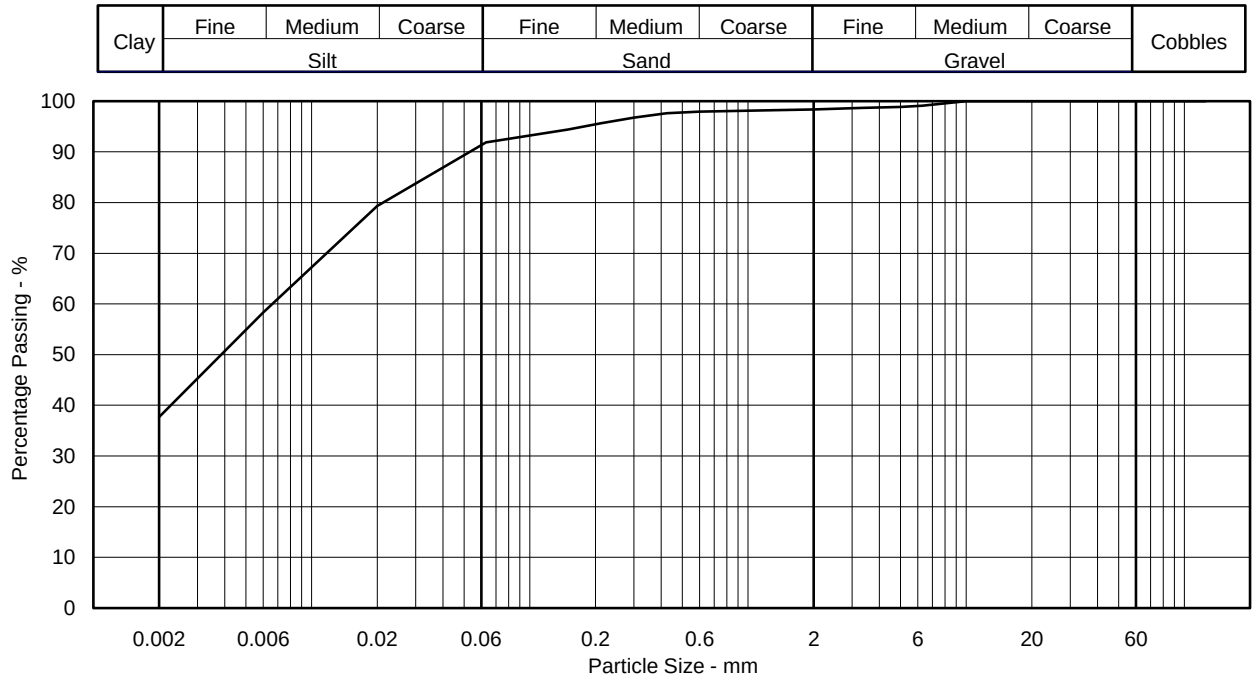
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	98
1.18 mm	98
600 µm	98
425 µm	98
300 µm	97
212 µm	96
150 µm	94
63 µm	92
20 µm	79
6 µm	58
2 µm	38

Non Engineering Description
Dark grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.6
Sand	7.4
Silt	53.3
Clay	37.7

Particle Diameter - mm	
D100	10
D60	0.0066
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Norfolk County Council
Norfolk Partnership Laboratory

NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457
Email: civil.laboratory@norfolk.gov.uk

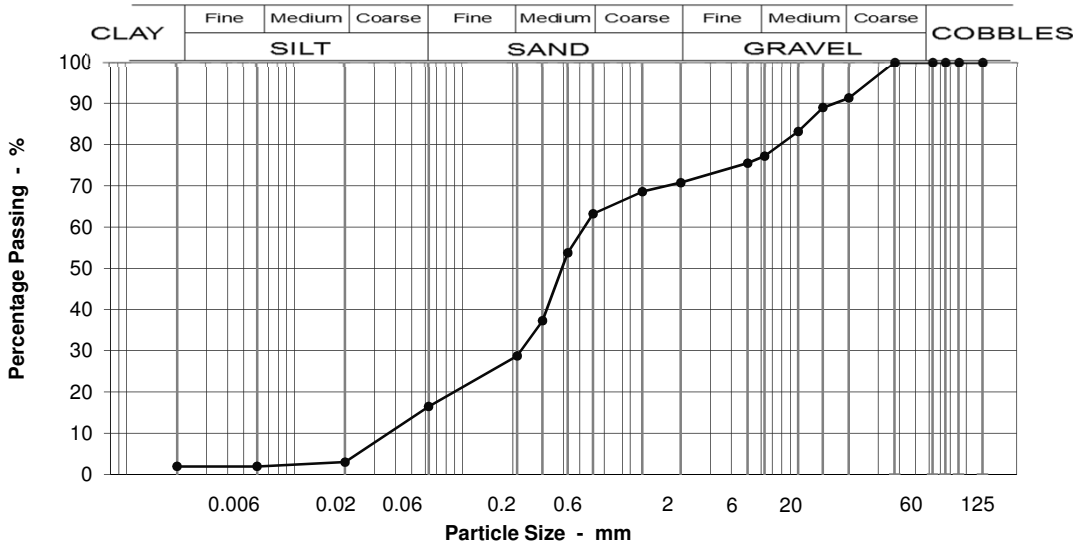
Community & Environmental Services
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2DH

Our reference No. NCCL2018062215-610
Our Project No PZ1522D1
Your Sample Ref 1
Your Project or Order No. PZ1522
Date Tested
Date Report Issued 20-Jul-18

Particle Size Distribution to BS 1377 : Part 2 :1990 Section 9

Scheme: Gt Yarmouth 3rd River Crossing
Location and orientation within sample not applicable

Location: MB03 @ 0m Specimen: 2
Bulk disturbed sample



Sieving

Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	91
14	89
10	83
6.3	77
5	75
2	71
1.18	69
0.600	63
0.425	54
0.300	37
0.212	29
0.063	17
0.020	3
0.006	2
0.002	2

Specification for Highway Works Classification

Table 6/2

This material complies with the following material classes 2C.

Moisture content % 35

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	9
Medium GRAVEL	14
Fine GRAVEL	6
Coarse SAND	8
Medium SAND	34
Fine SAND	12
Silt & Clay	17

Grading Analysis	
D100	20
D60	0.54
D10	0.11
Uniformity Coefficient	5

Description
Dark grey very gravelly silty fine to coarse SAND. Gravel is fine to coarse subrounded flint.

Test Code = 610

UKAS TESTING 0920

Simon Holden (Project Technician) [redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	5
		Depth (m)	1.50-2.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	99
10.0 mm	95
6.30 mm	91
5.00 mm	88
3.35 mm	84
2.00 mm	78
1.18 mm	75
600 µm	70
425 µm	64
300 µm	56
212 µm	50
150 µm	43
63 µm	32
20 µm	26
6 µm	21
2 µm	16

Non Engineering Description

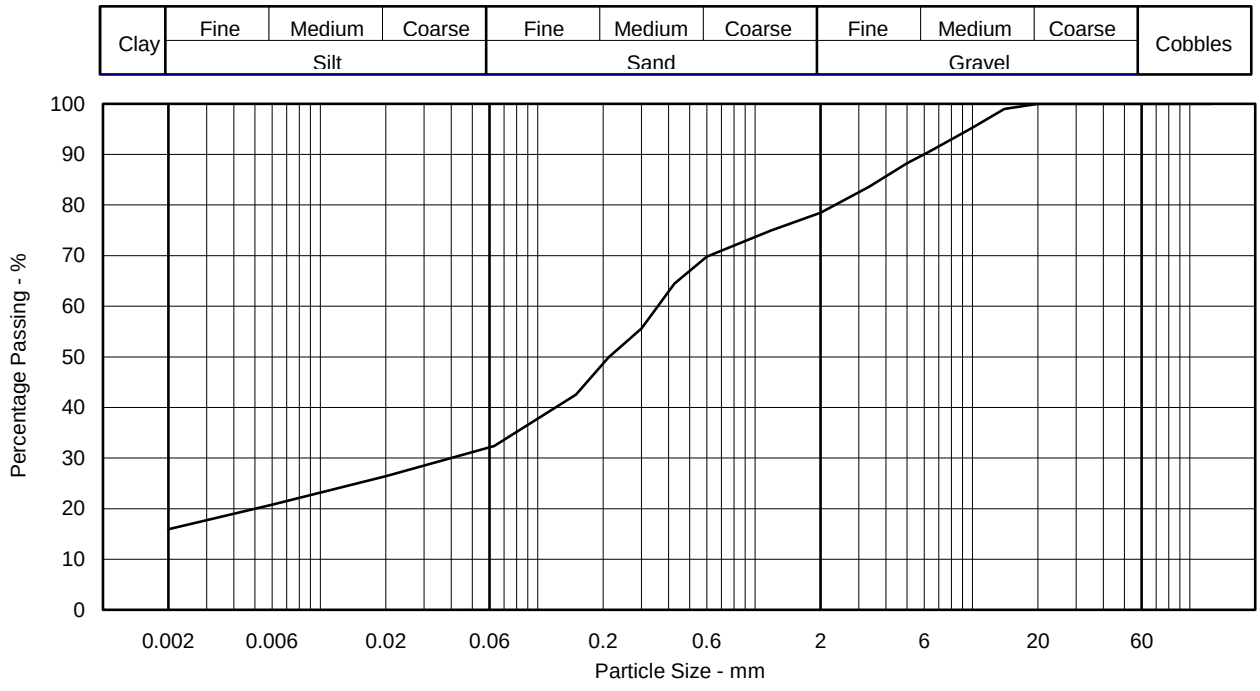
Greyish brown slightly gravelly sandy CLAY with occasional fine shell fragments. Gravel is fine to medium with a strong odour of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	21.5
Sand	46.6
Silt	16.0
Clay	15.9

Particle Diameter - mm	
D100	20
D60	0.36
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
EH	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB03
Sample Ref	9
Depth (m)	2.50-3.00
Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	95
20.0 mm	94
14.0 mm	92
10.0 mm	89
6.30 mm	85
5.00 mm	83
3.35 mm	79
2.00 mm	76
1.18 mm	74
600 µm	70
425 µm	62
300 µm	42
212 µm	27
150 µm	19
63 µm	13
20 µm	11
6 µm	9
2 µm	7

Non Engineering Description

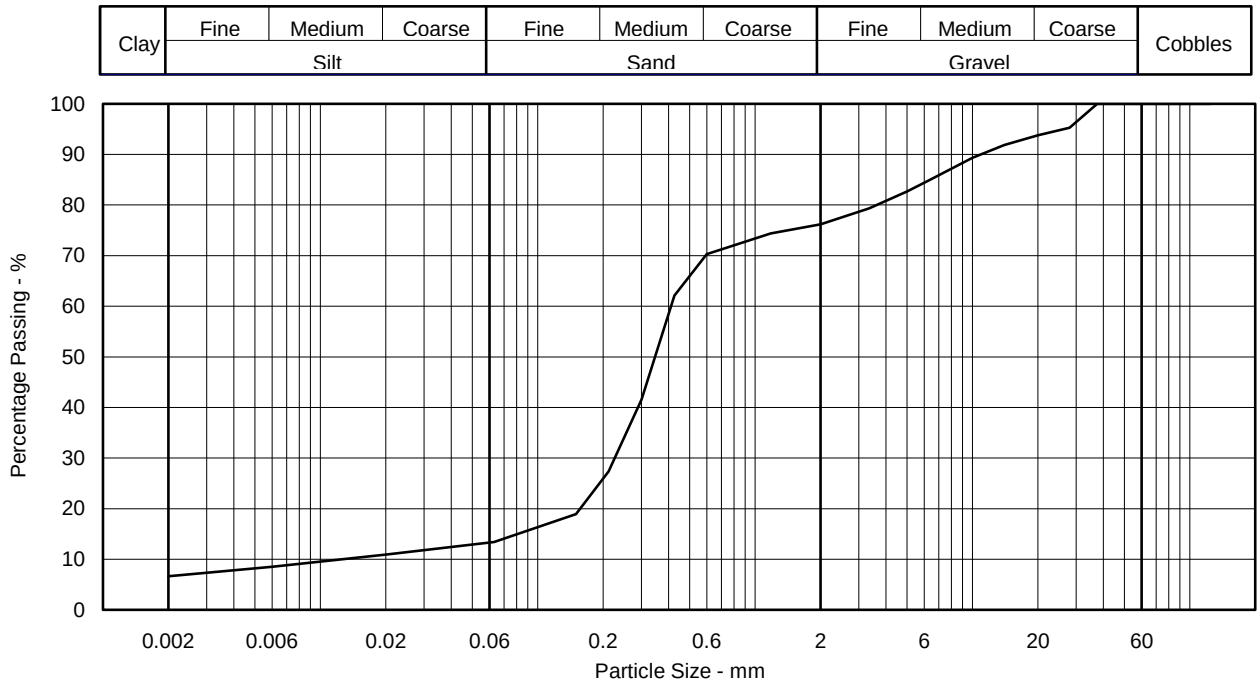
Yellowish brown clayey silty very gravelly gravelly SAND with occasional fine shell fragments. Gravel is fine to coarse.

Sample Proportions - %	
Cobbles	0.0
Gravel	23.8
Sand	63.0
Silt	6.6
Clay	6.6

Particle Diameter - mm	
D100	38
D60	0.41
D10	0.013
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	31.5

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
EH	[redacted]
EH	29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	13
		Depth (m)	3.50-4.00
		Sample Type	B

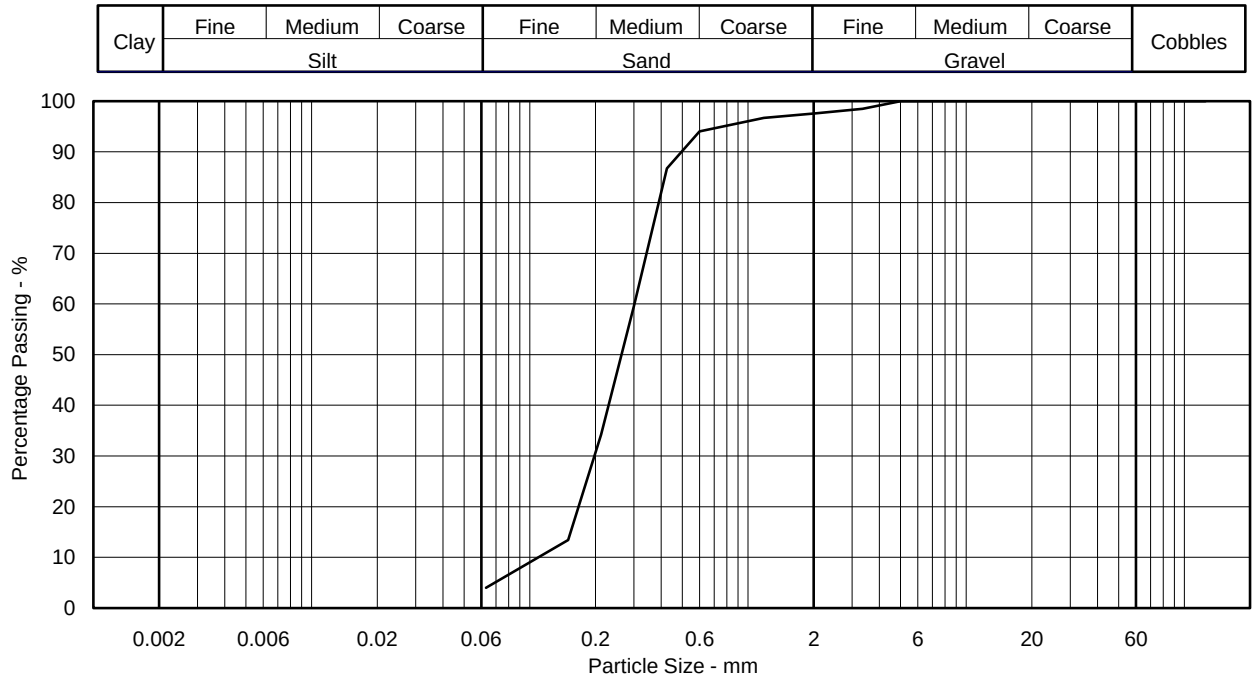
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	98
2.00 mm	98
1.18 mm	97
600 µm	94
425 µm	87
300 µm	60
212 µm	34
150 µm	13
63 µm	4

Non Engineering Description
Yellowish brown slightly silty SAND with occasional fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.4
Sand	93.6
Silt & Clay	4.0

Particle Diameter - mm	
D100	5.0
D60	0.30
D10	0.11
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.7

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	17
		Depth (m)	4.50-5.00
		Sample Type	B

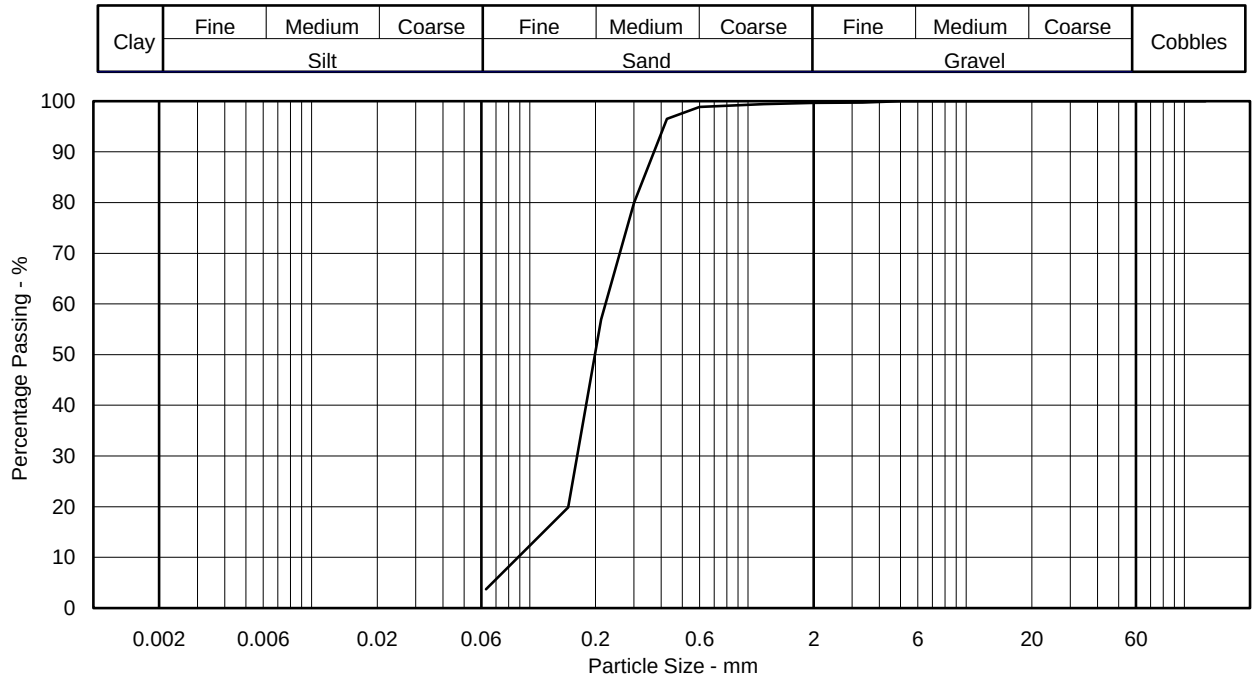
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	97
300 µm	80
212 µm	57
150 µm	20
63 µm	4

Non Engineering Description
Yellowish brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	96.0
Silt & Clay	3.7

Particle Diameter - mm	
D100	5.0
D60	0.22
D10	0.088
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB03
Sample Ref	29
Depth (m)	7.50-8.00
Sample Type	B

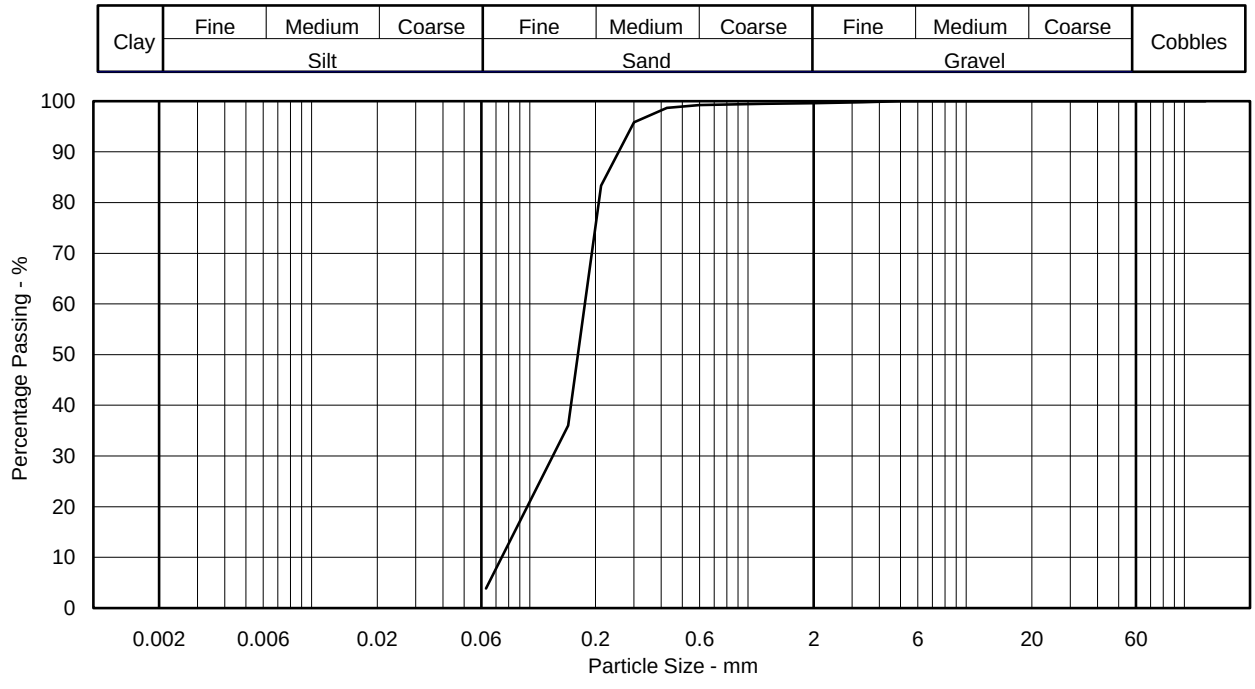
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	99
300 µm	96
212 µm	83
150 µm	36
63 µm	4

Non Engineering Description
Yellowish brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	95.8
Silt & Clay	3.9

Particle Diameter - mm	
D100	5.0
D60	0.18
D10	0.074
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.4

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	33
		Depth (m)	8.50-9.00
		Sample Type	B

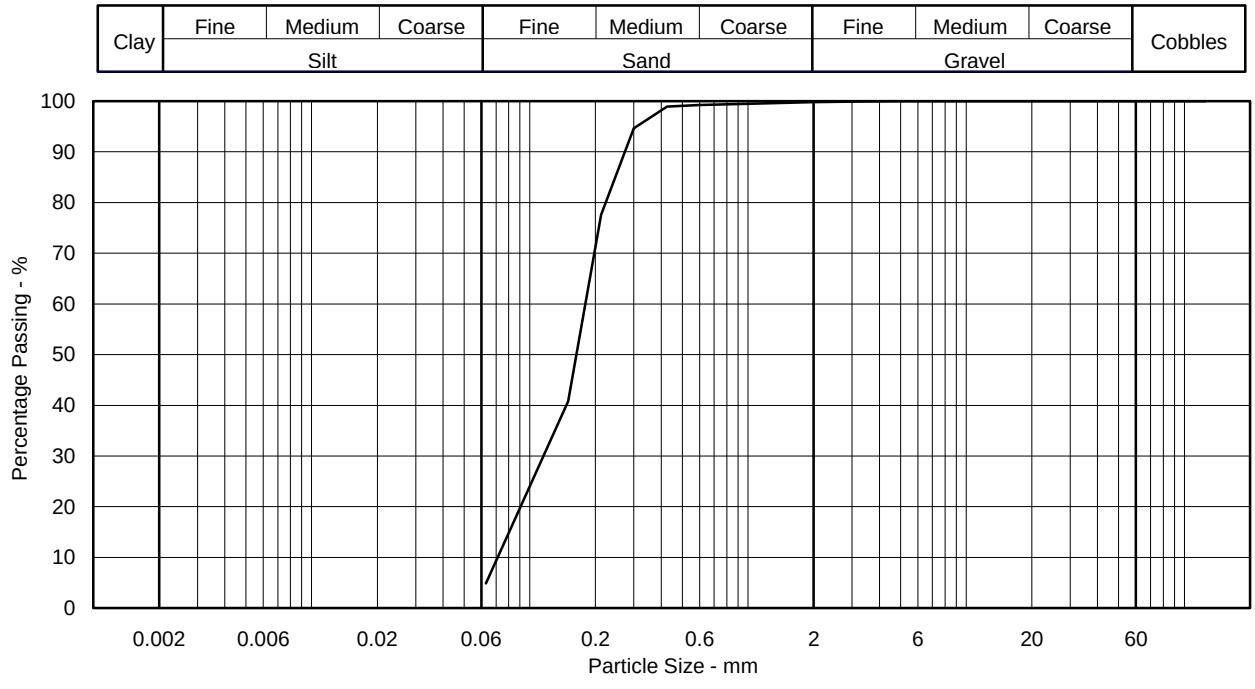
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	99
300 µm	95
212 µm	78
150 µm	41
63 µm	5

Non Engineering Description
Yellowish brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	94.9
Silt & Clay	4.9

Particle Diameter - mm	
D100	5.0
D60	0.18
D10	0.071
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	43
		Depth (m)	11.50-12.00
		Sample Type	B

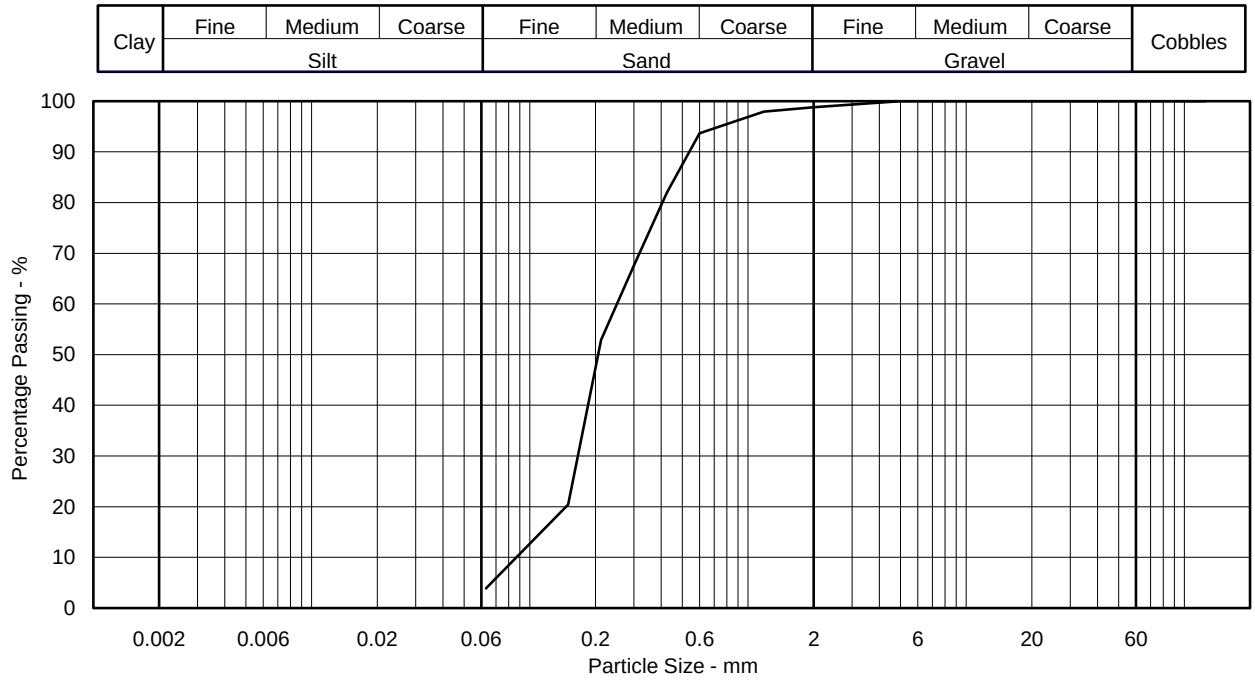
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	94
425 µm	82
300 µm	68
212 µm	53
150 µm	20
63 µm	4

Non Engineering Description
Yellowish brown slightly silty SAND with occasional fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.2
Sand	94.9
Silt & Clay	3.9

Particle Diameter - mm	
D100	5.0
D60	0.25
D10	0.087
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.9

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	45
		Depth (m)	12.50
		Sample Type	D

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	90
425 µm	69
300 µm	41
212 µm	26
150 µm	13
63 µm	4

Non Engineering Description

Yellowish brown slightly silty SAND with occasional fine shell fragments.

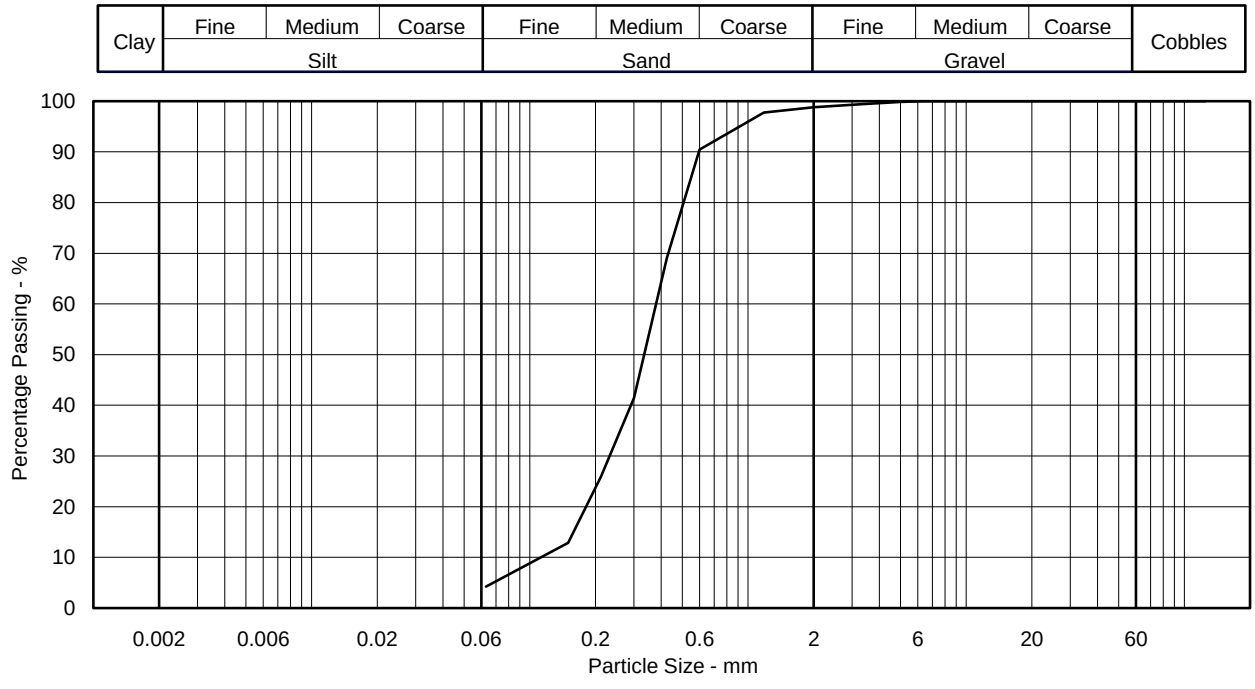
Sample Proportions - %

Cobbles	0.0
Gravel	1.2
Sand	94.5
Silt & Clay	4.2

Particle Diameter - mm

D100	6.3
D60	0.38
D10	0.11
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.5

Notes



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	49
		Depth (m)	13.50-14.00
		Sample Type	B

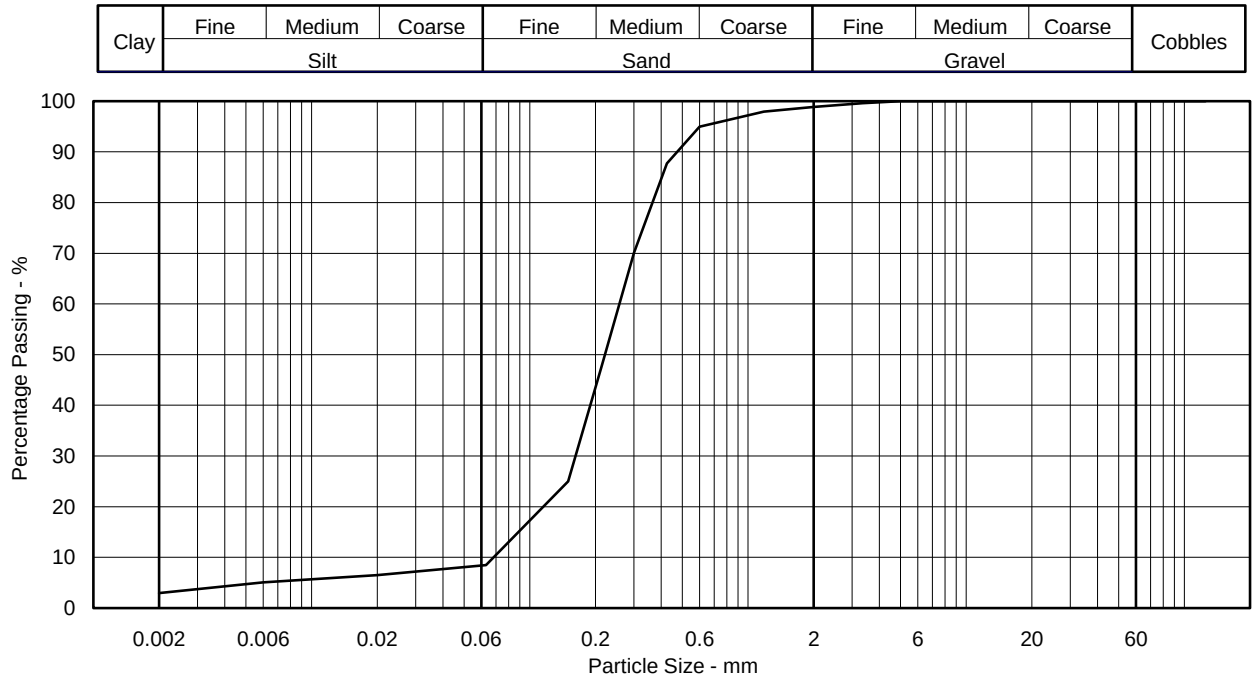
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	95
425 µm	88
300 µm	70
212 µm	47
150 µm	25
63 µm	8
20 µm	7
6 µm	5
2 µm	3

Non Engineering Description
Light brown slightly clayey silty SAND with occasional fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.1
Sand	90.6
Silt	5.4
Clay	3.0

Particle Diameter - mm	
D100	5.0
D60	0.26
D10	0.068
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.8

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
JAH	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	52
		Depth (m)	14.50-15.00
		Sample Type	B

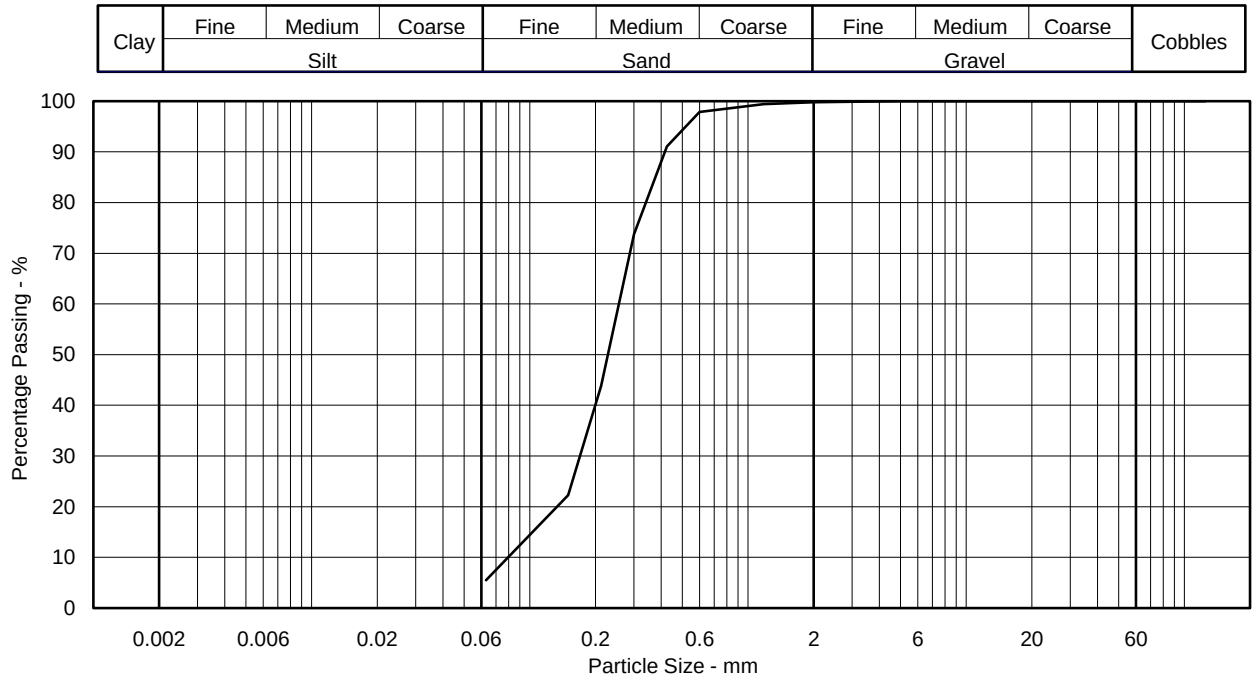
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	98
425 µm	91
300 µm	74
212 µm	44
150 µm	22
63 µm	5

Non Engineering Description
Light brown silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	94.3
Silt & Clay	5.5

Particle Diameter - mm	
D100	5.0
D60	0.26
D10	0.079
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.3

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	58
		Depth (m)	16.50-17.00
		Sample Type	B

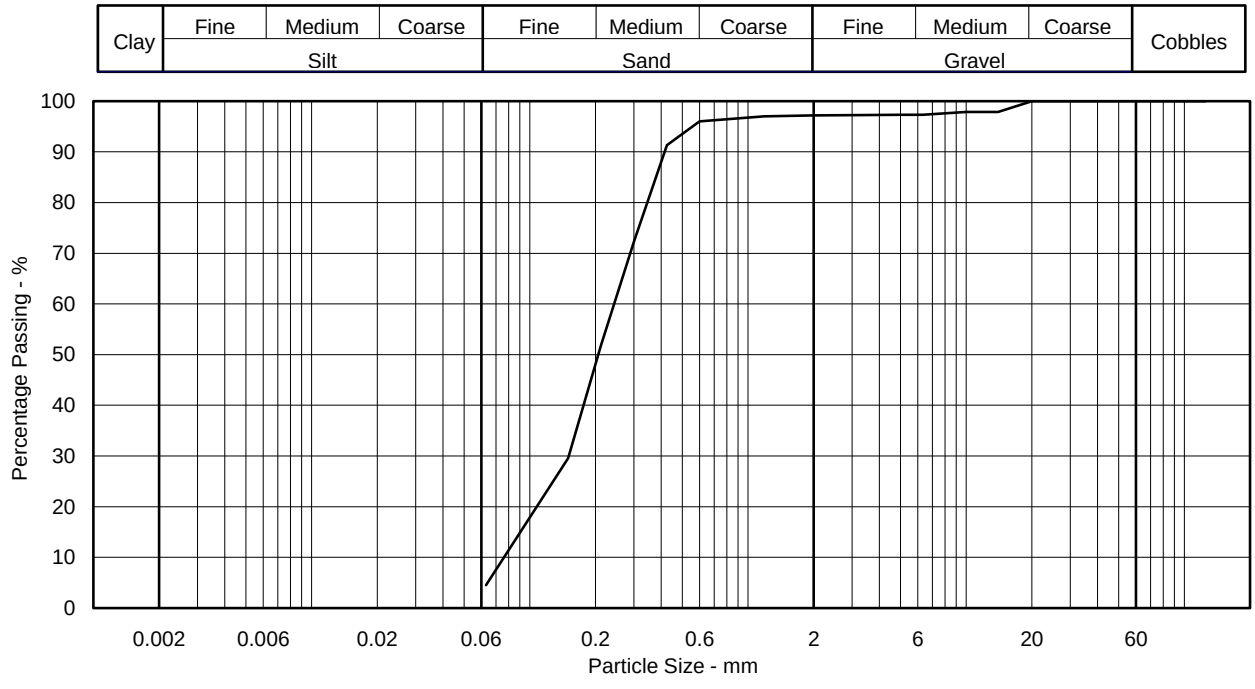
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	98
10.0 mm	98
6.30 mm	97
5.00 mm	97
3.35 mm	97
2.00 mm	97
1.18 mm	97
600 µm	96
425 µm	91
300 µm	72
212 µm	52
150 µm	30
63 µm	5

Non Engineering Description
Light brown slightly gravelly slightly silty SAND. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.8
Sand	92.7
Silt & Clay	4.5

Particle Diameter - mm	
D100	20
D60	0.24
D10	0.076
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.2

Notes



Originator	Checked & Approved
DM	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	64
		Depth (m)	18.50-19.00
		Sample Type	B

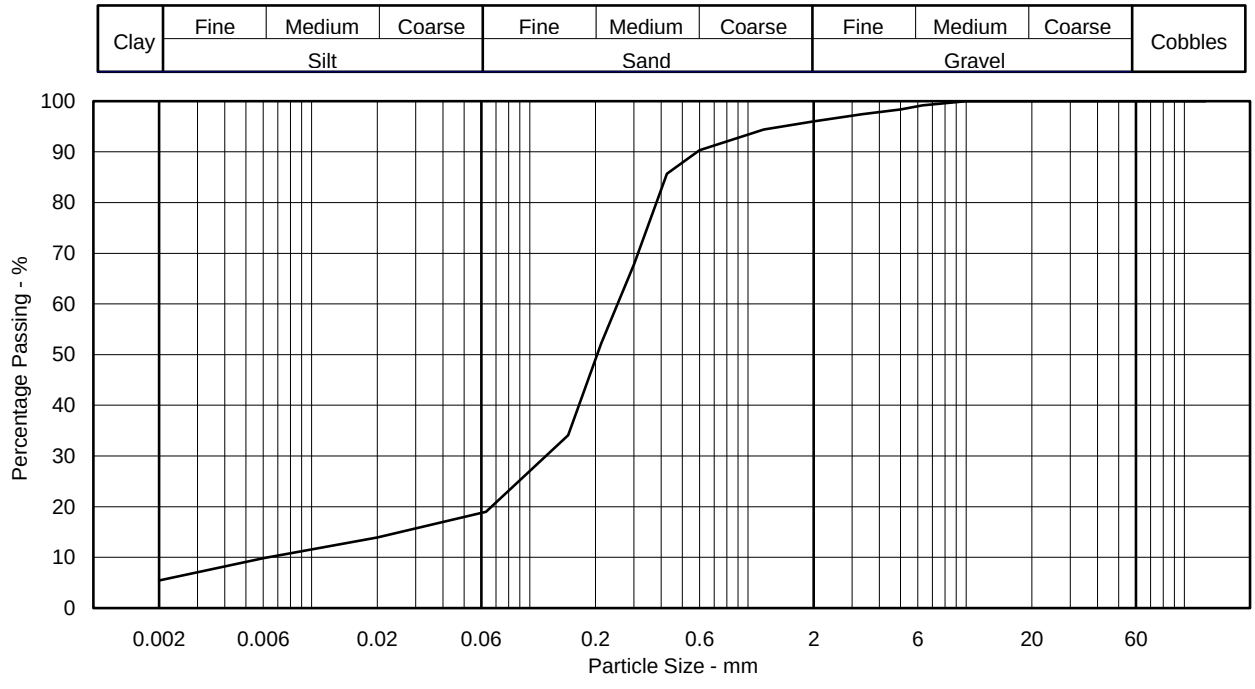
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	98
3.35 mm	97
2.00 mm	96
1.18 mm	94
600 µm	90
425 µm	86
300 µm	68
212 µm	52
150 µm	34
63 µm	19
20 µm	14
6 µm	10
2 µm	5

Non Engineering Description
Grey clayey silty SAND with occasional fine to medium shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	4.0
Sand	77.4
Silt	13.2
Clay	5.4

Particle Diameter - mm	
D100	10
D60	0.25
D10	0.0063
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	39.7

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	70
		Depth (m)	21.00-21.50
		Sample Type	B

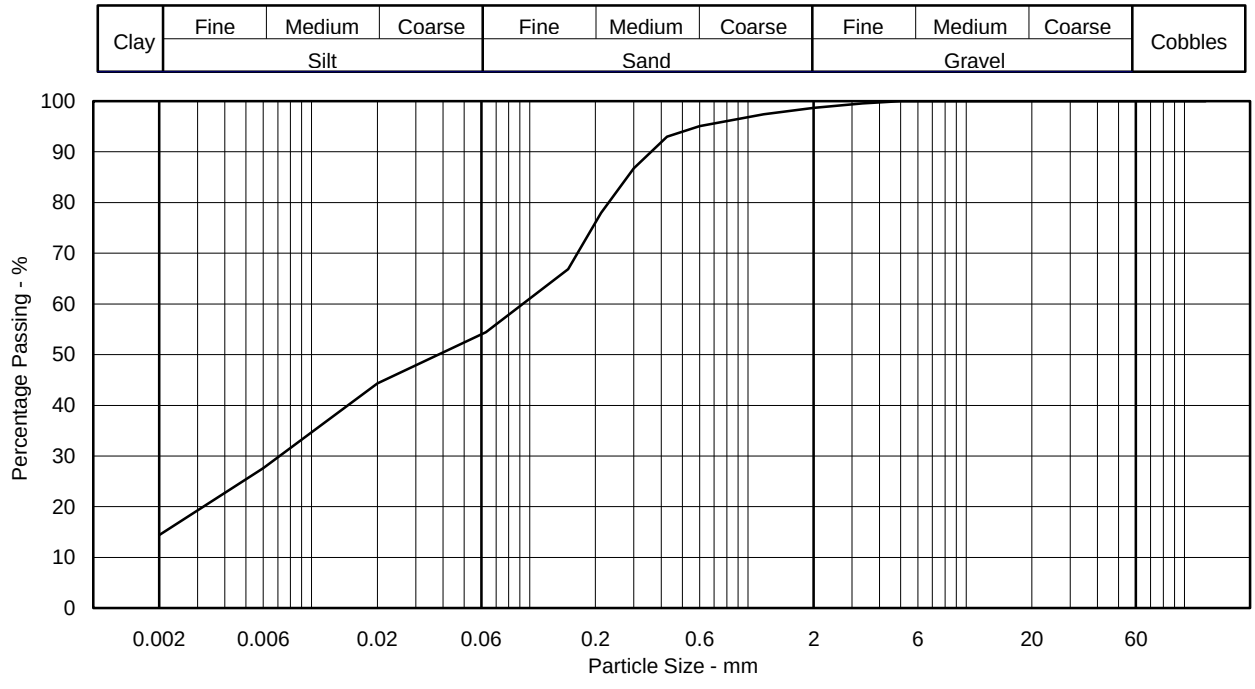
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	97
600 µm	95
425 µm	93
300 µm	87
212 µm	78
150 µm	67
63 µm	54
20 µm	44
6 µm	28
2 µm	14

Non Engineering Description
Light grey sandy SILT/CLAY with rare fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.4
Sand	45.0
Silt	39.3
Clay	14.4

Particle Diameter - mm	
D100	5.0
D60	0.093
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 29/08/2018 12:11:56

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	76
		Depth (m)	23.50-24.00
		Sample Type	B

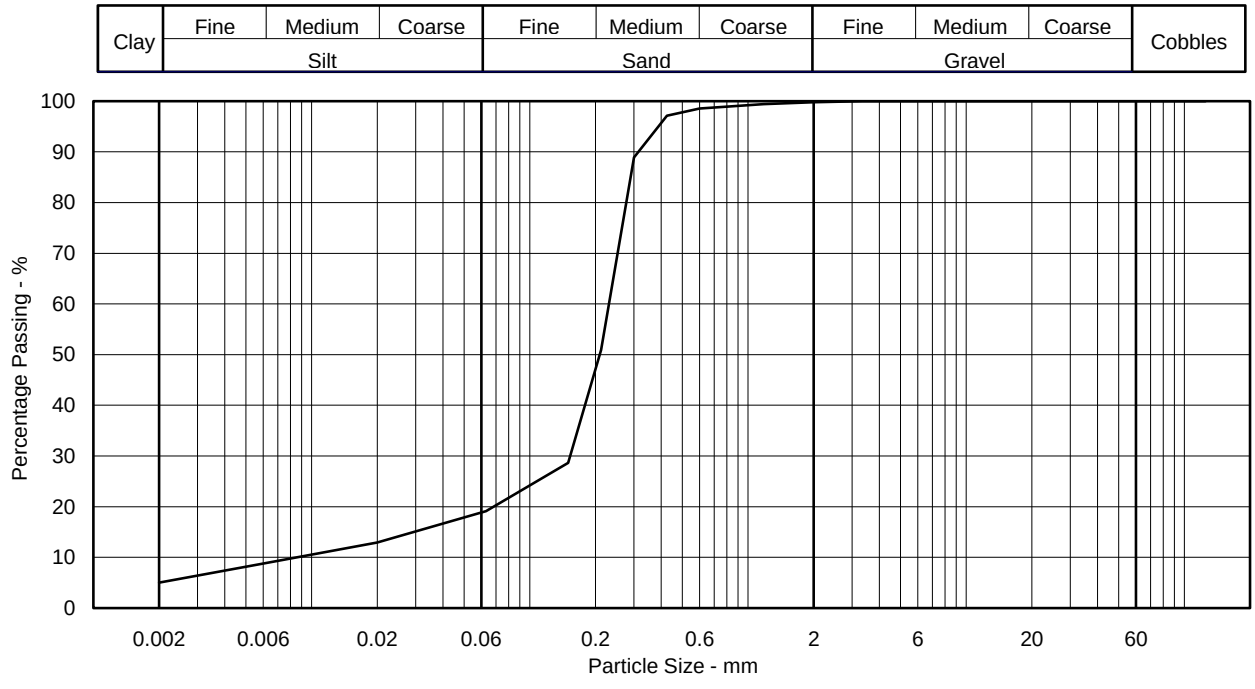
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	97
300 µm	89
212 µm	51
150 µm	29
63 µm	19
20 µm	13
6 µm	9
2 µm	5

Non Engineering Description
Grey clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	81.1
Silt	13.7
Clay	5.0

Particle Diameter - mm	
D100	3.4
D60	0.23
D10	0.0085
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	27.1

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
JAH	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB03
Engineer	Norfolk Partnership Laboratory	Sample Ref	77
		Depth (m)	24.50-25.00
		Sample Type	B

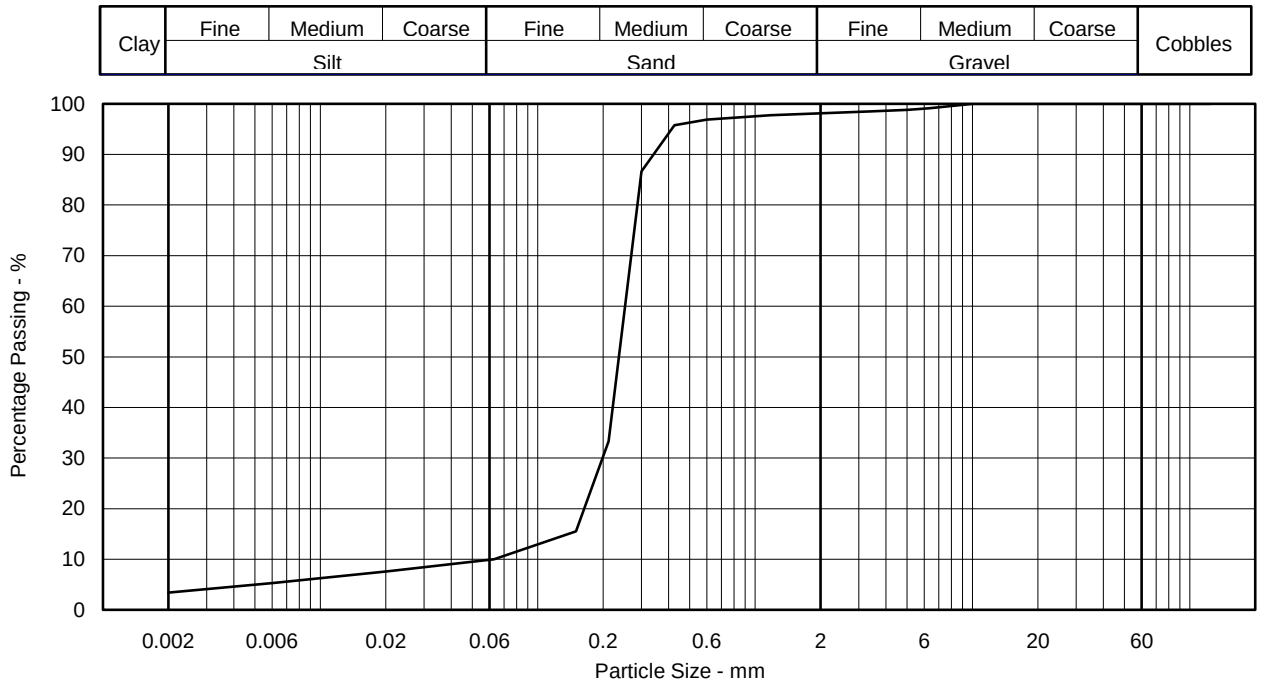
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	99
3.35 mm	98
2.00 mm	98
1.18 mm	98
600 µm	97
425 µm	96
300 µm	87
212 µm	33
150 µm	16
63 µm	10
20 µm	8
6 µm	5
2 µm	3

Non Engineering Description
Light grey slightly clayey silty SAND with occasional fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.9
Sand	88.3
Silt	6.4
Clay	3.4

Particle Diameter - mm	
D100	10
D60	0.25
D10	0.062
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	4.0

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
EH	
EH	29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Norfolk County Council
Norfolk Partnership Laboratory

NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457
Email: civil.laboratory@norfolk.gov.uk

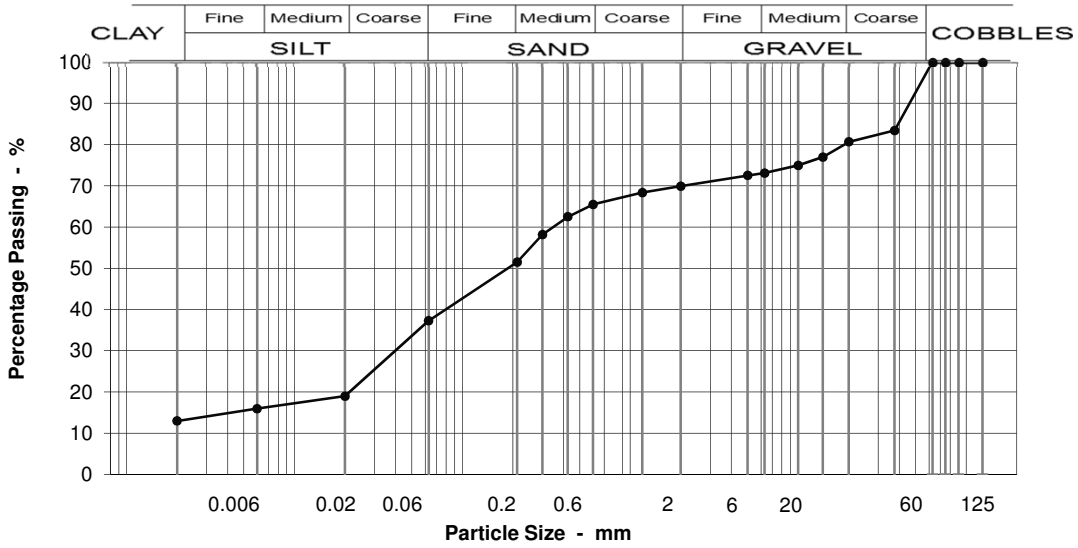
Community & Environmental Services
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2DH

Our reference No. NCCL2018062213-610
Our Project No PZ1522D1
Your Sample Ref 1
Your Project or Order No. PZ1522
Date Tested
Date Report Issued 20-Jul-18

Particle Size Distribution to BS 1377 : Part 2 :1990 Section 9

Scheme: Gt Yarmouth 3rd River Crossing
Location and orientation within sample not applicable

Location: MB04 @ 0m Specimen: 2
Bulk disturbed sample



Sieving

Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	83
20	81
14	77
10	75
6.3	73
5	72
2	70
1.18	68
0.600	65
0.425	62
0.300	58
0.212	52
0.063	37
0.020	19
0.006	16
0.002	13

Specification for Highway Works Classification

Table 6/2

Moisture content % 28

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	19
Medium GRAVEL	8
Fine GRAVEL	3
Coarse SAND	4
Medium SAND	14
Fine SAND	14
Silt & Clay	37

Grading Analysis	
D100	38
D60	0.35
D10	0.00
Uniformity Coefficient	>10 *

Description
Soft grey very silty very gravelly clayey fine and medium SAND. Gravel is medium to coarse subrounded to subangular flint, concrete and sandstone. Some shell fragments.

* Uniformity coefficient extrapolated

Test Code = 610

UKAS TESTING 0920

Simon Holden (Project Technician) [redacted]

INVESTORS IN PEOPLE
AGS

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04
Engineer	Norfolk Partnership Laboratory	Sample Ref	2
		Depth (m)	0.50-1.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	94
20.0 mm	91
14.0 mm	86
10.0 mm	82
6.30 mm	77
5.00 mm	74
3.35 mm	71
2.00 mm	68
1.18 mm	64
600 µm	57
425 µm	48
300 µm	35
212 µm	26
150 µm	20
63 µm	16
20 µm	15
6 µm	12
2 µm	10

Non Engineering Description

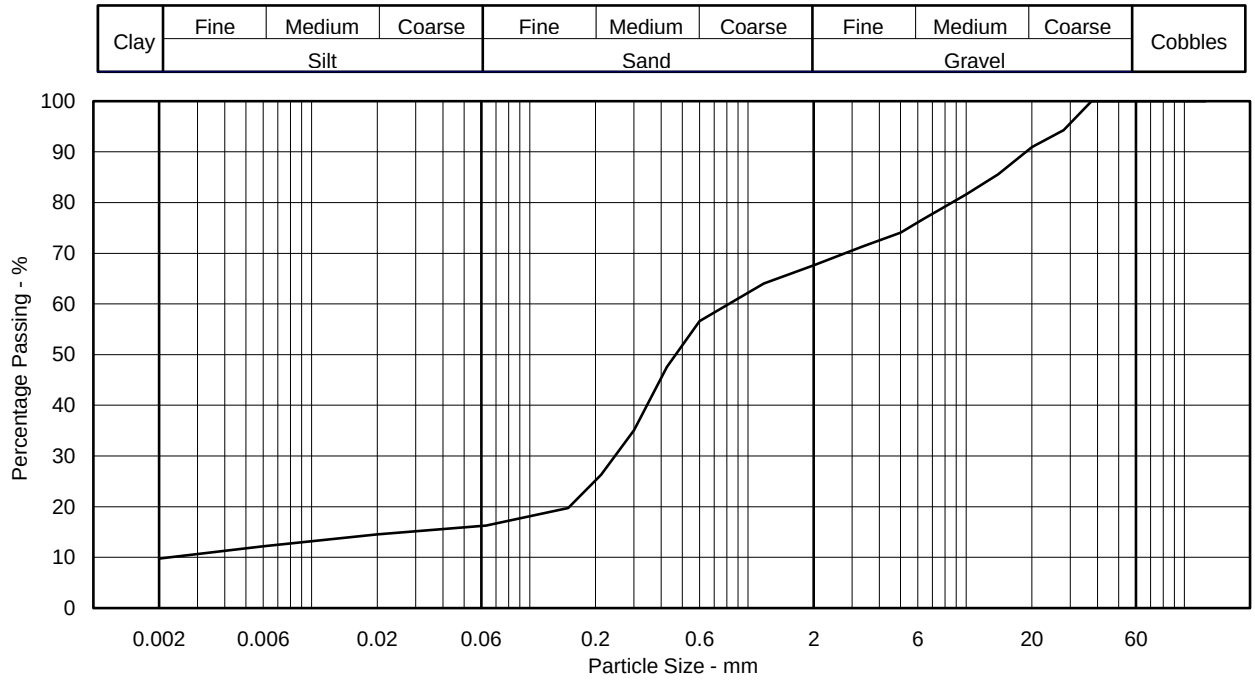
Greyish brown mottled very dark grey silty clayey very gravelly SAND with occasional fine to medium shell fragments. Gravel is fine to coarse.

Sample Proportions - %	
Cobbles	0.0
Gravel	32.4
Sand	51.5
Silt	6.4
Clay	9.8

Particle Diameter - mm	
D100	38
D60	0.82
D10	0.0022
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	372.7

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
VH	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04
Engineer	Norfolk Partnership Laboratory	Sample Ref	4
		Depth (m)	1.00
		Sample Type	D

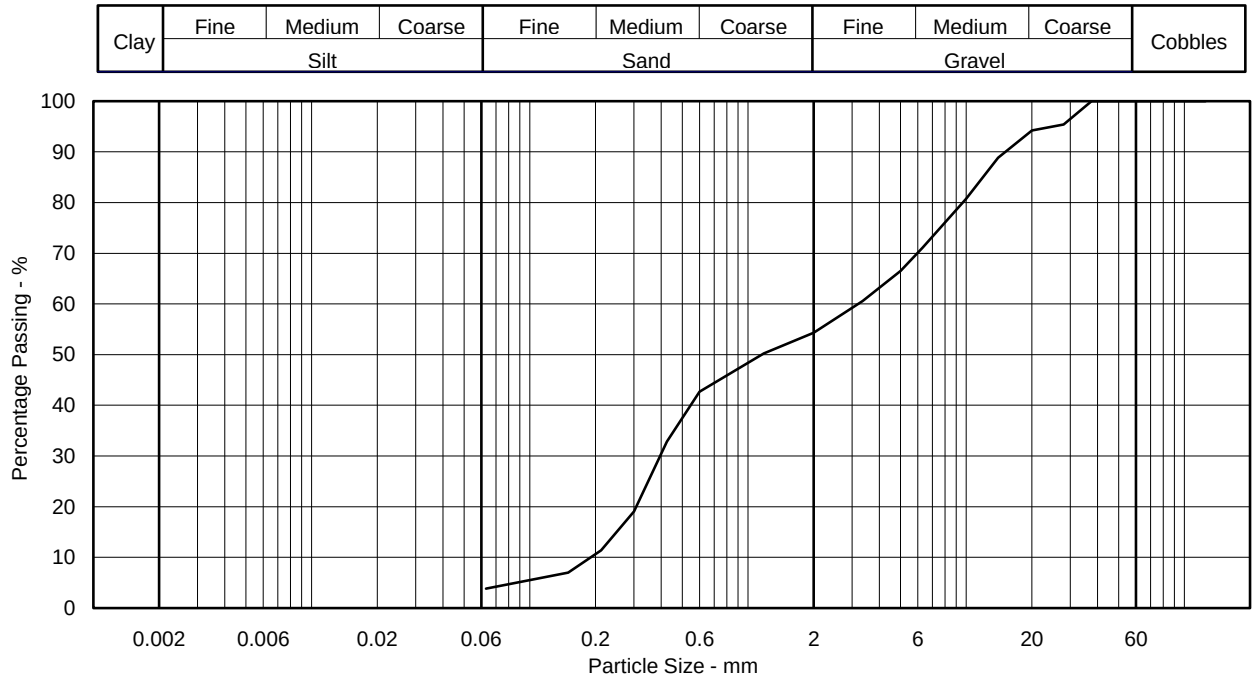
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	95
20.0 mm	94
14.0 mm	89
10.0 mm	81
6.30 mm	71
5.00 mm	67
3.35 mm	61
2.00 mm	54
1.18 mm	50
600 µm	43
425 µm	33
300 µm	19
212 µm	11
150 µm	7
63 µm	4

Non Engineering Description
Brown slightly silty very gravelly SAND with occasional fine to coarse shell fragments. Gravel is fine to coarse.

Sample Proportions - %	
Cobbles	0.0
Gravel	45.7
Sand	50.5
Silt & Clay	3.8

Particle Diameter - mm	
D100	38
D60	3.2
D10	0.19
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	16.8

Notes



Originator	Checked & Approved
JAH	[redacted] 29/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 29/08/2018 11:25:37

Norfolk County Council
Norfolk Partnership Laboratory

NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457
Email: civil.laboratory@norfolk.gov.uk

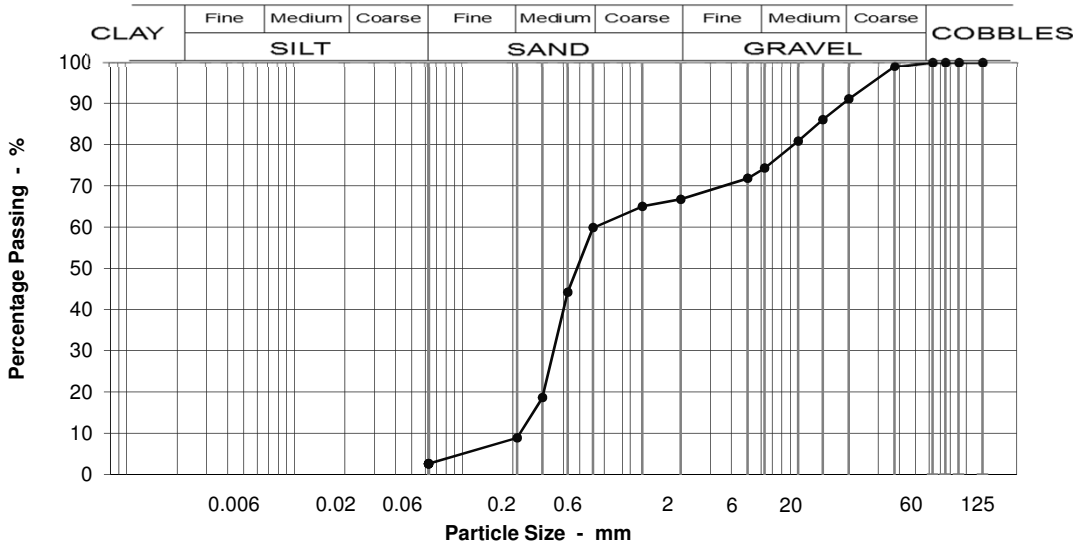
Community & Environmental Services
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2DH

Our reference No. NCCL2018062214-610
Our Project No PZ1522D1
Your Sample Ref 1
Your Project or Order No. PZ1522
Date Tested
Date Report Issued 16-Jul-18

Particle Size Distribution to BS 1377 : Part 2 :1990 Section 9

Scheme: Gt Yarmouth 3rd River Crossing
Location and orientation within sample not applicable

Location: MB04a @ 0m Specimen: 2
Bulk disturbed sample



Sieving

Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	99
20	91
14	86
10	81
6.3	74
5	72
2	67
1.18	65
0.600	60
0.425	44
0.300	19
0.212	9
0.063	3

Specification for Highway Works Classification

Table 6/2

This material complies with the following material classes 1B, 6E/6R, 6M.

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	9
Medium GRAVEL	17
Fine GRAVEL	8
Coarse SAND	7
Medium SAND	51
Fine SAND	6
Silt & Clay	3

Grading Analysis	
D100	38
D60	0.62
D10	0.22
Uniformity Coefficient	3

Description
Olive rapidly weathering to brown very gravelly medium SAND. Gravel is fine to coarse subrounded to angular flint.

Moisture content % 17

Test Code = 610

UKAS TESTING 0920

Simon Holden (Project Technician) [redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	7
		Depth (m)	2.50-3.00
		Sample Type	B

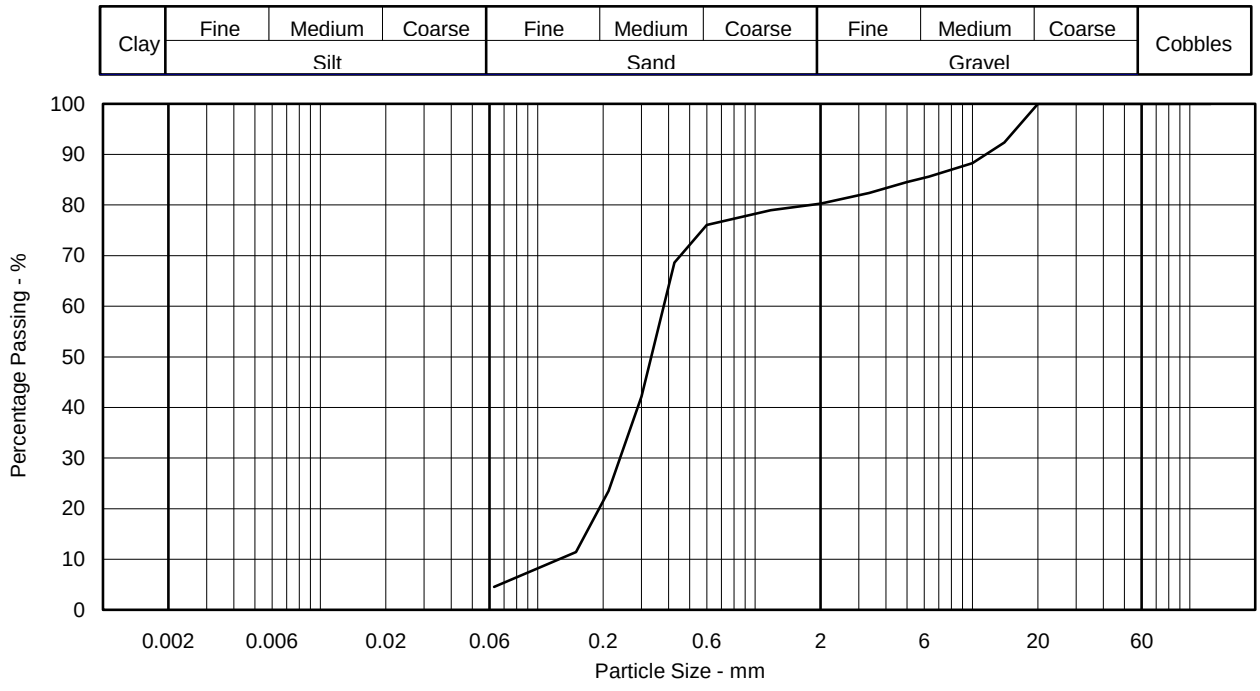
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	92
10.0 mm	88
6.30 mm	86
5.00 mm	85
3.35 mm	82
2.00 mm	80
1.18 mm	79
600 µm	76
425 µm	69
300 µm	42
212 µm	23
150 µm	11
63 µm	5

Non Engineering Description
Orange brown slightly silty gravelly SAND with occasional shell fragments. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	19.7
Sand	75.8
Silt & Clay	4.5

Particle Diameter - mm	
D100	20
D60	0.38
D10	0.13
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.9

Notes



Originator	Checked & Approved
EH	[redacted] 24/08/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 24/08/2018 10:31:43

Version 058 - 10/06/2013
1260 - PSD MB04A 01.00 3 B - C6474-2-338520.xls : Sample ID 338520

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	3
		Depth (m)	1.00-1.50
		Sample Type	B

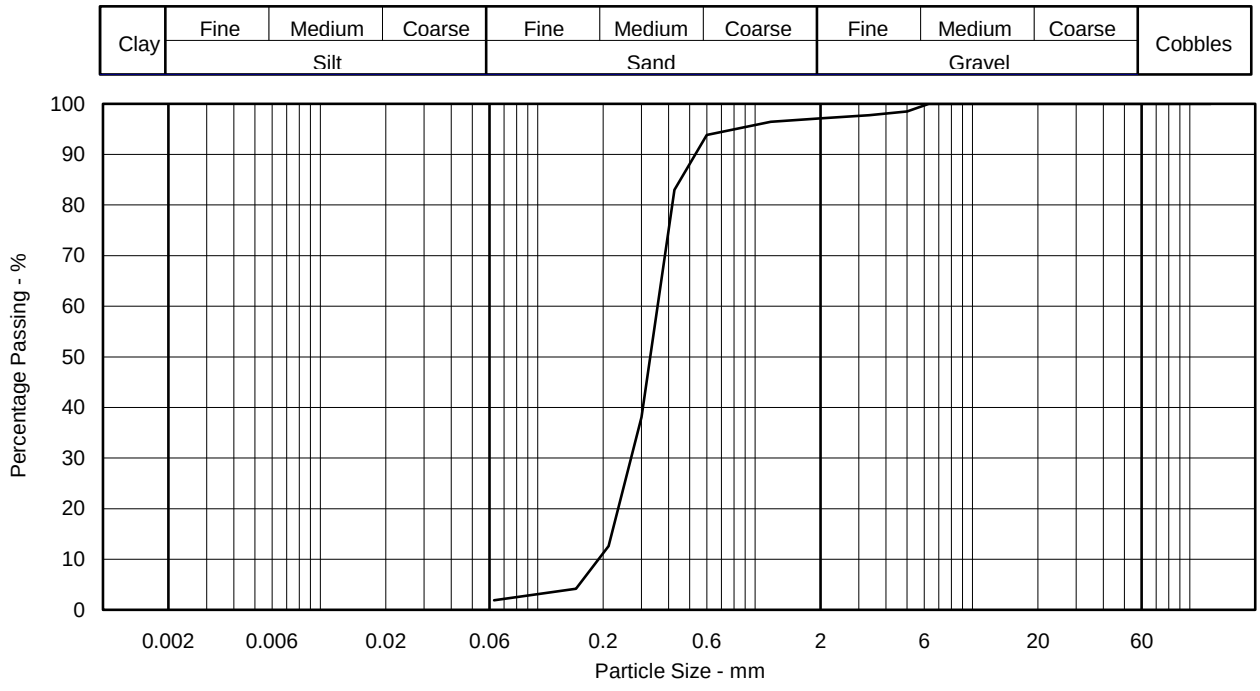
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	98
2.00 mm	97
1.18 mm	96
600 µm	94
425 µm	83
300 µm	38
212 µm	13
150 µm	4
63 µm	2

Non Engineering Description
Orange brown slightly silty slightly gravelly SAND. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.9
Sand	95.2
Silt & Clay	1.9

Particle Diameter - mm	
D100	6.3
D60	0.36
D10	0.19
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	1.9

Notes



Originator	Checked & Approved
PD	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 04/09/2018 14:17:46

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	7
		Depth (m)	2.50-3.00
		Sample Type	B

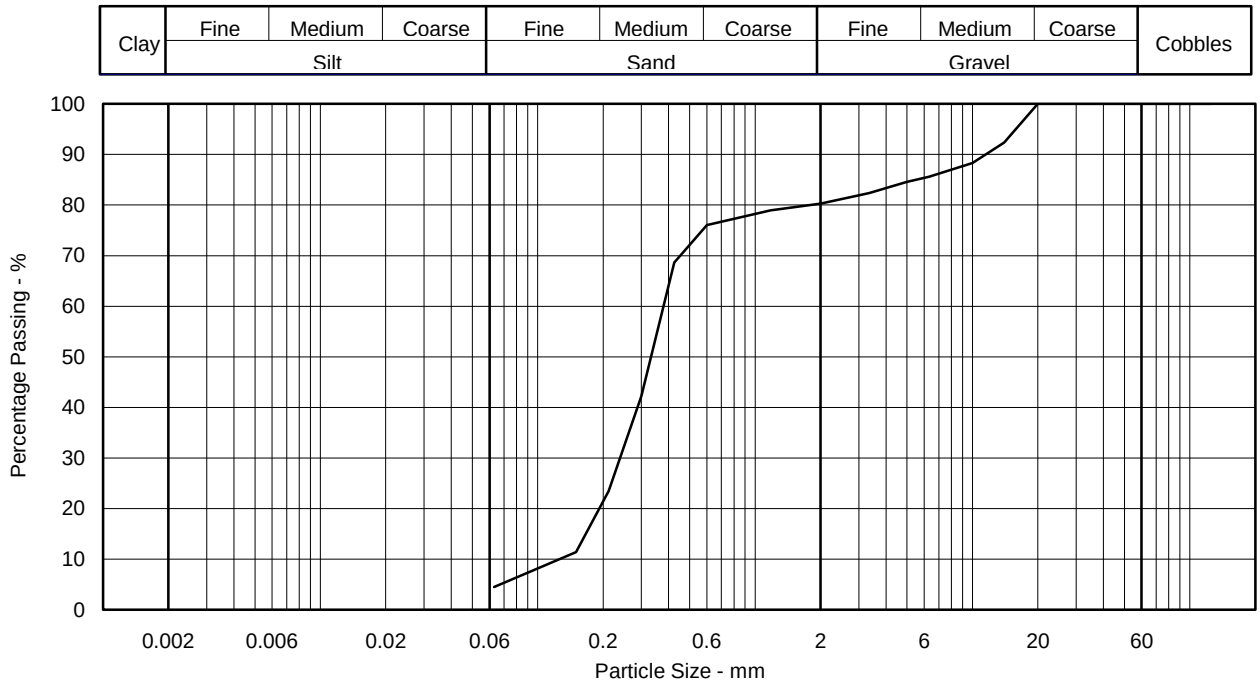
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	92
10.0 mm	88
6.30 mm	86
5.00 mm	85
3.35 mm	82
2.00 mm	80
1.18 mm	79
600 µm	76
425 µm	69
300 µm	42
212 µm	23
150 µm	11
63 µm	5

Non Engineering Description
Orange brown slightly silty gravelly SAND with occasional shell fragments. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	19.7
Sand	75.8
Silt & Clay	4.5

Particle Diameter - mm	
D100	20
D60	0.38
D10	0.13
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.9

Notes



Originator	Checked & Approved
EH	11/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Version 058 - 10/06/2013
1260 - PSD MB04A 03.50 11 B - C6474-2-338522.xls : Sample ID 33852:

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	11
		Depth (m)	3.50-4.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	97
5.00 mm	96
3.35 mm	95
2.00 mm	93
1.18 mm	92
600 µm	90
425 µm	88
300 µm	77
212 µm	55
150 µm	20
63 µm	3

Non Engineering Description

Light orange brown slightly silty gravelly SAND. Gravel is fine to medium.

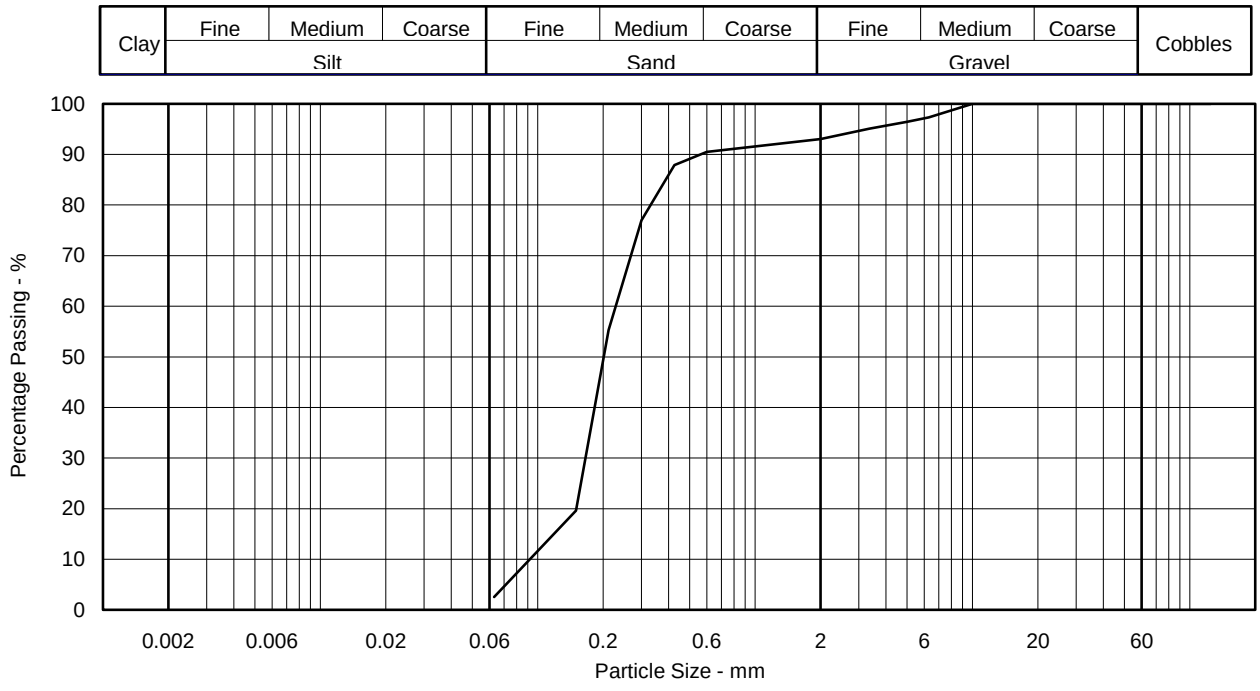
Sample Proportions - %

Cobbles	0.0
Gravel	6.9
Sand	90.5
Silt & Clay	2.5

Particle Diameter - mm

D100	10
D60	0.23
D10	0.092
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
PD	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 04/09/2018 14:36:43

Version 058 - 10/06/2013
1260 - PSD MB04A 04.50 15 B - C6474-2-338523.xls : Sample ID 33852:

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	15
		Depth (m)	4.50-5.00
		Sample Type	B

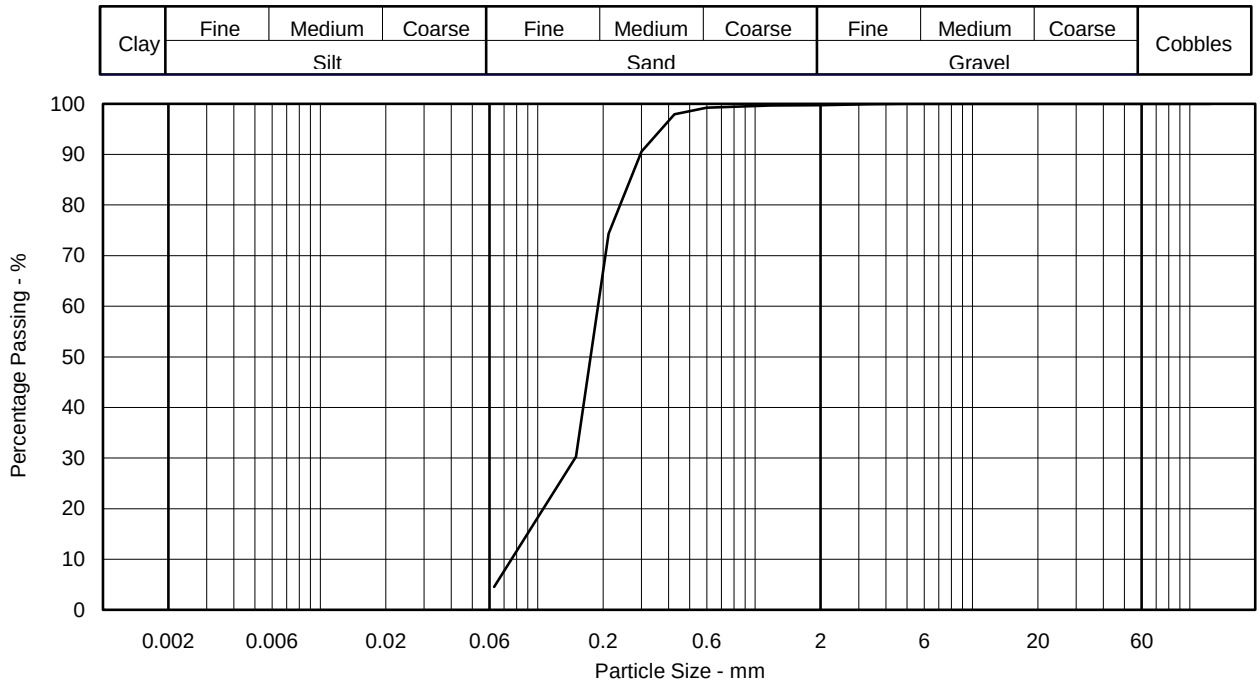
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	98
300 µm	91
212 µm	74
150 µm	30
63 µm	5

Non Engineering Description
Yellowish brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	95.2
Silt & Clay	4.5

Particle Diameter - mm	
D100	5.0
D60	0.19
D10	0.076
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
PD	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 04/09/2018 14:46:55

Version 058 - 10/06/2013
1260 - PSD MB04A 07.50 25 B - C6474-2-338524.xls : Sample ID 33852.

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB04A
Sample Ref	25
Depth (m)	7.50-8.00
Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	99
300 µm	97
212 µm	88
150 µm	40
63 µm	4

Non Engineering Description

Orange brown slightly silty SAND.

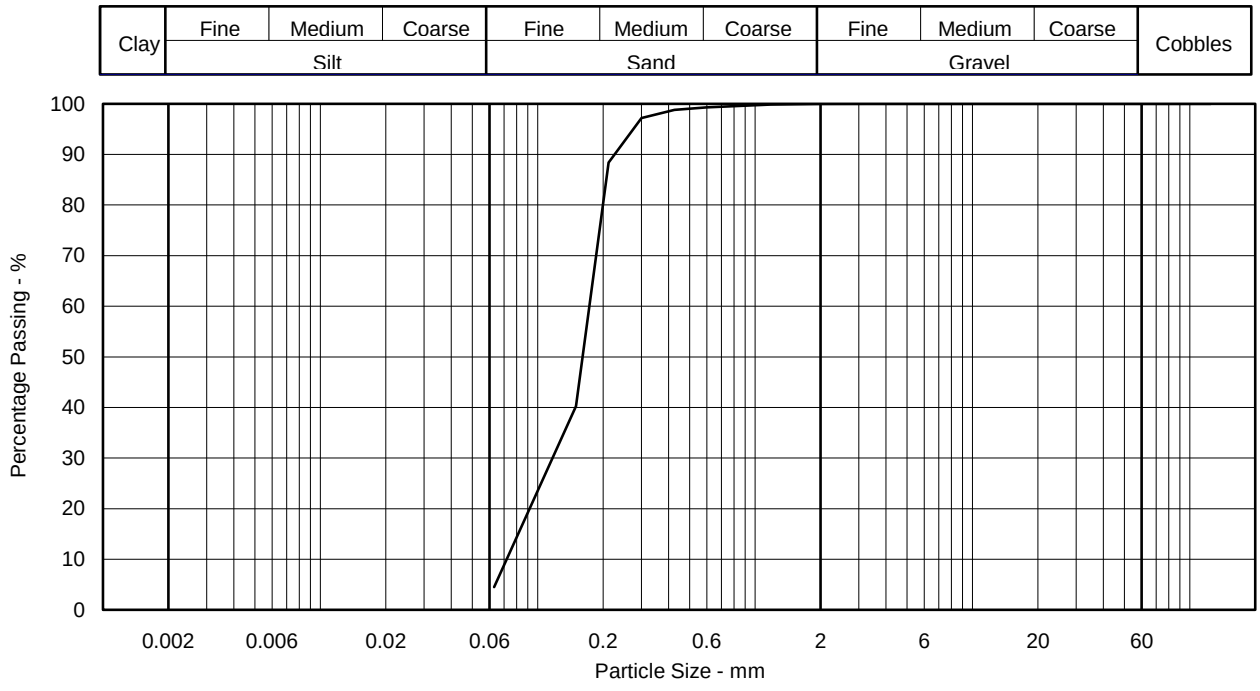
Sample Proportions - %

Cobbles	0.0
Gravel	0.0
Sand	95.5
Silt & Clay	4.5

Particle Diameter - mm

D100	3.4
D60	0.17
D10	0.072
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.4

Notes



Originator	Checked & Approved
PD	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 04/09/2018 15:01:19

Version 058 - 10/06/2013
1260 - PSD MB04A 10.50 35 B - C6474-2-338525.xls : Sample ID 338521

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	35
		Depth (m)	10.50-11.00
		Sample Type	B

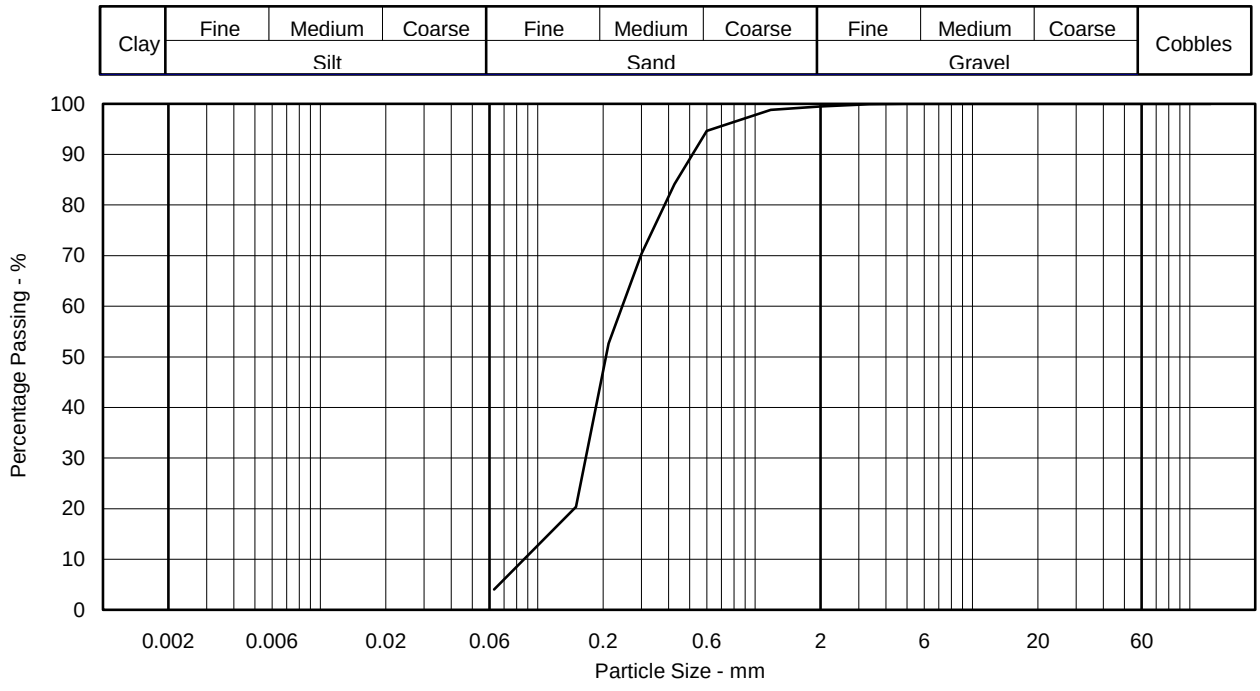
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	95
425 µm	84
300 µm	70
212 µm	53
150 µm	20
63 µm	4

Non Engineering Description
Orangey brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.5
Sand	95.5
Silt & Clay	4.0

Particle Diameter - mm	
D100	5.0
D60	0.24
D10	0.087
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.8

Notes



Originator	Checked & Approved
PD	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 04/09/2018 15:03:01

Version 058 - 10/06/2013
1260 - PSD MB04A 12.50 41 B - C6474-2-338526.xls : Sample ID 338526

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	41
		Depth (m)	12.50-13.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	98
1.18 mm	96
600 µm	93
425 µm	80
300 µm	51
212 µm	34
150 µm	23
63 µm	13
20 µm	11
6 µm	9
2 µm	6

Non Engineering Description

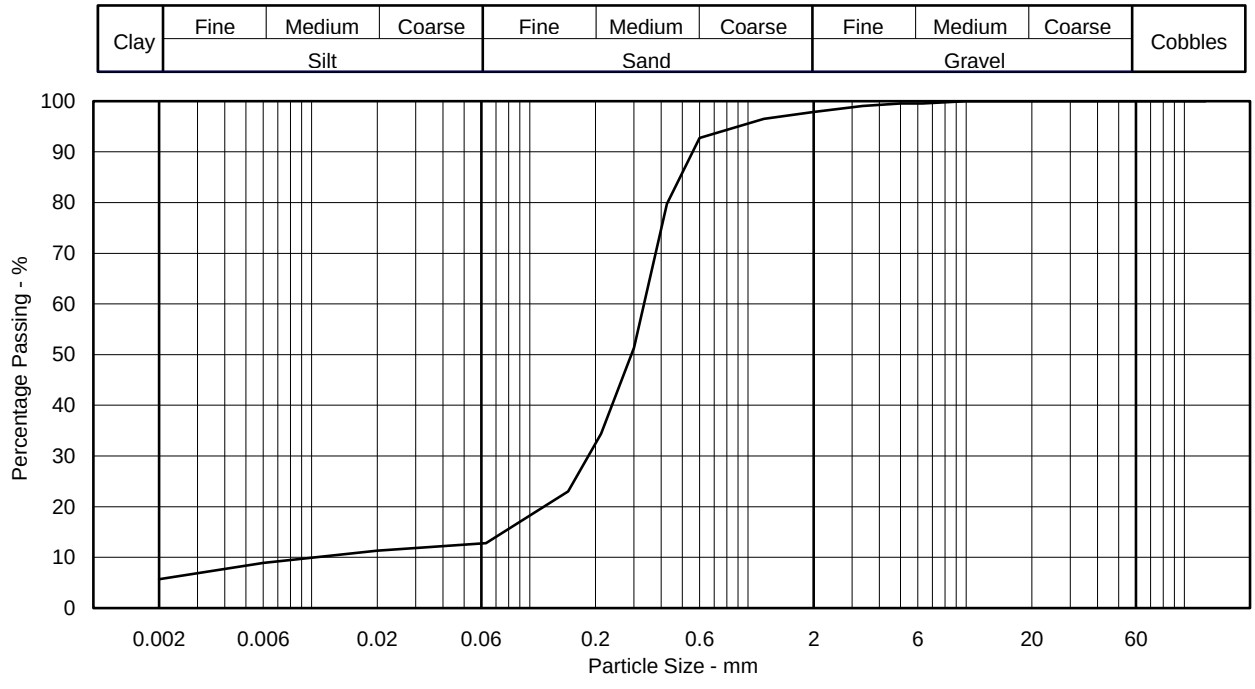
Grey mottled brown slightly gravelly clayey silty SAND. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.1
Sand	85.2
Silt	7.0
Clay	5.7

Particle Diameter - mm	
D100	10
D60	0.33
D10	0.010
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	33.0

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 04/09/2018 15:28:54

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	47
		Depth (m)	14.50-15.00
		Sample Type	B

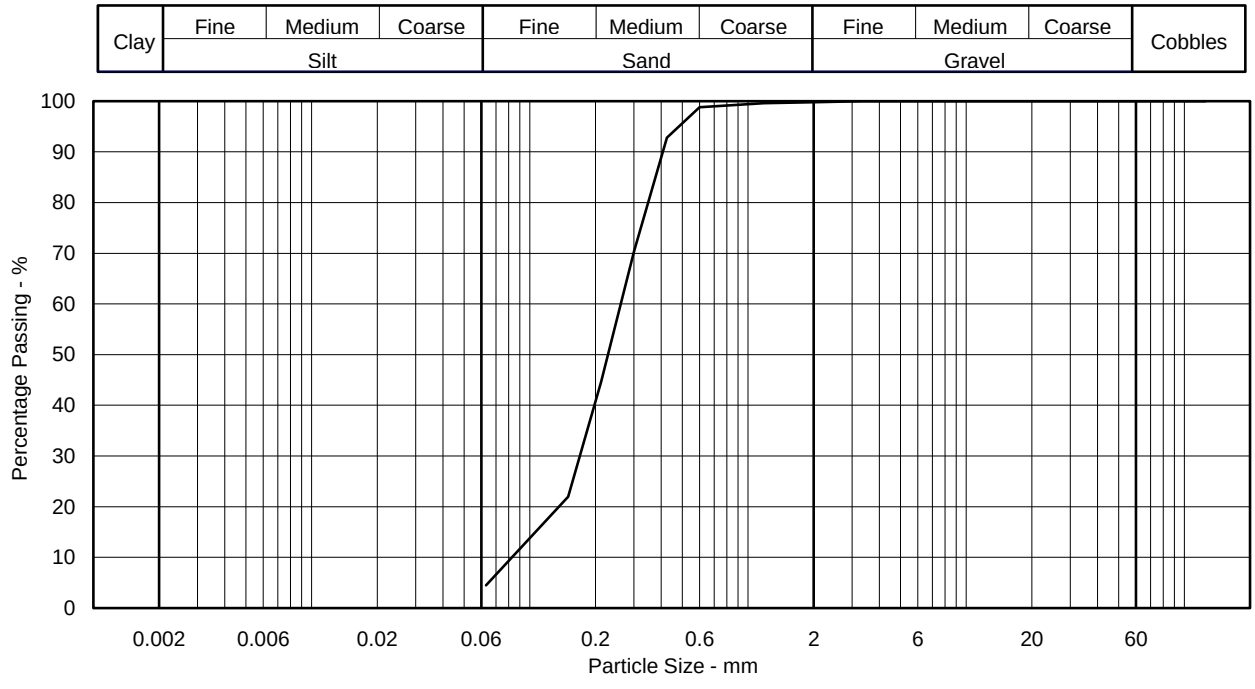
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	93
300 µm	70
212 µm	45
150 µm	22
63 µm	4

Non Engineering Description
Light brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	95.3
Silt & Clay	4.5

Particle Diameter - mm	
D100	3.4
D60	0.26
D10	0.083
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.1

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	52
		Depth (m)	16.50-17.00
		Sample Type	B

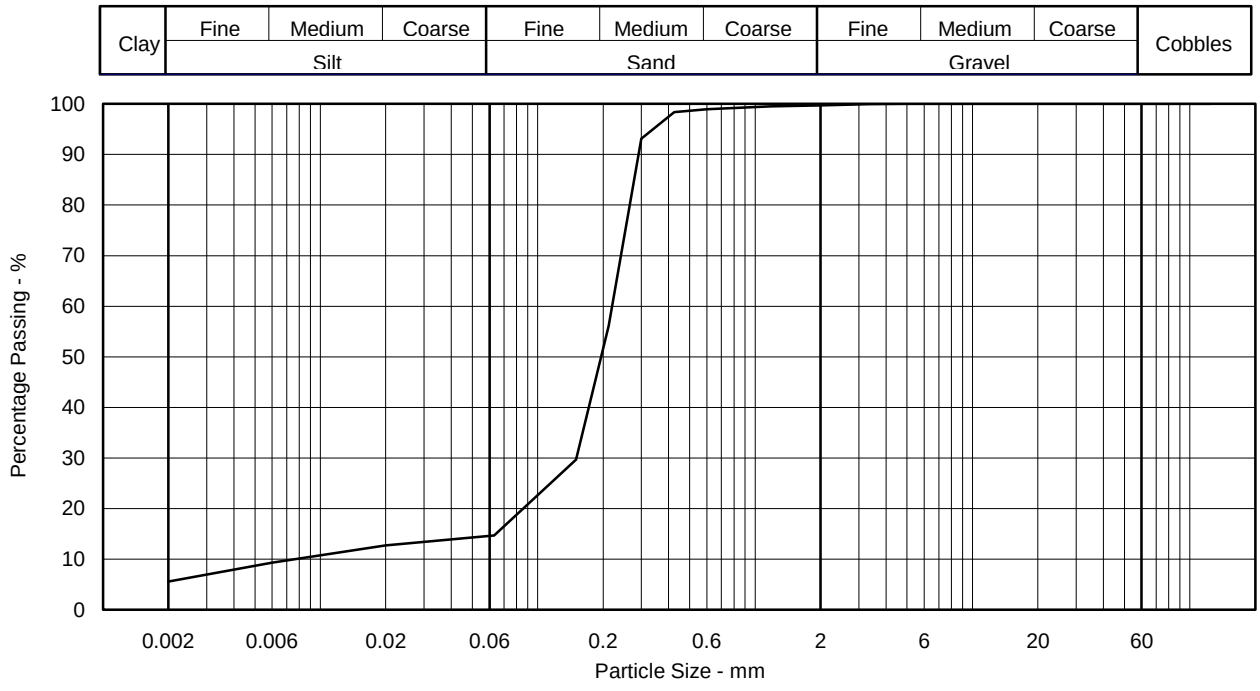
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	98
300 µm	93
212 µm	56
150 µm	30
63 µm	15
20 µm	13
6 µm	9
2 µm	6

Non Engineering Description
Grey clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	85.1
Silt	9.0
Clay	5.6

Particle Diameter - mm	
D100	5.0
D60	0.22
D10	0.0077
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	28.6

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
PD	[redacted]

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	54
		Depth (m)	17.50-18.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	86
300 µm	51
212 µm	34
150 µm	17
63 µm	5

Non Engineering Description

Light grey mottled light brown slightly gravelly silty SAND. Gravel is fine.

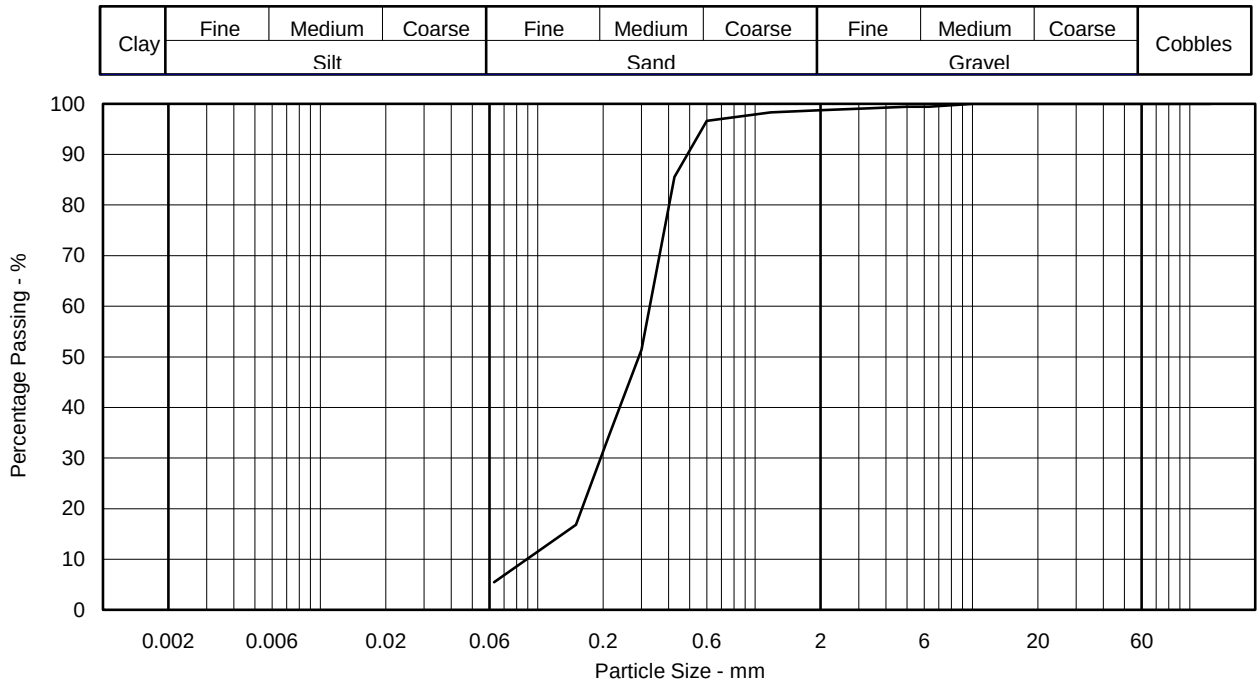
Sample Proportions - %

Cobbles	0.0
Gravel	1.2
Sand	93.3
Silt & Clay	5.5

Particle Diameter - mm

D100	10
D60	0.33
D10	0.089
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.7

Notes



Originator	Checked & Approved
PD	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	57
		Depth (m)	18.50-19.00
		Sample Type	B

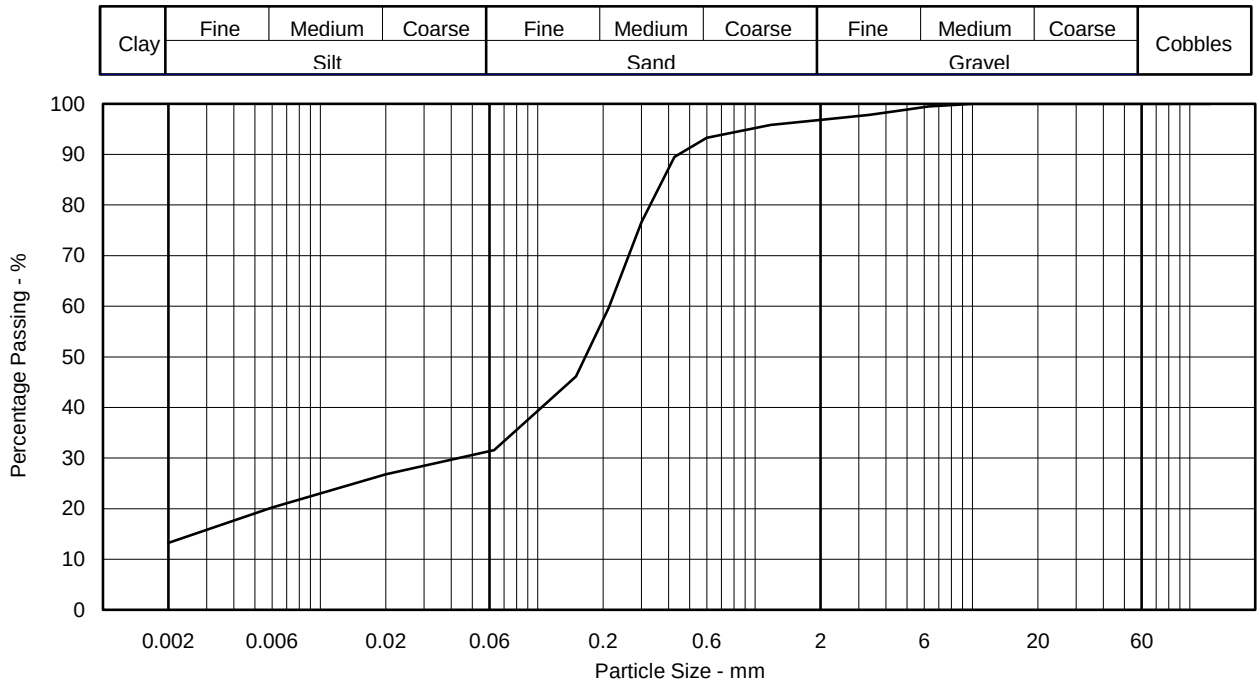
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	98
2.00 mm	97
1.18 mm	96
600 µm	93
425 µm	90
300 µm	77
212 µm	60
150 µm	46
63 µm	32
20 µm	27
6 µm	20
2 µm	13

Non Engineering Description
Brown slightly gravelly very sandy CLAY. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	3.2
Sand	65.6
Silt	18.0
Clay	13.2

Particle Diameter - mm	
D100	10
D60	0.21
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
PD	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Version 058 - 10/06/2013
1260 - PSD MB04A 21.50 65 B - C6474-2-338532.xls : Sample ID 33853:

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	65
		Depth (m)	21.50-22.00
		Sample Type	B

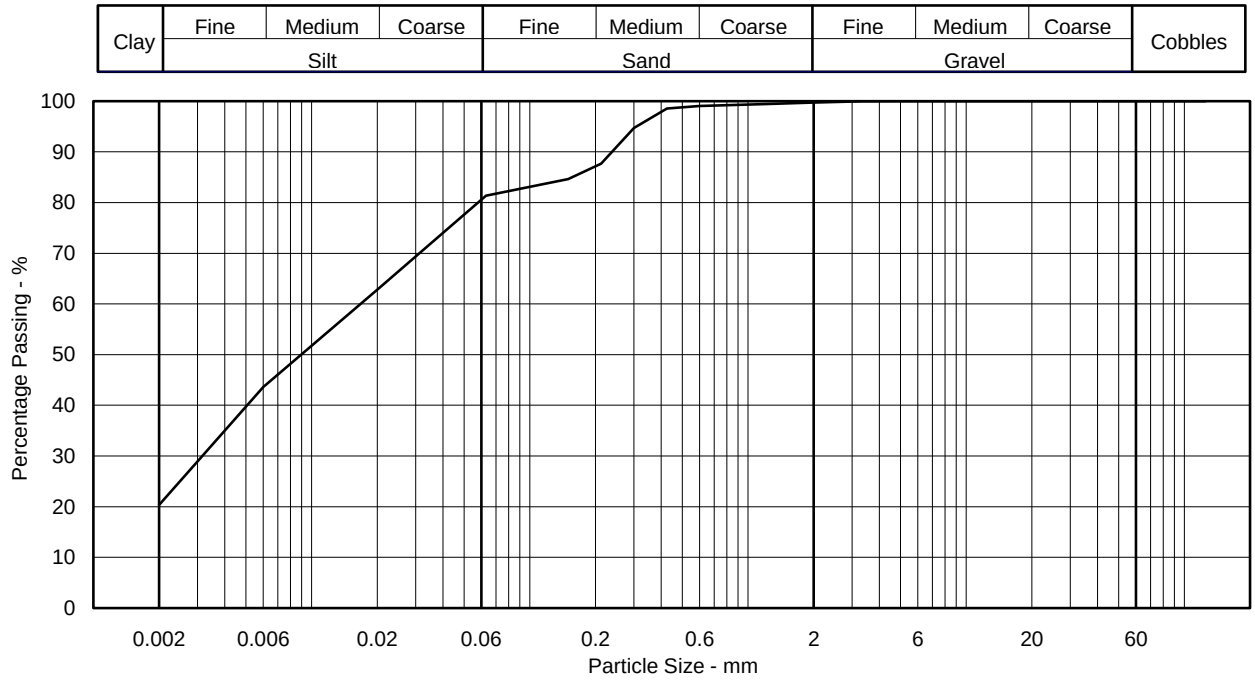
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	99
300 µm	95
212 µm	88
150 µm	85
63 µm	81
20 µm	63
6 µm	44
2 µm	20

Non Engineering Description
Grey mottled light brown slightly sandy CLAY.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	19.7
Silt	59.7
Clay	20.4

Particle Diameter - mm	
D100	5.0
D60	0.017
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted]018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 04/09/2018 15:45:01

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	73
		Depth (m)	24.50-25.00
		Sample Type	B

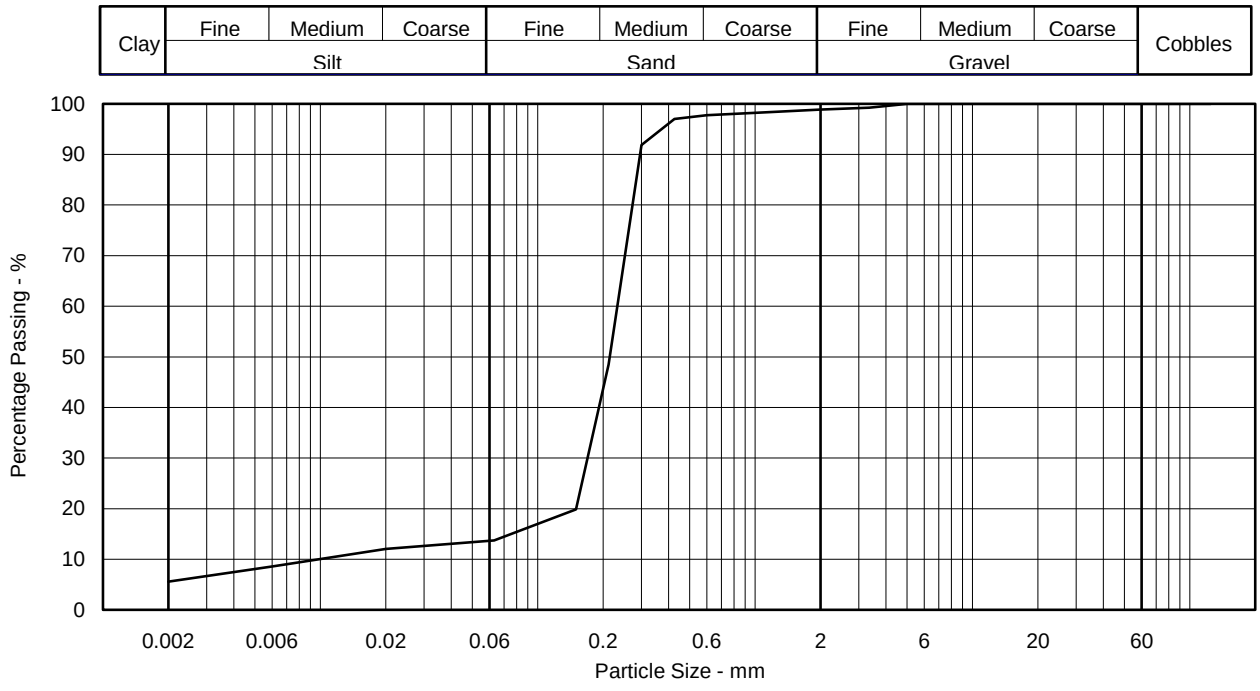
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	98
425 µm	97
300 µm	92
212 µm	48
150 µm	20
63 µm	14
20 µm	12
6 µm	9
2 µm	6

Non Engineering Description
Grey clayey silty SAND with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.1
Sand	85.3
Silt	8.0
Clay	5.6

Particle Diameter - mm	
D100	5.0
D60	0.23
D10	0.0099
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	23.2

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
AW	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Version 058 - 10/06/2013
1260 - PSD MB04A 26.50 78 B - C6474-2-338535.xls : Sample ID 338531

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB04A
Sample Ref	78
Depth (m)	26.50-27.00
Sample Type	B

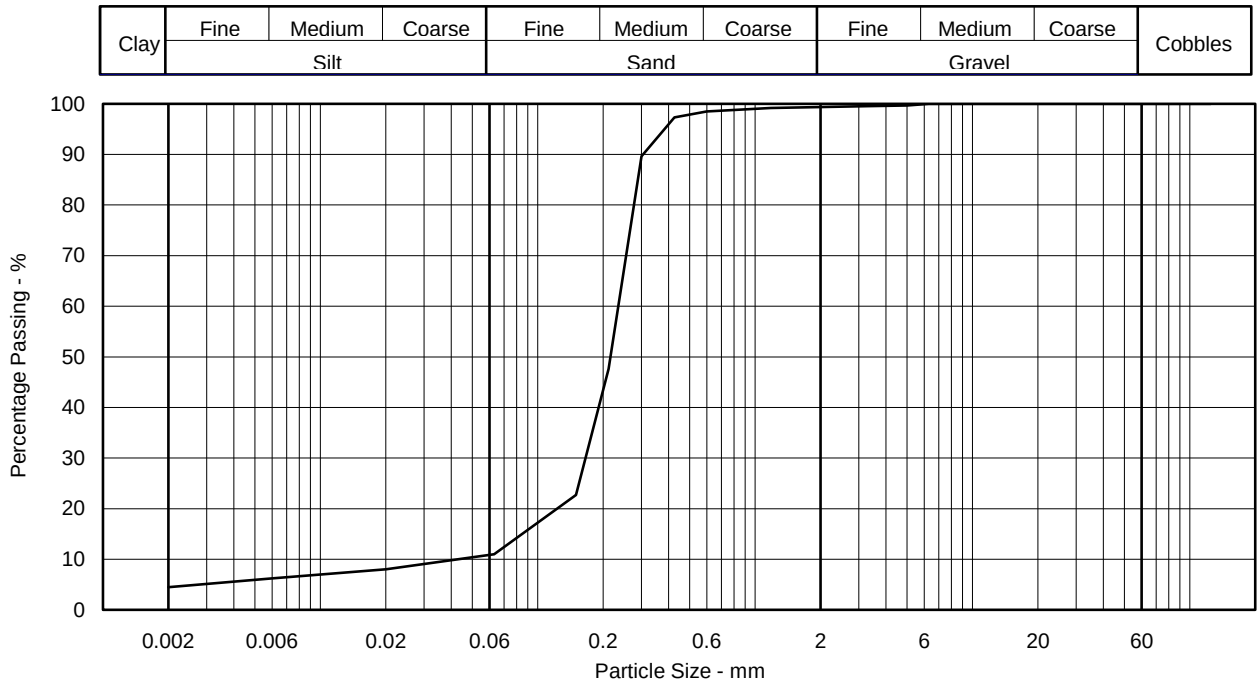
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	99
425 µm	97
300 µm	90
212 µm	48
150 µm	23
63 µm	11
20 µm	8
6 µm	6
2 µm	4

Non Engineering Description
Brown slightly clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.6
Sand	88.6
Silt	6.3
Clay	4.5

Particle Diameter - mm	
D100	6.3
D60	0.23
D10	0.043
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	5.3

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
PD	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 11/09/2018 09:28:24

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	85
		Depth (m)	29.50-30.00
		Sample Type	B

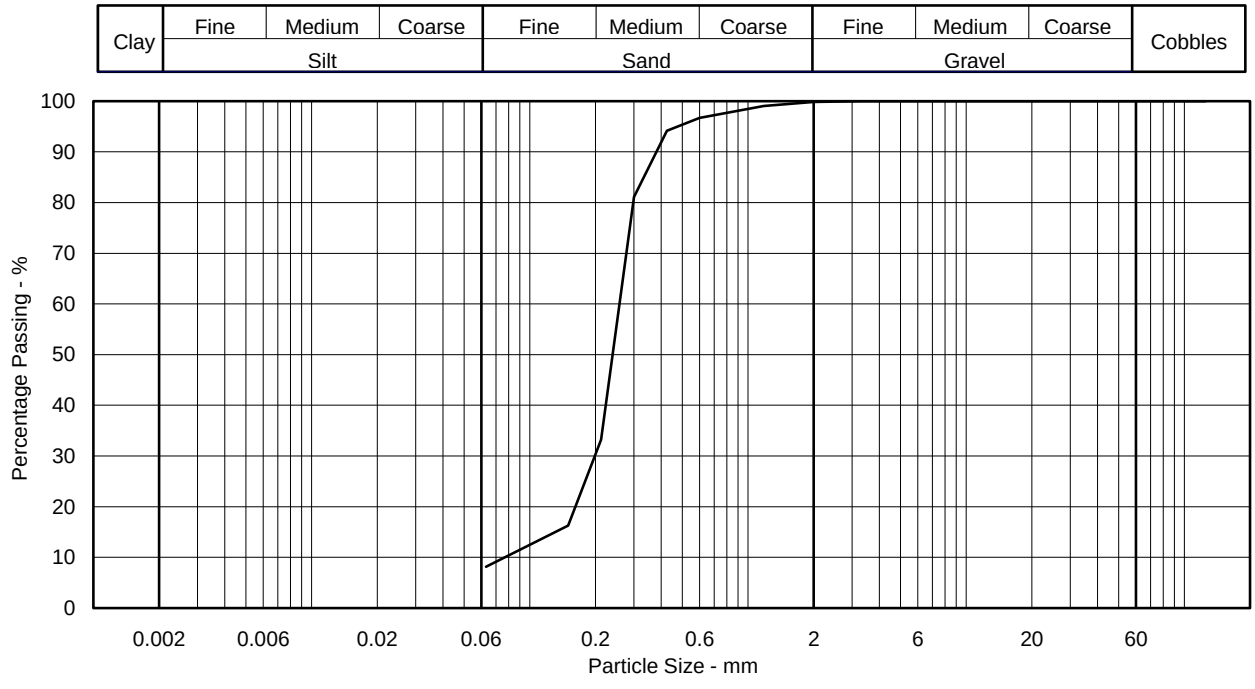
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	97
425 µm	94
300 µm	81
212 µm	33
150 µm	16
63 µm	8

Non Engineering Description
Dark grey mottled brown slightly clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	91.7
Silt & Clay	8.2

Particle Diameter - mm	
D100	3.4
D60	0.26
D10	0.077
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.4

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	90
		Depth (m)	31.50-32.00
		Sample Type	B

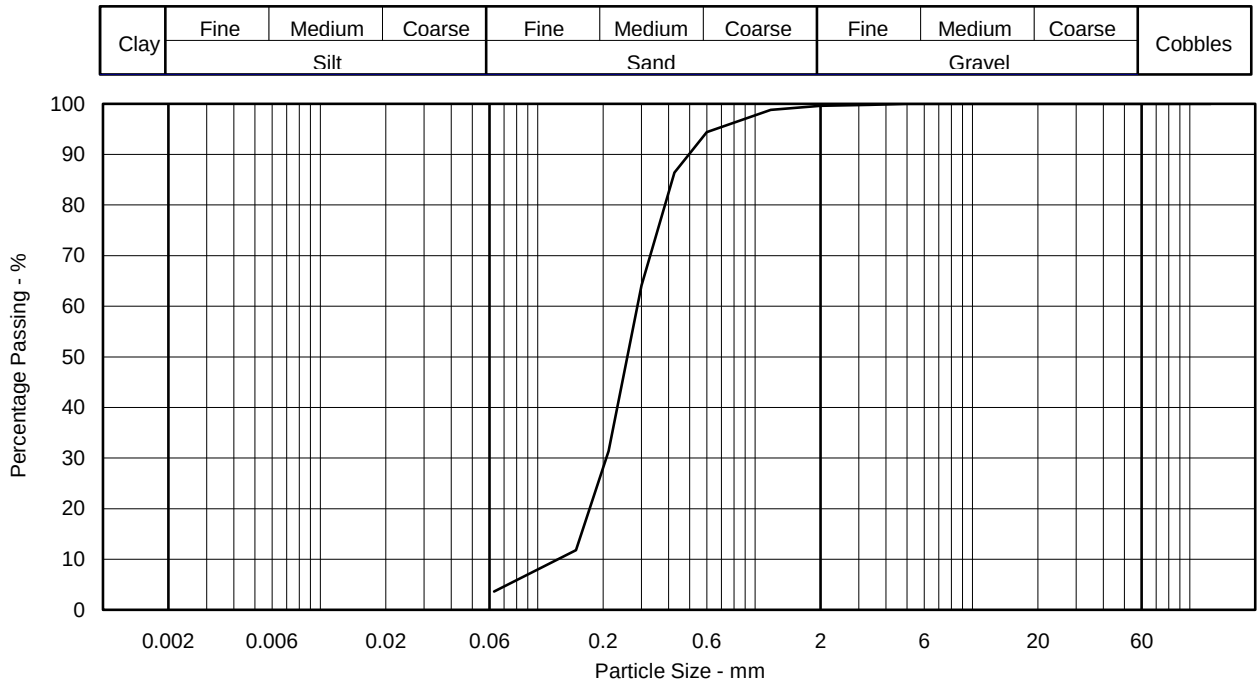
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	94
425 µm	86
300 µm	64
212 µm	31
150 µm	12
63 µm	4

Non Engineering Description
Light brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	96.0
Silt & Clay	3.6

Particle Diameter - mm	
D100	5.0
D60	0.29
D10	0.12
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.4

Notes



Originator	Checked & Approved
PD	[redacted] 2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	95
		Depth (m)	33.50-34.00
		Sample Type	B

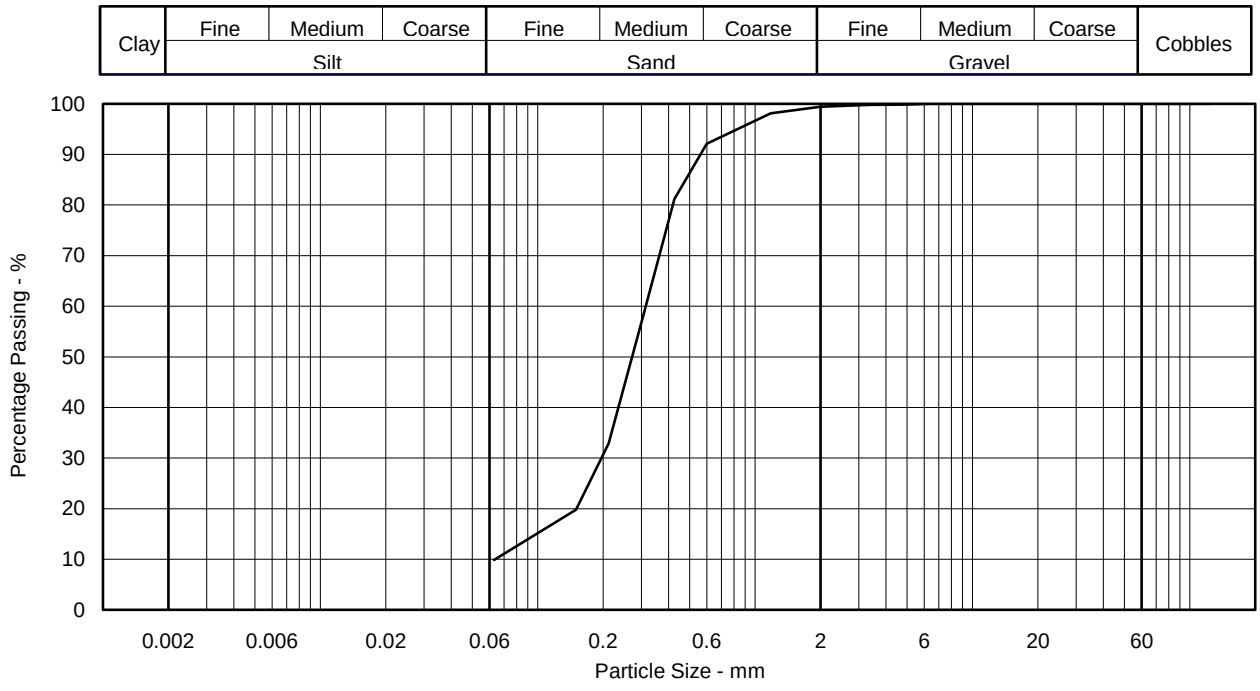
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	92
425 µm	81
300 µm	57
212 µm	33
150 µm	20
63 µm	10

Non Engineering Description
Grey mottled brown slightly clayey silty SAND with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.6
Sand	89.5
Silt & Clay	9.9

Particle Diameter - mm	
D100	6.3
D60	0.31
D10	0.064
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	4.8

Notes



Originator	Checked & Approved
PD	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	100
		Depth (m)	35.50-36.00
		Sample Type	B

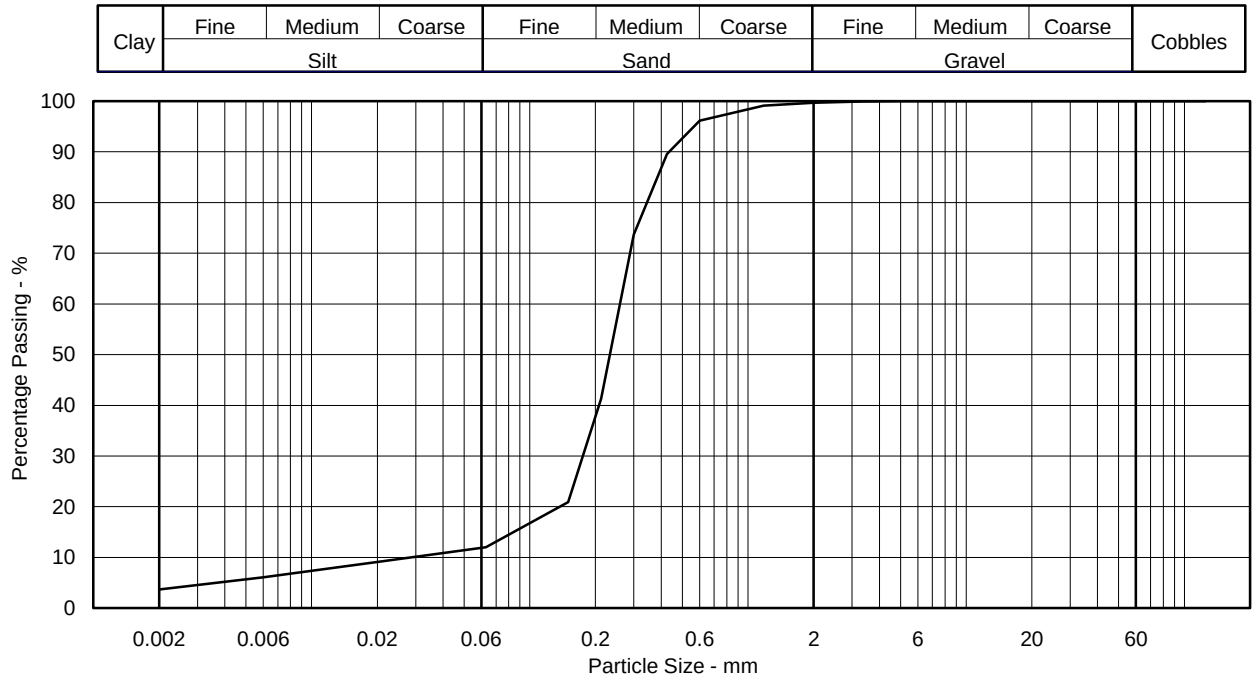
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	96
425 µm	90
300 µm	74
212 µm	41
150 µm	21
63 µm	12
20 µm	9
6 µm	6
2 µm	4

Non Engineering Description
Dark brown mottled light brown slightly clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	87.9
Silt	8.1
Clay	3.7

Particle Diameter - mm	
D100	5.0
D60	0.26
D10	0.029
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	9.0

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	105
		Depth (m)	37.50-38.00
		Sample Type	B

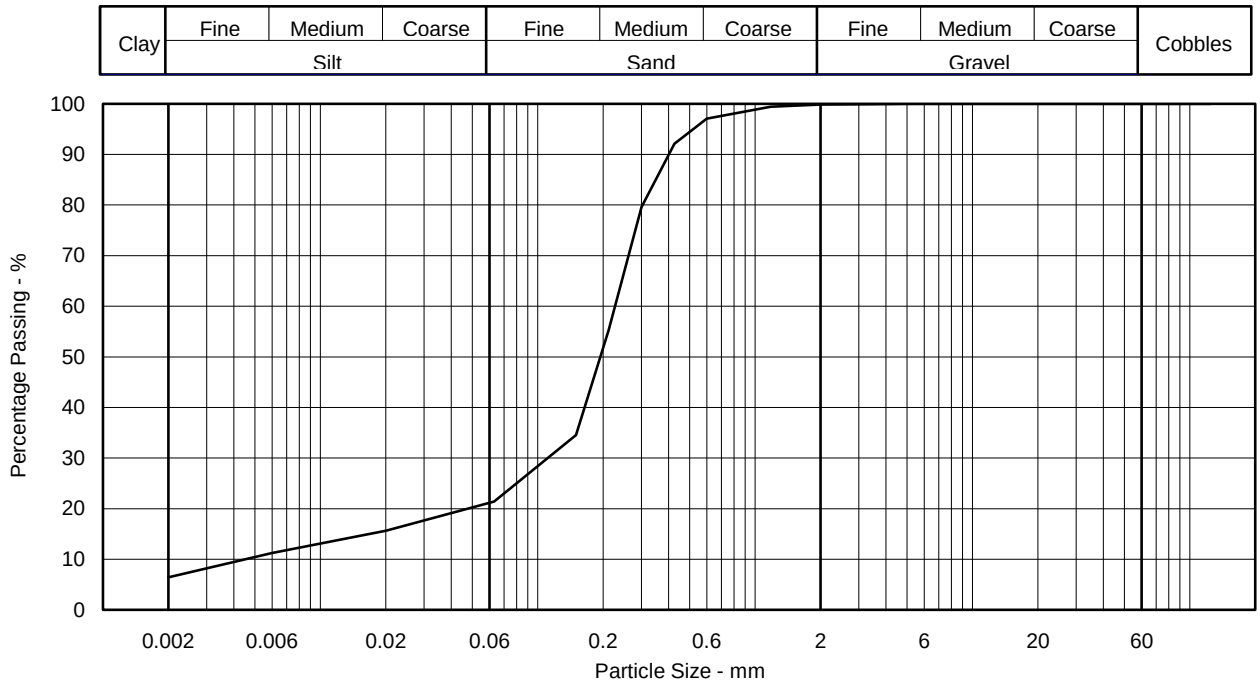
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	97
425 µm	92
300 µm	80
212 µm	55
150 µm	35
63 µm	21
20 µm	16
6 µm	11
2 µm	6

Non Engineering Description
Very dark brown clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	78.8
Silt	14.6
Clay	6.4

Particle Diameter - mm	
D100	5.0
D60	0.23
D10	0.0045
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	51.1

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 08:26:18

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB04A
Engineer	Norfolk Partnership Laboratory	Sample Ref	107
		Depth (m)	38.50-39.00
		Sample Type	B

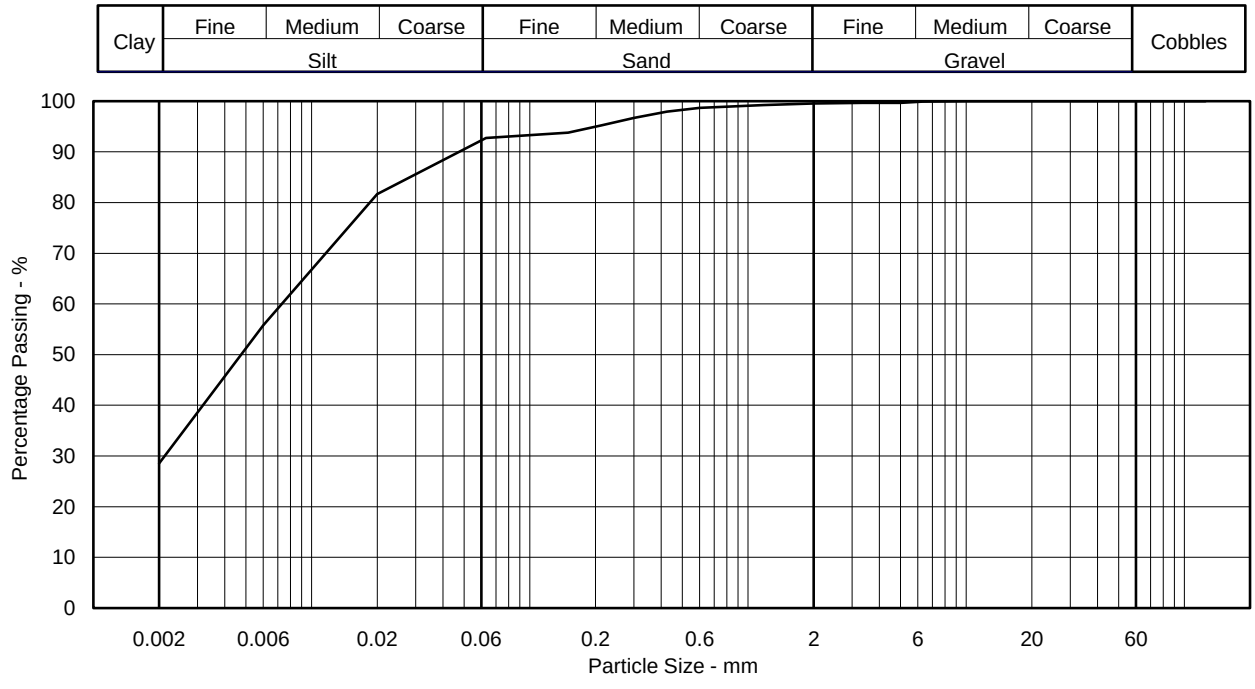
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	98
300 µm	97
212 µm	95
150 µm	94
63 µm	93
20 µm	82
6 µm	56
2 µm	29

Non Engineering Description
Very dark grey mottled brown slightly sandy CLAY with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	7.6
Silt	63.4
Clay	28.5

Particle Diameter - mm	
D100	10
D60	0.0073
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LCG	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Norfolk County Council
Norfolk Partnership Laboratory

NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457
Email: civil.laboratory@norfolk.gov.uk

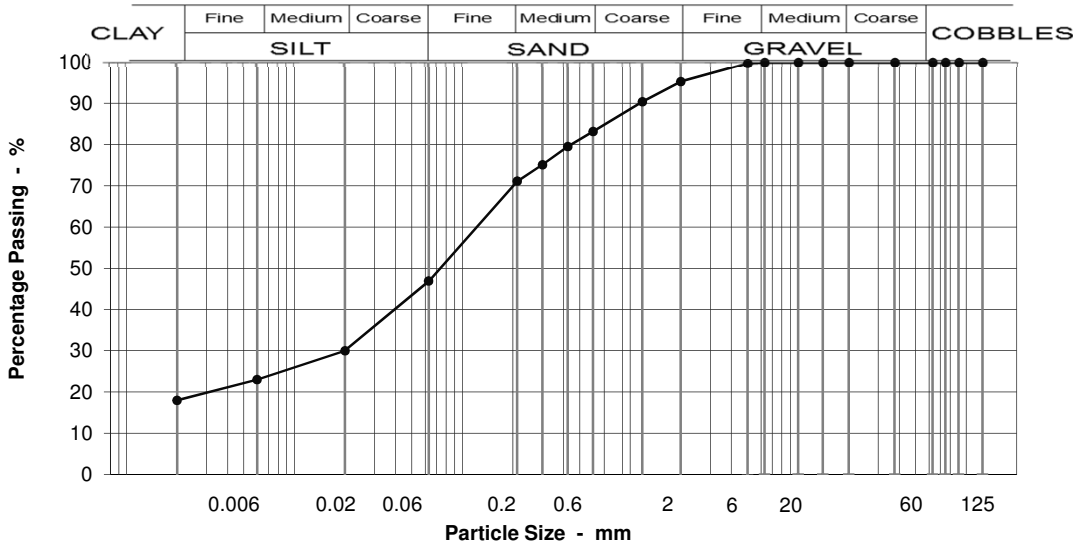
Community & Environmental Services
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2DH

Our reference No. NCCL2018071030-610
Our Project No PZ1522D1
Your Sample Ref 2
Your Project or Order No. PZ1522
Date Tested
Date Report Issued 3-Aug-18

Particle Size Distribution to BS 1377 : Part 2 :1990 Section 9

Scheme: Gt Yarmouth 3rd River Crossing
Location and orientation within sample not applicable

Location: MB05 @ 0m Specimen: 1
Bulk disturbed sample



Sieving

Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	95
1.18	90
0.600	83
0.425	79
0.300	75
0.212	71
0.063	47
0.020	30
0.006	23
0.002	18

Specification for Highway Works Classification

Table 6/2

Moisture content % 86

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	5
Coarse SAND	12
Medium SAND	12
Fine SAND	24
Silt & Clay	47

Grading Analysis	
D100	5
D60	0.14
D10	0.00
Uniformity Coefficient	>10 *

Description
Very soft dark greysih orange very sandy clayey SILT.

* Uniformity coefficient extrapolated

Test Code = 610

UKAS TESTING 0920

Simon Holden (Project Technician) [redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	6
		Depth (m)	1.50-2.00
		Sample Type	B

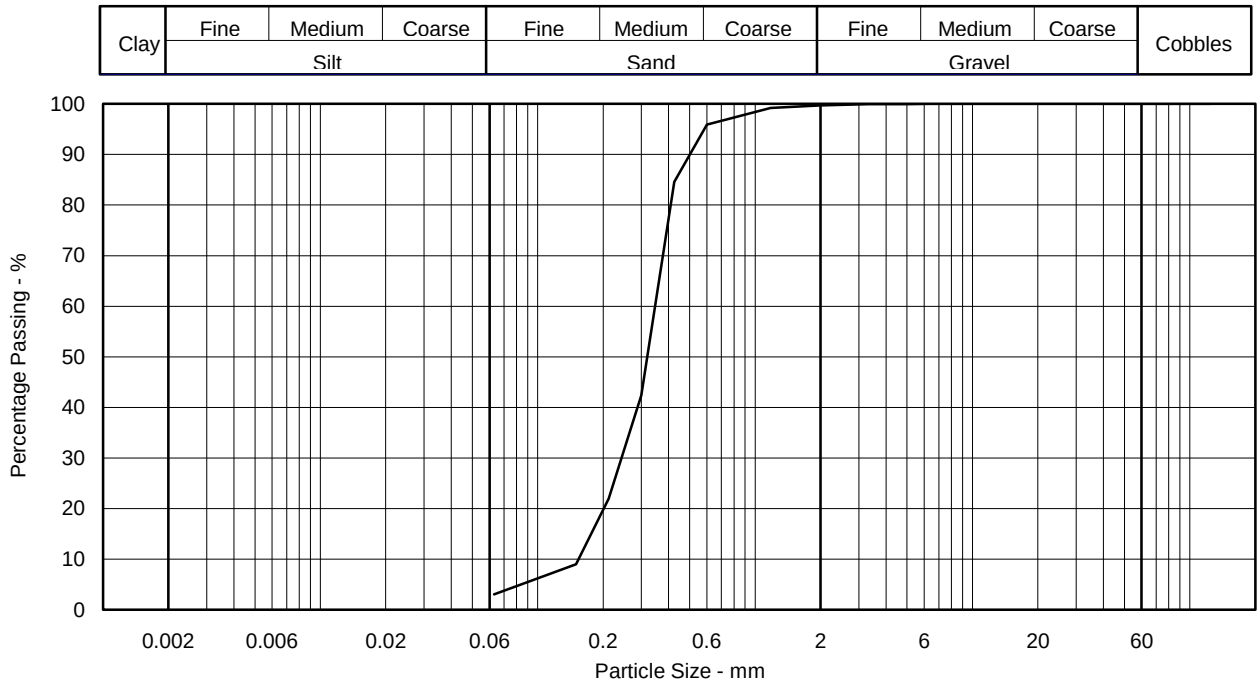
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	96
425 µm	85
300 µm	42
212 µm	22
150 µm	9
63 µm	3

Non Engineering Description
Light brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	96.7
Silt & Clay	3.1

Particle Diameter - mm	
D100	6.3
D60	0.35
D10	0.15
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.3

Notes



Originator	Checked & Approved
PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB05
Sample Ref	10
Depth (m)	2.50-3.00
Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	97
1.18 mm	96
600 µm	91
425 µm	71
300 µm	32
212 µm	14
150 µm	7
63 µm	3

Non Engineering Description

Dark brown slightly gravelly slightly silty SAND. Gravel is fine to medium.

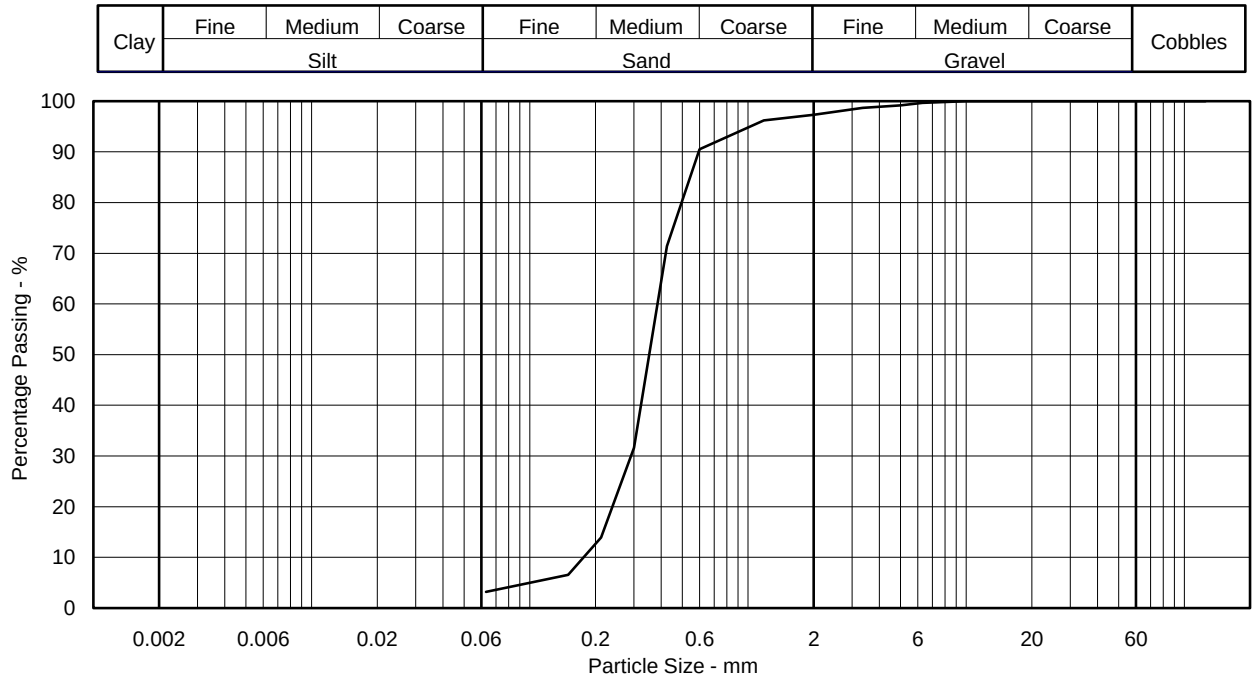
Sample Proportions - %

Cobbles	0.0
Gravel	2.7
Sand	94.1
Silt & Clay	3.2

Particle Diameter - mm

D100	10
D60	0.38
D10	0.18
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.1

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	14
		Depth (m)	3.50-4.00
		Sample Type	B

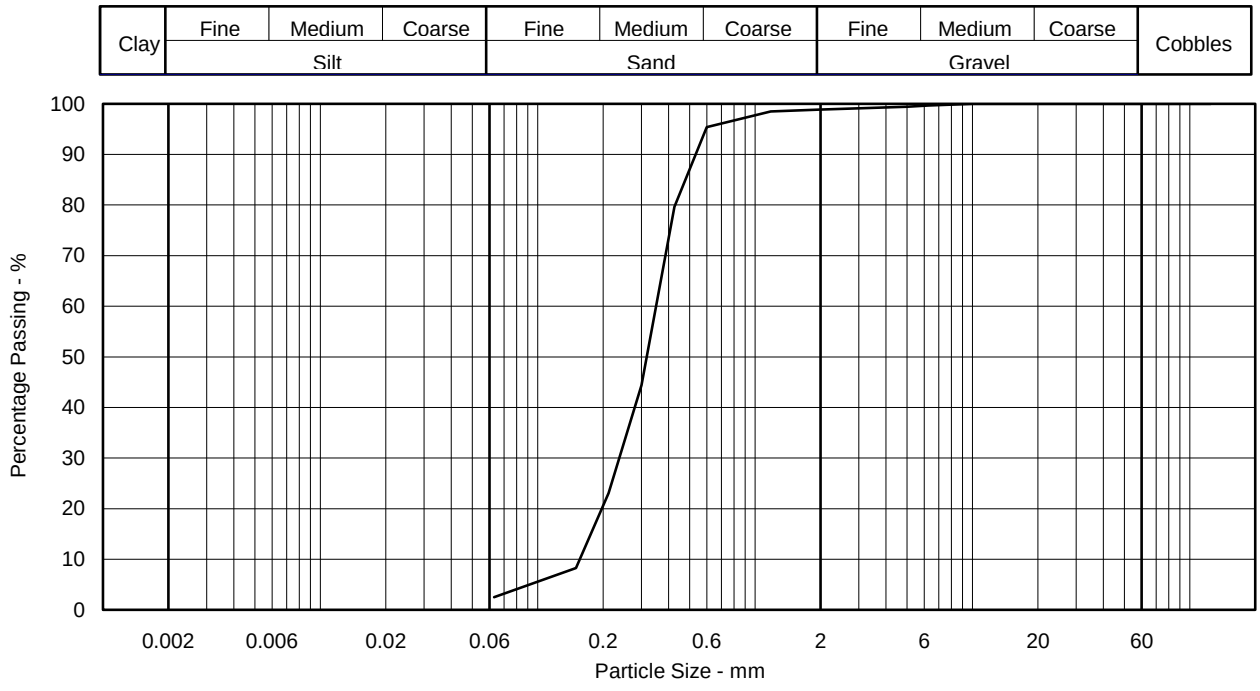
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	95
425 µm	80
300 µm	44
212 µm	23
150 µm	8
63 µm	2

Non Engineering Description
Orange brown slightly gravelly slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.1
Sand	96.4
Silt & Clay	2.5

Particle Diameter - mm	
D100	10
D60	0.35
D10	0.16
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.2

Notes



Originator	Checked & Approved
PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	18
		Depth (m)	4.50-5.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	98
5.00 mm	98
3.35 mm	97
2.00 mm	96
1.18 mm	95
600 µm	92
425 µm	80
300 µm	55
212 µm	31
150 µm	15
63 µm	9

Non Engineering Description

Orange brown slightly clayey slightly gravelly silty SAND. Gravel is fine to medium.

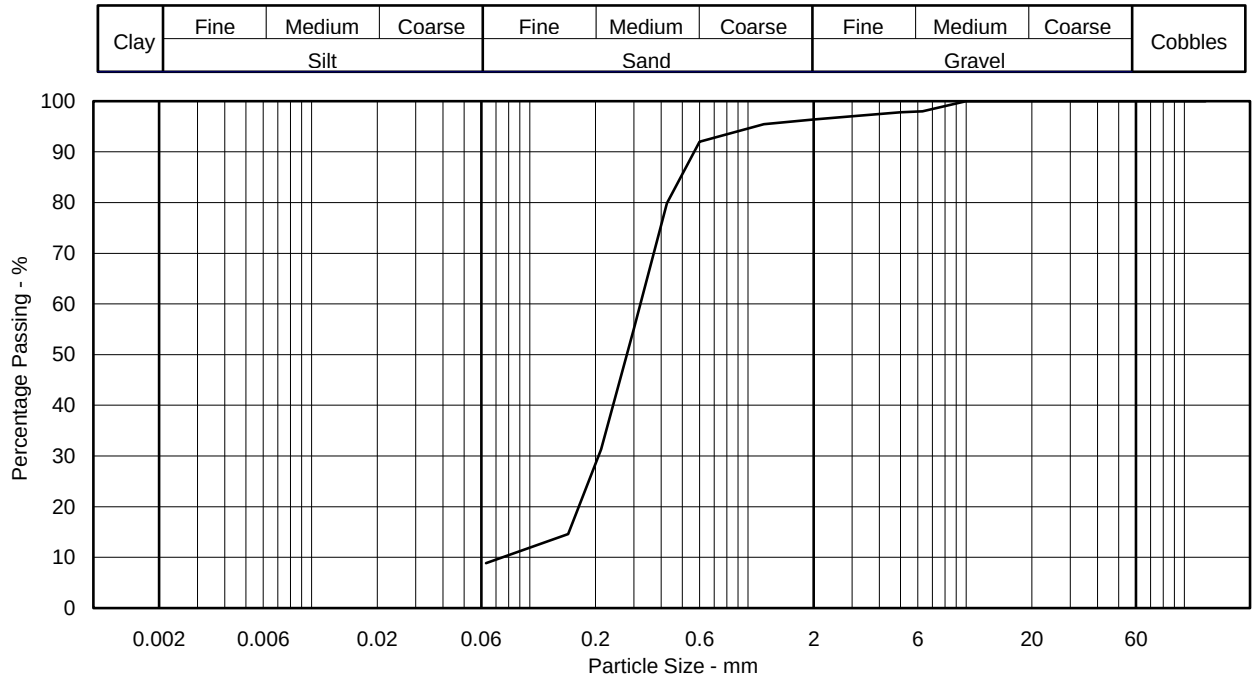
Sample Proportions - %

Cobbles	0.0
Gravel	3.6
Sand	87.5
Silt & Clay	8.9

Particle Diameter - mm

D100	10
D60	0.32
D10	0.075
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	4.3

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	22
		Depth (m)	5.50-6.00
		Sample Type	B

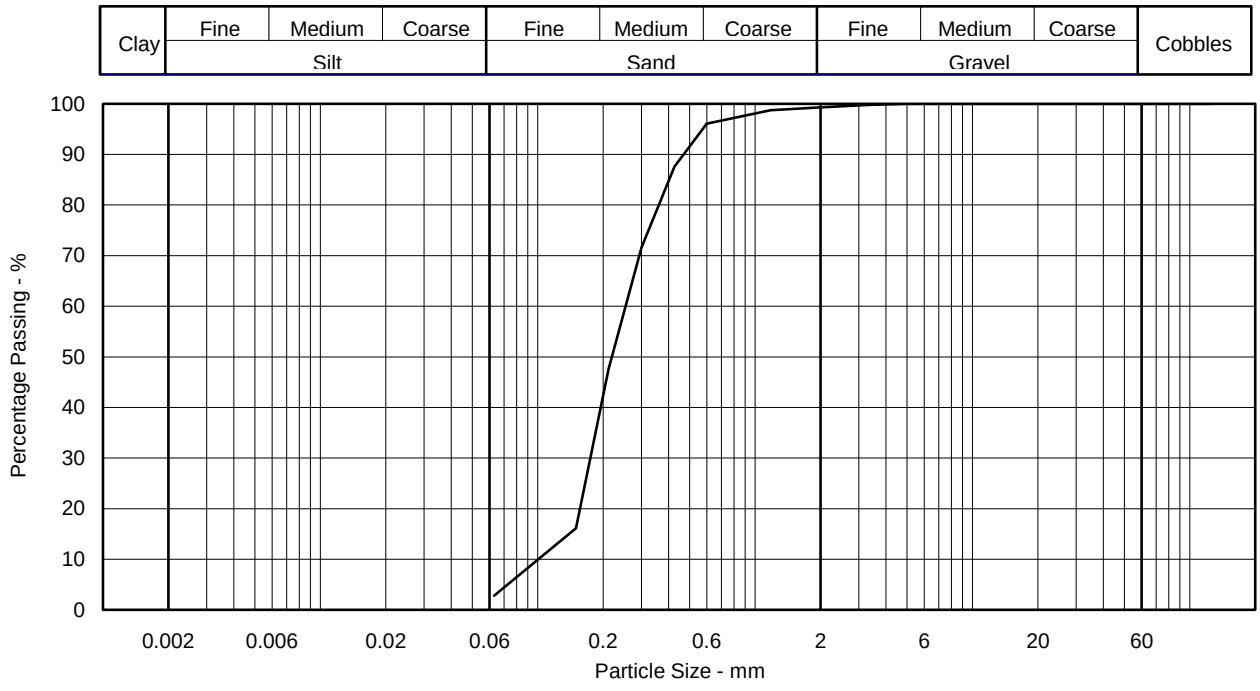
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	96
425 µm	88
300 µm	72
212 µm	48
150 µm	16
63 µm	3

Non Engineering Description
Orangey brown slightly silty SAND with rare fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.7
Sand	96.5
Silt & Clay	2.8

Particle Diameter - mm	
D100	5.0
D60	0.25
D10	0.10
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
PD	05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Version 058 - 10/06/2013
1260 - PSD MB05 06.50 25 B - C6474-2-338549.xls : Sample ID 338549

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	25
		Depth (m)	6.50-7.00
		Sample Type	B

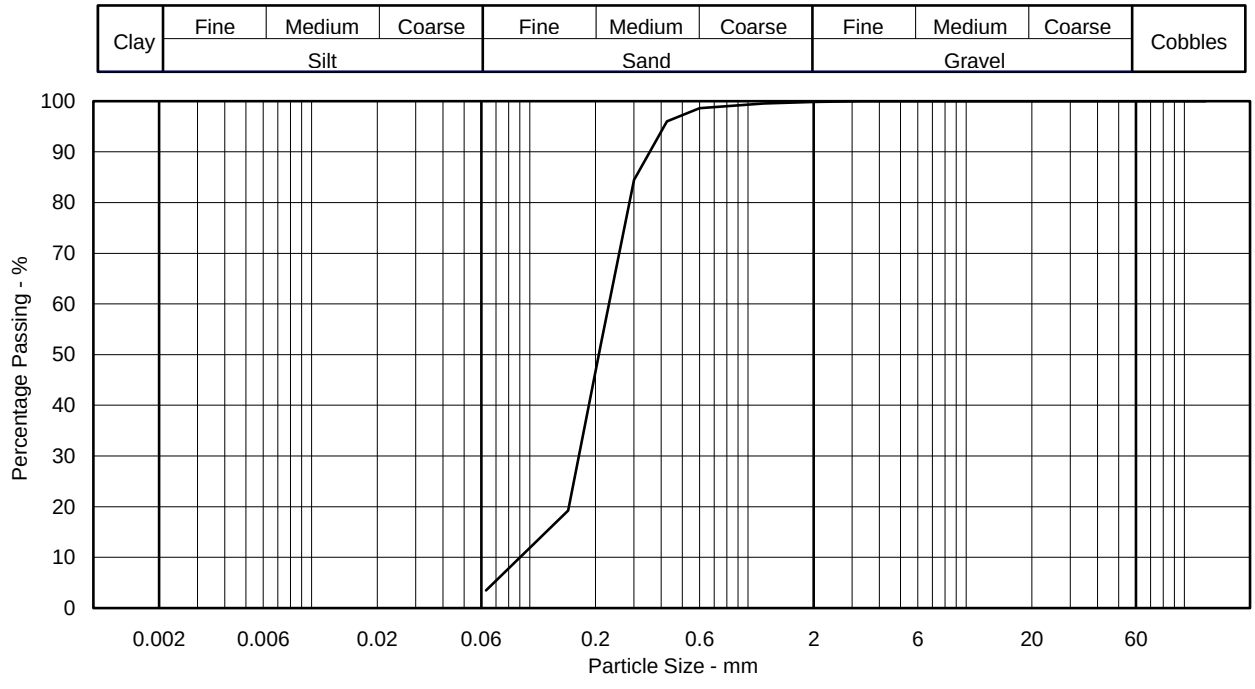
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	96
300 µm	84
212 µm	52
150 µm	19
63 µm	3

Non Engineering Description
Orange brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.1
Sand	96.4
Silt & Clay	3.5

Particle Diameter - mm	
D100	3.4
D60	0.23
D10	0.090
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.6

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 08:54:12

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	30
		Depth (m)	8.50-9.00
		Sample Type	B

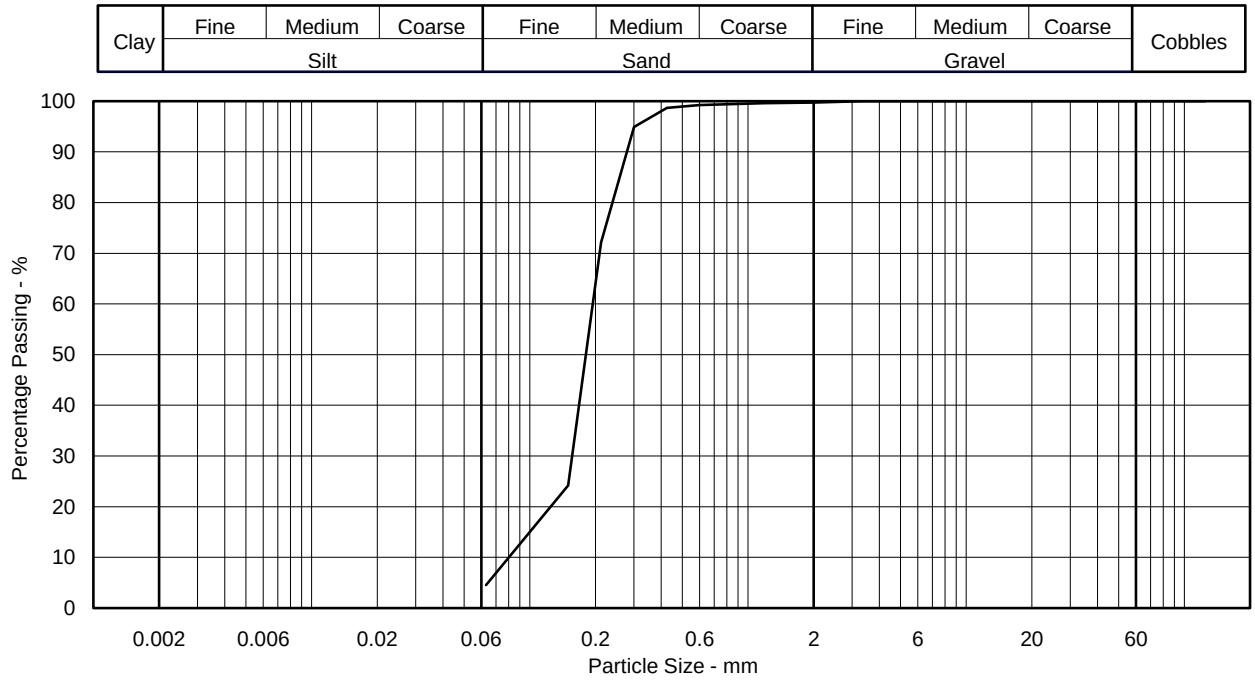
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	99
300 µm	95
212 µm	72
150 µm	24
63 µm	5

Non Engineering Description
Light brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	95.2
Silt & Clay	4.5

Particle Diameter - mm	
D100	3.4
D60	0.19
D10	0.080
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.4

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	43
		Depth (m)	12.50-13.00
		Sample Type	B

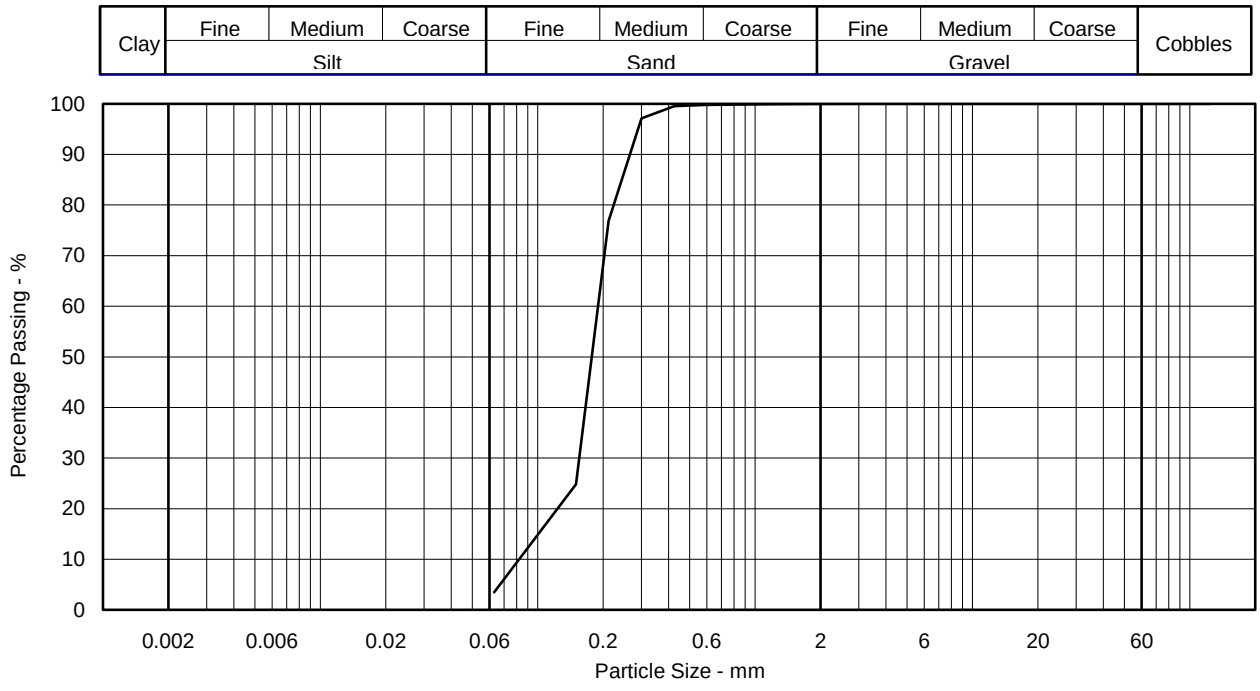
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	100
300 µm	97
212 µm	77
150 µm	25
63 µm	3

Non Engineering Description
Orange brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.0
Sand	96.5
Silt & Clay	3.5

Particle Diameter - mm	
D100	3.4
D60	0.19
D10	0.082
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.3

Notes



Originator	Checked & Approved
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PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	46
		Depth (m)	13.50-14.00
		Sample Type	B

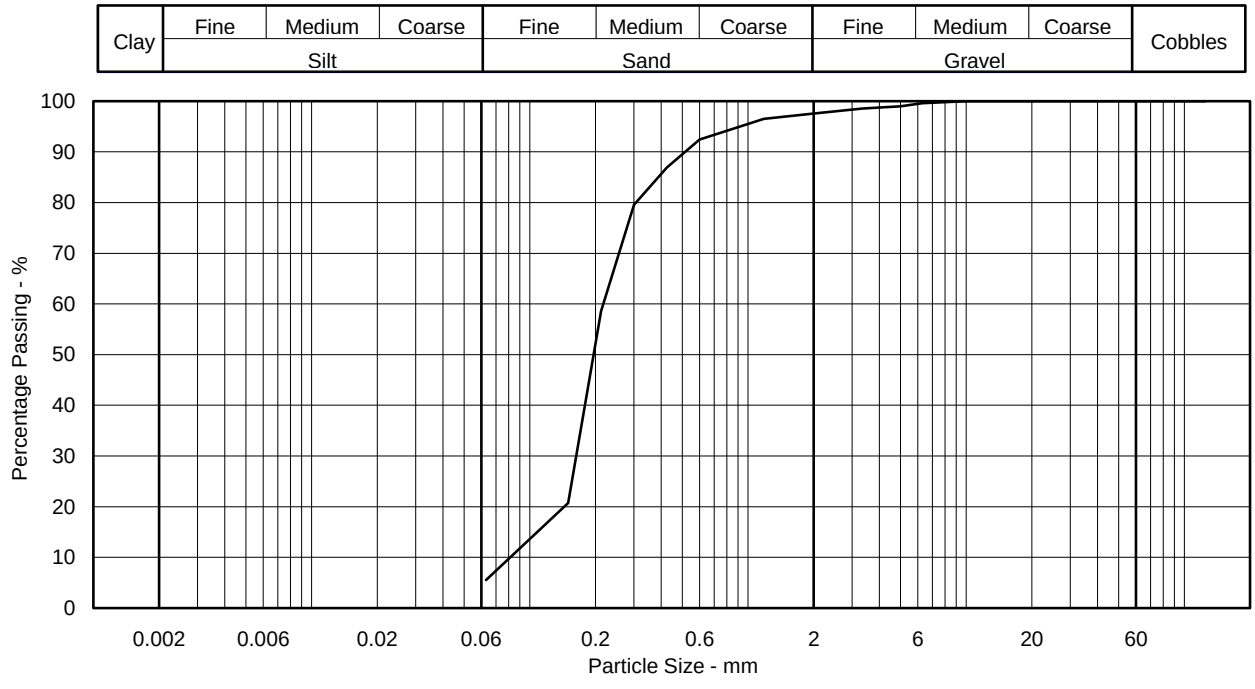
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	98
1.18 mm	96
600 µm	92
425 µm	87
300 µm	80
212 µm	59
150 µm	21
63 µm	6

Non Engineering Description
Orange brown slightly gravelly silty SAND with occasional fine shell fragments. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.5
Sand	92.0
Silt & Clay	5.5

Particle Diameter - mm	
D100	10
D60	0.22
D10	0.081
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.7

Notes



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LA	[redacted]018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB05
Sample Ref	52
Depth (m)	15.50-16.00
Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	95
425 µm	90
300 µm	82
212 µm	72
150 µm	49
63 µm	32
20 µm	24
6 µm	19
2 µm	14

Non Engineering Description

Orange brown slightly gravelly very sandy CLAY with some fine shell fragments. Gravel is fine.

Sample Proportions - %

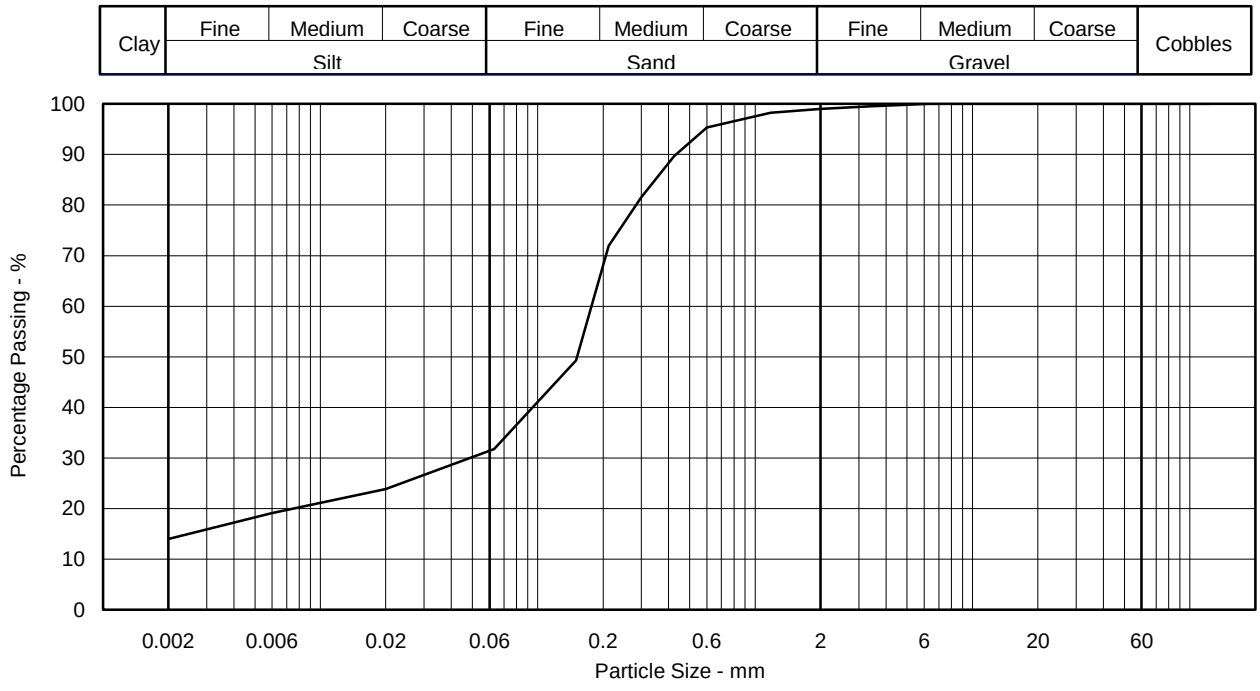
Cobbles	0.0
Gravel	1.0
Sand	67.7
Silt	17.2
Clay	14.0

Particle Diameter - mm

D100	6.3
D60	0.18
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
PD	[redacted] 11/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	55
		Depth (m)	16.50-17.00
		Sample Type	B

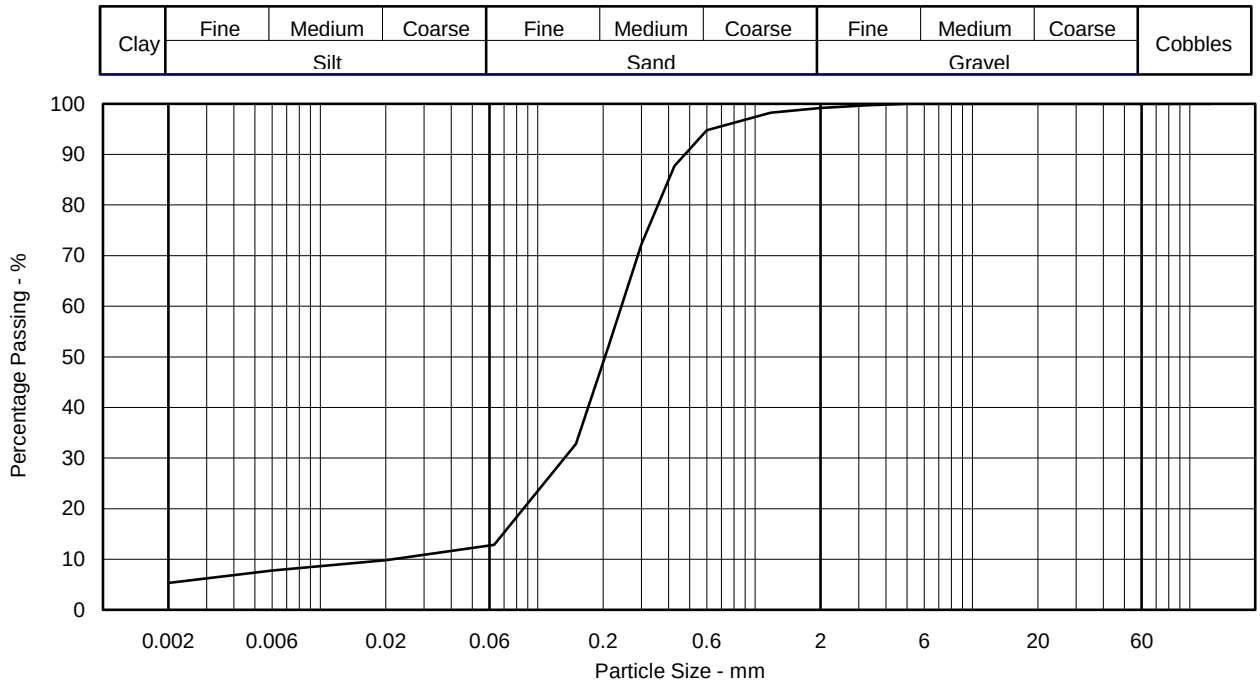
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	95
425 µm	88
300 µm	72
212 µm	52
150 µm	33
63 µm	13
20 µm	10
6 µm	8
2 µm	5

Non Engineering Description
Dark brown clyey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	86.6
Silt	7.3
Clay	5.3

Particle Diameter - mm	
D100	5.0
D60	0.24
D10	0.022
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	10.9

Notes
Sedimentation sample not pre-treated



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PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	61
		Depth (m)	18.50-19.00
		Sample Type	B

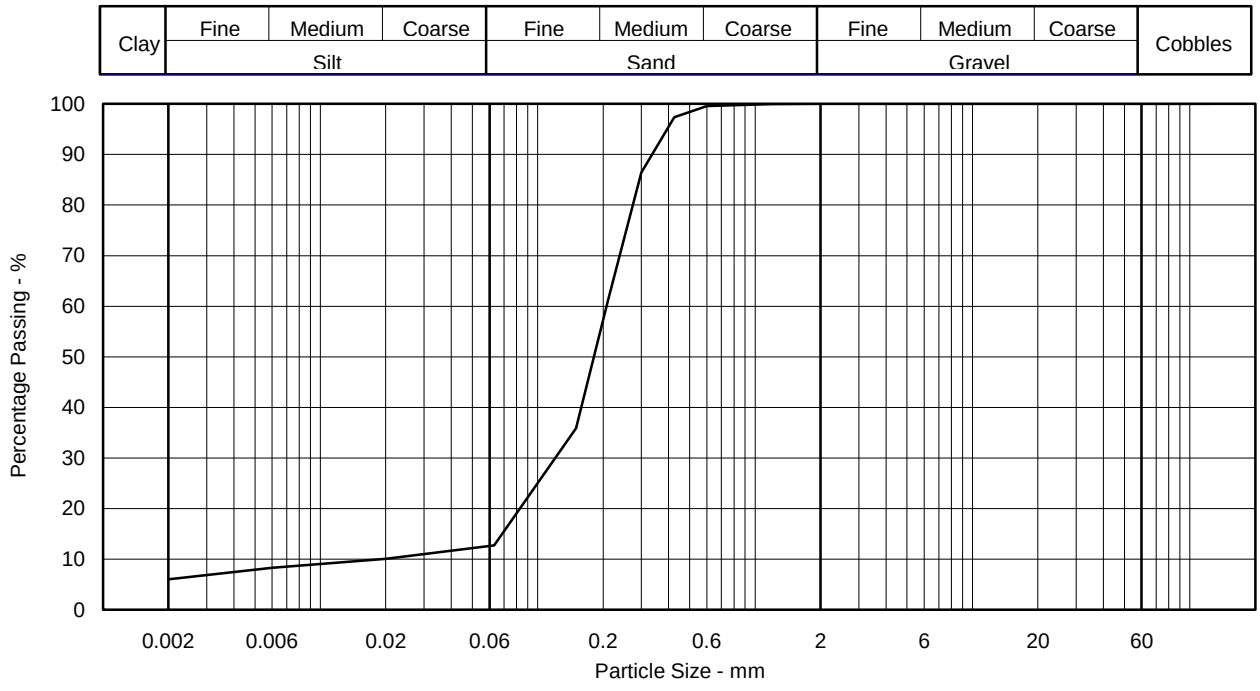
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	97
300 µm	86
212 µm	62
150 µm	36
63 µm	13
20 µm	10
6 µm	8
2 µm	6

Non Engineering Description
Dark brown clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.0
Sand	87.4
Silt	6.5
Clay	6.0

Particle Diameter - mm	
D100	3.4
D60	0.21
D10	0.019
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	11.1

Notes
Sedimentation sample not pre-treated



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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

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Version 058 - 10/06/2013
1260 - PSD MB05 19.50 64 B - C6474-2-338558.xls : Sample ID 338558

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	64
		Depth (m)	19.50-20.00
		Sample Type	B

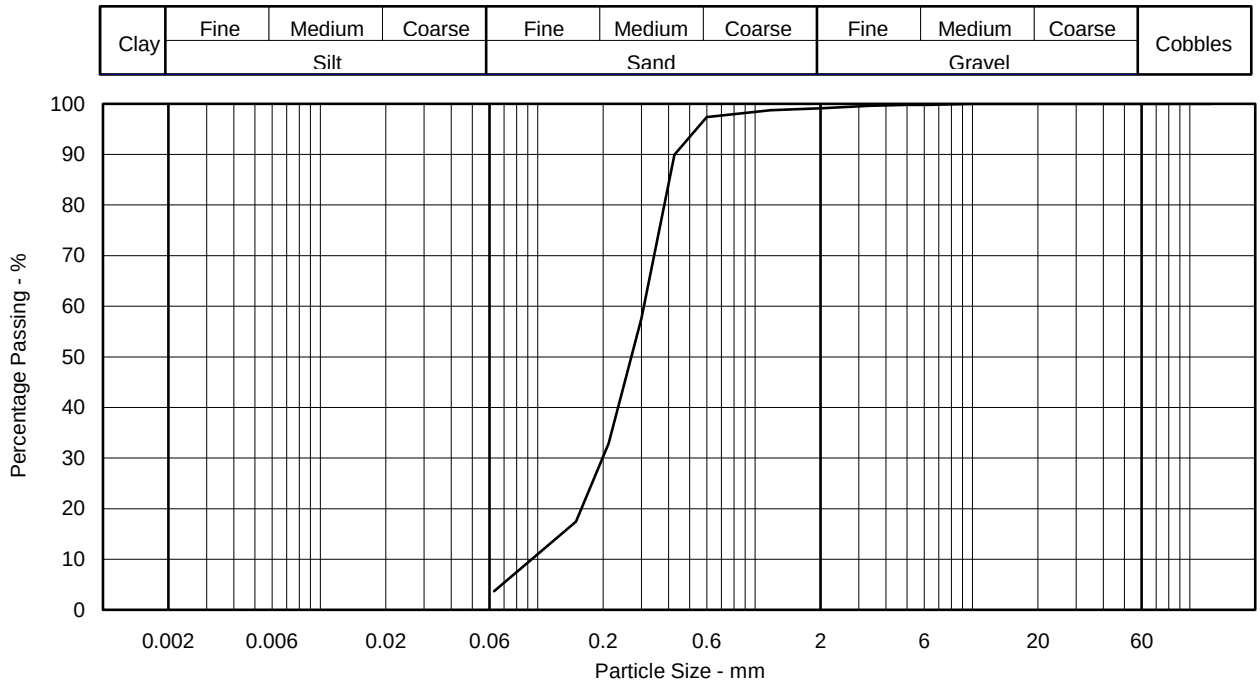
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	97
425 µm	90
300 µm	58
212 µm	33
150 µm	17
63 µm	4

Non Engineering Description
Light brown slightly silty SAND with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.9
Sand	95.5
Silt & Clay	3.7

Particle Diameter - mm	
D100	10
D60	0.31
D10	0.094
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.3

Notes



Originator	Checked & Approved
PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 09:15:18

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	69
		Depth (m)	21.50-22.00
		Sample Type	B

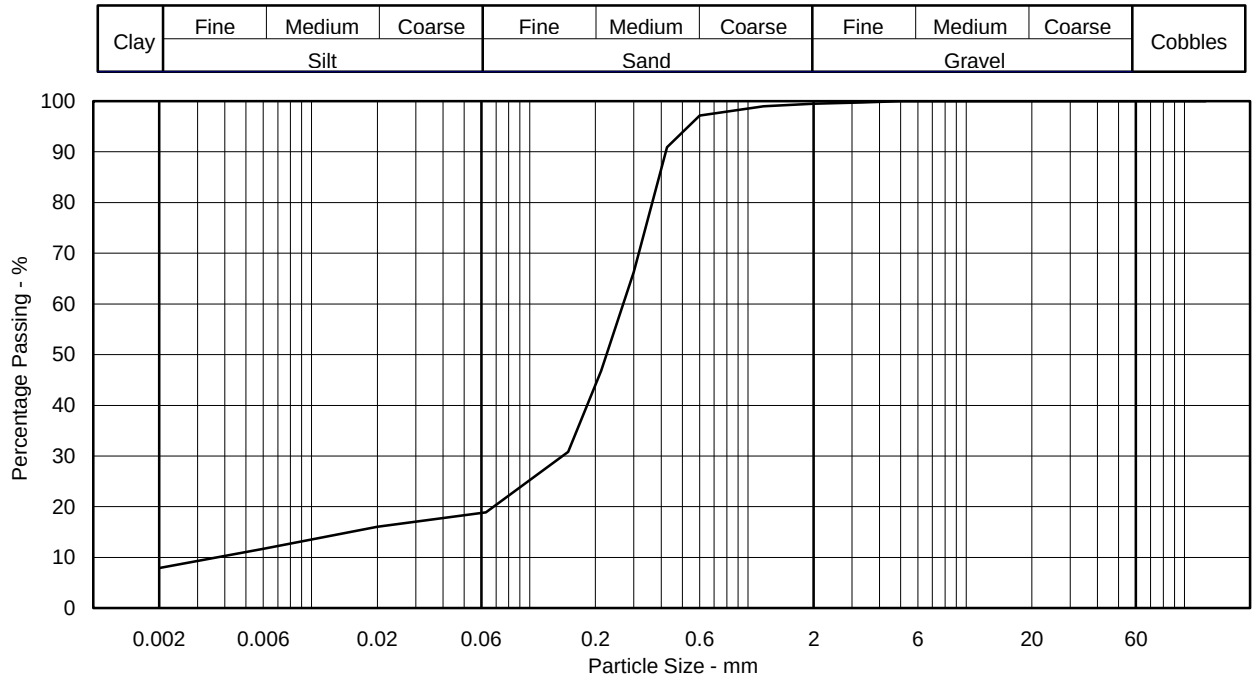
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	97
425 µm	91
300 µm	66
212 µm	47
150 µm	31
63 µm	19
20 µm	16
6 µm	12
2 µm	8

Non Engineering Description
Dark grey clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.5
Sand	80.8
Silt	10.8
Clay	7.9

Particle Diameter - mm	
D100	5.0
D60	0.27
D10	0.0037
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	73.0

Notes
Sedimentation sample not pre-treated



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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Version 058 - 10/06/2013
1260 - PSD MB05 22.50 72 B - C6474-2-338561.xls : Sample ID 338561

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	72
		Depth (m)	22.50-23.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	95
300 µm	88
212 µm	79
150 µm	70
63 µm	62
20 µm	51
6 µm	34
2 µm	19

Non Engineering Description

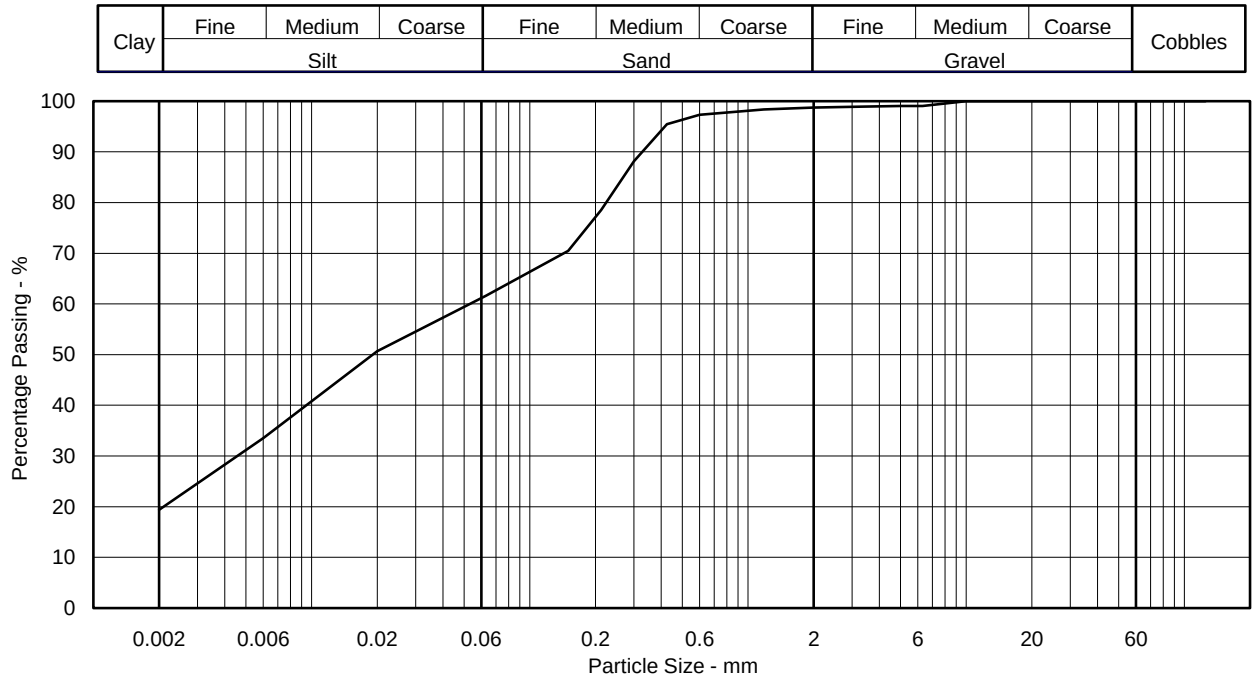
Grey mottled light brown slightly gravelly sandy CLAY. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.3
Sand	37.9
Silt	41.5
Clay	19.4

Particle Diameter - mm	
D100	10
D60	0.053
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 09:18:00

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	75
		Depth (m)	23.50-24.00
		Sample Type	B

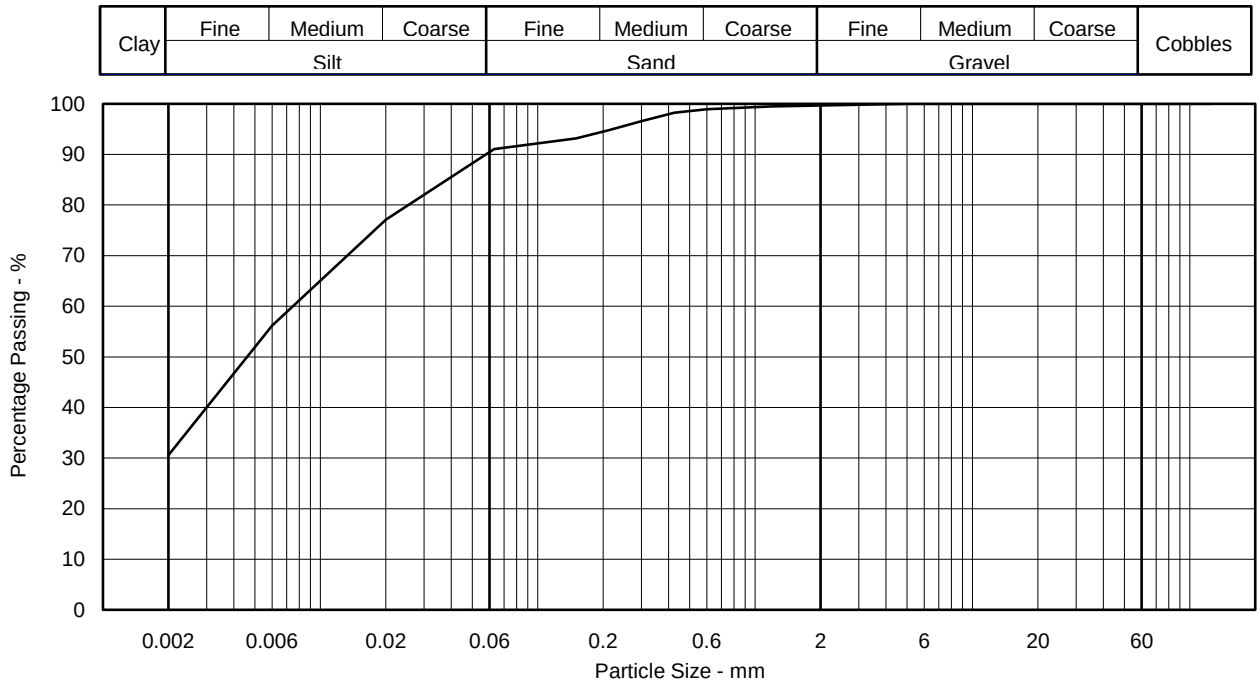
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	98
300 µm	97
212 µm	95
150 µm	93
63 µm	91
20 µm	77
6 µm	56
2 µm	31

Non Engineering Description
Olive mottled light brown slightly sandy CLAY.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	9.6
Silt	59.6
Clay	30.6

Particle Diameter - mm	
D100	5.0
D60	0.0075
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Version 058 - 10/06/2013
1260 - PSD MB05 24.50 78 B - C6474-2-338564.xls : Sample ID 338564

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB05
Engineer	Norfolk Partnership Laboratory	Sample Ref	78
		Depth (m)	24.50-25.00
		Sample Type	B

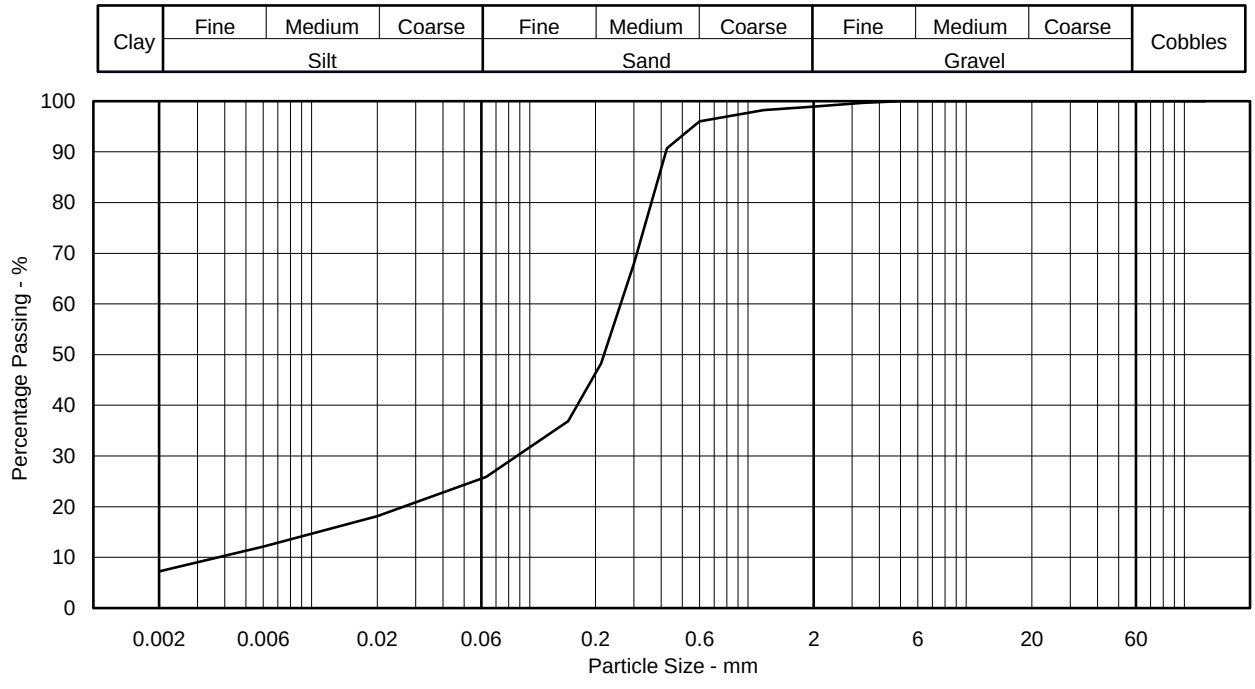
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	96
425 µm	91
300 µm	68
212 µm	48
150 µm	37
63 µm	26
20 µm	18
6 µm	12
2 µm	7

Non Engineering Description
Greyish brown slightly gravelly clayey silty SAND. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.0
Sand	73.6
Silt	18.1
Clay	7.2

Particle Diameter - mm	
D100	5.0
D60	0.26
D10	0.0037
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	70.3

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 09:33:26

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	2
		Depth (m)	0.00-0.50
		Sample Type	B

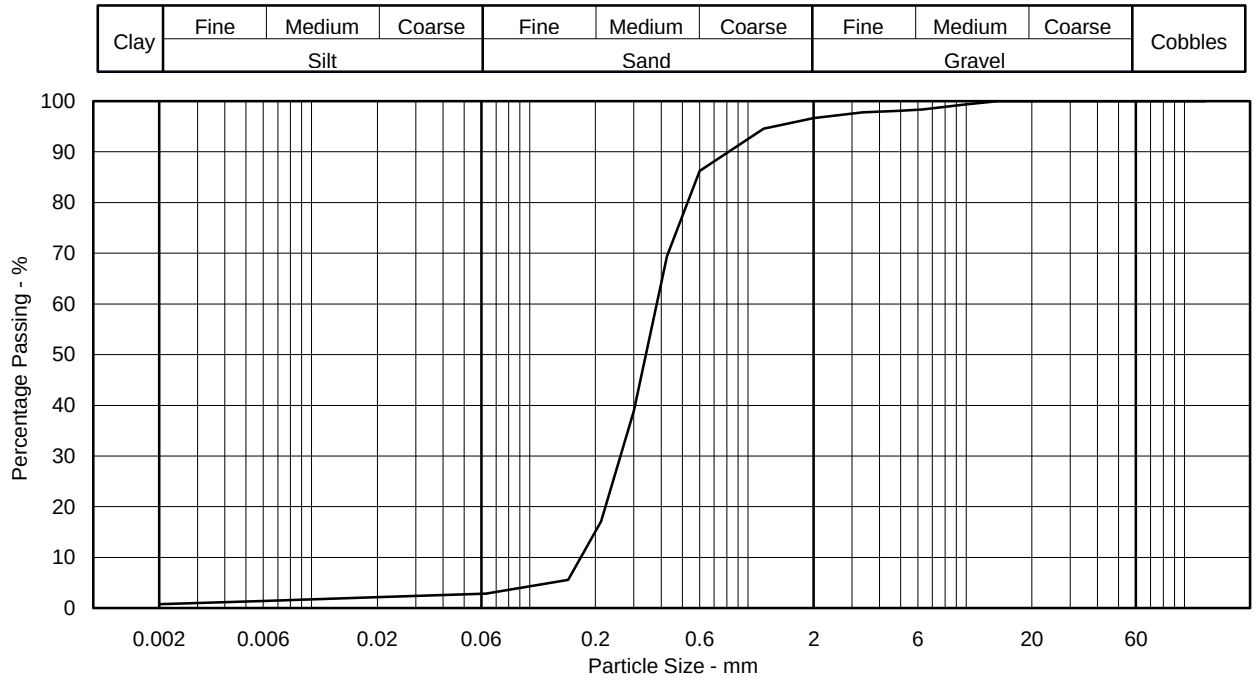
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	98
5.00 mm	98
3.35 mm	98
2.00 mm	97
1.18 mm	95
600 µm	86
425 µm	69
300 µm	39
212 µm	17
150 µm	6
63 µm	3
20 µm	2
6 µm	1
2 µm	1

Non Engineering Description
Dark grey slightly silty SAND with occasional fine to medium shell fragments and a slight odour of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	3.3
Sand	93.9
Silt	2.1
Clay	0.7

Particle Diameter - mm	
D100	14
D60	0.38
D10	0.17
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.2

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	6
		Depth (m)	1.50-2.00
		Sample Type	B

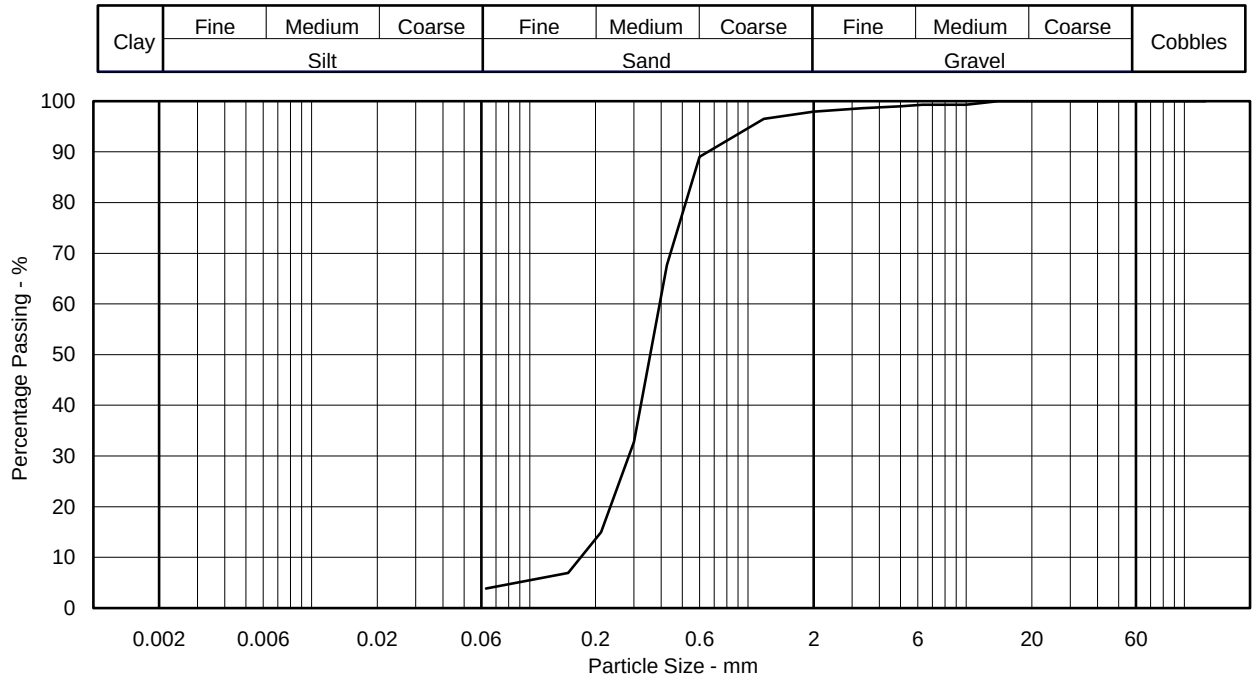
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	98
1.18 mm	97
600 µm	89
425 µm	68
300 µm	33
212 µm	15
150 µm	7
63 µm	4

Non Engineering Description
Brown slightly silty SAND with occasional fine to medium shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.0
Sand	94.1
Silt & Clay	3.9

Particle Diameter - mm	
D100	14
D60	0.39
D10	0.17
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.3

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB06
Sample Ref	10
Depth (m)	2.50-3.00
Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	98
6.30 mm	97
5.00 mm	97
3.35 mm	96
2.00 mm	96
1.18 mm	94
600 µm	91
425 µm	84
300 µm	71
212 µm	58
150 µm	41
63 µm	30
20 µm	25
6 µm	20
2 µm	16

Non Engineering Description

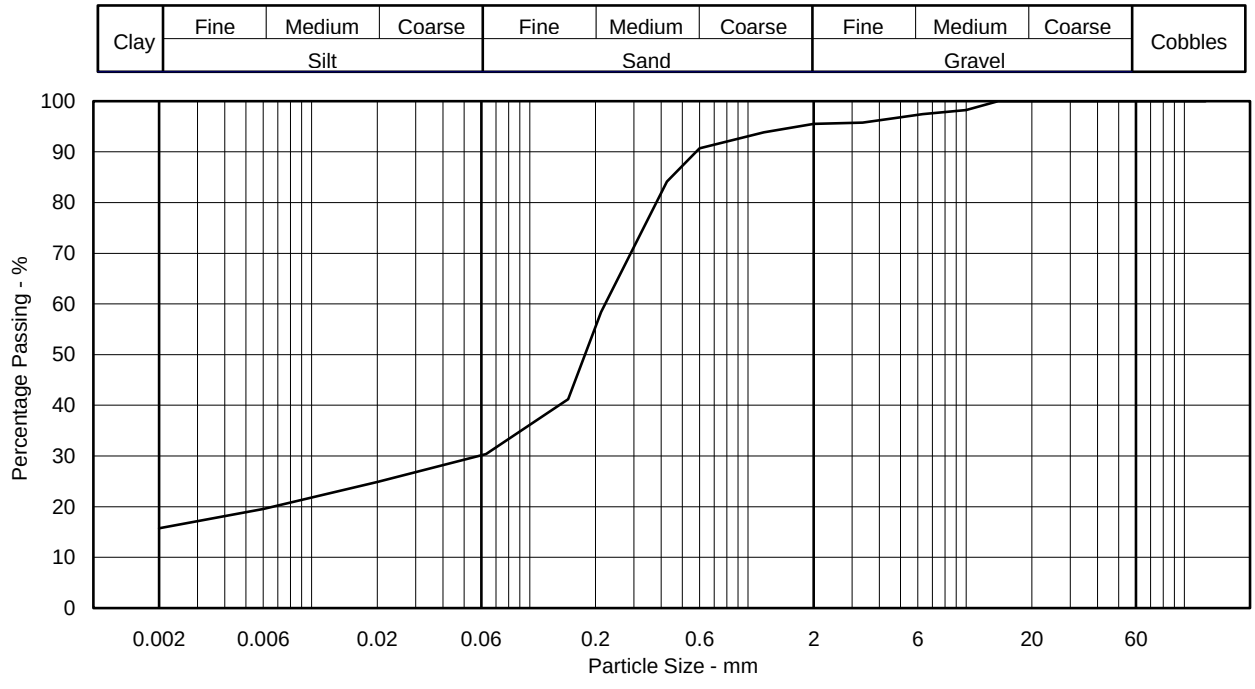
Grey slightly gravelly very sandy CLAY with an odour of hydrocarbons. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	4.5
Sand	65.5
Silt	14.3
Clay	15.7

Particle Diameter - mm	
D100	14
D60	0.22
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474 : 04/09/2018 11:33:51

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	14
		Depth (m)	3.50-4.00
		Sample Type	B

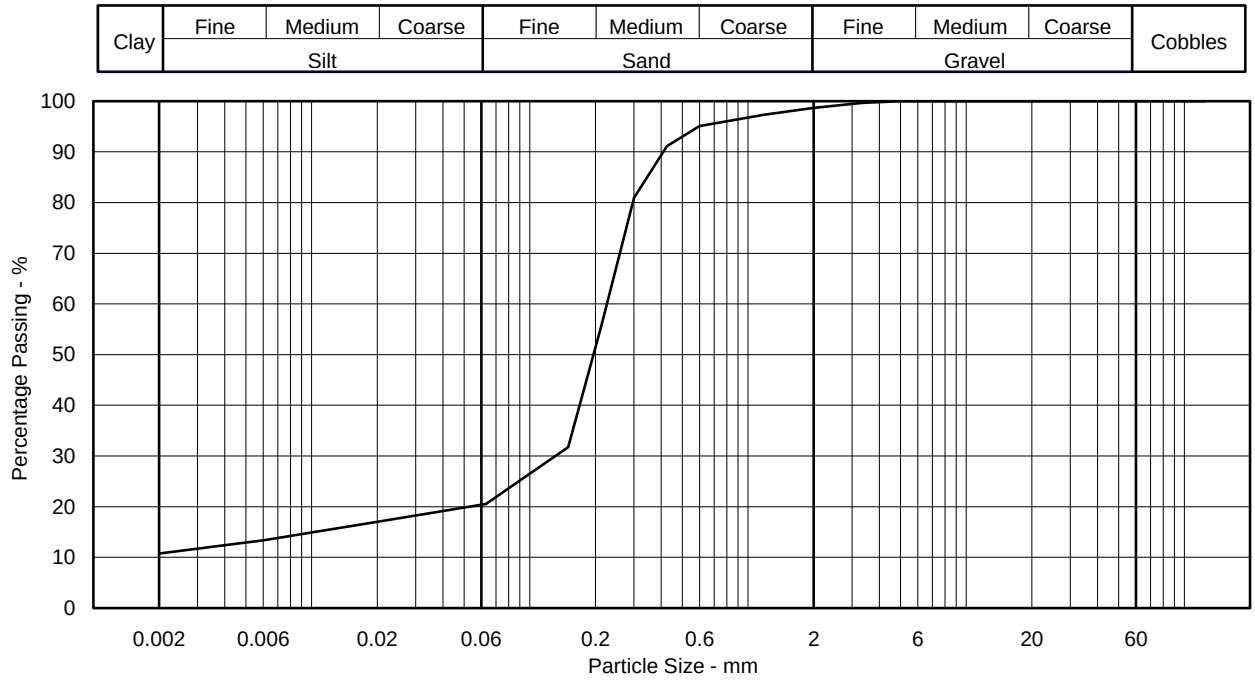
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	97
600 µm	95
425 µm	91
300 µm	81
212 µm	56
150 µm	32
63 µm	21
20 µm	17
6 µm	13
2 µm	11

Non Engineering Description
Greyish brown slightly gravelly silty clayey SAND with an odour of hydrocarbons. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.3
Sand	78.4
Silt	9.5
Clay	10.8

Particle Diameter - mm	
D100	5.0
D60	0.23
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB06
Sample Ref	18
Depth (m)	4.50-5.00
Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	96
425 µm	93
300 µm	84
212 µm	62
150 µm	26
63 µm	8

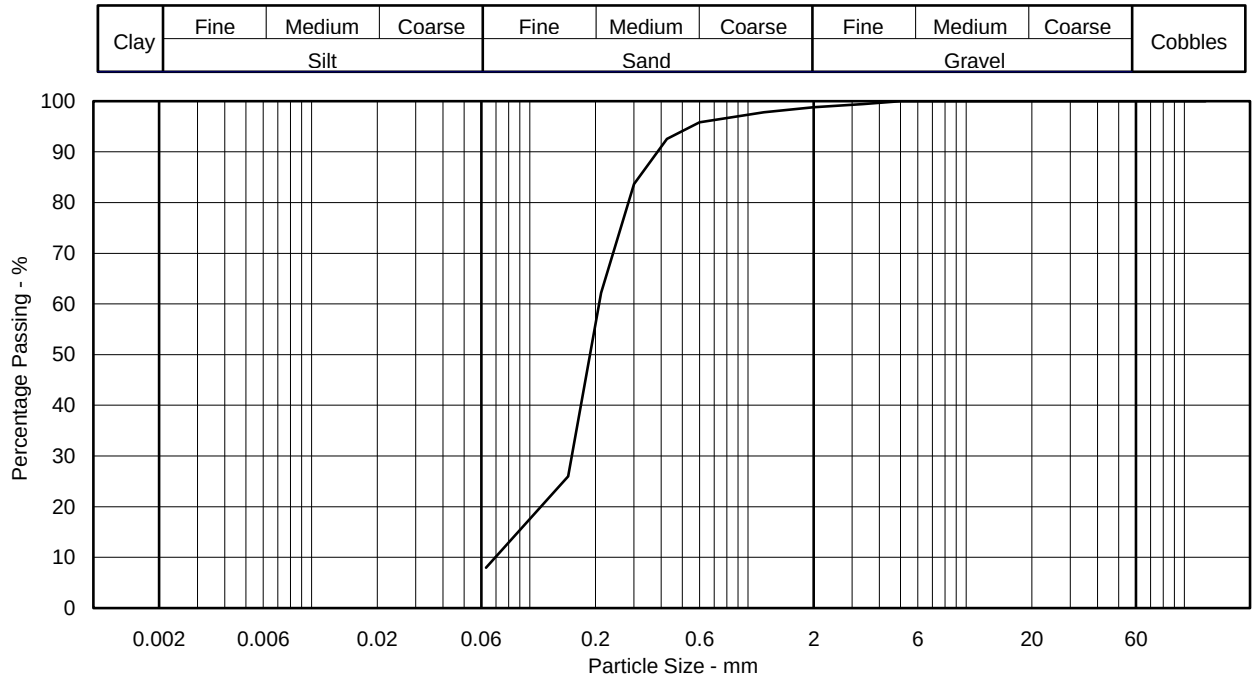
Non Engineering Description

Greyish brown slightly gravelly silty SAND with an odour of hydrocarbons. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.2
Sand	90.8
Silt & Clay	8.0

Particle Diameter - mm	
D100	5.0
D60	0.21
D10	0.069
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.0

Notes



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	28
		Depth (m)	7.50-8.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	98
300 µm	96
212 µm	54
150 µm	20
63 µm	9

Non Engineering Description

Yellowish brown silty SAND with a strong odour of hydrocarbons.

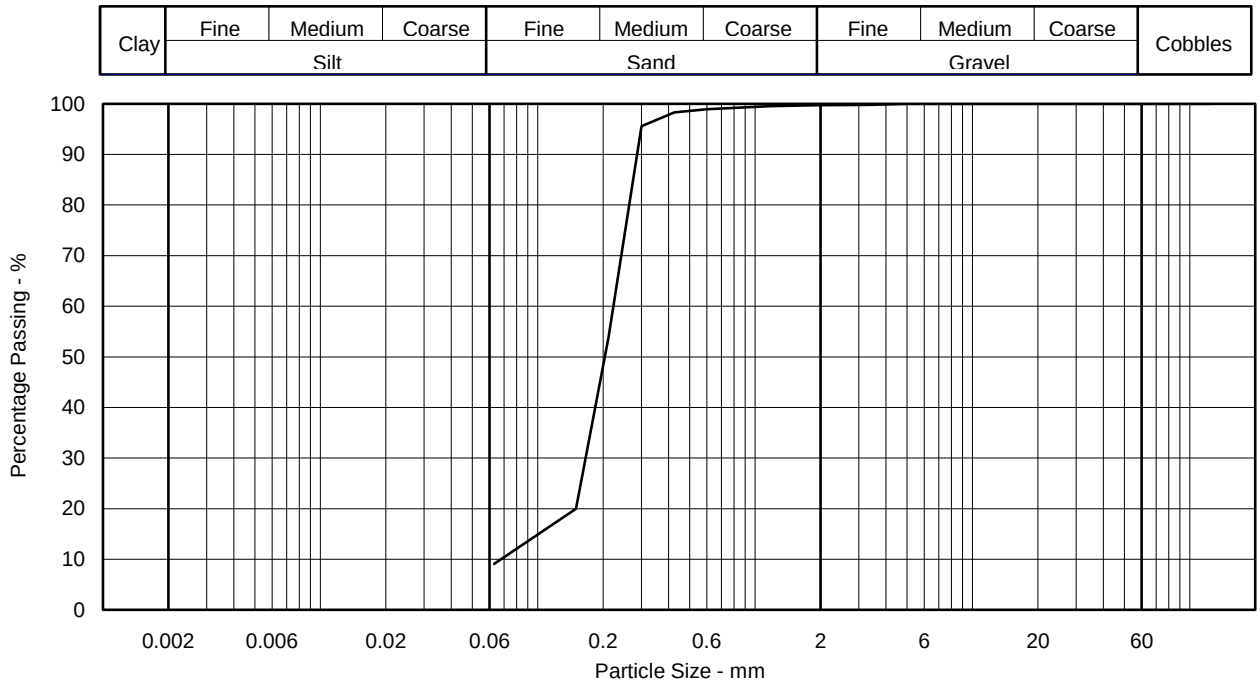
Sample Proportions - %

Cobbles	0.0
Gravel	0.3
Sand	90.6
Silt & Clay	9.1

Particle Diameter - mm

D100	5.0
D60	0.22
D10	0.068
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.2

Notes



Originator	Checked & Approved
EH	[redacted] 24/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	38
		Depth (m)	10.50-11.00
		Sample Type	B

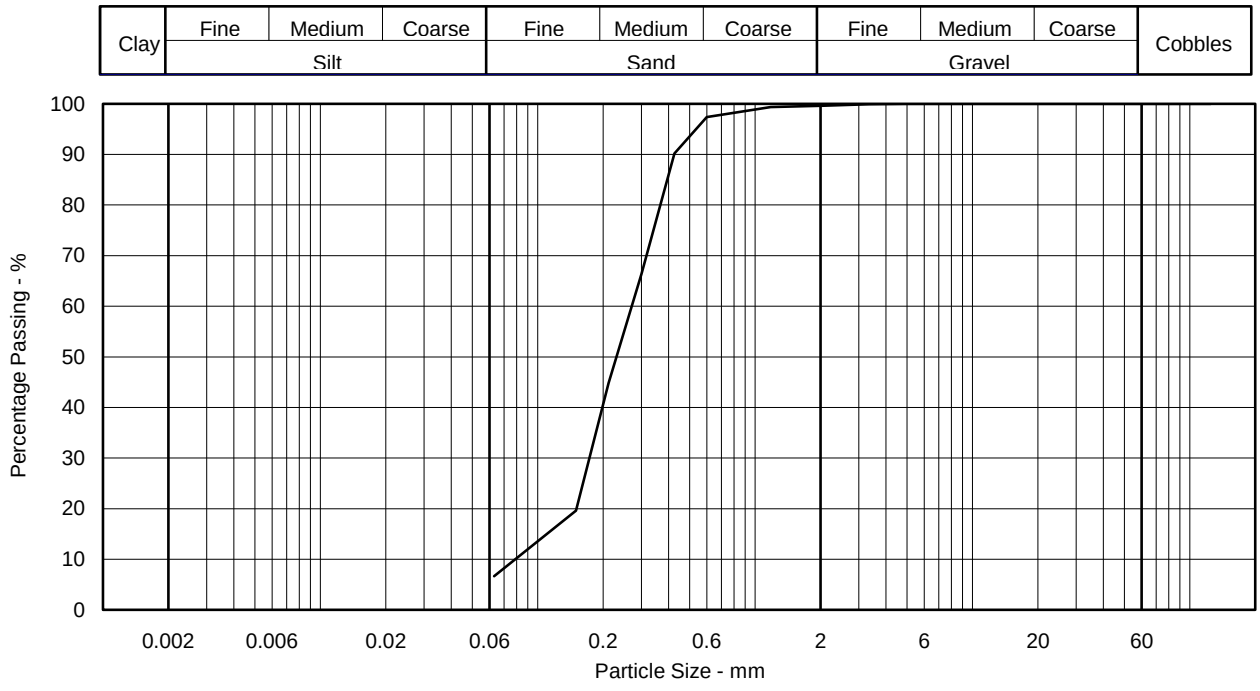
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	97
425 µm	90
300 µm	66
212 µm	45
150 µm	20
63 µm	7

Non Engineering Description
Greyish brown silty SAND and strong smell of hydrocarbons.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	93.0
Silt & Clay	6.6

Particle Diameter - mm	
D100	5.0
D60	0.27
D10	0.079
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.4

Notes



Originator	Checked & Approved
EH	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	47
		Depth (m)	13.50-14.00
		Sample Type	B

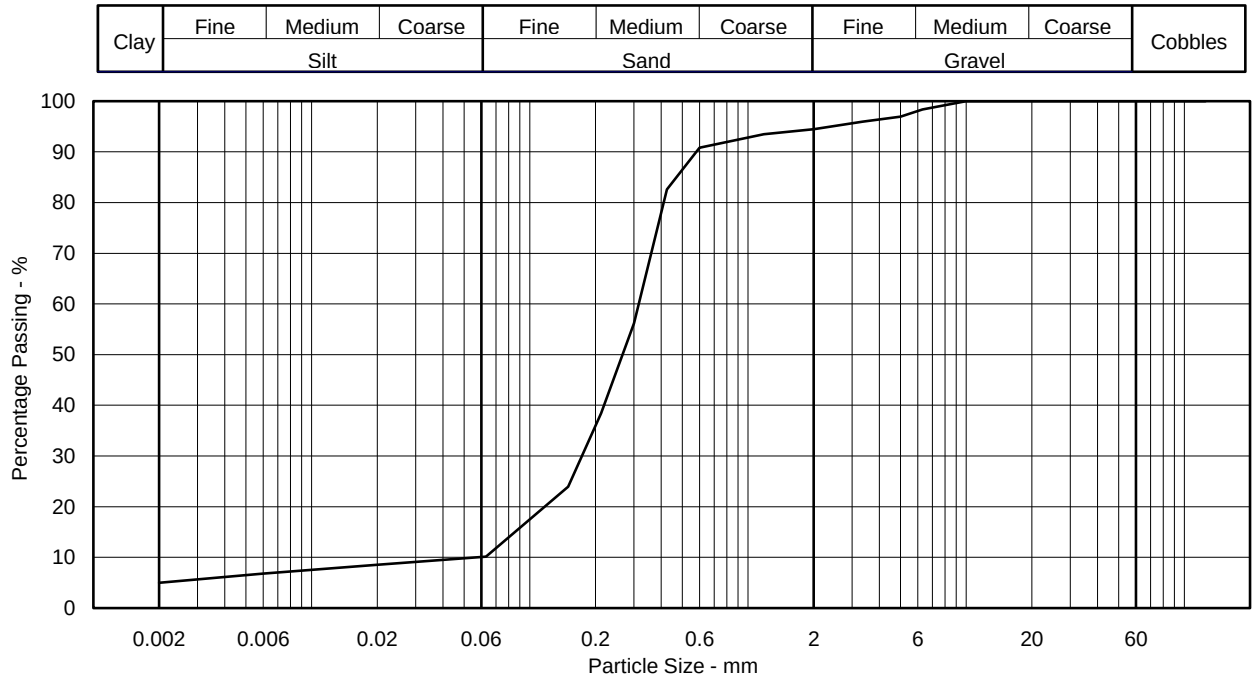
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	98
5.00 mm	97
3.35 mm	96
2.00 mm	94
1.18 mm	94
600 µm	91
425 µm	83
300 µm	56
212 µm	38
150 µm	24
63 µm	10
20 µm	9
6 µm	7
2 µm	5

Non Engineering Description
Greyish brown clayey silty SAND. With occasional fine to medium shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	5.5
Sand	84.4
Silt	5.1
Clay	5.0

Particle Diameter - mm	
D100	10
D60	0.32
D10	0.056
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	5.7

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	50
		Depth (m)	14.50-15.00
		Sample Type	B

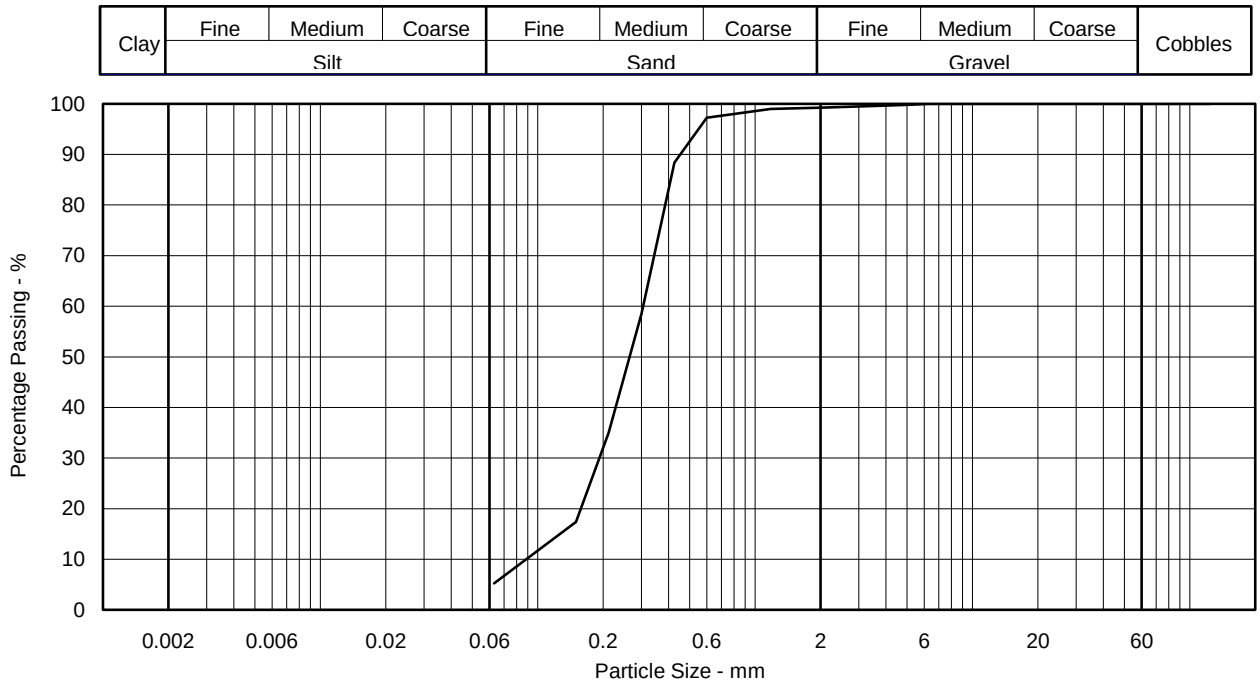
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	97
425 µm	88
300 µm	59
212 µm	35
150 µm	17
63 µm	5

Non Engineering Description
Light greyish brown silty SAND with occasional shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.7
Sand	94.0
Silt & Clay	5.2

Particle Diameter - mm	
D100	6.3
D60	0.31
D10	0.089
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.5

Notes



Originator	Checked & Approved
EH	[redacted] 24/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	59
		Depth (m)	17.50-18.00
		Sample Type	B

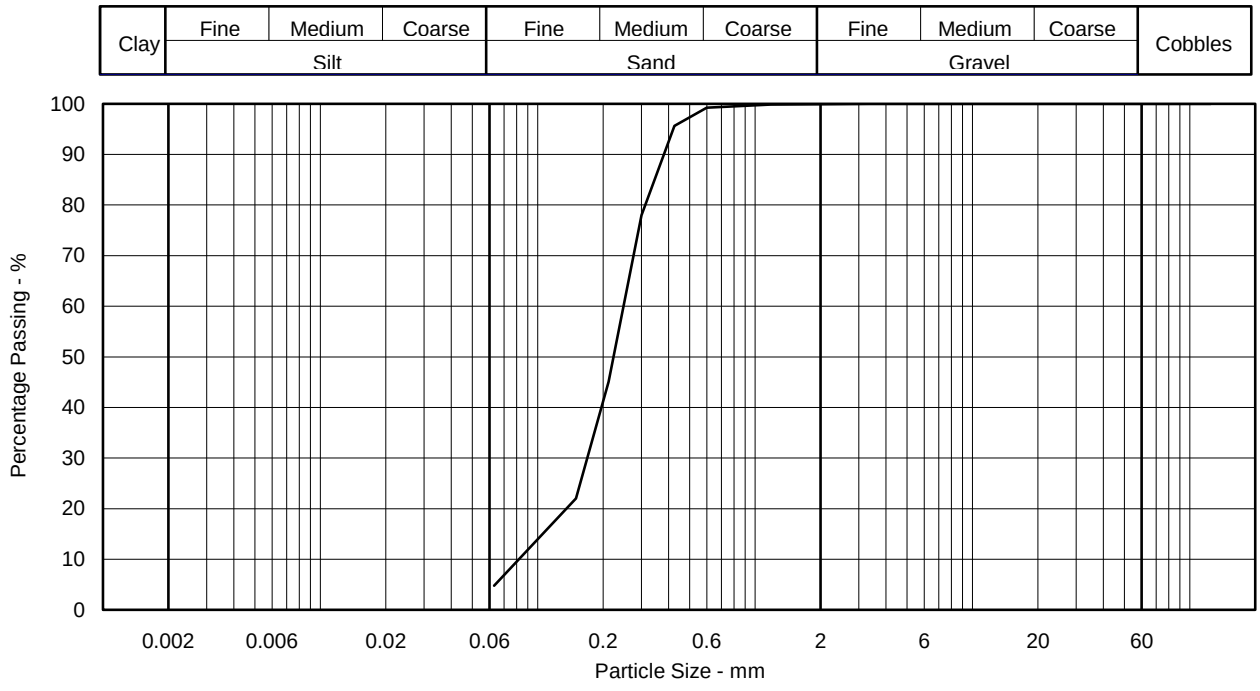
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	96
300 µm	78
212 µm	45
150 µm	22
63 µm	5

Non Engineering Description
Light greyish brown slightly silty SAND with rare shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.1
Sand	95.2
Silt & Clay	4.8

Particle Diameter - mm	
D100	3.4
D60	0.25
D10	0.082
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.0

Notes



Originator	Checked & Approved
EH	24/08/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB06
Sample Ref	65
Depth (m)	19.50-20.00
Sample Type	B

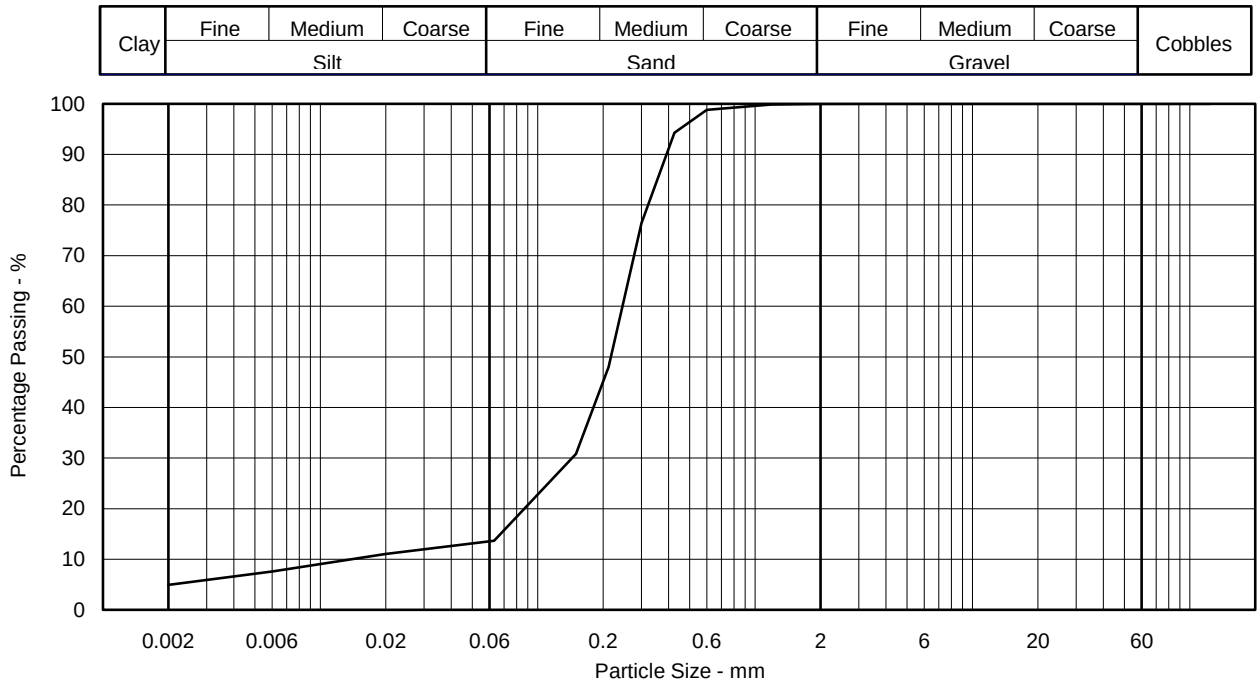
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	94
300 µm	76
212 µm	48
150 µm	31
63 µm	14
20 µm	11
6 µm	8
2 µm	5

Non Engineering Description
Light greyish brown slightly clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.0
Sand	86.5
Silt	8.6
Clay	4.9

Particle Diameter - mm	
D100	3.4
D60	0.25
D10	0.014
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	17.9

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
EH	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	70
		Depth (m)	21.50-22.00
		Sample Type	B

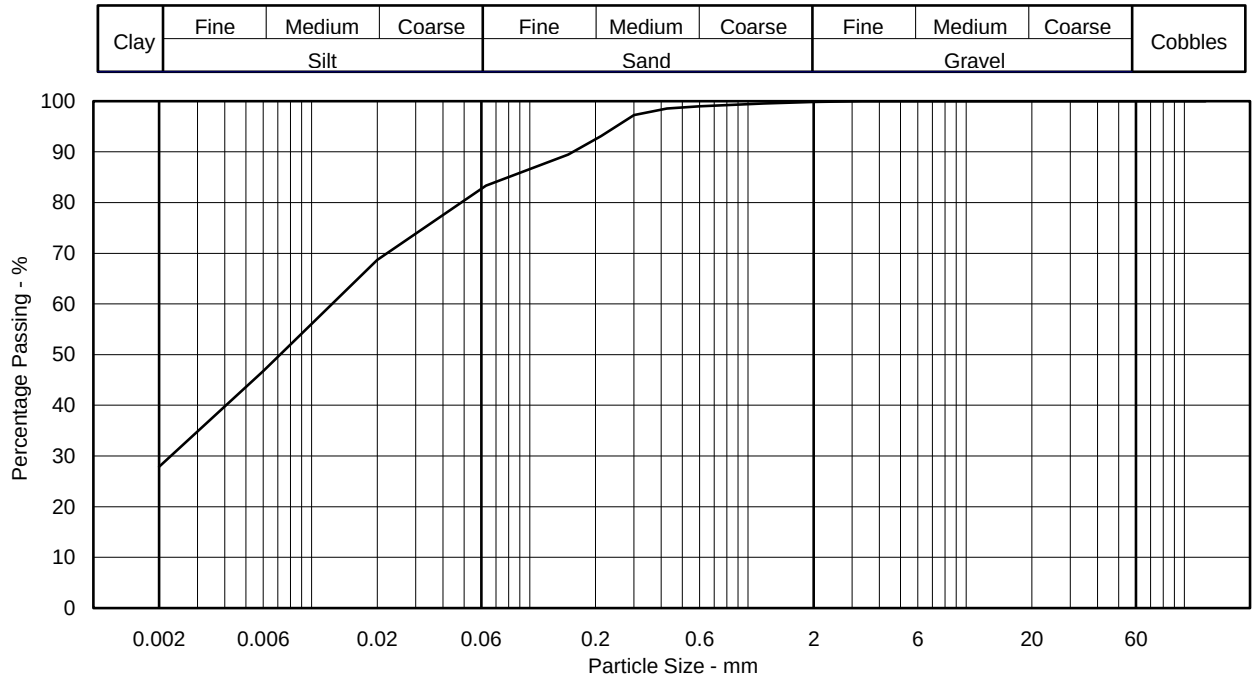
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	99
300 µm	97
212 µm	93
150 µm	89
63 µm	83
20 µm	69
6 µm	47
2 µm	28

Non Engineering Description
Light grey slighly sandy SILT/CLAY.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	17.5
Silt	54.5
Clay	27.9

Particle Diameter - mm	
D100	3.4
D60	0.012
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	77
		Depth (m)	23.60
		Sample Type	D

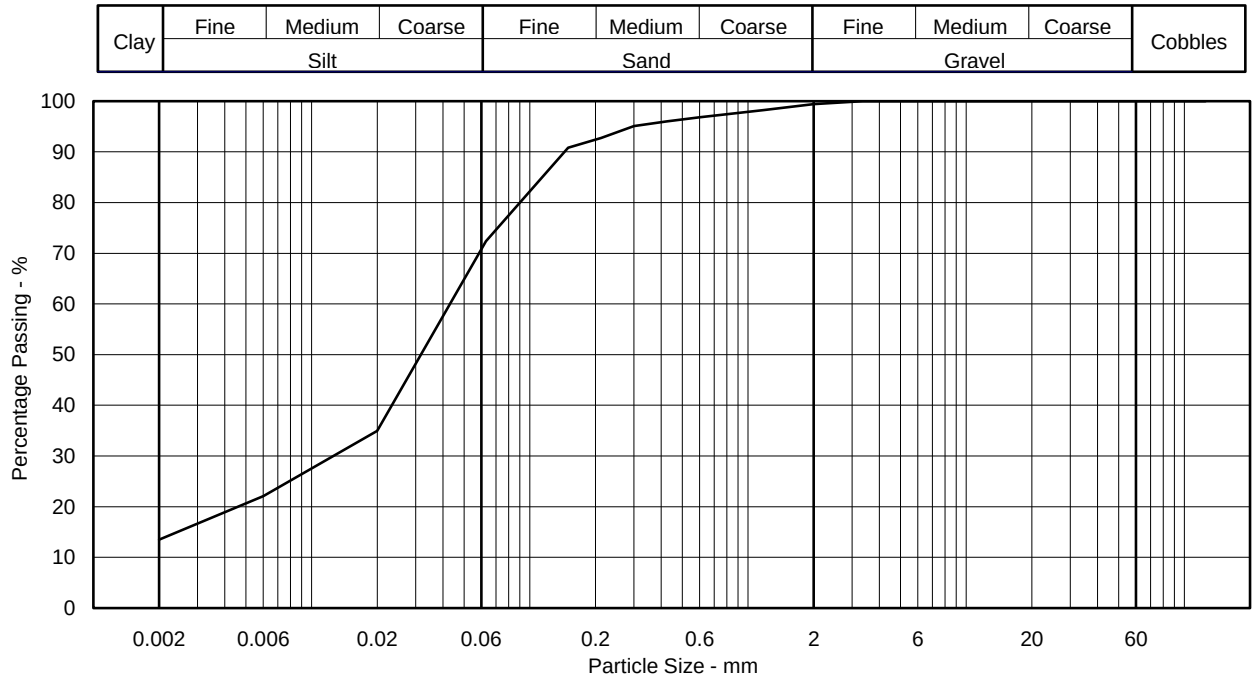
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	96
300 µm	95
212 µm	93
150 µm	91
63 µm	72
20 µm	35
6 µm	22
2 µm	13

Non Engineering Description
Grey slightly sandy SILT.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.6
Sand	29.6
Silt	56.3
Clay	13.5

Particle Diameter - mm	
D100	3.4
D60	0.043
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 04/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Norfolk County Council
Norfolk Partnership Laboratory

NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457
Email: civil.laboratory@norfolk.gov.uk

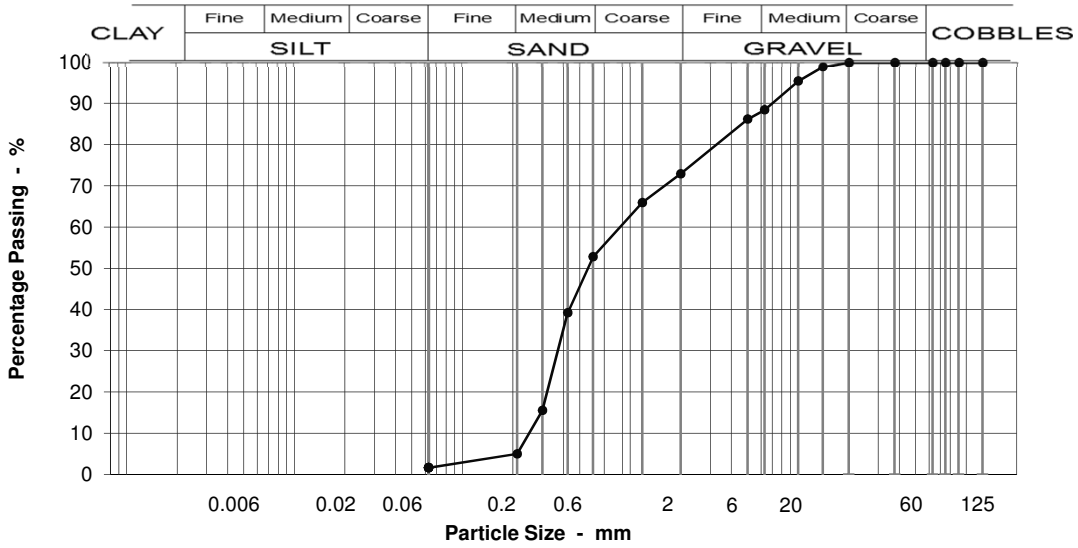
Community & Environmental Services
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2DH

Our reference No. NCCL2018071031-610
Our Project No PZ1522D1
Your Sample Ref 2
Your Project or Order No. PZ1522
Date Tested
Date Report Issued 3-Aug-18

Particle Size Distribution to BS 1377 : Part 2 :1990 Section 9

Scheme: Gt Yarmouth 3rd River Crossing
Location and orientation within sample not applicable

Location: MB07 @ 0m Specimen: 1
Bulk disturbed sample



Sieving

Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	99
10	95
6.3	88
5	86
2	73
1.18	66
0.600	53
0.425	39
0.300	16
0.212	5
0.063	2

Specification for Highway Works Classification

Table 6/2

This material complies with the following material classes 1B, 6E/6R, 6M.

Moisture content % 16

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	12
Fine GRAVEL	15
Coarse SAND	20
Medium SAND	48
Fine SAND	3
Silt & Clay	2

Grading Analysis	
D100	14
D60	0.92
D10	0.25
Uniformity Coefficient	4

Description
Greyish brown very gravelly medium to coarse SAND. Gravel is fine and medium angular to subrounded flint, concrete and occasional shell fragments.

Test Code = 610

UKAS TESTING 0920

Simon Holden (Project Technician) [redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	3
		Depth (m)	0.50-1.00
		Sample Type	B

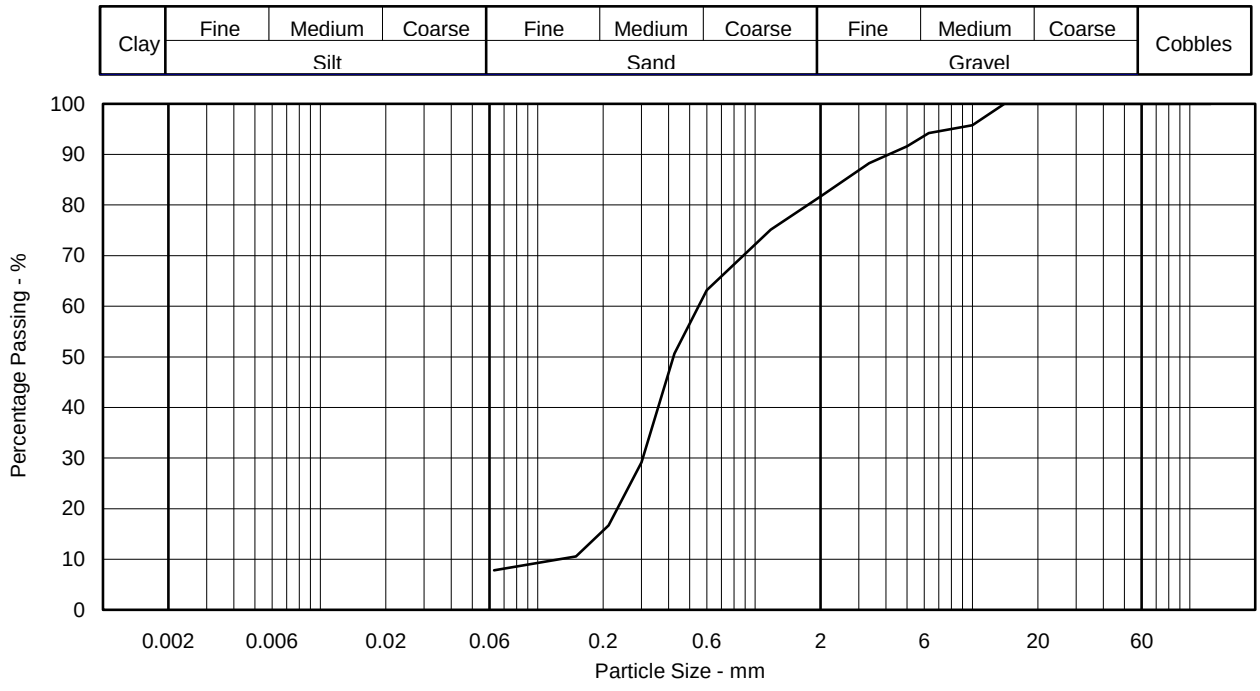
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	96
6.30 mm	94
5.00 mm	92
3.35 mm	88
2.00 mm	82
1.18 mm	75
600 µm	63
425 µm	51
300 µm	29
212 µm	17
150 µm	11
63 µm	8

Non Engineering Description
Brown silty gravelly SAND. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	18.3
Sand	73.9
Silt & Clay	7.8

Particle Diameter - mm	
D100	14
D60	0.55
D10	0.13
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	4.2

Notes



Originator	Checked & Approved
PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	6
		Depth (m)	1.30
		Sample Type	D

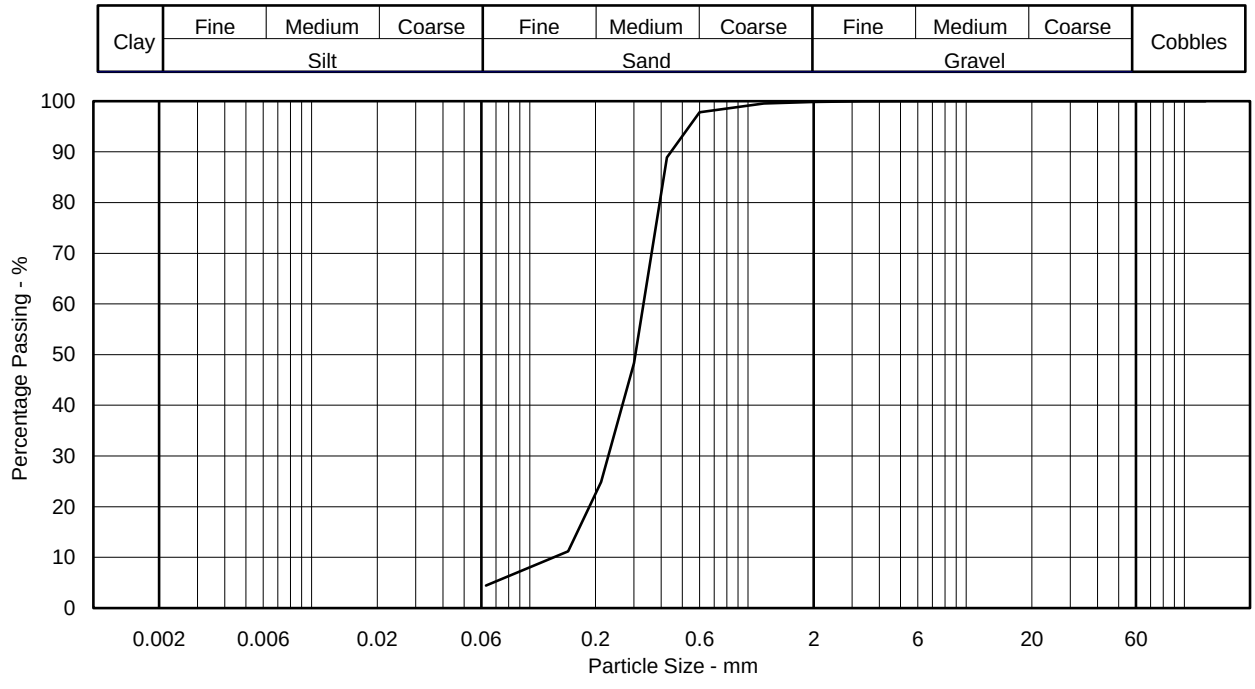
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	98
425 µm	89
300 µm	48
212 µm	25
150 µm	11
63 µm	4

Non Engineering Description
Orange brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	95.4
Silt & Clay	4.5

Particle Diameter - mm	
D100	5.0
D60	0.33
D10	0.13
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	10
		Depth (m)	2.30
		Sample Type	D

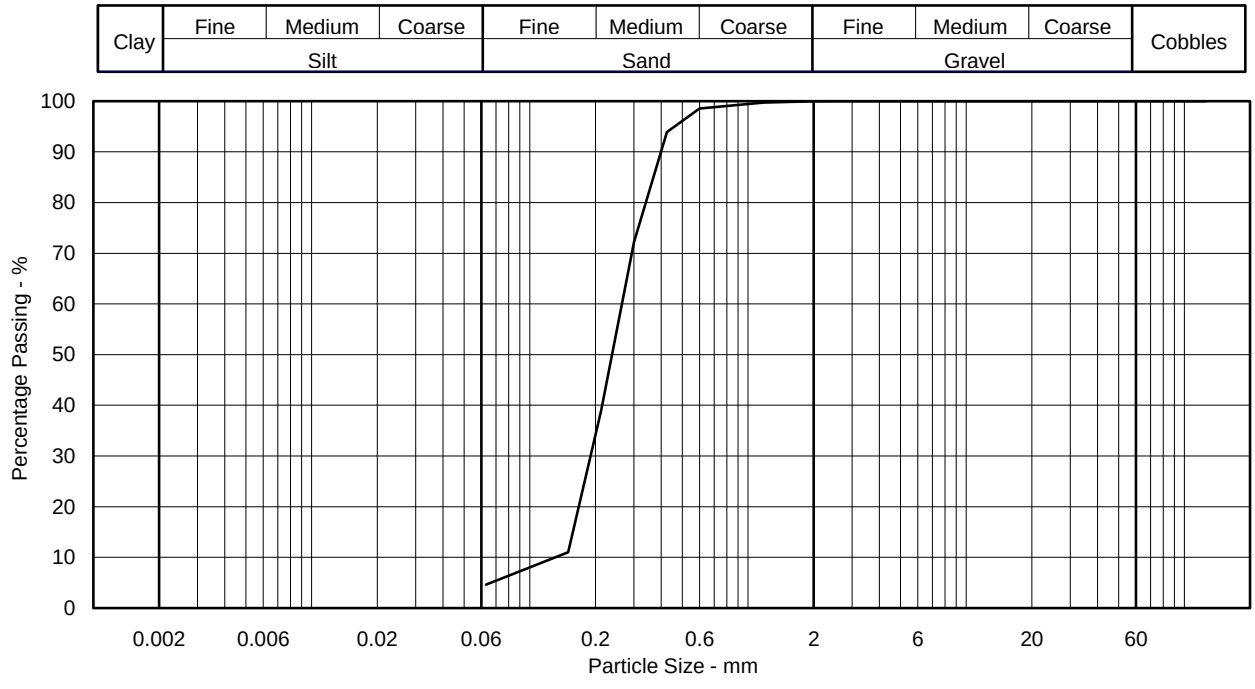
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	94
300 µm	72
212 µm	39
150 µm	11
63 µm	5

Non Engineering Description
Orange brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.0
Sand	95.3
Silt & Clay	4.6

Particle Diameter - mm	
D100	3.4
D60	0.26
D10	0.13
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.0

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Version 058 - 10/06/2013
1260 - PSD MB07 03.40 15 B - C6474-2-338568.xls : Sample ID 338568

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	15
		Depth (m)	3.40-4.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	98
3.35 mm	98
2.00 mm	97
1.18 mm	96
600 µm	95
425 µm	93
300 µm	83
212 µm	52
150 µm	18
63 µm	10

Non Engineering Description

Orange brown slightly gravelly slightly clayey silty SAND. Gravel is fine to medium.

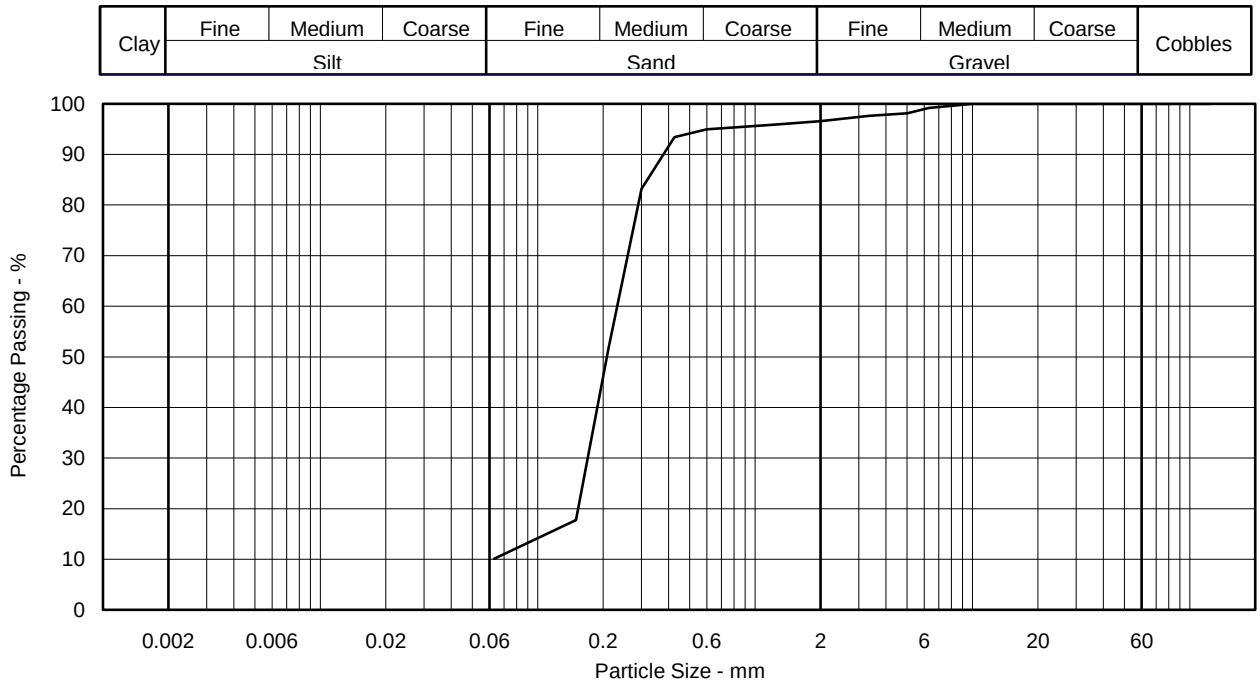
Sample Proportions - %

Cobbles	0.0
Gravel	3.4
Sand	86.5
Silt & Clay	10.1

Particle Diameter - mm

D100	10
D60	0.23
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes



Originator	Checked & Approved
PD	[redacted] 06/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 06/09/2018 14:49:10

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	22
		Depth (m)	5.30
		Sample Type	D

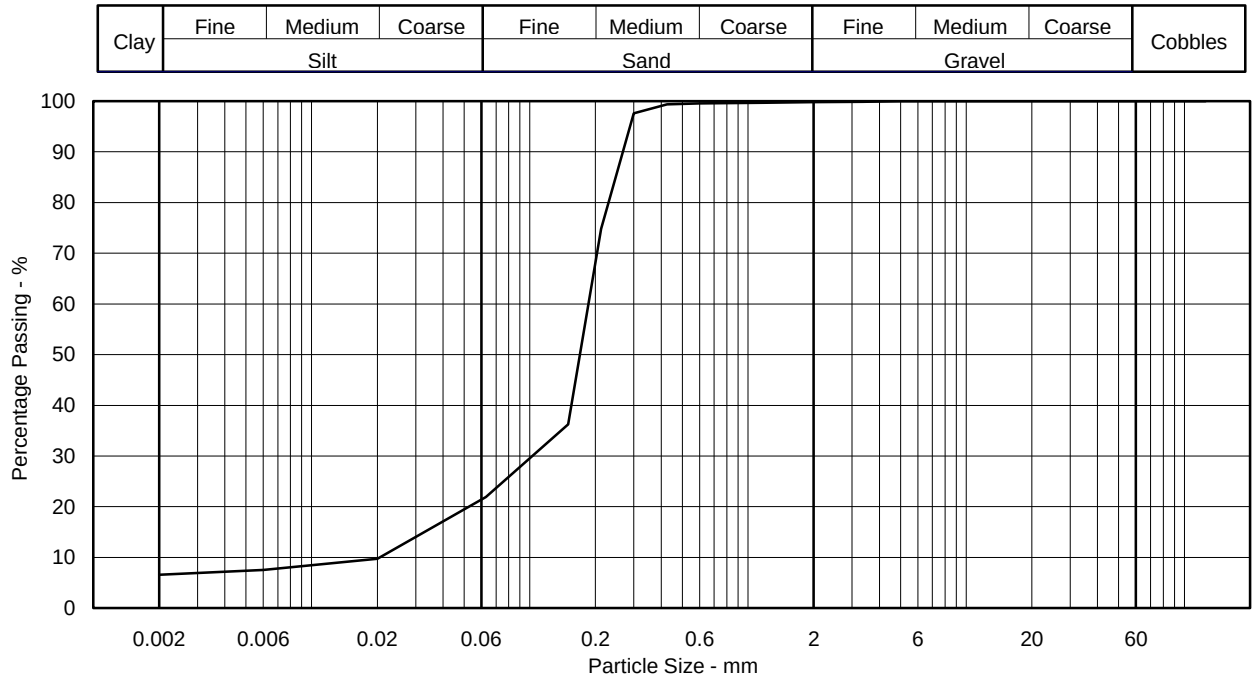
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	99
300 µm	98
212 µm	75
150 µm	36
63 µm	22
20 µm	10
6 µm	8
2 µm	7

Non Engineering Description
Light brown clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	78.7
Silt	14.5
Clay	6.6

Particle Diameter - mm	
D100	5.0
D60	0.19
D10	0.020
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	9.5

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 11/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	26
		Depth (m)	6.50-7.00
		Sample Type	B

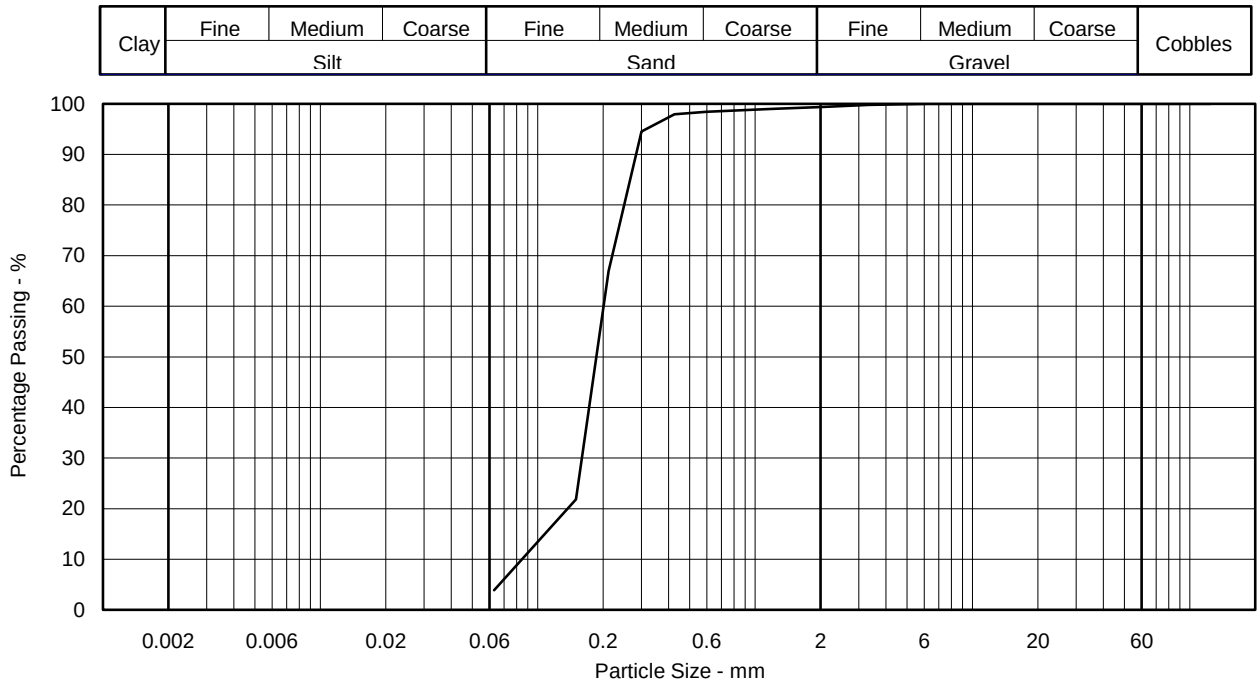
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	98
425 µm	98
300 µm	95
212 µm	67
150 µm	22
63 µm	4

Non Engineering Description
Light brown slightly silty SAND with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.7
Sand	95.5
Silt & Clay	3.9

Particle Diameter - mm	
D100	6.3
D60	0.20
D10	0.085
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.4

Notes



Originator	Checked & Approved
PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	32
		Depth (m)	8.50-9.00
		Sample Type	B

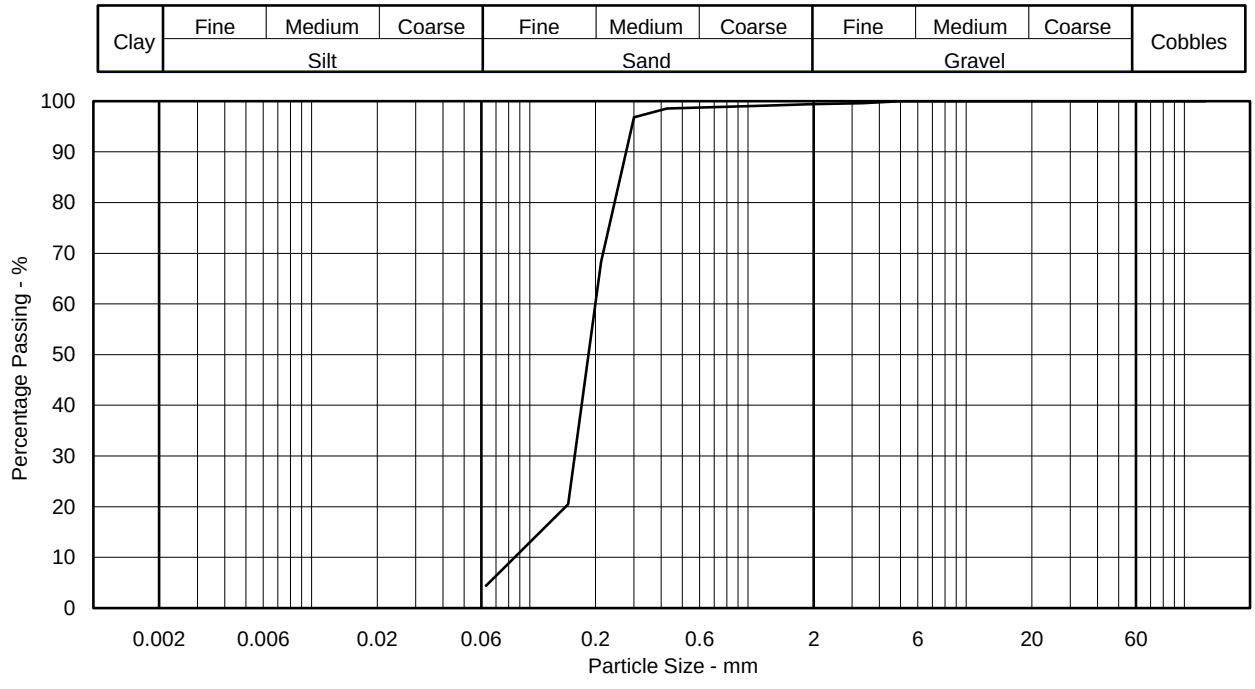
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	99
425 µm	99
300 µm	97
212 µm	68
150 µm	20
63 µm	4

Non Engineering Description
Brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.6
Sand	95.0
Silt & Clay	4.4

Particle Diameter - mm	
D100	5.0
D60	0.20
D10	0.085
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.4

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	39
		Depth (m)	10.50-11.00
		Sample Type	B

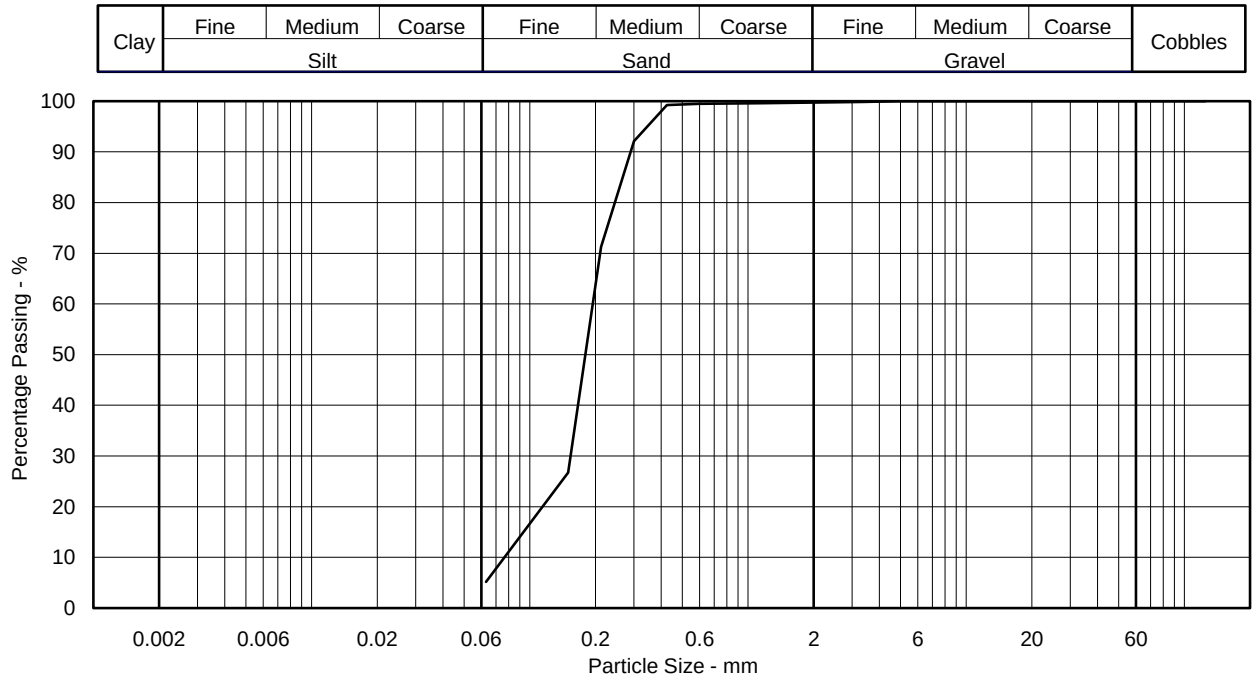
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	99
300 µm	92
212 µm	71
150 µm	27
63 µm	5

Non Engineering Description
Light orange brown silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	94.6
Silt & Clay	5.2

Particle Diameter - mm	
D100	5.0
D60	0.19
D10	0.077
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	41
		Depth (m)	11.30
		Sample Type	D

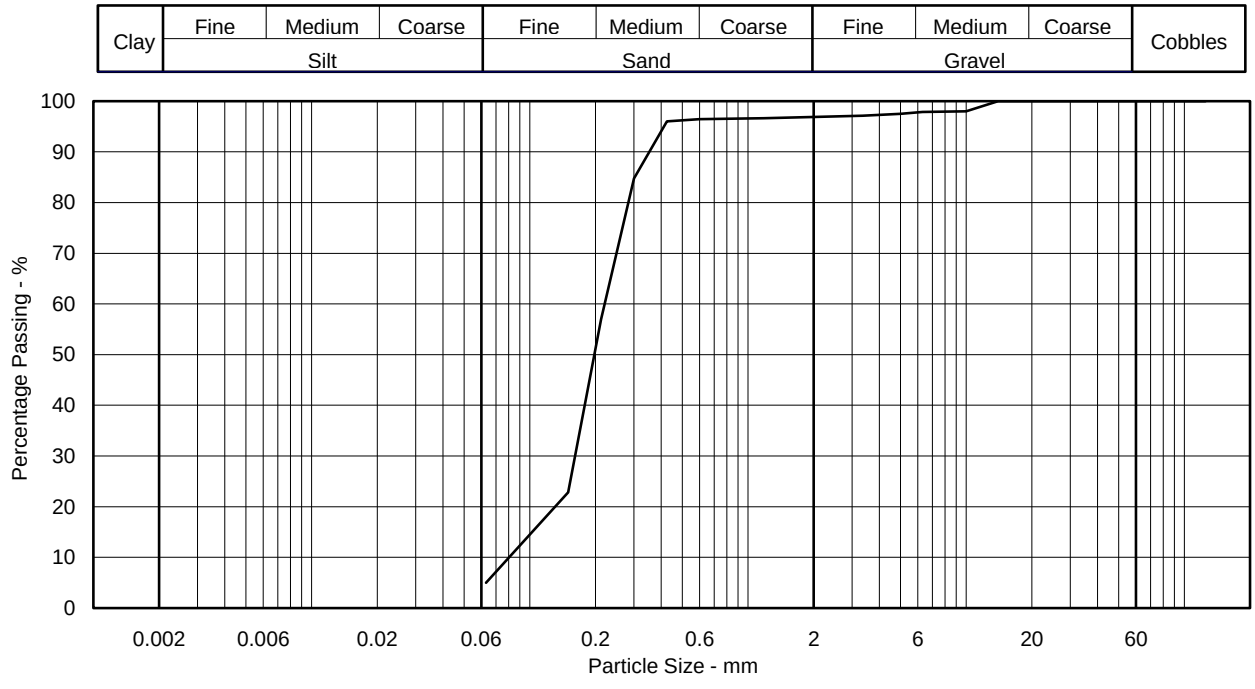
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	98
6.30 mm	98
5.00 mm	97
3.35 mm	97
2.00 mm	97
1.18 mm	97
600 µm	96
425 µm	96
300 µm	85
212 µm	57
150 µm	23
63 µm	5

Non Engineering Description
Brown slightly gravelly silty SAND. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	3.1
Sand	91.9
Silt & Clay	5.0

Particle Diameter - mm	
D100	14
D60	0.22
D10	0.080
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.8

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	42
		Depth (m)	11.50-12.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	98
425 µm	95
300 µm	84
212 µm	61
150 µm	24
63 µm	3

Non Engineering Description

Light brown slightly silty SAND with organic odour and rare fine gravel.

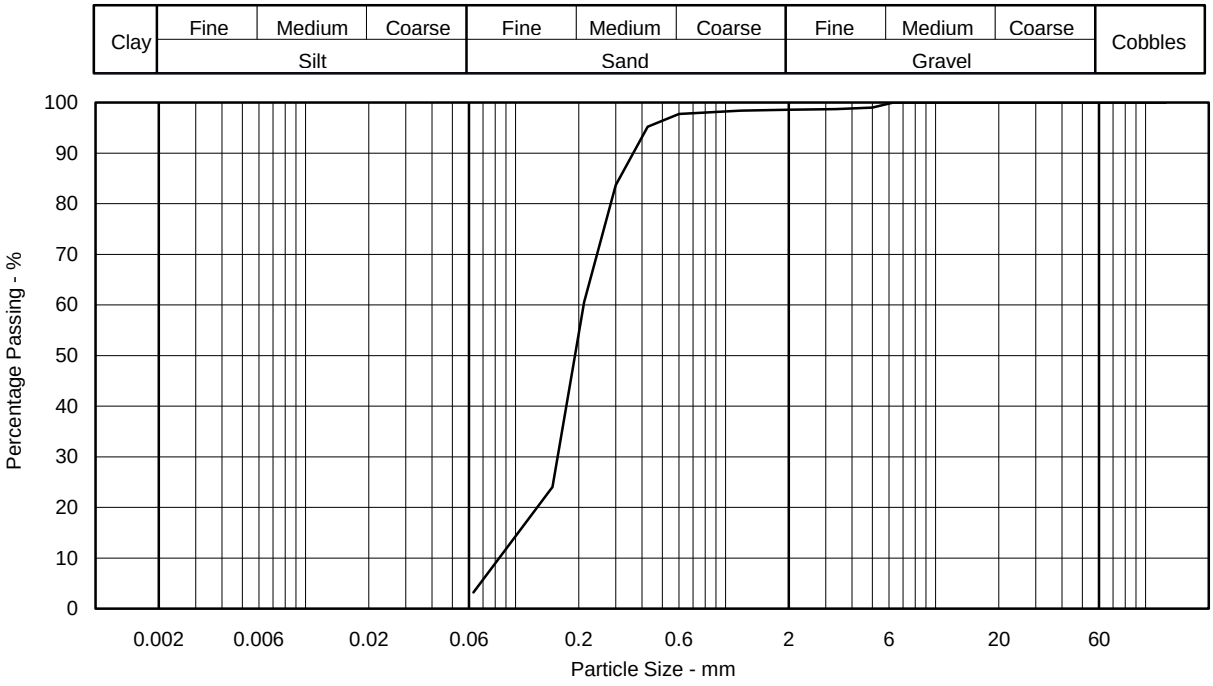
Sample Proportions - %

Cobbles	0.0
Gravel	1.4
Sand	95.4
Silt & Clay	3.2

Particle Diameter - mm

D100	6.3
D60	0.21
D10	0.084
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
PD	[redacted] 10/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	48
		Depth (m)	13.50-14.00
		Sample Type	B

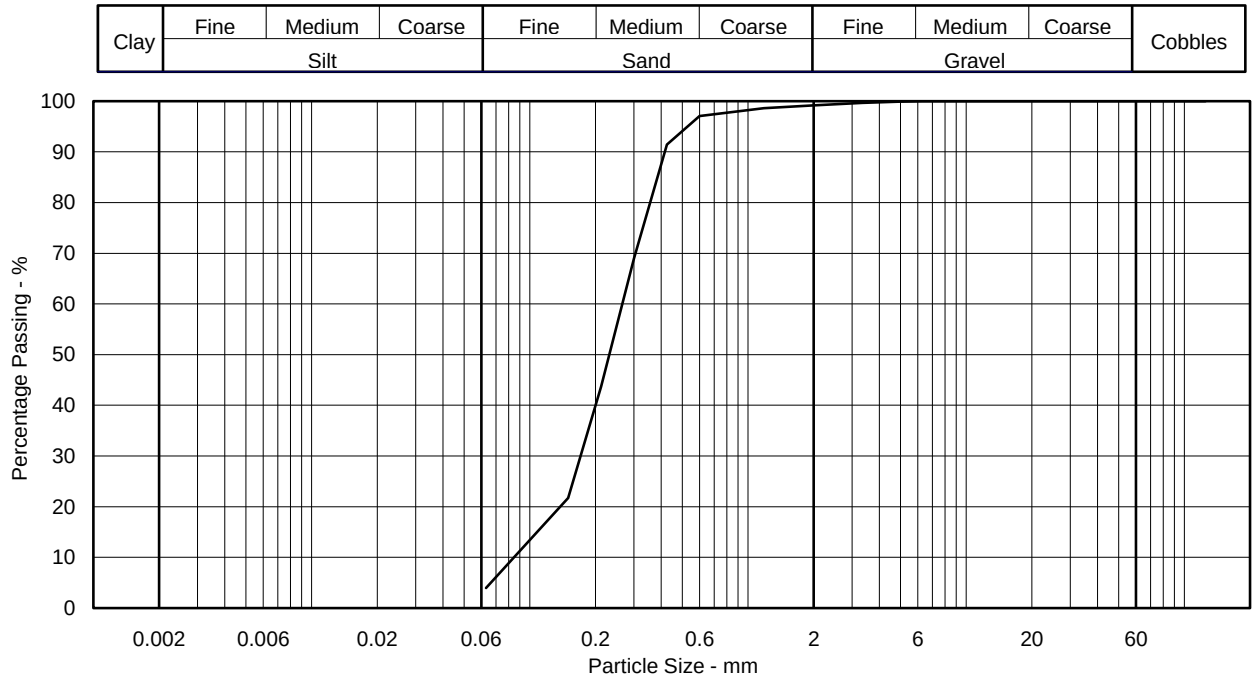
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	97
425 µm	91
300 µm	69
212 µm	44
150 µm	22
63 µm	4

Non Engineering Description
Light brown slightly silty SAND with rare fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	95.2
Silt & Clay	4.0

Particle Diameter - mm	
D100	6.3
D60	0.27
D10	0.085
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.2

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	54
		Depth (m)	15.50-16.00
		Sample Type	B

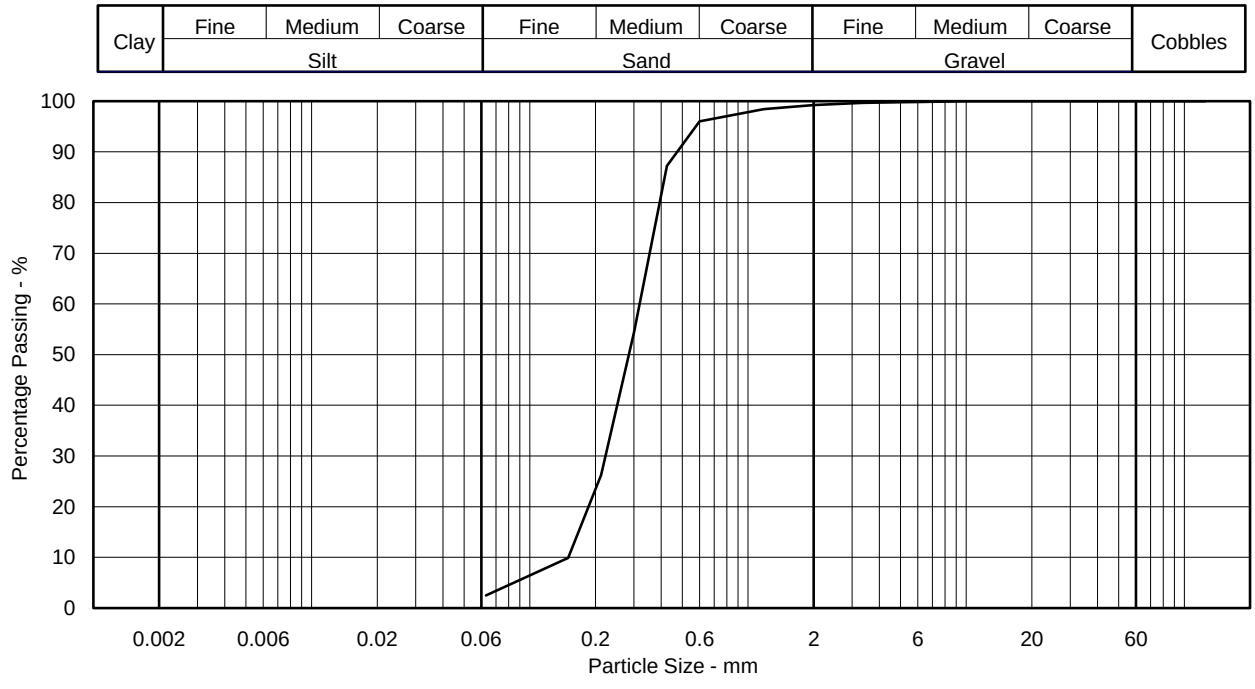
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	96
425 µm	87
300 µm	54
212 µm	26
150 µm	10
63 µm	2

Non Engineering Description
Brown slightly silty SAND with rare fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	96.7
Silt & Clay	2.5

Particle Diameter - mm	
D100	10
D60	0.32
D10	0.15
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.1

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	63
		Depth (m)	18.50-19.00
		Sample Type	B

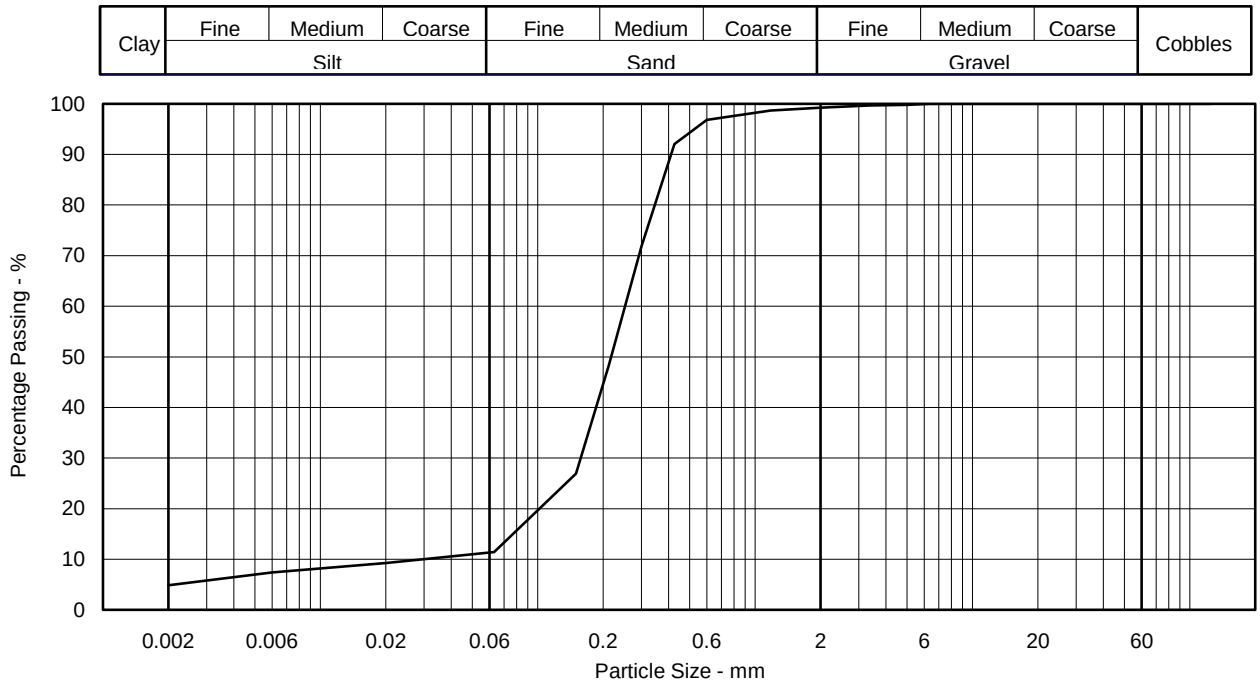
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	97
425 µm	92
300 µm	72
212 µm	48
150 µm	27
63 µm	11
20 µm	9
6 µm	7
2 µm	5

Non Engineering Description
Brown slightly clayey silty SAND with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	88.0
Silt	6.4
Clay	4.9

Particle Diameter - mm	
D100	6.3
D60	0.25
D10	0.030
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	8.3

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
PD	[redacted] 11/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	66
		Depth (m)	19.50-20.00
		Sample Type	B

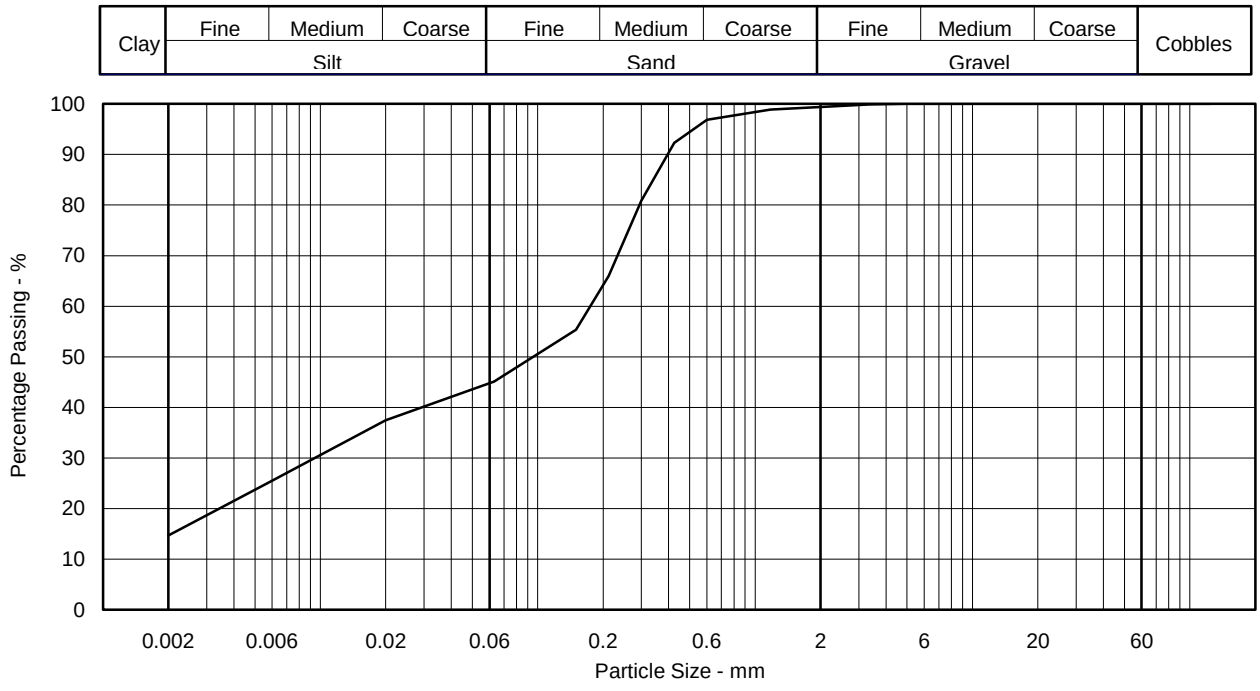
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	97
425 µm	92
300 µm	81
212 µm	66
150 µm	55
63 µm	45
20 µm	37
6 µm	26
2 µm	15

Non Engineering Description
Dark grey sandy CLAY.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.6
Sand	54.8
Silt	29.9
Clay	14.7

Particle Diameter - mm	
D100	5.0
D60	0.17
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	69
		Depth (m)	20.60
		Sample Type	D

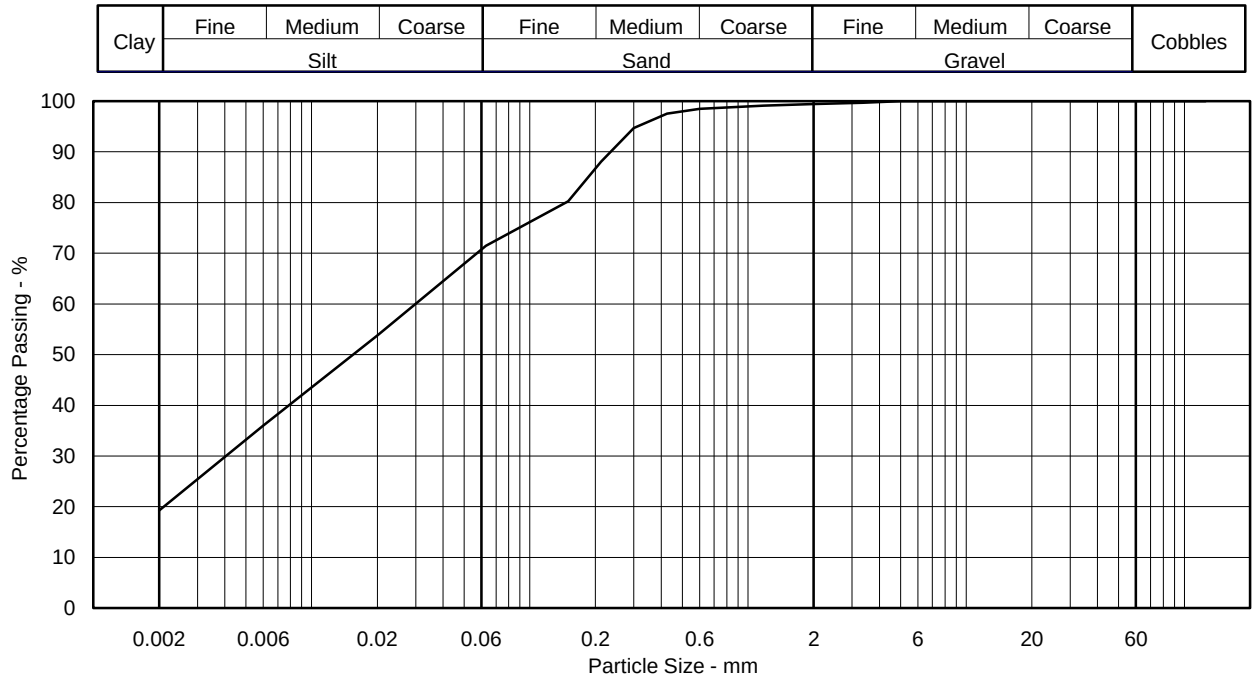
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	99
425 µm	98
300 µm	95
212 µm	88
150 µm	80
63 µm	71
20 µm	54
6 µm	36
2 µm	19

Non Engineering Description
Grey slightly sandy SILT/CLAY.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.6
Sand	29.2
Silt	50.9
Clay	19.3

Particle Diameter - mm	
D100	5.0
D60	0.030
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 06/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	80
		Depth (m)	24.50-25.00
		Sample Type	B

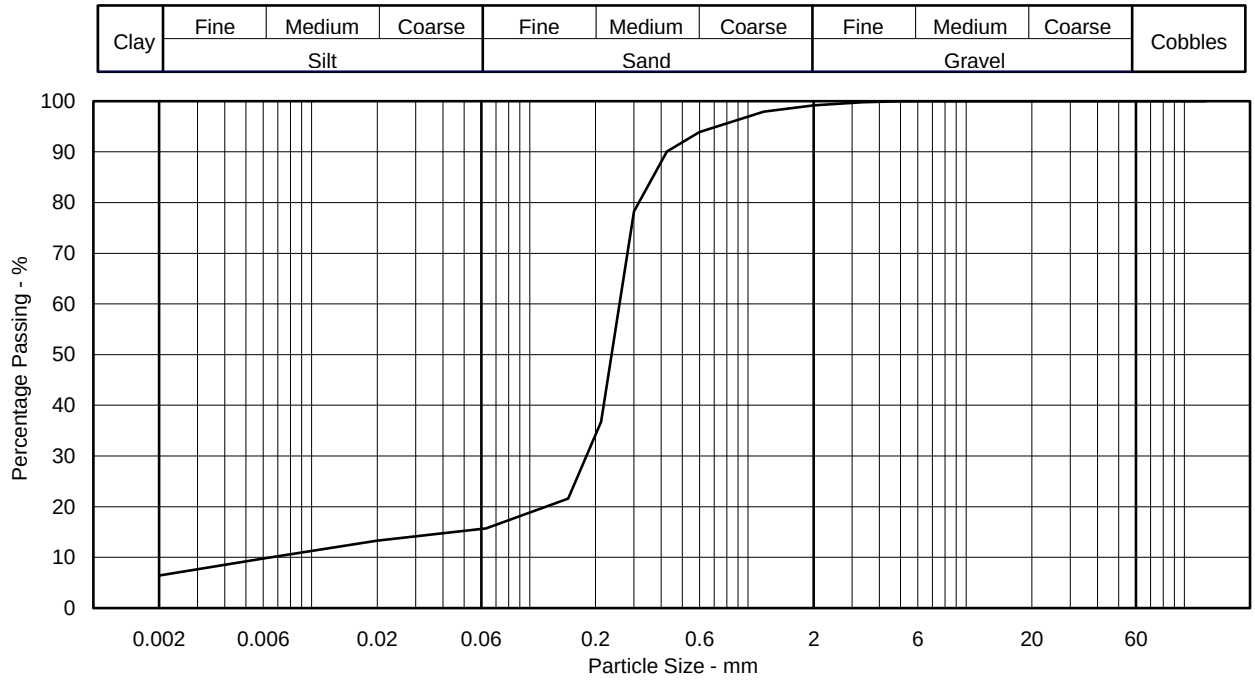
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	94
425 µm	90
300 µm	78
212 µm	37
150 µm	22
63 µm	16
20 µm	13
6 µm	10
2 µm	6

Non Engineering Description
Dark grey clayey silty SAND with rare shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	83.6
Silt	9.1
Clay	6.4

Particle Diameter - mm	
D100	6.3
D60	0.26
D10	0.0065
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	40.0

Notes
Sedimentation sample not pre-treated



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PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	82
		Depth (m)	25.50-26.00
		Sample Type	B

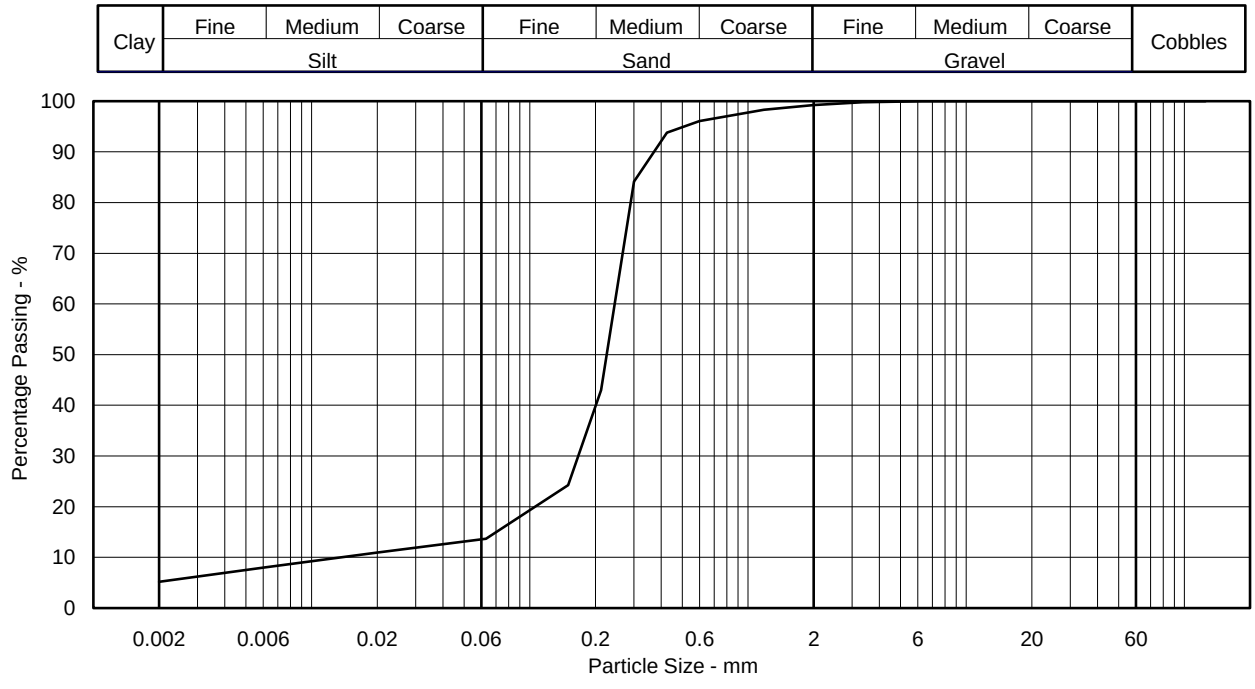
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	96
425 µm	94
300 µm	84
212 µm	43
150 µm	24
63 µm	14
20 µm	11
6 µm	8
2 µm	5

Non Engineering Description
Grey mottled light brown clayey silty SAND with rare fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	85.7
Silt	8.3
Clay	5.2

Particle Diameter - mm	
D100	6.3
D60	0.24
D10	0.014
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	17.1

Notes
Sedimentation sample not pre-treated



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LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	87
		Depth (m)	27.50-28.00
		Sample Type	B

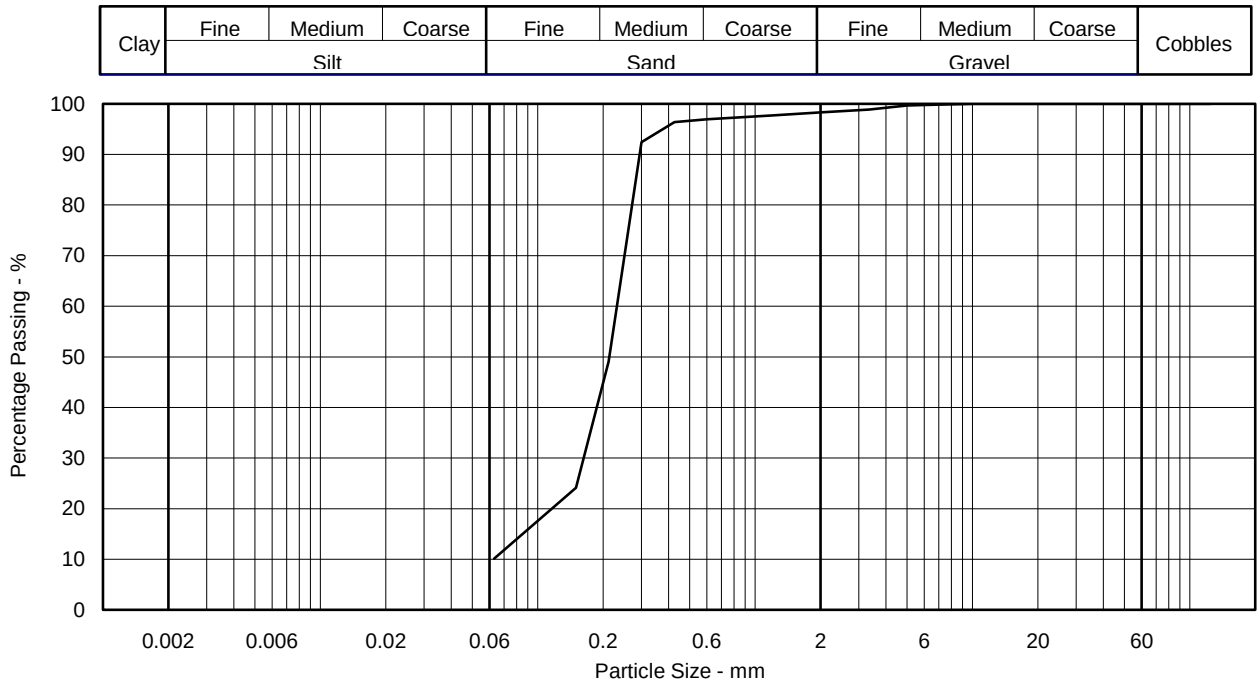
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	98
1.18 mm	98
600 µm	97
425 µm	96
300 µm	92
212 µm	49
150 µm	24
63 µm	10

Non Engineering Description
Dark grey slightly clayey slightly gravelly silty SAND. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.7
Sand	88.2
Silt & Clay	10.1

Particle Diameter - mm	
D100	10
D60	0.23
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes



Originator	Checked & Approved
MAB	[redacted] 06/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	90
		Depth (m)	28.50-29.00
		Sample Type	B

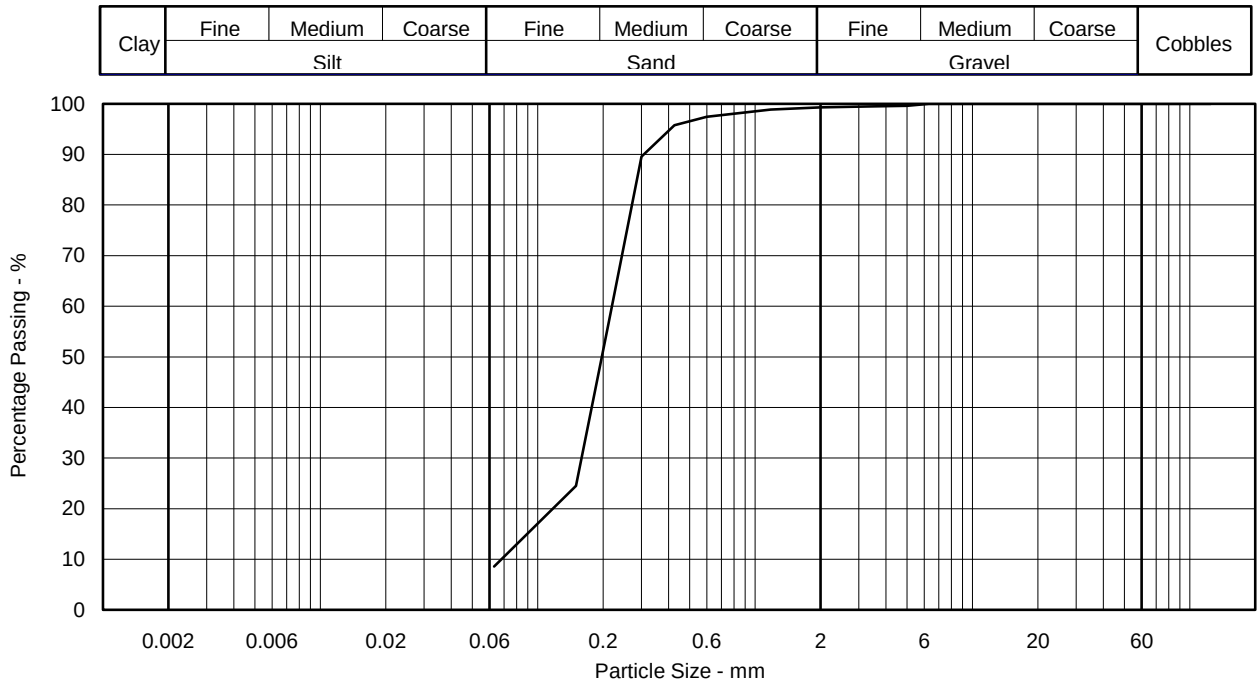
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	97
425 µm	96
300 µm	90
212 µm	57
150 µm	25
63 µm	9

Non Engineering Description
Light grey silty SAND with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.7
Sand	90.7
Silt & Clay	8.6

Particle Diameter - mm	
D100	6.3
D60	0.22
D10	0.068
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.2

Notes



Originator	Checked & Approved
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PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 10:36:02

Version 058 - 10/06/2013
1260 - PSD MB07 30.50 95 B - C6474-2-338586.xls : Sample ID 338586

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	95
		Depth (m)	30.50-31.00
		Sample Type	B

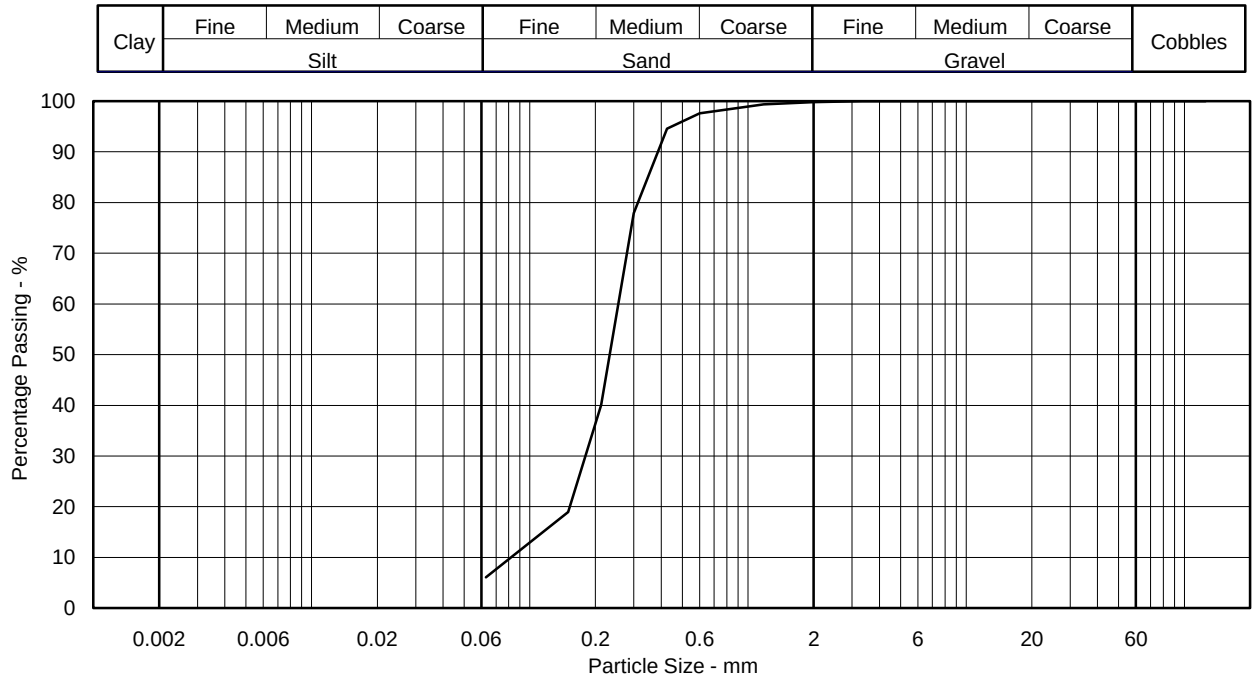
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	98
425 µm	95
300 µm	78
212 µm	40
150 µm	19
63 µm	6

Non Engineering Description
Light brown silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	93.7
Silt & Clay	6.1

Particle Diameter - mm	
D100	3.4
D60	0.25
D10	0.082
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.0

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 10:37:46

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	102
		Depth (m)	33.50-34.00
		Sample Type	B

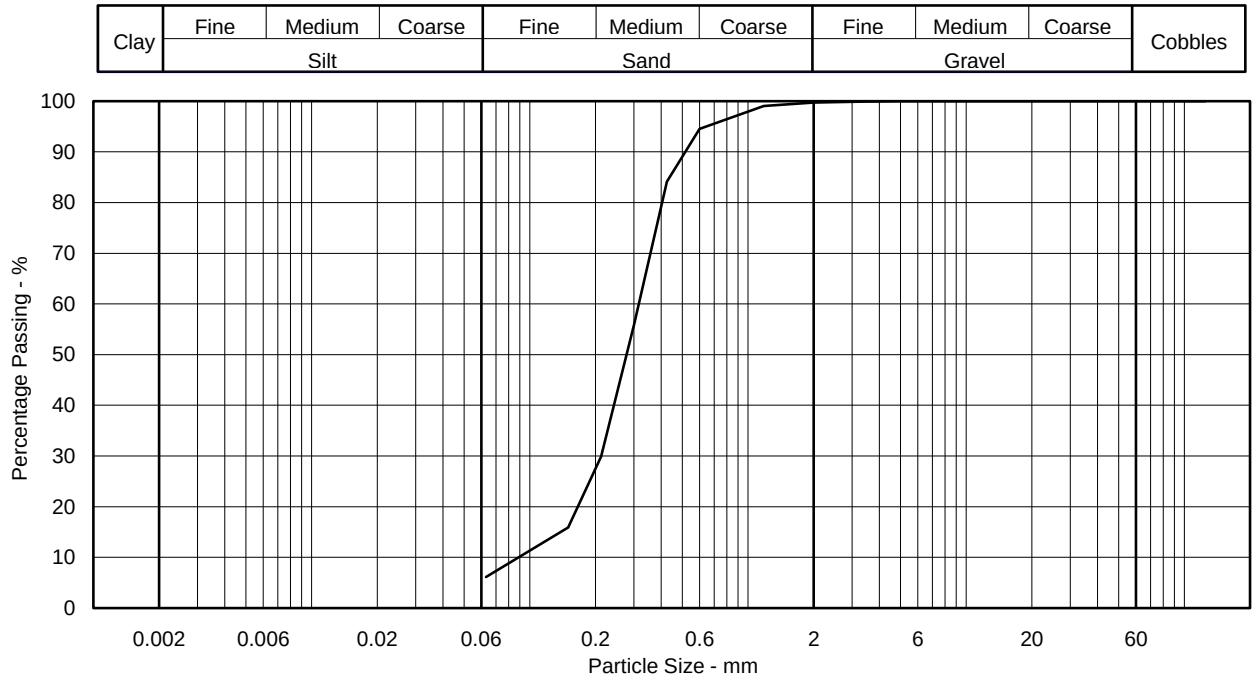
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	95
425 µm	84
300 µm	56
212 µm	30
150 µm	16
63 µm	6

Non Engineering Description
Dark brown slightly clayey slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	93.6
Silt & Clay	6.1

Particle Diameter - mm	
D100	5.0
D60	0.32
D10	0.089
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.6

Notes



Originator	Checked & Approved
LA	[redacted] 2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	105
		Depth (m)	34.50-35.00
		Sample Type	B

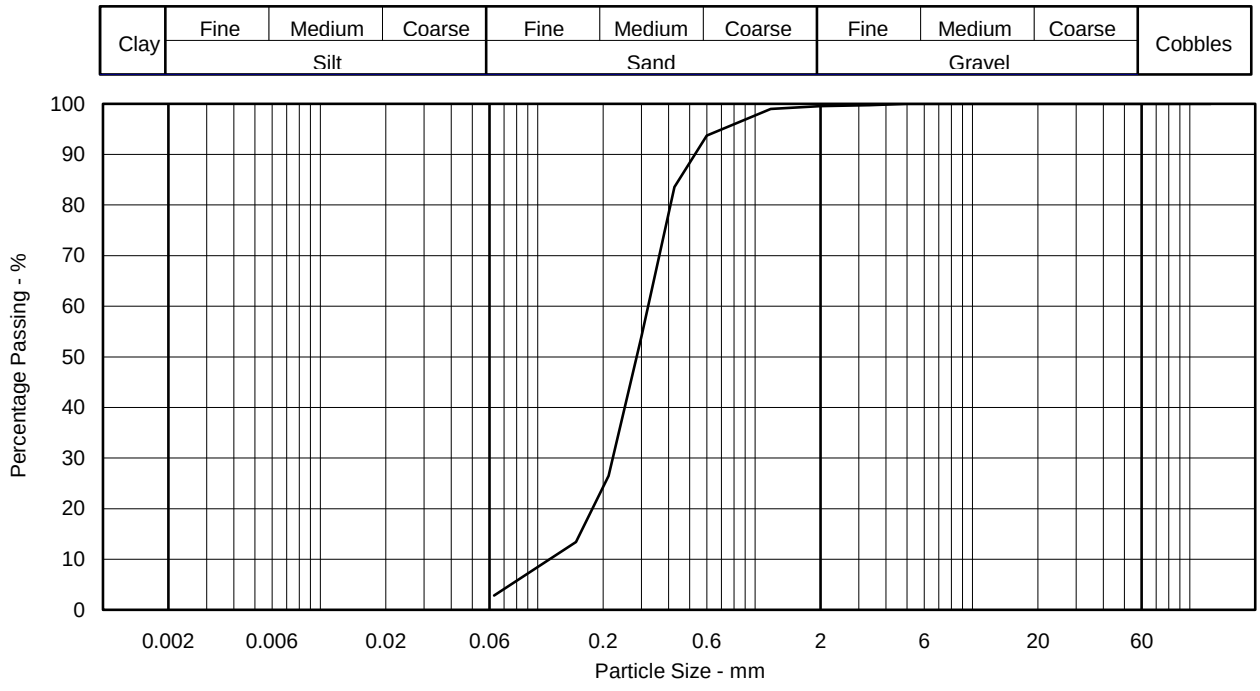
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	94
425 µm	84
300 µm	54
212 µm	26
150 µm	13
63 µm	3

Non Engineering Description
Light brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.5
Sand	96.7
Silt & Clay	2.8

Particle Diameter - mm	
D100	5.0
D60	0.32
D10	0.11
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.9

Notes



Originator	Checked & Approved
PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	110
		Depth (m)	36.50-37.00
		Sample Type	B

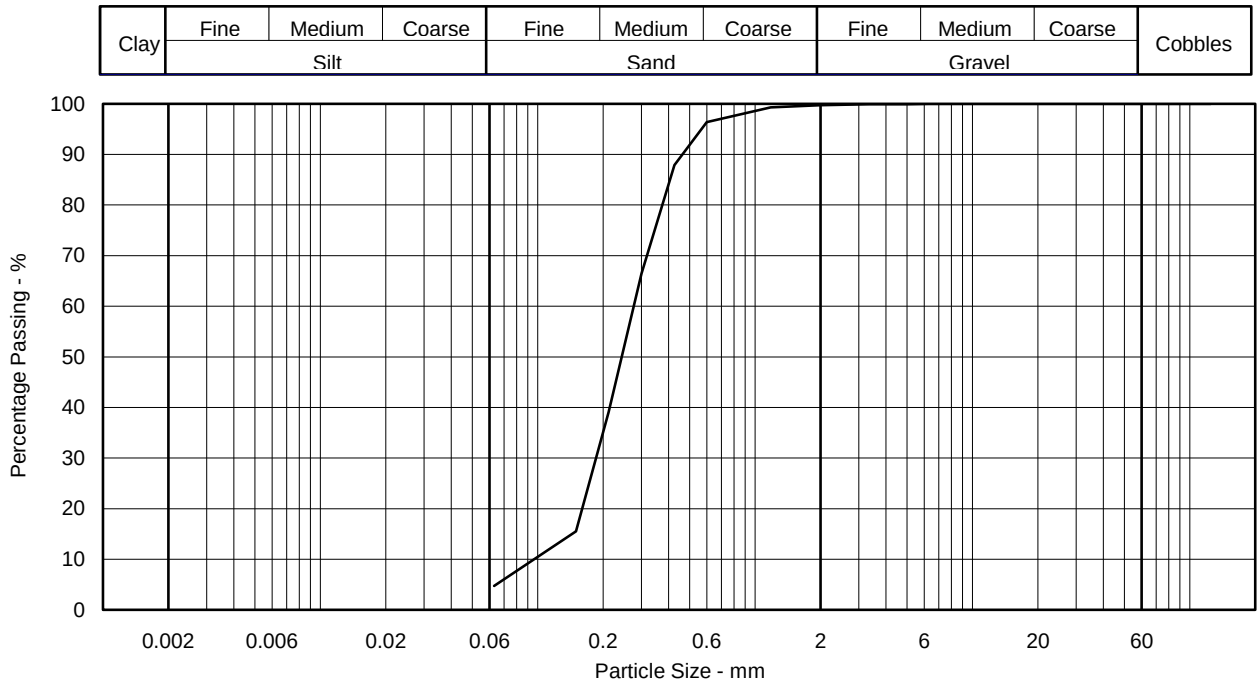
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	96
425 µm	88
300 µm	66
212 µm	39
150 µm	16
63 µm	5

Non Engineering Description
Grey mottled brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	95.0
Silt & Clay	4.7

Particle Diameter - mm	
D100	6.3
D60	0.28
D10	0.096
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.9

Notes



Originator	Checked & Approved
PD	[redacted]/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	112
		Depth (m)	37.50-38.00
		Sample Type	B

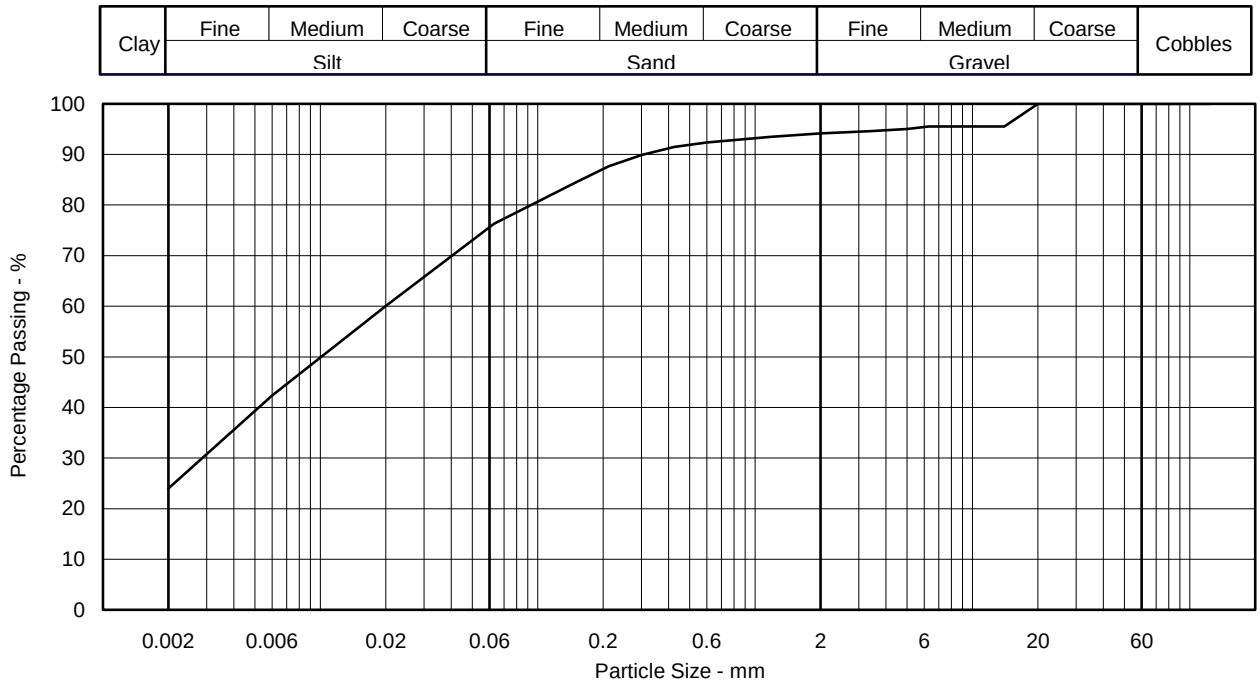
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	96
10.0 mm	96
6.30 mm	96
5.00 mm	95
3.35 mm	95
2.00 mm	94
1.18 mm	93
600 µm	92
425 µm	92
300 µm	90
212 µm	88
150 µm	85
63 µm	76
20 µm	60
6 µm	42
2 µm	24

Non Engineering Description
Olive mottled dark brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	5.8
Sand	19.0
Silt	51.2
Clay	24.0

Particle Diameter - mm	
D100	20
D60	0.020
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
PD	[redacted]/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Version 058 - 10/06/2013
1260 - PSD MB07 38.60 114 D - C6474-2-338591.xls : Sample ID 338591

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	114
		Depth (m)	38.60
		Sample Type	D

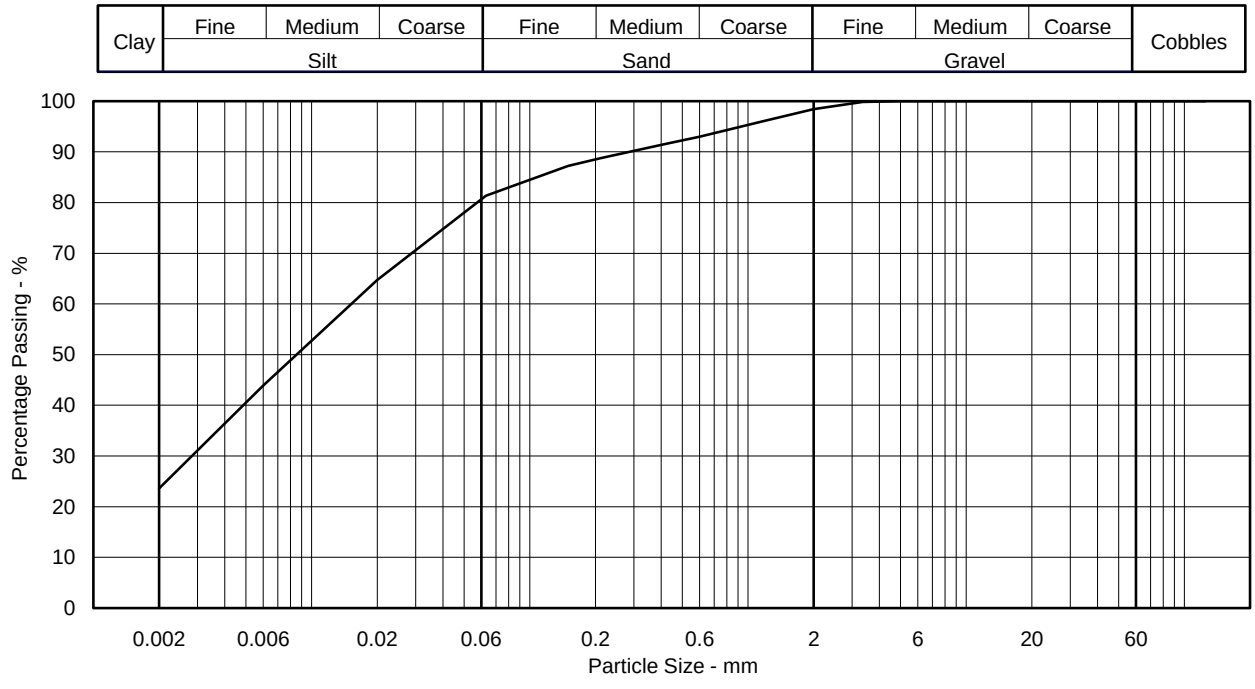
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	98
1.18 mm	96
600 µm	93
425 µm	92
300 µm	90
212 µm	89
150 µm	87
63 µm	81
20 µm	65
6 µm	44
2 µm	24

Non Engineering Description
Greyish brown slightly gravelly slightly sandy CLAY. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.6
Sand	18.3
Silt	56.6
Clay	23.6

Particle Diameter - mm	
D100	5.0
D60	0.015
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 10:47:49

Norfolk County Council
Norfolk Partnership Laboratory

NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457
Email: civil.laboratory@norfolk.gov.uk

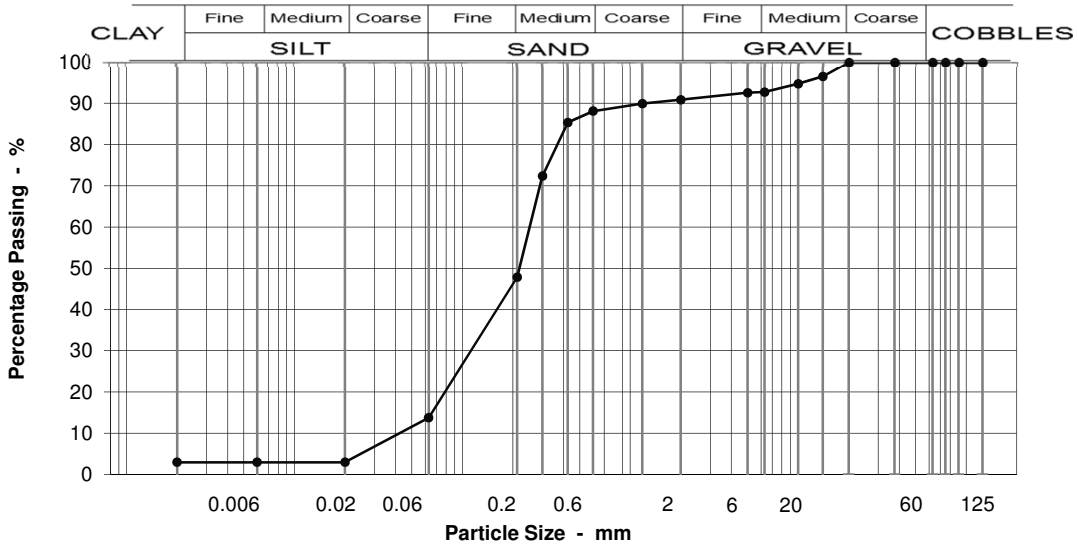
Community & Environmental Services
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2DH

Our reference No. NCCL2018071032-610
Our Project No PZ1522D1
Your Sample Ref 2
Your Project or Order No. PZ1522
Date Tested
Date Report Issued 3-Aug-18

Particle Size Distribution to BS 1377 : Part 2 :1990 Section 9

Scheme: Gt Yarmouth 3rd River Crossing
Location and orientation within sample not applicable

Location: MB08 @ 0m Specimen: 1
Bulk disturbed sample



Sieving

Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	97
10	95
6.3	93
5	93
2	91
1.18	90
0.600	88
0.425	85
0.300	72
0.212	48
0.063	14
0.020	3
0.006	3
0.002	3

Specification for Highway Works Classification

Table 6/2

This material complies with the following material classes 1B, 6E/6R.

Moisture content % 47

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	7
Fine GRAVEL	2
Coarse SAND	3
Medium SAND	40
Fine SAND	34
Silt & Clay	14

Grading Analysis	
D100	14
D60	0.26
D10	0.09
Uniformity Coefficient	3

Description
Grey and brown slightly gravelly silty fine and medium SAND. Gravel is medium angular to subangular flint.

Test Code = 610

UKAS TESTING 0920

Simon Holden (Project Technician) [redacted]

Version 058 - 10/06/2013
1260 - PSD MB08 00.50 3 B - C6474-2-338593.xls : Sample ID 338593

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	3
		Depth (m)	0.50-1.00
		Sample Type	B

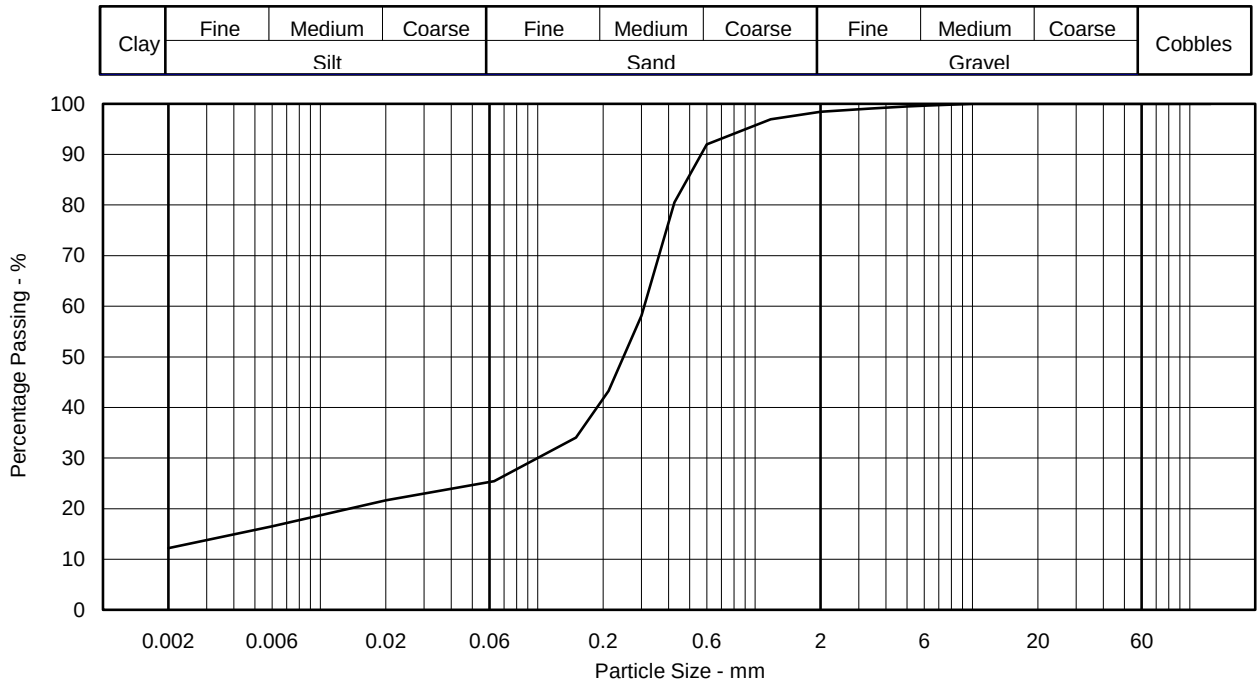
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	98
1.18 mm	97
600 µm	92
425 µm	81
300 µm	58
212 µm	43
150 µm	34
63 µm	25
20 µm	22
6 µm	17
2 µm	12

Non Engineering Description
Dark brown mottled very dark grey slightly gravelly clayey silty SAND. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.6
Sand	73.3
Silt	13.0
Clay	12.2

Particle Diameter - mm	
D100	10
D60	0.31
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
PD	[redacted]018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 10:51:58

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB08
Sample Ref	7
Depth (m)	1.50-2.00
Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	98
5.00 mm	96
3.35 mm	95
2.00 mm	94
1.18 mm	92
600 µm	87
425 µm	73
300 µm	44
212 µm	24
150 µm	15
63 µm	9

Non Engineering Description

Orange brown slightly clayey silty gravelly SAND. Gravel is fine to medium.

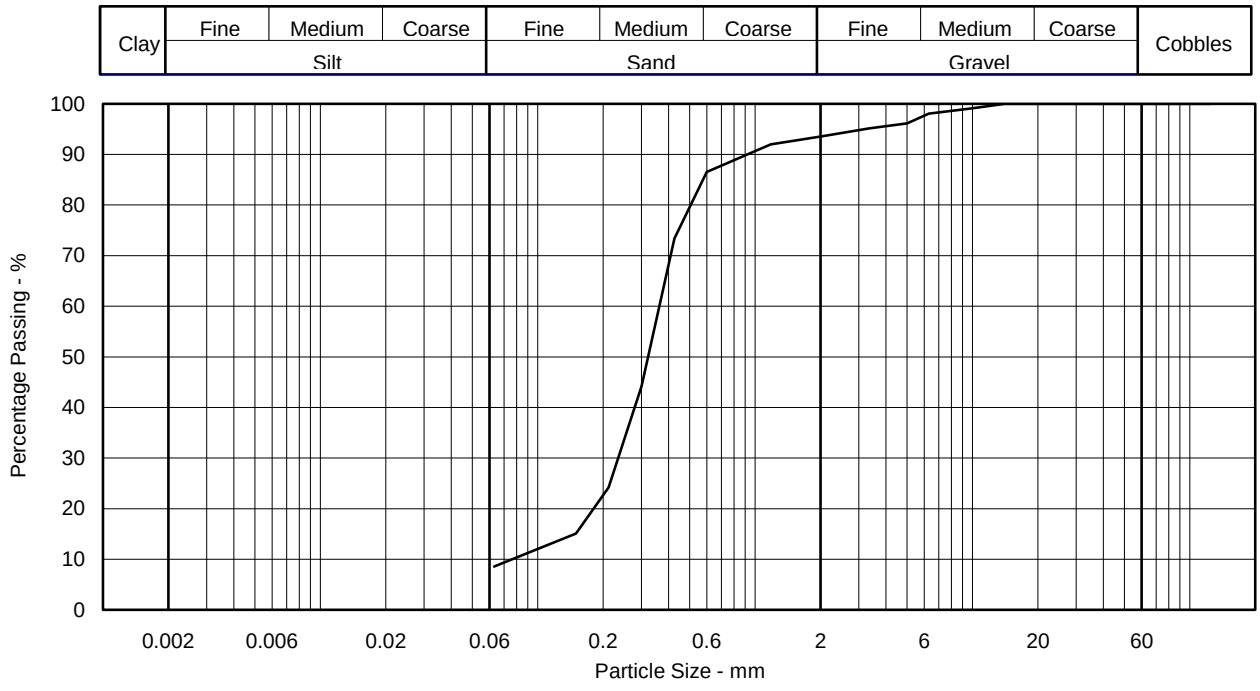
Sample Proportions - %

Cobbles	0.0
Gravel	6.5
Sand	85.0
Silt & Clay	8.6

Particle Diameter - mm

D100	14
D60	0.36
D10	0.076
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	4.7

Notes



Originator	Checked & Approved
MAB	[redacted] 2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	19
		Depth (m)	4.50-5.00
		Sample Type	B

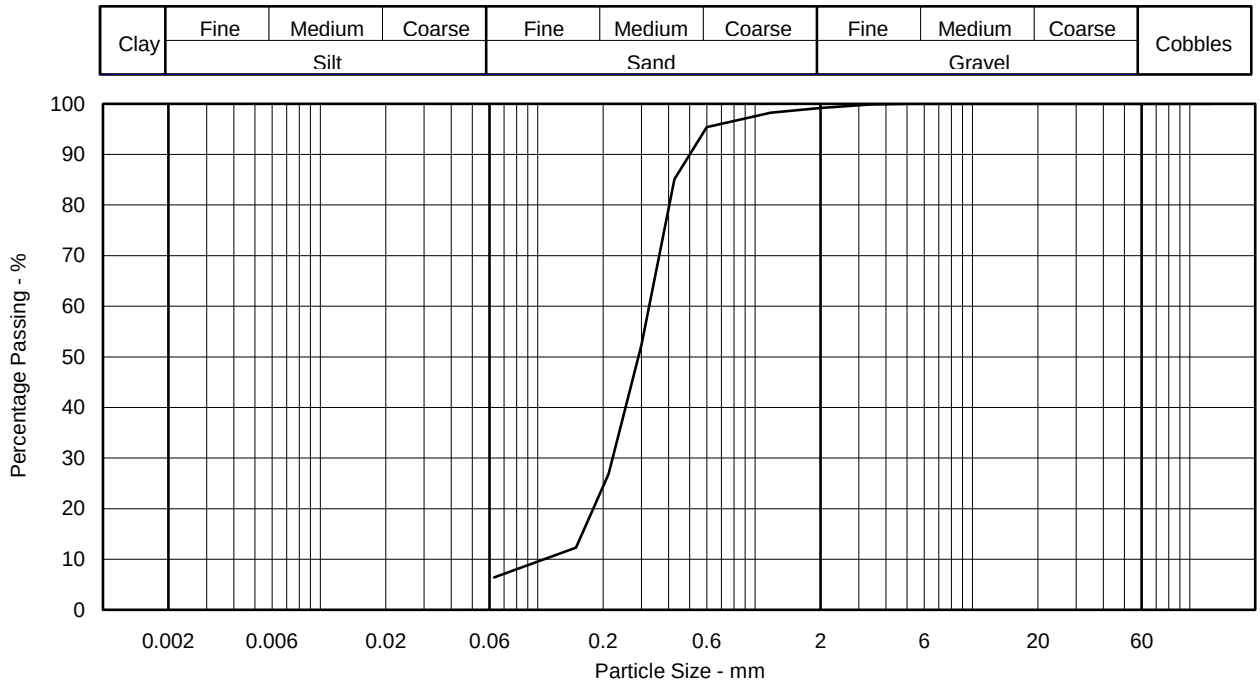
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	95
425 µm	85
300 µm	52
212 µm	27
150 µm	12
63 µm	6

Non Engineering Description
Orange brown SAND with pockets of dark grey silty sand.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	92.8
Silt & Clay	6.4

Particle Diameter - mm	
D100	5.0
D60	0.33
D10	0.11
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.0

Notes



Originator	Checked & Approved
PD	[redacted]

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	29
		Depth (m)	7.50-8.00
		Sample Type	B

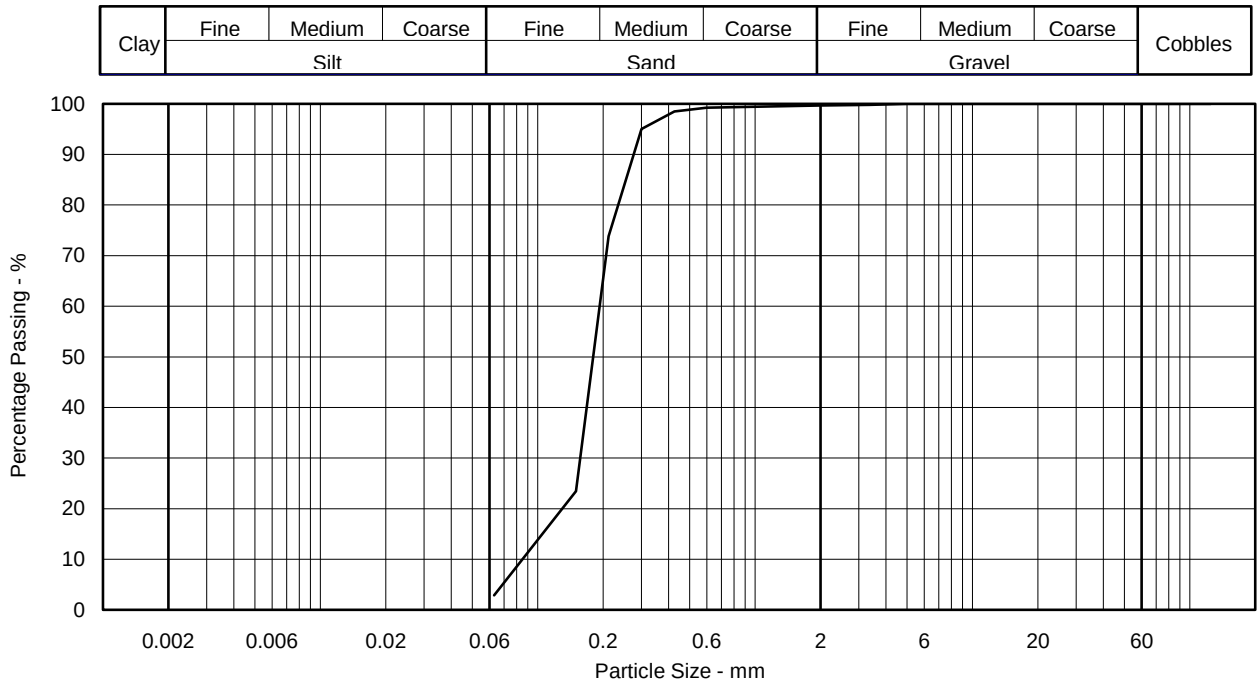
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	99
300 µm	95
212 µm	74
150 µm	23
63 µm	3

Non Engineering Description
Orange brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	96.8
Silt & Clay	2.9

Particle Diameter - mm	
D100	5.0
D60	0.19
D10	0.085
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.2

Notes



Originator	Checked & Approved
MAB	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	35
		Depth (m)	9.50-10.00
		Sample Type	B

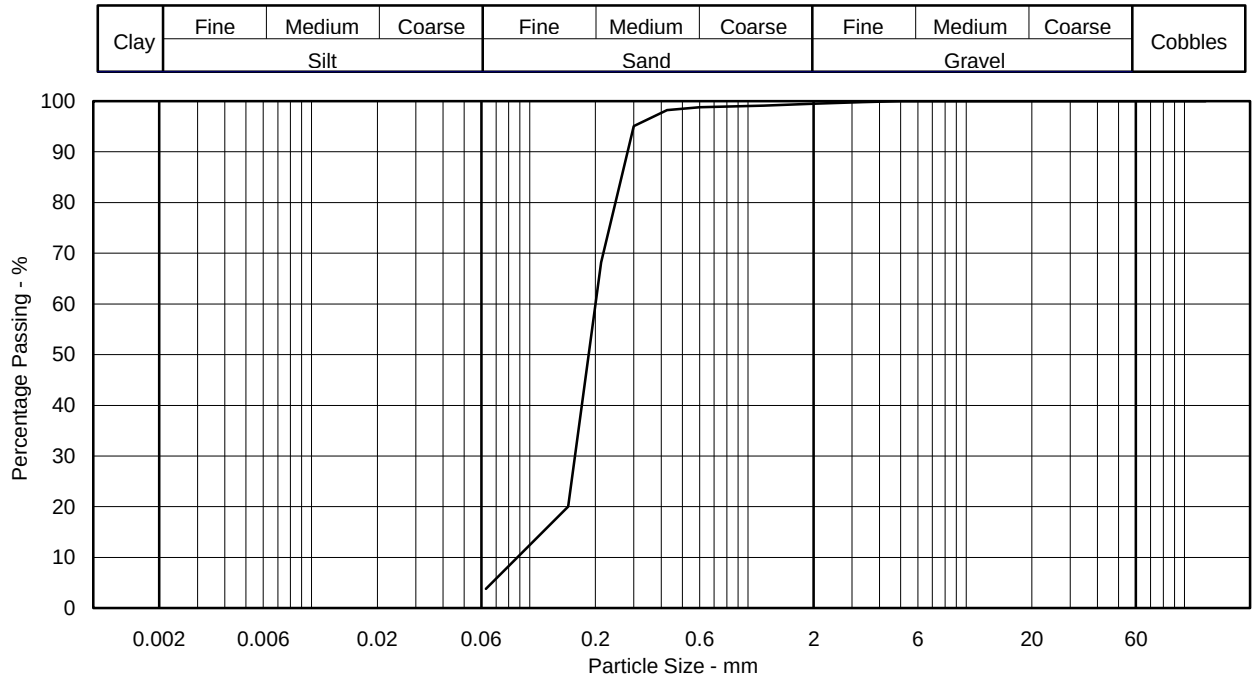
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	99
425 µm	98
300 µm	95
212 µm	68
150 µm	20
63 µm	4

Non Engineering Description
Orange brown slightly silty SAND

Sample Proportions - %	
Cobbles	0.0
Gravel	0.5
Sand	95.7
Silt & Clay	3.8

Particle Diameter - mm	
D100	5.0
D60	0.20
D10	0.088
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.3

Notes



Originator	Checked & Approved
LA	[redacted] 2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	41
		Depth (m)	11.50-12.00
		Sample Type	B

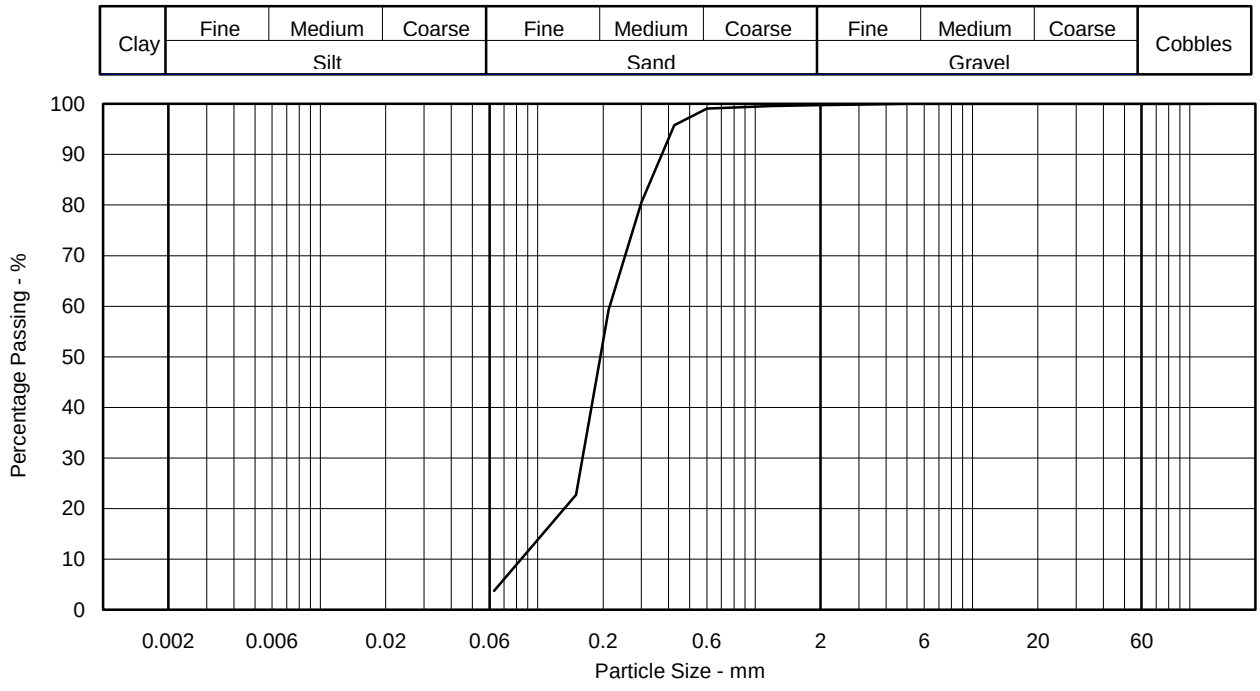
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	96
300 µm	80
212 µm	59
150 µm	23
63 µm	4

Non Engineering Description
Orange brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	96.0
Silt & Clay	3.8

Particle Diameter - mm	
D100	5.0
D60	0.21
D10	0.084
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
PD	[redacted]/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	44
		Depth (m)	12.50-13.00
		Sample Type	B

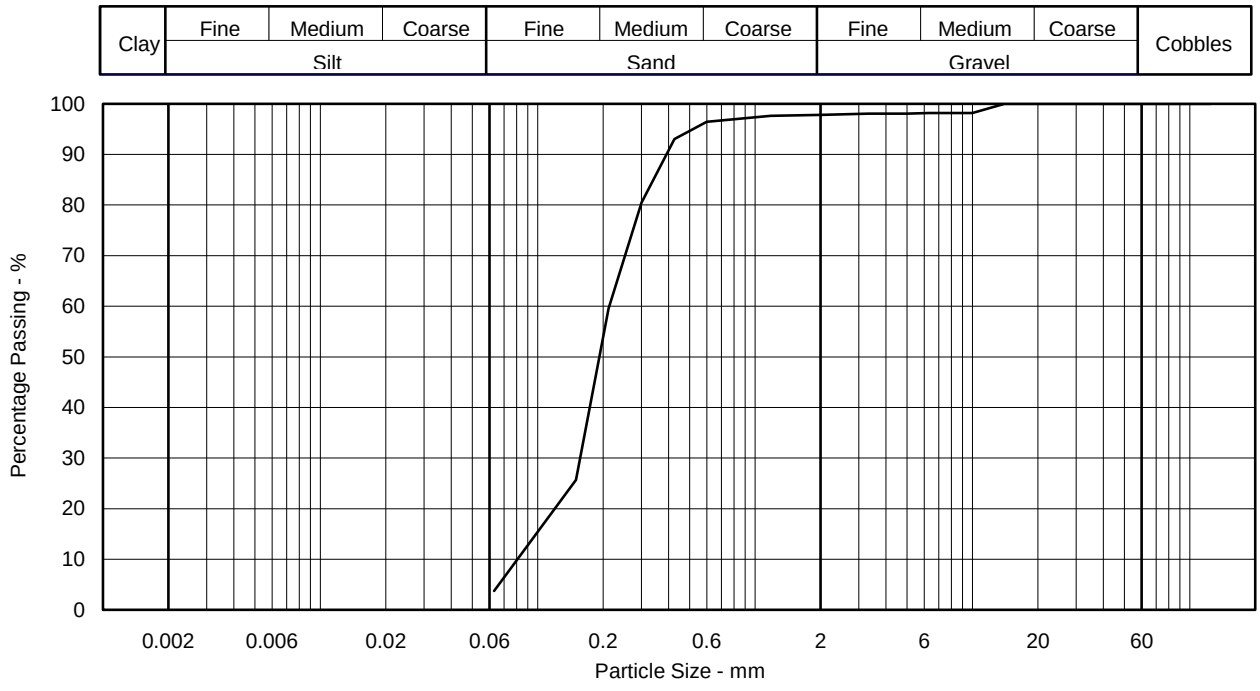
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	98
6.30 mm	98
5.00 mm	98
3.35 mm	98
2.00 mm	98
1.18 mm	98
600 µm	96
425 µm	93
300 µm	80
212 µm	60
150 µm	26
63 µm	4

Non Engineering Description
Orange brown slightly gravelly slightly silty SAND. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.2
Sand	94.1
Silt & Clay	3.7

Particle Diameter - mm	
D100	14
D60	0.21
D10	0.081
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.6

Notes



Originator	Checked & Approved
MAB	[redacted]/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	48
		Depth (m)	13.50-14.00
		Sample Type	B

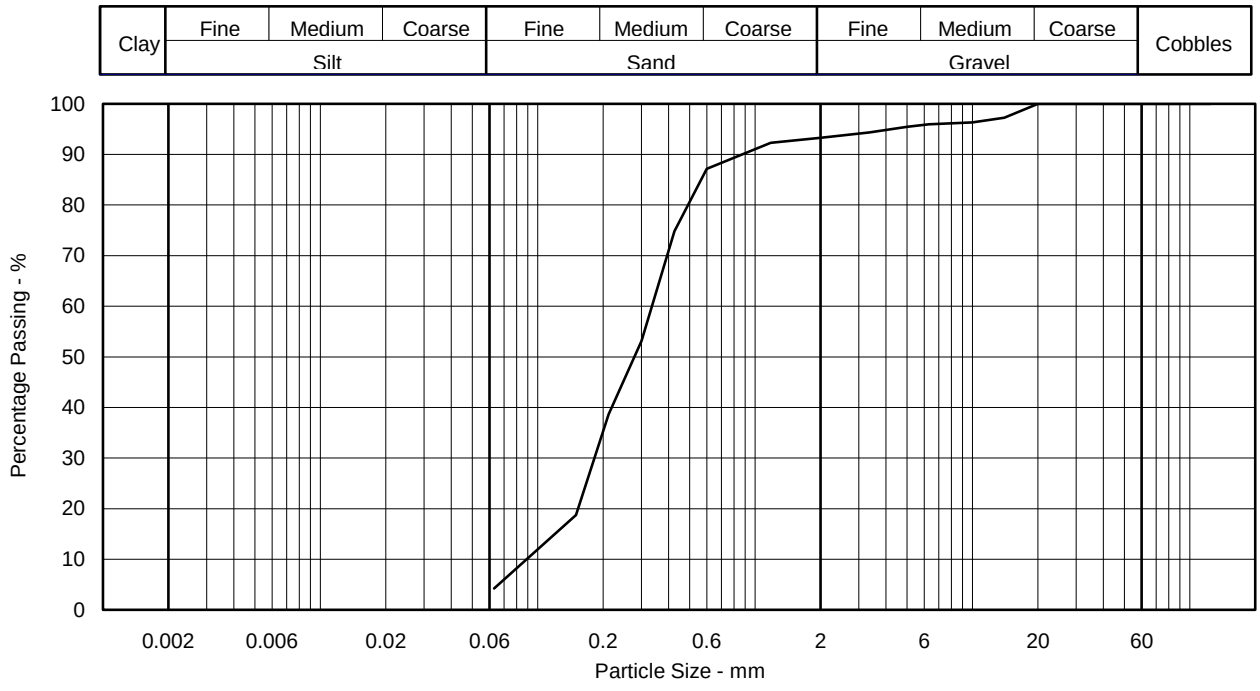
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	97
10.0 mm	96
6.30 mm	96
5.00 mm	95
3.35 mm	94
2.00 mm	93
1.18 mm	92
600 µm	87
425 µm	75
300 µm	53
212 µm	39
150 µm	19
63 µm	4

Non Engineering Description
Orange brown slightly silty gravelly SAND. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	6.7
Sand	89.1
Silt & Clay	4.2

Particle Diameter - mm	
D100	20
D60	0.34
D10	0.089
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.8

Notes



Originator	Checked & Approved
MAB	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	53
		Depth (m)	15.50-16.00
		Sample Type	B

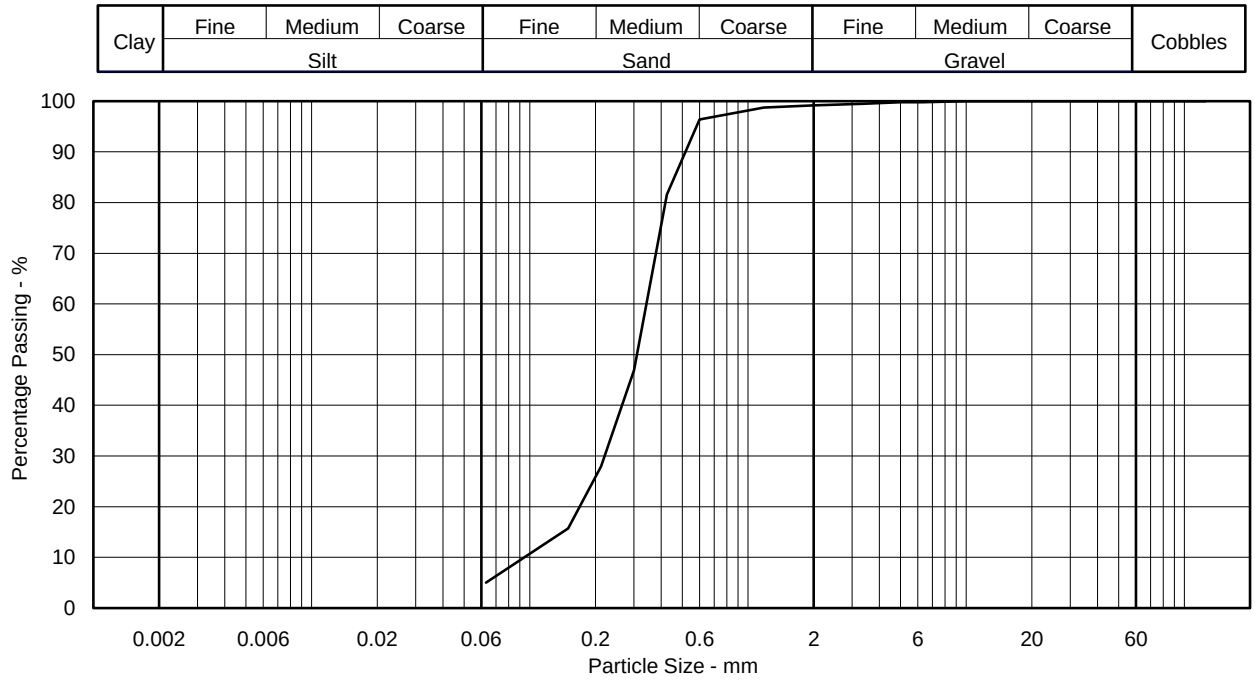
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	96
425 µm	82
300 µm	47
212 µm	28
150 µm	16
63 µm	5

Non Engineering Description
Brown silty SAND with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	94.1
Silt & Clay	5.0

Particle Diameter - mm	
D100	10
D60	0.34
D10	0.094
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.6

Notes



Originator	Checked & Approved
LA	[redacted] 018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	58
		Depth (m)	17.50-18.00
		Sample Type	B

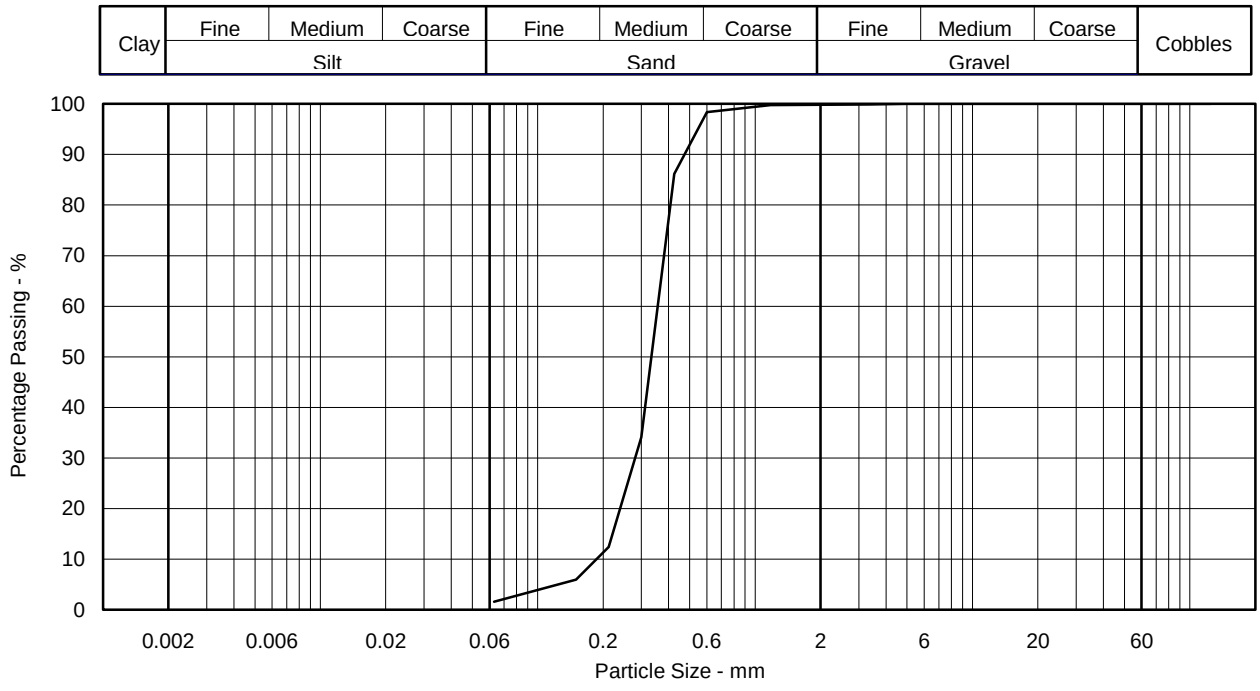
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	98
425 µm	86
300 µm	34
212 µm	12
150 µm	6
63 µm	2

Non Engineering Description
Light brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.2
Sand	98.2
Silt & Clay	1.6

Particle Diameter - mm	
D100	5.0
D60	0.36
D10	0.19
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	1.9

Notes



Originator	Checked & Approved
PD	[redacted]/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	63
		Depth (m)	19.30-19.70
		Sample Type	B

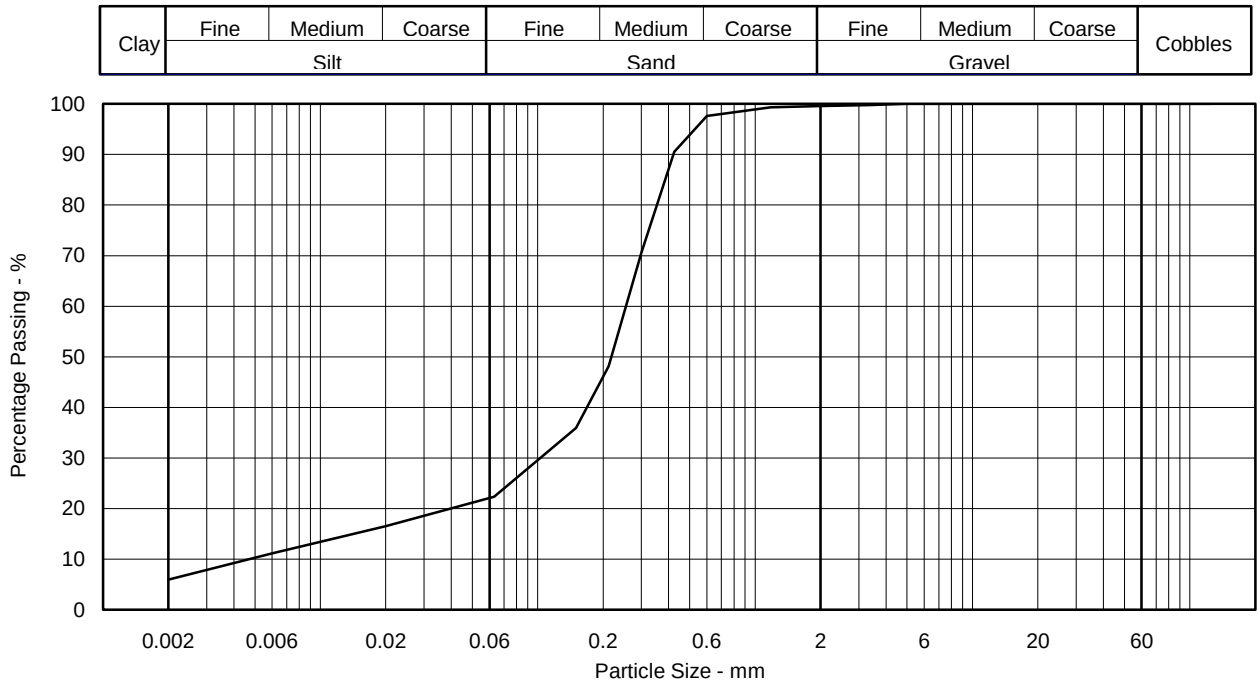
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	98
425 µm	91
300 µm	71
212 µm	48
150 µm	36
63 µm	22
20 µm	17
6 µm	11
2 µm	6

Non Engineering Description
Grey clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	77.6
Silt	16.0
Clay	6.0

Particle Diameter - mm	
D100	5.0
D60	0.25
D10	0.0047
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	53.2

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
MH	[redacted]/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	71
		Depth (m)	22.00-22.60
		Sample Type	B

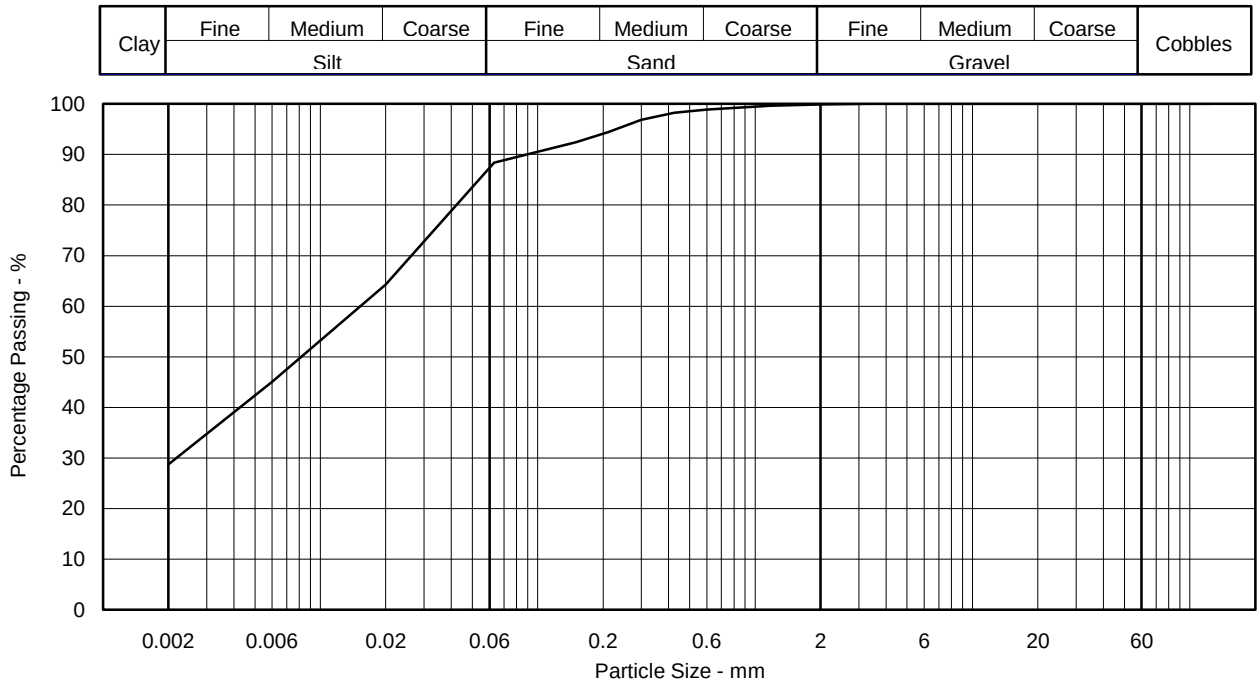
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	98
300 µm	97
212 µm	94
150 µm	92
63 µm	88
20 µm	64
6 µm	45
2 µm	29

Non Engineering Description
Greyish brown slightly sandy CLAY.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.1
Sand	13.2
Silt	57.9
Clay	28.8

Particle Diameter - mm	
D100	3.4
D60	0.015
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
MAB	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Version 058 - 10/06/2013
1260 - PSD MB08 24.00 75 B - C6474-2-338610.xls : Sample ID 338610

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	75
		Depth (m)	24.00-24.50
		Sample Type	B

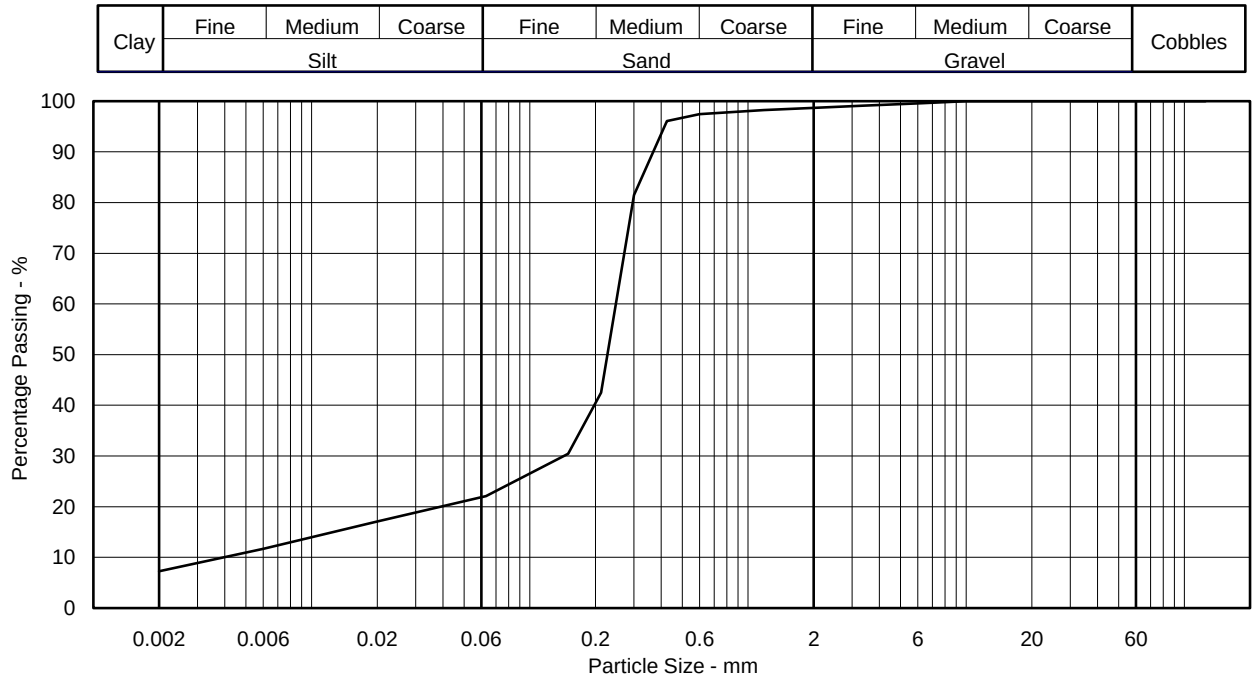
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	96
300 µm	81
212 µm	42
150 µm	30
63 µm	22
20 µm	17
6 µm	12
2 µm	7

Non Engineering Description
Brown slightly gravelly clayey silty SAND. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.3
Sand	76.9
Silt	14.5
Clay	7.3

Particle Diameter - mm	
D100	10
D60	0.25
D10	0.0039
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	64.1

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted]/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 14:07:02

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	74
		Depth (m)	25.00-25.44
		Sample Type	D

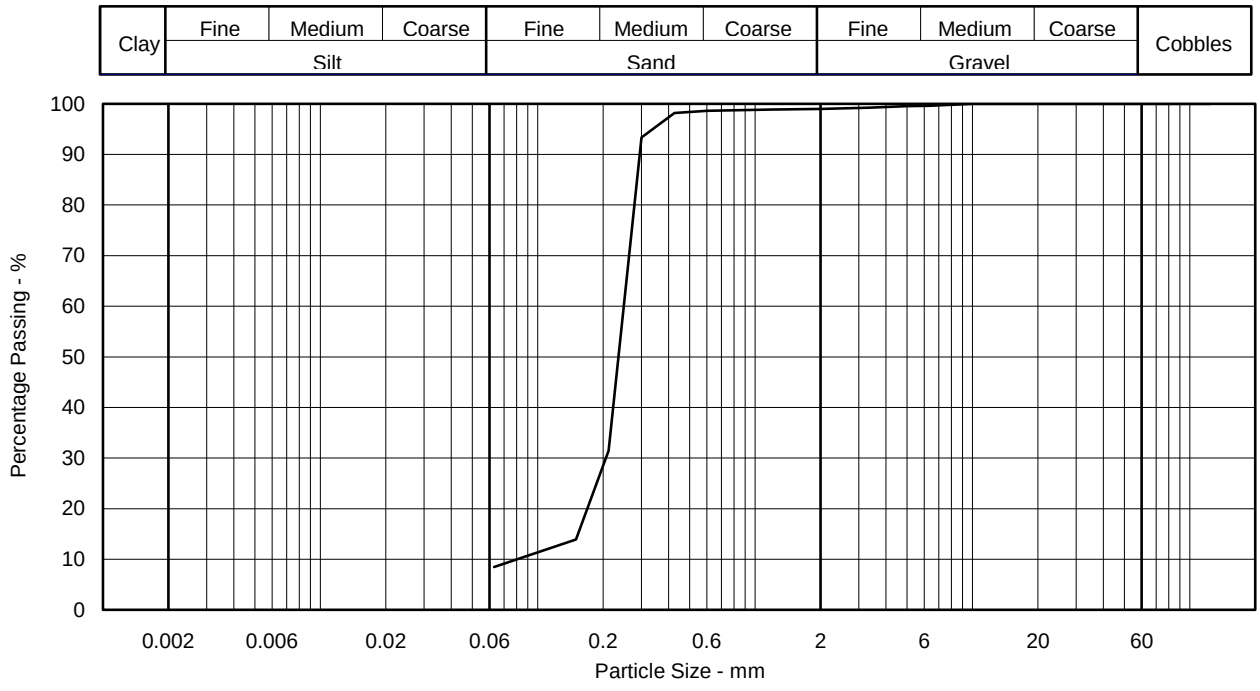
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	99
425 µm	98
300 µm	93
212 µm	31
150 µm	14
63 µm	8

Non Engineering Description
Greyish brown silty SAND with rare fine to medium gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.0
Sand	90.5
Silt & Clay	8.5

Particle Diameter - mm	
D100	10
D60	0.25
D10	0.080
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.1

Notes



Originator	Checked & Approved
MH	[redacted]018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Norfolk County Council
Norfolk Partnership Laboratory

NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457
Email: civil.laboratory@norfolk.gov.uk

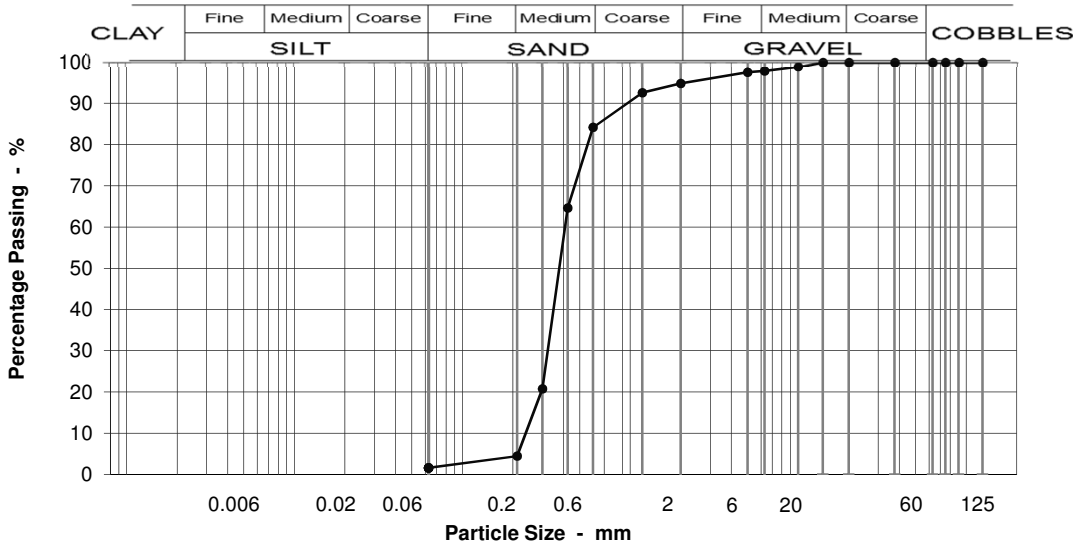
Community & Environmental Services
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2DH

Our reference No. NCCL2018071033-610
Our Project No PZ1522D1
Your Sample Ref 2
Your Project or Order No. PZ1522
Date Tested
Date Report Issued 3-Aug-18

Particle Size Distribution to BS 1377 : Part 2 :1990 Section 9

Scheme: Gt Yarmouth 3rd River Crossing
Location and orientation within sample not applicable

Location: MB09 @ 0m Specimen: 1
Bulk disturbed sample



Sieving

Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	99
6.3	98
5	98
2	95
1.18	93
0.600	84
0.425	65
0.300	21
0.212	4
0.063	2

Specification for Highway Works Classification

Table 6/2

This material complies with the following material classes 1B, 6E/6R, 6M.

Moisture content % 17

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	2
Fine GRAVEL	3
Coarse SAND	11
Medium SAND	80
Fine SAND	3
Silt & Clay	2

Grading Analysis	
D100	10
D60	0.41
D10	0.24
Uniformity Coefficient	2

Description
Brown medium SAND.

Test Code = 610

UKAS TESTING 0920

Simon Holden (Project Technician) [redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	3
		Depth (m)	0.50-1.00
		Sample Type	B

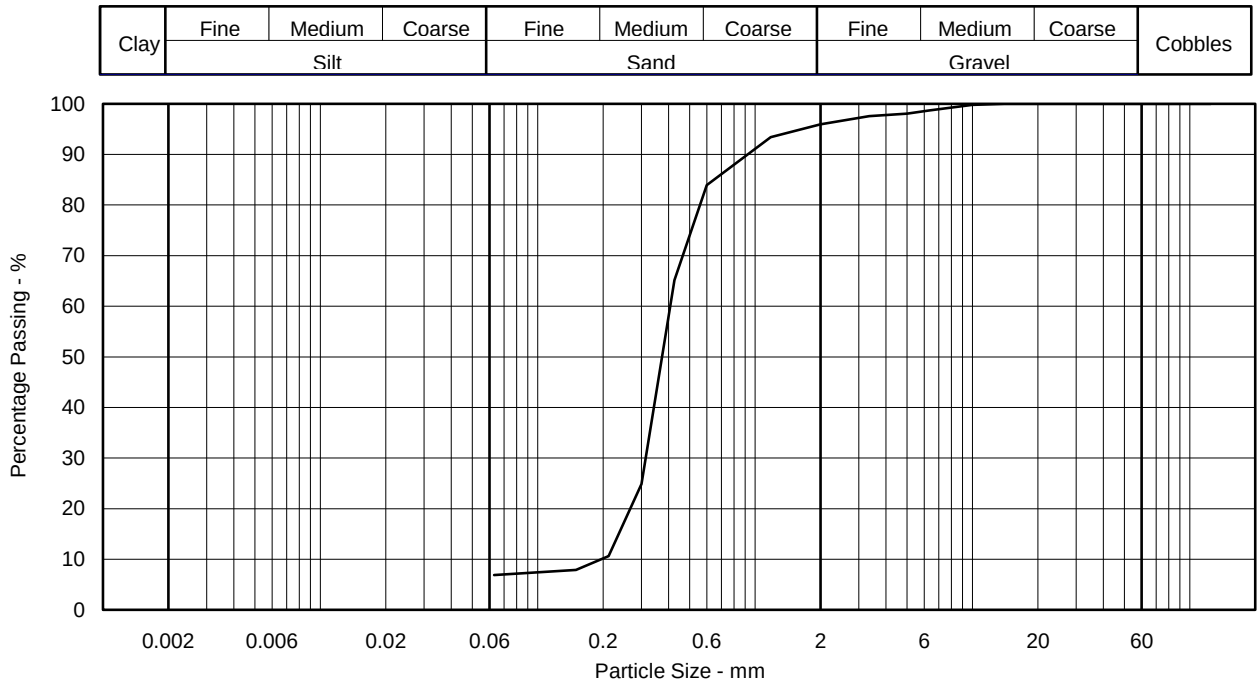
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	98
3.35 mm	98
2.00 mm	96
1.18 mm	93
600 µm	84
425 µm	65
300 µm	25
212 µm	11
150 µm	8
63 µm	7

Non Engineering Description
Light brown silty SAND with occasional fine to medium shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	4.1
Sand	89.1
Silt & Clay	6.9

Particle Diameter - mm	
D100	14
D60	0.41
D10	0.20
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.1

Notes



Originator	Checked & Approved
PD	[redacted]018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Version 058 - 10/06/2013
1260 - PSD MB09 01.50 6 B - C6474-2-338612.xls : Sample ID 338612

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB09
Sample Ref	6
Depth (m)	1.50-2.00
Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	98
5.00 mm	98
3.35 mm	96
2.00 mm	94
1.18 mm	91
600 µm	77
425 µm	55
300 µm	18
212 µm	6
150 µm	4
63 µm	3

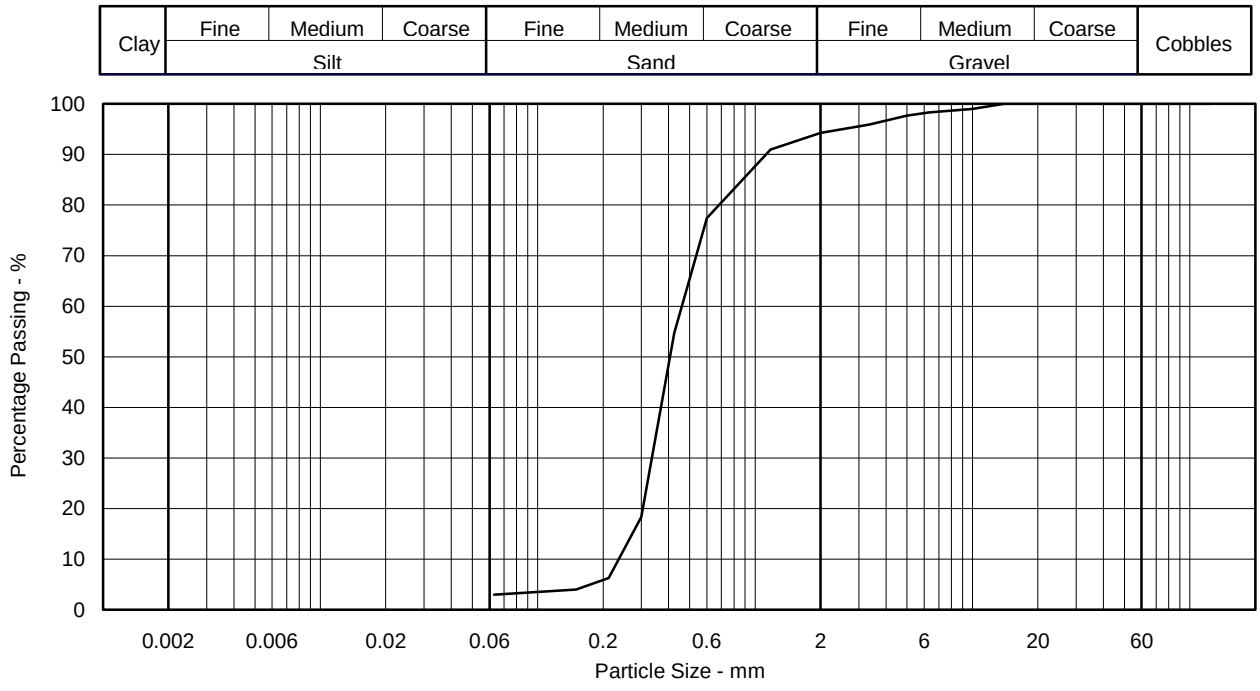
Non Engineering Description

Brown slightly silty slightly gravelly SAND with some fine shell fragments. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	5.8
Sand	91.2
Silt & Clay	3.0

Particle Diameter - mm	
D100	14
D60	0.46
D10	0.24
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	1.9

Notes



Originator	Checked & Approved
MAB	[redacted] 018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 14:11:56

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	22
		Depth (m)	5.30-6.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	98
2.00 mm	97
1.18 mm	96
600 µm	93
425 µm	88
300 µm	75
212 µm	56
150 µm	22
63 µm	6

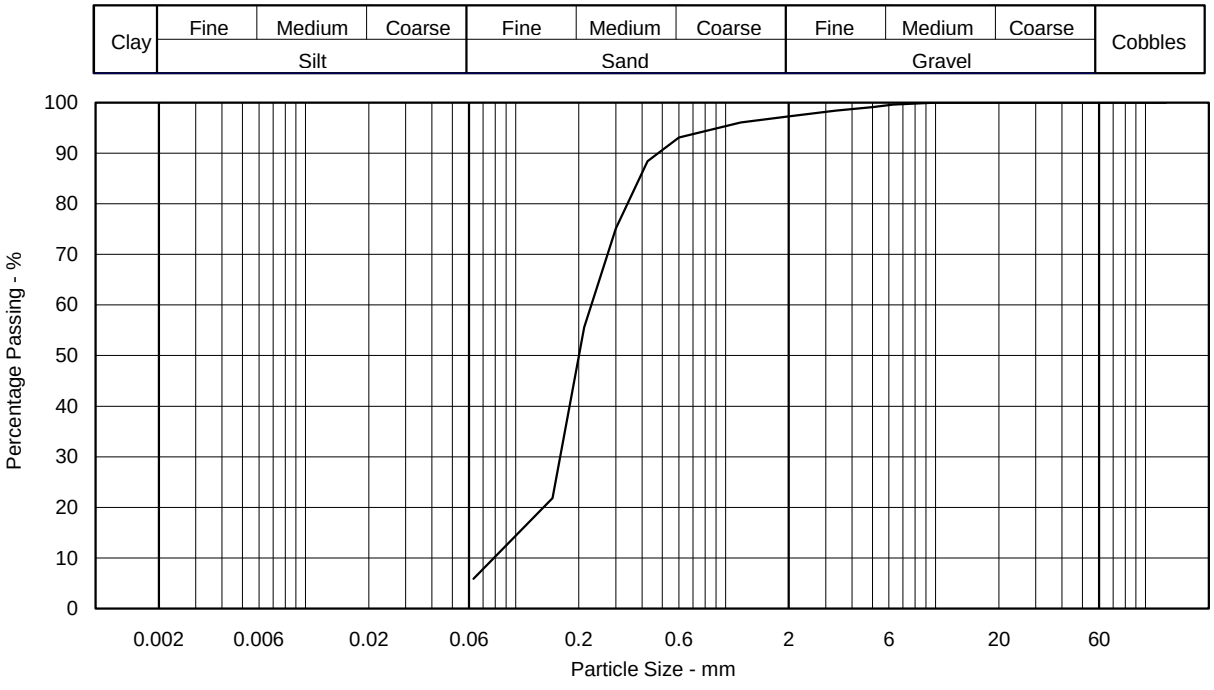
Non Engineering Description

Greyish brown silty SAND with occasional fine to medium shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.8
Sand	91.3
Silt & Clay	5.9

Particle Diameter - mm	
D100	10
D60	0.23
D10	0.079
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.9

Notes



Originator	Checked & Approved
MAB	[redacted]

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	10
		Depth (m)	2.50-3.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	96
5.00 mm	95
3.35 mm	92
2.00 mm	89
1.18 mm	85
600 µm	78
425 µm	67
300 µm	46
212 µm	31
150 µm	20
63 µm	15
20 µm	12
6 µm	9
2 µm	6

Non Engineering Description

Very dark grey mottled brown clayey silty gravelly SAND. Gravel is fine to medium.

Sample Proportions - %

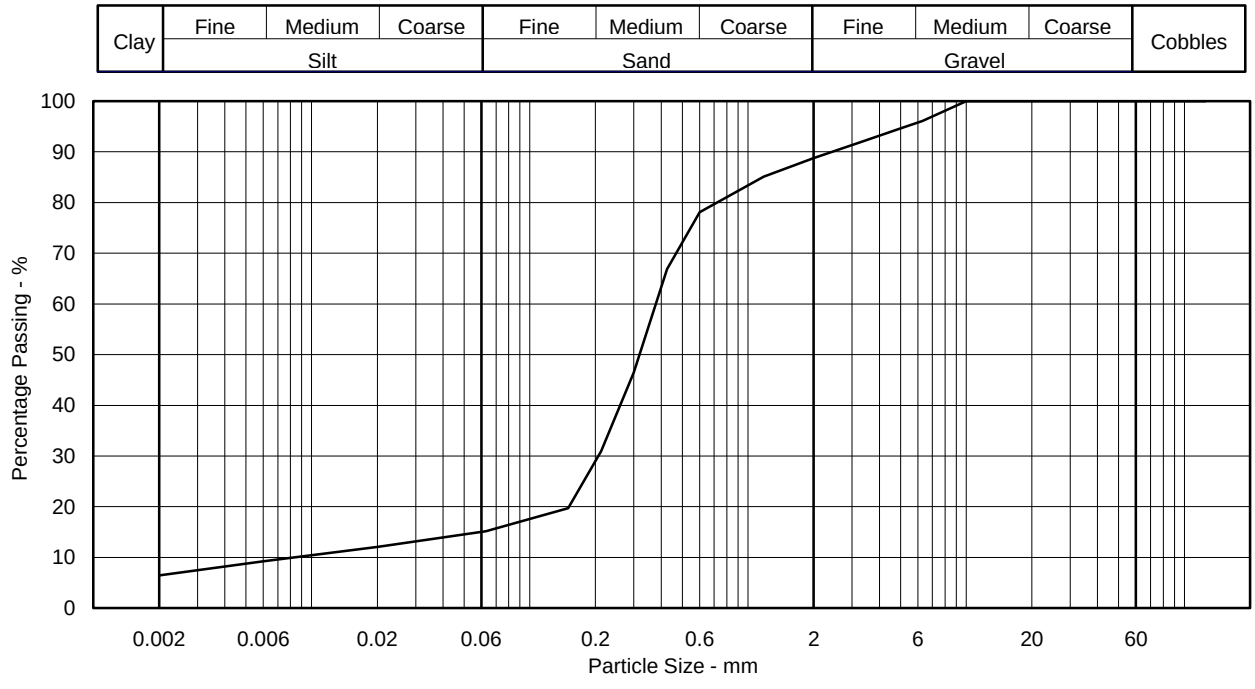
Cobbles	0.0
Gravel	11.2
Sand	73.8
Silt	8.5
Clay	6.5

Particle Diameter - mm

D100	10
D60	0.38
D10	0.0084
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	45.2

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Version 058 - 10/06/2013
1260 - PSD MB09 03.50 14 B - C6474-2-338614.xls : Sample ID 338614

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	14
		Depth (m)	3.50-4.00
		Sample Type	B

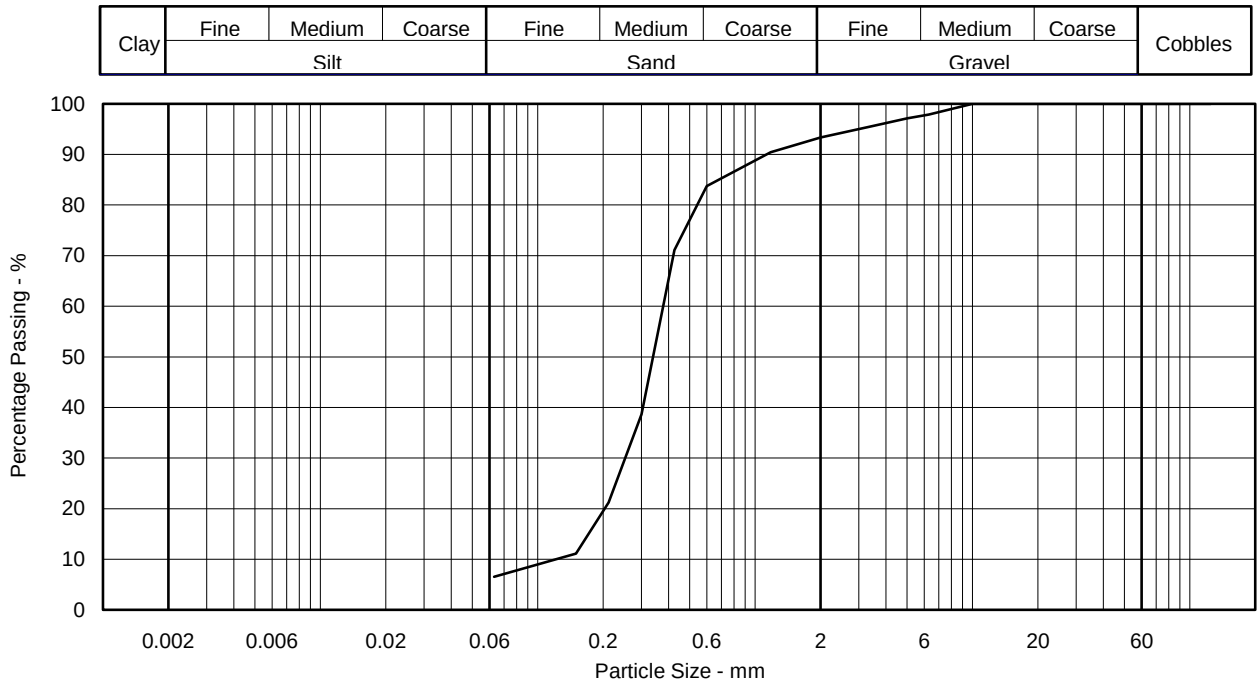
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	98
5.00 mm	97
3.35 mm	95
2.00 mm	93
1.18 mm	90
600 µm	84
425 µm	71
300 µm	39
212 µm	21
150 µm	11
63 µm	7

Non Engineering Description
Greyish brown silty gravelly SAND. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	6.6
Sand	86.8
Silt & Clay	6.5

Particle Diameter - mm	
D100	10
D60	0.38
D10	0.12
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.2

Notes



Originator	Checked & Approved
PD	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 14:14:33

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	112
		Depth (m)	40.00-40.45
		Sample Type	B

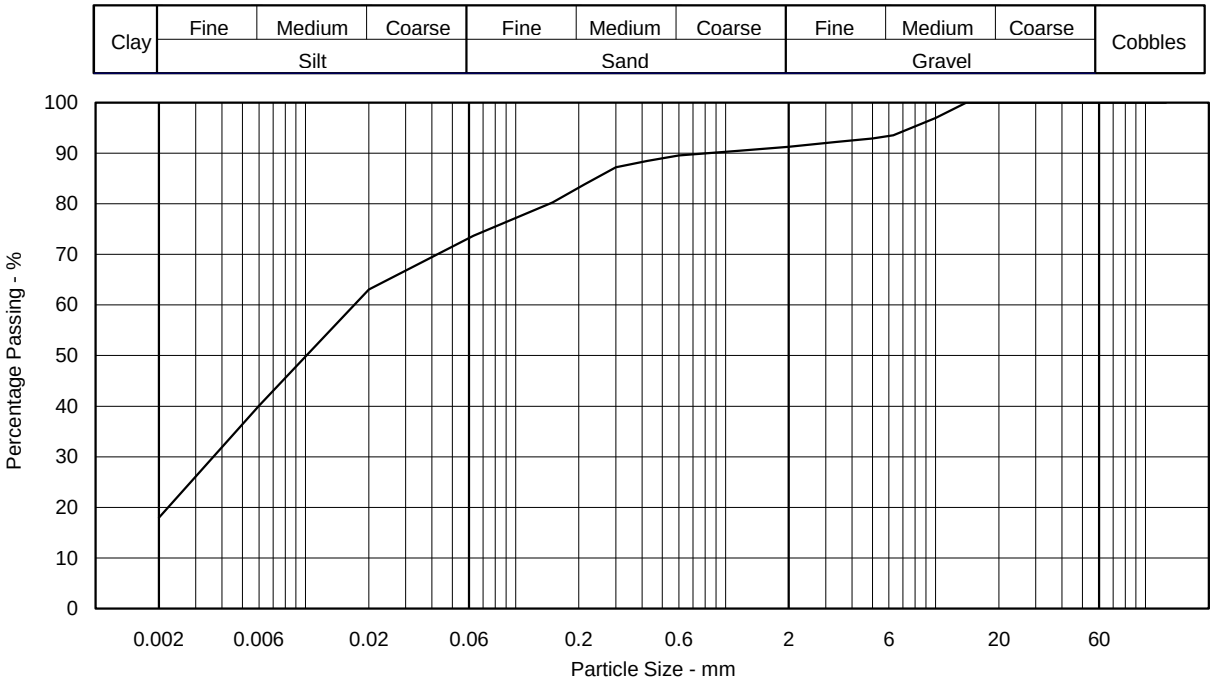
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	97
6.30 mm	94
5.00 mm	93
3.35 mm	92
2.00 mm	91
1.18 mm	91
600 µm	90
425 µm	88
300 µm	87
212 µm	84
150 µm	80
63 µm	74
20 µm	63
6 µm	40
2 µm	18

Non Engineering Description
Dark brown mottled brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	8.8
Sand	18.3
Silt	55.0
Clay	18.0

Particle Diameter - mm	
D100	14
D60	0.017
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
MH	[redacted] 10/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	17
		Depth (m)	4.50-5.00
		Sample Type	B

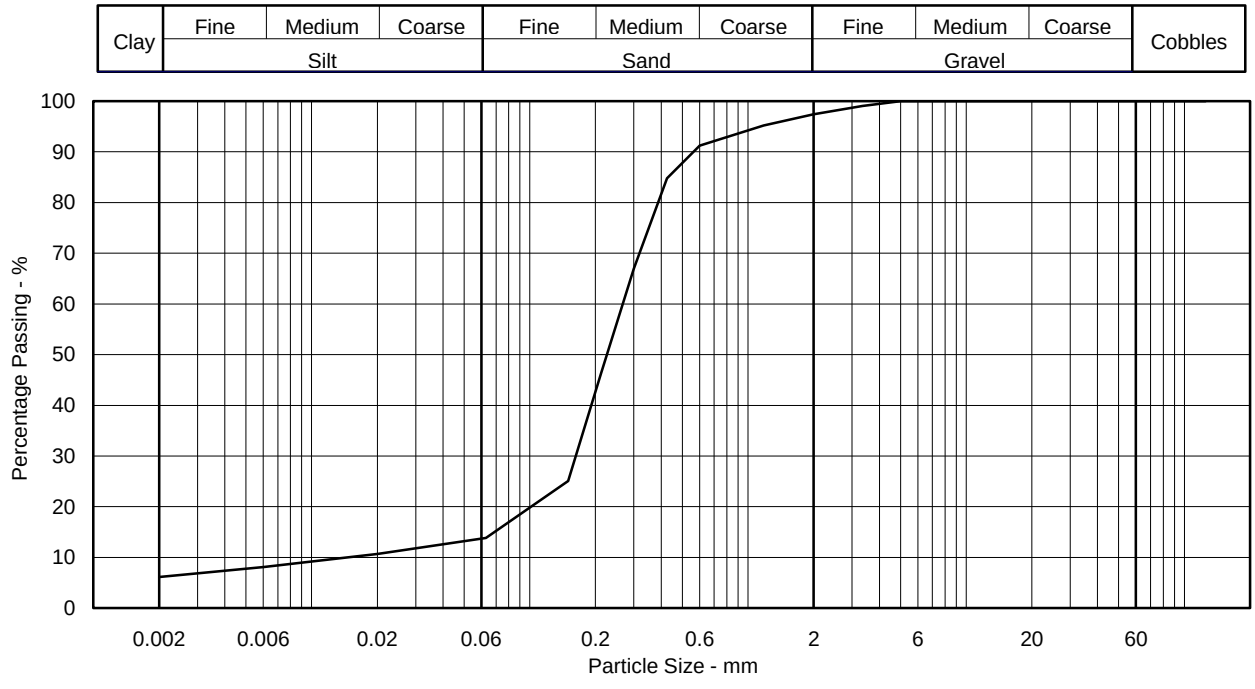
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	97
1.18 mm	95
600 µm	91
425 µm	85
300 µm	67
212 µm	46
150 µm	25
63 µm	14
20 µm	11
6 µm	8
2 µm	6

Non Engineering Description
Orange brown clayey silty SAND with occasional fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.6
Sand	83.8
Silt	7.5
Clay	6.1

Particle Diameter - mm	
D100	5.0
D60	0.27
D10	0.015
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	18.0

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 06/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	25
		Depth (m)	6.50-7.00
		Sample Type	B

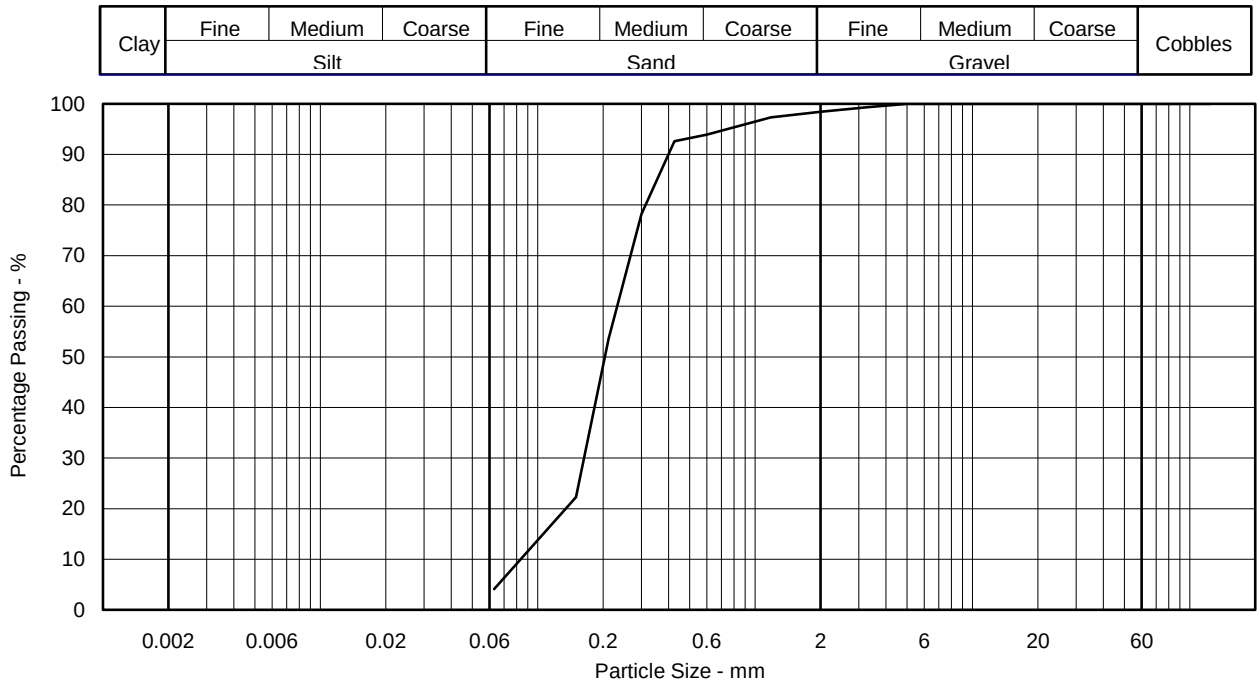
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	98
1.18 mm	97
600 µm	94
425 µm	93
300 µm	78
212 µm	54
150 µm	22
63 µm	4

Non Engineering Description
Orange brown slightly gravelly slightly silty SAND. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.6
Sand	94.3
Silt & Clay	4.1

Particle Diameter - mm	
D100	5.0
D60	0.23
D10	0.084
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.7

Notes



Originator	Checked & Approved
MAB	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	38
		Depth (m)	10.50-11.00
		Sample Type	B

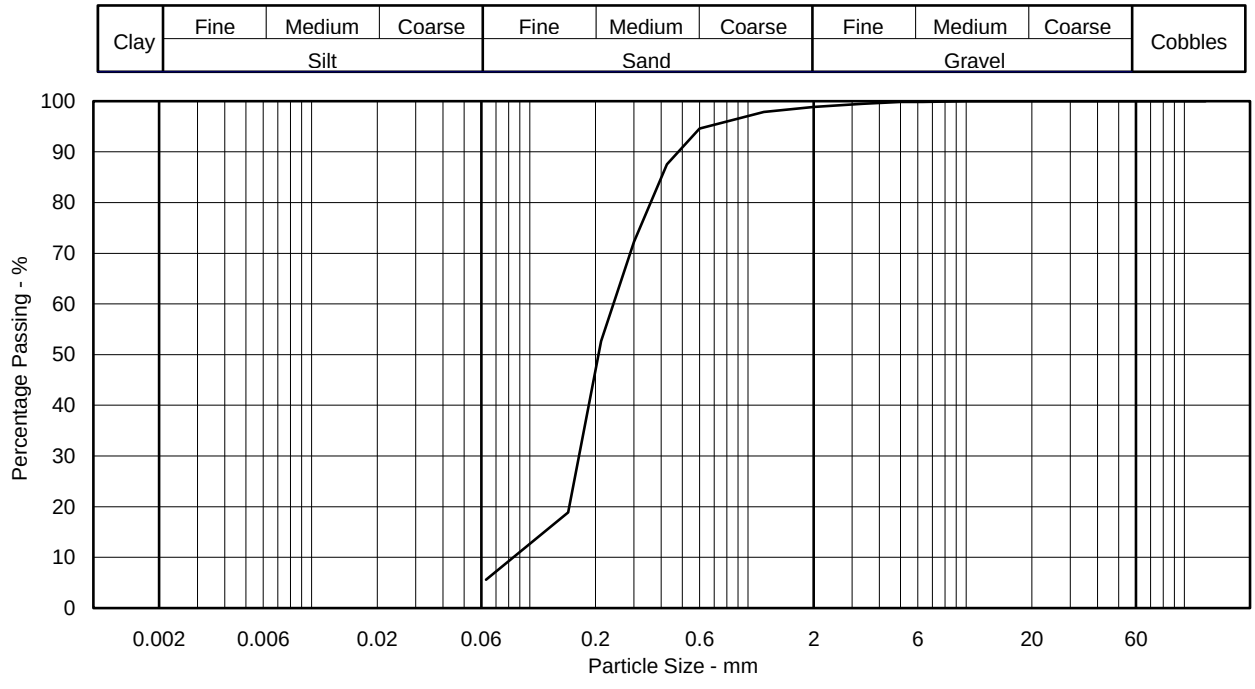
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	95
425 µm	88
300 µm	72
212 µm	53
150 µm	19
63 µm	6

Non Engineering Description
Orange brown slightly gravelly silty SAND. Gravel is fine.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.1
Sand	93.3
Silt & Clay	5.6

Particle Diameter - mm	
D100	10
D60	0.24
D10	0.084
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.9

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	44
		Depth (m)	12.50-13.00
		Sample Type	B

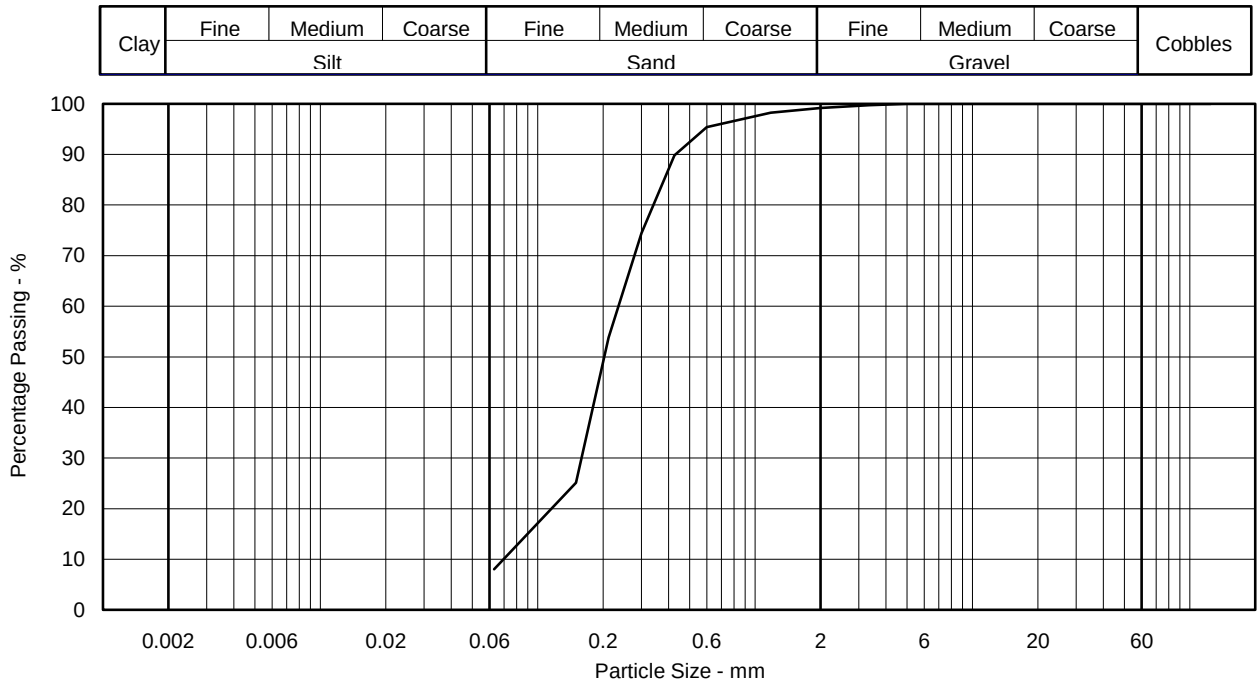
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	95
425 µm	90
300 µm	74
212 µm	54
150 µm	25
63 µm	8

Non Engineering Description
Dark brown mottled orange brown silty SAND with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	91.2
Silt & Clay	8.0

Particle Diameter - mm	
D100	5.0
D60	0.24
D10	0.070
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.4

Notes



Originator	Checked & Approved
MAB	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Version 058 - 10/06/2013
1260 - PSD MB09 13.30 46 B - C6474-2-338652.xls : Sample ID 338652

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	46
		Depth (m)	13.30
		Sample Type	B

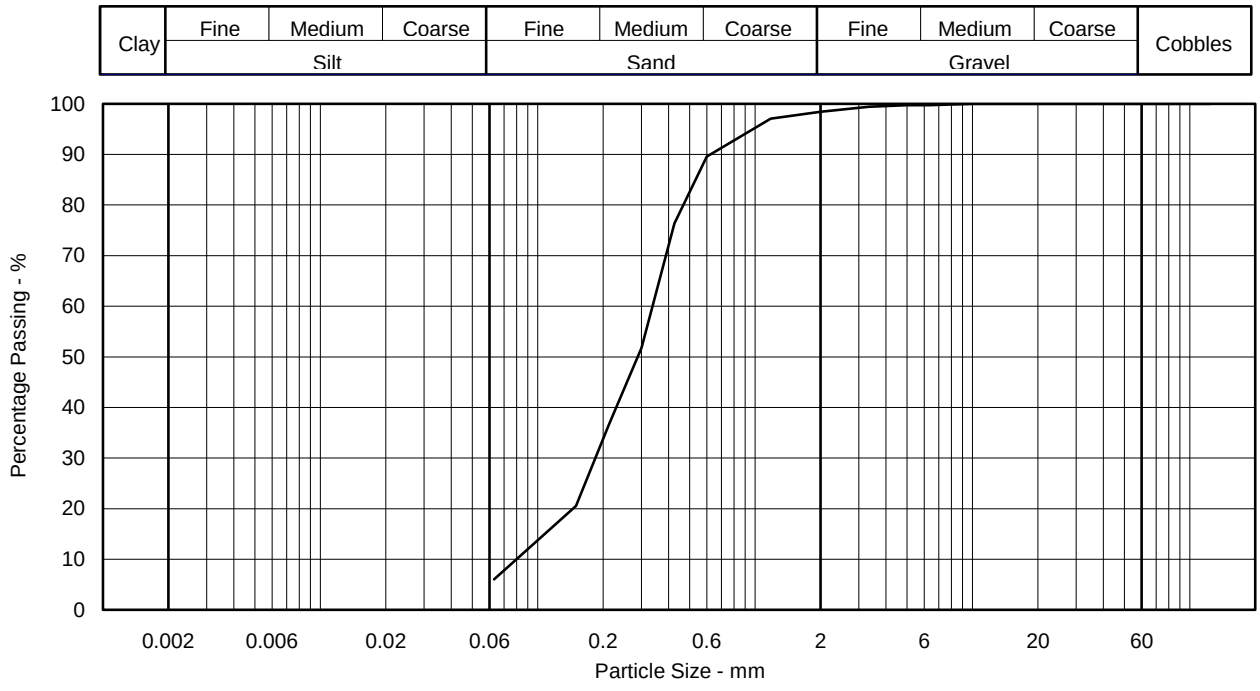
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	98
1.18 mm	97
600 µm	90
425 µm	76
300 µm	52
212 µm	36
150 µm	21
63 µm	6

Non Engineering Description
Orange brown silty SAND with occasional fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.5
Sand	92.4
Silt & Clay	6.0

Particle Diameter - mm	
D100	10
D60	0.34
D10	0.080
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	4.3

Notes



Originator	Checked & Approved
MAB	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

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Lab Project No C6474-2 : 05/09/2018 15:10:20

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	50
		Depth (m)	14.50-15.00
		Sample Type	B

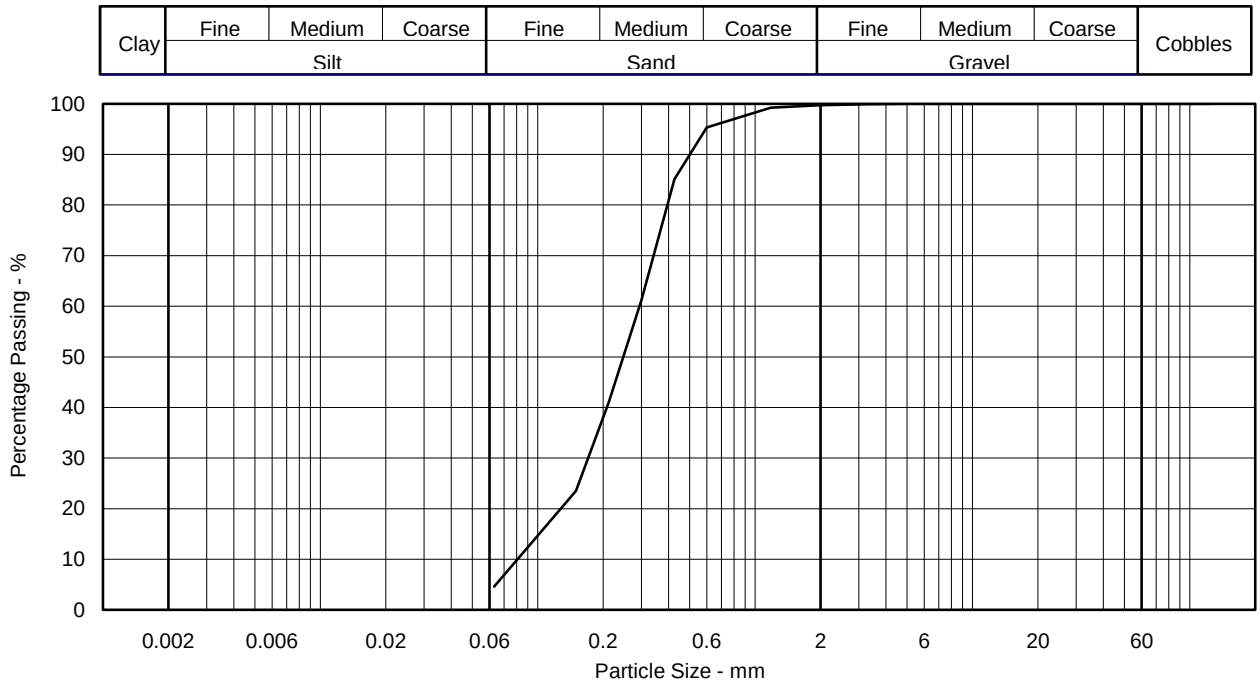
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	95
425 µm	85
300 µm	61
212 µm	41
150 µm	24
63 µm	5

Non Engineering Description
Orange brown mottled dark grey slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	95.2
Silt & Clay	4.6

Particle Diameter - mm	
D100	5.0
D60	0.29
D10	0.081
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.6

Notes



Originator	Checked & Approved
MAB	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	59
		Depth (m)	17.50-18.00
		Sample Type	B

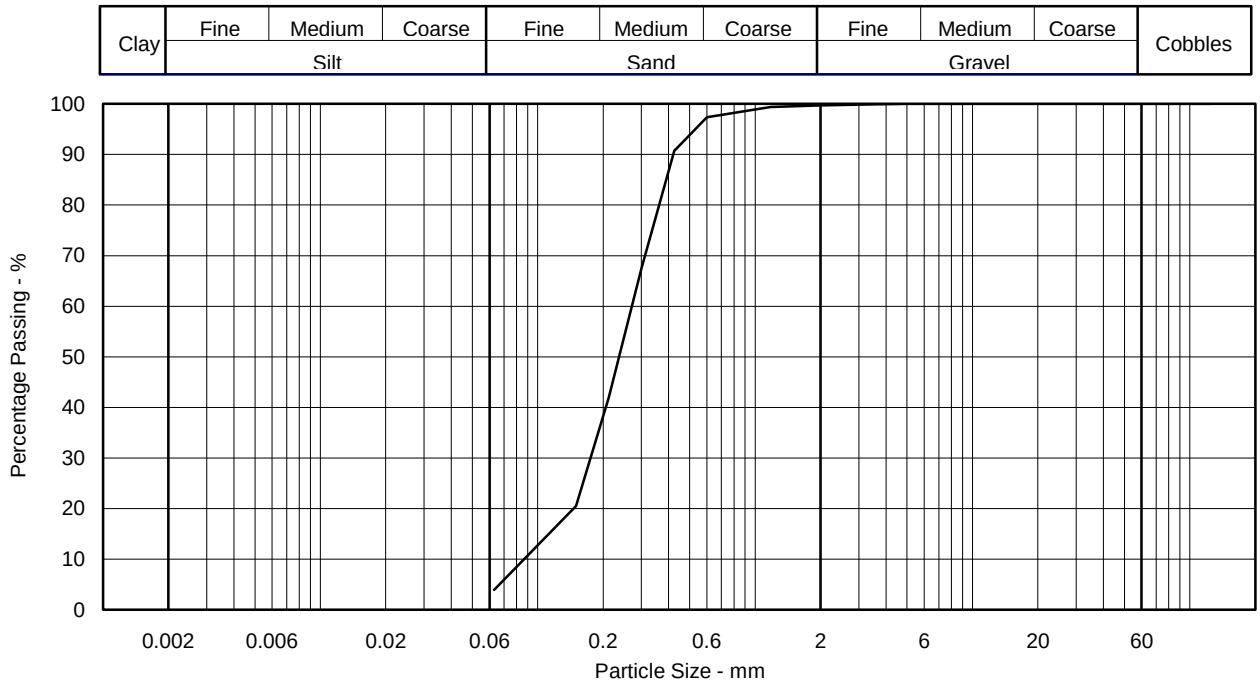
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	97
425 µm	91
300 µm	67
212 µm	42
150 µm	21
63 µm	4

Non Engineering Description
Orange brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.3
Sand	95.8
Silt & Clay	4.0

Particle Diameter - mm	
D100	5.0
D60	0.27
D10	0.086
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.1

Notes



Originator	Checked & Approved
MAB	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	62
		Depth (m)	18.50-19.00
		Sample Type	B

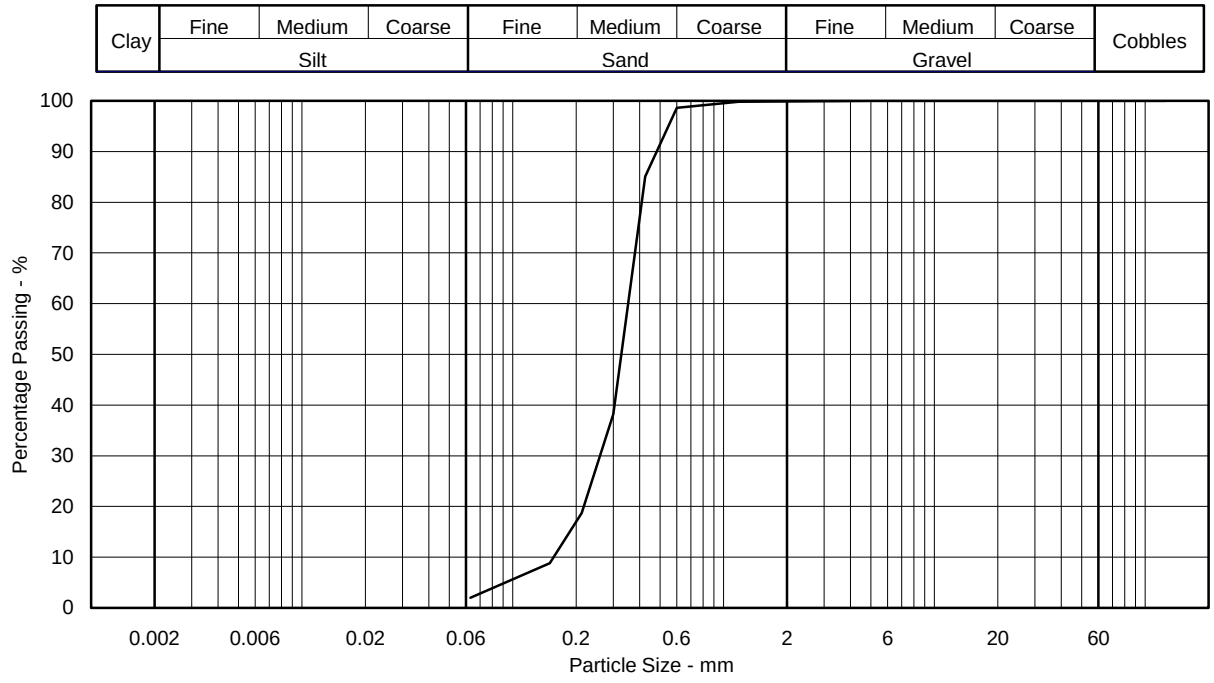
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	85
300 µm	38
212 µm	19
150 µm	9
63 µm	2

Non Engineering Description
Light brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.1
Sand	97.9
Silt & Clay	2.0

Particle Diameter - mm	
D100	5.0
D60	0.35
D10	0.16
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.2

Notes



Originator	Checked & Approved
LA	[redacted] 10/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

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TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	64
		Depth (m)	19.50-20.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	99
3.35 mm	98
2.00 mm	98
1.18 mm	97
600 µm	95
425 µm	87
300 µm	57
212 µm	40
150 µm	30
63 µm	22
20 µm	12
6 µm	7
2 µm	4

Non Engineering Description

Dark grey mottled brown slightly clayey silty SAND with occasional fine to medium shell fragments.

Sample Proportions - %

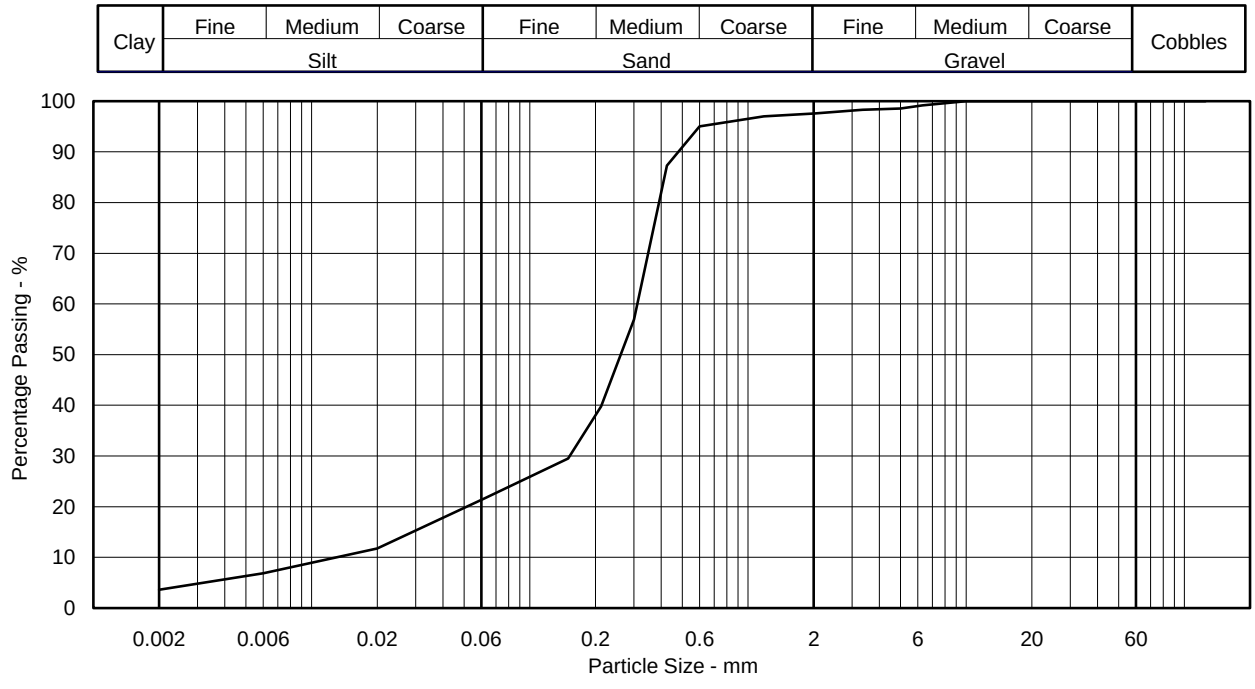
Cobbles	0.0
Gravel	2.4
Sand	76.5
Silt	17.5
Clay	3.6

Particle Diameter - mm

D100	10
D60	0.31
D10	0.013
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	23.8

Notes

Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 06/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB09
Sample Ref	69
Depth (m)	21.50-22.00
Sample Type	B

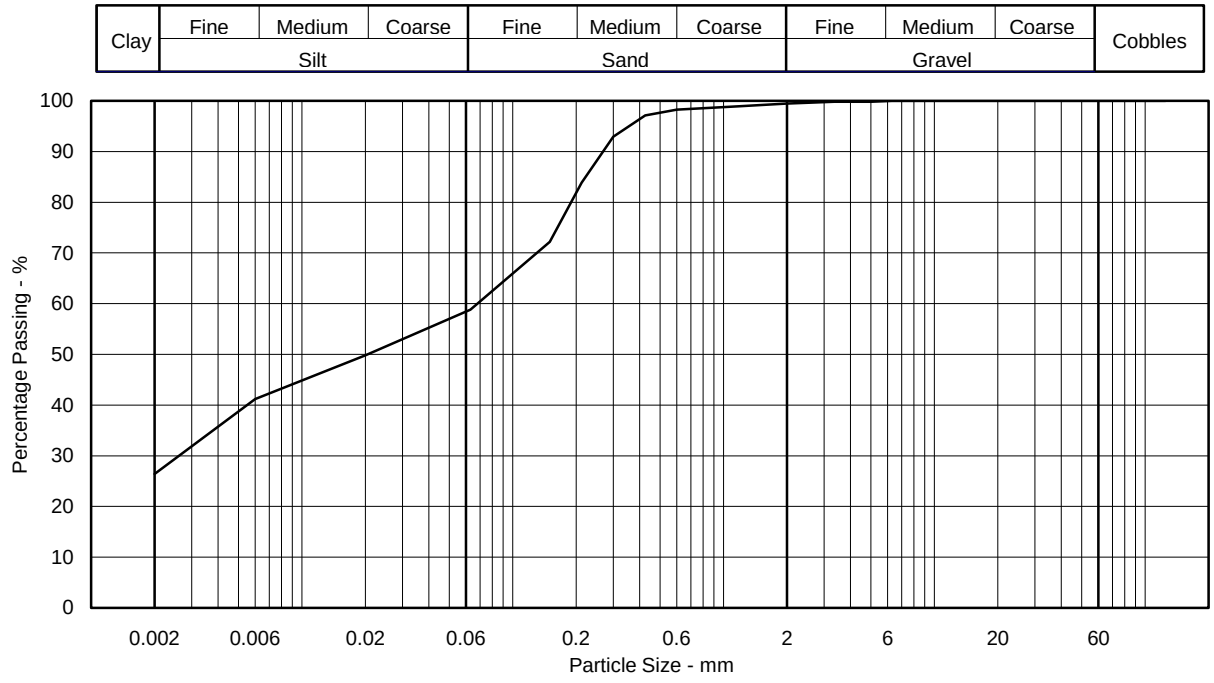
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	98
425 µm	97
300 µm	93
212 µm	84
150 µm	72
63 µm	59
20 µm	50
6 µm	41
2 µm	26

Non Engineering Description
Dark brown sandy CLAY.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.6
Sand	41.3
Silt	31.8
Clay	26.4

Particle Diameter - mm	
D100	6.3
D60	0.068
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



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LA	[redacted]

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 10/09/2018 09:23:08

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	72
		Depth (m)	23.50-24.00
		Sample Type	B

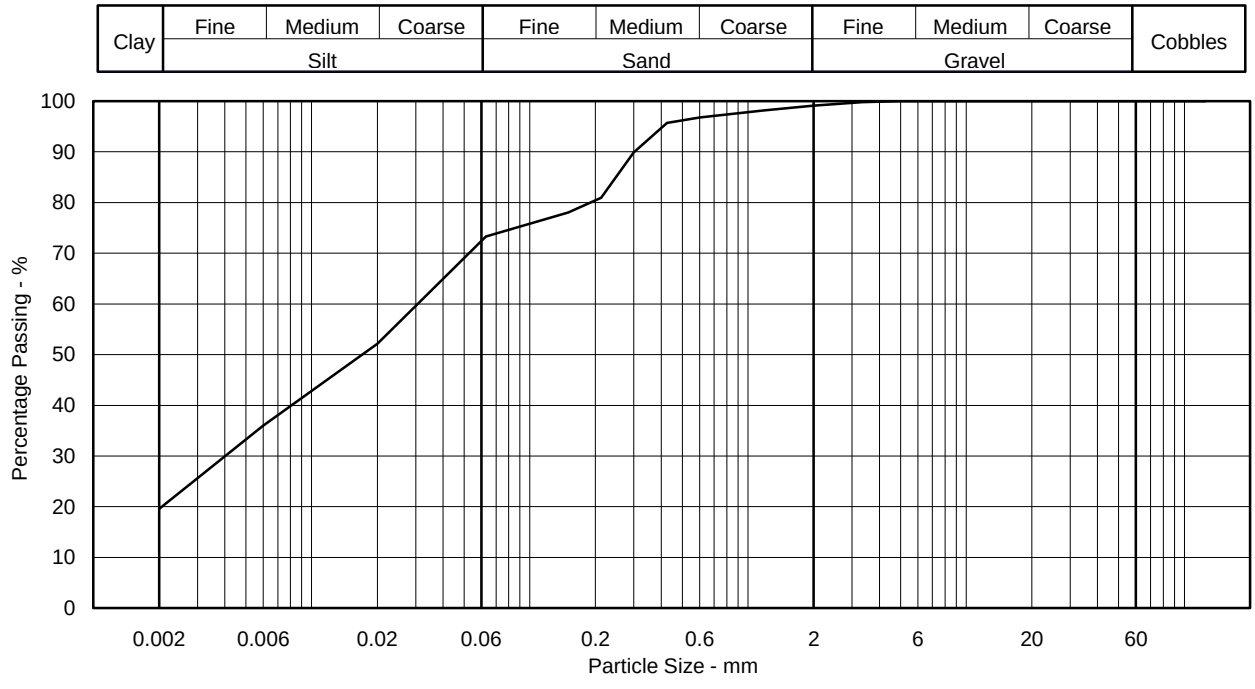
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	96
300 µm	90
212 µm	81
150 µm	78
63 µm	73
20 µm	52
6 µm	36
2 µm	20

Non Engineering Description
Dark grey mottled dark brown slightly sandy SILT/CLAY with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.9
Sand	27.3
Silt	52.2
Clay	19.6

Particle Diameter - mm	
D100	5.0
D60	0.031
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 06/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	75
		Depth (m)	24.50-25.00
		Sample Type	B

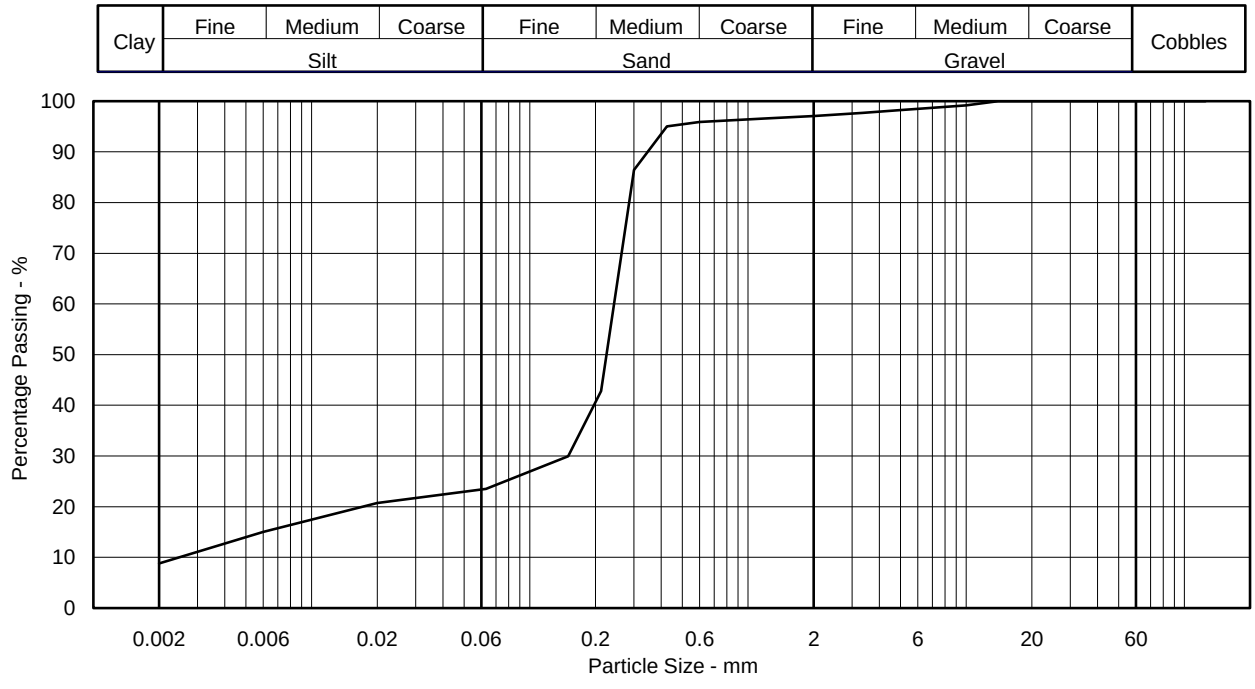
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	99
5.00 mm	98
3.35 mm	98
2.00 mm	97
1.18 mm	97
600 µm	96
425 µm	95
300 µm	86
212 µm	43
150 µm	30
63 µm	24
20 µm	21
6 µm	15
2 µm	9

Non Engineering Description
Grey slightly gravelly clayey silty SAND. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	2.9
Sand	73.7
Silt	14.5
Clay	8.8

Particle Diameter - mm	
D100	14
D60	0.24
D10	0.0025
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	96.0

Notes
Sedimentation sample not pre-treated



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LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	82
		Depth (m)	27.50-28.00
		Sample Type	B

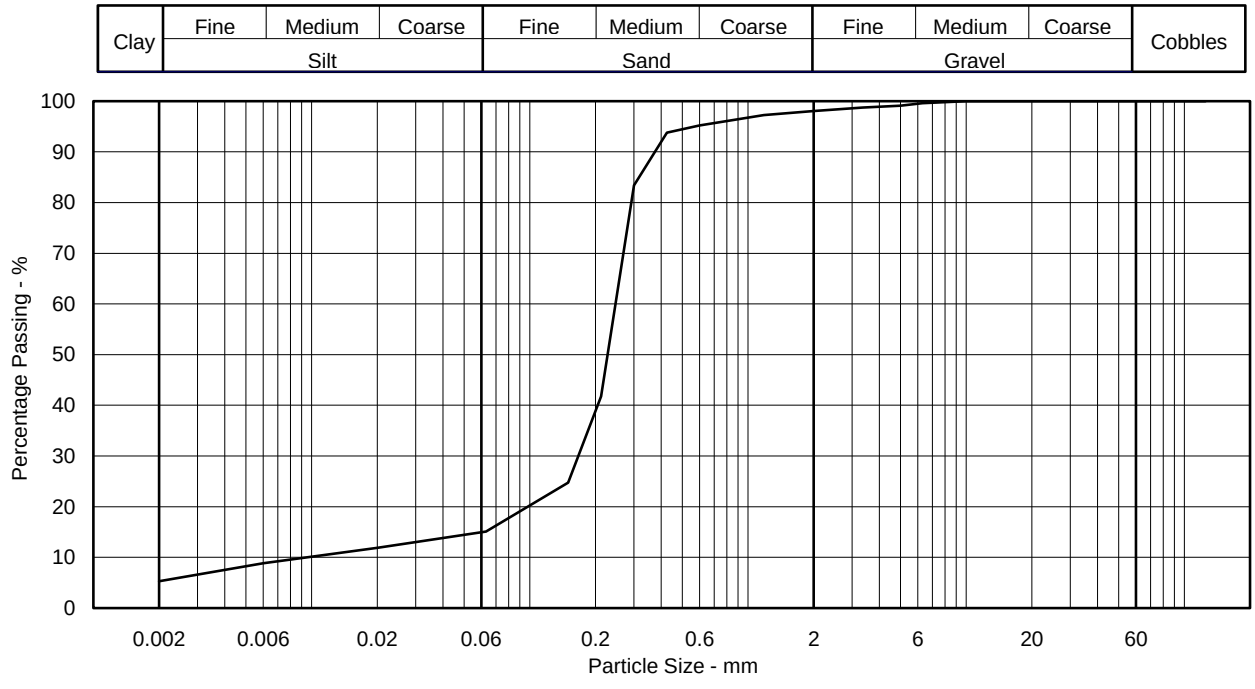
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	98
1.18 mm	97
600 µm	95
425 µm	94
300 µm	83
212 µm	42
150 µm	25
63 µm	15
20 µm	12
6 µm	9
2 µm	5

Non Engineering Description
Dark grey clayey silty SAND with some fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.9
Sand	83.2
Silt	9.6
Clay	5.3

Particle Diameter - mm	
D100	10
D60	0.25
D10	0.0096
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	26.0

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	85
		Depth (m)	28.50-29.00
		Sample Type	B

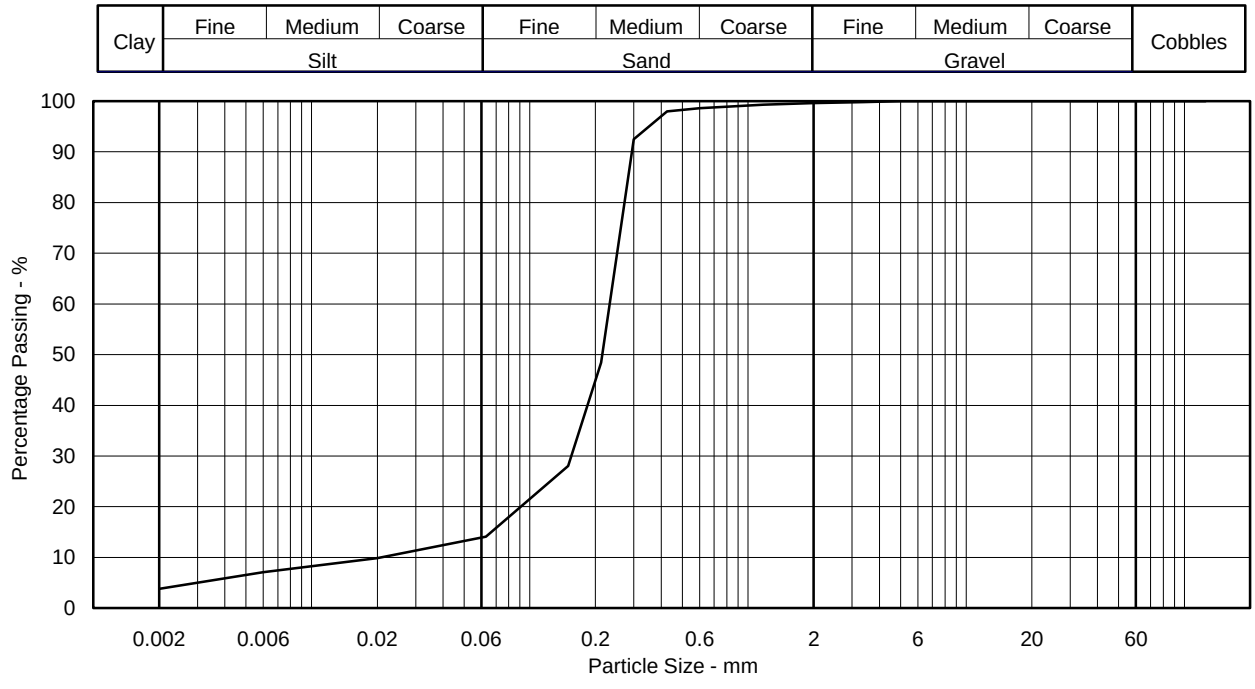
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	98
300 µm	93
212 µm	48
150 µm	28
63 µm	14
20 µm	10
6 µm	7
2 µm	4

Non Engineering Description
Greyish brown slightly clayey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	85.8
Silt	10.0
Clay	3.8

Particle Diameter - mm	
D100	5.0
D60	0.23
D10	0.021
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	11.0

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 06/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Version 058 - 10/06/2013
1260 - PSD MB09 31.50 92 B - C6474-2-338629.xls : Sample ID 338629

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	92
		Depth (m)	31.50-32.00
		Sample Type	B

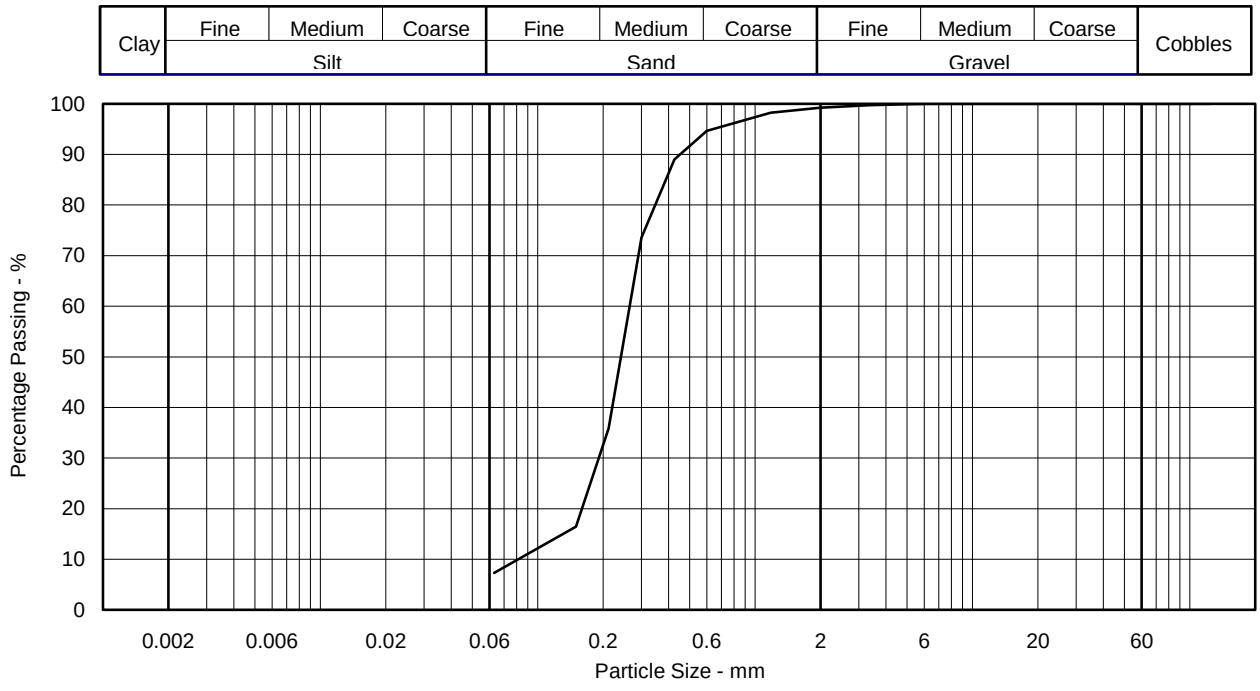
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	95
425 µm	89
300 µm	74
212 µm	36
150 µm	16
63 µm	7

Non Engineering Description
Dark grey silty SAND with rare fine shell fragments.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.7
Sand	92.0
Silt & Clay	7.3

Particle Diameter - mm	
D100	6.3
D60	0.26
D10	0.081
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.2

Notes



Originator	Checked & Approved
MAB	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

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Lab Project No C6474-2 : 05/09/2018 14:32:49

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	97
		Depth (m)	33.50-34.00
		Sample Type	B

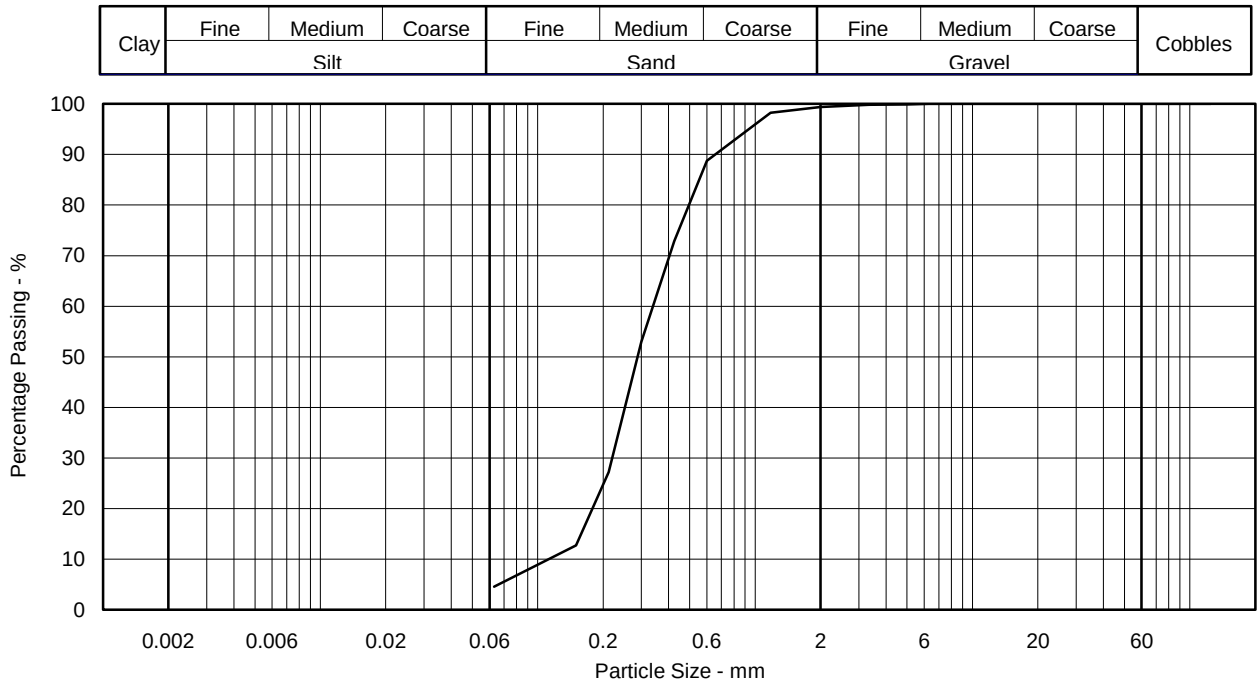
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	89
425 µm	73
300 µm	53
212 µm	27
150 µm	13
63 µm	5

Non Engineering Description
Grey slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.6
Sand	94.8
Silt & Clay	4.6

Particle Diameter - mm	
D100	6.3
D60	0.34
D10	0.11
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.1

Notes



Originator	Checked & Approved
MAB	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	105
		Depth (m)	36.50-37.00
		Sample Type	B

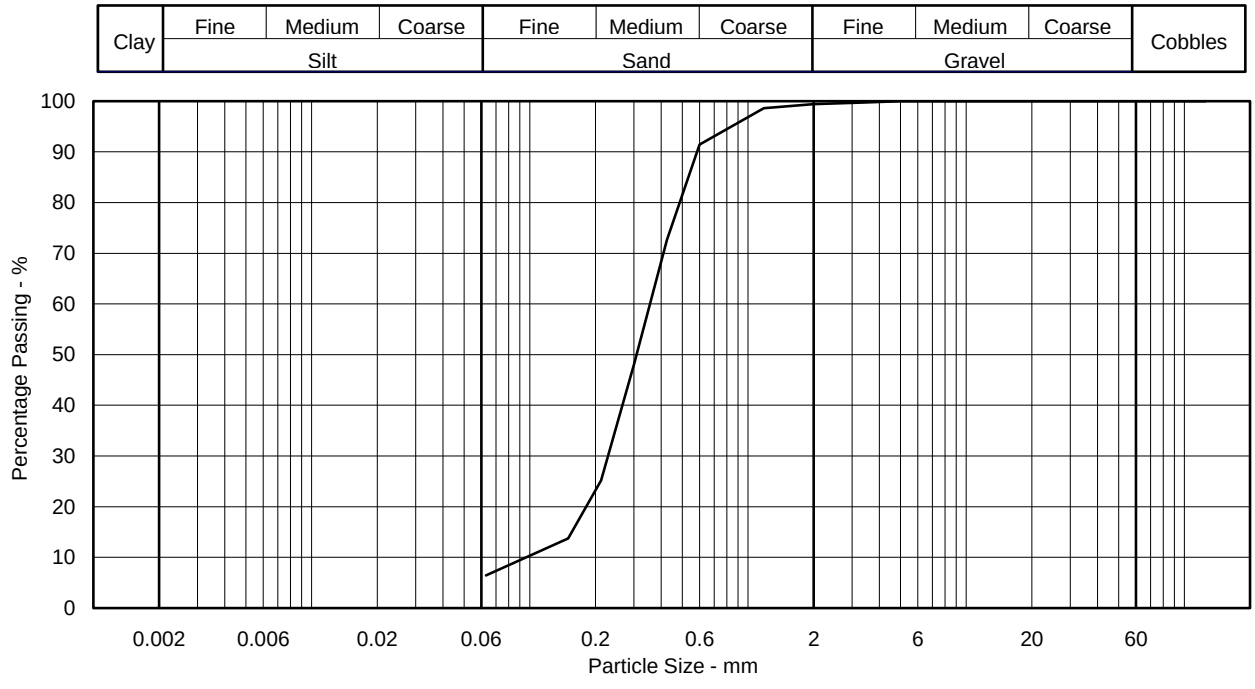
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	91
425 µm	73
300 µm	48
212 µm	25
150 µm	14
63 µm	6

Non Engineering Description
Grey silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.6
Sand	93.0
Silt & Clay	6.5

Particle Diameter - mm	
D100	5.0
D60	0.36
D10	0.096
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.8

Notes



Originator	Checked & Approved
LA	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Version 058 - 10/06/2013
1260 - PSD MB09 37.40 107 B - C6474-2-338632.xls : Sample ID 338632

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	107
		Depth (m)	37.40
		Sample Type	B

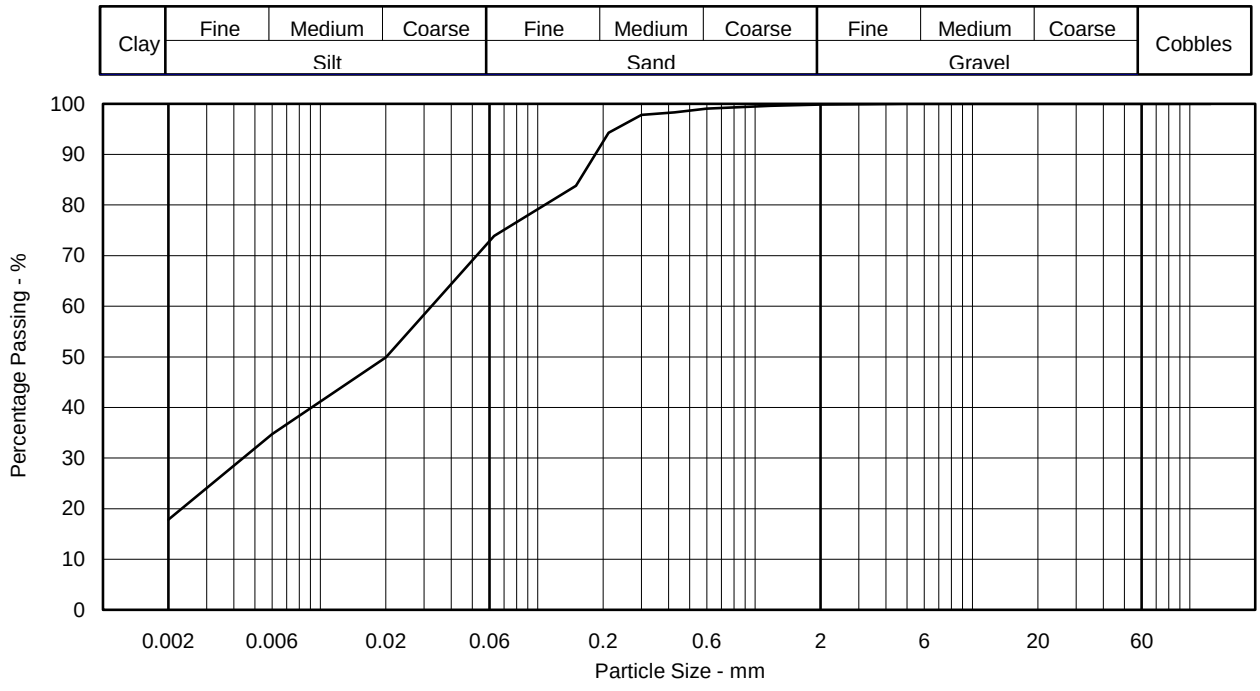
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	98
300 µm	98
212 µm	94
150 µm	84
63 µm	74
20 µm	50
6 µm	35
2 µm	18

Non Engineering Description
Dark brown slightly sandy CLAY.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.1
Sand	27.7
Silt	54.4
Clay	17.8

Particle Diameter - mm	
D100	5.0
D60	0.032
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
MH	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 06/09/2018 14:45:44

Norfolk County Council
Norfolk Partnership Laboratory

NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457
Email: civil.laboratory@norfolk.gov.uk

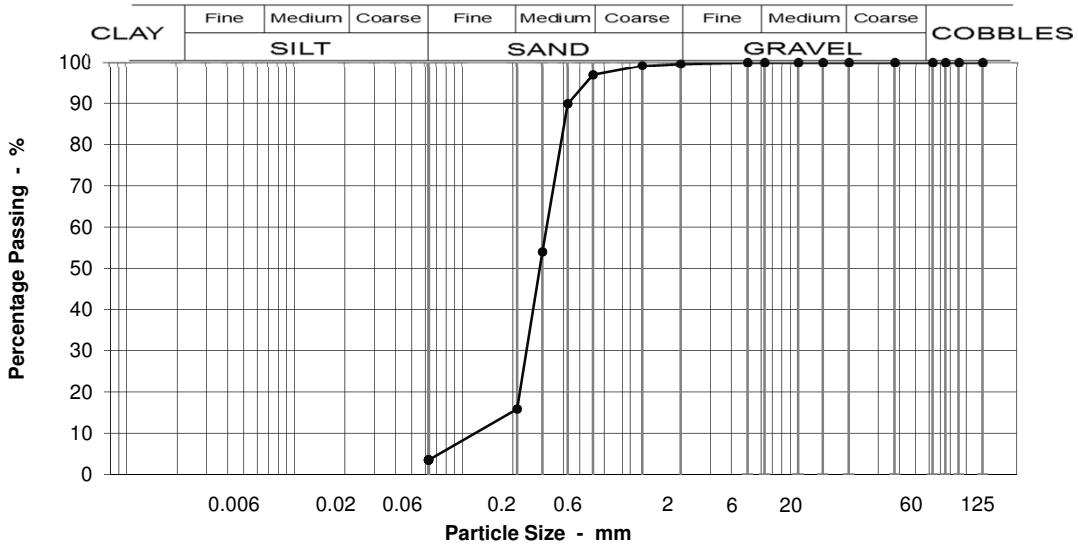
Community & Environmental Services
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2DH

Our reference No. NCCL2018071034-610
Our Project No PZ1522D1
Your Sample Ref 1
Your Project or Order No. PZ1522
Date Tested
Date Report Issued 3-Aug-18

Particle Size Distribution to BS 1377 : Part 2 :1990 Section 9

Scheme: Gt Yarmouth 3rd River Crossing
Location and orientation within sample not applicable

Location: MB10 @ 0m Specimen: 1
Bulk disturbed sample



Sieving

Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
1.18	99
0.600	97
0.425	90
0.300	54
0.212	16
0.063	4

Specification for Highway Works Classification

Table 6/2

This material complies with the following material classes 1B, 6E/6R, 6M.

Moisture content % 27

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	0
Coarse SAND	3
Medium SAND	81
Fine SAND	12
Silt & Clay	4

Grading Analysis	
D100	2
D60	0.32
D10	0.14
Uniformity Coefficient	2

Description
Dark grey and black medium SAND.

Test Code = 610

UKAS TESTING 0920

Simon Holden (Project Technician) [redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	5
		Depth (m)	2.00
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	98
2.00 mm	98
1.18 mm	98
600 µm	96
425 µm	91
300 µm	58
212 µm	20
150 µm	8
63 µm	5

Non Engineering Description

Dark brown slightly gravelly silty SAND with pockets of organic material. Gravel is fine to medium.

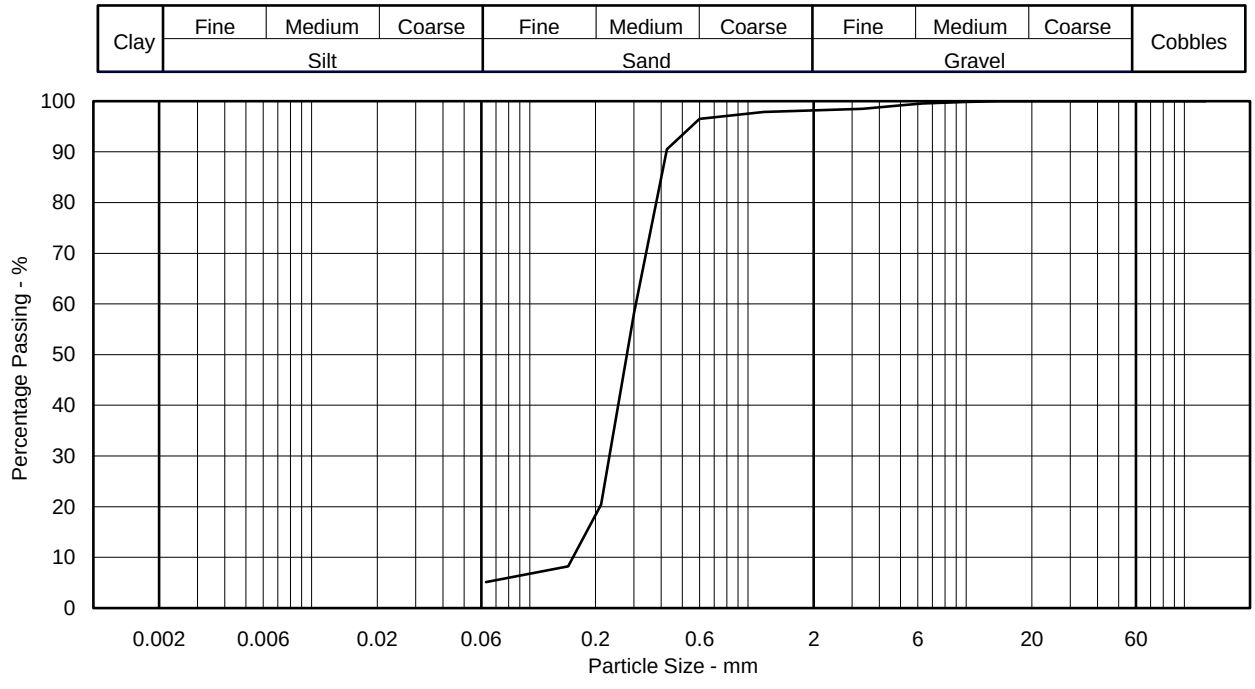
Sample Proportions - %

Cobbles	0.0
Gravel	1.8
Sand	93.1
Silt & Clay	5.1

Particle Diameter - mm

D100	14
D60	0.31
D10	0.16
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	1.9

Notes



Originator	Checked & Approved
LA	[redacted] 2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Version 058 - 10/06/2013
1260 - PSD MB10 04.00 13 B - C6474-2-338636.xls : Sample ID 338636

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	13
		Depth (m)	4.00
		Sample Type	B

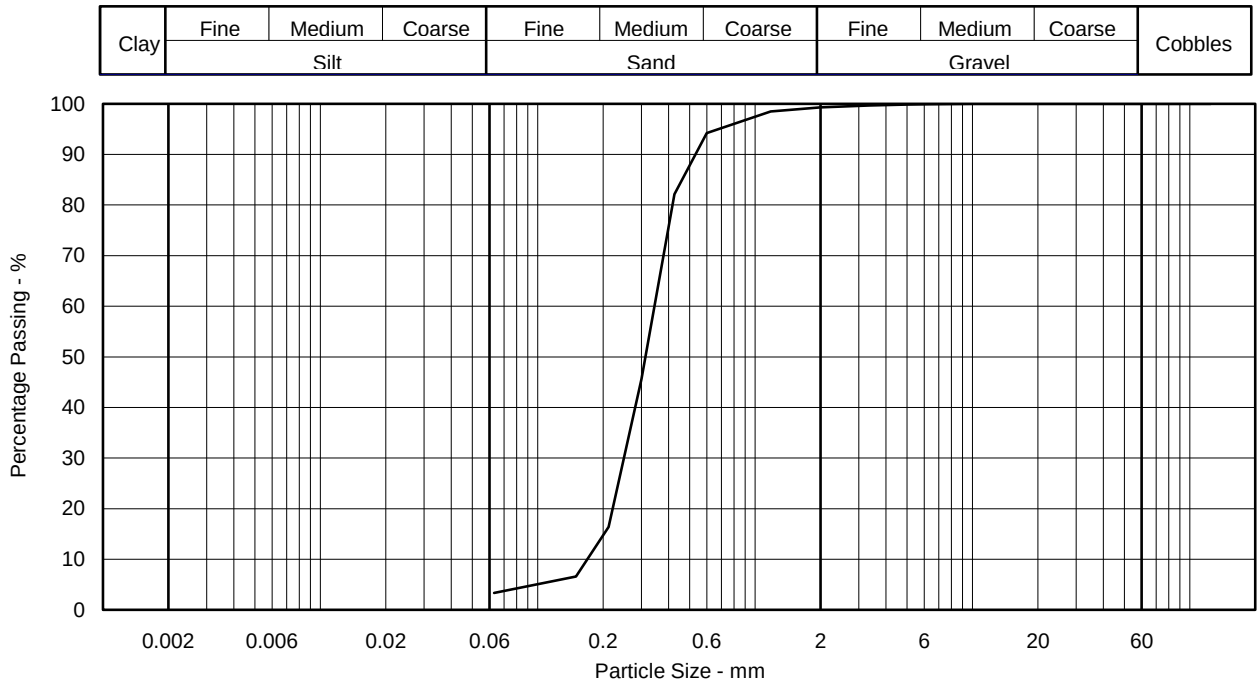
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	94
425 µm	82
300 µm	46
212 µm	16
150 µm	7
63 µm	3

Non Engineering Description
Dark grey mottled brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.7
Sand	95.9
Silt & Clay	3.3

Particle Diameter - mm	
D100	10
D60	0.34
D10	0.17
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.0

Notes



Originator	Checked & Approved
MAB	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 14:37:10

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	17
		Depth (m)	5.00
		Sample Type	B

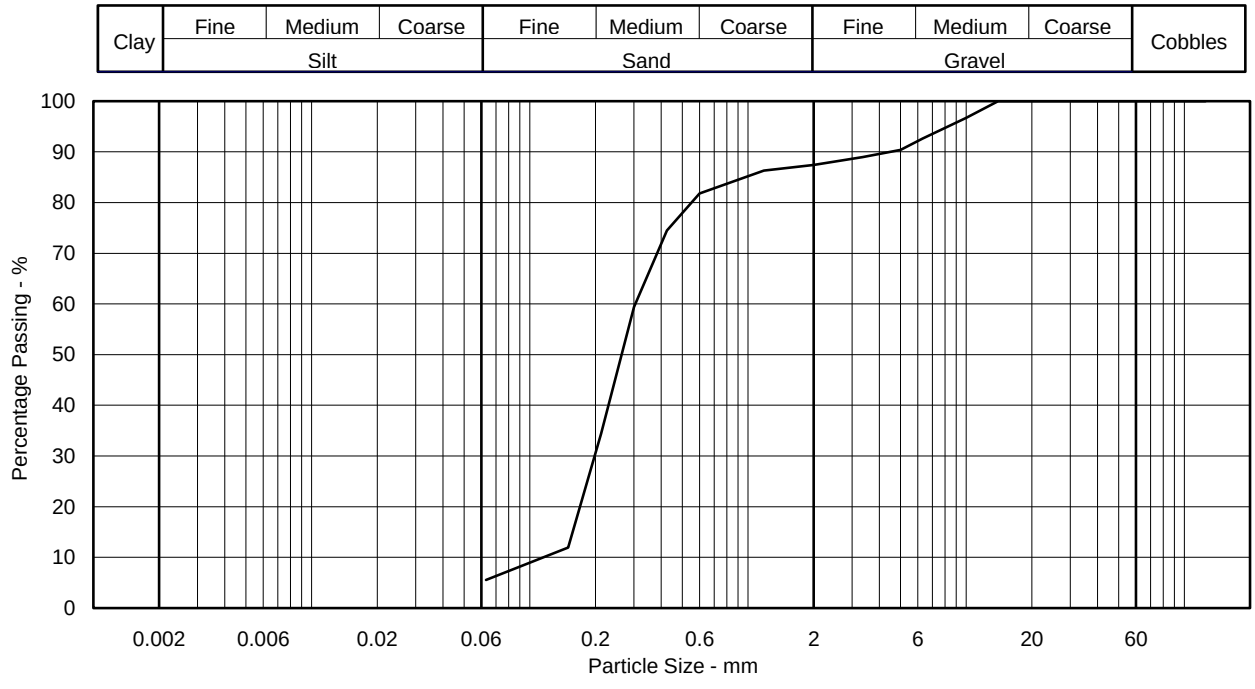
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	97
6.30 mm	93
5.00 mm	90
3.35 mm	89
2.00 mm	87
1.18 mm	86
600 µm	82
425 µm	74
300 µm	59
212 µm	34
150 µm	12
63 µm	6

Non Engineering Description
Brown mottled dark grey silty gravelly SAND. Gravel is fine to medium.

Sample Proportions - %	
Cobbles	0.0
Gravel	12.6
Sand	81.9
Silt & Clay	5.5

Particle Diameter - mm	
D100	14
D60	0.30
D10	0.12
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
LA	[redacted] 018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	24
		Depth (m)	7.00
		Sample Type	B

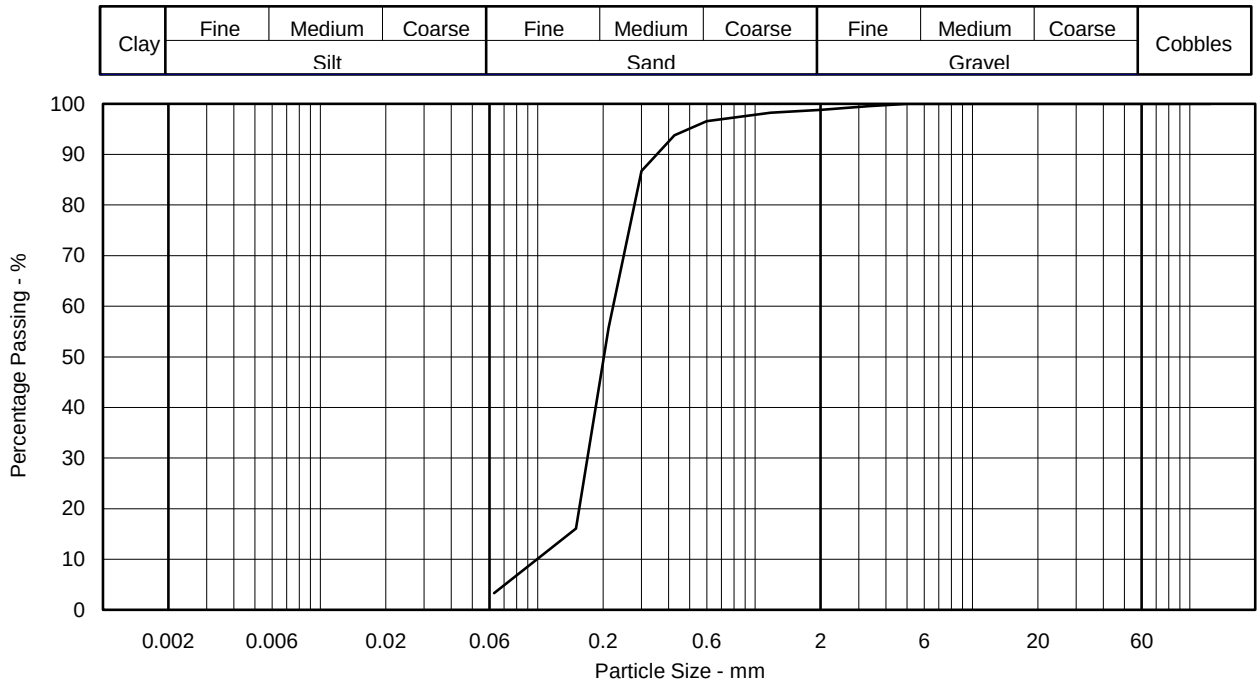
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	94
300 µm	87
212 µm	56
150 µm	16
63 µm	3

Non Engineering Description
Light brown slightly silty SAND with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	1.2
Sand	95.5
Silt & Clay	3.3

Particle Diameter - mm	
D100	5.0
D60	0.22
D10	0.099
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.2

Notes



Originator	Checked & Approved
MAB	[redacted]/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	33
		Depth (m)	10.00
		Sample Type	B

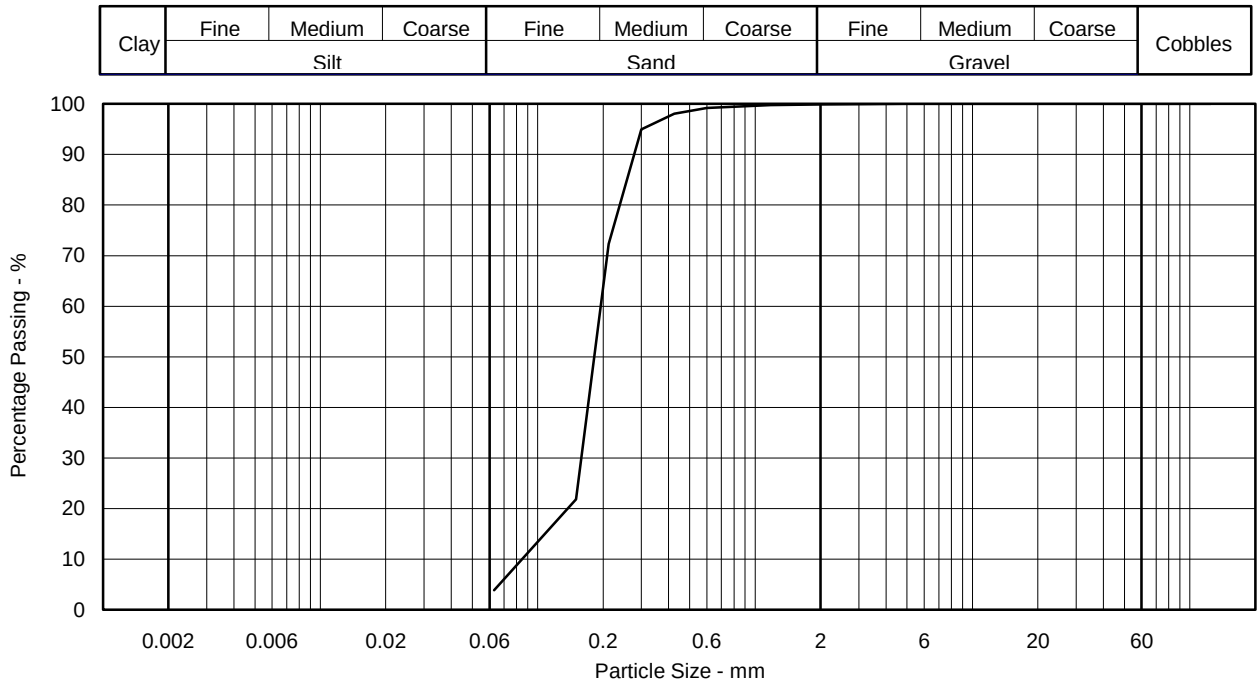
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	98
300 µm	95
212 µm	72
150 µm	22
63 µm	4

Non Engineering Description
Orange brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.1
Sand	96.0
Silt & Clay	3.9

Particle Diameter - mm	
D100	5.0
D60	0.19
D10	0.085
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.2

Notes
S.I.P (89.31)



Originator	Checked & Approved
MAB	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 14:57:18

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	40
		Depth (m)	12.00
		Sample Type	B

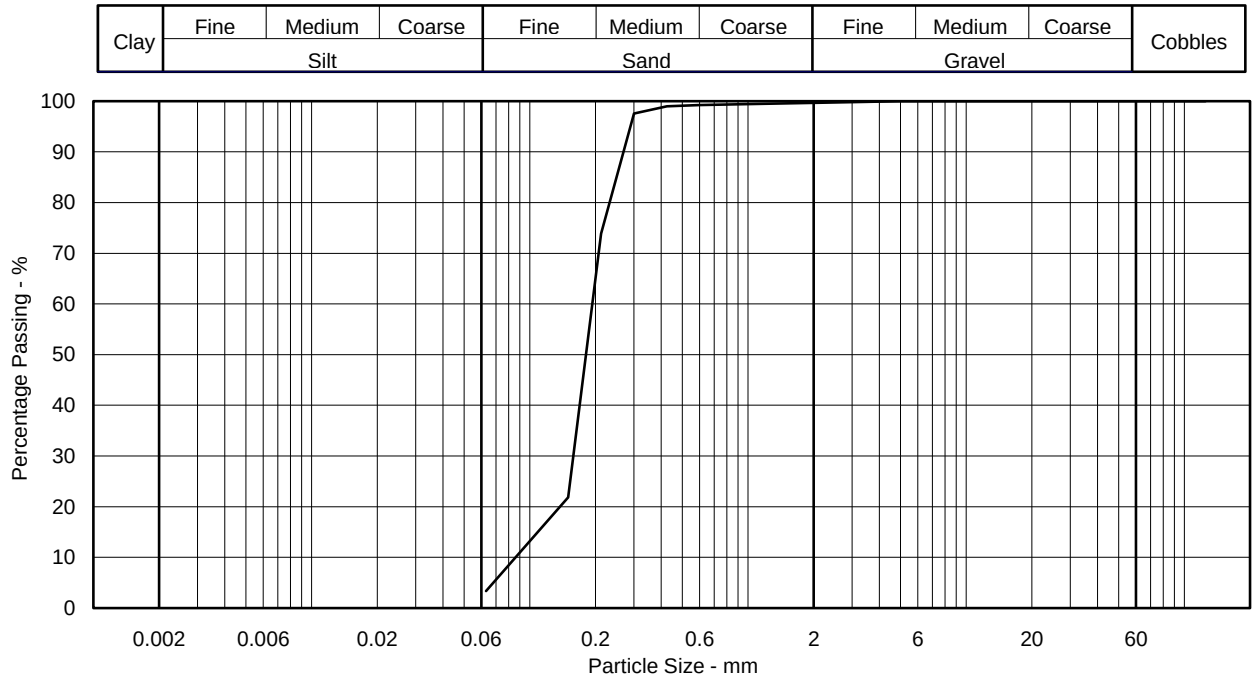
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	99
300 µm	98
212 µm	74
150 µm	22
63 µm	3

Non Engineering Description
Orange brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	96.3
Silt & Clay	3.4

Particle Diameter - mm	
D100	5.0
D60	0.19
D10	0.086
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.2

Notes



Originator	Checked & Approved
LA	[redacted]/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	47
		Depth (m)	14.00
		Sample Type	B

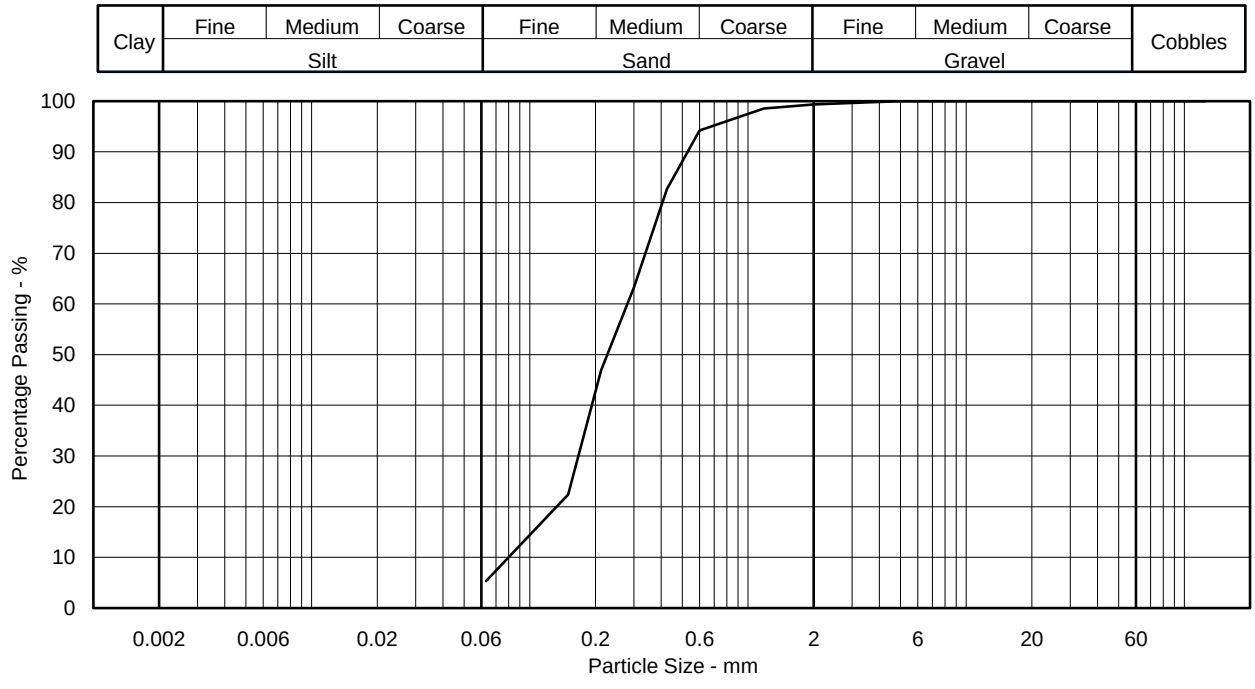
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	94
425 µm	83
300 µm	63
212 µm	47
150 µm	22
63 µm	5

Non Engineering Description
Orange brown silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.7
Sand	94.0
Silt & Clay	5.3

Particle Diameter - mm	
D100	5.0
D60	0.28
D10	0.080
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.5

Notes



Originator	Checked & Approved
LA	[redacted]/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	49
		Depth (m)	14.50
		Sample Type	B

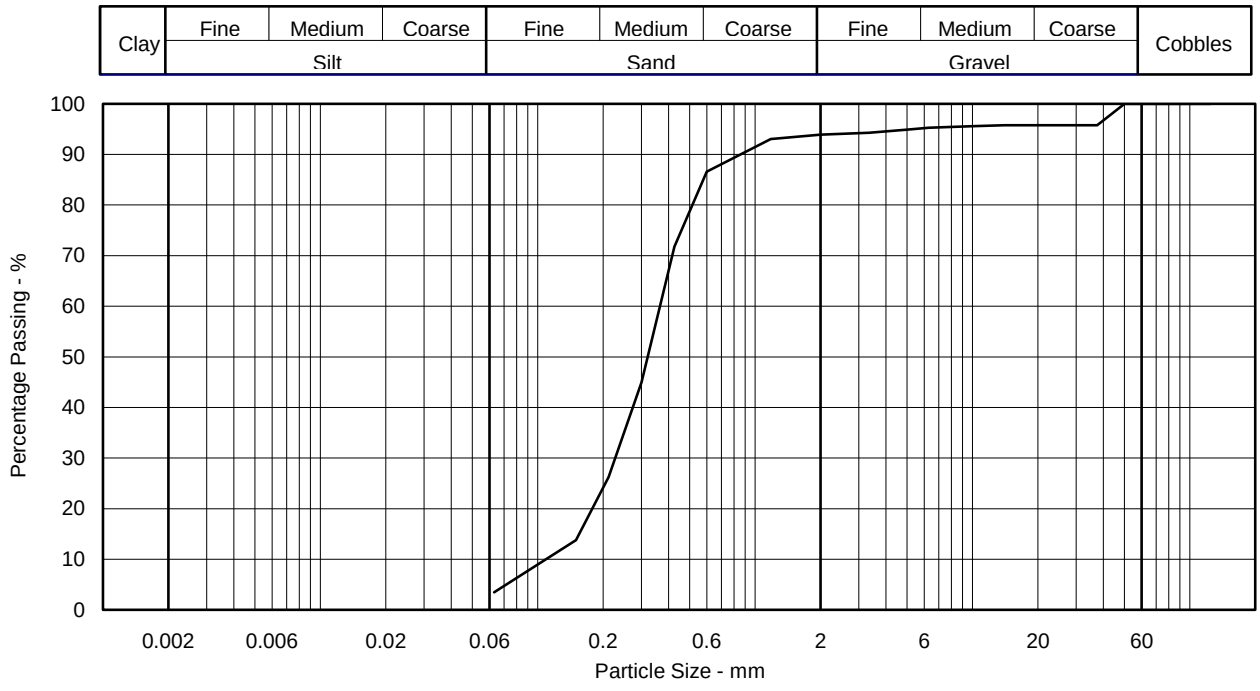
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	96
28.0 mm	96
20.0 mm	96
14.0 mm	96
10.0 mm	96
6.30 mm	95
5.00 mm	95
3.35 mm	94
2.00 mm	94
1.18 mm	93
600 µm	87
425 µm	72
300 µm	45
212 µm	26
150 µm	14
63 µm	3

Non Engineering Description
Orange brown slightly silty gravelly SAND. Gravel is fine to coarse.

Sample Proportions - %	
Cobbles	0.0
Gravel	6.1
Sand	90.4
Silt & Clay	3.5

Particle Diameter - mm	
D100	50
D60	0.36
D10	0.11
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.3

Notes



Originator	Checked & Approved
MH	[redacted] 2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Version 058 - 10/06/2013
1260 - PSD MB10 15.50 51 B - C6474-2-338643.xls : Sample ID 338643

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	51
		Depth (m)	15.50
		Sample Type	B

Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	98
1.18 mm	97
600 µm	93
425 µm	80
300 µm	49
212 µm	25
150 µm	14
63 µm	4

Non Engineering Description

Orange brown slightly gravelly slightly silty SAND. Gravel is fine to medium.

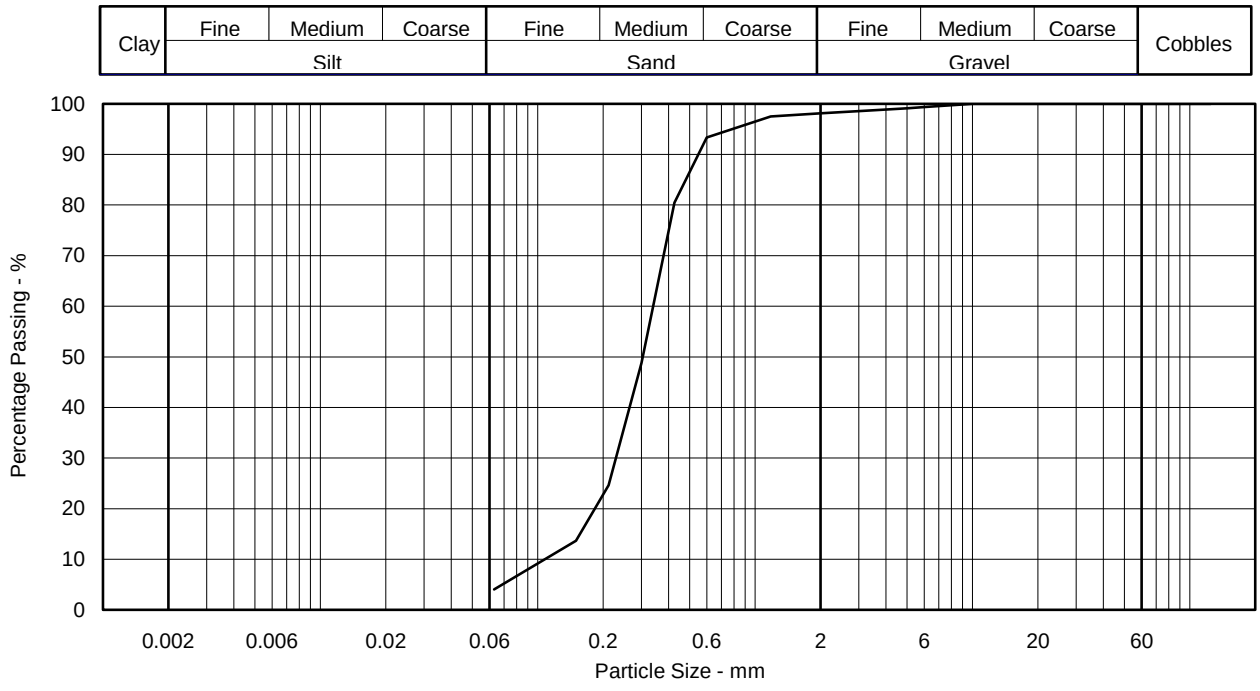
Sample Proportions - %

Cobbles	0.0
Gravel	1.9
Sand	94.1
Silt & Clay	4.0

Particle Diameter - mm

D100	10
D60	0.34
D10	0.11
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	3.1

Notes



Originator	Checked & Approved
MAB	[redacted] 05/09/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 05/09/2018 15:02:58

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	55
		Depth (m)	17.50
		Sample Type	B

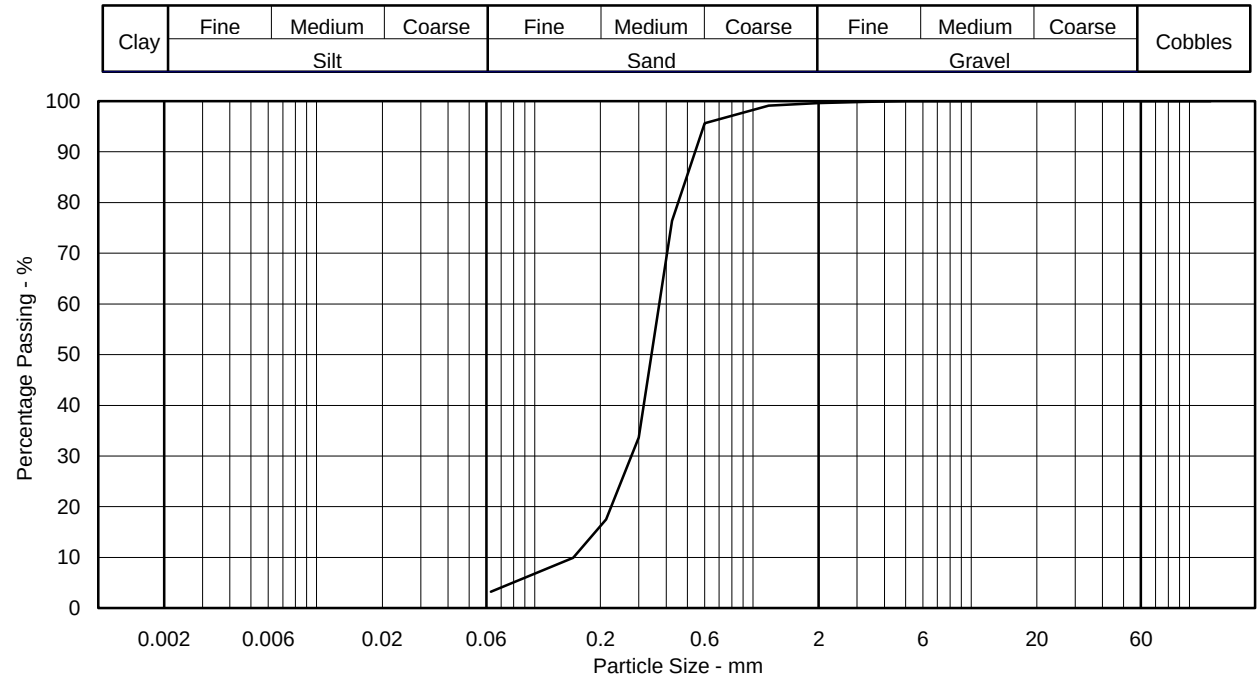
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	96
425 µm	76
300 µm	34
212 µm	18
150 µm	10
63 µm	3

Non Engineering Description
Light brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.4
Sand	96.4
Silt & Clay	3.3

Particle Diameter - mm	
D100	5.0
D60	0.37
D10	0.15
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.5

Notes



Originator	Checked & Approved
LA	[redacted]/2018

PARTICLE SIZE DISTRIBUTION
BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	60
		Depth (m)	19.30
		Sample Type	B

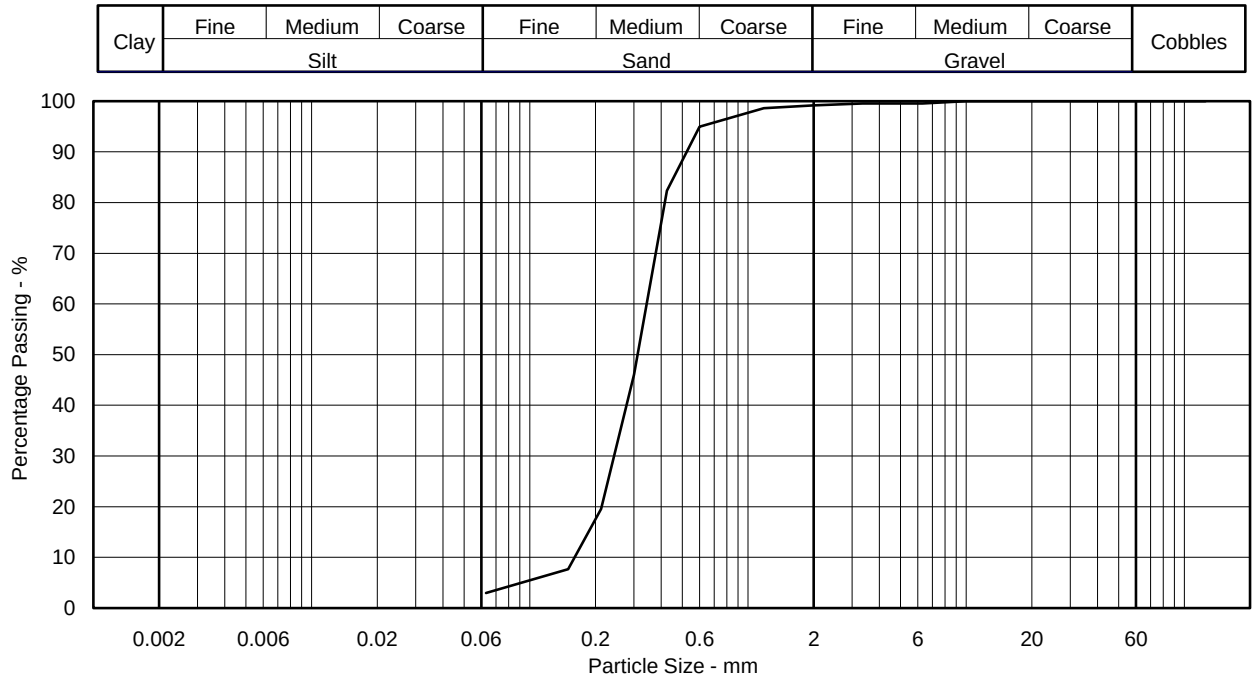
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	95
425 µm	82
300 µm	46
212 µm	20
150 µm	8
63 µm	3

Non Engineering Description
Brown slightly silty SAND.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.8
Sand	96.2
Silt & Clay	3.0

Particle Diameter - mm	
D100	10
D60	0.34
D10	0.16
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	2.1

Notes



Originator	Checked & Approved
LA	[redacted]/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	63
		Depth (m)	20.50
		Sample Type	D

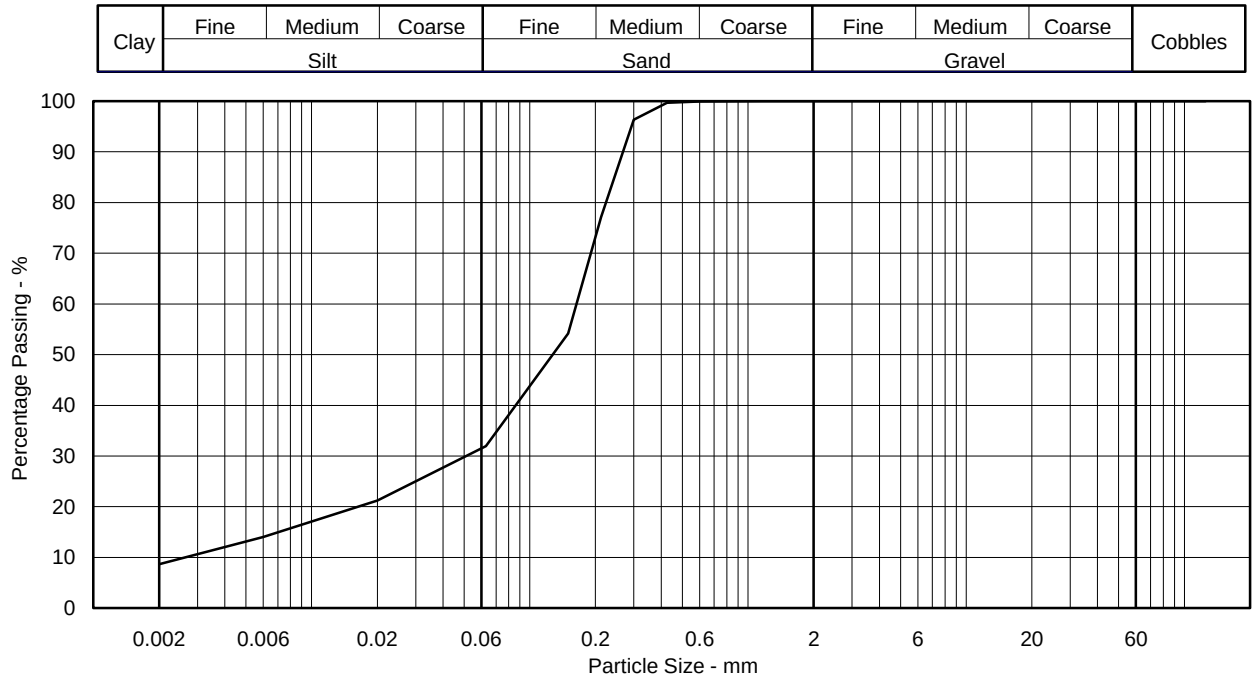
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	100
300 µm	96
212 µm	77
150 µm	54
63 µm	32
20 µm	21
6 µm	14
2 µm	9

Non Engineering Description
Grey very sandy SILT/CLAY.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.0
Sand	68.8
Silt	22.6
Clay	8.7

Particle Diameter - mm	
D100	2.0
D60	0.16
D10	0.0026
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	61.5

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted]/2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-2 : 11/09/2018 09:40:25

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB10
Engineer	Norfolk Partnership Laboratory	Sample Ref	68
		Depth (m)	22.50
		Sample Type	B

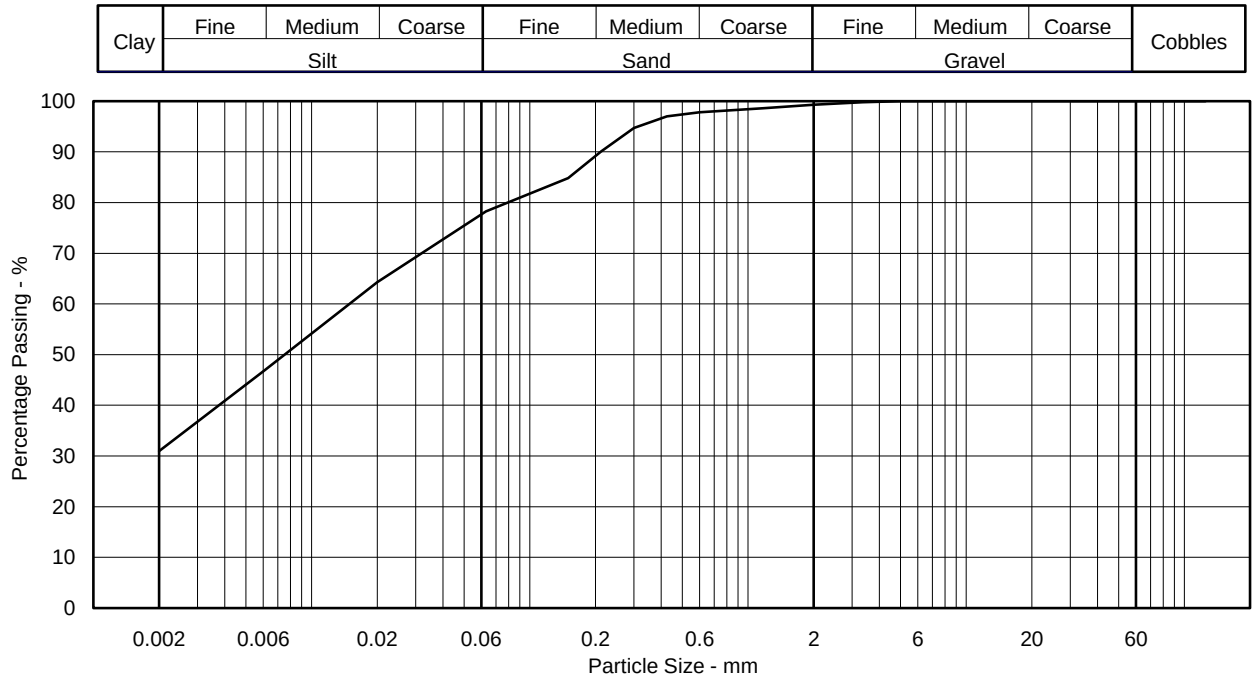
Particle Size	% Passing
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	98
425 µm	97
300 µm	95
212 µm	90
150 µm	85
63 µm	78
20 µm	64
6 µm	47
2 µm	31

Non Engineering Description
Greyih brown slightly sandy CLAY with rare fine gravel.

Sample Proportions - %	
Cobbles	0.0
Gravel	0.7
Sand	22.0
Silt	46.3
Clay	31.0

Particle Diameter - mm	
D100	5.0
D60	0.015
D10	
Uniformity Coefficient (SHW series 600, Table 6/1, footnote 5)	N/A

Notes
Sedimentation sample not pre-treated



Originator	Checked & Approved
LA	[redacted] 2018

PARTICLE SIZE DISTRIBUTION

BS1377:Part 2:1990 Clause 9.2 - Wet Sieving
BS1377:Part 2:1990 Clause 9.4 - Sedimentation by Pipette

TERRA TEK
SITE INVESTIGATION & LABORATORY SERVICES

Norfolk Partnership Laboratory
County Hall
Martineau Lane
Norwich
Norfolk
NR1 2SG
For the attention of Mr. Simon Holden

Report No: C6474-3
Issue No 01

LABORATORY TEST REPORT

Project Name	**GREAT YARMOUTH 3RD RIVER CROSSING**		
Project Number	**C6474-3**	Date samples received	17/08/2018
Your Ref	PZ1522D1	Date written instructions received	17/08/2018
Purchase Order		Date testing commenced	07/09/2018

Please find enclosed the results as summarised below

Item No	Test Quantity	Description	ISO 17025 Accredited
7.33	33	Single stage UU Triaxial	Yes

Remarks :

Issued by : L. Anaz Date of Issue : 14/09/2018

Approved Signatories : [redacted] 14/09/2018

G Wilson (JMD/Laboratories Director), M D Brown (Quality Manager), L Anaz (Supervisor), Julie Hopkins (Administrator), A Davison (Supervisor)

Key to symbols used in this report
S/C : Testing was sub-contracted

Unless we are notified to the contrary, samples will be disposed after a period of one month from this date.
The results reported relate to samples received in the laboratory only.
All results contained in this report are provisional unless signed by an approved signatory
This report should not be reproduced except in full without the written approval of the laboratory.
Under multisite accreditation the testing contained in this report may have been performed at another Terra Tek laboratory.
The enclosed results remain the property of Terra Tek Limited and we reserve the right to withdraw
our report if we have not received cleared funds in accordance with our standard terms and conditions
Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation.
Feedback on the this report may be left via our website www.terratek.co.uk/contact-us

mCERTS UKAS TESTING 0126 25 YEARS 1990-2015

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
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Terra Tek Ltd is registered in Scotland No. 121594
Offices in Airdrie, Birmingham, Belfast and Chesham
Head Office : 62 Rochsolloch Road, Airdrie, ML6 9BG

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

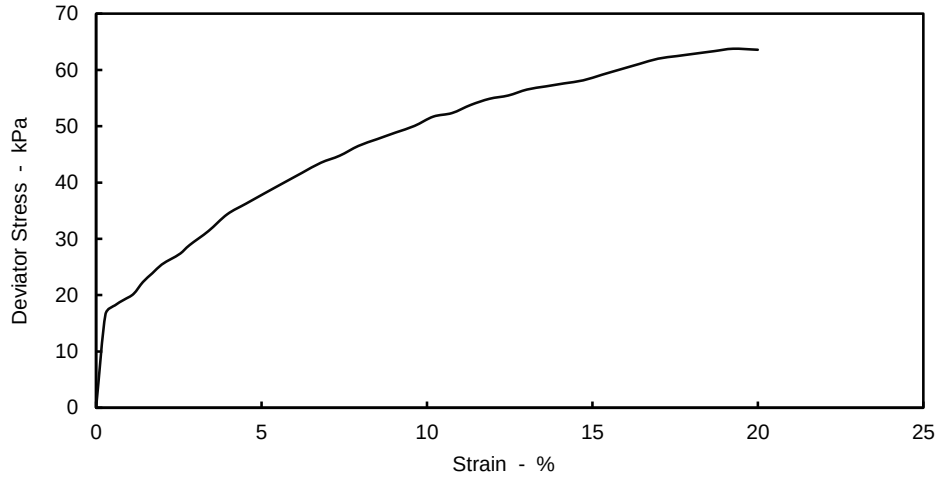
Contract No. PZ1522D1

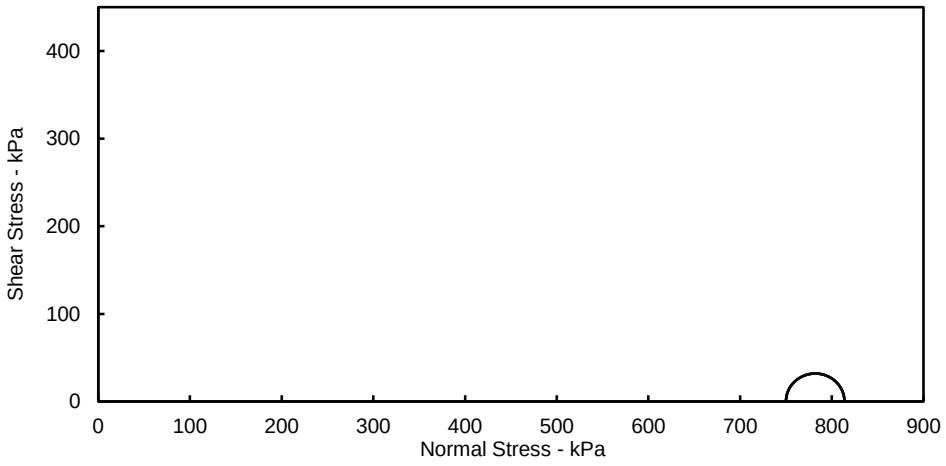
Hole	MB01A
Sample Ref	U72
Depth (m)	21.00-21.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	176.6
Diameter	mm	103.3
Moisture Content	%	28
Bulk Density	Mg/m³	1.99
Dry Density	Mg/m³	1.55
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	1.08
Rate of Axial Displacement	%/min	2.30
Cell Pressure	kPa	750
Strain at Failure	%	19.2
Maximum Deviator Stress	kPa	64
Shear Strength	kPa	32
Mode of Failure		Compound
Non Engineering Description		Soft layered grey sandy CLAY.

Comments
Undisturbed specimen taken 220mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 18

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB01A 21.00 U72 U - C6474-3-338822#1.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB01A
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U72
			Depth (m)	21.00-21.45
			Sample Type	U





Originator	Checked & Approved
MAB	[redacted]018

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

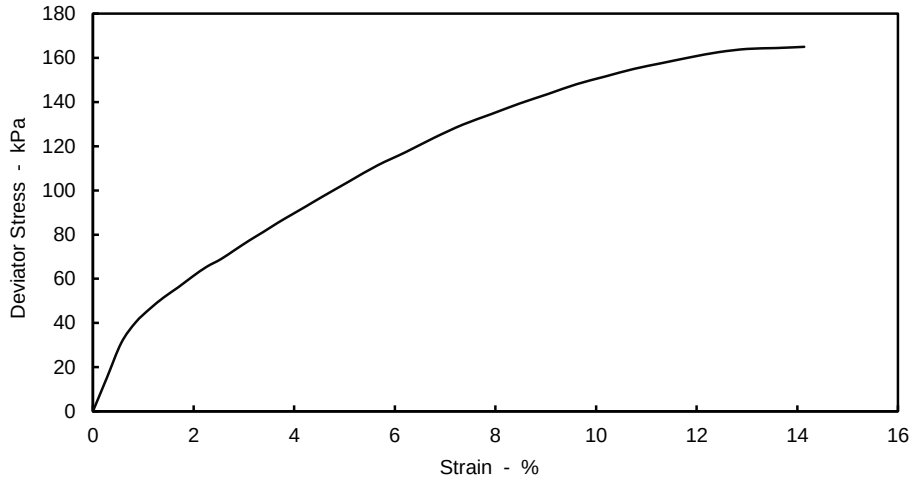
Contract No. PZ1522D1

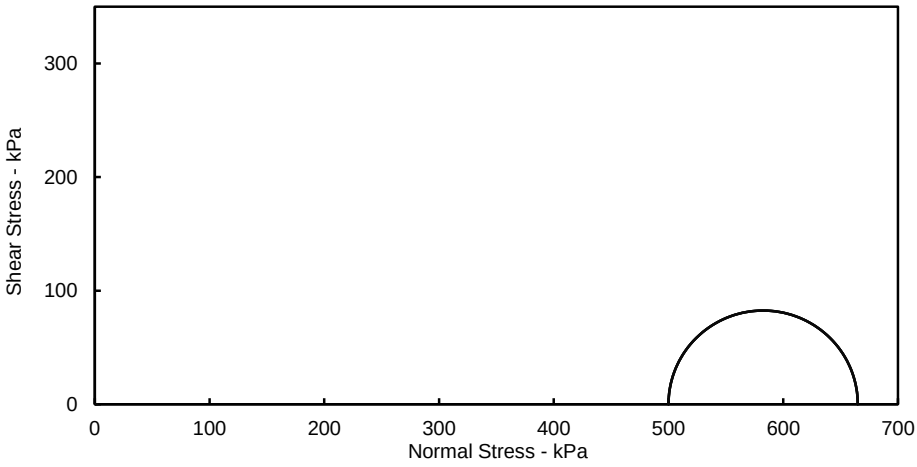
Hole	MB01A
Sample Ref	U72
Depth (m)	21.00-21.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	176.8
Diameter	mm	103.5
Moisture Content	%	25
Bulk Density	Mg/m³	2.00
Dry Density	Mg/m³	1.61
Test Details		
Membrane Thickness	mm	0.20
Membrane Correction	kPa	0.57
Rate of Axial Displacement	%/min	2.30
Cell Pressure	kPa	500
Strain at Failure	%	14.1
Maximum Deviator Stress	kPa	165
Shear Strength	kPa	82
Mode of Failure		Compound
Non Engineering Description		Stiff laminated yellowish grey sandy CLAY.

Comments
Undisturbed specimen taken 20mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted]

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION
BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB01A
Sample Ref	U72
Depth (m)	21.00-21.45
Sample Type	U





Originator	Checked & Approved
MAB	[redacted]

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-3

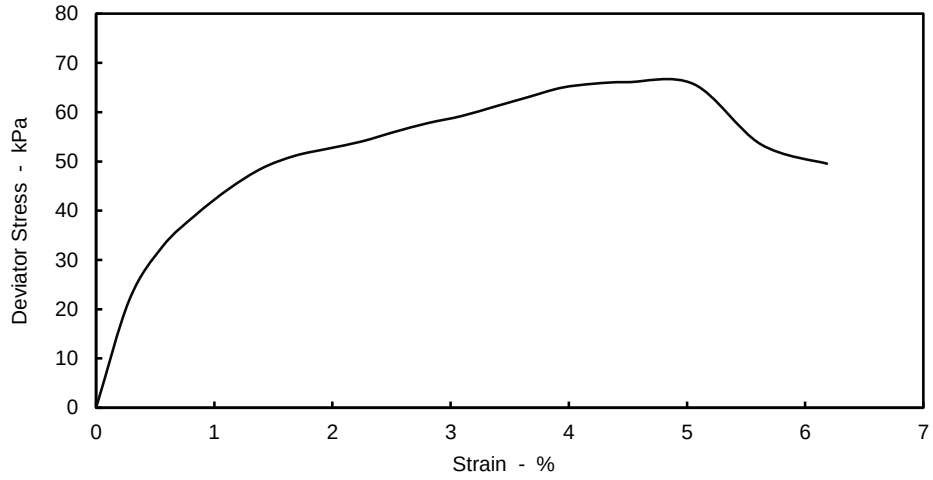
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

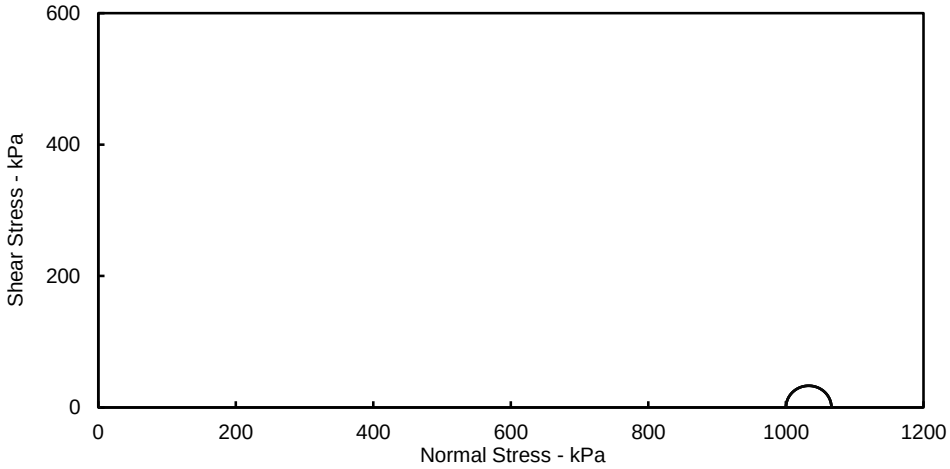
Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB01A
Engineer	Norfolk Partnership Laboratory	Sample Ref	U78
		Depth (m)	23.00-23.45
		Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	177.9
Diameter	mm	103.9
Moisture Content	%	25
Bulk Density	Mg/m³	1.99
Dry Density	Mg/m³	1.60
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.34
Rate of Axial Displacement	%/min	0.85
Cell Pressure	kPa	1000
Strain at Failure	%	4.5
Maximum Deviator Stress	kPa	66
Shear Strength	kPa	33
Mode of Failure		Plastic
Non Engineering Description		Soft layered grey very sandy CLAY.

Comments
Undisturbed specimen taken 235mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted]18

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB01A
Sample Ref	U78
Depth (m)	23.00-23.45
Sample Type	U





Originator	Checked & Approved
MAB	[redacted] 18

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

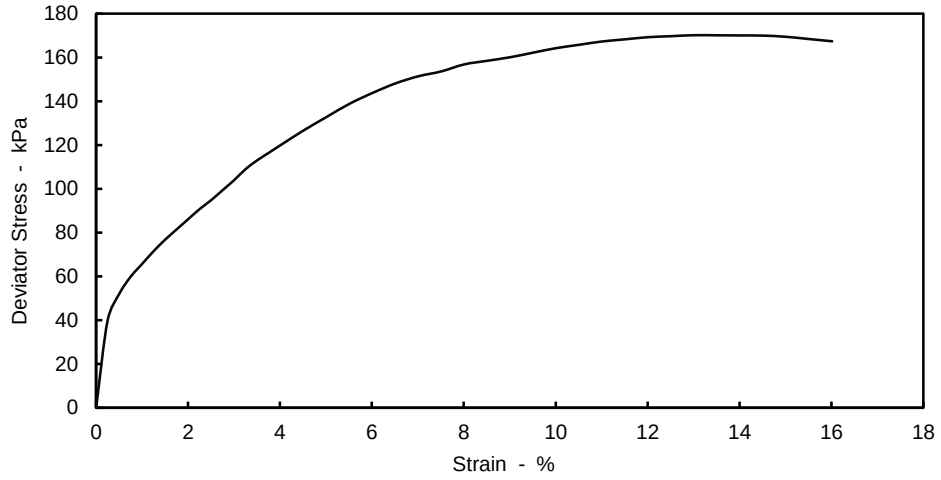
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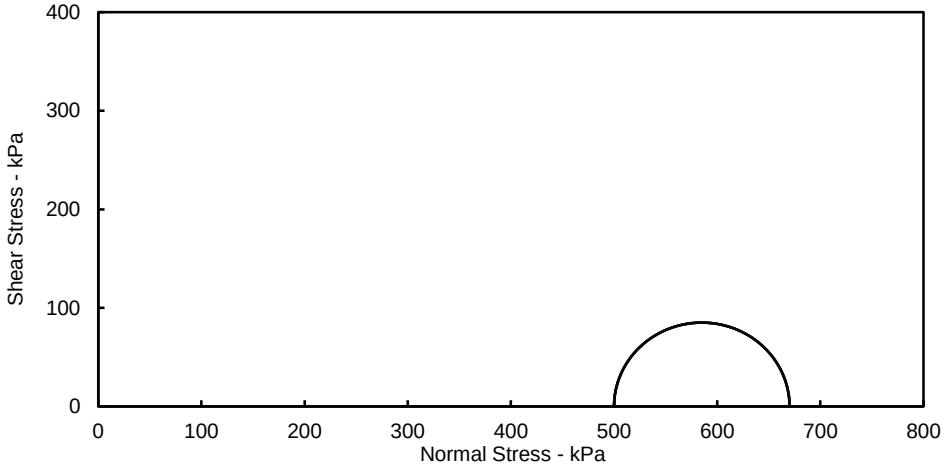
Hole	MB02
Sample Ref	U69
Depth (m)	21.00-21.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	199.8
Diameter	mm	103.4
Moisture Content	%	27
Bulk Density	Mg/m³	2.01
Dry Density	Mg/m³	1.58
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.80
Rate of Axial Displacement	%/min	0.76
Cell Pressure	kPa	500
Strain at Failure	%	13.0
Maximum Deviator Stress	kPa	170
Shear Strength	kPa	85
Mode of Failure		Compound
Non Engineering Description		Stiff fissured grey slightly sandy CLAY.

Comments
Undisturbed specimen taken 230mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 18

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB02 21.00 U69 U - C6474-3-338824#1.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB02
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U69
			Depth (m)	21.00-21.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
MAB	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

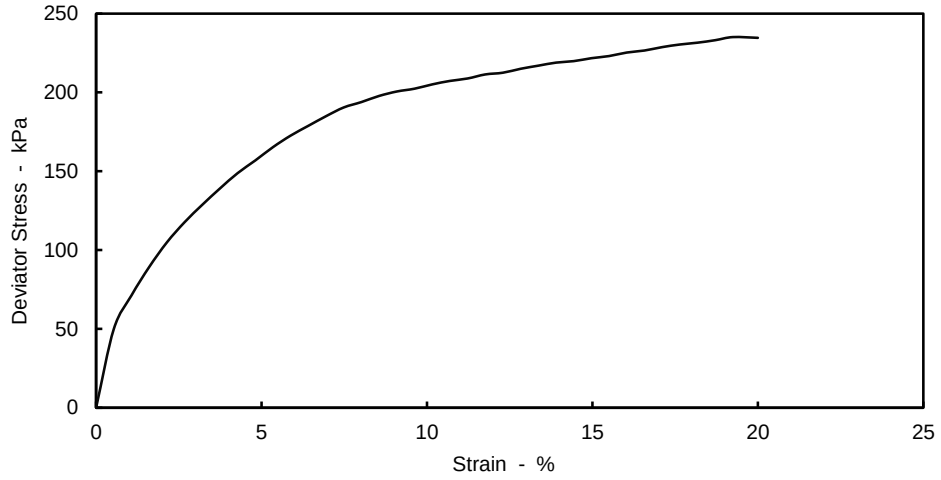
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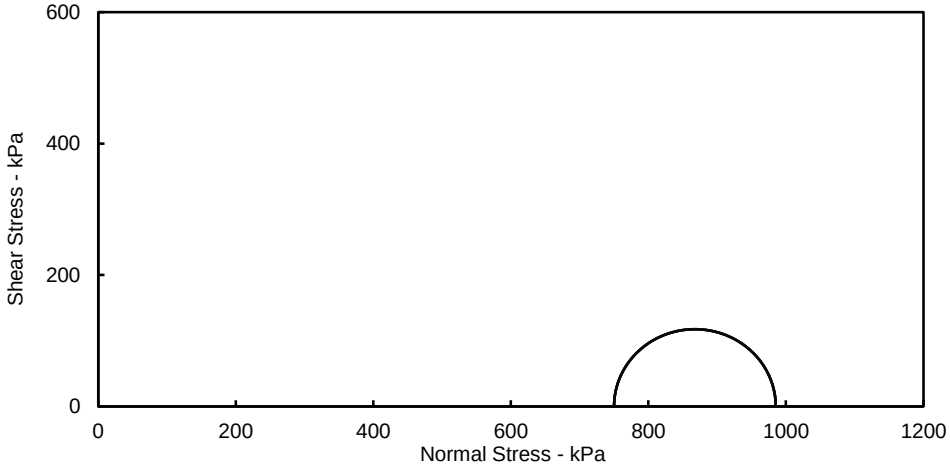
Hole	MB02
Sample Ref	U69
Depth (m)	21.00-21.45
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	187.1		
Diameter	mm	103.6		
Moisture Content	%	25		
Bulk Density	Mg/m³	2.01		
Dry Density	Mg/m³	1.61		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	1.07		
Rate of Axial Displacement	%/min	0.81		
Cell Pressure	kPa	750		
Strain at Failure	%	19.2		
Maximum Deviator Stress	kPa	235		
Shear Strength	kPa	118		
Mode of Failure		Compound		
Non Engineering Description		Stiff layered grey sandy CLAY.		

Comments
Undisturbed specimen taken 40mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted]

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB02 21.00 U69 U - C6474-3-338824.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB02
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U69
			Depth (m)	21.00-21.45
			Sample Type	U





Originator	Checked & [redacted]ed	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	Tk
MAB	14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

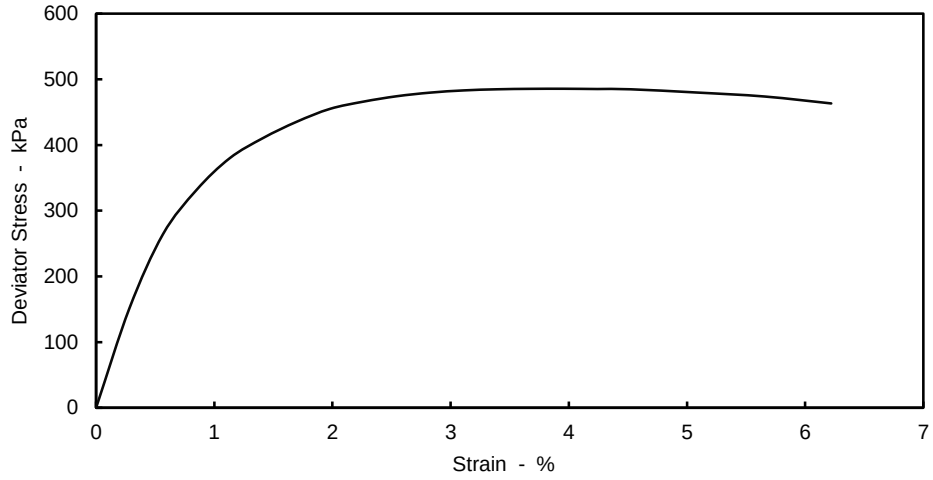
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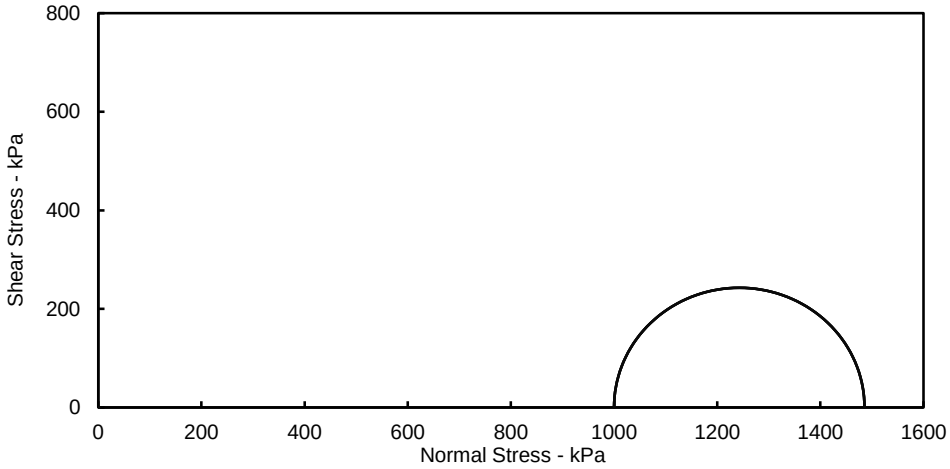
Hole	MB02
Sample Ref	U103
Depth (m)	36.10-36.55
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	176.8		
Diameter	mm	103.5		
Moisture Content	%	29		
Bulk Density	Mg/m³	1.97		
Dry Density	Mg/m³	1.52		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.31		
Rate of Axial Displacement	%/min	0.86		
Cell Pressure	kPa	1000		
Strain at Failure	%	4.0		
Maximum Deviator Stress	kPa	486		
Shear Strength	kPa	243		
Mode of Failure		Brittle		
Non Engineering Description		Very stiff intact dark grey slightly sandy CLAY.		

Comments
Undisturbed specimen taken 20mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB02
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U103
			Depth (m)	36.10-36.55
			Sample Type	U





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

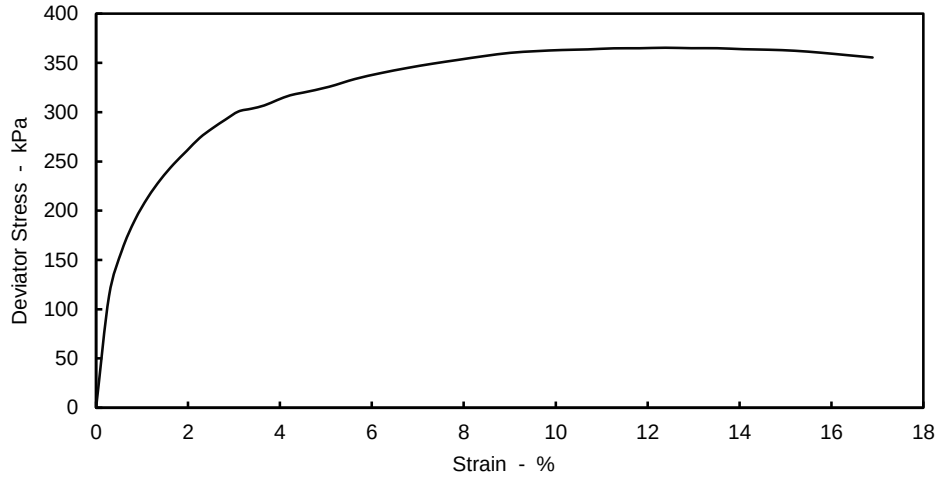
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

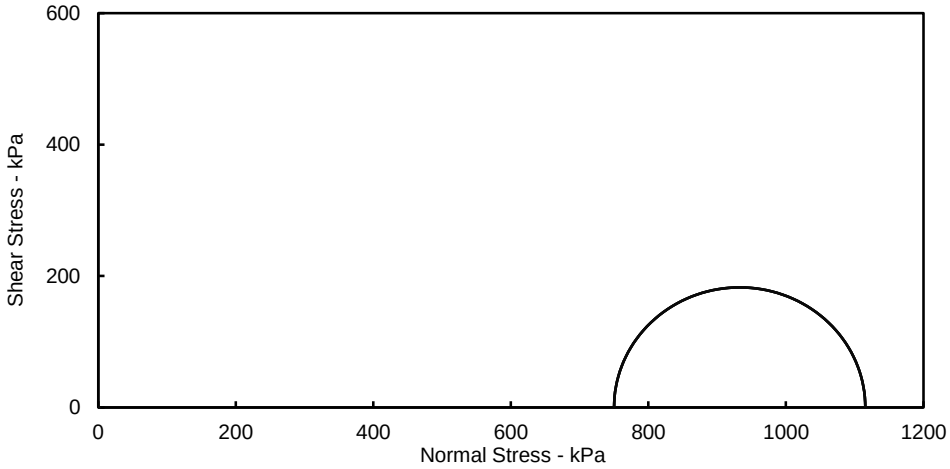
Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	U103
		Depth (m)	36.10-36.55
		Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	177.6		
Diameter	mm	103.5		
Moisture Content	%	31		
Bulk Density	Mg/m³	1.96		
Dry Density	Mg/m³	1.50		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.77		
Rate of Axial Displacement	%/min	0.86		
Cell Pressure	kPa	750		
Strain at Failure	%	12.4		
Maximum Deviator Stress	kPa	365		
Shear Strength	kPa	183		
Mode of Failure		Compound		
Non Engineering Description		Very stiff fissured grey slightly sandy CLAY.		

Comments
Undisturbed specimen taken 230mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted]

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB02 36.10 U103 U - C6474-3-338825.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB02
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U103
			Depth (m)	36.10-36.55
			Sample Type	U





Originator	Checked & Approved
MAB	[redacted]

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

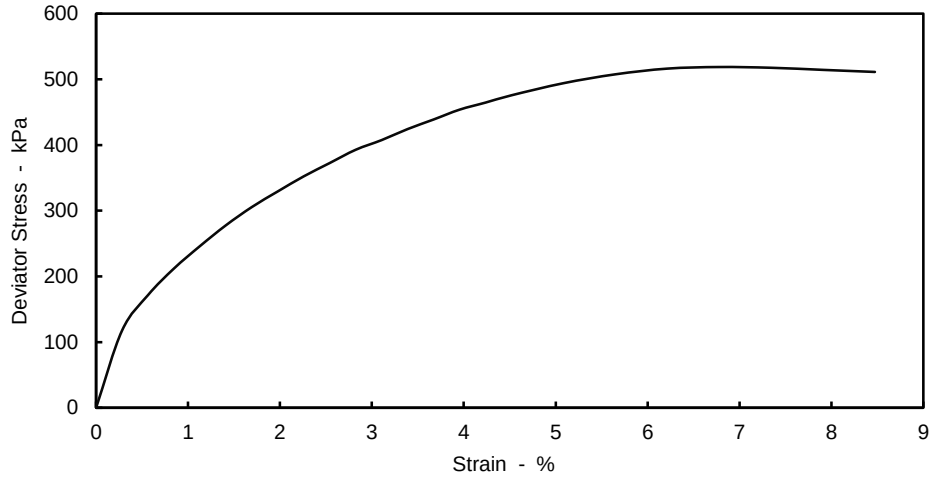
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

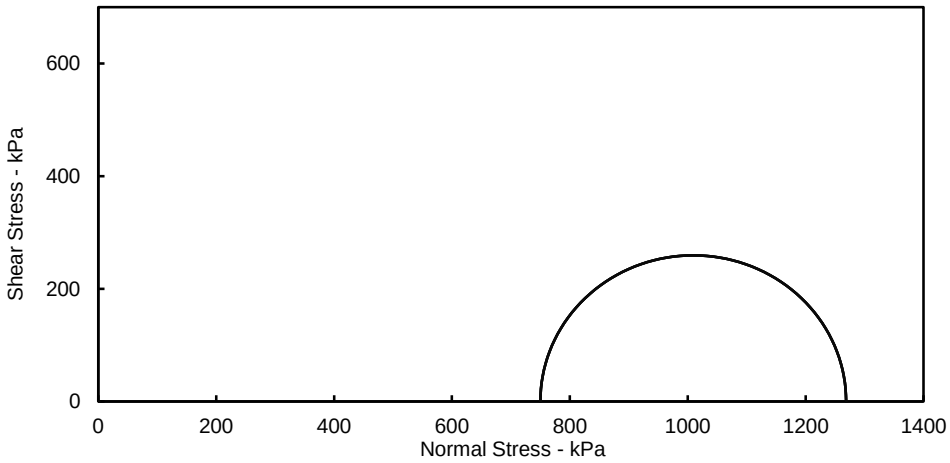
Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	U111
		Depth (m)	40.00-40.45
		Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	177.0
Diameter	mm	103.6
Moisture Content	%	31
Bulk Density	Mg/m³	1.95
Dry Density	Mg/m³	1.49
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.48
Rate of Axial Displacement	%/min	0.86
Cell Pressure	kPa	750
Strain at Failure	%	6.8
Maximum Deviator Stress	kPa	519
Shear Strength	kPa	259
Mode of Failure		Brittle
Non Engineering Description		Very stiff fissured slightly sandy dark grey CLAY.

Comments
Undisturbed specimen taken 40mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB02 40.00 U111 U - C6474-3-338826#1.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB02
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U111
			Depth (m)	40.00-40.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
MAB	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

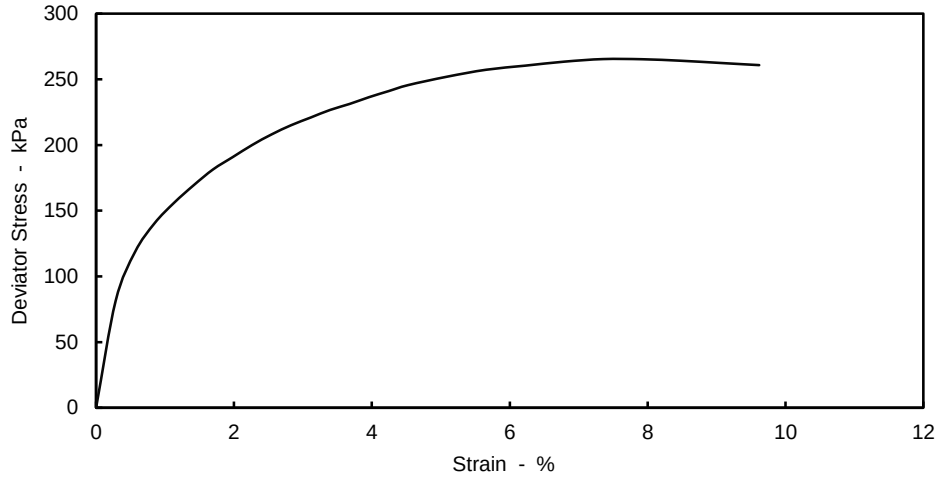
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

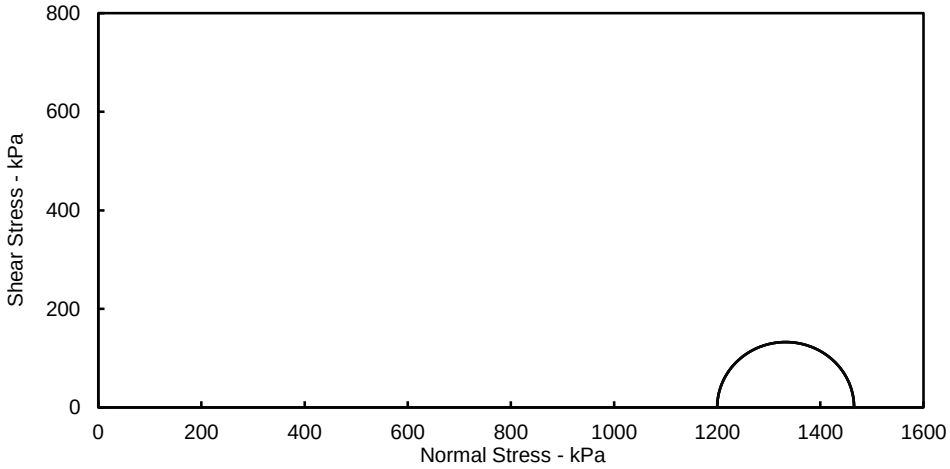
Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB02
Engineer	Norfolk Partnership Laboratory	Sample Ref	U111
		Depth (m)	40.00-40.45
		Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	176.7		
Diameter	mm	102.9		
Moisture Content	%	33		
Bulk Density	Mg/m³	1.94		
Dry Density	Mg/m³	1.46		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.52		
Rate of Axial Displacement	%/min	0.86		
Cell Pressure	kPa	1200		
Strain at Failure	%	7.4		
Maximum Deviator Stress	kPa	265		
Shear Strength	kPa	133		
Mode of Failure		Plastic		
Non Engineering Description		Stiff fissured dark grey slightly sandy CLAY.		

Comments
Undisturbed specimen taken 270mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB02 40.00 U111 U - C6474-3-338826.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB02
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U111
			Depth (m)	40.00-40.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
MAB	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

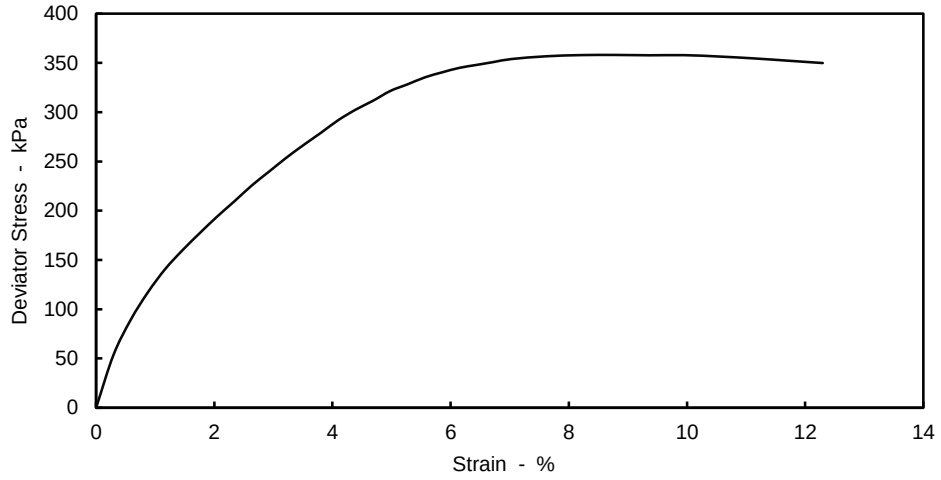
Contract No. PZ1522D1

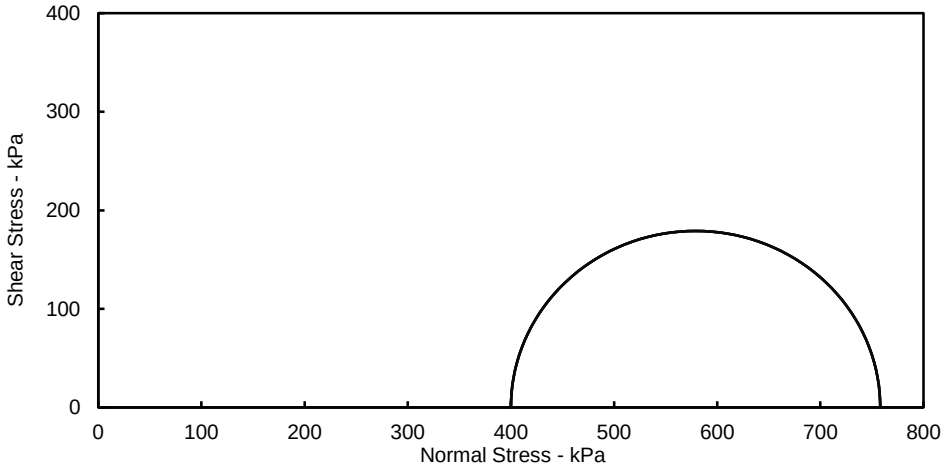
Hole	MB03
Sample Ref	U68
Depth (m)	20.00-20.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	170.8
Diameter	mm	103.6
Moisture Content	%	24
Bulk Density	Mg/m³	2.01
Dry Density	Mg/m³	1.62
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.59
Rate of Axial Displacement	%/min	2.38
Cell Pressure	kPa	400
Strain at Failure	%	8.8
Maximum Deviator Stress	kPa	358
Shear Strength	kPa	179
Mode of Failure		Plastic
Non Engineering Description		Very stiff layered grey very sandy CLAY.

Comments
Undisturbed specimen taken 10mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB03
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U68
			Depth (m)	20.00-20.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
MAB	[redacted] 14/09/2018		

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

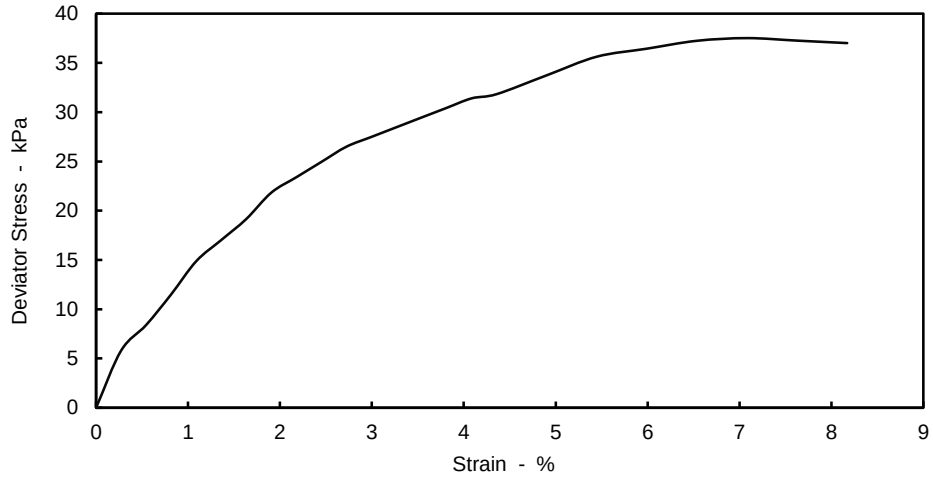
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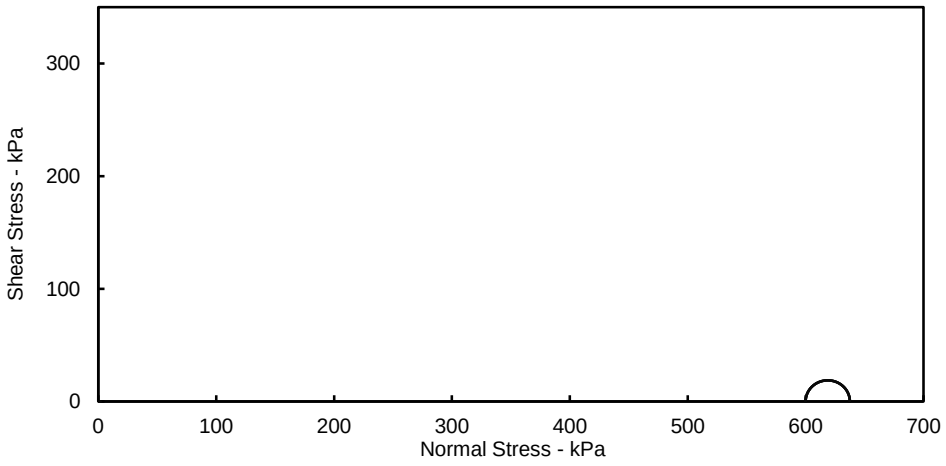
Hole	MB03
Sample Ref	U68
Depth (m)	20.00-20.45
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	183.6		
Diameter	mm	102.9		
Moisture Content	%	27		
Bulk Density	Mg/m³	1.82		
Dry Density	Mg/m³	1.43		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.50		
Rate of Axial Displacement	%/min	0.83		
Cell Pressure	kPa	600		
Strain at Failure	%	7.1		
Maximum Deviator Stress	kPa	38		
Shear Strength	kPa	19		
Mode of Failure		Compound		
Non Engineering Description		Very soft layered very sandy CLAY.		

Comments
Undisturbed specimen taken 220mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 9/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

#REF!

1730 - UUTXL MB03 20.00 U68 U - C6474-3-338827.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB03
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U68
			Depth (m)	20.00-20.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	Tk
MAB	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

Version 034 - 22/11/2012
1730 - UUTXL MB04A 20.50 U63 U - C6474-3-338828#1.xls : Sample ID 338828#1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

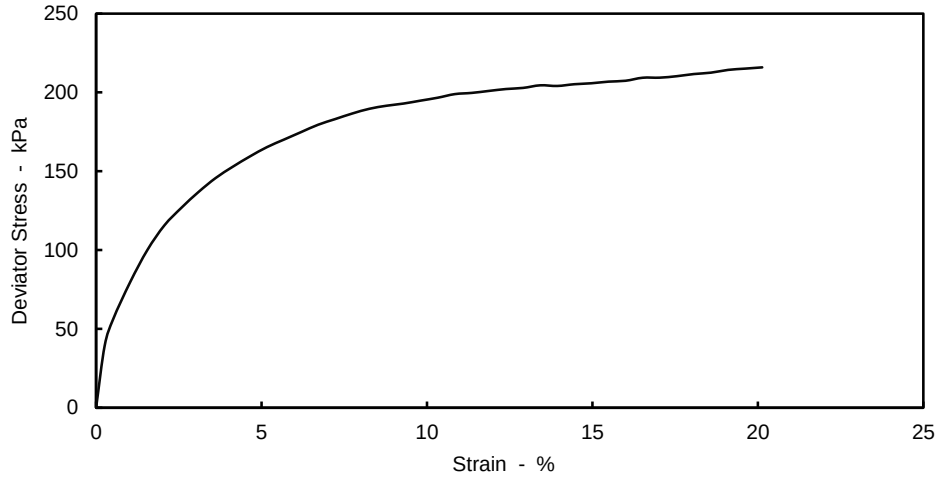
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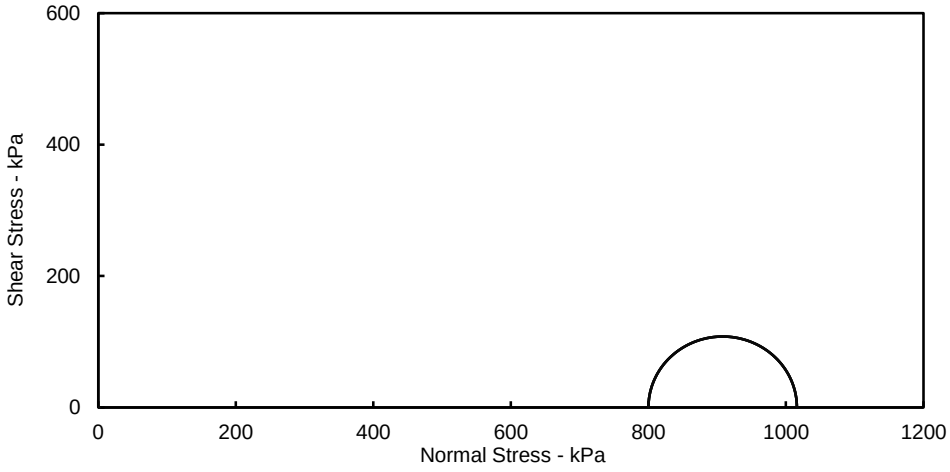
Hole	MB04A
Sample Ref	U63
Depth (m)	20.50-20.95
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	193.7
Diameter	mm	103.4
Moisture Content	%	27
Bulk Density	Mg/m³	2.00
Dry Density	Mg/m³	1.58
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	1.11
Rate of Axial Displacement	%/min	2.10
Cell Pressure	kPa	800
Strain at Failure	%	20.1
Maximum Deviator Stress	kPa	216
Shear Strength	kPa	108
Mode of Failure		Compound
Non Engineering Description		Stiff layered grey sandy CLAY.

Comments
Undisturbed specimen taken 20mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted]/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-3 : 14/09/2018 08:48:55

#REF!

1730 - UUTXL MB04A 20.50 U63 U - C6474-3-338828#1.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB04A
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U63
			Depth (m)	20.50-20.95
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
MAB	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No. PZ1522D1

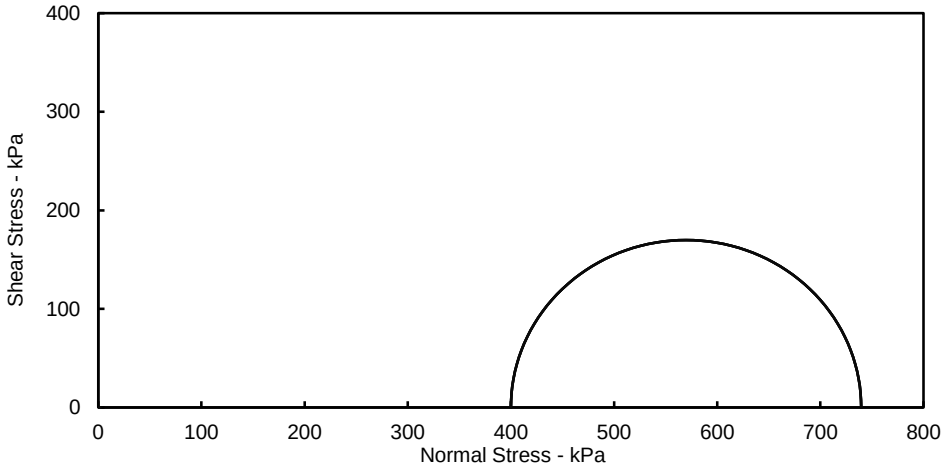
Hole	MB04A
Sample Ref	U63
Depth (m)	20.50-20.95
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	171.3		
Diameter	mm	103.4		
Moisture Content	%	26		
Bulk Density	Mg/m³	2.00		
Dry Density	Mg/m³	1.59		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.56		
Rate of Axial Displacement	%/min	2.37		
Cell Pressure	kPa	400		
Strain at Failure	%	8.2		
Maximum Deviator Stress	kPa	340		
Shear Strength	kPa	170		
Mode of Failure		Brittle		
Non Engineering Description		Very stiff layered grey sandy CLAY.		

Comments
Undisturbed specimen taken 220mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
VB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB04A
Sample Ref	U63
Depth (m)	20.50-20.95
Sample Type	U





Originator	Checked & Approved
VB	[redacted] 14/09/2018

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

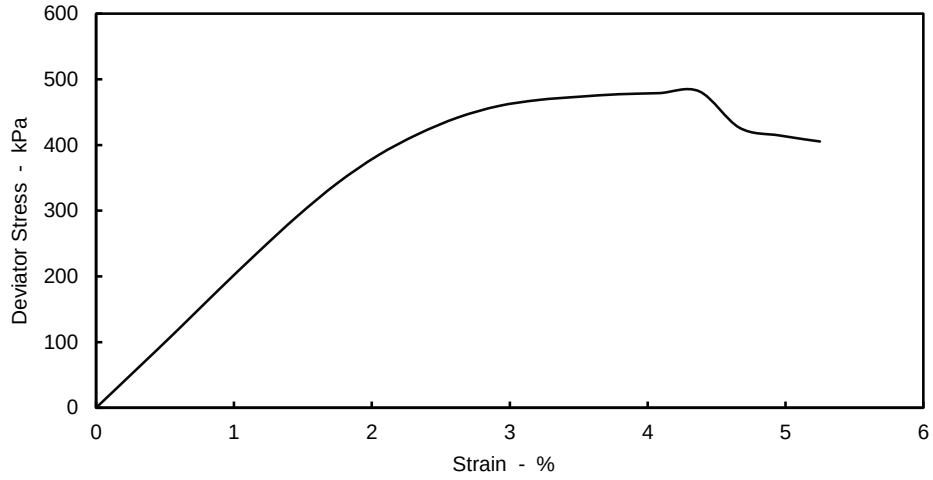
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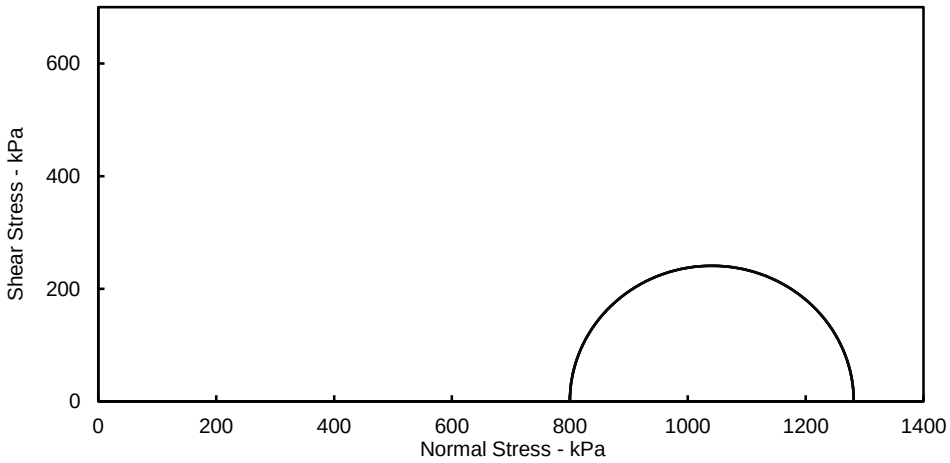
Hole	MB04A
Sample Ref	U108
Depth (m)	39.00-39.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	171.4
Diameter	mm	103.3
Moisture Content	%	32
Bulk Density	Mg/m^3	1.95
Dry Density	Mg/m^3	1.47
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.33
Rate of Axial Displacement	%/min	0.89
Cell Pressure	kPa	800
Strain at Failure	%	4.4
Maximum Deviator Stress	kPa	482
Shear Strength	kPa	241
Mode of Failure		Brittle
Non Engineering Description		Very stiff laminated dark grey slightly sandy CLAY.

Comments
Undisturbed specimen taken 270mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB04A 39.00 U108 U - C6474-3-338830.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB04A
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U108
			Depth (m)	39.00-39.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	Tk
MAB	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

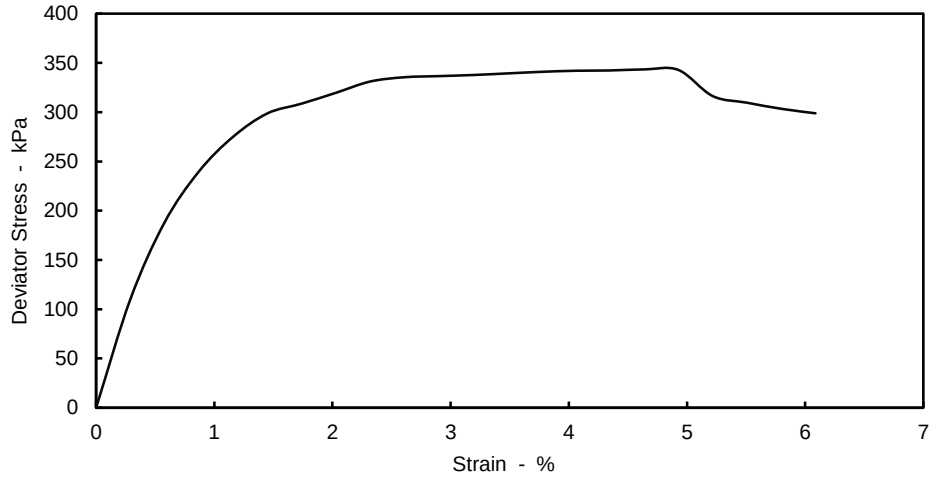
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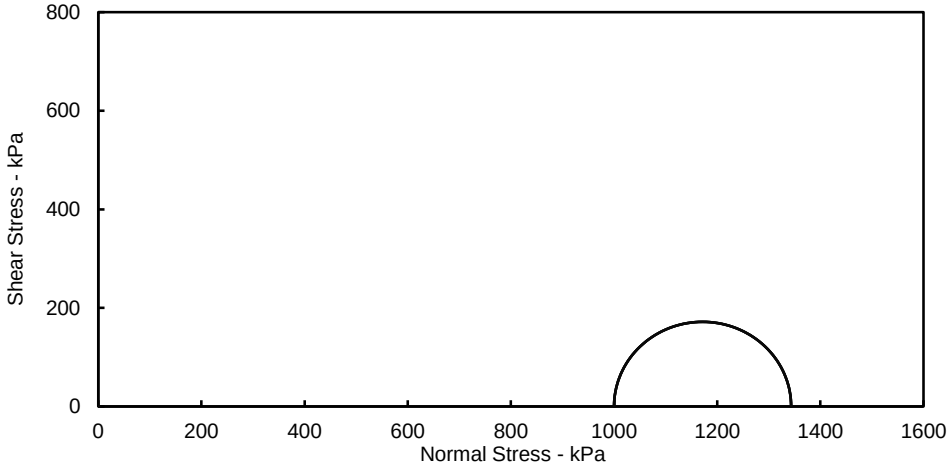
Hole	MB04A
Sample Ref	U111
Depth (m)	41.00-41.45
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	172.5		
Diameter	mm	103.2		
Moisture Content	%	36		
Bulk Density	Mg/m³	1.95		
Dry Density	Mg/m³	1.44		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.35		
Rate of Axial Displacement	%/min	0.88		
Cell Pressure	kPa	1000		
Strain at Failure	%	4.6		
Maximum Deviator Stress	kPa	343		
Shear Strength	kPa	172		
Mode of Failure		Compound		
Non Engineering Description		Very stiff laminated greenish grey slightly sandy CLAY.		

Comments
Undisturbed specimen taken 250mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
VB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB04A
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U111
			Depth (m)	41.00-41.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	Tk
VB	[redacted] 14/09/2018		Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

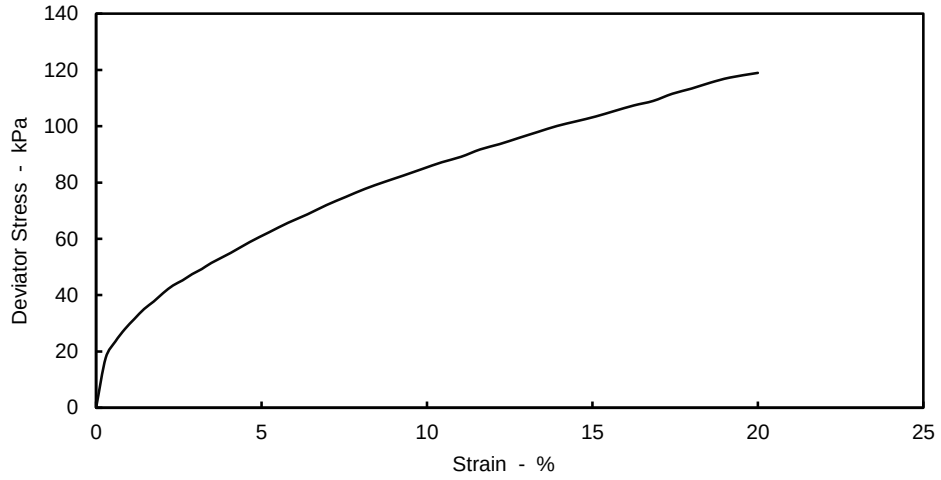
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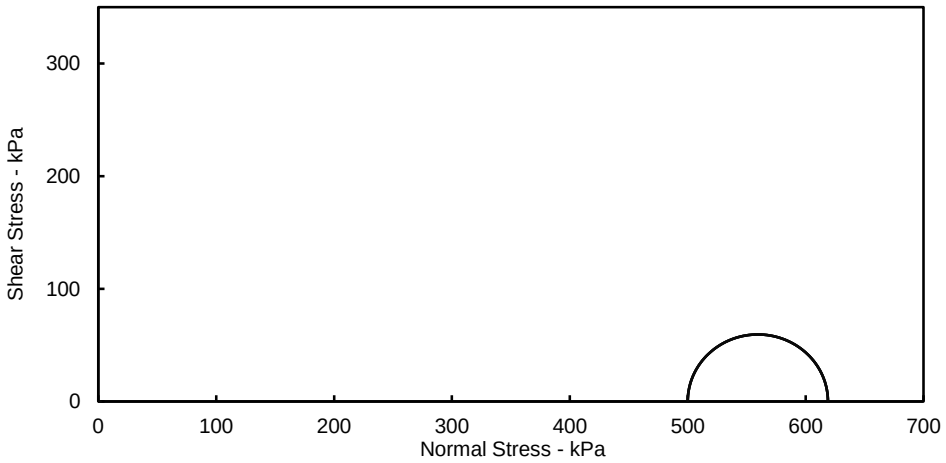
Hole	MB05
Sample Ref	U73
Depth (m)	23.00-23.45
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	172.3		
Diameter	mm	103.7		
Moisture Content	%	30		
Bulk Density	Mg/m³	2.00		
Dry Density	Mg/m³	1.54		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	1.10		
Rate of Axial Displacement	%/min	0.88		
Cell Pressure	kPa	500		
Strain at Failure	%	20.0		
Maximum Deviator Stress	kPa	119		
Shear Strength	kPa	59		
Mode of Failure		Compound		
Non Engineering Description		Firm laminated light grey CLAY.		

Comments
Undisturbed specimen taken 200mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB05
Sample Ref	U73
Depth (m)	23.00-23.45
Sample Type	U





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

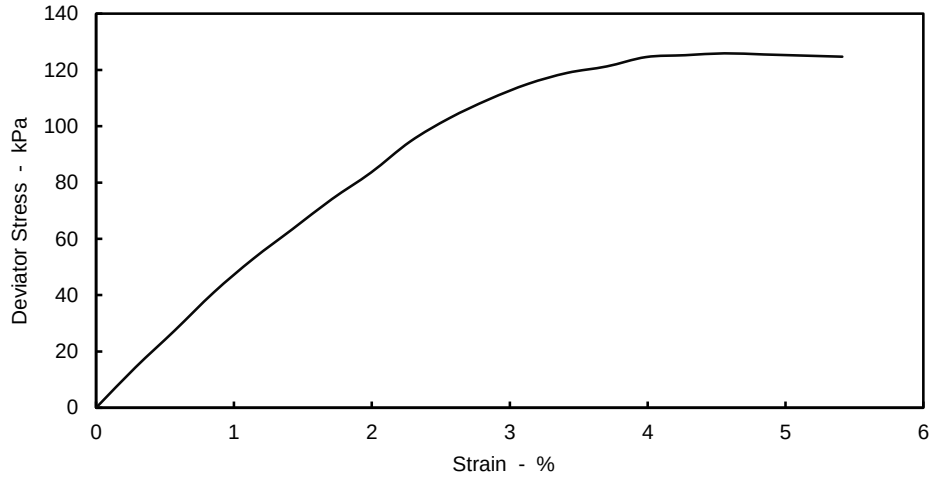
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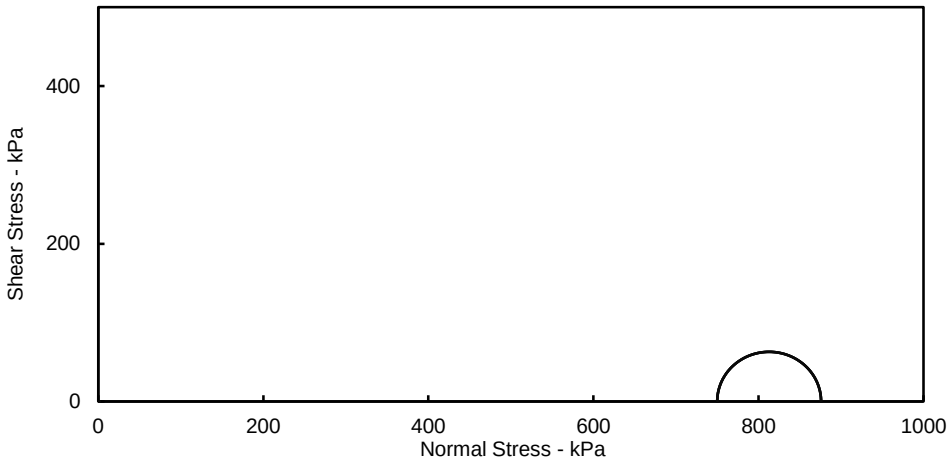
Hole	MB05
Sample Ref	U73
Depth (m)	23.00-23.45
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	175.5		
Diameter	mm	103.6		
Moisture Content	%	25		
Bulk Density	Mg/m³	1.98		
Dry Density	Mg/m³	1.59		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.35		
Rate of Axial Displacement	%/min	2.31		
Cell Pressure	kPa	750		
Strain at Failure	%	4.6		
Maximum Deviator Stress	kPa	126		
Shear Strength	kPa	63		
Mode of Failure		Plastic		
Non Engineering Description		Firm layered light grey slightly sandy CLAY.		

Comments
Undisturbed specimen taken 20mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB05 23.00 U73 U - C6474-3-338832.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB05
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U73
			Depth (m)	23.00-23.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
MAB	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

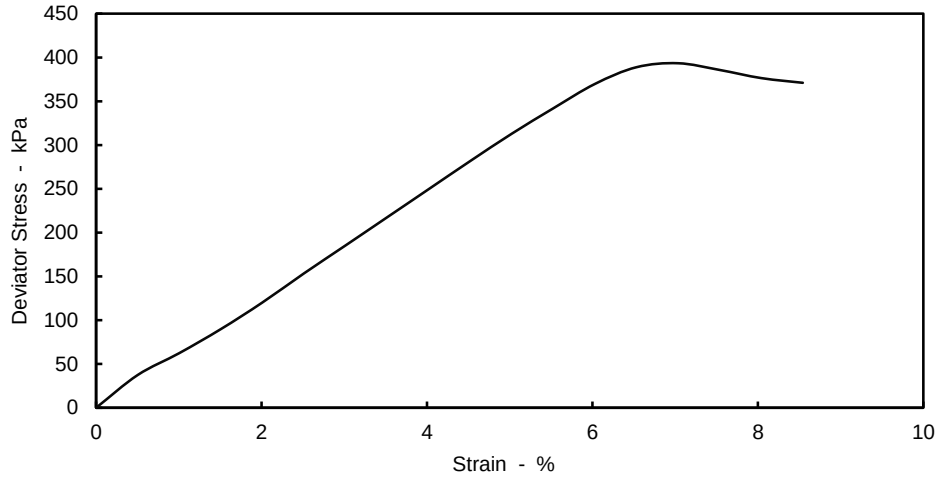
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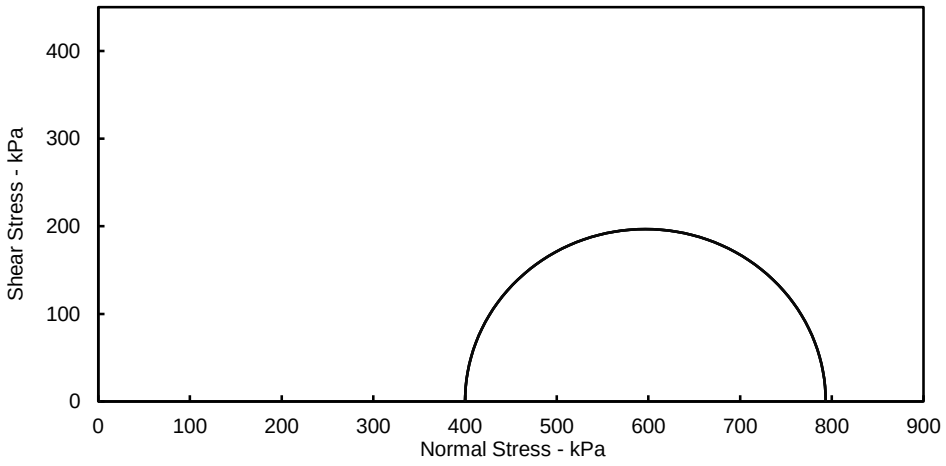
Hole	MB06
Sample Ref	U69
Depth (m)	21.00-21.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	199.0
Diameter	mm	103.9
Moisture Content	%	23
Bulk Density	Mg/m³	2.02
Dry Density	Mg/m³	1.64
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.50
Rate of Axial Displacement	%/min	2.04
Cell Pressure	kPa	400
Strain at Failure	%	7.0
Maximum Deviator Stress	kPa	393
Shear Strength	kPa	197
Mode of Failure		Plastic
Non Engineering Description		Very stiff intact light grey sandy CLAY.

Comments
Undisturbed specimen taken 250mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB06
Sample Ref	U69
Depth (m)	21.00-21.45
Sample Type	U





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

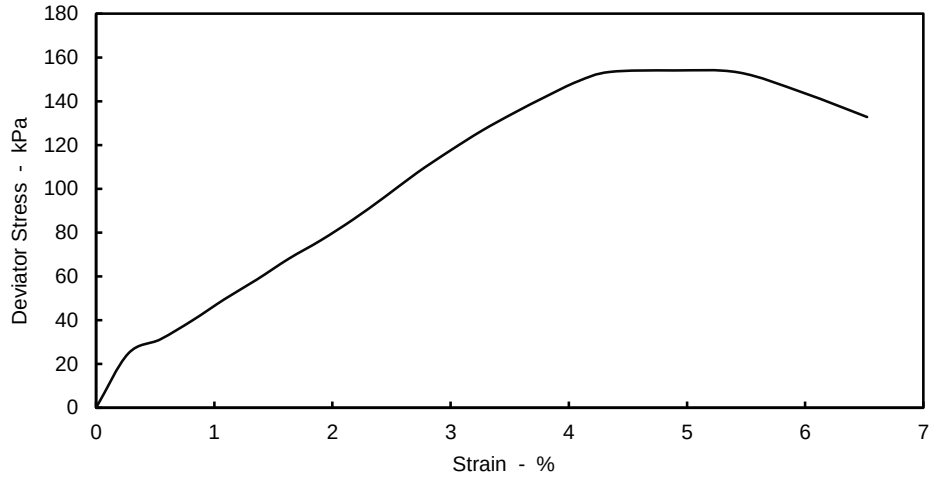
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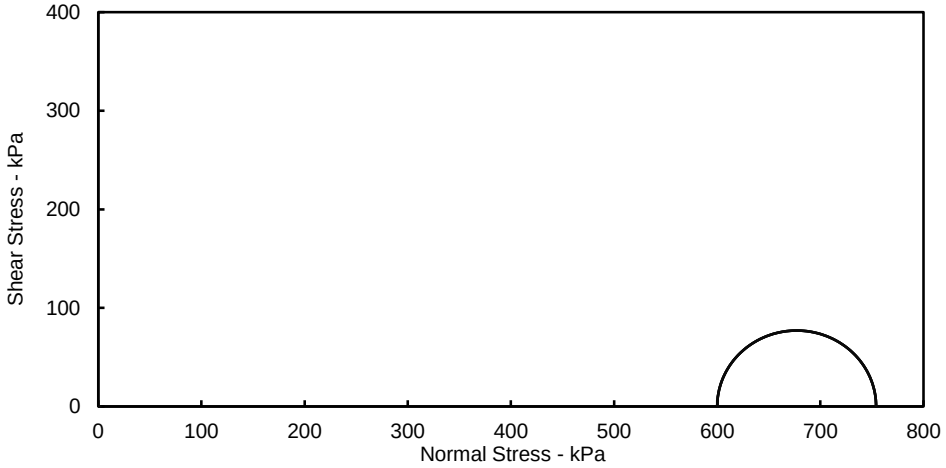
Hole	MB06
Sample Ref	U69
Depth (m)	21.00-21.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	183.9
Diameter	mm	103.7
Moisture Content	%	26
Bulk Density	Mg/m³	2.01
Dry Density	Mg/m³	1.59
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.37
Rate of Axial Displacement	%/min	2.21
Cell Pressure	kPa	600
Strain at Failure	%	4.9
Maximum Deviator Stress	kPa	154
Shear Strength	kPa	77
Mode of Failure		Plastic
Non Engineering Description		Stiff layered light grey sandy CLAY.

Comments
Undisturbed specimen taken 90mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB06
Sample Ref	U69
Depth (m)	21.00-21.45
Sample Type	U





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

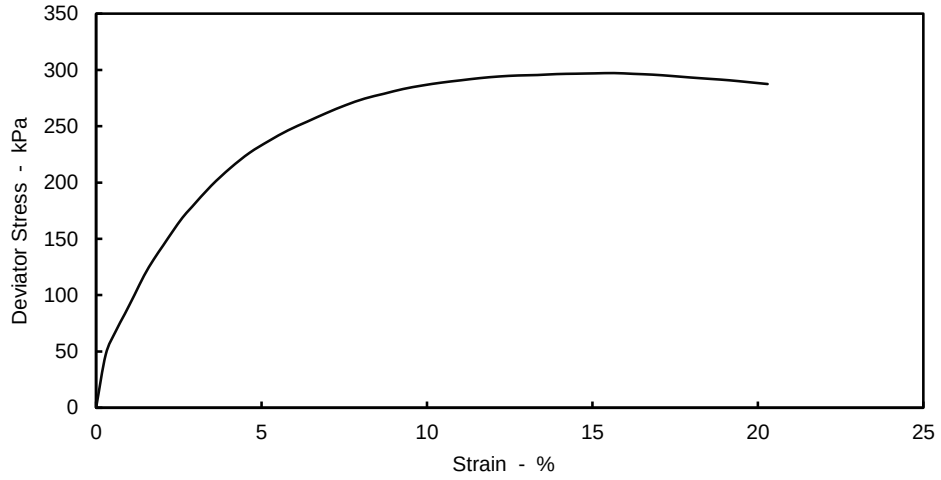
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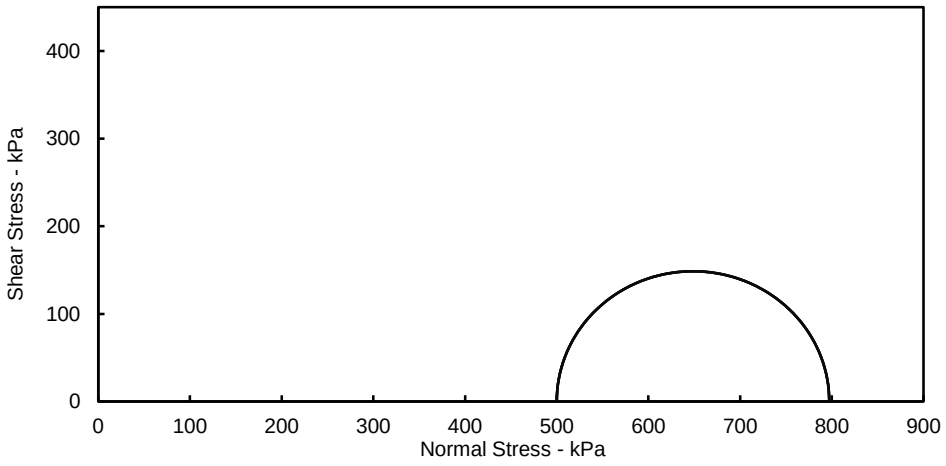
Hole	MB06
Sample Ref	U75
Depth (m)	23.00-23.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	172.5
Diameter	mm	103.3
Moisture Content	%	23
Bulk Density	Mg/m³	2.09
Dry Density	Mg/m³	1.70
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.92
Rate of Axial Displacement	%/min	2.35
Cell Pressure	kPa	500
Strain at Failure	%	15.7
Maximum Deviator Stress	kPa	297
Shear Strength	kPa	149
Mode of Failure		Plastic
Non Engineering Description		Stiff fissured light grey sandy CLAY.

Comments
Undisturbed specimen taken 200mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	U75
		Depth (m)	23.00-23.45
		Sample Type	U





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-3

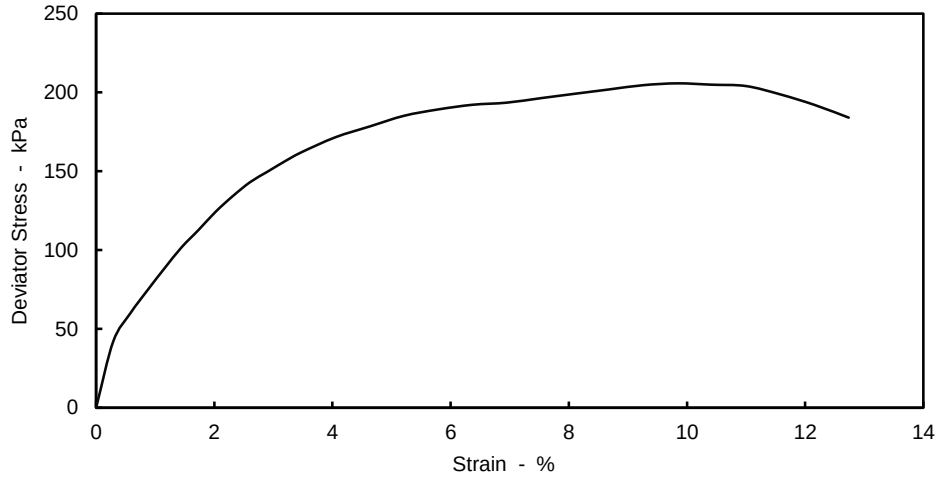
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

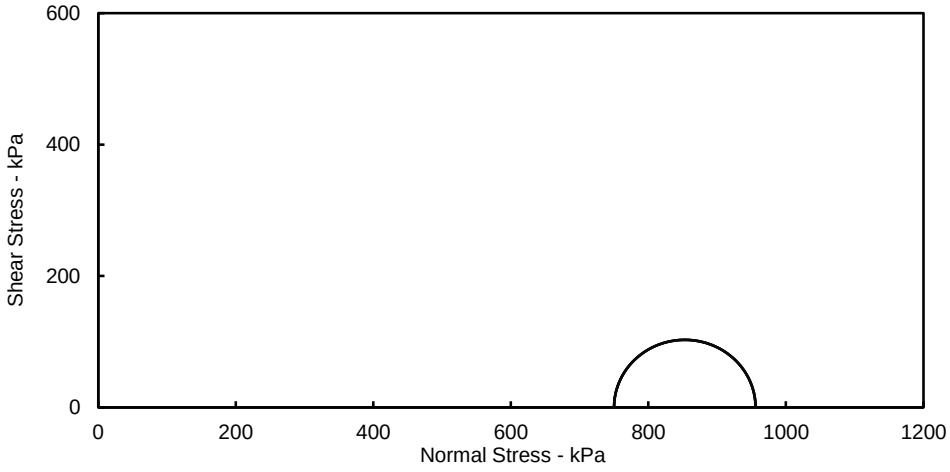
Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB06
Engineer	Norfolk Partnership Laboratory	Sample Ref	U81
		Depth (m)	25.00-25.45
		Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	172.7		
Diameter	mm	103.4		
Moisture Content	%	27		
Bulk Density	Mg/m³	2.02		
Dry Density	Mg/m³	1.59		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.65		
Rate of Axial Displacement	%/min	0.88		
Cell Pressure	kPa	750		
Strain at Failure	%	9.8		
Maximum Deviator Stress	kPa	206		
Shear Strength	kPa	103		
Mode of Failure		Compound		
Non Engineering Description		Stiff layered light grey sandy CLAY.		

Comments
Undisturbed specimen taken 200mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB06 25.00 U81 U - C6474-3-338835.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB06
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U81
			Depth (m)	25.00-25.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
MAB	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

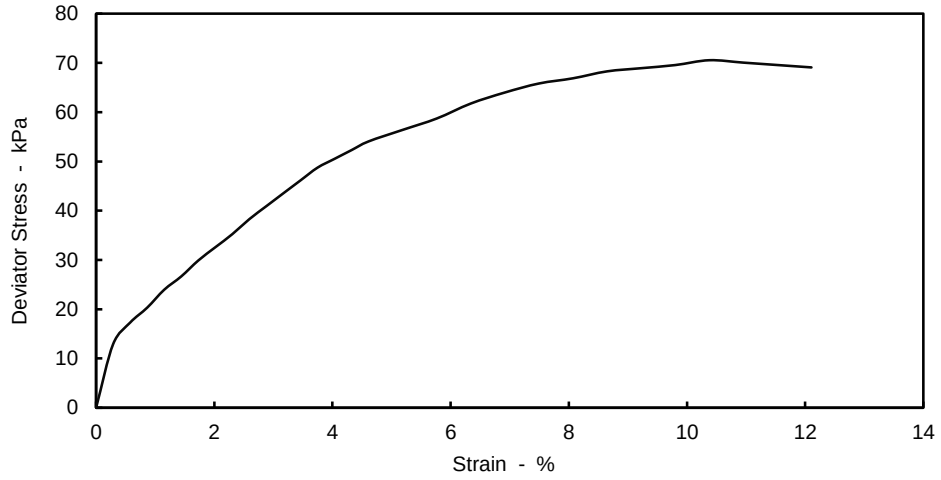
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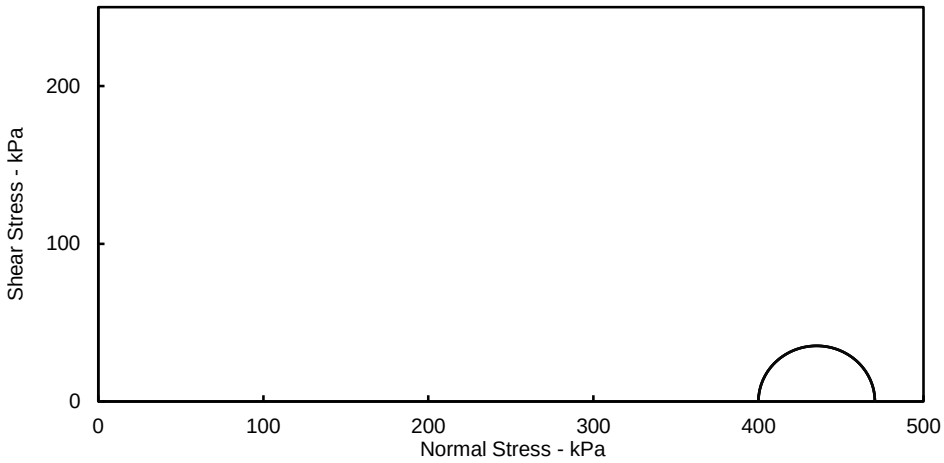
Hole	MB07
Sample Ref	U67
Depth (m)	20.00-20.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	173.5
Diameter	mm	103.5
Moisture Content	%	26
Bulk Density	Mg/m^3	1.96
Dry Density	Mg/m^3	1.55
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.67
Rate of Axial Displacement	%/min	2.34
Cell Pressure	kPa	400
Strain at Failure	%	10.4
Maximum Deviator Stress	kPa	71
Shear Strength	kPa	35
Mode of Failure		Plastic
Non Engineering Description		Soft layered light grey very sandy CLAY.

Comments
Undisturbed specimen taken 230mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB07
Sample Ref	U67
Depth (m)	20.00-20.45
Sample Type	U





Originator	Checked & Approved
MAB	[redacted] 2018

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

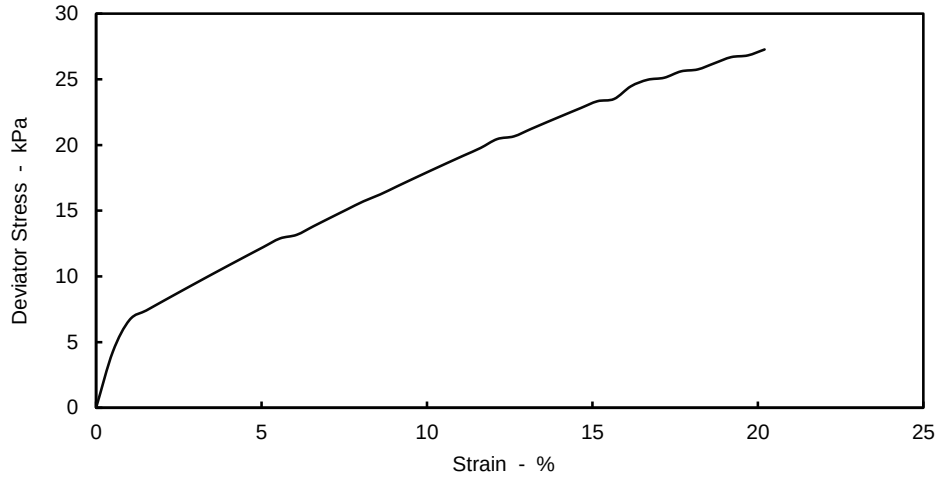
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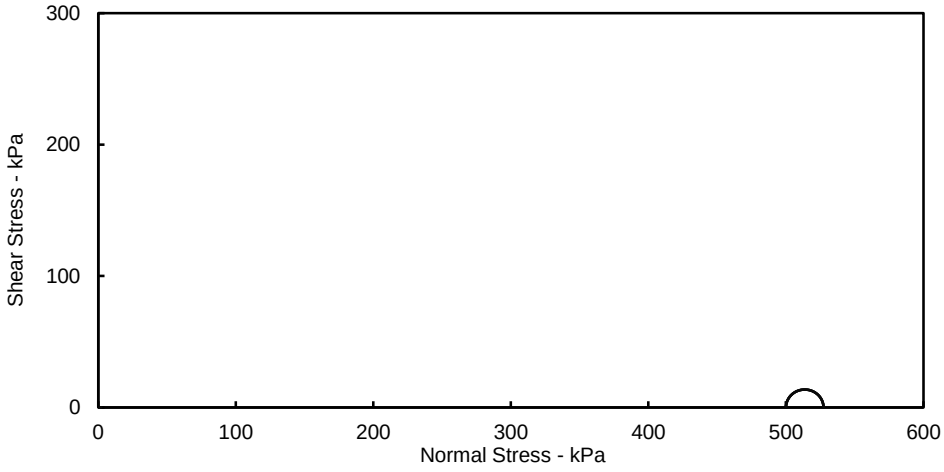
Hole	MB07
Sample Ref	U73
Depth (m)	22.00-22.45
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	198.0		
Diameter	mm	103.9		
Moisture Content	%	30		
Bulk Density	Mg/m³	1.98		
Dry Density	Mg/m³	1.52		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	1.10		
Rate of Axial Displacement	%/min	2.05		
Cell Pressure	kPa	500		
Strain at Failure	%	20.2		
Maximum Deviator Stress	kPa	27		
Shear Strength	kPa	14		
Mode of Failure		Plastic		
Non Engineering Description		Very soft intact light grey very sandy CLAY.		

Comments
Undisturbed specimen taken 10mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	U73
		Depth (m)	22.00-22.45
		Sample Type	U





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

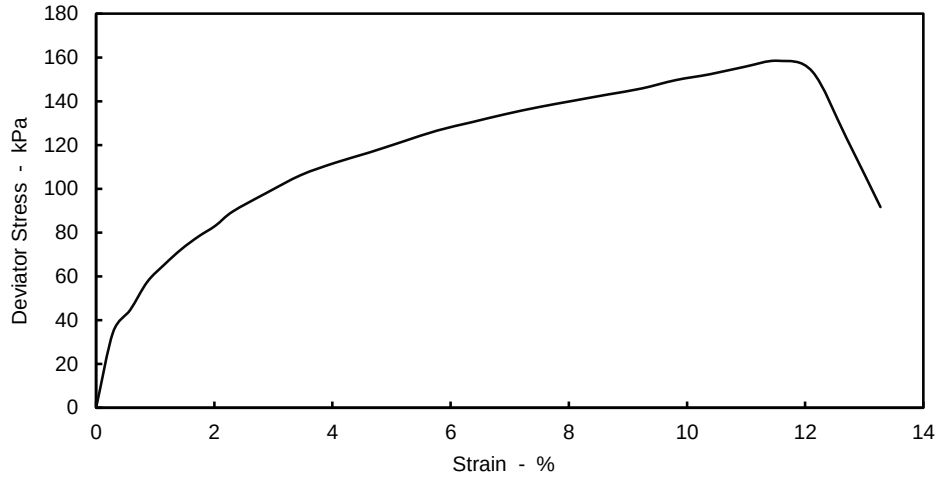
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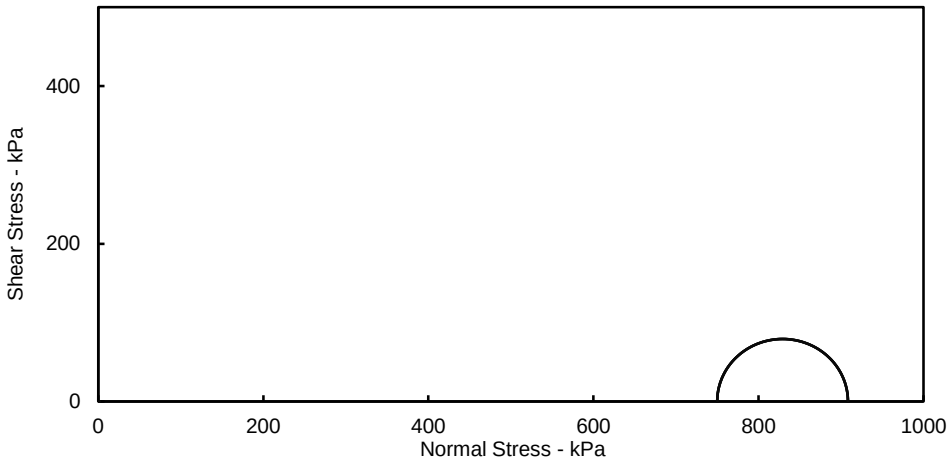
Hole	MB07
Sample Ref	U73
Depth (m)	22.00-22.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	173.3
Diameter	mm	103.3
Moisture Content	%	29
Bulk Density	Mg/m³	1.95
Dry Density	Mg/m³	1.52
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.73
Rate of Axial Displacement	%/min	2.34
Cell Pressure	kPa	750
Strain at Failure	%	11.5
Maximum Deviator Stress	kPa	158
Shear Strength	kPa	79
Mode of Failure		Compound
Non Engineering Description		Stiff intact light grey very sandy CLAY.

Comments
Undisturbed specimen taken 200mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

Contract No	**PZ1522D1**
Hole	MB07
Sample Ref	U73
Depth (m)	22.00-22.45
Sample Type	U





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

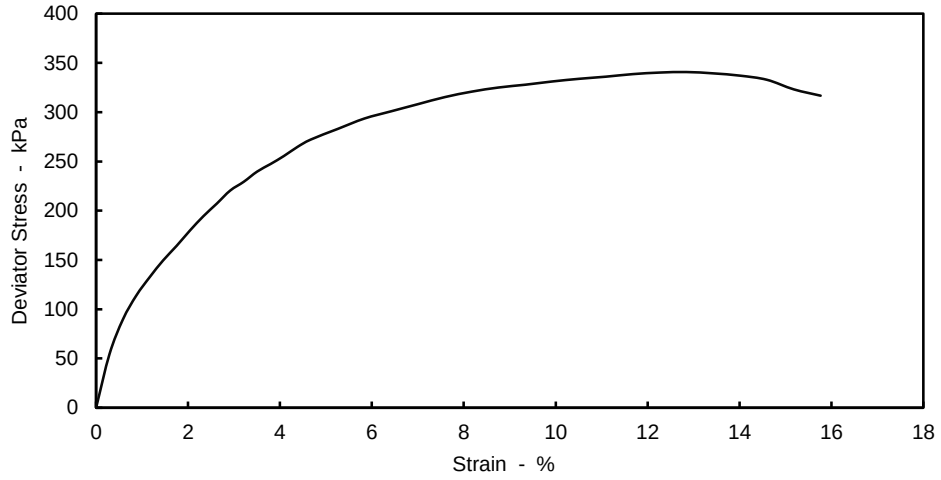
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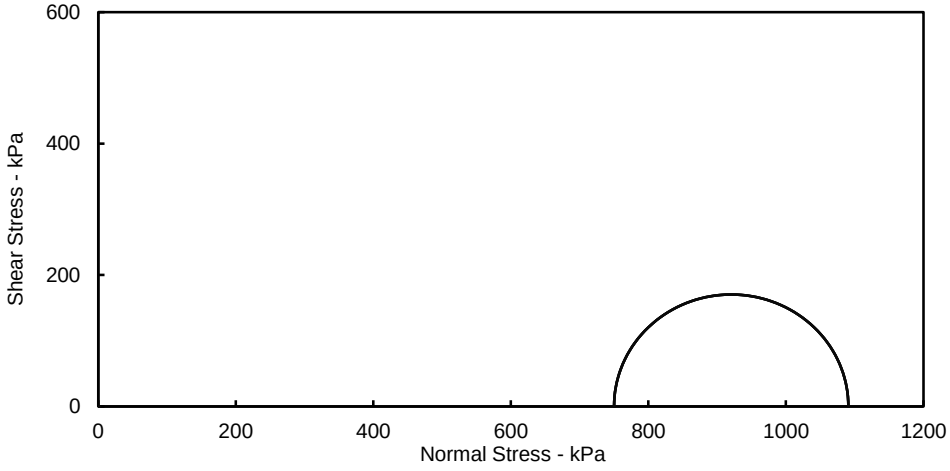
Hole	MB07
Sample Ref	U113
Depth (m)	38.00-38.45
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	171.3		
Diameter	mm	103.6		
Moisture Content	%	26		
Bulk Density	Mg/m³	1.98		
Dry Density	Mg/m³	1.57		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.79		
Rate of Axial Displacement	%/min	2.37		
Cell Pressure	kPa	750		
Strain at Failure	%	12.8		
Maximum Deviator Stress	kPa	341		
Shear Strength	kPa	170		
Mode of Failure		Compound		
Non Engineering Description		Very stiff layered grey sandy CLAY.		

Comments
Undisturbed specimen taken 190mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB07 38.00 U113 U - C6474-3-338838.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB07
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U113
			Depth (m)	38.00-38.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
MAB	[redacted] 14/09/2018		

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

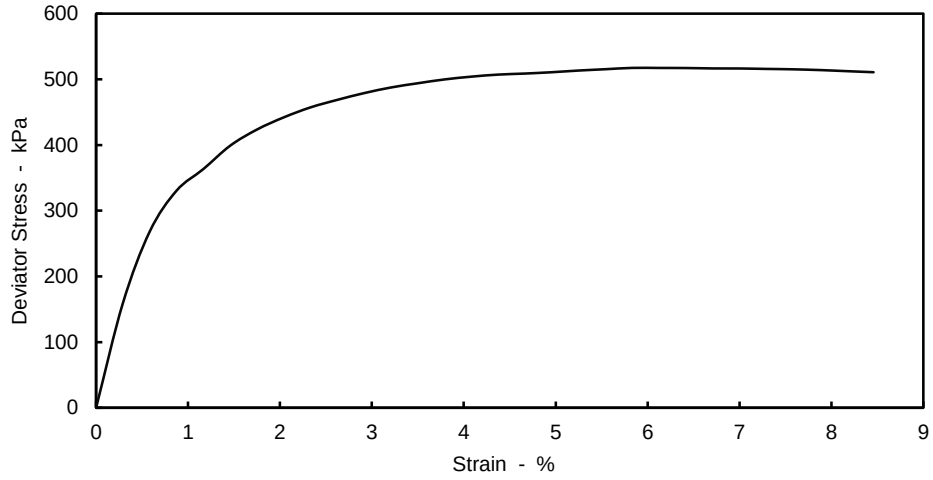
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

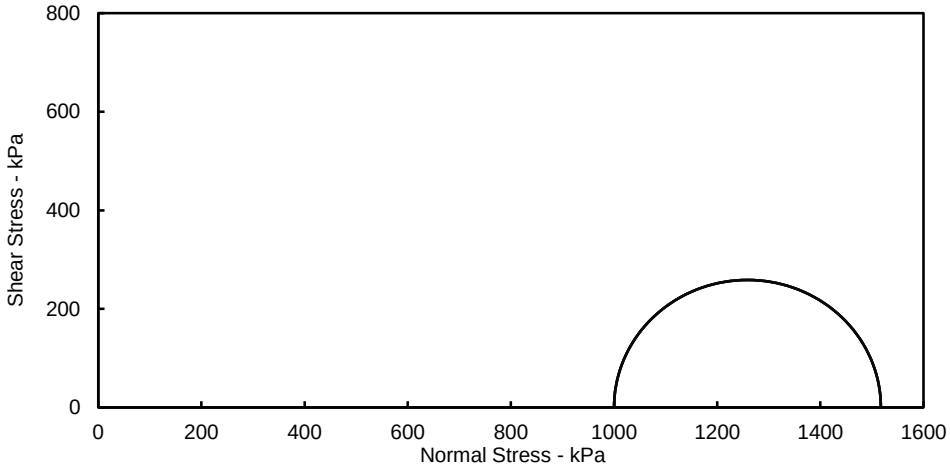
Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB07
Engineer	Norfolk Partnership Laboratory	Sample Ref	U119
		Depth (m)	40.00-40.45
		Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	171.4		
Diameter	mm	103.6		
Moisture Content	%	30		
Bulk Density	Mg/m³	1.97		
Dry Density	Mg/m³	1.52		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.43		
Rate of Axial Displacement	%/min	0.89		
Cell Pressure	kPa	1000		
Strain at Failure	%	5.8		
Maximum Deviator Stress	kPa	517		
Shear Strength	kPa	259		
Mode of Failure		Compound		
Non Engineering Description		Very stiff fissured brownish grey slightly sandy CLAY.		

Comments
Undisturbed specimen taken 200mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
RC	[redacted] 2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

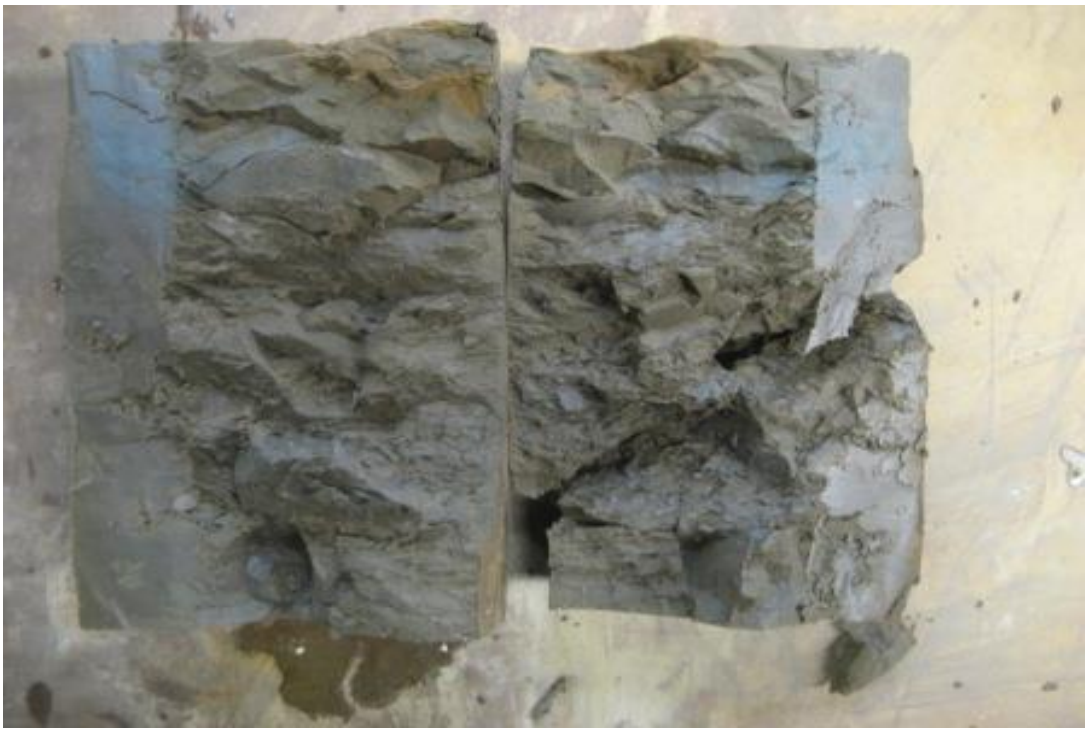
BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB07 40.00 U119 U - C6474-3-338839.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB07
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U119
			Depth (m)	40.00-40.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
RC	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

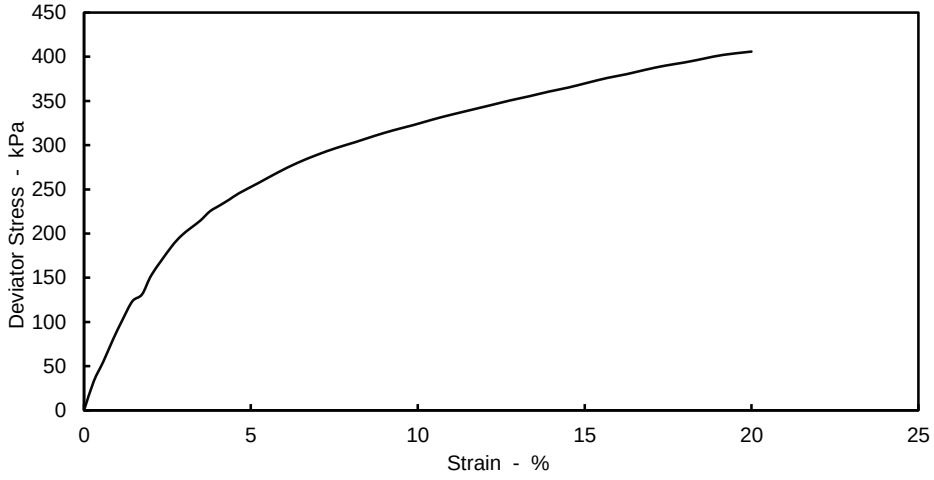
Contract No. PZ1522D1

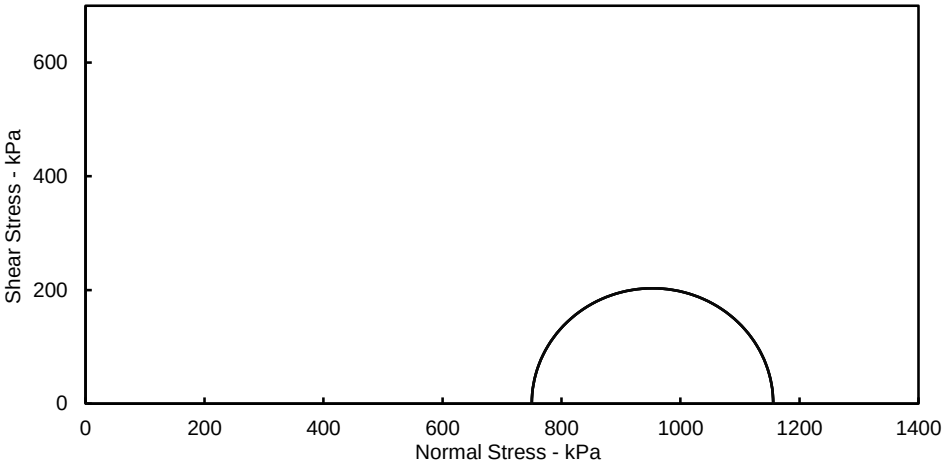
Hole	MB08
Sample Ref	U69
Depth (m)	22.00-22.45
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	172.3		
Diameter	mm	103.2		
Moisture Content	%	26		
Bulk Density	Mg/m³	2.00		
Dry Density	Mg/m³	1.59		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	1.10		
Rate of Axial Displacement	%/min	0.91		
Cell Pressure	kPa	750		
Strain at Failure	%	20.0		
Maximum Deviator Stress	kPa	406		
Shear Strength	kPa	203		
Mode of Failure		Compound		
Non Engineering Description		Very stiff fissuered dark greenish grey slightly sandy CLAY.		

Comments
Undisturbed specimen taken 200mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
RC	[redacted]018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
Client	Norfolk County Council	Hole	MB08
Engineer	Norfolk Partnership Laboratory	Sample Ref	U69
		Depth (m)	22.00-22.45
		Sample Type	U





Originator	Checked & Approved	
RC	[redacted] 14/09/2018	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

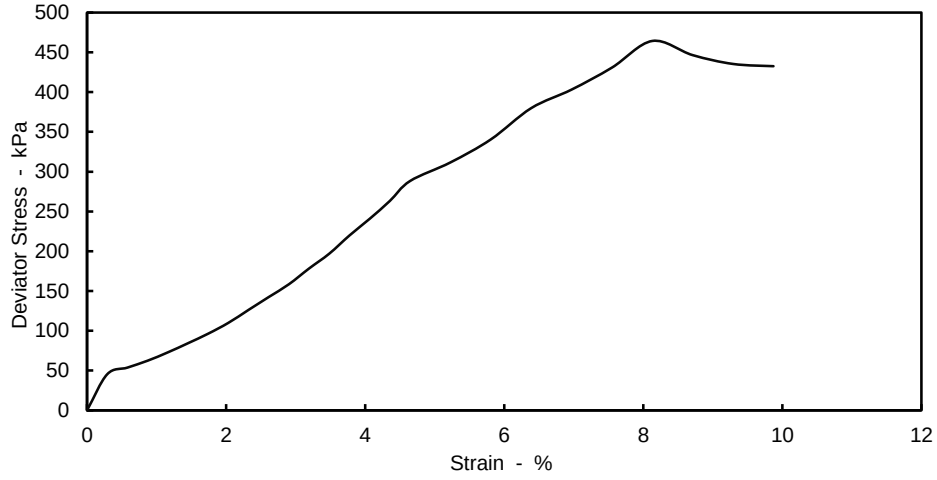
Contract No. PZ1522D1

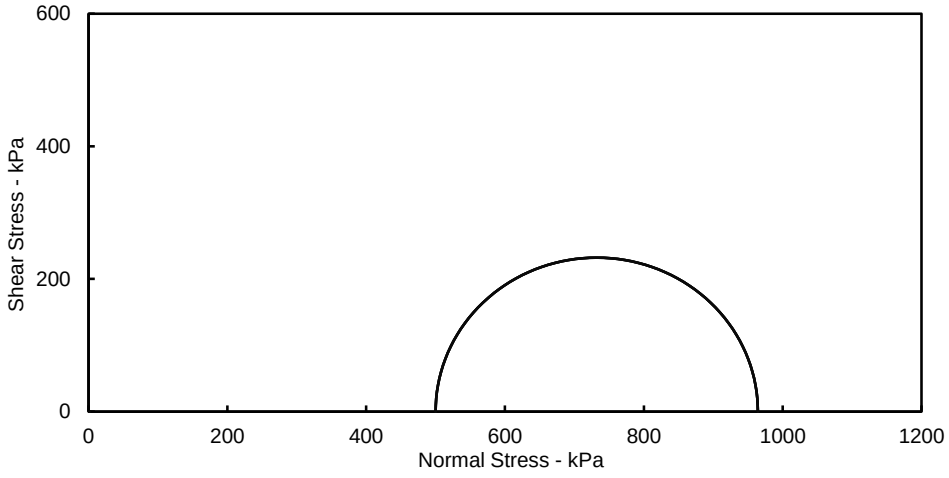
Hole	MB09
Sample Ref	U70
Depth (m)	23.00-23.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	172.2
Diameter	mm	102.1
Moisture Content	%	25
Bulk Density	Mg/m³	2.17
Dry Density	Mg/m³	1.74
Test Details		
Membrane Thickness	mm	0.20
Membrane Correction	kPa	0.38
Rate of Axial Displacement	%/min	2.36
Cell Pressure	kPa	500
Strain at Failure	%	8.1
Maximum Deviator Stress	kPa	464
Shear Strength	kPa	232
Mode of Failure		Compound
Non Engineering Description		Very stiff intact dark grey very sandy CLAY.

Comments
Undisturbed specimen taken 210mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted]/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	U70
		Depth (m)	23.00-23.45
		Sample Type	U





Originator	Checked & Approved	
MAB	[redacted] 14/09/2018	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Lab Project No C6474-3

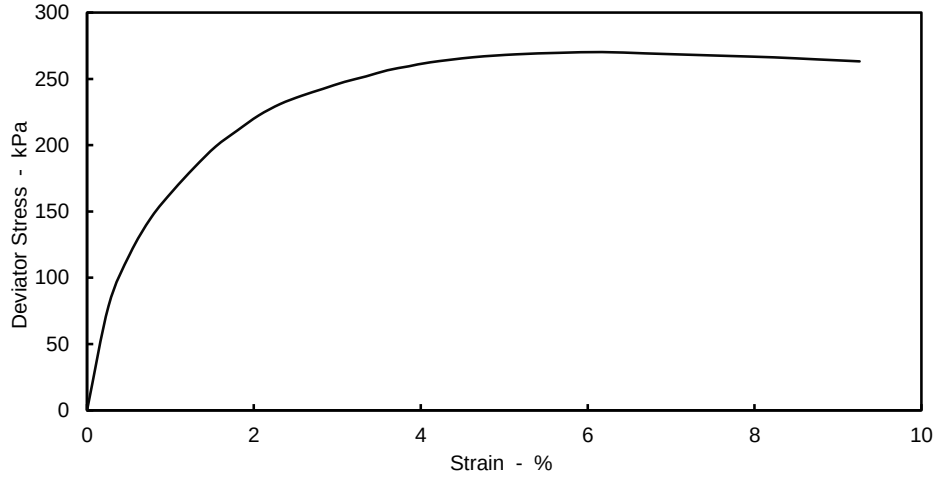
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

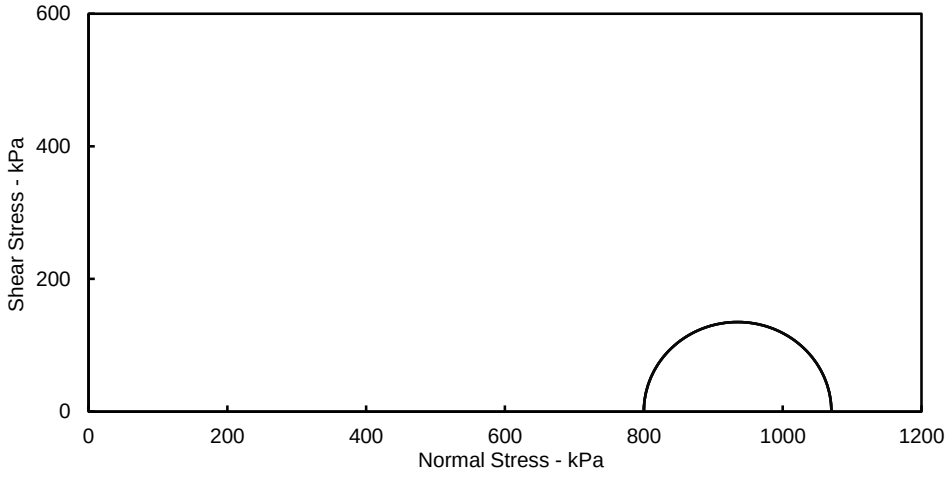
Site	GREAT YARMOUTH 3RD RIVER CROSSING	**Contract No.**	**PZ1522D1**
Client	Norfolk County Council	Hole	MB09
Engineer	Norfolk Partnership Laboratory	Sample Ref	U110
		Depth (m)	38.10-38.55
		Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	194.4		
Diameter	mm	103.3		
Moisture Content	%	33		
Bulk Density	Mg/m³	1.93		
Dry Density	Mg/m³	1.45		
Test Details				
Membrane Thickness	mm	0.20		
Membrane Correction	kPa	0.30		
Rate of Axial Displacement	%/min	0.80		
Cell Pressure	kPa	800		
Strain at Failure	%	6.2		
Maximum Deviator Stress	kPa	270		
Shear Strength	kPa	135		
Mode of Failure		Compound		
Non Engineering Description		Stiff fissured dark greenish grey slightly sandy CLAY.		

Comments
Undisturbed specimen taken 20mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB09 38.10 U110 U - C6474-3-338843#1.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB09
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U110
			Depth (m)	38.10-38.55
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
MAB	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

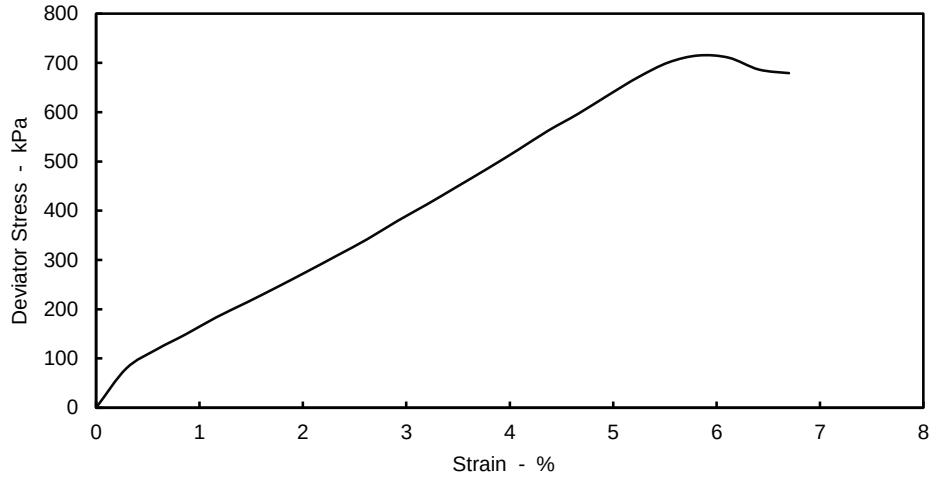
Contract No. PZ1522D1

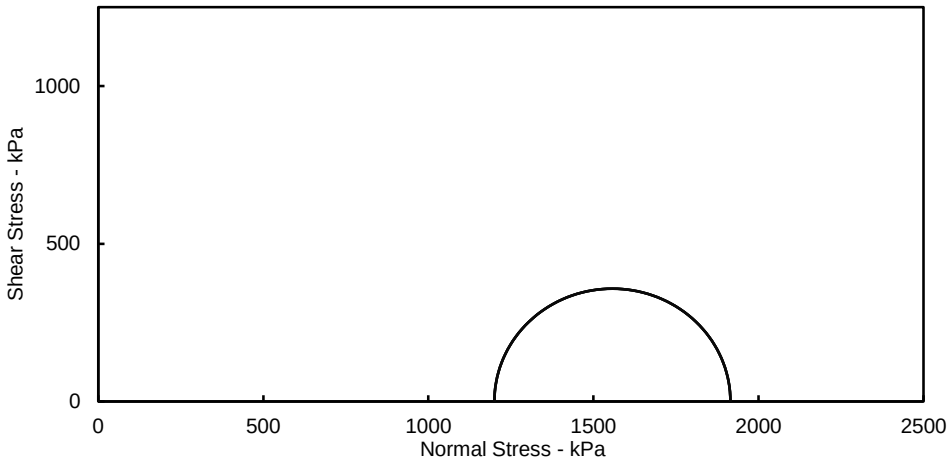
Hole	MB09
Sample Ref	U110
Depth (m)	38.10-38.55
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	171.6		
Diameter	mm	108.1		
Moisture Content	%	19		
Bulk Density	Mg/m³	1.73		
Dry Density	Mg/m³	1.46		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.41		
Rate of Axial Displacement	%/min	0.89		
Cell Pressure	kPa	1200		
Strain at Failure	%	5.8		
Maximum Deviator Stress	kPa	715		
Shear Strength	kPa	358		
Mode of Failure		Compound		
Non Engineering Description		Grey clayey SAND with occasional shell fragments.		

Comments
Undisturbed specimen taken 250mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
RC	[redacted] 14/09/2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB09 38.10 U110 U - C6474-3-338843.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB09
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U110
			Depth (m)	38.10-38.55
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
RC	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

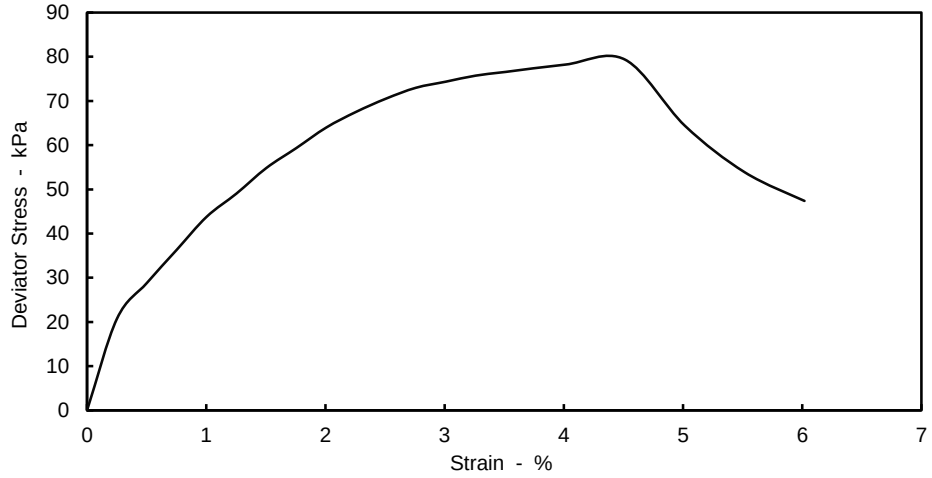
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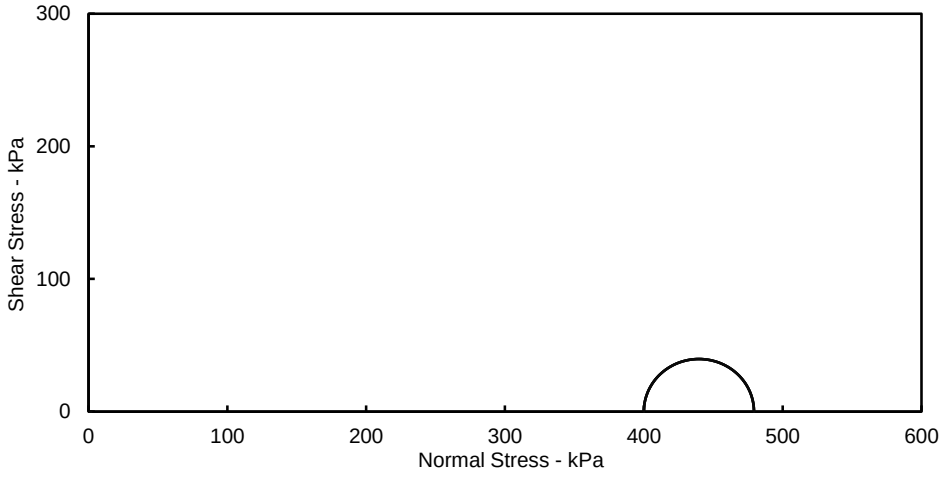
Hole	MB10
Sample Ref	U62
Depth (m)	20.00-20.45
Sample Type	U

Sample Details				
Sample Condition		Undisturbed		
Height	mm	199.4		
Diameter	mm	104.1		
Moisture Content	%	20		
Bulk Density	Mg/m³	2.04		
Dry Density	Mg/m³	1.70		
Test Details				
Membrane Thickness	mm	0.30		
Membrane Correction	kPa	0.34		
Rate of Axial Displacement	%/min	2.27		
Cell Pressure	kPa	400		
Strain at Failure	%	4.5		
Maximum Deviator Stress	kPa	79		
Shear Strength	kPa	40		
Mode of Failure		Plastic		
Non Engineering Description		Firm intact light grey very sandy CLAY.		

Comments
Undisturbed specimen taken 240mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted]18

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

#REF!

1730 - UUTXL MB10 20.00 U62 U - C6474-3-338844#1.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB10
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U62
			Depth (m)	20.00-20.45
			Sample Type	U





Originator	Checked & Approved	Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.	
MAB	[redacted] 14/09/2018		Sheet 2 of 2

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	GREAT YARMOUTH 3RD RIVER CROSSING
Client	Norfolk County Council
Engineer	Norfolk Partnership Laboratory

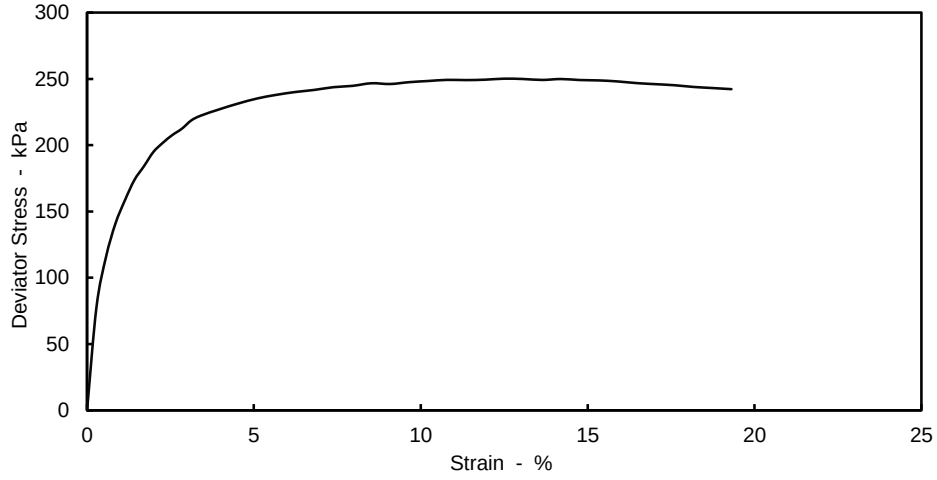
Contract No. PZ1522D1

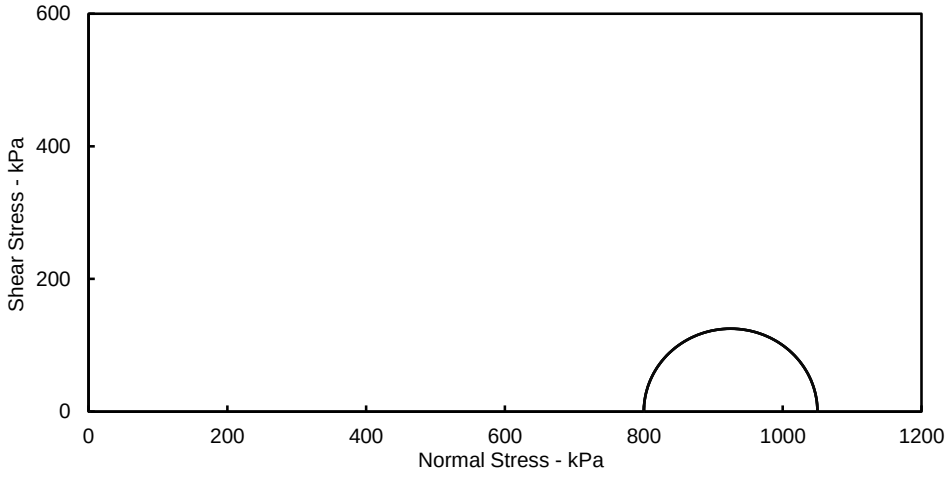
Hole	MB10
Sample Ref	U62
Depth (m)	20.00-20.45
Sample Type	U

Sample Details		
Sample Condition		Undisturbed
Height	mm	176.1
Diameter	mm	103.6
Moisture Content	%	26
Bulk Density	Mg/m³	2.11
Dry Density	Mg/m³	1.67
Test Details		
Membrane Thickness	mm	0.30
Membrane Correction	kPa	0.78
Rate of Axial Displacement	%/min	2.31
Cell Pressure	kPa	800
Strain at Failure	%	12.5
Maximum Deviator Stress	kPa	250
Shear Strength	kPa	125
Mode of Failure		Compound
Non Engineering Description		Stiff fissured light grey very sandy CLAY.

Comments
Undisturbed specimen taken 10mm below top of tube

Shear Strength Parameters		
C	n/a	kPa
Phi	n/a	°





Originator	Checked & Approved
MAB	[redacted] 2018

UNCONSOLIDATED UNDRAINED SINGLE STAGE TRIAXIAL COMPRESSION

BS 1377 : Part 7 : 1990 Clause 8

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

#REF!

1730 - UUTXL MB10 20.00 U62 U - C6474-3-338844.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	GREAT YARMOUTH 3RD RIVER CROSSING	Contract No	PZ1522D1
	Client	Norfolk County Council	Hole	MB10
	Engineer	Norfolk Partnership Laboratory	Sample Ref	U62
			Depth (m)	20.00-20.45
			Sample Type	U





Originator	Checked & Approved
MAB	[redacted]

Please note that these photographs are intended to show the failure mode, and do not necessarily show accurately the colouration of the soil.

Unit 2 Springfield Road, Chesham, Bucks, HP51PW

Lab Project No C6474-3

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Testing Restriction

Date: 12 September 2018

To	Norfolk Partnership Laboratory	Tel No	01603 224176
FAO	Mr. Simon Holden	Fax No	
From	Linda Anaz	Our Ref	**C6474-3**

Please notify Terra Tek immediately if you receive this message in error or if any of the pages are missing or incomplete.
Records and results transmitted by fax may differ from those contained in the final report
The contents of this document are confidential and intended only for the person named above

Your Ref	**PZ1522D1**
Site	GREAT YARMOUTH 3RD RIVER CROSSING

The following tests have been scheduled on the samples below which cannot be carried out for the reason stated. Please give alternative instructions.

Lab ID	Hole ID	Depth Top	Depth Base	Samp Ref	Samp Type	Test	Reason	Instruction
338823	MB01A	23.00	23.45	U78	U	Triaxial at 500kPa	Only 250mm of material in tube. Insufficient material for	
338829	MB04A	24.00	24.45	U71	U	Triaxial 750kPa	Couldn't extrude intact sample from tube	
338829#1	MB04A	24.00	24.45	U71	U	Triaxial 500kPa	Couldn't extrude intact sample from tube	
338830#1	MB04A	39.00	39.45	U108	U	Triaxial 1000kPa	Only 300mm of usable sample in tube. Contained a cobble.	
338831#1	MB04A	41.00	41.45	U111	U	Triaxial 800kPa	Only 300mm of usable sample in tube.	
338834#1	MB06	23.00	23.45	U75	U	Triaxial 750kPa	Only 320mm of material in tube.	
338835#1	MB06	25.00	25.45	U81	U	Triaxial 500kPa	Only 300mm of usable sample in tube.	

TERRA TEK LIMITED
Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Telephone 01494 810 136

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Testing Restriction

Date: 14 September 2018

To	Norfolk Partnership Laboratory	Tel No	01603 224176
FAO	Mr. Simon Holden	Fax No	
From	Linda Anaz	Our Ref	**C6474-3**

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The contents of this document are confidential and intended only for the person named above

Your Ref	**PZ1522D1**
Site	GREAT YARMOUTH 3RD RIVER CROSSING

The following tests have been scheduled on the samples below which cannot be carried out for the reason stated. Please give alternative instructions.

Lab ID	Hole ID	Depth Top	Depth Base	Samp Ref	Samp Type	Test	Reason	Instruction
338836#1	MB07	20.00	20.45	U67	U	Triaxial 600kPa	Sample fell apart	
338838	MB07	38.00	38.45	U113	U	Triaxial 1000kPa	Only 285mm of sample in tube	
338839#1	MB07	40.00	40.45	U119	U	Triaxial 800kPa	Only 250mm of useable sample in tube.	
338840#1	MB08	20.00	20.45	U64	U	Triaxial 600kPa	Only 270mm of sample in tube	
338841	MB08	22.00	22.45	U69	U	Triaxial 500kPa	Only 230mm of sample in tube	
338842#1	MB09	23.00	23.45	U70	U	Triaxial 750kPa	Only 300mm of sample in tube.	

TERRA TEK LIMITED
Unit 2 Springfield Road, Chesham, Bucks, HP51PW
Telephone 01494 810 136

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05199
Issue Number: 1 **Date:** 11 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597526
Date Samples Received: 29/06/18
Date Instructions Received: 29/06/18
Date Analysis Completed: 11/07/18

Prepared by:

[redacted]

Holly Neary-King
Sales Executive

Approved by:

[redacted]

Richard Wong
Client Manager

Envirolab Job Number: 18/05199

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05199/1	18/05199/2	18/05199/3	18/05199/4	18/05199/5	18/05199/6	18/05199/7	18/05199/8	Units	Method ref
Client Sample No	6	8	13	16	38	52	69	84		
Client Sample ID	MB01a	MB01a	MB01a	MB01a	MB01a	MB01a	MB01a	MB01a		
Depth to Top	2.00	2.30	3.50	4.30	10.00	14.30	20.00	25.00		
Depth To Bottom	2.45		4.00		10.45		20.45	25.45		
Date Sampled	19-Jun-18	19-Jun-18	19-Jun-18	19-Jun-18	19-Jun-18	19-Jun-18	19-Jun-18	19-Jun-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	5	1	1	5	5		
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH BRE$_D^{M\#}$	8.49	-	-	8.49	8.37	8.29	8.26	8.16	pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	2.35	-	-	1.97	<1.00	<1.00	<1.00	1.03	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1140	-	-	1500	1820	1760	1720	1460	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	168	-	-	184	202	203	245	210	mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.04	-	-	0.04	0.04	0.05	0.07	0.06	% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.02	-	-	0.02	0.01	0.05	0.23	0.24	% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	44	-	-	82	135	138	97	69	mg/l	A-T-SOLMETS
Organic matter$_D^{M\#}$	-	<0.1	0.1	-	-	-	-	-	% w/w	A-T-032 OM

REPORT NOTES

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Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
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US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05126
Issue Number: 1 **Date:** 10 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597345
Date Samples Received: 27/06/18
Date Instructions Received: 28/06/18
Date Analysis Completed: 10/07/18

Prepared by:

[redacted]

Holly Neary-King
Sales Executive

Approved by:

[redacted]

Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/05126

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05126/1	18/05126/2	18/05126/3	18/05126/4	18/05126/5	18/05126/6	18/05126/7	18/05126/8	Units	Method ref
Client Sample No	8	18	44	58	68	83	95	107		
Client Sample ID	MB02	MB02	MB02	MB02	MB02	MB02	MB02	MB02		
Depth to Top	2.00	5.0	12.0	17.0	20.80	28.0	33.0	37.30		
Depth To Bottom		5.45	12.45		21.30					
Date Sampled	13-Jun-18	13-Jun-18	13-Jun-18	13-Jun-18	13-Jun-18	13-Jun-18	13-Jun-18	13-Jun-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	1	5A	5	6	5	5	6		
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH BRE$_D^{M\#}$	8.71	8.51	8.29	8.38	8.06	8.66	8.48	8.14	pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	1.06	1.06	1.19	<1.00	3.77	<1.00	<1.00	6.42	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1750	1860	2510	1820	1850	1680	1700	1910	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	210	190	334	358	321	245	246	370	mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.05	0.04	0.08	0.10	0.12	0.11	0.10	0.24	% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.02	0.02	0.08	0.25	0.47	0.23	0.15	0.52	% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	123	123	212	151	71	78.8662	146	157	mg/l	A-T-SOLMETS

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Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05059
Issue Number: 1 **Date:** 16 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597154
Date Samples Received: 20/06/18
Date Instructions Received: 26/06/18
Date Analysis Completed: 16/07/18

Prepared by:

[redacted]

Melanie Marshall
Laboratory Coordinator

Approved by:

[redacted]

Richard Wong
Client Manager

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	A-T-044
pH$_D$ M#	7.84	8.13	7.81	8.23	8.44	-	-		pH	A-T-031s
pH BRE$_D$ M#	-	-	-	-	-	8.58	8.59		pH	A-T-031s
Ammoniacal nitrogen$_D$	6.3	1.5	1.9	1.3	<0.2	-	-		mg/kg	A-T-033s
Ammonium NH4 BRE (water sol 2:1)$_D$	-	-	-	-	-	<1.00	<1.00		mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$ M#	-	-	-	-	-	1540	2370		mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	-	-	-	-	-	<0.4	<0.4		mg/l	A-T-026s
Sulphate (water sol 2:1)$_D$ M#	0.79	0.51	0.20	0.26	0.19	-	-		g/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D$ M#	-	-	-	-	-	174	245		mg/l	A-T-026s
Sulphate (acid soluble)$_D$ M#	3000	1500	550	920	440	-	-		mg/kg	A-T-028s
Sulphate BRE (acid sol)$_D$ M#	-	-	-	-	-	0.04	0.05		% w/w	A-T-028s
Sulphur BRE (total)$_D$	-	-	-	-	-	0.02	0.02		% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	-	-	-	-	-	115	179		mg/l	A-T-SOLMETS
Cyanide (total)$_A$ M#	<1	<1	<1	<1	<1	-	-		mg/kg	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2	-	-		mg/kg	A-T-050s
Sulphide$_A$	210	<5	<5	<5	<5	-	-		mg/kg	A-T-S2-s
Sulphur (elemental)$_D$ M#	1700	170	18	30	<5	-	-		mg/kg	A-T-029s
Organic matter$_D$ M#	2.2	0.3	<0.1	0.1	<0.1	-	-		% w/w	A-T-032 OM
Arsenic$_D$ M#	13	26	10	35	8	-	-		mg/kg	A-T-024s
Boron (water soluble)$_D$ M#	10.2	6.0	2.3	3.0	1.5	-	-		mg/kg	A-T-027s
Cadmium$_D$ M#	0.5	0.9	<0.5	0.7	<0.5	-	-		mg/kg	A-T-024s
Copper$_D$ M#	27	4	<1	<1	<1	-	-		mg/kg	A-T-024s
Chromium$_D$ M#	40	15	9	15	3	-	-		mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	-	-		mg/kg	A-T-040s
Lead$_D$ M#	39	8	4	8	2	-	-		mg/kg	A-T-024s
Mercury$_D$	0.30	<0.17	<0.17	<0.17	<0.17	-	-		mg/kg	A-T-024s
Nickel$_D$ M#	25	16	6	12	2	-	-		mg/kg	A-T-024s
Selenium$_D$ M#	<1	1	<1	<1	<1	-	-		mg/kg	A-T-024s
Zinc$_D$ M#	99	43	20	39	25	-	-		mg/kg	A-T-024s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Leachate Prep NRA (10:1)$_A$	*	-	-	-	-	-	-			A-T-001
pH (leachable)$_A^{\#}$	7.80	-	-	-	-	-	-		pH	A-T-031w
Ammoniacal nitrogen (leachable)$_A$	0.16	-	-	-	-	-	-		mg/l	A-T-033w
Sulphate (leachable)$_A^{\#}$	125.55	-	-	-	-	-	-		mg/l	A-T-026w
Cyanide (total) (leachable)$_A$	<0.005	-	-	-	-	-	-		mg/l	A-T-042wTCN
Phenols (total by HPLC) (leachable)$_A$	<0.01	-	-	-	-	-	-		mg/l	A-T-050w
Sulphide (leachable)$_A$	<0.1	-	-	-	-	-	-		mg/l	A-T-S2-w
DOC (leachable)$_A^{\#}$	5.2	-	-	-	-	-	-		mg/l	A-T-032w
Arsenic (leachable)$_A^{\#}$	3	-	-	-	-	-	-		µg/l	A-T-025w
Boron (leachable)$_A^{\#}$	371	-	-	-	-	-	-		µg/l	A-T-025w
Cadmium (leachable)$_A^{\#}$	<1	-	-	-	-	-	-		µg/l	A-T-025w
Copper (leachable)$_A^{\#}$	<1	-	-	-	-	-	-		µg/l	A-T-025w
Chromium (leachable)$_A^{\#}$	<1	-	-	-	-	-	-		µg/l	A-T-025w
Chromium (hexavalent) (leachable)$_A$	<0.05	-	-	-	-	-	-		mg/l	A-T-040w
Lead (leachable)$_A^{\#}$	1	-	-	-	-	-	-		µg/l	A-T-025w
Mercury (leachable)$_A^{\#}$	<0.1	-	-	-	-	-	-		µg/l	A-T-025w
Nickel (leachable)$_A^{\#}$	2	-	-	-	-	-	-		µg/l	A-T-025w
Selenium (leachable)$_A^{\#}$	<1	-	-	-	-	-	-		µg/l	A-T-025w
Sulphur (elemental/free) (leachable)$_A$	<0.1	-	-	-	-	-	-		mg/l	A-T-029w
Zinc (leachable)$_A^{\#}$	10	-	-	-	-	-	-		µg/l	A-T-025w

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{A}^{\#}$	NAD	NAD	NAD	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	-	-	-	-			

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-019s
Anthracene$_A^{M\#}$	<0.02	<0.02	<0.02	<0.02	<0.02	-	-		mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	-	-		mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	-	-		mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05	<0.05	-	-		mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05	<0.05	-	-		mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07	<0.07	-	-		mg/kg	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06	<0.06	<0.06	<0.06	-	-		mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	-	-		mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08	<0.08	-	-		mg/kg	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	-	-		mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	-	-		mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	-	-		mg/kg	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07	<0.07	-	-		mg/kg	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08	<0.08	-	-		mg/kg	A-T-019s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
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Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
PAH 16MS (leachable)										
Acenaphthene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Acenaphthylene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Anthracene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Benzo(a)anthracene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Benzo(a)pyrene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Chrysene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Fluoranthene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Fluorene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Naphthalene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Phenanthrene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Pyrene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Total PAH 16MS (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Speciated PCB-EC7										
PCB BZ $28_A^{M\#}$	<0.002	-	<0.002	<0.002	-	-	-		mg/kg	A-T-004s
PCB BZ $52_A^{M\#}$	<0.002	-	<0.002	<0.002	-	-	-		mg/kg	A-T-004s
PCB BZ $101_A^{M\#}$	<0.004	-	<0.004	<0.004	-	-	-		mg/kg	A-T-004s
PCB BZ $118_A^{M\#}$	<0.007	<0.007	<0.007	<0.007	<0.007	-	-		mg/kg	A-T-004s
PCB BZ $138_A^{M\#}$	<0.006	-	<0.006	<0.006	-	-	-		mg/kg	A-T-004s
PCB BZ $153_A^{M\#}$	<0.004	-	<0.004	<0.004	-	-	-		mg/kg	A-T-004s
PCB BZ $180_A^{M\#}$	<0.004	-	<0.004	<0.004	-	-	-		mg/kg	A-T-004s
Total Speciated PCB-EC7$_A^{M\#}$	<0.007	-	<0.007	<0.007	-	-	-		mg/kg	A-T-004s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Speciated PCB-WHO12										
PCB BZ 81$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 105$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 114$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 123$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 126$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 156$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 157$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 167$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 169$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 189$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 77$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
Total Speciated PCB-WHO12$_A$	-	<0.007	-	-	<0.007	-	-		mg/kg	A-T-004s

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,4-Dichlorophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,4-Dimethylphenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,4-Dinitrotoluene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,6-Dinitrotoluene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2-Chloronaphthalene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2-Chlorophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2-Methylnaphthalene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2-Methylphenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2-Nitrophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
4-Methylphenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
4-Nitrophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable)$_A$	<4	-	-	-	-	-	-		µg/l	A-T-052w
Butylbenzyl phthalate (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Carbazole (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Dibenzofuran (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Diethyl phthalate (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Dimethyl phthalate (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
n-Dibutylphthalate (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
n-Dioctylphthalate (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-052w
Hexachlorobenzene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Hexachlorobutadiene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Hexachlorocyclopentadiene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Hexachloroethane (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Isophorone (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Nitrobenzene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Pentachlorophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Perylene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Phenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
SVOC										
Hexachlorobenzene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Diethyl phthalate$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Dimethyl phthalate$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Dibenzofuran$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Carbazole$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Butylbenzyl phthalate$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<500	<500	<500	<500	<500	-	-		µg/kg	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
4-Nitrophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
4-Methylphenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
4-Chloro-3-methylphenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2-Nitrophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2-Methylphenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2-Chlorophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,6-Dinitrotoluene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,4-Dinitrotoluene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,4-Dimethylphenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,4-Dichlorophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,4,6-Trichlorophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,4,5-Trichlorophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2-Chloronaphthalene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2-Methylnaphthalene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Phenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Pentachlorophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
n-Dioctylphthalate$_A$	<500	<500	<500	<500	<500	-	-		µg/kg	A-T-052s
n-Dibutylphthalate$_A$	<300	<200	<100	<100	<100	-	-		µg/kg	A-T-052s
Nitrobenzene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Isophorone$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Hexachloroethane$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Hexachlorocyclopentadiene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Perylene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
VOC										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Chloromethane$_A$	<10	<10	<10	<10	<10	-	-		µg/kg	A-T-006s
Vinyl Chloride$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Bromomethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Chloroethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Trichlorofluoromethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Carbon Disulphide$_A^{\#}$	8	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Dichloromethane$_A$	<5	<5	<5	<5	<5	-	-		µg/kg	A-T-006s
trans 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1-Dichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
cis 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
2,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Bromochloromethane$_A^{\#}$	<5	<5	<5	<5	<5	-	-		µg/kg	A-T-006s
Chloroform$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1,1-Trichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Carbon Tetrachloride$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2-Dichloroethane$_A^{\#}$	<2	<2	<2	<2	<2	-	-		µg/kg	A-T-006s
Benzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Trichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Dibromomethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Bromodichloromethane$_A^{\#}$	<10	<10	<10	<10	<10	-	-		µg/kg	A-T-006s
cis 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Toluene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
trans 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1,2-Trichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,3-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Tetrachloroethene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Dibromochloromethane$_A^{\#}$	<3	<3	<3	<3	<3	-	-		µg/kg	A-T-006s
1,2-Dibromoethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Chlorobenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Ethylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
m & p Xylene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
o-Xylene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Styrene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Bromoform$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Isopropylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2,3-Trichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Bromobenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
n-Propylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
2-Chlorotoluene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,3,5-Trimethylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
4-Chlorotoluene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
tert-Butylbenzene$_A^{\#}$	<2	<2	<2	<2	<2	-	-		µg/kg	A-T-006s
1,2,4-Trimethylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
sec-Butylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
4-Isopropyltoluene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,3-Dichlorobenzene$_A$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,4-Dichlorobenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
n-Butylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2-Dichlorobenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane$_A$	<2	<2	<2	<2	<2	-	-		µg/kg	A-T-006s
1,2,4-Trichlorobenzene$_A$	<3	<3	<3	<3	<3	-	-		µg/kg	A-T-006s
Hexachlorobutadiene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2,3-Trichlorobenzene$_A$	<3	<3	<3	<3	<3	-	-		µg/kg	A-T-006s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
TPH UKCWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Ali >C8-C10$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Ali >C10-C12$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Ali >C12-C16$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Ali >C16-C21$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Ali >C21-C35$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Ali >C35-C44$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Total Aliphatics$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Aro >C8-C9$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Aro >C9-C10$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Aro >C10-C12$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Aro >C12-C16$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Aro >C16-C21$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Aro >C21-C35$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Aro >C35-C44$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Total Aromatics$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
TPH (Ali & Aro)$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
Ali >C6-C8 (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
Ali >C10-C12 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Ali >C12-C16 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Ali >C16-C21 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Ali >C21-C35 (leachable)$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w
Ali >C35-C44 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Total Aliphatics (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Total Aliphatics >C5-C44 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Aro >C5-C7 (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
Aro >C7-C8 (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
Aro >C8-C10 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Aro >C10-C12 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Aro >C12-C16 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Aro >C16-C21 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Aro >C35-C44 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Total Aromatics (leachable)$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w
Total Aromatics >C5-C44 (leachable) GCxGC$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w
TPH (Ali & Aro >C5-C35) (leachable)$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w
TPH (Ali & Aro >C5-C44) (leachable)$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w
Ali >C8-C10 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
BTEX - Benzene (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
BTEX - Toluene (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
BTEX - o Xylene (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
BTEX - m & p Xylene (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
MTBE (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
Aro >C21-C35 (leachable)$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w

REPORT NOTES

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All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05237
Issue Number: 1 **Date:** 10 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597752
Date Samples Received: 02/07/18
Date Instructions Received: 02/07/18
Date Analysis Completed: 10/07/18

Prepared by:

[redacted]

Danielle Brierley
Client Manager

Approved by:

[redacted]

John Gustafson
Managing Director

Envirolab Job Number: 18/05237

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05237/1	18/05237/2	18/05237/3						Units	Method ref
Client Sample No	5	9	44							
Client Sample ID	MB03	MB03	MB03							
Depth to Top	1.50	2.50	12.00							
Depth To Bottom	2.00	3.00	12.45							
Date Sampled	17-Jun-18	17-Jun-18	18-Jun-18							
Sample Type	Soil - B	Soil - B	Soil - D							
Sample Matrix Code	6A	4A	4A							
% Stones >10mm$_A$	<0.1	2.0	<0.1						% w/w	A-T-044
pH BRE$_D^{M\#}$	8.05	-	8.76						pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	2.32	-	<1.00						mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	3040	-	1580						mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	-	<0.4						mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	411	-	186						mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.12	-	0.05						% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.07	-	0.02						% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	182	-	118						mg/l	A-T-SOLMETS
Organic matter$_D^{M\#}$	-	0.3	-						% w/w	A-T-032 OM

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All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

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1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
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Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05294
Issue Number: 1 **Date:** 13 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597948
Date Samples Received: 03/07/18
Date Instructions Received: 04/07/18
Date Analysis Completed: 13/07/18

Prepared by:

[redacted]

Melanie Marshall
Laboratory Coordinator

Approved by:

[redacted]

Richard Wong
Client Manager

Envirolab Job Number: 18/05294

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05294/1	18/05294/2							Units	Method ref
Client Sample No	60	69								
Client Sample ID	MB03	MB03								
Depth to Top	17.30	20.70								
Depth To Bottom										
Date Sampled	18-Jun-18	18-Jun-18								
Sample Type	Soil - D	Soil - D								
Sample Matrix Code	1	1								
% Stones >10mm$_A$	<0.1	<0.1							% w/w	A-T-044
pH BRE$_D^{M\#}$	7.63	7.44							pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	<1.00	1.48							mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1880	2830							mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	<0.4							mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	236	418							mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.06	0.13							% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.08	0.38							% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	146	147							mg/l	A-T-SOLMETS

REPORT NOTES

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A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05349
Issue Number: 1 **Date:** 13 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598202
Date Samples Received: 05/07/18
Date Instructions Received: 05/07/18
Date Analysis Completed: 13/07/18

Prepared by:

[redacted]

Holly Neary-King
Sales Executive

Approved by:

[redacted]

John Gustafson
Managing Director

Envirolab Job Number: 18/05349

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05349/1	18/05349/2	18/05349/3	18/05349/4	18/05349/5	18/05349/6			Units	Method ref
Client Sample No	3	8	20	41	54	71				
Client Sample ID	MB05	MB05	MB05	MB05	MB05	MB05				
Depth to Top	1.00	2.00	5.00	12.00	16.30	22.30				
Depth To Bottom	1.45									
Date Sampled	20-Jun-18	20-Jun-18	20-Jun-18	20-Jun-18	20-Jun-18	20-Jun-18				
Sample Type	Soil - D	Soil - ES	Soil - ES	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	4	1	1	1	5	5				
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	A-T-044
pH BRE$_D^{M\#}$	-	7.86	8.39	7.49	7.36	8.13			pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	-	<1.00	<1.00	<1.00	1.77	1.48			mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	-	1540	1740	3000	3170	2900			mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	-	<0.4	<0.4	<0.4	<0.4	<0.4			mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	-	159	181	293	477	410			mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	-	0.06	0.05	0.06	0.17	0.14			% w/w	A-T-028s
Sulphur BRE (total)$_D$	-	0.03	0.02	0.02	0.17	0.54			% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	-	121	137	217	272	160			mg/l	A-T-SOLMETS
Organic matter$_D^{M\#}$	1.0	-	-	-	-	-			% w/w	A-T-032 OM

REPORT NOTES

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Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

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Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05419
Issue Number: 1 **Date:** 16 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598399
Date Samples Received: 06/07/18
Date Instructions Received: 06/07/18
Date Analysis Completed: 16/07/18

Prepared by:

[redacted]

Kate Keningale
Sales Executive

Approved by:

[redacted]

Danielle Brierley
Client Manager

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 18/05419

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05419/1	18/05419/2	18/05419/3	18/05419/4	18/05419/5	18/05419/6	18/05419/7	18/05419/8	Units	Method ref
Client Sample No	4	5	3	9	20	36	56	67		
Client Sample ID	MB06	MB06	MB06	MB06	MB06	MB06	MB06	MB06		
Depth to Top	1.00	1.30	1.45	2.30	5.00	10.00	16.50	20.30		
Depth To Bottom							17.00			
Date Sampled	24-Jun-18	24-Jun-18	24-Jun-18	24-Jun-18	24-Jun-18	24-Jun-18	24-Jun-18	24-Jun-18		
Sample Type	Soil - ES	Soil - D	Soil - D	Soil - D	Soil - ES	Soil - ES	Soil - B	Soil - D		
Sample Matrix Code	4	4	4	4A	5	1	5	1		
% Stones >10mm$_A$	0.2	<0.1	<0.1	0.7	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH BRE$_D$[M#]	7.04	-	-	-	8.36	8.48	7.78	7.89	pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	<1.00	-	-	-	16.8	1.35	<1.00	<1.00	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$[M#]	1420	-	-	-	1040	1790	1630	2430	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	-	-	-	0.6	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D$[M#]	165	-	-	-	130	175	253	273	mg/l	A-T-026s
Sulphate BRE (acid sol)$_D$[M#]	0.06	-	-	-	0.05	0.04	0.07	0.08	% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.06	-	-	-	0.03	0.01	0.31	0.15	% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	105	-	-	-	31	133	119	186	mg/l	A-T-SOLMETS
Organic matter$_D$[M#]	-	1.5	0.3	0.6	-	-	-	-	% w/w	A-T-032 OM

Envirolab Job Number: 18/05419

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05419/9								Units	Method ref
Client Sample No	79									
Client Sample ID	MB06									
Depth to Top	24.30									
Depth To Bottom										
Date Sampled	25-Jun-18									
Sample Type	Soil - D									
Sample Matrix Code	5									
% Stones >10mm$_A$	<0.1								% w/w	A-T-044
pH BRE$_D$$^{M\#}$	7.65								pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	2.19								mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$$^{M\#}$	3100								mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	0.9								mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	455								mg/l	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.13								% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.21								% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	106								mg/l	A-T-SOLMETS

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Soil chemical analysis:
All results are reported as dry weight (<40°C).
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For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
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Predominant Matrix Codes:
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Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
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N/A indicates Not Applicable.
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Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

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Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05529
Issue Number: 1 **Date:** 20 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598787
Date Samples Received: 06/07/18
Date Instructions Received: 11/07/18
Date Analysis Completed: 20/07/18

Prepared by:

[redacted]

Danielle Brierley
Client Manager

Approved by:

[redacted]

John Gustafson
Managing Director

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 18/05529

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05529/1	18/05529/2	18/05529/3	18/05529/4	18/05529/5	18/05529/6	18/05529/7		Units	Method ref
Client Sample No	9	37	56	71	91	108	114			
Client Sample ID	MB07	MB07	MB07	MB07	MB07	MB07	MB07			
Depth to Top	2.00	10.00	16.30	21.30	29.30	36.00	38.60			
Depth To Bottom						36.45				
Date Sampled	25-Jun-18	25-Jun-18	25-Jun-18	26-Jun-18	26-Jun-18	26-Jun-18	26-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	1	1	1A	1	1	1	3			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	A-T-044
pH BRE$_D^{M\#}$	8.50	8.59	8.45	8.50	7.84	8.33	8.37		pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	5.55	<1.00	1.13	1.23	<1.00	<1.00	5.97		mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1400	1750	1800	2040	1690	1870	2140		mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	176	185	230	244	239	385	845		mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.05	0.04	0.09	0.08	0.09	0.18	0.35		% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.02	0.01	0.10	0.15	0.14	0.31	1.61		% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	104	132	130	105	117	142	107		mg/l	A-T-SOLMETS

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Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
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Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
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US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

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Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05525
Issue Number: 1 **Date:** 20 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598804
Date Samples Received: 26/06/18
Date Instructions Received: 11/07/18
Date Analysis Completed: 20/07/18

Prepared by:

[redacted]

Kate Keningale
Sales Executive

Approved by:

[redacted]

John Gustafson
Managing Director

Envirolab Job Number: 18/05525

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05525/1	18/05525/2	18/05525/3	18/05525/4	18/05525/5	18/05525/6			Units	Method ref
Client Sample No	9	14	46	59	65	70				
Client Sample ID	MB08	MB08	MB08	MB08	MB08	MB08				
Depth to Top	2.00	3.30	10.00	18.00	20.60	22.60				
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	25-Jun-18	22-Jun-18	22-Jun-18	22-Jun-18				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	1A	1A	1	1	4	4				
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	A-T-044
pH BRE$_D^{M\#}$	8.77	-	8.69	8.61	8.26	8.06			pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	2.06	-	<1.00	<1.00	<1.00	2.23			mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1690	-	2220	1860	2400	1570			mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	1.6	-	1.9	1.5	1.2	1.0			mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	203	-	236	218	572	362			mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.04	-	0.04	0.05	0.14	0.12			% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.03	-	0.02	0.07	0.46	0.45			% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	107	-	161	134	146	67			mg/l	A-T-SOLMETS
Organic matter$_D^{M\#}$	-	0.2	-	-	-	-			% w/w	A-T-032 OM

REPORT NOTES

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For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05561
Issue Number: 1 **Date:** 20 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598960
Date Samples Received: 05/07/18
Date Instructions Received: 12/07/18
Date Analysis Completed: 20/07/18

Prepared by:

[redacted]

Georgia King
Admin & Client Services Supervisor

Approved by:

[redacted]

Danielle Brierley
Client Manager

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 18/05561

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05561/1	18/05561/2	18/05561/3	18/05561/4	18/05561/5	18/05561/6	18/05561/7	18/05561/8	Units	Method ref
Client Sample No	4	9	16	20	36	49	58	72		
Client Sample ID	MB09	MB09	MB09	MB09	MB09	MB09	MB09	MB09		
Depth to Top	1.00	2.30	4.30	5.00	10.00	14.30	17.30	23.50		
Depth To Bottom								24.00		
Date Sampled	02-Jul-18	02-Jul-18	02-Jul-18	02-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	04-Jul-18		
Sample Type	Soil - ES	Soil - D	Soil - D	Soil - ES	Soil - ES	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	4A	4	1	1A	1	1	1	3		
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH BRE$_D^{M\#}$	8.44	-	-	8.47	8.59	8.36	8.25	7.61	pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	1.61	-	-	2.55	<1.00	<1.00	<1.00	1.87	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1460	-	-	1450	2010	1500	1460	3350	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	198	-	-	198	243	226	186	576	mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.09	-	-	0.07	0.06	0.07	0.05	0.16	% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.04	-	-	0.04	0.02	0.05	0.05	0.28	% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	107	-	-	96	171	127	122	186	mg/l	A-T-SOLMETS
Organic matter$_D^{M\#}$	-	0.4	0.3	-	-	-	-	-	% w/w	A-T-032 OM

Envirolab Job Number: 18/05561

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05561/9	18/05561/10	18/05561/11						Units	Method ref
Client Sample No	86	106	112							
Client Sample ID	MB09	MB09	MB09							
Depth to Top	29.30	37.30	38.50							
Depth To Bottom			40.00							
Date Sampled	04-Jul-18	04-Jul-18	04-Jul-18							
Sample Type	Soil - D	Soil - D	Soil - B							
Sample Matrix Code	1	1	3							
% Stones >10mm$_A$	<0.1	<0.1	<0.1						% w/w	A-T-044
pH BRE$_D^{M\#}$	8.03	8.09	8.44						pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	<1.00	<1.00	5.00						mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1550	1640	1140						mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	<0.4	<0.4						mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	283	255	286						mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.11	0.18	0.25						% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.32	0.37	0.42						% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	107	128	71						mg/l	A-T-SOLMETS

REPORT NOTES

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Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
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Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
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Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05528
Issue Number: 1 **Date:** 20 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598805
Date Samples Received: 25/06/18
Date Instructions Received: 11/07/18
Date Analysis Completed: 20/07/18

Prepared by:

[redacted]

Kate Keningale
Sales Executive

Approved by:

[redacted]

John Gustafson
Managing Director

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 18/05528

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05528/1	18/05528/2	18/05528/3	18/05528/4	18/05528/5	18/05528/6	18/05528/7		Units	Method ref
Client Sample No	45	4	7	8	23	59	67			
Client Sample ID	MB10	MB10	MB10	MB10	MB10	MB10	MB10			
Depth to Top	0.00	1.30	2.00	2.30	6.30	18.80	22.00			
Depth To Bottom										
Date Sampled	26-Jun-18	22-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	23-Jun-18			
Sample Type	Soil - ES	Soil - D	Soil - D	Soil - D	Soil - D	Soil - ES	Soil - ES			
Sample Matrix Code	5	1	4	4AE	1	1	5			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	A-T-044
pH BRE$_D$$^{M\#}$	8.21	-	8.43	-	8.80	8.52	7.83		pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	1.29	-	<1.00	-	<1.00	<1.00	1.29		mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$$^{M\#}$	2380	-	1610	-	2040	1670	2730		mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	1.2	-	1.4	-	1.7	1.4	0.4		mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	328	-	219	-	209	176	508		mg/l	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.16	-	0.12	-	0.05	0.06	0.22		% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.09	-	0.05	-	0.01	0.05	0.65		% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	174	-	136	-	151	138	150		mg/l	A-T-SOLMETS
Organic matter$_D$$^{M\#}$	-	0.2	-	0.4	-	-	-		% w/w	A-T-032 OM

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All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
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Appendix G

CONTAMINATED LAND TEST

RESULTS

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 18/04837/1

Envirolab Job Number: 18/04837
Issue Number: 2 **Date:** 10 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 596135
Date Samples Received: 14/06/18
Date Instructions Received: 19/06/18
Date Analysis Completed: 10/07/18

Prepared by:

[redacted]

Holly Neary-King
Sales Executive

Approved by:

[redacted]

Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1					% w/w	A-T-044
pH$_D$ M#	9.01	8.67	8.47	8.56					pH	A-T-031s
Ammoniacal nitrogen$_D$	0.3	3.3	1.8	1.3					mg/kg	A-T-033s
Sulphate (water sol 2:1)$_D$ M#	0.46	0.27	0.21	0.22					g/l	A-T-026s
Sulphate (acid soluble)$_D$ M#	1500	2400	650	820					mg/kg	A-T-028s
Cyanide (total)$_A$ M#	<1	<1	<1	<1					mg/kg	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2					mg/kg	A-T-050s
Sulphide$_A$	<5	16	17	16					mg/kg	A-T-S2-s
Sulphur (elemental)$_D$ M#	30	44	25	<5					mg/kg	A-T-029s
Organic matter$_D$ M#	0.3	0.3	0.1	<0.1					% w/w	A-T-032 OM
Arsenic$_D$ M#	5	16	6	6					mg/kg	A-T-024s
Boron (water soluble)$_D$ M#	2.0	5.7	2.7	3.4					mg/kg	A-T-027s
Cadmium$_D$ M#	<0.5	0.8	<0.5	<0.5					mg/kg	A-T-024s
Copper$_D$ M#	12	4	2	<1					mg/kg	A-T-024s
Chromium$_D$ M#	19	27	6	4					mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1					mg/kg	A-T-040s
Lead$_D$ M#	15	11	4	3					mg/kg	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	<0.17					mg/kg	A-T-024s
Nickel$_D$ M#	25	15	5	4					mg/kg	A-T-024s
Selenium$_D$ M#	1	<1	1	<1					mg/kg	A-T-024s
Zinc$_D$ M#	29	42	17	11					mg/kg	A-T-024s
Leachate Prep NRA (10:1)$_A$	*	-	-	-						A-T-001
pH (leachable)$_A$ #	9.60	-	-	-					pH	A-T-031w
Ammoniacal nitrogen (leachable)$_A$	0.06	-	-	-					mg/l	A-T-033w
Sulphate (leachable)$_A$ #	89.51	-	-	-					mg/l	A-T-026w
Cyanide (total) (leachable)$_A$	<0.005	-	-	-					mg/l	A-T-042wTCN
Phenols (total by HPLC) (leachable)$_A$	<0.01	-	-	-					mg/l	A-T-050w
Sulphide (leachable)$_A$	3.5	-	-	-					mg/l	A-T-S2-w
DOC (leachable)$_A$ #	37.9	-	-	-					mg/l	A-T-032w
Arsenic (leachable)$_A$ #	37	-	-	-					µg/l	A-T-025w
Boron (leachable)$_A$ #	139	-	-	-					µg/l	A-T-025w
Cadmium (leachable)$_A$ #	<1	-	-	-					µg/l	A-T-025w
Copper (leachable)$_A$ #	80	-	-	-					µg/l	A-T-025w

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
Chromium (leachable)$_{A}^{\#}$	6	-	-	-					µg/l	A-T-025w
Chromium (hexavalent) (leachable)$_{A}$	<0.05	-	-	-					mg/l	A-T-040w
Lead (leachable)$_{A}^{\#}$	38	-	-	-					µg/l	A-T-025w
Mercury (leachable)$_{A}^{\#}$	<0.1	-	-	-					µg/l	A-T-025w
Nickel (leachable)$_{A}^{\#}$	61	-	-	-					µg/l	A-T-025w
Selenium (leachable)$_{A}^{\#}$	20	-	-	-					µg/l	A-T-025w
Sulphur (elemental/free) (leachable)$_{A}$	<0.1	-	-	-					mg/l	A-T-029w
Zinc (leachable)$_{A}^{\#}$	123	-	-	-					µg/l	A-T-025w

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_A$ #	NAD	NAD	-	-						A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	-	-						

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-019s
Anthracene$_A^{M\#}$	<0.02	<0.02	<0.02	<0.02					mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04					mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04					mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05					mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05					mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07					mg/kg	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06	<0.06	<0.06					mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04					mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08					mg/kg	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03					mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03					mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03					mg/kg	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07					mg/kg	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08					mg/kg	A-T-019s

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
PAH 16MS (leachable)										
Acenaphthene (leachable)$_A$	0.03	-	-	-					µg/l	A-T-019w
Acenaphthylene (leachable)$_A$	<0.02	-	-	-					µg/l	A-T-019w
Anthracene (leachable)$_A$	<0.02	-	-	-					µg/l	A-T-019w
Benzo(a)anthracene (leachable)$_A$	<0.02	-	-	-					µg/l	A-T-019w
Benzo(a)pyrene (leachable)$_A$	<0.02	-	-	-					µg/l	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	<0.02	-	-	-					µg/l	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	<0.02	-	-	-					µg/l	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	<0.02	-	-	-					µg/l	A-T-019w
Chrysene (leachable)$_A$	<0.02	-	-	-					µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	<0.02	-	-	-					µg/l	A-T-019w
Fluoranthene (leachable)$_A$	0.10	-	-	-					µg/l	A-T-019w
Fluorene (leachable)$_A$	0.03	-	-	-					µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	<0.02	-	-	-					µg/l	A-T-019w
Naphthalene (leachable)$_A$	0.07	-	-	-					µg/l	A-T-019w
Phenanthrene (leachable)$_A$	0.11	-	-	-					µg/l	A-T-019w
Pyrene (leachable)$_A$	0.08	-	-	-					µg/l	A-T-019w
Total PAH 16MS (leachable)$_A$	0.42	-	-	-					µg/l	A-T-019w

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
Speciated PCB-EC7										
PCB BZ $28_A^{M\#}$	<0.002	<0.002	-	-					mg/kg	A-T-004s
PCB BZ $52_A^{M\#}$	<0.002	<0.002	-	-					mg/kg	A-T-004s
PCB BZ $101_A^{M\#}$	<0.004	<0.004	-	-					mg/kg	A-T-004s
PCB BZ $118_A^{M\#}$	<0.007	<0.007	<0.007	<0.007					mg/kg	A-T-004s
PCB BZ $138_A^{M\#}$	<0.006	<0.006	-	-					mg/kg	A-T-004s
PCB BZ $153_A^{M\#}$	<0.004	<0.004	-	-					mg/kg	A-T-004s
PCB BZ $180_A^{M\#}$	<0.004	<0.004	-	-					mg/kg	A-T-004s
Total Speciated PCB-EC7$_A^{M\#}$	<0.007	<0.007	-	-					mg/kg	A-T-004s

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
Speciated PCB-WHO12										
PCB BZ 81$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 105$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 114$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 123$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 126$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 156$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 157$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 167$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 169$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 189$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 77$_A$	-	<0.005	<0.005	<0.005					mg/kg	A-T-004s
Total Speciated PCB-WHO12$_A$	-	<0.005	<0.007	<0.007					mg/kg	A-T-004s

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable)$_A$	70	-	-	-					µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2,4-Dichlorophenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2,4-Dimethylphenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2,4-Dinitrotoluene (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2,6-Dinitrotoluene (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2-Chloronaphthalene (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2-Chlorophenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2-Methylnaphthalene (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2-Methylphenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
2-Nitrophenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
4-Methylphenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
4-Nitrophenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable)$_A$	<40	-	-	-					µg/l	A-T-052w
Butylbenzyl phthalate (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Carbazole (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Dibenzofuran (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Diethyl phthalate (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Dimethyl phthalate (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
n-Dibutylphthalate (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
n-Dioctylphthalate (leachable)$_A$	<100	-	-	-					µg/l	A-T-052w
Hexachlorobenzene (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Hexachlorobutadiene (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
Hexachlorocyclopentadiene (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Hexachloroethane (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Isophorone (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Nitrobenzene (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Pentachlorophenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Perylene (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w
Phenol (leachable)$_A$	<20	-	-	-					µg/l	A-T-052w

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
SVOC										
Hexachlorobenzene$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Diethyl phthalate$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Dimethyl phthalate$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Dibenzofuran$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Carbazole$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Butylbenzyl phthalate$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<500	<500	<500	<500					µg/kg	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
4-Nitrophenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
4-Methylphenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
4-Chloro-3-methylphenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2-Nitrophenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2-Methylphenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2-Chlorophenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2,6-Dinitrotoluene$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2,4-Dinitrotoluene$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2,4-Dimethylphenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2,4-Dichlorophenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2,4,6-Trichlorophenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2,4,5-Trichlorophenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2-Chloronaphthalene$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
2-Methylnaphthalene$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Phenol$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Pentachlorophenol$_A$	<200	<200	<200	<200					µg/kg	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
n-Dioctylphthalate$_A$	<500	<500	<500	<500					µg/kg	A-T-052s
n-Dibutylphthalate$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Nitrobenzene$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Isophorone$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Hexachloroethane$_A$	<100	<100	<100	<100					µg/kg	A-T-052s

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
Hexachlorocyclopentadiene$_A$	<100	<100	<100	<100					µg/kg	A-T-052s
Perylene$_A$	<100	<100	<100	<100					µg/kg	A-T-052s

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
VOC										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1					µg/kg	A-T-006s
Chloromethane$_A$	<10	<10	<10	<10					µg/kg	A-T-006s
Vinyl Chloride$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Bromomethane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Chloroethane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Trichlorofluoromethane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloroethene$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Carbon Disulphide$_A^{\#}$	<1	2	<1	<1					µg/kg	A-T-006s
Dichloromethane$_A$	<5	<5	<5	<5					µg/kg	A-T-006s
trans 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloroethane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
cis 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
2,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Bromochloromethane$_A^{\#}$	<5	<5	<5	<5					µg/kg	A-T-006s
Chloroform$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,1-Trichloroethane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloropropene$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Carbon Tetrachloride$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichloroethane$_A^{\#}$	<2	<2	<2	<2					µg/kg	A-T-006s
Benzene$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Trichloroethene$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Dibromomethane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Bromodichloromethane$_A^{\#}$	<10	<10	<10	<10					µg/kg	A-T-006s
cis 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Toluene$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
trans 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,2-Trichloroethane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
1,3-Dichloropropane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Tetrachloroethene$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s
Dibromochloromethane$_A^{\#}$	<3	<3	<3	<3					µg/kg	A-T-006s
1,2-Dibromoethane$_A^{\#}$	<1	<1	<1	<1					µg/kg	A-T-006s

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
Chlorobenzene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1					µg/kg	A-T-006s
Ethylbenzene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
m & p Xylene$_A^\#$	4	<1	<1	<1					µg/kg	A-T-006s
o-Xylene$_A^\#$	2	<1	<1	<1					µg/kg	A-T-006s
Styrene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
Bromoform$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
Isopropylbenzene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane$_A$	<1	<1	<1	<1					µg/kg	A-T-006s
1,2,3-Trichloropropane$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
Bromobenzene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
n-Propylbenzene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
2-Chlorotoluene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
1,3,5-Trimethylbenzene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
4-Chlorotoluene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
tert-Butylbenzene$_A^\#$	<2	<2	<2	<2					µg/kg	A-T-006s
1,2,4-Trimethylbenzene$_A^\#$	1	<1	<1	<1					µg/kg	A-T-006s
sec-Butylbenzene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
4-Isopropyltoluene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
1,3-Dichlorobenzene$_A$	<1	<1	<1	<1					µg/kg	A-T-006s
1,4-Dichlorobenzene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
n-Butylbenzene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichlorobenzene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane$_A$	<2	<2	<2	<2					µg/kg	A-T-006s
1,2,4-Trichlorobenzene$_A$	<3	<3	<3	<3					µg/kg	A-T-006s
Hexachlorobutadiene$_A^\#$	<1	<1	<1	<1					µg/kg	A-T-006s
1,2,3-Trichlorobenzene$_A$	<3	<3	<3	<3					µg/kg	A-T-006s

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
TPH UKCWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C8-C10$_A^{\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C10-C12$_A^{\#}$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C12-C16$_A^{\#}$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C16-C21$_A^{\#}$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C21-C35$_A^{\#}$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C35-C44$_A$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Total Aliphatics$_A$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C8-C9$_A^{\#}$	<0.01	0.03	<0.01	<0.01					mg/kg	A-T-022s
Aro >C9-C10$_A^{\#}$	0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C10-C12$_A^{\#}$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C12-C16$_A^{\#}$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C16-C21$_A^{\#}$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C21-C35$_A^{\#}$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C35-C44$_A$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Total Aromatics$_A$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
TPH (Ali & Aro)$_A$	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	0.02	<0.01	<0.01					mg/kg	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s

Envirolab Job Number: 18/04837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04837/1	18/04837/2	18/04837/3	18/04837/4					Units	Method ref
Client Sample No	1	1	2	3						
Client Sample ID	MB02	MB01	MB01	MB02						
Depth to Top	0.00	0.80	2.00	3.00						
Depth To Bottom										
Date Sampled	12-Jun-18	11-Jun-18	11-Jun-18	12-Jun-18						
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES						
Sample Matrix Code	6	7	1	1						
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable)$_A$	<1	-	-	-					µg/l	A-T-022w
Ali >C6-C8 (leachable)$_A$	<1	-	-	-					µg/l	A-T-022w
Ali >C10-C12 (leachable)$_A$	<10	-	-	-					µg/l	A-T-055w
Ali >C12-C16 (leachable)$_A$	<10	-	-	-					µg/l	A-T-055w
Ali >C16-C21 (leachable)$_A$	24	-	-	-					µg/l	A-T-055w
Ali >C21-C35 (leachable)$_A$	48	-	-	-					µg/l	A-T-055w
Ali >C35-C44 (leachable)$_A$	36	-	-	-					µg/l	A-T-055w
Total Aliphatics (leachable)$_A$	72	-	-	-					µg/l	A-T-055w
Total Aliphatics >C5-C44 (leachable)$_A$	107	-	-	-					µg/l	A-T-055w
Aro >C5-C7 (leachable)$_A$	<1	-	-	-					µg/l	A-T-022w
Aro >C7-C8 (leachable)$_A$	<1	-	-	-					µg/l	A-T-022w
Aro >C8-C10 (leachable)$_A$	21	-	-	-					µg/l	A-T-055w
Aro >C10-C12 (leachable)$_A$	<10	-	-	-					µg/l	A-T-055w
Aro >C12-C16 (leachable)$_A$	<10	-	-	-					µg/l	A-T-055w
Aro >C16-C21 (leachable)$_A$	<10	-	-	-					µg/l	A-T-055w
Aro >C35-C44 (leachable)$_A$	<10	-	-	-					µg/l	A-T-055w
Total Aromatics (leachable)$_A$	41	-	-	-					µg/l	A-T-055w
Total Aromatics >C5-C44 (leachable) GCxGC$_A$	51	-	-	-					µg/l	A-T-055w
TPH (Ali & Aro >C5-C35) (leachable)$_A$	113	-	-	-					µg/l	A-T-055w
TPH (Ali & Aro >C5-C44) (leachable)$_A$	158	-	-	-					µg/l	A-T-055w
Ali >C8-C10 (leachable)$_A$	<10	-	-	-					µg/l	A-T-055w
BTEX - Benzene (leachable)$_A$	<1	-	-	-					µg/l	A-T-022w
BTEX - Toluene (leachable)$_A$	<1	-	-	-					µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable)$_A$	<1	-	-	-					µg/l	A-T-022w
BTEX - o Xylene (leachable)$_A$	<1	-	-	-					µg/l	A-T-022w
BTEX - m & p Xylene (leachable)$_A$	<1	-	-	-					µg/l	A-T-022w
MTBE (leachable)$_A$	<1	-	-	-					µg/l	A-T-022w
Aro >C21-C35 (leachable)$_A$	<20	-	-	-					µg/l	A-T-055w

REPORT NOTES

General:
This report shall not be reproduced, except in full, without written approval from Envirolab.
All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/04935
Issue Number: 1 **Date:** 02 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gr Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 596636
Date Samples Received: 19/06/18
Date Instructions Received: 22/06/18
Date Analysis Completed: 02/07/18

Prepared by:

[redacted]

Danielle Brierley
Client Manager

Approved by:

[redacted]

Iain Haslock
Analytical Consultant

Envirolab Job Number: 18/04935

Client Project Name: Gr Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04935/1	18/04935/2							Units	Method ref
Client Sample No	1	1								
Client Sample ID	MB04	MB04a								
Depth to Top	1.00	2.00								
Depth To Bottom										
Date Sampled	15-Jun-18	15-Jun-18								
Sample Type	Solid	Soil - ES								
Sample Matrix Code	7	1								
% Stones >10mm$_A$	<0.1	<0.1							% w/w	A-T-044
pH$_D$ M#	8.62	8.44							pH	A-T-031s
Ammoniacal nitrogen$_D$	1.6	0.5							mg/kg	A-T-033s
Sulphate (water sol 2:1)$_D$ M#	0.27	0.21							g/l	A-T-026s
Sulphate (acid soluble)$_D$ M#	830	650							mg/kg	A-T-028s
Cyanide (total)$_A$ M#	<1	<1							mg/kg	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2							mg/kg	A-T-050s
Sulphide$_A$	45	<5							mg/kg	A-T-S2-s
Sulphur (elemental)$_D$ M#	22	46							mg/kg	A-T-029s
Organic matter$_D$ M#	0.6	<0.1							% w/w	A-T-032 OM
Arsenic$_D$ M#	19	10							mg/kg	A-T-024s
Boron (water soluble)$_D$ M#	3.2	2.1							mg/kg	A-T-027s
Cadmium$_D$ M#	<0.5	<0.5							mg/kg	A-T-024s
Copper$_D$ M#	305	1							mg/kg	A-T-024s
Chromium$_D$ M#	7	4							mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1	<1							mg/kg	A-T-040s
Lead$_D$ M#	70	4							mg/kg	A-T-024s
Mercury$_D$	<0.17	<0.17							mg/kg	A-T-024s
Nickel$_D$ M#	8	6							mg/kg	A-T-024s
Selenium$_D$ M#	<1	<1							mg/kg	A-T-024s
Zinc$_D$ M#	355	18							mg/kg	A-T-024s

Envirolab Job Number: 18/04935

Client Project Name: Gr Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04935/1	18/04935/2							Units	Method ref
Client Sample No	1	1								
Client Sample ID	MB04	MB04a								
Depth to Top	1.00	2.00								
Depth To Bottom										
Date Sampled	15-Jun-18	15-Jun-18								
Sample Type	Solid	Soil - ES								
Sample Matrix Code	7	1								
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_A$ #	NAD	-								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	-								

Envirolab Job Number: 18/04935

Client Project Name: Gr Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04935/1	18/04935/2							Units	Method ref
Client Sample No	1	1								
Client Sample ID	MB04	MB04a								
Depth to Top	1.00	2.00								
Depth To Bottom										
Date Sampled	15-Jun-18	15-Jun-18								
Sample Type	Solid	Soil - ES								
Sample Matrix Code	7	1								
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	<0.01							mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01							mg/kg	A-T-019s
Anthracene$_A^{M\#}$	<0.02	<0.02							mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04							mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04							mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05							mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05							mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07							mg/kg	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06							mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04							mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08							mg/kg	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01							mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03							mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03	<0.03							mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03	<0.03							mg/kg	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07							mg/kg	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.08	<0.08							mg/kg	A-T-019s

Envirolab Job Number: 18/04935

Client Project Name: Gr Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04935/1	18/04935/2							Units	Method ref
Client Sample No	1	1								
Client Sample ID	MB04	MB04a								
Depth to Top	1.00	2.00								
Depth To Bottom										
Date Sampled	15-Jun-18	15-Jun-18								
Sample Type	Solid	Soil - ES								
Sample Matrix Code	7	1								
Speciated PCB-EC7 & WHO12										
PCB BZ 28$_{A}^{M\#}$	<0.002	<0.002							mg/kg	A-T-004s
PCB BZ 52$_{A}^{M\#}$	<0.002	<0.002							mg/kg	A-T-004s
PCB BZ 81$_{A}$	-	<0.005							mg/kg	A-T-004s
PCB BZ 101$_{A}^{M\#}$	<0.004	<0.004							mg/kg	A-T-004s
PCB BZ 105$_{A}$	-	<0.005							mg/kg	A-T-004s
PCB BZ 114$_{A}$	-	<0.005							mg/kg	A-T-004s
PCB BZ 118$_{A}^{M\#}$	<0.007	<0.007							mg/kg	A-T-004s
PCB BZ 123$_{A}$	-	<0.005							mg/kg	A-T-004s
PCB BZ 126$_{A}$	-	<0.005							mg/kg	A-T-004s
PCB BZ 138$_{A}^{M\#}$	<0.006	<0.006							mg/kg	A-T-004s
PCB BZ 153$_{A}^{M\#}$	<0.004	<0.004							mg/kg	A-T-004s
PCB BZ 156$_{A}$	-	<0.005							mg/kg	A-T-004s
PCB BZ 157$_{A}$	-	<0.005							mg/kg	A-T-004s
PCB BZ 167$_{A}$	-	<0.005							mg/kg	A-T-004s
PCB BZ 169$_{A}$	-	<0.005							mg/kg	A-T-004s
PCB BZ 180$_{A}^{M\#}$	<0.004	<0.004							mg/kg	A-T-004s
PCB BZ 189$_{A}$	-	<0.005							mg/kg	A-T-004s
PCB BZ 77$_{A}$	-	<0.005							mg/kg	A-T-004s
Total Speciated PCB-EC7 & WHO12$_{A}$	-	<0.007							mg/kg	A-T-004s

Envirolab Job Number: 18/04935

Client Project Name: Gr Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04935/1	18/04935/2							Units	Method ref
Client Sample No	1	1								
Client Sample ID	MB04	MB04a								
Depth to Top	1.00	2.00								
Depth To Bottom										
Date Sampled	15-Jun-18	15-Jun-18								
Sample Type	Solid	Soil - ES								
Sample Matrix Code	7	1								
Speciated PCB-EC7										
Total Speciated PCB-EC7$_A^{M\#}$	<0.007	-							mg/kg	A-T-004s

Envirolab Job Number: 18/04935

Client Project Name: Gr Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04935/1	18/04935/2							Units	Method ref
Client Sample No	1	1								
Client Sample ID	MB04	MB04a								
Depth to Top	1.00	2.00								
Depth To Bottom										
Date Sampled	15-Jun-18	15-Jun-18								
Sample Type	Solid	Soil - ES								
Sample Matrix Code	7	1								
SVOC										
Hexachlorobenzene$_A$	<100	<100							µg/kg	A-T-052s
Diethyl phthalate$_A$	<100	<100							µg/kg	A-T-052s
Dimethyl phthalate$_A$	<100	<100							µg/kg	A-T-052s
Dibenzofuran$_A$	<100	<100							µg/kg	A-T-052s
Carbazole$_A$	<100	<100							µg/kg	A-T-052s
Butylbenzyl phthalate$_A$	<100	<100							µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<500	<500							µg/kg	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100	<100							µg/kg	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100	<100							µg/kg	A-T-052s
4-Nitrophenol$_A$	<200	<200							µg/kg	A-T-052s
4-Methylphenol$_A$	<100	<100							µg/kg	A-T-052s
4-Chloro-3-methylphenol$_A$	<100	<100							µg/kg	A-T-052s
2-Nitrophenol$_A$	<100	<100							µg/kg	A-T-052s
2-Methylphenol$_A$	<100	<100							µg/kg	A-T-052s
2-Chlorophenol$_A$	<100	<100							µg/kg	A-T-052s
2,6-Dinitrotoluene$_A$	<100	<100							µg/kg	A-T-052s
2,4-Dinitrotoluene$_A$	<100	<100							µg/kg	A-T-052s
2,4-Dimethylphenol$_A$	<100	<100							µg/kg	A-T-052s
2,4-Dichlorophenol$_A$	<100	<100							µg/kg	A-T-052s
2,4,6-Trichlorophenol$_A$	<100	<100							µg/kg	A-T-052s
2,4,5-Trichlorophenol$_A$	<100	<100							µg/kg	A-T-052s
2-Chloronaphthalene$_A$	<100	<100							µg/kg	A-T-052s
2-Methylnaphthalene$_A$	<100	<100							µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100	<100							µg/kg	A-T-052s
Phenol$_A$	<100	<100							µg/kg	A-T-052s
Pentachlorophenol$_A$	<100	<100							µg/kg	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100	<100							µg/kg	A-T-052s
n-Dioctylphthalate$_A$	<500	<500							µg/kg	A-T-052s
n-Dibutylphthalate$_A$	<100	<100							µg/kg	A-T-052s
Nitrobenzene$_A$	<100	<100							µg/kg	A-T-052s
Isophorone$_A$	<100	<100							µg/kg	A-T-052s
Hexachloroethane$_A$	<100	<100							µg/kg	A-T-052s

Envirolab Job Number: 18/04935

Client Project Name: Gr Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04935/1	18/04935/2							Units	Method ref
Client Sample No	1	1								
Client Sample ID	MB04	MB04a								
Depth to Top	1.00	2.00								
Depth To Bottom										
Date Sampled	15-Jun-18	15-Jun-18								
Sample Type	Solid	Soil - ES								
Sample Matrix Code	7	1								
Hexachlorocyclopentadiene$_A$	<400	<400							µg/kg	A-T-052s
Perylene$_A$	<100	<100							µg/kg	A-T-052s

Envirolab Job Number: 18/04935

Client Project Name: Gr Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04935/1	18/04935/2							Units	Method ref
Client Sample No	1	1								
Client Sample ID	MB04	MB04a								
Depth to Top	1.00	2.00								
Depth To Bottom										
Date Sampled	15-Jun-18	15-Jun-18								
Sample Type	Solid	Soil - ES								
Sample Matrix Code	7	1								
VOC										
Dichlorodifluoromethane$_A$	<1	<1							µg/kg	A-T-006s
Chloromethane$_A$	<10	<10							µg/kg	A-T-006s
Vinyl Chloride$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Bromomethane$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Chloroethane$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Trichlorofluoromethane$_A^{\#}$	<1	<1							µg/kg	A-T-006s
1,1-Dichloroethene$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Carbon Disulphide$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Dichloromethane$_A$	<5	<5							µg/kg	A-T-006s
trans 1,2-Dichloroethene$_A^{\#}$	<1	<1							µg/kg	A-T-006s
1,1-Dichloroethane$_A^{\#}$	<1	<1							µg/kg	A-T-006s
cis 1,2-Dichloroethene$_A^{\#}$	<1	<1							µg/kg	A-T-006s
2,2-Dichloropropane$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Bromochloromethane$_A^{\#}$	<5	<5							µg/kg	A-T-006s
Chloroform$_A^{\#}$	<1	<1							µg/kg	A-T-006s
1,1,1-Trichloroethane$_A^{\#}$	<1	<1							µg/kg	A-T-006s
1,1-Dichloropropene$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Carbon Tetrachloride$_A^{\#}$	<1	<1							µg/kg	A-T-006s
1,2-Dichloroethane$_A^{\#}$	<2	<2							µg/kg	A-T-006s
Benzene$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Trichloroethene$_A^{\#}$	<1	<1							µg/kg	A-T-006s
1,2-Dichloropropane$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Dibromomethane$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Bromodichloromethane$_A^{\#}$	<10	<10							µg/kg	A-T-006s
cis 1,3-Dichloropropene$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Toluene$_A^{\#}$	<1	<1							µg/kg	A-T-006s
trans 1,3-Dichloropropene$_A^{\#}$	<1	<1							µg/kg	A-T-006s
1,1,2-Trichloroethane$_A^{\#}$	<1	<1							µg/kg	A-T-006s
1,3-Dichloropropane$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Tetrachloroethene$_A^{\#}$	<1	<1							µg/kg	A-T-006s
Dibromochloromethane$_A^{\#}$	<3	<3							µg/kg	A-T-006s
1,2-Dibromoethane$_A^{\#}$	<1	<1							µg/kg	A-T-006s

Lab Sample ID	18/04935/1	18/04935/2							Units	Method ref
Client Sample No	1	1								
Client Sample ID	MB04	MB04a								
Depth to Top	1.00	2.00								
Depth To Bottom										
Date Sampled	15-Jun-18	15-Jun-18								
Sample Type	Solid	Soil - ES								
Sample Matrix Code	7	1								
Chlorobenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	<1	<1							µg/kg	A-T-006s
Ethylbenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
m & p Xylene$_{A}^{\#}$	2	<1							µg/kg	A-T-006s
o-Xylene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Styrene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Bromoform$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Isopropylbenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	<1	<1							µg/kg	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Bromobenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
n-Propylbenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	<2	<2							µg/kg	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,3-Dichlorobenzene$_{A}$	<1	<1							µg/kg	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
n-Butylbenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane$_{A}$	<2	<2							µg/kg	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	<3	<3							µg/kg	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	<3	<3							µg/kg	A-T-006s

Envirolab Job Number: 18/04935

Client Project Name: Gr Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04935/1	18/04935/2							Units	Method ref
Client Sample No	1	1								
Client Sample ID	MB04	MB04a								
Depth to Top	1.00	2.00								
Depth To Bottom										
Date Sampled	15-Jun-18	15-Jun-18								
Sample Type	Solid	Soil - ES								
Sample Matrix Code	7	1								
TPH UKCWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Ali >C8-C10$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Ali >C10-C12$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Ali >C12-C16$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Ali >C16-C21$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Ali >C21-C35$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Ali >C35-C44$_A$	<0.1	<0.1							mg/kg	A-T-023s
Total Aliphatics$_A$	<0.1	<0.1							mg/kg	A-T-023s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Aro >C8-C9$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Aro >C9-C10$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Aro >C10-C12$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Aro >C12-C16$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Aro >C16-C21$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Aro >C21-C35$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Aro >C35-C44$_A$	<0.1	<0.1							mg/kg	A-T-023s
Total Aromatics$_A$	<0.1	<0.1							mg/kg	A-T-023s
TPH (Ali & Aro)$_A$	<0.1	<0.1							mg/kg	A-T-023s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s

REPORT NOTES

General:
This report shall not be reproduced, except in full, without written approval from Envirolab.
All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05059
Issue Number: 1 **Date:** 16 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597154
Date Samples Received: 20/06/18
Date Instructions Received: 26/06/18
Date Analysis Completed: 16/07/18

Prepared by:

[redacted]

Melanie Marshall
Laboratory Coordinator

Approved by:

[redacted]

Richard Wong
Client Manager

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	A-T-044
pH$_D$ M#	7.84	8.13	7.81	8.23	8.44	-	-		pH	A-T-031s
pH BRE$_D$ M#	-	-	-	-	-	8.58	8.59		pH	A-T-031s
Ammoniacal nitrogen$_D$	6.3	1.5	1.9	1.3	<0.2	-	-		mg/kg	A-T-033s
Ammonium NH4 BRE (water sol 2:1)$_D$	-	-	-	-	-	<1.00	<1.00		mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$ M#	-	-	-	-	-	1540	2370		mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	-	-	-	-	-	<0.4	<0.4		mg/l	A-T-026s
Sulphate (water sol 2:1)$_D$ M#	0.79	0.51	0.20	0.26	0.19	-	-		g/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D$ M#	-	-	-	-	-	174	245		mg/l	A-T-026s
Sulphate (acid soluble)$_D$ M#	3000	1500	550	920	440	-	-		mg/kg	A-T-028s
Sulphate BRE (acid sol)$_D$ M#	-	-	-	-	-	0.04	0.05		% w/w	A-T-028s
Sulphur BRE (total)$_D$	-	-	-	-	-	0.02	0.02		% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	-	-	-	-	-	115	179		mg/l	A-T-SOLMETS
Cyanide (total)$_A$ M#	<1	<1	<1	<1	<1	-	-		mg/kg	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2	-	-		mg/kg	A-T-050s
Sulphide$_A$	210	<5	<5	<5	<5	-	-		mg/kg	A-T-S2-s
Sulphur (elemental)$_D$ M#	1700	170	18	30	<5	-	-		mg/kg	A-T-029s
Organic matter$_D$ M#	2.2	0.3	<0.1	0.1	<0.1	-	-		% w/w	A-T-032 OM
Arsenic$_D$ M#	13	26	10	35	8	-	-		mg/kg	A-T-024s
Boron (water soluble)$_D$ M#	10.2	6.0	2.3	3.0	1.5	-	-		mg/kg	A-T-027s
Cadmium$_D$ M#	0.5	0.9	<0.5	0.7	<0.5	-	-		mg/kg	A-T-024s
Copper$_D$ M#	27	4	<1	<1	<1	-	-		mg/kg	A-T-024s
Chromium$_D$ M#	40	15	9	15	3	-	-		mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	-	-		mg/kg	A-T-040s
Lead$_D$ M#	39	8	4	8	2	-	-		mg/kg	A-T-024s
Mercury$_D$	0.30	<0.17	<0.17	<0.17	<0.17	-	-		mg/kg	A-T-024s
Nickel$_D$ M#	25	16	6	12	2	-	-		mg/kg	A-T-024s
Selenium$_D$ M#	<1	1	<1	<1	<1	-	-		mg/kg	A-T-024s
Zinc$_D$ M#	99	43	20	39	25	-	-		mg/kg	A-T-024s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Leachate Prep NRA (10:1)$_A$	*	-	-	-	-	-	-			A-T-001
pH (leachable)$_A^{\#}$	7.80	-	-	-	-	-	-		pH	A-T-031w
Ammoniacal nitrogen (leachable)$_A$	0.16	-	-	-	-	-	-		mg/l	A-T-033w
Sulphate (leachable)$_A^{\#}$	125.55	-	-	-	-	-	-		mg/l	A-T-026w
Cyanide (total) (leachable)$_A$	<0.005	-	-	-	-	-	-		mg/l	A-T-042wTCN
Phenols (total by HPLC) (leachable)$_A$	<0.01	-	-	-	-	-	-		mg/l	A-T-050w
Sulphide (leachable)$_A$	<0.1	-	-	-	-	-	-		mg/l	A-T-S2-w
DOC (leachable)$_A^{\#}$	5.2	-	-	-	-	-	-		mg/l	A-T-032w
Arsenic (leachable)$_A^{\#}$	3	-	-	-	-	-	-		µg/l	A-T-025w
Boron (leachable)$_A^{\#}$	371	-	-	-	-	-	-		µg/l	A-T-025w
Cadmium (leachable)$_A^{\#}$	<1	-	-	-	-	-	-		µg/l	A-T-025w
Copper (leachable)$_A^{\#}$	<1	-	-	-	-	-	-		µg/l	A-T-025w
Chromium (leachable)$_A^{\#}$	<1	-	-	-	-	-	-		µg/l	A-T-025w
Chromium (hexavalent) (leachable)$_A$	<0.05	-	-	-	-	-	-		mg/l	A-T-040w
Lead (leachable)$_A^{\#}$	1	-	-	-	-	-	-		µg/l	A-T-025w
Mercury (leachable)$_A^{\#}$	<0.1	-	-	-	-	-	-		µg/l	A-T-025w
Nickel (leachable)$_A^{\#}$	2	-	-	-	-	-	-		µg/l	A-T-025w
Selenium (leachable)$_A^{\#}$	<1	-	-	-	-	-	-		µg/l	A-T-025w
Sulphur (elemental/free) (leachable)$_A$	<0.1	-	-	-	-	-	-		mg/l	A-T-029w
Zinc (leachable)$_A^{\#}$	10	-	-	-	-	-	-		µg/l	A-T-025w

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{A}^{\#}$	NAD	NAD	NAD	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	-	-	-	-			

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-019s
Anthracene$_A^{M\#}$	<0.02	<0.02	<0.02	<0.02	<0.02	-	-		mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	-	-		mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	-	-		mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05	<0.05	-	-		mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05	<0.05	-	-		mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07	<0.07	-	-		mg/kg	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06	<0.06	<0.06	<0.06	-	-		mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	-	-		mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08	<0.08	-	-		mg/kg	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	-	-		mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	-	-		mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	-	-		mg/kg	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07	<0.07	-	-		mg/kg	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.08	<0.08	<0.08	<0.08	<0.08	-	-		mg/kg	A-T-019s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
PAH 16MS (leachable)										
Acenaphthene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Acenaphthylene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Anthracene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Benzo(a)anthracene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Benzo(a)pyrene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Chrysene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Fluoranthene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Fluorene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Naphthalene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Phenanthrene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Pyrene (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w
Total PAH 16MS (leachable)$_A$	<0.02	-	-	-	-	-	-		µg/l	A-T-019w

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Speciated PCB-EC7										
PCB BZ $28_A^{M\#}$	<0.002	-	<0.002	<0.002	-	-	-		mg/kg	A-T-004s
PCB BZ $52_A^{M\#}$	<0.002	-	<0.002	<0.002	-	-	-		mg/kg	A-T-004s
PCB BZ $101_A^{M\#}$	<0.004	-	<0.004	<0.004	-	-	-		mg/kg	A-T-004s
PCB BZ $118_A^{M\#}$	<0.007	<0.007	<0.007	<0.007	<0.007	-	-		mg/kg	A-T-004s
PCB BZ $138_A^{M\#}$	<0.006	-	<0.006	<0.006	-	-	-		mg/kg	A-T-004s
PCB BZ $153_A^{M\#}$	<0.004	-	<0.004	<0.004	-	-	-		mg/kg	A-T-004s
PCB BZ $180_A^{M\#}$	<0.004	-	<0.004	<0.004	-	-	-		mg/kg	A-T-004s
Total Speciated PCB-EC7$_A^{M\#}$	<0.007	-	<0.007	<0.007	-	-	-		mg/kg	A-T-004s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Speciated PCB-WHO12										
PCB BZ 81$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 105$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 114$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 123$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 126$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 156$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 157$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 167$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 169$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 189$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
PCB BZ 77$_A$	-	<0.005	-	-	<0.005	-	-		mg/kg	A-T-004s
Total Speciated PCB-WHO12$_A$	-	<0.007	-	-	<0.007	-	-		mg/kg	A-T-004s

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,4-Dichlorophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,4-Dimethylphenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,4-Dinitrotoluene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2,6-Dinitrotoluene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2-Chloronaphthalene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2-Chlorophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2-Methylnaphthalene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2-Methylphenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
2-Nitrophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
4-Methylphenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
4-Nitrophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable)$_A$	<4	-	-	-	-	-	-		µg/l	A-T-052w
Butylbenzyl phthalate (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Carbazole (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Dibenzofuran (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Diethyl phthalate (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Dimethyl phthalate (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
n-Dibutylphthalate (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
n-Dioctylphthalate (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-052w
Hexachlorobenzene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Hexachlorobutadiene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Hexachlorocyclopentadiene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Hexachloroethane (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Isophorone (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Nitrobenzene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Pentachlorophenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Perylene (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w
Phenol (leachable)$_A$	<2	-	-	-	-	-	-		µg/l	A-T-052w

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
SVOC										
Hexachlorobenzene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Diethyl phthalate$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Dimethyl phthalate$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Dibenzofuran$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Carbazole$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Butylbenzyl phthalate$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<500	<500	<500	<500	<500	-	-		µg/kg	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
4-Nitrophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
4-Methylphenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
4-Chloro-3-methylphenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2-Nitrophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2-Methylphenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2-Chlorophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,6-Dinitrotoluene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,4-Dinitrotoluene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,4-Dimethylphenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,4-Dichlorophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,4,6-Trichlorophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2,4,5-Trichlorophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2-Chloronaphthalene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
2-Methylnaphthalene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Phenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Pentachlorophenol$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
n-Dioctylphthalate$_A$	<500	<500	<500	<500	<500	-	-		µg/kg	A-T-052s
n-Dibutylphthalate$_A$	<300	<200	<100	<100	<100	-	-		µg/kg	A-T-052s
Nitrobenzene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Isophorone$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Hexachloroethane$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Hexachlorocyclopentadiene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s
Perylene$_A$	<100	<100	<100	<100	<100	-	-		µg/kg	A-T-052s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
VOC										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Chloromethane$_A$	<10	<10	<10	<10	<10	-	-		µg/kg	A-T-006s
Vinyl Chloride$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Bromomethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Chloroethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Trichlorofluoromethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Carbon Disulphide$_A^{\#}$	8	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Dichloromethane$_A$	<5	<5	<5	<5	<5	-	-		µg/kg	A-T-006s
trans 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1-Dichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
cis 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
2,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Bromochloromethane$_A^{\#}$	<5	<5	<5	<5	<5	-	-		µg/kg	A-T-006s
Chloroform$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1,1-Trichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Carbon Tetrachloride$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2-Dichloroethane$_A^{\#}$	<2	<2	<2	<2	<2	-	-		µg/kg	A-T-006s
Benzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Trichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Dibromomethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Bromodichloromethane$_A^{\#}$	<10	<10	<10	<10	<10	-	-		µg/kg	A-T-006s
cis 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Toluene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
trans 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1,2-Trichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,3-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Tetrachloroethene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Dibromochloromethane$_A^{\#}$	<3	<3	<3	<3	<3	-	-		µg/kg	A-T-006s
1,2-Dibromoethane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
Chlorobenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Ethylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
m & p Xylene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
o-Xylene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Styrene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Bromoform$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Isopropylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2,3-Trichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
Bromobenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
n-Propylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
2-Chlorotoluene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,3,5-Trimethylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
4-Chlorotoluene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
tert-Butylbenzene$_A^{\#}$	<2	<2	<2	<2	<2	-	-		µg/kg	A-T-006s
1,2,4-Trimethylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
sec-Butylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
4-Isopropyltoluene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,3-Dichlorobenzene$_A$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,4-Dichlorobenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
n-Butylbenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2-Dichlorobenzene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane$_A$	<2	<2	<2	<2	<2	-	-		µg/kg	A-T-006s
1,2,4-Trichlorobenzene$_A$	<3	<3	<3	<3	<3	-	-		µg/kg	A-T-006s
Hexachlorobutadiene$_A^{\#}$	<1	<1	<1	<1	<1	-	-		µg/kg	A-T-006s
1,2,3-Trichlorobenzene$_A$	<3	<3	<3	<3	<3	-	-		µg/kg	A-T-006s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
TPH UKCWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Ali >C8-C10$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Ali >C10-C12$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Ali >C12-C16$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Ali >C16-C21$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Ali >C21-C35$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Ali >C35-C44$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Total Aliphatics$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Aro >C8-C9$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Aro >C9-C10$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Aro >C10-C12$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Aro >C12-C16$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Aro >C16-C21$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Aro >C21-C35$_A^{\#}$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Aro >C35-C44$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
Total Aromatics$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
TPH (Ali & Aro)$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	-	-		mg/kg	A-T-023s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s

Envirolab Job Number: 18/05059

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05059/1	18/05059/2	18/05059/3	18/05059/4	18/05059/5	18/05059/13	18/05059/17		Units	Method ref
Client Sample No	1	3	3	7	14	20				
Client Sample ID	MB05	MB03	MB01a	MB03	MB05	MB3	MB3			
Depth to Top	0.00	1.00	1.00	2.00	4.00	5.00	9.00			
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	17-Jun-18	18-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5	5	5	1	1	1	1			
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
Ali >C6-C8 (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
Ali >C10-C12 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Ali >C12-C16 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Ali >C16-C21 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Ali >C21-C35 (leachable)$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w
Ali >C35-C44 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Total Aliphatics (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Total Aliphatics >C5-C44 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Aro >C5-C7 (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
Aro >C7-C8 (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
Aro >C8-C10 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Aro >C10-C12 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Aro >C12-C16 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Aro >C16-C21 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Aro >C35-C44 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
Total Aromatics (leachable)$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w
Total Aromatics >C5-C44 (leachable) GCxGC$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w
TPH (Ali & Aro >C5-C35) (leachable)$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w
TPH (Ali & Aro >C5-C44) (leachable)$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w
Ali >C8-C10 (leachable)$_A$	<10	-	-	-	-	-	-		µg/l	A-T-055w
BTEX - Benzene (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
BTEX - Toluene (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
BTEX - o Xylene (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
BTEX - m & p Xylene (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
MTBE (leachable)$_A$	<1	-	-	-	-	-	-		µg/l	A-T-022w
Aro >C21-C35 (leachable)$_A$	<20	-	-	-	-	-	-		µg/l	A-T-055w

REPORT NOTES

General:
This report shall not be reproduced, except in full, without written approval from Envirolab.
All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05126
Issue Number: 1 **Date:** 10 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597345
Date Samples Received: 27/06/18
Date Instructions Received: 28/06/18
Date Analysis Completed: 10/07/18

Prepared by:

[redacted]

Holly Neary-King
Sales Executive

Approved by:

[redacted]

Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/05126

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05126/1	18/05126/2	18/05126/3	18/05126/4	18/05126/5	18/05126/6	18/05126/7	18/05126/8	Units	Method ref
Client Sample No	8	18	44	58	68	83	95	107		
Client Sample ID	MB02	MB02	MB02	MB02	MB02	MB02	MB02	MB02		
Depth to Top	2.00	5.0	12.0	17.0	20.80	28.0	33.0	37.30		
Depth To Bottom		5.45	12.45		21.30					
Date Sampled	13-Jun-18	13-Jun-18	13-Jun-18	13-Jun-18	13-Jun-18	13-Jun-18	13-Jun-18	13-Jun-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	1	5A	5	6	5	5	6		
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH BRE$_D^{M\#}$	8.71	8.51	8.29	8.38	8.06	8.66	8.48	8.14	pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	1.06	1.06	1.19	<1.00	3.77	<1.00	<1.00	6.42	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1750	1860	2510	1820	1850	1680	1700	1910	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	210	190	334	358	321	245	246	370	mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.05	0.04	0.08	0.10	0.12	0.11	0.10	0.24	% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.02	0.02	0.08	0.25	0.47	0.23	0.15	0.52	% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	123	123	212	151	71	78.8662	146	157	mg/l	A-T-SOLMETS

REPORT NOTES

General:
This report shall not be reproduced, except in full, without written approval from Envirolab.
All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

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Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
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NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
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Subscript "A" indicates analysis performed on the sample as received.
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envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05167
Issue Number: 1 **Date:** 10 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597574
Date Samples Received: 25/06/18
Date Instructions Received: 29/06/18
Date Analysis Completed: 10/07/18

Prepared by:

[redacted]

Kate Keningale
Sales Executive

Approved by:

[redacted]

Danielle Brierley
Client Manager

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
% Stones >10mm$_A$	<0.1	6.0	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	A-T-044
pH$_D$ M#	7.90	8.34	8.26	8.73	8.36	8.32	8.40		pH	A-T-031s
Ammoniacal nitrogen$_D$	1.2	<0.2	24.8	0.9	<0.2	0.9	3.8		mg/kg	A-T-033s
Sulphate (water sol 2:1)$_D$ M#	0.20	0.18	0.36	0.27	0.18	0.20	0.17		g/l	A-T-026s
Sulphate (acid soluble)$_D$ M#	610	830	1600	1000	620	650	520		mg/kg	A-T-028s
Cyanide (total)$_A$ M#	<1	<1	<1	<1	<1	<1	<1		mg/kg	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		mg/kg	A-T-050s
Sulphide$_A$	120	32	54	41	8	100	<5		mg/kg	A-T-S2-s
Sulphur (elemental)$_D$ M#	34	25	430	88	59	88	13		mg/kg	A-T-029s
Organic matter$_D$ M#	0.4	0.7	2.1	0.5	0.2	1.7	<0.1		% w/w	A-T-032 OM
Arsenic$_D$ M#	3	4	10	10	3	3	9		mg/kg	A-T-024s
Boron (water soluble)$_D$ M#	1.6	2.1	7.4	2.2	1.5	1.7	1.2		mg/kg	A-T-027s
Cadmium$_D$ M#	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		mg/kg	A-T-024s
Copper$_D$ M#	9	44	18	27	5	9	<1		mg/kg	A-T-024s
Chromium$_D$ M#	4	8	21	13	4	4	4		mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	<1	<1		mg/kg	A-T-040s
Lead$_D$ M#	10	151	26	51	9	36	3		mg/kg	A-T-024s
Mercury$_D$	<0.17	<0.17	0.21	<0.17	<0.17	<0.17	<0.17		mg/kg	A-T-024s
Nickel$_D$ M#	3	8	17	15	3	3	2		mg/kg	A-T-024s
Selenium$_D$ M#	<1	<1	1	<1	<1	<1	<1		mg/kg	A-T-024s
Zinc$_D$ M#	33	201	71	69	26	35	14		mg/kg	A-T-024s
Leachate Prep NRA (10:1)$_A$	*	*	*	-	-	-	-			A-T-001
pH (leachable)$_A$ #	7.42	7.78	7.99	-	-	-	-		pH	A-T-031w
Ammoniacal nitrogen (leachable)$_A$	0.20	<0.02	2.08	-	-	-	-		mg/l	A-T-033w
Sulphate (leachable)$_A$ #	50.92	47.97	59.87	-	-	-	-		mg/l	A-T-026w
Cyanide (total) (leachable)$_A$	<0.005	<0.005	<0.005	-	-	-	-		mg/l	A-T-042wTCN
Phenols (total by HPLC) (leachable)$_A$	<0.01	<0.01	<0.01	-	-	-	-		mg/l	A-T-050w
Sulphide (leachable)$_A$	<0.1	<0.1	<0.1	-	-	-	-		mg/l	A-T-S2-w
DOC (leachable)$_A$ #	1.7	1.9	17.5	-	-	-	-		mg/l	A-T-032w
Arsenic (leachable)$_A$ #	4	6	10	-	-	-	-		µg/l	A-T-025w
Boron (leachable)$_A$ #	125	150	369	-	-	-	-		µg/l	A-T-025w
Cadmium (leachable)$_A$ #	<1	<1	<1	-	-	-	-		µg/l	A-T-025w
Copper (leachable)$_A$ #	<1	9	10	-	-	-	-		µg/l	A-T-025w

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
Chromium (leachable)$_A^{\#}$	<1	<1	2	-	-	-	-		µg/l	A-T-025w
Chromium (hexavalent) (leachable)$_A$	<0.05	<0.05	<0.05	-	-	-	-		mg/l	A-T-040w
Lead (leachable)$_A^{\#}$	<1	38	17	-	-	-	-		µg/l	A-T-025w
Mercury (leachable)$_A^{\#}$	<0.1	<0.1	<0.1	-	-	-	-		µg/l	A-T-025w
Nickel (leachable)$_A^{\#}$	1	1	5	-	-	-	-		µg/l	A-T-025w
Selenium (leachable)$_A^{\#}$	<1	<1	3	-	-	-	-		µg/l	A-T-025w
Sulphur (elemental/free) (leachable)$_A$	<0.1	<0.1	<0.1	-	-	-	-		mg/l	A-T-029w
Zinc (leachable)$_A^{\#}$	43	49	24	-	-	-	-		µg/l	A-T-025w

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_A^{\#}$	NAD	NAD	NAD	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	-	-	-	-			

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-019s
Anthracene$_A^{M\#}$	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.29	<0.04	<0.04	<0.04	<0.04	0.09	<0.04		mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.14	<0.04	<0.04	<0.04	<0.04	0.07	<0.04		mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.17	<0.05	<0.05	<0.05	<0.05	0.09	<0.05		mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07		mg/kg	A-T-019s
Chrysene$_A^{M\#}$	0.23	<0.06	<0.06	<0.06	<0.06	0.10	<0.06		mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	0.66	<0.08	<0.08	<0.08	<0.08	0.20	<0.08		mg/kg	A-T-019s
Fluorene$_A^{M\#}$	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.07	<0.03	<0.03	<0.03	<0.03	0.05	<0.03		mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	0.28	<0.03	<0.03	<0.03	<0.03	0.15	<0.03		mg/kg	A-T-019s
Pyrene$_A^{M\#}$	0.44	<0.07	<0.07	<0.07	<0.07	0.16	<0.07		mg/kg	A-T-019s
Total PAH-16MS$_A^{M\#}$	2.40	<0.08	<0.08	<0.08	<0.08	0.91	<0.08		mg/kg	A-T-019s

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
PAH 16MS (leachable)										
Acenaphthene (leachable)$_A$	<0.02	0.02	0.04	-	-	-	-		µg/l	A-T-019w
Acenaphthylene (leachable)$_A$	<0.02	<0.02	<0.02	-	-	-	-		µg/l	A-T-019w
Anthracene (leachable)$_A$	<0.02	0.02	<0.02	-	-	-	-		µg/l	A-T-019w
Benzo(a)anthracene (leachable)$_A$	<0.02	<0.02	<0.02	-	-	-	-		µg/l	A-T-019w
Benzo(a)pyrene (leachable)$_A$	<0.02	<0.02	<0.02	-	-	-	-		µg/l	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	<0.02	<0.02	<0.02	-	-	-	-		µg/l	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	<0.02	<0.02	<0.02	-	-	-	-		µg/l	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	<0.02	<0.02	<0.02	-	-	-	-		µg/l	A-T-019w
Chrysene (leachable)$_A$	<0.02	<0.02	0.02	-	-	-	-		µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	<0.02	<0.02	<0.02	-	-	-	-		µg/l	A-T-019w
Fluoranthene (leachable)$_A$	<0.02	0.06	0.06	-	-	-	-		µg/l	A-T-019w
Fluorene (leachable)$_A$	<0.02	0.03	0.04	-	-	-	-		µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	<0.02	<0.02	<0.02	-	-	-	-		µg/l	A-T-019w
Naphthalene (leachable)$_A$	0.06	0.06	0.08	-	-	-	-		µg/l	A-T-019w
Phenanthrene (leachable)$_A$	<0.02	0.12	0.11	-	-	-	-		µg/l	A-T-019w
Pyrene (leachable)$_A$	<0.02	0.05	0.05	-	-	-	-		µg/l	A-T-019w
Total PAH 16MS (leachable)$_A$	0.06	0.36	0.40	-	-	-	-		µg/l	A-T-019w

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
Speciated PCB-EC7										
PCB BZ $28_A^{M\#}$	-	-	-	-	-	-	<0.002		mg/kg	A-T-004s
PCB BZ $52_A^{M\#}$	-	-	-	-	-	-	<0.002		mg/kg	A-T-004s
PCB BZ $101_A^{M\#}$	-	-	-	-	-	-	<0.004		mg/kg	A-T-004s
PCB BZ $118_A^{M\#}$	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007		mg/kg	A-T-004s
PCB BZ $138_A^{M\#}$	-	-	-	-	-	-	<0.006		mg/kg	A-T-004s
PCB BZ $153_A^{M\#}$	-	-	-	-	-	-	<0.004		mg/kg	A-T-004s
PCB BZ $180_A^{M\#}$	-	-	-	-	-	-	<0.004		mg/kg	A-T-004s
Total Speciated PCB-EC7$_A^{M\#}$	-	-	-	-	-	-	<0.007		mg/kg	A-T-004s

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
Speciated PCB-WHO12										
PCB BZ 81_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
PCB BZ 105_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
PCB BZ 114_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
PCB BZ 123_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
PCB BZ 126_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
PCB BZ 156_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
PCB BZ 157_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
PCB BZ 167_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
PCB BZ 169_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
PCB BZ 189_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
PCB BZ 77_A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-		mg/kg	A-T-004s
Total Speciated PCB-WHO12$_A$	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	-		mg/kg	A-T-004s

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2,4-Dichlorophenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2,4-Dimethylphenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2,4-Dinitrotoluene (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2,6-Dinitrotoluene (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2-Chloronaphthalene (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2-Chlorophenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2-Methylnaphthalene (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2-Methylphenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
2-Nitrophenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
4-Methylphenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
4-Nitrophenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable)$_A$	<4	<8	<16	-	-	-	-		µg/l	A-T-052w
Butylbenzyl phthalate (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Carbazole (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Dibenzofuran (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Diethyl phthalate (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Dimethyl phthalate (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
n-Dibutylphthalate (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
n-Dioctylphthalate (leachable)$_A$	<10	<20	<30	-	-	-	-		µg/l	A-T-052w
Hexachlorobenzene (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Hexachlorobutadiene (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
Hexachlorocyclopentadiene (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Hexachloroethane (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Isophorone (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Nitrobenzene (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Pentachlorophenol (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Perylene (leachable)$_A$	<2	<4	<6	-	-	-	-		µg/l	A-T-052w
Phenol (leachable)$_A$	<2	<4	11	-	-	-	-		µg/l	A-T-052w

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
SVOC										
Hexachlorobenzene$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Diethyl phthalate$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Dimethyl phthalate$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Dibenzofuran$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Carbazole$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Butylbenzyl phthalate$_A$	<100	<100	<100	<100	<100	169	<100		µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<500	<500	<500	<500	<500	<500	<500		µg/kg	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
4-Nitrophenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
4-Methylphenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
4-Chloro-3-methylphenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2-Nitrophenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2-Methylphenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2-Chlorophenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2,6-Dinitrotoluene$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2,4-Dinitrotoluene$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2,4-Dimethylphenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2,4-Dichlorophenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2,4,6-Trichlorophenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2,4,5-Trichlorophenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2-Chloronaphthalene$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
2-Methylnaphthalene$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Phenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Pentachlorophenol$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
n-Dioctylphthalate$_A$	<500	<500	<500	<500	<500	<500	<500		µg/kg	A-T-052s
n-Dibutylphthalate$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Nitrobenzene$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Isophorone$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Hexachloroethane$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
Hexachlorocyclopentadiene$_A$	<100	<100	<100	<100	<100	<100	<100		µg/kg	A-T-052s
Perylene$_A$	<100	<100	<100	<100	<100	150	<100		µg/kg	A-T-052s

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
VOC										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Chloromethane$_A$	<10	<10	<10	<10	<10	<10	<10		µg/kg	A-T-006s
Vinyl Chloride$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Bromomethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Chloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Trichlorofluoromethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,1-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Carbon Disulphide$_A^{\#}$	<1	<1	<1	<1	<1	2	<1		µg/kg	A-T-006s
Dichloromethane$_A$	<5	<5	<5	<5	<5	<5	<5		µg/kg	A-T-006s
trans 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,1-Dichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
cis 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
2,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Bromochloromethane$_A^{\#}$	<5	<5	<5	<5	<5	<5	<5		µg/kg	A-T-006s
Chloroform$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,1,1-Trichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,1-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Carbon Tetrachloride$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,2-Dichloroethane$_A^{\#}$	<2	<2	<2	<2	<2	<2	<2		µg/kg	A-T-006s
Benzene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Trichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Dibromomethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Bromodichloromethane$_A^{\#}$	<10	<10	<10	<10	<10	<10	<10		µg/kg	A-T-006s
cis 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Toluene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
trans 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,1,2-Trichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,3-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Tetrachloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Dibromochloromethane$_A^{\#}$	<3	<3	<3	<3	<3	<3	<3		µg/kg	A-T-006s
1,2-Dibromoethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
Chlorobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Ethylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
m & p Xylene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
o-Xylene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Styrene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Bromoform$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Isopropylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,2,3-Trichloropropane$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
Bromobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
n-Propylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
2-Chlorotoluene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,3,5-Trimethylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
4-Chlorotoluene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
tert-Butylbenzene$_A^\#$	<2	<2	<2	<2	<2	<2	<2		µg/kg	A-T-006s
1,2,4-Trimethylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
sec-Butylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
4-Isopropyltoluene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,3-Dichlorobenzene$_A$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,4-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
n-Butylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,2-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane$_A$	<2	<2	<2	<2	<2	<2	<2		µg/kg	A-T-006s
1,2,4-Trichlorobenzene$_A$	<3	<3	<3	<3	<3	<3	<3		µg/kg	A-T-006s
Hexachlorobutadiene$_A^\#$	<1	<1	<1	<1	<1	<1	<1		µg/kg	A-T-006s
1,2,3-Trichlorobenzene$_A$	<3	<3	<3	<3	<3	<3	<3		µg/kg	A-T-006s

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable)$_A$	<1	<1	-	-	-	-	-		µg/l	A-T-022w
Ali >C6-C8 (leachable)$_A$	<1	<1	<1	-	-	-	-		µg/l	A-T-022w
Ali >C10-C12 (leachable)$_A$	<10	<10	<10	-	-	-	-		µg/l	A-T-055w
Ali >C12-C16 (leachable)$_A$	<10	<10	15	-	-	-	-		µg/l	A-T-055w
Ali >C16-C21 (leachable)$_A$	<10	<10	24	-	-	-	-		µg/l	A-T-055w
Ali >C21-C35 (leachable)$_A$	<20	<20	54	-	-	-	-		µg/l	A-T-055w
Ali >C35-C44 (leachable)$_A$	<10	<10	<10	-	-	-	-		µg/l	A-T-055w
Total Aliphatics (leachable)$_A$	<10	<10	92	-	-	-	-		µg/l	A-T-055w
Total Aliphatics >C5-C44 (leachable)$_A$	<10	<10	94	-	-	-	-		µg/l	A-T-055w
Aro >C5-C7 (leachable)$_A$	<1	<1	<1	-	-	-	-		µg/l	A-T-022w
Aro >C7-C8 (leachable)$_A$	<1	<1	<1	-	-	-	-		µg/l	A-T-022w
Aro >C8-C10 (leachable)$_A$	<10	<10	18	-	-	-	-		µg/l	A-T-055w
Aro >C10-C12 (leachable)$_A$	<10	<10	<10	-	-	-	-		µg/l	A-T-055w
Aro >C12-C16 (leachable)$_A$	<10	<10	<10	-	-	-	-		µg/l	A-T-055w
Aro >C16-C21 (leachable)$_A$	<10	<10	<10	-	-	-	-		µg/l	A-T-055w
Aro >C35-C44 (leachable)$_A$	<10	<10	16	-	-	-	-		µg/l	A-T-055w
Total Aromatics (leachable)$_A$	<20	<20	<20	-	-	-	-		µg/l	A-T-055w
Total Aromatics >C5-C44 (leachable) GCxGC$_A$	<20	<20	34	-	-	-	-		µg/l	A-T-055w
TPH (Ali & Aro >C5-C35) (leachable)$_A$	<20	<20	111	-	-	-	-		µg/l	A-T-055w
TPH (Ali & Aro >C5-C44) (leachable)$_A$	<20	<20	129	-	-	-	-		µg/l	A-T-055w
Ali >C8-C10 (leachable)$_A$	<10	<10	<10	-	-	-	-		µg/l	A-T-055w
BTEX - Benzene (leachable)$_A$	<1	<1	<1	-	-	-	-		µg/l	A-T-022w
BTEX - Toluene (leachable)$_A$	<1	<1	<1	-	-	-	-		µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable)$_A$	<1	<1	<1	-	-	-	-		µg/l	A-T-022w
BTEX - o Xylene (leachable)$_A$	<1	<1	<1	-	-	-	-		µg/l	A-T-022w
BTEX - m & p Xylene (leachable)$_A$	<1	<1	<1	-	-	-	-		µg/l	A-T-022w
MTBE (leachable)$_A$	<1	<1	<1	-	-	-	-		µg/l	A-T-022w
Aro >C21-C35 (leachable)$_A$	<20	<20	<20	-	-	-	-		µg/l	A-T-055w

Envirolab Job Number: 18/05167

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05167/1	18/05167/2	18/05167/3	18/05167/4	18/05167/5	18/05167/6	18/05167/7		Units	Method ref
Client Sample No										
Client Sample ID	MB06	MB07	MB08	MB08	MB10	MB10	MB07			
Depth to Top	0.00	0.00	0.00	1.00	1.00	2.00	2.00			
Depth To Bottom										
Date Sampled	24-Jun-18	24-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	24-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	1	4A	5	5	1	4	1			
TPH UKCWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
Ali >C8-C10$_A^{M\#}$	<1	<1	<1	<1	<1	<1	<1		mg/kg	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	<1	<1	<1	<1	<1	<1		mg/kg	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1	<1	<1	<1	<1	<1	<1		mg/kg	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1	<1	<1	<1	<1	<1	<1		mg/kg	A-T-055s
Ali >C21-C35$_A^{M\#}$	<1	<1	<1	1	1	1	<1		mg/kg	A-T-055s
Ali >C35-C44$_A$	<1	<1	<1	<1	<1	<1	<1		mg/kg	A-T-055s
Total Aliphatics >C5-C35$_A^{\#}$	<1	<1	<1	1	1	2	<1		mg/kg	A-T-055s
Total Aliphatics >C5-C44$_A$	<1	<1	<1	1	1	2	<1		mg/kg	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
Aro >C8-C10$_A^{M\#}$	<1	<1	<1	<1	<1	4	<1		mg/kg	A-T-055s
Aro >C10-C12$_A^{M\#}$	<1	<1	<1	<1	<1	<1	<1		mg/kg	A-T-055s
Aro >C12-C16$_A^{M\#}$	<1	<1	<1	<1	<1	2	<1		mg/kg	A-T-055s
Aro >C16-C21$_A^{M\#}$	<1	<1	<1	<1	<1	4	<1		mg/kg	A-T-055s
Aro >C21-C35$_A^{M\#}$	1	2	3	2	4	16	<1		mg/kg	A-T-055s
Aro >C35-C44$_A$	<1	<1	<1	<1	<1	<1	<1		mg/kg	A-T-055s
Total Aromatics >C5-C35$_A^{\#}$	1	2	3	2	4	26	<1		mg/kg	A-T-055s
Total Aromatics >C5-C44$_A$	1	2	3	2	4	26	<1		mg/kg	A-T-055s
TPH (Ali & Aro >C5-C35)$_A^{\#}$	2	2	4	4	5	28	<1		mg/kg	A-T-055s
TPH (Ali & Aro >C5-C44)$_A$	2	2	4	4	5	28	<1		mg/kg	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s

REPORT NOTES

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Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05199
Issue Number: 1 **Date:** 11 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597526
Date Samples Received: 29/06/18
Date Instructions Received: 29/06/18
Date Analysis Completed: 11/07/18

Prepared by:

[redacted]

Holly Neary-King
Sales Executive

Approved by:

[redacted]

Richard Wong
Client Manager

Envirolab Job Number: 18/05199

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05199/1	18/05199/2	18/05199/3	18/05199/4	18/05199/5	18/05199/6	18/05199/7	18/05199/8	Units	Method ref
Client Sample No	6	8	13	16	38	52	69	84		
Client Sample ID	MB01a	MB01a	MB01a	MB01a	MB01a	MB01a	MB01a	MB01a		
Depth to Top	2.00	2.30	3.50	4.30	10.00	14.30	20.00	25.00		
Depth To Bottom	2.45		4.00		10.45		20.45	25.45		
Date Sampled	19-Jun-18	19-Jun-18	19-Jun-18	19-Jun-18	19-Jun-18	19-Jun-18	19-Jun-18	19-Jun-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	5	1	1	5	5		
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH BRE$_D^{M\#}$	8.49	-	-	8.49	8.37	8.29	8.26	8.16	pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	2.35	-	-	1.97	<1.00	<1.00	<1.00	1.03	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1140	-	-	1500	1820	1760	1720	1460	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	168	-	-	184	202	203	245	210	mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.04	-	-	0.04	0.04	0.05	0.07	0.06	% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.02	-	-	0.02	0.01	0.05	0.23	0.24	% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	44	-	-	82	135	138	97	69	mg/l	A-T-SOLMETS
Organic matter$_D^{M\#}$	-	<0.1	0.1	-	-	-	-	-	% w/w	A-T-032 OM

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Soil chemical analysis:
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For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
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US indicates Unsuitable Sample for analysis.
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N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
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Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05237
Issue Number: 1 **Date:** 10 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597752
Date Samples Received: 02/07/18
Date Instructions Received: 02/07/18
Date Analysis Completed: 10/07/18

Prepared by:

[redacted]

Danielle Brierley
Client Manager

Approved by:

[redacted]

John Gustafson
Managing Director

Envirolab Job Number: 18/05237

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05237/1	18/05237/2	18/05237/3						Units	Method ref
Client Sample No	5	9	44							
Client Sample ID	MB03	MB03	MB03							
Depth to Top	1.50	2.50	12.00							
Depth To Bottom	2.00	3.00	12.45							
Date Sampled	17-Jun-18	17-Jun-18	18-Jun-18							
Sample Type	Soil - B	Soil - B	Soil - D							
Sample Matrix Code	6A	4A	4A							
% Stones >10mm$_A$	<0.1	2.0	<0.1						% w/w	A-T-044
pH BRE$_D^{M\#}$	8.05	-	8.76						pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	2.32	-	<1.00						mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	3040	-	1580						mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	-	<0.4						mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	411	-	186						mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.12	-	0.05						% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.07	-	0.02						% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	182	-	118						mg/l	A-T-SOLMETS
Organic matter$_D^{M\#}$	-	0.3	-						% w/w	A-T-032 OM

REPORT NOTES

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TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
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Asbestos:
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Predominant Matrix Codes:
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Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
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Key:
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Superscript "M" indicates method accredited to MCERTS.
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Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05294
Issue Number: 1 **Date:** 13 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 597948
Date Samples Received: 03/07/18
Date Instructions Received: 04/07/18
Date Analysis Completed: 13/07/18

Prepared by:

[redacted]
Melanie Marshall
Laboratory Coordinator

Approved by:

[redacted]
Richard Wong
Client Manager

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 18/05294

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05294/1	18/05294/2							Units	Method ref
Client Sample No	60	69								
Client Sample ID	MB03	MB03								
Depth to Top	17.30	20.70								
Depth To Bottom										
Date Sampled	18-Jun-18	18-Jun-18								
Sample Type	Soil - D	Soil - D								
Sample Matrix Code	1	1								
% Stones >10mm$_A$	<0.1	<0.1							% w/w	A-T-044
pH BRE$_D^{M\#}$	7.63	7.44							pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	<1.00	1.48							mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1880	2830							mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	<0.4							mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	236	418							mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.06	0.13							% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.08	0.38							% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	146	147							mg/l	A-T-SOLMETS

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TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
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Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

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Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05349
Issue Number: 1 **Date:** 13 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598202
Date Samples Received: 05/07/18
Date Instructions Received: 05/07/18
Date Analysis Completed: 13/07/18

Prepared by:

[redacted]

Holly Neary-King
Sales Executive

Approved by:

[redacted]

John Gustafson
Managing Director

Envirolab Job Number: 18/05349

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05349/1	18/05349/2	18/05349/3	18/05349/4	18/05349/5	18/05349/6			Units	Method ref
Client Sample No	3	8	20	41	54	71				
Client Sample ID	MB05	MB05	MB05	MB05	MB05	MB05				
Depth to Top	1.00	2.00	5.00	12.00	16.30	22.30				
Depth To Bottom	1.45									
Date Sampled	20-Jun-18	20-Jun-18	20-Jun-18	20-Jun-18	20-Jun-18	20-Jun-18				
Sample Type	Soil - D	Soil - ES	Soil - ES	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	4	1	1	1	5	5				
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	A-T-044
pH BRE$_D^{M\#}$	-	7.86	8.39	7.49	7.36	8.13			pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	-	<1.00	<1.00	<1.00	1.77	1.48			mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	-	1540	1740	3000	3170	2900			mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	-	<0.4	<0.4	<0.4	<0.4	<0.4			mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	-	159	181	293	477	410			mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	-	0.06	0.05	0.06	0.17	0.14			% w/w	A-T-028s
Sulphur BRE (total)$_D$	-	0.03	0.02	0.02	0.17	0.54			% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	-	121	137	217	272	160			mg/l	A-T-SOLMETS
Organic matter$_D^{M\#}$	1.0	-	-	-	-	-			% w/w	A-T-032 OM

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All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

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Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05419
Issue Number: 1 **Date:** 16 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598399
Date Samples Received: 06/07/18
Date Instructions Received: 06/07/18
Date Analysis Completed: 16/07/18

Prepared by:

[redacted]

Kate Keningale
Sales Executive

Approved by:

[redacted]

Danielle Brierley
Client Manager

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 18/05419

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05419/1	18/05419/2	18/05419/3	18/05419/4	18/05419/5	18/05419/6	18/05419/7	18/05419/8	Units	Method ref
Client Sample No	4	5	3	9	20	36	56	67		
Client Sample ID	MB06	MB06	MB06	MB06	MB06	MB06	MB06	MB06		
Depth to Top	1.00	1.30	1.45	2.30	5.00	10.00	16.50	20.30		
Depth To Bottom							17.00			
Date Sampled	24-Jun-18	24-Jun-18	24-Jun-18	24-Jun-18	24-Jun-18	24-Jun-18	24-Jun-18	24-Jun-18		
Sample Type	Soil - ES	Soil - D	Soil - D	Soil - D	Soil - ES	Soil - ES	Soil - B	Soil - D		
Sample Matrix Code	4	4	4	4A	5	1	5	1		
% Stones >10mm$_A$	0.2	<0.1	<0.1	0.7	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH BRE$_D$[M#]	7.04	-	-	-	8.36	8.48	7.78	7.89	pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	<1.00	-	-	-	16.8	1.35	<1.00	<1.00	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$[M#]	1420	-	-	-	1040	1790	1630	2430	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	-	-	-	0.6	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D$[M#]	165	-	-	-	130	175	253	273	mg/l	A-T-026s
Sulphate BRE (acid sol)$_D$[M#]	0.06	-	-	-	0.05	0.04	0.07	0.08	% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.06	-	-	-	0.03	0.01	0.31	0.15	% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	105	-	-	-	31	133	119	186	mg/l	A-T-SOLMETS
Organic matter$_D$[M#]	-	1.5	0.3	0.6	-	-	-	-	% w/w	A-T-032 OM

Envirolab Job Number: 18/05419

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05419/9								Units	Method ref
Client Sample No	79									
Client Sample ID	MB06									
Depth to Top	24.30									
Depth To Bottom										
Date Sampled	25-Jun-18									
Sample Type	Soil - D									
Sample Matrix Code	5									
% Stones >10mm$_A$	<0.1								% w/w	A-T-044
pH BRE$_D$$^{M\#}$	7.65								pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	2.19								mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$$^{M\#}$	3100								mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	0.9								mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	455								mg/l	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.13								% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.21								% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	106								mg/l	A-T-SOLMETS

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TPH analysis of water by method A-T-007:
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Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05501
Issue Number: 1 **Date:** 20 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598647
Date Samples Received: 05/07/18
Date Instructions Received: 10/07/18
Date Analysis Completed: 20/07/18

Prepared by:

[redacted]

Danielle Brierley
Client Manager

Approved by:

[redacted]

John Gustafson
Managing Director

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
% Stones >10mm$_A$	<0.1	<0.1							% w/w	A-T-044
pH$_D$ M#	8.79	8.74							pH	A-T-031s
Ammoniacal nitrogen$_D$	0.6	7.4							mg/kg	A-T-033s
Sulphate (water sol 2:1)$_D$ M#	0.27	0.13							g/l	A-T-026s
Sulphate (acid soluble)$_D$ M#	700	670							mg/kg	A-T-028s
Cyanide (total)$_A$ M#	<1	<1							mg/kg	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2							mg/kg	A-T-050s
Sulphide$_A$	15	<5							mg/kg	A-T-S2-s
Sulphur (elemental)$_D$ M#	5	140							mg/kg	A-T-029s
Organic matter$_D$ M#	0.1	0.5							% w/w	A-T-032 OM
Arsenic$_D$ M#	3	7							mg/kg	A-T-024s
Boron (water soluble)$_D$ M#	1.5	2.3							mg/kg	A-T-027s
Cadmium$_D$ M#	<0.5	<0.5							mg/kg	A-T-024s
Copper$_D$ M#	14	8							mg/kg	A-T-024s
Chromium$_D$ M#	3	11							mg/kg	A-T-024s
Chromium (hexavalent)$_D$	<1	<1							mg/kg	A-T-040s
Lead$_D$ M#	13	11							mg/kg	A-T-024s
Mercury$_D$	<0.17	<0.17							mg/kg	A-T-024s
Nickel$_D$ M#	3	8							mg/kg	A-T-024s
Selenium$_D$ M#	<1	<1							mg/kg	A-T-024s
Zinc$_D$ M#	57	37							mg/kg	A-T-024s
Leachate Prep NRA (10:1)$_A$	*	*								A-T-001
pH (leachable)$_A$ #	7.33	7.05							pH	A-T-031w
Ammoniacal nitrogen (leachable)$_A$	<0.02	0.15							mg/l	A-T-033w
Sulphate (leachable)$_A$ #	43.21	43.17							mg/l	A-T-026w
Cyanide (total) (leachable)$_A$	<0.005	<0.005							mg/l	A-T-042wTCN
Phenols (total by HPLC) (leachable)$_A$	<0.01	<0.01							mg/l	A-T-050w
Sulphide (leachable)$_A$	<0.1	<0.1							mg/l	A-T-S2-w
DOC (leachable)$_A$ #	1.8	2.5							mg/l	A-T-032w
Arsenic (leachable)$_A$ #	4	6							µg/l	A-T-025w
Boron (leachable)$_A$ #	107	176							µg/l	A-T-025w
Cadmium (leachable)$_A$ #	<1	<1							µg/l	A-T-025w
Copper (leachable)$_A$ #	6	3							µg/l	A-T-025w

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
Chromium (leachable)$_A^{\#}$	<1	2							µg/l	A-T-025w
Chromium (hexavalent) (leachable)$_A$	<0.05	<0.05							mg/l	A-T-040w
Lead (leachable)$_A^{\#}$	<1	4							µg/l	A-T-025w
Mercury (leachable)$_A^{\#}$	<0.1	<0.1							µg/l	A-T-025w
Nickel (leachable)$_A^{\#}$	<1	1							µg/l	A-T-025w
Selenium (leachable)$_A^{\#}$	<1	<1							µg/l	A-T-025w
Sulphur (elemental/free) (leachable)$_A$	<0.1	<0.1							mg/l	A-T-029w
Zinc (leachable)$_A^{\#}$	1	7							µg/l	A-T-025w

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_A$ #	NAD	-								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	-								

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	<0.01							mg/kg	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01							mg/kg	A-T-019s
Anthracene$_A^{M\#}$	<0.02	<0.02							mg/kg	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04							mg/kg	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04							mg/kg	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05							mg/kg	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05							mg/kg	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07							mg/kg	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06							mg/kg	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04							mg/kg	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08							mg/kg	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01							mg/kg	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03							mg/kg	A-T-019s
Naphthalene$_A^{M\#}$	<0.03	<0.03							mg/kg	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03	0.11							mg/kg	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07							mg/kg	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.08	0.11							mg/kg	A-T-019s

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
PAH 16MS (leachable)										
Acenaphthene (leachable)$_A$	<0.02	<0.02							µg/l	A-T-019w
Acenaphthylene (leachable)$_A$	<0.02	<0.02							µg/l	A-T-019w
Anthracene (leachable)$_A$	0.06	0.04							µg/l	A-T-019w
Benzo(a)anthracene (leachable)$_A$	0.03	<0.02							µg/l	A-T-019w
Benzo(a)pyrene (leachable)$_A$	<0.02	<0.02							µg/l	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	<0.02	<0.02							µg/l	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	<0.02	<0.02							µg/l	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	<0.02	<0.02							µg/l	A-T-019w
Chrysene (leachable)$_A$	0.04	<0.02							µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	<0.02	<0.02							µg/l	A-T-019w
Fluoranthene (leachable)$_A$	0.19	0.10							µg/l	A-T-019w
Fluorene (leachable)$_A$	0.04	0.04							µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	<0.02	<0.02							µg/l	A-T-019w
Naphthalene (leachable)$_A$	<0.02	<0.02							µg/l	A-T-019w
Phenanthrene (leachable)$_A$	0.26	0.18							µg/l	A-T-019w
Pyrene (leachable)$_A$	0.15	0.09							µg/l	A-T-019w
Total PAH 16MS (leachable)$_A$	0.77	0.45							µg/l	A-T-019w

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
Speciated PCB-EC7										
PCB BZ $28_A^{M\#}$	-	<0.002							mg/kg	A-T-004s
PCB BZ $52_A^{M\#}$	-	<0.002							mg/kg	A-T-004s
PCB BZ $101_A^{M\#}$	-	<0.004							mg/kg	A-T-004s
PCB BZ $118_A^{M\#}$	<0.007	<0.007							mg/kg	A-T-004s
PCB BZ $138_A^{M\#}$	-	<0.006							mg/kg	A-T-004s
PCB BZ $153_A^{M\#}$	-	<0.004							mg/kg	A-T-004s
PCB BZ $180_A^{M\#}$	-	<0.004							mg/kg	A-T-004s
Total Speciated PCB-EC7$_A^{M\#}$	-	<0.007							mg/kg	A-T-004s

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
Speciated PCB-WHO12										
PCB BZ 81$_A$	<0.005	-							mg/kg	A-T-004s
PCB BZ 105$_A$	<0.005	-							mg/kg	A-T-004s
PCB BZ 114$_A$	<0.005	-							mg/kg	A-T-004s
PCB BZ 123$_A$	<0.005	-							mg/kg	A-T-004s
PCB BZ 126$_A$	<0.005	-							mg/kg	A-T-004s
PCB BZ 156$_A$	<0.005	-							mg/kg	A-T-004s
PCB BZ 157$_A$	<0.005	-							mg/kg	A-T-004s
PCB BZ 167$_A$	<0.005	-							mg/kg	A-T-004s
PCB BZ 169$_A$	<0.005	-							mg/kg	A-T-004s
PCB BZ 189$_A$	<0.005	-							mg/kg	A-T-004s
PCB BZ 77$_A$	<0.005	-							mg/kg	A-T-004s
Total Speciated PCB-WHO12$_A$	<0.007	-							mg/kg	A-T-004s

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable)$_A$	<2	<2							µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable)$_A$	<2	<2							µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable)$_A$	<2	<2							µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable)$_A$	<2	<2							µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
2,4-Dichlorophenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
2,4-Dimethylphenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
2,4-Dinitrotoluene (leachable)$_A$	<2	<2							µg/l	A-T-052w
2,6-Dinitrotoluene (leachable)$_A$	<2	<2							µg/l	A-T-052w
2-Chloronaphthalene (leachable)$_A$	<2	<2							µg/l	A-T-052w
2-Chlorophenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
2-Methylnaphthalene (leachable)$_A$	<2	<2							µg/l	A-T-052w
2-Methylphenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
2-Nitrophenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable)$_A$	<2	<2							µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
4-Methylphenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
4-Nitrophenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable)$_A$	<2	<2							µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable)$_A$	<2	<2							µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable)$_A$	<2	<2							µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable)$_A$	<4	<4							µg/l	A-T-052w
Butylbenzyl phthalate (leachable)$_A$	<2	<2							µg/l	A-T-052w
Carbazole (leachable)$_A$	<2	<2							µg/l	A-T-052w
Dibenzofuran (leachable)$_A$	<2	<2							µg/l	A-T-052w
Diethyl phthalate (leachable)$_A$	<2	<2							µg/l	A-T-052w
Dimethyl phthalate (leachable)$_A$	<2	<2							µg/l	A-T-052w
n-Dibutylphthalate (leachable)$_A$	<2	<2							µg/l	A-T-052w
n-Dioctylphthalate (leachable)$_A$	<10	<10							µg/l	A-T-052w
Hexachlorobenzene (leachable)$_A$	<2	<2							µg/l	A-T-052w
Hexachlorobutadiene (leachable)$_A$	<2	<2							µg/l	A-T-052w

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
Hexachlorocyclopentadiene (leachable)$_A$	<2	<2							µg/l	A-T-052w
Hexachloroethane (leachable)$_A$	<2	<2							µg/l	A-T-052w
Isophorone (leachable)$_A$	<2	<2							µg/l	A-T-052w
Nitrobenzene (leachable)$_A$	<2	<2							µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable)$_A$	<2	<2							µg/l	A-T-052w
Pentachlorophenol (leachable)$_A$	<2	<2							µg/l	A-T-052w
Perylene (leachable)$_A$	<2	<2							µg/l	A-T-052w
Phenol (leachable)$_A$	3	<2							µg/l	A-T-052w

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
SVOC										
Hexachlorobenzene$_A$	<100	<100							µg/kg	A-T-052s
Diethyl phthalate$_A$	<100	<100							µg/kg	A-T-052s
Dimethyl phthalate$_A$	<100	<100							µg/kg	A-T-052s
Dibenzofuran$_A$	<100	<100							µg/kg	A-T-052s
Carbazole$_A$	<100	<100							µg/kg	A-T-052s
Butylbenzyl phthalate$_A$	<100	<100							µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<500	<500							µg/kg	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100	<100							µg/kg	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100	<100							µg/kg	A-T-052s
4-Nitrophenol$_A$	<100	<100							µg/kg	A-T-052s
4-Methylphenol$_A$	<100	<100							µg/kg	A-T-052s
4-Chloro-3-methylphenol$_A$	<100	<100							µg/kg	A-T-052s
2-Nitrophenol$_A$	<100	<100							µg/kg	A-T-052s
2-Methylphenol$_A$	<100	<100							µg/kg	A-T-052s
2-Chlorophenol$_A$	<100	<100							µg/kg	A-T-052s
2,6-Dinitrotoluene$_A$	<100	<100							µg/kg	A-T-052s
2,4-Dinitrotoluene$_A$	<100	<100							µg/kg	A-T-052s
2,4-Dimethylphenol$_A$	<100	<100							µg/kg	A-T-052s
2,4-Dichlorophenol$_A$	<100	<100							µg/kg	A-T-052s
2,4,6-Trichlorophenol$_A$	<100	<100							µg/kg	A-T-052s
2,4,5-Trichlorophenol$_A$	<100	<100							µg/kg	A-T-052s
2-Chloronaphthalene$_A$	<100	<100							µg/kg	A-T-052s
2-Methylnaphthalene$_A$	<100	<100							µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100	<100							µg/kg	A-T-052s
Phenol$_A$	<100	<100							µg/kg	A-T-052s
Pentachlorophenol$_A$	<100	<100							µg/kg	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100	<100							µg/kg	A-T-052s
n-Dioctylphthalate$_A$	<500	<500							µg/kg	A-T-052s
n-Dibutylphthalate$_A$	<100	<100							µg/kg	A-T-052s
Nitrobenzene$_A$	<100	<100							µg/kg	A-T-052s
Isophorone$_A$	<100	<100							µg/kg	A-T-052s
Hexachloroethane$_A$	<100	<100							µg/kg	A-T-052s

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
Hexachlorocyclopentadiene$_A$	<100	<100							µg/kg	A-T-052s
Perylene$_A$	<100	<100							µg/kg	A-T-052s

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
VOC										
Dichlorodifluoromethane$_{A}$	<1	<1							µg/kg	A-T-006s
Chloromethane$_{A}$	<10	<10							µg/kg	A-T-006s
Vinyl Chloride$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Bromomethane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Chloroethane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Trichlorofluoromethane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,1-Dichloroethene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Carbon Disulphide$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Dichloromethane$_{A}$	<5	<5							µg/kg	A-T-006s
trans 1,2-Dichloroethene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,1-Dichloroethane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
cis 1,2-Dichloroethene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
2,2-Dichloropropane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Bromochloromethane$_{A}^{\#}$	<5	<5							µg/kg	A-T-006s
Chloroform$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,1,1-Trichloroethane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,1-Dichloropropene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Carbon Tetrachloride$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,2-Dichloroethane$_{A}^{\#}$	<2	<2							µg/kg	A-T-006s
Benzene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Trichloroethene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,2-Dichloropropane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Dibromomethane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Bromodichloromethane$_{A}^{\#}$	<10	<10							µg/kg	A-T-006s
cis 1,3-Dichloropropene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Toluene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
trans 1,3-Dichloropropene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,1,2-Trichloroethane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
1,3-Dichloropropane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Tetrachloroethene$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s
Dibromochloromethane$_{A}^{\#}$	<3	<3							µg/kg	A-T-006s
1,2-Dibromoethane$_{A}^{\#}$	<1	<1							µg/kg	A-T-006s

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
Chlorobenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane$_A$	<1	<1							µg/kg	A-T-006s
Ethylbenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
m & p Xylene$_A^\#$	<1	<1							µg/kg	A-T-006s
o-Xylene$_A^\#$	<1	<1							µg/kg	A-T-006s
Styrene$_A^\#$	<1	<1							µg/kg	A-T-006s
Bromoform$_A^\#$	<1	<1							µg/kg	A-T-006s
Isopropylbenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane$_A$	<1	<1							µg/kg	A-T-006s
1,2,3-Trichloropropane$_A^\#$	<1	<1							µg/kg	A-T-006s
Bromobenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
n-Propylbenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
2-Chlorotoluene$_A^\#$	<1	<1							µg/kg	A-T-006s
1,3,5-Trimethylbenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
4-Chlorotoluene$_A^\#$	<1	<1							µg/kg	A-T-006s
tert-Butylbenzene$_A^\#$	<2	<2							µg/kg	A-T-006s
1,2,4-Trimethylbenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
sec-Butylbenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
4-Isopropyltoluene$_A^\#$	<1	<1							µg/kg	A-T-006s
1,3-Dichlorobenzene$_A$	<1	<1							µg/kg	A-T-006s
1,4-Dichlorobenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
n-Butylbenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
1,2-Dichlorobenzene$_A^\#$	<1	<1							µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane$_A$	<2	<2							µg/kg	A-T-006s
1,2,4-Trichlorobenzene$_A$	<3	<3							µg/kg	A-T-006s
Hexachlorobutadiene$_A^\#$	<1	<1							µg/kg	A-T-006s
1,2,3-Trichlorobenzene$_A$	<3	<3							µg/kg	A-T-006s

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
TPH UKCWG										
Ali >C5-C6$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Ali >C8-C10$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Ali >C10-C12$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Ali >C12-C16$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Ali >C16-C21$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Ali >C21-C35$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Ali >C35-C44$_A$	<0.1	<0.1							mg/kg	A-T-023s
Total Aliphatics$_A$	<0.1	<0.1							mg/kg	A-T-023s
Aro >C5-C7$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Aro >C8-C9$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Aro >C9-C10$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
Aro >C10-C12$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Aro >C12-C16$_A^{\#}$	<0.1	<0.1							mg/kg	A-T-023s
Aro >C16-C21$_A^{\#}$	29.6	<0.1							mg/kg	A-T-023s
Aro >C21-C35$_A^{\#}$	437	<0.1							mg/kg	A-T-023s
Aro >C35-C44$_A$	28.7	<0.1							mg/kg	A-T-023s
Total Aromatics$_A$	496	<0.1							mg/kg	A-T-023s
TPH (Ali & Aro)$_A$	496	<0.1							mg/kg	A-T-023s
BTEX - Benzene$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01							mg/kg	A-T-022s

Envirolab Job Number: 18/05501

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05501/1	18/05501/2							Units	Method ref
Client Sample No	1	12								
Client Sample ID	MB09	MB09								
Depth to Top	0.00	3.00								
Depth To Bottom										
Date Sampled	02-Jul-18	02-Jul-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	4A								
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable)$_A$	<1	<1							µg/l	A-T-022w
Ali >C6-C8 (leachable)$_A$	<1	<1							µg/l	A-T-022w
Ali >C8-C10 (leachable)$_A$	<1	<1							µg/l	A-T-022w
Ali >C10-C12 (leachable)$_A$	<10	<10							µg/l	A-T-023w
Ali >C12-C16 (leachable)$_A$	<10	<10							µg/l	A-T-023w
Ali >C16-C21 (leachable)$_A$	<10	<10							µg/l	A-T-023w
Ali >C21-C35 (leachable)$_A$	<10	<10							µg/l	A-T-023w
Ali >C35-C44 (leachable)$_A$	<10	<10							µg/l	A-T-023w
Total Aliphatics (leachable)$_A$	<10	<10							µg/l	A-T-023w
Aro >C5-C7 (leachable)$_A$	<1	<1							µg/l	A-T-022w
Aro >C7-C8 (leachable)$_A$	<1	<1							µg/l	A-T-022w
Aro >C8-C9 (leachable)$_A$	<1	<1							µg/l	A-T-022w
Aro >C9-C10 (leachable)$_A$	<1	<1							µg/l	A-T-022w
Aro >C10-C12 (leachable)$_A$	<10	<10							µg/l	A-T-023w
Aro >C12-C16 (leachable)$_A$	<10	<10							µg/l	A-T-023w
Aro >C16-C21 (leachable)$_A$	<10	<10							µg/l	A-T-023w
Aro >C21-C35 (leachable)$_A$	<10	<10							µg/l	A-T-023w
Aro >C35-C44 (leachable)$_A$	<10	<10							µg/l	A-T-023w
Total Aromatics (leachable)$_A$	<10	<10							µg/l	A-T-023w
TPH (Ali & Aro) (leachable)$_A$	<10	<10							µg/l	A-T-023w
BTEX - Benzene (leachable)$_A$	<1	<1							µg/l	A-T-022w
BTEX - Toluene (leachable)$_A$	<1	<1							µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable)$_A$	<1	<1							µg/l	A-T-022w
BTEX - o Xylene (leachable)$_A$	<1	<1							µg/l	A-T-022w
BTEX - m & p Xylene (leachable)$_A$	<1	<1							µg/l	A-T-022w
MTBE (leachable)$_A$	<1	<1							µg/l	A-T-022w

REPORT NOTES

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Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05525
Issue Number: 1 **Date:** 20 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598804
Date Samples Received: 26/06/18
Date Instructions Received: 11/07/18
Date Analysis Completed: 20/07/18

Prepared by:

[redacted]

Kate Keningale
Sales Executive

Approved by:

[redacted]

John Gustafson
Managing Director

Envirolab Job Number: 18/05525

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05525/1	18/05525/2	18/05525/3	18/05525/4	18/05525/5	18/05525/6			Units	Method ref
Client Sample No	9	14	46	59	65	70				
Client Sample ID	MB08	MB08	MB08	MB08	MB08	MB08				
Depth to Top	2.00	3.30	10.00	18.00	20.60	22.60				
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	25-Jun-18	22-Jun-18	22-Jun-18	22-Jun-18				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	1A	1A	1	1	4	4				
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	A-T-044
pH BRE$_D^{M\#}$	8.77	-	8.69	8.61	8.26	8.06			pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	2.06	-	<1.00	<1.00	<1.00	2.23			mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1690	-	2220	1860	2400	1570			mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	1.6	-	1.9	1.5	1.2	1.0			mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	203	-	236	218	572	362			mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.04	-	0.04	0.05	0.14	0.12			% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.03	-	0.02	0.07	0.46	0.45			% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	107	-	161	134	146	67			mg/l	A-T-SOLMETS
Organic matter$_D^{M\#}$	-	0.2	-	-	-	-			% w/w	A-T-032 OM

REPORT NOTES

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Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
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NDP indicates No Determination Possible.
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N/A indicates Not Applicable.
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Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05528
Issue Number: 1 **Date:** 20 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598805
Date Samples Received: 25/06/18
Date Instructions Received: 11/07/18
Date Analysis Completed: 20/07/18

Prepared by:

[redacted]

Kate Keningale
Sales Executive

Approved by:

[redacted]

John Gustafson
Managing Director

Envirolab Job Number: 18/05528

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05528/1	18/05528/2	18/05528/3	18/05528/4	18/05528/5	18/05528/6	18/05528/7		Units	Method ref
Client Sample No	45	4	7	8	23	59	67			
Client Sample ID	MB10	MB10	MB10	MB10	MB10	MB10	MB10			
Depth to Top	0.00	1.30	2.00	2.30	6.30	18.80	22.00			
Depth To Bottom										
Date Sampled	26-Jun-18	22-Jun-18	22-Jun-18	22-Jun-18	23-Jun-18	23-Jun-18	23-Jun-18			
Sample Type	Soil - ES	Soil - D	Soil - D	Soil - D	Soil - D	Soil - ES	Soil - ES			
Sample Matrix Code	5	1	4	4AE	1	1	5			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	A-T-044
pH BRE$_D$$^{M\#}$	8.21	-	8.43	-	8.80	8.52	7.83		pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	1.29	-	<1.00	-	<1.00	<1.00	1.29		mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D$$^{M\#}$	2380	-	1610	-	2040	1670	2730		mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	1.2	-	1.4	-	1.7	1.4	0.4		mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	328	-	219	-	209	176	508		mg/l	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.16	-	0.12	-	0.05	0.06	0.22		% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.09	-	0.05	-	0.01	0.05	0.65		% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	174	-	136	-	151	138	150		mg/l	A-T-SOLMETS
Organic matter$_D$$^{M\#}$	-	0.2	-	0.4	-	-	-		% w/w	A-T-032 OM

REPORT NOTES

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For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

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Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
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FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05529
Issue Number: 1 **Date:** 20 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598787
Date Samples Received: 06/07/18
Date Instructions Received: 11/07/18
Date Analysis Completed: 20/07/18

Prepared by:

[redacted]

Danielle Brierley
Client Manager

Approved by:

[redacted]

John Gustafson
Managing Director

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 18/05529

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05529/1	18/05529/2	18/05529/3	18/05529/4	18/05529/5	18/05529/6	18/05529/7		Units	Method ref
Client Sample No	9	37	56	71	91	108	114			
Client Sample ID	MB07	MB07	MB07	MB07	MB07	MB07	MB07			
Depth to Top	2.00	10.00	16.30	21.30	29.30	36.00	38.60			
Depth To Bottom						36.45				
Date Sampled	25-Jun-18	25-Jun-18	25-Jun-18	26-Jun-18	26-Jun-18	26-Jun-18	26-Jun-18			
Sample Type	Soil - ES	Soil - ES	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	1	1	1A	1	1	1	3			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	A-T-044
pH BRE$_D^{M\#}$	8.50	8.59	8.45	8.50	7.84	8.33	8.37		pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	5.55	<1.00	1.13	1.23	<1.00	<1.00	5.97		mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1400	1750	1800	2040	1690	1870	2140		mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	176	185	230	244	239	385	845		mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.05	0.04	0.09	0.08	0.09	0.18	0.35		% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.02	0.01	0.10	0.15	0.14	0.31	1.61		% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	104	132	130	105	117	142	107		mg/l	A-T-SOLMETS

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All results are reported as dry weight (<40°C).
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For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

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Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05561
Issue Number: 1 **Date:** 20 July, 2018

Client:
Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598960
Date Samples Received: 05/07/18
Date Instructions Received: 12/07/18
Date Analysis Completed: 20/07/18

Prepared by:

[redacted]

Georgia King
Admin & Client Services Supervisor

Approved by:

[redacted]

Danielle Brierley
Client Manager

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 18/05561

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05561/1	18/05561/2	18/05561/3	18/05561/4	18/05561/5	18/05561/6	18/05561/7	18/05561/8	Units	Method ref
Client Sample No	4	9	16	20	36	49	58	72		
Client Sample ID	MB09	MB09	MB09	MB09	MB09	MB09	MB09	MB09		
Depth to Top	1.00	2.30	4.30	5.00	10.00	14.30	17.30	23.50		
Depth To Bottom								24.00		
Date Sampled	02-Jul-18	02-Jul-18	02-Jul-18	02-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	04-Jul-18		
Sample Type	Soil - ES	Soil - D	Soil - D	Soil - ES	Soil - ES	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	4A	4	1	1A	1	1	1	3		
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH BRE$_D^{M\#}$	8.44	-	-	8.47	8.59	8.36	8.25	7.61	pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	1.61	-	-	2.55	<1.00	<1.00	<1.00	1.87	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1460	-	-	1450	2010	1500	1460	3350	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	198	-	-	198	243	226	186	576	mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.09	-	-	0.07	0.06	0.07	0.05	0.16	% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.04	-	-	0.04	0.02	0.05	0.05	0.28	% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	107	-	-	96	171	127	122	186	mg/l	A-T-SOLMETS
Organic matter$_D^{M\#}$	-	0.4	0.3	-	-	-	-	-	% w/w	A-T-032 OM

Envirolab Job Number: 18/05561

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05561/9	18/05561/10	18/05561/11						Units	Method ref
Client Sample No	86	106	112							
Client Sample ID	MB09	MB09	MB09							
Depth to Top	29.30	37.30	38.50							
Depth To Bottom			40.00							
Date Sampled	04-Jul-18	04-Jul-18	04-Jul-18							
Sample Type	Soil - D	Soil - D	Soil - B							
Sample Matrix Code	1	1	3							
% Stones >10mm$_A$	<0.1	<0.1	<0.1						% w/w	A-T-044
pH BRE$_D^{M\#}$	8.03	8.09	8.44						pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1)$_D$	<1.00	<1.00	5.00						mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1)$_D^{M\#}$	1550	1640	1140						mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1)$_D$	<0.4	<0.4	<0.4						mg/l	A-T-026s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	283	255	286						mg/l	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.11	0.18	0.25						% w/w	A-T-028s
Sulphur BRE (total)$_D$	0.32	0.37	0.42						% w/w	A-T-024s
Magnesium BRE (water sol 2:1)$_D$	107	128	71						mg/l	A-T-SOLMETS

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Please contact us if you need any further information.



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6 Devonshire Square
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EC2M 4YE

wsp.com

Annex D: Human Health Risk Assessment Background Information

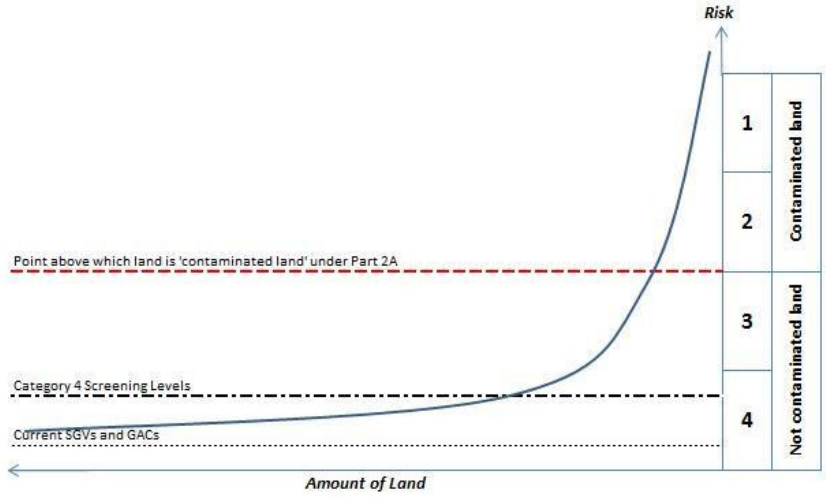
METHODOLOGY FOR THE DERIVATION OF GENERIC QUANTITATIVE ASSESSMENT CRITERIA TO EVALUATE RISKS TO HUMAN HEALTH FROM SOIL & GROUNDWATER CONTAMINATION

UK APPROACH

In the UK, the potential risks to human health from contamination in the ground are usually evaluated through a generic quantitative risk assessment (GQRA) approach. This allows generic and conservative exposure assumptions to be readily applied to risk assessments and can be a useful tool for rapidly screening data and to identify those contaminants or scenarios that could benefit from further investigation and/or site-specific detailed quantitative risk assessment (DQRA). Current industry good practice is to use the approach presented in the Environment Agency (EA) publications SR2[1] and SR3[2]. This approach allows the derivation of Generic Assessment Criteria (GACs), primarily for chronic exposure.

In April 2012, the Department of Environment, Food and Rural Affairs (Defra) published updated statutory guidance[3] which introduced a four category approach to determining whether land in England and Wales is contaminated or not on the grounds of significant possibility of significant harm (SPOSH). **Figure 1** presents a graphical representation of the categories.

Figure 1: Four Categories for Determining if Land Represent a SPOSH



Cases classified as Category 1 are considered to be SPOSH based on actual evidence or an unacceptably high probability of harm existing. Category 4 cases are those where there is no risk, or a low risk of SPOSH.

[1] Environment Agency '*Human Health Toxicological Assessment of Contaminants in Soil',* Report SC050021/SR2. January 2009.
[2] Environment Agency '*Updated Technical Background to the CLEA Model*,' Report SC050021/SR3. January 2009.
[3] Defra '*Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance'.* April 2012.

GACs represent a minimal risk level, well within Category 4. A 2014 publication by Contaminated Land: Applicatons in Real Environments (CL:AIRE),SP1010[4] and endorsed by Defra[5] provided an approach to determine Category 4 Screening Levels (C4SLs) which are higher than the GACs whilst being "more pragmatic but still strongly precautionary". It also provided C4SLs for six contaminants of concern. Although the C4SLs were designed to support Part 2A assessments to determine 'contaminated land' they are specifically mentioned, along with reference to the Part 2A statutory guidance, by the Department for Communities and Local Government (DCLG) for use in a planning context[6].

An updated version the Contaminated Land Exposure Assessment (CLEA) Workbook (v1.071) was released by the EA in September 2015 to take into account the publication of SP1010. The updates comprised: additional toxicity data for the six chemicals for which C4SLs were derived; two new public open space land use scenarios; updated exposure parameters; options to run the model using C4SL exposure assumptions; and increased functionality. There were no changes to algorithms, so it is still possible to replicate the withdrawn SGVs using the input parameters held within v1.071.

It should be noted that the four category approach has not been adopted in Scotland under Part 2A or the planning regime. The Part 2A statutory guidance applicable in Scotland (Paper SE/2006/44 dated May 2006) does not reflect the changes introduced by Defra in April 2012 which allow for the use of C4SLs within Part 2A risk assessments. Additionally, it is considered that the principal of 'minimal risk' should still apply under planning in Scotland, based on current guidance.

WSP APPROACH

Following the withdrawal of the SGVs, and in the absence of an industry-wide, accepted set of GACs it is down to individual practitioners to derive their own soil assessment criteria. WSP has used the approach provided within SR2, SR3, SP1010, CLEA Workbook v1.071and SR4[7] to produce a set of minimal risk GACs. The chemical-specific data within two key publications were considered during their production: CL:AIRE 2010[8] and LQM 2015[9]. Both documents provide comprehensive sets of GACs for different contaminants of concern.

The LQM Suitable For Use Levels (S4ULs) have selected exposure parameters someway between those of the SR3 land uses and the C4SL exposure scenarios. This approach was rejected by WSP as not representing minimal risk, however, the LQM S4UL document was critically reviewed and the approach and chemical input parameters were utilised where considered to be appropriate.

An industry-led C4SL Working Group is in the process of deriving a larger set of C4SLs in the near future, for approximately 20 contaminants. This will include a critical review of the chemical input data for all selected substances, and may therefore lead to further amendments to the chemical input data used in the WSP in-house screening values. It is considered likely that the contaminant list will

---

[4] CL:AIRE *'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination'* SP1010, Final Project Report (Revision 2). September 2014.
[5] Defra 'SP1010: *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document'*. December 2014.
[6] DCLG Planning Practice Guidance '*Land Affected by Contamination'*, particularly Paragraphs 001 and 007. Ref IDs: 33-001-20140306 & 33-007-20140612.
[7] Environment Agency '*CLEA Software (Version 1.05) Handbook (and Software)',* Report SC050021/SR4. September 2009.
[8] CL:AIRE 'The EIC/AGS/CL:AIRE *Soil Generic Assessment Criteria for Human Health Risk Assessment'.* ISBN 978-1-05046-20-1. January 2010.
[9] Nathanail et al '*The LQM/CIEH S4ULs for Human Health Risk Assessment*', Land Quality Press, ISBN 978-0-9931084-0-2. 2015.

crossover with the current CL:AIRE GACs. As such, this document was not critically reviewed by WSP.

WSP's current approach to the assessment of risks to human health is to continue to evaluate minimal risk through the use of in-house derived GACs, and to use the published C4SLs as a secondary tier of assessment until such time as additional C4SLs are published and/or in-house values are derived.

EXPOSURE MODELS

LAND USES

WSP has largely adopted the exposure assumptions of the generic land use scenarios included within SR3, with two additional public open space scenarios included from within SP1010:

- Residential with homegrown produce consumption;
- Residential without homegrown produce consumption;
- Allotments;
- Commercial;
- Public open space near residential housing (POS_{resi}); and
- Public park (POS_{park}).

Exceptions are described in the following Sections.

SOIL PROPERTIES

SR3 assumes a sandy loam soil with a pH of 7 and a Soil Organic Matter (SOM) content of 6% for its generic land uses, based on the geographical spread of topsoils in the UK. WSP has adopted these default values. In addition, GACs based on an SOM of 1% and 2.5% have been derived, based on common experience of the nature of Made Ground and lack of topsoil on many brownfield sites.

RECEPTOR CHARACTERISTICS AND BEHAVIOURS

SP1010 provides some updated exposure parameters for long-term inhalation rates[10] and the consumption rates for homegrown produce[11] compared to those provided in SR3. This data was used to derived WSP's GACs.

The changes in inhalation rates do not apply to the allotment generic land use scenario, as these are based on the breathing rates for short-term exposure of light to moderate intensity activity which were derived from a study that was not updated in USEPA 2011, so the SR3 rates were retained.

[10] USEPA, National Centre for Environmental Assessment '*Exposure Factors Handbook: 2011 Edition*' EPA/600/R-09/052F. September 2011.
[11] National Diet and Nutrition Survey 2008/2009 to 2010/2011.

CHEMICAL DATA

PHYSICO-CHEMICAL PARAMETERS

Physico-chemical properties for the contaminants for which GACs have been derived have been obtained following critical review of the following hierarchy of data sources:

1. Environment Agency/Defra SGV reports where available.
2. Environment Agency '*Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values*', Report SC050021/SR7, November 2008.
3. Published fate and transport reviews within Nathanail et. al 2015 and CL:AIRE 2010.

Where appropriate, and where sufficient data is available, values were adjusted to reflect a UK soil temperature of 10ºC (e.g. K_{aw}).

TOXICOLOGICAL DATA

Toxicological data for the derivation of minimal risk Health Criteria Values (HCV) for each contaminant was selected with due regard to the approach presented in SR2. Where appropriate, the following hierarchy of data sources was used:

1. UK toxicity reviews published by authoritative bodies including:
   - EA;
   - Public Health England (PHE);
   - Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT); and
   - Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (COC).
2. Authoritative European sources such as European Food Standards Agency (EFSA)
3. International organisations including:
   - World Health Organisation (WHO); and
   - Joint FAO/WHO Expert Committee on Food Additives (JECFA).
4. Authoritative country-specific sources including:
   - United States Environmental Protection Agency (USEPA);
   - US Agency for Toxic Substances and Disease Registry (ATSDR);
   - US Integrated Risk Information System (IRIS); and
   - Netherlands National Institute for Public Health and the Environment (RIVM).

Factors such as the applicability of the data to human health (e.g. epidemiological vs. animal studies), the quality of the data, the level of uncertainty in the results and the age of the data were also taken into account in the final selection. Details for specific substances are available on request.

MEAN DAILY INTAKES

Estimations of background exposure for each threshold substance have been updated. In line with the SR2 approach, the exposure from non-threshold substances in the soil does not take into account exposure from other sources, and as such GACs were derived without consideration of the Mean Daily Intake (MDI) for those substances.

The data published by the EA in its series of TOX reports between 2002 and 2009 was evaluated to determine whether the values were considered to remain valid today. Values from these current UK published sources were not amended unless they were considered to be significantly different so that the GACs remained as comparable as possible with the revoked SGVs.

ORAL MEAN DAILY INTAKES

Oral MDI were generally estimated as the sum of exposure via the ingestion of food and drinking water using the default adult physiological parameters presented in Table 3.3 of SR2.

Data on the exposure of substances from food ingestion was generally obtained from UK Total Diet Studies (TDS) published by the Food Standards Agency (FSA) and its predecessor the Ministry of Agriculture, Fisheries and Food (MAFF) and from studies commissioned by COT. Where no UK-specific data was available, MDI were derived from the European Food Safety Authority (EFSA), Health Canada and US sources. This was a rare occurrence, and in these instances, the data was evaluated to determine its applicability to the UK.

Data on the concentrations of substances in tap water was obtained from a variety of sources. UK data was used where available, with preference given to Drinking Water Inspectorate (DWI) 2014 data from water company tap water testing (LOD, 1st and 99th percentile data is available). Where the substance was not included in tap water testing, other UK sources of information were considered including:

- à DWI data from water company tap water testing from previous years;
- à COT; and
- à FSA.

Where UK data was not available, a number of other data sources were considered, largely WHO International Programme on Chemical Safety (IPCS) Concise International Chemical Assessment Documents (CICADs) and background documents for the development of Guidelines for Drinking Water Quality, using professional judgement on the relevance of the data to the UK. The final decision on the MDI from drinking water was made using professional judgement on the balance of relevance and probability, taking into account the detection limit where not detected, Koc and solubility, reduction in use of the substance, banned substances, tight controls (e.g. on explosives) and with due consideration to the SR2 instruction that “if no data or information in background exposure are available, background exposure should be assumed to be negligible and the MDI set to zero….”.

Data from other countries was generally not used because it was considered that the hydrogeology of these countries along with industrial practices were unlikely to be reflective of the UK.

INHALATION MEAN DAILY INTAKES

Inhalation MDIs were based on estimates of average daily exposure by the inhalation pathway and calculated using the default adult physiological parameters presented in Table 3.3 of SR2.

The inhalation MDIs were generally estimated using background exposure data from the UK, derived from Defra's UK-AIR: Air Information Resource[12], which provides ambient air quality data from a number of sites forming a UK-wide monitoring network. The MDIs for heavy metals were based on rolling annual average metal mass concentration data from Defra's UK Heavy Metals Monitoring Network from the period October 2009 to September 2010[13].

Information for some substances was obtained from UK sources including Environment Agency TOX reports and data from the UK Expert Panel on Air Quality Standards (EPAQS). Where recent UK data was not available, data was sourced from the International Programme on Chemical Safety (IPCS), the World Health Organisation (WHO), the Agency for Toxic Substances and Diseases Registry (ATSDR), Health Canada, and various other peer-reviewed sources summarised by LQM/CIEH[14].

For other substances, where no data or information on background exposure was available, background exposure was assumed to be negligible and the MDI set at 0.5*TDI in accordance with guidance in SR2.

PLANT UPTAKE

Soil to plant concentration factors are available in CLEA v1.071 for arsenic, cadmium, hexavalent chromium, lead, mercury, nickel and selenium. For all remaining inorganic chemicals, concentration factors were obtained using the PRISM model. Substance-specific correction factors have been selected in accordance with the guidance established within SR3. This is consistent to the approach utilised in the derivation of the LQM S4UL values and the EIC/AGS/CL:AIRE GAC.

Where there is a lack of appropriate data to enable the derivation of specific soil to plant concentrations factors for organic chemicals, plant uptake was modelled within CLEA v1.071 using the generic equations recommended within SR3, as follows:

- Green Vegetables – Ryan et al. (1988);
- Root Vegetables – Trapp (2002);
- Tuber Vegetables – Trapp et al. (2007); and
- Tree Fruit – Trapp et al. (2003).

There are no suitable models available for modelling uptake for herbaceous fruit or shrub fruit. Exposure is considered negligible.

[12] Crown 2016 copyright Defra via uk-air.defra.gov.uk, licenced under the Open Government Licence (OGL).
[13] Defra, 2013 Spreadsheet of historic data for multiple years for the Metals network. Available online at: http://uk-air.defra.gov.uk/data/metals-data. [Accessed 13/03/2016].
[14] LQM/CIEH, 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment.

SOIL SATURATION LIMITS

GACs are not limited to their theoretical soil saturation within CLEA, although where either the aqueous or the vapour-based saturation is exceeded, this is highlighted within the Workbook (compared with the lower of the two values). This affects pathways which depend on partitioning calculations so in reality this only affects the vapour pathways and is relevant to organic substances and other substances, such as elemental mercury, that have a significant volatile component. However, the Workbook highlights saturation for direct contact pathways to indicate to the user where further qualitative consideration of free phase contamination at surface may be required.

Where the lower of the two saturation limits is exceeded and the vapour pathway is the only exposure route being considered, the chronic risks to human health are likely to be negligible. Further evaluation could be undertaken using an alternative model suitable for evaluating non-aqueous phase liquids (NAPLs), such as the Johnson & Ettinger (J&E) approach described in USEPA 2003. However, WSP considers that if NAPLs are suspected, given the known limitations and over-simplifications of J&E, soil vapour monitoring is a more accurate way of assessing potential risks.

Where the lower saturation limit is exceeded for the vapour pathway and a number of exposure routes are being considered, then the contribution from the NAPL via vapour inhalation to the overall exposure can be evaluated using the procedure provided in SR4. WSP would evaluate this as part of a DQRA process or through soil vapour monitoring on-site to determine site-specific soil vapour concentrations.

CHEMICAL SPECIFIC ASSUMPTIONS

CYANIDES

Cyanide has high acute toxicity, and short term exposure is an important consideration when assessing the risks from soils contaminated with cyanide. The primary risk to human receptors from free cyanide in soils is an acute risk.

There is no current UK guidance available for calculating acute risks from free cyanide. Consequently, GAC for acute exposure were derived using the algorithms presented in MADEP 1992[15] and assuming a one-off ingestion of 10g of soil (this conservative value has been taken as an upper bound estimate for a one-off soil ingestion rate amongst children). Receptor body weights have been selected according to the critical receptor for each exposure scenario. The lowest of the chronic and acute GAC for each land use scenario were adopted by WSP. Brinckerhoff.

LEAD

The SGV for lead was withdrawn by the EA in 2009, and in 2011 the EA withdrew their published TOX report in light of new scientific evidence. The C4SL for lead was derived using the latest scientific evidence from a large human dataset. As such, no chemical-specific margin was applied in the derivation of the C4SL for lead. It may be possible for WSP to derive a GAC for lead using the same dataset and applying a chemical-specific margin, but the value is likely to be lower than UK natural background concentrations. Therefore, WSP has adopted the toxicological data used to derive the C4SLs in deriving the GAC for lead until such time as alternative GACs are published by an authoritative body. The relative bioavailability was set at 100% in line with the approach taken for other GACs, whereas the C4SL assumes 60% for soil and 64% for airborne dust. Thus, the WSP GAC are lower than the C4SLs.

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[15] MADEP '*Background Documentation for the Development of an "Available Cyanide" Benchmark Concentration'* 1992. http://www.mass.gov/dep/toxics/cn_soil.htm

POLYCYCLIC AROMATIC HYDROCARBONS

WSP's approach to the assessment of polycyclic aromatic hydrocarbons (PAHs) uses the surrogate marker approach. BaP was used as a surrogate marker for all genotoxic PAHs in line with the Health Protection Agency 2010[16] recommendations and SP1010. This assumes that the PAH profile of the data is similar to that of the coal tars used in the Culp *et al* oral carcinogenicity study from which the toxicity data for BaP was produced. In reality, this profile has been shown by HPA to be applicable on the majority of contaminated sites based on assessment of sites across the country.

The alternative is the Toxic Equivalency Factor (TEF) approach which uses a reference compound and assigns TEFs for other compounds based on estimates of potency. Key uncertainties with this approach include the assumption that all compounds have the same toxic mechanism of action within the body and that no compounds with a greater potency than the reference compound are present. It is considered by the HPA that the TEF approach is likely to under predict the true carcinogenicity of PAHs and therefore favours the surrogate marker approach.

For these reasons, WSP considers that the adoption of BaP as a surrogate marker for genotoxic PAHs as opposed to the TEF approach is reasonable, even in cases where the PAH profile may differ from that of the Culp *et al* study. In addition, WSP has derived a GAC for naphthalene, which is commonly a risk driver due to its high volatility, relative to other PAH compounds, as an indicator compound for threshold PAHs.

TRIMETHYLBENZENES

The GAC for trimethylbenzenes can be used for the assessment of any individual isomer (1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene or 1,3,5-trimethylbenzene), or a mixture of the three isomers.

CHEMICAL GROUPS

For a number of chemical groups, the available toxicity data is for combinations of chemicals. Given that the physico-chemical parameters may differ between the chemicals, the GACs for the chemicals within the groups have been calculated and then the lowest GAC selected to represent the entire group. This was the approach taken by the EA for m-, o- and p-xylenes, and has also been adopted by WSP for:

- 2-chlorophenol, 2,4-dichlorophenol, 2,4,6-trichlorophenol and 2,3,4,6-tetrachlorophenol;
- 2-, 3- and 4-methylphenol (total cresols);
- aldrin and dieldrin; and
- α- and β-endosulphan.

[16] HPA Contaminated Land Information Sheet '*Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)* 2010

EXPOSURE TO VAPOURS

INHALATION OF MEASURED VAPOURS

WSP has derived a set of soil vapour GACs (GAC_{sv}) that allow for the assessment of measured site soil vapour concentrations, using J&E, in order to establish potential risks via indoor inhalation of vapours. This methodology enables a more robust assessment of exposure via the inhalation of soil vapours indoors than using CLEA-derived soil GAC, as it is based upon measured soil vapour concentrations beneath the site. It also allows for the assessment of vapours from all source terms (i.e. groundwater, soil or NAPL). Outdoor inhalation was not included. WSP considers that the indoor inhalation pathway is the significantly dominant risk-driver.

The generic land use scenarios within CLEA (residential and commercial) that were used to derive the soil GAC were used to define the receptor and building characteristics for the soil vapour GAC. Only residential and commercial generic land use scenarios include the indoor inhalation of vapours pathway.

The GAC_{sv} were derived for three different soil types; sand, sandy loam and clay, reflecting the importance of this parameter within the J&E model. A depth to contamination of 0.85 m below the base of the building foundation was assumed (i.e. 1 m below ground level). This differs from the depth assumed for the soil GAC (0.5 m bgl), but was selected by WSP as a reasonable worst case scenario.

It is acknowledged that the J&E commonly over-predicts indoor vapour concentrations. In particular, it will significantly over-predict vapour concentrations for suspended floor slabs, which many new builds are constructed with, it does not take into account lateral migration and assumes an infinite source of contamination at steady state conditions. In addition, it is common for soil gas/vapour wells to be installed with at least 1 m of plain riser at the surface and this equates to a total depth of 0.85 m below the building foundation plus a 0.15 m thick foundation, and so is more representative of the depth that samples will be taken from.

The TDSIs and IDs for each substance were converted from $\mu gkg^{-1}{}_{bw}day^{-1}$ to μgm^{-3} using the standard conversions quoted in Table 3.3 of SR2, thereby replacing the need to model C_{air} in the equation:

$$C_{air} = \alpha . C_{vap} . 1{,}000{,}000 cm^3 m^{-3}$$

Where:

C_{air} is the concentration of vapours within the building, mg^{-3}

α is the steady state attenuation coefficient between soil and indoor air, dimensionless

C_{vap} is the soil vapour concentration, $mgcm^{-3}$

The target concentrations within indoor air for each substance (C_{air}) are a function of receptor inhalation rates and occupancy periods, as defined by the site conceptual exposure model (assuming standard CLEA occupancy periods and receptors).

The attenuation factor was calculated using J&E (Equation 10.4 in SR3) and the resulting C_{vap} is equivalent to the GAC_{sv} for the modelled exposure scenario.

Where the calculated GAC_{sv} for a substance exceeds the vapour saturation limit, no GAC_{sv} has been proposed.

INHALATION OF GROUNDWATER-DERIVED VAPOURS

The CLEA model does not have the capacity to derive GACs to assess vapours derived from dissolved phase contamination. WSP has derived a set of groundwater GACs (GAC_{gw}) to evaluate the potential risks through the indoor inhalation of groundwater-derived vapours by first applying the approach described above for the derivation of the WSP GAC_{sv} to determine the acceptable concentration in soil vapour directly above the water table.

The depth to groundwater was assumed to be 1 m bgl (i.e. 0.85 m below the base of the building foundation). This depth was considered to be more representative of commonly encountered groundwater conditions than the 0.5 m below the base of the building foundation (i.e. 0.65 m bgl) that is used by CLEA for an unsaturated source present in the overlying soil.

The GAC_{gw} was then back-calculated from the GAC_{sv} using the air-water partition coefficient (K_{aw}) for each substance.

Where the calculated GAC_{gw} for a substance exceeds the solubility limit, no GAC_{gw} has been proposed.

Annex E: Risk Chemical Screening

GYTRC - groundwater - coastal EQS

| Lab Sample ID | | | | visit 1 - 1 J | visit 2 - 21 June 2018 | | visit 4 - 19 | visit 5 - 2 A | visit 6 - 16 | visit 7 - 30 | visit 8 - 4 O | visit 9 -18 Oct | visit 10 -1 Nov | visit 11 -14 No | visit 12 -29 November 2018 | Suite II batch 2 | | | |

GYTRC - groundwater - coastal EQS

| | | | | visit 1 - 1 Ju | visit 2 - 21 June 2018 | | visit 4 - 19 | visit 5 - 2 A | visit 6 - 16 | visit 7 - 30 | Visit 8 - 4 O | Visit 9 -18 Oct | Visit 10 -1 Nov | Visit 11 -14 No | Visit 12 -29 November 2018 | Suite II batch 2 | | | |

GYTRC - groundwater - coastal EQS

Lab Sample ID				18/06265	18/06637	18/07049	18/08232	18/08736/10	18/09217/10	18/09646/8	18/10170/8
Client Sample No				0803-1	0817-1	0831-1	1005-1	1019-1	1102-1	1115-4	1115-4
Client Sample ID				BH4	BH4	BH4	BH4	BH4	BH4	BH4	BH4
Depth to Top					2.10	2.04	2.09	2	2.10	2.05	1.15
Strata				Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag
Date Sampled				02-Aug-18	16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Units	WSP Groundwater Screen - Coastal EQS	Source of Screening Value	Water -	Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH			7.88	7.28	7.67	7.68	6.82	6.65	7.46	7.75
Ammoniacal nitrogen (w)	mg/l	.		1.19	1.27	1.08	1.47	1.15	1.43	1.39	1.22
Sulphate (w)	mg/l			1180	1160	1180	1100	1190	1120		
Cyanide (free) (w)	mg/l	0.001	WFD 2015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Cyanide (total) (w)	mg/l	0.001	WFD 2015	<0.005	0.063	<0.005	<0.005	<0.005	<0.005		
Arsenic (dissolved)	µg/l	25	WFD 2015	3	2	2	<5	2	2	2	2
Boron (dissolved)	µg/l	.		793	766	714	934	901	859	888	855
Cadmium (dissolved)	µg/l	0.2	WFD 2015	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.08	<0.08
Copper (dissolved)	µg/l	3.76	WFD 2015	8	5	<1	<5	<1	1	7	12
Chromium (dissolved)	µg/l	.		1	1	2	<5	<1	1	1	1
Chromium (hexavalent) (w)	mg/l	0.0006	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Lead (dissolved)	µg/l	1.3	WFD 2015	<1	<1	<1	<5	<1	<1	<1	<1
Mercury (dissolved)	µg/l	0.07	WFD 2015	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	8.6	WFD 2015	3	3	3	<5	4	4	4	4
Selenium (dissolved)	µg/l	.		<1	<1	<1	<5	<1	<1	<1	<1
Zinc (dissolved)	µg/l	6.8	WFD 2015	2	1	1	11	4	4	4	6
PAH 16MS (w)											
Acenaphthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene (w)	µg/l	0.1	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene (w)	µg/l	.		<0.01	0.04	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene (w)	µg/l	0.00017	WFD 2015	<0.01	0.04	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.		<0.01	0.04	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.		<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.		<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.		<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenzo(ah)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	0.0063	WFD 2015	<0.01	0.06	0.03	<0.01	0.01	<0.01	<0.01	0.01
Fluorene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene (w)	µg/l	.		<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	2	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01
Phenanthrene (w)	µg/l	.		<0.01	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene (w)	µg/l	.		<0.01	0.05	0.03	<0.01	0.01	<0.01	<0.01	0.01
Total PAH 16MS (w)	µg/l	.		<0.01	0.36	0.15	<0.01	0.02	<0.01	0.02	0.03
SVOC (excluding PAH-16) (w)											
2,4,5-Trichlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1		
2,4,6-Trichlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1		
2,4-Dichlorophenol	µg/l	0.42	WFD 2015	<1	<1	<1	<1	<1	<1		
2,4-Dimethylphenol	µg/l	.		<1	<1	<1	<1	<1	<1		
2,4-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1	<1		
2,6-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1	<1		
2-Chloronaphthalene	µg/l	.		<1	<1	<1	<1	<1	<1		
2-Chlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1		
2-Methylnaphthalene	µg/l	.		<1	<1	<1	<1	<1	<1		
2-Methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1		
2-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1	<1		
4-Bromophenyl phenyl ether	µg/l	.		<1	<1	<1	<1	<1	<1		
4-Chloro-3-methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1		
Bis(2-chloroisopropyl)ether	µg/l	.		<1	<1	<1	<1	<1	<1		
4-Methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1		
4-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1	<1		
Bis(2-chloroethyl)ether	µg/l	.		<1	<1	<1	<1	<1	<1		
Bis(2-chloroethoxy)methane	µg/l	.		<1	<1	<1	<1	<1	<1		
Bis(2-ethylhexyl)phthalate	µg/l	1.3	WFD 2015	<10	<10	<10	<10	<10	<10		
Butylbenzyl phthalate	µg/l	0.75	WFD 2015	<1	<1	<1	<1	<1	<1		
Carbazole	µg/l	.		<1	<1	<1	<1	<1	<1		
Dibenzofuran	µg/l	.		<1	<1	<1	<1	<1	<1		
n-Dibutylphthalate	µg/l	.		<1	<1	<1	<1	<1	<1		
n-Dioctylphthalate	µg/l	.		<10	<10	<10	<10	<10	<10		
n-Nitroso-n-dipropylamine	µg/l	.		<1	<1	<1	<1	<1	<1		
Diethyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1		
Dimethyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1		
Hexachlorobenzene	µg/l	0.05	WFD 2015	<1	<1	<1	<1	<1	<1		
Pentachlorophenol	µg/l	0.4	WFD 2015	<1	<1	<1	<1	<2	<1		
Phenol	µg/l	7.7	WFD 2015	<1	<1	<1	<1	<1	<1		
Hexachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1		
Nitrobenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
Isophorone	µg/l	.		<1	<1	<1	<1	<1	<1		
Hexachlorocyclopentadiene	µg/l	.		<1	<1	<1	<1	<1	<1		
Perylene	µg/l	.		<1	<1	<1	<1	<1	<1		
VOC (w)											
Dichlorodifluoromethane	µg/l	.		<1	<1	<1	<1	<1	<1		
Chloromethane	µg/l	.		<10	<10	<10	<10	<10	<10		
Vinyl Chloride	µg/l	.		<1	<1	<1	<1	<1	<1		
Bromomethane	µg/l	.		<1	<1	<1	<1	<1	<1		
Chloroethane	µg/l	.		<1	<1	<1	<1	<1	<1		
Trichlorofluoromethane	µg/l	.		<1	<1	<1	<1	<1	<1		
trans 1,2-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1	<1		
Dichloromethane	µg/l	20	WFD 2015	<5	<5	<5	<5	<5	<5		
Carbon Disulphide	µg/l	.		<1	<1	<1	<1	<1	<1		
1,1-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1	<1		
1,1-Dichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1		
cis 1,2-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1	<1		
Bromochloromethane	µg/l	.		<5	<5	<5	<5	<5	<5		
Chloroform	µg/l	2.5	WFD 2015	<1	<1	<1	<1	<1	<1		
2,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1		
1,2-Dichloroethane	µg/l	10	WFD 2015	<2	<2	<2	<2	<2	<2		
1,1,1-Trichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1		
1,1-Dichloropropene	µg/l	.		<1	<1	<1	<1	<1	<1		
Benzene	µg/l	8	WFD 2015	<1	<1	<1	<1	<1	<1		
Carbon Tetrachloride	µg/l	12	WFD 2015	<1	<1	<1	<1	<1	<1		
Dibromomethane	µg/l	.		<1	<1	<1	<1	<1	<1		
1,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1		
Bromodichloromethane	µg/l	.		<10	<10	<10	<10	<10	<10		
Trichloroethene	µg/l	10	WFD 2015	<1	<1	<1	<1	<1	<1		
cis 1,3-Dichloropropene	µg/l	.		<1	<1	<1	<1	<1	<1		
trans 1,3-Dichloropropene	µg/l	.		<1	<1	<1	<1	<1	<1		
1,1,2-Trichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1		
Toluene	µg/l	74	WFD 2015	<1	<1	<1	<1	<1	<1		
1,3-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1		
Dibromochloromethane	µg/l	.		<3	<3	<3	<3	<3	<3		
1,2-Dibromoethane	µg/l	.		<1	<1	<1	<1	<1	<1		
Tetrachloroethene	µg/l	10	WFD 2015	<1	<1	<1	<1	<1	<1		
1,1,1,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1		
Chlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
Ethylbenzene	µg/l	20	P2-115/TR4 2002	<1	<1	<1	<1	<1	<1		
m & p Xylene	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1		
Bromoform	µg/l	.		<1	<1	<1	<1	<1	<1		
Styrene	µg/l	.		<1	<1	<1	<1	<1	<1		
1,1,2,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1		
o-Xylene	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1		
1,2,3-Trichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1		
Isopropylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
Bromobenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
2-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1		
n-propylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
4-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1		
1,2,4-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
4-Isopropyltoluene	µg/l	.		<1	<1	<1	<1	<1	<1		
1,3,5-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
1,2-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1		

						visit 3 - 3 July 2018								
Lab Sample ID				18/05033	18/05361	18/05864	18/06265	18/06637	18/07049	18/08232	18/08736/12	18/09217/11	18/09646/11	18/10170/11
Client Sample No				0622-5	0703-3	0720-10	0803-5	0817-6	0831-7	1005-7	1019-7	1102-7	1115-12	1115-12
Client Sample ID				BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10
Depth to Top				2.37	2.44	2.66		2.38	2.34	2.74	2.61	2.75	2.59	2.56
Strata				MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium
Date Sampled				21-Jun-18	03-Jul-18	19-Jul-18	02-Aug-18	16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Units	WSP Groundwater Screen - Coastal EQS	Source of Screening Value	Water -	Water -	Water -	Water -	Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH			8.57	8.31	7.9	8.46	8.03	8.18	8.28	7.61	7.45	8.09	8.22
Ammoniacal nitrogen (w)	mg/l	.		1.48	1.2	1.69	1	0.88	0.74	1.07	0.72	1.21	1.16	0.79
Sulphate (w)	mg/l			43	41	40	42	45	40	40	42	44		
Cyanide (free) (w)	mg/l	0.001	WFD 2015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Cyanide (total) (w)	mg/l	0.001	WFD 2015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Arsenic (dissolved)	µg/l	25	WFD 2015	5	2	2	2	3	3	2	2	2	3	1
Boron (dissolved)	µg/l	.		290	273	308	273	288	299	244	279	272	240	230
Cadmium (dissolved)	µg/l	0.2	WFD 2015	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.08	<0.08
Copper (dissolved)	µg/l	3.76	WFD 2015	<1	2	3	10	7	3	3	2	9	7	6
Chromium (dissolved)	µg/l	.		<1	4	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent) (w)	mg/l	0.0006	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Lead (dissolved)	µg/l	1.3	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
Mercury (dissolved)	µg/l	0.07	WFD 2015	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	8.6	WFD 2015	1	2	1	2	2	1	2	1	1	1	1
Selenium (dissolved)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (dissolved)	µg/l	6.8	WFD 2015	<1	5	5	9	4	5	16	6	26	3	32
PAH 16MS (w)														
Acenaphthene (w)	µg/l	.		<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01
Acenaphthylene (w)	µg/l	.		<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene (w)	µg/l	0.1	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene (w)	µg/l	0.00017	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenzo(ah)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	0.0063	WFD 2015	<0.01	<0.01	<0.01	0.02	0.01	0.03	0.01	<0.01	<0.01	<0.01	<0.01
Fluorene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	2	WFD 2015	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.02
Phenanthrene (w)	µg/l	.		<0.01	<0.01	0.02	0.02	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01
Pyrene (w)	µg/l	.		<0.01	<0.01	<0.01	0.02	0.01	0.03	0.01	<0.01	<0.01	<0.01	<0.01
Total PAH 16MS (w)	µg/l	.		0.01	0.03	0.02	0.06	0.02	0.06	0.03	0.02	<0.01	0.04	0.03
SVOC (excluding PAH-16) (w)														
2,4,5-Trichlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,4,6-Trichlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,4-Dichlorophenol	µg/l	0.42	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,4-Dimethylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,4-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,6-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Chloronaphthalene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Chlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Methylnaphthalene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Bromophenyl phenyl ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Chloro-3-methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-chloroisopropyl)ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-chloroethyl)ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-chloroethoxy)methane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-ethylhexyl)phthalate	µg/l	1.3	WFD 2015	<10	<10	<10	<10	<10	<10	<10	<10	<10		
Butylbenzyl phthalate	µg/l	0.75	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Carbazole	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Dibenzofuran	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
n-Dibutylphthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
n-Dioctylphthalate	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10	<10		
n-Nitroso-n-dipropylamine	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Diethyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Dimethyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Hexachlorobenzene	µg/l	0.05	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Pentachlorophenol	µg/l	0.4	WFD 2015	<1	<1	<1	<1	<1	<1	<2	<1	<1		
Phenol	µg/l	7.7	WFD 2015	<1	<4	<1	<1	<1	<1	<1	<1	<1		
Hexachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Nitrobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Isophorone	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Hexachlorocyclopentadiene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Perylene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
VOC (w)														
Dichlorodifluoromethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Chloromethane	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10	<10		
Vinyl Chloride	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bromomethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Chloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Trichlorofluoromethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
trans 1,2-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Dichloromethane	µg/l	20	WFD 2015	<5	<5	<5	<5	<5	<5	<5	<5	<5		
Carbon Disulphide	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1-Dichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
cis 1,2-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bromochloromethane	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5		
Chloroform	µg/l	2.5	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dichloroethane	µg/l	10	WFD 2015	<2	<2	<2	<2	<2	<2	<2	<2	<2		
1,1,1-Trichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1-Dichloropropene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Benzene	µg/l	8	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Carbon Tetrachloride	µg/l	12	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Dibromomethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bromodichloromethane	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10	<10		
Trichloroethene	µg/l	10	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
cis 1,3-Dichloropropene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
trans 1,3-Dichloropropene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1,2-Trichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Toluene	µg/l	74	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,3-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Dibromochloromethane	µg/l	.		<3	<3	<3	<3	<3	<3	<3	<3	<3		
1,2-Dibromoethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Tetrachloroethene	µg/l	10	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1,1,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Chlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Ethylbenzene	µg/l	20	P2-115/TR4 2002	<1	<1	<1	<1	<1	<1	<1	<1	<1		
m & p Xylene	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bromoform	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Styrene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1,2,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
o-Xylene	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2,3-Trichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Isopropylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bromobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID				18/06265	18/06637	18/07049	18/08232	18/08736/10	18/09217/10	18/09646/8	18/10170/8
Client Sample No				0803-1	0817-1	0831-1	1005-1	1019-1	1102-1	1115-4	1115-4
Client Sample ID				BH4	BH4	BH4	BH4	BH4	BH4	BH4	BH4
Depth to Top					2.10	2.04	2.09	2	2.10	2.05	1.15
Strata				Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag
Date Sampled				02-Aug-18	16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Units	WSP Groundwater Screen - Coastal EQS	Source of Screening Value	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2	<2	<2		
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	µg/l	.		<2	<2	<2	<2	<2	<2		
1,2,4-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3	<3	<3		
1,2,3-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3	<3	<3		
Hexachlorobutadiene	µg/l	0.6	WFD 2015	<1	<1	<1	<1	<1	<1		
TPH CWG											
Ali >C5-C6 (w)	µg/l	.		<1	<1	<1	<1	<5	<1	<1	<1
Ali >C6-C8 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<5	<5
Ali >C10-C12 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l	8	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	74	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	<1	<1		
Aro >C9-C10 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<5	<5
Aro >C10-C12 (w)	µg/l	2	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	2	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	0.1	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	22	14
Aro >C21-C35 (w)	µg/l	0.00017	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<10	<10
Total Aromatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	22	14
TPH (Ali & Aro) (w)	µg/l	.		<5	<5	<5	<5	<5	<5	22	14
BTEX - Benzene (w)	µg/l	8	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	74	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	20	P2-115/TR4 2002	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1

visit 3 - 3 July 2018

Lab Sample ID				18/05033	18/05361	18/05864	18/06265	18/06637	18/07049	18/08232	18/08736/12	18/09217/11	18/09646/11	18/10170/11
Client Sample No				0622-5	0703-3	0720-10	0803-5	0817-6	0831-7	1005-7	1019-7	1102-7	1115-12	1115-12
Client Sample ID				BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10
Depth to Top				2.37	2.44	2.66		2.38	2.34	2.74	2.61	2.75	2.59	2.56
Strata				MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium
Date Sampled				21-Jun-18	03-Jul-18	19-Jul-18	02-Aug-18	16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Units	WSP Groundwater Screen - Coastal EQS	Source of Screening Value	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2	<2	<2	<2	<2	<2		
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	µg/l	.		<2	<2	<2	<2	<2	<2	<2	<2	<2		
1,2,4-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3	<3	<3	<3	<3	<3		
1,2,3-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3	<3	<3	<3	<3	<3		
Hexachlorobutadiene	µg/l	0.6	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
TPH CWG														
Ali >C5-C6 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1
Ali >C6-C8 (w)	µg/l	.		<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5
Ali >C10-C12 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	9	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	9	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l	8	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	74	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Aro >C9-C10 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5
Aro >C10-C12 (w)	µg/l	2	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	2	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	0.1	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	35	<5
Aro >C21-C35 (w)	µg/l	0.00017	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10
Total Aromatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	35	<10
TPH (Ali & Aro) (w)	µg/l	.		<5	<5	<5	<5	<5	<5	9	<5	<5	35	<10
BTEX - Benzene (w)	µg/l	8	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	74	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	20	P2-115/TR4 2002	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Lab Sample ID				18/05033
Client Sample No				0622-1
Client Sample ID				BH4A
Depth to Top				1.03
Strata				MG and Alluvium
Date Sampled				21-Jun-18
Sample Type	Units	WSP Groundwater Screen - Coastal EQS	Source of Screening Value	Water -
Sample Matrix Code				N/A
1,4-Dichlorobenzene	µg/l	.		<1
sec-Butylbenzene	µg/l	.		<1
tert-Butylbenzene	µg/l	.		<2
1,3-Dichlorobenzene	µg/l	.		<1
n-butylbenzene	µg/l	.		<1
1,2-Dibromo-3-chloropropane	µg/l	.		<2
1,2,4-Trichlorobenzene	µg/l	0.4	WFD 2015	<3
1,2,3-Trichlorobenzene	µg/l	0.4	WFD 2015	<3
Hexachlorobutadiene	µg/l	0.6	WFD 2015	<1
TPH CWG				
Ali >C5-C6 (w)	µg/l	.		<1
Ali >C6-C8 (w)	µg/l	.		<1
Ali >C8-C10 (w)	µg/l	.		<1
Ali >C10-C12 (w)	µg/l	.		<5
Ali >C12-C16 (w)	µg/l	.		<5
Ali >C16-C21 (w)	µg/l	.		<5
Ali >C21-C35 (w)	µg/l	.		<5
Total Aliphatics (w)	µg/l	.		<5
Aro >C5-C7 (w)	µg/l	8	CL:AIRE 2017	<1
Aro >C7-C8 (w)	µg/l	74	CL:AIRE 2017	<1
Aro >C8-C9 (w)	µg/l	20	CL:AIRE 2017	<1
Aro >C9-C10 (w)	µg/l	20	CL:AIRE 2017	<1
Aro >C10-C12 (w)	µg/l	2	CL:AIRE 2017	<5
Aro >C12-C16 (w)	µg/l	2	CL:AIRE 2017	<5
Aro >C16-C21 (w)	µg/l	0.1	CL:AIRE 2017	<5
Aro >C21-C35 (w)	µg/l	0.00017	CL:AIRE 2017	<5
Total Aromatics (w)	µg/l	.		<5
TPH (Ali & Aro) (w)	µg/l	.		<5
BTEX - Benzene (w)	µg/l	8	WFD 2015	<1
BTEX - Toluene (w)	µg/l	74	WFD 2015	<1
BTEX - Ethyl Benzene (w)	µg/l	20	P2-115/TR4 2002	<1
BTEX - m & p Xylene (w)	µg/l	30	CL:AIRE 2017	<1
BTEX - o Xylene (w)	µg/l	30	CL:AIRE 2017	<1
MTBE (w)	µg/l	.		<1

Lab Sample ID				18/05033	18/05361	18/05864	18/06265	18/06637	18/07049	18/08232	18/08736/11	18/09217/12	18/09646/12	18/10170/12
Client Sample No				0622-6	0703-1	0720-9	0803-6	0817-5	0831-5	1005-5	1019-5	1102-5	1115-9	1115-9
Client Sample ID				BH11	BH11	BH11	BH11	BH11	BH11	BH11	BH11	BH11	BH11	BH11
Depth to Top				2.30	2.45	2.51	2.32	2.27	2.76	2.6	2.76	2.74	2.50	
Strata				Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag
Date Sampled				21-Jun-18	03-Jul-18	19-Jul-18	02-Aug-18	16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Units	WSP Groundwater Screen - Coastal EQS	Source of Screening Value	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2	<2	<2	<2	<2	<2		
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	µg/l	.		<2	<2	<2	<2	<2	<2	<2	<2	<2		
1,2,4-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3	<3	<3	<3	<3	<3		
1,2,3-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3	<3	<3	<3	<3	<3		
Hexachlorobutadiene	µg/l	0.6	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		
TPH CWG														
Ali >C5-C6 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1
Ali >C6-C8 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5
Ali >C10-C12 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	15	12
Ali >C21-C35 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10
Total Aliphatics (w)	µg/l	.		<5	<5	<5	<5	7	<5	<5	<5	<5	15	12
Aro >C5-C7 (w)	µg/l	8	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	74	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Aro >C9-C10 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	7	<1	<1	<1	<1	<5	<5
Aro >C10-C12 (w)	µg/l	2	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	2	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	0.1	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	15	12
Aro >C21-C35 (w)	µg/l	0.00017	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10
Total Aromatics (w)	µg/l	.		<5	<5	<5	<5	7	<5	<5	<5	<5	15	12
TPH (Ali & Aro) (w)	µg/l	.		<5	<5	<5	<5	7	<5	<5	<5	<5	15	12
BTEX - Benzene (w)	µg/l	8	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	74	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	20	P2-115/TR4 2002	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID		WSP Groundwater Screen - Coastal EQS	Source of Screening Value	18/05033	18/07049	18/08232	18/08736/9	18/09217/3	18/09646/7	18/10170/7	18/05033	18/07049	18/08232	18/08736/8	18/09217/9	18/09646/6	18/10170/6	18/08232	18/08736/1	18/09217/1	18/09646/1	18/10170/1	18/08232	18/08736/2	18/09217/2	18/09646/2	18/10170/2	18/08232	18/08736/2	18/09217/4	18/09646/4	18/10170/4	18/04384	18/05033	18/05361	18/05864	18/06265	18/06637
Client Sample No				0622-7	0831-8	1005-8	1019-8	1102-8	1115-13	1115-13	0622-8	0831-6	1005-6	1019-6	1102-6	1115-10	1115-10	1005-11	1019-11	1102-11	1115-16	1115-16	1005-10	1019-10	1102-10	1115-15	1115-15	1005-9	1019-9	1102-9	1115-14	1115-14	0604-7	0622-9	0703-2	0720-8	0803-4	0817-4
Client Sample ID				BH12B	BH12B	BH12B	BH12B	BH12B	BH12B	BH12B	BH13	BH13	BH13	BH13	BH13	BH13	BH13	WS22	WS22	WS22	WS22	WS22	WS21	WS21	WS21	WS21	WS21	WS20	WS20	WS20	WS20	WS20	BH15	BH15	BH15	BH15	BH15	BH15
Depth to Top				1.78	1.70	1.76	1.71	1.74	1.74	1.83	1.75	1.61	1.73	1.66	1.75	1.73	1.87	1.19	1.29	1.20	1.1	1.17	1.19	1.29	1.20	1.1	1.17	1.22	1.23	1.23	1.26	1.23	1.35	1.42	1.40	1.44	1.43	2.10
Strata				Mc, Alluvium and	Made ground, alluvium	Made ground, alluvium	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	North Denes	North Denes	North Denes	North Denes	North Denes	North Denes
Date Sampled				21-Jun-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	21-Jun-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	01-Jun-18	21-Jun-18	03-Jul-18	19-Jul-18	02-Aug-18	16-Aug-18
Sample Type	Units			Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water -	Water -	Water -	Water -	Water -
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	.		8.1	8.6	8.08	7.72	7.64	8.02	8.1	8.49	8.23	8.47	7.88	7.84	8.26	8.53	8.78	7.92	7.69	8.29	7.95	10.34	11.09	11.56	11.9	11.88	8.46	8.14	8.47	8.1	8.47	8.28	8.17	8.31	7.86	8.2	8.18
Ammoniacal nitrogen (w)	mg/l	.		5.53	2.82	4.96	3.7	4.66	5.52	3.69	12.2	11.8	9.9	12.6	9.27	12.9	8.07	11.9	1.21	2.5	2.64	5.7	12.2	6.03	2.73	1.86	6.09	12	6.52	2.48	1.44	6.16	0.78	0.25	0.38	0.23	0.27	0.22
Sulphate (w)	mg/l	.		102	301	479	473	615			134	147	84	152	82			62	146	72			62	52	30			62	54	33			230	249	247	224	235	238
Cyanide (free) (w)	mg/l	0.001	WFD 2015	<0.005	<0.005	<0.005	0.009	0.008			<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	<0.005	0.022			<0.005	0.033	0.022			<0.005	0.027	0.024			<0.005	0.006	0.006	0.006	0.009	<0.005
Cyanide (total) (w)	mg/l	0.001	WFD 2015	0.025	0.026	0.026	0.033	0.031			0.016	0.019	0.018	0.022	0.02			0.048	<0.005	0.044			0.05	0.231	0.043			0.05	0.227	0.043			0.056	0.053	0.045	0.082	0.048	0.019
Arsenic (dissolved)	µg/l	25	WFD 2015	9	7	6	7	7	9	7	12	17	14	15	15	13	15	18	12	5	4	6	18	12	6	4	6	18	12	6	4	6	57	53	61	58	57	62
Boron (dissolved)	µg/l	.		452	482	720	829	1010	1020	767	996	873	878	919	751	1150	680	180	434	59	57	72	187	153	64	61	66	184	166	58	76	75	793	732	798	660	749	780
Cadmium (dissolved)	µg/l	0.2	WFD 2015	<0.2	<0.2	<0.2	<0.2	<0.2	<0.08	<0.08	<0.2	<0.2	<0.2	<0.2	<0.2	<0.08	<0.08	<0.2	<0.2	<0.2	<0.08	<0.08	<0.2	<0.2	<0.2	<0.08	<0.08	<0.2	<0.2	<0.2	<0.08	<0.08	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Copper (dissolved)	µg/l	3.76	WFD 2015	3	1	2	4	5	8	12	<1	1	<1	<1	2	14	7	2	6	6	13	19	2	5	5	14	21	2	4	6	13	21	<1	<1	1	2	8	5
Chromium (dissolved)	µg/l	.		<1	<1	<1	<1	1	1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	4	15	8	<1	<1	4	15	8	<1	<1	4	15	8	<1	1	<1	<1	<1	<1
Chromium (hexavalent) (w)	mg/l	0.0006	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01			<0.01	<0.01	<0.01			<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (dissolved)	µg/l	1.3	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	1	<1	<1	1	2	1	<1	<1	1	1	1	<1	<1	<1	<1	<1	<1
Mercury (dissolved)	µg/l	0.07	WFD 2015	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	8.6	WFD 2015	3	4	5	6	6	6	5	2	4	1	2	2	2	2	6	6	3	2	5	6	4	3	2	5	6	4	3	2	5	<1	2	2	2	2	2
Selenium (dissolved)	µg/l	.		1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	2	1	1	<1	3	2	1	4	60	1	2	2	6	<1	2	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (dissolved)	µg/l	6.8	WFD 2015	8	2	5	10	9	4	6	7	<1	4	3	2	6	2	7	10	3	2	1	2	1	4	60	1	2	2	6	<1	2	2	<1	<1	1	2	1
PAH 16MS (w)																																						
Acenaphthene (w)	µg/l	.		<0.01	.	0.01	0.01	<0.01	0.01	<0.01	<0.01	0.15	<0.01	0.04	<0.01	0.05	0.79	0.11	0.02	<0.01	0.01	<0.01	0.29	0.24	0.28	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.15	0.1	0.11	0.12	0.14	0.13
Acenaphthylene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.07	0.09	0.01	<0.01	<0.01	<0.01	0.06	0.02	0.03	0.02	<0.01	0.03	0.01	<0.01	0.01	0.06	<0.01	0.01	0.01	<0.01	0.03	0.01
Anthracene (w)	µg/l	0.1	WFD 2015	<0.01	.	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.25	0.02	<0.01	<0.01	<0.01	0.08	0.07	0.07	0.04	0.06	0.07	0.03	0.03	0.03	0.24	0.02	0.02	0.02	0.02	0.02	0.02
Benzo(a)anthracene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	1.15	0.06	<0.01	<0.01	<0.01	0.04	0.1	0.03	0.02	0.09	0.15	0.03	0.02	0.03	0.26	<0.01	0.01	<0.01	<0.01	<0.01	0.01
Benzo(a)pyrene (w)	µg/l	0.00017	WFD 2015	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	1.87	0.06	<0.01	<0.01	<0.01	0.03	0.1	0.01	<0.01	0.07	0.15	0.04	0.02	0.04	0.3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	1.88	0.09	<0.01	<0.01	<0.01	0.04	0.13	0.02	0.01	0.1	0.18	0.05	0.02	0.06	0.35	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.39	0.07	<0.01	<0.01	<0.01	0.02	0.07	<0.01	<0.01	0.04	0.33	0.08	0.04	0.08	0.59	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.73	0.03	<0.01	<0.01	<0.01	0.01	0.05	<0.01	<0.01	0.04	0.06	0.02	<0.01	0.02	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	1.46	0.09	<0.01	<0.01	<0.01	0.05	0.12	0.02	0.02	0.11	0.18	0.04	0.03	0.05	0.29	<0.01	0.02	<0.01	<0.01	<0.01	0.01
Dibenzo(ah)anthracene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.29	0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	0.03	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	0.0063	WFD 2015	0.02	.	0.07	0.07	0.1	0.08	0.07	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	2.33	0.2	0.02	0.01	<0.01	0.17	0.25	0.16	0.13	0.25	0.3	0.04	0.04	0.04	0.48	0.04	0.05	0.03	0.04	0.03	0.03
Fluorene (w)	µg/l	.		<0.01	.	0.01	0.02	0.02	0.02	0.01	<0.01	0.08	<0.01	<0.01	<0.01	0.04	0.53	0.22	0.03	0.01	<0.01	<0.01	0.27	0.3	0.38	0.12	0.06	<0.01	<0.01	<0.01	<0.01	0.02	0.01	0.01	0.01	<0.01	0.03	0.01
Indeno(123-cd)pyrene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.46	0.07	<0.01	<0.01	<0.01	0.03	0.09	<0.01	<0.01	0.05	<0.01	0.05	0.02	0.06	0.47	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	2	WFD 2015	<0.01	.	0.07	0.29	0.09	0.12	<0.01	<0.01	1.27	<0.01	<0.01	<0.01	<0.01	<0.01	0.23	0.03	0.03	<0.01	<0.01	0.03	<0.01	0.11	0.04	0.03	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	0.02	<0.01	0.03	<0.01
Phenanthrene (w)	µg/l	.		<0.01	.	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	0.22	1.19	0.17	0.02	<0.01	<0.01	0.43	0.23	0.37	0.04	0.04	0.04	<0.01	<0.01	<0.01	0.16	0.04	0.06	0.06	0.05	0.07	0.06
Pyrene (w)	µg/l	.		0.04	.	0.07	0.07	0.1	0.07	0.07	<0.01	0.01	<0.01	<0.01	0.04	<0.01	<0.01	1.94	0.18	0.02	0.01	<0.01	0.14	0.24	0.15	0.13	0.23	0.5	0.11	0.1	0.1	0.58	0.06	0.06	0.04	0.04	0.04	0.03
Total PAH 16MS (w)	µg/l	.		0.06	.	0.23	0.48	0.31	0.3	0.16	<0.01	1.57	<0.01	0.04	0.11	0.09	1.66	16.6	1.14	0.1	0.03	<0.01	1.69	2.03	1.63	0.62	1.19	2.23	0.5	0.32	0.52	4.04	0.32	0.37	0.3	0.27	0.39	0.31
SVOC (excluding PAH-16) (w)																																						
2,4,5-Trichlorophenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/l	0.42	WFD 2015	<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2,4-Dinitrotoluene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2,6-Dinitrotoluene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2-Chloronaphthalene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2-Chlorophenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2-Methylnaphthalene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2-Methylphenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2-Nitrophenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
4-Bromophenyl phenyl ether	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
4-Chloro-3-methylphenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Bis(2-chloroisopropyl)ether	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
4-Methylphenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			2	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
4-Nitrophenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Bis(2-chloroethyl)ether	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Bis(2-chloroethoxy)methane	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Bis(2-ethylhexyl)phthalate	µg/l	1.3	WFD 2015	<10	.	<10	<10	<10			<20	<10	<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10	<10	<10	<10
Butylbenzyl phthalate	µg/l	0.75	WFD 2015	<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Carbazole	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Dibenzofuran	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
n-Dibutylphthalate	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
n-Dioctylphthalate	µg/l	.		<10	.	<10	<10	<10			<10	<10	<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10	<10	<10	<10
n-Nitroso-n-dipropylamine	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Diethyl phthalate	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Dimethyl phthalate	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Hexachlorobenzene	µg/l	0.05	WFD 2015	<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Pentachlorophenol	µg/l	0.4	WFD 2015	<1	.	<1	<2	<1			<1	<1	<1	<2	<1			<1	<2	<1			<1	<2	<1			<1	<2	<1			<1	<1	<1	<1	<1	<1
Phenol	µg/l	7.7	WFD 2015	<1	.	<1	<1	<1			<1	<1	<1	<1	<1			13	<1	<1			3	2	1			<1	<1	<1			<1	<1	<1	<4	<1	<1
Hexachloroethane	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Nitrobenzene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Isophorone	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Hexachlorocyclopentadiene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Perylene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
VOC (w)																																						
Dichlorodifluoromethane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Chloromethane	µg/l	.		<10	<10	<10	<10	<10			<10	<10	<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10	<10	<10	<10
Vinyl Chloride	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Bromomethane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Chloroethane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
trans 1,2-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Dichloromethane	µg/l	20	WFD 2015	<5	<5	<5	<5	<5			<5	<5	<5	<5	<5			<5	<5	<5			<5	<5	<5			<5	<5	<5			<5	<5	<5	<5	<5	<5
Carbon Disulphide	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
cis 1,2-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Bromochloromethane	µg/l	.		<5	<5	<5	<5	<5			<5	<5	<5	<5	<5			<5	<5	<5			<5	<5	<5			<5	<5	<5			<5	<5	<5	<5	<5	<5
Chloroform	µg/l	2.5	WFD 2015	<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID	Units	WSP Groundwater Screen - Coastal EQS	Source of Screening Value	18/05033	18/07049	18/08232	18/08736/9	18/09217/3	18/09646/7	18/10170/7	18/05033	18/07049	18/08232	18/08736/8	18/09217/9	18/09646/6	18/10170/6	18/08232	18/08736/1	18/09217/1	18/09646/1	18/10170/1	18/08232	18/08736/3	18/09217/2	18/09646/2	18/10170/2	18/08232	18/08736/2	18/09217/4	18/09646/4	18/10170/4	18/04384	18/05033	18/05361	18/05864	18/06265	18/06637
Client Sample No				0622-7	0831-8	1005-8	1019-8	1102-8	1115-13	1115-13	0622-8	0831-6	1005-6	1019-6	1102-6	1115-10	1115-10	1005-11	1019-11	1102-11	1115-16	1115-16	1005-10	1019-10	1102-10	1115-15	1115-15	1005-9	1019-9	1102-9	1115-14	1115-14	0604-7	0622-9	0703-2	0720-8	0803-4	0817-4
Client Sample ID				BH12B	BH12B	BH12B	BH12B	BH12B	BH12B	BH12B	BH13	BH13	BH13	BH13	BH13	BH13	BH13	WS22	WS22	WS22	WS22	WS22	WS21	WS21	WS21	WS21	WS21	WS20	WS20	WS20	WS20	WS20	BH15	BH15	BH15	BH15	BH15	BH15
Depth to Top				1.78	1.70	1.76	1.71	1.74	1.73	1.83	1.75	1.61	1.73	1.66	1.75	1.73	1.87	0.95	0.94	0.90	0.93	0.95	1.19	1.29	1.20	1.1	1.17	1.22	1.23	1.23	1.26	1.23	1.35	1.42	1.40	1.44	1.43	2.10
Strata				Mc, Alluvium and	Made ground, alluvium	Made ground, alluvium	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	North Denes	North Denes	North Denes	North Denes	North Denes	North Denes
Date Sampled				21-Jun-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	21-Jun-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	01-Jun-18	21-Jun-18	03-Jul-18	19-Jul-18	02-Aug-18	16-Aug-18
Sample Type				Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water -	Water -	Water -	Water -	Water -
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1			<1	<1	1	<1	2			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2	<2			<2	<2	<2	<2	<2			<2	<2	<2			<2	<2	<2			<2	<2	<2			<2	<2	<2	<2	<2	<2
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/l	.		<2	<2	<2	<2	<2			<2	<2	<2	<2	<2			<2	<2	<2			<2	<2	<2			<2	<2	<2			<2	<2	<2	<2	<2	<2
1,2,4-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3	<3			<3	<3	<3	<3	<3			<3	<3	<3			<3	<3	<3			<3	<3	<3			<3	<3	<3	<3	<3	<3
1,2,3-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3	<3			<3	<3	<3	<3	<3			<3	<3	<3			<3	<3	<3			<3	<3	<3			<3	<3	<3	<3	<3	<3
Hexachlorobutadiene	µg/l	0.6	WFD 2015	<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
TPH CWG																																						
Ali >C5-C6 (w)	µg/l	.		<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C6-C8 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	.		<1	<1	<1	<1	<1	<5	<5	<1	<1	<1	<1	<1	<5	<5	1	7	2	<5	<5	<1	<1	<1	<5	<5	<1	<1	<1	<5	<5	<1	<1	<1	<1	<1	<1
Ali >C10-C12 (w)	µg/l	.		<5	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	78	17	<5	<5	9	<5	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	.		<5	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	20	<5	<5	<5	<5	6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	16	<5	<5	<5	<5	6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.		<5	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	35	<5	<5	<5	<5	10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.		<5	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	78	26	<5	<5	80	<5	<5	<5	<5	35	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l	8	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	74	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1	<1
Aro >C9-C10 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	<1	<5	<5	<1	1	<1	<1	<1	6	31	<1	<1	<1	<5	9	<1	<1	1	7	17	<1	<1	<1	<5	6	<1	<1	<1	<1	<1	<1
Aro >C10-C12 (w)	µg/l	2	CL:AIRE 2017	<5	.	<5	<5	<5	<5	<5	<5	6	<5	<5	<5	15	97	6	<5	<5	<5	5	10	17	20	51	52	5	<5	<5	6	5	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	2	CL:AIRE 2017	<5	.	<5	<5	<5	6	10	<5	<5	<5	<5	<5	17	61	<5	<5	<5	<5	11	14	34	53	121	163	10	<5	<5	32	27	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	0.1	CL:AIRE 2017	<5	.	<5	<5	<5	29	<5	<5	<5	<5	<5	<5	50	67	<5	<5	<5	<5	6	<5	8	14	71	110	<5	<5	<5	32	29	<5	<5	<5	<5	<5	<5
Aro >C21-C35 (w)	µg/l	0.00017	CL:AIRE 2017	<5	.	<5	<5	<5	<10	<10	<5	<5	<5	<5	<5	<10	23	<5	<5	<5	<10	16	<5	<5	<5	25	45	<5	<5	<5	<10	20	<5	<5	<5	<5	<5	<5
Total Aromatics (w)	µg/l	.		<5	.	<5	<5	<5	35	19	<5	7	<5	<5	<5	93	279	6	<5	<5	<10	47	24	59	89	275	388	15	<5	<5	80	87	<5	<5	<5	<5	<5	<5
TPH (Ali & Aro) (w)	µg/l	.		<5	.	<5	<5	<5	35	19	<5	7	<5	<5	<5	93	280	85	26	<5	<10	127	24	59	89	275	422	15	<5	<5	80	87	<5	<5	<5	<5	<5	<5
BTEX - Benzene (w)	µg/l	8	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	74	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	20	P2-115/TR4 2002	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID	Units	WSP Groundwater Screen - Coastal EQS	Source of Screening Value	18/07049	18/08232	18/08736/4	18/09217/5	18/09646/3	18/10170/3
Client Sample No				0831-4	1005-4	1019-4	1102-4	1115-8	1115-8
Client Sample ID				BH15	BH15	BH15	BH15	BH15	BH15
Depth to Top				1.56	1.36	1.34	1.38	1.21	1.36
Strata				North Denes	North Denes	North Denes	North Denes	North Denes	North Denes
Date Sampled				30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type				Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	.		8.08	8.16	7.88	7.81	8.19	8.4
Ammoniacal nitrogen (w)	mg/l	.		0.22	0.32	0.42	0.32	0.42	0.21
Sulphate (w)	mg/l	.		249	218	235	223		
Cyanide (free) (w)	mg/l	0.001	WFD 2015	<0.005	<0.005	<0.005	<0.005		
Cyanide (total) (w)	mg/l	0.001	WFD 2015	0.027	0.05	0.027	0.046		
Arsenic (dissolved)	µg/l	25	WFD 2015	63	68	68	71	75	69
Boron (dissolved)	µg/l	.		766	704	854	810	753	710
Cadmium (dissolved)	µg/l	0.2	WFD 2015	<0.2	<0.2	<0.2	<0.2	<0.08	<0.08
Copper (dissolved)	µg/l	3.76	WFD 2015	<1	<1	1	2	8	7
Chromium (dissolved)	µg/l	.		<1	<1	<1	<1	<1	<1
Chromium (hexavalent) (w)	mg/l	0.0006	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01		
Lead (dissolved)	µg/l	1.3	WFD 2015	<1	<1	<1	<1	<1	<1
Mercury (dissolved)	µg/l	0.07	WFD 2015	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	8.6	WFD 2015	1	<1	2	<1	<1	<1
Selenium (dissolved)	µg/l	.		<1	<1	<1	<1	<1	<1
Zinc (dissolved)	µg/l	6.8	WFD 2015	1	4	2	22	3	<1
PAH 16MS (w)									
Acenaphthene (w)	µg/l	.		0.13	0.15	0.14	0.17	0.15	0.14
Acenaphthylene (w)	µg/l	.		0.01	<0.01	<0.01	<0.01	<0.01	0.01
Anthracene (w)	µg/l	0.1	WFD 2015	0.02	0.02	0.01	0.03	0.02	0.02
Benzo(a)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Benzo(a)pyrene (w)	µg/l	0.00017	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)peryIene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Dibenzo(ah)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	0.0063	WFD 2015	0.04	0.03	0.02	0.04	0.03	0.03
Fluorene (w)	µg/l	.		0.02	0.01	<0.01	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	2	WFD 2015	<0.01	<0.01	<0.01	<0.01	0.02	0.03
Phenanthrene (w)	µg/l	.		0.07	0.06	0.05	0.07	0.06	0.05
Pyrene (w)	µg/l	.		0.05	0.04	0.03	0.05	0.04	0.04
Total PAH 16MS (w)	µg/l	.		0.34	0.31	0.25	0.36	0.32	0.34
SVOC (excluding PAH-16) (w)									
2,4,5-Trichlorophenol	µg/l	.		<1	<1	<1	<1		
2,4,6-Trichlorophenol	µg/l	.		<1	<1	<1	<1		
2,4-Dichlorophenol	µg/l	0.42	WFD 2015	<1	<1	<1	<1		
2,4-Dimethylphenol	µg/l	.		<1	<1	<1	<1		
2,4-Dinitrotoluene	µg/l	.		<1	<1	<1	<1		
2,6-Dinitrotoluene	µg/l	.		<1	<1	<1	<1		
2-Chloronaphthalene	µg/l	.		<1	<1	<1	<1		
2-Chlorophenol	µg/l	.		<1	<1	<1	<1		
2-Methylnaphthalene	µg/l	.		<1	<1	<1	<1		
2-Methylphenol	µg/l	.		<1	<1	<1	<1		
2-Nitrophenol	µg/l	.		<1	<1	<1	<1		
4-Bromophenyl phenyl ether	µg/l	.		<1	<1	<1	<1		
4-Chloro-3-methylphenol	µg/l	.		<1	<1	<1	<1		
Bis(2-chloroisopropyl)ether	µg/l	.		<1	<1	<1	<1		
4-Methylphenol	µg/l	.		<1	<1	<1	<1		
4-Nitrophenol	µg/l	.		<1	<1	<1	<1		
Bis(2-chloroethyl)ether	µg/l	.		<1	<1	<1	<1		
Bis(2-chloroethoxy)methane	µg/l	.		<1	<1	<1	<1		
Bis(2-ethylhexyl)phthalate	µg/l	1.3	WFD 2015	<10	<10	<10	<10		
Butylbenzyl phthalate	µg/l	0.75	WFD 2015	<1	<1	<1	<1		
Carbazole	µg/l	.		<1	<1	<1	<1		
Dibenzofuran	µg/l	.		<1	<1	<1	<1		
n-Dibutylphthalate	µg/l	.		<1	<1	<1	<1		
n-Dioctylphthalate	µg/l	.		<10	<10	<10	<10		
n-Nitroso-n-dipropylamine	µg/l	.		<1	<1	<1	<1		
Diethyl phthalate	µg/l	.		<1	<1	<1	<1		
Dimethyl phthalate	µg/l	.		<1	<1	<1	<1		
Hexachlorobenzene	µg/l	0.05	WFD 2015	<1	<1	<1	<1		
Pentachlorophenol	µg/l	0.4	WFD 2015	<1	<1	<1	<2		
Phenol	µg/l	7.7	WFD 2015	<1	<1	<1	<1		
Hexachloroethane	µg/l	.		<1	<1	<1	<1		
Nitrobenzene	µg/l	.		<1	<1	<1	<1		
Isophorone	µg/l	.		<1	<1	<1	<1		
Hexachlorocyclopentadiene	µg/l	.		<1	<1	<1	<1		
Perylene	µg/l	.		<1	<1	<1	<1		
VOC (w)									
Dichlorodifluoromethane	µg/l	.		<1	<1	<1	<1		
Chloromethane	µg/l	.		<10	<10	<10	<10		
Vinyl Chloride	µg/l	.		<1	<1	<1	<1		
Bromomethane	µg/l	.		<1	<1	<1	<1		
Chloroethane	µg/l	.		<1	<1	<1	<1		
Trichlorofluoromethane	µg/l	.		<1	<1	<1	<1		
trans 1,2-Dichloroethene	µg/l	.		<1	<1	<1	<1		
Dichloromethane	µg/l	20	WFD 2015	<5	<5	<5	<5		
Carbon Disulphide	µg/l	.		<1	<1	<1	<1		
1,1-Dichloroethene	µg/l	.		<1	<1	<1	<1		
1,1-Dichloroethane	µg/l	.		<1	<1	<1	<1		
cis 1,2-Dichloroethene	µg/l	.		<1	<1	<1	<1		
Bromochloromethane	µg/l	.		<5	<5	<5	<5		
Chloroform	µg/l	2.5	WFD 2015	<1	<1	<1	<1		
2,2-Dichloropropane	µg/l	.		<1	<1	<1	<1		
1,2-Dichloroethane	µg/l	10	WFD 2015	<2	<2	<2	<2		
1,1,1-Trichloroethane	µg/l	.		<1	<1	<1	<1		
1,1-Dichloropropene	µg/l	.		<1	<1	<1	<1		
Benzene	µg/l	8	WFD 2015	<1	<1	<1	<1		
Carbon Tetrachloride	µg/l	12	WFD 2015	<1	<1	<1	<1		
Dibromomethane	µg/l	.		<1	<1	<1	<1		
1,2-Dichloropropane	µg/l	.		<1	<1	<1	<1		
Bromodichloromethane	µg/l	.		<10	<10	<10	<10		
Trichloroethene	µg/l	10	WFD 2015	<1	<1	<1	<1		
cis 1,3-Dichloropropene	µg/l	.		<1	<1	<1	<1		
trans 1,3-Dichloropropene	µg/l	.		<1	<1	<1	<1		
1,1,2-Trichloroethane	µg/l	.		<1	<1	<1	<1		
Toluene	µg/l	74	WFD 2015	<1	<1	<1	<1		
1,3-Dichloropropane	µg/l	.		<1	<1	<1	<1		
Dibromochloromethane	µg/l	.		<3	<3	<3	<3		
1,2-Dibromoethane	µg/l	.		<1	<1	<1	<1		
Tetrachloroethene	µg/l	10	WFD 2015	<1	<1	<1	<1		
1,1,1,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1		
Chlorobenzene	µg/l	.		<1	<1	<1	<1		
Ethylbenzene	µg/l	20	P2-115/TR4 2002	<1	<1	<1	<1		
m & p Xylene	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1		
Bromoform	µg/l	.		<1	<1	<1	<1		
Styrene	µg/l	.		<1	<1	<1	<1		
1,1,2,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1		
o-Xylene	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1		
1,2,3-Trichloropropane	µg/l	.		<1	<1	<1	<1		
Isopropylbenzene	µg/l	.		<1	<1	<1	<1		
Bromobenzene	µg/l	.		<1	<1	<1	<1		
2-Chlorotoluene	µg/l	.		<1	<1	<1	<1		
n-propylbenzene	µg/l	.		<1	<1	<1	<1		
4-Chlorotoluene	µg/l	.		<1	<1	<1	<1		
1,2,4-Trimethylbenzene	µg/l	.		<1	<1	<1	<1		
4-Isopropyltoluene	µg/l	.		<1	<1	<1	<1		
1,3,5-Trimethylbenzene	µg/l	.		<1	<1	<1	<1		
1,2-Dichlorobenzene	µg/l	.		<1	<1	<1	<1		

GYTRC - groundwater - coastal EQS

Lab Sample ID	Units	WSP Groundwater Screen - Coastal EQS	Source of Screening Value	18/07049	18/08232	18/08736/4	18/09217/5	18/09646/3	18/10170/3
Client Sample No				0831-4	1005-4	1019-4	1102-4	1115-8	1115-8
Client Sample ID				BH15	BH15	BH15	BH15	BH15	BH15
Depth to Top				1.56	1.36	1.34	1.38	1.21	1.36
Strata				North Denes	North Denes	North Denes	North Denes	North Denes	North Denes
Date Sampled				30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type				Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	µg/l	.		<1	<1	<1	<1		
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1		
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2		
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1		
n-butylbenzene	µg/l	.		<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	µg/l	.		<2	<2	<2	<2		
1,2,4-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3		
1,2,3-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3		
Hexachlorobutadiene	µg/l	0.6	WFD 2015	<1	<1	<1	<1		
TPH CWG									
Ali >C5-C6 (w)	µg/l	.		<1	<1	<5	<1	<1	<1
Ali >C6-C8 (w)	µg/l	.		<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	.		<1	<1	<1	<1	<5	<5
Ali >C10-C12 (w)	µg/l	.		<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	.		<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.		<5	<5	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l	8	CL:AIRE 2017	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	74	CL:AIRE 2017	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1		
Aro >C9-C10 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	<5	<5
Aro >C10-C12 (w)	µg/l	2	CL:AIRE 2017	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	2	CL:AIRE 2017	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	0.1	CL:AIRE 2017	<5	<5	<5	<5	35	21
Aro >C21-C35 (w)	µg/l	0.00017	CL:AIRE 2017	<5	<5	<5	<5	<10	<10
Total Aromatics (w)	µg/l	.		<5	<5	<5	<5	35	21
TPH (Ali & Aro) (w)	µg/l	.		<5	<5	<5	<5	35	21
BTEX - Benzene (w)	µg/l	8	WFD 2015	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	74	WFD 2015	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	20	P2-115/TR4 2002	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	.		<1	<1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID				visit 1 - 1 June 2018					visit 2 - 21 June 2018								visit 3 - 3 July 2018							visit 4 - 19 July 2018					
				1	4	3	5	2	1	10	2	4	5	8	9	7	3	6	1	7	5	6	2	4	3	2	7	4	3	5	6
Client Sample No				0604-8	0604-10 Shallow	0604-11 Deep	0604-9	0604-7	0622-4	0622-5	0622-1	0622-Shallow	0623-3 Deep	0622-0	0622-6	0622-7	0622-9	0622-8	0703-3	0703-4	0703-6 Shallow	0703-5 Deep	0703-1	0703-7	0703-2	0720-4	0720-10	0720-6 Shallow	0720-7 Deep	0720-5	0720-9
Client Sample ID				BH6	BH4D	BH4D	BH4	BH15	BH6	BH10	BH4A	BH4D	BH4D	BH4	BH11	BH12B	BH15	BH13	BH10	BH6	BH4D	BH4D	BH11	BH4	BH15	BH6	BH10	BH4D	BH4D	BH4	BH11
Depth to Top				1.20	1.57	1.46	1.90	1.35	1.14	2.37	1.03	1.50	1.55	2.06	2.30	1.78	1.42	1.75	2.44	1.38	1.66	1.70	2.45	2.06	1.40	1.51	2.66	1.65	1.55	1.99	2.51
Depth to Bottom																															
Date Sampled				01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18
Sample Type				EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW
Sample Matrix Code	**Units**	**WSP Groundwater Screen - Coastal EQS**	**Source of Screening Value**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	.		7.74	7.91	7.9	8	8.28	7.61	8.57	8.36	8.02	7.81	7.87	7.88	8.1	8.17	8.49	8.31	7.83	7.98	7.91	8.47	8.04	8.31	7.42	7.9	7.03	7.41	7.34	7.82
Ammoniacal nitrogen (w)	mg/l	.		1.6	6.37	1.78	0.75	0.78	1.08	1.48	0.29	5.51	0.94	1.11	1.97	5.53	0.25	12.2	1.2	1.77	5.41	1.93	0.6	1.08	0.38	1.95	1.69	5.3	1.95	1.3	1.54
Sulphate (w)	mg/l	.		2380	513	1280	977	230	2640	43	282	580	1300	942	2720	102	249	134	41	2380	629	1320	352	1140	247	2530	40	618	1380	1220	2540
Cyanide (free) (w)	mg/l	0.001	WFD 2015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	0.006	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (total) (w)	mg/l	0.001	WFD 2015	<0.005	0.05	<0.005	<0.005	0.056	<0.005	<0.005	0.031	0.04	<0.005	<0.005	<0.005	0.025	0.053	0.016	<0.005	<0.005	0.048	<0.005	<0.005	<0.005	0.045	<0.005	<0.005	0.06	<0.005	<0.005	<0.005
Arsenic (dissolved)	µg/l	25	WFD 2015	19	6	11	5	57	21	5	4	13	10	<5	23	9	53	12	2	19	11	7	7	3	61	15	2	13	5	3	15
Boron (dissolved)	µg/l	.		4030	427	1800	475	793	3410	290	334	645	1720	771	4220	452	732	996	273	3350	578	2060	961	768	798	4050	308	546	1790	758	3490
Cadmium (dissolved)	µg/l	0.2	WFD 2015	<1.0	<0.2	<1.0	<0.4	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<2.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Copper (dissolved)	µg/l	3.76	WFD 2015	<5	<1	<5	<2	<1	<5	<1	3	<1	<5	<5	<10	3	<1	<1	2	<5	2	1	<1	1	1	1	3	7	2	1	3
Chromium (dissolved)	µg/l	.		<5	<1	<5	<2	<1	10	<1	<1	2	6	6	<10	<1	1	1	4	<5	<1	<1	<1	<1	<1	1	<1	<1	2	<1	1
Chromium (hexavalent) (w)	mg/l	0.0006	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (dissolved)	µg/l	1.3	WFD 2015	<5	<1	<5	<2	<1	<5	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Mercury (dissolved)	µg/l	0.07	WFD 2015	<0.5	<0.1	<0.5	<0.2	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.5	<1.0	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	8.6	WFD 2015	<5	2	<5	4	<1	<5	1	4	4	8	<5	<10	3	2	2	2	<5	4	4	2	4	2	3	1	3	5	4	2
Selenium (dissolved)	µg/l	.		<5	<1	<5	<2	<1	<5	<1	<1	<1	<5	<5	<10	1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (dissolved)	µg/l	6.8	WFD 2015	<5	6	<5	4	2	<5	<1	6	16	<5	<5	<10	8	<1	7	5	45	13	2	3	2	<1	4	5	6	10	5	8
PAH 16MS (w)																															
Acenaphthene (w)	µg/l	.		<0.01	0.09	<0.01	<0.01	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.1	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene (w)	µg/l	0.1	WFD 2015	0.02	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene (w)	µg/l	0.00017	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Dibenzo(ah)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	0.0063	WFD 2015	0.03	0.03	0.02	0.01	0.04	0.01	<0.01	<0.01	0.06	0.02	0.02	<0.01	0.02	0.05	<0.01	<0.01	0.01	0.01	0.01	<0.01	0.02	0.03	0.02	<0.01	0.03	0.01	<0.01	0.01
Fluorene (w)	µg/l	.		0.02	0.02	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	2	WFD 2015	0.02	<0.01	<0.01	<0.01	<0.01	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene (w)	µg/l	.		0.07	0.02	0.03	0.02	0.04	0.04	<0.01	<0.01	0.04	0.05	0.01	<0.01	<0.01	0.06	<0.01	<0.01	0.05	0.01	0.03	<0.01	<0.01	0.06	0.05	0.02	0.02	0.02	<0.01	<0.01
Pyrene (w)	µg/l	.		0.02	0.02	0.01	0.01	0.06	<0.01	<0.01	<0.01	0.05	0.02	0.02	<0.01	0.04	0.06	<0.01	<0.01	0.01	0.01	0.01	<0.01	0.02	0.04	0.02	<0.01	0.03	<0.01	<0.01	0.01
Total PAH 16MS (w)	µg/l	.		0.18	0.18	0.07	0.04	0.32	0.08	0.01	<0.01	0.3	0.1	0.11	<0.01	0.06	0.37	<0.01	0.03	0.11	0.03	0.05	<0.01	0.06	0.3	0.12	0.02	0.1	0.03	<0.01	0.02
SVOC (excluding PAH-16) (w)																															
2,4,5-Trichlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/l	0.42	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,6-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chloronaphthalene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylnaphthalene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Bromophenyl phenyl ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chloro-3-methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroisopropyl)ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethyl)ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethoxy)methane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-ethylhexyl)phthalate	µg/l	1.3	WFD 2015	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Butylbenzyl phthalate	µg/l	0.75	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbazole	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenzofuran	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
n-Dibutylphthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Dioctylphthalate	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
n-Nitroso-n-dipropylamine	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Diethyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dimethyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobenzene	µg/l	0.05	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Pentachlorophenol	µg/l	0.4	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phenol	µg/l	7.7	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<4	<4	<4	<4	<4	<4	<4	<1	<1	<1	<1	<1	<1
Hexachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nitrobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isophorone	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorocyclopentadiene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Perylene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
VOC (w)																															
Dichlorodifluoromethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,2-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichloromethane	µg/l	20	WFD 2015	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulphide	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis 1,2-Dichloroethene	µg/l	.		<1	<1	9	<1	<1	<1	<1	<1	2	12	<1	<1	<1	<1	<1	<1	<1	2	11	<1	<1	<1	<1	<1	2	8	<1	<1
Bromochloromethane	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	µg/l	2.5	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID	Units	WSP Groundwater Screen - Coastal EQS	Source of Screening Value	visit 1 - 1 June 2018					visit 2 - 21 June 2018										visit 3 - 3 July 2018							visit 4 - 19 July 2018					
				1	4	3	5	2	1	10	2	4	5	8	9	7	3	6	1	7	5	6	2	4	3	2	7	4	3	5	6
Client Sample No				0604-8	0604-10 Shallow	0604-11 Deep	0604-9	0604-7	0622-4	0622-5	0622-1	0622-Shallow	0623-3 Deep	0622-0	0622-6	0622-7	0622-9	0622-8	0703-3	0703-4	0703-6 Shallow	0703-5 Deep	0703-1	0703-7	0703-2	0720-4	0720-10	0720-6 Shallow	0720-7 Deep	0720-5	0720-9
Client Sample ID				BH6	BH4D	BH4D	BH4	BH15	BH6	BH10	BH4A	BH4D	BH4D	BH4	BH11	BH12B	BH15	BH13	BH10	BH6	BH4D	BH4D	BH11	BH4	BH15	BH6	BH10	BH4D	BH4D	BH4	BH11
Depth to Top				1.20	1.57	1.46	1.90	1.35	1.14	2.37	1.03	1.50	1.55	2.06	2.30	1.78	1.42	1.75	2.44	1.38	1.66	1.70	2.45	2.06	1.40	1.51	2.66	1.65	1.55	1.99	2.51
Depth to Bottom																														
Date Sampled				01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18
Sample Type				EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloroethane	µg/l	10	WFD 2015	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1,1-Trichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	µg/l	8	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	µg/l	12	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	µg/l	10	WFD 2015	<1	<1	14	<1	<1	<1	<1	<1	2	17	<1	<1	<1	<1	<1	<1	<1	3	20	<1	<1	<1	<1	<1	2	18	<1	<1
cis 1,3-Dichloropropene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,3-Dichloropropene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/l	74	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/l	.		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2-Dibromoethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/l	10	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/l	20	P2-115/TR4 2002	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m & p Xylene	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-propylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Isopropyltoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/l	.		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2,4-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2,3-Trichlorobenzene	µg/l	0.4	WFD 2015	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Hexachlorobutadiene	µg/l	0.6	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH CWG																														
Ali >C5-C6 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1
Ali >C6-C8 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C10-C12 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l	8	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	74	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C9-C10 (w)	µg/l	20	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C10-C12 (w)	µg/l	2	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	2	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	0.1	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C21-C35 (w)	µg/l	0.00017	CL:AIRE 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aromatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
TPH (Ali & Aro) (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
BTEX - Benzene (w)	µg/l	8	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	74	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	20	P2-115/TR4 2002	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	30	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID	Units	WSP Groundwater Screen - Coastal EQS		visit 5 - 2 August 2018							visit 6 - 16 August 2018							visit 7 - 30 August 2018									visit 8 - 4 October 2018					
			1	2	7	4	3	5	6	1	1	7	3	2	4	6	5	1	9	4	2	7	8	6	3	5	5	11	7	6	10	12
Client Sample No			0720-8	0803-0	0803-5	0803-2 Shallow	0803-3 Deep	0803-1	0803-6	0803-4	0817-0	0817-6	0817-2 shallow	0817-3 Deep	0817-1	0817-5	0817-4	0831-0	0831-7	0831-2 Shallow	0831-3 Deep	0831-1	0831-5	0831-8	0831-4	0831-6	1005-0	1005-7	1005-2 Shallow	1005-3 Deep	1005-1	1005-5
Client Sample ID			BH15	BH6	BH10	BH4D	BH4D	BH4	BH11	BH15	BH6	BH10	BH4D	BH4D	BH4	BH11	BH15	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11
Depth to Top			1.44							1.43	1.33	2.38	1.64	1.56	2.10	2.32	2.10	1.32	2.34	1.59	1.46	2.04	2.27	1.70	1.56	1.61	1.40	2.74	1.60	1.55	2.09	2.76
Depth to Bottom																															
Date Sampled			19-Jul-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18
Sample Type			EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW
Sample Matrix Code			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	.	7.86	7.67	8.46	7.87	7.84	7.88	7.9	8.2	7.26	8.03	7.08	7.4	7.28	7.6	8.18	7.3	8.18	7.37	7.61	7.67	7.73	8.6	8.08	8.23	7.6	8.28	7.73	7.69	7.68	7.78
Ammoniacal nitrogen (w)	mg/l	.	0.23	1.36	1	5.14	1.83	1.19	1.71	0.27	1.26	0.88	5.31	0.74	1.27	1.56	0.22	1.28	0.74	5.04	0.89	1.08	1.32	2.82	0.22	11.8	1.1	1.07	6.94	0.97	1.47	1.41
Sulphate (w)	mg/l	.	224	2480	42	631	1350	1180	2360	235	2380	45	618	1330	1160	2350	238	2400	40	627	1370	1180	2370	301	249	147	2380	40	644	1240	1100	2220
Cyanide (free) (w)	mg/l	0.001	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (total) (w)	mg/l	0.001	0.082	<0.005	<0.005	0.043	<0.005	<0.005	<0.005	0.048	<0.005	<0.005	<0.005	<0.005	0.063	<0.005	0.019	<0.005	<0.005	0.045	<0.005	<0.005	<0.005	0.026	0.027	0.019	<0.005	<0.005	0.041	<0.005	<0.005	<0.005
Arsenic (dissolved)	µg/l	25	58	13	2	11	6	3	3	57	14	3	10	5	2	8	62	15	3	7	5	2	7	7	63	17	17	2	4	8	<5	15
Boron (dissolved)	µg/l	.	660	1730	273	459	1710	793	4920	749	2080	288	635	1760	766	3900	780	1910	299	623	1680	714	3350	482	766	873	3870	244	591	1800	934	4040
Cadmium (dissolved)	µg/l	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.4	<0.2	<0.2	<0.4	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<1.0	<1.0
Copper (dissolved)	µg/l	3.76	2	9	10	9	7	8	9	8	6	7	5	5	5	5	5	<2	3	<1	<2	<1	<5	1	<1	1	<5	3	<1	<5	<5	<5
Chromium (dissolved)	µg/l	.	<1	3	<1	<1	2	1	2	<1	2	<1	<1	1	1	<5	<1	3	<1	<1	2	2	7	<1	<1	<1	<5	<1	<1	<5	<5	<5
Chromium (hexavalent) (w)	mg/l	0.0006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (dissolved)	µg/l	1.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<2	<1	<1	<2	<1	<5	<1	<1	<1	<5	<1	<1	<5	<5	<5
Mercury (dissolved)	µg/l	0.07	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	<0.1	<0.5
Nickel (dissolved)	µg/l	8.6	2	3	2	3	4	3	2	2	3	2	3	3	3	<5	2	<2	1	2	3	3	<5	4	1	4	<5	2	1	<5	<5	<5
Selenium (dissolved)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<2	<1	<1	<2	<1	<5	1	<1	<1	<5	<1	<1	<5	<5	<5
Zinc (dissolved)	µg/l	6.8	1	14	9	8	4	2	1	2	<1	4	6	3	1	<5	1	<2	5	3	21	1	35	2	1	<1	13	16	4	13	11	<5
PAH 16MS (w)																																
Acenaphthene (w)	µg/l	.	0.12	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.14	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	0.13	0.15	<0.01	<0.01	0.1	<0.01	<0.01	<0.01
Acenaphthylene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene (w)	µg/l	0.1	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01	0.04	0.02	0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene (w)	µg/l	0.00017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01	0.04	0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.04	0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.03	0.01	0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenzo(ah)anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	0.0063	0.04	<0.01	0.02	0.02	0.01	<0.01	<0.01	0.03	0.03	0.01	0.05	<0.01	0.06	0.05	0.03	<0.01	0.03	0.05	<0.01	0.03	<0.01	.	0.04	<0.01	0.02	0.01	0.04	0.01	<0.01	<0.01
Fluorene (w)	µg/l	.	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	0.02	0.08	<0.01	<0.01	0.02	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	2	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	.	<0.01	1.27	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene (w)	µg/l	.	0.05	0.06	0.02	0.02	0.01	<0.01	<0.01	0.07	0.05	<0.01	0.03	<0.01	0.03	0.03	0.06	0.03	<0.01	0.02	<0.01	0.01	<0.01	.	0.07	0.04	0.05	0.01	0.02	0.03	<0.01	<0.01
Pyrene (w)	µg/l	.	0.04	<0.01	0.02	0.02	<0.01	<0.01	<0.01	0.04	0.02	0.01	0.04	<0.01	0.05	0.04	0.03	<0.01	0.03	0.04	<0.01	0.03	<0.01	.	0.05	0.01	0.02	0.01	0.03	0.01	<0.01	<0.01
Total PAH 16MS (w)	µg/l	.	0.27	0.19	0.06	0.06	0.02	<0.01	<0.01	0.39	0.2	0.02	0.24	<0.01	0.36	0.17	0.31	0.05	0.06	0.22	<0.01	0.15	<0.01	.	0.34	1.57	0.1	0.03	0.21	0.05	<0.01	<0.01
SVOC (excluding PAH-16) (w)																																
2,4,5-Trichlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/l	0.42	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dinitrotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
2,6-Dinitrotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
2-Chloronaphthalene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylnaphthalene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
2-Nitrophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
4-Bromophenyl phenyl ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
4-Chloro-3-methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroisopropyl)ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
4-Methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
4-Nitrophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethyl)ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethoxy)methane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-ethylhexyl)phthalate	µg/l	1.3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	.	<10	<10	<10	<10	<10	<10	<10	<10
Butylbenzyl phthalate	µg/l	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Carbazole	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Dibenzofuran	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
n-Dibutylphthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
n-Dioctylphthalate	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	.	<10	<10	<10	<10	<10	<10	<10	<10
n-Nitroso-n-dipropylamine	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Diethyl phthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Dimethyl phthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobenzene	µg/l	0.05	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Pentachlorophenol	µg/l	0.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Phenol	µg/l	7.7	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Hexachloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Nitrobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Isophorone	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorocyclopentadiene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
Perylene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1
VOC (w)																																
Dichlorodifluoromethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,2-Dichloroethene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichloromethane	µg/l	20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulphide	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis 1,2-Dichloroethene	µg/l	.	<1	<1	<1	2	8	<1	<1	<1	<1	<1	1	4	<1	<1	<1	<1	<1	2	3	<1	<1	<1	<1	<1	<1	<1	2	4	<1	<1
Bromochloromethane	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	µg/l	2.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

				visit 5 - 2 August 2018							visit 6 - 16 August 2018							visit 7 - 30 August 2018									Visit 8 - 4 October 2018					
Lab Sample ID			1	2	7	4	3	5	6	1	1	7	3	2	4	6	5	1	9	4	2	7	8	6	3	5	5	11	7	6	10	12
Client Sample No			0720-8	0803-0	0803-5	0803-2 Shallow	0803-3 Deep	0803-1	0803-6	0803-4	0817-0	0817-6	0817-2 shallow	0817-3 Deep	0817-1	0817-5	0817-4	0831-0	0831-7	0831-2 Shallow	0831-3 Deep	0831-1	0831-5	0831-8	0831-4	0831-6	1005-0	1005-7	1005-2 Shallow	1005-3 Deep	1005-1	1005-5
Client Sample ID			BH15	BH6	BH10	BH4D	BH4D	BH4	BH11	BH15	BH6	BH10	BH4D	BH4D	BH4	BH11	BH15	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11
Depth to Top			1.44							1.43	1.33	2.38	1.64	1.56	2.10	2.32	2.10	1.32	2.34	1.59	1.46	2.04	2.27	1.70	1.56	1.61	1.40	2.74	1.60	1.55	2.09	2.76
Depth to Bottom																																
Date Sampled			19-Jul-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18
Sample Type			EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW
Sample Matrix Code			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloroethane	µg/l	10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1,1-Trichloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	µg/l	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	µg/l	12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	µg/l	10	<1	<1	<1	3	16	<1	<1	<1	<1	<1	2	8	<1	<1	<1	<1	<1	3	8	<1	<1	<1	<1	<1	<1	<1	2	5	<1	<1
cis 1,3-Dichloropropene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,3-Dichloropropene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/l	74	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/l	.	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2-Dibromoethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/l	10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m & p Xylene	µg/l	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/l	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-propylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chlorotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Isopropyltoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	µg/l	.	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,3-Dichlorobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-butylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/l	.	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2,4-Trichlorobenzene	µg/l	0.4	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2,3-Trichlorobenzene	µg/l	0.4	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Hexachlorobutadiene	µg/l	0.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH CWG																																
Ali >C5-C6 (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C6-C8 (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C10-C12 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	<5	<5	9	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	<5	<5	9	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	74	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C9-C10 (w)	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	7	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Aro >C10-C12 (w)	µg/l	2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	6	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	0.1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C21-C35 (w)	µg/l	0.00017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	<5	<5	<5	<5	<5	<5	<5
Total Aromatics (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	7	<5	<5	<5	<5	<5	<5
TPH (Ali & Aro) (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	<5	<5	<5	<5	<5	<5	.	<5	7	<5	9	<5	<5	<5	<5
BTEX - Benzene (w)	µg/l	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	74	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID			9	1	2	3	4	8																				
Client Sample No		WSP Groundwater Screen - Coastal EQS	1005-8	1005-11	1005-10	1005-9	1005-4	1005-6	Visit 9 -18 October 2018												Visit 10 -1 November 2018								
Client Sample ID			BH12B	WS22	WS21	WS20	BH15	BH13	18/08736/6	18/08736/12	18/08736/7	18/08736/5	18/08736/10	18/08736/11	18/08736/9	18/08736/1	18/08736/3	18/08736/2	18/08736/4	18/08736/8	18/09217/6	18/09217/11	18/09217/8	18/09217/7	18/09217/10	18/09217/12	18/09217/3	18/09217/1	18/09217/2
Depth to Top			1.76	0.95	1.19	1.22	1.36	1.73	1019-0	1019-7	1019-3 Shallow	1019-2 Deep	1019-1	1019-5	1019-8	1019-11	1019-10	1019-9	1019-4	1019-6	1102-0	1102-7	1102-2 Shallow	1102-3 Deep	1102-1	1102-5	1102-8	1102-11	1102-10
Depth to Bottom									BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21
Date Sampled			04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	1.46	2.61	1.52	1.39	2	2.6	1.71	0.94	1.29	1.23	1.34	1.66	1.42	2.75	1.60	1.50	2.10	2.76	1.74	0.90	1.20
Sample Type			EW	EW	EW	EW	EW	EW	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018
Sample Matrix Code	Units		N/A	N/A	N/A	N/A	N/A	N/A	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW
pH (w)	pH	.	8.08	8.78	10.34	8.46	8.16	8.47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ammoniacal nitrogen (w)	mg/l	.	4.96	11.9	12.2	12	0.32	9.9	7.13	7.61	6.56	6.86	6.82	7.43	7.72	7.92	11.09	8.14	7.88	7.88	6.92	7.45	6.48	6.74	6.65	7.21	7.64	7.69	11.56
Sulphate (w)	mg/l	.	479	62	62	62	218	84	1.27	0.72	4.45	1.92	1.15	1.46	3.7	1.21	6.03	6.52	0.42	12.6	1.87	1.21	0.95	1.15	1.43	1.58	4.66	2.5	2.73
Cyanide (free) (w)	mg/l	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	2360	42	726	1300	1190	2100	473	146	52	54	235	152	1830	44	678	1220	1120	1830	615	72	30
Cyanide (total) (w)	mg/l	0.001	0.026	0.048	0.05	0.05	0.05	0.018	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	0.009	<0.005	0.033	0.027	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	0.022	0.022
Arsenic (dissolved)	µg/l	25	6	18	18	18	68	14	<0.005	<0.005	0.036	<0.005	<0.005	<0.005	0.033	<0.005	0.231	0.227	0.027	0.022	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	0.031	0.044	0.043
Boron (dissolved)	µg/l	.	720	180	187	184	704	878	12	2	9	3	2	3	7	12	12	12	68	15	12	2	6	6	2	12	7	5	6
Cadmium (dissolved)	µg/l	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	2770	279	750	1770	901	4220	829	434	153	166	854	919	4380	272	2430	2060	859	667	1010	59	64
Copper (dissolved)	µg/l	3.76	2	2	2	2	<1	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chromium (dissolved)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	4	4	6	5	4	1	<1	3	9	4	3	1	2	5	6	5
Chromium (hexavalent) (w)	mg/l	0.0006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	3	<1	1	1	1	1	1	4	4
Chromium (trivalent) (w)	mg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (dissolved)	µg/l	1.3	<1	<1	<1	<1	<1	<1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury (dissolved)	µg/l	0.07	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	1	1
Nickel (dissolved)	µg/l	8.6	5	6	6	6	<1	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Selenium (dissolved)	µg/l	.	<1	2	1	1	<1	<1	2	1	3	3	4	2	6	6	4	4	2	2	2	1	3	2	4	3	6	3	3
Zinc (dissolved)	µg/l	6.8	5	7	2	2	4	4	<1	<1	<1	<1	<1	<1	<1	1	2	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1
									<1	6	10	15	4	11	10	10	1	2	2	3	3	26	6	6	4	3	9	3	4
PAH 16MS (w)																													
Acenaphthene (w)	µg/l	.	0.01	0.11	0.29	<0.01	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.24	<0.01	0.14	0.04	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.28
Acenaphthylene (w)	µg/l	.	<0.01	0.09	0.06	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03
Anthracene (w)	µg/l	0.1	<0.01	0.25	0.08	0.07	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.07	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07
Benzo(a)anthracene (w)	µg/l	.	<0.01	1.15	0.04	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	0.1	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03
Benzo(a)pyrene (w)	µg/l	0.00017	<0.01	1.87	0.03	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	0.1	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Benzo(b)fluoranthene (w)	µg/l	.	<0.01	1.88	0.04	0.18	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.09	0.13	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
Benzo(ghi)perylene (w)	µg/l	.	<0.01	1.39	0.02	0.33	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	0.07	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.	<0.01	0.73	0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.	<0.01	1.46	0.05	0.18	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.09	0.12	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
Dibenzo(ah)anthracene (w)	µg/l	.	<0.01	0.29	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	0.0063	0.07	2.33	0.17	0.3	0.03	<0.01	0.01	<0.01	0.02	<0.01	0.01	<0.01	0.07	0.2	0.25	0.04	0.02	<0.01	0.02	<0.01	0.02	0.01	<0.01	<0.01	0.1	0.02	0.16
Fluorene (w)	µg/l	.	0.01	0.22	0.27	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03	0.3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	0.38
Indeno(123-cd)pyrene (w)	µg/l	.	<0.01	1.46	0.03	0.21	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	0.09	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	2	0.07	0.23	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.29	0.03	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.09	0.03	0.11
Phenanthrene (w)	µg/l	.	<0.01	1.19	0.43	0.04	0.06	<0.01	0.03	0.02	0.01	<0.01	<0.01	<0.01	0.01	0.17	0.23	<0.01	0.05	<0.01	0.03	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	0.02	0.37
Pyrene (w)	µg/l	.	0.07	1.94	0.14	0.5	0.04	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	0.07	0.18	0.24	0.11	0.03	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.1	0.02	0.15
Total PAH 16MS (w)	µg/l	.	0.23	16.6	1.69	2.23	0.31	<0.01	0.04	0.02	0.07	<0.01	0.02	<0.01	0.48	1.14	2.03	0.5	0.25	0.04	0.08	<0.01	0.05	0.04	<0.01	<0.01	0.31	0.1	1.63
SVOC (excluding PAH-16) (w)																													
2,4,5-Trichlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/l	0.42	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dinitrotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,6-Dinitrotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chloronaphthalene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylnaphthalene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Nitrophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Bromophenyl phenyl ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chloro-3-methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroisopropyl)ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methylphenol	µg/l	.	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Nitrophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethyl)ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethoxy)methane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-ethylhexyl)phthalate	µg/l	1.3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Butylbenzyl phthalate	µg/l	0.75	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbazole	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenzofuran	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Dibutylphthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Dioctylphthalate	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
n-Nitroso-n-dipropylamine	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Diethyl phthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dimethyl phthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobenzene	µg/l	0.05	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Pentachlorophenol	µg/l	0.4	<1	<1	<1	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phenol	µg/l	7.7	<1	13	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1
Hexachloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nitrobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isophorone	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorocyclopentadiene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Perylene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
VOC (w)																													
Dichlorodifluoromethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,2-Dichloroethene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichloromethane	µg/l	20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulphide	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis 1,2-Dichloroethene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	<1	<1	<1	<1	<1
Bromochloromethane	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	µg/l	2.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID			9	1	2	3	4	8	Visit 9 -18 October 2018												Visit 10 -1 November 2018								
			18/08736/6	18/08736/12	18/08736/7	18/08736/5	18/08736/10	18/08736/11							18/08736/9	18/08736/1	18/08736/3	18/08736/2	18/08736/4	18/08736/8	18/09217/6	18/09217/11	18/09217/8	18/09217/7	18/09217/10	18/09217/12		18/09217/3	18/09217/1	18/09217/2
Client Sample No			1005-8	1005-11	1005-10	1005-9	1005-4	1005-6	1019-0	1019-7	1019-3 Shallow	1019-2 Deep	1019-1	1019-5	1019-8	1019-11	1019-10	1019-9	1019-4	1019-6	1102-0	1102-7	1102-2 Shallow	1102-3 Deep	1102-1	1102-5		1102-8	1102-11	1102-10
Client Sample ID			BH12B	WS22	WS21	WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11		BH12B	WS22	WS21
Depth to Top			1.76	0.95	1.19	1.22	1.36	1.73	1.46	2.61	1.52	1.39	2	2.6	1.71	0.94	1.29	1.23	1.34	1.66	1.42	2.75	1.60	1.50	2.10	2.76		1.74	0.90	1.20
Depth to Bottom																													
Date Sampled			04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018		01/11/2018	01/11/2018	01/11/2018
Sample Type			EW	EW	EW	EW	EW	EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		Water - EW	Water - EW	Water - EW
Sample Matrix Code			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A
1,2-Dichloroethane	µg/l	10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2
1,1,1-Trichloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,1-Dichloropropene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Benzene	µg/l	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Carbon Tetrachloride	µg/l	12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Dibromomethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,2-Dichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Bromodichloromethane	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10
Trichloroethene	µg/l	10	<1	<1	<1	<1	<1	<1	<1	<1	2	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4	<1	<1	<1		<1	<1	<1
cis 1,3-Dichloropropene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
trans 1,3-Dichloropropene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,1,2-Trichloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Toluene	µg/l	74	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,3-Dichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Dibromochloromethane	µg/l	.	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	<3	<3
1,2-Dibromoethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Tetrachloroethene	µg/l	10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,1,1,2-Tetrachloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Chlorobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Ethylbenzene	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
m & p Xylene	µg/l	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Bromoform	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Styrene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
o-Xylene	µg/l	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,2,3-Trichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Isopropylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Bromobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
2-Chlorotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
n-propylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
4-Chlorotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,2,4-Trimethylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
4-Isopropyltoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,3,5-Trimethylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,2-Dichlorobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,4-Dichlorobenzene	µg/l	.	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
sec-Butylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
tert-Butylbenzene	µg/l	.	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2
1,3-Dichlorobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
n-butylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/l	.	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2
1,2,4-Trichlorobenzene	µg/l	0.4	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	<3	<3
1,2,3-Trichlorobenzene	µg/l	0.4	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	<3	<3
Hexachlorobutadiene	µg/l	0.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
TPH CWG																													
Ali >C5-C6 (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<1	<1	<1	<1	<1		<1	<1	<1
Ali >C6-C8 (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Ali >C8-C10 (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	7	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	2	<1
Ali >C10-C12 (w)	µg/l	.	<5	78	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	17	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	<5
Ali >C12-C16 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	<5
Ali >C16-C21 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	<5
Ali >C21-C35 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	<5
Total Aliphatics (w)	µg/l	.	<5	78	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	26	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	<5
Aro >C5-C7 (w)	µg/l	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Aro >C7-C8 (w)	µg/l	74	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Aro >C8-C9 (w)	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
Aro >C9-C10 (w)	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	1
Aro >C10-C12 (w)	µg/l	2	<5	6	10	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	17	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	20
Aro >C12-C16 (w)	µg/l	2	<5	<5	14	10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	34	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	53
Aro >C16-C21 (w)	µg/l	0.1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	8	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	14
Aro >C21-C35 (w)	µg/l	0.00017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	<5
Total Aromatics (w)	µg/l	.	<5	6	24	15	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	59	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	89
TPH (Ali & Aro) (w)	µg/l	.	<5	85	24	15	<5	<5	<5	<5	<5	<5	<5	<5	<5	26	59	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	<5	89
BTEX - Benzene (w)	µg/l	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
BTEX - Toluene (w)	µg/l	74	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
BTEX - o Xylene (w)	µg/l	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1
MTBE (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID	Units	WSP Groundwater Screen - Coastal EQS	18/09217/4	18/09217/5	18/09217/9	18/09646/5	18/09646/11	18/09646/9	18/09646/10	18/09646/8	18/09646/12	18/09646/7	18/09646/1	18/09646/2	18/09646/4	18/09646/3	18/09646/6	18/10170/5	18/10170/11	18/10170/9	18/10170/10	18/10170/8	18/10170/12	18/10170/7	18/10170/1	18/10170/2	18/10170/4
Client Sample No			1102-9	1102-4	1102-6	1115-3	1115-12	1115-5 Shallow	1115-6 Deep	1115-4	1115-9	1115-13	1115-16	1115-15	1115-14	1115-8	1115-10	1115-3	1115-12	1115-5 Shallow	1115-6 Deep	1115-4	1115-9	1115-13	1115-16	1115-15	1115-14
Client Sample ID			WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20
Depth to Top			1.23	1.38	1.75	2.1	2.59	2.5	2.51	2.05	2.74	1.73	0.93	1.1	1.26	1.21	1.73	1.51	2.56	1.67	1.69	1.15	2.50	1.83	0.95	1.17	1.23
Depth to Bottom																											
Date Sampled			01/11/2018	01/11/2018	01/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018
Sample Type			Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	.	8.47	7.81	7.84	7.5	8.09	7.11	7.5	7.46	7.68	8.02	8.29	11.9	8.1	8.19	8.26	7.73	8.22	7.51	7.64	7.75	7.86	8.1	7.95	11.88	8.47
Ammoniacal nitrogen (w)	mg/l	.	2.48	0.32	9.27	1.05	1.16	5.14	0.84	1.39	1.77	5.52	2.64	1.86	1.44	0.42	12.9	1.37	0.79	4.82	1.82	1.22	1.39	3.69	5.7	6.09	6.16
Sulphate (w)	mg/l	.	33	223	82																						
Cyanide (free) (w)	mg/l	0.001	0.024	<0.005	<0.005																						
Cyanide (total) (w)	mg/l	0.001	0.043	0.046	0.02																						
Arsenic (dissolved)	µg/l	25	6	71	15	15	3	4	6	2	11	9	4	4	4	75	13	24	1	4	2	2	11	7	6	6	6
Boron (dissolved)	µg/l	.	58	810	751	4340	240	681	1910	888	4120	1020	57	61	76	753	1150	3690	230	571	1470	855	3990	767	72	66	75
Cadmium (dissolved)	µg/l	0.2	<0.2	<0.2	<0.2	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Copper (dissolved)	µg/l	3.76	6	2	2	7	7	6	74	7	7	8	13	14	13	8	14	7	6	5	4	12	5	12	19	21	21
Chromium (dissolved)	µg/l	.	4	<1	<1	1	<1	<1	<1	1	2	1	15	15	15	<1	<1	1	<1	<1	1	1	2	1	8	8	8
Chromium (hexavalent) (w)	mg/l	0.0006	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.	<0.01	<0.01	<0.01																						
Lead (dissolved)	µg/l	1.3	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	1
Mercury (dissolved)	µg/l	0.07	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	8.6	3	<1	2	2	1	3	3	4	3	6	2	2	2	<1	2	2	1	2	4	4	3	5	5	5	5
Selenium (dissolved)	µg/l	.	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	3	3	2
Zinc (dissolved)	µg/l	6.8	6	22	2	4	3	4	6	4	5	4	2	60	<1	3	6	4	32	7	29	6	6	6	1	1	2
PAH 16MS (w)																											
Acenaphthene (w)	µg/l	.	<0.01	0.17	<0.01	0.01	0.01	0.07	<0.01	<0.01	<0.01	0.01	0.01	0.05	<0.01	0.15	0.05	<0.01	0.01	0.02	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	0.02
Acenaphthylene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	0.06
Anthracene (w)	µg/l	0.1	0.03	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.03	0.02	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.02	<0.01	<0.01	0.06	0.24
Benzo(a)anthracene (w)	µg/l	.	0.02	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03	<0.01	<0.01	<0.01	<0.01	0.09	0.01	<0.01	<0.02	0.01	<0.01	0.09	0.26
Benzo(a)pyrene (w)	µg/l	0.00017	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	0.1	0.01	<0.01	<0.02	<0.01	<0.01	0.07	0.3
Benzo(b)fluoranthene (w)	µg/l	.	0.02	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.06	<0.01	<0.01	<0.01	<0.01	0.12	0.02	<0.01	<0.02	<0.01	<0.01	0.1	0.35
Benzo(ghi)perylene (w)	µg/l	.	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.02	<0.01	<0.01	0.04	0.59
Benzo(k)fluoranthene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.02	<0.01	<0.01	0.04	0.13
Chrysene (w)	µg/l	.	0.03	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.05	<0.01	<0.01	<0.01	<0.01	0.11	0.01	<0.01	<0.02	<0.01	<0.01	0.11	0.29
Dibenzo(ah)anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.02	<0.01	<0.01	0.02	0.07
Fluoranthene (w)	µg/l	0.0063	0.04	0.04	0.02	0.02	<0.01	0.04	<0.01	<0.01	<0.01	0.08	0.01	0.13	0.04	0.03	<0.01	0.02	<0.01	0.18	0.04	0.01	<0.02	0.07	<0.01	0.25	0.48
Fluorene (w)	µg/l	.	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.12	<0.01	<0.01	0.04	<0.01	<0.01	0.01	<0.01	<0.01	<0.02	0.01	<0.01	0.06	0.02
Indeno(123-cd)pyrene (w)	µg/l	.	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	<0.01	<0.02	<0.01	<0.01	0.05	0.47
Naphthalene (w)	µg/l	2	<0.01	<0.01	<0.01	0.03	0.03	0.02	<0.01	0.02	<0.01	0.12	<0.01	0.04	<0.01	0.02	<0.01	0.02	0.02	0.04	<0.01	0.01	<0.02	<0.01	<0.01	0.03	0.02
Phenanthrene (w)	µg/l	.	<0.01	0.07	<0.01	0.06	<0.01	0.02	0.03	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	0.06	<0.01	0.02	<0.01	0.06	0.02	<0.01	<0.02	<0.01	<0.01	0.04	0.16
Pyrene (w)	µg/l	.	0.1	0.05	0.04	0.02	<0.01	0.03	<0.01	<0.01	<0.01	0.07	0.01	0.13	0.1	0.04	<0.01	0.01	<0.01	0.15	0.03	0.01	<0.02	0.07	<0.01	0.23	0.58
Total PAH 16MS (w)	µg/l	.	0.32	0.36	0.11	0.16	0.04	0.22	0.03	0.02	<0.01	0.3	0.03	0.62	0.52	0.32	0.09	0.07	0.03	1.11	0.14	0.03	<0.02	0.16	<0.01	1.19	4.04
SVOC (excluding PAH-16) (w)																											
2,4,5-Trichlorophenol	µg/l	.	<1	<1	<1																						
2,4,6-Trichlorophenol	µg/l	.	<1	<1	<1																						
2,4-Dichlorophenol	µg/l	0.42	<1	<1	<1																						
2,4-Dimethylphenol	µg/l	.	<1	<1	<1																						
2,4-Dinitrotoluene	µg/l	.	<1	<1	<1																						
2,6-Dinitrotoluene	µg/l	.	<1	<1	<1																						
2-Chloronaphthalene	µg/l	.	<1	<1	<1																						
2-Chlorophenol	µg/l	.	<1	<1	<1																						
2-Methylnaphthalene	µg/l	.	<1	<1	<1																						
2-Methylphenol	µg/l	.	<1	<1	<1																						
2-Nitrophenol	µg/l	.	<1	<1	<1																						
4-Bromophenyl phenyl ether	µg/l	.	<1	<1	<1																						
4-Chloro-3-methylphenol	µg/l	.	<1	<1	<1																						
Bis(2-chloroisopropyl)ether	µg/l	.	<1	<1	<1																						
4-Methylphenol	µg/l	.	<1	<1	<1																						
4-Nitrophenol	µg/l	.	<1	<1	<1																						
Bis(2-chloroethyl)ether	µg/l	.	<1	<1	<1																						
Bis(2-chloroethoxy)methane	µg/l	.	<1	<1	<1																						
Bis(2-ethylhexyl)phthalate	µg/l	1.3	<10	<10	<10																						
Butylbenzyl phthalate	µg/l	0.75	<1	<1	<1																						
Carbazole	µg/l	.	<1	<1	<1																						
Dibenzofuran	µg/l	.	<1	<1	<1																						
n-Dibutylphthalate	µg/l	.	<1	<1	<1																						
n-Dioctylphthalate	µg/l	.	<10	<10	<10																						
n-Nitroso-n-dipropylamine	µg/l	.	<1	<1	<1																						
Diethyl phthalate	µg/l	.	<1	<1	<1																						
Dimethyl phthalate	µg/l	.	<1	<1	<1																						
Hexachlorobenzene	µg/l	0.05	<1	<1	<1																						
Pentachlorophenol	µg/l	0.4	<1	<1	<1																						
Phenol	µg/l	7.7	<1	<1	<1																						
Hexachloroethane	µg/l	.	<1	<1	<1																						
Nitrobenzene	µg/l	.	<1	<1	<1																						
Isophorone	µg/l	.	<1	<1	<1																						
Hexachlorocyclopentadiene	µg/l	.	<1	<1	<1																						
Perylene	µg/l	.	<1	<1	<1																						
VOC (w)																											
Dichlorodifluoromethane	µg/l	.	<1	<1	<1																						
Chloromethane	µg/l	.	<10	<10	<10																						
Vinyl Chloride	µg/l	.	<1	<1	<1																						
Bromomethane	µg/l	.	<1	<1	<1																						
Chloroethane	µg/l	.	<1	<1	<1																						
Trichlorofluoromethane	µg/l	.	<1	<1	<1																						
trans 1,2-Dichloroethene	µg/l	.	<1	<1	<1																						
Dichloromethane	µg/l	20	<5	<5	<5																						
Carbon Disulphide	µg/l	.	<1	<1	<1																						
1,1-Dichloroethene	µg/l	.	<1	<1	<1																						
1,1-Dichloroethane	µg/l	.	<1	<1	<1																						
cis 1,2-Dichloroethene	µg/l	.	<1	<1	<1																						
Bromochloromethane	µg/l	.	<5	<5	<5																						
Chloroform	µg/l	2.5	<1	<1	<1																						
2,2-Dichloropropane	µg/l	.	<1	<1	<1																						

Visit 11 -14 November 2018 Suite II batch 1

Visit 12 -29 November 2018 Suite II batch 2

GYTRC - groundwater - coastal EQS

Lab Sample ID	Units	WSP Groundwater Screen - Coastal EQS	18/09217/4	18/09217/5	18/09217/9	Visit 11 -14 November 2018 Suite II batch 1												Visit 12 -29 November 2018 Suite II batch 2											
						18/09646/5	18/09646/11	18/09646/9	18/09646/10	18/09646/8	18/09646/12	18/09646/7	18/09646/1	18/09646/2	18/09646/4	18/09646/3	18/09646/6	18/10170/5	18/10170/11	18/10170/9	18/10170/10	18/10170/8	18/10170/12	18/10170/7	18/10170/1	18/10170/2	18/10170/4
Client Sample No			1102-9	1102-4	1102-6	1115-3	1115-12	1115-5 Shallow	1115-6 Deep	1115-4	1115-9	1115-13	1115-16	1115-15	1115-14	1115-8	1115-10	1115-3	1115-12	1115-5 Shallow	1115-6 Deep	1115-4	1115-9	1115-13	1115-16	1115-15	1115-14
Client Sample ID			WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20
Depth to Top			1.23	1.38	1.75	2.1	2.59	2.5	2.51	2.05	2.74	1.73	0.93	1.1	1.26	1.21	1.73	1.51	2.56	1.67	1.69	1.15	2.50	1.83	0.95	1.17	1.23
Depth to Bottom																											
Date Sampled			01/11/2018	01/11/2018	01/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018
Sample Type			Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloroethane	µg/l	10	<2	<2	<2																						
1,1,1-Trichloroethane	µg/l	.	<1	<1	<1																						
1,1-Dichloropropene	µg/l	.	<1	<1	<1																						
Benzene	µg/l	8	<1	<1	<1																						
Carbon Tetrachloride	µg/l	12	<1	<1	<1																						
Dibromomethane	µg/l	.	<1	<1	<1																						
1,2-Dichloropropane	µg/l	.	<1	<1	<1																						
Bromodichloromethane	µg/l	.	<10	<10	<10																						
Trichloroethene	µg/l	10	<1	<1	<1																						
cis 1,3-Dichloropropene	µg/l	.	<1	<1	<1																						
trans 1,3-Dichloropropene	µg/l	.	<1	<1	<1																						
1,1,2-Trichloroethane	µg/l	.	<1	<1	1																						
Toluene	µg/l	74	<1	<1	<1																						
1,3-Dichloropropane	µg/l	.	<1	<1	<1																						
Dibromochloromethane	µg/l	.	<3	<3	<3																						
1,2-Dibromoethane	µg/l	.	<1	<1	<1																						
Tetrachloroethene	µg/l	10	<1	<1	<1																						
1,1,1,2-Tetrachloroethane	µg/l	.	<1	<1	<1																						
Chlorobenzene	µg/l	.	<1	<1	<1																						
Ethylbenzene	µg/l	20	<1	<1	<1																						
m & p Xylene	µg/l	30	<1	<1	<1																						
Bromoform	µg/l	.	<1	<1	<1																						
Styrene	µg/l	.	<1	<1	<1																						
1,1,2,2-Tetrachloroethane	µg/l	.	<1	<1	<1																						
o-Xylene	µg/l	30	<1	<1	<1																						
1,2,3-Trichloropropane	µg/l	.	<1	<1	<1																						
Isopropylbenzene	µg/l	.	<1	<1	<1																						
Bromobenzene	µg/l	.	<1	<1	<1																						
2-Chlorotoluene	µg/l	.	<1	<1	<1																						
n-propylbenzene	µg/l	.	<1	<1	<1																						
4-Chlorotoluene	µg/l	.	<1	<1	<1																						
1,2,4-Trimethylbenzene	µg/l	.	<1	<1	<1																						
4-Isopropyltoluene	µg/l	.	<1	<1	<1																						
1,3,5-Trimethylbenzene	µg/l	.	<1	<1	<1																						
1,2-Dichlorobenzene	µg/l	.	<1	<1	<1																						
1,4-Dichlorobenzene	µg/l	.	<1	<1	2																						
sec-Butylbenzene	µg/l	.	<1	<1	<1																						
tert-Butylbenzene	µg/l	.	<2	<2	<2																						
1,3-Dichlorobenzene	µg/l	.	<1	<1	<1																						
n-butylbenzene	µg/l	.	<1	<1	<1																						
1,2-Dibromo-3-chloropropane	µg/l	.	<2	<2	<2																						
1,2,4-Trichlorobenzene	µg/l	0.4	<3	<3	<3																						
1,2,3-Trichlorobenzene	µg/l	0.4	<3	<3	<3																						
Hexachlorobutadiene	µg/l	0.6	<1	<1	<1																						
TPH CWG																											
Ali >C5-C6 (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C6-C8 (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	.	<1	<1	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	<5
Ali >C10-C12 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	9	5	<5
Ali >C12-C16 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	20	6	<5
Ali >C16-C21 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	16	6	<5
Ali >C21-C35 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	35	10	<5
Total Aliphatics (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	80	35	<5
Aro >C5-C7 (w)	µg/l	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	74	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	20	<1	<1	<1																						
Aro >C9-C10 (w)	µg/l	20	<1	<1	<1	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	6	<5	<5	<5	<5	<5	<5	<5	9	17	6
Aro >C10-C12 (w)	µg/l	2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	6	<5	15	<5	<5	<5	<5	<5	<5	<5	5	52	5
Aro >C12-C16 (w)	µg/l	2	<5	<5	<5	<5	<5	<5	<5	<5	<5	6	<5	121	32	<5	17	<5	<5	<5	<5	<5	<5	10	11	163	27
Aro >C16-C21 (w)	µg/l	0.1	<5	<5	<5	16	35	30	22	22	15	29	<5	71	32	35	50	9	<5	17	39	14	12	<5	6	110	29
Aro >C21-C35 (w)	µg/l	0.00017	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10	25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	16	45	20
Total Aromatics (w)	µg/l	.	<5	<5	<5	16	35	30	22	22	15	35	<10	275	80	35	93	<10	<10	22	46	14	12	19	47	388	87
TPH (Ali & Aro) (w)	µg/l	.	<5	<5	<5	16	35	30	22	22	15	35	<10	275	80	35	93	<10	<10	22	46	14	12	19	127	422	87
BTEX - Benzene (w)	µg/l	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	74	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

GYTRC - groundwater - coastal EQS

Lab Sample ID	Units	WSP Groundwater Screen - Coastal EQS	18/10170/3	18/10170/6
Client Sample No			1115-8	1115-10
Client Sample ID			BH15	BH13
Depth to Top			1.36	1.87
Depth to Bottom				
Date Sampled			29/11/2018	29/11/2018
Sample Type			Water - EW	Water - EW
Sample Matrix Code			N/A	N/A
pH (w)	pH	.	8.4	8.53
Ammoniacal nitrogen (w)	mg/l	.	0.21	8.07
Sulphate (w)	mg/l	.		
Cyanide (free) (w)	mg/l	0.001		
Cyanide (total) (w)	mg/l	0.001		
Arsenic (dissolved)	µg/l	25	69	15
Boron (dissolved)	µg/l	.	710	680
Cadmium (dissolved)	µg/l	0.2	<0.08	<0.08
Copper (dissolved)	µg/l	3.76	7	7
Chromium (dissolved)	µg/l	.	<1	<1
Chromium (hexavalent) (w)	mg/l	0.0006	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.		
Lead (dissolved)	µg/l	1.3	<1	<1
Mercury (dissolved)	µg/l	0.07	<0.1	0.1
Nickel (dissolved)	µg/l	8.6	<1	2
Selenium (dissolved)	µg/l	.	<1	<1
Zinc (dissolved)	µg/l	6.8	<1	2
PAH 16MS (w)				
Acenaphthene (w)	µg/l	.	0.14	0.79
Acenaphthylene (w)	µg/l	.	0.01	0.07
Anthracene (w)	µg/l	0.1	0.02	0.04
Benzo(a)anthracene (w)	µg/l	.	0.01	<0.01
Benzo(a)pyrene (w)	µg/l	0.00017	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.	<0.01	<0.01
Chrysene (w)	µg/l	.	0.01	<0.01
Dibenzo(ah)anthracene (w)	µg/l	.	<0.01	<0.01
Fluoranthene (w)	µg/l	0.0063	0.03	0.01
Fluorene (w)	µg/l	.	<0.01	0.53
Indeno(123-cd)pyrene (w)	µg/l	.	<0.01	<0.01
Naphthalene (w)	µg/l	2	0.03	<0.01
Phenanthrene (w)	µg/l	.	0.05	0.22
Pyrene (w)	µg/l	.	0.04	<0.01
Total PAH 16MS (w)	µg/l	.	0.34	1.66
SVOC (excluding PAH-16) (w)				
2,4,5-Trichlorophenol	µg/l	.		
2,4,6-Trichlorophenol	µg/l	.		
2,4-Dichlorophenol	µg/l	0.42		
2,4-Dimethylphenol	µg/l	.		
2,4-Dinitrotoluene	µg/l	.		
2,6-Dinitrotoluene	µg/l	.		
2-Chloronaphthalene	µg/l	.		
2-Chlorophenol	µg/l	.		
2-Methylnaphthalene	µg/l	.		
2-Methylphenol	µg/l	.		
2-Nitrophenol	µg/l	.		
4-Bromophenyl phenyl ether	µg/l	.		
4-Chloro-3-methylphenol	µg/l	.		
Bis(2-chloroisopropyl)ether	µg/l	.		
4-Methylphenol	µg/l	.		
4-Nitrophenol	µg/l	.		
Bis(2-chloroethyl)ether	µg/l	.		
Bis(2-chloroethoxy)methane	µg/l	.		
Bis(2-ethylhexyl)phthalate	µg/l	1.3		
Butylbenzyl phthalate	µg/l	0.75		
Carbazole	µg/l	.		
Dibenzofuran	µg/l	.		
n-Dibutylphthalate	µg/l	.		
n-Dioctylphthalate	µg/l	.		
n-Nitroso-n-dipropylamine	µg/l	.		
Diethyl phthalate	µg/l	.		
Dimethyl phthalate	µg/l	.		
Hexachlorobenzene	µg/l	0.05		
Pentachlorophenol	µg/l	0.4		
Phenol	µg/l	7.7		
Hexachloroethane	µg/l	.		
Nitrobenzene	µg/l	.		
Isophorone	µg/l	.		
Hexachlorocyclopentadiene	µg/l	.		
Perylene	µg/l	.		
VOC (w)				
Dichlorodifluoromethane	µg/l	.		
Chloromethane	µg/l	.		
Vinyl Chloride	µg/l	.		
Bromomethane	µg/l	.		
Chloroethane	µg/l	.		
Trichlorofluoromethane	µg/l	.		
trans 1,2-Dichloroethene	µg/l	.		
Dichloromethane	µg/l	20		
Carbon Disulphide	µg/l	.		
1,1-Dichloroethene	µg/l	.		
1,1-Dichloroethane	µg/l	.		
cis 1,2-Dichloroethene	µg/l	.		
Bromochloromethane	µg/l	.		
Chloroform	µg/l	2.5		
2,2-Dichloropropane	µg/l	.		

GYTRC - groundwater - coastal EQS

Lab Sample ID	Units	WSP Groundwater Screen - Coastal EQS	18/10170/3	18/10170/6
Client Sample No			1115-8	1115-10
Client Sample ID			BH15	BH13
Depth to Top			1.36	1.87
Depth to Bottom				
Date Sampled			29/11/2018	29/11/2018
Sample Type			Water - EW	Water - EW
Sample Matrix Code			N/A	N/A
1,2-Dichloroethane	µg/l	10		
1,1,1-Trichloroethane	µg/l	.		
1,1-Dichloropropene	µg/l	.		
Benzene	µg/l	8		
Carbon Tetrachloride	µg/l	12		
Dibromomethane	µg/l	.		
1,2-Dichloropropane	µg/l	.		
Bromodichloromethane	µg/l	.		
Trichloroethene	µg/l	10		
cis 1,3-Dichloropropene	µg/l	.		
trans 1,3-Dichloropropene	µg/l	.		
1,1,2-Trichloroethane	µg/l	.		
Toluene	µg/l	74		
1,3-Dichloropropane	µg/l	.		
Dibromochloromethane	µg/l	.		
1,2-Dibromoethane	µg/l	.		
Tetrachloroethene	µg/l	10		
1,1,1,2-Tetrachloroethane	µg/l	.		
Chlorobenzene	µg/l	.		
Ethylbenzene	µg/l	20		
m & p Xylene	µg/l	30		
Bromoform	µg/l	.		
Styrene	µg/l	.		
1,1,2,2-Tetrachloroethane	µg/l	.		
o-Xylene	µg/l	30		
1,2,3-Trichloropropane	µg/l	.		
Isopropylbenzene	µg/l	.		
Bromobenzene	µg/l	.		
2-Chlorotoluene	µg/l	.		
n-propylbenzene	µg/l	.		
4-Chlorotoluene	µg/l	.		
1,2,4-Trimethylbenzene	µg/l	.		
4-Isopropyltoluene	µg/l	.		
1,3,5-Trimethylbenzene	µg/l	.		
1,2-Dichlorobenzene	µg/l	.		
1,4-Dichlorobenzene	µg/l	.		
sec-Butylbenzene	µg/l	.		
tert-Butylbenzene	µg/l	.		
1,3-Dichlorobenzene	µg/l	.		
n-butylbenzene	µg/l	.		
1,2-Dibromo-3-chloropropane	µg/l	.		
1,2,4-Trichlorobenzene	µg/l	0.4		
1,2,3-Trichlorobenzene	µg/l	0.4		
Hexachlorobutadiene	µg/l	0.6		
TPH CWG				
Ali >C5-C6 (w)	µg/l	.	<1	<1
Ali >C6-C8 (w)	µg/l	.	<1	1
Ali >C8-C10 (w)	µg/l	.	<5	<5
Ali >C10-C12 (w)	µg/l	.	<5	<5
Ali >C12-C16 (w)	µg/l	.	<5	<5
Ali >C16-C21 (w)	µg/l	.	<5	<5
Ali >C21-C35 (w)	µg/l	.	<5	<5
Total Aliphatics (w)	µg/l	.	<5	<5
Aro >C5-C7 (w)	µg/l	8	<1	<1
Aro >C7-C8 (w)	µg/l	74	<1	<1
Aro >C8-C9 (w)	µg/l	20		
Aro >C9-C10 (w)	µg/l	20	<5	31
Aro >C10-C12 (w)	µg/l	2	<5	97
Aro >C12-C16 (w)	µg/l	2	<5	61
Aro >C16-C21 (w)	µg/l	0.1	21	67
Aro >C21-C35 (w)	µg/l	0.00017	<10	23
Total Aromatics (w)	µg/l	.	21	279
TPH (Ali & Aro) (w)	µg/l	.	21	280
BTEX - Benzene (w)	µg/l	8	<1	<1
BTEX - Toluene (w)	µg/l	74	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	20	<1	<1
BTEX - m & p Xylene (w)	µg/l	30	<1	<1
BTEX - o Xylene (w)	µg/l	30	<1	1
MTBE (w)	µg/l	.	<1	<1

GYTRC - Groundwater - DWS

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GYTRC - Groundwater - DWS

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GYTRC - Groundwater - DWS

Lab Sample ID				18/05361	18/05864	18/06265	18/06637	18/07049	18/08232	18/08736/10	18/09217/10	18/09646/8	18/10170/8
Client Sample No				0703-7	0720-5	0803-1	0817-1	0831-1	1005-1	1019-1	1102-1	1115-4	1115-4
Client Sample ID				BH4	BH4	BH4	BH4	BH4	BH4	BH4	BH4	BH4	BH4
Depth				2.06	1.99		2.10	2.04	2.09	2	2.10	2.05	1.15
Strata				Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag
Date Sampled				03-Jul-18	19-Jul-18	02-Aug-18	16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type				Water -	Water -	Water -	Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code	Units	Groundwater Screening - DWS	Source of Screening Value	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	<6.5 >10	UK DWS	8.04	7.34	7.88	7.28	7.67	7.68	6.82	6.65	7.46	7.75
Ammoniacal nitrogen (w)	mg/l	0.389	UK DWS	1.08	1.3	1.19	1.27	1.08	1.47	1.15	1.43	1.39	1.22
Sulphate (w)	mg/l	250	UK DWS	1140	1220	1180	1160	1180	1100	1190	1120		
Cyanide (free) (w)	mg/l	0.005	UK DWS	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Cyanide (total) (w)	mg/l	0.005	UK DWS	<0.005	<0.005	<0.005	0.063	<0.005	<0.005	<0.005	<0.005		
Arsenic (dissolved)	µg/l	10	UK DWS	3	3	3	2	2	<5	2	2	2	2
Boron (dissolved)	µg/l	1000	UK DWS	768	758	793	766	714	934	901	859	888	855
Cadmium (dissolved)	µg/l	5	UK DWS	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.08	<0.08
Copper (dissolved)	µg/l	2000	UK DWS	1	1	8	5	<1	<5	<1	1	7	12
Chromium (dissolved)	µg/l	50	UK DWS	<1	<1	1	1	2	<5	<1	1	1	1
Chromium (hexavalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Lead (dissolved)	µg/l	10	UK DWS	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1
Mercury (dissolved)	µg/l	1	UK DWS	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	20	UK DWS	4	4	3	3	3	<5	4	4	4	4
Selenium (dissolved)	µg/l	10	UK DWS	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1
Zinc (dissolved)	µg/l	.		2	5	2	1	1	11	4	4	4	6
PAH 16MS (w)													
Acenaphthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	0.04	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene (w)	µg/l	0.01	UK DWS	<0.01	<0.01	<0.01	0.04	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.		0.01	<0.01	<0.01	0.04	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.		<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.		0.01	<0.01	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenzo(ah)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	.		0.02	<0.01	<0.01	0.06	0.03	<0.01	0.01	<0.01	<0.01	0.01
Fluorene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene (w)	µg/l	.		<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01
Phenanthrene (w)	µg/l	.		<0.01	<0.01	<0.01	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene (w)	µg/l	.		0.02	<0.01	<0.01	0.05	0.03	<0.01	0.01	<0.01	<0.01	0.01
Total PAH 16MS (w)	µg/l	.		0.06	<0.01	<0.01	0.36	0.15	<0.01	0.02	<0.01	0.02	0.03
PAH (sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123cd)pyrene & benzo(ghi)perylene	µg/l	0.1	UK DWS	<0.01	<0.01	<0.01	0.11	0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Envirolab Combined VOC + SVOC (excl PAHs) (w)													
SVOC (excluding PAH-16) (w)													
2,4,5-Trichlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
2,4,6-Trichlorophenol	µg/l	200	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
2,4-Dichlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
2,4-Dimethylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
2,4-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
2,6-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
2-Chloronaphthalene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
2-Chlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
2-Methylnaphthalene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
2-Methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
2-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
4-Bromophenyl phenyl ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
4-Chloro-3-methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-chloroisopropyl)ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
4-Methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
4-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-chloroethyl)ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-chloroethoxy)methane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-ethylhexyl)phthalate	µg/l	8	WHO DWG 2017	<10	<10	<10	<10	<10	<10	<10	<10		
Butylbenzyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Carbazole	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Dibenzofuran	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
n-Dibutylphthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
n-Dioctylphthalate	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10		
n-Nitroso-n-dipropylamine	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Diethyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Dimethyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Hexachlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Pentachlorophenol	µg/l	9	WHO DWG 2017	<1	<1	<1	<1	<1	<2	<1			
Phenol	µg/l	.		<4	<1	<1	<1	<1	<1	<1	<1		
Hexachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Nitrobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Isophorone	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Hexachlorocyclopentadiene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Perylene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
VOC (w)													
Dichlorodifluoromethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Chloromethane	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10		
Vinyl Chloride	µg/l	0.5	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1		
Bromomethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Chloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Trichlorofluoromethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
trans 1,2-Dichloroethene	µg/l	50	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
Dichloromethane	µg/l	20	WHO DWG 2017	<5	<5	<5	<5	<5	<5	<5	<5		
Carbon Disulphide	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
1,1-Dichloroethene	µg/l	140	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
1,1-Dichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
cis 1,2-Dichloroethene	µg/l	50	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
Bromochloromethane	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5		
Chloroform	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
2,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dichloroethane	µg/l	3	UK DWS	<2	<2	<2	<2	<2	<2	<2	<2		
1,1,1-Trichloroethane	µg/l	2000	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
1,1-Dichloropropene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
Benzene	µg/l	1	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1		
Carbon Tetrachloride	µg/l	3	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1		
Dibromomethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dichloropropane	µg/l	40	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
Bromodichloromethane	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10		
Trichloroethene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
cis 1,3-Dichloropropene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
trans 1,3-Dichloropropene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
1,1,2-Trichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Toluene	µg/l	700	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
1,3-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Dibromochloromethane	µg/l	100	WHO DWG 2017	<3	<3	<3	<3	<3	<3	<3	<3		
1,2-Dibromoethane	µg/l	0.4	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
Tetrachloroethene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
1,1,1,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Chlorobenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
Ethylbenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
m & p Xylene	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
Bromoform	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Styrene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
1,1,2,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
o-Xylene	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
1,2,3-Trichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Isopropylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
Bromobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		

visit 3 - 3 July 2018

Lab Sample ID	18/05033	18/05361	18/05864	18/06265	18/06637	18/07049	18/08232	18/08736/12	18/09217/11	18/09646/11	18/10170/11
Client Sample No	0622-5	0703-3	0720-10	0803-5	0817-6	0831-7	1005-7	1019-7	1102-7	1115-12	1115-12
Client Sample ID	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10
Depth	2.37	2.44	2.66		2.38	2.34	2.74	2.61	2.75	2.59	2.56
Strata	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium
Date Sampled	21-Jun-18	03-Jul-18	19-Jul-18	02-Aug-18	16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Water -	Water -	Water -	Water -	Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	8.57	8.31	7.9	8.46	8.03	8.18	8.28	7.61	7.45	8.09	8.22
Ammoniacal nitrogen (w)	1.48	1.2	1.69	1	0.88	0.74	1.07	0.72	1.21	1.16	0.79
Sulphate (w)	43	41	40	42	45	40	40	42	44		
Cyanide (free) (w)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Cyanide (total) (w)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Arsenic (dissolved)	5	2	2	2	3	3	2	2	2	3	1
Boron (dissolved)	290	273	308	273	288	299	244	279	272	240	230
Cadmium (dissolved)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.08	<0.08
Copper (dissolved)	<1	2	3	10	7	3	3	2	9	7	6
Chromium (dissolved)	<1	4	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (dissolved)	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
Mercury (dissolved)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	1	2	1	2	2	1	2	1	1	1	1
Selenium (dissolved)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (dissolved)	<1	5	5	9	4	5	16	6	26	3	32
PAH 16MS (w)											
Acenaphthene (w)	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01
Acenaphthylene (w)	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)perylene (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenzo(ah)anthracene (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	<0.01	<0.01	<0.01	0.02	0.01	0.03	0.01	<0.01	<0.01	<0.01	<0.01
Fluorene (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.02
Phenanthrene (w)	<0.01	<0.01	0.02	0.02	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01
Pyrene (w)	<0.01	<0.01	<0.01	0.02	0.01	0.03	0.01	<0.01	<0.01	<0.01	<0.01
Total PAH 16MS (w)	0.01	0.03	0.02	0.06	0.02	0.06	0.03	0.02	<0.01	0.04	0.03
PAH (sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123cd)pyrene & benzo(ghi)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Envirolab Combined VOC + SVOC (excl PAHs) (w)											
SVOC (excluding PAH-16) (w)											
2,4,5-Trichlorophenol	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,4,6-Trichlorophenol	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,4-Dichlorophenol	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,4-Dimethylphenol	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,4-Dinitrotoluene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,6-Dinitrotoluene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Chloronaphthalene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Chlorophenol	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Methylnaphthalene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Methylphenol	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2-Nitrophenol	<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Bromophenyl phenyl ether	<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Chloro-3-methylphenol	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-chloroisopropyl)ether	<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Methylphenol	<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Nitrophenol	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-chloroethyl)ether	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-chloroethoxy)methane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bis(2-ethylhexyl)phthalate	<10	<10	<10	<10	<10	<10	<10	<10	<10		
Butylbenzyl phthalate	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Carbazole	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Dibenzofuran	<1	<1	<1	<1	<1	<1	<1	<1	<1		
n-Dibutylphthalate	<1	<1	<1	<1	<1	<1	<1	<1	<1		
n-Dioctylphthalate	<10	<10	<10	<10	<10	<10	<10	<10	<10		
n-Nitroso-n-dipropylamine	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Diethyl phthalate	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Dimethyl phthalate	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Hexachlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Pentachlorophenol	<1	<1	<1	<1	<1	<1	<1	<2	<1		
Phenol	<1	<4	<1	<1	<1	<1	<1	<1	<1		
Hexachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Nitrobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Isophorone	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Hexachlorocyclopentadiene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Perylene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
VOC (w)											
Dichlorodifluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Chloromethane	<10	<10	<10	<10	<10	<10	<10	<10	<10		
Vinyl Chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
trans 1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Dichloromethane	<5	<5	<5	<5	<5	<5	<5	<5	<5		
Carbon Disulphide	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
cis 1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5	<5		
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1		
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dichloroethane	<2	<2	<2	<2	<2	<2	<2	<2	<2		
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Carbon Tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bromodichloromethane	<10	<10	<10	<10	<10	<10	<10	<10	<10		
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
cis 1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
trans 1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,3-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Dibromochloromethane	<3	<3	<3	<3	<3	<3	<3	<3	<3		
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
m & p Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Isopropylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Bromobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1		

Lab Sample ID	18/05033	18/05361	18/05864	18/06265	18/06637	18/07049	18/08232	18/08736/11	18/09217/12	18/09646/12	18/10170/12
Client Sample No	0622-1	0622-6	0703-1	0720-9	0803-6	0817-5	0831-5

GYTRC - Groundwater - DWS

Lab Sample ID				18/05361	18/05864	18/06265	18/06637	18/07049	18/08232	18/08736/10	18/09217/10	18/09646/8	18/10170/8
Client Sample No				0703-7	0720-5	0803-1	0817-1	0831-1	1005-1	1019-1	1102-1	1115-4	1115-4
Client Sample ID				BH4	BH4	BH4	BH4	BH4	BH4	BH4	BH4	BH4	BH4
Depth				2.06	1.99		2.10	2.04	2.09	2	2.10	2.05	1.15
Strata				Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag
Date Sampled				03-Jul-18	19-Jul-18	02-Aug-18	16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Units	Groundwater Screening - DWS	Source of Screening Value	Water -	Water -	Water -	Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
n-propylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
4-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
1,2,4-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
4-Isopropyltoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
1,3,5-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dichlorobenzene	µg/l	1000	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
1,4-Dichlorobenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2	<2	<2	<2	<2		
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	µg/l	1	WHO DWG 2017	<2	<2	<2	<2	<2	<2	<2	<2		
1,2,4-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3	<3	<3	<3		
1,2,3-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3	<3	<3	<3		
Hexachlorobutadiene	µg/l	0.6	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1		
TPH CWG													
Ali >C5-O6 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1
Ali >O6-C8 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5
Ali >C10-C12 (w)	µg/l	300	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	300	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	700	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1		
Aro >C9-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5
Aro >C10-C12 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	22	14
Aro >C21-C35 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10
Total Aromatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	22	14
TPH (Ali & Aro) (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	22	14
BTEX - Benzene (w)	µg/l	1	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	700	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	15	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

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Lab Sample ID				18/05033	18/05361	18/05864	18/06265	18/06637	18/07049	18/08232	18/08736/12	18/09217/11	18/09646/11	18/10170/11
Client Sample No				0622-5	0703-3	0720-10	0803-5	0817-6	0831-7	1005-7	1019-7	1102-7	1115-12	1115-12
Client Sample ID				BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10
Depth				2.37	2.44	2.66		2.38	2.34	2.74	2.61	2.75	2.59	2.56
Strata				MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium	MG and Alluvium
Date Sampled				21-Jun-18	03-Jul-18	19-Jul-18	02-Aug-18	16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Units	Groundwater Screening - DWS	Source of Screening Value	Water -	Water -	Water -	Water -	Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
n-propylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2,4-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Isopropyltoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,3,5-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dichlorobenzene	µg/l	1000	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,4-Dichlorobenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2	<2	<2	<2	<2	<2		
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	µg/l	1	WHO DWG 2017	<2	<2	<2	<2	<2	<2	<2	<2	<2		
1,2,4-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3	<3	<3	<3	<3		
1,2,3-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3	<3	<3	<3	<3		
Hexachlorobutadiene	µg/l	0.6	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		
TPH CWG														
Ali >C5-O6 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1
Ali >O6-C8 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5
Ali >C10-C12 (w)	µg/l	300	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	300	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	9	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	9	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	700	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Aro >C9-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5
Aro >C10-C12 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	35	<5
Aro >C21-C35 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10
Total Aromatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	35	<10
TPH (Ali & Aro) (w)	µg/l	.		<5	<5	<5	<5	<5	<5	9	<5	<5	35	<10
BTEX - Benzene (w)	µg/l	1	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	700	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	15	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Lab Sample ID				18/05033	18/05361	18/05864	18/06265	18/06637	18/07049	18/08232	18/08736/11	18/09217/12	18/09646/12	18/10170/12
Client Sample No				0622-6	0703-1	0720-9	0803-6	0817-5	0831-5	1005-5	1019-5	1102-5	1115-9	1115-9
Client Sample ID				BH11	BH11	BH11	BH11	BH11	BH11	BH11	BH11	BH11	BH11	BH11
Depth				2.30	2.45	2.51	2.32	2.27	2.76	2.6	2.76	2.74	2.50	
Strata				Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag	Breydon, North Denes and Crag
Date Sampled				21-Jun-18	03-Jul-18	19-Jul-18	02-Aug-18	16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Units	Groundwater Screening - DWS	Source of Screening Value	Water -	Water -	Water -	Water -	Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
n-propylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2,4-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
4-Isopropyltoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,3,5-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dichlorobenzene	µg/l	1000	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,4-Dichlorobenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2	<2	<2	<2	<2	<2		
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	µg/l	1	WHO DWG 2017	<2	<2	<2	<2	<2	<2	<2	<2	<2		
1,2,4-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3	<3	<3	<3	<3		
1,2,3-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3	<3	<3	<3	<3		
Hexachlorobutadiene	µg/l	0.6	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		
TPH CWG														
Ali >C5-O6 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	
Ali >O6-C8 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Ali >C8-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	
Ali >C10-C12 (w)	µg/l	300	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Ali >C12-C16 (w)	µg/l	300	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Ali >C16-C21 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Ali >C21-C35 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Total Aliphatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Aro >C5-C7 (w)	µg/l			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Aro >C7-C8 (w)	µg/l	700	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Aro >C8-C9 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Aro >C9-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	
Aro >C10-C12 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Aro >C12-C16 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Aro >C16-C21 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	15	
Aro >C21-C35 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	
Total Aromatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	15	
TPH (Ali & Aro) (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	15	
BTEX - Benzene (w)	µg/l	1	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
BTEX - Toluene (w)	µg/l	700	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
BTEX - Ethyl Benzene (w)	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
BTEX - m & p Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
BTEX - o Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
MTBE (w)	µg/l	15	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	

GYTRC - Groundwater - DWS

Lab Sample ID				18/05033	18/07049/6	18/08232	18/08736/9	18/09217/3	18/09646/7	18/10170/7	18/05033	18/07049	18/08232	18/08736/8	18/09217/9	18/09646/6	18/10170/6	18/08232	18/08736/3	18/09217/1	18/09646/1	18/10170/1	18/08232	18/08736/3	18/09217/2	18/09646/2	18/10170/2	18/08232	18/08736/2	18/09217/4	18/09646/4	18/10170/4	18/04384	18/05033	18/05361	18/05864	18/06265
Client Sample No				0622-7	0831-8	1005-8	1019-8	1102-8	1115-13	1115-13	0622-8	0831-6	1005-6	1019-6	1102-6	1115-10	1115-10	1005-11	1019-11	1102-11	1115-16	1115-16	1005-10	1019-10	1102-10	1115-15	1115-15	1005-9	1019-9	1102-9	1115-14	1115-14	0604-7	0622-9	0703-2	0720-8	0803-4
Client Sample ID				BH12B	BH12B	BH12B	BH12B	BH12B	BH12B	BH12B	BH13	BH13	BH13	BH13	BH13	BH13	BH13	WS22	WS22	WS22	WS22	WS22	WS21	WS21	WS21	WS21	WS21	WS20	WS20	WS20	WS20	WS20	BH15	BH15	BH15	BH15	BH15
Depth				1.78	1.70	1.76	1.71	1.74	1.73	1.83	1.75	1.61	1.73	1.66	1.75	1.73	1.87	0.95	0.94	0.90	0.93	0.95	1.19	1.29	1.20	1.1	1.17	1.22	1.23	1.23	1.26	1.23	1.35	1.42	1.40	1.44	1.43
Strata				Alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium	North Denes	North Denes	North Denes	North Denes	North Denes
Date Sampled				21-Jun-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	21-Jun-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018	01-Jun-18	21-Jun-18	03-Jul-18	19-Jul-18	02-Aug-18
Sample Type	Units	Groundwater Screening - DWS	Source of Screening Value	Water -	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW	Water -	Water -	Water -	Water -	Water -
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	<6.5 >10	UK DWS	8.1	8.6	8.08	7.72	7.64	8.02	8.1	8.49	8.23	8.47	7.88	7.84	8.26	8.53	8.78	7.92	7.69	8.29	7.95	10.34	11.09	11.56	11.9	11.88	8.46	9.14	8.47	8.1	8.47	8.28	8.17	8.31	7.86	8.2
Ammoniacal nitrogen (w)	mg/l	0.389	UK DWS	5.53	2.82	4.96	3.7	4.66	5.52	3.69	12.2	11.8	9.9	12.6	9.27	12.9	8.07	11.9	1.21	2.5	2.64	5.7	12.2	6.03	2.73	1.86	6.09	12	6.52	2.48	1.44	6.16	0.78	0.25	0.38	0.23	0.27
Sulphate (w)	mg/l	250	UK DWS	102	301	479	473	615			134	147	84	152	82			62	146	72			62	52	30			62	54	33			230	249	247	224	235
Cyanide (free) (w)	mg/l	0.005	UK DWS	<0.005	<0.005	<0.005	0.009	0.008			<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	<0.005	0.022			<0.005	0.033	0.022			<0.005	0.027	0.024			<0.005	0.006	0.006	0.006	0.009
Cyanide (total) (w)	mg/l	0.005	UK DWS	0.025	0.026	0.026	0.033	0.031			0.016	0.019	0.018	0.022	0.02			0.048	<0.005	0.044			0.05	0.231	0.043			0.05	0.227	0.043			0.056	0.053	0.045	0.082	0.048
Arsenic (dissolved)	µg/l	10	UK DWS	9	7	6	7	7	9	7	12	17	14	15	15	13	15	13	12	5	4	6	18	12	6	4	6	18	12	6	4	6	57	53	61	58	57
Boron (dissolved)	µg/l	1000	UK DWS	452	482	720	829	1010	1020	767	996	873	878	919	751	1150	680	180	434	59	57	72	187	153	64	61	66	184	166	58	76	75	793	732	787	660	749
Cadmium (dissolved)	µg/l	5	UK DWS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.08	<0.08	<0.2	<0.2	<0.2	<0.2	<0.2	<0.08	<0.08	<0.2	<0.2	<0.2	<0.08	<0.08	<0.2	<0.2	<0.2	<0.08	<0.08	<0.2	<0.2	<0.2	<0.08	<0.08	<0.2	<0.2	<0.2	<0.2	<0.2
Copper (dissolved)	µg/l	2000	UK DWS	3	1	2	4	5	8	12	<1	1	<1	<1	2	14	7	2	6	6	13	19	2	5	5	14	21	2	4	6	13	21	<1	<1	1	2	8
Chromium (dissolved)	µg/l	50	UK DWS	<1	<1	<1	<1	1	1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	4	15	8	<1	<1	4	15	8	<1	<1	4	15	8	<1	1	<1	<1	<1
Chromium (hexavalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01			<0.01	<0.01	<0.01			<0.01	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01	<0.01
Lead (dissolved)	µg/l	10	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	1	<1	<1	1	2	1	<1	<1	1	1	1	<1	<1	<1	<1	<1
Mercury (dissolved)	µg/l	1	UK DWS	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	20	UK DWS	3	4	5	6	6	6	5	2	4	1	2	2	2	2	6	6	3	2	5	6	4	3	2	5	6	4	3	2	5	<1	2	2	2	2
Selenium (dissolved)	µg/l	10	UK DWS	1	1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	2	1	1	<1	3	1	2	1	1	3	1	2	1	<1	2	<1	<1	<1	<1	<1
Zinc (dissolved)	µg/l	.		8	2	5	10	9	4	6	7	<1	4	3	2	6	2	7	10	3	2	1	2	1	4	60	1	2	2	6	<1	2	2	<1	<1	<1	1	2
PAH 16MS (w)																																					
Acenaphthene (w)	µg/l	.		<0.01	.	0.01	0.01	<0.01	0.01	<0.01	<0.01	0.15	<0.01	0.04	<0.01	0.05	0.79	0.11	0.02	<0.01	0.01	<0.01	0.29	0.24	0.28	0.05	<0.01	<0.01	<0.01	<0.01	0.02	0.15	0.1	0.11	0.12	0.14
Acenaphthylene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.07	0.09	0.01	<0.01	<0.01	<0.01	0.06	0.02	0.03	0.02	<0.01	0.03	0.01	<0.01	0.01	0.06	<0.01	0.01	0.01	<0.01	0.03
Anthracene (w)	µg/l	.		<0.01	.	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.25	0.02	<0.01	<0.01	<0.01	0.08	0.07	0.07	0.04	0.06	0.07	0.03	0.03	0.03	0.24	0.02	0.02	0.02	0.02	0.02
Benzo(a)anthracene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	1.15	0.06	<0.01	<0.01	<0.01	0.04	0.1	0.03	0.02	0.09	0.15	0.03	0.02	0.03	0.26	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene (w)	µg/l	0.01	UK DWS	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	1.87	0.06	<0.01	<0.01	<0.01	0.03	0.1	0.01	<0.01	0.07	0.15	0.04	0.02	0.04	0.3	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	1.88	0.09	<0.01	<0.01	<0.01	0.04	0.13	0.02	0.01	0.1	0.18	0.05	0.02	0.06	0.35	<0.01	0.01	<0.01	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.39	0.07	<0.01	<0.01	<0.01	0.02	0.07	<0.01	<0.01	0.04	0.33	0.08	0.04	0.08	0.59	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.73	0.03	<0.01	<0.01	<0.01	0.01	0.05	<0.01	<0.01	0.04	0.06	0.02	<0.01	0.02	0.13	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	1.46	0.09	<0.01	<0.01	<0.01	0.05	0.12	0.02	0.02	0.11	0.18	0.04	0.03	0.05	0.29	<0.01	0.02	<0.01	<0.01	<0.01
Dibenzo(ah)anthracene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.29	0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	0.03	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	.		0.02	.	0.07	0.07	0.1	0.08	0.07	<0.01	0.08	<0.01	<0.01	0.02	<0.01	0.01	2.33	0.2	0.02	0.01	<0.01	0.17	0.25	0.16	0.13	0.25	0.3	0.04	0.04	0.04	0.48	0.04	0.05	0.03	0.04	0.03
Fluorene (w)	µg/l	.		<0.01	.	0.01	0.02	0.02	0.02	0.01	<0.01	0.08	<0.01	<0.01	<0.01	0.04	0.53	0.22	0.03	0.01	<0.01	<0.01	0.27	0.3	0.38	0.12	0.06	<0.01	<0.01	<0.01	<0.01	0.02	0.01	0.01	0.01	<0.01	0.03
Indeno(123-cd)pyrene (w)	µg/l	.		<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.46	0.07	<0.01	<0.01	<0.01	0.03	0.09	<0.01	<0.01	0.05	0.21	0.05	0.02	0.06	0.47	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	.		<0.01	.	0.07	0.29	0.09	0.12	<0.01	<0.01	1.27	<0.01	<0.01	<0.01	<0.01	<0.01	0.23	0.03	0.03	<0.01	<0.01	0.03	<0.01	0.11	0.04	0.03	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	0.02	<0.01	0.03
Phenanthrene (w)	µg/l	.		<0.01	.	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	0.22	1.19	0.17	0.02	<0.01	<0.01	0.43	0.23	0.37	0.04	0.04	0.04	<0.01	<0.01	<0.01	0.16	0.04	0.06	0.06	0.05	0.07
Pyrene (w)	µg/l	.		0.04	.	0.07	0.07	0.1	0.07	0.07	<0.01	0.01	<0.01	<0.01	0.04	<0.01	<0.01	1.94	0.18	0.02	0.01	<0.01	0.14	0.24	0.15	0.13	0.23	0.5	0.11	0.1	0.1	0.58	0.06	0.06	0.04	0.04	0.04
Total PAH 16MS (w)	µg/l	.		0.06	.	0.23	0.48	0.31	0.3	0.16	<0.01	1.57	<0.01	0.04	0.11	0.09	1.66	16.6	1.14	0.1	0.03	<0.01	1.69	2.03	1.63	0.62	1.19	2.23	0.5	0.32	0.52	4.04	0.32	0.37	0.3	0.27	0.39
PAH (sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123cd)pyrene & benzo(ghi)perylene	µg/l	0.1	UK DWS	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	5.46	0.26	<0.01	<0.01	<0.01	0.1	0.34	0.02	0.01	0.23	0.78	0.2	0.08	0.22	1.54	<0.01	<0.01	<0.01	<0.01	<0.01
Envirolab Combined VOC + SVOC (excl PAHs) (w)																																					
SVOC (excluding PAH-16) (w)																																					
2,4,5-Trichlorophenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/l	200	WHO DWG 2017	<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2,4-Dinitrotoluene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2,6-Dinitrotoluene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2-Chloronaphthalene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2-Chlorophenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2-Methylnaphthalene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2-Methylphenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2-Nitrophenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
4-Bromophenyl phenyl ether	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
4-Chloro-3-methylphenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Bis(2-chloroisopropyl)ether	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
4-Methylphenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			2	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
4-Nitrophenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Bis(2-chloroethyl)ether	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Bis(2-chloroethoxy)methane	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Bis(2-ethylhexyl)phthalate	µg/l	8	WHO DWG 2017	<10	.	<10	<10	<10			<20	<10	<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10	<10	<10
Butylbenzyl phthalate	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Carbazole	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Dibenzofuran	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
n-Dibutylphthalate	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
n-Dioctylphthalate	µg/l	.		<10	.	<10	<10	<10			<10	<10	<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10	<10	<10
n-Nitroso-n-dipropylamine	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Diethyl phthalate	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Dimethyl phthalate	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Hexachlorobenzene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Pentachlorophenol	µg/l	9	WHO DWG 2017	<1	.	<1	<2	<1			<1	<1	<1	<2	<1			<1	<2	<1			<1	<2	<1			<1	<2	<1			<1	<1	<1	<1	<1
Phenol	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			13	<1	<1			3	2	1			<1	<1	<1			<1	<1	<4	<1	<1
Hexachloroethane	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Nitrobenzene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Isophorone	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Hexachlorocyclopentadiene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Perylene	µg/l	.		<1	.	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
VOC (w)																																					
Dichlorodifluoromethane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Chloromethane	µg/l	.		<10	<10	<10	<10	<10			<10	<10	<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10			<10	<10	<10	<10	<10
Vinyl Chloride	µg/l	0.5	UK DWS	<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Bromomethane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Chloroethane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Trichlorofluoromethane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
trans 1,2-Dichloroethene	µg/l	50	WHO DWG 2017	<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Dichloromethane	µg/l	20	WHO DWG 2017	<5	<5	<5	<5	<5			<5	<5	<5	<5	<5			<5	<5	<5			<5	<5	<5			<5	<5	<5			<5	<5	<5	<5	<5
Carbon Disulphide	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/l	140	WHO DWG 2017	<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
cis 1,2-Dichloroethene	µg/l	50	WHO DWG 2017	<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
Bromochloromethane	µg/l	.		<5	<5	<5	<5	<5			<5	<5	<5	<5	<5			<5	<5	<5			<5	<5	<5			<5	<5	<5			<5	<5	<5	<5	<5
Chloroform	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1			<1	<1	<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1			<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/l	3	UK DWS	<2	<2	<2	<2	<2			<2	<2	<2	<2	<2			<2	<2	<2			<2	<2	<2			<2	<2	<2			<2	<2

GYTRC - Groundwater - DWS

Lab Sample ID				18/05033	18/07049/6	18/08232	18/08736/9	18/09217/3	18/09646/7	18/10170/7
Client Sample No				0622-7	0831-8	1005-8	1019-8	1102-8	1115-13	1115-13
Client Sample ID				BH12B	BH12B	BH12B	BH12B	BH12B	BH12B	BH12B
Depth				1.78	1.70	1.76	1.71	1.74	1.73	1.83
Strata				Alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon	Made ground, alluvium and Breydon
Date Sampled				21-Jun-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type				Water -	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code	Units	Groundwater Screening - DWS	Source of Screening Value	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1		
n-propylbenzene	µg/l	.		<1	<1	<1	<1	<1		
4-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1		
1,2,4-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1		
4-Isopropyltoluene	µg/l	.		<1	<1	<1	<1	<1		
1,3,5-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1		
1,2-Dichlorobenzene	µg/l	1000	WHO DWG 2017	<1	<1	<1	<1	<1		
1,4-Dichlorobenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1		
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1	<1		
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2	<2		
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1		
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	µg/l	1	WHO DWG 2017	<2	<2	<2	<2	<2		
1,2,4-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3		
1,2,3-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3		
Hexachlorobutadiene	µg/l	0.6	WHO DWG 2017	<1	<1	<1	<1	<1		
TPH CWG										
Ali >C5-O6 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<5	<1	<1	<1
Ali >O6-C8 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<5	<5
Ali >C10-C12 (w)	µg/l	300	WHO 2008	<5	.	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	300	WHO 2008	<5	.	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	.	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.		<5	.	<5	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.		<5	.	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	700	WHO 2008	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1		
Aro >C9-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<5	<5	<5
Aro >C10-C12 (w)	µg/l	90	WHO 2008	<5	.	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	90	WHO 2008	<5	.	<5	<5	<5	6	10
Aro >C16-C21 (w)	µg/l	90	WHO 2008	<5	.	<5	<5	<5	29	<5
Aro >C21-C35 (w)	µg/l	90	WHO 2008	<5	.	<5	<5	<5	<10	<10
Total Aromatics (w)	µg/l	.		<5	.	<5	<5	<5	35	19
TPH (Ali & Aro) (w)	µg/l	.		<5	.	<5	<5	<5	35	19
BTEX - Benzene (w)	µg/l	1	UK DWS	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	700	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	15	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1

Lab Sample ID	18/05033	18/07049	18/08232	18/08736/8	18/09217/9	18/09646/6	18/10170/6
Client Sample No	0622-8	0831-6	1005-6	1019-6	1102-6	1115-10	1115-10
Client Sample ID	BH13	BH13	BH13	BH13	BH13	BH13	BH13
Depth	1.75	1.61	1.73	1.66	1.75	1.73	1.87
Strata	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag	Breydon and Crag
Date Sampled	21-Jun-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Water -	Water - EW	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorotoluene	<1	<1	<1	<1	<1		
n-propylbenzene	<1	<1	<1	<1	<1		
4-Chlorotoluene	<1	<1	<1	<1	<1		
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1		
4-Isopropyltoluene	<1	<1	<1	<1	<1		
1,3,5-Trimethylbenzene	<1	<1	<1	<1	<1		
1,2-Dichlorobenzene	<1	<1	<1	<1	<1		
1,4-Dichlorobenzene	<1	<1	1	<1	2		
sec-Butylbenzene	<1	<1	<1	<1	<1		
tert-Butylbenzene	<2	<2	<2	<2	<2		
1,3-Dichlorobenzene	<1	<1	<1	<1	<1		
n-butylbenzene	<1	<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2		
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3		
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3		
Hexachlorobutadiene	<1	<1	<1	<1	<1		
Ali >C5-O6 (w)	<1	<1	<1	<5	<1	<1	<1
Ali >O6-C8 (w)	<1	<1	<1	<1	<1	<1	1
Ali >C8-C10 (w)	<1	<1	<1	<1	<1	<5	<5
Ali >C10-C12 (w)	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics (w)	<5	<5	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	<1	<1	<1	<1	<1		
Aro >C9-C10 (w)	<1	1	<1	<1	<1	6	31
Aro >C10-C12 (w)	<5	6	<5	<5	<5	15	97
Aro >C12-C16 (w)	<5	<5	<5	<5	<5	17	61
Aro >C16-C21 (w)	<5	<5	<5	<5	<5	50	67
Aro >C21-C35 (w)	<5	<5	<5	<5	<5	<10	23
Total Aromatics (w)	<5	7	<5	<5	<5	93	279
TPH (Ali & Aro) (w)	<5	7	<5	<5	<5	93	280
BTEX - Benzene (w)	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	<1	<1	<1	<1	<1	<1	1
MTBE (w)	<1	<1	<1	<1	<1	<1	<1

Lab Sample ID	18/08232	18/08736/1	18/09217/1	18/09646/1	18/10170/1
Client Sample No	1005-11	1019-11	1102-11	1115-16	1115-16
Client Sample ID	WS22	WS22	WS22	WS22	WS22
Depth	0.95	0.94	0.90	0.93	0.95
Strata	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium
Date Sampled	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A
2-Chlorotoluene	<1	<1	<1		
n-propylbenzene	<1	<1	<1		
4-Chlorotoluene	<1	<1	<1		
1,2,4-Trimethylbenzene	<1	<1	<1		
4-Isopropyltoluene	<1	<1	<1		
1,3,5-Trimethylbenzene	<1	<1	<1		
1,2-Dichlorobenzene	<1	<1	<1		
1,4-Dichlorobenzene	<1	<1	<1		
sec-Butylbenzene	<1	<1	<1		
tert-Butylbenzene	<2	<2	<2		
1,3-Dichlorobenzene	<1	<1	<1		
n-butylbenzene	<1	<1	<1		
1,2-Dibromo-3-chloropropane	<2	<2	<2		
1,2,4-Trichlorobenzene	<3	<3	<3		
1,2,3-Trichlorobenzene	<3	<3	<3		
Hexachlorobutadiene	<1	<1	<1		
Ali >C5-O6 (w)	<1	<5	<1	<1	<1
Ali >O6-C8 (w)	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	<1	7	2	<5	<5
Ali >C10-C12 (w)	78	17	<5	<5	9
Ali >C12-C16 (w)	<5	<5	<5	<5	20
Ali >C16-C21 (w)	<5	<5	<5	<5	16
Ali >C21-C35 (w)	<5	<5	<5	<5	35
Total Aliphatics (w)	78	26	<5	<5	80
Aro >C5-C7 (w)	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	<1	<1	<1		
Aro >C9-C10 (w)	<1	<1	<1	<5	9
Aro >C10-C12 (w)	6	<5	<5	<5	5
Aro >C12-C16 (w)	<5	<5	<5	<5	11
Aro >C16-C21 (w)	<5	<5	<5	<5	6
Aro >C21-C35 (w)	<5	<5	<5	<10	16
Total Aromatics (w)	6	<5	<5	<10	47
TPH (Ali & Aro) (w)	85	26	<5	<10	127
BTEX - Benzene (w)	<1	<1	<1	<1	<1
BTEX - Toluene (w)	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	<1	<1	<1	<1	<1
MTBE (w)	<1	<1	<1	<1	<1

Lab Sample ID	18/08232	18/08736/3	18/09217/2	18/09646/2	18/10170/2
Client Sample No	1005-10	1019-10	1102-10	1115-15	1115-15
Client Sample ID	WS21	WS21	WS21	WS21	WS21
Depth	1.19	1.29	1.20	1.1	1.17
Strata	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium
Date Sampled	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A
2-Chlorotoluene	<1	<1	<1		
n-propylbenzene	<1	<1	<1		
4-Chlorotoluene	<1	<1	<1		
1,2,4-Trimethylbenzene	<1	<1	<1		
4-Isopropyltoluene	<1	<1	<1		
1,3,5-Trimethylbenzene	<1	<1	<1		
1,2-Dichlorobenzene	<1	<1	<1		
1,4-Dichlorobenzene	<1	<1	<1		
sec-Butylbenzene	<1	<1	<1		
tert-Butylbenzene	<2	<2	<2		
1,3-Dichlorobenzene	<1	<1	<1		
n-butylbenzene	<1	<1	<1		
1,2-Dibromo-3-chloropropane	<2	<2	<2		
1,2,4-Trichlorobenzene	<3	<3	<3		
1,2,3-Trichlorobenzene	<3	<3	<3		
Hexachlorobutadiene	<1	<1	<1		
Ali >C5-O6 (w)	<1	<5	<1	<1	<1
Ali >O6-C8 (w)	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	<1	<1	<1	<5	7
Ali >C10-C12 (w)	<5	<5	<5	<5	5
Ali >C12-C16 (w)	<5	<5	<5	<5	6
Ali >C16-C21 (w)	<5	<5	<5	<5	6
Ali >C21-C35 (w)	<5	<5	<5	<5	10
Total Aliphatics (w)	<5	<5	<5	<5	35
Aro >C5-C7 (w)	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	<1	<1	<1		
Aro >C9-C10 (w)	<1	<1	1	7	17
Aro >C10-C12 (w)	5	<5	<5	6	5
Aro >C12-C16 (w)	10	<5	<5	32	27
Aro >C16-C21 (w)	<5	<5	<5	32	29
Aro >C21-C35 (w)	<5	<5	<5	<10	20
Total Aromatics (w)	15	<5	<5	80	87
TPH (Ali & Aro) (w)	15	<5	<5	80	87
BTEX - Benzene (w)	<1	<1	<1	<1	<1
BTEX - Toluene (w)	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	<1	<1	<1	<1	<1
MTBE (w)	<1	<1	<1	<1	<1

Lab Sample ID	18/08232	18/08736/2	18/09217/4	18/09646/4	18/10170/4
Client Sample No	1005-9	1019-9	1102-9	1115-14	1115-14
Client Sample ID	WS20	WS20	WS20	WS20	WS20
Depth	1.22	1.23	1.23	1.26	1.23
Strata	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium
Date Sampled	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A
2-Chlorotoluene	<1	<1	<1		
n-propylbenzene	<1	<1	<1		
4-Chlorotoluene	<1	<1	<1		
1,2,4-Trimethylbenzene	<1	<1	<1		
4-Isopropyltoluene	<1	<1	<1		
1,3,5-Trimethylbenzene	<1	<1	<1		
1,2-Dichlorobenzene	<1	<1	<1		
1,4-Dichlorobenzene	<1	<1	<1		
sec-Butylbenzene	<1	<1	<1		
tert-Butylbenzene	<2	<2	<2		
1,3-Dichlorobenzene	<1	<1	<1		
n-butylbenzene	<1	<1	<1		
1,2-Dibromo-3-chloropropane	<2	<2	<2		
1,2,4-Trichlorobenzene	<3	<3	<3		
1,2,3-Trichlorobenzene	<3	<3	<3		
Hexachlorobutadiene	<1	<1	<1		
Ali >C5-O6 (w)	<1	<5	<1	<1	<1
Ali >O6-C8 (w)	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	<1	<1	<1	<1	<1
Ali >C10-C12 (w)	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	<5	<5	<5	<5	<5
Total Aliphatics (w)	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	<1	<1	<1		
Aro >C9-C10 (w)	<1	<1	<1	<1	<1
Aro >C10-C12 (w)	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	<5	<5	<5	<5	<5
Aro >C21-C35 (w)	<5	<5	<5	<10	<5
Total Aromatics (w)	<5	<5	<5	<5	<5
TPH (Ali & Aro) (w)	<5	<5	<5	<5	<5
BTEX - Benzene (w)	<1	<1	<1	<1	<1
BTEX - Toluene (w)	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	<1	<1	<1	<1	<1
MTBE (w)	<1	<1	<1	<1	<1

Lab Sample ID	18/04384	18/05033	18/05361	18/05864	18/06265
Client Sample No	0604-7	0622-9	0703-2	0720-8	0803-4
Client Sample ID	BH15	BH15	BH15	BH15	BH15
Depth	1.35	1.42	1.40	1.44	1.43
Strata	North Denes	North Denes	North Denes	North Denes	North Denes
Date Sampled	01-Jun-18	21-Jun-18	03-Jul-18	19-Jul-18	02-Aug-18
Sample Type	Water -	Water -	Water -	Water -	Water -
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A
2-Chlorotoluene	<1	<1	<1	<1	<1
n-propylbenzene	<1	<1	<1	<1	<1
4-Chlorotoluene	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1
4-Isopropyltoluene	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	<1	<1	<1	<1	<1
sec-Butylbenzene	<1	<1	<1	<1	<1
tert-Butylbenzene	<2	<2	<2	<2	<2
1,3-Dichlorobenzene	<1	<1	<1	<1	<1
n-butylbenzene	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3
Hexachlorobutadiene	<1	<1	<1	<1	<1
Ali >C5-O6 (w)	<1	<1	<1	<1	<1
Ali >O6-C8 (w)	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	<1	<1	<1	<1	<1
Ali >C10-C12 (w)	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	<5	<5	<5	<5	<5
Total Aliphatics (w)	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	<1	<1	<1	<1	<1
Aro >C9-C10 (w)	<1	<1	<1	<1	<1
Aro >C10-C12 (w)	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	<5	<5	<5	<5	<5
Aro >C21-C35 (w)	<5	<5	<5	<5	<5
Total Aromatics (w)	<5	<5	<5	<5	<5
TPH (Ali & Aro) (w)	<5	<5	<5	<5	<5
BTEX - Benzene (w)	<1	<1	<1	<1	<1
BTEX - Toluene (w)	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	<1	<1	<1	<1	<1
MTBE (w)	<1	<1	<1	<1	<1

GYTRC - Groundwater - DWS

Lab Sample ID	Units	Groundwater Screening - DWS	Source of Screening Value	18/06637	18/07049	18/08232	18/08736/4	18/09217/5	18/09646/3	18/10170/3
Client Sample No				0817-4	0831-4	1005-4	1019-4	1102-4	1115-8	1115-8
Client Sample ID				BH15	BH15	BH15	BH15	BH15	BH15	BH15
Depth				2.10	1.56	1.36	1.34	1.38	1.21	1.36
Strata				North Denes	North Denes	North Denes	North Denes	North Denes	North Denes	North Denes
Date Sampled				16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type				Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	<6.5 >10	UK DWS	8.18	8.08	8.16	7.88	7.91	8.19	8.4
Ammoniacal nitrogen (w)	mg/l	0.389	UK DWS	0.22	0.22	0.32	0.42	0.32	0.42	0.21
Sulphate (w)	mg/l	250	UK DWS	238	249	218	235	223		
Cyanide (free) (w)	mg/l	0.005	UK DWS	<0.005	<0.005	<0.005	<0.005	<0.005		
Cyanide (total) (w)	mg/l	0.005	UK DWS	0.019	0.027	0.05	0.027	0.046		
Arsenic (dissolved)	µg/l	10	UK DWS	62	63	68	68	71	75	69
Boron (dissolved)	µg/l	1000	UK DWS	780	766	704	854	810	753	710
Cadmium (dissolved)	µg/l	5	UK DWS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.08	<0.08
Copper (dissolved)	µg/l	2000	UK DWS	5	<1	<1	1	2	8	7
Chromium (dissolved)	µg/l	50	UK DWS	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01		
Lead (dissolved)	µg/l	10	UK DWS	<1	<1	<1	<1	<1	<1	<1
Mercury (dissolved)	µg/l	1	UK DWS	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	20	UK DWS	2	1	<1	2	<1	<1	<1
Selenium (dissolved)	µg/l	10	UK DWS	<1	<1	<1	<1	<1	<1	<1
Zinc (dissolved)	µg/l	.		1	1	4	2	22	3	<1
PAH 16MS (w)										
Acenaphthene (w)	µg/l	.		0.13	0.13	0.15	0.14	0.17	0.15	0.14
Acenaphthylene (w)	µg/l	.		0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01
Anthracene (w)	µg/l	.		0.02	0.02	0.02	0.01	0.03	0.02	0.02
Benzo(a)anthracene (w)	µg/l	.		0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Benzo(a)pyrene (w)	µg/l	0.01	UK DWS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.		0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Dibenzo(ah)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	.		0.03	0.04	0.03	0.02	0.04	0.03	0.03
Fluorene (w)	µg/l	.		0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03
Phenanthrene (w)	µg/l	.		0.06	0.07	0.06	0.05	0.07	0.06	0.05
Pyrene (w)	µg/l	.		0.03	0.05	0.04	0.03	0.05	0.04	0.04
Total PAH 16MS (w)	µg/l	.		0.31	0.34	0.31	0.25	0.36	0.32	0.34
PAH (sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123cd)pyrene & benzo(ghi)perylene	µg/l	0.1	UK DWS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Envirolab Combined VOC + SVOC (excl PAHs) (w)										
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol	µg/l	.		<1	<1	<1	<1	<1		
2,4,6-Trichlorophenol	µg/l	200	WHO DWG 2017	<1	<1	<1	<1	<1		
2,4-Dichlorophenol	µg/l	.		<1	<1	<1	<1	<1		
2,4-Dimethylphenol	µg/l	.		<1	<1	<1	<1	<1		
2,4-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1		
2,6-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1		
2-Chloronaphthalene	µg/l	.		<1	<1	<1	<1	<1		
2-Chlorophenol	µg/l	.		<1	<1	<1	<1	<1		
2-Methylnaphthalene	µg/l	.		<1	<1	<1	<1	<1		
2-Methylphenol	µg/l	.		<1	<1	<1	<1	<1		
2-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1		
4-Bromophenyl phenyl ether	µg/l	.		<1	<1	<1	<1	<1		
4-Chloro-3-methylphenol	µg/l	.		<1	<1	<1	<1	<1		
Bis(2-chloroisopropyl)ether	µg/l	.		<1	<1	<1	<1	<1		
4-Methylphenol	µg/l	.		<1	<1	<1	<1	<1		
4-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1		
Bis(2-chloroethyl)ether	µg/l	.		<1	<1	<1	<1	<1		
Bis(2-chloroethoxy)methane	µg/l	.		<1	<1	<1	<1	<1		
Bis(2-ethylhexyl)phthalate	µg/l	8	WHO DWG 2017	<10	<10	<10	<10	<10		
Butylbenzyl phthalate	µg/l	.		<1	<1	<1	<1	<1		
Carbazole	µg/l	.		<1	<1	<1	<1	<1		
Dibenzofuran	µg/l	.		<1	<1	<1	<1	<1		
n-Dibutylphthalate	µg/l	.		<1	<1	<1	<1	<1		
n-Dioctylphthalate	µg/l	.		<10	<10	<10	<10	<10		
n-Nitroso-n-dipropylamine	µg/l	.		<1	<1	<1	<1	<1		
Diethyl phthalate	µg/l	.		<1	<1	<1	<1	<1		
Dimethyl phthalate	µg/l	.		<1	<1	<1	<1	<1		
Hexachlorobenzene	µg/l	.		<1	<1	<1	<1	<1		
Pentachlorophenol	µg/l	9	WHO DWG 2017	<1	<1	<1	<2	<1		
Phenol	µg/l	.		<1	<1	<1	<1	<1		
Hexachloroethane	µg/l	.		<1	<1	<1	<1	<1		
Nitrobenzene	µg/l	.		<1	<1	<1	<1	<1		
Isophorone	µg/l	.		<1	<1	<1	<1	<1		
Hexachlorocyclopentadiene	µg/l	.		<1	<1	<1	<1	<1		
Perylene	µg/l	.		<1	<1	<1	<1	<1		
VOC (w)										
Dichlorodifluoromethane	µg/l	.		<1	<1	<1	<1	<1		
Chloromethane	µg/l	.		<10	<10	<10	<10	<10		
Vinyl Chloride	µg/l	0.5	UK DWS	<1	<1	<1	<1	<1		
Bromomethane	µg/l	.		<1	<1	<1	<1	<1		
Chloroethane	µg/l	.		<1	<1	<1	<1	<1		
Trichlorofluoromethane	µg/l	.		<1	<1	<1	<1	<1		
trans 1,2-Dichloroethene	µg/l	50	WHO DWG 2017	<1	<1	<1	<1	<1		
Dichloromethane	µg/l	20	WHO DWG 2017	<5	<5	<5	<5	<5		
Carbon Disulphide	µg/l	.		<1	<1	<1	<1	<1		
1,1-Dichloroethene	µg/l	140	WHO DWG 2017	<1	<1	<1	<1	<1		
1,1-Dichloroethane	µg/l	.		<1	<1	<1	<1	<1		
cis 1,2-Dichloroethene	µg/l	50	WHO DWG 2017	<1	<1	<1	<1	<1		
Bromochloromethane	µg/l	.		<5	<5	<5	<5	<5		
Chloroform	µg/l	.		<1	<1	<1	<1	<1		
2,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1		
1,2-Dichloroethane	µg/l	3	UK DWS	<2	<2	<2	<2	<2		
1,1,1-Trichloroethane	µg/l	2000	WHO DWG 2017	<1	<1	<1	<1	<1		
1,1-Dichloropropene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1		
Benzene	µg/l	1	UK DWS	<1	<1	<1	<1	<1		
Carbon Tetrachloride	µg/l	3	UK DWS	<1	<1	<1	<1	<1		
Dibromomethane	µg/l	.		<1	<1	<1	<1	<1		
1,2-Dichloropropane	µg/l	40	WHO DWG 2017	<1	<1	<1	<1	<1		
Bromodichloromethane	µg/l	.		<10	<10	<10	<10	<10		
Trichloroethene	µg/l	.		<1	<1	<1	<1	<1		
cis 1,3-Dichloropropene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1		
trans 1,3-Dichloropropene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1		
1,1,2-Trichloroethane	µg/l	.		<1	<1	<1	<1	<1		
Toluene	µg/l	700	WHO DWG 2017	<1	<1	<1	<1	<1		
1,3-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1		
Dibromochloromethane	µg/l	100	WHO DWG 2017	<3	<3	<3	<3	<3		
1,2-Dibromoethane	µg/l	0.4	WHO DWG 2017	<1	<1	<1	<1	<1		
Tetrachloroethene	µg/l	.		<1	<1	<1	<1	<1		
1,1,1,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1		
Chlorobenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1		
Ethylbenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1		
m & p Xylene	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1		
Bromoform	µg/l	.		<1	<1	<1	<1	<1		
Styrene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1		
1,1,2,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1		
o-Xylene	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1		
1,2,3-Trichloropropane	µg/l	.		<1	<1	<1	<1	<1		
Isopropylbenzene	µg/l	.		<1	<1	<1	<1	<1		
Bromobenzene	µg/l	.		<1	<1	<1	<1	<1		

GYTRC - Groundwater - DWS

Lab Sample ID	Units	Groundwater Screening - DWS	Source of Screening Value	18/06637	18/07049	18/08232	18/08736/4	18/09217/5	18/09646/3	18/10170/3
Client Sample No				0817-4	0831-4	1005-4	1019-4	1102-4	1115-8	1115-8
Client Sample ID				BH15	BH15	BH15	BH15	BH15	BH15	BH15
Depth				2.10	1.56	1.36	1.34	1.38	1.21	1.36
Strata				North Denes	North Denes	North Denes	North Denes	North Denes	North Denes	North Denes
Date Sampled				16-Aug-18	30-Aug-18	04-Oct-18	18/10/2018	01/11/2018	14/11/2018	29/11/2018
Sample Type				Water -	Water -	Water -	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code				N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1		
n-propylbenzene	µg/l	.		<1	<1	<1	<1	<1		
4-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1		
1,2,4-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1		
4-Isopropyltoluene	µg/l	.		<1	<1	<1	<1	<1		
1,3,5-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1		
1,2-Dichlorobenzene	µg/l	1000	WHO DWG 2017	<1	<1	<1	<1	<1		
1,4-Dichlorobenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1		
sec-Butylbenzene	µg/l	.		<1	<1	<1	<1	<1		
tert-Butylbenzene	µg/l	.		<2	<2	<2	<2	<2		
1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1		
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	µg/l	1	WHO DWG 2017	<2	<2	<2	<2	<2		
1,2,4-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3		
1,2,3-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3		
Hexachlorobutadiene	µg/l	0.6	WHO DWG 2017	<1	<1	<1	<1	<1		
TPH CWG										
Ali >C5-C6 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<5	<1	<1	<1
Ali >C6-C8 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<5	<5
Ali >C10-C12 (w)	µg/l	300	WHO 2008	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	300	WHO 2008	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	700	WHO 2008	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1		
Aro >C9-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<5	<5
Aro >C10-C12 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	35	21
Aro >C21-C35 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<10	<10
Total Aromatics (w)	µg/l	.		<5	<5	<5	<5	<5	35	21
TPH (Ali & Aro) (w)	µg/l	.		<5	<5	<5	<5	<5	35	21
BTEX - Benzene (w)	µg/l	1	UK DWS	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	700	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	15	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1

GYTRC - Groundwater - DWS

Lab Sample ID				visit 1 - 1 June 2018					visit 2 - 21 June 2018										visit 3 - 3 July 2018								visit 4 - 19 July 2018								visit 5 - 2 August 2018	
				1	4	3	5	2	1	10	2	4	5	8	9	7	3	6	1	7	5	6	2	4	3	2	7	4	3	5	6	1	2	7
Client Sample No				0604-8	0604-10 Shallow	0604-11 Deep	0604-9	0604-7	0622-4	0622-5	0622-1	0622-Shallow	0623-3 Deep	0622-0	0622-6	0622-7	0622-9	0622-8	0703-3	0703-4	0703-6 Shallow	0703-5 Deep	0703-1	0703-7	0703-2	0720-4	0720-10	0720-6 Shallow	0720-7 Deep	0720-5	0720-9	0720-8	0803-0	0803-5
Client Sample ID				BH6	BH4D	BH4D	BH4	BH15	BH6	BH10	BH4A	BH4D	BH4D	BH4	BH11	BH12B	BH15	BH13	BH10	BH6	BH4D	BH4D	BH11	BH4	BH15	BH6	BH10	BH4D	BH4D	BH4	BH11	BH15	BH6	BH10
Depth				1.20	1.57	1.46	1.90	1.35	1.14	2.37	1.03	1.50	1.55	2.06	2.30	1.78	1.42	1.75	2.44	1.38	1.66	1.70	2.45	2.06	1.40	1.51	2.66	1.65	1.55	1.99	2.51	1.44		
Strata				MG and Breydon	MG	Crag	Breydon and Crag	North Denes	MG and Breydon	MG and Alluvium	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	MG, Alluvium and Breydon	North Denes	Breydon and Crag	MG and Alluvium	MG and Breydon	MG	Crag	Breydon, North Denes and Crag	Breydon and Crag	North Denes	MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	North Denes	MG and Breydon	MG and Alluvium
Date Sampled				01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	02-Aug-18	02-Aug-18
Sample Type				EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW
Sample Matrix Code	Units	Groundwater Screening - DWS	Source of Screening Value	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	<6.5 >10	UK DWS	7.74	7.91	7.9	8	8.28	7.61	8.57	8.36	8.02	7.81	7.87	7.88	8.1	8.17	8.49	8.31	7.83	7.98	7.91	8.47	8.04	8.31	7.42	7.9	7.03	7.41	7.34	7.82	7.86	7.67	8.46
Ammoniacal nitrogen (w)	mg/l	0.389	UK DWS	1.6	6.37	1.78	0.75	0.78	1.08	1.48	0.29	5.51	0.94	1.11	1.97	5.53	0.25	12.2	1.2	1.77	5.41	1.93	0.6	1.08	0.38	1.95	1.69	5.3	1.95	1.3	1.54	0.23	1.36	1
Sulphate (w)	mg/l	250	UK DWS	2380	513	1280	977	230	2640	43	282	580	1300	942	2720	102	249	134	41	2380	629	1320	352	1140	247	2530	40	618	1380	1220	2540	224	2480	42
Cyanide (free) (w)	mg/l	0.005	UK DWS	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	0.006	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005
Cyanide (total) (w)	mg/l	0.005	UK DWS	<0.005	0.05	<0.005	<0.005	0.056	<0.005	<0.005	0.031	0.04	<0.005	<0.005	<0.005	0.025	0.053	0.016	<0.005	<0.005	0.048	<0.005	<0.005	<0.005	0.045	<0.005	<0.005	0.06	<0.005	<0.005	<0.005	0.082	<0.005	<0.005
Arsenic (dissolved)	µg/l	10	UK DWS	19	6	11	5	57	21	5	4	13	10	<5	23	9	53	12	2	19	11	7	7	3	61	15	2	13	5	3	15	58	13	2
Boron (dissolved)	µg/l	1000	UK DWS	4030	427	1800	475	793	3410	290	334	645	1720	771	4220	452	732	996	273	3350	578	2060	961	768	798	4050	308	546	1790	758	3490	660	1730	273
Cadmium (dissolved)	µg/l	5	UK DWS	<1.0	<0.2	<1.0	<0.4	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<1.0	<2.0	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Copper (dissolved)	µg/l	2000	UK DWS	<5	<1	<5	<2	<1	<5	<1	3	<1	<5	<5	<10	3	<1	<1	2	<5	2	1	<1	1	1	1	3	7	2	1	3	2	9	10
Chromium (dissolved)	µg/l	50	UK DWS	<5	<1	<5	<2	<1	10	<1	<1	2	6	6	<10	<1	1	1	4	<5	<1	<1	<1	<1	<1	1	<1	<1	2	<1	1	<1	3	<1
Chromium (hexavalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (dissolved)	µg/l	10	UK DWS	<5	<1	<5	<2	<1	<5	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Mercury (dissolved)	µg/l	1	UK DWS	<0.5	<0.1	<0.5	<0.2	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.5	<1.0	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	20	UK DWS	<5	2	<5	4	<1	<5	1	4	4	8	<5	<10	3	2	2	2	<5	4	4	2	4	2	3	1	3	5	4	2	2	3	2
Selenium (dissolved)	µg/l	10	UK DWS	<5	<1	<5	<2	<1	<5	<1	<1	<1	<5	<5	<10	1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc (dissolved)	µg/l	.		<5	6	<5	4	2	<5	<1	6	16	<5	<5	<10	8	<1	7	5	45	13	2	3	2	<1	4	5	6	10	5	8	1	14	9
PAH 16MS (w)																																		
Acenaphthene (w)	µg/l	.		<0.01	0.09	<0.01	<0.01	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.1	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.11	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	0.04	<0.01
Acenaphthylene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene (w)	µg/l	.		0.02	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Benzo(a)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene (w)	µg/l	0.01	UK DWS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenzo(ah)anthracene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	.		0.03	0.03	0.02	0.01	0.04	0.01	<0.01	<0.01	0.06	0.02	0.02	<0.01	0.02	0.05	<0.01	<0.01	0.01	0.01	0.01	<0.01	0.02	0.03	0.02	<0.01	0.03	0.01	<0.01	0.01	0.04	<0.01	0.02
Fluorene (w)	µg/l	.		0.02	0.02	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01
Indeno(123-cd)pyrene (w)	µg/l	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene (w)	µg/l	.		0.02	<0.01	<0.01	<0.01	<0.01	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01
Phenanthrene (w)	µg/l	.		0.07	0.02	0.03	0.02	0.04	0.04	<0.01	<0.01	0.04	0.05	0.01	<0.01	<0.01	0.06	<0.01	<0.01	0.05	0.01	0.03	<0.01	<0.01	0.06	0.05	0.02	0.02	0.02	<0.01	<0.01	0.05	0.06	0.02
Pyrene (w)	µg/l	.		0.02	0.02	0.01	0.01	0.06	<0.01	<0.01	<0.01	0.05	0.02	0.02	<0.01	0.04	0.06	<0.01	<0.01	0.01	0.01	0.01	<0.01	0.02	0.04	0.02	<0.01	0.03	<0.01	<0.01	0.01	0.04	<0.01	0.02
Total PAH 16MS (w)	µg/l	.		0.18	0.18	0.07	0.04	0.32	0.08	0.01	<0.01	0.3	0.1	0.11	<0.01	0.06	0.37	<0.01	0.03	0.11	0.03	0.05	<0.01	0.06	0.3	0.12	0.02	0.1	0.03	<0.01	0.02	0.27	0.19	0.06
PAH (sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123cd)pyrene & benzo(ghi)perylene	µg/l	0.1	UK DWS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Envirolab Combined VOC + SVOC (excl PAHs) (w)																																		
SVOC (excluding PAH-16) (w)																																		
2,4,5-Trichlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/l	200	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,6-Dinitrotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chloronaphthalene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylnaphthalene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Bromophenyl phenyl ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chloro-3-methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroisopropyl)ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methylphenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Nitrophenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethyl)ether	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethoxy)methane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-ethylhexyl)phthalate	µg/l	8	WHO DWG 2017	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Butylbenzyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbazole	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenzofuran	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Dibutylphthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Dioctylphthalate	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
n-Nitroso-n-dipropylamine	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Diethyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dimethyl phthalate	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Pentachlorophenol	µg/l	9	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phenol	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<4	<4	<4	<4	<4	<4	<4	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nitrobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isophorone	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorocyclopentadiene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Perylene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
VOC (w)																																		
Dichlorodifluoromethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	µg/l	0.5	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,2-Dichloroethene	µg/l	50	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichloromethane	µg/l	20	WHO DWG 2017	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulphide	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/l	140	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis 1,2-Dichloroethene	µg/l	50	WHO DWG 2017	<1	<1	9	<1	<1	<1	<1	<1	2	12	<1	<1	<1	<1	<1	<1	<1	2	11	<1	<1	<1	<1	<1	2	8	<1	<1	<1	<1	<1
Bromochloromethane	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

				visit 1 - 1 June 2018					visit 2 - 21 June 2018									visit 3 - 3 July 2018								visit 4 - 19 July 2018							visit 5 - 2 August 2018	
Lab Sample ID				1	4	3	5	2	1	10	2	4	5	8	9	7	3	6	1	7	5	6	2	4	3	2	7	4	3	5	6	1	2	7
Client Sample No				0604-8	0604-10 Shallow	0604-11 Deep	0604-9	0604-7	0622-4	0622-5	0622-1	0622-Shallow	0623-3 Deep	0622-0	0622-6	0622-7	0622-9	0622-8	0703-3	0703-4	0703-6 Shallow	0703-5 Deep	0703-1	0703-7	0703-2	0720-4	0720-10	0720-6 Shallow	0720-7 Deep	0720-5	0720-9	0720-8	0803-0	0803-5
Client Sample ID				BH6	BH4D	BH4D	BH4	BH15	BH6	BH10	BH4A	BH4D	BH4D	BH4	BH11	BH12B	BH15	BH13	BH10	BH6	BH4D	BH4D	BH11	BH4	BH15	BH6	BH10	BH4D	BH4D	BH4	BH11	BH15	BH6	BH10
Depth				1.20	1.57	1.46	1.90	1.35	1.14	2.37	1.03	1.50	1.55	2.06	2.30	1.78	1.42	1.75	2.44	1.38	1.66	1.70	2.45	2.06	1.40	1.51	2.66	1.65	1.55	1.99	2.51	1.44		
Strata				MG and Breydon	MG	Crag	Breydon and Crag	North Denes	MG and Breydon	MG and Alluvium	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	MG, Alluvium and Breydon	North Denes	Breydon and Crag	MG and Alluvium	MG and Breydon	MG	Crag	Breydon, North Denes and Crag	Breydon and Crag	North Denes	MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	North Denes	MG and Breydon	MG and Alluvium
Date Sampled				01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	02-Aug-18	02-Aug-18
Sample Type				EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW
Sample Matrix Code	**Units**	**Groundwater Screening - DWS**	**Source of Screening Value**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chloroform	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/l	3	UK DWS	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1,1-Trichloroethane	µg/l	2000	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	µg/l	1	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	µg/l	3	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
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1,2-Dichloropropane	µg/l	40	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/l	.		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	µg/l	.		<1	<1	14	<1	<1	<1	<1	<1	2	17	<1	<1	<1	<1	<1	<1	<1	3	20	<1	<1	<1	<1	<1	2	18	<1	<1	<1	<1	<1
cis 1,3-Dichloropropene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,3-Dichloropropene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/l	700	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/l	100	WHO DWG 2017	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2-Dibromoethane	µg/l	0.4	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m & p Xylene	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/l	20	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
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1,2,3-Trichloropropane	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-propylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chlorotoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Isopropyltoluene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	µg/l	1000	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
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1,3-Dichlorobenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-butylbenzene	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/l	1	WHO DWG 2017	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2,4-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2,3-Trichlorobenzene	µg/l	20	WHO DWG 2017	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Hexachlorobutadiene	µg/l	0.6	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH CWG																																		
Ali >C5-C6 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Ali >C6-C8 (w)	µg/l	15000	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C10-C12 (w)	µg/l	300	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	300	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l	.		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	700	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C9-C10 (w)	µg/l	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C10-C12 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C12-C16 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C16-C21 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C21-C35 (w)	µg/l	90	WHO 2008	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aromatics (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
TPH (Ali & Aro) (w)	µg/l	.		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
BTEX - Benzene (w)	µg/l	1	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	700	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	300	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	500	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	15	WHO DWG 2017	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1

GYTRC - Groundwater - DWS

Lab Sample ID	Units	Groundwater Screening - DWS	4	3	5	6	1	1	7	3	2	4	6	5	1	9	4	2	7	8	18/07049/6	3	5	5	11	7	6	10	12	9	1	2	3	4	8
Client Sample No			0803-2 Shallow	0803-3 Deep	0803-1	0803-6	0803-4	0817-0	0817-6	0817-2	0817-3 Deep	0817-1	0817-5	0817-4	0831-0	0831-7	0831-2 Shallow	0831-3 Deep	0831-1	0831-5	0831-8	0831-4	0831-6	1005-0	1005-7	1005-2 Shallow	1005-3 Deep	1005-1	1005-5	1005-8	1005-11	1005-10	1005-9	1005-4	1005-6
Client Sample ID			BH4D	BH4D	BH4	BH11	BH15	BH6	BH10	BH4D	BH4D	BH4	BH11	BH15	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13
Depth							1.43	1.33	2.38	1.64	1.56	2.10	2.32	2.10	1.32	2.34	1.59	1.46	2.04	2.27	1.70	1.56	1.61	1.40	2.74	1.60	1.55	2.09	2.76	1.76	0.95	1.19	1.22	1.36	1.73
Strata			MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	North Denes	MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	North Denes	MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	Made ground, alluvium and Breydon	North Denes	Breydon and Crag	MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	Made ground, alluvium and	Alluvium	Alluvium	Alluvium	North Denes	Breydon and Crag
Date Sampled			02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18
Sample Type			EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	Water - EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW	EW
Sample Matrix Code			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	<6.5 >10	7.87	7.84	7.88	7.9	8.2	7.26	8.03	7.08	7.4	7.28	7.6	8.18	7.3	8.18	7.37	7.61	7.67	7.73	8.6	8.08	8.23	7.6	8.28	7.73	7.69	7.68	7.78	8.08	8.78	10.34	8.46	8.16	8.47
Ammoniacal nitrogen (w)	mg/l	0.389	5.14	1.83	1.19	1.71	0.27	1.26	0.88	5.31	0.74	1.27	1.56	0.22	1.28	0.74	5.04	0.89	1.08	1.32	2.82	0.22	11.8	1.1	1.07	6.94	0.97	1.47	1.41	4.96	11.9	12.2	12	0.32	9.9
Sulphate (w)	mg/l	250	631	1350	1180	2360	235	2380	45	618	1330	1160	2350	238	2400	40	627	1370	1180	2370	301	249	147	2380	40	644	1240	1100	2220	479	62	62	62	218	84
Cyanide (free) (w)	mg/l	0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (total) (w)	mg/l	0.005	0.043	<0.005	<0.005	<0.005	0.048	<0.005	<0.005	<0.005	<0.005	0.063	<0.005	0.019	<0.005	<0.005	0.045	<0.005	<0.005	<0.005	0.026	0.027	0.019	<0.005	<0.005	0.041	<0.005	<0.005	<0.005	0.026	0.048	0.05	0.05	0.05	0.018
Arsenic (dissolved)	µg/l	10	11	6	3	3	57	14	3	10	5	2	8	62	15	3	7	5	2	7	7	63	17	17	2	4	8	<5	15	6	18	18	18	68	14
Boron (dissolved)	µg/l	1000	459	1710	793	4920	749	2080	288	635	1760	766	3900	780	1910	299	623	1680	714	3350	482	766	873	3870	244	591	1800	934	4040	720	180	187	184	704	878
Cadmium (dissolved)	µg/l	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.4	<0.2	<0.2	<0.4	<0.2	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Copper (dissolved)	µg/l	2000	9	7	8	9	8	6	7	5	5	5	5	5	<2	3	<1	<2	<1	<5	1	<1	1	<5	3	<1	<5	<5	<5	2	2	2	2	<1	<1
Chromium (dissolved)	µg/l	50	<1	2	1	2	<1	2	<1	<1	1	1	<5	<1	3	<1	<1	2	2	7	<1	<1	<1	<5	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	<1
Chromium (hexavalent) (w)	mg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (dissolved)	µg/l	10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<2	<1	<1	<2	<1	<5	<1	<1	<1	<5	<1	<1	<5	<5	<5	<1	<1	<1	<1	<1	<1
Mercury (dissolved)	µg/l	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	20	3	4	3	2	2	3	2	3	3	3	<5	2	<2	1	2	3	3	<5	4	1	4	<5	2	1	<5	<5	<5	5	6	6	6	<1	1
Selenium (dissolved)	µg/l	10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<2	<1	<1	<2	<1	<5	1	<1	<1	<5	<1	<1	<5	<5	<5	<1	2	1	1	<1	<1
Zinc (dissolved)	µg/l	.	8	4	2	1	2	<1	4	6	3	1	<5	1	<2	5	3	21	1	35	2	1	<1	13	16	4	13	11	<5	5	7	2	2	4	4
PAH 16MS (w)																																			
Acenaphthene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	0.14	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	0.13	0.15	<0.01	<0.01	0.1	<0.01	<0.01	<0.01	0.01	0.11	0.29	<0.01	0.15	<0.01
Acenaphthylene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.09	0.06	0.03	<0.01	<0.01
Anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.25	0.08	0.07	0.02	<0.01
Benzo(a)anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01	0.04	0.02	0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.15	0.04	0.15	<0.01	<0.01
Benzo(a)pyrene (w)	µg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01	0.04	0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.87	0.03	0.15	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.04	0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.88	0.04	0.18	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.39	0.02	0.33	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.73	0.01	0.06	<0.01	<0.01
Chrysene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.03	0.01	0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.46	0.05	0.18	<0.01	<0.01
Dibenzo(ah)anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.29	<0.01	0.03	<0.01	<0.01
Fluoranthene (w)	µg/l	.	0.02	0.01	<0.01	<0.01	0.03	0.03	0.01	0.05	<0.01	0.06	0.05	0.03	<0.01	0.03	0.05	<0.01	0.03	<0.01	.	0.04	<0.01	0.02	0.01	0.04	0.01	<0.01	<0.01	0.07	2.33	0.17	0.3	0.03	<0.01
Fluorene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	0.02	0.08	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.22	0.27	<0.01	0.01	<0.01
Indeno(123-cd)pyrene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.46	0.03	0.21	<0.01	<0.01
Naphthalene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	.	<0.01	1.27	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	0.23	0.03	<0.01	<0.01	<0.01
Phenanthrene (w)	µg/l	.	0.02	0.01	<0.01	<0.01	0.07	0.05	<0.01	0.03	<0.01	0.03	0.03	0.06	0.03	<0.01	0.02	<0.01	0.01	<0.01	.	0.07	0.04	0.05	0.01	0.02	0.03	<0.01	<0.01	<0.01	1.19	0.43	0.04	0.06	<0.01
Pyrene (w)	µg/l	.	0.02	<0.01	<0.01	<0.01	0.04	0.02	0.01	0.04	<0.01	0.05	0.04	0.03	<0.01	0.03	0.04	<0.01	0.03	<0.01	.	0.05	0.01	0.02	0.01	0.03	0.01	<0.01	<0.01	0.07	1.94	0.14	0.5	0.04	<0.01
Total PAH 16MS (w)	µg/l	.	0.06	0.02	<0.01	<0.01	0.39	0.2	0.02	0.24	<0.01	0.36	0.17	0.31	0.05	0.06	0.22	<0.01	0.15	<0.01	.	0.34	1.57	0.1	0.03	0.21	0.05	<0.01	<0.01	0.23	16.6	1.69	2.23	0.31	<0.01
PAH (sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123cd)pyrene & benzo(ghi)perylene	µg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	0.11	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	0.05	<0.01	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5.46	0.1	0.78	<0.01	<0.01
Envirolab Combined VOC + SVOC (excl PAHs) (w)																																			
SVOC (excluding PAH-16) (w)																																			
2,4,5-Trichlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/l	200	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dinitrotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,6-Dinitrotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chloronaphthalene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylnaphthalene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Nitrophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Bromophenyl phenyl ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chloro-3-methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroisopropyl)ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1
4-Nitrophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethyl)ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethoxy)methane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-ethylhexyl)phthalate	µg/l	8	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Butylbenzyl phthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbazole	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenzofuran	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Dibutylphthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Dioctylphthalate	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
n-Nitroso-n-dipropylamine	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Diethyl phthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dimethyl phthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Pentachlorophenol	µg/l	9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	13	3	<1	<1	<1
Hexachloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nitrobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isophorone	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorocyclopentadiene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Perylene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
VOC (w)																																			
Dichlorodifluoromethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	µg/l	0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,2-Dichloroethene	µg/l	50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichloromethane	µg/l	20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulphide	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/l	140	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

| | | |

GYTRC - Groundwater - DWS

Lab Sample ID	Units	Groundwater Screening - DWS	Visit 9 -18 October 2018												Visit 10 -1 November 2018											
			18/08736/6	18/08736/12	18/08736/7	18/08736/5	18/08736/10	18/08736/11	18/08736/9	18/08736/1	18/08736/3	18/08736/2	18/08736/4	18/08736/8	18/09217/6	18/09217/11	18/09217/8	18/09217/7	18/09217/10	18/09217/12	18/09217/3	18/09217/1	18/09217/2	18/09217/4	18/09217/5	18/09217/9
Client Sample No			1019-0	1019-7	1019-3 Shallow	1019-2 Deep	1019-1	1019-5	1019-8	1019-11	1019-10	1019-9	1019-4	1019-6	1102-0	1102-7	1102-2 Shallow	1102-3 Deep	1102-1	1102-5	1102-8	1102-11	1102-10	1102-9	1102-4	1102-6
Client Sample ID			BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13
Depth			1.46	2.61	1.52	1.39	2	2.6	1.71	0.94	1.29	1.23	1.34	1.66	1.42	2.75	1.60	1.50	2.10	2.76	1.74	0.90	1.20	1.23	1.38	1.75
Strata			MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	Made ground, alluvium and Breydon	Alluvium	Alluvium	Alluvium	North Denes	Breydon and Crag	MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	Made ground, alluvium and Breydon	Alluvium	Alluvium	Alluvium	North Denes	Breydon and Crag
Date Sampled			18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018
Sample Type			Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	<6.5 >10	7.13	7.61	6.56	6.86	6.82	7.43	7.72	7.92	11.09	8.14	7.88	7.88	6.92	7.45	6.48	6.74	6.65	7.21	7.64	7.69	11.56	8.47	7.81	7.84
Ammoniacal nitrogen (w)	mg/l	0.389	1.27	0.72	4.45	1.92	1.15	1.46	3.7	1.21	6.03	6.52	0.42	12.6	1.87	1.21	0.95	1.15	1.43	1.58	4.66	2.5	2.73	2.48	0.32	9.27
Sulphate (w)	mg/l	250	2360	42	726	1300	1190	2100	473	146	52	54	235	152	1830	44	678	1220	1120	1830	615	72	30	33	223	82
Cyanide (free) (w)	mg/l	0.005	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	0.009	<0.005	0.033	0.027	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	0.022	0.022	0.024	<0.005	<0.005
Cyanide (total) (w)	mg/l	0.005	<0.005	<0.005	0.036	<0.005	<0.005	<0.005	0.033	<0.005	0.231	0.227	0.027	0.022	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	0.031	0.044	0.043	0.043	0.046	0.02
Arsenic (dissolved)	µg/l	10	12	2	9	3	2	3	7	12	12	12	68	15	12	2	6	6	2	12	7	5	6	6	71	15
Boron (dissolved)	µg/l	1000	2770	279	750	1770	901	4220	829	434	153	166	854	919	4380	272	2430	2060	859	667	1010	59	64	58	810	751
Cadmium (dissolved)	µg/l	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Copper (dissolved)	µg/l	2000	<1	2	1	<1	<1	4	4	6	5	4	1	<1	3	9	4	3	1	2	5	6	5	6	2	2
Chromium (dissolved)	µg/l	50	1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	3	<1	1	1	1	1	1	4	4	4	<1	<1
Chromium (hexavalent) (w)	mg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead (dissolved)	µg/l	10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	1	1	1	<1	<1
Mercury (dissolved)	µg/l	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (dissolved)	µg/l	20	2	1	3	3	4	2	6	6	4	4	2	2	2	1	3	2	4	3	6	3	3	3	<1	2
Selenium (dissolved)	µg/l	10	<1	<1	<1	<1	<1	<1	<1	1	2	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	1	<1	<1
Zinc (dissolved)	µg/l	.	<1	6	10	15	4	11	10	10	1	2	2	3	3	26	6	6	4	3	9	3	4	6	22	2
PAH 16MS (w)																										
Acenaphthene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.24	<0.01	0.14	0.04	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.28	<0.01	0.17	<0.01
Acenaphthylene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01
Anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.07	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	0.03	0.03	<0.01
Benzo(a)anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	0.1	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.02	<0.01	0.01
Benzo(a)pyrene (w)	µg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	0.1	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	0.01
Benzo(b)fluoranthene (w)	µg/l	.	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.09	0.13	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.02	<0.01	0.01
Benzo(ghi)perylene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	0.07	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene (w)	µg/l	.	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.09	0.12	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03	<0.01	0.02
Dibenzo(ah)anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene (w)	µg/l	.	0.01	<0.01	0.02	<0.01	0.01	<0.01	0.07	0.2	0.25	0.04	0.02	<0.01	0.02	<0.01	0.02	0.01	<0.01	<0.01	0.1	0.02	0.16	0.04	0.04	0.02
Fluorene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03	0.3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	0.38	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	0.09	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Naphthalene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.29	0.03	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.09	0.03	0.11	<0.01	<0.01	<0.01
Phenanthrene (w)	µg/l	.	0.03	0.02	0.01	<0.01	<0.01	<0.01	0.01	0.17	0.23	<0.01	0.05	<0.01	0.03	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	0.02	0.37	<0.01	0.07	<0.01
Pyrene (w)	µg/l	.	<0.01	<0.01	0.02	<0.01	0.01	<0.01	0.07	0.18	0.24	0.11	0.03	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.1	0.02	0.15	0.1	0.05	0.04
Total PAH 16MS (w)	µg/l	.	0.04	0.02	0.07	<0.01	0.02	<0.01	0.48	1.14	2.03	0.5	0.25	0.04	0.08	<0.01	0.05	0.04	<0.01	<0.01	0.31	0.1	1.63	0.32	0.36	0.11
PAH (sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123cd)pyrene & benzo(ghi)perylene	µg/l	0.1	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.26	0.34	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.08	<0.01	0.01
Envirolab Combined VOC + SVOC (excl PAHs) (w)																										
SVOC (excluding PAH-16) (w)																										
2,4,5-Trichlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/l	200	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,4-Dinitrotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,6-Dinitrotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chloronaphthalene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylnaphthalene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Nitrophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Bromophenyl phenyl ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chloro-3-methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroisopropyl)ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methylphenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Nitrophenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethyl)ether	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-chloroethoxy)methane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bis(2-ethylhexyl)phthalate	µg/l	8	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Butylbenzyl phthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbazole	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenzofuran	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Dibutylphthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Dioctylphthalate	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
n-Nitroso-n-dipropylamine	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Diethyl phthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dimethyl phthalate	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Pentachlorophenol	µg/l	9	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phenol	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1
Hexachloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nitrobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isophorone	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorocyclopentadiene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Perylene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
VOC (w)																										
Dichlorodifluoromethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	µg/l	0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,2-Dichloroethene	µg/l	50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichloromethane	µg/l	20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulphide	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/l	140	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis 1,2-Dichloroethene	µg/l	50	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Lab Sample ID	Units	Groundwater Screening - DWS	Visit 9 -18 October 2018												Visit 10 -1 November 2018											
			18/08736/6	18/08736/12	18/08736/7	18/08736/5	18/08736/10	18/08736/11	18/08736/9	18/08736/1	18/08736/3	18/08736/2	18/08736/4	18/08736/8	18/09217/6	18/09217/11	18/09217/8	18/09217/7	18/09217/10	18/09217/12	18/09217/3	18/09217/1	18/09217/2	18/09217/4	18/09217/5	18/09217/9
Client Sample No			1019-0	1019-7	1019-3 Shallow	1019-2 Deep	1019-1	1019-5	1019-8	1019-11	1019-10	1019-9	1019-4	1019-6	1102-0	1102-7	1102-2 Shallow	1102-3 Deep	1102-1	1102-5	1102-8	1102-11	1102-10	1102-9	1102-4	1102-6
Client Sample ID			BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13
Depth			1.46	2.61	1.52	1.39	2	2.6	1.71	0.94	1.29	1.23	1.34	1.66	1.42	2.75	1.60	1.50	2.10	2.76	1.74	0.90	1.20	1.23	1.38	1.75
Strata			MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	Made ground, alluvium and Breydon	Alluvium	Alluvium	Alluvium	North Denes	Breydon and Crag	MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	Made ground, alluvium and Breydon	Alluvium	Alluvium	Alluvium	North Denes	Breydon and Crag
Date Sampled			18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018
Sample Type			Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chloroform	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/l	3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1,1-Trichloroethane	µg/l	2000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	µg/l	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	µg/l	40	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/l	.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	µg/l	.	<1	<1	2	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis 1,3-Dichloropropene	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,3-Dichloropropene	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1
Toluene	µg/l	700	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/l	100	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2-Dibromoethane	µg/l	0.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/l	300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/l	300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m & p Xylene	µg/l	500	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/l	500	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-propylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chlorotoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Isopropyltoluene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	µg/l	1000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	µg/l	300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2
sec-Butylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	µg/l	.	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,3-Dichlorobenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-butylbenzene	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/l	1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2,4-Trichlorobenzene	µg/l	20	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
1,2,3-Trichlorobenzene	µg/l	20	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Hexachlorobutadiene	µg/l	0.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH CWG																										
Ali >C5-C6 (w)	µg/l	15000	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C6-C8 (w)	µg/l	15000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (w)	µg/l	300	<1	<1	<1	<1	<1	<1	<1	7	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1
Ali >C10-C12 (w)	µg/l	300	<5	<5	<5	<5	<5	<5	<5	17	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	300	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aliphatics (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	26	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Aro >C5-C7 (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	700	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C9-C10 (w)	µg/l	300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1
Aro >C10-C12 (w)	µg/l	90	<5	<5	<5	<5	<5	<5	<5	17	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	20	<5	<5	<5
Aro >C12-C16 (w)	µg/l	90	<5	<5	<5	<5	<5	<5	<5	34	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	53	<5	<5	<5
Aro >C16-C21 (w)	µg/l	90	<5	<5	<5	<5	<5	<5	<5	8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	14	<5	<5	<5
Aro >C21-C35 (w)	µg/l	90	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Aromatics (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	59	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	89	<5	<5	<5
TPH (Ali & Aro) (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	26	59	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	89	<5	<5	<5
BTEX - Benzene (w)	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	700	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	500	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	500	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE (w)	µg/l	15	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

GYTRC - Groundwater - DWS

Lab Sample ID			Visit 11 -14 November 2018 Suite II batch 1										Visit 12 -29 November 2018 Suite II batch 2									
			18/09646/5	18/09646/11	18/09646/9	18/09646/10	18/09646/8	18/09646/12	18/09646/7	18/09646/1	18/09646/2	18/09646/4	18/09646/3	18/09646/6	18/10170/5	18/10170/11	18/10170/9	18/10170/10	18/10170/8	18/10170/12	18/10170/7	18/10170/1	18/10170/2	18/10170/4	18/10170/3	18/10170/6
Client Sample No			1115-3	1115-12	1115-5 Shallow	1115-6 Deep	1115-4	1115-9	1115-13	1115-16	1115-15	1115-14	1115-8	1115-10	1115-3	1115-12	1115-5 Shallow	1115-6 Deep	1115-4	1115-9	1115-13	1115-16	1115-15	1115-14	1115-8	1115-10
Client Sample ID			BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13
Depth			2.1	2.59	2.5	2.51	2.05	2.74	1.73	0.93	1.1	1.26	1.21	1.73	1.51	2.56	1.67	1.69	1.15	2.50	1.83	0.95	1.17	1.23	1.36	1.87
Strata			MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	Made ground, alluvium and Breydon	Alluvium	Alluvium	Alluvium	North Denes	Breydon and Crag	MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	Made ground, alluvium and Breydon	Alluvium	Alluvium	Alluvium	North Denes	Breydon and Crag
Date Sampled			14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018
Sample Type			Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH (w)	pH	<6.5 >10	7.5	8.09	7.11	7.5	7.46	7.68	8.02	8.29	11.9	8.1	8.19	8.26	7.73	8.22	7.51	7.64	7.75	7.86	8.1	7.95	11.88	8.47	8.4	8.53
Ammoniacal nitrogen (w)	mg/l	0.389	1.05	1.16	5.14	0.84	1.39	1.77	5.52	2.64	1.86	1.44	0.42	12.9	1.37	0.79	4.82	1.82	1.22	1.39	3.69	5.7	6.09	6.16	0.21	8.07
Sulphate (w)	mg/l	250																								
Cyanide (free) (w)	mg/l	0.005																								
Cyanide (total) (w)	mg/l	0.005																								
Arsenic (dissolved)	µg/l	10	15	3	4	6	2	11	9	4	4	4	75	13	24	1	4	2	2	11	7	6	6	6	69	15
Boron (dissolved)	µg/l	1000	4340	240	681	1910	888	4120	1020	57	61	76	753	1150	3690	230	571	1470	855	3990	767	72	66	75	710	680
Cadmium (dissolved)	µg/l	5	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Copper (dissolved)	µg/l	2000	7	7	6	74	7	7	8	13	14	13	8	14	7	6	5	4	12	5	12	19	21	21	7	7
Chromium (dissolved)	µg/l	50	1	<1	<1	<1	1	2	1	15	15	15	<1	<1	1	<1	<1	1	1	2	1	8	8	8	<1	<1
Chromium (hexavalent) (w)	mg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (trivalent) (w)	mg/l	.																								
Lead (dissolved)	µg/l	10	<1	<1	<1	<1	<1	<1	<1	1	2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	1	<1	<1
Mercury (dissolved)	µg/l	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Nickel (dissolved)	µg/l	20	2	1	3	3	4	3	6	2	2	2	<1	2	2	1	2	4	4	3	5	5	5	5	<1	2
Selenium (dissolved)	µg/l	10	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	3	3	2	<1	<1
Zinc (dissolved)	µg/l	.	4	3	4	6	4	5	4	2	60	<1	3	6	4	32	7	29	6	6	6	1	1	2	<1	2
PAH 16MS (w)																										
Acenaphthene (w)	µg/l	.	0.01	0.01	0.07	<0.01	<0.01	<0.01	0.01	0.01	0.05	<0.01	0.15	0.05	<0.01	0.01	0.02	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	0.02	0.14	0.79
Acenaphthylene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	0.06	0.01	0.07
Anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.03	0.02	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.02	<0.01	<0.01	0.06	0.24	0.02	0.04
Benzo(a)anthracene (w)	µg/l	.	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03	<0.01	<0.01	<0.01	<0.01	0.09	0.01	<0.01	<0.02	0.01	<0.01	0.09	0.26	0.01	<0.01
Benzo(a)pyrene (w)	µg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	0.1	0.01	<0.01	<0.02	<0.01	<0.01	0.07	0.3	<0.01	<0.01
Benzo(b)fluoranthene (w)	µg/l	.	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.06	<0.01	<0.01	<0.01	<0.01	0.12	0.02	<0.01	<0.02	<0.01	<0.01	0.1	0.35	<0.01	<0.01
Benzo(ghi)perylene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.02	<0.01	<0.01	0.04	0.59	<0.01	<0.01
Benzo(k)fluoranthene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.02	<0.01	<0.01	0.04	0.13	<0.01	<0.01
Chrysene (w)	µg/l	.	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.05	<0.01	<0.01	<0.01	<0.01	0.11	0.01	<0.01	<0.02	<0.01	<0.01	0.11	0.29	0.01	<0.01
Dibenzo(ah)anthracene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.02	<0.01	<0.01	0.02	0.07	<0.01	<0.01
Fluoranthene (w)	µg/l	.	0.02	<0.01	0.04	<0.01	<0.01	<0.01	0.08	0.01	0.13	0.04	0.03	<0.01	0.02	<0.01	0.18	0.04	0.01	<0.02	0.07	<0.01	0.25	0.48	0.03	0.01
Fluorene (w)	µg/l	.	0.02	<0.01	0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.12	<0.01	<0.01	0.04	<0.01	<0.01	0.01	<0.01	<0.01	<0.02	0.01	<0.01	0.06	0.02	<0.01	0.53
Indeno(123-cd)pyrene (w)	µg/l	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	<0.01	<0.02	<0.01	<0.01	0.05	0.47	<0.01	<0.01
Naphthalene (w)	µg/l	.	0.03	0.03	0.02	<0.01	0.02	<0.01	0.12	<0.01	0.04	<0.01	0.02	<0.01	0.02	0.02	0.04	<0.01	0.01	<0.02	<0.01	<0.01	0.03	0.02	0.03	<0.01
Phenanthrene (w)	µg/l	.	0.06	<0.01	0.02	0.03	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	0.06	<0.01	0.02	<0.01	0.06	0.02	<0.01	<0.02	<0.01	<0.01	0.04	0.16	0.05	0.22
Pyrene (w)	µg/l	.	0.02	<0.01	0.03	<0.01	<0.01	<0.01	0.07	0.01	0.13	0.1	0.04	<0.01	0.01	<0.01	0.15	0.03	0.01	<0.02	0.07	<0.01	0.23	0.58	0.04	<0.01
Total PAH 16MS (w)	µg/l	.	0.16	0.04	0.22	0.03	0.02	<0.01	0.3	0.03	0.62	0.52	0.32	0.09	0.07	0.03	1.11	0.14	0.03	<0.02	0.16	<0.01	1.19	4.04	0.34	1.66
PAH (sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123cd)pyrene & benzo(ghi)perylene	µg/l	0.1	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.22	<0.01	<0.01	<0.01	<0.01	0.31	0.02	<0.01	<0.01	<0.01	<0.01	0.23	1.54	<0.01	<0.01
Envirolab Combined VOC + SVOC (excl PAHs) (w)																										
SVOC (excluding PAH-16) (w)																										
2,4,5-Trichlorophenol	µg/l	.																								
2,4,6-Trichlorophenol	µg/l	200																								
2,4-Dichlorophenol	µg/l	.																								
2,4-Dimethylphenol	µg/l	.																								
2,4-Dinitrotoluene	µg/l	.																								
2,6-Dinitrotoluene	µg/l	.																								
2-Chloronaphthalene	µg/l	.																								
2-Chlorophenol	µg/l	.																								
2-Methylnaphthalene	µg/l	.																								
2-Methylphenol	µg/l	.																								
2-Nitrophenol	µg/l	.																								
4-Bromophenyl phenyl ether	µg/l	.																								
4-Chloro-3-methylphenol	µg/l	.																								
Bis(2-chloroisopropyl)ether	µg/l	.																								
4-Methylphenol	µg/l	.																								
4-Nitrophenol	µg/l	.																								
Bis(2-chloroethyl)ether	µg/l	.																								
Bis(2-chloroethoxy)methane	µg/l	.																								
Bis(2-ethylhexyl)phthalate	µg/l	8																								
Butylbenzyl phthalate	µg/l	.																								
Carbazole	µg/l	.																								
Dibenzofuran	µg/l	.																								
n-Dibutylphthalate	µg/l	.																								
n-Dioctylphthalate	µg/l	.																								
n-Nitroso-n-dipropylamine	µg/l	.																								
Diethyl phthalate	µg/l	.																								
Dimethyl phthalate	µg/l	.																								
Hexachlorobenzene	µg/l	.																								
Pentachlorophenol	µg/l	9																								
Phenol	µg/l	.																								
Hexachloroethane	µg/l	.																								
Nitrobenzene	µg/l	.																								
Isophorone	µg/l	.																								
Hexachlorocyclopentadiene	µg/l	.																								
Perylene	µg/l	.																								
VOC (w)																										
Dichlorodifluoromethane	µg/l	.																								
Chloromethane	µg/l	.																								
Vinyl Chloride	µg/l	0.5																								
Bromomethane	µg/l	.																								
Chloroethane	µg/l	.																								
Trichlorofluoromethane	µg/l	.																								
trans 1,2-Dichloroethene	µg/l	50																								
Dichloromethane	µg/l	20																								
Carbon Disulphide	µg/l	.																								
1,1-Dichloroethene	µg/l	140																								
1,1-Dichloroethane	µg/l	.																								
cis 1,2-Dichloroethene	µg/l	50																								
Bromochloromethane	µg/l	.																								

Lab Sample ID	Units	Groundwater Screening - DWS	Visit 11 -14 November 2018 Suite II batch 1												Visit 12 -29 November 2018 Suite II batch 2											
			18/09646/5	18/09646/11	18/09646/9	18/09646/10	18/09646/8	18/09646/12	18/09646/7	18/09646/1	18/09646/2	18/09646/4	18/09646/3	18/09646/6	18/10170/5	18/10170/11	18/10170/9	18/10170/10	18/10170/8	18/10170/12	18/10170/7	18/10170/1	18/10170/2	18/10170/4	18/10170/3	18/10170/6
Client Sample No			1115-3	1115-12	1115-5 Shallow	1115-6 Deep	1115-4	1115-9	1115-13	1115-16	1115-15	1115-14	1115-8	1115-10	1115-3	1115-12	1115-5 Shallow	1115-6 Deep	1115-4	1115-9	1115-13	1115-16	1115-15	1115-14	1115-8	1115-10
Client Sample ID			BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13	BH6	BH10	BH4D	BH4D	BH4	BH11	BH12B	WS22	WS21	WS20	BH15	BH13
Depth			2.1	2.59	2.5	2.51	2.05	2.74	1.73	0.93	1.1	1.26	1.21	1.73	1.51	2.56	1.67	1.69	1.15	2.50	1.83	0.95	1.17	1.23	1.36	1.87
Strata			MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	Made ground, alluvium and Breydon	Alluvium	Alluvium	Alluvium	North Denes	Breydon and Crag	MG and Breydon	MG and Alluvium	MG	Crag	Breydon and Crag	Breydon, North Denes and Crag	Made ground, alluvium and Breydon	Alluvium	Alluvium	Alluvium	North Denes	Breydon and Crag
Date Sampled			14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018	29/11/2018
Sample Type			Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW
Sample Matrix Code			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chloroform	µg/l	.																								
2,2-Dichloropropane	µg/l	.																								
1,2-Dichloroethane	µg/l	3																								
1,1,1-Trichloroethane	µg/l	2000																								
1,1-Dichloropropene	µg/l	20																								
Benzene	µg/l	1																								
Carbon Tetrachloride	µg/l	3																								
Dibromomethane	µg/l	.																								
1,2-Dichloropropane	µg/l	40																								
Bromodichloromethane	µg/l	.																								
Trichloroethene	µg/l	.																								
cis 1,3-Dichloropropene	µg/l	20																								
trans 1,3-Dichloropropene	µg/l	20																								
1,1,2-Trichloroethane	µg/l	.																								
Toluene	µg/l	700																								
1,3-Dichloropropane	µg/l	.																								
Dibromochloromethane	µg/l	100																								
1,2-Dibromoethane	µg/l	0.4																								
Tetrachloroethene	µg/l	.																								
1,1,1,2-Tetrachloroethane	µg/l	.																								
Chlorobenzene	µg/l	300																								
Ethylbenzene	µg/l	300																								
m & p Xylene	µg/l	500																								
Bromoform	µg/l	.																								
Styrene	µg/l	20																								
1,1,2,2-Tetrachloroethane	µg/l	.																								
o-Xylene	µg/l	500																								
1,2,3-Trichloropropane	µg/l	.																								
Isopropylbenzene	µg/l	.																								
Bromobenzene	µg/l	.																								
2-Chlorotoluene	µg/l	.																								
n-propylbenzene	µg/l	.																								
4-Chlorotoluene	µg/l	.																								
1,2,4-Trimethylbenzene	µg/l	.																								
4-Isopropyltoluene	µg/l	.																								
1,3,5-Trimethylbenzene	µg/l	.																								
1,2-Dichlorobenzene	µg/l	1000																								
1,4-Dichlorobenzene	µg/l	300																								
sec-Butylbenzene	µg/l	.																								
tert-Butylbenzene	µg/l	.																								
1,3-Dichlorobenzene	µg/l	.																								
n-butylbenzene	µg/l	.																								
1,2-Dibromo-3-chloropropane	µg/l	1																								
1,2,4-Trichlorobenzene	µg/l	20																								
1,2,3-Trichlorobenzene	µg/l	20																								
Hexachlorobutadiene	µg/l	0.6																								
TPH CWG																										
Ali >C5-C6 (w)	µg/l	15000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C6-C8 (w)	µg/l	15000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1
Ali >C8-C10 (w)	µg/l	300	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	<5
Ali >C10-C12 (w)	µg/l	300	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	9	5	<5	<5	<5
Ali >C12-C16 (w)	µg/l	300	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	20	6	<5	<5	<5
Ali >C16-C21 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	16	6	<5	<5	<5
Ali >C21-C35 (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	35	10	<5	<5	<5
Total Aliphatics (w)	µg/l	.	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	80	35	<5	<5	<5
Aro >C5-C7 (w)	µg/l	.	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (w)	µg/l	700	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (w)	µg/l	300																								
Aro >C9-C10 (w)	µg/l	300	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	6	<5	<5	<5	<5	<5	<5	<5	9	17	6	<5	31
Aro >C10-C12 (w)	µg/l	90	<5	<5	<5	<5	<5	<5	<5	<5	51	6	<5	15	<5	<5	<5	<5	<5	<5	<5	5	52	5	<5	97
Aro >C12-C16 (w)	µg/l	90	<5	<5	<5	<5	<5	<5	6	<5	121	32	<5	17	<5	<5	<5	<5	<5	<5	10	11	163	27	<5	61
Aro >C16-C21 (w)	µg/l	90	16	35	30	22	22	15	29	<5	71	32	35	50	9	<5	17	39	14	12	<5	6	110	29	21	67
Aro >C21-C35 (w)	µg/l	90	<10	<10	<10	<10	<10	<10	<10	<10	25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	16	45	20	<10	23
Total Aromatics (w)	µg/l	.	16	35	30	22	22	15	35	<10	275	80	35	93	<10	<10	22	46	14	12	19	47	388	87	21	279
TPH (Ali & Aro) (w)	µg/l	.	16	35	30	22	22	15	35	<10	275	80	35	93	<10	<10	22	46	14	12	19	127	422	87	21	280
BTEX - Benzene (w)	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (w)	µg/l	700	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (w)	µg/l	300	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - m & p Xylene (w)	µg/l	500	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (w)	µg/l	500	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1
MTBE (w)	µg/l	15	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

GYTRC - Groundwater - DWS

Date 14.03.2019

Concentration of determinand in the groundwater exceeds Drinking Water Standards

The Limit of Detection (LoD) is greater than the screening value.

Determinand	Units	Groundwater Screening Value - DWS	Source of Screening Value	BH104 Shallow	BH105 Deep	BH107 Shallow	BH108 Deep	BH110 Shallow	TP104
				Made ground and Breydon	Crag	Made Ground and North Denes	Crag	Made Ground and Breydon	Breydon
Arsenic	µg/l	10	UK DWS	35	20	3	33	35	2
Barium	µg/l	-		370	110	10	430	290	120
Beryllium	µg/l	-		<1	<1	<1	<1	<1	<1
Boron	µg/l	1000	UK DWS	3000	1400	260	2700	840	160
Cadmium	µg/l	5	UK DWS	0.6	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	µg/l	50	UK DWS	16	9	7	14	6	3
Copper	µg/l	2000	UK DWS	1	<1	<1	1	<1	<1
Lead	µg/l	10	UK DWS	<1	<1	<1	<1	<1	1
Nickel	µg/l	20	UK DWS	31	14	2	47	26	8
Selenium	µg/l	10	UK DWS	100	66	5	130	53	2
Vanadium	µg/l	-		4	5	<1	10	6	25
Zinc	µg/l	-		40	14	<3	160	<3	10
Mercury	µg/l	1	UK DWS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate	mg/l	-		<0.3	<0.3	56	<0.3	<0.3	<0.3
Sulphate	mg/l	250	UK DWS	1100	1000	130	1600	1400	330
Sulphide	mg/l	-		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total CN	mg/l	0.005	UK DWS	<0.05	<0.05	<0.05	<0.05	3.5	0.18
Free CN	mg/l	0.005	UK DWS	<0.05	<0.05	<0.05	<0.05	0.94	<0.05
Complex CN	mg/l	-		-	-	-	-	-	0.18
Sulphur	mg/l	-		<0.05	<0.05	<0.05	<0.05	0.13	<0.05
pH	pH units	<6.5 >10	UK DWS	7.91	8	8.07	7.72	7.89	7.64
EPH	µg/l	-		300	120	<10	140	3200	-
Naphthalene	ng/l	-		28	<26	<26	<26	67000	-
Acenaphthalyne	ng/l	-		120	<11	<11	<11	1300	-
Acenapththalene	ng/l	-		100	<15	<15	<15	1900	-
Fluorene	ng/l	-		26	<14	<14	<14	3200	-
Phenanthrene	ng/l	-		60	<22	35	24	13000	-
Anthracene	ng/l	-		17	<15	<15	<15	1300	-
Fluoranthene	ng/l	-		19	<17	<17	<17	3600	-
Pyrene	ng/l	-		18	<15	<15	<15	2100	-
Benzo(a)anthracene	ng/l	-		<17	<17	<17	<17	180	-
Chrysene	ng/l	-		<13	<13	<13	<13	130	-
Benzo(b)fluoranthene	ng/l	-		<23	<23	<23	<23	63	-
Benzo(k)fluoranthene	ng/l	-		<27	<27	<27	<27	<27	-
Benzo(a)pyrene	ng/l	10	UK DWS	<9	<9	<9	<9	34	-
Indeno(123-cd)pyrene	ng/l	-		<14	<14	<14	<14	<14	-
Dibenzo(ah)anthracene	ng/l	-		<16	<16	<16	<16	<16	-
Benzo(ghi)perylene	ng/l	-		<16	<16	<16	<16	<16	-
PAH Total 16	ng/l	-		390	<27	35	<27	93000	-

GYTRC - Groundwater - Coastal EQS

Date 14.03.2019

Concentration of determinand in the groundwater exceeds Coastal Environmental Quality Standards (EQS)

The Limit of Detection (LoD) is greater than the screening value.

Determinand	Units	Groundwater Screening Value - Coastal EQS	Soyrce of Screening value	BH104 Shallow	BH105 Deep	BH107 Shallow	BH108 Deep	BH110 Shallow	TP104
				Made ground and Breydon	Crag	Made Ground and North Denes	Crag	Made Ground and Breydon	Breydon
Arsenic	µg/l	25	WFD 2015	35	20	3	33	35	2
Barium	µg/l	-		370	110	10	430	290	120
Beryllium	µg/l	-		<1	<1	<1	<1	<1	<1
Boron	µg/l	-		3000	1400	260	2700	840	160
Cadmium	µg/l	0.2	WFD 2015	0.6	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	µg/l	-		16	9	7	14	6	3
Copper	µg/l	3.76	WFD 2015	1	<1	<1	1	<1	<1
Lead	µg/l	1.3	WFD 2015	<1	<1	<1	<1	<1	1
Nickel	µg/l	8.6	WFD 2015	31	14	2	47	26	8
Selenium	µg/l	-		100	66	5	130	53	2
Vanadium	µg/l	-		4	5	<1	10	6	25
Zinc	µg/l	6.8	WFD 2015	40	14	<3	160	<3	10
Mercury	µg/l	0.07	WFD 2015	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate	mg/l	-		<0.3	<0.3	56	<0.3	<0.3	<0.3
Sulphate	mg/l	-		1100	1000	130	1600	1400	330
Sulphide	mg/l	-		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total CN	mg/l	0.001	WFD 2015	<0.05	<0.05	<0.05	<0.05	3.5	0.18
Free CN	mg/l	0.001	WFD 2015	<0.05	<0.05	<0.05	<0.05	0.94	<0.05
Complex CN	mg/l	-		-	-	-	-	-	0.18
Sulphur	mg/l	-		<0.05	<0.05	<0.05	<0.05	0.13	<0.05
pH	pH units	-		7.91	8	8.07	7.72	7.89	7.64
EPH	µg/l	-		300	120	<10	140	3200	-
Naphthalene	ng/l	2000	WFD 2015	28	<26	<26	<26	67000	-
Acenaphthalyne	ng/l	-		120	<11	<11	<11	1300	-
Acenapththalene	ng/l	-		100	<15	<15	<15	1900	-
Fluorene	ng/l	-		26	<14	<14	<14	3200	-
Phenanthrene	ng/l	-		60	<22	35	24	13000	-
Anthracene	ng/l	100	WFD 2015	17	<15	<15	<15	1300	-
Fluoranthene	ng/l	6.3	WFD 2015	19	<17	<17	<17	3600	-
Pyrene	ng/l	-		18	<15	<15	<15	2100	-
Benzo(a)anthracene	ng/l	-		<17	<17	<17	<17	180	-
Chrysene	ng/l	-		<13	<13	<13	<13	130	-
Benzo(b)fluoranthene	ng/l	-		<23	<23	<23	<23	63	-
Benzo(k)fluoranthene	ng/l	-		<27	<27	<27	<27	<27	-
Benzo(a)pyrene	ng/l	0.17	WFD 2015	<9	<9	<9	<9	34	-
Indeno(123-cd)pyrene	ng/l	-		<14	<14	<14	<14	<14	-
Dibenzo(ah)anthracene	ng/l	-		<16	<16	<16	<16	<16	-
Benzo(ghi)perylene	ng/l	-		<16	<16	<16	<16	<16	-
PAH Total 16	ng/l	-		390	<27	35	<27	93000	-

| Indicateurs par région et par département | Unité | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |
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GYTRC - leachate - coastal EQS

Lab Sample ID					17/08066/1	11	5	7	17/08632/1	1	3	8	6		18/02216/2	18/02142/2	3	9	6	1	18/01838/2	18/02218/1	3	7	4	18/07536/2	18/07536/3	18/07536/7	18/07536/8
Client Sample No					3	11	6	2	14	9	15	18	6		004	13	8	7	10	6	8	8	1	3	2	4	5	6	5
Client Sample ID					BH6	BH4	BH5	WS3	BH4D	BH11	BH11a	BH10A	BH4AS		CPT3	BH12A	BH4A	WS7	BH10	WS9	BH12	BH13A	WS20	WS21	WS22	WS21	WS22	WS21	WS20
Depth to Top					0.50	2.00	1.20	0.30	3.90	2.50	2.90	3.90	1.50		0.50	4.40	2.10	1.0	2.50	1.40	2.40	1.90	0.80	1.20	0.80	1.80	2.60	2.75	3.10
Depth to Bottom					0.60		1.30	0.40	4.00	2.60	3.00	4.00				4.50	2.20	1.10			2.50	2.00							
Date Sampled					23-Nov-17	28-Nov-17	01-Dec-17	06-Dec-17	12-Dec-17	12-Feb-18	12-Feb-18	20-Feb-18	13-Feb-17		20-Mar-18	15-Mar-18	04-Dec-17	06-Dec-17	20-Feb-18	04-Feb-17	07-Mar-18	15-Mar-18	10-Sep-18	10-Sep-18	10-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18
Sample Type	Units	Method	Soil Leachate - Coastal EQS	Screening Value Source	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil		Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil	Soil - ES	Soil - ES	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D
Sample Matrix Code					4AE	1A	6A	6AE	6AE	5A	4A	6A	5A		6A	1A	6E	1	6A	6A	5A	4A	4A	5	3	5	5	5	5
pH (leachable)	pH	A-T-031w	.		7.38	7.2	7.18	7.28	8.32	6.22	8.27	7.66	7.04		7.23	8.5	7.63	7.02	7.28	7.36	7.05	7.73	11.18	7.84	8.12	7.79	7.48	7.5	8.77
Ammoniacal nitrogen (leachable)	mg/l	A-T-033w	.		1.12	<0.02	<0.02	0.03	0.57	0.07	<0.02	<0.02	<0.02		<0.02	<0.02	0.6	<0.02	0.39	5.08	1.19	<0.02	0.04	0.03	0.84	0.61	0.69	0.76	0.29
Sulphate (leachable)	mg/l	A-T-026w	.		14.67	3.63	8.04	14.99	103.52	12.11	5.09	39.11	<1.00		33.42	2.46	106.11	1.39	52.47	122	24.81	3.91	11.28	14.51	10.94	1.65	56.65	52.54	8.85
Cyanide (total) (leachable)	mg/l	042wTCN	0.001	WFD 2015	<0.005	<0.005	<0.005	<0.005	0.007	0.006	0.008	<0.005	0.021		<0.005	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenols (total by HPLC) (leachable)	mg/l	A-T-050w	0.0077	WFD 2015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphide (leachable)	mg/l	A-T-S2-w	.		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	0.2	<0.1	<0.1
DOC (leachable)	mg/l	A-T-032w	.		10.4	2	4.8	11.4	4.9	9.9	6.9	10.1	22.5		7.8	1.2	4.7	4.6	3.8	8.8	14.5	6.1	2.5	2.9	2.2	12.5	5.2	3.4	4
Arsenic (leachable)	µg/l	A-T-025w	25	WFD 2015	6	5	2	4	3	4	5	13	8		15	4	<1	5	3	7	5	7	7	16	23	7	4	2	18
Boron (leachable)	µg/l	A-T-025w	.		195	13	31	102	132	72	17	28	20		153	<10	388	23	59	419	140	23	25	86	115	50	86	54	36
Cadmium (leachable)	µg/l	A-T-025w	0.2	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (leachable)	µg/l	A-T-025w	3.76	WFD 2015	13	2	7	8	<1	13	2	1	9		17	4	<1	3	2	2	13	6	21	38	33	22	4	2	2
Chromium (leachable)	µg/l	A-T-025w	.		<1	<1	1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	3	1	<1	<1	<1	<1	2	<1	<1	<1	<1
Chromium (hexavalent) (leachable)	mg/l	A-T-040w	0.0006	WFD 2015	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (leachable)	µg/l	A-T-025w	1.3	WFD 2015	67	8	7	25	<1	35	7	1	17		29	7	<1	4	2	4	27	4	<1	145	42	14	3	<1	2
Mercury (leachable)	µg/l	A-T-025w	0.07	WFD 2015	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (leachable)	µg/l	A-T-025w	8.6	WFD 2015	3	<1	2	3	3	2	<1	<1	1		3	<1	<1	<1	1	6	2	<1	3	6	11	2	3	2	2
Selenium (leachable)	µg/l	A-T-025w	.		<1	<1	<1	<1	<1	2	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	3	2	1	1	2	<1	3
Sulphur (elemental/free) (leachable)	mg/l	A-T-029w	.		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc (leachable)	µg/l	A-T-025w	6.8	WFD 2015	24	7	6	644	44	13	2	7	10		26	3	5	6	12	2	22	72	2	34	24	8	10	4	3
PAH 16MS (leachable)																													
Acenaphthene (leachable)	µg/l	A-T-019w	.		0.52	0.03	<0.02	<0.02	0.11	<0.02	0.12	2.6	0.03		0.29	1.27	<0.02	<0.02	0.16	0.43	0.14	1.63	0.79	<0.02	0.45	0.06	<0.02	0.04	0.05
Acenaphthylene (leachable)	µg/l	A-T-019w	.		0.04	0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.02		0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene (leachable)	µg/l	A-T-019w	0.1	WFD 2015	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.1	<0.02		0.05	0.13	<0.02	<0.02	0.04	0.03	0.03	0.05	0.02	0.04	0.05	0.03	<0.02	0.04	<0.02
Benzo(a)anthracene (leachable)	µg/l	A-T-019w	.		0.06	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(a)pyrene (leachable)	µg/l	A-T-019w	0.00017	WFD 2015	<0.02	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.13	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(b)fluoranthene (leachable)	µg/l	A-T-019w	.		0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.19	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(ghi)perylene (leachable)	µg/l	A-T-019w	.		<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(k)fluoranthene (leachable)	µg/l	A-T-019w	.		<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02
Chrysene (leachable)	µg/l	A-T-019w	.		0.07	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.12	<0.02	<0.02	<0.02	<0.02	<0.02
Dibenzo(ah)anthracene (leachable)	µg/l	A-T-019w	.		<0.02	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene (leachable)	µg/l	A-T-019w	0.0063	WFD 2015	0.2	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	0.03	0.05		0.05	0.04	<0.02	<0.02	0.03	0.04	0.09	0.03	0.07	0.12	0.07	0.06	0.02	0.06	<0.02
Fluorene (leachable)	µg/l	A-T-019w	.		0.23	<0.02	<0.02	<0.02	0.02	<0.02	0.16	0.98	<0.02		0.14	0.44	<0.02	<0.02	0.14	0.19	0.07	0.4	0.14	<0.02	0.27	0.05	<0.02	0.04	<0.02
Indeno(123-cd)pyrene (leachable)	µg/l	A-T-019w	.		<0.02	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02
Naphthalene (leachable)	µg/l	A-T-019w	2	WFD 2015	0.51	0.17	0.05	0.1	0.1	0.04	0.23	3.75	0.11		0.19	1.08	0.06	0.1	1.12	0.11	<0.02	0.17	0.08	<0.02	<0.02	<0.02	<0.02	0.22	0.42
Phenanthrene (leachable)	µg/l	A-T-019w	.		0.2	<0.02	<0.02	<0.02	<0.02	<0.02	0.24	0.64	0.06		0.16	0.55	<0.02	<0.02	0.22	0.13	0.1	0.18	0.09	<0.02	0.22	0.06	<0.02	0.11	<0.02
Pyrene (leachable)	µg/l	A-T-019w	.		0.18	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	0.03	0.04		0.04	0.04	<0.02	<0.02	<0.02	0.03	0.07	0.02	0.06	1.16	0.05	0.04	0.02	0.04	<0.02
PAH (total 16) (leachable)	µg/l	A-T-019w	.		2.09	0.67	0.05	0.1	0.23	0.15	0.9	8.13	0.31		0.95	3.55	0.06	0.1	1.71	0.96	0.5	2.52	1.36	1.91	1.11	0.3	0.04	0.55	0.47
SVOC excluding PAH-16 (leachable)																													
1,2,4-Trichlorobenzene SVOC (leachable)	µg/l	A-T-052w	0.4	WFD 2015	<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
1,2-Dichlorobenzene SVOC (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
1,3-Dichlorobenzene SVOC (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
1,4-Dichlorobenzene SVOC (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,4,5-Trichlorophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,4,6-Trichlorophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,4-Dichlorophenol (leachable)	µg/l	A-T-052w	0.42	WFD 2015	<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,4-Dimethylphenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,4-Dinitrotoluene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,6-Dinitrotoluene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2-Chloronaphthalene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2-Chlorophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2-Methylnaphthalene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2-Methylphenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2-Nitrophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
4-Bromophenyl phenyl ether (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
4-Chloro-3-methylphenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
4-Methylphenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
4-Nitrophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Bis(2-chloroethoxy)methane (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Bis(2-chloroethyl)ether (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Bis(2-chloroisopropyl)ether (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Bis(2-ethylhexyl)phthalate (leachable)	µg/l	A-T-052w	1.3	WFD 2015	<20	<4	<4	<4	<4	<4	<4	<8	<4		<4	<4	<4	<4	4	<4	<28	<4	<4	<4	<4	<4	<8	<16	<4
Butylbenzyl phthalate (leachable)	µg/l	A-T-052w	0.75	WFD 2015	<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Carbazole (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Dibenzofuran (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Diethyl phthalate (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Dimethyl phthalate (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
n-Dibutylphthalate (leachable)	µg/l	A-T-052w	.		<10	<2	<2	15	<12	<2	<2	<2	<4		<2	<2	<2	13	<2	<4	<2	<2	<2	<2	<2	<2	<4	<8	<2
n-Dioctylphthalate (leachable)	µg/l	A-T-052w	.		<50	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20	<40	<10
Hexachlorobenzene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Hexachlorobutadiene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Hexachlorocyclopentadiene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Hexachloroethane (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Isophorone (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Nitrobenzene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
n-Nitroso-n-dipropylamine (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Pentachlorophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Perylene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Phenol (leachable)	µg/l	A-T-052w	7.7	WFD 2015	<10	<2	<2	<2	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2	4	<2	<2	<2	<4	<8	<2
TPH UKCWG (leachable)																													
Ali >C5-C6 (leachable)	µg/l	A-T-022w	.		1	6	<1	3	<1	<1	<1	<1	2		<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C6-C8 (leachable)	µg/l	A-T-022w	.		4	9	<1	1	<1	<1	<1	<1	<1		<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (leachable)	µg/l	A-T-022w	.		<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C10-C12 (leachable)	µg/l	A-T-023w	.		<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ali >C12-C16 (leachable)	µg/l	A-T-023w	.		<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ali >C16-C21 (leachable)	µg/l	A-T-023w	.		<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ali >C21-C35 (leachable)	µg/l	A-T-023w	.		<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aliphatics (leachable)	µg/l	A-T-023w	.		<10	15	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ali >C35-C44 (leachable)	µg/l	A-T-023w	.		<10	<10	<1	<1	<1	<10	<10	<10	<10		<10	<10	<1	<1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aro >C5-C7 (leachable)	µg/l	A-T-022w	8	CL:AIRE 2017	<1	<1	<10	<10	<10	<1	<1	<1	<1		<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (leachable)	µg/l	A-T-022w	74	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (leachable)	µg/l	A-T-022w	20	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C9-C10 (leachable)	µg/l	A-T-022w	20	CL:AIRE 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C10-C12 (leachable)	µg/l	A-T-023w	2	CL:AIRE 2017	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aro >C12-C16 (leachable)	µg/l	A-T-023w	2	CL:AIRE 2017	11	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aro >C16-C21 (leachable)	µg/l	A-T-023w	0.1	CL:AIRE 2017	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aro >C21-C35 (leachable)	µg/l	A-T-023w	0.00017	CL:AIRE 2017	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aromatics (leachable)	µg/l	A-T-023w	.		11	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TPH (Ali & Aro) (leachable)	µg/l	A-T-023w	.		11	15	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aro >C35-C44 (leachable)	µg/l	A-T-023w	.		<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BTEX - Benzene (leachable)	µg/l	A-T-022w	8	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (leachable)	µg/l	A-T-022w	74	WFD 2015	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (leachable)	µg/l	A-T-022w	20	P2-115/TR4 2002	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

GYTRC - leachate - UK DWS Screen

Lab Sample ID					17/08066/1	11	5	7	17/08632/1	1	3	8	6	18/02216/2	18/02142/2	3	9	6	1	18/01838/2	18/02218/1	3	7	4	18/07536/2	18/07536/6	18/07536/7	18/07536/8
Client Sample No					3	11	6	2	14	9	15	18	6	004	13	8	7	10	6	8	8	1	3	2	4	5	6	5
Client Sample ID					BH6	BH4	BH5	WS3	BH4D	BH11	BH11a	BH10A	BH4AS	CPT3	BH12A	BH4A	WS7	BH10	WS9	BH12	BH13A	WS20	WS21	WS22	WS21	WS22	WS21	WS20
Depth to Top					0.50	2.00	1.20	0.30	3.90	2.50	2.90	3.90	1.50	0.50	4.40	2.10	1.0	2.50	1.40	2.40	1.90	0.80	1.20	0.80	1.80	2.60	2.75	3.10
Depth to Bottom					0.60		1.30	0.40	4.00	2.60	3.00	4.00			4.50	2.20	1.10			2.50	2.00								
Date Sampled					23-Nov-17	28-Nov-17	01-Dec-17	06-Dec-17	12-Dec-17	12-Feb-18	12-Feb-18	20-Feb-18	13-Feb-17	20-Mar-18	15-Mar-18	04-Dec-17	06-Dec-17	20-Feb-18	04-Feb-17	07-Mar-18	15-Mar-18	10-Sep-18	10-Sep-18	10-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18
Sample Type					Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil	Soil - ES	Soil - ES	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D
Sample Matrix Code	Units	Method	Soil Leachate - UK DWS	Source of Screening Value	4AE	1A	6A	6AE	6AE	5A	4A	6A	5A	6A	1A	6E	1	6A	6A	5A	4A	4A	5	3				
pH (leachable)	pH	A-T-031w	<6.5 >10	UK DWS	7.38	7.2	7.18	7.28	8.32	6.22	8.27	7.66	7.04	7.23	8.5	7.63	7.02	7.28	7.36	7.05	7.73	11.18	7.84	8.12	7.79	7.48	7.5	8.77
Ammoniacal nitrogen (leachable)	mg/l	A-T-033w	0.389	UK DWS	1.12	<0.02	<0.02	0.03	0.57	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	0.6	<0.02	0.39	5.08	1.19	<0.02	0.04	0.03	0.84	0.61	0.69	0.76	0.29
Sulphate (leachable)	mg/l	A-T-026w	250	UK DWS	14.67	3.63	8.04	14.99	103.52	12.11	5.09	39.11	<1.00	33.42	2.46	106.11	1.39	52.47	122	24.81	3.91	11.28	14.51	10.94	1.65	56.65	52.54	8.85
Cyanide (total) (leachable)	mg/l	042wTCN	0.005	UK DWS	<0.005	<0.005	<0.005	<0.005	0.007	0.006	0.008	<0.005	0.021	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenols (total by HPLC) (leachable)	mg/l	A-T-050w	.		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphide (leachable)	mg/l	A-T-52-w	.		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	0.2	<0.1	<0.1	<0.1
DOC (leachable)	mg/l	A-T-032w	.		10.4	2	4.8	11.4	4.9	9.9	6.9	10.1	22.5	7.8	1.2	4.7	4.6	3.8	8.8	14.5	6.1	2.5	2.9	2.2	12.5	5.2	3.4	4
Arsenic (leachable)	µg/l	A-T-025w	10	UK DWS	6	5	2	4	3	4	5	13	8	15	4	<1	5	3	7	5	7	7	16	23	7	4	2	18
Boron (leachable)	µg/l	A-T-025w	1000	UK DWS	195	13	31	102	132	72	17	28	20	153	<10	388	23	59	419	140	23	25	86	115	50	86	54	36
Cadmium (leachable)	µg/l	A-T-025w	5	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper (leachable)	µg/l	A-T-025w	2000	UK DWS	13	2	7	8	<1	13	2	1	9	17	4	<1	3	2	2	13	6	21	38	33	22	4	2	2
Chromium (leachable)	µg/l	A-T-025w	50	UK DWS	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	1	2	<1	<1	<1	<1
Chromium (hexavalent) (leachable)	mg/l	A-T-040w	.		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead (leachable)	µg/l	A-T-025w	10	UK DWS	67	8	7	25	<1	35	7	1	17	29	7	<1	4	2	4	27	4	<1	145	42	14	3	<1	2
Mercury (leachable)	µg/l	A-T-025w	1	UK DWS	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (leachable)	µg/l	A-T-025w	20	UK DWS	3	<1	2	3	3	2	<1	<1	1	3	<1	<1	<1	1	6	2	<1	3	6	11	2	3	2	2
Selenium (leachable)	µg/l	A-T-025w	10	UK DWS	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	2	1	1	2	<1	3
Sulphur (elemental/free) (leachable)	mg/l	A-T-029w	.		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc (leachable)	µg/l	A-T-025w	.		24	7	6	644	44	13	2	7	10	26	3	5	6	12	2	22	72	2	34	24	8	10	4	3
PAH 16MS (leachable)																												
Acenaphthene (leachable)	µg/l	A-T-019w	.		0.52	0.03	<0.02	<0.02	0.11	<0.02	0.12	2.6	0.03	0.29	1.27	<0.02	<0.02	0.16	0.43	0.14	1.63	0.79	<0.02	0.45	0.06	<0.02	0.04	0.05
Acenaphthylene (leachable)	µg/l	A-T-019w	.		0.04	0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene (leachable)	µg/l	A-T-019w	.		0.05	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.1	<0.02	0.05	0.13	<0.02	<0.02	0.04	0.03	0.03	0.05	0.02	0.04	0.05	0.03	<0.02	0.04	<0.02
Benzo(a)anthracene (leachable)	µg/l	A-T-019w	.		0.06	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(a)pyrene (leachable)	µg/l	A-T-019w	0.01	UK DWS	<0.02	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.13	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(b)fluoranthene (leachable)	µg/l	A-T-019w	.		0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.19	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(ghi)perylene (leachable)	µg/l	A-T-019w	.		<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(k)fluoranthene (leachable)	µg/l	A-T-019w	.		<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02
Chrysene (leachable)	µg/l	A-T-019w	.		0.07	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.12	<0.02	<0.02	<0.02	<0.02	<0.02
Dibenzo(ah)anthracene (leachable)	µg/l	A-T-019w	.		<0.02	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene (leachable)	µg/l	A-T-019w	.		0.2	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	0.03	0.05	0.05	0.04	<0.02	<0.02	0.03	0.04	0.09	0.03	0.07	0.12	0.07	0.06	0.02	0.06	<0.02
Fluorene (leachable)	µg/l	A-T-019w	.		0.23	<0.02	<0.02	<0.02	0.02	<0.02	0.16	0.98	<0.02	0.14	0.44	<0.02	<0.02	0.14	0.19	0.07	0.4	0.14	<0.02	0.27	0.05	<0.02	0.04	<0.02
Indeno(123-cd)pyrene (leachable)	µg/l	A-T-019w	.		<0.02	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	<0.02
Naphthalene (leachable)	µg/l	A-T-019w	.		0.51	0.17	0.05	0.1	0.1	0.04	0.23	3.75	0.11	0.19	1.08	0.06	0.1	1.12	0.11	<0.02	0.17	0.08	<0.02	<0.02	<0.02	<0.02	0.22	0.42
Phenanthrene (leachable)	µg/l	A-T-019w	.		0.2	<0.02	<0.02	<0.02	<0.02	<0.02	0.24	0.64	0.06	0.16	0.55	<0.02	<0.02	0.22	0.13	0.1	0.18	0.09	<0.02	0.22	0.06	<0.02	0.11	<0.02
Pyrene (leachable)	µg/l	A-T-019w	.		0.18	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	0.03	0.04	0.04	0.04	<0.02	<0.02	<0.02	0.03	0.07	0.02	0.06	1.16	0.05	0.04	0.02	0.04	<0.02
PAH (total 16) (leachable)	µg/l	A-T-019w	.		2.09	0.67	0.05	0.1	0.23	0.15	0.9	8.13	0.31	0.95	3.55	0.06	0.1	1.71	0.96	0.5	2.52	1.36	1.91	1.11	0.3	0.04	0.55	0.47
PAH (sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123cd)pyrene & benzo(ghi)perylene	µg/l	.	0.1	UK DWS	0.09	0.23	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.1	0.34	<0.08	<0.08	<0.08	<0.08	<0.08
SVOC excluding PAH-16 (leachable)																												
1,2,4-Trichlorobenzene SVOC (leachable)	µg/l	A-T-052w	20	2017	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
1,2-Dichlorobenzene SVOC (leachable)	µg/l	A-T-052w	1000	2017	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
1,3-Dichlorobenzene SVOC (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
1,4-Dichlorobenzene SVOC (leachable)	µg/l	A-T-052w	300	2017	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,4,5-Trichlorophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,4,6-Trichlorophenol (leachable)	µg/l	A-T-052w	200	2017	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,4-Dichlorophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,4-Dimethylphenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,4-Dinitrotoluene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2,6-Dinitrotoluene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2-Chloronaphthalene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2-Chlorophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2-Methylnaphthalene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2-Methylphenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
2-Nitrophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
4-Bromophenyl phenyl ether (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
4-Chloro-3-methylphenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
4-Methylphenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
4-Nitrophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Bis(2-chloroethoxy)methane (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Bis(2-chloroethyl)ether (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Bis(2-chloroisopropyl)ether (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Bis(2-ethylhexyl)phthalate (leachable)	µg/l	A-T-052w	8	2017	<20	<4	<4	<4	<4	<4	<4	<8	<4	<4	<4	<4	<4	4	<4	<28	<4	<4	<4	<4	<4	<8	<16	<4
Butylbenzyl phthalate (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Carbazole (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Dibenzofuran (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Diethyl phthalate (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Dimethyl phthalate (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
n-Dibutylphthalate (leachable)	µg/l	A-T-052w	.		<10	<2	<2	15	<12	<2	<2	<2	<4	<2	<2	<2	13	<2	<4	<2	<2	<2	<2	<2	<2	<4	<8	<2
n-Dioctylphthalate (leachable)	µg/l	A-T-052w	.		<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20	<40	<10
Hexachlorobenzene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Hexachlorobutadiene (leachable)	µg/l	A-T-052w	0.6	2017	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Hexachlorocyclopentadiene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Hexachloroethane (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Isophorone (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Nitrobenzene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
n-Nitroso-n-dipropylamine (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Pentachlorophenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Perylene (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<8	<2
Phenol (leachable)	µg/l	A-T-052w	.		<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4	<2	<2	<2	<4	<8	<2
TPH UKCWG (leachable)																												
Ali >C5-C6 (leachable)	µg/l	A-T-022w	15000	WHO 2008	1	6	<1	3	<1	<1	<1	<1	2	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C6-C8 (leachable)	µg/l	A-T-022w	15000	WHO 2008	4	9	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C8-C10 (leachable)	µg/l	A-T-022w	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C10-C12 (leachable)	µg/l	A-T-023w	300	WHO 2008	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ali >C12-C16 (leachable)	µg/l	A-T-023w	300	WHO 2008	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ali >C16-C21 (leachable)	µg/l	A-T-023w	.		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ali >C21-C35 (leachable)	µg/l	A-T-023w	.		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aliphatics (leachable)	µg/l	A-T-023w	.		<10	15	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Ali >C35-C44 (leachable)	µg/l	A-T-023w	.		<10	<10	<1	<1	<1	<10	<10	<10	<10	<10	<10	<1	<1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aro >C5-C7 (leachable)	µg/l	A-T-022w	.		<1	<1	<10	<10	<10	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C7-C8 (leachable)	µg/l	A-T-022w	700	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C8-C9 (leachable)	µg/l	A-T-022w	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C9-C10 (leachable)	µg/l	A-T-022w	300	WHO 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C10-C12 (leachable)	µg/l	A-T-023w	90	WHO 2008	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aro >C12-C16 (leachable)	µg/l	A-T-023w	90	WHO 2008	11	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aro >C16-C21 (leachable)	µg/l	A-T-023w	90	WHO 2008	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aro >C21-C35 (leachable)	µg/l	A-T-023w	90	WHO 2008	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Aromatics (leachable)	µg/l	A-T-023w	.		11	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TPH (Ali & Aro) (leachable)	µg/l	A-T-023w	.		11	15	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Aro >C35-C44 (leachable)	µg/l	A-T-023w	.		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BTEX - Benzene (leachable)	µg/l	A-T-022w	1	UK DWS	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Toluene (leachable)	µg/l	A-T-022w	700	2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - Ethyl Benzene (leachable)	µg/l	A-T-022w	300	2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BTEX - o Xylene (leachable)	µ

GYTEC - Self Screening - Human Health - Public Open Space (Parks)

GYTRC - Soil - Human Health - Commercial / Industrial

Date 14.03.2019

Concentration of determinand in the soil exceeds WSP GAC Commercial / Industrial 1% SOM

The Limit of Detection (LoD) is greater than the screening value.

Determinand	Unit	WSP GAC Commercial / Industrial 1% SOM	BH101	BH101	BH101	BH102	BH102	BH102	BH102	BH103	BH103	BH103	BH104	BH104	BH104	BH105	BH105	BH105	BH105	BH106	BH106	BH106	BH107	BH107	BH108	BH109	BH109	BH109	BH110	BH110	BH110	BH110	BH110	BH110	BH110	BH110	TP101	TP101	TP104	TP104	WS107	WS107
Depth (m bgl)			0.5	1	8.0-8.45	0.5	1.2-1.65	3	10.0-10.45	21	0.5	5	0.5	0.6	25.5-25.95	1	30.2	26	34	0.2	9	0.6	1	3	1	0.5	17	9.5	0.5	1	2	3	4	6.7	11.5	13	0.2	0.5	0.2	0.5	0.4	0.5
Total Sulphate	mg/kg	-	590	-	-	1800	-	1000	-	-	<100	-	850	-	-	1700	-	-	-	980	-	-	<100	-	<100	<100	-	-	3700	5400	1400	1300	1600	470	580	420	850	-	660	-	-	350
Boron	mg/kg	207000	<3.5	-	<3.5	<3.5	-	<3.5	-	-	<3.5	-	<3.5	-	-	4.3	-	-	-	<3.5	-	-	<3.5	-	<3.5	<3.5	-	-	3.6	3.6	4.3	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	-	<3.5	-	<3.5
total sulphate BRE	%	-	-	0.12	0.05	-	0.02	-	0.04	0.03	-	0.01	-	0.06	0.03	0.17	0.1	0.04	0.06	-	0.01	0.06	-	<0.01	<0.01	-	0.03	0.01	0.37	0.54	-	-	-	-	-	-	-	0.03	-	0.05	0.02	-
Arsenic	mg/kg	635	54	-	-	5	-	18	-	-	4	-	6	-	-	6	-	-	-	4	-	-	<3	-	3	<3		-	3	<3	8	6	<3	<3	23	14	8	-	13	-	-	<3
Barium	mg/kg	-	170	-	-	31	-	34	-	-	8	-	47	-	-	20	-	-	-	43	-	-	9	-	9	<6		-	260	94	66	40	11	11	<6	<6	68	-	78	-	-	50
Beryllium	mg/kg	-	1.2	-	-	<0.4	-	<0.4	-	-	<0.4	-	<0.4	-	-	<0.4	-	-	-	<0.4	-	-	<0.4	-	<0.4	<0.4		-	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	-	<0.4	-	-	<0.4
Cadmium	mg/kg	223	3.7	-	-	<0.3	-	<0.3	-	-	<0.3	-	<0.3	-	-	<0.3	-	-	-	<0.3	-	-	<0.3	-	<0.3	<0.3		-	0.8	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	0.3	-	-	<0.3
Chromium	mg/kg	9550	16	-	-	8	-	19	-	-	<4.5	-	11	-	-	17	-	-	-	9.7	-	-	<4.5	-	<4.5	<4.5		-	57	24	23	16	8.6	<4.5	<4.5	<4.5	13	-	9.2	-	-	<4.5
Copper	mg/kg	69800	25	-	-	17	-	10	-	-	34	-	72	-	-	9	-	-	-	84	-	-	<6	-	<6	<6		-	330	57	200	170	<6	<6	<6	<6	14	-	26	-	-	11
Lead	mg/kg	1390	24	-	-	26	-	13	-	-	10	-	39	-	-	23	-	-	-	30	-	-	6	-	4	4		-	78	42	12	10	24	9	6	3	96	-	130	-	-	20
Mercury	mg/kg	15	<0.6	-	-	<0.6	-	<0.6	-	-	<0.6	-	<0.6	-	-	<0.6	-	-	-	<0.6	-	-	<0.6	-	<0.6	<0.6		-	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	-	<0.6	-	-	<0.6
Nickel	mg/kg	1710	41	-	-	7.8	-	18	-	-	2.6	-	15	-	-	13	-	-	-	6.5	-	-	1.7	-	3.3	<0.9		-	29	12	19	14	8.4	5	2.9	2.8	12	-	15	-	-	3.8
Selenium	mg/kg	12300	<3	-	-	<3	-	<3	-	-	<3	-	<3	-	-	<3	-	-	-	<3	-	-	<3	-	<3	<3		-	<3	<3	<3	<3	<3	<3	<3	<3	13	-	<3	-	-	<3
Vanadium	mg/kg	-	43	-	-	16	-	32	-	-	4.7	-	20	-	-	29	-	-	-	15	-	-	<1.5	-	4.5	2.9		-	59	22	42	27	16	8	11	9.4	26	-	13	-	-	6.2
Zinc	mg/kg	1050000	200	-	-	31	-	53	-	-	6.4	-	29	-	-	39	-	-	-	45	-	-	22	-	8.8	4.2		-	1500	190	83	45	24	13	11	9.7	89	-	110	-	-	39
Ammonium as NH4	g/l	-	-	0.0004	0.0012	-	0.0009	-	<0.0003	0.0031	-	0.0099	-	<0.0003	<0.0003	0.0021	<0.0003	<0.0003	<0.0003	-	<0.0003	<0.0003	-	0.0008	<0.0003	-	<0.0003	<0.0003	0.0009	0.0015	-	-	-	-	-	-	-	0.0003	-	<0.0003	0.0014	-
Nitrate	mg/kg	-	3	-	-	9	-	54	-	-	13	-	15	-	-	<1	-	-	-	28	-	-	<1	-	1	12	-	<0.3	12	2	<1	<1	<1	<1	<1	<1	13	-	2	-	-	5
Sulphide	mg/kg	-	<50	-	-	<50	-	<50	-	-	<50	-	<50	-	-	170	-	-	-	<50	-	-	<50	-	<50	<50	-	-	1100	<50	150	90	1200	<50	<50	<50	<50	-	<50	-	-	<50
Total CN	mg/kg	78	<1	-	-	<1	-	<1	-	-	<1	-	<1	-	-	<1	-	-	-	<1	-	-	<1	-	<1	<1	-	-	<1	1	36	8	2	<1	<1	<1	<1	-	2	-	-	<1
Free CN	mg/kg	-	<1	-	-	<1	-	<1	-	-	<1	-	<1	-	-	<1	-	-	-	<1	-	-	<1	-	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	-	-	<1
Complex CN	mg/kg	-	<1	-	-	<1	-	<1	-	-	<1	-	<1	-	-	<1	-	-	-	<1	-	-	<1	-	<1	-	-	-	<1	1	36	8	2	<1	<1	<1	<1	-	2	-	-	<1
Asbestos	n/a	Presence	No fibres detected	-	-	No fibres detected	-	No fibres detected	-	-	No fibres detected	-	No fibres detected	-	-	No fibres detected	-	-	-	No fibres detected	-	-	No fibres detected	-	No fibres detected	No fibres detected	-	-	No fibres detected	No fibres detected	No fibres detected	No fibres detected	No fibres detected	No fibres detected	No fibres detected	No fibres detected	No fibres detected	-	No fibres detected	-	-	No fibres detected
GRO C4-C12	µg/kg	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MTBE	µg/kg	7480000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	µg/kg	27000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	µg/kg	56300000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethyl Benzene	µg/kg	5710000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
m&p xylene	µg/kg	5920000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o xylene	µg/kg	5920000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 5-6	µg/kg	3190000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 6-8	µg/kg	7780000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 8-10	µg/kg	2000000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 10-12	µg/kg	9690000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 12-16	µg/kg	58800000	-	-	-	-	-	-	-	-	<100	-	-	-	-	<100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 16-21	µg/kg	1910000000	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 16-35	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 21-35	µg/kg	1910000000	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 35-44	µg/kg	1910000000	-	-	-	-	-	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total ali 5-35	µg/kg	-	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total ali 5-44	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
aro 6-7	µg/kg	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
aro 7-8	µg/kg	56100000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
aro 8-10	µg/kg	3460000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
aro 10-12	µg/kg	16200000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
aro 12-16	µg/kg	36200000	-	-	-	-	-	-	-	-	<100	-	-	-	-	<100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
aro 16-21	µg/kg	28600000	-	-	-	-	-	-	-	-	300	-	-	-	-	<100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
aro 21-35	µg/kg	28600000	-	-	-	-	-	-	-	-	19000	-	-	-	-	19000	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
aro 35-44	µg/kg	28600000	-	-	-	-	-	-	-	-	-	-	-	-	-	4800	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total aro 6-35	µg/kg	-	-	-	-	-	-	-	-	-	19000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total aro 6-44	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24000	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total ali aro 5-35	µg/kg	-														-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total ali aro 5-44	µg/kg	-														27000	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH 6-40	mg/kg	-	-	-	-	<10	-	<10	-	-	-	-	48	-	-	-	-	-	-	<10	-	-	<10	-	-	<10	-	-	300	340	<10	15	<10	<10	<10	<10	270	-	410	-		
PAH total	mg/kg	-	-	-	-	160	-	91	-	-	<10	-	<10	-	-	-	-	-	-	<10	-	-	<10	-	-	<10	-	-	<10	34	<10	<10	<10	<10	<10	<10	34	-	59	-		
Naphthalene	µg/kg	193000	64	-	-	190	-	330	-	-	-	-	-	-	-	690	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	µg/kg	-	9	-	-	21	-	8	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenapththene	µg/kg	-	39	-	-	45	-	<14	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	<14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	µg/kg	-	40	-	-	38	-	28	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	<12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	µg/kg	-	240	-	-	480	-	62	-	-	-	-	-	-	-	56	-	-	-	-	-	-	-	-	<21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	µg/kg	-	52	-	-	120	-	<9	-	-	-	-	-	-	-	<9	-	-	-	-	-	-	-	-	<9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	µg/kg	-	360	-	-	810	-	35	-	-	-	-	-	-	-	<25	-	-	-	-	-	-	-	-	<25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	µg/kg	-	310	-	-	610	-	28	-	-	-	-	-	-	-	<22	-	-	-	-	-	-	-	-	<22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	µg/kg	-	190	-	-	370	-	29	-	-	-	-	-	-	-	27	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	µg/kg	-	220	-	-	360	-	21	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	µg/kg	38000	130	-	-	390	-	24	-	-	-	-	-	-	-	<16	-	-	-	-	-	-	-	-	<16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/kg	-	110	-	-	140	-	<25	-	-	-	-	-	-	-	<25	-	-	-	-	-	-	-	-	<25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	µg/kg	-	190	-	-	320	-	15	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	<12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(123-cd)pyrene	µg/kg	-	92	-	-	170	-	<11	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(ah)anthracene	µg/kg	-	24	-	-	46	-	<8	-	-	-	-	-	-	-	<8	-	-	-	-	-	-	-	-	<8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	µg/kg	-	120	-	-	210	-	16	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAH Total 16	µg/kg	-	2200	-	-	4300	-	600	-	-	-	-	-	-	-	890	-	-	-	-	-	-	-	-	69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

GYTRC - Soil - Human Health - Public Open Space (Parks)

Date 14.03.2019

Concentration of determinand in the soil exceeds WSP GAC - POS 1% SOM

The Limit of Detection (LoD) is greater than the screening value.

Determinand	Unit	WSP GAC - POS 1% SOM	BH101			BH102				BH103			BH104			BH105				BH106			BH107		BH108	BH109			BH110							
Depth (m bgl)			BH101	BJ101	BH101	BH102	BH102	BH102	BH102	BH103	BH103	BH103	BH104	BH104	BH104	BH105	BH105	BH105	BH105	BH106	BH106	BH106	BH107	BH107	BH108	BH109	BH109	BH109	BH110	BH110	BH110	BH110	BH110	BH110	BH110	BH110
			0.5	1	8.0-8.45	0.5	1.2-1.65	3	10.0-10.45	21	0.5	5	0.5	0.6	25.5-25.95	1	30.2	26	34	0.2	9	0.6	1	3	1	0.5	17	9.5	0.5	1	2	3	4	6.7	11.5	13
Total Sulphate	mg/kg	-	590	-	-	1800	-	1000	-	-	<100	-	850	-	-	1700	-	-	-	980	-	-	<100	-	<100	<100	-	-	3700	5400	1400	1300	1600	470	580	420
Boron	mg/kg	46000	<3.5	-	-	<3.5	-	<3.5	-	-	<3.5	-	<3.5	-	-	4.3	-	-	-	<3.5	-	-	<3.5	-	<3.5	<3.5	-	-	3.6	3.6	4.3	<3.5	<3.5	<3.5	<3.5	<3.5
total sulphate BRE	%	-	-	0.12	0.05	-	0.02	-	0.04	0.03	-	0.01	-	0.06	0.03	0.17	0.1	0.04	0.06	-	0.01	0.06	-	<0.01	<0.01	-	0.03	0.01	0.37	0.54	-	-	-	-	-	-
Arsenic	mg/kg	168	54	-	-	5	-	18	-	-	4	-	6	-	-	6	-	-	-	4	-	-	<3	-	3	<3		-	3	<3	8	6	<3	<3	23	14
Barium	mg/kg	-	170	-	-	31	-	34	-	-	8	-	47	-	-	20	-	-	-	43	-	-	0	-	9	<6		-	260	94	66	40	11	11	<6	<6
Beryllium	mg/kg	-	1.2	-	-	<0.4	-	<0.4	-	-	<0.4	-	<0.4	-	-	<0.4	-	-	-	<0.4	-	-	<0.4	-	<0.4	<0.4		-	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Cadmium	mg/kg	555	3.7	-	-	<0.3	-	<0.3	-	-	<0.3	-	<0.3	-	-	<0.3	-	-	-	<0.3	-	-	<0.3	-	<0.3	<0.3		-	0.8	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	mg/kg	58000	16	-	-	8	-	19	-	-	<4.5	-	11	-	-	17	-	-	-	9.7	-	-	<4.5	-	<4.5	<4.5		-	57	24	23	16	8.6	<4.5	<4.5	<4.5
Copper	mg/kg	44400	25	-	-	17	-	10	-	-	34	-	72	-	-	9	-	-	-	84	-	-	<6	-	<6	<6		-	330	57	200	170	<6	<6	<6	<6
Lead	mg/kg	808	24	-	-	26	-	13	-	-	10	-	39	-	-	23	-	-	-	30	-	-	6	-	4	4		-	78	42	12	10	24	9	6	3
Mercury	mg/kg	26	<0.6	-	-	<0.6	-	<0.6	-	-	<0.6	-	<0.6	-	-	<0.6	-	-	-	<0.6	-	-	<0.6	-	<0.6	<0.6		-	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Nickel	mg/kg	804	41	-	-	7.8	-	18	-	-	2.6	-	15	-	-	13	-	-	-	6.5	-	-	1.7	-	3.3	<0.9		-	29	12	19	14	8.4	5	2.9	2.8
Selenium	mg/kg	1850	<3	-	-	<3	-	<3	-	-	<3	-	<3	-	-	<3	-	-	-	<3	-	-	<3	-	<3	<3		-	<3	<3	<3	<3	<3	<3	<3	<3
Vanadium	mg/kg	-	43	-	-	16	-	32	-	-	4.7	-	20	-	-	29	-	-	-	15	-	-	<1.5	-	4.5	2.9		-	59	22	42	27	16	8	11	9.4
Zinc	mg/kg	173000	200	-	-	31	-	53	-	-	6.4	-	29	-	-	39	-	-	-	45	-	-	22	-	8.8	4.2		-	1500	190	83	45	24	13	11	9.7
Ammonium as NH4	g/l	-	-	0.0004	0.0012	-	0.0009	-	<0.0003	0.0031	-	0.0099	-	<0.0003	<0.0003	0.0021	<0.0003	<0.0003	<0.0003	-	<0.0003	<0.0003	-	0.0008	<0.0003	-	<0.0003	<0.0003	0.0009	0.0015	-	-	-	-	-	-
Nitrate	mg/kg	-	3	-	-	9	-	54	-	-	13	-	15	-	-	<1	-	-	-	28	-	-	<1	-	1	12	-	-	12	2	<1	<1	<1	<1	<1	<1
Sulphide	mg/kg	-	<50	-	-	<50	-	<50	-	-	<50	-	<50	-	-	170	-	-	-	<50	-	-	<50	-	<50	<50	-	-	1100	<50	150	90	1200	<50	<50	<50
Total CN	mg/kg	15	<1	-	-	<1	-	<1	-	-	<1	-	<1	-	-	<1	-	-	-	<1	-	-	<1	-	<1	<1	-	-	<1	1	36	8	2	<1	<1	<1
Free CN	mg/kg	-	<1	-	-	<1	-	<1	-	-	<1	-	<1	-	-	<1	-	-	-	<1	-	-	<1	-	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Complex CN	mg/kg	-	<1	-	-	<1	-	<1	-	-	<1	-	<1	-	-	<1	-	-	-	<1	-	-	<1	-	<1	<1	-	-	<1	1	36	8	2	<1	<1	<1
Asbestos	n/a	Presence	No fibres detected	-	-	No fibres detected	-	No fibres detected	-	-	No fibres detected	-	No fibres detected	-	-	No fibres detected	-	-	-	No fibres detected	-	-	No fibres detected	-	No fibres detected	No fibres detected	-	-	No fibres detected	No fibres detected	No fibres detected	No fibres detected	No fibres detected	No fibres detected	No fibres detected	No fibres detected
GRO C4-C12	µg/kg	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
MTBE	µg/kg	98400000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
Benzene	µg/kg	90000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
Toluene	µg/kg	87200000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
Ethyl Benzene	µg/kg	16500000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
m&p xylene	µg/kg	16600000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
o xylene	µg/kg	16600000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
ali 5-6	µg/kg	94700000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
ali 6-8	µg/kg	146000000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
ali 8-10	µg/kg	14300000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
ali 10-12	µg/kg	20900000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
ali 12-16	µg/kg	2470000	-	-	-	-	-	-	-	-	<100	-	-	-	-	<100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
ali 16-21	µg/kg	525000000	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 16-35	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
ali 21-35	µg/kg	525000000	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ali 35-44	µg/kg	525000000	-	-	-	-	-	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
total ali 5-35	µg/kg	-	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total ali 5-44	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
aro 6-7	µg/kg	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
aro 7-8	µg/kg	86800000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
aro 8-10	µg/kg	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
aro 10-12	µg/kg	9240000	-	-	-	-	-	-	-	-	<10	-	-	-	-	<10	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
aro 12-16	µg/kg	10200000	-	-	-	-	-	-	-	-	<100	-	-	-	-	<100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
aro 16-21	µg/kg	7880000	-	-	-	-	-	-	-	-	300	-	-	-	-	<100	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
aro 21-35	µg/kg	7880000	-	-	-	-	-	-	-	-	19000	-	-	-	-	19000	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
aro 35-44	µg/kg	7880000	-	-	-	-	-	-	-	-	-	-	-	-	-	4800	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
total aro 6-35	µg/kg	-	-	-	-	-	-	-	-	-	19000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total aro 6-44	µg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24000	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
total ali aro 5-35	µg/kg	-										-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total ali aro 5-44	µg/kg	-										-	-	-	-	27000	-	-	-	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-
TPH 6-40	mg/kg	-	-	-	-	<10	-	<10	-	-	-	-	48	-	-	-	-	-	-	<10	-	-	<10	-	-	<10	-	-	300	340	<10	15	<10	<10	<10	<10
PAH total	mg/kg	-	-	-	-	160	-	91	-	-	<10	-	<10	-	-	-	-	-	-	<10	-	-	<10	-	-	<10	-	-	<10	34	<10	<10	<10	<10	<10	<10
Naphthalene	µg/kg	1240000	64	-	-	190	-	330	-	-	-	-	-	-	-	690	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	µg/kg	-	9	-	-	21	-	8	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	µg/kg	-	39	-	-	45	-	<14	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	<14	-	-	-	-	-	-	-	-	-	-	-
Fluorene	µg/kg	-	40	-	-	38	-	28	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	<12	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	µg/kg	-	240	-	-	480	-	62	-	-	-	-	-	-	-	56	-	-	-	-	-	-	-	-	<21	-	-	-	-	-	-	-	-	-	-	-
Anthracene	µg/kg	-	52	-	-	120	-	<9	-	-	-	-	-	-	-	<9	-	-	-	-	-	-	-	-	<9	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	µg/kg	-	360	-	-	810	-	35	-	-	-	-	-	-	-	<25	-	-	-	-	-	-	-	-	<25	-	-	-	-	-	-	-	-	-	-	-
Pyrene	µg/kg	-	310	-	-	610	-	28	-	-	-	-	-	-	-	<22	-	-	-	-	-	-	-	-	<22	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	µg/kg	-	190	-	-	370	-	29	-	-	-	-	-	-	-	27	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-
Chrysene	µg/kg	-	220	-	-	360	-	21	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	µg/kg	-	130	-	-	390	-	24	-	-	-	-	-	-	-	<16	-	-	-	-	-	-	-	-	<16	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/kg	-	110	-	-	140	-	<25	-	-	-	-	-	-	-	<25	-	-	-	-	-	-	-	-	<25	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	µg/kg	11000	190	-	-	320	-	15	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	<12	-	-	-	-	-	-	-	-	-	-	-
Indeno(123-cd)pyrene	µg/kg	-	92	-	-	170	-	<11	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(ah)anthracene	µg/kg	-	24	-	-	46	-	<8	-	-	-	-	-	-	-	<8	-	-	-	-	-	-	-	-	<8	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	µg/kg	-	120	-	-	210	-	16	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-
PAH Total 16	µg/kg	-	2200	-	-	4300	-	600	-	-	-	-	-	-	-	890	-	-	-	-	-	-	-	-	69	-	-	-	-	-	-	-	-	-	-	-

Determinand	Unit	TP101		TP104		WS107	
Depth (m bgl)		TP101	TP101	TP104	TP104	WS107	WS107
		0.2	0.5	0.2	0.5	0.4	0.5
Total Sulphate	mg/kg	850	-	660	-	-	350
Boron	mg/kg	<3.5	-	<3.5	-	-	<3.5
total sulphate BRE	%	-	0.03	-	0.05	0.02	-
Arsenic	mg/kg	8	-	13	-	-	<3
Barium	mg/kg	68	-	78	-	-	50
Beryllium	mg/kg	<0.4	-	<0.4	-	-	<0.4
Cadmium	mg/kg	<0.3	-	0.3	-	-	<0.3
Chromium	mg/kg	13	-	9.2	-	-	<4.5
Copper	mg/kg	14	-	26	-	-	11
Lead	mg/kg	96	-	130	-	-	20
Mercury	mg/kg	<0.6	-	<0.6	-	-	<0.6
Nickel	mg/kg	12	-	15	-	-	3.8
Selenium	mg/kg	13	-	<3	-	-	<3
Vanadium	mg/kg	26	-	13	-	-	6.2
Zinc	mg/kg	89	-	110	-	-	39
Ammonium as NH4	g/l	-	0.0003	-	<0.0003	0.0014	-
Nitrate	mg/kg	13	-	2	-	-	5
Sulphide	mg/kg	<50	-	<50	-	-	<50
Total CN	mg/kg	<1	-	2	-	-	<1
Free CN	mg/kg	<1	-	<1	-	-	<1
Complex CN	mg/kg	<1	-	2	-	-	<1
Asbestos	n/a	No fibres detected	-	No fibres detected	-	-	No fibres detected
GRO C4-C12	µg/kg	-	-	-	-	-	-
MTBE	µg/kg	-	-	-	-	-	-
Benzene	µg/kg	-	-	-	-	-	-
Toluene	µg/kg	-	-	-	-	-	-
Ethyl Benzene	µg/kg	-	-	-	-	-	-
m&p xylene	µg/kg	-	-	-	-	-	-
o xylene	µg/kg	-	-	-	-	-	-
ali 5-6	µg/kg	-	-	-	-	-	-
ali 6-8	µg/kg	-	-	-	-	-	-
ali 8-10	µg/kg	-	-	-	-	-	-
ali 10-12	µg/kg	-	-	-	-	-	-
ali 12-16	µg/kg	-	-	-	-	-	-
ali 16-21	µg/kg	-	-	-	-	-	-
ali 16-35	µg/kg	-	-	-	-	-	-
ali 21-35	µg/kg	-	-	-	-	-	-
ali 35-44	µg/kg	-	-	-	-	-	-
total ali 5-35	µg/kg	-	-	-	-	-	-
total ali 5-44	µg/kg	-	-	-	-	-	-
aro 6-7	µg/kg	-	-	-	-	-	-
aro 7-8	µg/kg	-	-	-	-	-	-
aro 8-10	µg/kg	-	-	-	-	-	-
aro 10-12	µg/kg	-	-	-	-	-	-
aro 12-16	µg/kg	-	-	-	-	-	-
aro 16-21	µg/kg	-	-	-	-	-	-
aro 21-35	µg/kg	-	-	-	-	-	-
aro 35-44	µg/kg	-	-	-	-	-	-
total aro 6-35	µg/kg	-	-	-	-	-	-
total aro 6-44	µg/kg	-	-	-	-	-	-
total ali aro 5-35	µg/kg	-	-	-	-	-	-
total ali aro 5-44	µg/kg	-	-	-	-	-	-
TPH 6-40	mg/kg	270	-	410	-	-	-
PAH total	mg/kg	34	-	59	-	-	-
Naphthalene	µg/kg	-	-	-	-	-	-
Acenaphthylene	µg/kg	-	-	-	-	-	-
Acenaphthene	µg/kg	-	-	-	-	-	-
Fluorene	µg/kg	-	-	-	-	-	-
Phenanthrene	µg/kg	-	-	-	-	-	-
Anthracene	µg/kg	-	-	-	-	-	-
Fluoranthene	µg/kg	-	-	-	-	-	-
Pyrene	µg/kg	-	-	-	-	-	-
Benzo(a)anthracene	µg/kg	-	-	-	-	-	-
Chrysene	µg/kg	-	-	-	-	-	-
Benzo(b)fluoranthene	µg/kg	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/kg	-	-	-	-	-	-
Benzo(a)pyrene	µg/kg	-	-	-	-	-	-
Indeno(123-cd)pyrene	µg/kg	-	-	-	-	-	-
Dibenzo(ah)anthracene	µg/kg	-	-	-	-	-	-
Benzo(ghi)perylene	µg/kg	-	-	-	-	-	-
PAH Total 16	µg/kg	-	-	-	-	-	-