9. TRIAL PIT LOGS AND SKETCHES

CONCEPT
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Trial Pit No

TP01

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No	Date Started	Date Completed	Ground Level (mOD)	Co-Ordinates	Final Depth
16/2900	29/11/16	29/11/16	5.44	E 543374.6 N 180188.8	2.00m

Client	Method/ Plant Used	Sheet
London City Airport Limited	Machine Excavated	1 of 1

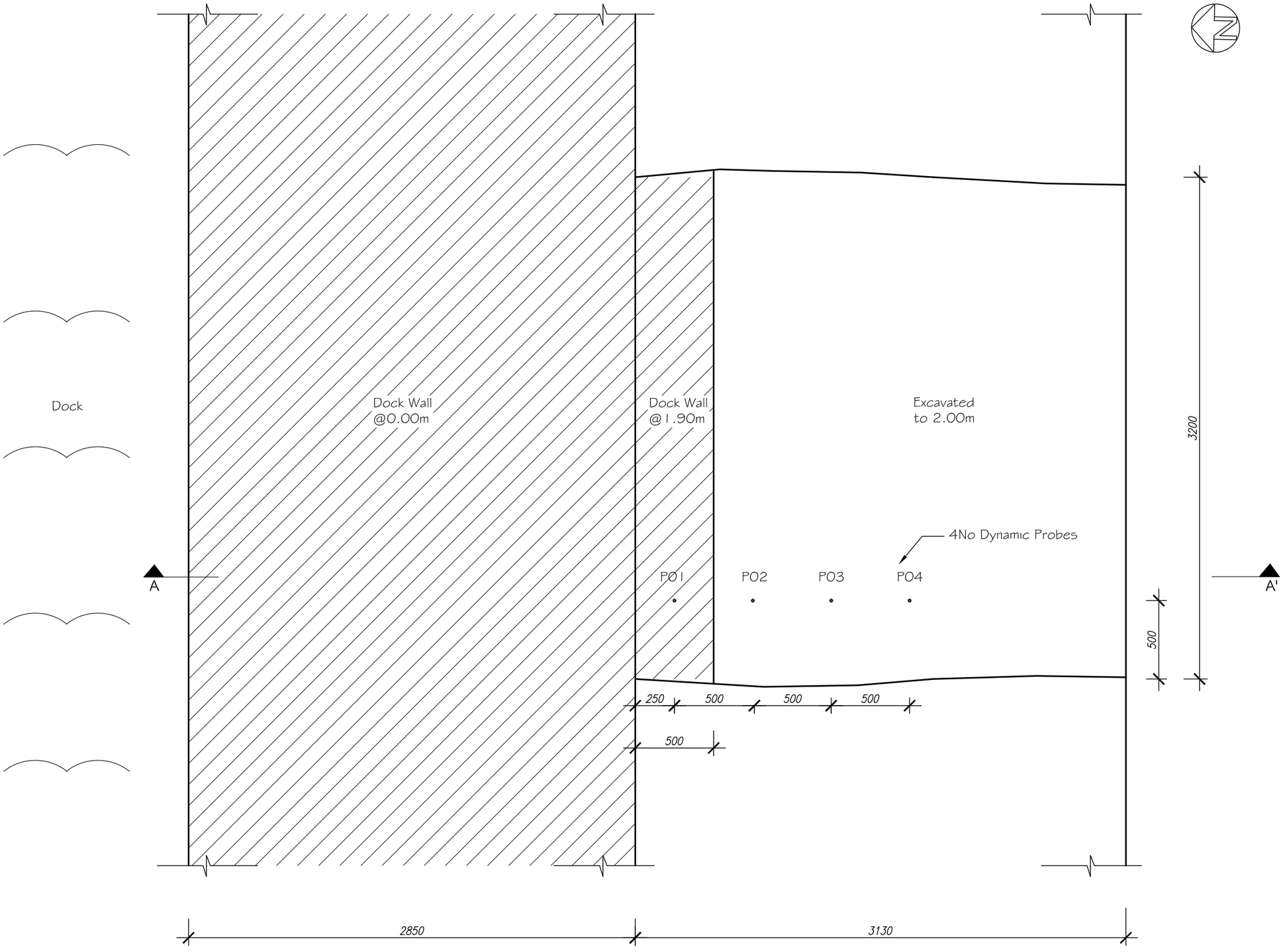
Water	Level (mOD)	Legend	Depth (Thickness)	Stata Description	Sample Depth	Type No	Test Result	Field Records
			(0.30)	CONCRETE.				
	5.14		0.30	Brown, very sandy GRAVEL with concrete cobbles. Gravel comprises fine to coarse flint with brick and concrete fragments. (MADE GROUND)				
1			(1.70)					
2	3.44		2.00	End of Trial Pit				

GENERAL REMARKS

1. Weather was overcast but dry.
2. Trial pit was stable.
3. Water seepage encountered at 2.00m below ground level.
4. Trial pit dimensions 1.90mx 3.20mx 2.00m depth.
5. Trial pit backfilled with soil arisings.
6. 4No Dynamic probes were carried out through the backfilled pit to establish dock profile on the 19/01/17.
7. Water encountered on the rods at 1.40m depth during dynamic probing.
8. Also refer to TP01 sketch.

Issue No:	Drilled By:	Logged By:	Checked By:	Approved By:	Log Print Date & Time:
00	SW	MK	OS	OS	28/02/2017 16:57

Report ID: CONCEPT- TRIAL PIT || Project: 162900 - LONDON CITY AIRPORT.GPJ || Library: CONCEPT LIBRARY - 2017.GLB || Date: 28 February 2017



0.00 1.00 2.00 3.00 4.00 5.00

PLAN TPO1

NOTES

1. This drawing should not be scaled, only use annotated dimensions.

2. Dynamic Probing was carried out on the 19/01/17.

3. Also refer to TP01 log.

No	Revision	Drawn	Checked	Passed	Date

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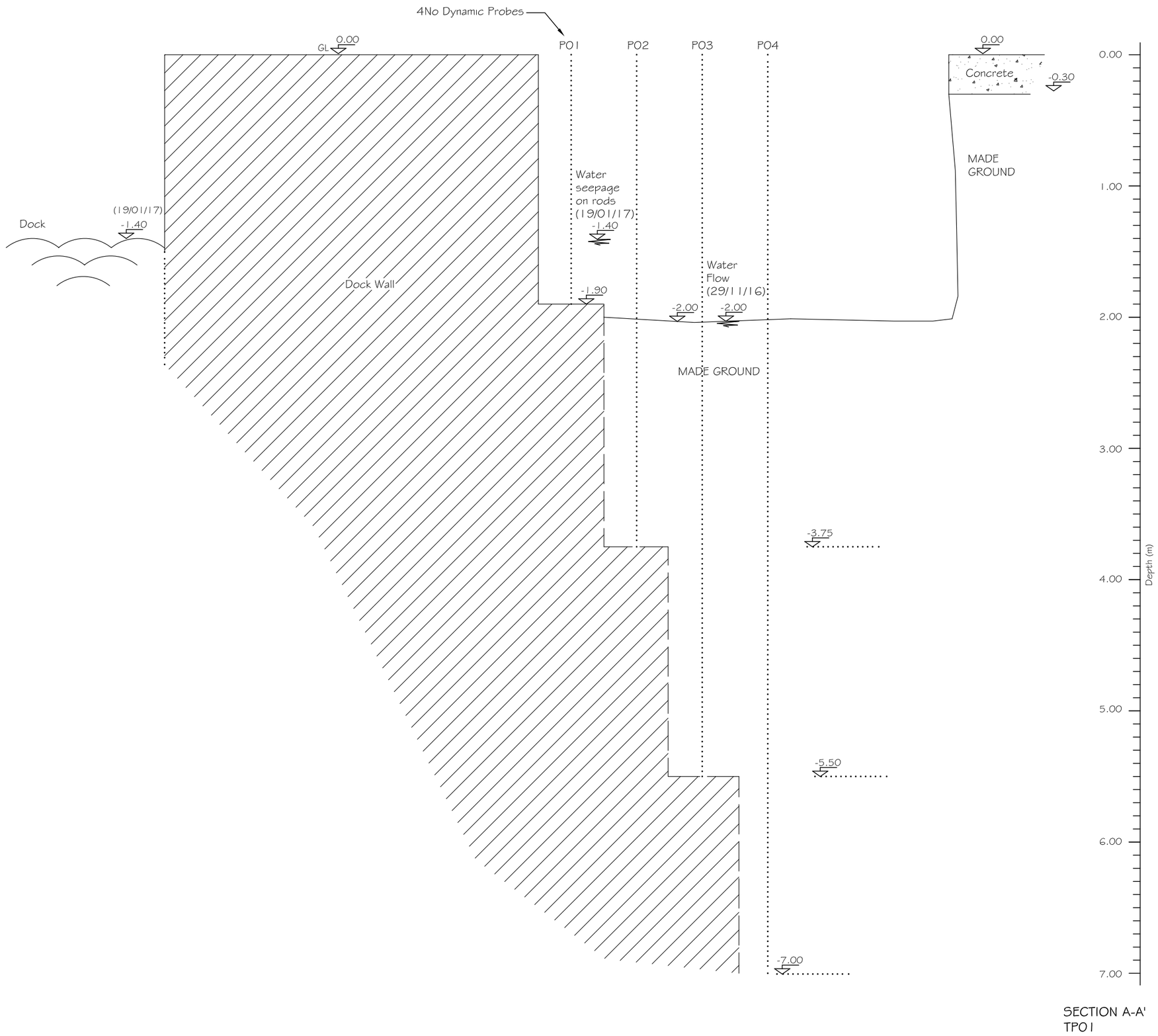
Client:	London City Airport
Project:	CADP Surveys - Ground Investigation (Dock) - Phase 2
Title:	TP01 Plan
Dwg. No:	162900/01
Status:	Issue
Scale:	1:25

Drawn	Checked	Passed	Date
EV	OS	MD	January 16



SECTION A-A'
TP01

NOTES

1. This drawing should not be scaled, only use annotated dimensions.

2. Dynamic Probing was carried out on the 19/01/17.

3. Also refer to TP01 log.

No	Revision	Drawn	Checked	Passed	Date

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Client:	London City Airport
Project:	CADP Surveys - Ground Investigation (Dock) - Phase 2
Title:	TP01 Section A-A'
Dwg. No:	162900/02
Status:	Issue
Scale:	1:25

Drawn	Checked	Passed	Date
EV	OS	MD	January 16

10. MENARD PRESSUREMETER TEST RESULTS

Site Investigation - Menard Pressuremeter Testing

London City Airport, England

Technical Report

igeotest

DOCUMENT CONTROL SHEET

Site Investigation - Menard Pressuremeter Testing	
DOCUMENT IDENTIFICATION	
Client:	CONCEPT ENGINEERING CONSULTANTS
Project reference:	London City Airport

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01	20/02/2017	FCA	ALNH	NP	MC

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TABLE OF CONTENTS

1 ABSTRACT 1

2 EQUIPMENT 1

3 METHODLOGIE 1

3.1 GENERAL PRINCIPLES 1

3.2 CHECKS AND CALIBRATIONS 2

3.3 ESTIMATION OF GAS PRESSURE IN GUARD CELLS FOR A GIVEN TEST 3

3.4 ESTABLISHING THE LOADING PROGRAMME 4

4 TEST PROCEDURE 4

5 INTERPRETATION (ACCORDING ISO 22476-4 2012) 6

5.1 ANALYSIS OF A PRESSUREMETER TEST 6

5.1.1 Ménard creep pressure *pf* 7

5.1.2 Ménard modulus E_M 7

5.1.3 Ménard limit pressure pLM 7

6 RESULTS 8

7 CONCLUSIONS 8

APPENDIX 1 – PRESSUREMETER LOGS 10

LIST OF TABLES

TABLE 1 TECHNICAL SPECIFICATIONS OF EQUIPMENT 1

TABLE 2 SUMMARY OF RESULTS 9

LIST OF FIGURES

FIGURE 1 SCHEMATIC REPRESENTATION OF MENARD PRESSUREMETER TEST 2

FIGURE 2 ELEVATION OF PROBE AND PRESSURE REGULATOR DURING A PRESSURE LOSS CALIBRATION 3

FIGURE 3 ELEVATION TEST REFERENCES 5

FIGURE 4 MENARD PRESSUREMETER TEST 6

1 ABSTRACT

This document provides methodology for the pressuremeter tests investigation performed on London Airport and it is based on the investigations performed between 8th November and 06th December 2016.

2 EQUIPMENT

To carry out the pressuremeter tests an automatic Menard pressuremeter unit has been used (see Table 1 for technical specifications).

Table 1 Technical specifications of equipment

Type of Equipment: AUTO-CONTROLLED MENARD PRESSUREMETER		
Equipment Information	**Name of manufacturer** APAGEO	**Model** GeoPac
	Dimensions: 100x38x34 cm	
	Weight: 45 kg (empty)	
	Max gas pressure: 100 bars	
	Power supply: 9-18VDC	
	Volume capacity: Roughly 1200 cm^3	
	Length probes: *Tube fendu* 370 mm ϕ 44 mm	
Totally automatic and autonomous equipment that manages all the different steps of the test, ordered by the operator. Cyclic test with personal programation.		

3 METHODLOGIE

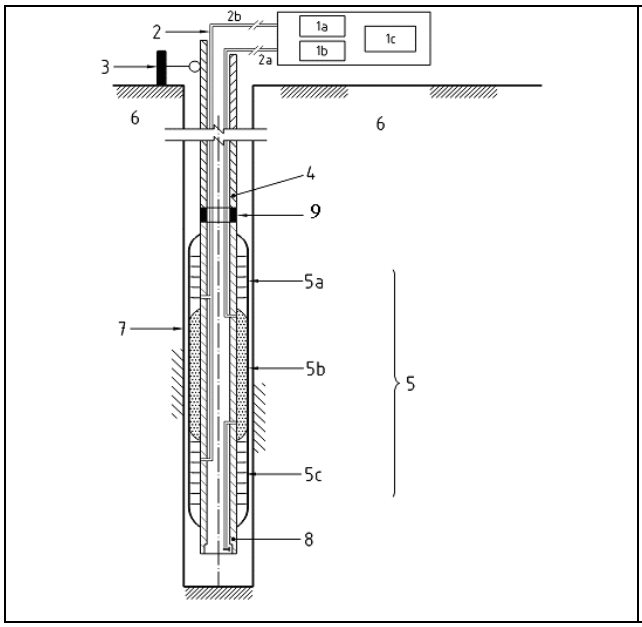
T The tests were conducted according to ISO 22476-4 2012 for automatic data acquisition.

At the technical criteria of the operator, some cyclic tests were performed (BH03). In this case was following the standard *XP P 94-110-2 1999 Menard avec cycle*.

3.1 GENERAL PRINCIPLES

The pressuremeter test consists of progressively applying a lateral load to the terrain by means of a radially adjustable cylindrical probe, which is introduced into a prepared borehole.

Pressuremeter is a cylindrical device designed to apply uniform pressure to the walls of a borehole by means of a flexible membrane. The principle of Menard pressuremeter is illustrated in Figure 1.



1 Control unit (CU)
2 Connecting lines
3 Depth measurement system
4 Rods
5 Pressuremeter probe
  5a Upper gard cell
  5b Central measuring cell
6 Ground
7 Pressuremeter test pocket
8 Probe body, hollow
9 Probe rod couplin

Figure 1 Schematic representation of Menard pressuremeter test

The equipment has three main components:

- Monitoring and read out control unit (CPV), which is deployed above ground.
- Pressuremeter probe.
- Coaxial cable connecting the CPV to the probe

The pressuremeter probe comprises of a central measurement cell filled with water to witch pressure is applied by gas pressure controlled at the surface. The central cell is located between an upper and lower guard cell, both of which are inflated with gas or water pressure.

3.2 CHECKS AND CALIBRATIONS

Preparation of pressuremeter probe for central cell membrane pressure loss test (Pel)

This measure is not usually necessary; the value of the internal resistance of the membrane is given by APAGEO (50 kPa - 0.5 bar).

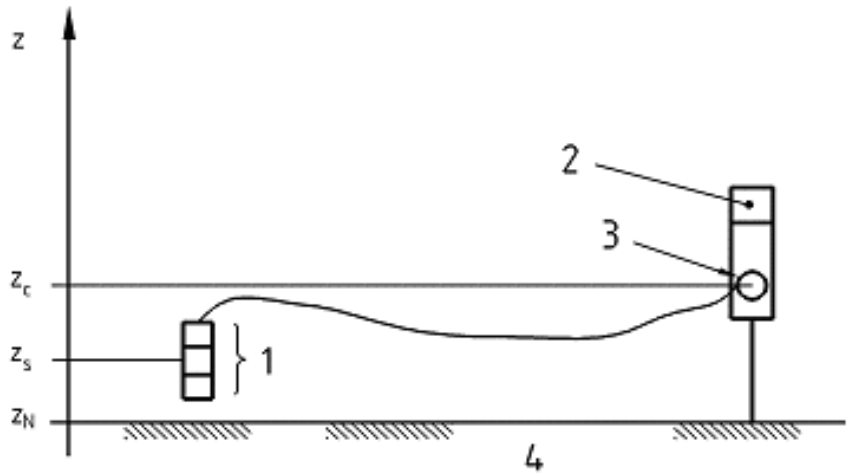
Equipment volume loss calibration test

The probe, either simply clad by its rubber cover or fitted with its slotted tube, is placed into the pressure loss calibration cylinder The probe is pressurized by increments Δp initially of 100 kPa until the probe cover or the slotted tube comes into contact with the calibration cylinder.

After this point, equal increments are applied up to the maximum pressure rating of the probe. During the second part of this test each pressure level shall be applied within 20 s and held for 60 s.

Probe pressure loss calibration test

The probe is placed close to the pressure measuring device, as shown on Figure 2, and in the open air. The probe is inflated as if it were in the ground, with pressure increments Δp equal to 1/5 of the expected pressure loss of the probe Pel. Each pressure increment shall be held for 60 s. A volume of at least 700 cm^3 shall be injected in the central measuring cell.



Key: 1 Pressuremeter probe, 2 Pressure measuring device, 3 Pressure regulator, 4 Ground surface, z Elevation

Figure 2 Elevation of probe and pressure regulator during a pressure loss calibration

3.3 ESTIMATION OF GAS PRESSURE IN GUARD CELLS FOR A GIVEN TEST

The gas pressure in the guard cells shall not be higher than the pressure in the central measuring cell. The value of the guard cell pressure is automatically determined by equipment before each test and fixed at the first pressure hold.

3.4 ESTABLISHING THE LOADING PROGRAMME

The loading program of the pressuremeter tests is programmed in the equipment with relationship between time and pressure as applied by the probe to the ground according selected standard.

4 TEST PROCEDURE

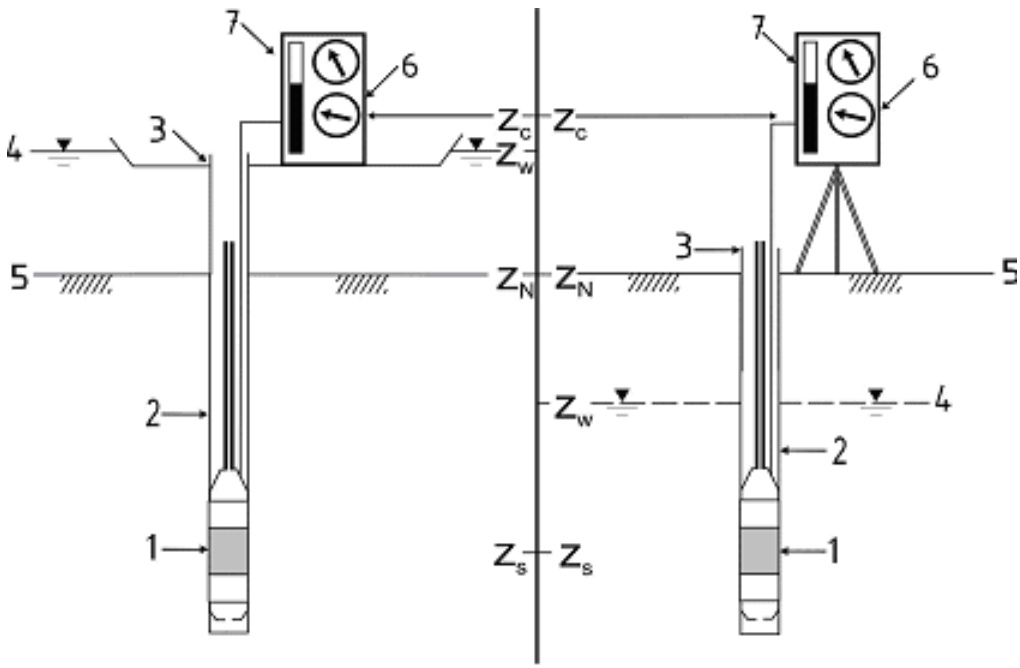
Next steps were undertaken for testing:

- Probe selection based on the type of soil to be tested: probe with slotted steel tube
- Assembling the parts: the probe was linked to the control unit through the connecting lines. The whole system was filled with liquid and purged to remove air bubbles.
- Pressuremeter pocket and probe placing. The preparation of satisfactory pockets was the most important step in obtaining acceptable pressuremeter test results. Different boreholing techniques were tried in order to obtain a satisfactory test pocket in each case.
- As next step, for each sounding:
    - The acquisition and recording device, i.e. the data logger, was initialised (procedure B);
    - The initial reading of each transducer was checked and recorded;
    - The identification parameters of the test are recorded in the memory device:
        - Test operator identification
        - File number
        - Sounding number
        - Type of probe
        - Technique of pocket drilling ground identification and description
        - Method of probe setting;
        - Calibrations test references
        - Elevation zc of the pressure transducer or value of zc - zN for this transducer; elevation zs of the test location or depth (zN - zs) of the probe (see Figure 3).
    - Differential pressure setting
    - Establishing the loading program: the applied liquid pressure and the injected volumes in the probe were displayed and recorded at least at the following times: 1 s, 15 s, 30 s and 60 s.

- One unload-reload cycle, if required, can be included. The cycle test was be performed according to *XP P 94-110-2 1999 Menard avec cycle*

- End of test; the test is terminated when sufficient data has been accumulated for the intended purpose, within the full capabilities of the equipment:
  - When the pressure pr reaches at least 5 MPa, or
  - When the volume of liquid injected into the central measuring cell 600 cm^3 (450 cm^3 for a short probe within a slotted tube) or
  - When the probe bursts

NOTE In the event that these conditions are not met, the test can still be fully analysed when three pressure holds beyond pf are obtained.



a) in a marine or river environment **b) in a land environment**

Figure 3 Elevation test references

5 INTERPRETATION (according ISO 22476-4 2012)

The data obtained is interpreted after the test execution with commercial software GEOVISION by APAGEO according the mandatory standard.

The phreatic level and test references are taken according Figure 3.

For land tests, the phreatic level for the interpretation was done by the borehole information.

For river tests, the phreatic level for interpretation is the distance between deck platform level and the water level on the river.

5.1 ANALYSIS OF A PRESSUREMETER TEST

The corrected pressuremeter curve is analysed together with the corrected creep curve, considering slopes m_i of straight-line segments between data points and $\Delta V60/30$ Ménard creep values (see Figure 4).

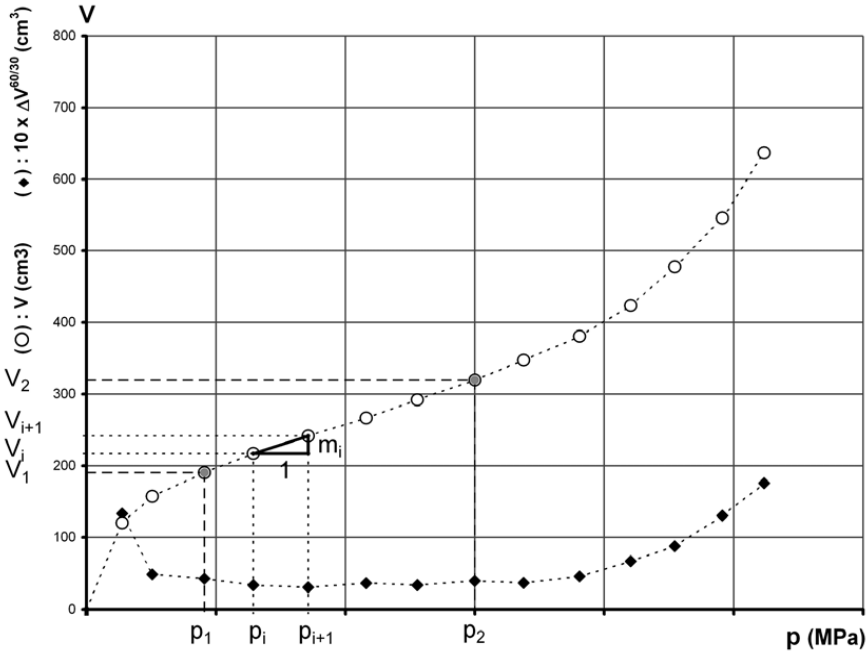


Figure 4 Menard pressuremeter test

Key

O Corrected pressuremeter curve

♦ Corrected creep curve

The corrected pressuremeter curve shall be analysed together with the corrected creep curve, considering m_i slopes and $\Delta V60/30$ Ménard creep values at each pressure hold. In a completed test, the sequence of readings can be divided into three successive groups:

The first group consists of the sets of readings obtained during probe expansion up to the contact between the surface of the probe and the pocket wall; they usually exhibit high Ménard creep values;

The second group in the lower pressure range includes readings which exhibit low slopes m_i and low Ménard creep values. This group identifies the pseudo-elastic section of the curve.

The third group in the higher pressure range exhibits increasingly higher slopes and higher Ménard creep values. This group identifies the plastic phase.

On the pressuremeter curve the region between the first and the second group is used to define the contact of the probe against the pocket wall.

5.1.1 Ménard creep pressure *p*f

The creep pressure *p*f is found in the transition zone between the last two groups and can be estimated using the graphical analyses of the (p, ΔV60/30) and of the (p, V60) diagram.

5.1.2 Ménard modulus E_M

The Menard modulus E_M is obtained from the second group of readings.

According to the type of probe cover, the pressuremeter modulus is obtained by using equations given in the standard.

5.1.3 Ménard limit pressure pLM

Ménard limit pressure pLM is obtained from the third group of readings.

Since the pressuremeter limit pressure is obtained when the volume of the central measuring cell, which is also called the volume of the pocket, is doubled and since the volume readings do not involve the original volume Vc of the central measuring cell, the limit pressure shall be the corrected pressure for which the corrected injected volume in the probe central cell is such that:

$$V_L = V_c + 2\ V_1$$

When, during a test, the injected volume is such that the pressuremeter central cell volume becomes bigger than:

$$V_c + 2\,V_1,$$

The limit pressure shall be then obtained by linear interpolation. The standard describes two extrapolation methods that which shall be applied to test result. The relationships between both methods define the correct pL for the test.

For these methods, extrapolation is only permitted when the number of pressure holds applied beyond pressure pf is at least two.

If the limit pressure is not attained either by the direct method or by extrapolation methods, the limit pressure value shall be reported as pLM > p, p being the last corrected pressure applied.

6 RESULTS

The Table 2 summarises all the tests done and the main results obtained.
The logs for each test can be found in APPENDIX 1.

7 CONCLUSIONS

From the data presented in this report it can be concluded that:

- Tests performed by Igeotest are in strict compliance with recommendations contained in according ISO 22476-4 2012.
- Borehole drilling for probe positioning has been satisfactory; the first section of the curves shows minimal alteration of the wall excluding two tests (BH-17 17.6 m and BH10R 19.0 m). In these cases the test can't be progress due to oversize borehole and the volume of liquid injected into the central measuring cell exceeds 450 cm3.
- Interpretation of Igeotest tests conforms to the recommendations of the according ISO 22476-4 2012 standard and therefore the parameters obtained are consistent with the methods of calculation and presentation of results of this standard.

Table 2 Summary of results

Test Information		Parameters			Complementary parameters						Test references			Test configuration					
Borehole	Depth (m)	p_f (MPa)	p_l (MPa)	E_M (MPa)	σ_{hs} (MPa)	p_{l^*} (MPa)	E/p_l	E/p_{l^*}	p_1 (Mpa)	p_2 (Mpa)	Test reference	Date / Time	Drilling method	Probe	Steps	P_{max} (MPa)	V_{max} (cm^3)	Diferential P applied	Diferential P theoretical
BH17	14.80	2.92	7.91	101.6	101.6	0.205	7.70	12.9	0.22	2.54	ES161121.001	21/11/16 11:41	TR	44-gct-c-63	24	5.74	467.5	-0.055	24
BH17	17.60	3.48	3.48	52.5	52.5	0.244	3.24	15.1	0.73	3.48	ES161121.002	21/11/16 16:06	TR	44-gct-c-63	17	3.60	445.6	-0.081	17
BH17	21.90	2.80	5.92	58.1	58.1	0.304	5.62	9.8	0.25	2.80	ES161122.002	22/11/16 10:25	TR	44-gct-c-63	19	4.40	418.4	-0.123	19
BH17	26.60	2.46	4.33	69.1	69.1	0.370	3.96	16.0	0.40	2.07	ES161122.003	22/11/16	TR	44-gct-c-63	17	3.60	399.5	-0.181	17
BH03	22.30	2.11	5.43	51.0	51.0	0.310	5.12	9.4	0.36	2.11	ES161116.001	16/11/16	TR	44-gct-c-63	42	4.18	459.6	-0.126	42
BH03	23.80	2.81	5.56	232.8	51.8	0.331	5.23	41.9	0.27	2.81	ES161116.002	16/11/16 2:50	TR	44-gct-c-63	50	4.39	454.8	-0.117	50
BH03	26.65	3.23	5.96	284.6	68.1	0.371	5.59	47.7	0.29	3.23	ES161116.004	16/11/16 17:06	TR	44-gct-c-63	32	4.80	473.8	-0.173	32
BH25R	16.20	1.55	2.15	27.3	27.3	0.224	1.92	12.7	0.32	0.99	ES161124.001	24/11/16 12:42	TR	44-gct-c-63	13	2.00	414.8	-0.067	13
BH25R	19.10	1.99	3.13	36.1	36.1	0.265	2.87	11.5	0.26	1.80	ES161124.002	24/11/16 16:35	TR	44-gct-c-63	15	2.80	427.9	-0.096	15
BH10R	19.00	3.06	3.84	40.1	40.1	0.263	3.57	10.5	0.46	3.06	ES161201.001	1/12/16 10:04	TR	44-gct-c-63	18	4.00	400.0	-0.094	18
BH10R	25.10	2.78	4.65	69.9	69.9	0.349	4.30	15.0	0.35	2.39	ES161201.002	1/12/16 13:43	TR	44-gct-c-63	18	4.00	408.0	-0.167	18
BH06	15.80	2.32	3.78	41.8	41.8	0.219	3.56	11.1	0.37	1.93	ES161129.001	29/11/16 13:21	TR	44-gct-c-63	16	3.20	449.6	-0.063	16
BH06	25.40	2.44	3.59	48.8	48.8	0.353	3.23	13.6	0.51	2.06	ES161130.001	30/11/16 14:18	TR	44-gct-c-63	16	3.20	394.0	-0.170	16
BH21R	15.00	2.68	4.79	63.3	63.3	0.207	4.58	13.2	0.24	2.68	ES161205.001	5/12/16 14:27	TR	44-gct-c-63	18	4.00	321.8	-0.056	18
BH21R	26.60	2.40	3.84	49.5	49.5	0.370	3.47	12.9	0.48	2.03	ES161206.001	6/12/16 10:36	TR	44-gct-c-63	16	3.20	360.3	-0.181	16

TR= Tricone 2 ½"

(BH) Test not interpretable. Oversized borehole.

APPENDIX 1 – PRESSUREMETER LOGS

MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH17

PROBE

PROBE PARAMETERS			
Code	44-gct-c-63		
Length		Cover	
210 mm	X	Rubber	
370 mm		Reinforced mesh	X
Type		Metallic mesh	
E		Metallic strips	
G	X	Slotted tube	

TUBING AND FLUID					
Type	Coaxial		Liquid	Nature	
	Twin	X		Unit weight γ_l/γ_w	
Total length (m)			Gas	Nature	
43.50				Compressibility λ_g (m^{-1})	

MEMBRANE PARAMETERS	
Supplier type and cote	
Pressure loss p_m (MPa)	0.050

PRESSURE LOSS PARAMETERS	
Correction sheet reference	ET161121.001
Ultimate pressure loss p_{el} (MPa)	0.321

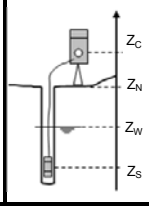
VOLUME LOSS PARAMETERS	
Correction sheet reference	CA161121.001
Calibration cylinder diameter d_i (mm)	66.0
Calibration coefficient a (cm^3/MPa)	3.653
Probe volume V_s (cm^3)	602.2

TEST

Test number (or depth)	ES161121.001
Test date and time	21/11/2016 11:41
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.055
Observations (weather, etc.)	

Palier	ORIGINAL DATA: PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm^3) 1 s	15 s	30 s	60 s	DATA CORRECTED from P&V losses: PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (MPa)
0													
1	0.066	0.041	0.042	0.048	8.6	20.3	25.6	29.8	0.130	29.3		4.1	
2	0.101	0.101	0.098	0.101	38.5	50.3	57.5	65.6	0.131	64.7	38670	8.1	
3	0.150	0.151	0.149	0.148	75.8	92.2	104.4	114.0	0.137	112.7	8318	9.7	
4	0.203	0.201	0.193	0.198	121.4	125.7	127.0	129.5	0.177	127.7	379	2.5	
5	0.251	0.251	0.248	0.248	131.9	132.6	132.7	133.0	0.225	130.9	66	0.4	
6	0.302	0.300	0.299	0.299	134.4	134.7	134.7	134.9	0.275	132.4	29	0.2	66.619
7	0.352	0.350	0.350	0.350	135.9	136.1	136.2	136.3	0.324	133.3	20	0.1	79.916
8	0.402	0.401	0.398	0.399	137.2	137.5	137.5	137.6	0.373	134.2	19	0.1	86.551
9	0.618	0.582	0.601	0.600	139.6	138.9	141.8	141.9	0.571	137.1	14	0.2	109.368
10	0.805	0.800	0.802	0.799	145.3	146.4	146.6	146.9	0.767	140.7	18	0.2	109.038
11	1.001	1.000	1.000	1.001	149.8	150.7	151.0	151.2	0.967	143.7	15	0.3	113.784
12	1.205	1.199	1.199	1.199	154.1	155.2	155.5	155.7	1.162	147.0	17	0.3	114.482
13	1.407	1.401	1.394	1.397	158.5	159.8	159.7	160.2	1.358	150.4	17	0.5	114.930
14	1.806	1.799	1.803	1.800	167.2	168.9	169.2	169.7	1.756	157.8	19	0.5	112.874
15	2.197	2.196	2.200	2.192	176.3	178.4	179.3	179.6	2.143	165.9	21	0.3	109.383
16	2.601	2.599	2.602	2.599	186.5	190.2	191.1	192.1	2.543	176.8	27	1.0	101.633
17	2.995	3.002	2.996	2.987	201.4	208.3	210.8	212.5	2.923	195.8	50	1.7	84.716
18	3.392	3.390	3.389	3.397	225.0	234.8	238.0	241.5	3.320	223.4	70	3.5	69.370
19	3.787	3.790	3.798	3.800	255.2	270.5	276.5	282.0	3.708	262.7	101	5.6	56.163
20	4.203	4.193	4.206	4.188	294.0	309.3	318.1	325.0	4.081	304.6	112	6.9	48.424
21	4.594	4.589	4.587	4.595	332.7	343.0	348.0	356.7	4.479	335.3	77	8.7	46.239
22	5.005	4.991	4.982	4.989	363.1	370.4	374.6	380.2	4.865	358.0	59	5.7	46.022
23	5.400	5.393	5.407	5.389	388.9	396.8	402.4	409.4	5.257	386.3	72	7.1	45.113
24	5.693	5.695	5.721	5.739	429.3	438.6	443.7	467.5	5.592	443.7	172	23.8	##

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 14.80

BOREHOLE

Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	14.2
	to level (m)	15.4
	time completed	

UNITS

Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

MENARD PRESSUREMETER REPORT AND INTERPRETATION

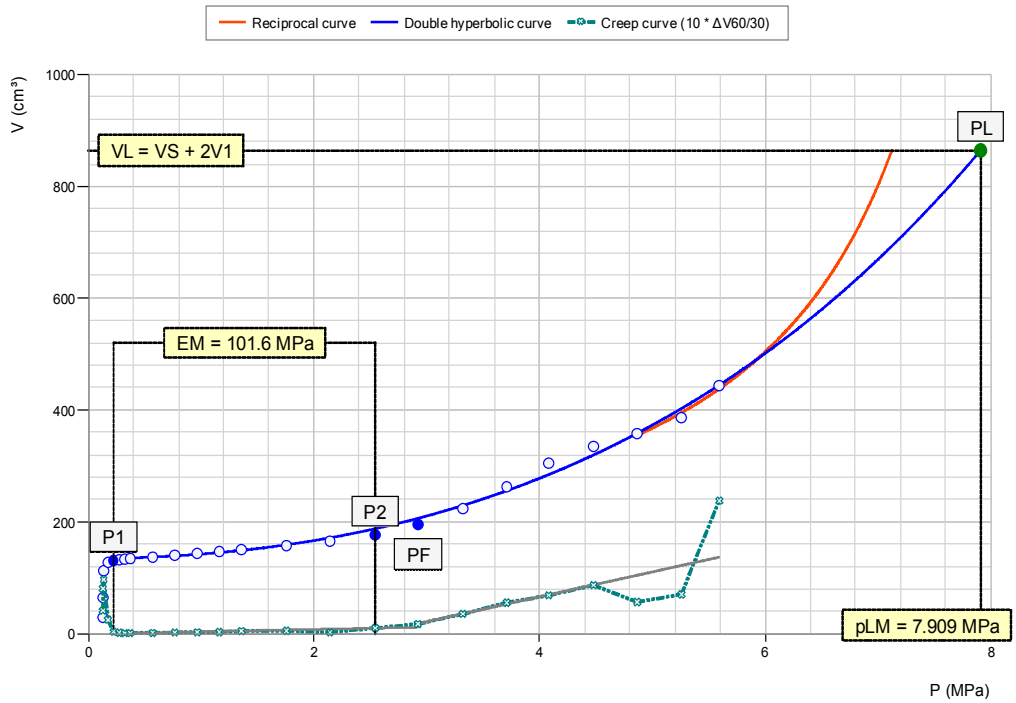
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161121.001
Job site identification	LONDON CITY A
Borehole	BH17
Test depth	14.80

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH17_14.8m



CALCULATED NORMATIVE RESULTS		
σ_{hs}	(MPa)	0.205
p_1	(MPa)	0.22
p_2	(MPa)	2.54
p_f	(MPa)	2.92
p_{lm}	(MPa)	7.91
p^*_{lm}	(MPa)	7.70
E_M	(MPa)	101.6
E_M / p_{lm}		12.9
E_M / p^*_{lm}		13.2

EXTRAPOLATION METHODS PARAMETERS		
inverse volumes	A	-7.37E-04
	B	6.40E-03
double hyperbolic	A1	-3.32E+03
	A2	-1.62E+02
	A3	3.83E-01
	A4	7.44E+04
	A5	1.26E-01
	A6	2.15E+01
	Average error(cm3)	5.72E+00

COMMENTS

PLMR = 7.122 MPa
PLMDH = 7.909 MPa

APAGEO
Apageo - GeoVision® 4.1.2.1

MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH17

PROBE

PROBE PARAMETERS			
Code	44-gct-c-63		
Length		Cover	
210 mm	X	Rubber	
370 mm		Reinforced mesh	X
Type		Metallic mesh	
E		Metallic strips	
G	X	Slotted tube	

TUBING AND FLUID				
Type	Coaxial		Liquid	Nature
	Twin	X		Unit weight γ_l/γ_w
Total length (m)			Gas	Nature
43.50				Compressibility λ_g (m^{-1})

MEMBRANE PARAMETERS	
Supplier type and cote	
Pressure loss p_m (MPa)	0.050

PRESSURE LOSS PARAMETERS	
Correction sheet reference	ET161121.001
Ultimate pressure loss p_{el} (MPa)	0.321

VOLUME LOSS PARAMETERS	
Correction sheet reference	CA161121.001
Calibration cylinder diameter d_i (mm)	66.0
Calibration coefficient a (cm^3/MPa)	3.653
Probe volume V_s (cm^3)	602.2

TEST

Test number (or depth)	ES161121.002
Test date and time	21/11/2016 16:06
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.081
Observations (weather, etc.)	

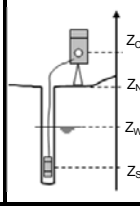
ORIGINAL DATA

Palier	PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm^3) 1 s	15 s	30 s	60 s
0								
1	0.089	0.064	0.102	0.100	14.2	32.6	48.9	65.0
2	0.203	0.200	0.201	0.200	84.0	114.0	143.1	180.9
3	0.298	0.300	0.301	0.300	201.0	223.7	237.7	245.2
4	0.394	0.401	0.401	0.400	254.4	261.7	263.5	264.6
5	0.496	0.501	0.500	0.501	269.6	272.9	273.6	274.3
6	0.614	0.589	0.600	0.601	275.3	274.1	278.2	281.6
7	0.800	0.800	0.800	0.796	289.2	296.1	297.6	298.6
8	0.998	1.004	0.998	1.000	304.6	309.7	310.7	311.8
9	1.203	1.202	1.202	1.200	316.2	320.5	321.6	322.5
10	1.401	1.400	1.398	1.401	326.2	330.3	330.9	332.0
11	1.603	1.600	1.595	1.602	335.1	339.3	339.7	341.1
12	1.798	1.800	1.801	1.800	343.7	347.7	348.4	349.5
13	1.998	1.999	1.999	2.000	351.9	356.4	357.3	358.6
14	2.401	2.396	2.399	2.399	367.3	372.8	374.4	376.4
15	2.804	2.795	2.795	2.789	385.2	392.4	394.6	396.9
16	3.201	3.199	3.203	3.201	405.8	415.0	418.0	421.6
17	3.598	3.596	3.593	3.598	429.4	438.8	441.6	445.6
18								
19								
20								
21								
22								
23								
24								

DATA CORRECTED from P&V losses

PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (MPa)
0.159	64.1		16.1	
0.179	179.2	5983	37.8	
0.250	242.6	885	7.5	
0.342	261.3	203	1.2	
0.439	270.2	91	0.7	
0.537	276.7	67	3.4	
0.726	292.4	83	1.1	
0.925	304.3	59	1.1	40.347
1.122	313.8	48	0.9	44.766
1.319	322.2	42	1.1	48.351
1.518	330.2	41	1.4	50.967
1.713	337.6	38	1.1	53.362
1.910	345.8	41	1.3	54.460
2.304	361.9	41	2.0	56.202
2.688	380.9	49	2.4	55.421
3.093	404.2	57	3.6	53.586
3.484	426.9	58	4.0	52.486

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 17.60

BOREHOLE

Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	17
	to level (m)	18.5
	time completed	

UNITS

Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

MENARD PRESSUREMETER REPORT AND INTERPRETATION

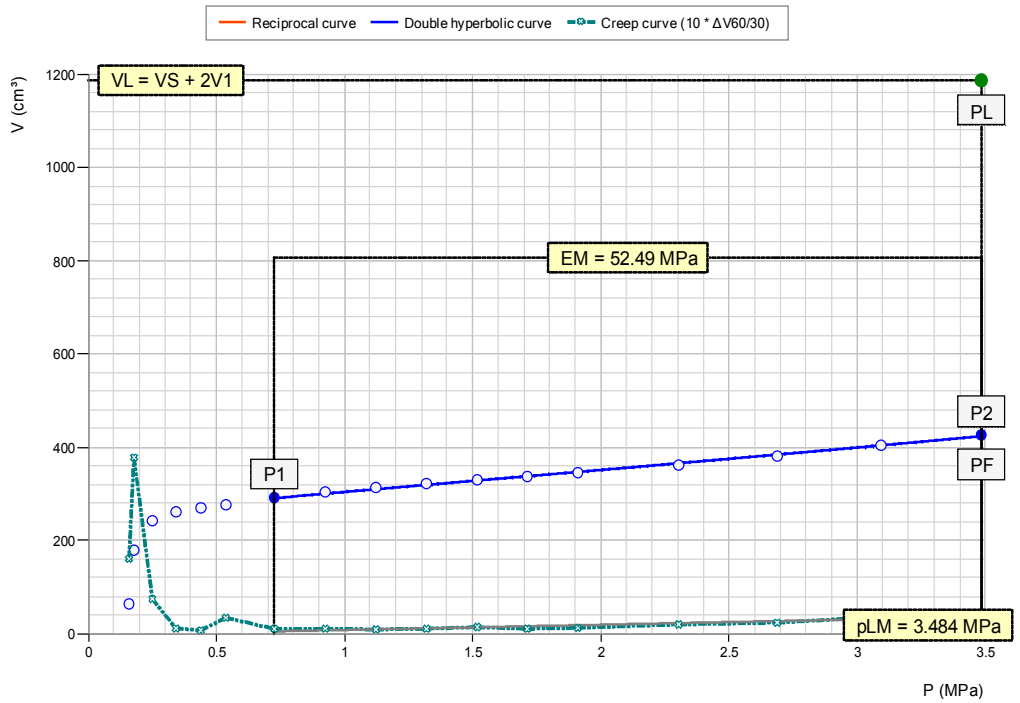
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161121.002
Job site identification	LONDON CITY A
Borehole	BH17
Test depth	17.60

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH17_17.6m



CALCULATED NORMATIVE RESULTS

σ_{hs}	(MPa)	0.244
p_1	(MPa)	0.73
p_2	(MPa)	3.48
p_f	(MPa)	3.48
p_{lm}	(MPa)	3.48
p_{-lm}	(MPa)	3.24
E_M	(MPa)	52.5
E_M / p_{lm}		15.1
E_M / p_{-lm}		16.2

EXTRAPOLATION METHODS PARAMETERS

inverse volumes	A	-3.56E-04
	B	3.58E-03
double hyperbolic	A1	-8.17E+03
	A2	-5.69E+01
	A3	3.39E+00
	A4	7.24E+05
	A5	1.43E-01
	A6	8.58E+01
	Average error(cm3)	2.14E+00

COMMENTS

PLMR = 7.693 MPa
PLMDH = 14.84 MPa

Invalid test - Oversized borehole

APAGEO
Apageo - GeoVision® 4.1.2.1

MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH17

PROBE

PROBE PARAMETERS			
Code	44-gct-c-63		
Length		Cover	
210 mm	X	Rubber	
370 mm		Reinforced mesh	X
Type		Metallic mesh	
E		Metallic strips	
G	X	Slotted tube	

TUBING AND FLUID					
Type	Coaxial		Liquid	Nature	
	Twin	X		Unit weight γ_l/γ_w	
Total length (m)			Gas	Nature	
43.50				Compressibility λ_g (m^{-1})	

MEMBRANE PARAMETERS	
Supplier type and cote	
Pressure loss p_m (MPa)	0.050

PRESSURE LOSS PARAMETERS	
Correction sheet reference	ET161121.001
Ultimate pressure loss p_{ul} (MPa)	0.321

VOLUME LOSS PARAMETERS	
Correction sheet reference	CA161121.001
Calibration cylinder diameter d_i (mm)	66.0
Calibration coefficient a (cm^3/MPa)	3.653
Probe volume V_s (cm^3)	602.2

TEST

Test number (or depth)	ES161122.002
Test date and time	22/11/2016 10:25
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.123
Observations (weather, etc.)	

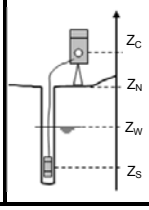
ORIGINAL DATA

Palier	PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm^3) 1 s	15 s	30 s	60 s
0								
1	0.070	0.058	0.093	0.102	16.4	38.5	53.3	69.4
2	0.193	0.204	0.197	0.200	89.0	117.5	122.3	124.3
3	0.304	0.301	0.299	0.298	128.1	128.6	128.8	129.1
4	0.405	0.401	0.399	0.400	131.6	131.9	132.1	132.3
5	0.504	0.501	0.501	0.500	134.3	134.6	134.7	134.9
6	0.618	0.591	0.600	0.598	135.0	135.4	137.0	137.2
7	0.808	0.800	0.797	0.798	140.8	141.8	142.0	142.3
8	0.999	1.001	0.998	0.998	145.5	146.6	146.9	147.3
9	1.203	1.193	1.201	1.202	150.3	151.4	151.9	152.3
10	1.401	1.402	1.400	1.402	155.2	156.6	157.0	157.5
11	1.601	1.599	1.598	1.595	160.3	162.2	162.7	163.2
12	1.802	1.798	1.800	1.796	166.1	168.4	169.0	169.7
13	2.002	1.998	2.001	2.002	172.9	176.3	177.1	178.2
14	2.397	2.386	2.389	2.401	189.7	196.3	198.0	200.4
15	2.796	2.795	2.799	2.796	212.6	222.5	225.8	228.2
16	3.193	3.191	3.192	3.197	241.4	255.3	260.7	265.9
17	3.582	3.594	3.595	3.593	279.5	298.3	308.1	315.6
18	3.998	3.997	3.990	3.990	328.3	345.4	357.3	369.6
19	4.398	4.394	4.396	4.397	385.5	398.3	407.4	418.4
20								
21								
22								
23								
24								

DATA CORRECTED from P&V losses

PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (MPa)
0.200	68.5		16.2	
0.253	122.5	1002	2.0	
0.348	126.6	43	0.4	44.486
0.448	129.0	23	0.2	58.402
0.547	130.8	18	0.2	68.937
0.643	132.4	17	0.2	76.707
0.840	136.1	19	0.3	83.821
1.037	139.8	19	0.3	88.528
1.238	143.6	19	0.4	91.305
1.435	147.6	20	0.5	92.390
1.625	152.3	25	0.5	90.467
1.823	157.9	28	0.7	87.678
2.025	165.3	37	1.0	82.144
2.413	185.9	53	2.4	68.586
2.796	212.1	69	2.3	58.095
3.182	248.4	94	5.2	48.749
3.561	296.9	128	7.5	40.958
3.940	349.8	139	12.4	36.173
4.333	397.5	121	11.1	34.027

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 21.90

BOREHOLE

Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	21.3
	to level (m)	22.8
	time completed	

UNITS

Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

MENARD PRESSUREMETER REPORT AND INTERPRETATION

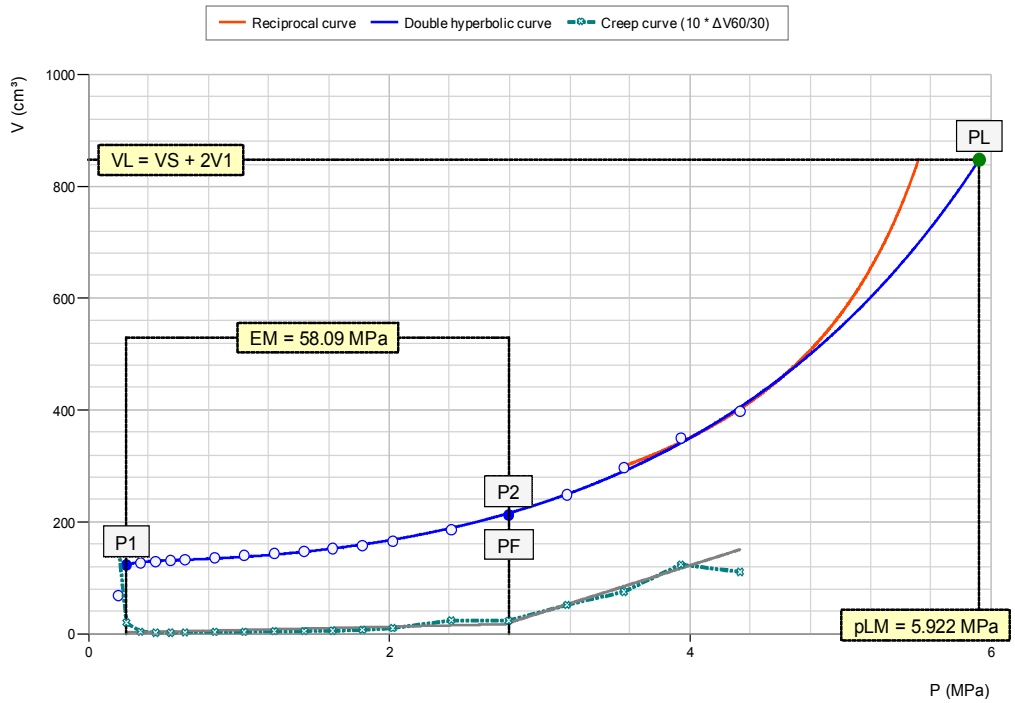
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161122.002
Job site identification	LONDON CITY A
Borehole	BH17
Test depth	21.90

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH17_21.9m



CALCULATED NORMATIVE RESULTS

σ_{hs}	(MPa)	0.304
p_1	(MPa)	0.25
p_2	(MPa)	2.80
p_f	(MPa)	2.80
p_{lm}	(MPa)	5.92
p_{-lm}	(MPa)	5.62
E_M	(MPa)	58.1
E_M / p_{lm}		9.8
E_M / p_{-lm}		10.3

EXTRAPOLATION METHODS PARAMETERS

inverse volumes	A	-1.10E-03
	B	7.26E-03
double hyperbolic	A1	-9.01E+02
	A2	-1.05E+02
	A3	7.51E-01
	A4	1.09E+04
	A5	1.88E-01
	A6	1.05E+01
	Average error(cm3)	2.44E+00

COMMENTS

PLMR = 5.519 MPa
PLMDH = 5.922 MPa

APAGEO
Apageo - GeoVision® 4.1.2.1

MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH17

PROBE

PROBE PARAMETERS			
Code	44-gct-c-63		
Length		Cover	
210 mm	X	Rubber	
370 mm		Reinforced mesh	X
Type		Metallic mesh	
E		Metallic strips	
G	X	Slotted tube	

TUBING AND FLUID				
Type	Coaxial		Liquid	Nature
	Twin	X		Unit weight γ_l/γ_w
Total length (m)			Gas	Nature
43.50				Compressibility λ_g (m^{-1})

MEMBRANE PARAMETERS	
Supplier type and cote	
Pressure loss p_m (MPa)	0.050

PRESSURE LOSS PARAMETERS	
Correction sheet reference	ET161121.001
Ultimate pressure loss p_{el} (MPa)	0.321

VOLUME LOSS PARAMETERS	
Correction sheet reference	CA161121.001
Calibration cylinder diameter d_i (mm)	66.0
Calibration coefficient a (cm^3/MPa)	3.653
Probe volume V_s (cm^3)	602.2

TEST

Test number (or depth)	ES161122.003
Test date and time	22/11/2016 13:19
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.181
Observations (weather, etc.)	

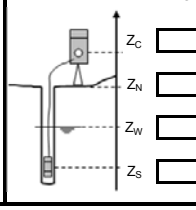
ORIGINAL DATA

Palier	PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm^3) 1 s	15 s	30 s	60 s
0								
1	0.046	0.059	0.105	0.090	13.7	33.9	47.6	61.5
2	0.205	0.202	0.201	0.200	81.2	103.1	107.8	109.8
3	0.299	0.301	0.300	0.301	115.4	118.4	119.0	119.8
4	0.401	0.399	0.401	0.401	122.5	123.7	124.1	124.6
5	0.512	0.493	0.501	0.499	124.9	125.7	127.5	127.8
6	0.602	0.601	0.600	0.600	129.5	130.4	130.8	131.1
7	0.800	0.799	0.797	0.799	134.9	136.3	136.6	137.0
8	1.007	1.000	0.998	0.996	140.4	141.8	142.2	142.6
9	1.204	1.203	1.200	1.199	145.9	147.4	147.8	148.3
10	1.405	1.402	1.398	1.397	151.5	153.3	153.8	154.4
11	1.602	1.599	1.602	1.599	157.6	159.8	160.5	161.2
12	1.803	1.798	1.799	1.799	164.4	167.2	167.9	168.9
13	2.001	2.001	1.998	2.000	172.3	175.9	177.0	177.8
14	2.398	2.388	2.399	2.401	190.2	198.2	201.4	204.1
15	2.794	2.796	2.791	2.808	221.2	236.6	241.2	246.6
16	3.194	3.186	3.189	3.194	266.7	290.6	301.6	310.3
17	3.601	3.576	3.598	3.599	334.4	362.7	383.4	399.5
18								
19								
20								
21								
22								
23								
24								

DATA CORRECTED from P&V losses

PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (MPa)
0.243	60.7		13.9	
0.310	108.0	706	1.9	
0.404	117.3	98	0.8	
0.501	121.2	41	0.5	46.923
0.597	123.7	26	0.3	57.503
0.696	126.2	26	0.3	62.587
0.891	130.8	23	0.4	69.462
1.085	135.1	22	0.4	73.896
1.284	139.6	22	0.4	76.744
1.479	144.5	26	0.6	76.849
1.677	150.3	29	0.7	75.503
1.873	157.0	34	1.0	72.669
2.070	165.0	40	0.8	69.072
2.458	189.5	63	2.7	57.125
2.848	230.5	105	5.4	44.571
3.210	292.9	172	8.7	34.312
3.587	380.8	233	16.2	27.357

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 26.60

BOREHOLE

Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	26
	to level (m)	27.5
	time completed	

UNITS

Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

MENARD PRESSUREMETER REPORT AND INTERPRETATION

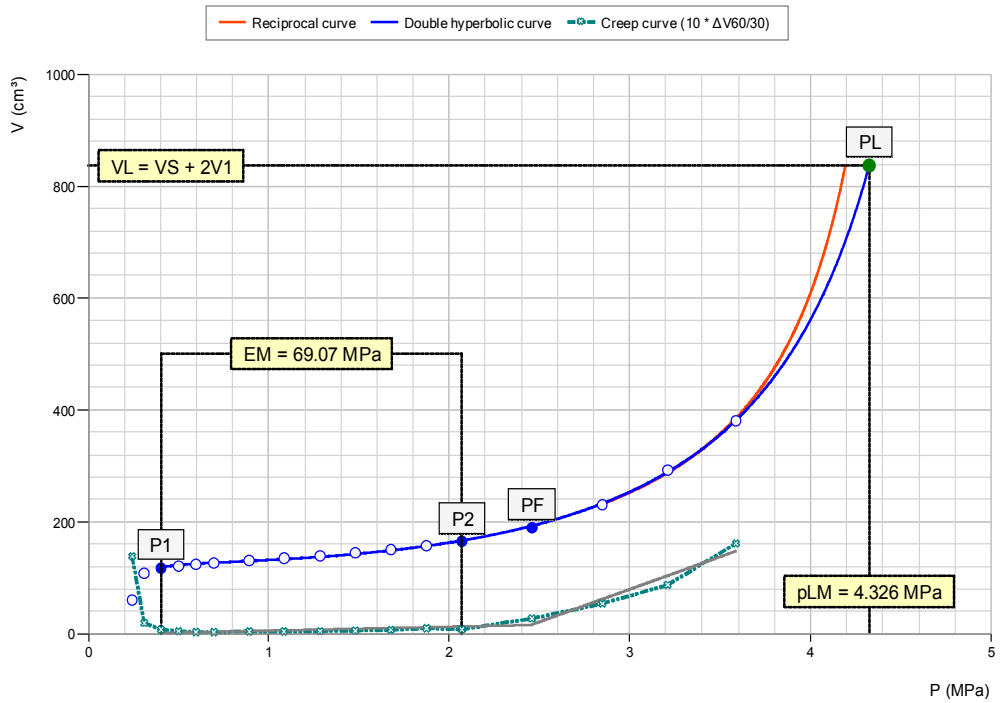
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161122.003
Job site identification	LONDON CITY A
Borehole	BH17
Test depth	26.60

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH17_26.6m



CALCULATED NORMATIVE RESULTS

σ_{hs}	(MPa)	0.370
p_1	(MPa)	0.40
p_2	(MPa)	2.07
p_f	(MPa)	2.46
p_{lm}	(MPa)	4.33
p_{-lm}	(MPa)	3.96
E_M	(MPa)	69.1
E_M / p_{lm}		16.0
E_M / p_{-lm}		17.5

EXTRAPOLATION METHODS PARAMETERS

inverse volumes	A	-2.31E-03
	B	1.09E-02
double hyperbolic	A1	-3.80E+01
	A2	-3.65E+01
	A3	2.27E+00
	A4	8.72E+02
	A5	2.10E-01
	A6	5.17E+00
	Average error(cm3)	1.51E+00

COMMENTS

PLMR = 4.194 MPa
PLMDH = 4.326 MPa

APAGEO
Apageo - GeoVision® 4.1.2.1

CONCEPT igeotest

CYCLIC MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

SITE		
	File	1
	Country	UK
	Job site identification	LONDON CITY AIRPORT
	Location plan ref.	
	Borehole number	BH03

PROBE								
PROBE PARAMETERS				TUBING AND FLUID				PRESSURE LOSS PARAMETERS	
Code		44-gct-c-63		Type	Coaxial		Liquid	Nature	Eau	Correction sheet reference	ET161115.001
Length		Cover			Twin	X		Unit weight γ_l/γ_w	1.00	Ultimate pressure loss p_{el} (MPa)	0.329
210 mm	X	Rubber		Total length (m)			Gas	Nature	Azote	VOLUME LOSS PARAMETERS	
370 mm		Reinforced mesh	X	43.50				Compressibility λ_g (m^{-1})	0.00016	Correction sheet reference	CA161108.001
Type		Metallic mesh		MEMBRANE PARAMETERS						Calibration cylinder diameter d_i (mm)	66.0
E		Metallic strips		Supplier type and cote						Calibration coefficient a (cm^3/MPa)	3.644
G	X	Slotted tube		Pressure loss p_m (MPa)			0.050			Probe volume V_s (cm^3)	605.4

TEST		
	Test number (or depth)	ES161116.001
	Test date and time	16/11/2016 0:08
	Control unit number	
	Data logger number	GEOPAC 06
	Operator's name	MP
	Differential pressure (MPa)	-0.126
	Observations (weather, etc.)	

ORIGINAL DATAS									DATA CORRECTED from P&V losses				
Step	PRESSURES pr (MPa)				VOLUMES V(t) (cm^3)				PRESSURE	VOLUME	SLOPE	CREEP	MODULE
	1 s	15 s	30 s	60 s	1 s	15 s	30 s	60 s	p (MPa)	V^{60} (cm^3)	$\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	$\Delta V^{60/30}$ (cm^3)	EM (Mpa)
0													
↓1/1	0.064	0.096	0.100	0.100	19.2	46.9	64.7	83.3	0.195	82.7		18.6	
↓2/2	0.000	0.000	0.000	0.000	56.5	39.8	21.9	0.0	0.228	0.0		-21.9	
↑3/3	0.066	0.098	0.095	0.101	21.7	51.3	69.5	87.0	0.193	86.3		17.4	
↑3/4	0.204	0.201	0.201	0.200	104.2	115.9	118.4	119.5	0.267	118.3	436	1.1	0.580
↑3/5	0.300	0.300	0.302	0.301	124.7	126.6	127.0	127.4	0.362	125.6	77	0.3	1.895
↑3/6	0.400	0.401	0.400	0.398	130.1	131.1	131.4	131.9	0.456	129.6	42	0.5	3.141
↑3/7	0.501	0.502	0.500	0.500	134.2	135.2	135.5	135.9	0.556	133.0	35	0.4	4.402
↑3/8	0.696	0.593	0.600	0.601	135.8	139.7	141.3	141.7	0.653	138.3	54	0.4	5.510
↑3/9	0.699	0.700	0.702	0.702	142.2	142.8	143.1	143.4	0.753	139.5	12	0.3	6.756
↑3/10	0.804	0.799	0.802	0.798	145.0	145.7	146.0	146.3	0.847	141.9	25	0.3	7.846
↑3/11	0.903	0.901	0.899	0.899	148.0	149.2	149.5	149.9	0.945	145.0	32	0.5	8.922
↑3/12	1.000	1.002	0.998	1.000	151.5	152.7	153.1	153.6	1.044	148.2	33	0.5	9.954
↑3/13	1.098	1.097	1.099	1.100	155.1	156.4	156.8	157.3	1.142	151.4	32	0.5	10.943
↑3/14	1.198	1.195	1.198	1.197	158.6	160.0	160.6	161.5	1.237	155.1	40	0.9	11.813
↑3/15	1.296	1.296	1.297	1.300	162.9	164.2	164.6	165.2	1.337	158.4	33	0.6	12.753
↑3/16	1.405	1.394	1.398	1.398	167.0	167.3	168.2	168.8	1.434	161.5	32	0.6	13.626
↑3/17	1.501	1.501	1.497	1.495	170.5	172.1	172.7	173.4	1.528	165.7	44	0.6	14.366
↑3/18	1.603	1.603	1.597	1.594	175.3	176.5	177.1	177.9	1.624	169.7	43	0.8	15.100
↑3/19	1.702	1.690	1.699	1.698	180.0	180.2	181.4	182.2	1.726	173.6	38	0.8	15.888
↑3/20	1.799	1.799	1.800	1.792	183.9	186.2	187.0	187.9	1.817	178.9	58	0.9	16.415
↑3/21	1.908	1.894	1.898	1.898	189.8	190.1	191.5	192.7	1.921	183.2	42	1.1	17.125
↑3/22	2.001	1.997	1.998	1.997	195.1	197.3	198.4	199.6	2.016	189.7	68	1.2	17.558
↑3/23	2.096	2.101	2.100	2.098	201.1	203.5	204.5	205.9	2.114	195.7	61	1.4	18.029
↑3/24	2.199	2.202	2.202	2.198	208.4	211.0	212.1	213.5	2.210	202.9	75	1.4	18.369
↑3/25	2.304	2.299	2.301	2.298	215.2	216.7	218.3	219.8	2.307	208.8	61	1.6	18.803
↑3/26	2.404	2.396	2.399	2.401	222.9	225.0	226.3	228.1	2.407	216.6	79	1.8	19.093
↑3/27	2.502	2.496	2.496	2.499	229.7	231.4	233.4	235.4	2.501	223.6	74	2.0	19.390
↑3/28	2.604	2.598	2.596	2.597	238.3	240.9	242.4	244.5	2.595	232.3	92	2.1	19.560
↑3/29	2.702	2.696	2.699	2.699	246.0	248.1	250.4	252.7	2.693	240.1	80	2.3	19.812
↑3/30	2.792	2.799	2.798	2.802	253.0	257.0	259.8	262.8	2.792	249.8	98	3.0	19.938
↑3/31	2.893	2.898	2.898	2.901	262.6	266.7	270.0	273.2	2.888	259.9	106	3.3	20.012
↑3/32	2.991	2.999	3.001	2.988	273.1	277.2	280.8	283.3	2.970	269.7	118	2.5	20.021
↑3/33	3.095	3.100	3.101	3.100	285.9	290.0	292.5	295.8	3.077	281.8	113	3.3	20.072
↑3/34	3.194	3.192	3.200	3.188	295.6	299.7	304.0	306.6	3.161	292.3	126	2.6	20.058
↑3/35	3.296	3.301	3.299	3.297	310.1	314.6	317.4	321.5	3.264	306.8	140	4.0	19.975
↑3/36	3.393	3.388	3.400	3.399	321.3	325.2	330.2	333.3	3.362	318.2	117	3.1	20.027
↑3/37	3.493	3.495	3.487	3.513	333.2	337.9	342.5	347.5	3.471	332.1	127	5.0	20.040
↑3/38	3.595	3.592	3.601	3.597	347.1	350.7	356.7	360.8	3.550	345.1	164	4.1	19.922
↑3/39	3.689	3.693	3.694	3.700	360.8	366.2	372.8	377.6	3.649	361.5	168	4.8	19.784
↑3/40	3.794	3.793	3.796	3.788	377.3	380.8	387.8	391.5	3.731	375.2	164	3.7	19.697
↑3/41	3.894	3.900	3.899	3.886	395.1	402.1	407.3	412.9	3.823	396.2	230	5.5	19.393
↑3/42	3.998	3.992	4.010	3.990	412.9	417.3	422.4	427.8	3.922	410.8	147	5.4	19.394
↑3/43	4.093	4.088	4.092	4.088	427.5	432.0	438.3	443.7	4.016	426.4	167	5.5	19.342
↑3/44	4.193	4.189	4.192	4.177	443.7	448.2	454.9	459.6	4.100	442.0	185	4.7	19.258
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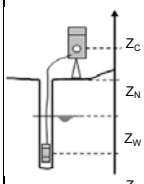
LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 22.30

BOREHOLE		
Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	21.8
	to level (m)	23.3
	time completed	

UNITS			
	Elevations	metre	m
	Time	second	s
	Volumes	cubic centimetre	cm^3
	Pressures	Megapascal	MPa

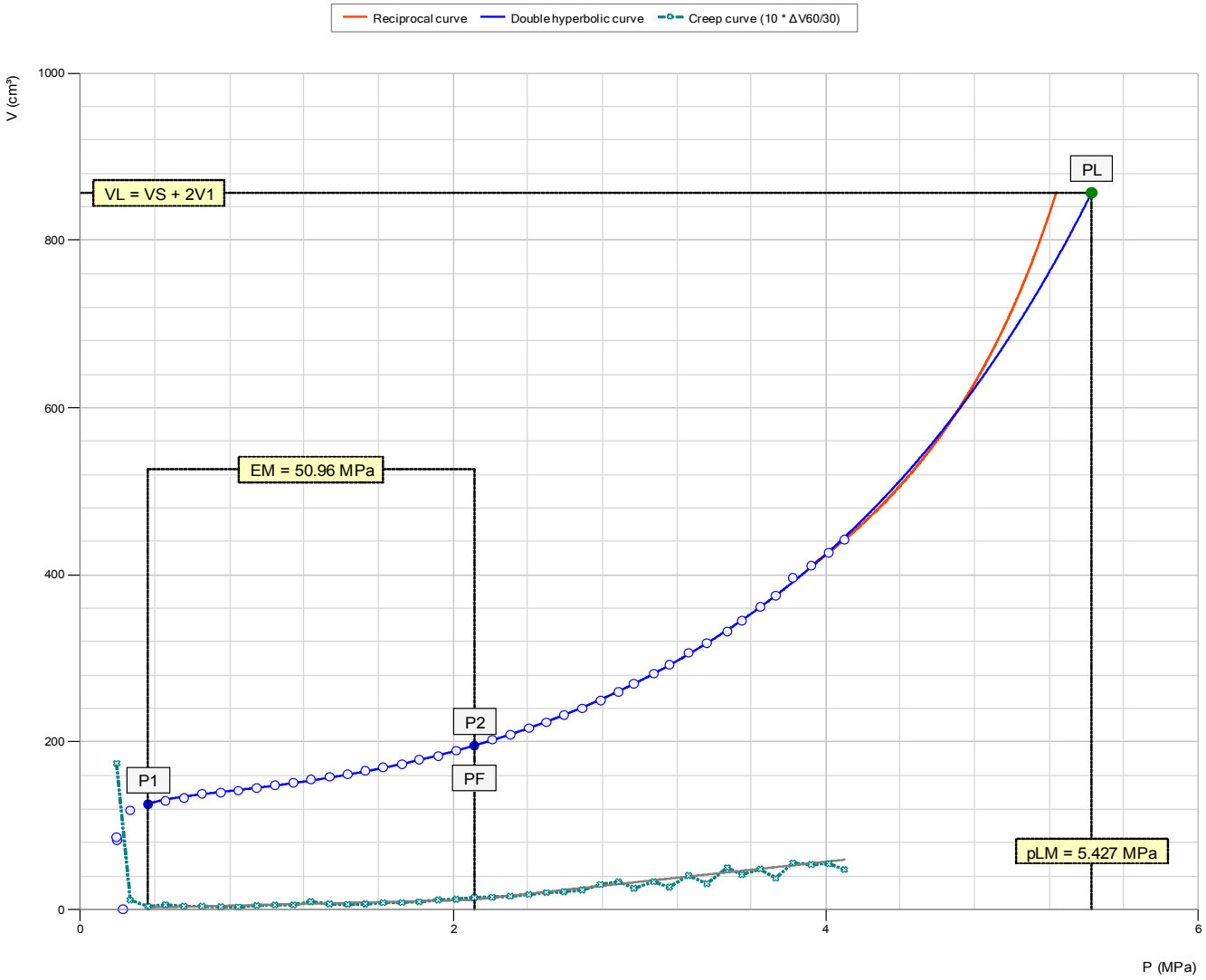
CALCULATED NORMATIVE RESULTS		
	σ_{hs} (MPa)	0.310
	$p_{1\ initial}$ (MPa)	0.36
	$p_{2\ initial}$ (MPa)	2.11
	$p_{1\ final}$ (MPa)	0.36
	$p_{2\ final}$ (MPa)	2.11
	p_f (MPa)	2.11
	p_{lm} (MPa)	5.43
	p_{*lm} (MPa)	5.12
	$E_{M\ initial}$ (MPa)	51.0
	$E_{M\ final}$ (MPa)	51.0
	$E_{M\ médian}$ (MPa)	51.0
	$E_{M\ final}$ / $E_{M\ initial}$	1.0
	$E_{M\ médian}$ / $E_{M\ initial}$	1.0
	$E_{M\ initial}$ / p_{lm}	9.4
	$E_{M\ initial}$ / p_{*lm}	10.0
	$E_{M\ final}$ / p_{lm}	9.4
	$E_{M\ final}$ / p_{*lm}	10.0

igeotest	**CYCLIC MENARD PRESSUREMETER TEST DATA** Borehole expansion test conforming to EN ISO 22476-4 procedure B - RESULT -	

SITE		
	File	**1**
	Country	**UK**
	Job site identification	**LONDON CITY AIRPORT**
	Location plan ref.	
	Borehole number	**BH03**

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH03_22.3m



PARAMETERS ADJUSTED CURVES

Mounting cycle	A1	A2	A3	A4	A5	A6	Average error (cm3)	P1	P2	Em	E_m / P_l	E_m / P_l*
double hyperbolic (initial)	-8.14E+02	-1.03E+02	+3.95E+00	+9.07E+03	+1.20E-01	+9.50E+00	+8.94E-01	0.362	2.114	50.955	9.390	9.958
double hyperbolic (cycle 2)												
double hyperbolic (cycle 3)												
double hyperbolic (cycle 4)												
double hyperbolic (cycle 5)												
double hyperbolic (cycle 6)												
double hyperbolic (cycle 7)												
double hyperbolic (cycle 8)												
double hyperbolic (cycle 9)												
double hyperbolic (cycle 10)												
double hyperbolic (cycle 11)												
double hyperbolic (cycle 12)												
double hyperbolic (cycle 13)												

CALCULATED RESULTS

σ_{hs}	(MPa)	**0.3**	$E_{M\ initial}$ (MPa)	**51.0**
$p_{1\ initial}$	(MPa)	**0.4**	$E_{M\ final}$ (MPa)	**50.95500998**
$p_{2\ initial}$	(MPa)	**2.1**	$E_{M\ médian}$ (MPa)	50.95500998
$p_{1\ final}$	(MPa)	**0.4**	$E_{M\ final}$ / $E_{M\ initial}$	1
$p_{2\ final}$	(MPa)	**2.1**	$E_{M\ médian}$ / $E_{M\ initial}$	1
p_f	(MPa)	**2.1**	$E_{M\ initial}$ / p_l	9.389504011
p_l	(MPa)	**5.4**	$E_{M\ initial}$ / p_{lm}	9.957780237
p_{lm}	(MPa)	**5.1**	$E_{M\ final}$ / p_{lm}	9.389504011
Number of cycles		**1.0**	$E_{M\ final}$ / p_{lm}	9.957780237

COMMENTS

APAGEO
Apageo - GeoVision© 4.1.2.1

CONCEPT igeotest

CYCLIC MENARD PRESSUREMETER TEST DATA

- DATA -

SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH03

PROBE

PROBE PARAMETERS			
Code	44-gct-c-63		
Length	Cover		
210 mm	X	Rubber	
370 mm		Reinforced mesh	X
Type		Metallic mesh	
E		Metallic strips	
G	X	Slotted tube	

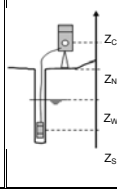
TUBING AND FLUID					
Type	Coaxial		Liquid	Nature	Eau
	Twin	X		Unit weight γ/γ_w	1.00
Total length (m)			Gas	Nature	Azote
43.50				Compressibility λ_g (m^{-1})	0.00016
MEMBRANE PARAMETERS					
Supplier type and cote					
Pressure loss p_m (MPa)				0.050	

PRESSURE LOSS PARAMETERS	
Correction sheet reference	ET161115.001
Ultimate pressure loss p_{el} (MPa)	0.329
VOLUME LOSS PARAMETERS	
Correction sheet reference	CA161108.001
Calibration cylinder diameter d_i (mm)	66.0
Calibration coefficient a (cm^3/MPa)	3.644
Probe volume V_s (cm^3)	605.4

TEST

Test number (or depth)	ES161116.002
Test date and time	16/11/2016 2:50
Control unit number	
Data logger number	GEOPAC 06
Operator's name	MP
Differential pressure (MPa)	-0.117
Observations (weather, etc.)	

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 23.80

BOREHOLE

Localization system		X =
		Y =
Drilling rig		
Drilling method (table C abbreviations)		CAR
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	23.3
	to level (m)	24.7
	time completed	

UNITS

Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

CALCULATED NORMATIVE RESULTS

σ_{hs}	(MPa)	0.331
$p_{1\ initial}$	(MPa)	1.13
$p_{2\ initial}$	(MPa)	1.63
$p_{1\ final}$	(MPa)	0.27
$p_{2\ final}$	(MPa)	2.81
p_f	(MPa)	2.81
p_{lm}	(MPa)	5.56
p_{*lm}	(MPa)	5.23
$E_{M\ initial}$	(MPa)	232.8
$E_{M\ final}$	(MPa)	51.8
$E_{M\ médian}$	(MPa)	232.8
$E_{M\ final}$ / $E_{M\ initial}$		0.2
$E_{M\ médian}$ / $E_{M\ initial}$		1.0
$E_{M\ initial}$ / p_{lm}		41.9
$E_{M\ initial}$ / p_{*lm}		44.5
$E_{M\ final}$ / p_{lm}		9.3
$E_{M\ final}$ / p_{*lm}		9.9

Step	ORIGINAL DATAS: PRESSURES pr (MPa) 1 s	15 s	30 s	60 s	VOLUMES V(t) (cm^3) 1 s	15 s	30 s	60 s	DATA CORRECTED from P&V losses: PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (Mpa)
0													
↑1/1	0.099	0.066	0.101	0.100	23.0	47.9	71.5	98.8	0.197	98.2		27.3	
↑1/2	0.200	0.201	0.201	0.200	120.4	140.3	143.1	144.0	0.265	142.8	658	0.9	
↑1/3	0.299	0.301	0.300	0.299	148.9	150.5	150.9	151.8	0.359	150.0	76	0.9	
↑1/4	0.401	0.400	0.400	0.401	154.9	155.9	156.1	156.6	0.458	154.2	42	0.4	
↑1/5	0.551	0.499	0.499	0.499	156.5	160.9	162.4	162.6	0.553	159.7	58	0.2	
↑1/6	0.601	0.600	0.599	0.599	163.8	164.7	164.9	165.2	0.652	161.8	21	0.3	
↑1/7	0.701	0.700	0.700	0.701	167.1	168.1	168.3	168.6	0.752	164.7	29	0.3	
↑1/8	0.800	0.801	0.797	0.800	170.2	171.1	171.4	171.7	0.849	167.3	26	0.3	
↑1/9	0.900	0.892	0.900	0.898	173.2	174.2	174.6	174.9	0.945	170.0	29	0.4	
↑1/10	1.001	1.000	1.003	0.998	176.7	177.7	178.0	178.3	1.044	172.8	29	0.3	
↑1/11	1.098	1.094	1.101	1.096	179.8	181.0	181.3	181.5	1.140	175.6	29	0.2	
↑1/12	1.205	1.194	1.197	1.198	183.0	184.2	184.5	185.0	1.240	178.6	30	0.5	
↑1/13	1.292	1.297	1.301	1.293	186.4	187.6	188.1	188.5	1.333	181.7	33	0.4	
↑1/14	1.397	1.399	1.393	1.402	189.6	190.9	191.2	191.8	1.440	184.5	26	0.6	
↑1/15	1.503	1.493	1.498	1.499	193.4	193.5	194.4	195.0	1.535	187.3	29	0.6	
↑1/16	1.598	1.598	1.599	1.599	196.7	197.8	198.4	199.0	1.633	190.8	36	0.6	417.376
↑1/17	1.101	1.101	1.101	1.097	193.8	194.2	194.2	194.2	1.134	188.3	5	0.0	
↑1/18	1.198	1.198	1.198	1.200	194.7	195.3	195.3	195.3	1.236	188.9	6	0.0	351.805
↑1/19	1.298	1.296	1.296	1.297	195.8	196.3	196.2	196.4	1.333	189.6	7	0.2	331.698
↑1/20	1.398	1.399	1.402	1.397	196.8	197.4	197.5	197.5	1.432	190.2	6	0.0	329.588
↑1/21	1.497	1.503	1.500	1.500	198.0	198.7	198.9	199.0	1.535	191.2	10	0.1	286.768
↑1/22	1.597	1.598	1.598	1.598	199.6	200.5	200.7	201.0	1.632	192.8	16	0.3	232.775
↑1/23	1.696	1.696	1.700	1.696	201.6	203.1	203.6	204.1	1.728	195.5	28	0.5	174.876
↑1/24	1.800	1.802	1.798	1.801	205.5	206.8	207.2	207.9	1.831	198.9	33	0.7	140.311
↑1/25	1.905	1.896	1.895	1.896	209.0	209.4	210.3	211.0	1.925	201.6	29	0.7	126.897
↑1/26	2.003	1.993	2.000	1.996	212.8	213.2	214.5	215.3	2.023	205.4	40	0.8	110.543
↑1/27	2.098	2.100	2.098	2.101	216.7	218.5	219.2	220.2	2.125	209.9	44	1.0	98.071
↑1/28	2.212	2.189	2.197	2.200	222.0	221.9	223.4	224.5	2.222	213.8	40	1.1	91.418
↑1/29	2.303	2.296	2.298	2.297	226.1	226.9	228.4	229.4	2.317	218.4	48	1.0	84.670
↑1/30	2.404	2.402	2.399	2.401	232.1	233.6	234.6	235.8	2.418	224.3	59	1.2	76.901
↑1/31	2.494	2.501	2.501	2.499	235.9	238.8	240.0	241.5	2.514	229.7	56	1.5	72.219
↑1/32	2.605	2.592	2.599	2.598	242.5	243.5	245.4	246.9	2.610	234.7	52	1.5	69.119
↑1/33	2.703	2.693	2.700	2.699	248.3	249.5	251.6	253.3	2.708	240.7	61	1.7	65.489
↑1/34	2.802	2.795	2.799	2.803	254.7	256.3	258.5	260.4	2.809	247.4	67	1.9	62.027
↑1/35	2.891	2.901	2.896	2.898	260.7	264.2	266.5	268.9	2.901	255.6	89	2.4	57.772
↑1/36	2.991	3.003	3.000	2.998	268.7	272.4	274.9	277.6	2.997	263.9	86	2.7	54.480
↑1/37	3.094	3.099	3.101	3.092	277.4	280.7	283.6	285.7	3.088	271.7	86	2.1	52.056
↑1/38	3.189	3.200	3.200	3.201	285.6	290.0	292.9	295.5	3.193	281.1	90	2.6	49.570
↑1/39	3.290	3.298	3.301	3.302	295.3	299.1	302.8	305.4	3.291	290.7	98	2.6	47.336
↑1/40	3.393	3.397	3.394	3.410	305.1	309.4	313.0	316.3	3.394	301.2	101	3.3	45.270
↑1/41	3.491	3.497	3.499	3.485	316.0	320.6	323.6	326.9	3.466	311.6	145	3.3	43.036
↑1/42	3.598	3.599	3.600	3.589	331.1	335.5	338.5	341.6	3.564	325.9	145	3.1	40.518
↑1/43	3.690	3.696	3.689	3.699	341.5	346.2	350.2	354.2	3.670	338.1	116	4.0	39.103
↑1/44	3.795	3.797	3.786	3.781	354.0	358.5	362.7	366.0	3.748	349.7	148	3.3	37.674
↑1/45	3.898	3.900	3.901	3.880	370.2	375.5	379.1	382.1	3.842	365.4	168	3.0	35.870
↑1/46	3.990	3.997	3.994	3.999	382.0	387.1	392.1	395.8	3.956	378.8	116	3.7	35.037
↑1/47	4.092	4.093	4.089	4.087	395.6	400.0	405.2	407.6	4.041	390.3	137	2.4	34.246
↑1/48	4.198	4.200	4.199	4.190	411.6	417.9	422.3	426.4	4.138	408.8	190	4.1	32.761
↑1/49	4.296	4.293	4.285	4.301	426.5	431.6	435.3	441.4	4.244	423.4	138	6.1	32.067
↑1/50	4.394	4.392	4.387	4.392	441.2	445.1	451.2	454.8	4.332	436.5	151	3.6	31.448
↑2/51	0.099	0.066	0.101	0.100	23.0	47.9	71.5	98.8	0.197	98.2		27.3	
↑2/52	0.200	0.201	0.201	0.200	120.4	140.3	143.1	144.0	0.265	142.8	658	0.9	
↑2/53	0.299	0.301	0.300	0.299	148.9	150.5	150.9	151.8	0.359	150.0	76	0.9	
↑2/54	0.401	0.400	0.400	0.401	154.9	155.9	156.1	156.6	0.458	154.2	42	0.4	
↑2/55	0.551	0.499	0.499	0.499	156.5	160.9	162.4	162.6	0.553	159.7	58	0.2	
↑2/56	0.601	0.600	0.599	0.599	163.8	164.7	164.9	165.2	0.652	161.8	21	0.3	
↑2/57	0.701	0.700	0.700	0.701	167.1	168.1	168.3	168.6	0.752	164.7	29	0.3	
↑2/58	0.800	0.801	0.797	0.800	170.2	171.1	171.4	171.7	0.849	167.3	26	0.3	
↑2/59	0.900	0.892	0.900	0.898	173.2	174.2	174.6	174.9	0.945	170.0	29	0.4	
↑2/60	1.001	1.000	1.003	0.998	176.7	177.7	178.0	178.3	1.044	172.8	29	0.3	
↑2/61	1.098	1.094	1.101	1.096	179.8	181.0	181.3	181.5	1.140	175.6	29	0.2	
↑2/62	1.205	1.194	1.197	1.198	183.0	184.2	184.5	185.0	1.240	178.6	30	0.5	
↑2/63	1.292	1.297	1.301	1.293	186.4	187.6	188.1	188.5	1.333	181.7	33	0.4	
↑2/64	1.397	1.399	1.393	1.402	189.6	190.9	191.2	191.8	1.440	184.5	26	0.6	
↑2/65	1.503	1.493	1.498	1.499	193.4	193.5	194.4	195.0	1.535	187.3	29	0.6	
↑2/66	1.598	1.598	1.599	1.599	196.7	197.8	198.4	199.0	1.633	190.8	36	0.6	
↑2/67	1.101	1.101	1.101	1.097	193.8	194.2	194.2	194.2	1.134	188.3	5	0.0	
↑2/68	1.198	1.198	1.198	1.200	194.7	195.3	195.3	195.3	1.236	188.9	6	0.0	
↑2/69	1.298	1.296	1.296	1.297	195.8	196.3	196.2	196.4	1.333	189.6	7	0.2	
↑2/70	1.398	1.399	1.402	1.397	196.8	197.4	197.5	197.5	1.432	190.2	6	0.0	
↑2/71	1.497	1.503	1.500	1.500	198.0	198.7	198.9	199.0	1.535	191.2	10	0.1	
↑2/72	1.597	1.598	1.598	1.598	199.6	200.5	200.7	201.0	1.632	192.8	16	0.3	
↑2/73	1.696	1.696	1.700	1.696	201.6	203.1	203.6	204.1	1.728	195.5	28	0.5	
↑2/74	1.800	1.802	1.798	1.801	205.5	206.8	207.2	207.9	1.831	198.9	33	0.7	
↑2/75	1.905	1.896	1.895	1.896	209.0	209.4	210.3	211.0	1.925	201.6	29	0.7	
↑2/76	2.003	1.993	2.000	1.996	212.8	213.2	214.5	215.3	2.023	205.4	40	0.8	
↑2/77	2.098	2.100	2.098	2.101	216.7	218.5	219.2	220.2	2.125	209.9	44	1.0	
↑2/78	2.212	2.189	2.197	2.200	222.0	221.9	223.4	224.5	2.222	213.8	40	1.1	
↑2/79	2.303	2.296	2.298	2.297	226.1	226.9	228.4	229.4	2.317	218.4	48	1.0	
↑2/80	2.404	2.402	2.399	2.401	232.1	233.6	234.6	235.8	2.418	224.3	59	1.2	
↑2/81	2.494	2.501	2.501	2.499	235.9	238.8	240.0	241.5	2.514	229.7	56	1.5	
↑2/82	2.605	2.592	2.599	2.598	242.5	243.5	245.4	246.9	2.610	234.7	52	1.5	
↑2/83	2.703	2.693	2.700	2.699	248.3	249.5	251.6	253.3	2.708	240.7	61	1.7	
↑2/84	2.802	2.795	2.799	2.803	254.7	256.3	258.5	260.4	2.809	247.4	67	1.9	
↑2/85	2.891	2.901	2.896	2.898	260.7	264.2	266.5	268.9	2.901	255.6	89	2.4	
↑2/86	2.991	3.003	3.000	2.998	268.7	272.4	274.9	277.6	2.997	263.9	86	2.7	
↑2/87	3.094	3.099	3.101	3.092	277.4	280.7	283.6	285.7	3.088	271.7	86	2.1	
↑2/88	3.189	3.200	3.200	3.201	285.6	290.0	292.9	295.5	3.193	281.1	90	2.6	
↑2/89	3.290	3.298	3.301	3.302	295.3	299.1	302.8	305.4	3.291	290.7	98	2.6	

↑2/90	3.393	3.397	3.394	3.410	305.1	309.4	313.0	316.3	3.394	301.2	101	3.3	
↑2/91	3.491	3.497	3.499	3.485	316.0	320.6	323.6	326.9	3.466	311.6	145	3.3	
↑2/92	3.598	3.599	3.600	3.589	331.1	335.5	338.5	341.6	3.564	325.9	145	3.1	
↑2/93	3.690	3.696	3.689	3.699	341.5	346.2	350.2	354.2	3.670	338.1	116	4.0	
↑2/94	3.795	3.797	3.786	3.781	354.0	358.5	362.7	366.0	3.748	349.7	148	3.3	
↑2/95	3.898	3.900	3.901	3.880	370.2	375.5	379.1	382.1	3.842	365.4	168	3.0	
↑2/96	3.990	3.997	3.994	3.999	382.0	387.1	392.1	395.8	3.956	378.8	116	3.7	
↑2/97	4.092	4.093	4.089	4.087	395.6	400.0	405.2	407.6	4.041	390.3	137	2.4	
↑2/98	4.198	4.200	4.199	4.190	411.6	417.9	422.3	426.4	4.138	408.8	190	4.1	
↑2/99	4.296	4.293	4.285	4.301	426.5	431.6	435.3	441.4	4.244	423.4	138	6.1	
↑2/100	4.394	4.392	4.387	4.392	441.2	445.1	451.2	454.8	4.332	436.5	151	3.6	

igeotest

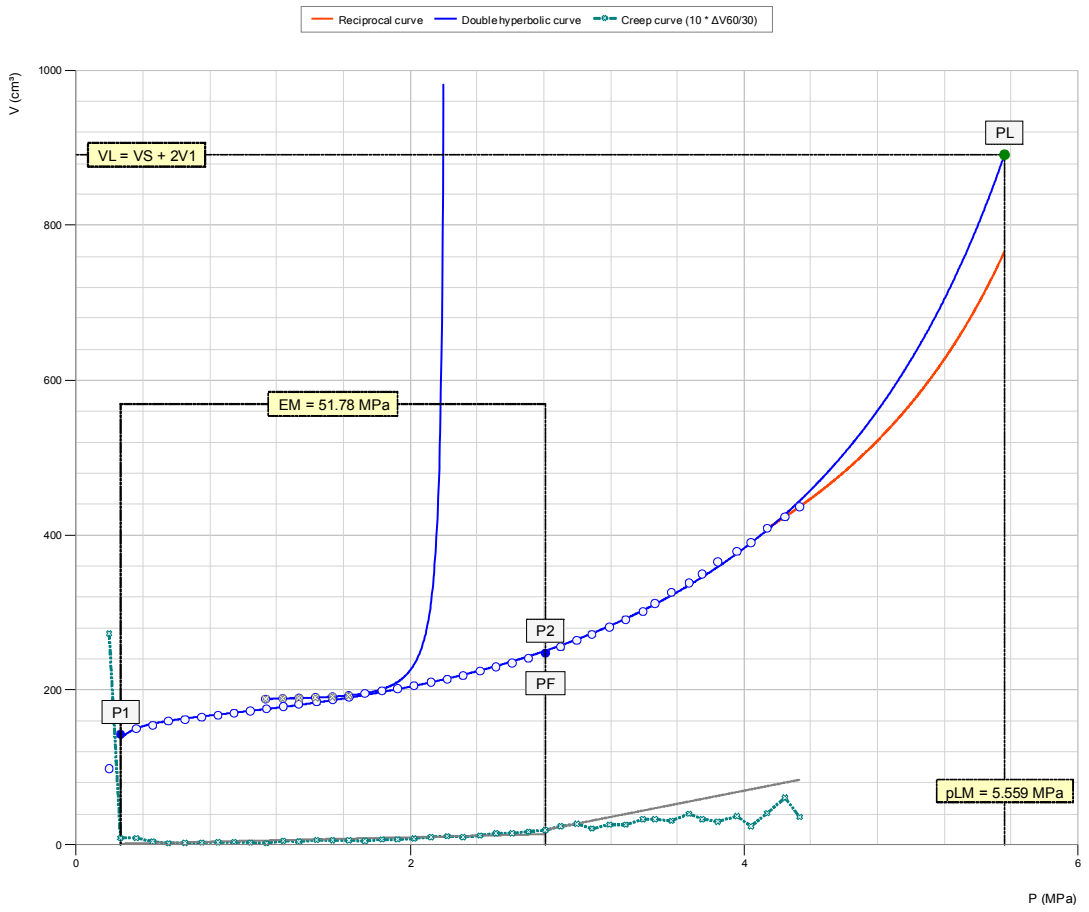
CYCLIC MENARD PRESSUREMETER TEST DATA

- RESULT -

SITE		
	File	**1**
	Country	**UK**
	Job site identification	**LONDON CITY AIRPORT**
	Location plan ref.	
	Borehole number	**BH03**

(Apageo - GeoVision 4)

00001_BH03_23.8m



PARAMETERS ADJUSTED CURVES												
Mounting cycle	A1	A2	A3	A4	A5	A6	Average error (cm3)	P1	P2	Em	E_m / P_l	E_m / P_l*
double hyperbolic (initial)	+8.20E+03	-3.72E+02	+1.58E+05	+1.51E+01	-1.96E+01	+2.22E+00	+1.51E-02	1.134	1.632	232.775	105.790	124.502
double hyperbolic (cycle 2)	-1.58E+02	-3.80E+01	+3.70E+00	+2.41E+03	+1.41E-01	+7.47E+00	+1.78E+00	0.265	2.809	51.775	9.314	9.903
double hyperbolic (cycle 3)												
double hyperbolic (cycle 4)												
double hyperbolic (cycle 5)												
double hyperbolic (cycle 6)												
double hyperbolic (cycle 7)												
double hyperbolic (cycle 8)												
double hyperbolic (cycle 9)												
double hyperbolic (cycle 10)												
double hyperbolic (cycle 11)												
double hyperbolic (cycle 12)												
double hyperbolic (cycle 13)												

CALCULATED RESULTS				
σ_{hs} (MPa)	**0.3**	$E_{M\ initial}$ (MPa)	**232.8**
$p_{1\ initial}$ (MPa)	**1.1**	$E_{M\ final}$ (MPa)	**51.77519725**
$p_{2\ initial}$ (MPa)	**1.6**	$E_{M\ médian}$ (MPa)	232.7745395
$p_{1\ final}$ (MPa)	**0.3**	$E_{M\ final}$ / $E_{M\ initial}$	0.222426376
$p_{2\ final}$ (MPa)	**2.8**	$E_{M\ médian}$ / $E_{M\ initial}$	1
p_f (MPa)	**2.8**	$E_{M\ initial}$ / p_l	41.87522231
p_l (MPa)	**5.6**	$E_{M\ initial}$ / p_{lm}	44.52402914
p_{lm} (MPa)	**5.2**	$E_{M\ final}$ / p_{lm}	9.314153944
Number of cycles	**2.0**	$E_{M\ final}$ / p_{lm}	9.903318448

COMMENTS

APAGEO
Apageo - GeoVision® 4.1.2.1

CYCLIC MENARD PRESSUREMETER TEST DATA
- DATA -

SITE

File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH03

PROBE

PROBE PARAMETERS			
Code	44-gct-c-63		
Length		Cover	
210 mm	X	Rubber	
370 mm		Reinforced mesh	X
Type		Metallic mesh	
E		Metallic strips	
G	X	Slotted tube	

TUBING AND FLUID				
Type	Coaxial		Liquid	Nature: Eau
	Twin	X		Unit weight γ_l/γ_w: 1.00
Total length (m)			Gas	Nature: Azote
43.50				Compressibility λ_g (m^{-1}): 0.00016
MEMBRANE PARAMETERS				
Supplier type and cote				
Pressure loss p_m (MPa)	0.050			

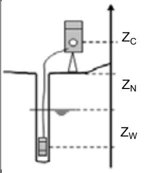
PRESSURE LOSS PARAMETERS	
Correction sheet reference	ET161115.001
Ultimate pressure loss p_{el} (MPa)	0.329
VOLUME LOSS PARAMETERS	
Correction sheet reference	CA161108.001
Calibration cylinder diameter d_i (mm)	66.0
Calibration coefficient a (cm^3/MPa)	3.644
Probe volume V_s (cm^3)	605.4

TEST

Test number (or depth)	ES161116.004
Test date and time	16/11/2016 17:06
Control unit number	
Data logger number	GEOPAC 06
Operator's name	MP
Differential pressure (MPa)	-0.173
Observations (weather, etc.)	

ORIGINAL DATAS									DATA CORRECTED from P&V losses				
	PRESSURES pr (MPa)				VOLUMES V(t) (cm^3)				PRESSURE	VOLUME	SLOPE	CREEP	MODULE
Step	1 s	15 s	30 s	60 s	1 s	15 s	30 s	60 s	p (MPa)	V^{60} (cm^3)	$\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	$\Delta V^{60/30}$ (cm^3)	EM (Mpa)
0													
↑1/1	0.061	0.099	0.098	0.099	24.9	58.8	83.6	113.3	0.214	112.7		29.7	
↑1/2	0.192	0.201	0.200	0.202	137.8	155.8	158.2	160.1	0.285	158.9	645	1.9	
↑1/3	0.301	0.296	0.303	0.301	163.1	163.4	163.9	164.1	0.383	162.3	35	0.2	
↑1/4	0.401	0.400	0.398	0.399	165.8	166.1	166.2	166.4	0.479	164.1	19	0.2	
↑1/5	0.561	0.501	0.502	0.501	166.3	168.1	168.9	169.1	0.580	166.2	21	0.2	
↑1/6	0.603	0.600	0.598	0.599	170.1	170.7	170.8	171.0	0.677	167.6	14	0.2	
↑1/7	0.804	0.798	0.798	0.801	173.7	174.5	174.6	174.9	0.877	170.5	15	0.3	
↑1/8	1.005	0.999	1.000	0.985	177.2	178.3	178.6	178.8	1.058	173.5	17	0.3	
↑1/9	1.204	1.199	1.201	1.198	181.2	182.6	183.0	183.3	1.269	176.9	16	0.3	
↑1/10	1.402	1.400	1.401	1.400	185.4	186.9	187.3	187.7	1.469	180.4	18	0.4	
↑1/11	1.601	1.600	1.601	1.600	189.9	191.8	192.4	192.9	1.666	184.7	22	0.5	
↑1/12	1.800	1.801	1.800	1.796	194.9	197.2	197.8	198.3	1.859	189.3	24	0.5	
↑1/13	1.999	2.002	2.002	1.999	200.4	203.1	203.9	204.7	2.059	194.8	28	0.8	491.172
↑1/14	1.206	1.199	1.201	1.201	196.9	197.6	197.7	197.8	1.265	191.4	4	0.1	
↑1/15	1.404	1.397	1.400	1.399	198.8	199.4	199.4	199.5	1.462	192.2	4	0.1	526.576
↑1/16	1.604	1.599	1.601	1.598	200.6	201.3	201.4	201.5	1.660	193.3	6	0.1	437.804
↑1/17	1.805	1.800	1.799	1.798	202.5	203.4	203.5	203.7	1.859	194.7	7	0.2	386.812
↑1/18	2.002	1.997	2.000	1.999	204.9	206.4	206.8	207.2	2.058	197.3	13	0.4	284.550
↑1/19	2.197	2.200	2.196	2.199	208.7	211.5	212.2	213.0	2.255	202.3	25	0.8	193.399
↑1/20	2.395	2.399	2.402	2.398	214.7	218.3	219.3	220.5	2.451	209.1	34	1.2	143.953
↑1/21	2.592	2.598	2.600	2.597	222.3	226.5	227.8	229.3	2.646	217.1	41	1.5	115.714
↑1/22	2.799	2.797	2.800	2.800	232.2	236.1	237.6	239.4	2.844	226.5	47	1.8	97.599
↑1/23	2.995	2.999	3.000	3.000	242.8	247.5	249.5	251.9	3.039	238.2	61	2.4	82.641
↑1/24	3.194	3.198	3.201	3.198	256.0	261.3	264.0	266.6	3.230	252.2	73	2.6	71.099
↑1/25	3.390	3.399	3.400	3.400	271.6	278.2	281.5	284.9	3.425	269.8	90	3.4	61.245
↑1/26	3.596	3.599	3.589	3.601	291.1	298.9	302.5	307.1	3.617	291.4	112	4.6	53.013
↑1/27	3.795	3.800	3.792	3.789	314.9	323.8	327.3	331.3	3.797	314.9	132	4.0	46.804
↑1/28	3.994	3.999	3.989	3.995	339.1	350.0	353.5	359.2	3.993	342.2	139	5.7	41.979
↑1/29	4.193	4.200	4.188	4.195	365.8	377.4	381.7	388.0	4.183	370.3	148	6.3	38.453
↑1/30	4.394	4.401	4.387	4.393	396.1	407.2	411.5	417.2	4.372	398.9	151	5.7	35.872
↑1/31	4.583	4.603	4.582	4.604	419.5	429.5	434.6	443.9	4.575	425.0	128	9.3	34.444
↑1/32	4.783	4.782	4.789	4.800	446.1	455.3	461.0	473.8	4.763	454.3	156	12.8	32.856
↑2/33	0.061	0.099	0.098	0.099	24.9	58.8	83.6	113.3	0.214	112.7		29.7	
↑2/34	0.192	0.201	0.200	0.202	137.8	155.8	158.2	160.1	0.285	158.9	645	1.9	
↑2/35	0.301	0.296	0.303	0.301	163.1	163.4	163.9	164.1	0.383	162.3	35	0.2	
↑2/36	0.401	0.400	0.398	0.399	165.8	166.1	166.2	166.4	0.479	164.1	19	0.2	
↑2/37	0.561	0.501	0.502	0.501	166.3	168.1	168.9	169.1	0.580	166.2	21	0.2	
↑2/38	0.603	0.600	0.598	0.599	170.1	170.7	170.8	171.0	0.677	167.6	14	0.2	
↑2/39	0.804	0.798	0.798	0.801	173.7	174.5	174.6	174.9	0.877	170.5	15	0.3	
↑2/40	1.005	0.999	1.000	0.985	177.2	178.3	178.6	178.8	1.058	173.5	17	0.3	
↑2/41	1.204	1.199	1.201	1.198	181.2	182.6	183.0	183.3	1.269	176.9	16	0.3	
↑2/42	1.402	1.400	1.401	1.400	185.4	186.9	187.3	187.7	1.469	180.4	18	0.4	
↑2/43	1.601	1.600	1.601	1.600	189.9	191.8	192.4	192.9	1.666	184.7	22	0.5	
↑2/44	1.800	1.801	1.800	1.796	194.9	197.2	197.8	198.3	1.859	189.3	24	0.5	
↑2/45	1.999	2.002	2.002	1.999	200.4	203.1	203.9	204.7	2.059	194.8	28	0.8	
↑2/46	1.206	1.199	1.201	1.201	196.9	197.6	197.7	197.8	1.265	191.4	4	0.1	
↑2/47	1.404	1.397	1.400	1.399	198.8	199.4	199.4	199.5	1.462	192.2	4	0.1	
↑2/48	1.604	1.599	1.601	1.598	200.6	201.3	201.4	201.5	1.660	193.3	6	0.1	
↑2/49	1.805	1.800	1.799	1.798	202.5	203.4	203.5	203.7	1.859	194.7	7	0.2	
↑2/50	2.002	1.997	2.000	1.999	204.9	206.4	206.8	207.2	2.058	197.3	13	0.4	
↑2/51	2.197	2.200	2.196	2.199	208.7	211.5	212.2	213.0	2.255	202.3	25	0.8	
↑2/52	2.395	2.399	2.402	2.398	214.7	218.3	219.3	220.5	2.451	209.1	34	1.2	
↑2/53	2.592	2.598	2.600	2.597	222.3	226.5	227.8	229.3	2.646	217.1	41	1.5	
↑2/54	2.799	2.797	2.800	2.800	232.2	236.1	237.6	239.4	2.844	226.5	47	1.8	
↑2/55	2.995	2.999	3.000	3.000	242.8	247.5	249.5	251.9	3.039	238.2	61	2.4	
↑2/56	3.194	3.198	3.201	3.198	256.0	261.3	264.0	266.6	3.230	252.2	73	2.6	
↑2/57	3.390	3.399	3.400	3.400	271.6	278.2	281.5	284.9	3.425	269.8	90	3.4	
↑2/58	3.596	3.599	3.589	3.601	291.1	298.9	302.5	307.1	3.617	291.4	112	4.6	
↑2/59	3.795	3.800	3.792	3.789	314.9	323.8	327.3	331.3	3.797	314.9	132	4.0	
↑2/60	3.994	3.999	3.989	3.995	339.1	350.0	353.5	359.2	3.993	342.2	139	5.7	
↑2/61	4.193	4.200	4.188	4.195	365.8	377.4	381.7	388.0	4.183	370.3	148	6.3	
↑2/62	4.394	4.401	4.387	4.393	396.1	407.2	411.5	417.2	4.372	398.9	151	5.7	
↑2/63	4.583	4.603	4.582	4.604	419.5	429.5	434.6	443.9	4.575	425.0	128	9.3	
↑2/64	4.783	4.782	4.789	4.800	446.1	455.3	461.0	473.8	4.763	454.3	156	12.8	
65													
66													
67													
68													
69													

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 26.65

BOREHOLE

Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	26
	to level (m)	27.5
	time completed	

UNITS

Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

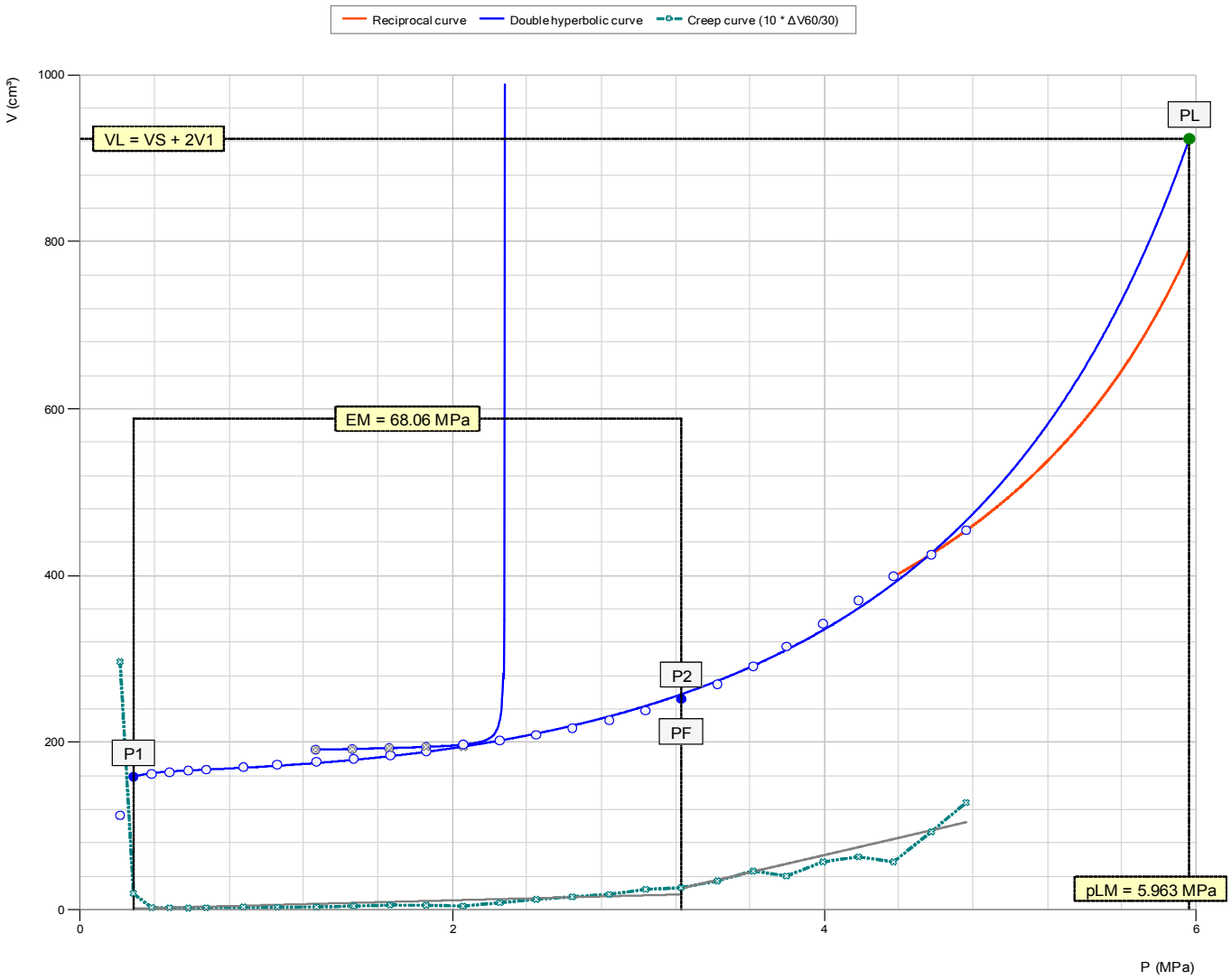
CALCULATED NORMATIVE RESULTS

σ_{hs}	(MPa)	0.371
$p_{1\ initial}$	(MPa)	1.26
$p_{2\ initial}$	(MPa)	2.06
$p_{1\ final}$	(MPa)	0.29
$p_{2\ final}$	(MPa)	3.23
p_f	(MPa)	3.23
p_{lm}	(MPa)	5.96
p^*_{lm}	(MPa)	5.59
$E_{M\ initial}$	(MPa)	284.6
$E_{M\ final}$	(MPa)	68.1
$E_{M\ médian}$	(MPa)	284.6
$E_{M\ final}$ / $E_{M\ initial}$		0.2
$E_{M\ médian}$ / $E_{M\ initial}$		1.0
$E_{M\ initial}$ / p_{lm}		47.7
$E_{M\ initial}$ / p^*_{lm}		50.9
$E_{M\ final}$ / p_{lm}		11.4
$E_{M\ final}$ / p^*_{lm}		12.2

igeotest	CYCLIC MENARD PRESSUREMETER TEST DATA - RESULT -	SITE		
			File	1
			Country	UK
			Job site identification	LONDON CITY AIRPORT
			Location plan ref.	
			Borehole number	BH03

(Apageo - GeoVision 4)

00001_BH03_26.65m



PARAMETERS ADJUSTED CURVES

Mounting cycle	A1	A2	A3	A4	A5	A6	Average error (cm3)	P1	P2	Em	E_m / P_l	E_m / P_l*
double hyperbolic (initial)	+1.86E+02	+3.29E+00	+0.00E+00	+9.77E-01	-2.00E+01	+2.28E+00	+2.48E-02	1.265	2.058	284.550	124.602	148.740
double hyperbolic (cycle 2)	-1.76E+02	-4.45E+01	+8.49E-01	+2.73E+03	+1.98E-01	+7.97E+00	+2.97E+00	0.285	3.230	68.063	11.415	12.172
double hyperbolic (cycle 3)												
double hyperbolic (cycle 4)												
double hyperbolic (cycle 5)												
double hyperbolic (cycle 6)												
double hyperbolic (cycle 7)												
double hyperbolic (cycle 8)												
double hyperbolic (cycle 9)												
double hyperbolic (cycle 10)												
double hyperbolic (cycle 11)												
double hyperbolic (cycle 12)												
double hyperbolic (cycle 13)												

CALCULATED RESULTS

σ_{hs}	(MPa)	**0.4**	$E_{M\ initial}$ (MPa)	**284.6**
$p_{1\ initial}$	(MPa)	**1.3**	$E_{M\ final}$ (MPa)	**68.06313308**
$p_{2\ initial}$	(MPa)	**2.1**	$E_{M\ médian}$ (MPa)	284.5500491
$p_{1\ final}$	(MPa)	**0.3**	$E_{M\ final}$ / $E_{M\ initial}$	0.239195647
$p_{2\ final}$	(MPa)	**3.2**	$E_{M\ médian}$ / $E_{M\ initial}$	1
p_f	(MPa)	**3.2**	$E_{M\ initial}$ / p_l	47.72275781
p_l	(MPa)	**6.0**	$E_{M\ initial}$ / p_{lm}	50.88551958
p_{lm}	(MPa)	**5.6**	$E_{M\ final}$ / p_{lm}	11.41507593
Number of cycles		**2.0**	$E_{M\ final}$ / p_{lm}	12.17159477

COMMENTS

APAGEO
Apageo - GeoVision® 4.1.2.1

CONCEPT igeotest

MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

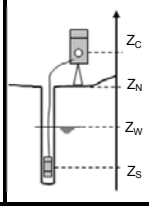
SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH25R

PROBE									
PROBE PARAMETERS				TUBING AND FLUID					PRESSURE LOSS PARAMETERS	
Code	44-gct-c-63			Type	Coaxial		Liquid	Nature	Correction sheet reference	ET161123.001
Length	Cover				Twin	X		Unit weight γ/γ_w	Ultimate pressure loss p_{el} (MPa)	0.311
210 mm	X	Rubber		Total length (m)			Gas	Nature	VOLUME LOSS PARAMETERS	
370 mm		Reinforced mesh	X	43.50				Compressibility λ_g (m^{-1})	Correction sheet reference	CA161123.001
Type		Metallic mesh		MEMBRANE PARAMETERS					Calibration cylinder diameter d_i (mm)	66.0
E		Metallic strips		Supplier type and cote					Calibration coefficient a (cm^3/MPa)	3.874
G	X	Slotted tube		Pressure loss p_m (MPa)		0.050			Probe volume V_s (cm^3)	601.8

TEST	
Test number (or depth)	ES161124.001
Test date and time	24/11/2016 12:42
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.067
Observations (weather, etc.)	

Palier	ORIGINAL DATA: PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm³) 1 s	15 s	30 s	60 s	DATA CORRECTED from P&V losses: PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (MPa)
0													
1	0.171	0.075	0.109	0.102	26.4	37.1	48.0	57.8	0.172	57.0		9.8	
2	0.212	0.197	0.200	0.200	75.5	91.2	96.1	97.5	0.231	96.0	663	1.4	
3	0.302	0.301	0.300	0.301	105.8	108.9	109.4	109.9	0.322	107.7	129	0.5	
4	0.402	0.400	0.400	0.401	115.2	117.1	117.5	117.9	0.416	115.0	78	0.4	24.412
5	0.501	0.500	0.501	0.499	122.3	124.1	124.5	124.9	0.509	121.3	67	0.4	26.264
6	0.604	0.580	0.600	0.599	125.7	128.2	131.7	132.1	0.605	127.9	70	0.5	26.747
7	0.801	0.799	0.801	0.797	139.9	143.6	144.6	145.5	0.795	140.1	64	1.0	28.204
8	1.003	1.003	0.998	0.998	153.7	159.1	160.5	161.9	0.986	155.2	79	1.4	27.261
9	1.198	1.195	1.202	1.198	170.2	177.6	179.7	181.9	1.175	174.1	100	2.2	25.370
10	1.398	1.396	1.403	1.399	191.5	202.4	206.1	209.5	1.362	200.7	142	3.4	22.503
11	1.592	1.595	1.594	1.601	220.8	238.6	245.6	252.5	1.545	242.6	229	6.8	18.746
12	1.791	1.796	1.794	1.791	266.2	290.4	305.4	319.4	1.710	308.6	400	14.0	14.888
13	1.987	1.992	1.998	1.997	334.9	362.2	385.8	414.8	1.887	403.0	534	29.0	12.085
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 16.20

BOREHOLE		
Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	15.5
	to level (m)	16.8
	time completed	

UNITS		
Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

igeotest

MENARD PRESSUREMETER REPORT AND INTERPRETATION

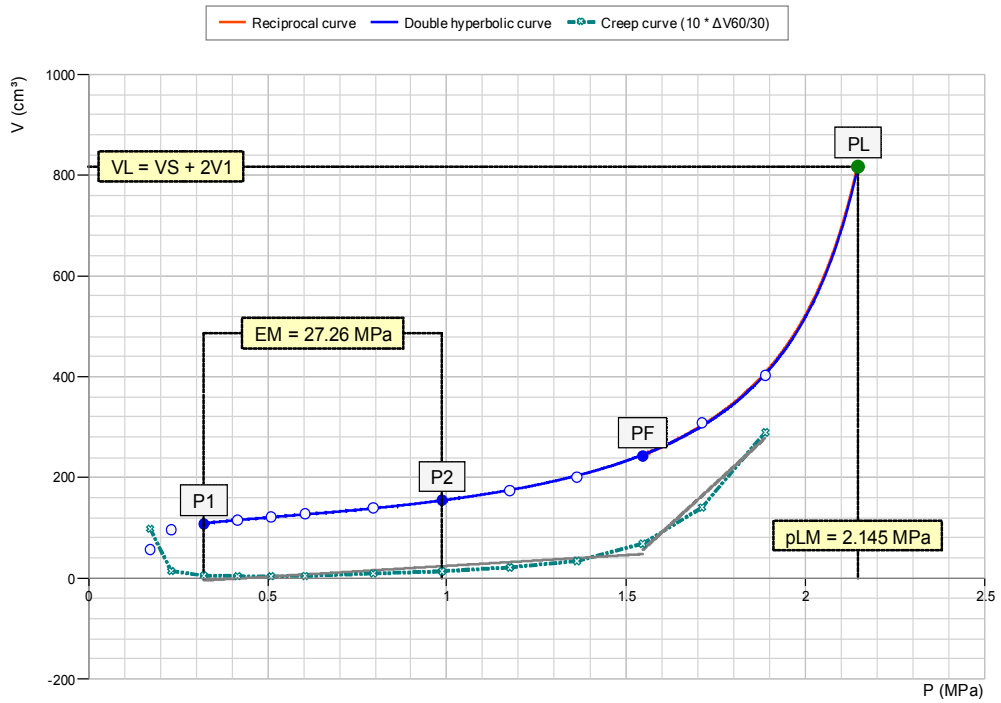
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161124.001
Job site identification	LONDON CITY A
Borehole	BH25R
Test depth	16.20

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH25R_16.2m



CALCULATED NORMATIVE RESULTS		
σ_{hs}	(MPa)	0.224
p_1	(MPa)	0.32
p_2	(MPa)	0.99
p_f	(MPa)	1.55
p_{lm}	(MPa)	2.15
p_{-lm}	(MPa)	1.92
E_M	(MPa)	27.3
E_M / p_{lm}		12.7
E_M / p_{-lm}		14.2

EXTRAPOLATION METHODS PARAMETERS		
inverse volumes	A	-4.80E-03
	B	1.15E-02
double hyperbolic	A1	2.12E+01
	A2	-1.60E+01
	A3	1.87E+00
	A4	2.14E+02
	A5	1.40E-01
	A6	2.40E+00
	Average error(cm3)	1.60E+00

COMMENTS

PLMR = 2.143 MPa
PLMDH = 2.145 MPa

APAGEO
Apageo - GeoVision® 4.1.2.1

MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

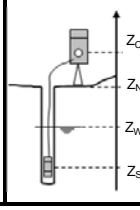
SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH25R

PROBE									
PROBE PARAMETERS				TUBING AND FLUID					PRESSURE LOSS PARAMETERS	
Code	44-gct-c-63			Type	Coaxial		Liquid	Nature	Correction sheet reference	ET161123.001
Length		Cover			Twin	X		Unit weight γ_l/γ_w	Ultimate pressure loss p_{el} (MPa)	0.311
210 mm	X	Rubber		Total length (m)			Gas	Nature	VOLUME LOSS PARAMETERS	
370 mm		Reinforced mesh	X	43.50				Compressibility λ_g (m^{-1})	Correction sheet reference	CA161123.001
Type		Metallic mesh		MEMBRANE PARAMETERS					Calibration cylinder diameter d_i (mm)	66.0
E		Metallic strips		Supplier type and cote					Calibration coefficient a (cm^3/MPa)	3.874
G	X	Slotted tube		Pressure loss p_m (MPa)		0.050			Probe volume V_s (cm^3)	601.8

TEST	
Test number (or depth)	ES161124.002
Test date and time	24/11/2016 16:35
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.096
Observations (weather, etc.)	

Palier	ORIGINAL DATA: PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm³) 1 s	15 s	30 s	60 s	DATA CORRECTED from P&V losses: PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (MPa)
0													
1	0.124	0.092	0.094	0.101	19.7	35.0	46.7	60.6	0.196	59.8		13.9	
2	0.207	0.198	0.200	0.200	77.1	92.0	94.8	96.3	0.261	94.8	541	1.5	
3	0.300	0.301	0.300	0.300	100.6	103.0	103.7	104.7	0.355	102.5	82	1.0	22.711
4	0.398	0.402	0.400	0.400	107.8	109.8	110.4	111.0	0.450	108.1	60	0.7	26.434
5	0.502	0.500	0.500	0.501	113.5	114.6	115.0	115.4	0.547	111.9	38	0.5	31.414
6	0.611	0.591	0.598	0.599	115.8	116.8	118.7	119.2	0.643	115.0	32	0.4	35.541
7	0.804	0.802	0.793	0.796	123.9	125.8	126.1	126.7	0.835	121.2	33	0.6	40.962
8	1.005	0.998	1.001	0.996	131.2	133.5	134.1	134.7	1.029	128.1	35	0.6	43.733
9	1.204	1.195	1.200	1.200	139.5	142.5	143.3	144.1	1.228	136.3	41	0.8	44.414
10	1.402	1.401	1.398	1.401	149.1	153.3	154.4	155.6	1.422	146.7	53	1.2	42.982
11	1.602	1.600	1.596	1.600	160.9	166.5	168.2	169.8	1.613	159.9	69	1.6	40.236
12	1.796	1.799	1.792	1.798	175.9	184.0	186.5	189.4	1.800	178.6	99	3.0	36.089
13	1.994	1.997	1.997	2.001	196.7	208.3	211.9	216.4	1.990	204.5	137	4.5	31.494
14	2.400	2.397	2.399	2.401	239.1	265.5	281.5	294.3	2.359	280.6	206	12.8	23.706
15	2.799	2.789	2.795	2.799	322.0	354.4	381.0	427.9	2.715	412.6	371	46.9	17.569
16													
17													
18													
19													
20													
21													
22													
23													
24													

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 19.10

BOREHOLE		
Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	18.5
	to level (m)	20
	time completed	

UNITS		
Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

MENARD PRESSUREMETER REPORT AND INTERPRETATION

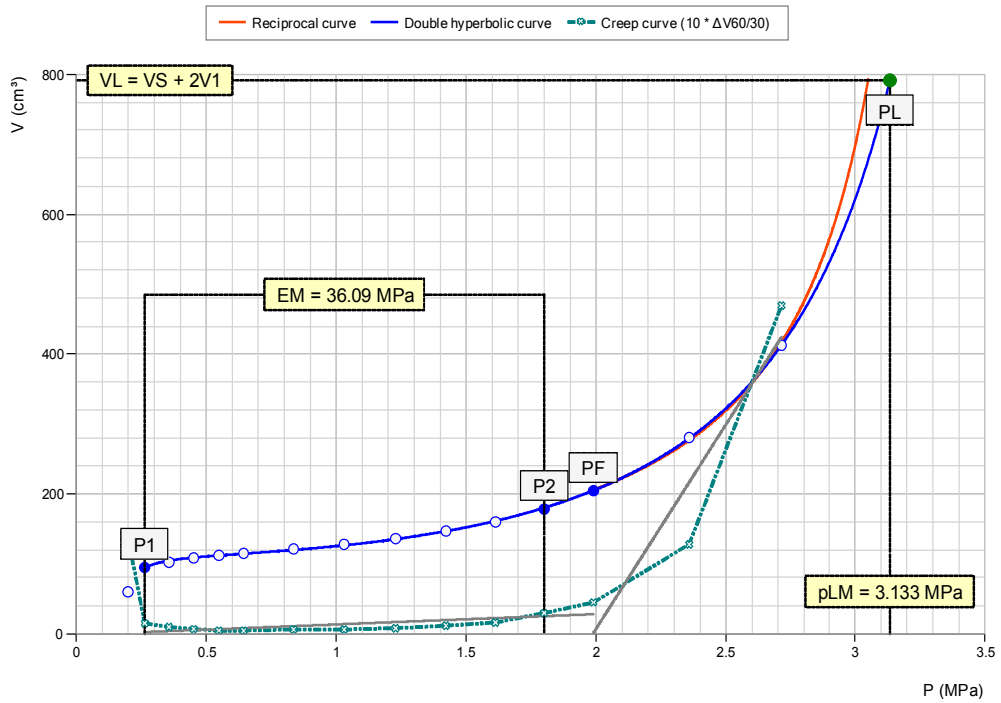
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161124.002
Job site identification	LONDON CITY A
Borehole	BH25R
Test depth	19.10

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH25R_19.1m



CALCULATED NORMATIVE RESULTS		
σ_{hs}	(MPa)	0.265
p_1	(MPa)	0.26
p_2	(MPa)	1.80
p_f	(MPa)	1.99
p_{lm}	(MPa)	3.13
p'_{lm}	(MPa)	2.87
E_M	(MPa)	36.1
E_M / p_{lm}		11.5
E_M / p'_{lm}		12.6

EXTRAPOLATION METHODS PARAMETERS		
inverse volumes	A	-3.40E-03
	B	1.16E-02
double hyperbolic	A1	-4.50E+01
	A2	-4.57E+01
	A3	2.25E+00
	A4	6.01E+02
	A5	1.56E-01
	A6	3.75E+00
	Average error(cm3)	8.84E-01

COMMENTS

PLMR = 3.048 MPa
PLMDH = 3.133 MPa

APAGEO
Apageo - GeoVision® 4.1.2.1

MENARD PRESSUREMETER TEST DATA

- DATA -

SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH10R

PROBE

PROBE PARAMETERS			
Code	44-gct-c-63		
Length		Cover	
210 mm	X	Rubber	
370 mm		Reinforced mesh	X
Type		Metallic mesh	
E		Metallic strips	
G	X	Slotted tube	

TUBING AND FLUID					
Type	Coaxial	X	Liquid	Nature	
	Twin			Unit weight γ_l/γ_w	
Total length (m)			Gas	Nature	
50.00				Compressibility λ_g (m^{-1})	

MEMBRANE PARAMETERS	
Supplier type and cote	
Pressure loss p_m (MPa)	0.050

PRESSURE LOSS PARAMETERS	
Correction sheet reference	ET161201.001
Ultimate pressure loss p_{el} (MPa)	0.418

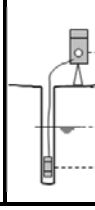
VOLUME LOSS PARAMETERS	
Correction sheet reference	CA161130.001
Calibration cylinder diameter d_i (mm)	66.0
Calibration coefficient a (cm^3/MPa)	2.261
Probe volume V_s (cm^3)	569.2

TEST

Test number (or depth)	ES161201.001
Test date and time	01/12/2016 10:04
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.094
Observations (weather, etc.)	

ORIGINAL DATA									DATA CORRECTED from P&V losses				
Palier	PRESSURE pr (MPa)				VOLUME V(t) (cm^3)				PRESSURE	VOLUME	SLOPE	CREEP	MODULE
	1 s	15 s	30 s	60 s	1 s	15 s	30 s	60 s	p (MPa)	V^{60} (cm^3)	$\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	$\Delta V^{60/30}$ (cm^3)	EM (MPa)
0													
1	0.076	0.058	0.085	0.090	19.6	36.1	47.8	61.5	0.160	60.8		13.7	
2	0.191	0.201	0.200	0.201	70.1	83.9	95.5	116.3	0.211	114.8	1070	20.8	
3	0.295	0.302	0.299	0.301	126.1	135.6	143.7	156.9	0.278	154.8	594	13.3	
4	0.399	0.401	0.399	0.401	162.8	168.7	173.1	178.0	0.362	175.2	243	4.9	
5	0.499	0.502	0.501	0.500	180.7	184.1	185.7	187.1	0.455	183.6	90	1.3	
6	0.638	0.602	0.597	0.601	187.3	185.7	187.2	191.9	0.553	187.9	44	4.7	46.057
7	0.798	0.801	0.798	0.799	195.7	201.9	204.6	206.3	0.741	201.1	70	1.7	33.076
8	0.991	0.995	0.999	0.998	208.6	212.9	214.1	215.3	0.935	209.1	41	1.2	38.282
9	1.194	1.200	1.197	1.200	217.3	221.6	222.4	223.7	1.132	216.5	38	1.3	42.064
10	1.394	1.400	1.399	1.398	225.4	229.7	231.3	232.7	1.324	224.7	43	1.4	43.482
11	1.590	1.599	1.596	1.598	234.1	238.8	239.7	241.6	1.519	232.8	41	1.8	44.733
12	1.792	1.797	1.801	1.802	242.9	247.1	249.2	251.2	1.717	241.7	45	2.0	45.153
13	1.990	2.000	1.999	2.000	252.6	257.4	260.4	263.1	1.908	252.9	59	2.7	43.903
14	2.396	2.389	2.399	2.398	267.9	273.6	279.7	286.0	2.294	274.6	56	6.3	42.888
15	2.797	2.789	2.798	2.800	290.4	296.2	302.1	312.2	2.681	299.8	65	10.1	41.315
16	3.128	3.189	3.194	3.194	316.9	324.9	329.1	339.2	3.062	326.0	69	10.0	40.131
17	3.561	3.588	3.587	3.600	349.6	354.6	359.8	370.3	3.452	356.4	78	10.5	38.715
18	4.043	4.097	4.005	3.999	378.1	376.1	374.0	400.0	3.838	385.5	75	26.0	38.049
19													
20													
21													
22													
23													
24													

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 19.00

BOREHOLE

Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	18.2
	to level (m)	20
	time completed	

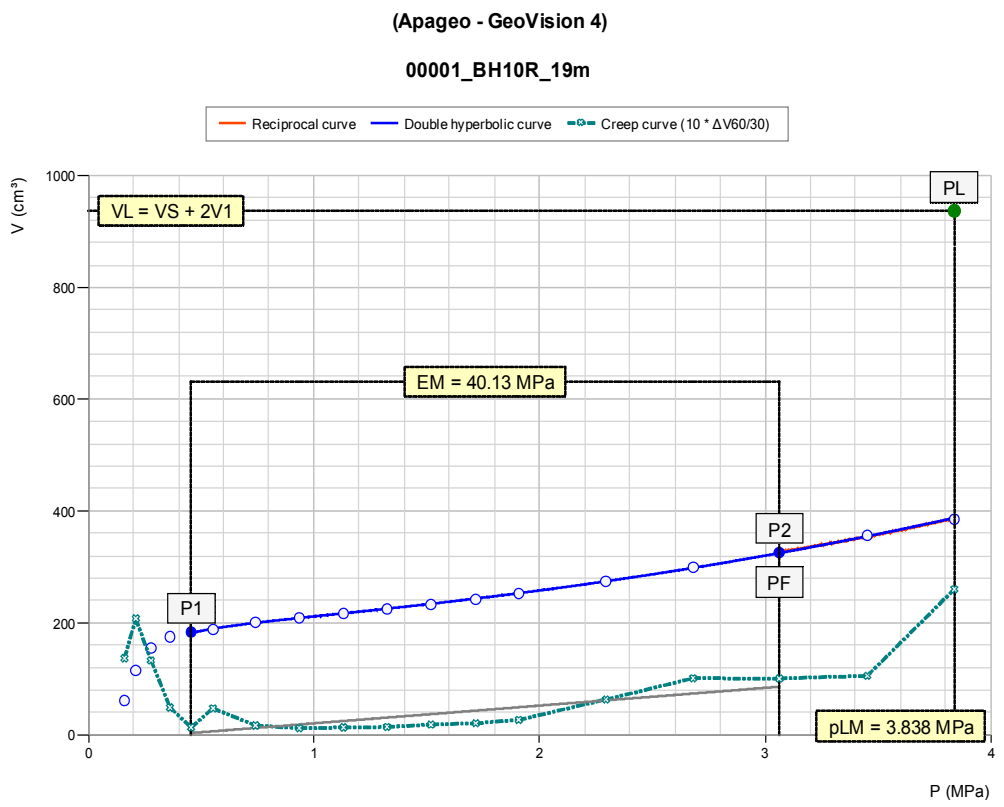
UNITS

Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

MENARD PRESSUREMETER REPORT AND INTERPRETATION

- RESULTS -

File	1
Test reference	ES161201.001
Job site identification	LONDON CITY A
Borehole	BH10R
Test depth	19.00



CALCULATED NORMATIVE RESULTS		
σ_{hs}	(MPa)	0.263
p_1	(MPa)	0.46
p_2	(MPa)	3.06
p_f	(MPa)	3.06
p_{lm}	(MPa)	3.84
p_{-lm}	(MPa)	3.57
E_M	(MPa)	40.1
E_M / p_{lm}		10.5
E_M / p_{-lm}		11.2

EXTRAPOLATION METHODS PARAMETERS		
inverse volumes	A	-6.11E-04
	B	4.93E-03
double hyperbolic	A1	-9.33E+04
	A2	-9.23E+02
	A3	9.35E+00
	A4	9.35E+06
	A5	9.55E-02
	A6	1.00E+02
	Average error(cm3)	1.77E+00

COMMENTS

PLMR = 6.324 MPa
PLMDH = 7.944 MPa

Invalid test - Oversized borehole

APAGEO
Apageo - GeoVision® 4.1.2.1

MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

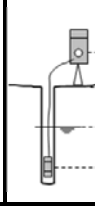
SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH10R

PROBE					
PROBE PARAMETERS			TUBING AND FLUID		PRESSURE LOSS PARAMETERS
Code	44-gct-c-63		Type: Coaxial X / Twin	Liquid: Nature	Correction sheet reference: ET161201.001
Length	Cover			Unit weight γ/γ_w	Ultimate pressure loss p_{ul} (MPa): 0.418
210 mm X	Rubber		Total length (m)	Gas: Nature	VOLUME LOSS PARAMETERS
370 mm	Reinforced mesh	X	50.00	Compressibility λ_g (m^{-1})	Correction sheet reference: CA161130.001
Type	Metallic mesh		MEMBRANE PARAMETERS		Calibration cylinder diameter d_i (mm): 66.0
E	Metallic strips		Supplier type and cote		Calibration coefficient a (cm^3/MPa): 2.261
G X	Slotted tube		Pressure loss p_m (MPa): 0.050		Probe volume V_s (cm^3): 569.2

TEST	
Test number (or depth)	ES161201.002
Test date and time	01/12/2016 13:43
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.167
Observations (weather, etc.)	

Palier	ORIGINAL DATA: PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm³) 1 s	15 s	30 s	60 s	DATA CORRECTED from P&V losses: PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (MPa)
0													
1	0.194	0.093	0.098	0.099	37.9	47.2	55.3	65.4	0.225	64.6		10.1	
2	0.217	0.161	0.184	0.201	84.1	99.2	116.8	133.6	0.257	132.1	2090	16.8	
3	0.305	0.300	0.301	0.301	141.4	143.4	143.8	144.2	0.349	142.0	108	0.4	
4	0.405	0.401	0.397	0.400	147.9	148.5	148.5	148.8	0.444	145.9	41	0.3	46.148
5	0.528	0.484	0.502	0.497	149.3	148.3	151.7	152.0	0.538	148.6	28	0.3	55.359
6	0.600	0.601	0.598	0.599	154.5	155.6	155.6	155.8	0.638	151.7	32	0.2	56.769
7	0.801	0.800	0.797	0.801	159.5	160.4	160.6	160.9	0.836	155.7	20	0.3	67.875
8	1.002	1.001	0.999	0.999	164.0	165.1	165.4	165.6	1.031	159.5	19	0.2	74.988
9	1.199	1.200	1.201	1.199	168.5	169.9	170.2	170.5	1.227	163.4	20	0.3	79.016
10	1.400	1.401	1.398	1.399	173.1	174.8	175.2	175.5	1.423	167.5	21	0.4	81.134
11	1.599	1.600	1.602	1.600	178.0	180.0	180.6	181.1	1.620	172.3	24	0.5	81.088
12	1.797	1.802	1.798	1.798	183.4	185.9	186.5	187.2	1.814	177.7	27	0.6	79.821
13	1.998	1.998	2.001	1.997	189.4	192.3	193.2	194.0	2.009	183.9	32	0.9	77.292
14	2.391	2.401	2.401	2.390	201.3	207.9	209.8	210.9	2.391	199.5	41	1.1	69.898
15	2.787	2.801	2.797	2.801	219.3	230.4	233.8	237.0	2.785	224.7	64	3.2	59.017
16	3.187	3.202	3.200	3.201	246.7	262.5	272.7	279.6	3.161	266.4	111	6.9	46.517
17	3.590	3.590	3.598	3.589	291.4	307.1	324.2	343.5	3.515	329.7	178	19.3	36.146
18	3.983	3.989	3.986	4.001	356.8	371.9	384.0	408.0	3.897	393.5	167	23.9	31.417
19													
20													
21													
22													
23													
24													

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 25.10

BOREHOLE		
Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	24.5
	to level (m)	26
	time completed	

UNITS		
Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

MENARD PRESSUREMETER REPORT AND INTERPRETATION

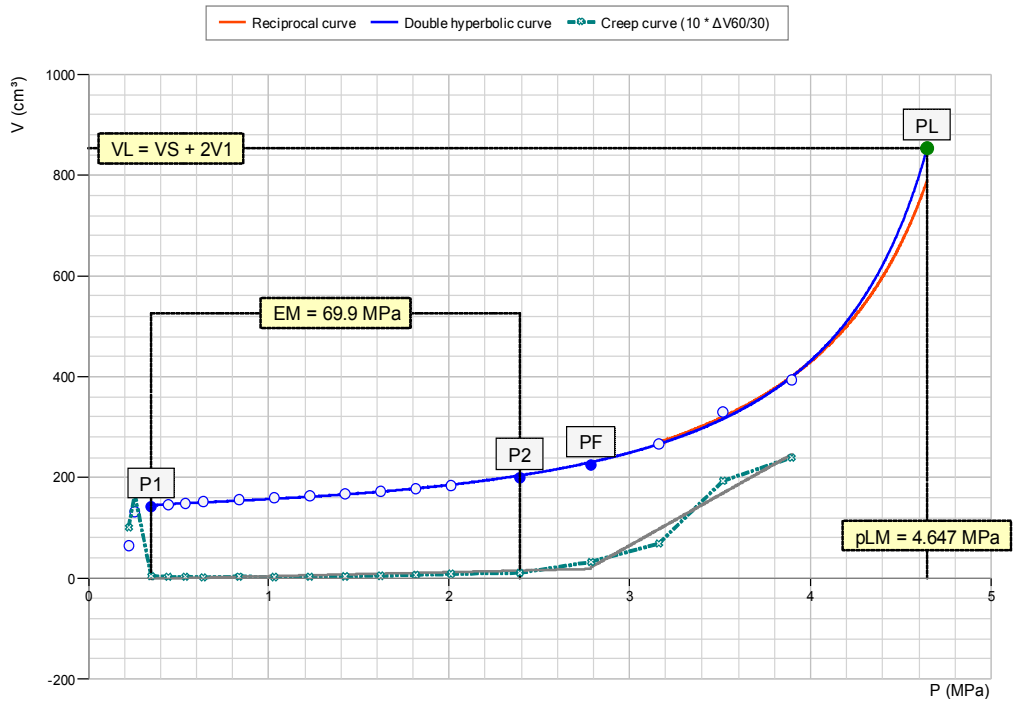
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161201.002
Job site identification	LONDON CITY A
Borehole	BH10R
Test depth	25.10

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH10R_25.1m



CALCULATED NORMATIVE RESULTS		
σ_{hs}	(MPa)	0.349
p_1	(MPa)	0.35
p_2	(MPa)	2.39
p_f	(MPa)	2.78
p_{lm}	(MPa)	4.65
p^*_{lm}	(MPa)	4.30
E_M	(MPa)	69.9
E_M / p_{lm}		15.0
E_M / p^*_{lm}		16.3

EXTRAPOLATION METHODS PARAMETERS		
inverse volumes	A	-1.64E-03
	B	8.90E-03
double hyperbolic	A1	3.14E+01
	A2	-1.46E+01
	A3	6.56E-01
	A4	6.11E+02
	A5	2.17E-01
	A6	5.33E+00
	Average error(cm3)	2.44E+00

COMMENTS

PLMR = 4.705 MPa
PLMDH = 4.647 MPa

APAGEO
Apageo - GeoVision® 4.1.2.1

CONCEPT igeotest

MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

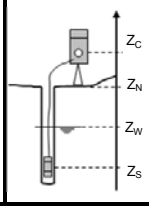
SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH06

PROBE					
PROBE PARAMETERS			TUBING AND FLUID		PRESSURE LOSS PARAMETERS
Code	44-gct-c-63		Type: Coaxial / Twin X	Liquid: Nature	Correction sheet reference: ET161123.001
Length	Cover			Liquid: Unit weight γ_l/γ_w	Ultimate pressure loss p_{ul} (MPa): 0.311
210 mm X	Rubber		Total length (m)	Gas: Nature	VOLUME LOSS PARAMETERS
370 mm	Reinforced mesh X		43.50	Gas: Compressibility λ_g (m^{-1})	Correction sheet reference: CA161123.001
Type	Metallic mesh		MEMBRANE PARAMETERS		Calibration cylinder diameter d_i (mm): 66.0
E	Metallic strips		Supplier type and cote		Calibration coefficient a (cm^3/MPa): 3.874
G X	Slotted tube		Pressure loss p_m (MPa): 0.050		Probe volume V_s (cm^3): 601.8

TEST	
Test number (or depth)	ES161129.001
Test date and time	29/11/2016 13:21
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.063
Observations (weather, etc.)	

Palier	PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm³) 1 s	15 s	30 s	60 s	DATA CORRECTED from P&V losses: PRESSURE p (MPa)	VOLUME V^{60} (cm³)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm³/MPa)	CREEP $\Delta V^{60/30}$ (cm³)	MODULE EM (MPa)
0													
1	0.141	0.094	0.088	0.102	16.6	29.6	37.0	44.8	0.185	44.0		7.8	
2	0.209	0.200	0.187	0.202	60.0	81.5	102.4	129.7	0.206	128.2	4144	27.3	
3	0.285	0.303	0.302	0.300	145.4	162.2	167.9	170.2	0.279	168.0	541	2.3	
4	0.397	0.401	0.400	0.400	176.4	180.3	181.0	181.7	0.373	178.8	115	0.7	
5	0.500	0.501	0.500	0.500	185.5	187.6	188.1	188.6	0.469	185.1	65	0.6	32.101
6	0.611	0.586	0.602	0.599	189.2	189.3	193.4	194.0	0.566	189.8	49	0.7	36.699
7	0.800	0.800	0.801	0.799	199.8	203.6	204.5	205.3	0.760	199.8	52	0.8	38.706
8	1.003	1.001	1.001	0.999	209.8	213.5	214.4	215.2	0.955	208.6	45	0.9	41.371
9	1.204	1.200	1.199	1.202	219.2	223.2	224.1	225.1	1.154	217.3	44	1.0	43.166
10	1.402	1.400	1.399	1.400	228.8	233.3	234.4	235.6	1.348	226.8	49	1.2	43.480
11	1.599	1.602	1.600	1.602	239.0	243.9	245.2	246.3	1.545	236.4	49	1.1	43.802
12	1.797	1.802	1.800	1.799	249.5	255.3	256.9	258.1	1.737	247.2	56	1.1	43.245
13	1.995	2.002	1.989	1.998	261.4	268.2	269.4	272.1	1.931	260.3	68	2.6	41.778
14	2.397	2.399	2.395	2.400	285.1	299.8	304.6	309.7	2.319	296.1	92	5.2	37.028
15	2.804	2.791	2.795	2.793	325.8	345.8	360.5	370.4	2.692	355.2	158	9.9	30.394
16	3.203	3.192	3.196	3.198	388.6	409.3	425.7	449.6	3.074	432.7	203	23.9	25.681
17													
18													
19													
20													
21													
22													
23													
24													

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 15.80

BOREHOLE		
Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	15.2
	to level (m)	17.2
	time completed	

UNITS		
Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

igeotest

MENARD PRESSUREMETER REPORT AND INTERPRETATION

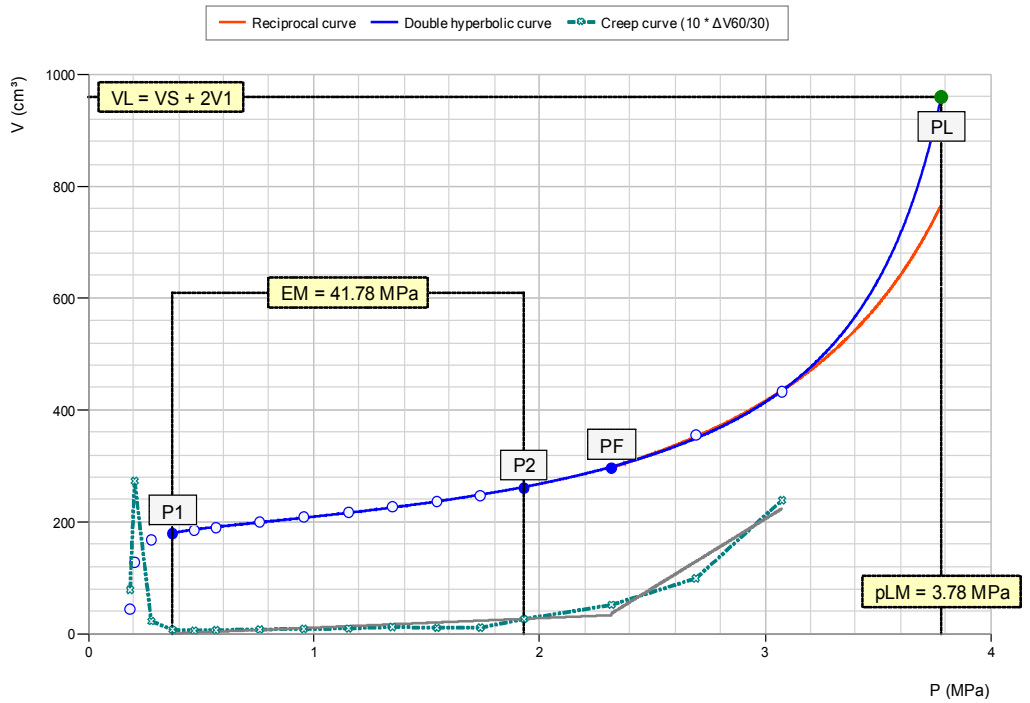
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161129.001
Job site identification	LONDON CITY A
Borehole	BH06
Test depth	15.80

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH06_15.8m



CALCULATED NORMATIVE RESULTS		
σ_{hs}	(MPa)	0.219
p_1	(MPa)	0.37
p_2	(MPa)	1.93
p_f	(MPa)	2.32
p_{lm}	(MPa)	3.78
p_{*lm}	(MPa)	3.56
E_M	(MPa)	41.8
E_M / p_{lm}		11.1
E_M / p_{*lm}		11.7

EXTRAPOLATION METHODS PARAMETERS		
inverse volumes	A	-1.41E-03
	B	6.64E-03
double hyperbolic	A1	8.67E+01
	A2	2.38E+00
	A3	2.17E+00
	A4	3.98E+02
	A5	1.70E-01
	A6	4.24E+00
	Average error(cm3)	1.56E+00

COMMENTS

PLMR = 3.966 MPa
PLMDH = 3.78 MPa

APAGEO
Apageo - GeoVision® 4.1.2.1

CONCEPT igeotest

MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

SITE		
	File	1
	Country	UK
	Job site identification	LONDON CITY AIRPORT
	Location plan ref.	
	Borehole number	BH06

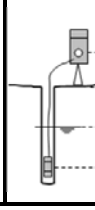
PROBE							
PROBE PARAMETERS			TUBING AND FLUID				PRESSURE LOSS PARAMETERS	
Code	44-gct-c-63		Type	Coaxial	Liquid	Nature	Correction sheet reference	ET161123.001
Length	Cover			Twin X		Unit weight γ/γ_w	Ultimate pressure loss p_{el} (MPa)	0.311
210 mm X	Rubber		Total length (m)		Gas	Nature	VOLUME LOSS PARAMETERS	
370 mm	Reinforced mesh	X	43.50			Compressibility λ_g (m^{-1})	Correction sheet reference	CA161123.001
Type	Metallic mesh		MEMBRANE PARAMETERS				Calibration cylinder diameter d_i (mm)	66.0
E	Metallic strips		Supplier type and cote				Calibration coefficient a (cm^3/MPa)	3.874
G X	Slotted tube		Pressure loss p_m (MPa)	0.050			Probe volume V_s (cm^3)	601.8

TEST	
Test number (or depth)	ES161130.001
Test date and time	30/11/2016 14:18
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.170
Observations (weather, etc.)	

Palier	PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm^3) 1 s	15 s	30 s	60 s	PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (MPa)
0													
1	0.159	0.085	0.093	0.097	19.1	25.6	31.7	38.9	0.285	38.1		7.2	
2	0.198	0.203	0.202	0.201	48.1	66.3	78.3	87.9	0.332	86.4	1043	9.6	
3	0.304	0.298	0.300	0.300	93.2	98.2	102.9	107.2	0.416	105.0	221	4.3	
4	0.400	0.401	0.402	0.400	111.1	114.6	115.9	116.8	0.508	113.9	97	0.9	
5	0.530	0.479	0.502	0.501	117.4	116.7	122.3	123.2	0.605	119.7	60	1.0	31.896
6	0.601	0.600	0.600	0.600	125.2	126.8	127.3	128.0	0.701	123.8	43	0.7	37.328
7	0.806	0.800	0.802	0.799	132.2	134.3	135.0	135.7	0.895	130.3	33	0.7	45.492
8	1.003	0.997	0.999	0.999	139.4	141.6	142.3	143.1	1.089	136.5	32	0.8	49.727
9	1.204	1.199	1.200	1.201	146.6	149.0	149.8	150.7	1.287	142.9	32	0.9	52.118
10	1.404	1.399	1.400	1.399	153.9	156.8	157.8	158.7	1.480	149.9	36	1.0	52.757
11	1.600	1.602	1.600	1.599	161.8	165.3	166.4	167.5	1.676	157.7	40	1.2	52.363
12	1.800	1.799	1.800	1.801	170.6	174.8	175.8	177.3	1.873	166.4	44	1.5	51.286
13	1.999	2.001	1.999	1.997	180.5	185.6	187.1	189.0	2.062	177.2	57	1.9	48.825
14	2.394	2.394	2.396	2.387	200.5	213.3	218.3	222.2	2.437	208.7	84	3.9	41.311
15	2.785	2.796	2.788	2.797	237.0	258.7	273.1	284.3	2.821	269.0	157	11.2	31.473
16	3.198	3.192	3.200	3.195	306.2	333.6	357.8	394.0	3.183	377.1	299	36.2	22.904
17													
18													
19													
20													
21													
22													
23													
24													

ORIGINAL DATA — DATA CORRECTED from P&V losses

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 25.40

BOREHOLE		
Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	24.8
	to level (m)	26.8
	time completed	

UNITS			
	Elevations	metre	m
	Time	second	s
	Volumes	cubic centimetre	cm^3
	Pressures	Megapascal	MPa

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MENARD PRESSUREMETER REPORT AND INTERPRETATION

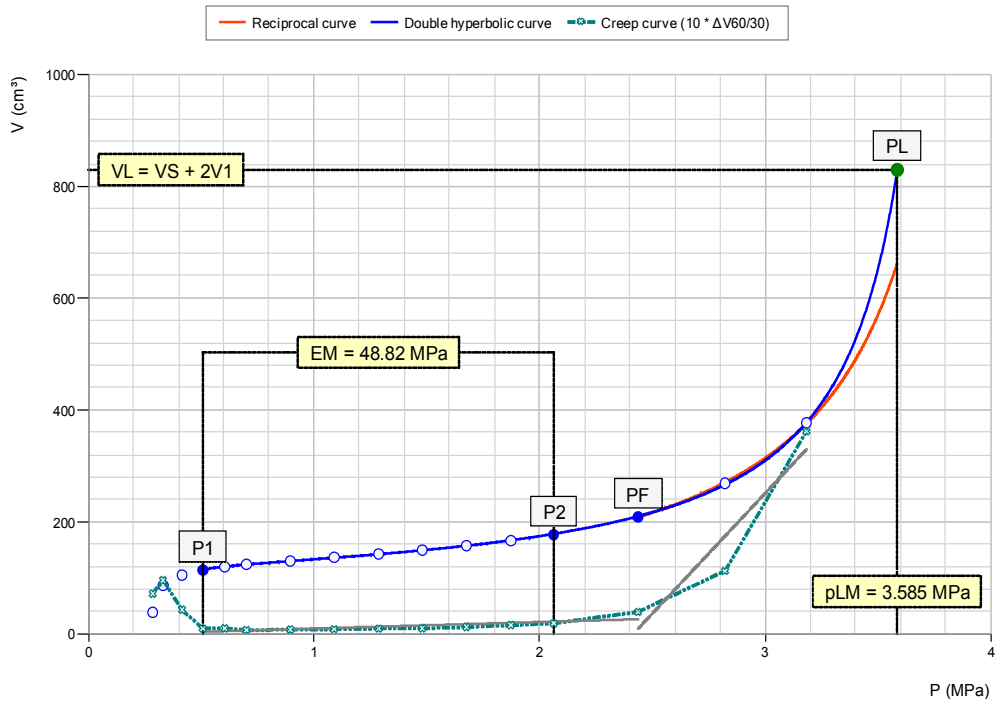
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161130.001
Job site identification	LONDON CITY A
Borehole	BH06
Test depth	25.40

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH06_25.4m



CALCULATED NORMATIVE RESULTS		
σ_{hs}	(MPa)	0.353
p_1	(MPa)	0.51
p_2	(MPa)	2.06
p_f	(MPa)	2.44
p_{lm}	(MPa)	3.59
p_{-lm}	(MPa)	3.23
E_M	(MPa)	48.8
E_M / p_{lm}		13.6
E_M / p_{-lm}		15.1

EXTRAPOLATION METHODS PARAMETERS		
inverse volumes	A	-2.87E-03
	B	1.18E-02
double hyperbolic	A1	6.24E+01
	A2	-3.35E+00
	A3	3.51E+00
	A4	2.27E+02
	A5	2.45E-01
	A6	3.88E+00
	Average error(cm3)	8.15E-01

COMMENTS

PLMR = 3.691 MPa
PLMDH = 3.585 MPa

APAGEO
Apageo - GeoVision® 4.1.2.1

CONCEPT igeotest

MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

SITE		
	File	1
	Country	UK
	Job site identification	LONDON CITY AIRPORT
	Location plan ref.	
	Borehole number	BH21R

PROBE							
PROBE PARAMETERS				TUBING AND FLUID			
Code	44-gct-c-63			Type	Coaxial	X	Liquid
Length	Cover				Twin		
210 mm	X	Rubber		Total length (m)			Gas
370 mm		Reinforced mesh	X	50.00			
Type		Metallic mesh		MEMBRANE PARAMETERS			
E		Metallic strips		Supplier type and cote			
G	X	Slotted tube		Pressure loss p_m (MPa)			0.050

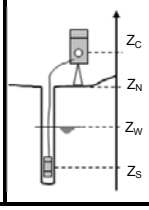
Liquid	Nature	
	Unit weight γ/γ_w	
Gas	Nature	
	Compressibility λ_g (m^{-1})	

PRESSURE LOSS PARAMETERS	
Correction sheet reference	ET161201.001
Ultimate pressure loss p_{ul} (MPa)	0.418
VOLUME LOSS PARAMETERS	
Correction sheet reference	CA161130.001
Calibration cylinder diameter d_i (mm)	66.0
Calibration coefficient a (cm^3/MPa)	2.261
Probe volume V_s (cm^3)	569.2

TEST	
Test number (or depth)	ES161205.001
Test date and time	05/12/2016 14:27
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.056
Observations (weather, etc.)	

Palier	ORIGINAL DATA: PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm^3) 1 s	15 s	30 s	60 s	DATA CORRECTED from P&V losses: PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (MPa)
0													
1	0.171	0.077	0.090	0.095	24.8	33.6	41.4	48.1	0.145	47.4		6.7	
2	0.208	0.200	0.194	0.202	62.0	77.7	93.4	117.2	0.172	115.7	2582	23.8	
3	0.293	0.300	0.302	0.300	132.1	144.5	148.5	149.6	0.243	147.5	447	1.1	
4	0.401	0.400	0.400	0.399	153.9	155.1	155.3	155.5	0.337	152.7	56	0.2	34.476
5	0.501	0.501	0.499	0.500	158.6	159.4	159.6	159.8	0.435	156.4	38	0.2	41.290
6	0.618	0.594	0.602	0.600	160.3	159.0	162.2	163.8	0.532	159.7	34	1.6	45.401
7	0.799	0.802	0.801	0.800	167.9	170.2	170.5	170.8	0.726	165.6	30	0.3	51.413
8	0.998	1.002	1.000	0.997	174.0	175.9	176.2	176.5	0.919	170.3	24	0.3	57.351
9	1.198	1.201	1.200	1.202	179.4	181.4	181.7	182.2	1.120	175.0	23	0.5	61.848
10	1.398	1.403	1.400	1.398	184.7	187.0	187.5	187.9	1.313	179.9	25	0.4	64.333
11	1.596	1.600	1.600	1.599	190.1	192.5	193.1	193.6	1.510	184.8	25	0.5	66.442
12	1.797	1.798	1.800	1.798	195.6	198.5	199.2	199.9	1.705	190.3	29	0.6	66.963
13	1.999	2.000	2.001	2.001	201.7	205.0	205.7	206.5	1.903	196.4	30	0.8	66.969
14	2.389	2.402	2.400	2.398	212.7	218.5	219.2	220.8	2.291	209.4	34	1.6	65.767
15	2.787	2.799	2.799	2.794	226.4	233.9	235.6	237.0	2.677	224.7	40	1.4	63.339
16	3.185	3.200	3.189	3.188	243.5	253.3	256.3	259.4	3.058	246.3	57	3.1	58.076
17	3.582	3.588	3.602	3.598	265.8	275.5	282.8	289.0	3.452	275.1	73	6.2	52.206
18	3.989	3.988	3.991	4.000	294.9	303.5	309.8	321.8	3.837	307.3	84	12.0	47.637
19													
20													
21													
22													
23													
24													

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 15.00

BOREHOLE		
Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	14.5
	to level (m)	16
	time completed	

UNITS			
	Elevations	metre	m
	Time	second	s
	Volumes	cubic centimetre	cm^3
	Pressures	Megapascal	MPa

igeotest

MENARD PRESSUREMETER REPORT AND INTERPRETATION

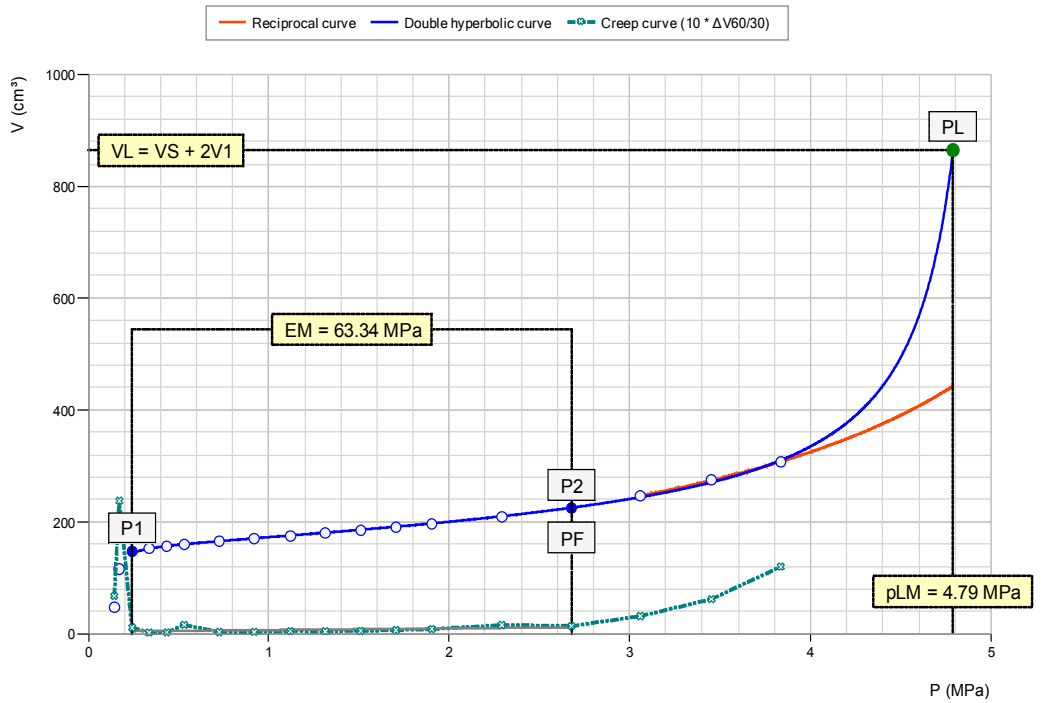
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161205.001
Job site identification	LONDON CITY A
Borehole	BH21R
Test depth	15.00

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH21R_15m



CALCULATED NORMATIVE RESULTS		
σ_{hs}	(MPa)	0.207
p_1	(MPa)	0.24
p_2	(MPa)	2.68
p_f	(MPa)	2.68
p_{lm}	(MPa)	4.79
p^*_{lm}	(MPa)	4.58
E_M	(MPa)	63.3
E_M / p_{lm}		13.2
E_M / p^*_{lm}		13.8

EXTRAPOLATION METHODS PARAMETERS		
inverse volumes	A	-1.04E-03
	B	7.23E-03
double hyperbolic	A1	1.19E+02
	A2	1.26E+01
	A3	1.68E+00
	A4	1.72E+02
	A5	1.30E-01
	A6	5.04E+00
	Average error(cm3)	1.23E+00

COMMENTS

PLMR = 5.853 MPa
PLMDH = 4.79 MPa

APAGEO
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MENARD PRESSUREMETER TEST DATA

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- DATA -

SITE	
File	1
Country	UK
Job site identification	LONDON CITY AIRPORT
Location plan ref.	
Borehole number	BH21R

PROBE

PROBE PARAMETERS			
Code	44-gct-c-63		
Length		Cover	
210 mm	X	Rubber	
370 mm		Reinforced mesh	X
Type		Metallic mesh	
E		Metallic strips	
G	X	Slotted tube	

TUBING AND FLUID					
Type	Coaxial	X	Liquid	Nature	
	Twin			Unit weight γ_l/γ_w	
Total length (m)			Gas	Nature	
50.00				Compressibility λ_g (m^{-1})	

MEMBRANE PARAMETERS	
Supplier type and cote	
Pressure loss p_m (MPa)	0.050

PRESSURE LOSS PARAMETERS	
Correction sheet reference	ET161201.001
Ultimate pressure loss p_{ul} (MPa)	0.418

VOLUME LOSS PARAMETERS	
Correction sheet reference	CA161130.001
Calibration cylinder diameter d_i (mm)	66.0
Calibration coefficient a (cm^3/MPa)	2.261
Probe volume V_s (cm^3)	569.2

TEST

Test number (or depth)	ES161206.001
Test date and time	06/12/2016 10:36
Control unit number	
Data logger number	GEOPAC 06
Operator's name	CP
Differential pressure (MPa)	-0.181
Observations (weather, etc.)	

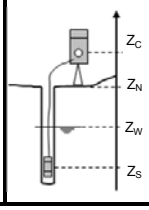
ORIGINAL DATA

Palier	PRESSURE pr (MPa) 1 s	15 s	30 s	60 s	VOLUME V(t) (cm^3) 1 s	15 s	30 s	60 s
0								
1	0.198	0.098	0.104	0.099	33.4	32.4	35.8	36.8
2	0.261	0.184	0.176	0.195	61.1	72.5	83.2	101.0
3	0.306	0.301	0.300	0.300	112.6	116.8	117.7	118.3
4	0.405	0.401	0.400	0.399	124.1	125.3	125.6	125.9
5	0.529	0.481	0.502	0.499	126.8	126.1	130.8	131.2
6	0.603	0.599	0.600	0.599	134.3	135.4	135.7	135.9
7	0.801	0.801	0.800	0.800	141.2	142.6	142.9	143.2
8	1.000	1.000	1.000	0.998	147.2	148.9	149.3	149.7
9	1.200	1.201	1.200	1.197	153.3	155.2	155.8	156.2
10	1.395	1.400	1.400	1.400	159.6	162.1	162.7	163.3
11	1.595	1.602	1.601	1.599	166.4	169.7	170.6	171.5
12	1.794	1.801	1.799	1.799	174.4	178.6	180.0	181.4
13	1.995	1.998	1.999	2.001	184.3	189.5	191.3	193.4
14	2.386	2.400	2.391	2.399	203.2	217.1	224.2	229.7
15	2.781	2.791	2.799	2.802	241.1	256.6	272.6	287.8
16	3.193	3.187	3.188	3.198	300.2	315.8	330.0	360.3
17								
18								
19								
20								
21								
22								
23								
24								

DATA CORRECTED from P&V losses

PRESSURE p (MPa)	VOLUME V^{60} (cm^3)	SLOPE $\Delta V^{60/60}/\Delta p$ (cm^3/MPa)	CREEP $\Delta V^{60/30}$ (cm^3)	MODULE EM (MPa)
0.287	36.0		1.0	
0.296	99.6	7094	17.8	
0.385	116.2	188	0.7	
0.477	123.0	74	0.3	
0.572	127.8	50	0.5	37.038
0.669	131.9	43	0.3	40.091
0.863	138.1	32	0.3	47.860
1.056	143.5	28	0.4	52.936
1.250	149.1	29	0.5	55.625
1.448	155.4	32	0.6	56.602
1.641	162.8	38	0.9	55.520
1.834	171.9	47	1.4	52.937
2.028	183.2	58	2.1	49.509
2.403	218.4	94	5.5	39.753
2.773	275.5	154	15.2	30.788
3.131	347.1	200	30.4	25.341

LEVELS



	Levels CD	Relative levels
Z_C		+ 0.50
Z_N		0 (borehole top)
Z_W		- 0.50
Z_S		- 26.60

BOREHOLE

Localization system	X =	
	Y =	
Drilling rig		
Drilling method (table C abbreviations)	CAR	
Drilling tool	type	TR
	diameter (mm)	630
Casing foot at (m depth)		
Drilling fluid		
Drilling length before testing	from level (m)	26
	to level (m)	27.5
	time completed	

UNITS

Elevations	metre	m
Time	second	s
Volumes	cubic centimetre	cm^3
Pressures	Megapascal	MPa

MENARD PRESSUREMETER REPORT AND INTERPRETATION

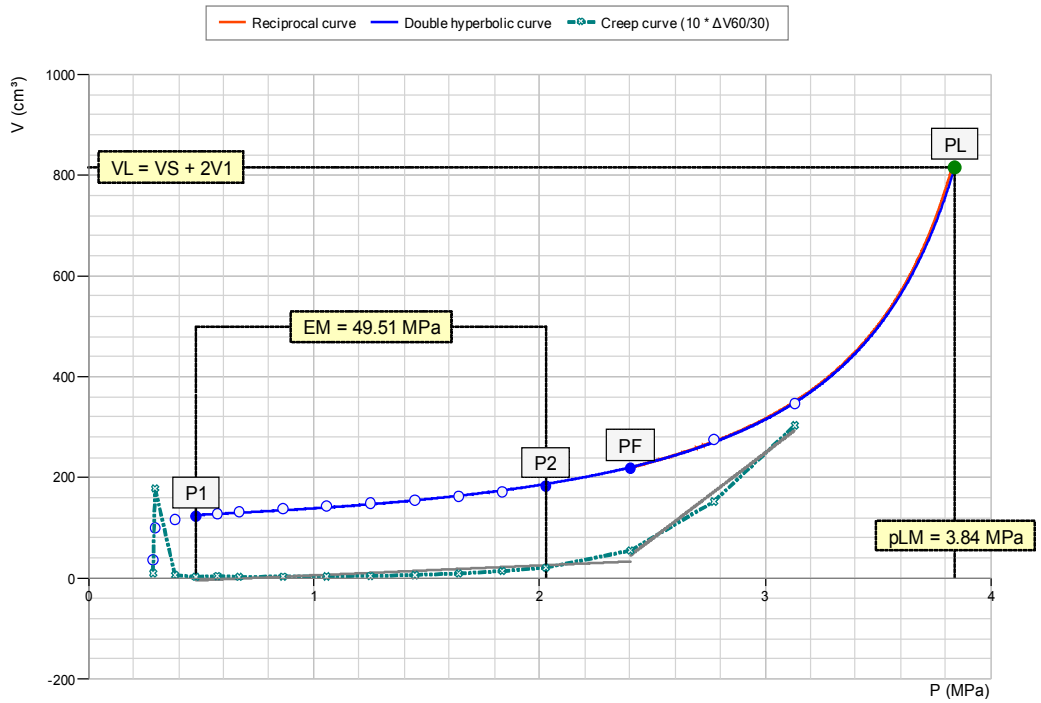
Borehole expansion test conforming to EN ISO 22476-4 procedure B

- RESULTS -

File	1
Test reference	ES161206.001
Job site identification	LONDON CITY A
Borehole	BH21R
Test depth	26.60

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH21R_26.6m



CALCULATED NORMATIVE RESULTS

σ_{hs}	(MPa)	0.370
p_1	(MPa)	0.48
p_2	(MPa)	2.03
p_f	(MPa)	2.40
p_{lm}	(MPa)	3.84
p_{-lm}	(MPa)	3.47
E_M	(MPa)	49.5
E_M / p_{lm}		12.9
E_M / p_{-lm}		14.3

EXTRAPOLATION METHODS PARAMETERS

inverse volumes	A	-2.33E-03
	B	1.02E-02
double hyperbolic	A1	1.08E+01
	A2	-1.27E+01
	A3	3.59E-01
	A4	4.80E+02
	A5	2.83E-01
	A6	4.40E+00
	Average error(cm3)	2.42E+00

COMMENTS

PLMR = 3.828 MPa
PLMDH = 3.84 MPa

APAGEO
Apageo - GeoVision® 4.1.2.1

MENARD PRESSUREMETER AUTOMATICALLY RECORDED

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- VOLUME LOSS -

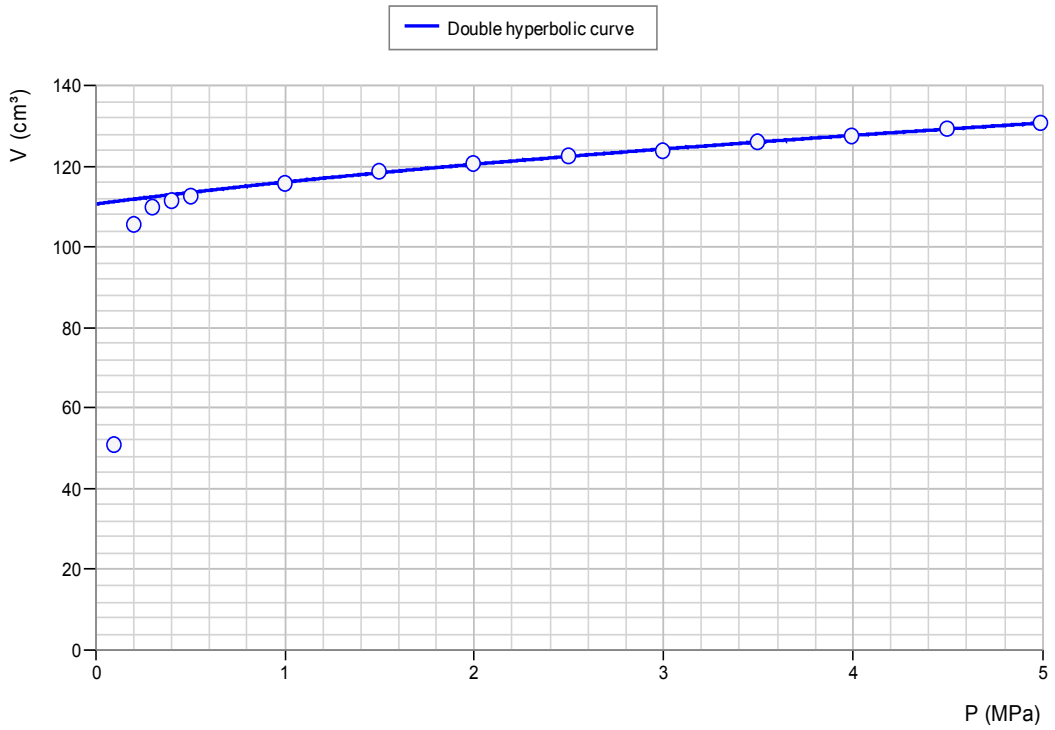
PROBE	PROBE PARAMETERS				TUBING & FLUIDS PARAMETERS				
	Cote		44-gct-c-63		Type	Coaxial		Liquid	Nature
	Length		Cover			Twin	X		Density γ_l/γ_w
	210 mm	X	Rubber		Total length (m)			Gas	Nature
	370 mm		Reinforced mesh	X	43.50				Compressibility λ_g (m^{-1})
	Type		Metallic mesh		MEMBRANE PARAMETERS				
	E		Metallic strips		Supplier type and cote				
	G	X	Slotted tube		Pressure loss p_m (MPa)		0.050		

TEST		
	Test number	CA161108.001
	Test date and time	16/11/2016 1:28
	Control unit number	
	Data logger number	GEOPAC 06
	Operator's name	MP
	Differential pressure	0.099
	CU to probe elevation	0.00
	Observations	

Step	Pressures	Volumes
0	0.000	0.0
1	0.095	51.0
2	0.200	105.6
3	0.299	109.9
4	0.399	111.5
5	0.501	112.7
6	0.999	115.9
7	1.496	118.8
8	1.994	120.8
9	2.496	122.6
10	2.994	123.9
11	3.494	126.1
12	3.993	127.7
13	4.497	129.4
14	4.989	130.9
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_I&C_0m



LINEAR EXTRAPOLATION

$$V = V_c + a.p$$

V_c = **113.1**
a = **3.644**

HYPERBOLIC EXTRAPOLATION

$$V = U_1 + U_2.p + \frac{U_3}{U_5 - p}$$

U_1 = **1.32E+02**
U_2 = **1.90E+00**
U_3 = **1.06E+02**
U_5 = **-5.00E+00**

COMMENTS

PROBE VOLUME

Calibration tube diameter d_i (mm) = **66.0**

Probe volume V_s (cm^3) = **605.4**

APAGEO

MENARD PRESSUREMETER AUTOMATICALLY RECORDED

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- VOLUME LOSS -

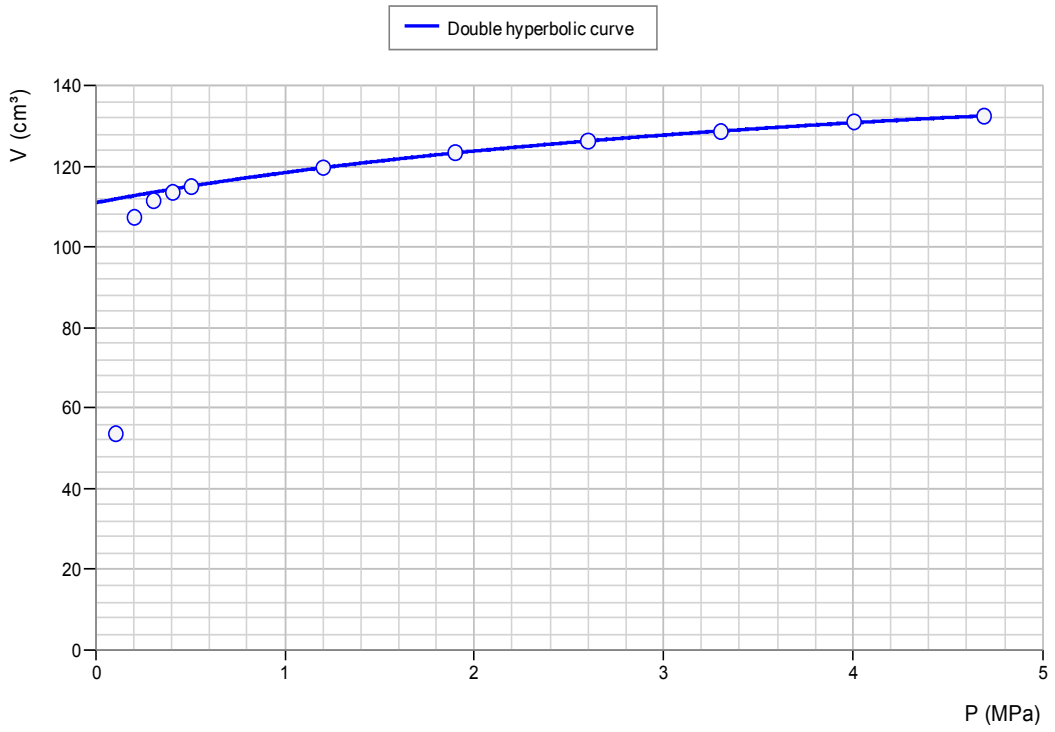
PROBE	PROBE PARAMETERS				TUBING & FLUIDS PARAMETERS				
	Cote		44-gct-c-63		Type	Coaxial		Liquid	Nature
	Length		Cover			Twin	X		Density γ_l/γ_w
	210 mm	X	Rubber		Total length (m)			Gas	Nature
	370 mm		Reinforced mesh	X	43.50				Compressibility λ_g (m^{-1})
	Type		Metallic mesh		MEMBRANE PARAMETERS				
	E		Metallic strips		Supplier type and cote				
	G	X	Slotted tube		Pressure loss p_m (MPa)		0.050		

TEST		
	Test number	CA161121.001
	Test date and time	21/11/2016 10:33
	Control unit number	
	Data logger number	GEOPAC 06
	Operator's name	CP
	Differential pressure	0.094
	CU to probe elevation	0.50
	Observations	

Step	Pressures	Volumes
0	0.000	0.0
1	0.100	53.7
2	0.199	107.4
3	0.300	111.5
4	0.401	113.6
5	0.500	115.0
6	1.198	119.7
7	1.895	123.5
8	2.595	126.3
9	3.297	128.7
10	4.000	131.2
11	4.688	132.5
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		

Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

00001_BH17_0m



LINEAR EXTRAPOLATION

$$V = V_c + a.p$$

V_c = **116.2**
a = **3.653**

HYPERBOLIC EXTRAPOLATION

$$V = U_1 + U_2.p + \frac{U_3}{U_5 - p}$$

U_1 = **1.57E+02**
U_2 = **-1.11E-01**
U_3 = **2.29E+02**
U_5 = **-5.00E+00**

COMMENTS

PROBE VOLUME

Calibration tube diameter d_i (mm) = **66.0**

Probe volume V_s (cm^3) = **602.2**

APAGEO

CONCEPT igeotest

MENARD PRESSUREMETER AUTOMATICALLY RECORDED

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- VOLUME LOSS -

PROBE	PROBE PARAMETERS				TUBING & FLUIDS PARAMETERS				
	Cote		44-gct-c-63		Type	Coaxial		Liquid	Nature
	Length		Cover			Twin	X		Density γ_l/γ_w
	210 mm	X	Rubber		Total length (m)			Gas	Nature
	370 mm		Reinforced mesh	X	43.50				Compressibility λ_g (m^{-1})
	Type		Metallic mesh		MEMBRANE PARAMETERS				
	E		Metallic strips		Supplier type and cote				
	G	X	Slotted tube		Pressure loss p_m (MPa)		0.050		

TEST		
	Test number	CA161123.001
	Test date and time	23/11/2016 13:06
	Control unit number	
	Data logger number	GEOPAC 06
	Operator's name	CP
	Differential pressure	0.095
	CU to probe elevation	0.50
	Observations	

Step	Pressures	Volumes
0	0.000	0.0
1	0.097	63.1
2	0.200	107.3
3	0.300	111.3
4	0.399	113.4
5	0.501	115.0
6	1.197	120.4
7	1.899	124.2
8	2.600	127.5
9	3.292	130.1
10	3.995	132.1
11	4.702	134.5
12	5.399	137.3
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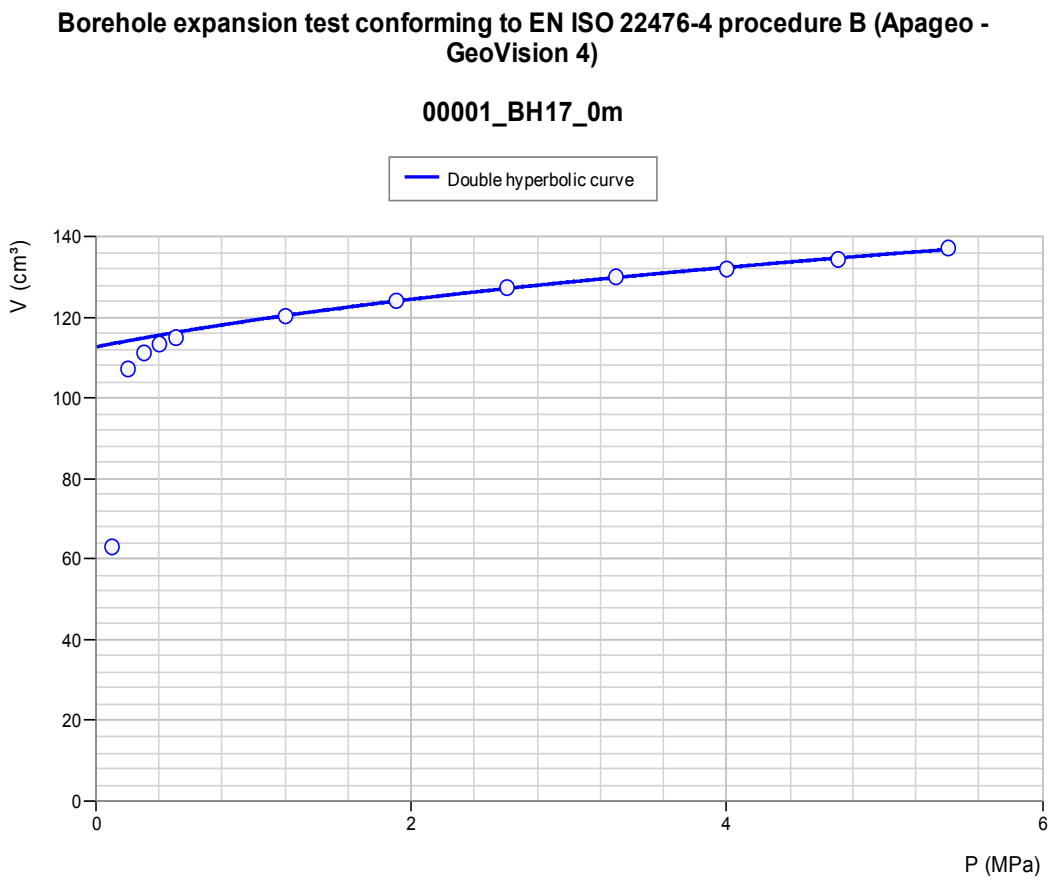

LINEAR EXTRAPOLATION

$$V = V_c + a.p$$

V_c = **116.6**
a = **3.874**

HYPERBOLIC EXTRAPOLATION

$$V = U_1 + U_2.p + \frac{U_3}{U_5 - p}$$

U_1 = **1.43E+02**
U_2 = **1.53E+00**
U_3 = **1.54E+02**
U_5 = **-5.00E+00**

COMMENTS

PROBE VOLUME

Calibration tube diameter d_i (mm) = **66.0**

Probe volume V_s (cm^3) = **601.8**

APAGEO

MENARD PRESSUREMETER AUTOMATICALLY RECORDED

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- VOLUME LOSS -

PROBE	PROBE PARAMETERS				TUBING & FLUIDS PARAMETERS				
	Cote		44-gct-c-63		Type	Coaxial	X	Liquid	Nature
	Length		Cover			Twin			Density γ_l/γ_w
	210 mm	X	Rubber		Total length (m)			Gas	Nature
	370 mm		Reinforced mesh	X	50.00				Compressibility λ_g (m^{-1})
	Type		Metallic mesh		MEMBRANE PARAMETERS				
	E		Metallic strips		Supplier type and cote				
	G	X	Slotted tube		Pressure loss p_m (MPa)				0.050

TEST		
	Test number	CA161130.001
	Test date and time	30/11/2016 16:55
	Control unit number	
	Data logger number	GEOPAC 06
	Operator's name	CP
	Differential pressure	0.097
	CU to probe elevation	0.50
	Observations	

Step	Pressures	Volumes
0	0.000	0.0
1	0.099	56.7
2	0.202	115.6
3	0.300	144.1
4	0.401	146.3
5	0.498	147.4
6	1.002	149.7
7	1.499	153.0
8	2.000	154.5
9	2.494	155.6
10	2.995	156.6
11	3.499	157.6
12	3.996	158.0
13	4.490	159.2
14	4.996	159.8
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Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

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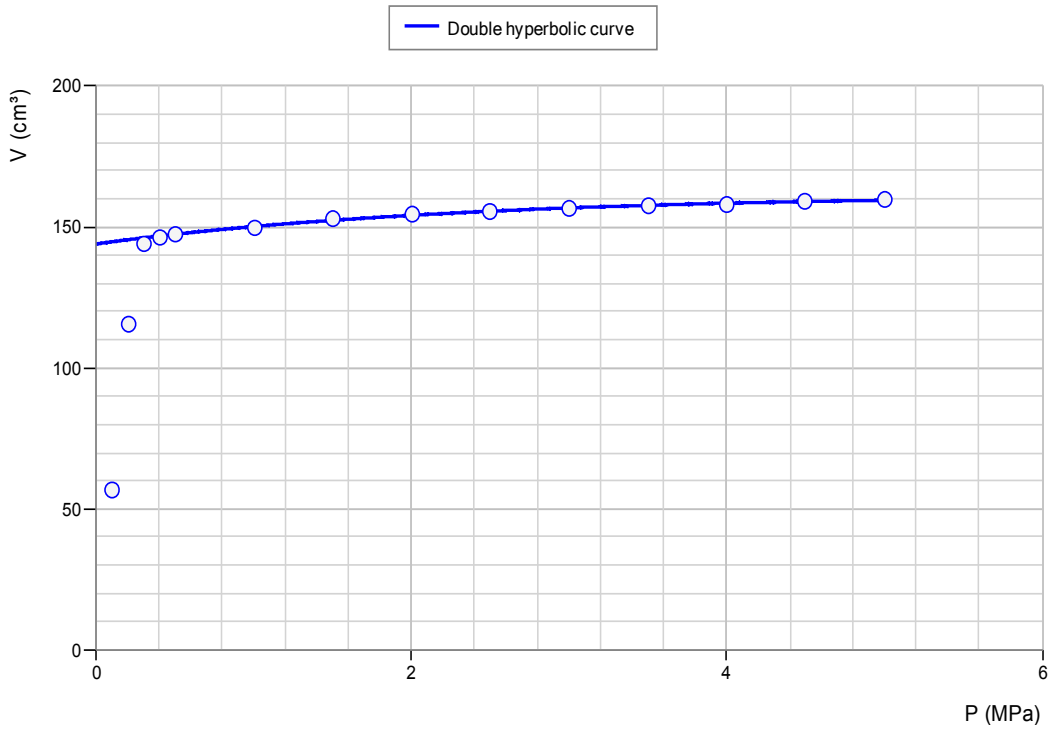

LINEAR EXTRAPOLATION

$$V = V_c + a.p$$

V_c = **149.2**
a = **2.261**

HYPERBOLIC EXTRAPOLATION

$$V = U_1 + U_2.p + \frac{U_3}{U_5 - p}$$

U_1 = **1.90E+02**
U_2 = **-1.53E+00**
U_3 = **2.32E+02**
U_5 = **-5.00E+00**

COMMENTS

PROBE VOLUME

Calibration tube diameter d_i (mm) = **66.0**

Probe volume V_s (cm^3) = **569.2**

APAGEO

CONCEPT igeotest

MENARD PRESSUREMETER AUTOMATICALLY RECORDED

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- PRESSURE LOSS -

PROBE	CELL PARAMETERS				TUBING & FLUIDS PARAMETERS					
	Cote		44-gct-c-63		Type	Coaxial		Liquid	Nature	Eau
	Length		Cover			Twin	X		Density γ_l/γ_w	1.00
	210 mm	X	Rubber		Total length (m)			Gas	Nature	Azote
	370 mm		Reinforced mesh	X	43.50				Compressibility λ_g (m^{-1})	0.00016
	Type		Metallic mesh		MEMBRANE PARAMETERS					
	E		Metallic strips		Supplier type and cote					
	G	X	Slotted tube		Pressure loss p_m (MPa)				0.050	

TEST		
	Test number	ET161115.001
	Test date and time	01/01/1970 0:04
	Control unit number	
	Data logger number	GEOPAC 06
	Operator's name	MP
	Differential pressure	0.098
	CU to probe elevation	0.00
	Observations	

Palier	Pressions	Volumes
0	0.000	0.0
1	0.019	13.6
2	0.040	20.6
3	0.060	29.1
4	0.080	39.5
5	0.100	52.3
6	0.120	68.3
7	0.140	88.6
8	0.159	115.4
9	0.180	150.4
10	0.200	188.6
11	0.220	226.6
12	0.240	266.7
13	0.261	316.5
14	0.280	381.6
15	0.301	448.3
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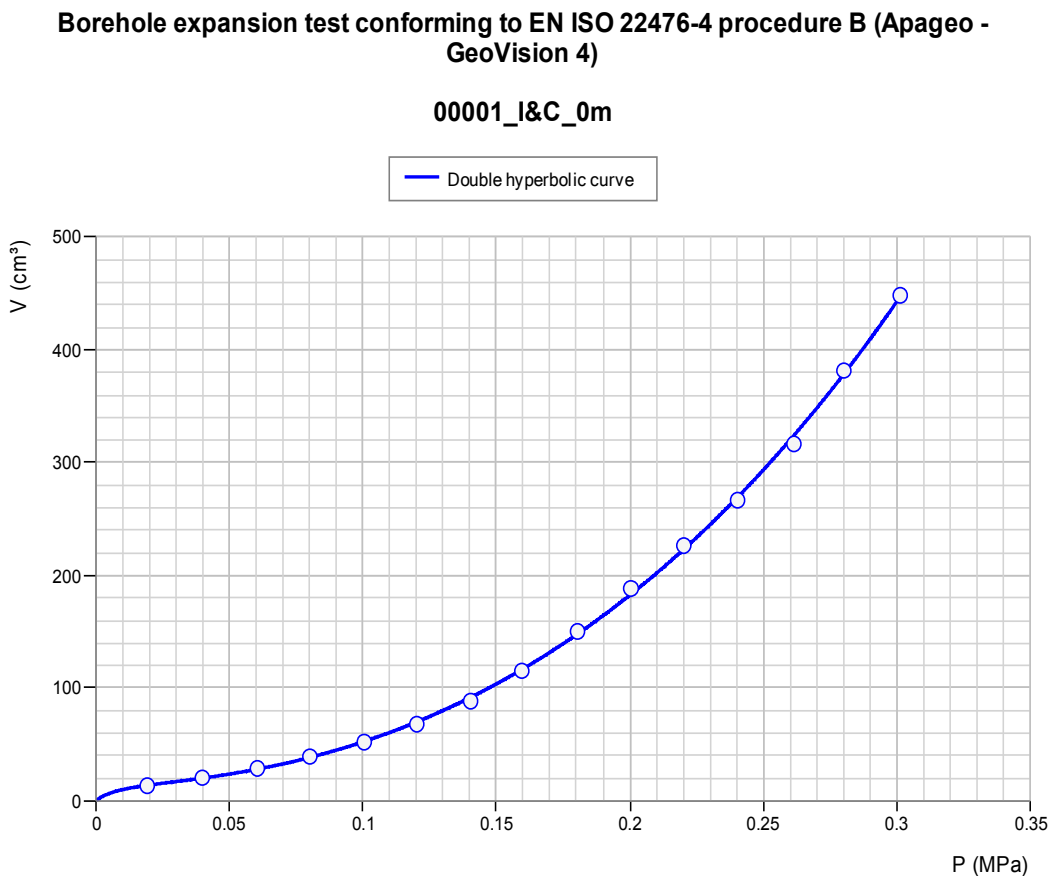

DOUBLE HYPERBOLIC EXTRAPOLATION

$$V = U_1 + U_2.p + \frac{U_3}{U_5 - p} + \frac{U_4}{U_6 - p}$$

U_1 =	-4.47E+03	U_4 =	5.03E+03
U_2 =	-4.07E+03	U_5 =	-1.03E-02
U_3 =	2.15E-01	U_6 =	1.12E+00

ULTIMATE PRESSURE LOSS

Volume for P_{el} calculation (cm^3) = **550.0**

Ultimate pressure loss P_{el} (MPa) = **0.329**

COMMENTS

APAGEO

CONCEPT igeotest

MENARD PRESSUREMETER AUTOMATICALLY RECORDED

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- PRESSURE LOSS -

PROBE	CELL PARAMETERS				TUBING & FLUIDS PARAMETERS					
	Cote		44-gct-c-63		Type	Coaxial		Liquid	Nature	Eau
	Length		Cover			Twin	X		Density γ_l/γ_w	1.00
	210 mm	X	Rubber		Total length (m)			Gas	Nature	Azote
	370 mm		Reinforced mesh	X	43.50				Compressibility λ_g (m^{-1})	0.00016
	Type		Metallic mesh		MEMBRANE PARAMETERS					
	E		Metallic strips		Supplier type and cote					
	G	X	Slotted tube		Pressure loss p_m (MPa)				0.050	

TEST		
	Test number	ET161108.004
	Test date and time	`16/11/2016 0:56:23
	Control unit number	
	Data logger number	GEOPAC 06
	Operator's name	MP
	Differential pressure	0.098
	CU to probe elevation	0.00
	Observations	

Palier	Pressions	Volumes
0	0.000	0.0
1	0.020	9.6
2	0.040	15.6
3	0.060	23.0
4	0.080	31.6
5	0.099	42.1
6	0.120	54.8
7	0.140	70.3
8	0.160	89.9
9	0.180	115.2
10	0.200	145.7
11	0.220	180.7
12	0.241	216.3
13	0.260	253.9
14	0.281	302.8
15	0.300	360.2
16	0.320	411.8
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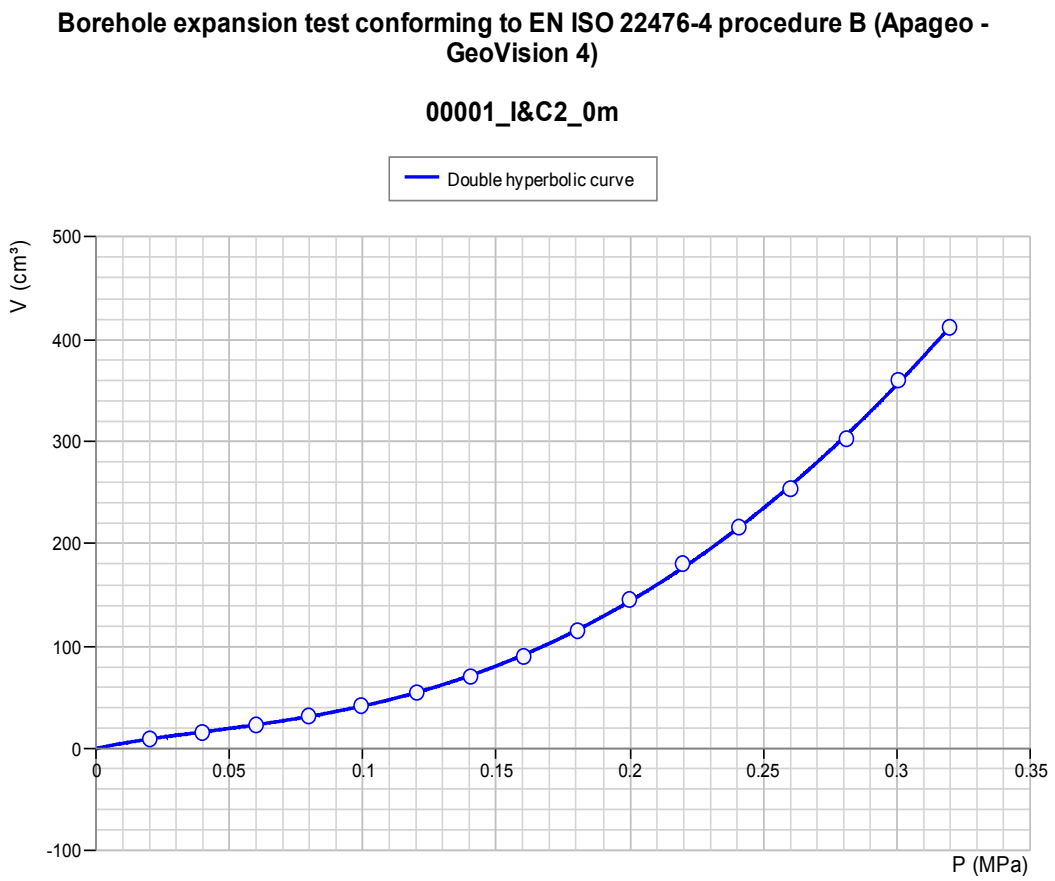

DOUBLE HYPERBOLIC EXTRAPOLATION

$$V = U_1 + U_2.p + \frac{U_3}{U_5 - p} + \frac{U_4}{U_6 - p}$$

U_1 =	-3.94E+07	U_4 =	3.01E+09
U_2 =	-5.18E+05	U_5 =	-1.69E-01
U_3 =	6.32E+01	U_6 =	7.63E+01

ULTIMATE PRESSURE LOSS

Volume for P_{el} calculation (cm^3) = **550.0**

Ultimate pressure loss P_{el} (MPa) = **0.362**

COMMENTS

APAGEO

MENARD PRESSUREMETER AUTOMATICALLY RECORDED

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- PRESSURE LOSS -

PROBE	CELL PARAMETERS				TUBING & FLUIDS PARAMETERS					
	Cote		44-gct-c-63		Type	Coaxial		Liquid	Nature	Eau
	Length		Cover			Twin	X		Density γ_l/γ_w	1.00
	210 mm	X	Rubber		Total length (m)			Gas	Nature	Azote
	370 mm		Reinforced mesh	X	43.50				Compressibility λ_g (m^{-1})	0.00016
	Type		Metallic mesh		MEMBRANE PARAMETERS					
	E		Metallic strips		Supplier type and cote					
	G	X	Slotted tube		Pressure loss p_m (MPa)				0.050	

TEST		
	Test number	ET161121.001
	Test date and time	21/11/2016 10:08
	Control unit number	
	Data logger number	GEOPAC 06
	Operator's name	CP
	Differential pressure	0.095
	CU to probe elevation	0.50
	Observations	

Palier	Pressions	Volumes
0	0.000	0.0
1	0.021	10.2
2	0.040	17.5
3	0.059	27.0
4	0.079	38.0
5	0.100	51.2
6	0.120	67.4
7	0.140	87.8
8	0.160	114.4
9	0.180	149.3
10	0.200	189.5
11	0.220	231.4
12	0.240	278.1
13	0.260	339.7
14	0.281	412.8
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Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

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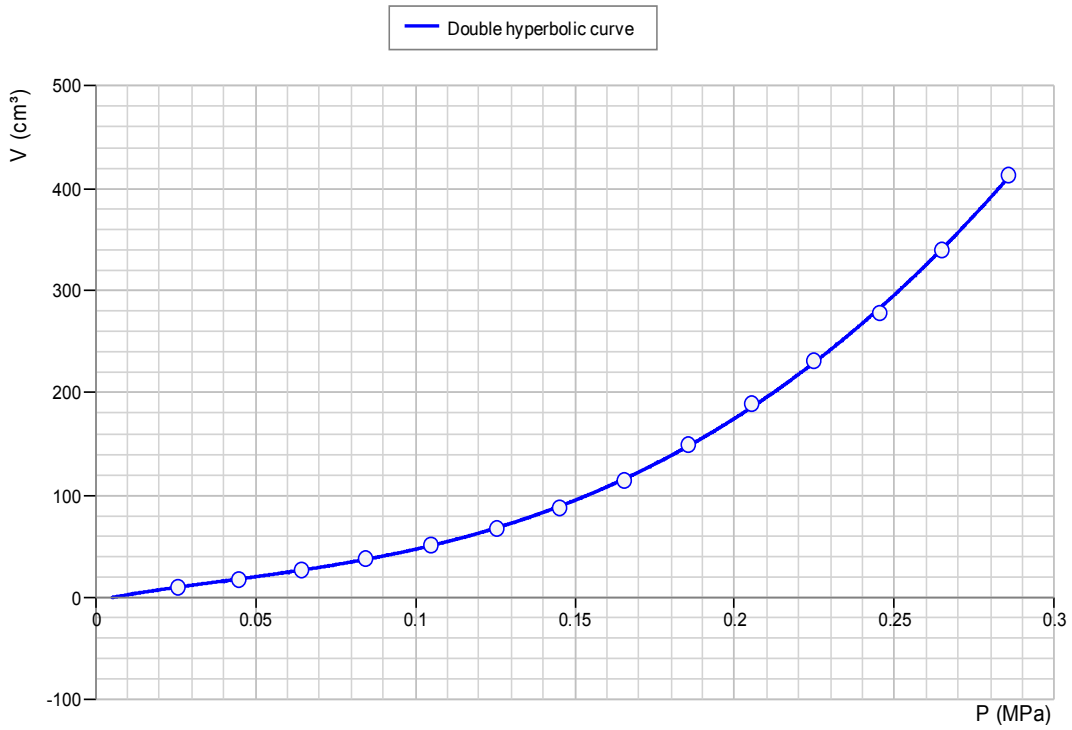

DOUBLE HYPERBOLIC EXTRAPOLATION

$$V = U_1 + U_2.p + \frac{U_3}{U_5 - p} + \frac{U_4}{U_6 - p}$$

U_1 =	**-4.21E+04**	U_4 =	**1.00E+05**
U_2 =	**-2.10E+04**	U_5 =	**-2.48E-01**
U_3 =	**1.98E+02**	U_6 =	**2.33E+00**

ULTIMATE PRESSURE LOSS

Volume for P_{el} calculation (cm^3) = **550.0**

Ultimate pressure loss P_{el} (MPa) = **0.321**

COMMENTS

CONCEPT igeotest

MENARD PRESSUREMETER AUTOMATICALLY RECORDED

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- PRESSURE LOSS -

PROBE	CELL PARAMETERS				TUBING & FLUIDS PARAMETERS					
	Cote		44-gct-c-63		Type	Coaxial		Liquid	Nature	Eau
	Length		Cover			Twin	X		Density γ_l/γ_w	1.00
	210 mm	X	Rubber		Total length (m)			Gas	Nature	Azote
	370 mm		Reinforced mesh	X	43.50				Compressibility λ_g (m^{-1})	0.00016
	Type		Metallic mesh		MEMBRANE PARAMETERS					
	E		Metallic strips		Supplier type and cote					
	G	X	Slotted tube		Pressure loss p_m (MPa)				0.050	

TEST		
	Test number	ET161123.001
	Test date and time	23/11/2016 13:38
	Control unit number	
	Data logger number	GEOPAC 06
	Operator's name	CP
	Differential pressure	0.095
	CU to probe elevation	0.50
	Observations	

Palier	Pressions	Volumes
0	0.000	0.0
1	0.028	18.8
2	0.060	35.5
3	0.090	56.4
4	0.120	84.2
5	0.151	122.4
6	0.180	175.2
7	0.209	233.8
8	0.240	307.8
9	0.270	410.2
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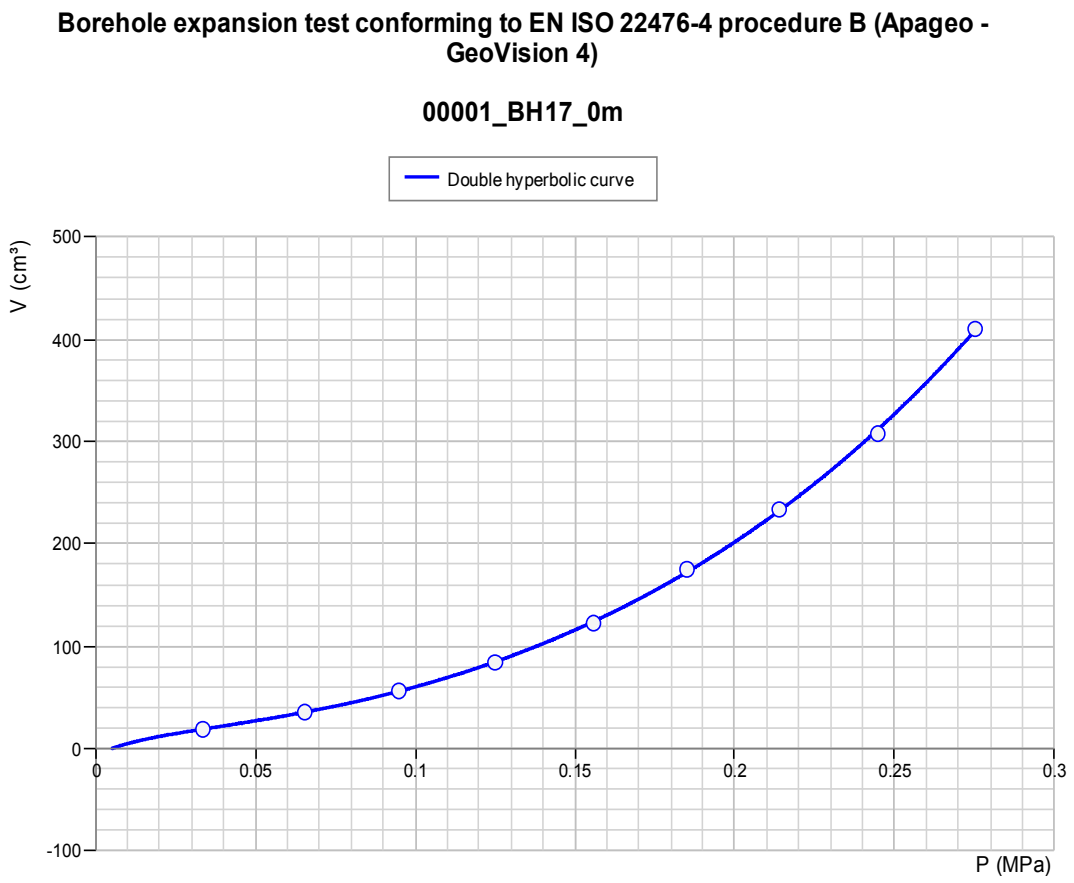

DOUBLE HYPERBOLIC EXTRAPOLATION

$$V = U_1 + U_2.p + \frac{U_3}{U_5 - p} + \frac{U_4}{U_6 - p}$$

U_1 =	-2.19E+03	U_4 =	1.80E+03
U_2 =	-2.75E+03	U_5 =	-2.28E-02
U_3 =	8.55E-01	U_6 =	8.11E-01

ULTIMATE PRESSURE LOSS

Volume for P_{el} calculation (cm^3) = **550.0**

Ultimate pressure loss P_{el} (MPa) = **0.311**

COMMENTS

APAGEO

CONCEPT igeotest

MENARD PRESSUREMETER AUTOMATICALLY RECORDED

Borehole expansion test conforming to EN ISO 22476-4 procedure B

- PRESSURE LOSS -

PROBE	CELL PARAMETERS				TUBING & FLUIDS PARAMETERS					
	Cote		44-gct-c-63		Type	Coaxial	X	Liquid	Nature	Eau
	Length		Cover			Twin			Density γ_l/γ_w	1.00
	210 mm	X	Rubber		Total length (m)			Gas	Nature	Azote
	370 mm		Reinforced mesh	X	50.00				Compressibility λ_g (m^{-1})	0.00016
	Type		Metallic mesh		MEMBRANE PARAMETERS					
	E		Metallic strips		Supplier type and cote					
	G	X	Slotted tube		Pressure loss p_m (MPa)				0.050	

TEST		
	Test number	ET161201.001
	Test date and time	01/12/2016 10:48
	Control unit number	
	Data logger number	GEOPAC 06
	Operator's name	CP
	Differential pressure	0.096
	CU to probe elevation	0.50
	Observations	

Palier	Pressions	Volumes
0	0.000	0.0
1	0.062	30.3
2	0.091	45.8
3	0.120	63.2
4	0.152	84.4
5	0.180	111.8
6	0.210	149.0
7	0.240	195.9
8	0.270	249.8
9	0.299	300.9
10	0.329	345.5
11	0.360	378.3
12	0.390	402.5
13	0.420	420.8
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Borehole expansion test conforming to EN ISO 22476-4 procedure B (Apageo - GeoVision 4)

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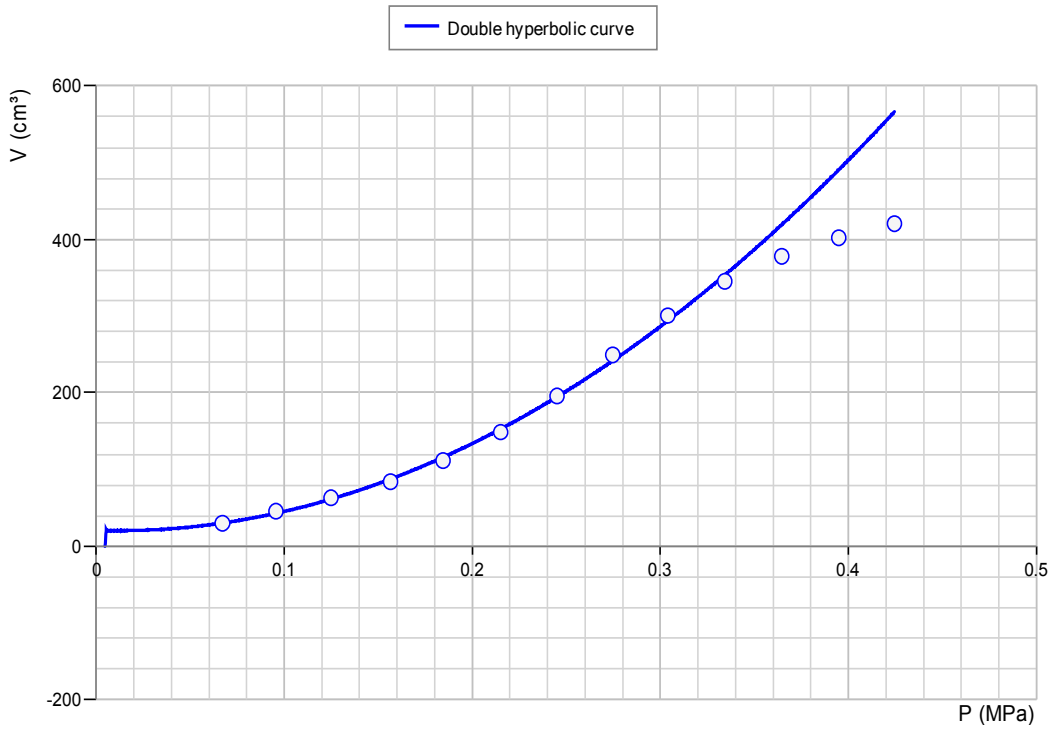


DOUBLE HYPERBOLIC EXTRAPOLATION

$$V = U_1 + U_2.p + \frac{U_3}{U_5 - p} + \frac{U_4}{U_6 - p}$$

U_1 =	-2.19E+07	U_4 =	1.82E+09
U_2 =	-2.64E+05	U_5 =	5.00E-03
U_3 =	1.03E-04	U_6 =	8.30E+01

ULTIMATE PRESSURE LOSS

Volume for P_{el} calculation (cm^3) = **550.0**

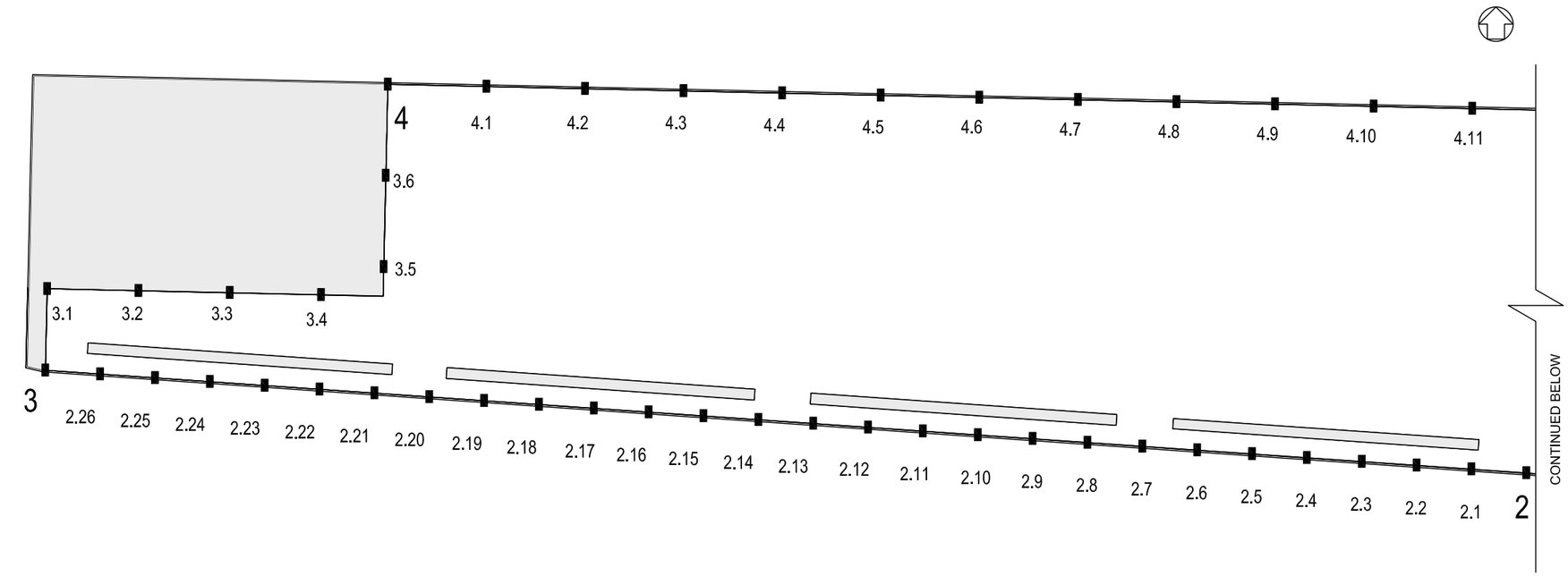
Ultimate pressure loss P_{el} (MPa) = **0.418**

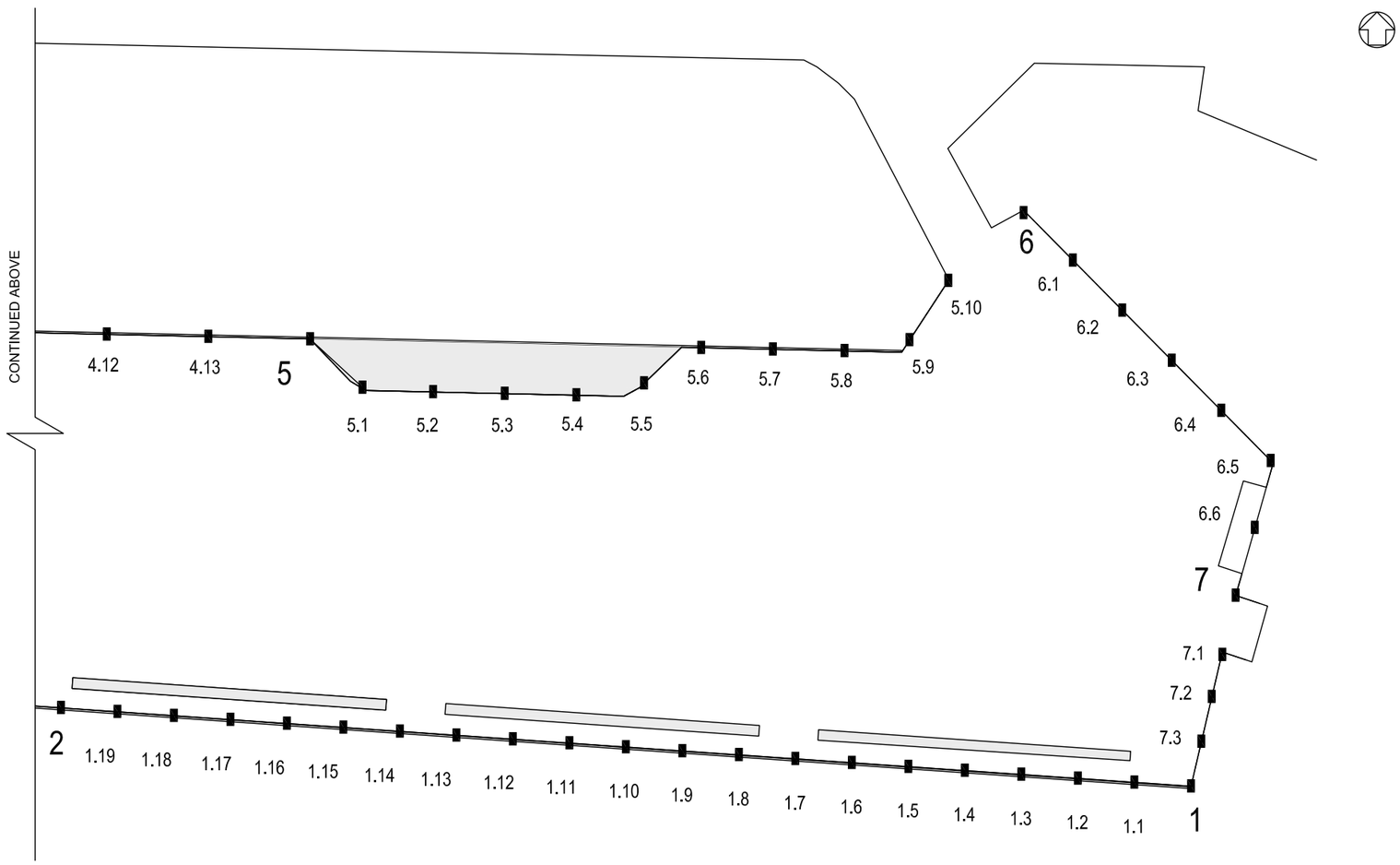
COMMENTS

APAGEO

11. RESISTIVITY TEST RESULTS

Location	Temperature °C	Conductivity µS/cm	Resisitivity Ω-cm
1	10.7	8445	118.41
1.1	10.7	8465	118.13
1.2	10.7	8530	117.23
1.3	10.7	8462	118.18
1.4	10.6	8550	116.96
1.5	10.6	8574	116.63
1.6	10.7	8494	117.73
1.7	10.6	8581	116.54
1.8	10.6	8552	116.93
1.9	10.6	8551	116.95
1.10	10.6	8608	116.17
1.11	10.6	8543	117.05
1.12	10.5	8811	113.49
1.13	10.5	8660	115.47
1.14	10.6	8661	115.46
1.15	10.6	8681	115.19
1.16	10.6	8731	114.53
1.17	10.5	8838	113.15
1.18	10.5	8864	112.82
1.19	10.4	9013	110.95
2	10.3	9268	107.90
2.1	10.3	9316	107.34
2.2	10.3	9199	108.71
2.3	10.3	9220	108.46
2.4	10.3	9142	109.39
2.5	10.3	9197	108.73
2.6	10.3	9213	108.54
2.7	10.2	9260	107.99
2.8	10.3	9185	108.87
2.9	10.3	9342	107.04
2.10	10.3	9222	108.44
2.11	10.3	9242	108.20
2.12	10.3	9322	107.27
2.13	10.2	9364	106.79
2.14	10.3	9358	106.86
2.15	10.3	9378	106.63
2.16	10.2	9400	106.38
2.17	10.1	9471	105.59
2.18	10.2	9487	105.41
2.19	10.2	9474	105.55
2.20	10.1	9492	105.35
2.21	10.1	9497	105.30
2.22	10.3	9532	104.91
2.23	10.3	9534	104.89
2.24	10.4	9519	105.05
2.25	10.3	9529	104.94
2.26	10.4	9500	105.26
3	10.5	9476	105.53
3.1	10.3	9503	105.23
3.2	10.3	9470	105.60
3.3	10.3	9446	105.86
3.4	10.3	9492	105.35
3.5	10.0	9594	104.23
3.6	10.4	9470	105.60
4	10.5	9404	106.34
4.1	10.2	9524	105.00
4.2	10.1	9578	104.41
4.3	10.1	9594	104.23
4.4	10.1	9580	104.38
4.5	10.1	9587	104.31
4.6	10.1	9576	104.43
4.7	10.2	9431	106.03
4.8	10.2	9414	106.22
4.9	10.2	9395	106.44
4.10	10.3	9320	107.30
4.11	10.4	9273	107.84
4.12	10.4	9216	108.51
4.13	10.4	9143	109.37
5	10.4	9117	109.69
5.1	10.5	9136	109.46
5.2	10.5	9080	110.13
5.3	10.5	8963	111.57
5.4	10.5	8836	113.17
5.5	10.6	8770	114.03
5.6	10.6	8710	114.81
5.7	10.7	8702	114.92
5.8	10.7	8687	115.11
5.9	10.7	8672	115.31
5.10	10.7	8653	115.57
6	10.6	8679	115.22
6.1	10.7	8694	115.02
6.2	10.6	8678	115.23
6.3	10.7	8643	115.70
6.4	10.7	8600	116.28
6.5	10.7	8592	116.39
6.6	10.7	8569	116.70
7	10.5	8543	117.05
7.1	10.7	8551	116.95
7.2	10.7	8542	117.07
7.3	10.7	8544	117.04





NOTES

1. This drawing should not be scaled, only use annotated dimensions.

2. The distance between the points has a value of ~20m.

No	Revision	Drawn	Checked	Passed	Date

CONCEPT SITE INVESTIGATIONS

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Client:	London City Airport
Project:	CADP Surveys - Ground Investigation (Dock) - Phase 2
Title:	Resistibility Test Results & Location Plan
Dwg. No:	162900/04
Status:	Issue
Scale:	NTS

Drawn	Checked	Passed	Date
RD	OS	MD	March 17

Location	Temperature °C	Conductivity µS/cm	Resisitivity Ω-cm
1	10.7	8445	118.41
1.1	10.7	8465	118.13
1.2	10.7	8530	117.23
1.3	10.7	8462	118.18
1.4	10.6	8550	116.96
1.5	10.6	8574	116.63
1.6	10.7	8494	117.73
1.7	10.6	8581	116.54
1.8	10.6	8552	116.93
1.9	10.6	8551	116.95
1.10	10.6	8608	116.17
1.11	10.6	8543	117.05
1.12	10.5	8811	113.49
1.13	10.5	8660	115.47
1.14	10.6	8661	115.46
1.15	10.6	8681	115.19
1.16	10.6	8731	114.53
1.17	10.5	8838	113.15
1.18	10.5	8864	112.82
1.19	10.4	9013	110.95
2	10.3	9268	107.90
2.1	10.3	9316	107.34
2.2	10.3	9199	108.71
2.3	10.3	9220	108.46
2.4	10.3	9142	109.39
2.5	10.3	9197	108.73
2.6	10.3	9213	108.54
2.7	10.2	9260	107.99
2.8	10.3	9185	108.87
2.9	10.3	9342	107.04
2.10	10.3	9222	108.44
2.11	10.3	9242	108.20
2.12	10.3	9322	107.27
2.13	10.2	9364	106.79
2.14	10.3	9358	106.86
2.15	10.3	9378	106.63
2.16	10.2	9400	106.38
2.17	10.1	9471	105.59
2.18	10.2	9487	105.41
2.19	10.2	9474	105.55
2.20	10.1	9492	105.35
2.21	10.1	9497	105.30
2.22	10.3	9532	104.91
2.23	10.3	9534	104.89
2.24	10.4	9519	105.05
2.25	10.3	9529	104.94
2.26	10.4	9500	105.26
3	10.5	9476	105.53
3.1	10.3	9503	105.23

3.2	10.3	9470	105.60
3.3	10.3	9446	105.86
3.4	10.3	9492	105.35
3.5	10.0	9594	104.23
3.6	10.4	9470	105.60
4	10.5	9404	106.34
4.1	10.2	9524	105.00
4.2	10.1	9578	104.41
4.3	10.1	9594	104.23
4.4	10.1	9580	104.38
4.5	10.1	9587	104.31
4.6	10.1	9576	104.43
4.7	10.2	9431	106.03
4.8	10.2	9414	106.22
4.9	10.2	9395	106.44
4.10	10.3	9320	107.30
4.11	10.4	9273	107.84
4.12	10.4	9216	108.51
4.13	10.4	9143	109.37
5	10.4	9117	109.69
5.1	10.5	9136	109.46
5.2	10.5	9080	110.13
5.3	10.5	8963	111.57
5.4	10.5	8836	113.17
5.5	10.6	8770	114.03
5.6	10.6	8710	114.81
5.7	10.7	8702	114.92
5.8	10.7	8687	115.11
5.9	10.7	8672	115.31
5.10	10.7	8653	115.57
6	10.6	8679	115.22
6.1	10.7	8694	115.02
6.2	10.6	8678	115.23
6.3	10.7	8643	115.70
6.4	10.7	8600	116.28
6.5	10.7	8592	116.39
6.6	10.7	8569	116.70
7	10.5	8543	117.05
7.1	10.7	8551	116.95
7.2	10.7	8542	117.07
7.3	10.7	8544	117.04

LABORATORY REPORT

4043

Contract Number: PSL17/1157

Report Date: 22 March 2017

Client's Reference: 16-2900

Client Name: Concept Site Investigations
47-49 Brunel Road
London
W3 7XR

For the attention of: Kasia Mazerant

Contract Title: CADP Surveys- Ground Invesigation (Dock) Phase 2

Date Received: 13/3/2017
Date Commenced: 13/3/2017
Date Completed: 22/3/2017

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

R Gunson (Director)	A Watkins (Director)	R Berriman (Quality Manager)
L Knight (Senior Technician)	S Royle (Laboratory Manager)	A Fry (Senior Technician)

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awatkins@prosoils.co.uk

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**BH03**	**Top Depth (m):**	**21.00**
Sample Number:	**AMAL**	**Base Depth (m):**	**28.70**
Sample Type:	**B**	**Sample Date:**	**-**
Sample Description:	**Dark grey very silty SAND.**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	1.82
Moisture Content (%)	31
Dry Density (Mg/m3)	1.40
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**132 Ohms.cm**

PSL Professional Soils Laboratory	**CADP Surveys Ground Investigation (Dock) - Phase 2**	**Contract No:** PSL17/1157
		Client Ref: 16/2900

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**BH04**	**Top Depth (m):**	**26.50**
Sample Number:	**AMAL**	**Base Depth (m):**	**28.00**
Sample Type:	**B**	**Sample Date:**	**-**
Sample Description:	**Dark grey very silty SAND.**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	1.80
Moisture Content (%)	38
Dry Density (Mg/m3)	1.31
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**115 Ohms.cm**

PSL Professional Soils Laboratory	**CADP Surveys Ground Investigation (Dock) - Phase 2**	**Contract No:** PSL17/1157 **Client Ref:** 16/2900

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**BH05**	**Top Depth (m):**	**25.00**
Sample Number:	**AMAL**	**Base Depth (m):**	**27.00**
Sample Type:	**B**	**Sample Date:**	**-**
Sample Description:	**Dark grey very silty SAND.**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	1.73
Moisture Content (%)	43
Dry Density (Mg/m3)	1.21
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**97 Ohms.cm**

PSL Professional Soils Laboratory	**CADP Surveys Ground Investigation (Dock) - Phase 2**	**Contract No:** PSL17/1157
		Client Ref: 16/2900

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**BH07**	**Top Depth (m):**	**23.00**
Sample Number:	**n/a**	**Base Depth (m):**	**24.50**
Sample Type:	**Linear**	**Sample Date:**	**-**
Sample Description:	**Dark grey very silty SAND.**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	1.86
Moisture Content (%)	30
Dry Density (Mg/m3)	1.43
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**319 Ohms.cm**

PSL Professional Soils Laboratory	**CADP Surveys Ground Investigation (Dock) - Phase 2**	**Contract No:** PSL17/1157 **Client Ref:** 16/2900

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**BH09**	**Top Depth (m):**	**16.50**
Sample Number:	**AMAL**	**Base Depth (m):**	**18.00**
Sample Type:	**B**	**Sample Date:**	**-**
Sample Description:	**Dark grey very silty SAND.**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	1.83
Moisture Content (%)	31
Dry Density (Mg/m3)	1.39
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**131 Ohms.cm**

PSL Professional Soils Laboratory	**CADP Surveys Ground Investigation (Dock) - Phase 2**	**Contract No:** PSL17/1157
		Client Ref: 16/2900

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**BH15**	**Top Depth (m):**	**17.00**
Sample Number:	**AMAL**	**Base Depth (m):**	**19.00**
Sample Type:	**B**	**Sample Date:**	**-**
Sample Description:	**Dark grey very silty SAND.**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	1.86
Moisture Content (%)	29
Dry Density (Mg/m3)	1.44
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**124 Ohms.cm**

PSL Professional Soils Laboratory	**CADP Surveys Ground Investigation (Dock) - Phase 2**	**Contract No:** PSL17/1157
		Client Ref: 16/2900

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**BH19**	**Top Depth (m):**	**17.00**
Sample Number:	**AMAL**	**Base Depth (m):**	**19.00**
Sample Type:	**B**	**Sample Date:**	**-**
Sample Description:	**Dark grey very silty SAND.**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	1.85
Moisture Content (%)	23
Dry Density (Mg/m3)	1.50
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**170 Ohms.cm**

PSL Professional Soils Laboratory	**CADP Surveys Ground Investigation (Dock) - Phase 2**	**Contract No:** PSL17/1157
		Client Ref: 16/2900

DETERMINATION OF THE RESISTIVITY OF SOIL

BS 1377 : Part 3: 1990, Clause 10.3

Hole Number:	**BH21**	**Top Depth (m):**	**15.00**
Sample Number:	**AMAL**	**Base Depth (m):**	**17.50**
Sample Type:	**B**	**Sample Date:**	**-**
Sample Description:	**Dark grey very silty SAND.**		

Length of test specimen (mm)	455
Diameter of test specimen (mm)	102
Method of Remoulding:	2.5kg effort at received
Bulk Density	1.84
Moisture Content (%)	26
Dry Density (Mg/m3)	1.46
Steel Probe Diameter (mm)	5
Steel Probe Penetration (mm)	60
Steel Probe Spacing (mm)	20
Electrical Resistivity @ 20C =	**147 Ohms.cm**

PSL Professional Soils Laboratory	**CADP Surveys Ground Investigation (Dock) - Phase 2**	**Contract No:** PSL17/1157 **Client Ref:** 16/2900

12. GEOTECHNICAL LABORATORY TEST RESULTS

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	12/12/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH03	B	03	13.50	Brown very sandy rounded to well rounded flint GRAVEL	7.1					
BH03	B	07	15.30	Brown sandy angular to well rounded fine to coarse flint GRAVEL	4.0					
BH03	B	10	21.00	Dark grey slightly clayey silty gravelly fine SAND. Gravel is well rounded fine to coarse flint	16					
BH03	D	11	21.50	Grey fine SAND						Non Plastic
BH03	B	14	28.70	Dark grey clayey silty fine SAND	30					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	18/11/2016	Checked by:	KM
Date - samples tested:	03/12/2016	Date:	12/12/2016
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	17/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH04	B	04	12.50	Dark grey mottled dark brown slightly clayey well rounded fine to coarse flint GRAVEL	11					
BH04	B	06	14.50	Brownish grey very sandy angular to well rounded fine to coarse flint GRAVEL	4.5					
BH04	B	08	16.50	Dark grey slightly silty fine SAND	27					
BH04	B	15	21.50	Grey silty fine SAND	24					
BH04	B	19	24.50	Dark grey clayey silty fine SAND	41					
BH04	B	25	29.50	Dark grey clayey silty fine SAND with rare fine flint gravel	39					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	07/02/2017	Date:	17/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	17/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH05	B	08	16.00	Greyish brown silty fine SAND	31					
BH05	B	16	22.00	Dark grey silty fine SAND	34					
BH05	B	20	25.00	Dark grey clayey silty fine SAND	52					Non Plastic
BH05	B	24	28.00	Dark grey clayey silty fine SAND	50					
BH05	D	28	30.50	Off-white CHALK recovered as slightly gravelly sandy SILT. Gravel fine to medium flint	24					
BH05	D	32	33.50	Off-white CHALK recovered as sandy SILT	26					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	23/12/2016	Checked by:	KM
Date - samples tested:	07/02/2017	Date:	17/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH06	B	30	13.20	Brown and grey slightly sandy angular to well rounded fine to coarse flint GRAVEL	0.7					
BH06	B	31	15.00	Brownish grey slightly clayey fine SAND with rare flint gravel	23					
BH06	B	35	21.00	Brownish grey clayey very silty fine SAND	32					
BH06	B	37	22.90	Brownish grey clayey very silty fine SAND	31					
BH06	D	38	23.30	Brownish grey very clayey very silty fine SAND		100	49	30	19	
BH06	B	39	24.00	Brownish grey clayey very silty fine SAND	31					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	07/12/2016	Checked by:	KM
Date - samples tested:	13/01/2017	Date:	08/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	17/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH07	B	08	17.00	Dark grey silty fine SAND	25					
BH07	B	13	22.00	Dark grey silty fine SAND	31					
BH07	B	18	27.00	Dark grey clayey silty fine SAND	29					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	07/02/2017	Date:	17/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	22/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH09	B	03	14.00	Dark grey silty fine SAND with rare shell fragments	25					
BH09	D	10	18.00	Dark grey clayey silty fine SAND	26					Non Plastic
BH09	D	14	21.00	Dark grey clayey very silty fine SAND	27					
BH09	D	18	24.00	Dark grey clayey very silty fine SAND	31					Non Plastic

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	23/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	22/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	09/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH10	B	09	14.50	Dark grey sandy fine to coarse flint GRAVEL	2.9					
BH10	B	11	15.50	Brownish grey fine to coarse SAND and angular to well rounded flint GRAVEL	11					
BH10	D	13	16.25	Brownish grey slightly clayey fine SAND						Non Plastic
BH10	B	15	17.00	Brownish grey slightly silty clayey fine SAND						Non Plastic
BH10	B	19	20.00	Brownish grey clayey fine SAND	37					
BH10	D	20	21.00	Brownish grey slightly clayey fine SAND						Non Plastic
BH10	B	21	21.50	Brownish grey slightly clayey silty fine SAND	38					
BH10	B	25	24.50	Brownish grey clayey silty fine SAND	45					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	28/11/2016	Checked by:	KM
Date - samples tested:	12/01/2017	Date:	23/01/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	08/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH10	B	27	26.00	Brownish grey clayey silty fine SAND	59					Sample wet
BH10	D	28	27.00	White CHALK with occasional pockets of brown clay and angular fine to coarse flint	15					
BH10	D	30	28.50	White CHALK with rare angular fine to medium flint gravel	22					
BH10	D	32	30.00	White CHALK with rare angular fine to coarse flint gravel	27					
BH10	D	34	31.50	White CHALK with rare angular fine to medium flint gravel	33					
BH10	B	35	32.00	White CHALK with rare angular fine to coarse flint gravel	24					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	28/11/2016	Checked by:	KM
Date - samples tested:	12/01/2017	Date:	23/01/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	11/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH10R	B	09	17.00	Grey silty fine SAND	30					
BH10R	B	10	20.50	Grey clayey silty fine SAND	32					
BH10R	B	11	21.50	Grey fine silty fine SAND	30					
BH10R	B	12	22.50	Grey fine slightly clayey slightly silty SAND	29					
BH10R	B	14	27.00	Grey fine silty SAND	30					Non Plastic

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	02/12/2016	Checked by:	KM
Date - samples tested:	13/01/2017	Date:	10/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	1. Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH11	D	04	15.00	Dark brownish grey clayey SAND with rare fine to medium flint gravel	25					
BH11	D	06	16.00	Dark brownish grey clayey fine SAND	22					
BH11	D	08	17.00	Dark brownish grey clayey fine SAND	25					
BH11	D	10	18.00	Dark brownish grey clayey fine SAND	27					
BH11	D	14	21.00	Dark brownish grey clayey fine SAND	27					
BH11	B	19	24.50	Grey very clayey SAND	54					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	21/12/2016	Checked by:	KM
Date - samples tested:	13/01/2017	Date:	10/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	17/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	1. Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH12	B	06	17.50	Dark grey slightly clayey silty fine SAND	16					
BH12	B	12	22.50	Dark grey clayey silty fine SAND	33					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	14/01/2017	Checked by:	KM
Date - samples tested:	07/02/2017	Date:	17/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	17/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH13	B	05	14.00	Brownish grey very sandy angular to well rounded flint GRAVEL with a flint cobble	4.0					
BH13	B	09	16.50	Grey slightly silty fine SAND	23					
BH13	B	17	21.50	Grey slightly clayey silty fine SAND	36					
BH13	D	24	27.00	Dark grey clayey very silty fine SAND	20					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	11/01/2017	Checked by:	KM
Date - samples tested:	07/02/2017	Date:	17/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	11/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH14	B	05	16.00	Brownish grey slightly clayey fine SAND with rare fine flint gravel	26					
BH14	B	13	21.00	Dark grey clayey very silty fine SAND	38					Non Plastic
BH14	B	17	24.00	Brownish grey very clayey SAND	48					Non Plastic
BH14	B	19	25.50	Dark grey sandy silty CLAY	44					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	19/12/2016	Checked by:	KM
Date - samples tested:	17/01/2017	Date:	10/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	11/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH15	B	10	14.50	Dark grey silty fine SAND	27					
BH15	B	12	15.50	Dark grey slightly silty fine SAND	24					
BH15	D	15	18.00	Dark grey clayey very silty fine SAND						Non Plastic
BH15	B	20	21.50	Dark grey clayey silty fine SAND	39					
BH15	B	24	24.50	Light grey slightly clayey angular to subrounded fine to coarse flint GRAVEL with rare chalk fragments	9.8					
BH15	B	26	26.00	Off white CHALK recovered as slightly clayey slightly sandy gravelly SILT. Grave comprises of fine and medium chalk fragments and flint	28					
BH15	D	27	27.00	Grey slightly clayey angular fine to coarse flint GRAVEL with a cobble of flint	1.6					
BH15	D	29	28.50	White CHALK recovered as slightly sandy SILT	26					
BH15	D	31	30.00	White CHALK recovered as slightly sandy SILT	27					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	16/12/2016	Checked by:	KM
Date - samples tested:	30/01/2017	Date:	10/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	22/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH16	D	01	19.50	Dark grey silty fine SAND	24					
BH16	B	04	23.50	Dark grey silty fine SAND	32					
BH16	B	07	25.80	Dark grey slightly silty fine SAND	32					
BH16	D	10	28.50	Dark grey clayey silty fine SAND	33					
BH16	B	13	31.00	Dark grey clayey very silty fine SAND	36					
BH16	B	17	34.00	Dark grey very clayey very silty fine SAND	32					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	26/01/2017	Checked by:	KM
Date - samples tested:	16/02/2017	Date:	22/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	12/12/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH17	B	02	12.70	Brown sandy rounded to well rounded fine to coarse flint GRAVEL	6.8					
BH17	B	05	15.70	Brownish grey slightly silty fine SAND	27					
BH17	B	13	25.80	Dark grey clayey very silty fine and medium SAND	30					
BH17	D	15	29.00	Dark grey slightly silty fine SAND with frequent pockets of sandy clay (<40mm)	29	100	49	30	19	
BH17	B	16	29.50	Dark grey clayey very silty fine SAND	32					
BH17	D	17	30.40	Black angular to subangular medium to coarse flint GRAVEL with a chalk fragment	16					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	21/11/2016	Checked by:	KM
Date - samples tested:	03/12/2016	Date:	12/12/2016
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	11/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH18	B	04	12.50	Dark grey very sandy subrounded to well rounded fine to coarse flint GRAVEL	2.8					
BH18	B	10	15.00	Grey slightly silty fine SAND	26					
BH18	D	13	16.50	Grey slightly silty fine SAND	25					
BH18	B	14	17.00	Grey slightly silty fine SAND	27					
BH18	D	17	19.50	Grey slightly silty fine SAND	25					Non Plastic
BH18	B	18	20.00	Grey silty fine SAND	38					
BH18	B	20	21.50	Grey slightly silty fine SAND	33					
BH18	B	22	23.00	Grey slightly silty slightly clayey fine SAND	41					Non Plastic

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	15/12/2016	Checked by:	KM
Date - samples tested:	30/01/2017	Date:	10/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	11/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	1. Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH18	D	27	27.00	Dark grey sandy silty CLAY	35					
BH18	B	31	29.00	Off white CHALK recovered as slightly sandy SILT with occasional fine to coarse flint gravel	31					
BH18	D	34	31.50	Off white CHALK recovered as slightly sandy SILT with occasional fine to coarse flint gravel	19					
BH18	D	36	33.00	Off white CHALK recovered as slightly sandy SILT	22					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	15/12/2016	Checked by:	KM
Date - samples tested:	30/01/2017	Date:	10/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	17/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH19	B	10	14.50	Greenish grey fine to coarse SAND and angular to well rounded flint GRAVEL	8.0					
BH19	B	14	16.00	Grey slightly silty fine and medium SAND	26					
BH19	B	18	18.50	Grey oxidised to brown slightly clayey slightly silty fine SAND	24					
BH19	D	21	21.00	Dark grey slightly sandy slightly clayey fine SAND						Non Plastic
BH19	B	28	26.00	Dark grey clayey silty fine SAND						Non Plastic
BH19	B	34	30.50	Dark grey sandy silty CLAY	47					
BH19	B	36	32.00	White CHALK recovered as SILT with frequent fine to coarse chalk	33					
BH19	B	38	33.50	White CHALK recovered as slightly sandy SILT	51					
BH19	B	40	35.00	Light grey locally white CHALK recovered as slightly sandy SILT	27					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	08/12/2016	Checked by:	KM
Date - samples tested:	16/01/2017	Date:	09/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	20/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH20	B	03	14.00	Greyish brown gravelly fine SAND. Gravel is angular to rounded fine to medium flint	23					
BH20	B	09	17.50	Dark grey slightly silty fine SAND	28					
BH20	B	15	22.00	Dark grey slightly clayey silty fine SAND	43					
BH20	B	17	23.50	Dark grey slightly clayey silty fine SAND	50					Non Plastic
BH20	B	21	26.50	Dark grey clayey silty fine SAND	53					
BH20	B	25	29.50	Dark grey clayey very silty fine SAND	93					Sample damp

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	12/01/2017	Checked by:	KM
Date - samples tested:	08/02/2017	Date:	20/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH21	D	11	14.50	Greyish brown slightly clayey fine SAND						Non Plastic
BH21	B	12	15.00	Greyish brown slightly clayey fine to medium SAND	25					
BH21	D	13	15.50	Greyish brown slightly clayey fine SAND with rare fine to medium flint gravel	22					
BH21	B	16	17.00	Dark grey clayey silty fine SAND	31					
BH21	D	17	18.00	Greyish brown slightly clayey fine SAND						Non Plastic
BH21	B	18	18.50	Dark grey slightly clayey silty fine SAND	35					
BH21	D	21	21.00	Greyish brown slightly clayey fine SAND with rare fine flint gravel						Non Plastic
BH21	B	22	21.50	Dark grey clayey silty fine SAND	41					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	30/11/2016	Checked by:	KM
Date - samples tested:	13/12/2016	Date:	08/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH21	B	24	23.00	Dark grey clayey SAND	43					
BH21	B	28	26.00	Dark brownish grey clayey very silty fine SAND	53					
BH21	B	31	28.00	White slightly sandy CHALK with occasional fine to coarse flint gravel	22					
BH21	B	33	29.00	White slightly sandy CHALK with occasional fine to coarse flint gravel	29					
BH21	D	38	32.50	White slightly sandy CHALK with occasional fine to medium flint gravel	27					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	30/11/2016	Checked by:	KM
Date - samples tested:	13/12/2016	Date:	08/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	11/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	1. Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH21R	B	08	16.80	Grey slightly silty fine SAND	28					
BH21R	B	10	19.00	Grey silty fine SAND						Non Plastic
BH21R	B	13	24.00	Dark grey clayey silty fine SAND						Non Plastic
BH21R	B	14	25.00	Grey clayey fine SAND						Non Plastic

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	09/12/2016	Checked by:	KM
Date - samples tested:	19/01/2017	Date:	23/01/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	20/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH22	B	03	15.00	Grey angular to well rounded medium and coarse flint GRAVEL	1.3					
BH22	B	05	17.00	Light grey slightly silty fine SAND	22					
BH22	B	11	22.10	Grey silty fine SAND	28					
BH22	B	15	25.00	Dark grey clayey silty fine SAND	34					
BH22	B	23	31.00	Dark grey very clayey very silty fine SAND	31					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	22/12/2016	Checked by:	KM
Date - samples tested:	07/02/2017	Date:	20/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH23	B	09	14.10	Brownish grey slightly micaceous slightly clayey fine and medium SAND with rare fine and medium flint gravel	24					
BH23	D	10	14.50	Brownish grey slightly clayey fine to medium SAND						Non Plastic
BH23	D	12	15.50	Brownish grey slightly clayey SAND						Non Plastic
BH23	D	14	16.50	Brownish grey slightly clayey SAND						Non Plastic
BH23	B	15	17.00	Brownish grey slightly clayey fine SAND	18					
BH23	B	19	20.00	Brownish grey slightly clayey fine SAND	28					
BH23	B	21	21.50	Brownish grey clayey SAND						Non Plastic
BH23	B	23	23.00	Brownish grey clayey fine SAND	29					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

4503

Date - samples received:	07/12/2016	Checked by:	KM
Date - samples tested:	16/01/2017	Date:	08/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH23	D	30	28.50	Dark grey silty very clayey fine SAND		100	54	24	30	
BH23	B	31	29.00	Dark grey silty very clayey fine SAND		100	50	28	22	
BH23	B	33	30.50	Dark grey silty clayey fine SAND	55					
BH23	B	36	32.00	Off white CHALK recovered as slightly sandy slightly gravelly SILT. Gravel is fine to medium chalk with rare flint	32					
BH23	B	38	33.50	Off white CHALK recovered as slightly sandy silty fine to coarse GRAVEL with occasional cobbles	34					
BH23	B	40	35.00	Off white CHALK recovered as slightly sandy silty fine to coarse GRAVEL with occasional cobbles	37					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	07/12/2016	Checked by:	KM
Date - samples tested:	16/01/2017	Date:	08/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH24	B	10	14.00	Light brown very sandy angular to well rounded flint GRAVEL	7.1					
BH24	B	14	16.00	Grey and brown sandy fine to coarse angular to subrounded flint GRAVEL	4.3					
BH24	B	15	16.20	Greyish brown slightly clayey fine SAND with rare fine flint gravel	27					
BH24	D	17	17.50	Greyish brown slightly micaceous slightly clayey fine to medium SAND with rare fine flint gravel	25					
BH24	D	19	19.00	Greyish brown slightly micaceous slightly clayey fine SAND with rare fine flint gravel	24					
BH24	B	20	19.50	Greyish brown slightly clayey SAND	30					
BH24	B	22	21.00	Grey silty fine SAND	37					
BH24	B	24	22.50	Grey clayey silty fine SAND	41					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	01/12/2016	Checked by:	KM
Date - samples tested:	13/12/2016	Date:	08/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH24	B	26	24.00	Brownish grey clayey fine SAND	51					
BH24	D	27	25.00	Brownish grey clayey fine SAND						Non Plastic
BH24	B	30	27.00	Brownish grey clayey fine SAND	48					
BH24	B	33	28.50	White CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to medium chalk fragments with occasional rare flint	18					
BH24	D	34	29.50	White CHALK recovered as slightly sandy gravelly SILT. Gravel is fine chalk fragments	27					
BH24	B	35	30.00	White CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to medium chalk with occasional rare flint	24					
BH24	D	36	31.00	White CHALK recovered as slightly sandy SILT with rare fine to medium flint gravel	24					
BH24	B	37	31.50	White CHALK recovered as slightly sandy SILT	25					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	01/12/2016	Checked by:	KM
Date - samples tested:	13/12/2016	Date:	08/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH24	D	38	32.50	White CHALK recovered as slightly sandy SILT	26					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

4503

Date - samples received:	01/12/2016	Checked by:	KM
Date - samples tested:	13/12/2016	Date:	08/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	12/12/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH25	B	04	12.50	Dark grey slightly sandy subrounded to well rounded fine to coarse flint GRAVEL	15					
BH25	B	07	13.50	Dark grey, grey and brown slightly sandy subrounded to well rounded fine to coarse flint GRAVEL	2.5					
BH25	B	09	14.50	Dark grey slightly silty angular to subrounded fine to coarse flint GRAVEL with occasional angular to subrounded flint cobbles	8.1					
BH25	B	10	14.70	Dark grey clayey gravelly silty fine and medium SAND. Gravel is angular to subrounded fine to medium flint	39					
BH25	D	10	15.50	Dark grey very clayey SAND	27					
BH25	B	10	16.00	Dark grey clayey silty fine SAND	54					
BH25	D	10	16.50	Dark grey very clayey SAND	32	100	47	30	17	

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	24/11/2016	Checked by:	KM
Date - samples tested:	03/12/2016	Date:	12/12/2016
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	12/12/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH25	B	10	17.00	Dark grey clayey silty fine SAND	57					
BH25	B	10	18.50	Dark grey silty clayey fine SAND	72					
BH25	D	10	19.50	Dark grey slightly silty fine SAND with frequent pockets of dark grey sandy clay (<20mm)	28	100	45	31	14	
BH25	B	10	20.00	Grey clayey very silty fine SAND	77					
BH25	B	10	21.50	Dark grey clayey very silty fine SAND with rare well rounded fine to medium flint gravel	52					
BH25	B	10	23.00	White very gravelly CHALK recovered as angular to subrounded fine to coarse flint GRAVEL	22					
BH25	D	10	25.50	White CHALK recovered as gravelly SILT. Gravel is angular fine to coarse flint	22					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	24/11/2016	Checked by:	KM
Date - samples tested:	03/12/2016	Date:	12/12/2016
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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47-49 Brunel Road, London W3 7XR
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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	12/12/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH25	D	10	29.50	White CHALK recovered as gravelly SILT. Gravel is angular to subangular fine to coarse flint	18					
BH25	D	10	31.50	White CHALK recovered as gravelly SILT. Gravel is angular fine to coarse flint	24					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	24/11/2016	Checked by:	KM
Date - samples tested:	05/12/2016	Date:	12/12/2016
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH25R	B	07	16.50	Dark grey silty sandy CLAY	41					
BH25R	D	08	17.00	Dark brownish clayey SAND						Non Plastic
BH25R	D	10	20.00	Dark brownish grey very clayey SAND		100	51	28	23	
BH25R	B	11	20.70	Brownish grey clayey silty fine SAND	28					
BH25R	D	12	21.50	Dark grey clayey silty fine SAND	28					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	01/12/2016	Checked by:	KM
Date - samples tested:	13/01/2017	Date:	25/01/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH26	B	07	13.50	Brown and grey sandy angular to well rounded fine to coarse flint GRAVEL	2.2					
BH26	B	09	14.50	Dark grey and brown slightly sandy angular to well rounded fine to coarse flint GRAVEL	1.8					
BH26	B	11	15.50	Grey and brown very sandy fine to coarse flint GRAVEL	1.7					
BH26	B	13	16.50	Greyish brown very sandy fine to coarse flint GRAVEL	7.5					
BH26	B	14	17.00	Grey clayey silty fine and medium SAND with rare fine flint gravel	40					
BH26	D	15	17.50	Dark grey fine SAND with frequent pockets of slightly sandy clay and rare medium flint gravel		98	47	23	24	
BH26	B	16	18.20	Off white CHALK recovered as sandy silty GRAVEL. Gravel comprises of fine to coarse chalk and rare flint	24					
BH26	B	18	19.00	Off white CHALK recovered as slightly sandy silty GRAVEL. Gravel comprises of fine to coarse chalk and rare flint	31					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	06/12/2016	Checked by:	KM
Date - samples tested:	16/01/2017	Date:	10/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH26	D	23	23.00	Off white CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk fragments	28					
BH26	D	25	24.50	Off white CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk fragments	26					
BH26	D	27	26.00	Off white CHALK recovered as slightly sandy gravelly SILT. Gravel comprises of fine to coarse chalk fragments and rare flint	25					
BH26	D	29	27.50	Off white CHALK recovered as slightly sandy slightly gravelly SILT. Gravel comprises of fine to coarse chalk fragments and rare flint	23					
BH26	D	31	29.00	Off white CHALK recovered as slightly sandy slightly gravelly SILT. Gravel comprises of fine to coarse chalk fragments and rare flint	25					
BH26	D	33	30.50	Off white CHALK recovered as slightly sandy gravelly SILT. Gravel if fine to coarse chalk fragments	24					
BH26	D	35	31.50	Off white CHALK recovered as slightly sandy slightly gravelly SILT. Gravel comprises of fine to coarse chalk fragments and rare flint	22					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	06/12/2016	Checked by:	KM
Date - samples tested:	16/01/2017	Date:	10/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	22/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH27	D	01	16.50	Brown slightly silty very sandy angular to subangular fine and medium flint GRAVEL	9.2					Sample size does not meet the requirements of BS1377: Part 2: 1990

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

4503

Date - samples received:	30/01/2017	Checked by:	KM
Date - samples tested:	20/02/2017	Date:	22/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	12/12/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH28	B	05	13.10	Black mottled brown clayey sandy very angular to subangular fine to coarse flint GRAVEL	22					
BH28	B	08	13.50	Brownish grey sandy very angular to well rounded fine to coarse flint GRAVEL	2.6					
BH28	B	14	16.50	Brownish grey slightly sandy very angular to well rounded fine to coarse flint GRAVEL	2.1					
BH28	B	25	24.50	White CHALK recovered as gravelly SILT with a chalk cobble. Gravel comprises fine to coarse flint and chalk fragments	28					
BH28	D	30	28.10	White CHALK recovered as gravelly SILT. Gravel is fine to medium chalk fragments	25					
BH28	D	35	31.50	White CHALK recovered as gravelly SILT. Gravel comprises fine to medium chalk fragments and rare fine flint	25					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	14/11/2016	Checked by:	KM
Date - samples tested:	15/12/2016	Date:	12/12/2016
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	20/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH29	B	02	17.50	Dark grey clayey silty fine SAND	39					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	19/01/2017	Checked by:	KM
Date - samples tested:	07/02/2017	Date:	17/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	12/12/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH31	B	02	12.00	Black mottled brown gravelly CLAY. Gravel is angular to well rounded fine to coarse flint		75	141	54	87	
BH31	B	04	12.50	Brown mottled black slightly clayey sandy angular to well rounded fine to coarse flint GRAVEL	9.6					
BH31	B	09	14.50	Light grey silty sandy angular to well rounded fine to coarse flint GRAVEL with occasional fine to medium gravel sized chalk fragments and a cobble of flint	11					
BH31	B	14	17.00	White CHALK recovered as gravelly SILT with occasional flint cobbles. Gravel comprises angular to subangular fine to coarse flint and chalk fragments	25					
BH31	B	22	23.00	White CHALK recovered as gravelly SILT. Gravel comprises fine to coarse chalk fragment and angular fine to medium flint	29					
BH31	D	27	28.00	White CHALK recovered as gravelly SILT. Gravel is angular fine to coarse flint gravel	20					
BH31	B	32	31.10	White CHALK recovered as gravelly SILT. Gravel is angular fine to coarse flint gravel	12					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	21/11/2016	Checked by:	KM
Date - samples tested:	09/12/2016	Date:	12/12/2016
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	10/02/2017

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH33	B	03	13.70	Grey slightly clayey very sandy subangular to well rounded fine to coarse flint GRAVEL with occasional pockets of dark grey clay (<50mm) and rare pockets of chalk	10					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	09/12/2016	Checked by:	KM
Date - samples tested:	02/02/2017	Date:	10/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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Tel: 02087401553 Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	**Job No.:**	16/2900
Client:	London City Airport	**Date Reported:**	12/12/2016

Summary Test Report

Determination of Moisture Content and Liquid and Plastic Limits

Borehole No.	Sample Type	Sample No.	Depth m	Description	Natural Moisture Content %	[1.] Passing 425 µm sieve %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
BH34	B	06	13.50	Brown mottled black slightly clayey sandy angular to well rounded fine to coarse flint GRAVEL	7.4					
BH34	B	09	14.00	Dark brown sandy angular to well rounded fine to coarse flint GRAVEL	4.3					
BH34	B	14	15.50	White CHALK recovered as gravelly SILT. Gravel is fine to coarse flint and chalk fragments	31					
BH34	B	16	16.50	White CHALK recovered as gravelly SILT. Gravel is fine to coarse flint and a cobble of flint	21					
BH34	D	21	20.50	White CHALK recovered as gravelly SILT. Gravel is fine to coarse flint and a cobble of flint	20					
BH34	D	25	23.50	White CHALK recovered as gravelly SILT with rare pockets of clay. Gravel is fine to medium flint	27					
BH34	B	32	29.00	White CHALK recovered as gravelly SILT. Gravel is fine to coarse flint	10					

BS 1377: Part 2: Clause 4.3 & 4.4: 1990 Determination of the liquid limit by the cone penetrometer method

BS 1377: Part 2: Clause 5: 1990 Determination of the plastic limit and plasticity index

BS 1377: Part 2: Clause 3.2: 1990 Determination of the moisture content by the oven drying method

AGS ASSOCIATION OF GEOTECHNICAL & GEOENVIRONMENTAL SPECIALISTS

UKAS TESTING 4503

Date - samples received:	18/11/2016	Checked by:	KM
Date - samples tested:	03/12/2016	Date:	12/12/2016
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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Tel: 02087401553 Email: lab@conceptconsultants.co.uk

LABORATORY REPORT

4043

Contract Number: PSL16/5913

Report Date: 05 January 2017

Client's Reference: 16/2900

Client Name: Concept Site Investigations
47-49 Brunel Road
London
W3 7XR

For the attention of: Kasia Mazerant

Contract Title: CADP Surveys - Ground Investigation (Dock) Phase 2

Date Received: 15/12/2016
Date Commenced: 15/12/2016
Date Completed: 5/1/2017

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

R Gunson (Director)	A Watkins (Director)	R Berriman (Quality Manager)
D Lambe (Senior Technician)	S Royle (Senior Technician)	W Allen (Senior Technician)

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e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH06	17	B	6.80		Brown very sandy slightly silty GRAVEL.
BH10	4	B	12.50	13.00	Dark brown slightly sandy GRAVEL with cobbles.
BH21	6	B	13.10	13.50	Dark grey sandy slightly silty GRAVEL.
BH21	9	B	13.80	14.00	Grey slightly gravelly slightly silty SAND.

UKAS TESTING 4043	PSL Professional Soils Laboratory	Checked / Approved		Date	05/01/17	Contract No:
		CADP Surveys - Ground Investigation (Dock) Phase 2				PSL16/5913
						Client Ref:
						L1342

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH06	17	B	6.80		13							
BH10	4	B	12.50	13.00	3.3							
BH21	6	B	13.10	13.50	10							
BH21	9	B	13.80	14.00	21							

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043	PSL Professional Soils Laboratory	Checked / Approved	Date 05/01/17	Contract No: PSL16/5913
		CADP Surveys - Ground Investigation (Dock) Phase 2		Client Ref: L1342

LABORATORY REPORT

4043

Contract Number: PSL16/5990

Report Date: 16 January 2017

Client's Reference: 16/2900

Client Name: Concept Site Investigations
47-49 Brunel Road
London
W3 7XR

For the attention of: Kasia Mazerant

Contract Title: London City Airport

Date Received: 21/12/2016
Date Commenced: 21/12/2016
Date Completed: 16/1/2017

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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Checked and Approved Signatories:

R Gunson (Director)	A Watkins (Director)	R Berriman (Quality Manager)
D Lambe (Senior Technician)	S Royle (Senior Technician)	W Allen (Senior Technician)

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awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH06	5	B	1.70	2.00	Brown very sandy slightly silty GRAVEL.
BH06	8	B	3.00	3.10	Brown very gravelly slightly silty SAND.
BH06	20	D	8.00		Grey slightly sandy very silty CLAY with some organic material.
BH06	21	D	8.20		Grey slightly gravelly slightly sandy very silty CLAY with some organic material.
BH06	24	D	9.20		Grey slightly sandy very silty CLAY with some organic material.
BH06	27	D	10.20		Grey slightly sandy very silty CLAY with some organic material.
BH06	29	B	12.50	13.10	Brown very gravelly SAND.
BH06	45	C	30.10	30.40	CHALK.
BH23	7	B	13.50	14.00	Dark grey sandy GRAVEL.
BH24	7	B	13.00	13.50	Dark grey slightly sandy GRAVEL.
BH25R	16	C	25.00	25.30	CHALK.
BH25R	18	C	26.80	27.10	CHALK.
BH25R	22	C	29.80	30.15	CHALK.
BH26	4	B	12.50	13.00	Brown slightly sandy GRAVEL.
BH15	7	B	13.00	13.20	Grey very sandy slightly silty GRAVEL.
BH10R	16	C	29.20	29.50	CHALK.

UKAS TESTING 4043	PSL Professional Soils Laboratory	Checked / Approved		Date	16/01/17	Contract No:
		CADP Surveys - Ground Investigation (Dock)			Phase 2	PSL16/5990
						Client Ref:
						16/2900

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH06	5	B	1.70	2.00	4.1							
BH06	8	B	3.00	3.10	3.8							
BH06	20	D	8.00		81			115	46	69	100	Extremely high plasticity CE.
BH06	21	D	8.20		72							
BH06	24	D	9.20		68			105	42	63	100	Extremely high plasticity CE.
BH06	27	D	10.20		69							
BH06	29	B	12.50	13.10	13							
BH23	7	B	13.50	14.00	18							
BH24	7	B	13.00	13.50	2.9							
BH26	4	B	12.50	13.00	2.9							
BH15	7	B	13.00	13.20	12							

SYMBOLS : NP : Non Plastic *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043	PSL Professional Soils Laboratory	Checked / Approved		Date	16/01/17	Contract No:
		CADP Surveys - Ground Investigation (Dock)		Phase 2		PSL16/5990
						Client Ref:
						16/2900

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

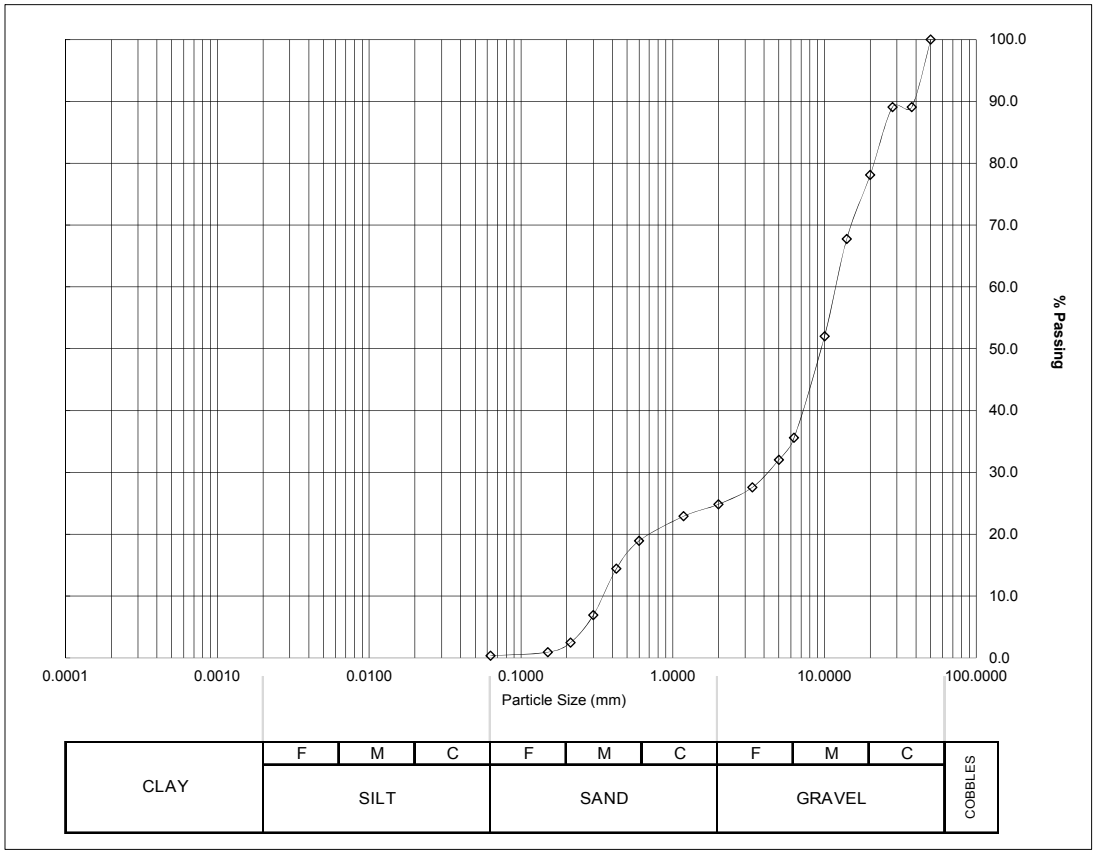
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH03**	**Sample Type/No.**	**B**	**03**	**Top Depth: 13.50 m**	**Bottom Depth:**	**14.00 m**

Soil Description:

Brown very sandy rounded to well rounded flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	89
28.000	89
20.000	78
14.000	68
10.000	52
6.300	36
5.000	32
3.350	28
2.000	25
1.180	23
0.600	19
0.425	14
0.300	7
0.212	2
0.150	1
0.063	0



Particle Proportions %	
Cobbles	
Gravel	75.1
Sand	24.5
Silt and Clay	0.4

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

AGS

UKAS TESTING 4503

Remarks:

Date - samples received:	18/11/2016	Checked by:	KM
Date - samples tested:	07/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

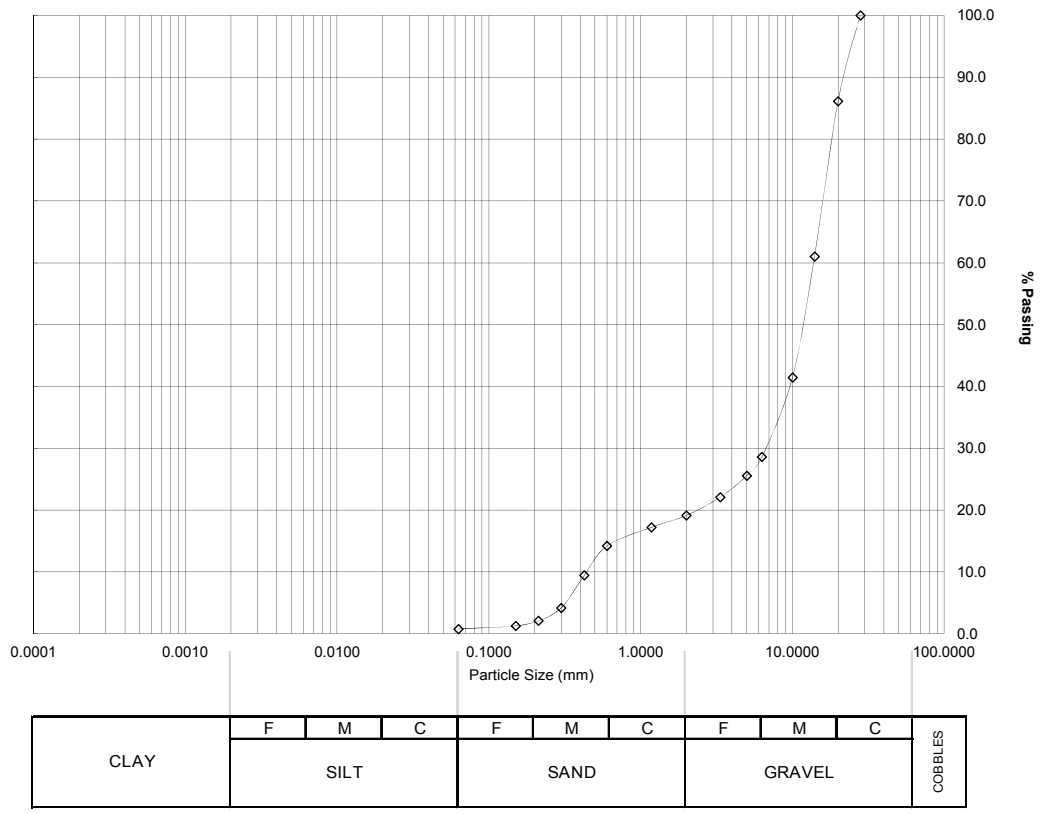
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH03**	**Sample Type/No.**	**B**	**07**	**Top Depth: 15.30 m**	**Bottom Depth:**	**16.00 m**

Soil Description:

Brown sandy angular to well rounded fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	86
14.000	61
10.000	41
6.300	29
5.000	26
3.350	22
2.000	19
1.180	17
0.600	14
0.425	9
0.300	4
0.212	2
0.150	1
0.063	1



Particle Proportions %	
Cobbles	
Gravel	80.9
Sand	18.4
Silt and Clay	0.8

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	18/11/2016	Checked by:	KM
Date - samples tested:	08/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

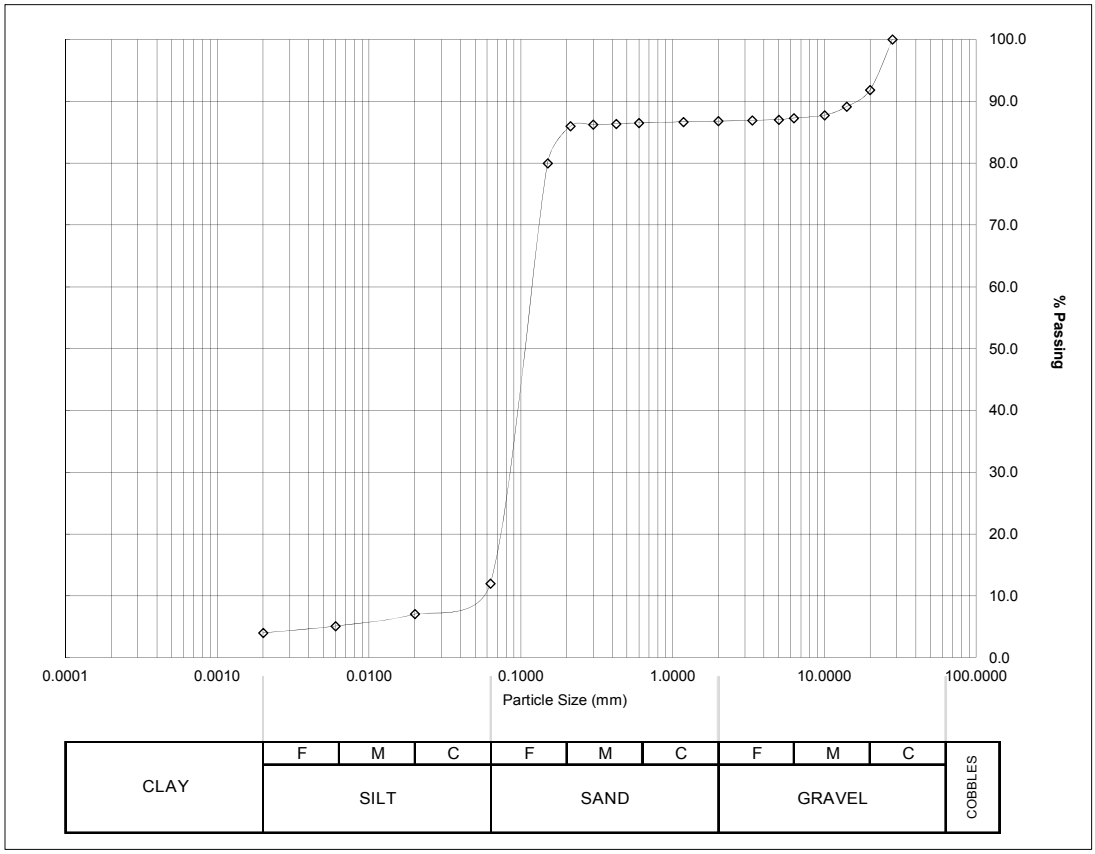
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH03**	**Sample Type/No.**	**B**	**10**	**Top Depth: 21.00 m**	**Bottom Depth:**	**21.50 m**

Soil Description:

Dark grey slightly clayey silty gravelly fine SAND. Gravel is well rounded fine to coarse flint

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	92
14.000	89
10.000	88
6.300	87
5.000	87
3.350	87
2.000	87
1.180	87
0.600	87
0.425	86
0.300	86
0.212	86
0.150	80
0.063	12



Particle Proportions %	
Cobbles	
Gravel	13.2
Sand	74.8
Silt	8.0
Clay	4.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	18/11/2016	Checked by:	KM
Date - samples tested:	08/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

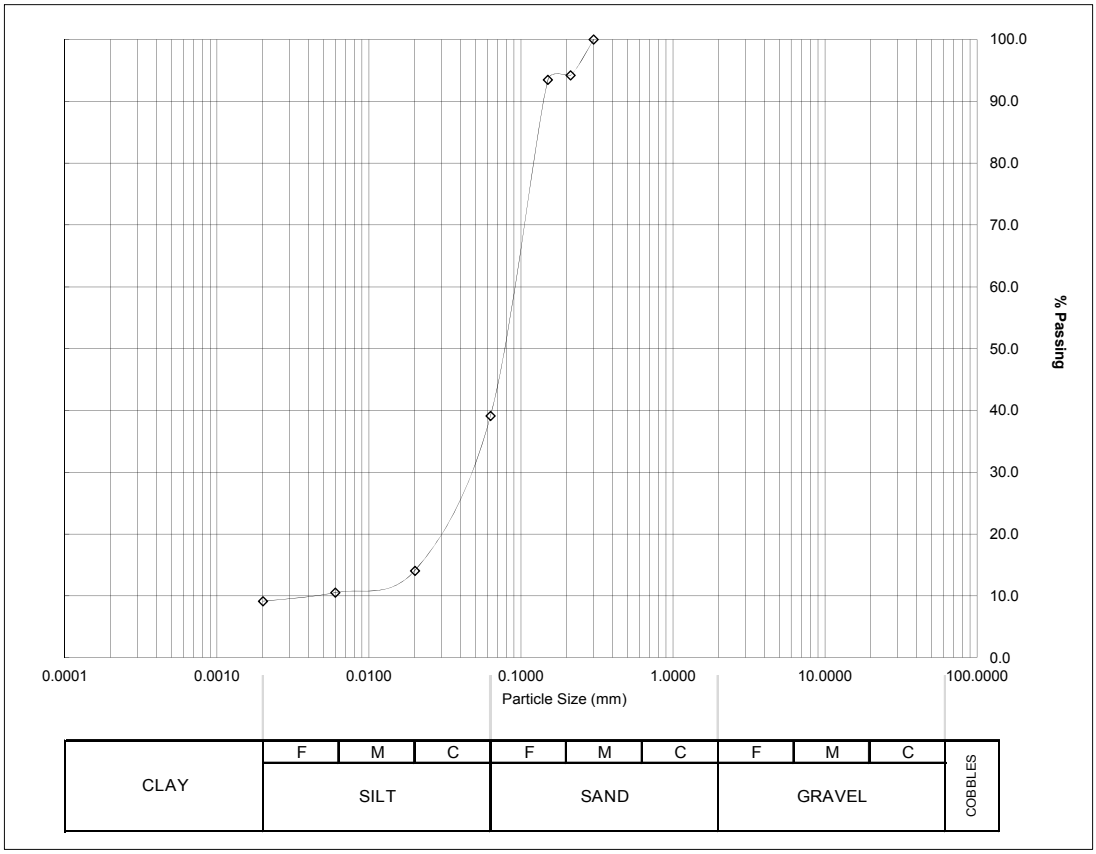
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH03**	**Sample Type/No.**	**B**	**13**	**Top Depth: 25.10 m**	**Bottom Depth:**	**m**

Soil Description:

Grey clayey very silty fine to medium SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	94
0.150	93
0.063	39



Particle Proportions %	
Cobbles	
Gravel	
Sand	60.9
Silt	30.0
Clay	9.1

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	18/11/2016	Checked by:	KM
Date - samples tested:	10/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

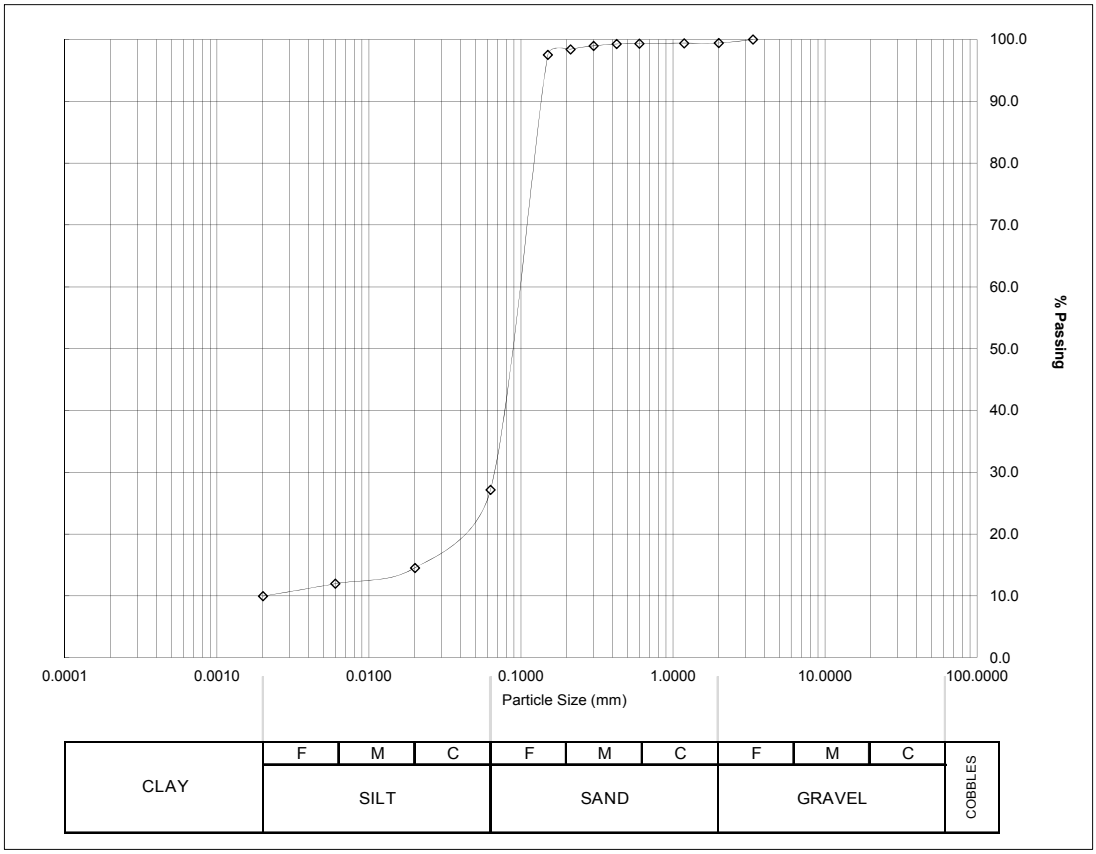
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH03**	**Sample Type/No.**	**B**	**14**	**Top Depth: 28.70 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	99
1.180	99
0.600	99
0.425	99
0.300	99
0.212	98
0.150	98
0.063	27



Particle Proportions %	
Cobbles	
Gravel	0.6
Sand	72.3
Silt	17.2
Clay	10.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	18/11/2016	Checked by:	KM
Date - samples tested:	07/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

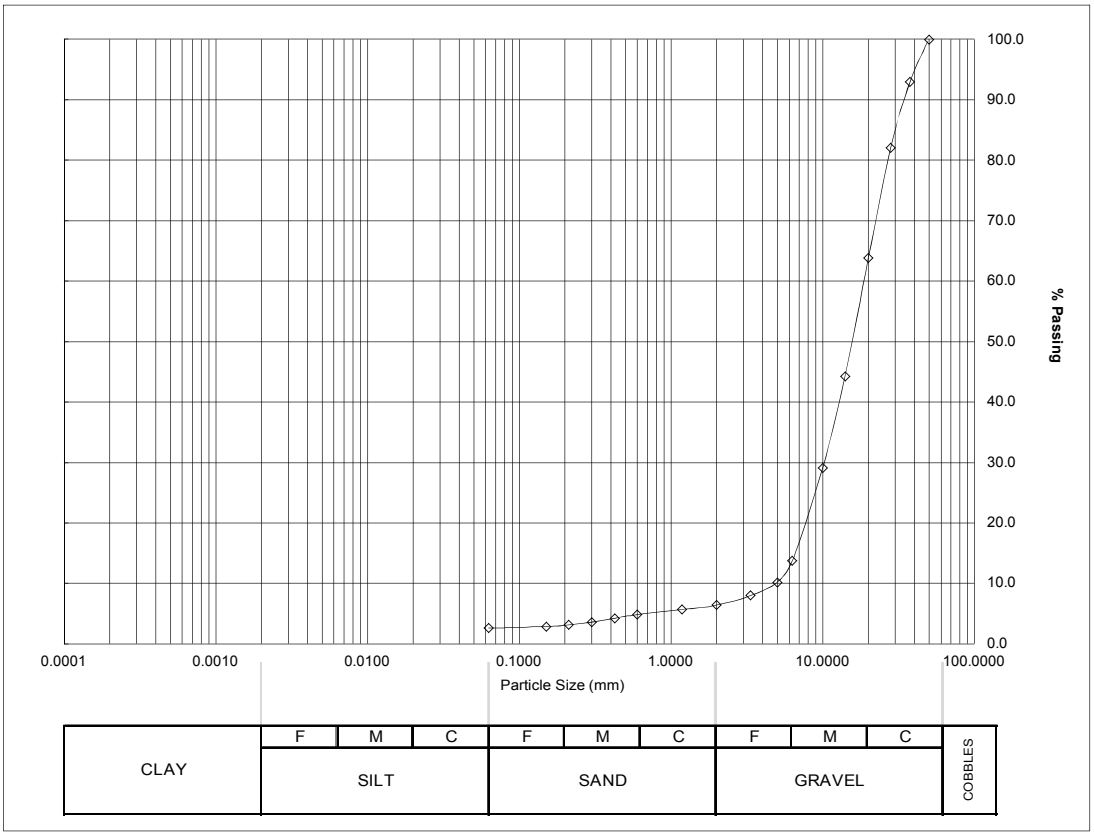
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH04**	**Sample Type/No.**	**B**	**04**	**Top Depth: 12.50 m**	**Bottom Depth:**	**13.00 m**

Soil Description:

Dark grey mottled dark brown slightly clayey well rounded fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	93
28.000	82
20.000	64
14.000	44
10.000	29
6.300	14
5.000	10
3.350	8
2.000	6
1.180	6
0.600	5
0.425	4
0.300	4
0.212	3
0.150	3
0.063	3



Particle Proportions %	
Cobbles	
Gravel	93.6
Sand	3.8
Silt and Clay	2.6

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

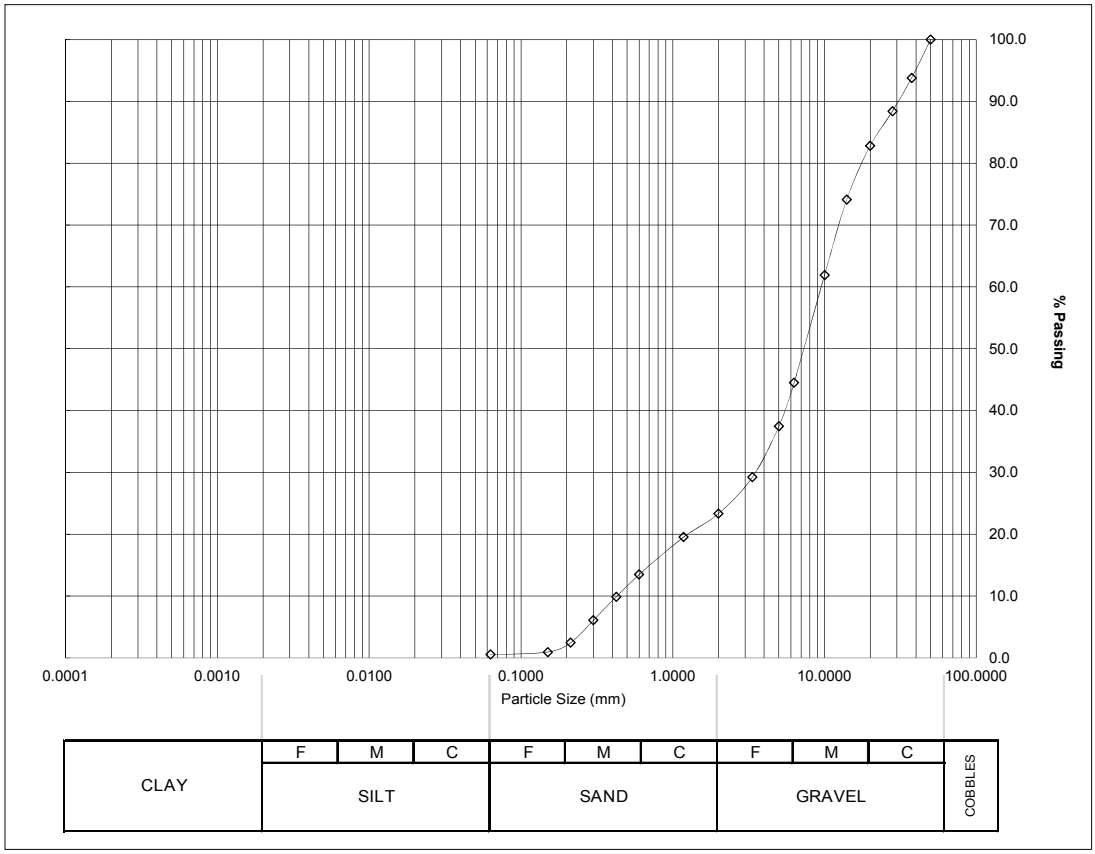
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH04**	**Sample Type/No.**	**B**	**06**	**Top Depth: 14.50 m**	**Bottom Depth:**	**15.00 m**

Soil Description:

Brownish grey very sandy angular to well rounded fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	94
28.000	88
20.000	83
14.000	74
10.000	62
6.300	45
5.000	37
3.350	29
2.000	23
1.180	20
0.600	13
0.425	10
0.300	6
0.212	2
0.150	1
0.063	1



Particle Proportions %	
Cobbles	
Gravel	76.7
Sand	22.8
Silt and Clay	0.5

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

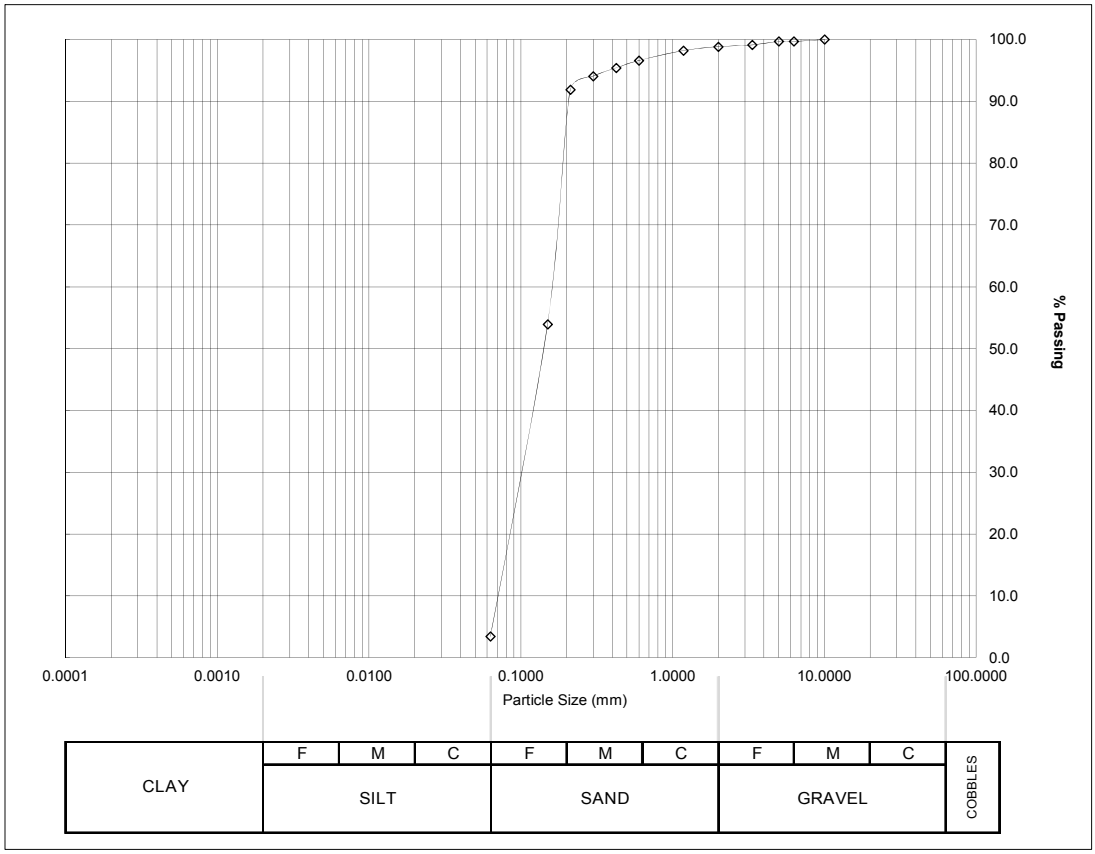
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH04**	**Sample Type/No.**	**B**	**08**	**Top Depth: 16.50 m**	**Bottom Depth:**	**17.00 m**

Soil Description:

Dark grey slightly silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	99
2.000	99
1.180	98
0.600	97
0.425	95
0.300	94
0.212	92
0.150	54
0.063	3



Particle Proportions %	
Cobbles	
Gravel	1.2
Sand	95.4
Silt and Clay	3.5

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	16/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

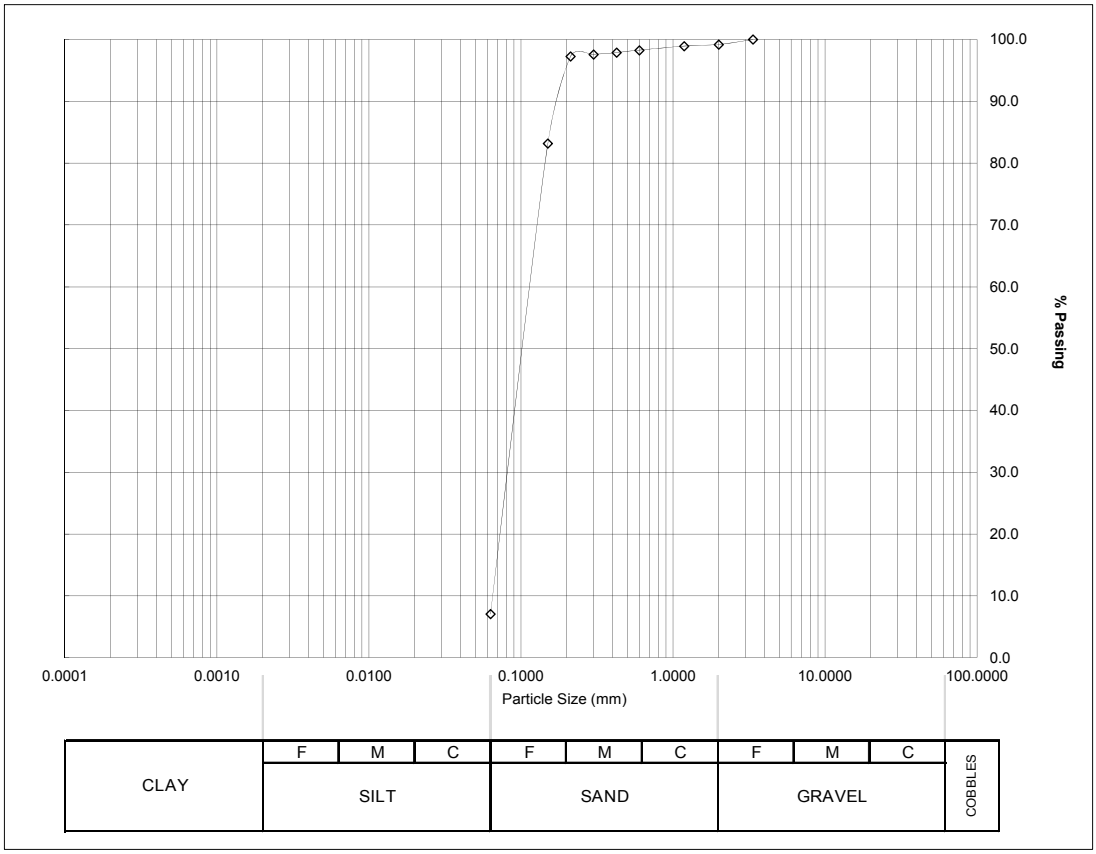
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH04**	**Sample Type/No.**	**B**	**15**	**Top Depth: 21.50 m**	**Bottom Depth:**	**22.00 m**

Soil Description:

Grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	99
1.180	99
0.600	98
0.425	98
0.300	98
0.212	97
0.150	83
0.063	7



Particle Proportions %	
Cobbles	
Gravel	0.8
Sand	92.1
Silt and Clay	7.1

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	16/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

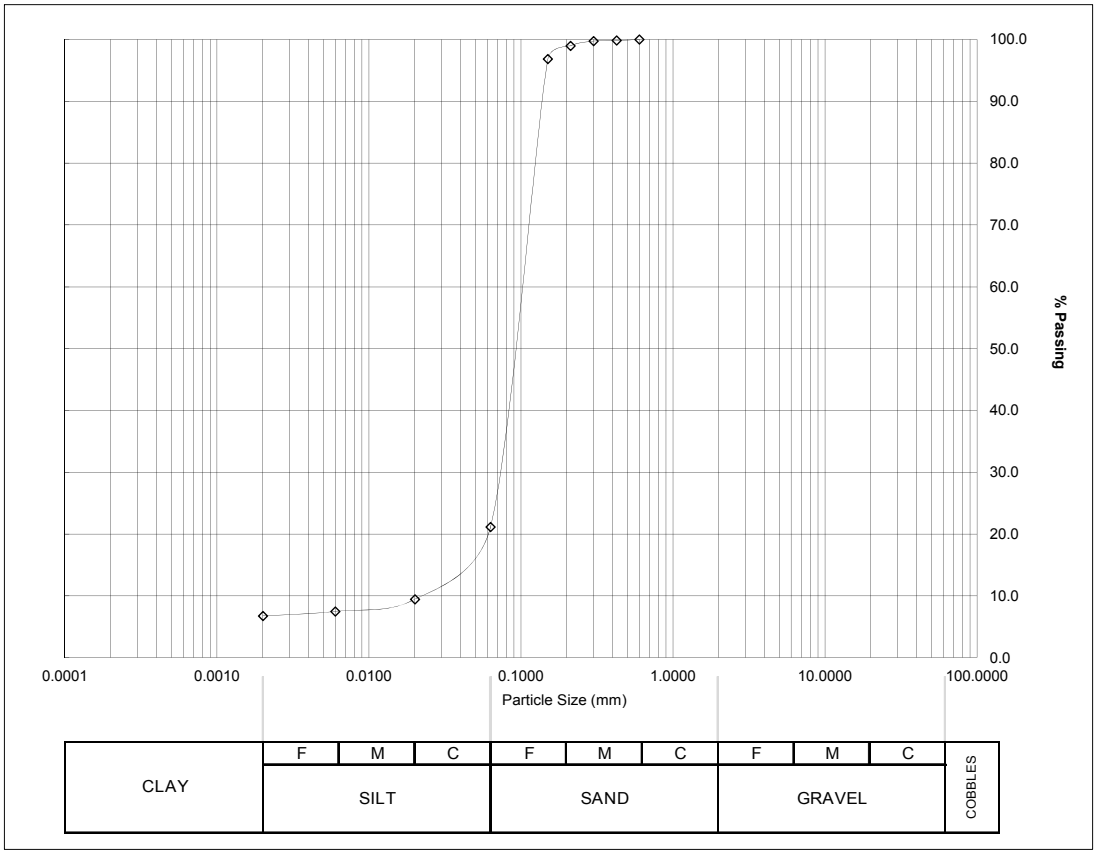
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH04**	**Sample Type/No.**	**B**	**19**	**Top Depth: 24.50 m**	**Bottom Depth:**	**25.00 m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	97
0.063	21



Particle Proportions %	
Cobbles	
Gravel	
Sand	78.9
Silt	14.4
Clay	6.8

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	14/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

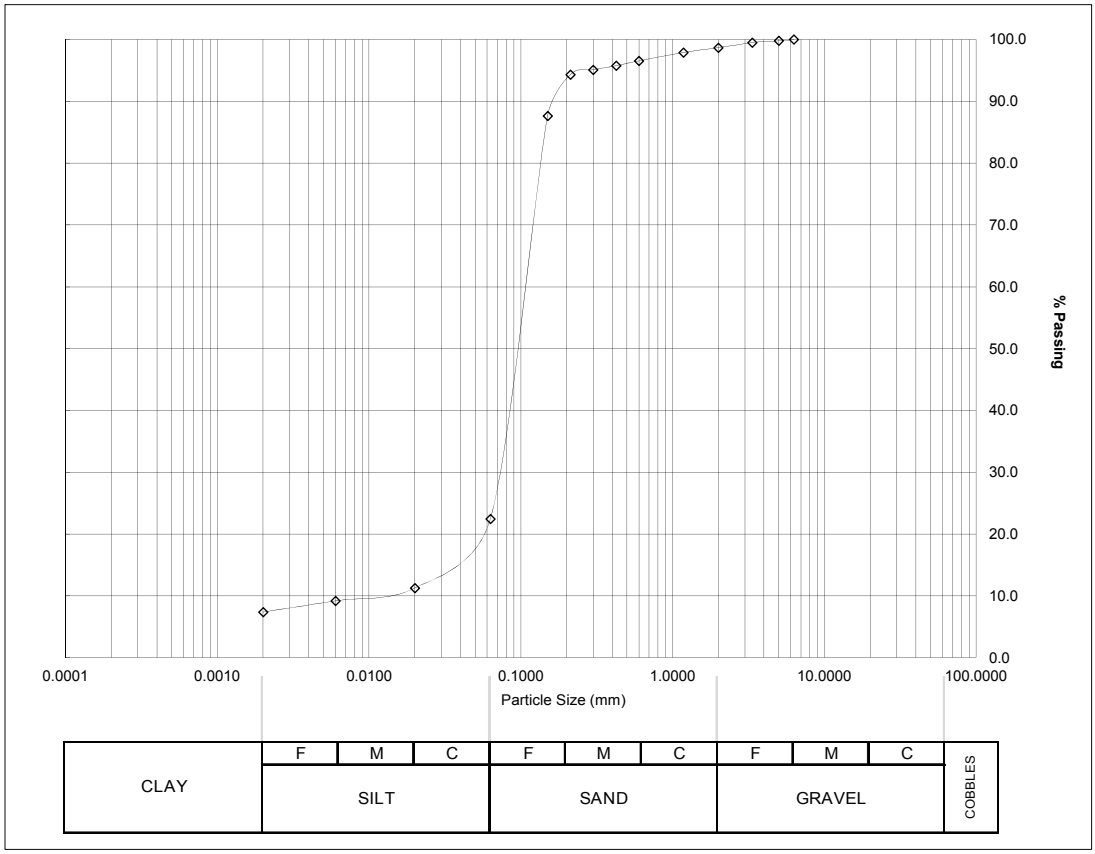
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH04**	**Sample Type/No.**	**B**	**25**	**Top Depth: 29.50 m**	**Bottom Depth:**	**30.00 m**

Soil Description:

Dark grey clayey silty fine SAND with rare fine flint gravel

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	99
1.180	98
0.600	97
0.425	96
0.300	95
0.212	94
0.150	88
0.063	22



Particle Proportions %	
Cobbles	
Gravel	1.3
Sand	76.2
Silt	15.1
Clay	7.4

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	09/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

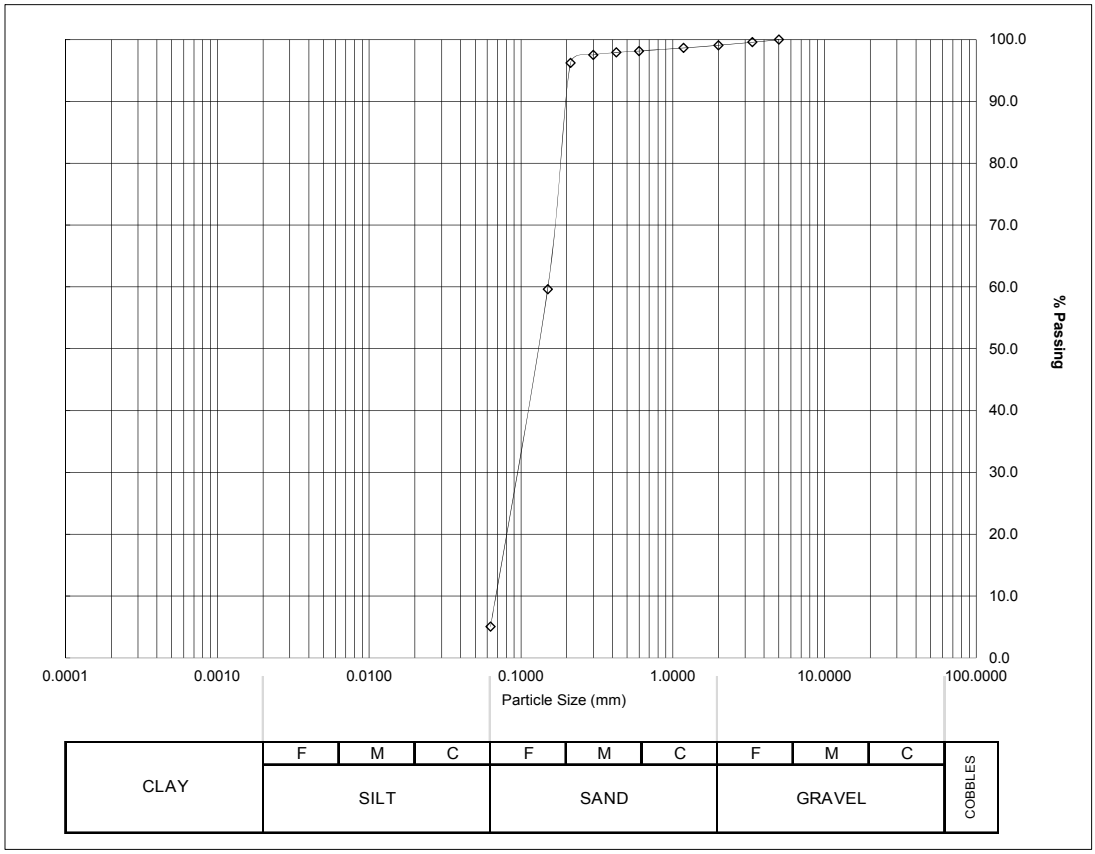
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH05**	**Sample Type/No.**	**B**	**08**	**Top Depth: 16.00 m**	**Bottom Depth:**	**16.50 m**

Soil Description:

Greyish brown silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	99
1.180	99
0.600	98
0.425	98
0.300	98
0.212	96
0.150	60
0.063	5



Particle Proportions %	
Cobbles	
Gravel	0.9
Sand	94.0
Silt and Clay	5.1

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	23/12/2016	Checked by:	KM
Date - samples tested:	15/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

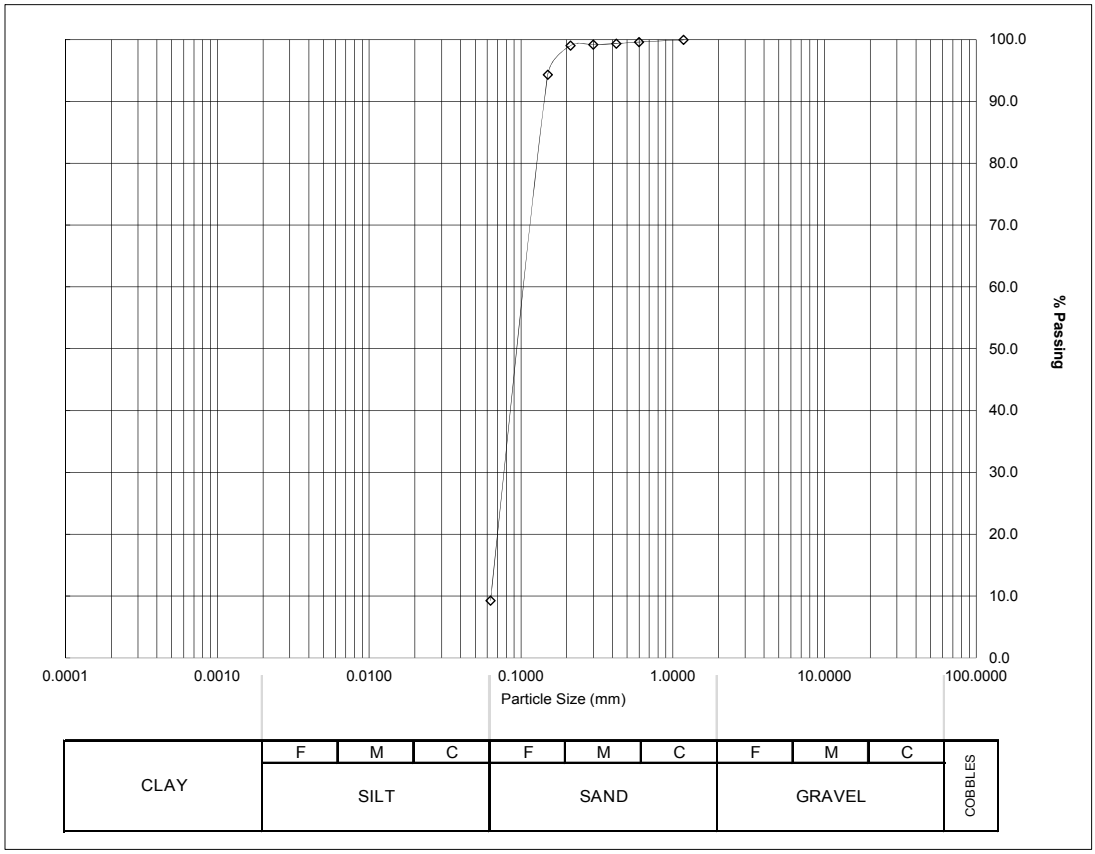
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH05**	**Sample Type/No.**	**B**	**16**	**Top Depth: 22.00 m**	**Bottom Depth:**	**22.50 m**

Soil Description:

Dark grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	99
0.212	99
0.150	94
0.063	9



Particle Proportions %	
Cobbles	
Gravel	
Sand	90.7
Silt and Clay	9.3

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

AGS

UKAS TESTING 4503

Remarks:

Date - samples received:	23/12/2016	Checked by:	KM
Date - samples tested:	15/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

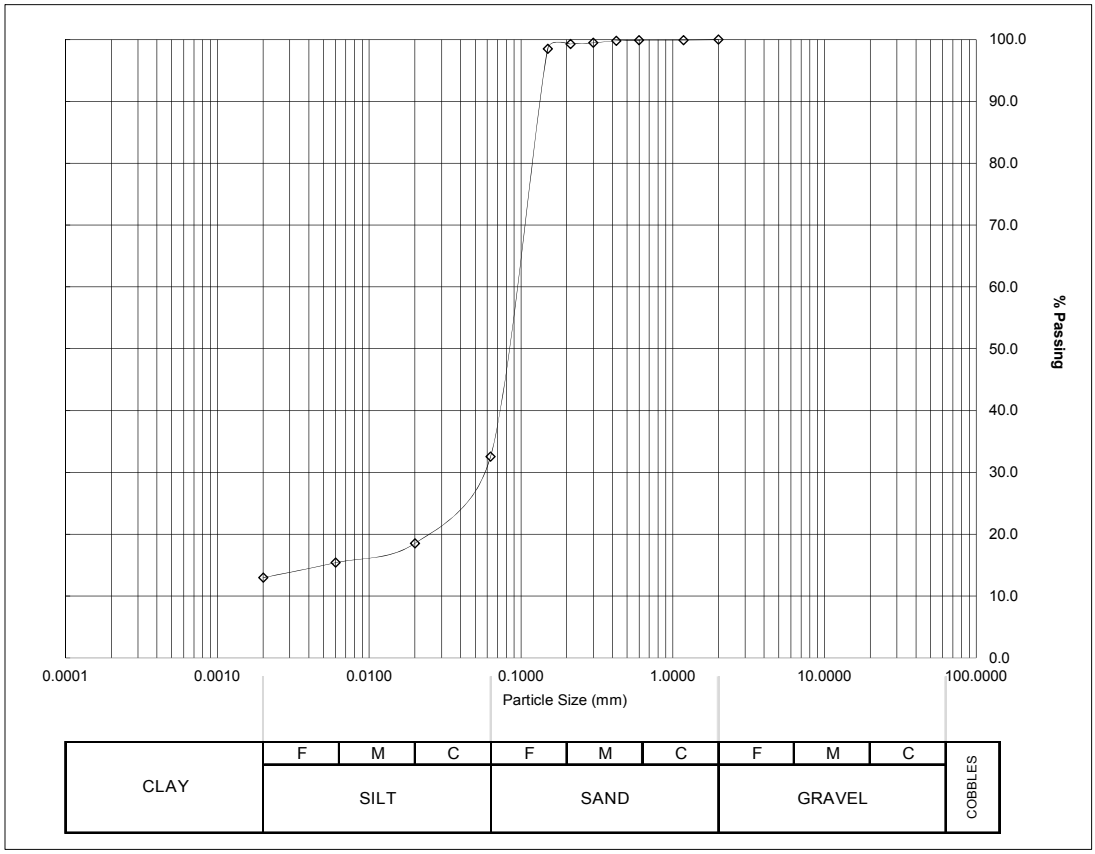
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH05**	**Sample Type/No.**	**B**	**20**	**Top Depth: 25.00 m**	**Bottom Depth:**	**25.50 m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	99
0.150	99
0.063	33



Particle Proportions %	
Cobbles	
Gravel	
Sand	67.5
Silt	19.6
Clay	13.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	23/12/2016	Checked by:	KM
Date - samples tested:	09/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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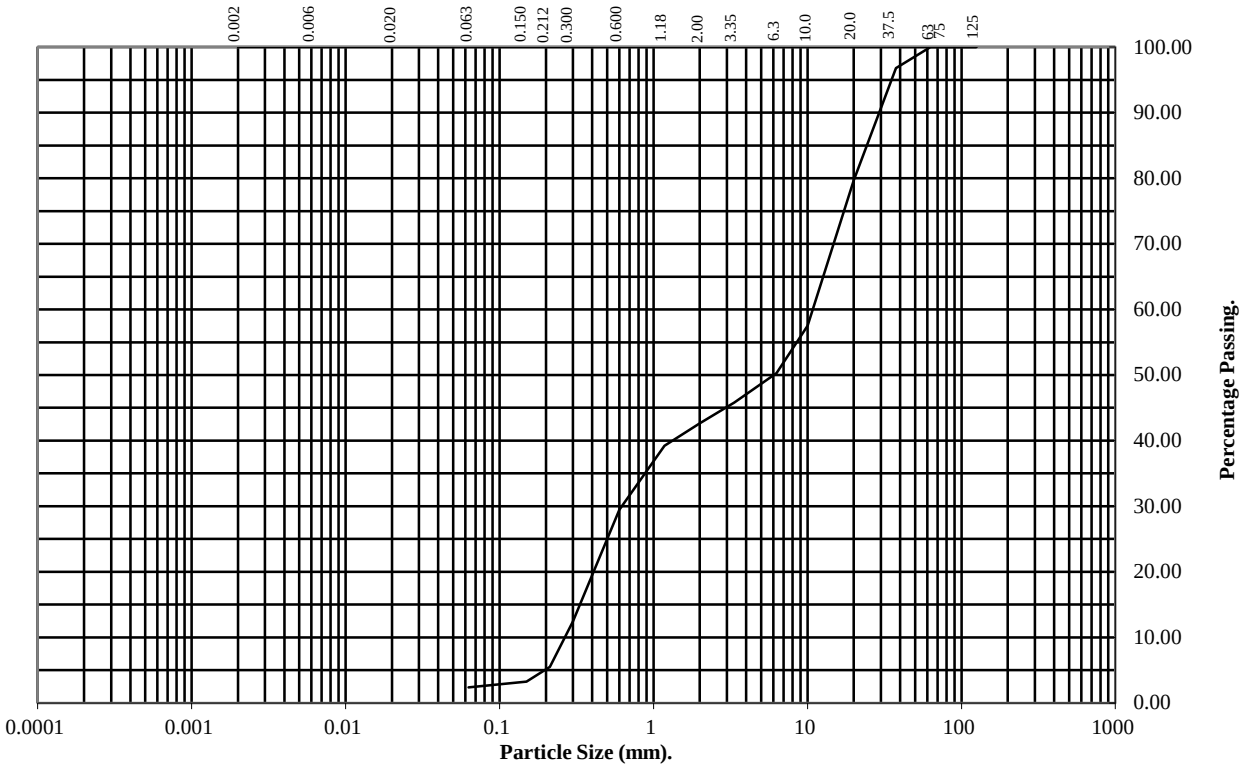
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH06**	**Top Depth (m):**	**1.70**
Sample Number:	**5**	**Base Depth(m):**	**2.00**
Sample Type:	**B**		



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	97
20	80
10	57
6.3	50
3.35	46
2	43
1.18	39
0.6	29
0.3	12
0.212	5
0.15	3
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	57
Sand	41
Silt/Clay	2

Remarks:

See summary of soil descriptions.

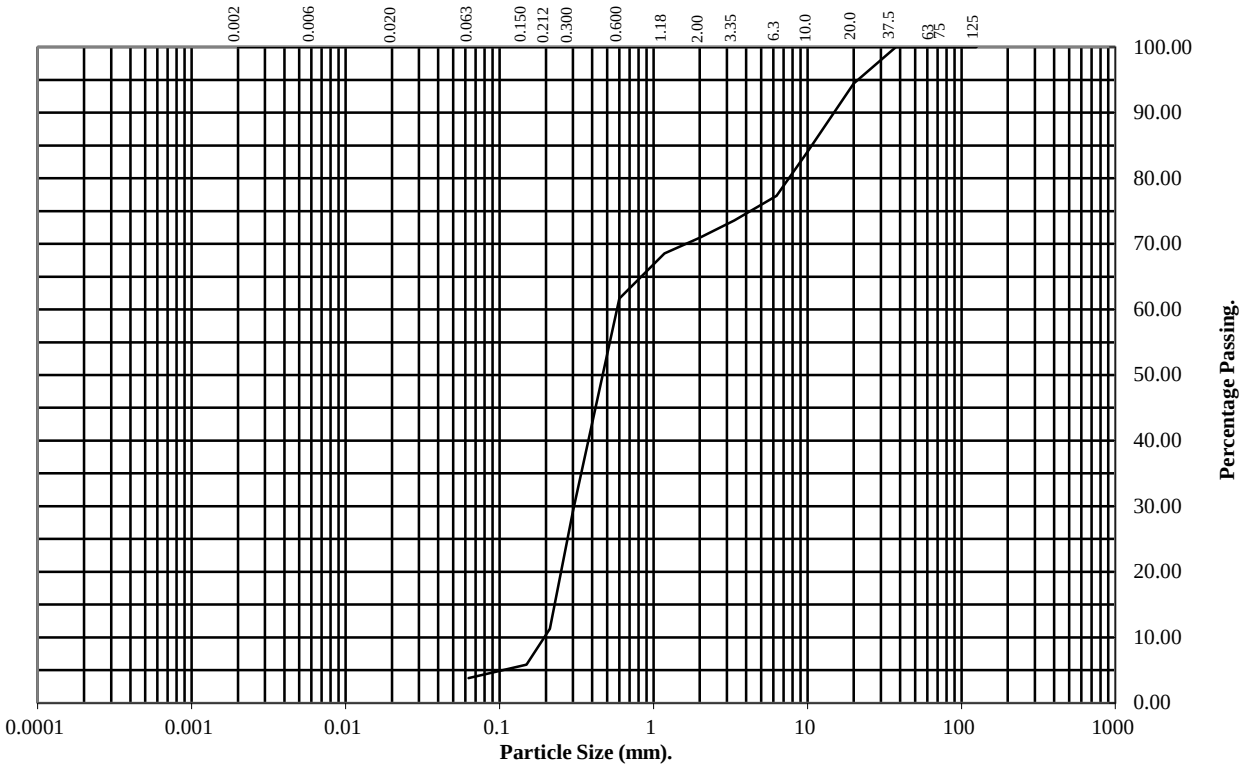
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**16/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH06**	**Top Depth (m):**	**3.00**
Sample Number:	**8**	**Base Depth(m):**	**3.10**
Sample Type:	**B**		



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	94
10	84
6.3	77
3.35	74
2	71
1.18	69
0.6	62
0.3	29
0.212	11
0.15	6
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	29
Sand	67
Silt/Clay	4

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**16/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

PARTICLE SIZE DISTRIBUTION TEST

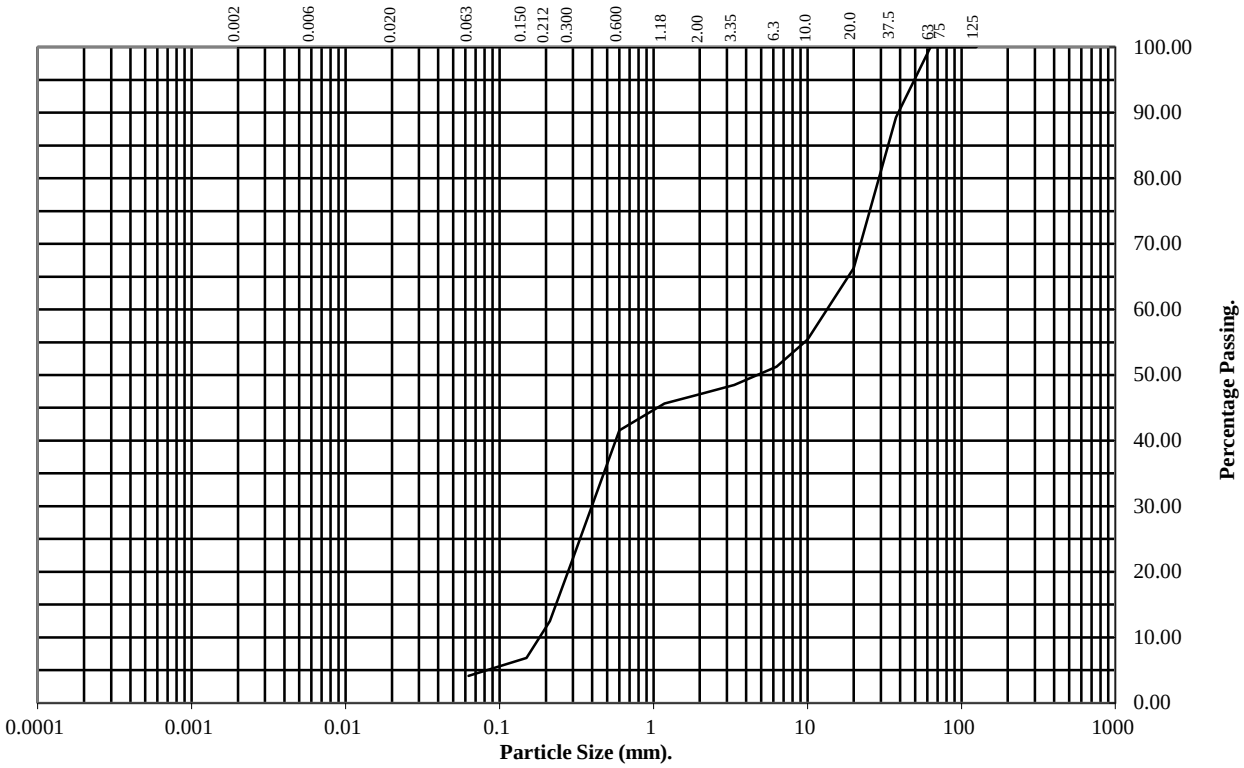
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH06** **Top Depth (m):** **6.80**

Sample Number: **17** **Base Depth(m):**

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	89
20	66
10	55
6.3	51
3.35	48
2	47
1.18	46
0.6	42
0.3	22
0.212	12
0.15	7
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	53
Sand	43
Silt/Clay	4

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**05/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5913**
						Client Ref:
						L1342

PARTICLE SIZE DISTRIBUTION TEST

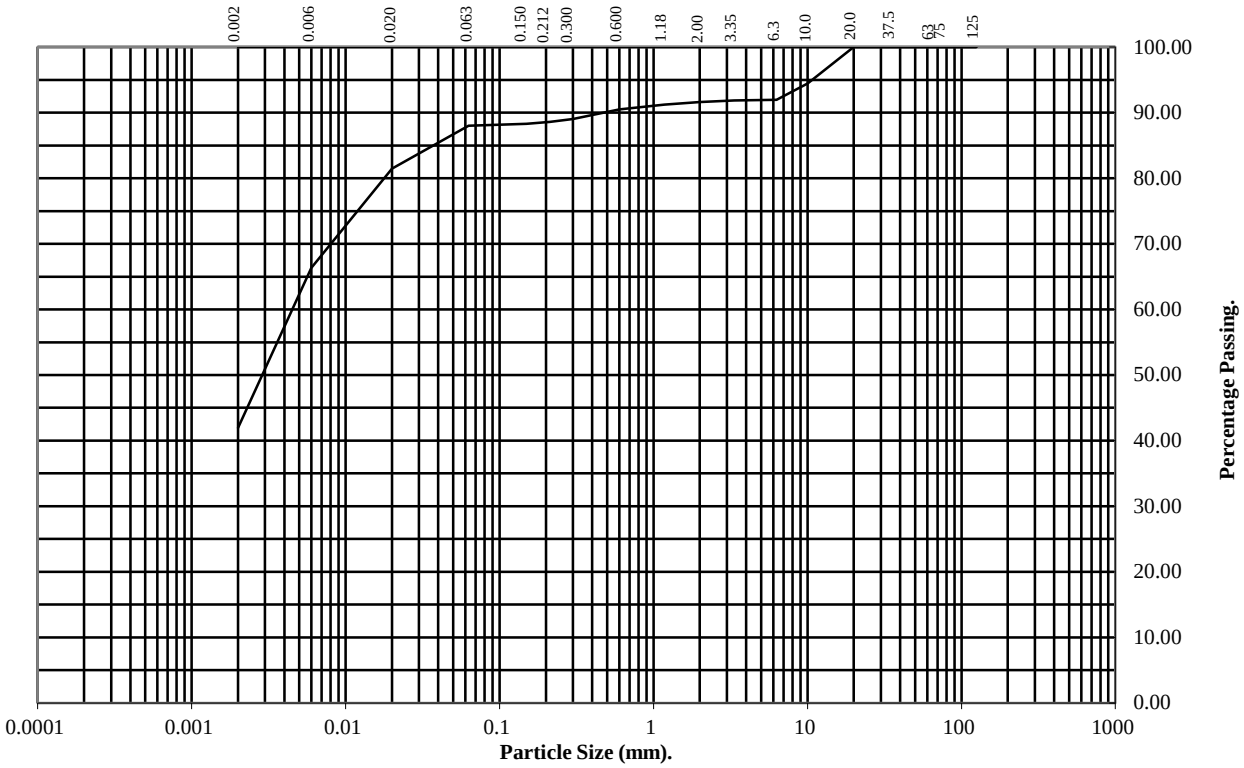
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH06** **Top Depth (m):** **8.20**

Sample Number: **21** **Base Depth(m):**

Sample Type: **D**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	94
6.3	92
3.35	92
2	92
1.18	91
0.6	90
0.3	89
0.212	89
0.15	88
0.063	88

Particle Diameter	Percentage Passing
0.02	81
0.006	66
0.002	42

Soil Fraction	Total Percentage
Cobbles	0
Gravel	8
Sand	4
Silt	46
Clay	42

Remarks:
See summary of soil descriptions.

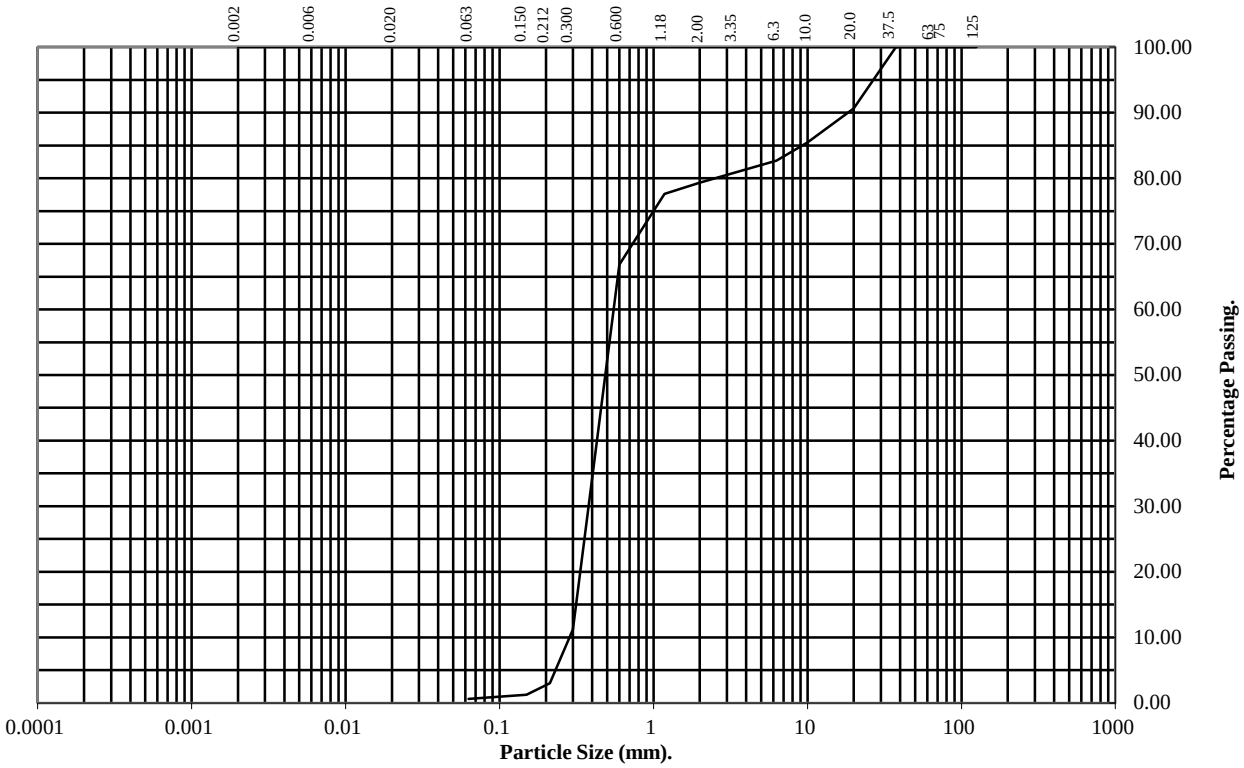
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**16/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH06**	**Top Depth (m):**	**12.50**
Sample Number:	**29**	**Base Depth(m):**	**13.10**
Sample Type:	**B**		



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	91
10	85
6.3	83
3.35	81
2	79
1.18	78
0.6	67
0.3	11
0.212	3
0.15	1
0.063	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	21
Sand	78
Silt/Clay	1

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**16/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

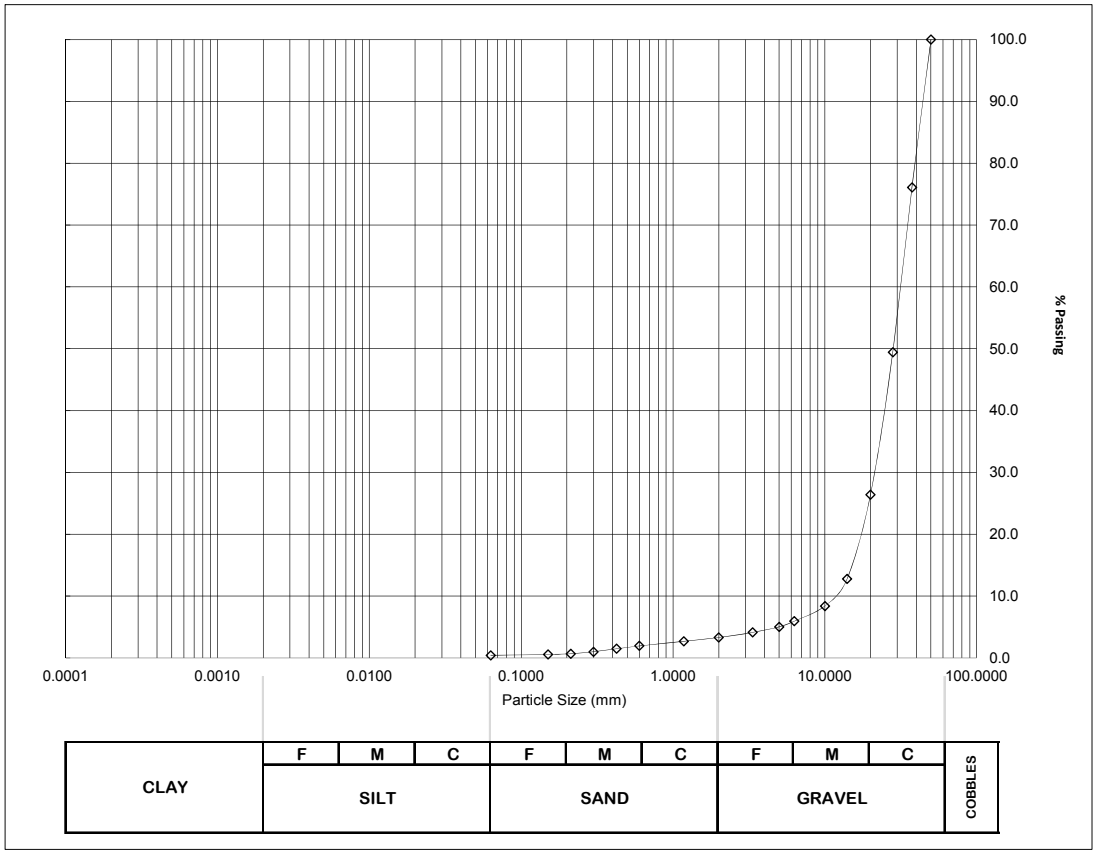
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH06**	**Sample Type/No.**	**B**	**30**	**Top Depth: 13.20 m**	**Bottom Depth:**	**13.50 m**

Soil Description:

Brown and grey slightly sandy angular to well rounded fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	76
28.000	49
20.000	26
14.000	13
10.000	8
6.300	6
5.000	5
3.350	4
2.000	3
1.180	3
0.600	2
0.425	1
0.300	1
0.212	1
0.150	1
0.063	0



Particle Proportions %	
Cobbles	
Gravel	96.7
Sand	2.9
Silt and Clay	0.4

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	07/12/2017	Checked by:	KM
Date - samples tested:	19/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

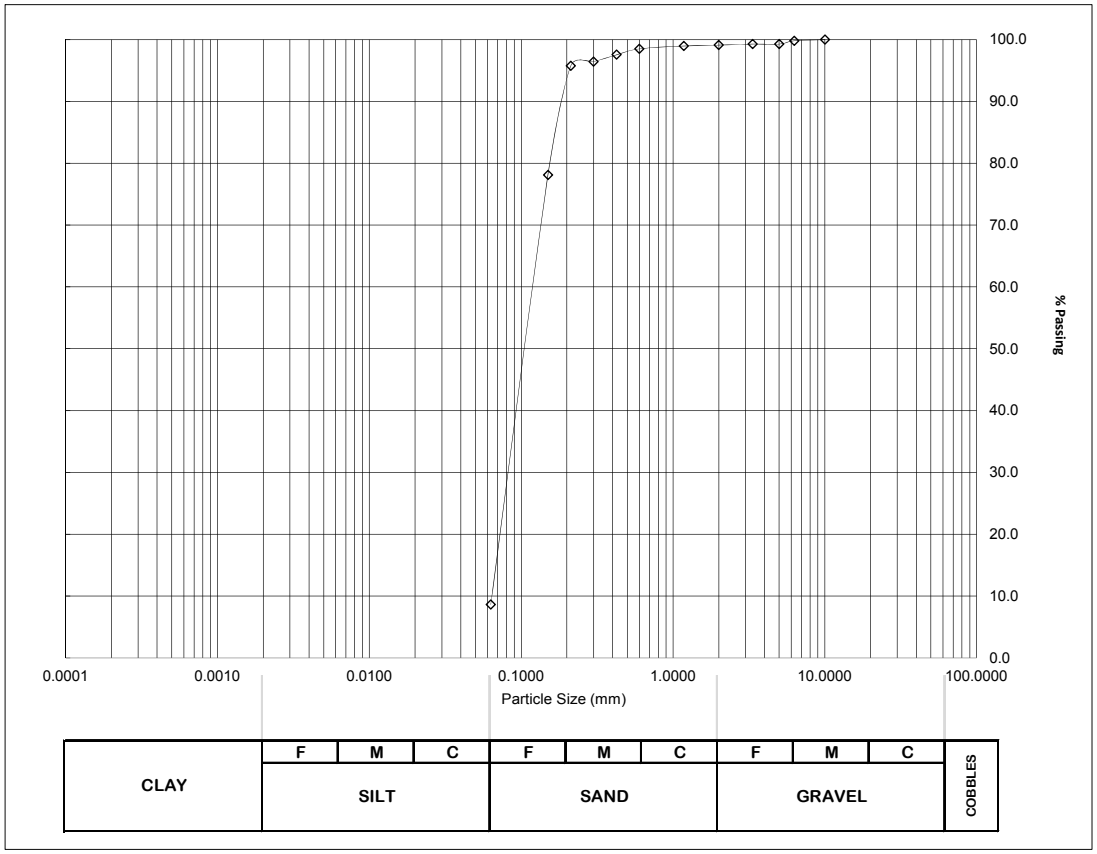
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH06**	**Sample Type/No.**	**B**	**31**	**Top Depth: 15.00 m**	**Bottom Depth:**	**15.20 m**

Soil Description:

Brownish grey slightly clayey fine SAND with rare flint gravel

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	99
3.350	99
2.000	99
1.180	99
0.600	99
0.425	98
0.300	96
0.212	96
0.150	78
0.063	9



Particle Proportions %	
Cobbles	
Gravel	0.9
Sand	90.5
Silt and Clay	8.6

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	07/12/2017	Checked by:	KM
Date - samples tested:	19/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

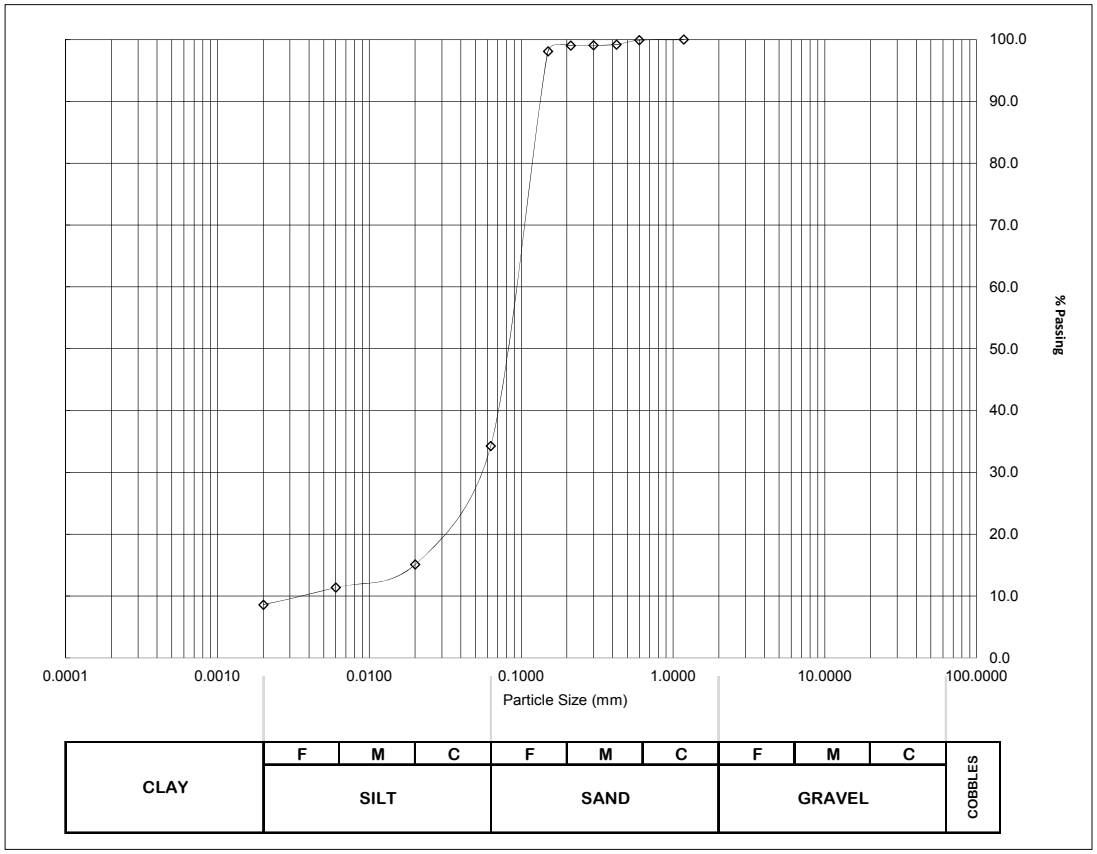
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH06**	**Sample Type/No.**	**B**	**37**	**Top Depth: 22.90 m**	**Bottom Depth:**	**23.20 m**

Soil Description:

Brownish grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	99
0.212	99
0.150	98
0.063	34



Particle Proportions %	
Cobbles	
Gravel	
Sand	65.7
Silt	25.7
Clay	8.6

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	07/12/2017	Checked by:	KM
Date - samples tested:	24/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

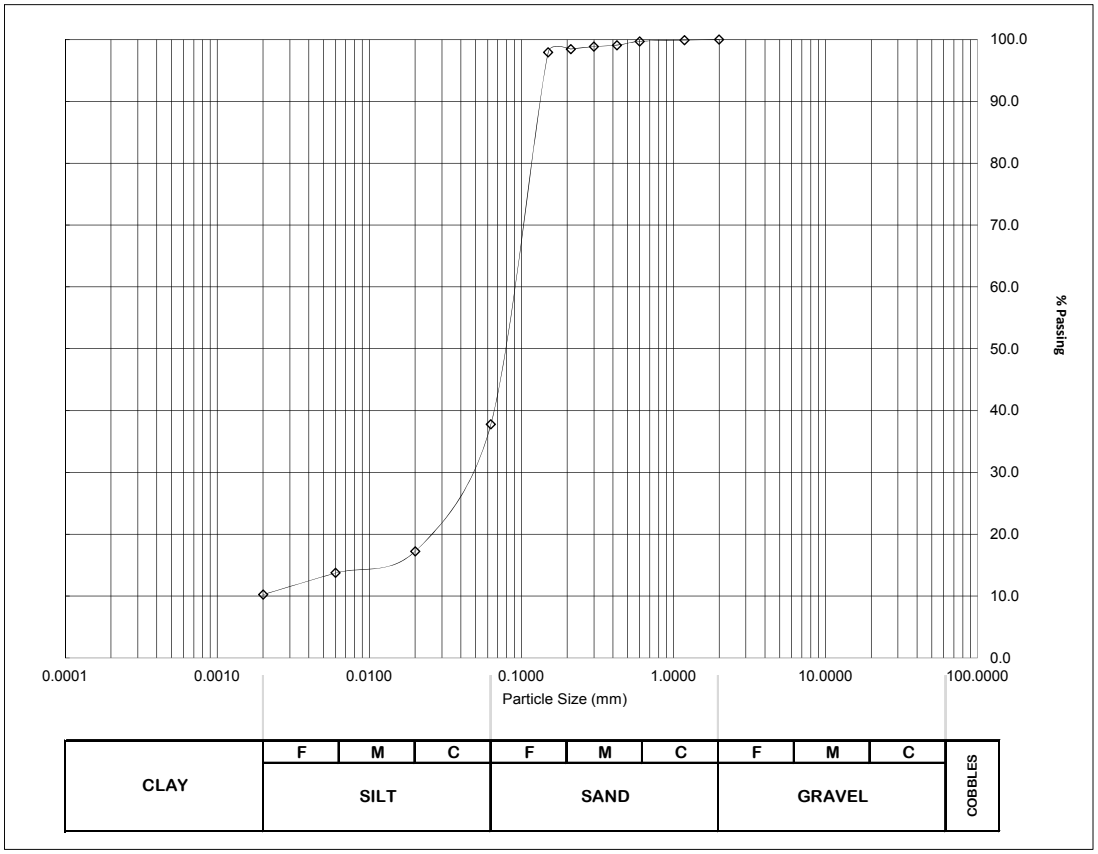
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH06**	**Sample Type/No.**	**B**	**39**	**Top Depth: 24.00 m**	**Bottom Depth:**	**24.70 m**

Soil Description:

Brownish grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	99
0.212	98
0.150	98
0.063	38



Particle Proportions %	
Cobbles	
Gravel	
Sand	62.2
Silt	27.5
Clay	10.2

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	07/12/2017	Checked by:	KM
Date - samples tested:	24/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

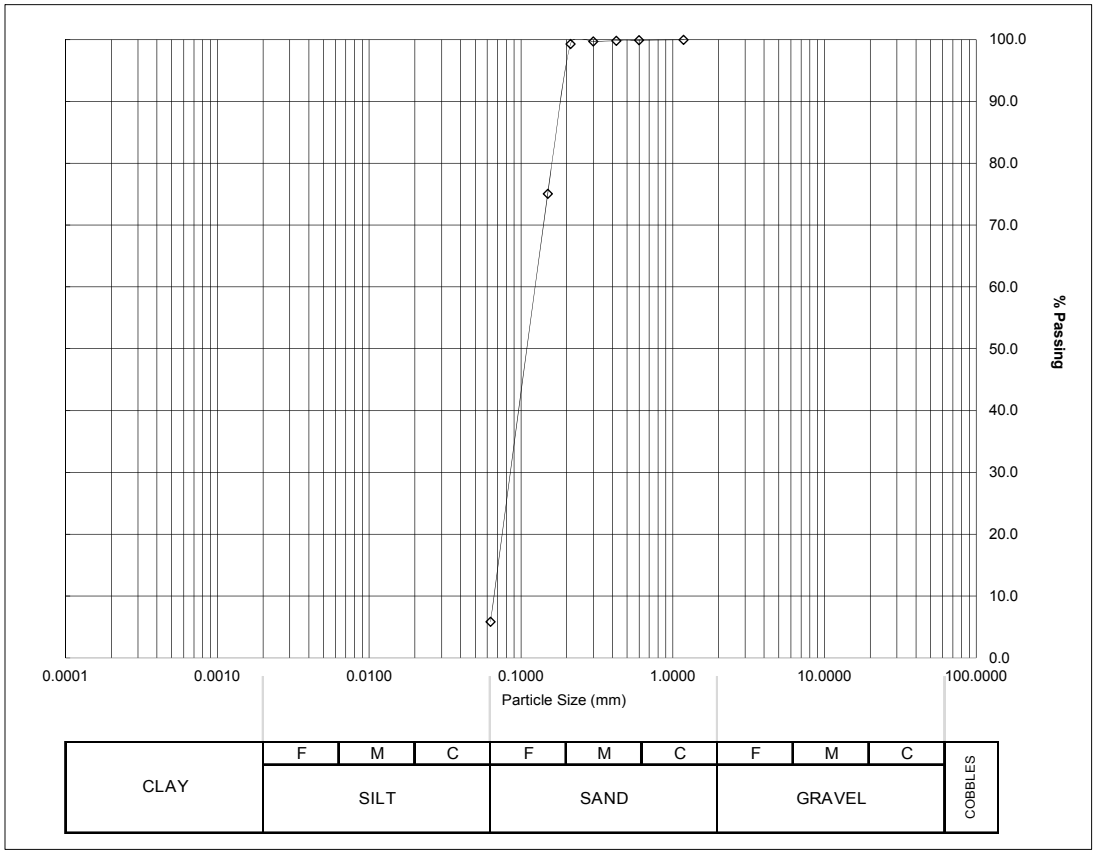
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH07**	**Sample Type/No.**	**B**	**08**	**Top Depth: 17.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	75
0.063	6



Particle Proportions %	
Cobbles	
Gravel	
Sand	94.1
Silt and Clay	5.9

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	15/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

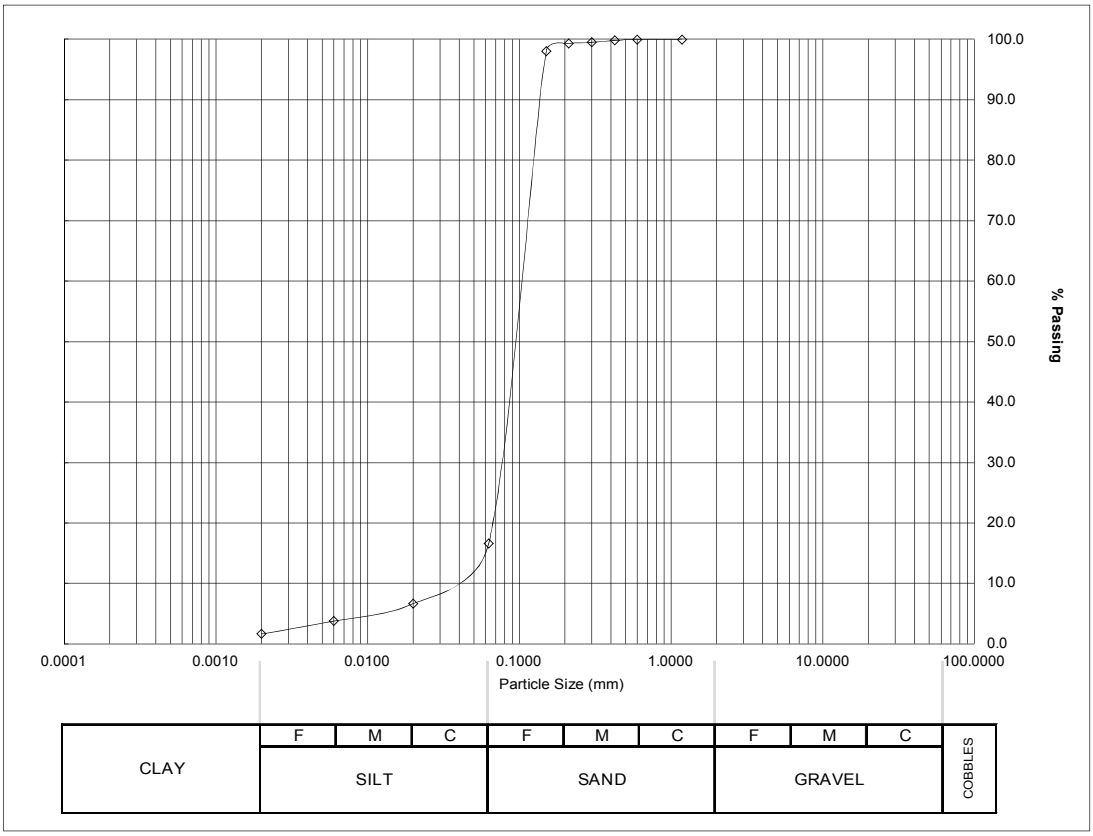
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH07**	**Sample Type/No.**	**B**	**13**	**Top Depth: 22.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	99
0.150	98
0.063	17



Particle Proportions %	
Cobbles	
Gravel	
Sand	83.4
Silt	15.0
Clay	1.6

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	10/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

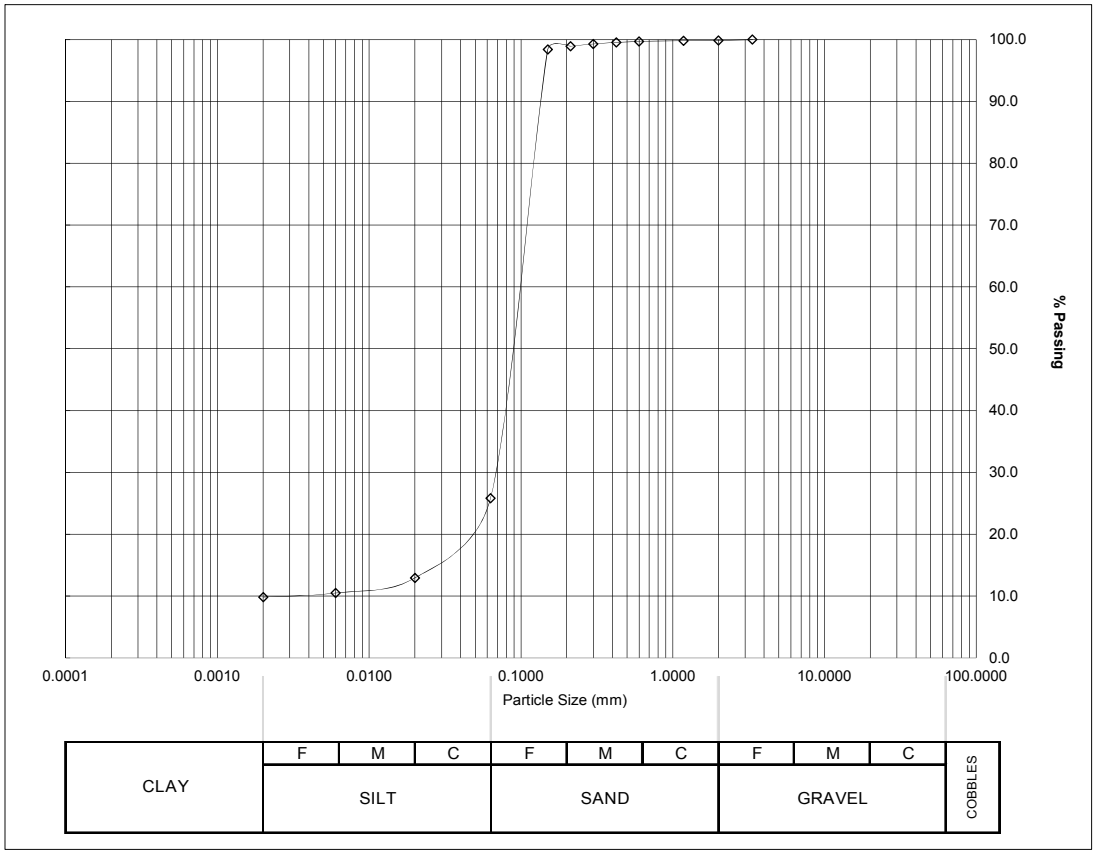
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH07**	**Sample Type/No.**	**B**	**18**	**Top Depth: 27.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	99
0.150	98
0.063	26



Particle Proportions %	
Cobbles	
Gravel	0.1
Sand	74.1
Silt	16.0
Clay	9.8

Method/type:	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	01/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

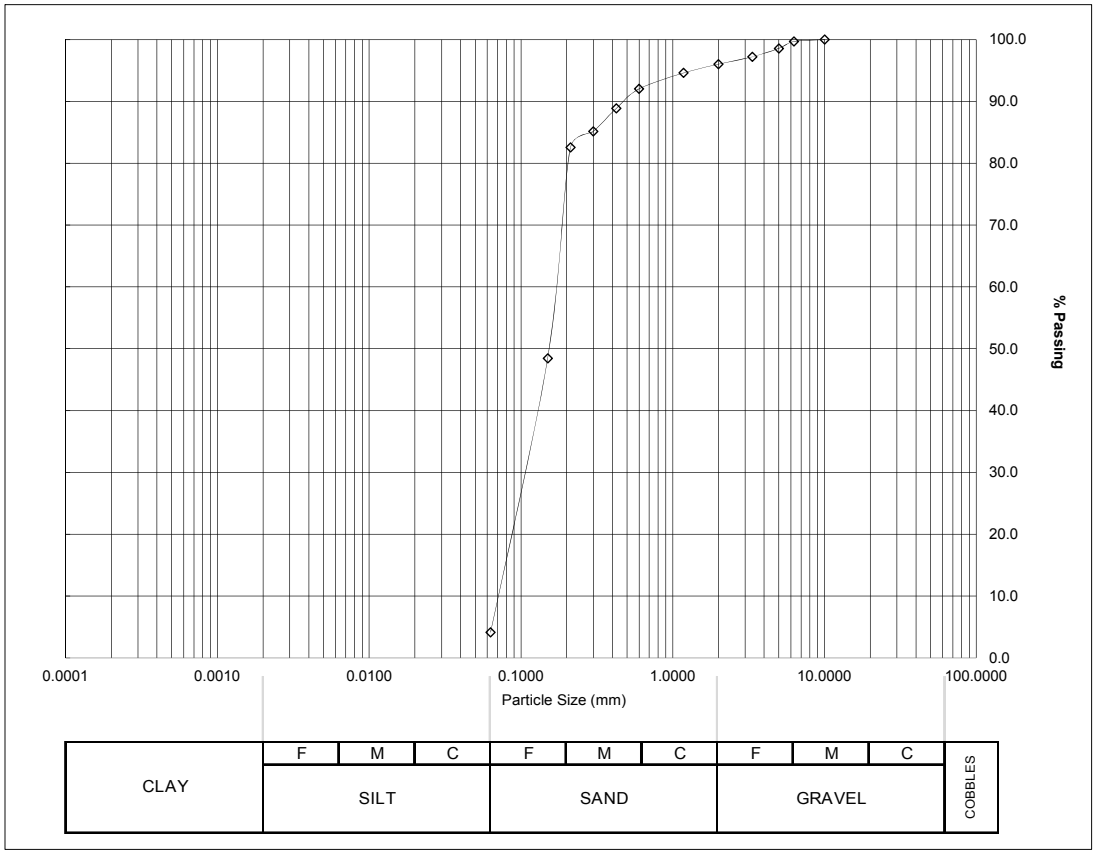
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**22/02/2017**
Borehole No:	**BH09**	**Sample Type/No.**	**B**	**03**	**Top Depth: 14.00 m**	**Bottom Depth:**	**14.50 m**

Soil Description:

Dark grey silty fine SAND with rare shell fragments

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	99
3.350	97
2.000	96
1.180	95
0.600	92
0.425	89
0.300	85
0.212	83
0.150	48
0.063	4



Particle Proportions %	
Cobbles	
Gravel	4.0
Sand	91.9
Silt and Clay	4.1

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	23/01/2017	Checked by:	KM
Date - samples tested:	20/02/2017	Date:	22/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

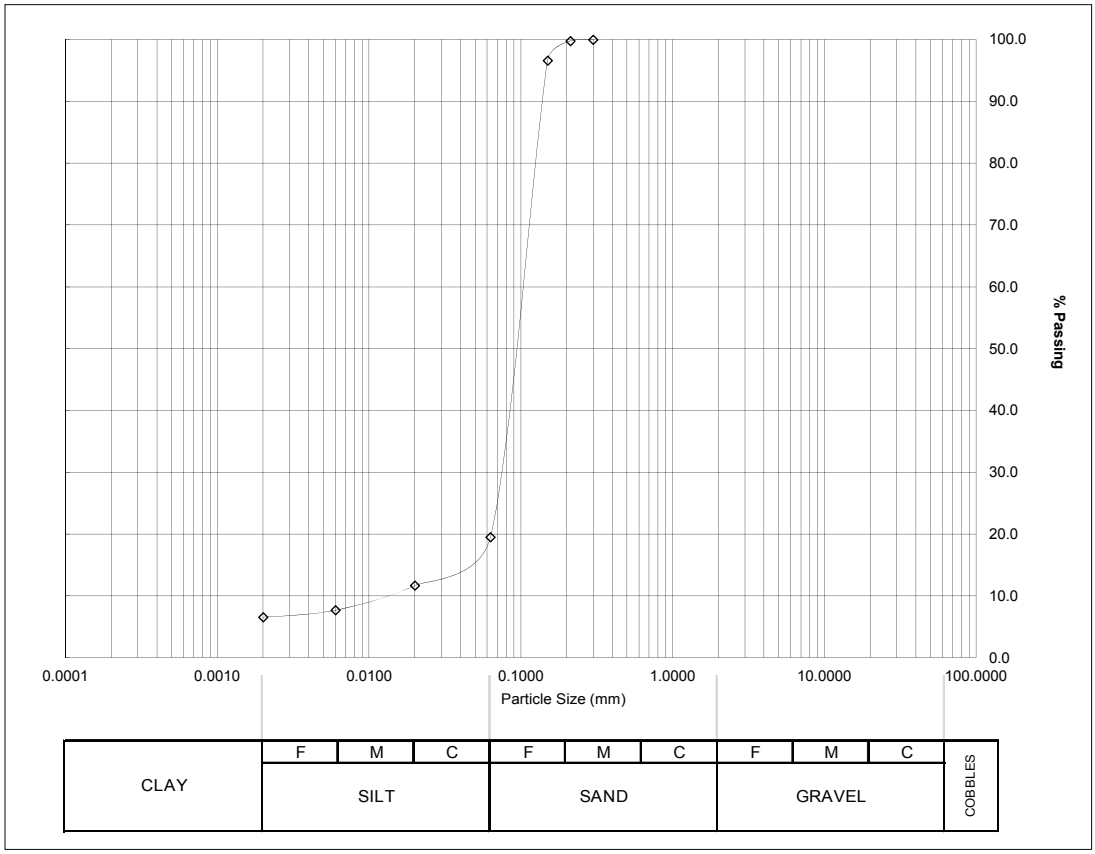
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**22/02/2017**
Borehole No:	**BH09**	**Sample Type/No.**	**D**	**10**	**Top Depth: 18.00 m**	**Bottom Depth:**	**18.35 m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	97
0.063	19



Particle Proportions %	
Cobbles	
Gravel	
Sand	80.5
Silt	12.9
Clay	6.6

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	23/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	22/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

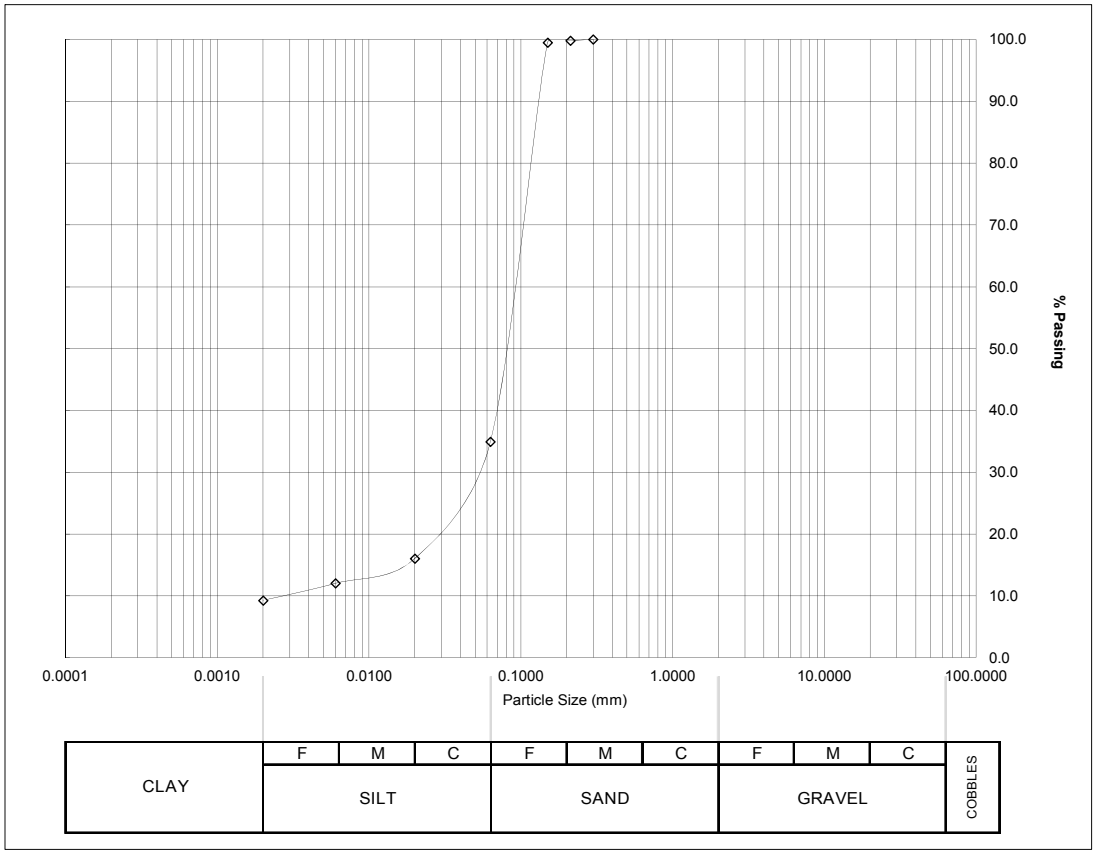
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**22/02/2017**
Borehole No:	**BH09**	**Sample Type/No.**	**D**	**14**	**Top Depth: 21.00 m**	**Bottom Depth:**	**21.45 m**

Soil Description:

Dark grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	35



Particle Proportions %	
Cobbles	
Gravel	
Sand	65.1
Silt	25.7
Clay	9.3

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	23/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	22/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

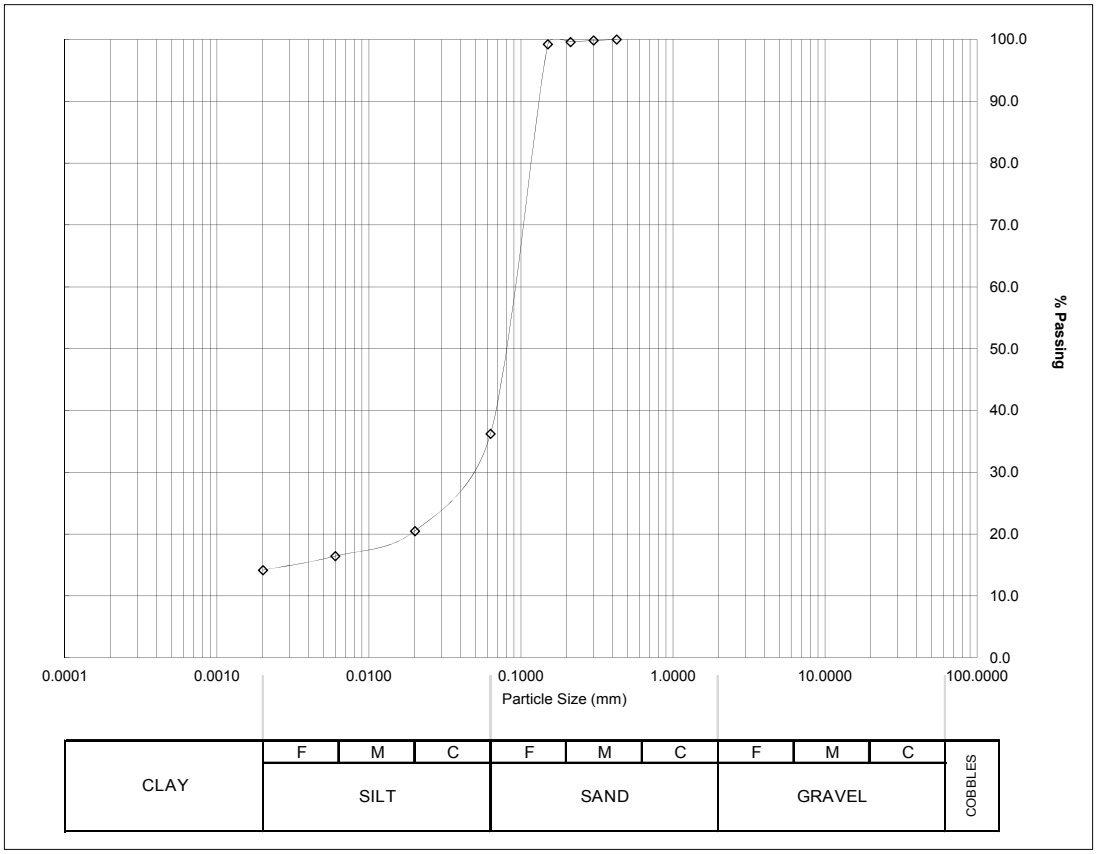
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**22/02/2017**
Borehole No:	**BH09**	**Sample Type/No.**	**D**	**18**	**Top Depth: 24.00 m**	**Bottom Depth:**	**24.50 m**

Soil Description:

Dark grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	36



Particle Proportions %	
Cobbles	
Gravel	
Sand	63.8
Silt	22.1
Clay	14.2

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	23/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	22/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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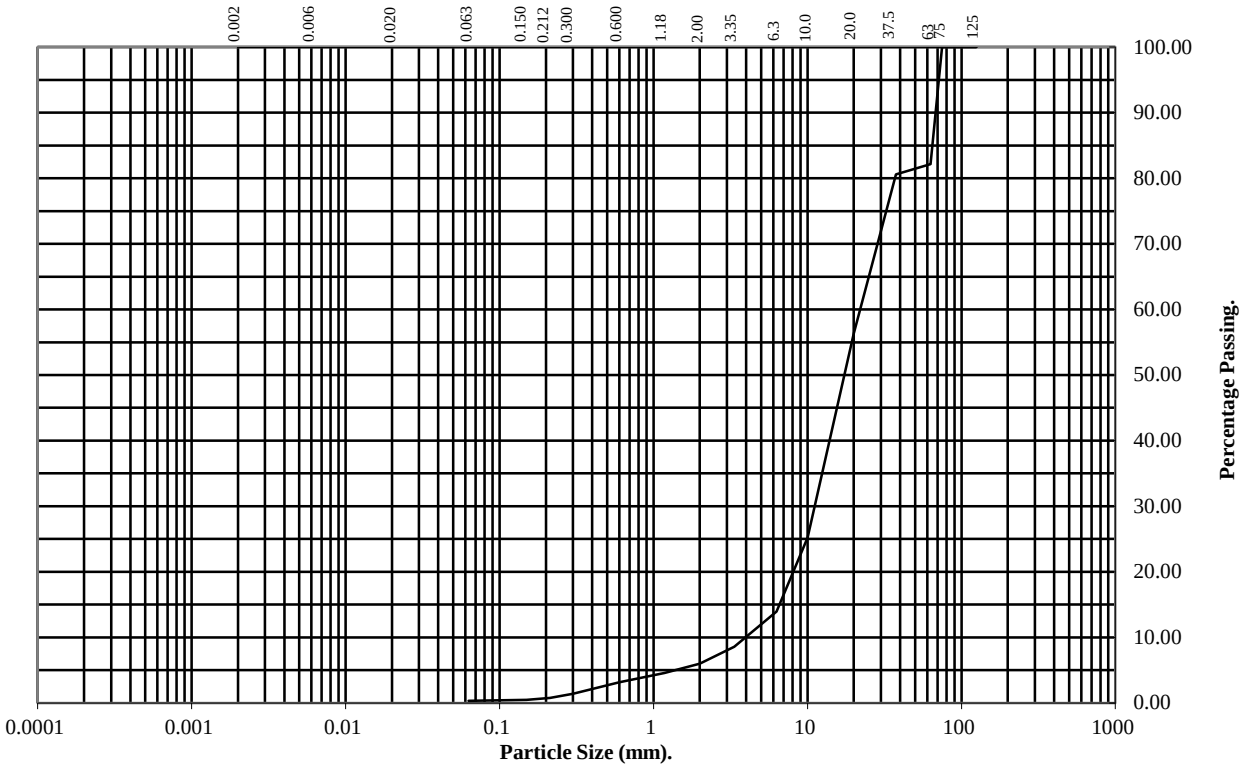
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH10**	**Top Depth (m):**	**12.50**
Sample Number:	**4**	**Base Depth(m):**	**13.00**
Sample Type:	**B**		



BS Test Sieve	Percentage Passing
125	100
75	100
63	82
37.5	81
20	56
10	25
6.3	14
3.35	9
2	6
1.18	5
0.6	3
0.3	1
0.212	1
0.15	0
0.063	0

Soil Fraction	Total Percentage
Cobbles	18
Gravel	76
Sand	6
Silt/Clay	0

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**05/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5913**
						Client Ref:
						L1342

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

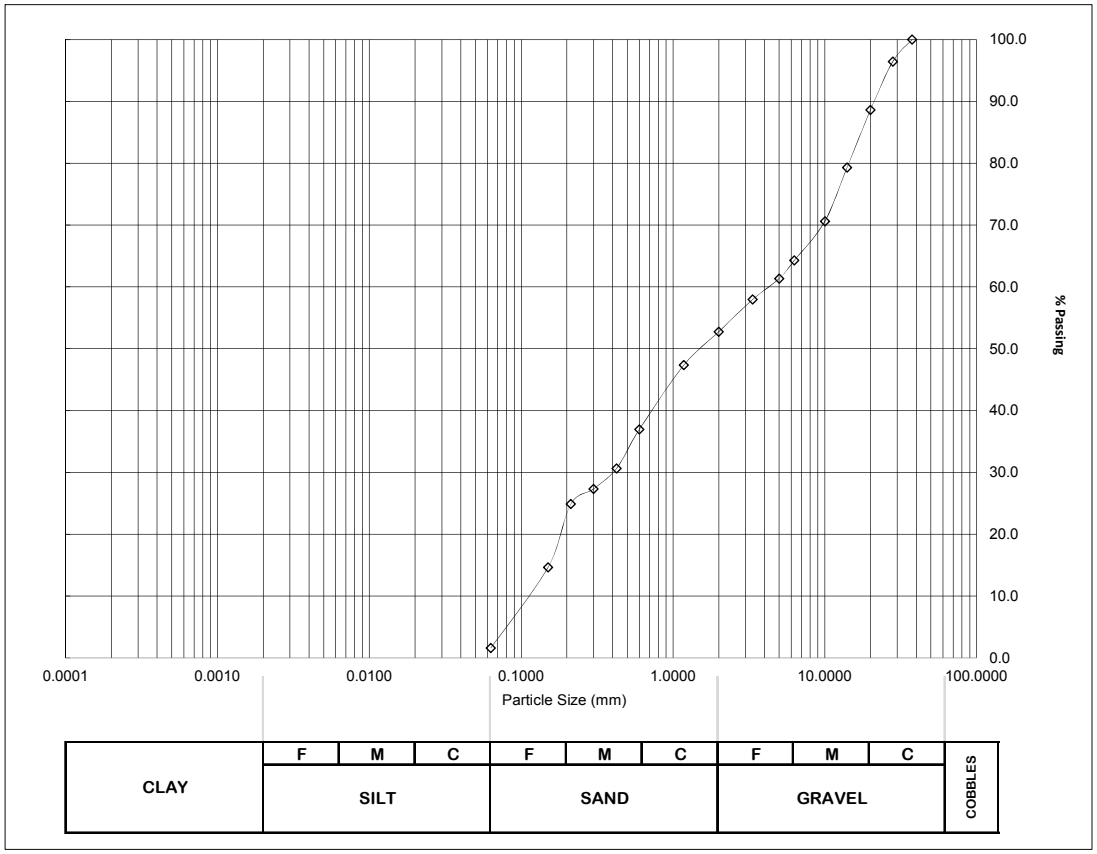
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH10**	**Sample Type/No.**	**B**	**11**	**Top Depth: 15.50 m**	**Bottom Depth:**	**15.80 m**

Soil Description:

Brownish grey fine to coarse SAND and angular to well rounded flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	96
20.000	89
14.000	79
10.000	71
6.300	64
5.000	61
3.350	58
2.000	53
1.180	47
0.600	37
0.425	31
0.300	27
0.212	25
0.150	15
0.063	2



Particle Proportions %	
Cobbles	
Gravel	47.2
Sand	51.2
Silt and Clay	1.6

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	28/11/2016	Checked by:	KM
Date - samples tested:	23/01/2017	Date:	26/01/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

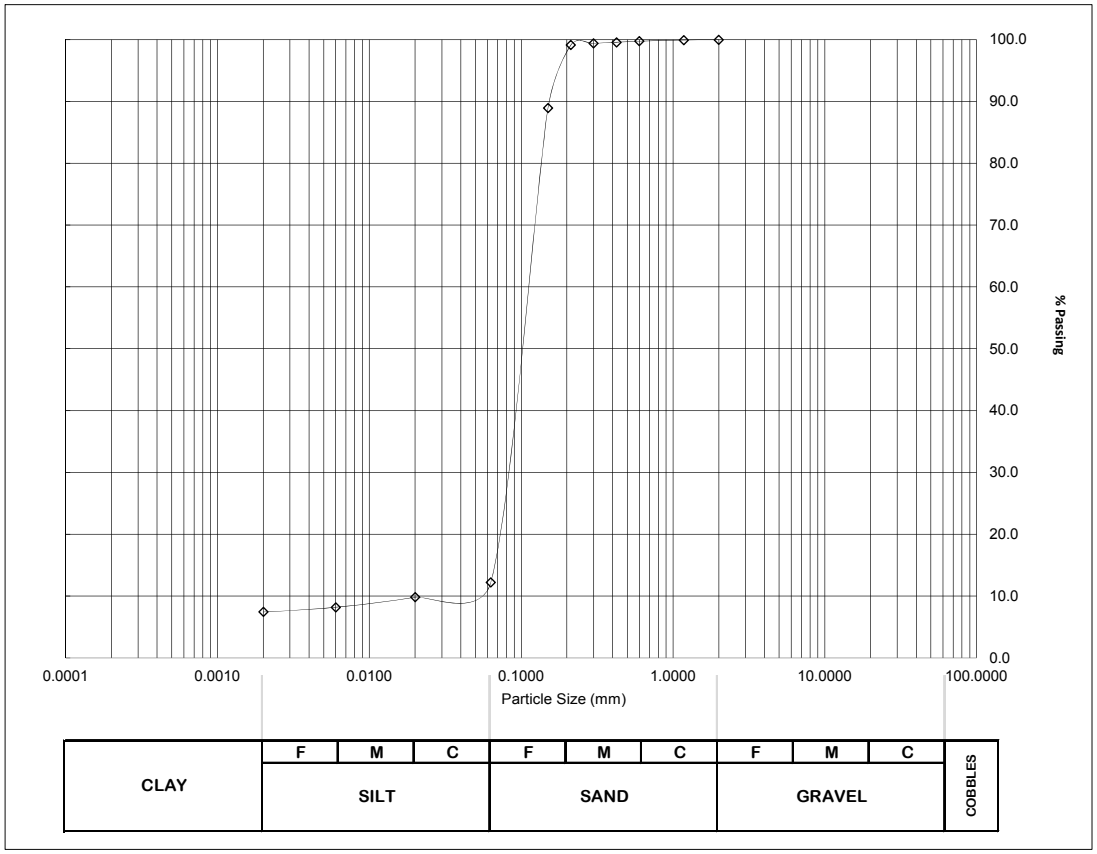
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH10**	**Sample Type/No.**	**B**	**15**	**Top Depth: 17.00 m**	**Bottom Depth:**	**17.50 m**

Soil Description:

Brownish grey slightly silty clayey fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	99
0.150	89
0.063	12



Particle Proportions %	
Cobbles	
Gravel	0.0
Sand	87.8
Silt	4.8
Clay	7.4

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	28/11/2016	Checked by:	KM
Date - samples tested:	23/01/2017	Date:	26/01/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

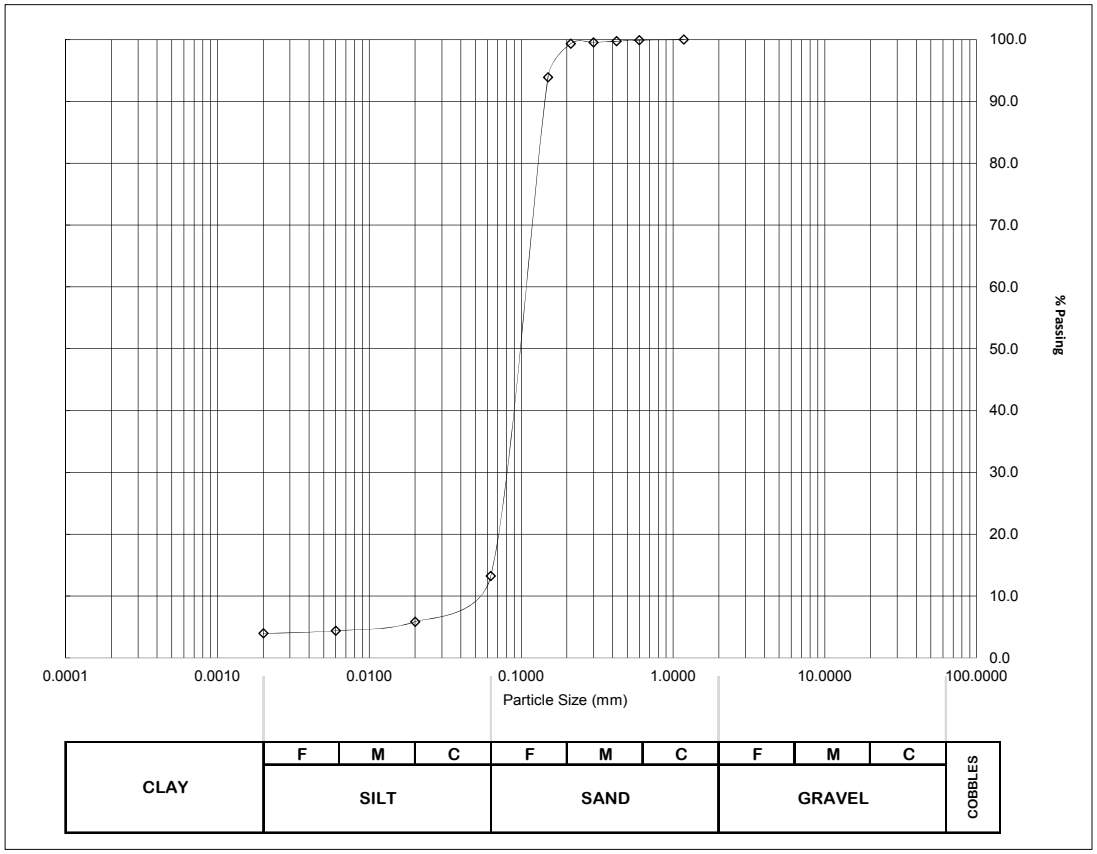
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH10**	**Sample Type/No.**	**B**	**21**	**Top Depth: 21.50 m**	**Bottom Depth:**	**22.00 m**

Soil Description:

Brownish grey slightly clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	94
0.063	13



Particle Proportions %	
Cobbles	
Gravel	
Sand	86.8
Silt	9.3
Clay	4.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	28/11/2016	Checked by:	KM
Date - samples tested:	21/01/2017	Date:	26/01/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

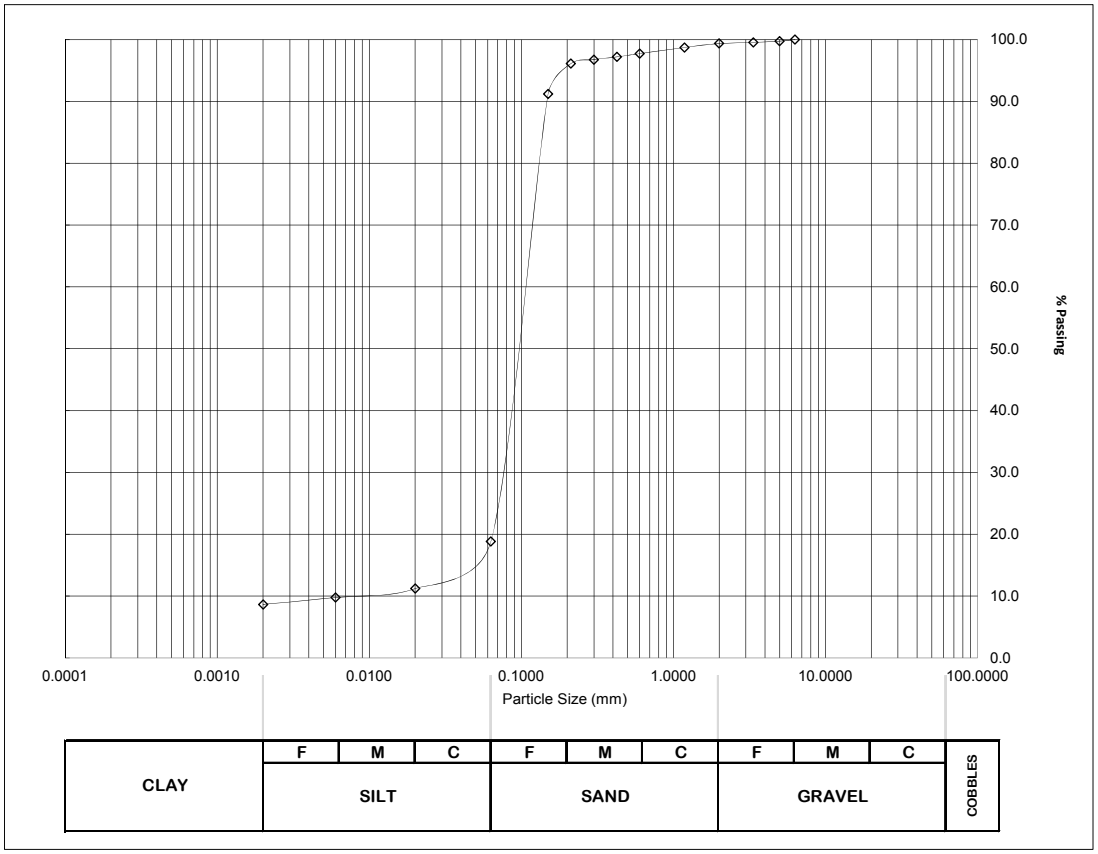
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH10**	**Sample Type/No.**	**B**	**25**	**Top Depth: 24.50 m**	**Bottom Depth:**	**25.00 m**

Soil Description:

Brownish grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	99
1.180	99
0.600	98
0.425	97
0.300	97
0.212	96
0.150	91
0.063	19



Particle Proportions %	
Cobbles	
Gravel	0.6
Sand	80.6
Silt	10.2
Clay	8.7

Method/type:	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

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UKAS TESTING 4503

Remarks:

Date - samples received:	28/11/2016	Checked by:	KM
Date - samples tested:	25/01/2017	Date:	26/01/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

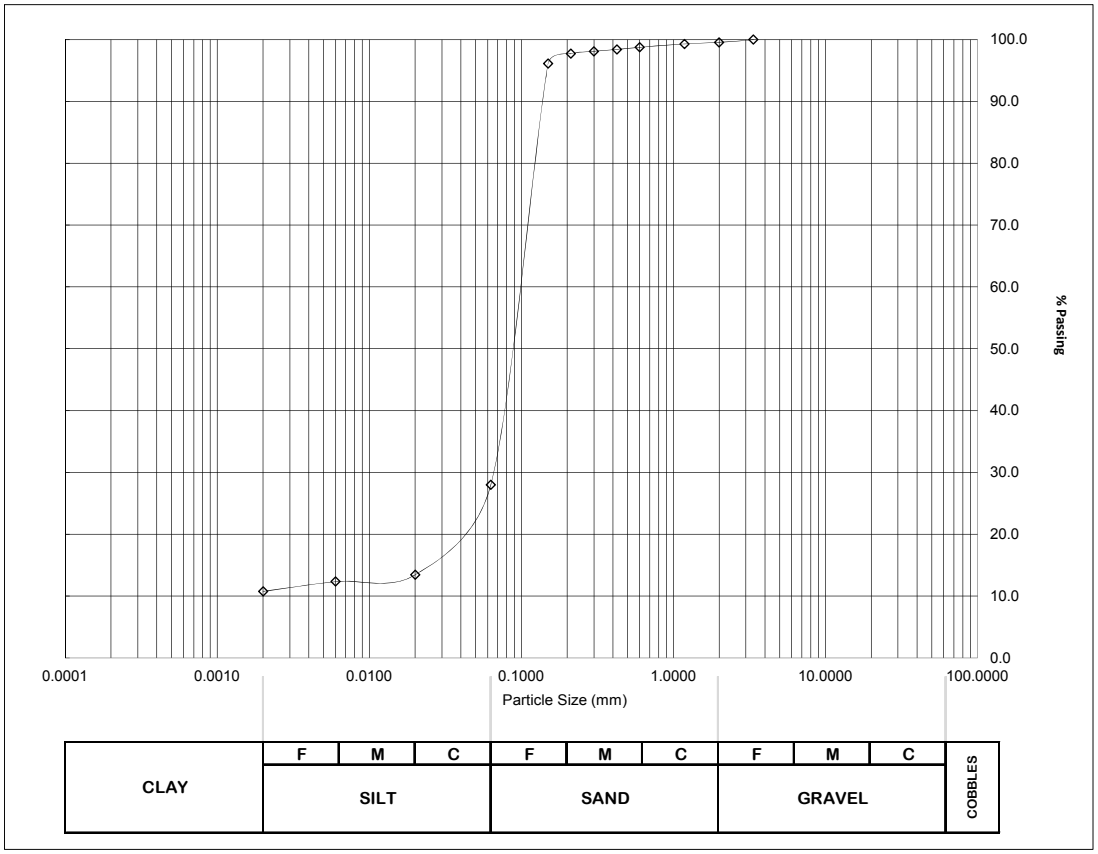
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH10**	**Sample Type/No.**	**B**	**27**	**Top Depth: 26.00 m**	**Bottom Depth:**	**26.50 m**

Soil Description:

Brownish grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	99
0.600	99
0.425	98
0.300	98
0.212	98
0.150	96
0.063	28



Particle Proportions %	
Cobbles	
Gravel	0.4
Sand	71.5
Silt	17.3
Clay	10.8

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	28/11/2016	Checked by:	KM
Date - samples tested:	20/01/2017	Date:	26/01/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

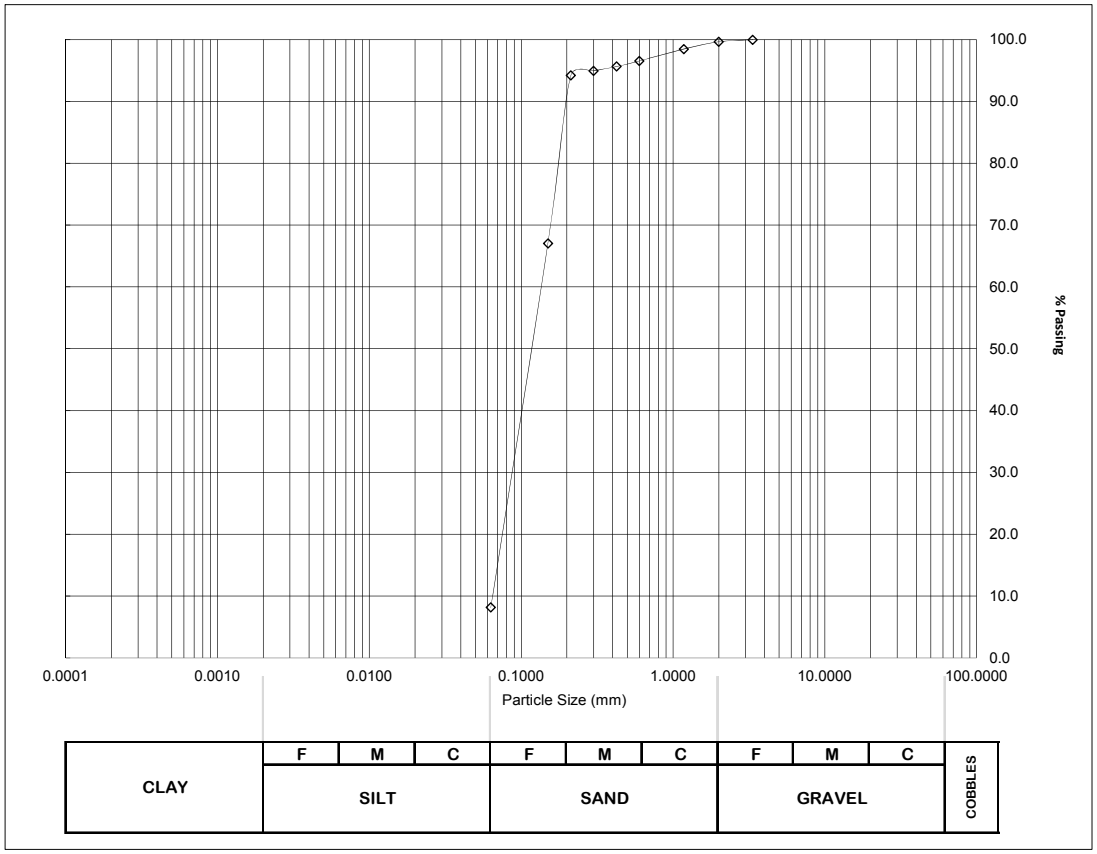
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH10R**	**Sample Type/No.**	**B**	**09**	**Top Depth: 17.00 m**	**Bottom Depth:**	**m**

Soil Description:

Grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	98
0.600	97
0.425	96
0.300	95
0.212	94
0.150	67
0.063	8



Particle Proportions %	
Cobbles	
Gravel	0.3
Sand	91.5
Silt and Clay	8.1

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	02/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

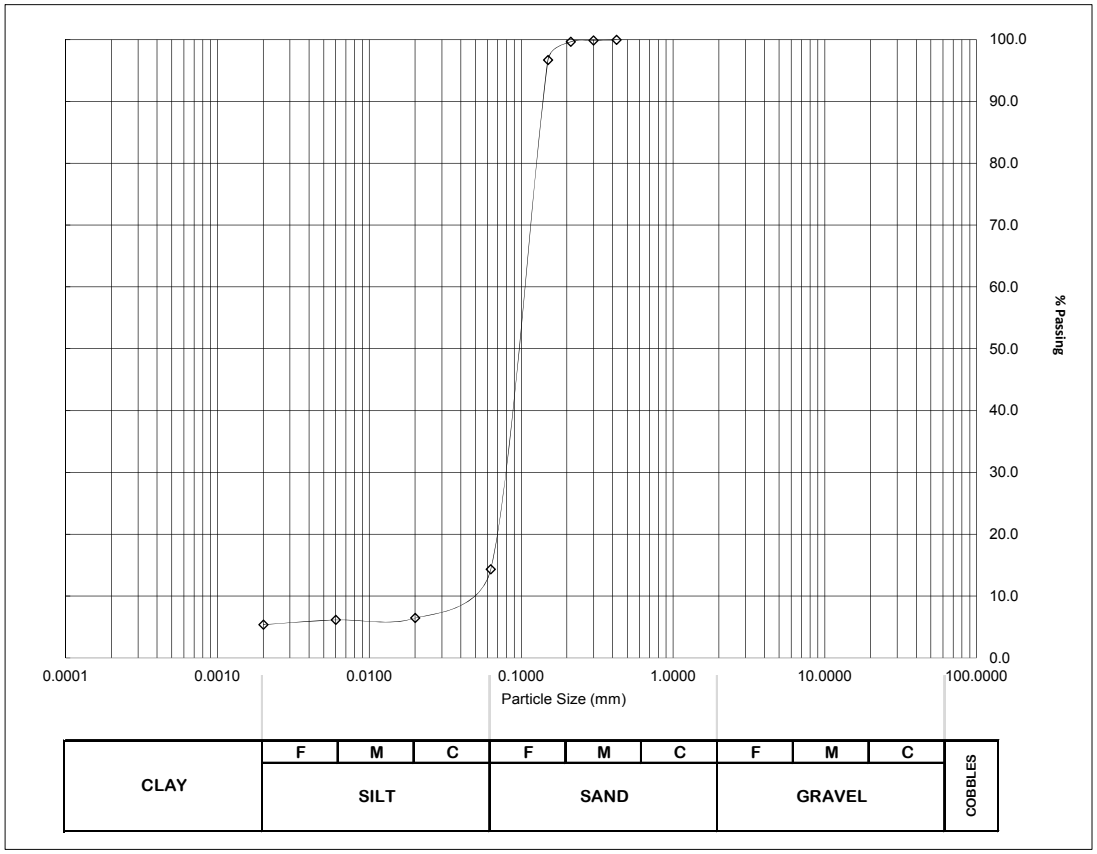
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH10R**	**Sample Type/No.**	**B**	**10**	**Top Depth: 20.50 m**	**Bottom Depth:**	**m**

Soil Description:

Grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	97
0.063	14



Particle Proportions %	
Cobbles	
Gravel	
Sand	85.7
Silt	8.9
Clay	5.4

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	02/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

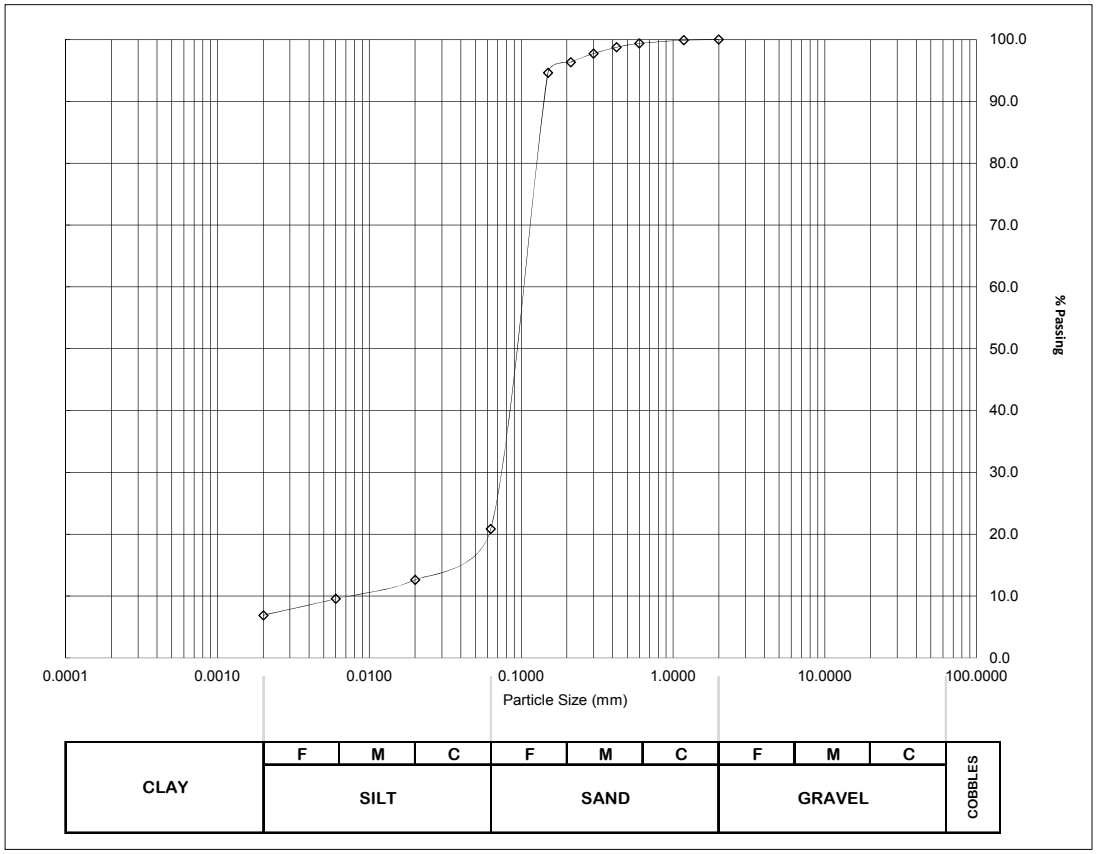
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH10R**	**Sample Type/No.**	**B**	**14**	**Top Depth: 27.00 m**	**Bottom Depth:**	**m**

Soil Description:

Grey fine clayey silty SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	99
0.425	99
0.300	98
0.212	96
0.150	95
0.063	21



Particle Proportions %	
Cobbles	
Gravel	
Sand	79.2
Silt	13.9
Clay	6.9

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	02/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

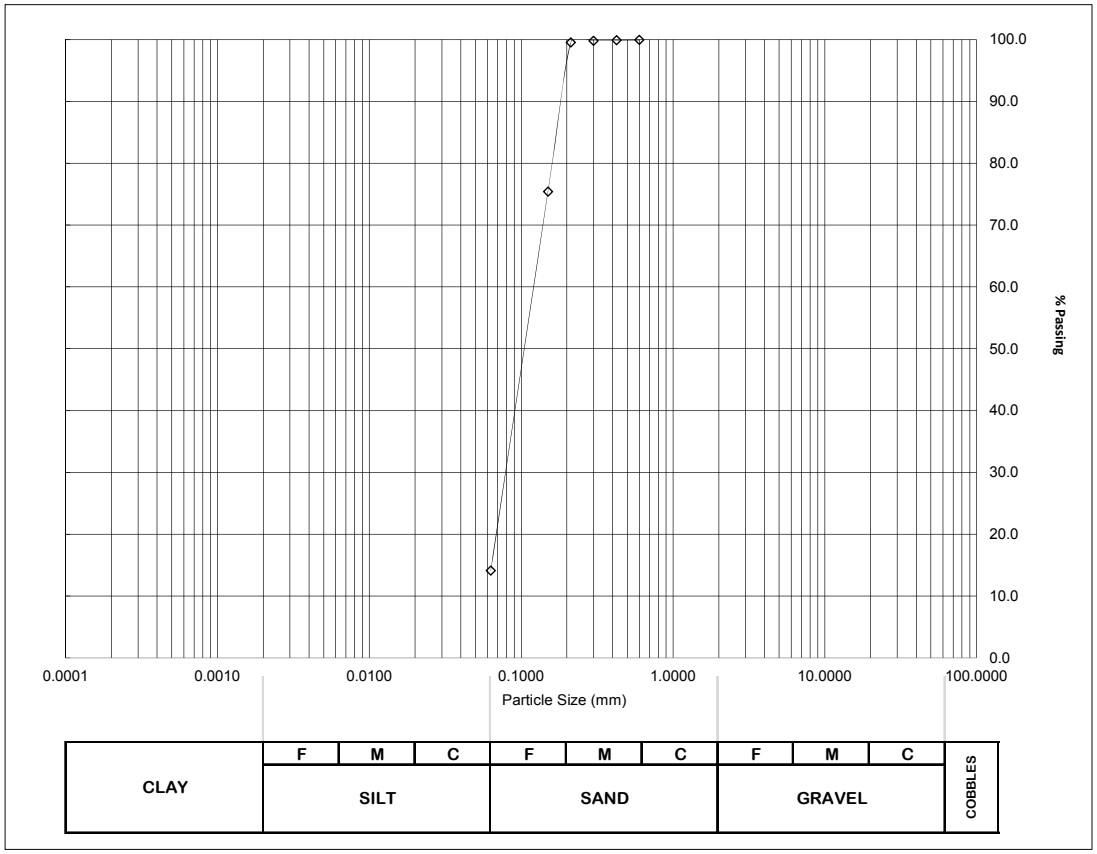
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH11**	**Sample Type/No.**	**D**	**06**	**Top Depth: 16.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark brownish grey clayey fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	75
0.063	14



Particle Proportions %	
Cobbles	
Gravel	
Sand	85.9
Silt and Clay	14.1

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	19/01/2017	Checked by:	KM
Date - samples tested:	19/01/2017	Date:	09/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

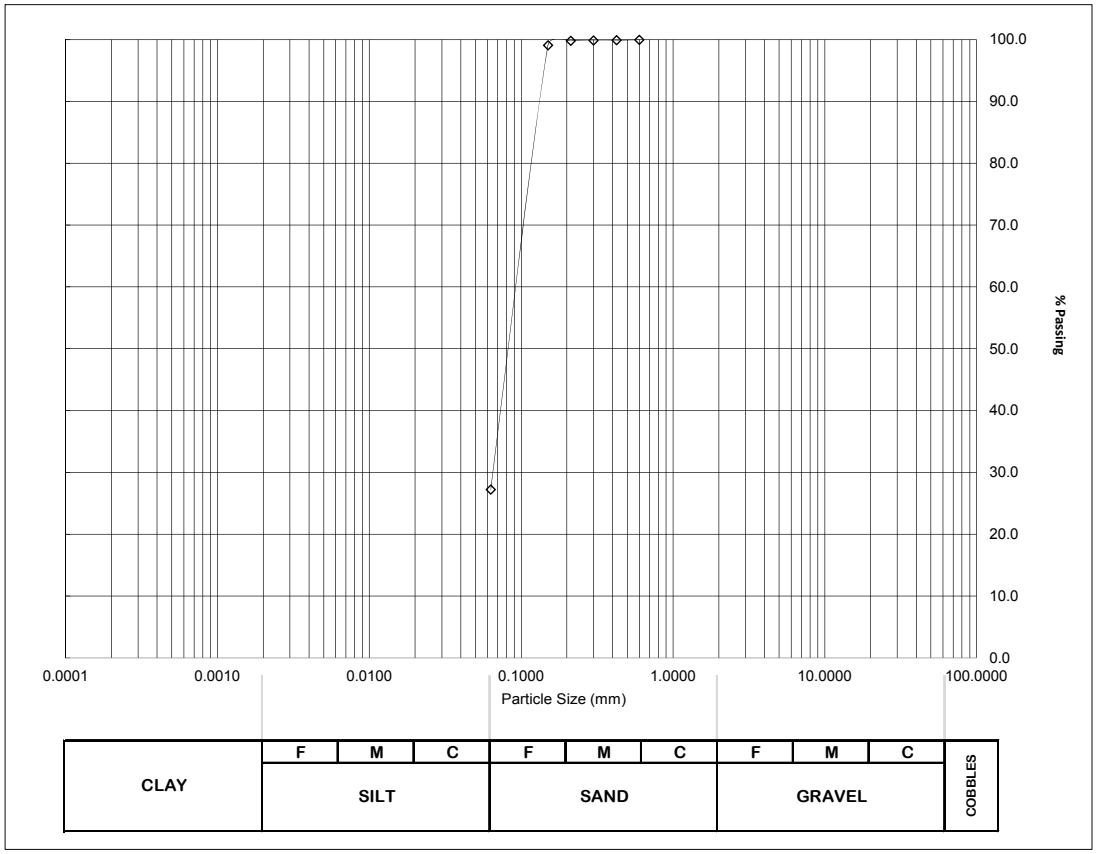
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH11**	**Sample Type/No.**	**D**	**14**	**Top Depth: 21.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark brownish grey clayey fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	27



Particle Proportions %	
Cobbles	
Gravel	
Sand	72.8
Silt and Clay	27.2

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	19/11/2017	Checked by:	KM
Date - samples tested:	19/01/2017	Date:	09/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

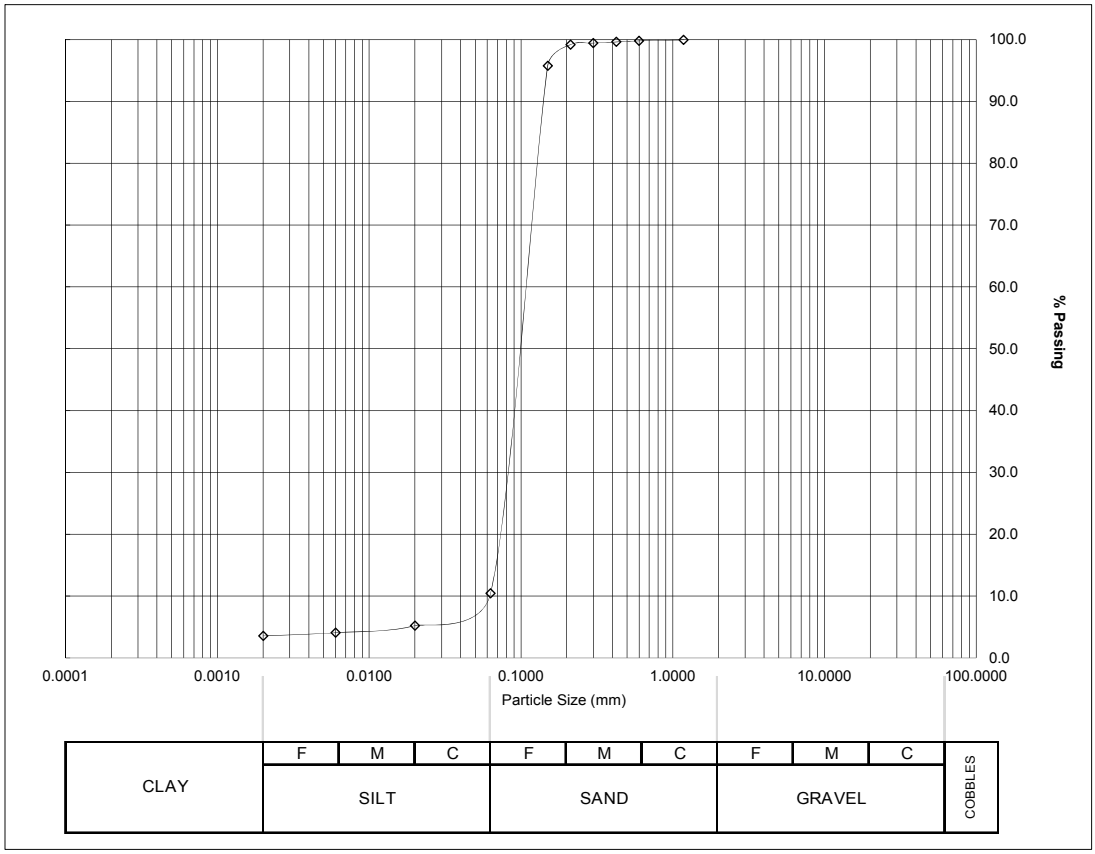
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH12**	**Sample Type/No.**	**B**	**06**	**Top Depth: 17.50 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey slightly clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	99
0.150	96
0.063	10



Particle Proportions %	
Cobbles	
Gravel	
Sand	89.6
Silt	6.9
Clay	3.6

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	14/01/2017	Checked by:	KM
Date - samples tested:	10/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

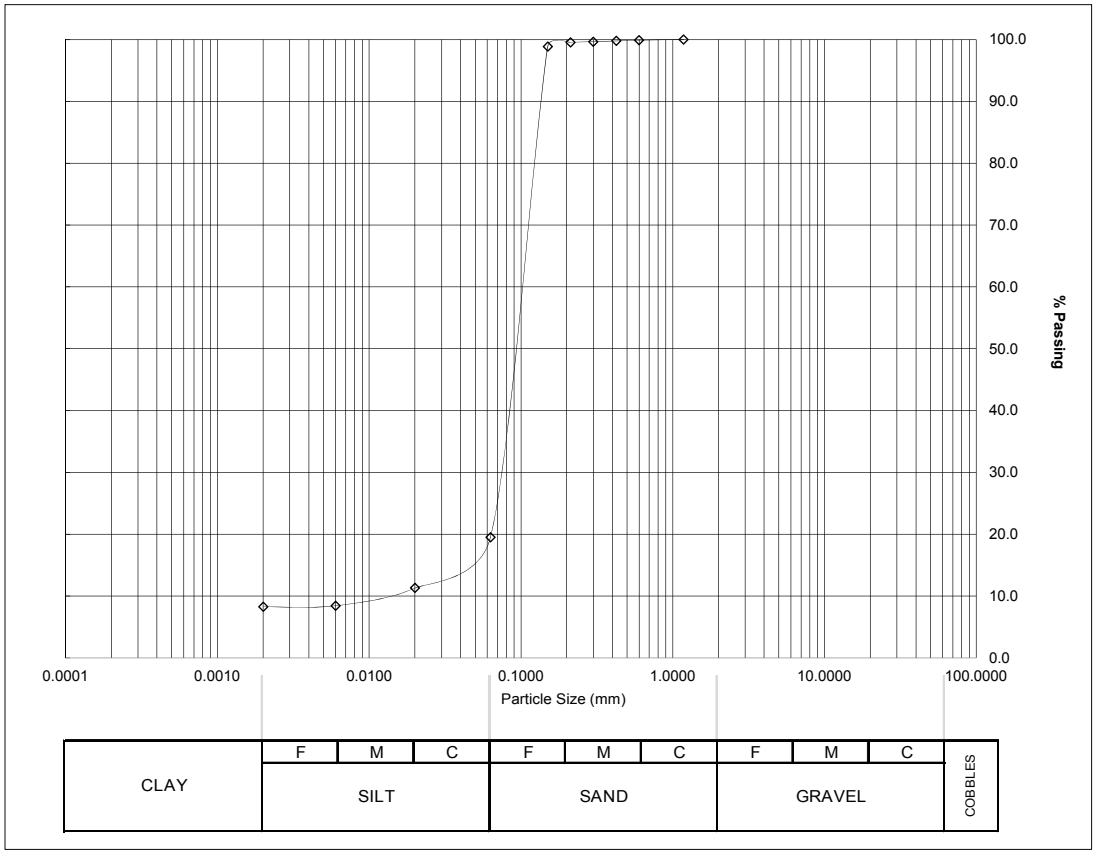
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH12**	**Sample Type/No.**	**B**	**12**	**Top Depth: 22.50 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	20



Particle Proportions %	
Cobbles	
Gravel	
Sand	80.5
Silt	11.3
Clay	8.3

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	14/01/2017	Checked by:	KM
Date - samples tested:	10/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

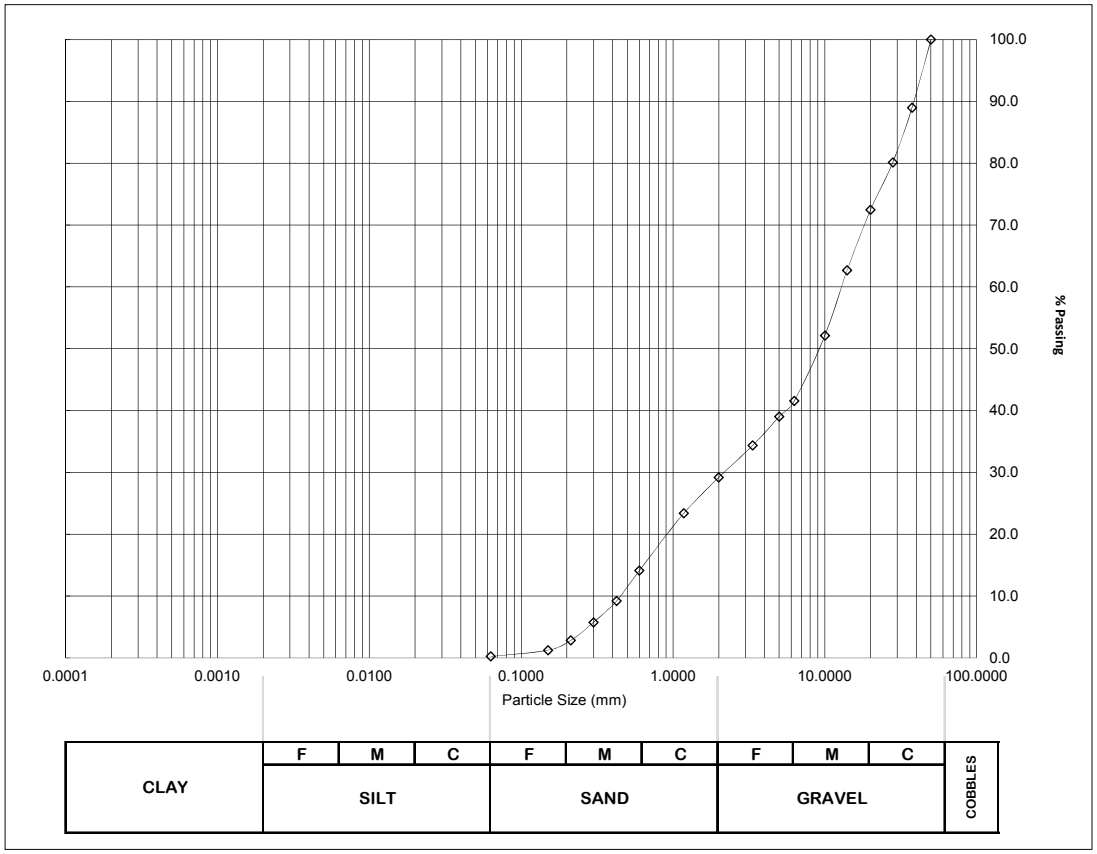
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH13**	**Sample Type/No.**	**B**	**05**	**Top Depth: 14.00 m**	**Bottom Depth:**	**14.50 m**

Soil Description:

Brownish grey very sandy angular to well rounded flint GRAVEL with a flint cobble

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	89
28.000	80
20.000	72
14.000	63
10.000	52
6.300	42
5.000	39
3.350	34
2.000	29
1.180	23
0.600	14
0.425	9
0.300	6
0.212	3
0.150	1
0.063	0



Particle Proportions %	
Cobbles	
Gravel	70.8
Sand	28.9
Silt and Clay	0.2

Method/type:	Dry Sieving

BS 1377: Part 2: Clause 9.3: 1990 Determination of particle size distribution - dry sieving method.

4503

Remarks: Flint cobble - not in test sample

Date - samples received:	11/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

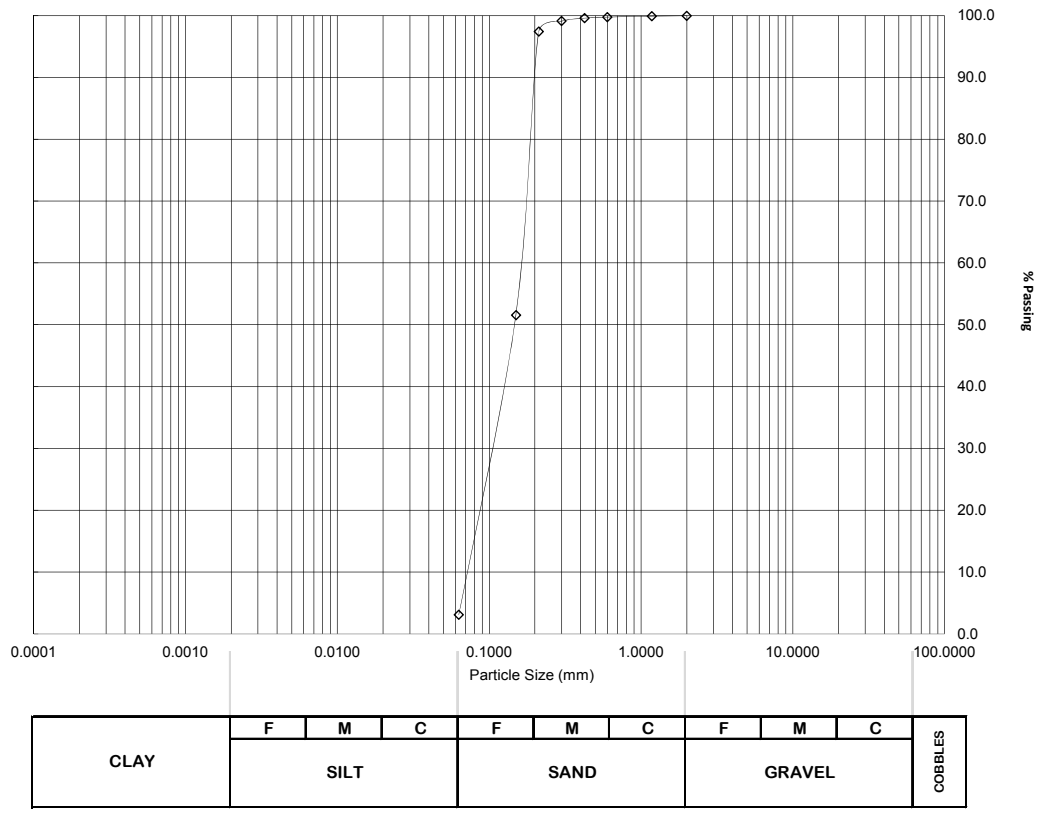
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH13**	**Sample Type/No.**	**B**	**09**	**Top Depth: 16.50 m**	**Bottom Depth:**	**17.00 m**

Soil Description:

Grey slightly silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	97
0.150	52
0.063	3



Particle Proportions %	
Cobbles	
Gravel	0.0
Sand	96.9
Silt and Clay	3.1

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	11/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

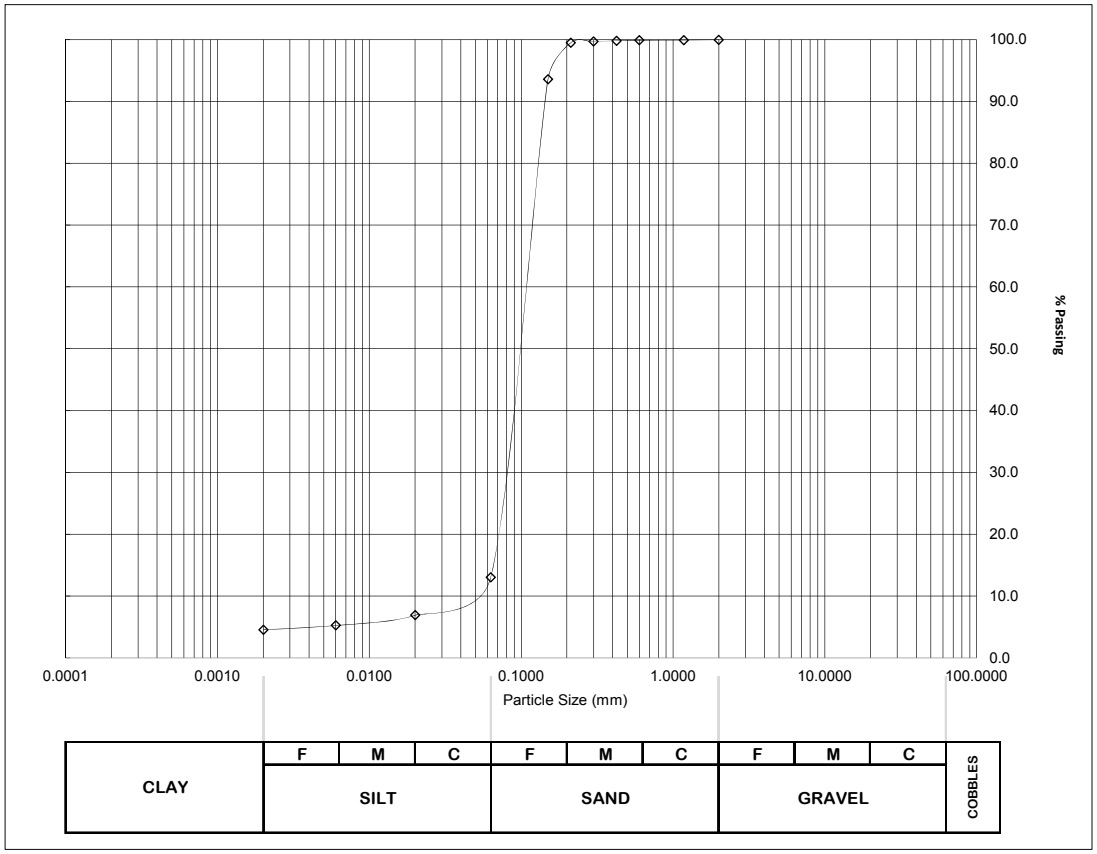
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**22/02/2017**
Borehole No:	**BH13**	**Sample Type/No.**	**B**	**17**	**Top Depth: 21.50 m**	**Bottom Depth:**	**22.00 m**

Soil Description:

Grey slightly clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	94
0.063	13



Particle Proportions %	
Cobbles	
Gravel	0.0
Sand	86.9
Silt	8.5
Clay	4.6

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	11/01/2017	Checked by:	KM
Date - samples tested:	10/02/2017	Date:	22/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
47-49 Brunel Road, London W3 7XR
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

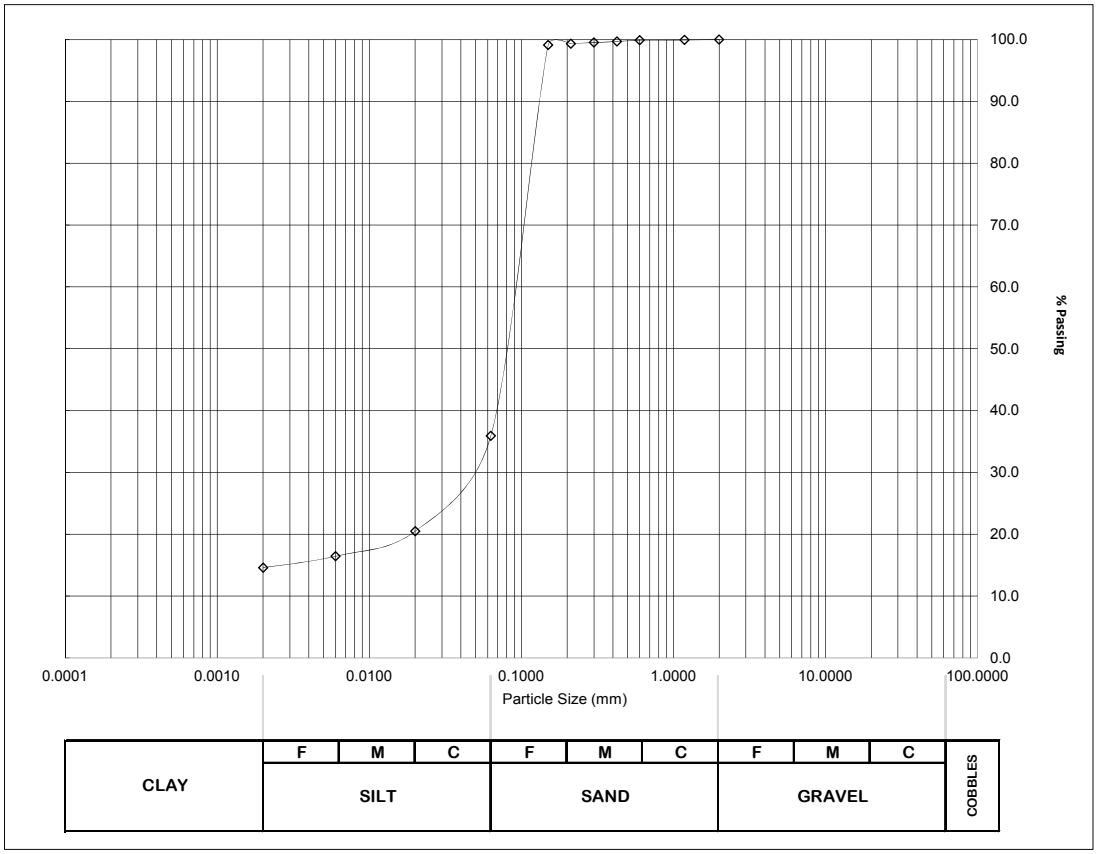
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH13**	**Sample Type/No.**	**D**	**24**	**Top Depth: 27.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	99
0.063	36



Particle Proportions %	
Cobbles	
Gravel	
Sand	64.1
Silt	21.3
Clay	14.6

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	11/01/2017	Checked by:	KM
Date - samples tested:	10/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

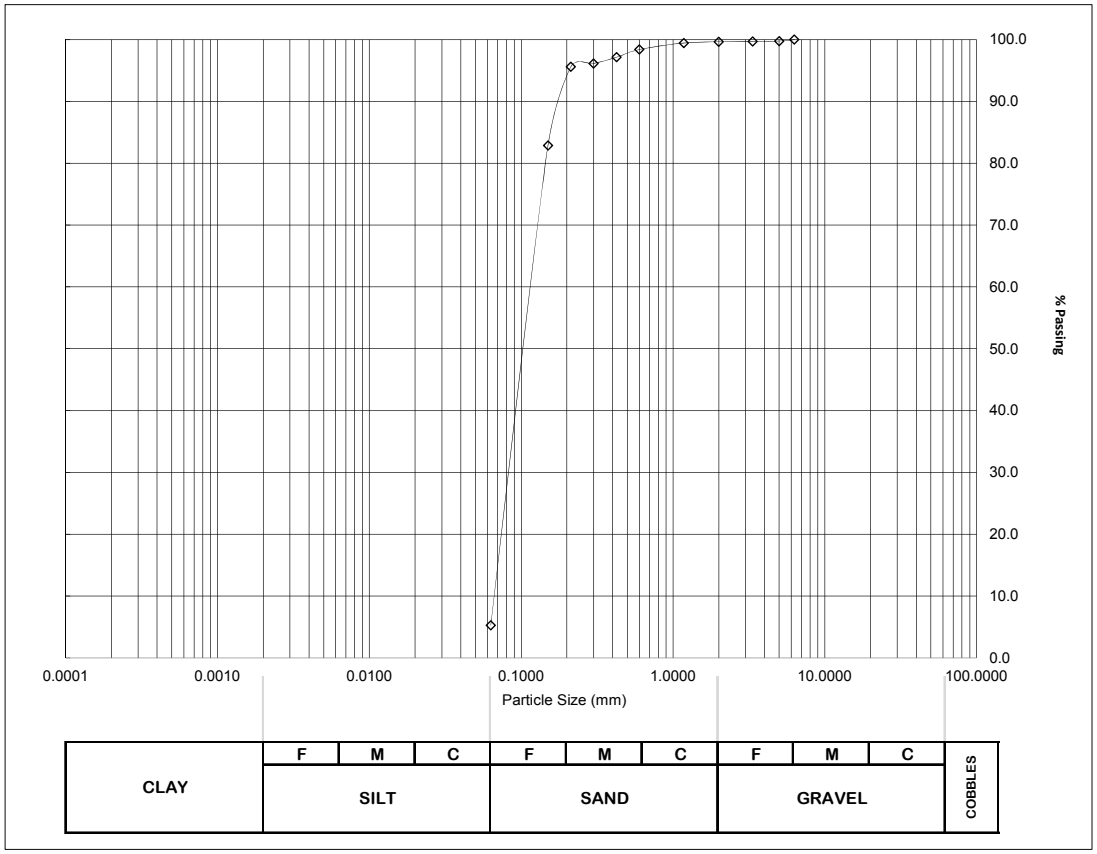
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH14**	**Sample Type/No.**	**B**	**05**	**Top Depth: 16.00 m**	**Bottom Depth:**	**16.50 m**

Soil Description:

Brownish grey slightly clayey fine SAND with rare fine flint gravel

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	99
0.600	98
0.425	97
0.300	96
0.212	96
0.150	83
0.063	5



Particle Proportions %	
Cobbles	
Gravel	0.3
Sand	94.4
Silt and Clay	5.3

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	19/12/2016	Checked by:	KM
Date - samples tested:	30/01/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

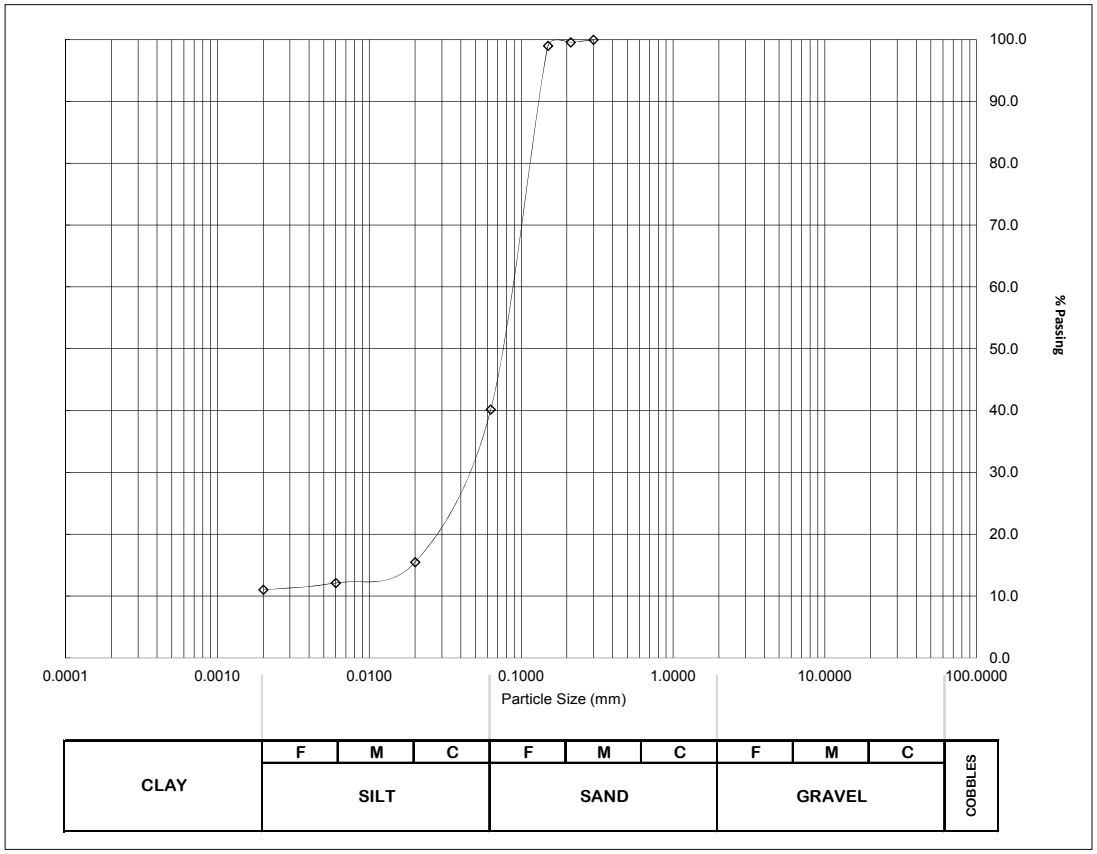
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH14**	**Sample Type/No.**	**B**	**13**	**Top Depth: 21.00 m**	**Bottom Depth:**	**21.50 m**

Soil Description:

Dark grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	40



Particle Proportions %	
Cobbles	
Gravel	
Sand	59.8
Silt	29.1
Clay	11.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	19/12/2016	Checked by:	KM
Date - samples tested:	20/01/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

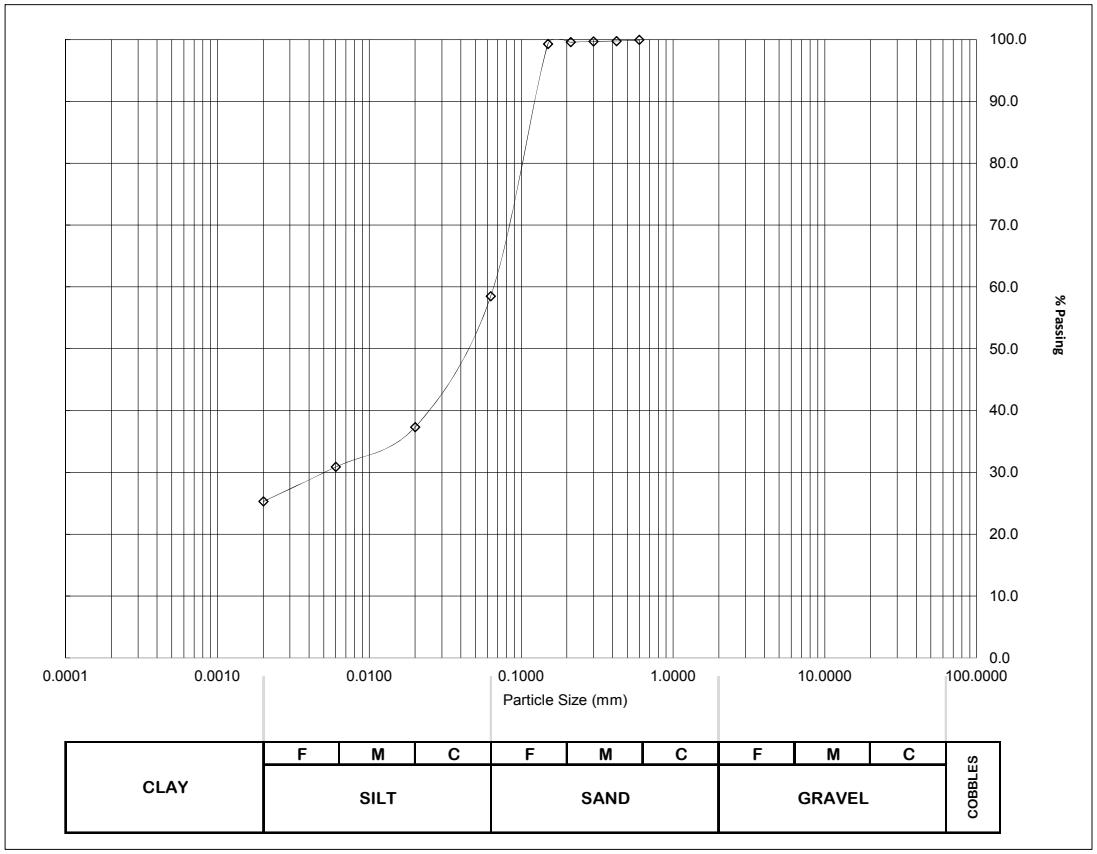
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH14**	**Sample Type/No.**	**B**	**19**	**Top Depth: 25.50 m**	**Bottom Depth:**	**26.00 m**

Soil Description:

Dark grey sandy silty CLAY

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	58



Particle Proportions %	
Cobbles	
Gravel	
Sand	41.5
Silt	33.2
Clay	25.3

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	19/12/2016	Checked by:	KM
Date - samples tested:	25/01/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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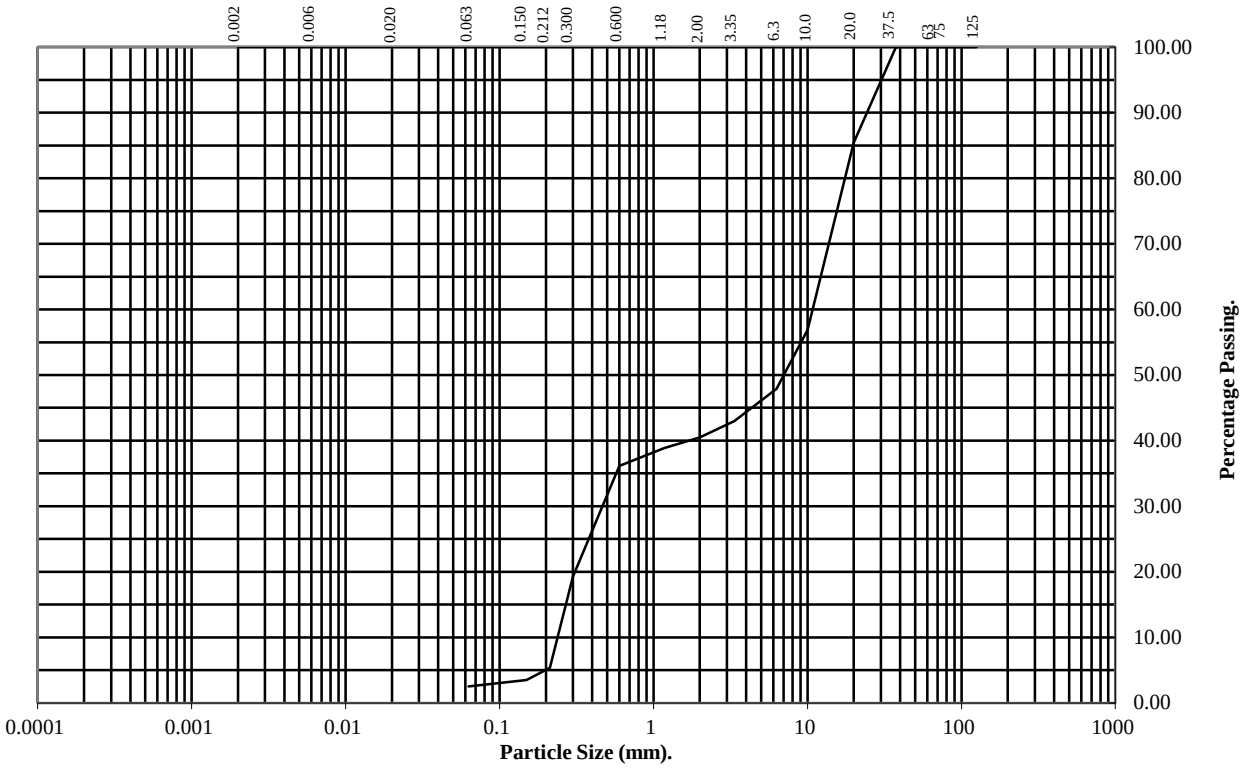
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH15**	**Top Depth (m):**	**13.00**
Sample Number:	**7**	**Base Depth(m):**	**13.20**
Sample Type:	**B**		



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	85
10	57
6.3	48
3.35	43
2	41
1.18	39
0.6	36
0.3	19
0.212	5
0.15	4
0.063	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	59
Sand	38
Silt/Clay	3

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**16/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

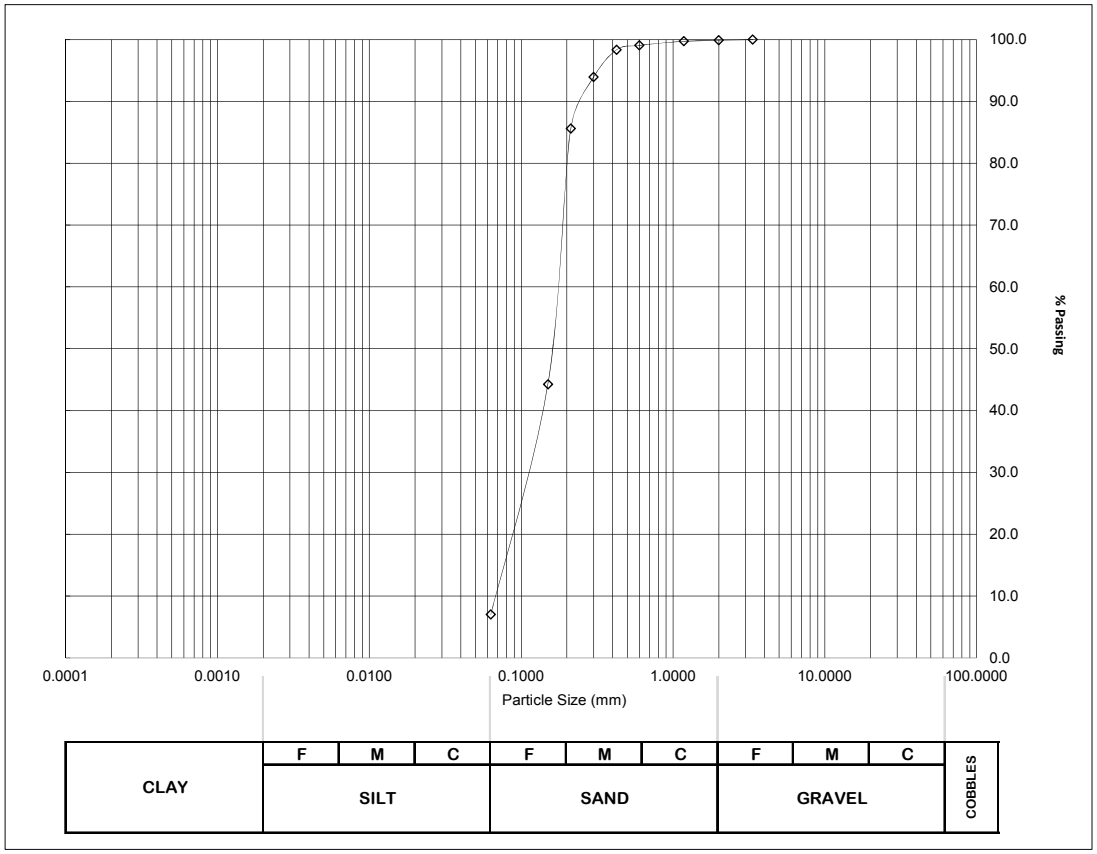
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH15**	**Sample Type/No.**	**B**	**10**	**Top Depth: 14.50 m**	**Bottom Depth:**	**15.00 m**

Soil Description:

Dark grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	99
0.425	98
0.300	94
0.212	86
0.150	44
0.063	7



Particle Proportions %	
Cobbles	
Gravel	0.1
Sand	92.9
Silt and Clay	7.0

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	16/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

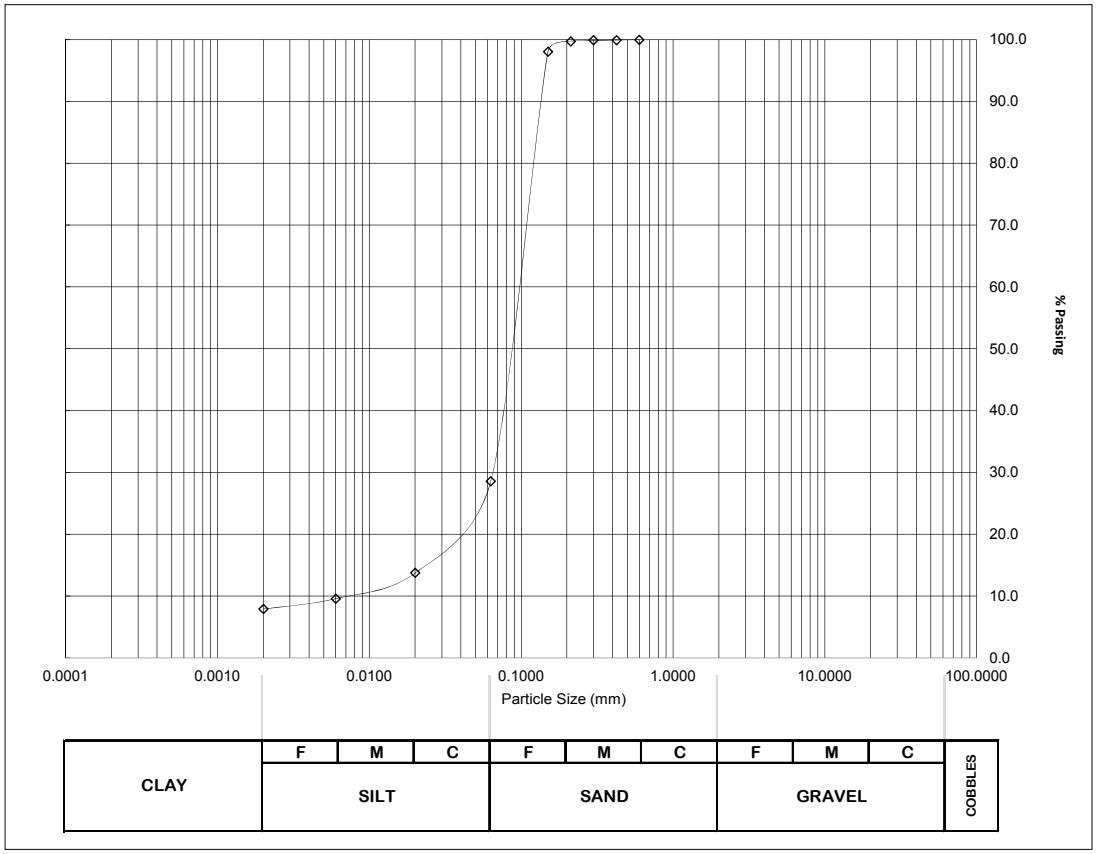
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH15**	**Sample Type/No.**	**D**	**15**	**Top Depth: 18.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	98
0.063	29



Particle Proportions %	
Cobbles	
Gravel	
Sand	71.4
Silt	20.7
Clay	7.9

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING
4503

Remarks:

Date - samples received:	16/12/2016	Checked by:	KM
Date - samples tested:	15/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
47-49 Brunel Road, London W3 7XR
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

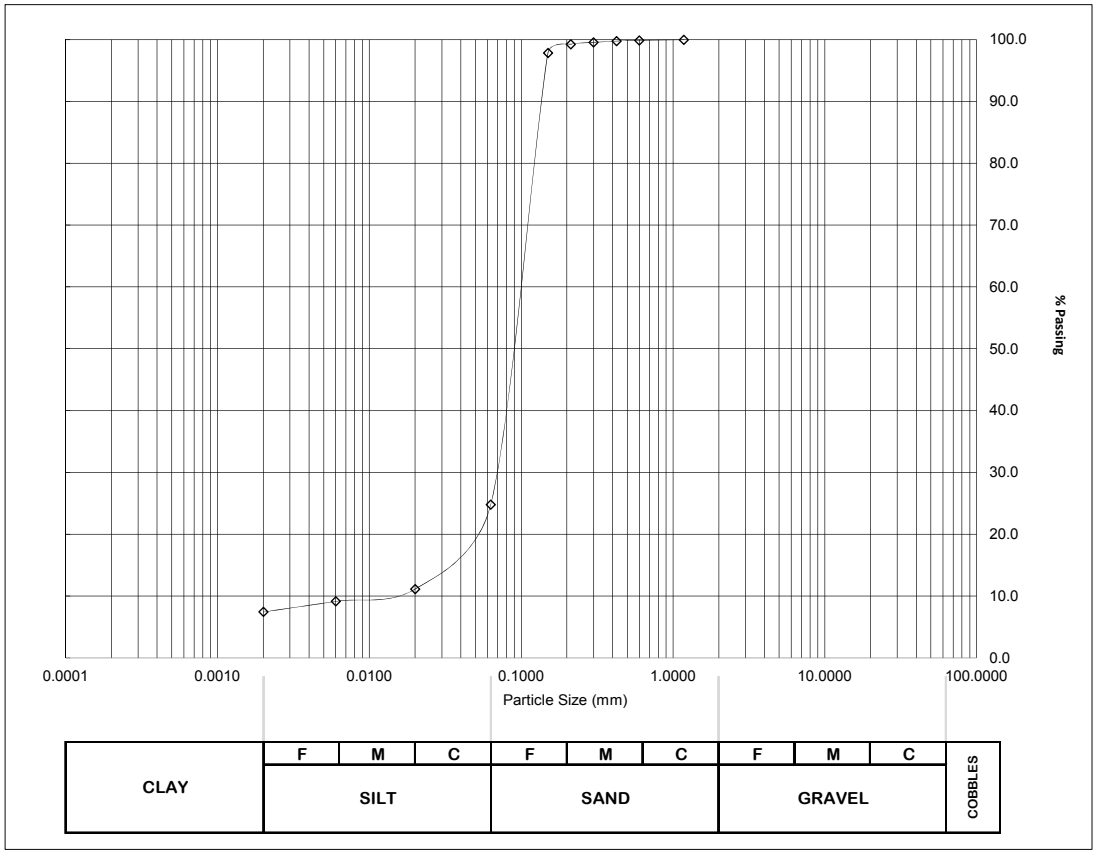
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH15**	**Sample Type/No.**	**B**	**20**	**Top Depth: 21.50 m**	**Bottom Depth:**	**22.00 m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	98
0.063	25



Particle Proportions %	
Cobbles	
Gravel	
Sand	75.2
Silt	17.4
Clay	7.4

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	16/12/2016	Checked by:	KM
Date - samples tested:	15/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

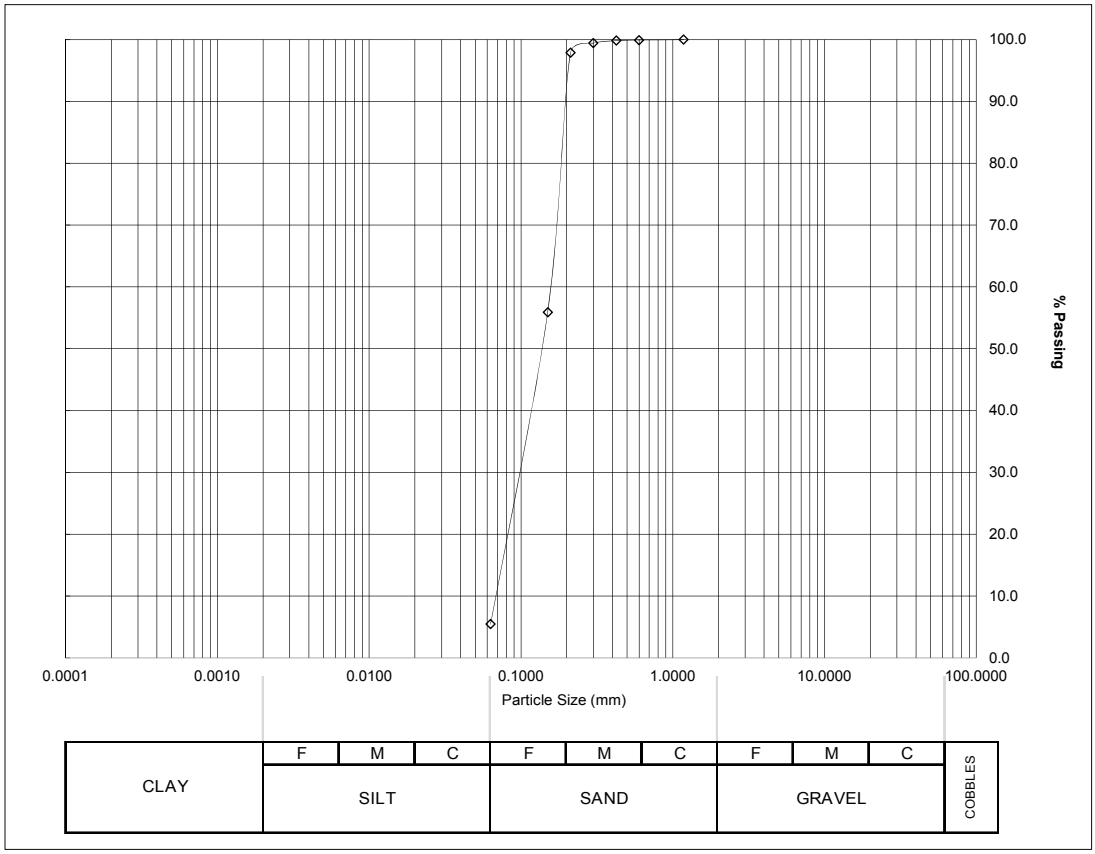
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**22/02/2017**
Borehole No:	**BH16**	**Sample Type/No.**	**D**	**01**	**Top Depth: 19.50 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	98
0.150	56
0.063	5



Particle Proportions %	
Cobbles	
Gravel	
Sand	94.5
Silt and Clay	5.5

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	26/01/2017	Checked by:	KM
Date - samples tested:	21/02/2017	Date:	22/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

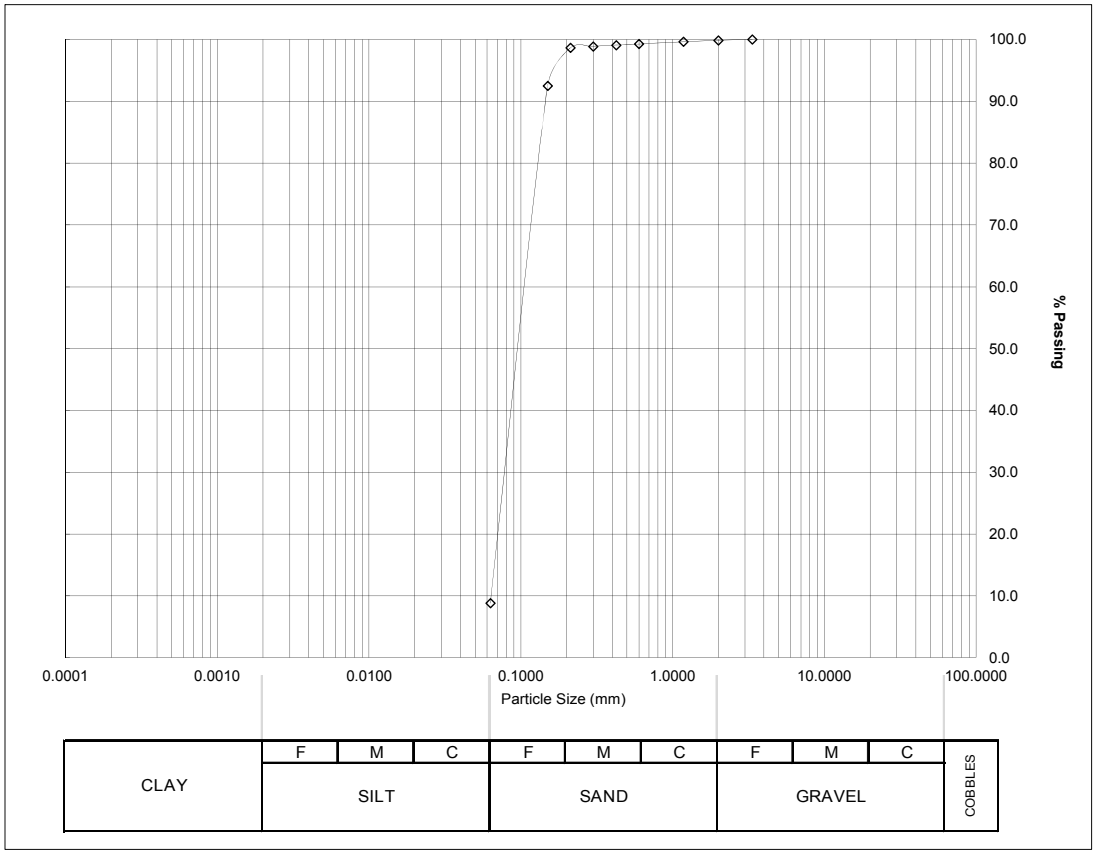
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**22/02/2017**
Borehole No:	**BH16**	**Sample Type/No.**	**B**	**04**	**Top Depth: 23.50 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	99
0.425	99
0.300	99
0.212	99
0.150	93
0.063	9



Particle Proportions %	
Cobbles	
Gravel	0.1
Sand	91.1
Silt and Clay	8.8

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	26/01/2017	Checked by:	KM
Date - samples tested:	20/02/2017	Date:	22/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

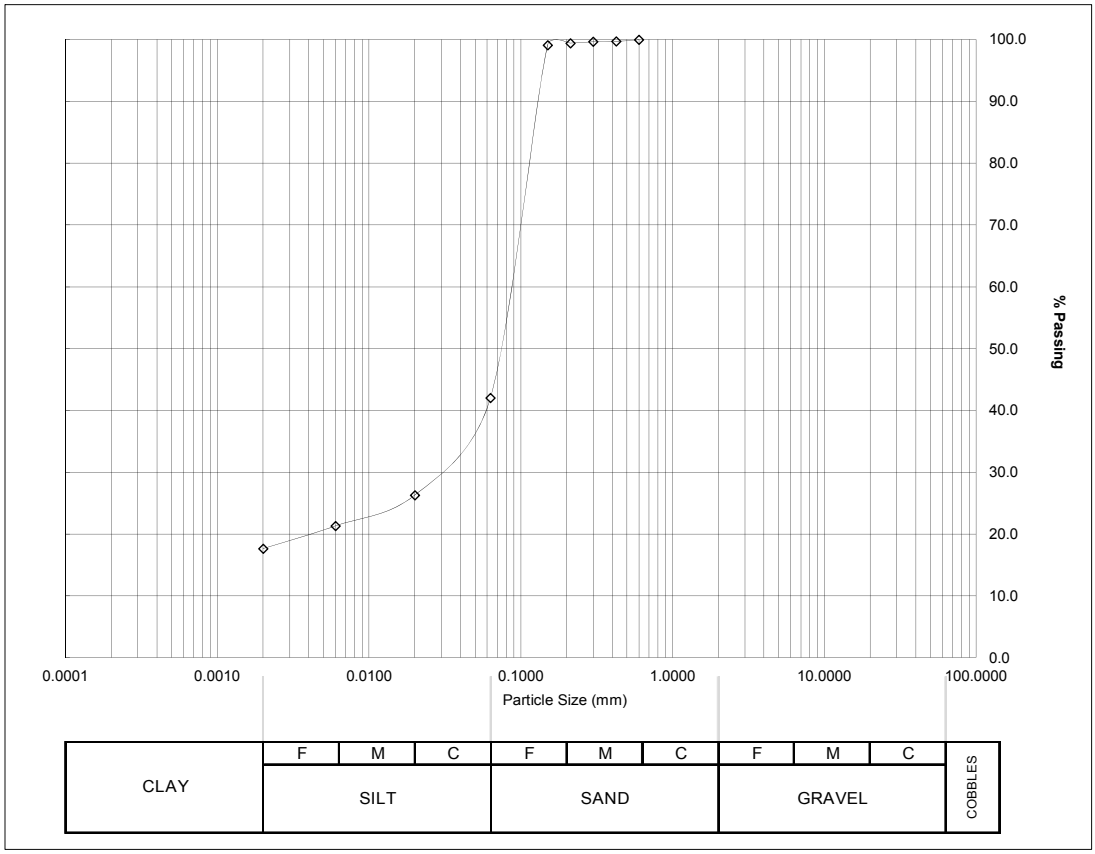
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**22/02/2017**
Borehole No:	**BH16**	**Sample Type/No.**	**B**	**13**	**Top Depth: 31.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	99
0.063	42



Particle Proportions %	
Cobbles	
Gravel	
Sand	58.0
Silt	24.4
Clay	17.6

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING 4503

Remarks:

Date - samples received:	26/01/2017	Checked by:	KM
Date - samples tested:	21/02/2017	Date:	22/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

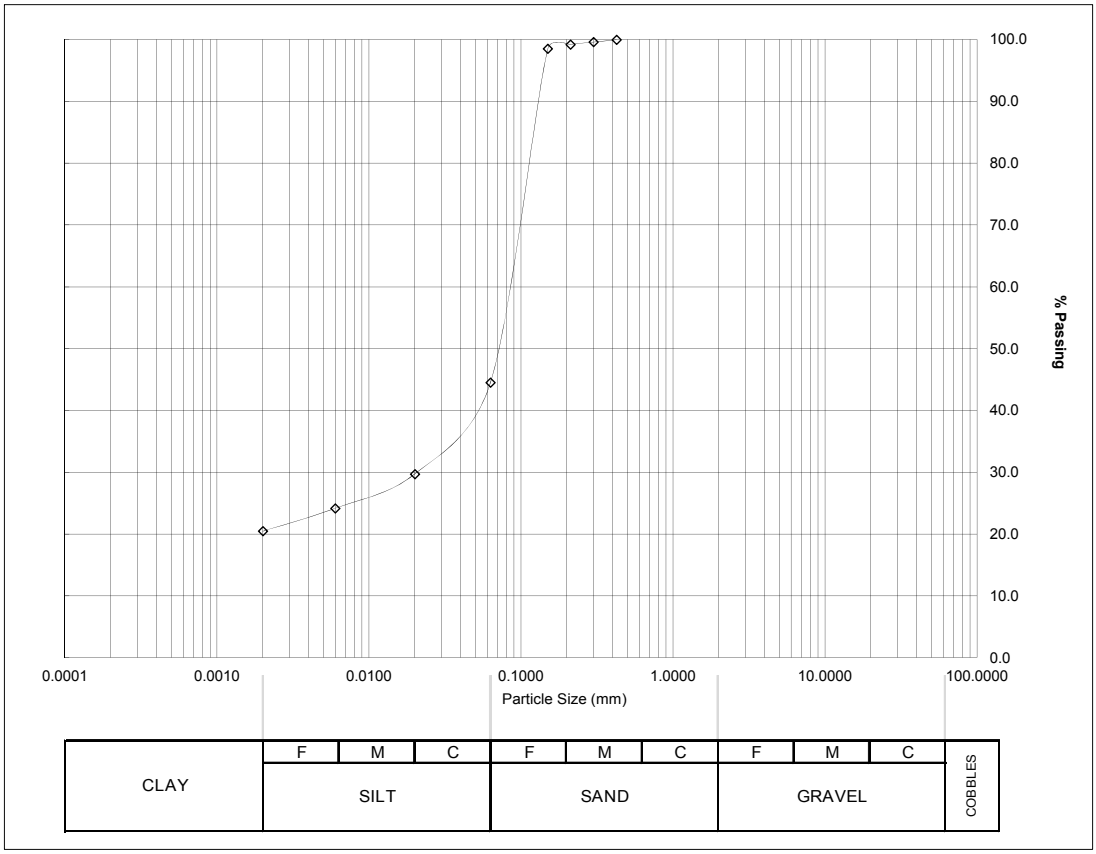
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**22/02/2017**
Borehole No:	**BH16**	**Sample Type/No.**	**B**	**17**	**Top Depth: 34.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey very clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	99
0.063	45



Particle Proportions %	
Cobbles	
Gravel	
Sand	55.5
Silt	24.1
Clay	20.5

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	26/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	22/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

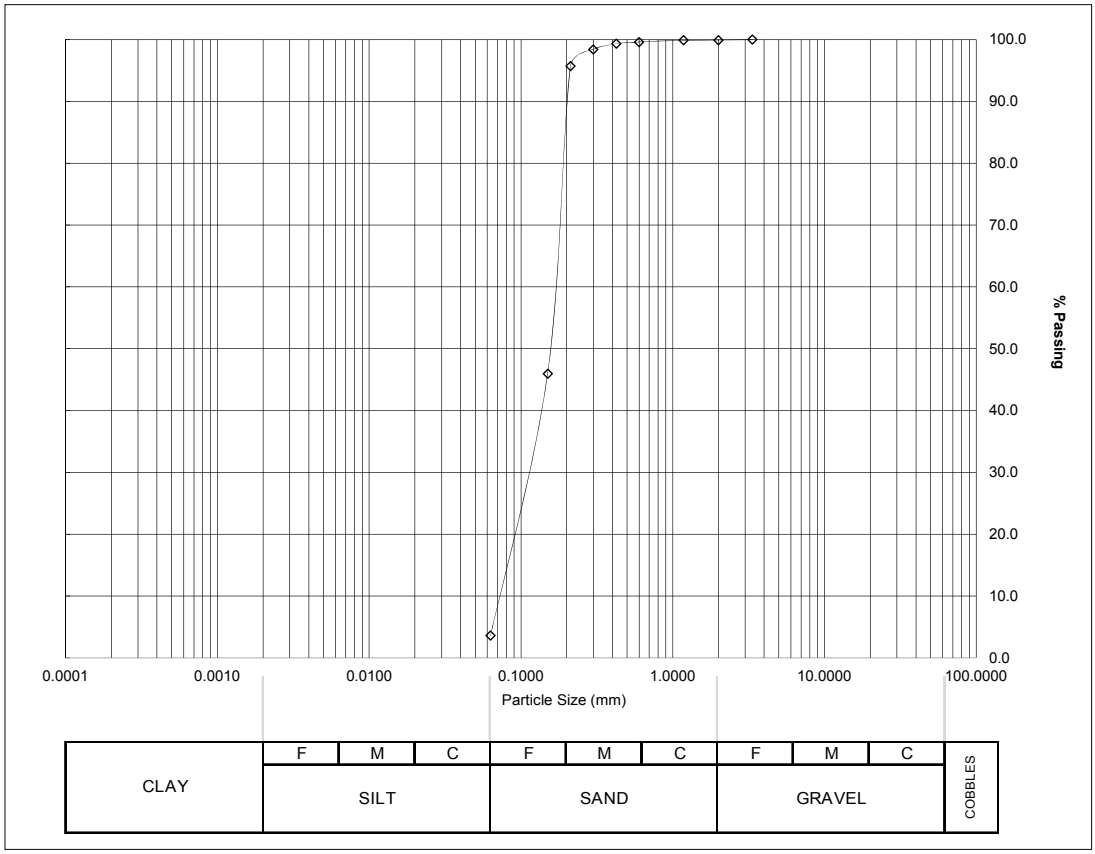
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH17**	**Sample Type/No.**	**B**	**05**	**Top Depth: 15.70 m**	**Bottom Depth:**	**15.90 m**

Soil Description:

Brownish grey slightly silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	98
0.212	96
0.150	46
0.063	4



Particle Proportions %	
Cobbles	
Gravel	0.1
Sand	96.3
Silt and Clay	3.6

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	21/11/2016	Checked by:	KM
Date - samples tested:	07/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

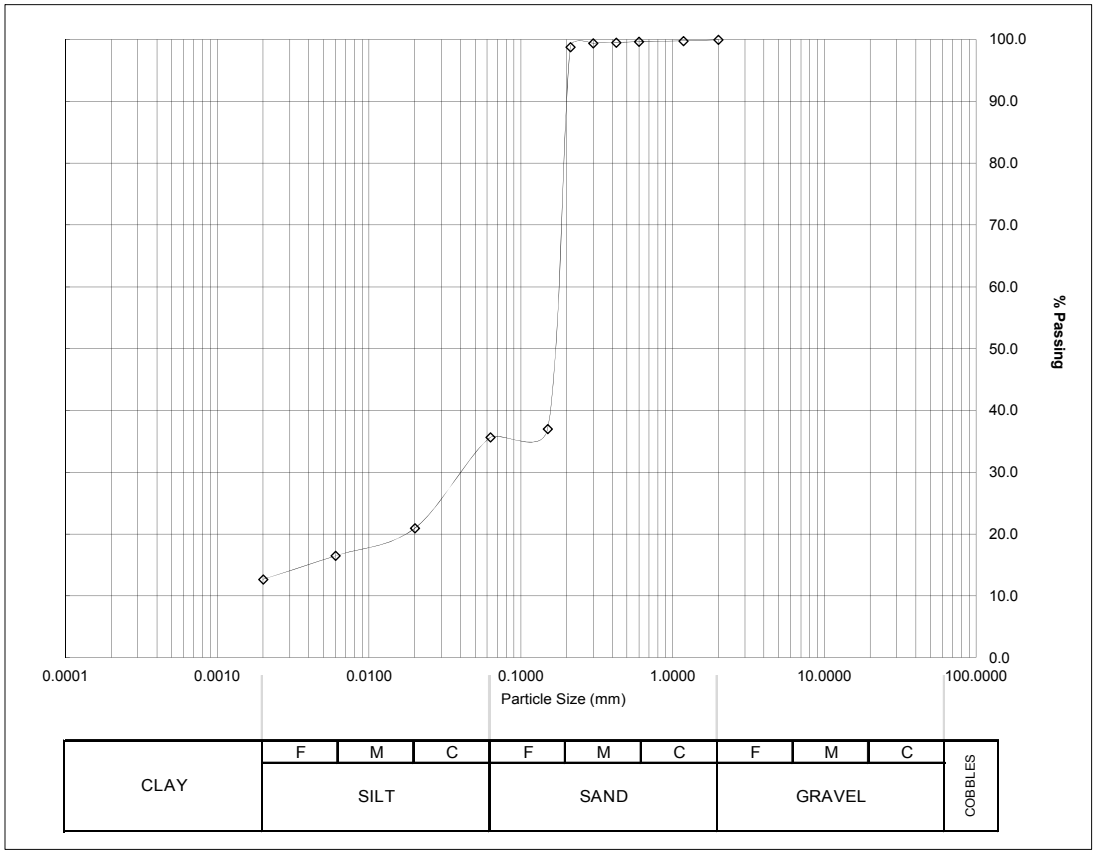
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH17**	**Sample Type/No.**	**B**	**13**	**Top Depth: 25.80 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey very silty fine and medium SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	99
0.150	37
0.063	36



Particle Proportions %	
Cobbles	
Gravel	0.0
Sand	64.3
Silt	22.9
Clay	12.7

Method/type:	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	21/11/2016	Checked by:	KM
Date - samples tested:	07/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

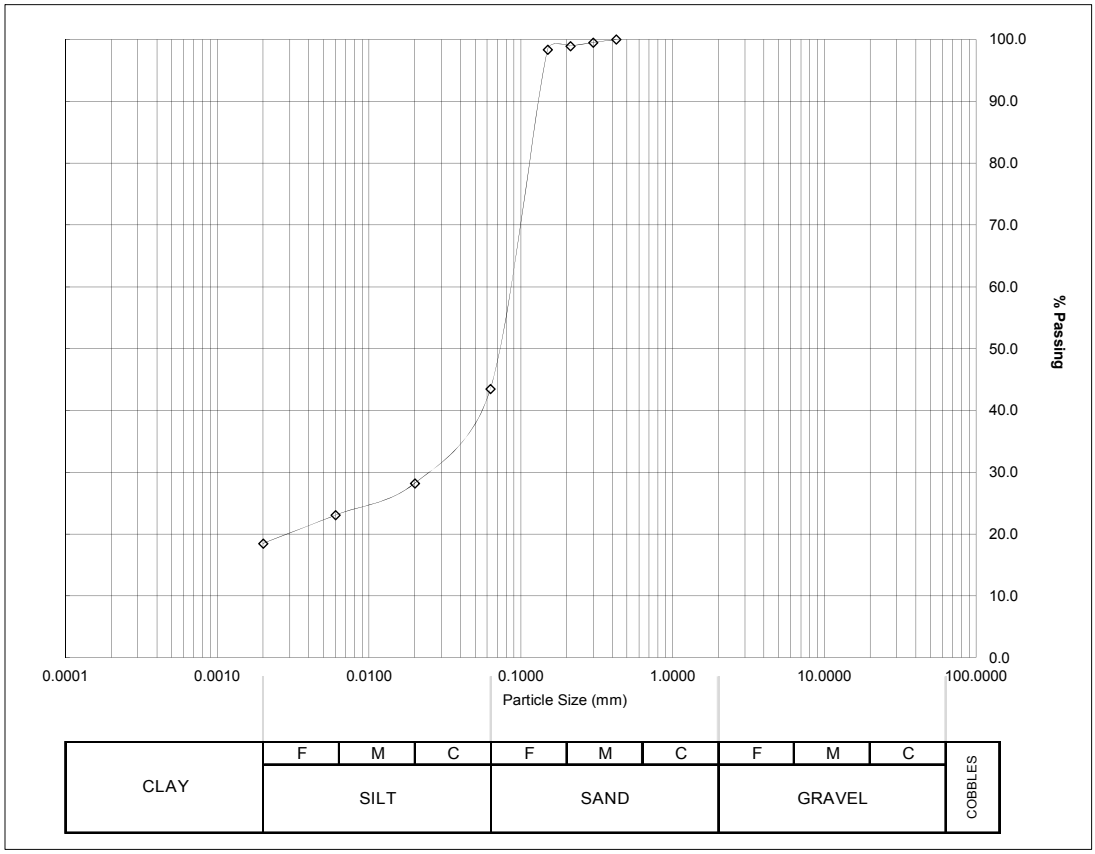
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH17**	**Sample Type/No.**	**B**	**16**	**Top Depth: 29.50 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	98
0.063	43



Particle Proportions %	
Cobbles	
Gravel	
Sand	56.5
Silt	25.0
Clay	18.5

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING
4503

Remarks:

Date - samples received:	21/11/2016	Checked by:	KM
Date - samples tested:	07/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

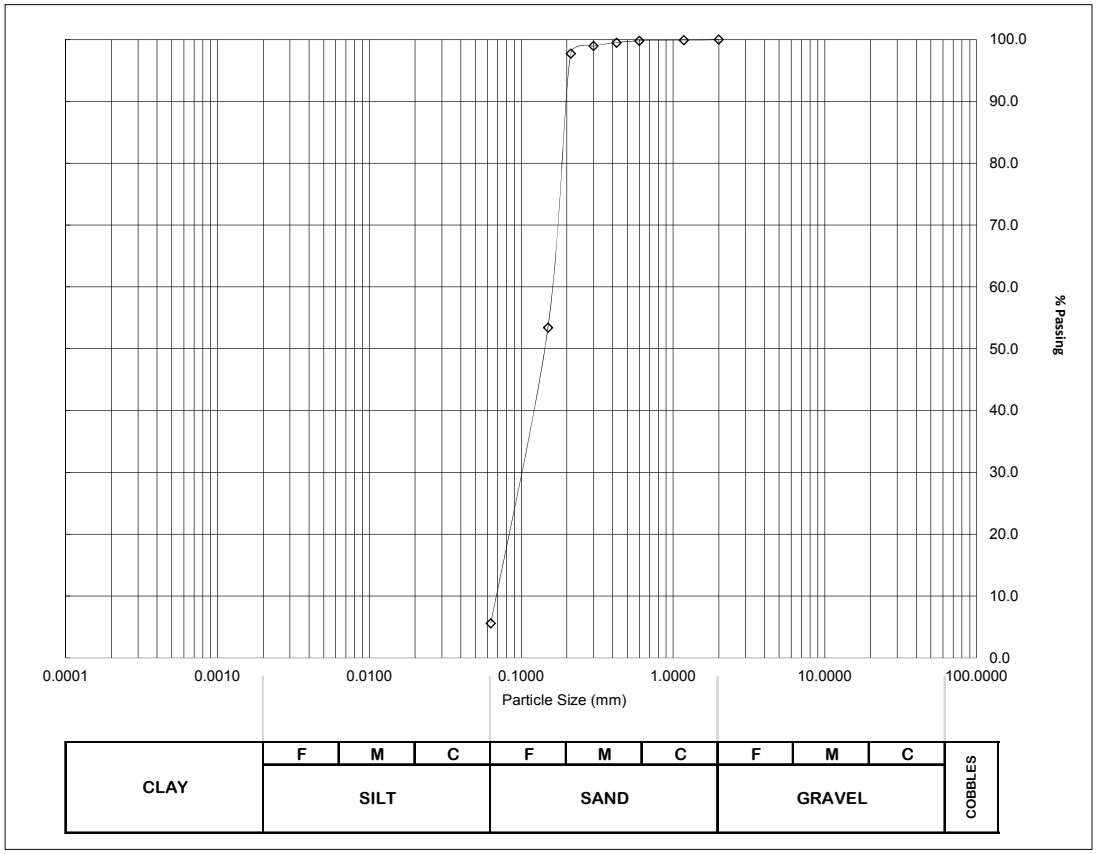
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH18**	**Sample Type/No.**	**B**	**10**	**Top Depth: 15.00 m**	**Bottom Depth:**	**15.50 m**

Soil Description:

Grey slightly silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	98
0.150	53
0.063	6



Particle Proportions %	
Cobbles	
Gravel	
Sand	94.4
Silt and Clay	5.6

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

UKAS TESTING 4503

Remarks:

Date - samples received:	15/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

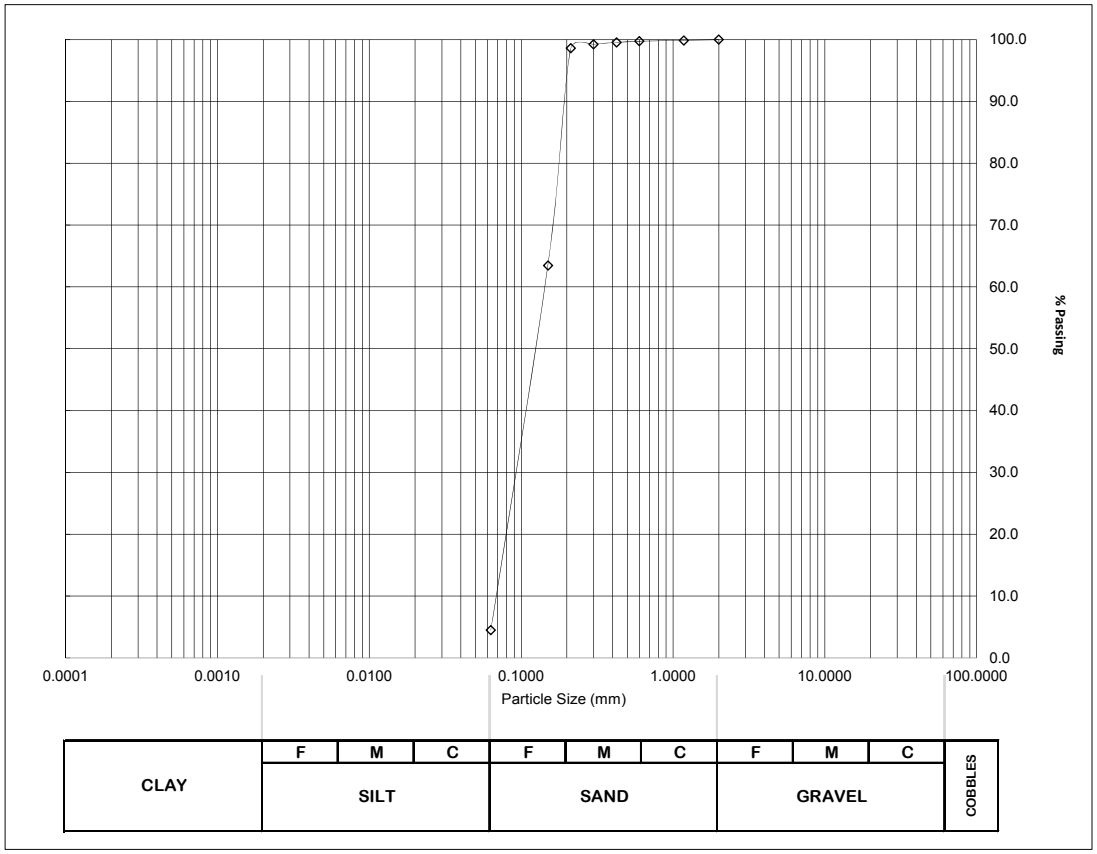
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH18**	**Sample Type/No.**	**B**	**14**	**Top Depth: 17.00 m**	**Bottom Depth:**	**17.50 m**

Soil Description:

Grey slightly silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	99
0.150	63
0.063	4



Particle Proportions %	
Cobbles	
Gravel	
Sand	95.5
Silt and Clay	4.5

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	15/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

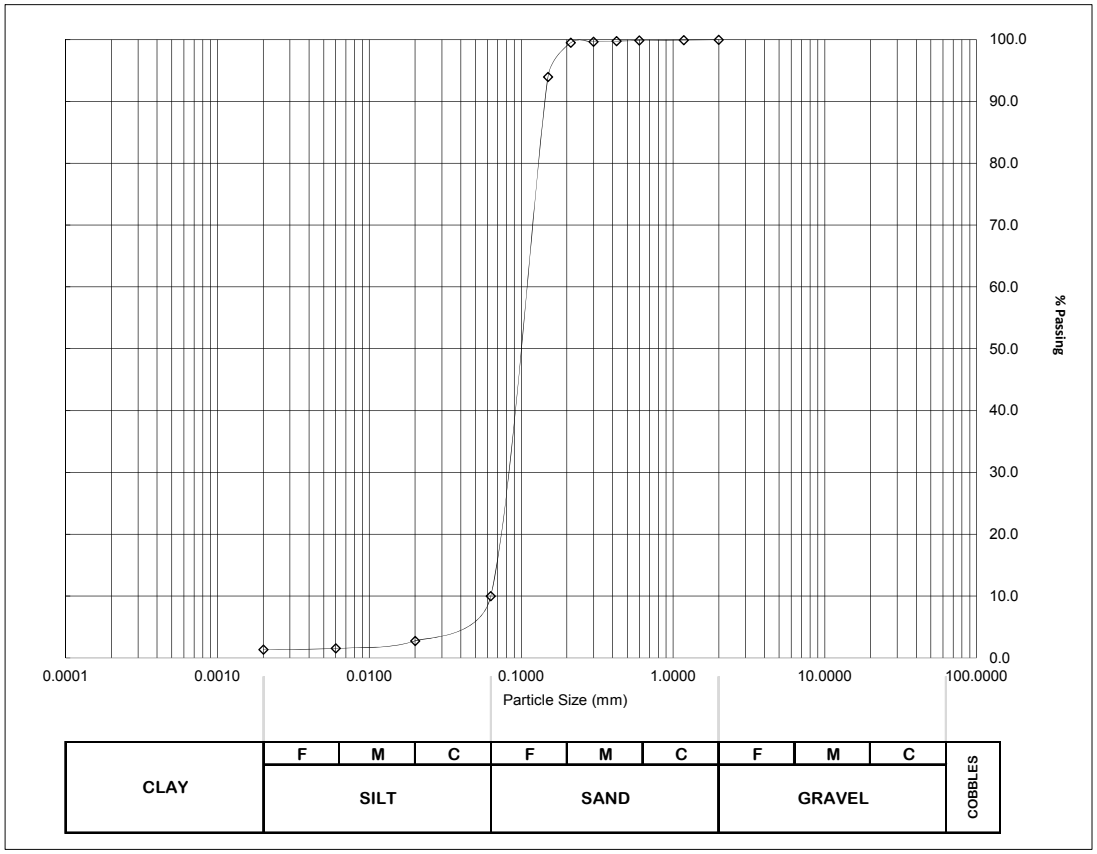
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH18**	**Sample Type/No.**	**B**	**18**	**Top Depth: 20.00 m**	**Bottom Depth:**	**20.50 m**

Soil Description:

Grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	94
0.063	10



Particle Proportions %	
Cobbles	
Gravel	0.0
Sand	90.0
Silt	8.6
Clay	1.3

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	15/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

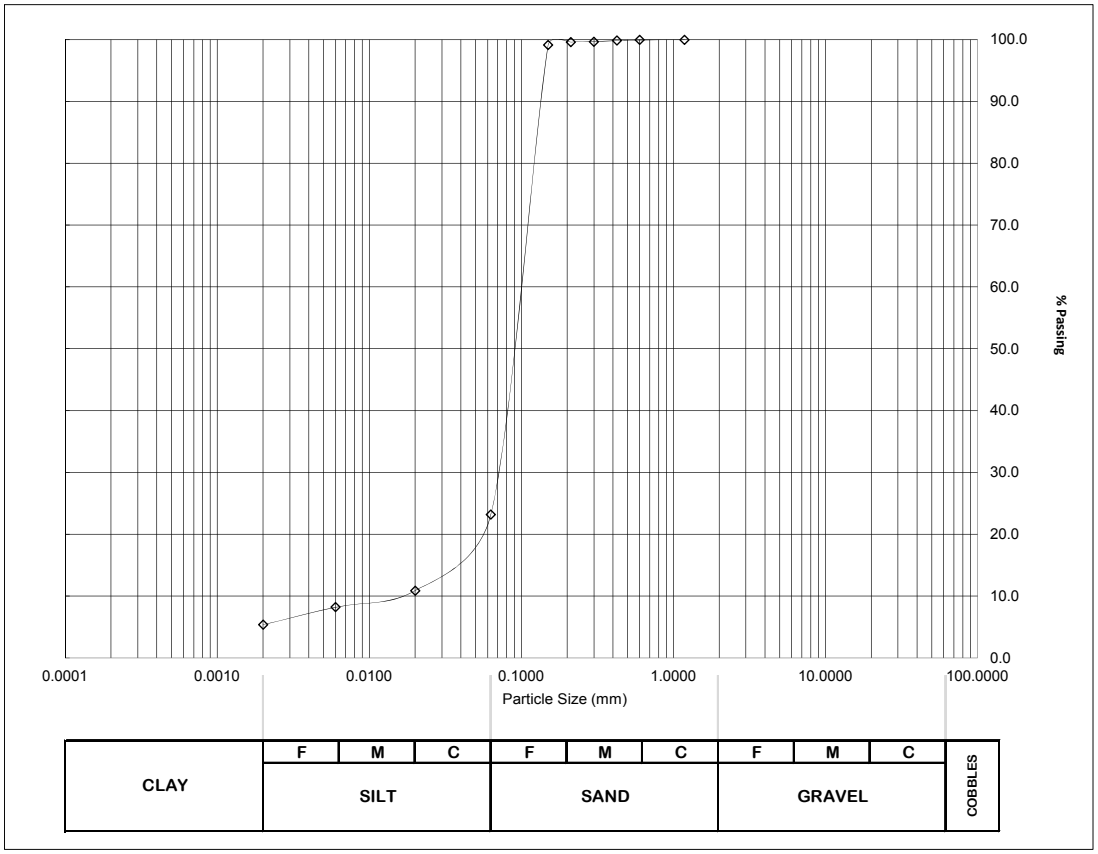
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH18**	**Sample Type/No.**	**D**	**23**	**Top Depth: 24.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	23



Particle Proportions %	
Cobbles	
Gravel	
Sand	76.8
Silt	17.8
Clay	5.4

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	15/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

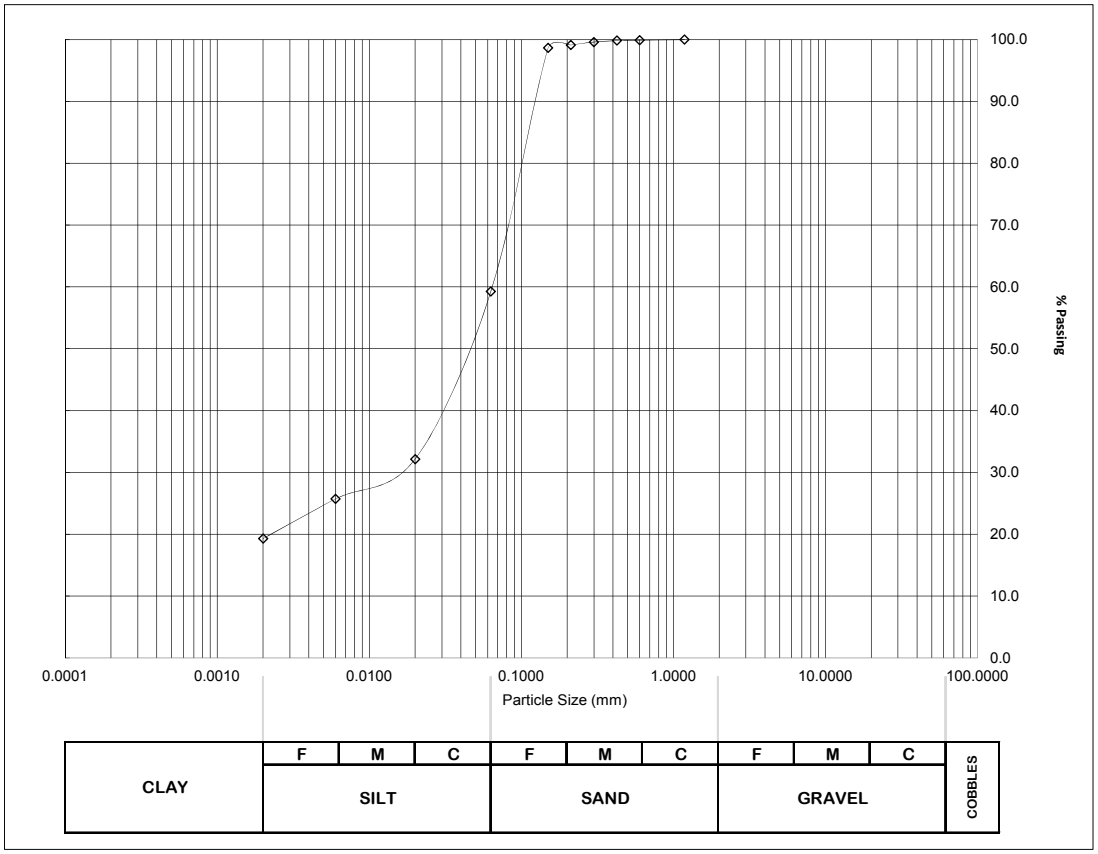
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH18**	**Sample Type/No.**	**D**	**27**	**Top Depth: 27.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey sandy silty CLAY

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	99
0.063	59



Particle Proportions %	
Cobbles	
Gravel	
Sand	40.7
Silt	40.0
Clay	19.3

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	15/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

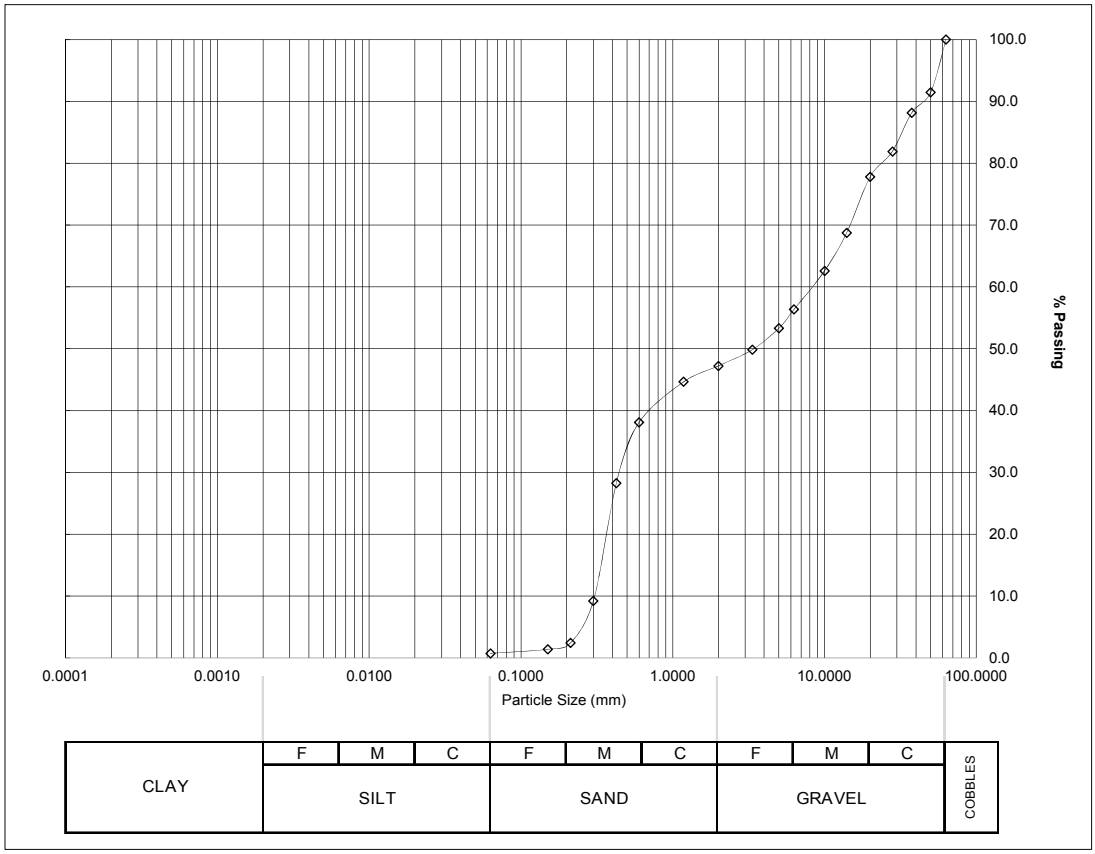
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH19**	**Sample Type/No.**	**B**	**10**	**Top Depth: 14.50 m**	**Bottom Depth:**	**15.00 m**

Soil Description:

Greenish grey fine to coarse SAND and angular to well rounded flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	91
37.500	88
28.000	82
20.000	78
14.000	69
10.000	63
6.300	56
5.000	53
3.350	50
2.000	47
1.180	45
0.600	38
0.425	28
0.300	9
0.212	2
0.150	1
0.063	1



Particle Proportions %	
Cobbles	
Gravel	52.8
Sand	46.5
Silt and Clay	0.7

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	08/12/2016	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

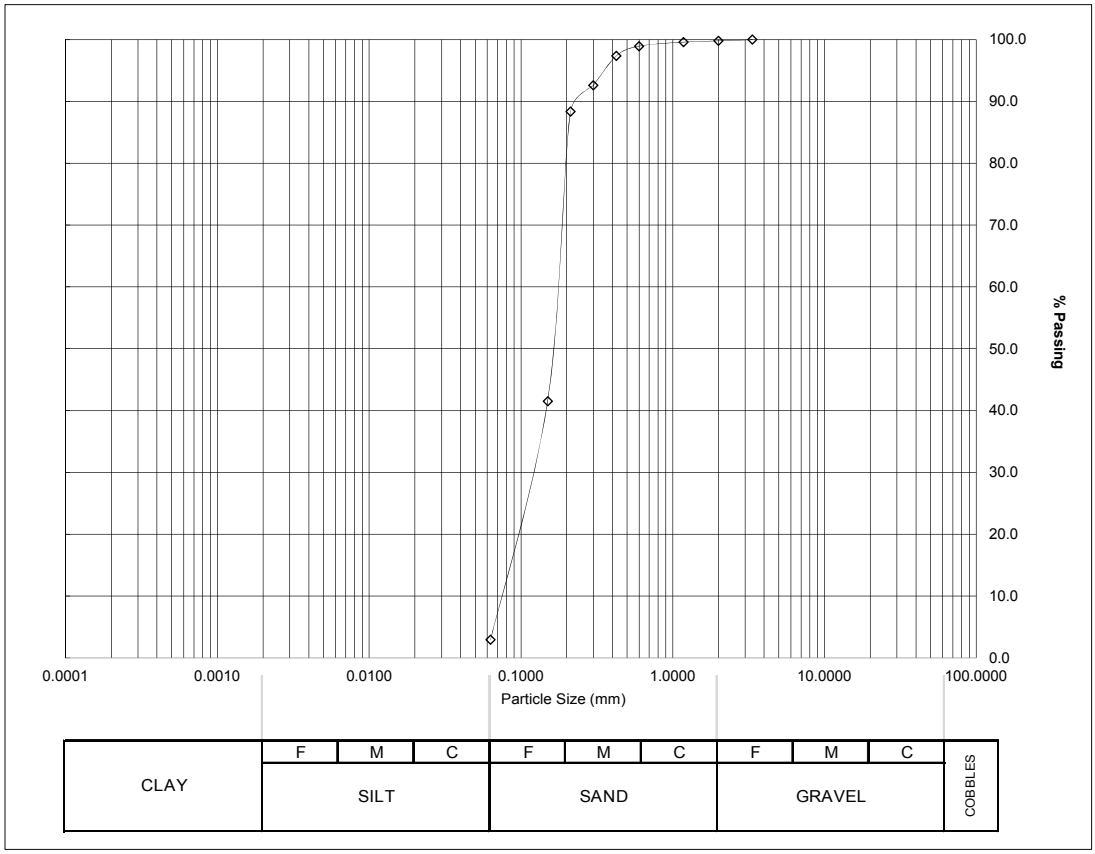
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH19**	**Sample Type/No.**	**B**	**14**	**Top Depth: 16.00 m**	**Bottom Depth:**	**16.50 m**

Soil Description:

Grey slightly silty fine and medium SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	99
0.425	97
0.300	93
0.212	88
0.150	42
0.063	3



Particle Proportions %	
Cobbles	
Gravel	0.2
Sand	96.9
Silt and Clay	2.9

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	08/12/2016	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

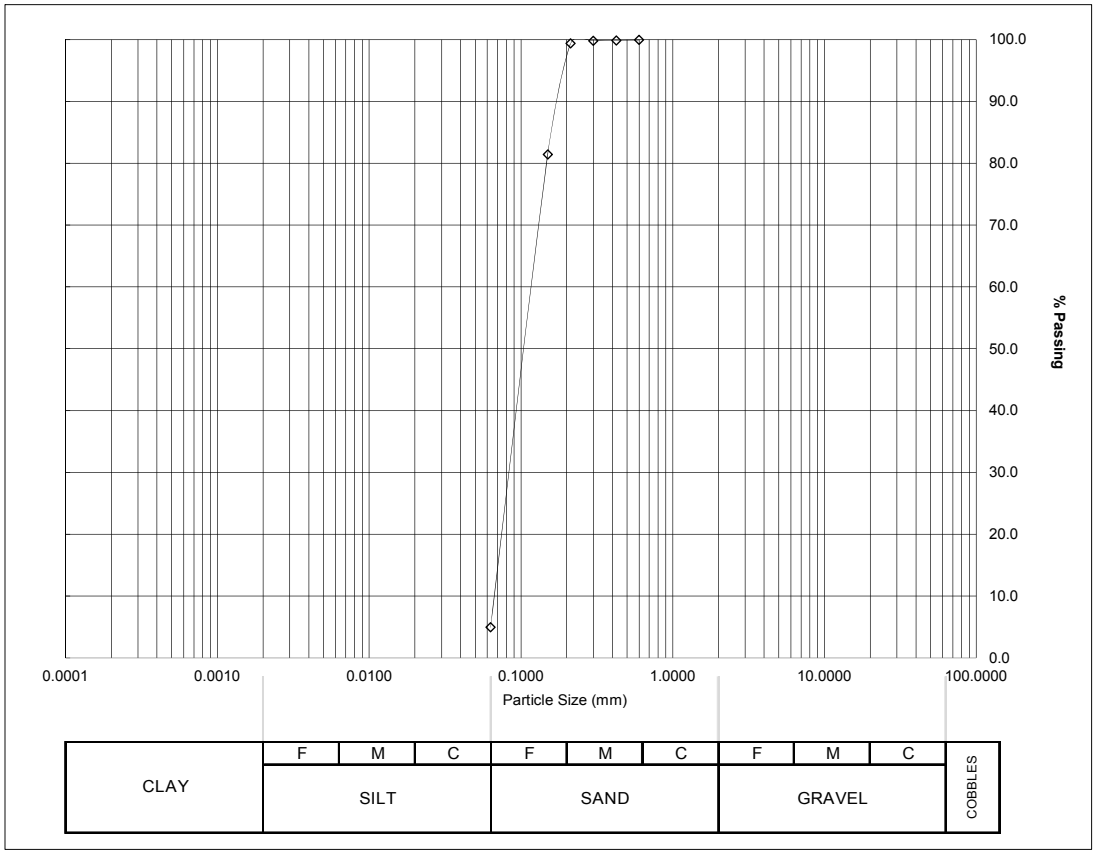
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH19**	**Sample Type/No.**	**B**	**26**	**Top Depth: 24.50 m**	**Bottom Depth:**	**25.00 m**

Soil Description:

Grey slightly silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	81
0.063	5



Particle Proportions %	
Cobbles	
Gravel	
Sand	95.1
Silt and Clay	4.9

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	08/12/2016	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

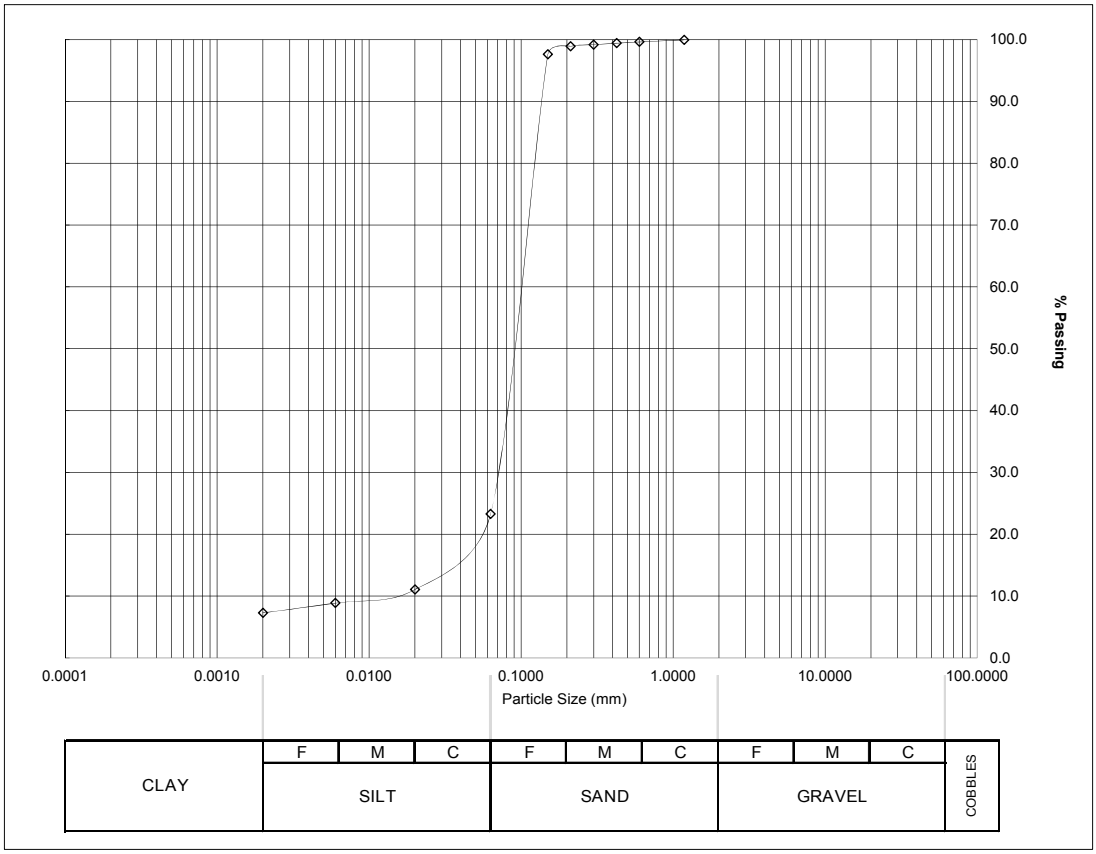
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**17/02/2017**
Borehole No:	**BH19**	**Sample Type/No.**	**B**	**28**	**Top Depth: 26.00 m**	**Bottom Depth:**	**26.50 m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	99
0.212	99
0.150	98
0.063	23



Particle Proportions %	
Cobbles	
Gravel	
Sand	76.7
Silt	16.0
Clay	7.3

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	08/12/2016	Checked by:	KM
Date - samples tested:	09/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

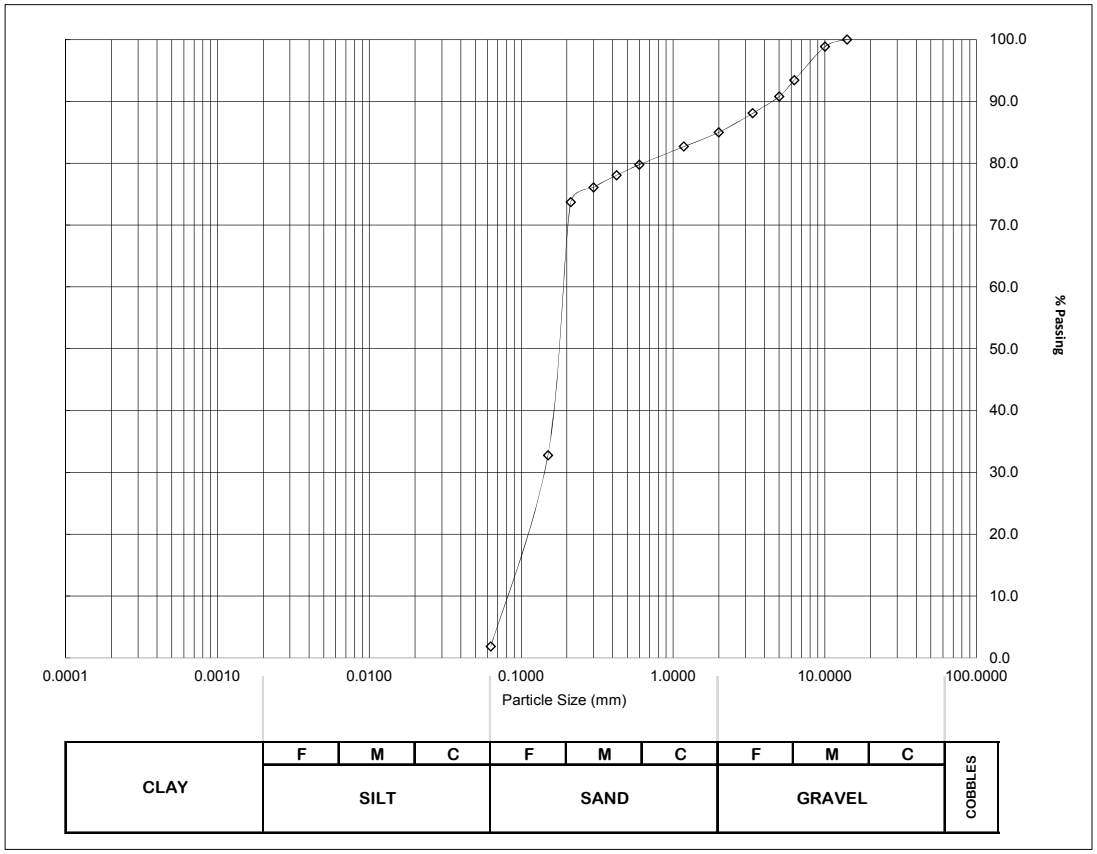
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH20**	**Sample Type/No.**	**B**	**03**	**Top Depth: 14.00 m**	**Bottom Depth:**	**14.50 m**

Soil Description:

Greyish brown gravelly fine SAND. Gravel is angular to rounded fine to medium flint

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	99
6.300	93
5.000	91
3.350	88
2.000	85
1.180	83
0.600	80
0.425	78
0.300	76
0.212	74
0.150	33
0.063	2



Particle Proportions %	
Cobbles	
Gravel	15.0
Sand	83.2
Silt and Clay	1.8

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	12/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

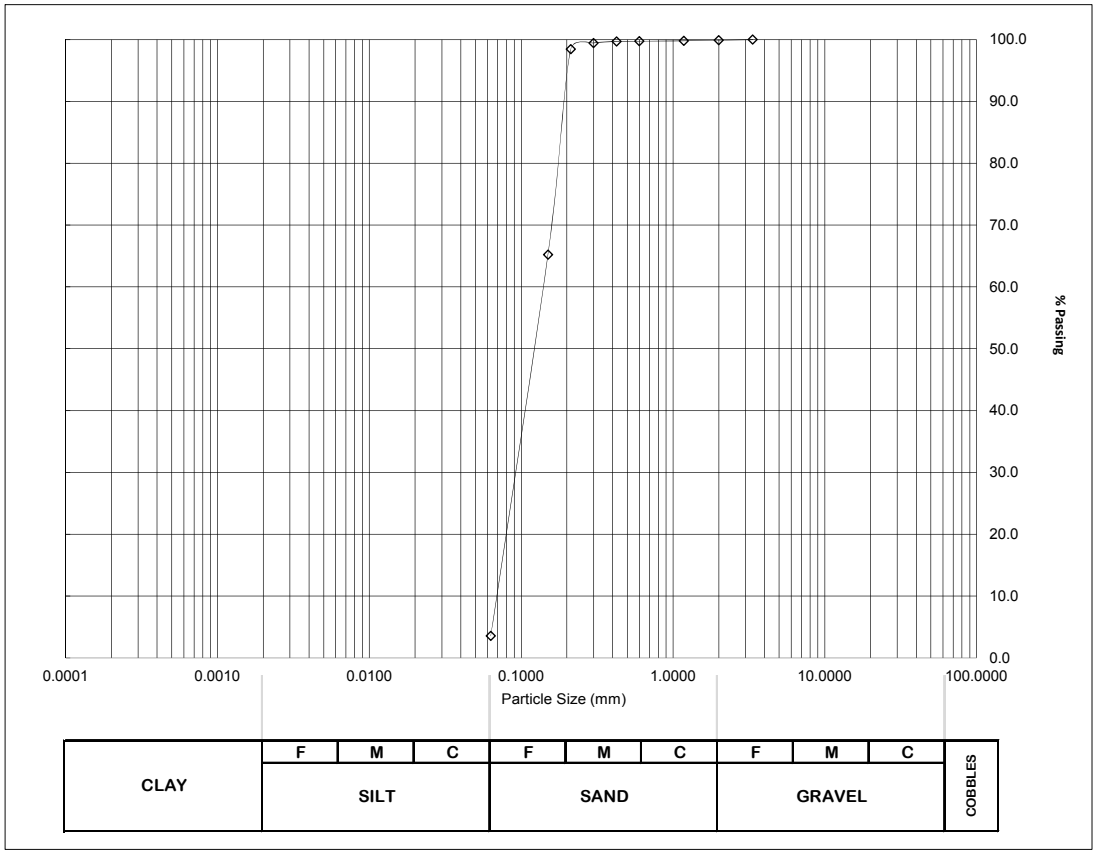
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH20**	**Sample Type/No.**	**B**	**09**	**Top Depth: 17.50 m**	**Bottom Depth:**	**18.00 m**

Soil Description:

Dark grey slightly silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	98
0.150	65
0.063	4



Particle Proportions %	
Cobbles	
Gravel	0.1
Sand	96.3
Silt and Clay	3.6

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	12/01/2017	Checked by:	KM
Date - samples tested:	20/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

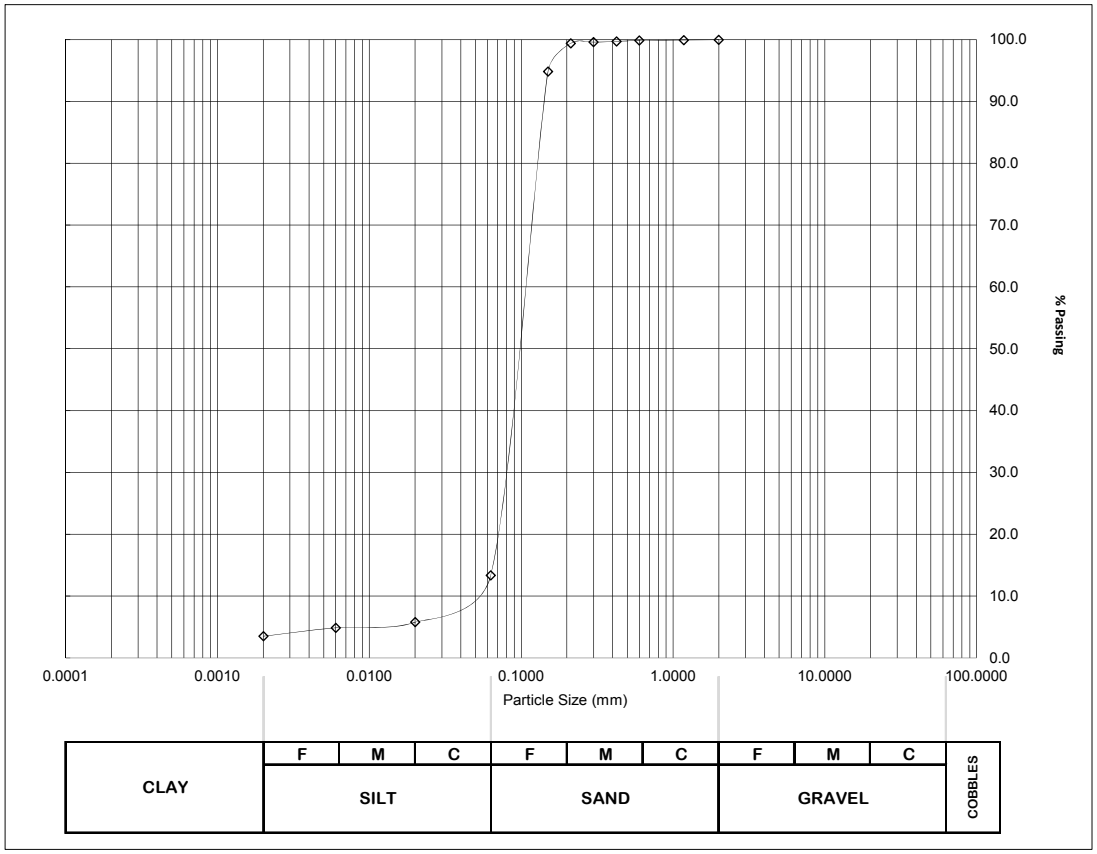
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH20**	**Sample Type/No.**	**B**	**15**	**Top Depth: 22.00 m**	**Bottom Depth:**	**22.50 m**

Soil Description:

Dark grey slightly clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	95
0.063	13



Particle Proportions %	
Cobbles	
Gravel	0.0
Sand	86.6
Silt	9.8
Clay	3.5

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	12/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	20/02/2017

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

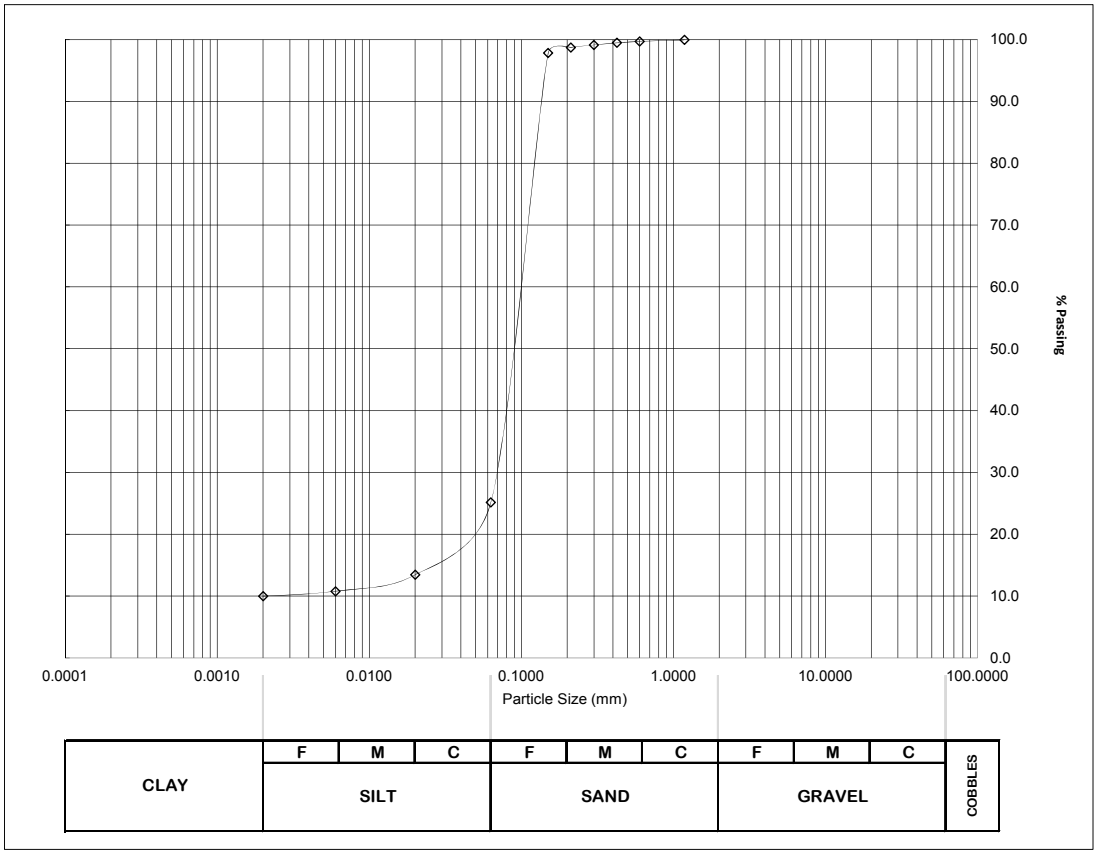
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH20**	**Sample Type/No.**	**B**	**21**	**Top Depth: 26.50 m**	**Bottom Depth:**	**27.00 m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	99
0.212	99
0.150	98
0.063	25



Particle Proportions %	
Cobbles	
Gravel	
Sand	74.8
Silt	15.2
Clay	10.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING 4503

Remarks:

Date - samples received:	12/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

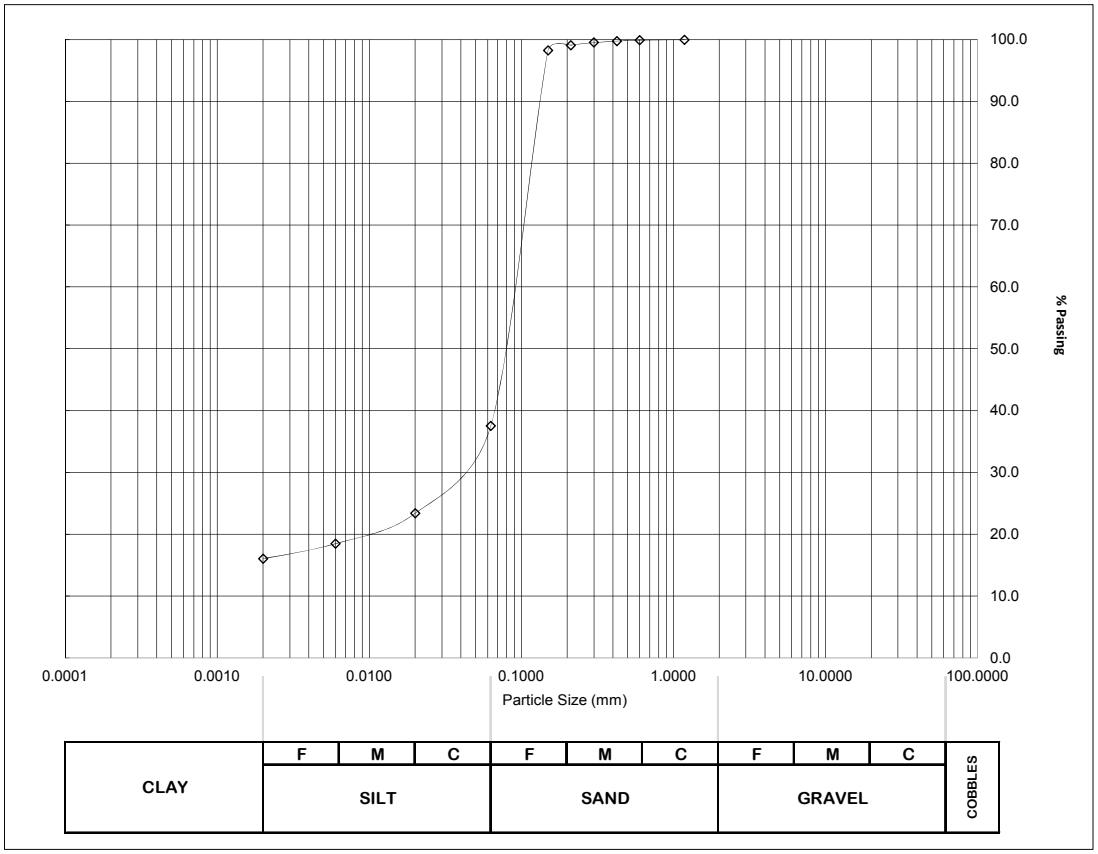
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH20**	**Sample Type/No.**	**B**	**25**	**Top Depth: 29.50 m**	**Bottom Depth:**	**30.00 m**

Soil Description:

Dark grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	98
0.063	38



Particle Proportions %	
Cobbles	
Gravel	
Sand	62.4
Silt	21.5
Clay	16.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING
4503

Remarks:

Date - samples received:	12/01/2017	Checked by:	KM
Date - samples tested:	17/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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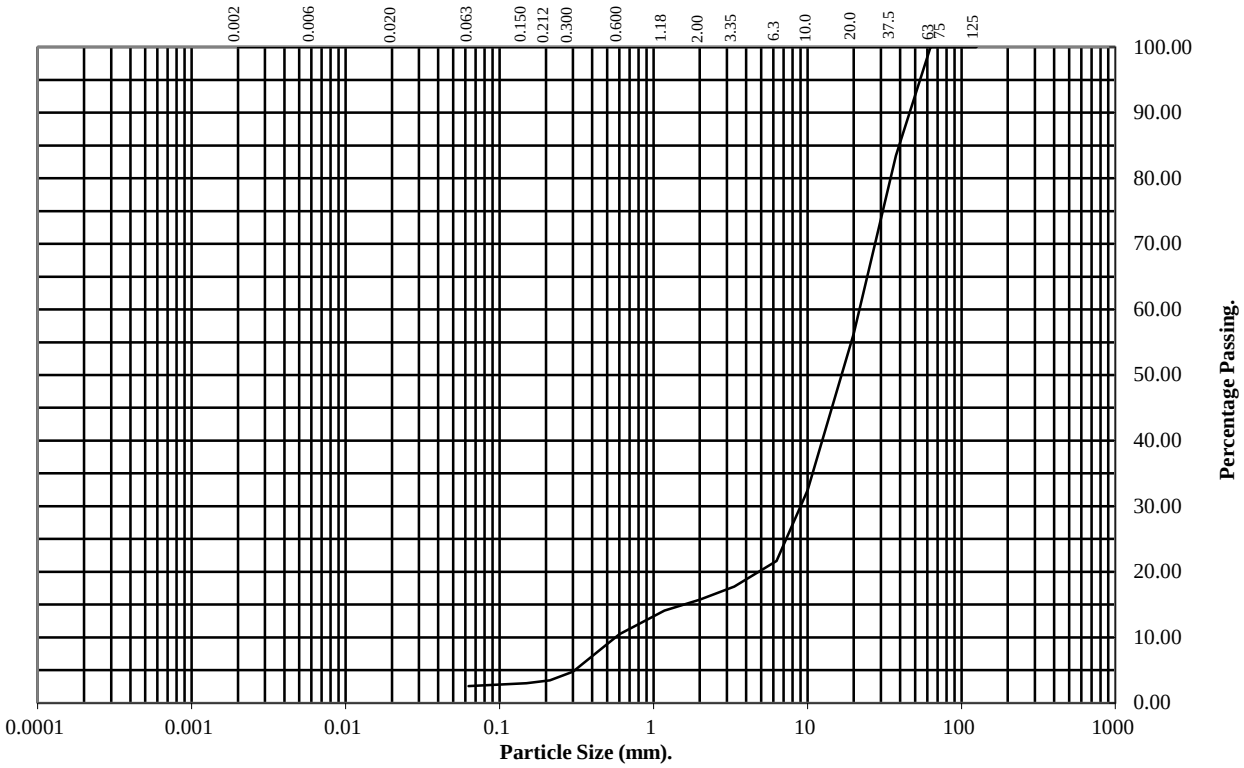
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH21**	**Top Depth (m):**	**13.10**
Sample Number:	**6**	**Base Depth(m):**	**13.50**
Sample Type:	**B**		



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	83
20	56
10	32
6.3	22
3.35	18
2	16
1.18	14
0.6	10
0.3	5
0.212	3
0.15	3
0.063	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	84
Sand	13
Silt/Clay	3

Remarks:

See summary of soil descriptions.

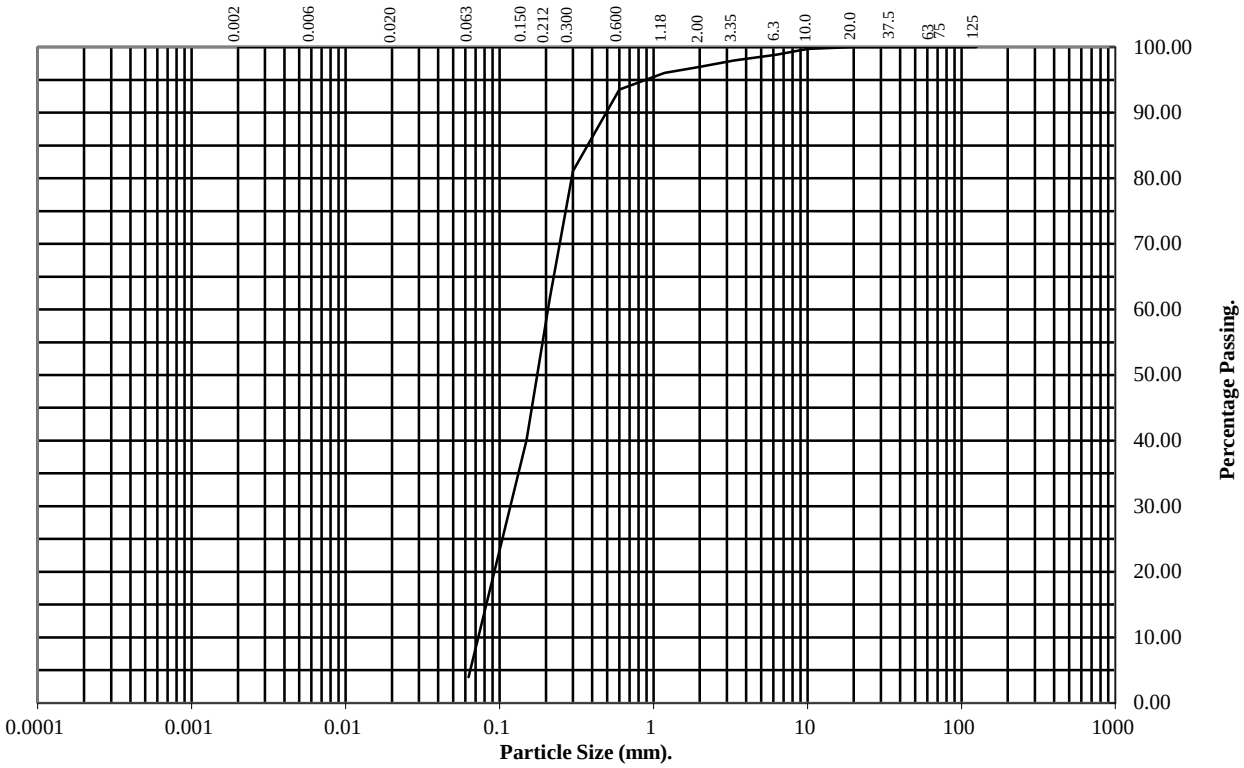
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**05/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5913**
						Client Ref:
						L1342

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH21**	**Top Depth (m):**	**13.80**
Sample Number:	**9**	**Base Depth(m):**	**14.00**
Sample Type:	**B**		



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	98
2	97
1.18	96
0.6	94
0.3	81
0.212	62
0.15	40
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	93
Silt/Clay	4

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**05/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5913**
						Client Ref:
						L1342

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

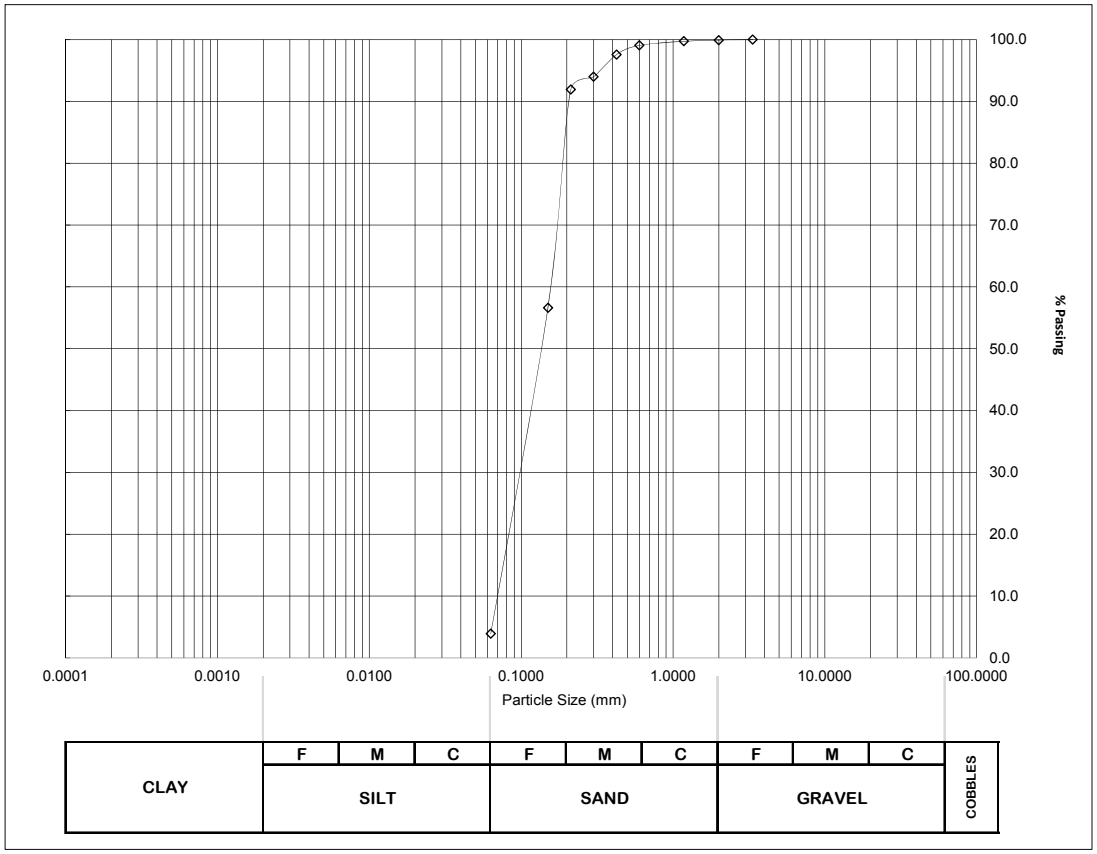
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH21**	**Sample Type/No.**	**B**	**12**	**Top Depth: 15.00 m**	**Bottom Depth:**	**15.50 m**

Soil Description:

Greyish brown slightly clayey fine to medium SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	99
0.425	98
0.300	94
0.212	92
0.150	57
0.063	4



Particle Proportions %	
Cobbles	
Gravel	0.1
Sand	96.0
Silt and Clay	3.9

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	30/11/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

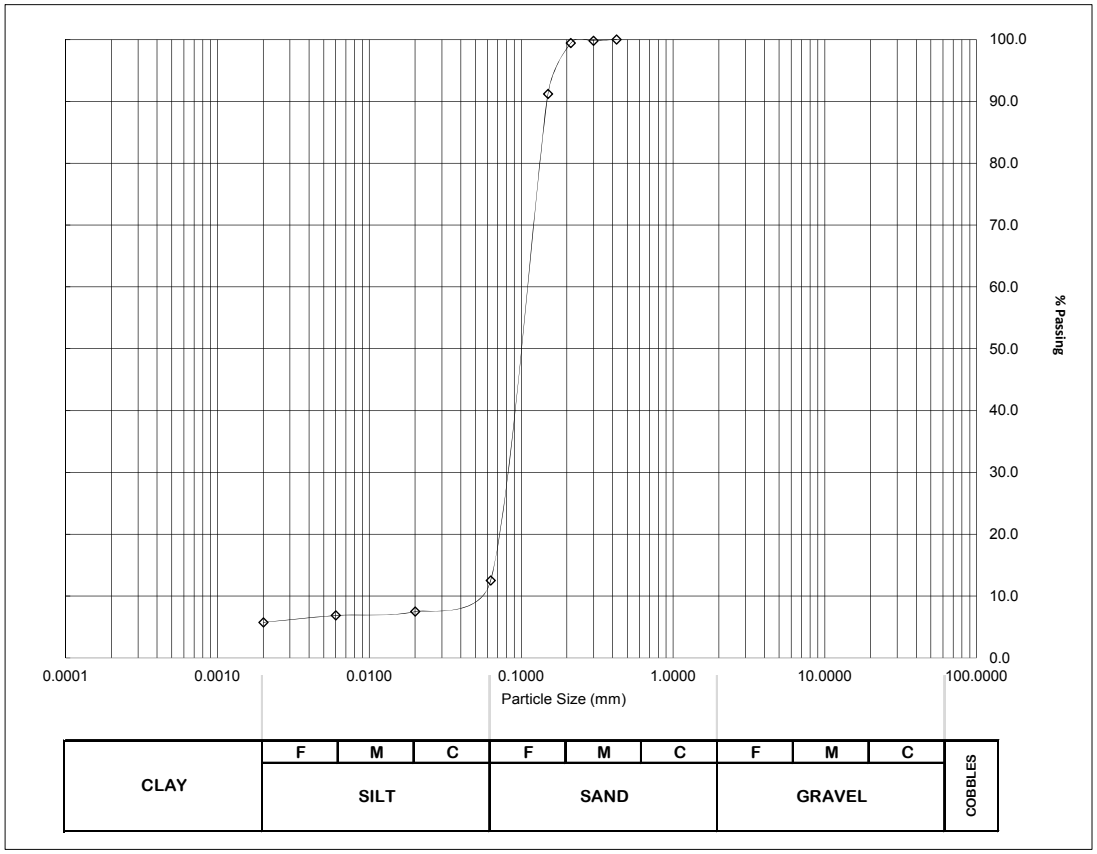
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH21**	**Sample Type/No.**	**B**	**16**	**Top Depth: 17.00 m**	**Bottom Depth:**	**17.50 m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	91
0.063	13



Particle Proportions %	
Cobbles	
Gravel	
Sand	87.5
Silt	6.8
Clay	5.7

Method/type:	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	30/11/2016	Checked by:	KM
Date - samples tested:	25/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

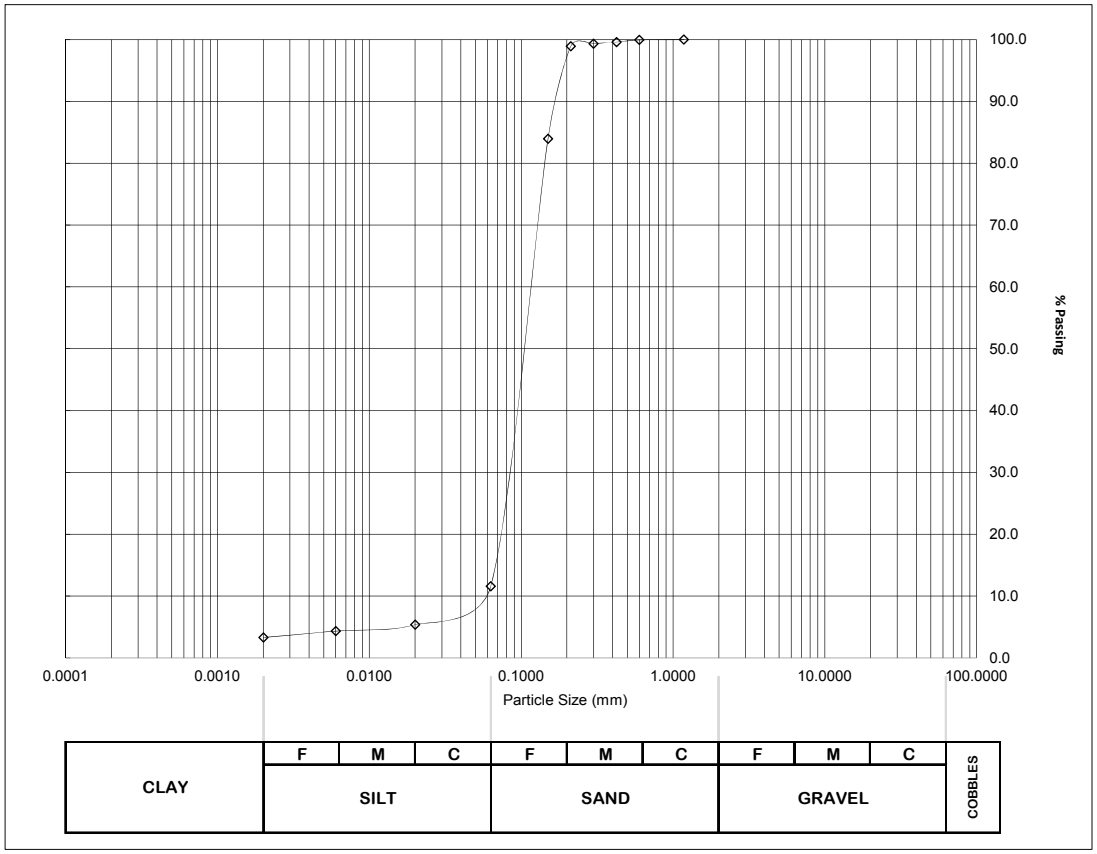
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH21**	**Sample Type/No.**	**B**	**18**	**Top Depth: 18.50 m**	**Bottom Depth:**	**19.00 m**

Soil Description:

Dark grey slightly clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	99
0.150	84
0.063	12



Particle Proportions %	
Cobbles	
Gravel	
Sand	88.4
Silt	8.3
Clay	3.3

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	30/11/2016	Checked by:	KM
Date - samples tested:	24/01/2016	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

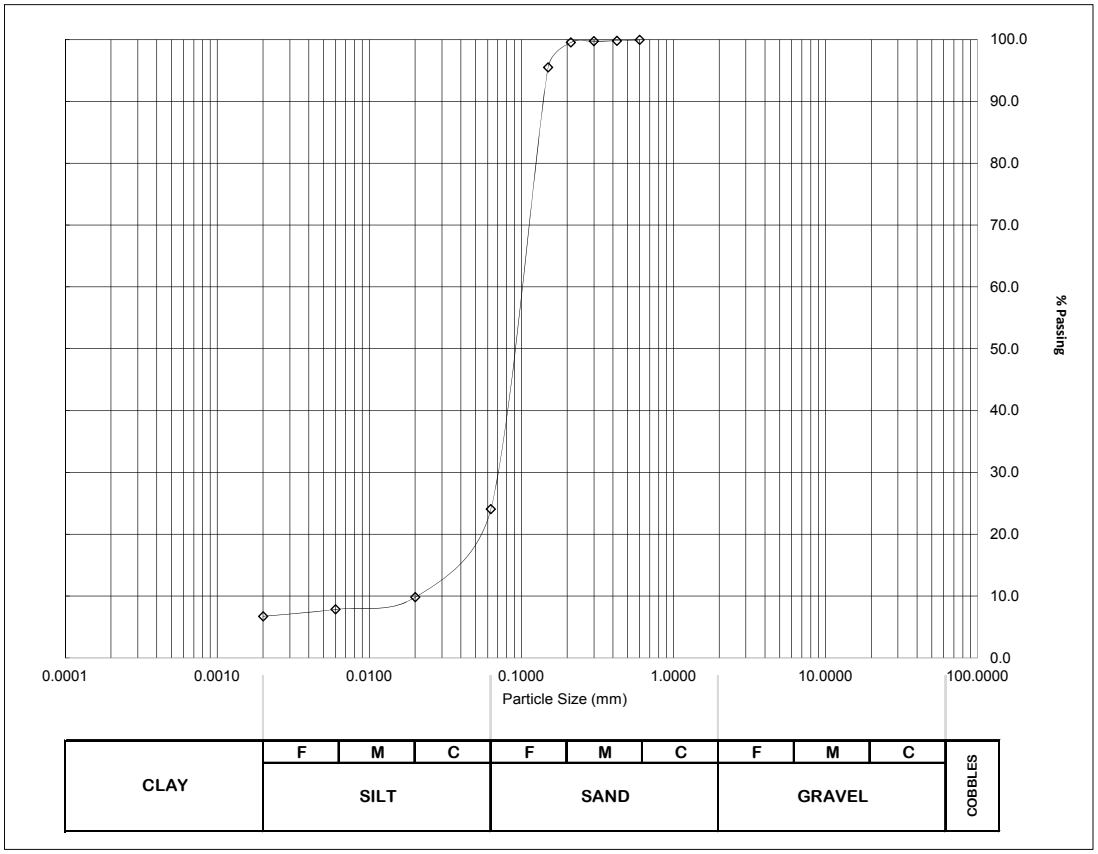
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH21**	**Sample Type/No.**	**B**	**22**	**Top Depth: 21.50 m**	**Bottom Depth:**	**22.00 m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	96
0.063	24



Particle Proportions %	
Cobbles	
Gravel	
Sand	75.9
Silt	17.3
Clay	6.7

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	30/11/2016	Checked by:	KM
Date - samples tested:	24/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

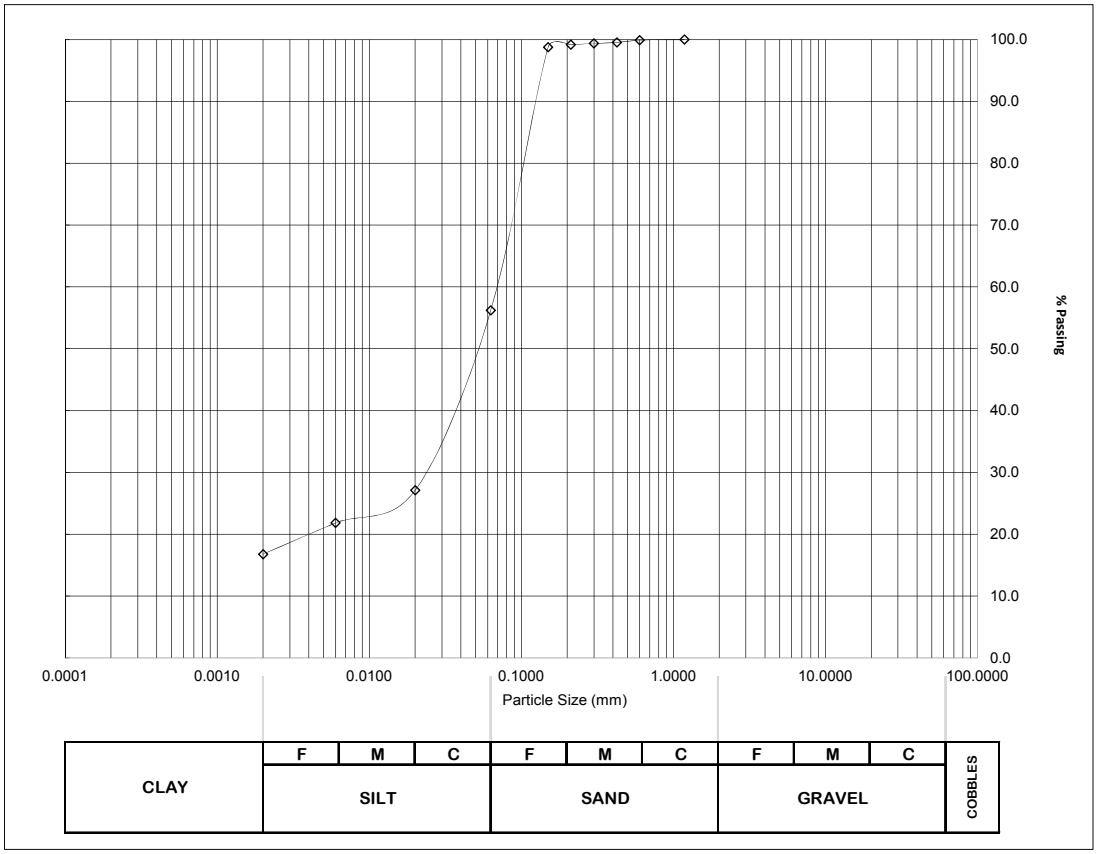
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH21**	**Sample Type/No.**	**B**	**28**	**Top Depth: 26.00 m**	**Bottom Depth:**	**26.50 m**

Soil Description:

Dark brownish grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	99
0.150	99
0.063	56



Particle Proportions %	
Cobbles	
Gravel	
Sand	43.8
Silt	39.5
Clay	16.8

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING 4503

Remarks:

Date - samples received:	30/11/2016	Checked by:	KM
Date - samples tested:	24/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

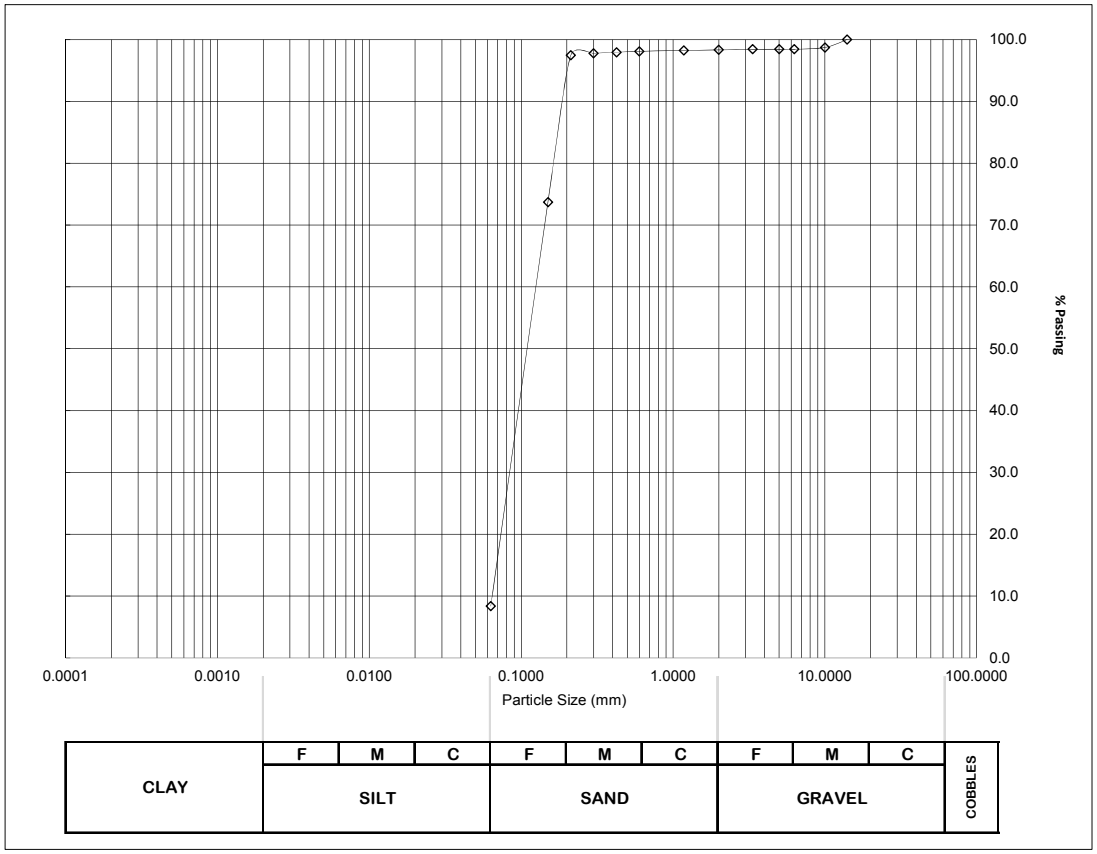
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH21R**	**Sample Type/No.**	**B**	**08**	**Top Depth: 16.80 m**	**Bottom Depth:**	**17.00 m**

Soil Description:

Grey slightly silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	99
6.300	98
5.000	98
3.350	98
2.000	98
1.180	98
0.600	98
0.425	98
0.300	98
0.212	97
0.150	74
0.063	8



Particle Proportions %	
Cobbles	
Gravel	1.7
Sand	90.0
Silt and Clay	8.4

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	09/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	11/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

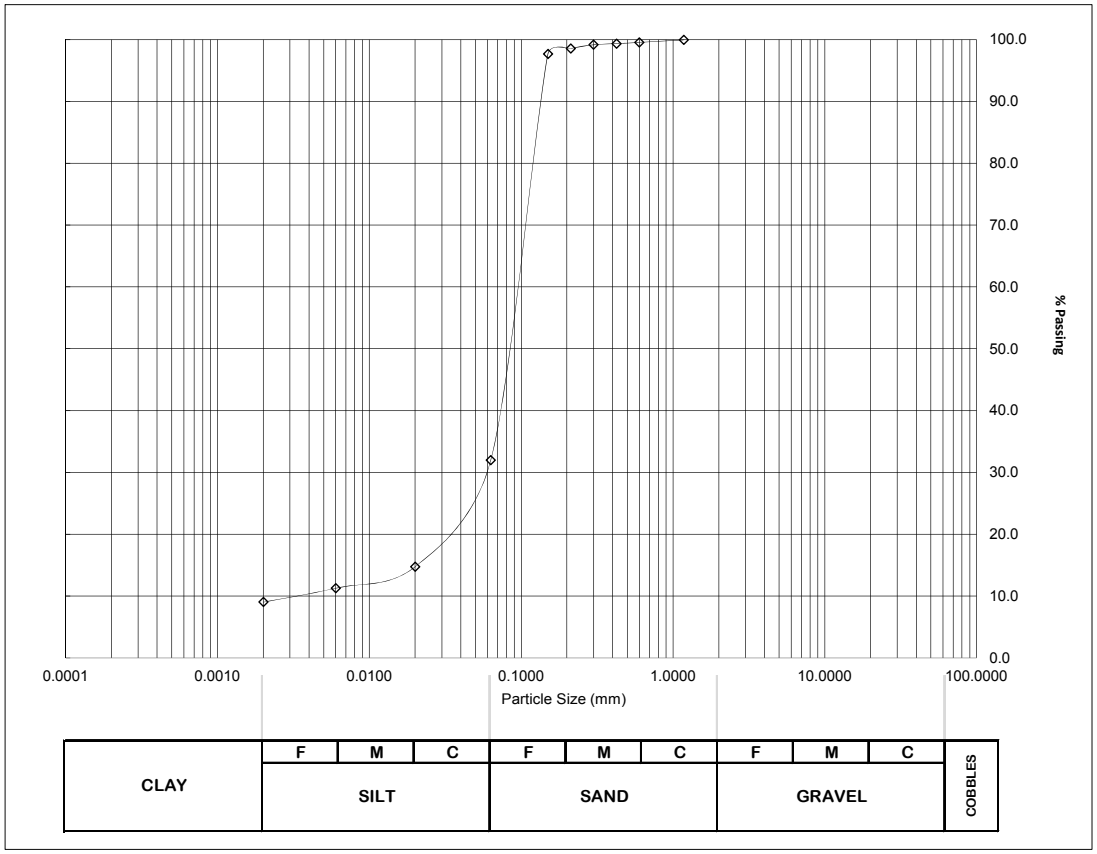
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**11/02/2017**
Borehole No:	**BH21R**	**Sample Type/No.**	**B**	**13**	**Top Depth: 24.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	99
0.212	99
0.150	98
0.063	32



Particle Proportions %	
Cobbles	
Gravel	
Sand	68.0
Silt	23.0
Clay	9.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING
4503

Remarks:

Date - samples received:	09/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	11/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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Tel: 02087401553
Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

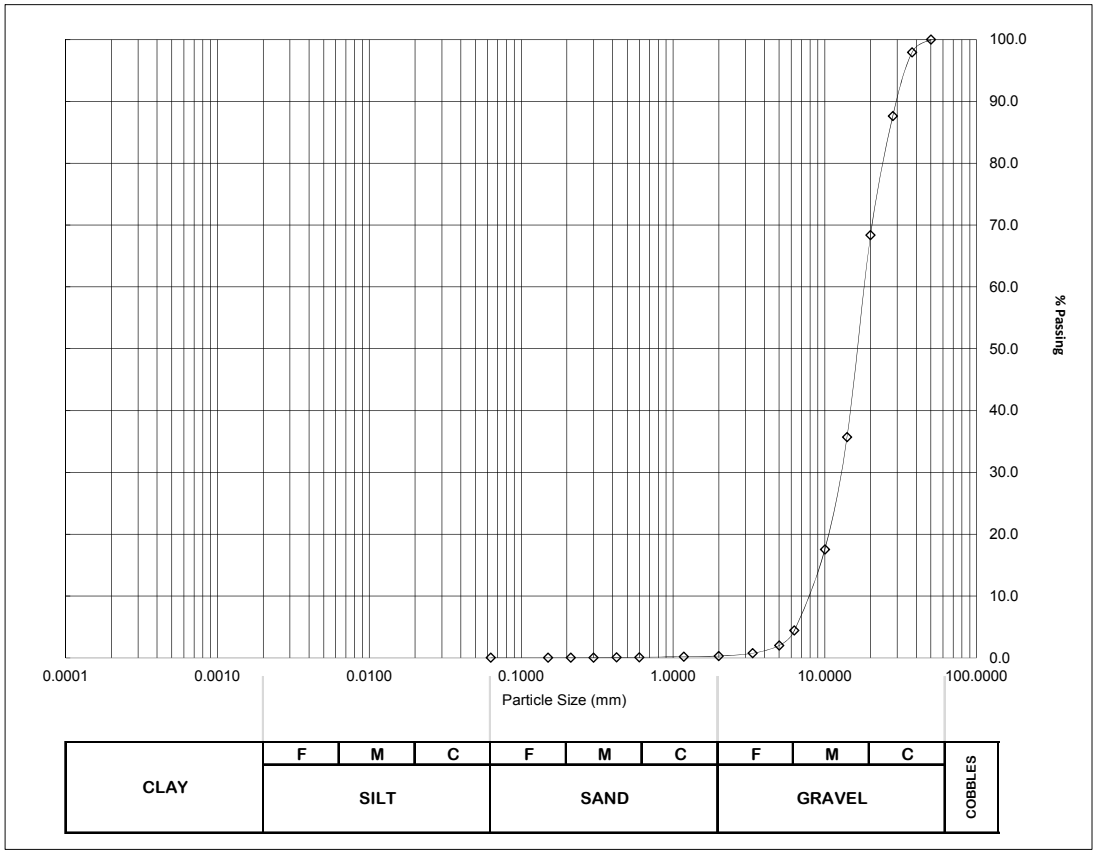
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH22**	**Sample Type/No.**	**B**	**03**	**Top Depth: 15.00 m**	**Bottom Depth:**	**m**

Soil Description:

Grey angular to well rounded medium and coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	98
28.000	88
20.000	68
14.000	36
10.000	18
6.300	4
5.000	2
3.350	1
2.000	0
1.180	0
0.600	0
0.425	0
0.300	0
0.212	0
0.150	0
0.063	0



Particle Proportions %	
Cobbles	
Gravel	99.7
Sand	0.3
Silt and Clay	

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	22/12/2016	Checked by:	KM
Date - samples tested:	20/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

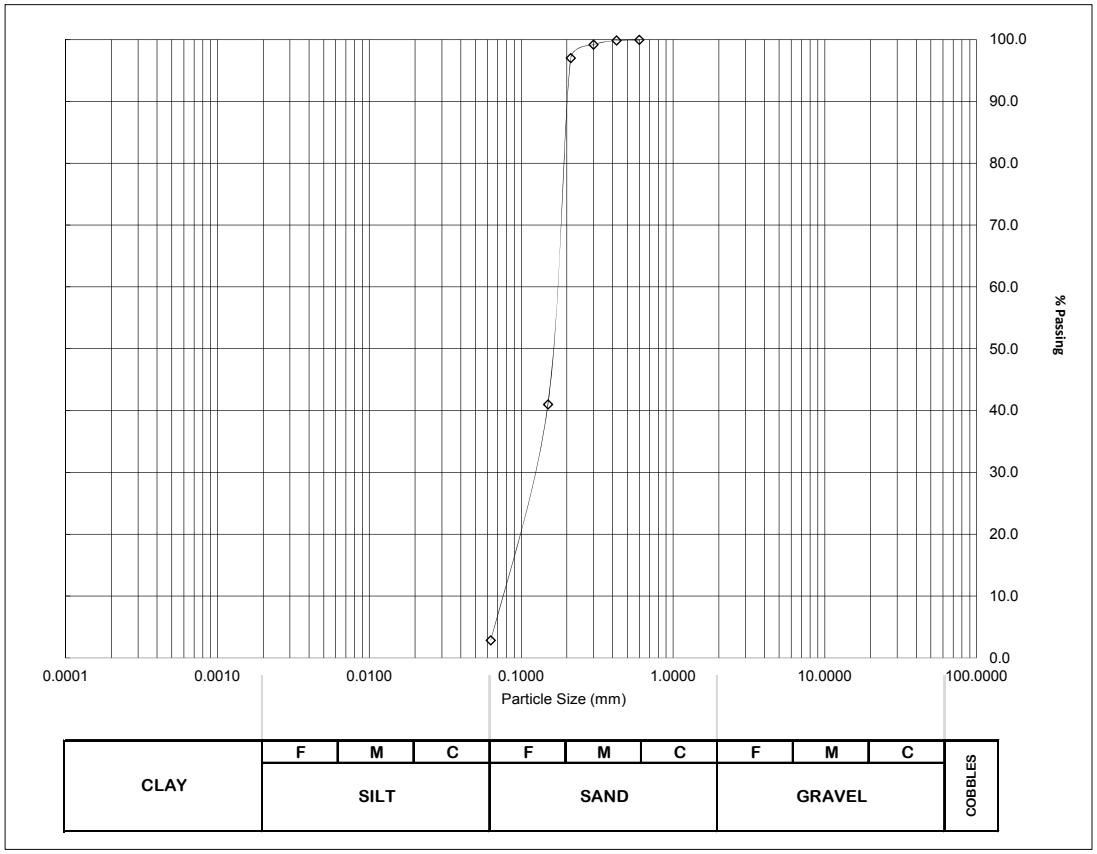
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH22**	**Sample Type/No.**	**B**	**05**	**Top Depth: 17.00 m**	**Bottom Depth:**	**m**

Soil Description:

Light grey slightly silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	97
0.150	41
0.063	3



Particle Proportions %	
Cobbles	
Gravel	
Sand	97.1
Silt and Clay	2.9

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	22/12/2016	Checked by:	KM
Date - samples tested:	20/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

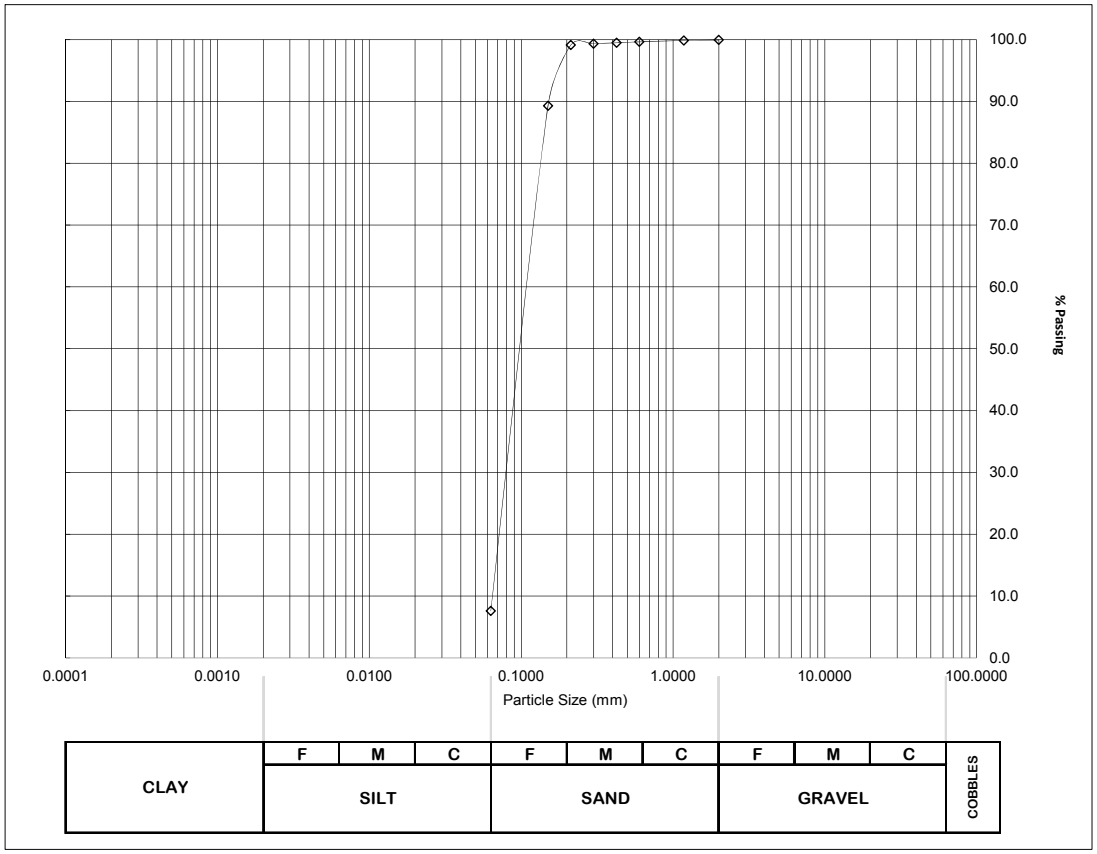
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH22**	**Sample Type/No.**	**B**	**11**	**Top Depth: 22.10 m**	**Bottom Depth:**	**m**

Soil Description:

Grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	99
0.150	89
0.063	8



Particle Proportions %	
Cobbles	
Gravel	0.0
Sand	92.4
Silt and Clay	7.6

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	22/12/2016	Checked by:	KM
Date - samples tested:	20/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

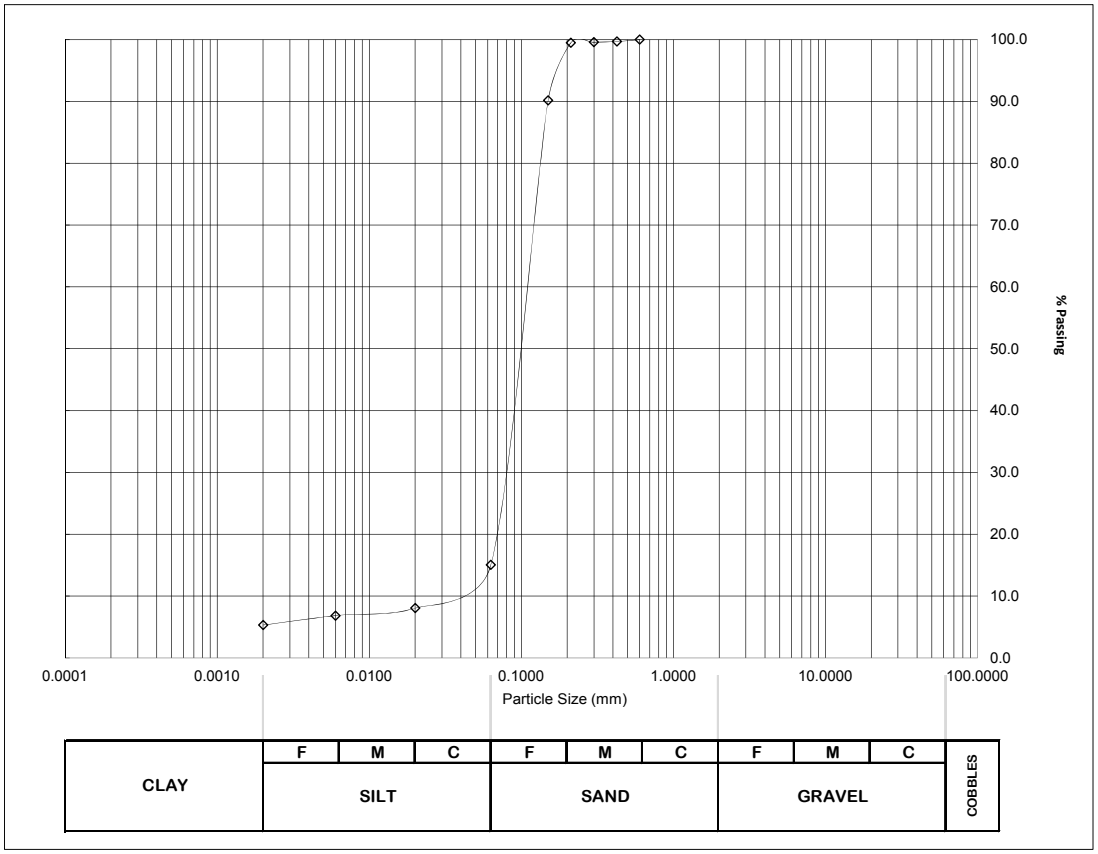
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH22**	**Sample Type/No.**	**B**	**15**	**Top Depth: 25.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	90
0.063	15



Particle Proportions %	
Cobbles	
Gravel	
Sand	84.9
Silt	9.7
Clay	5.3

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING
4503

Remarks:

Date - samples received:	22/12/2016	Checked by:	KM
Date - samples tested:	14/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

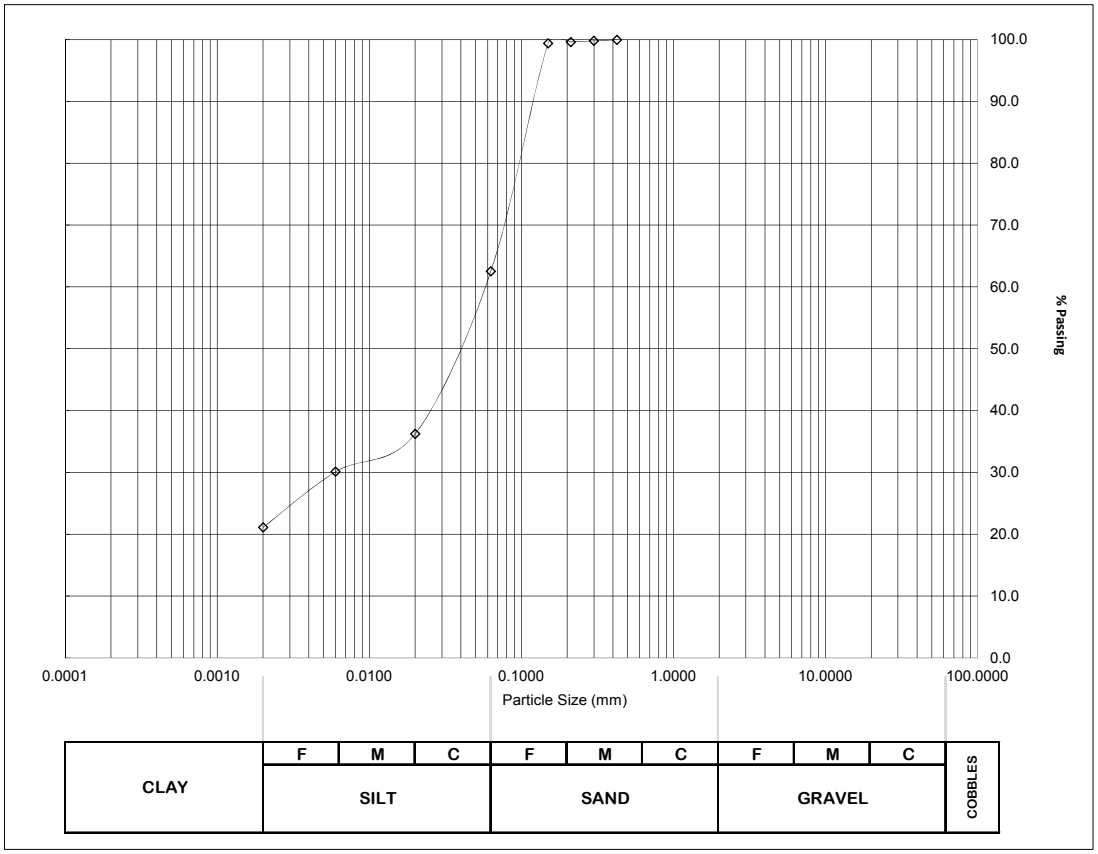
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH22**	**Sample Type/No.**	**B**	**23**	**Top Depth: 31.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey very clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	63



Particle Proportions %	
Cobbles	
Gravel	
Sand	37.5
Silt	41.4
Clay	21.1

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	22/12/2016	Checked by:	KM
Date - samples tested:	09/02/2017	Date:	20/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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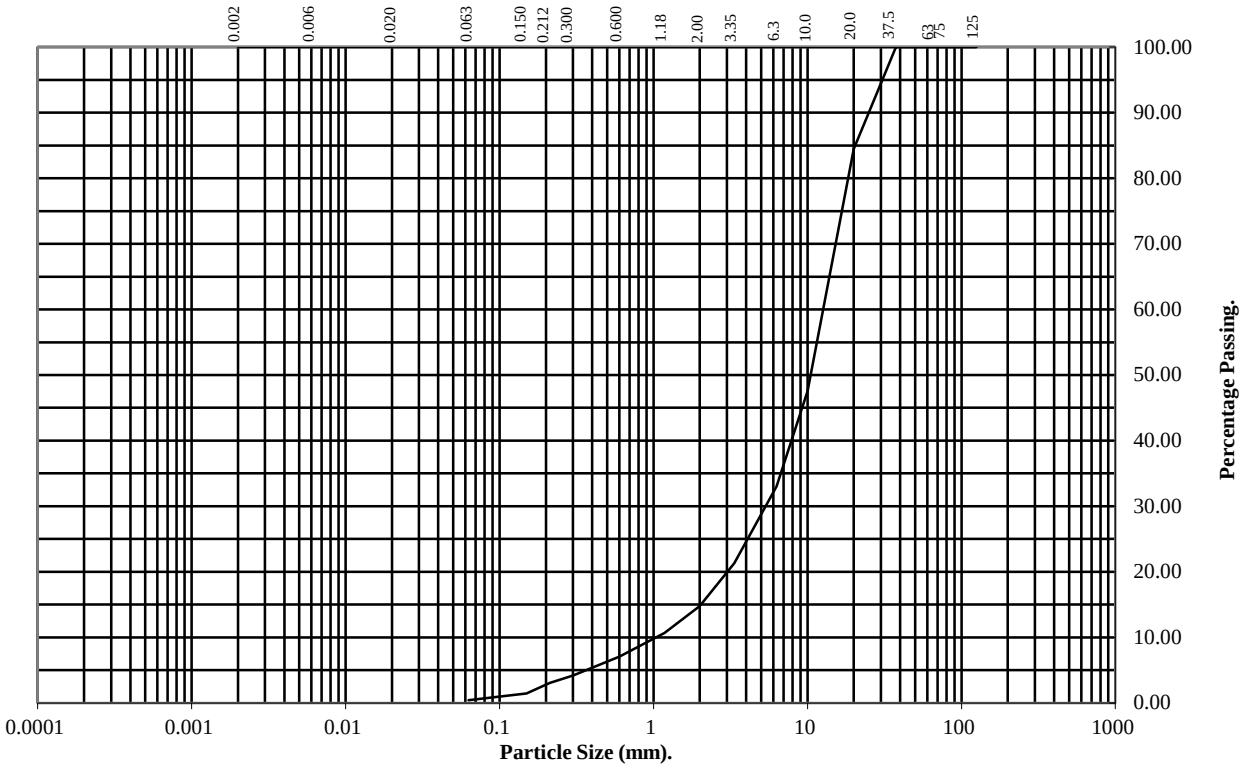
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH23**	**Top Depth (m):**	**13.50**
Sample Number:	**7**	**Base Depth(m):**	**14.00**
Sample Type:	**B**		



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	84
10	48
6.3	33
3.35	21
2	15
1.18	11
0.6	7
0.3	4
0.212	3
0.15	1
0.063	0

Soil Fraction	Total Percentage
Cobbles	0
Gravel	85
Sand	15
Silt/Clay	0

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**16/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

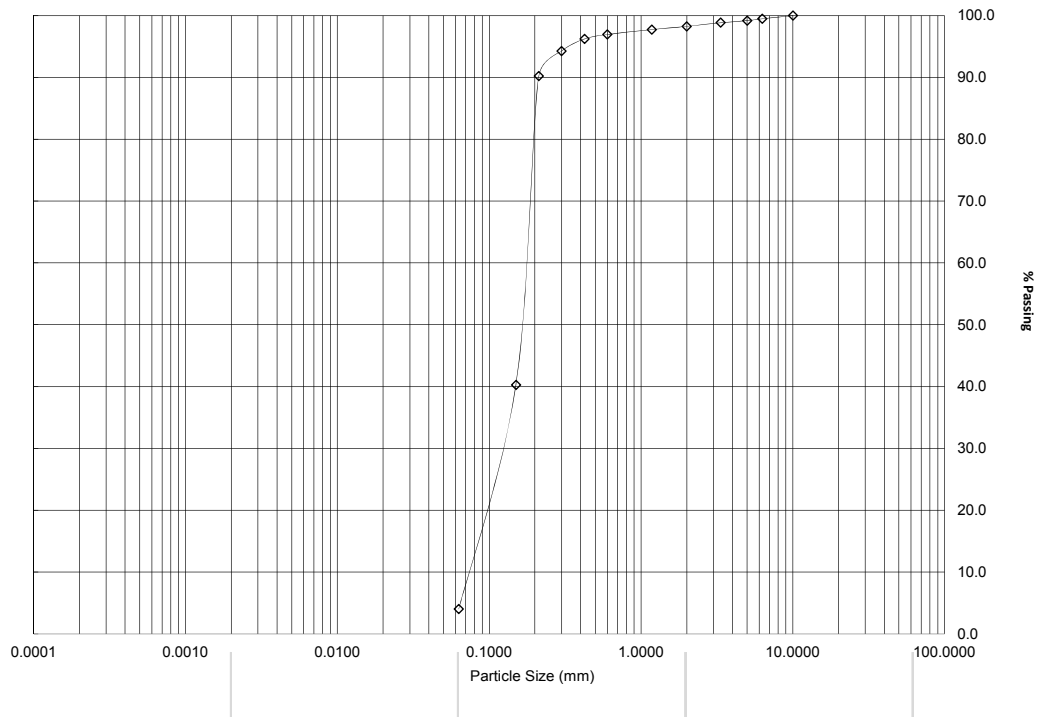
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH23**	**Sample Type/No.**	**B**	**09**	**Top Depth: 14.10 m**	**Bottom Depth:**	**14.50 m**

Soil Description:

Brownish grey slightly micaceous slightly clayey fine and medium SAND with rare fine and medium flint gravel

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	99
3.350	99
2.000	98
1.180	98
0.600	97
0.425	96
0.300	94
0.212	90
0.150	40
0.063	4



Particle Proportions %	
Cobbles	
Gravel	1.7
Sand	94.2
Silt and Clay	4.0

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	07/12/2016	Checked by:	KM
Date - samples tested:	19/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

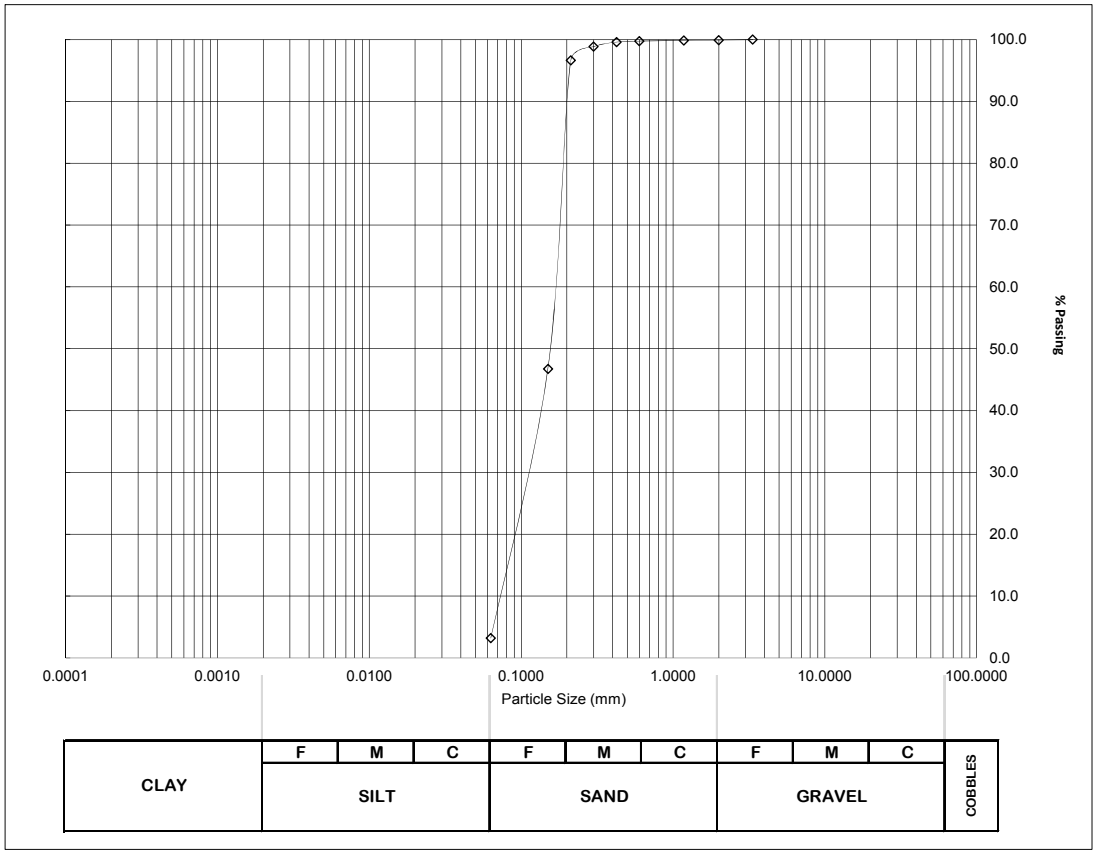
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH23**	**Sample Type/No.**	**B**	**15**	**Top Depth: 17.00 m**	**Bottom Depth:**	**17.50 m**

Soil Description:

Brownish grey slightly clayey fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	99
0.212	97
0.150	47
0.063	3



Particle Proportions %	
Cobbles	
Gravel	0.1
Sand	96.7
Silt and Clay	3.2

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	07/12/2016	Checked by:	KM
Date - samples tested:	30/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

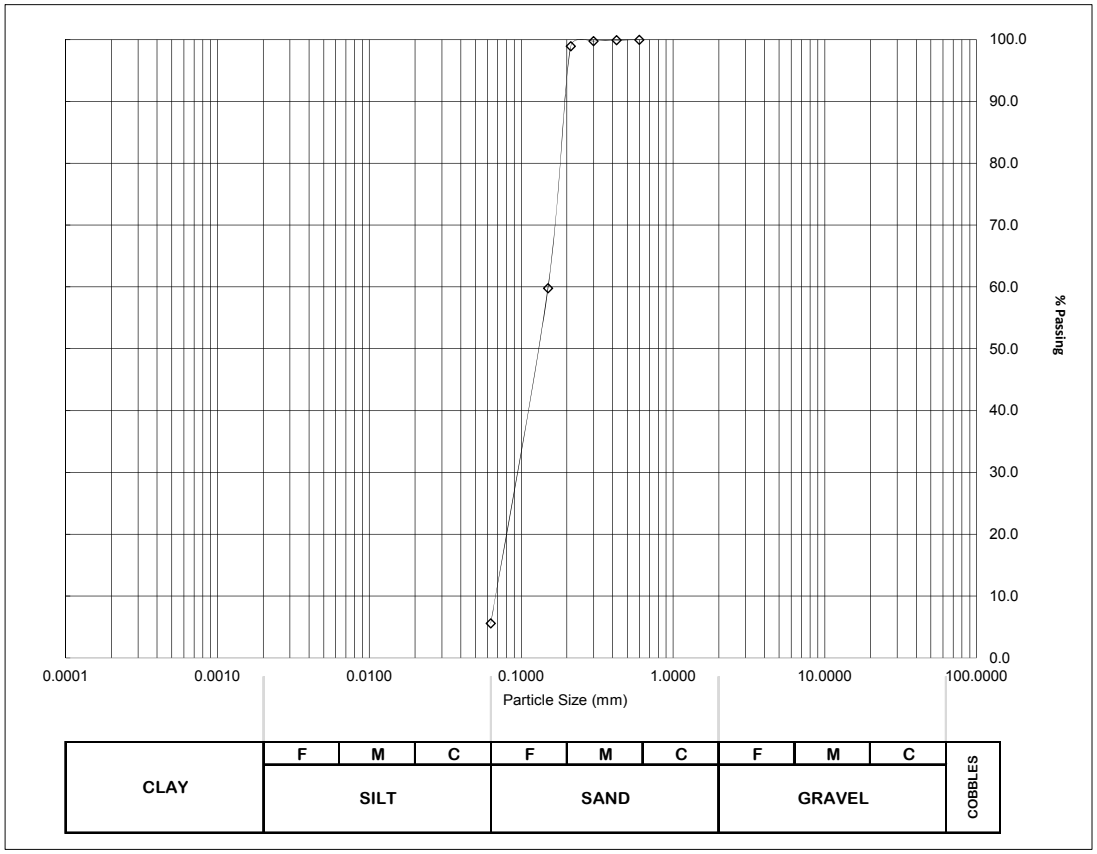
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH23**	**Sample Type/No.**	**B**	**19**	**Top Depth: 20.00 m**	**Bottom Depth:**	**20.50 m**

Soil Description:

Brownish grey slightly clayey fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	60
0.063	6



Particle Proportions %	
Cobbles	
Gravel	
Sand	94.4
Silt and Clay	5.6

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

UKAS TESTING 4503

Remarks:

Date - samples received:	07/12/2016	Checked by:	KM
Date - samples tested:	30/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

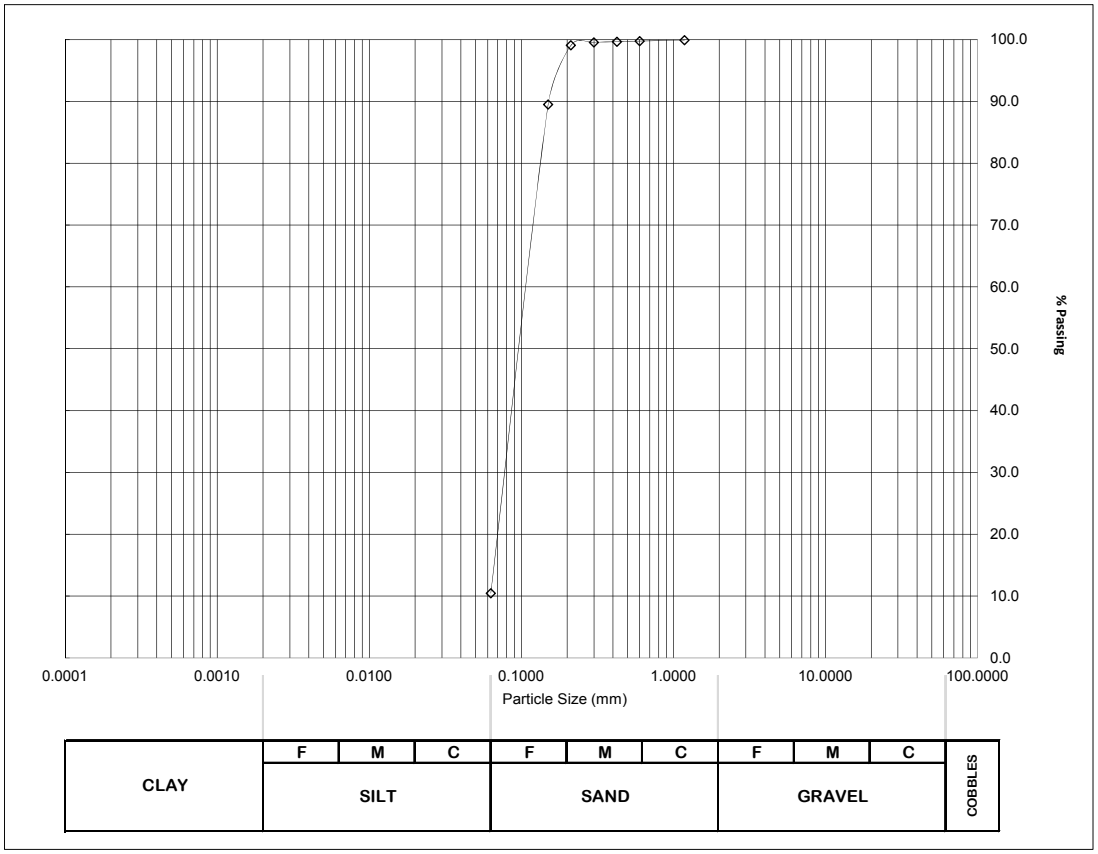
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH23**	**Sample Type/No.**	**B**	**23**	**Top Depth: 23.00 m**	**Bottom Depth:**	**23.50 m**

Soil Description:

Brownish grey clayey fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	90
0.063	10



Particle Proportions %	
Cobbles	
Gravel	
Sand	89.5
Silt and Clay	10.5

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	07/12/2016	Checked by:	KM
Date - samples tested:	30/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

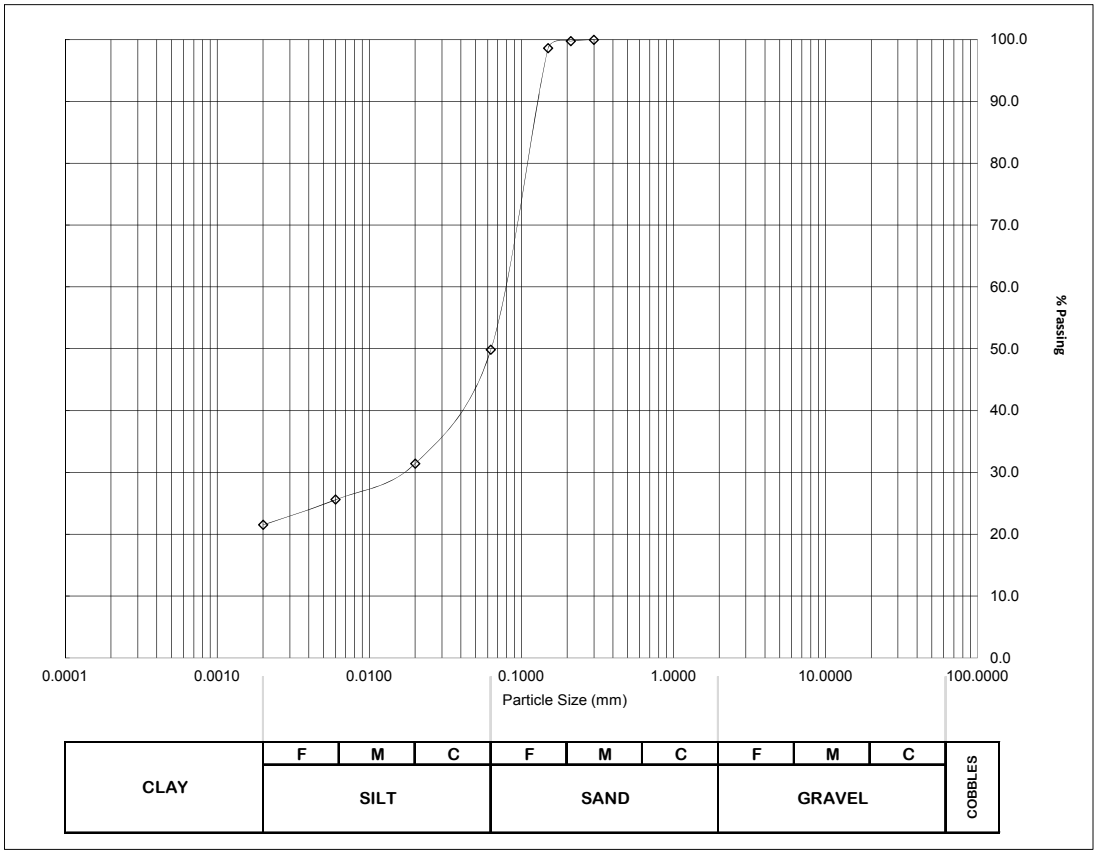
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH23**	**Sample Type/No.**	**D**	**30**	**Top Depth: 28.50 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey silty very clayey fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	50



Particle Proportions %	
Cobbles	
Gravel	
Sand	50.2
Silt	28.3
Clay	21.5

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	07/12/2016	Checked by:	KM
Date - samples tested:	20/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

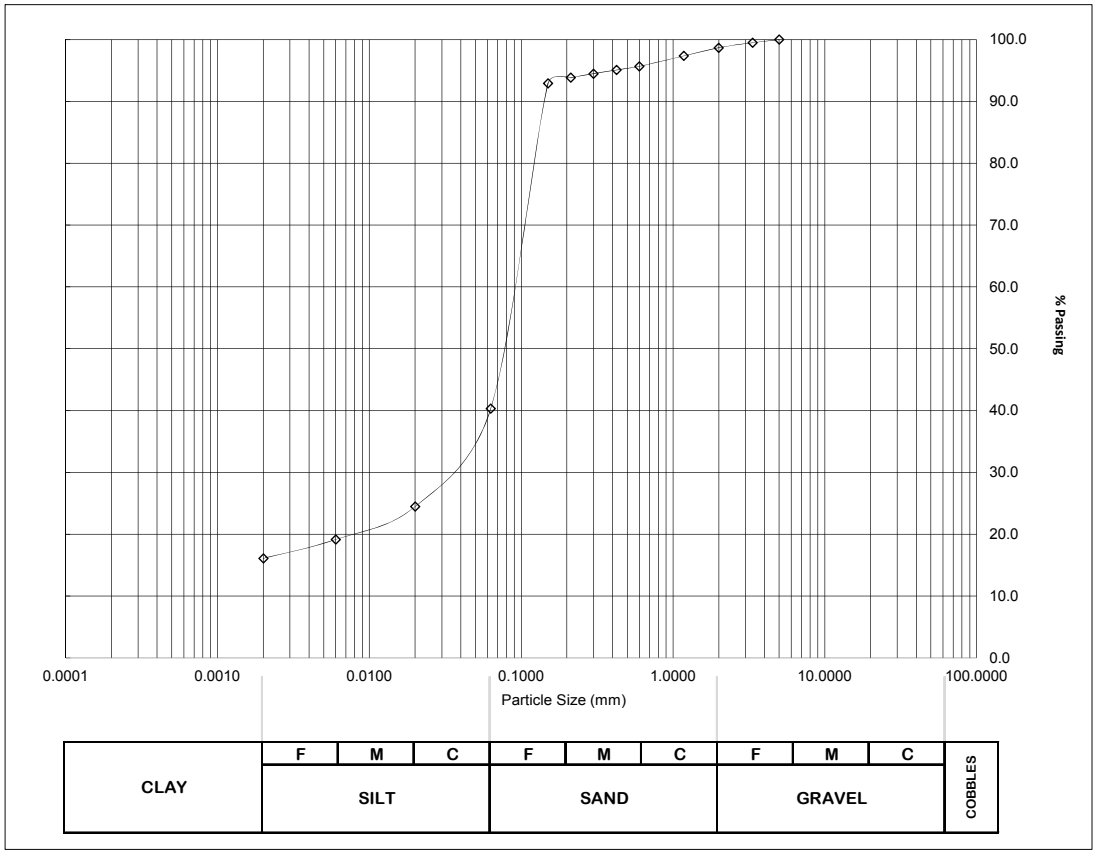
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH23**	**Sample Type/No.**	**B**	**33**	**Top Depth: 30.50 m**	**Bottom Depth:**	**31.00 m**

Soil Description:

Dark grey silty clayey fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	99
1.180	97
0.600	96
0.425	95
0.300	95
0.212	94
0.150	93
0.063	40



Particle Proportions %	
Cobbles	
Gravel	1.3
Sand	58.4
Silt	24.2
Clay	16.1

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	07/12/2016	Checked by:	KM
Date - samples tested:	21/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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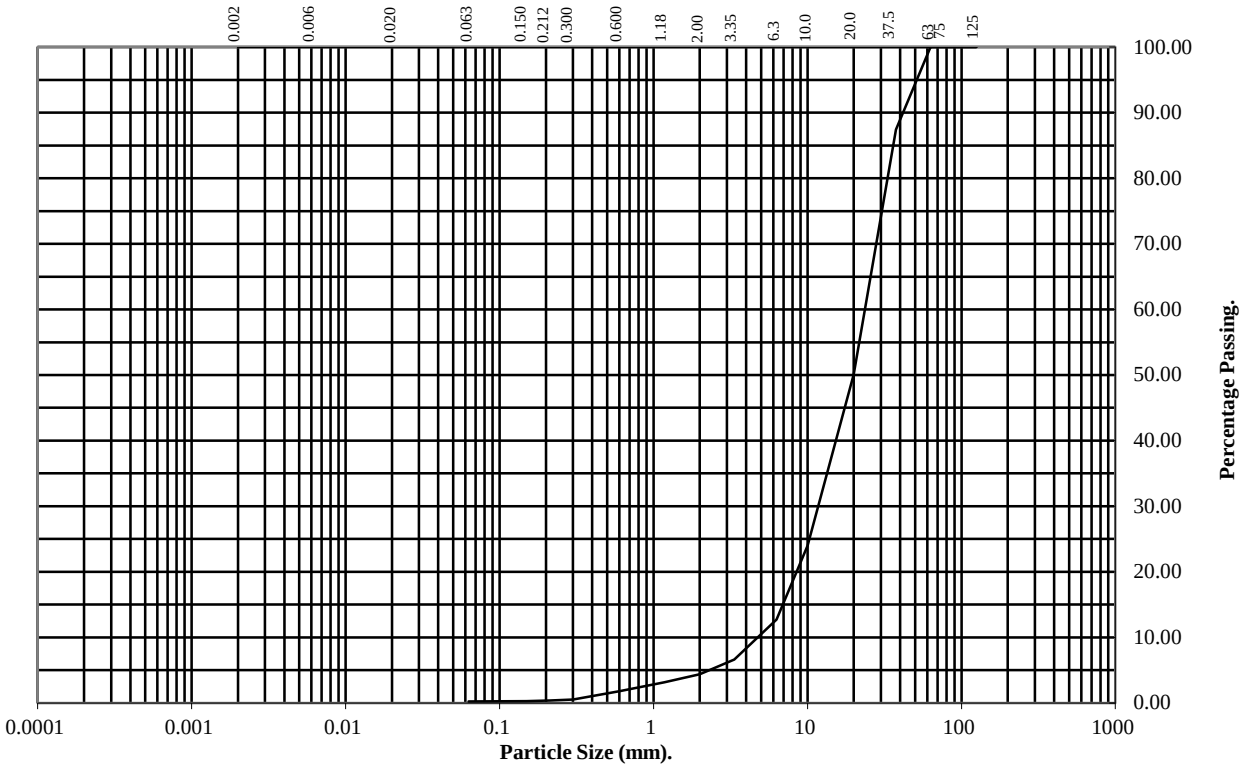
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH24**	**Top Depth (m):**	**13.00**
Sample Number:	**7**	**Base Depth(m):**	**13.50**
Sample Type:	**B**		



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	87
20	50
10	24
6.3	13
3.35	7
2	4
1.18	3
0.6	2
0.3	1
0.212	0
0.15	0
0.063	0

Soil Fraction	Total Percentage
Cobbles	0
Gravel	96
Sand	4
Silt/Clay	0

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**16/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

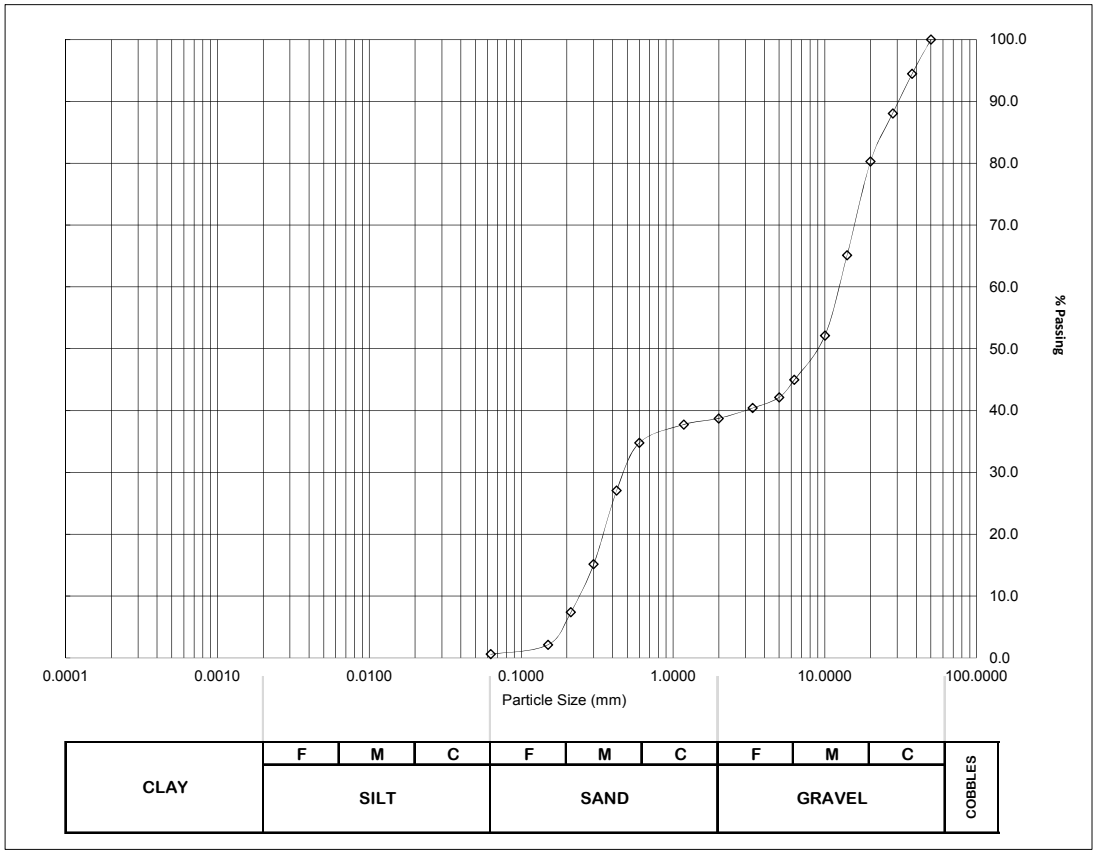
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH24**	**Sample Type/No.**	**B**	**10**	**Top Depth: 14.00 m**	**Bottom Depth:**	**14.50 m**

Soil Description:

Light brown very sandy angular to well rounded flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	94
28.000	88
20.000	80
14.000	65
10.000	52
6.300	45
5.000	42
3.350	40
2.000	39
1.180	38
0.600	35
0.425	27
0.300	15
0.212	7
0.150	2
0.063	1



Particle Proportions %	
Cobbles	
Gravel	61.3
Sand	38.2
Silt and Clay	0.6

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	02/11/2016	Checked by:	KM
Date - samples tested:	06/02/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
47-49 Brunel Road, London W3 7XR
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

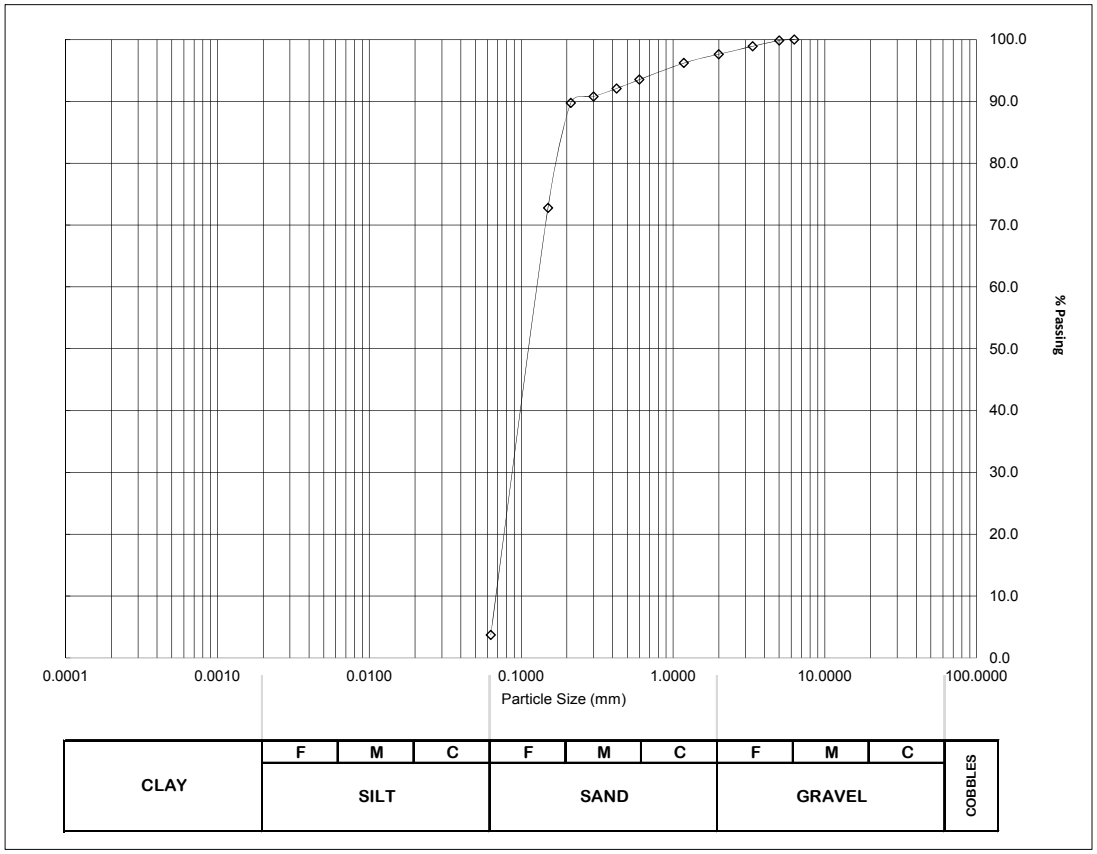
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH24**	**Sample Type/No.**	**B**	**15**	**Top Depth: 16.20 m**	**Bottom Depth:**	**16.50 m**

Soil Description:

Greyish brown slightly clayey fine SAND with rare fine flint gravel

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	99
2.000	98
1.180	96
0.600	94
0.425	92
0.300	91
0.212	90
0.150	73
0.063	4



Particle Proportions %	
Cobbles	
Gravel	2.4
Sand	93.9
Silt and Clay	3.7

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	02/11/2016	Checked by:	KM
Date - samples tested:		Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

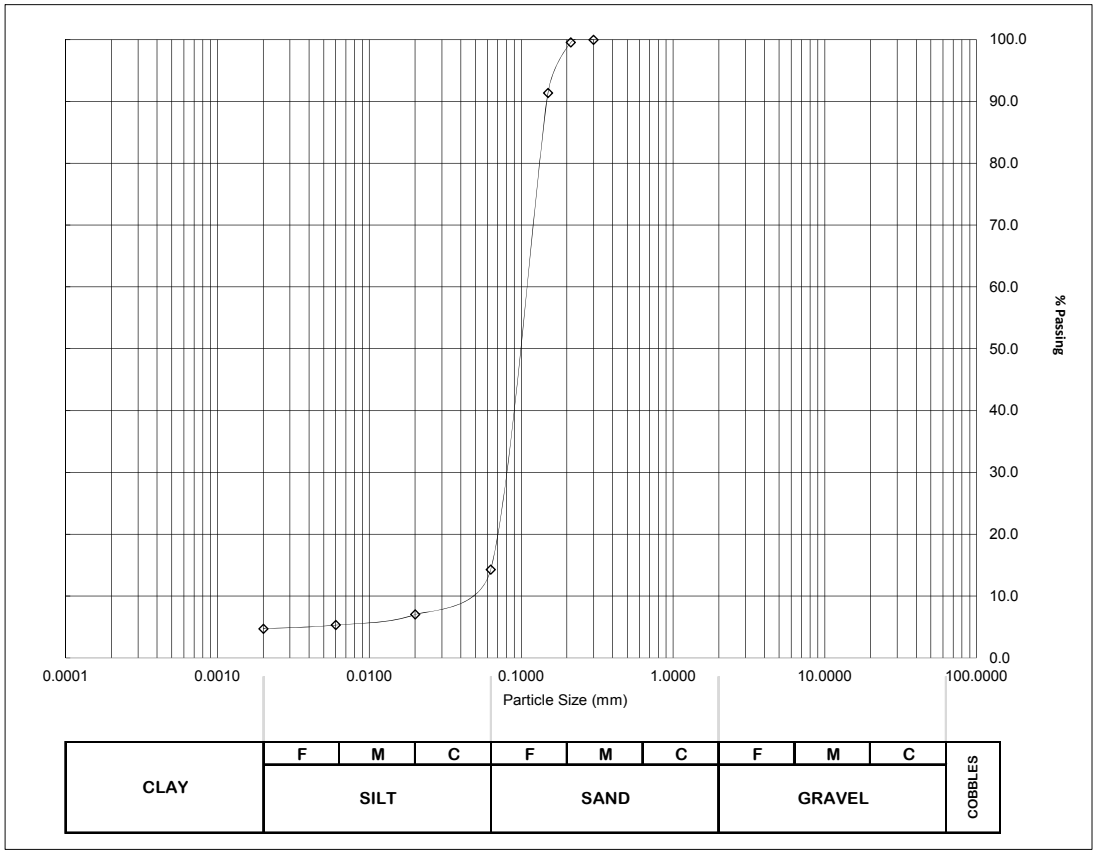
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH24**	**Sample Type/No.**	**B**	**20**	**Top Depth: 19.50 m**	**Bottom Depth:**	**20.00 m**

Soil Description:

Greyish brown slightly clayey SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	91
0.063	14



Particle Proportions %	
Cobbles	
Gravel	
Sand	85.7
Silt	9.6
Clay	4.7

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	02/11/2016	Checked by:	KM
Date - samples tested:	20/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

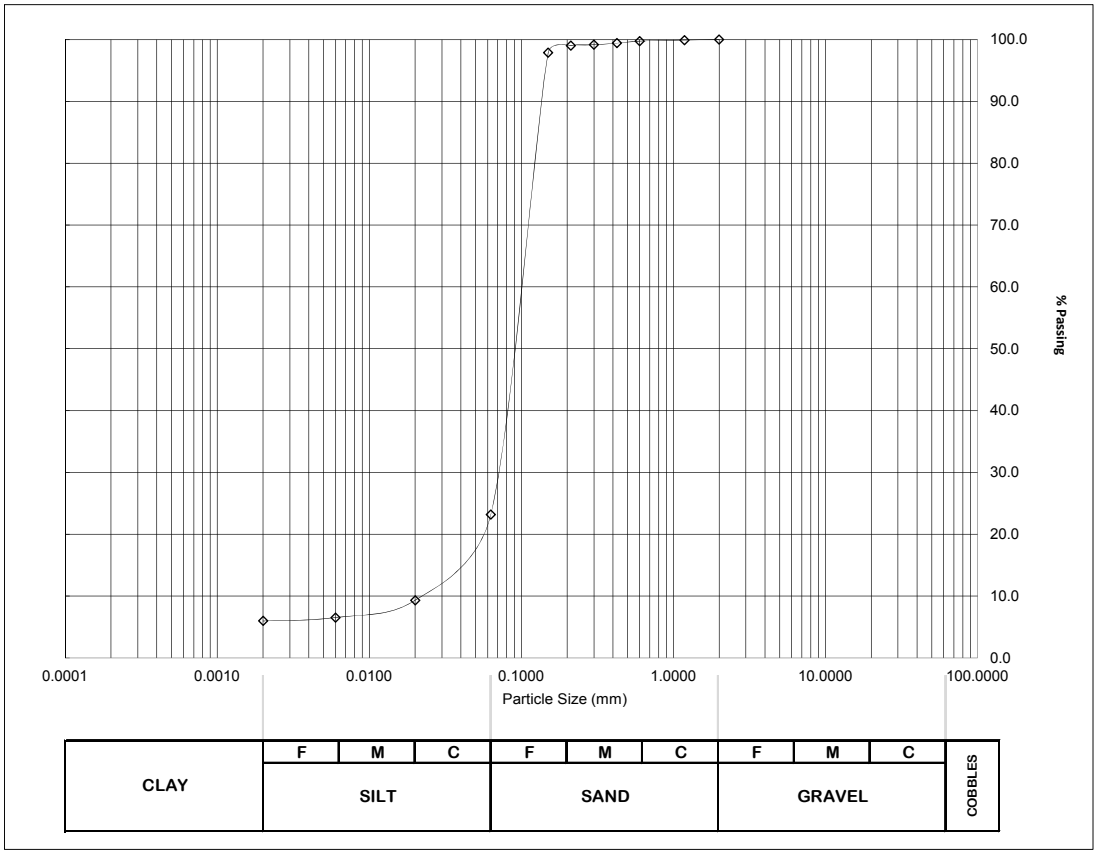
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH24**	**Sample Type/No.**	**B**	**22**	**Top Depth: 21.00 m**	**Bottom Depth:**	**21.50 m**

Soil Description:

Grey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	99
0.212	99
0.150	98
0.063	23



Particle Proportions %	
Cobbles	
Gravel	
Sand	76.8
Silt	17.2
Clay	6.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	02/11/2016	Checked by:	KM
Date - samples tested:	21/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

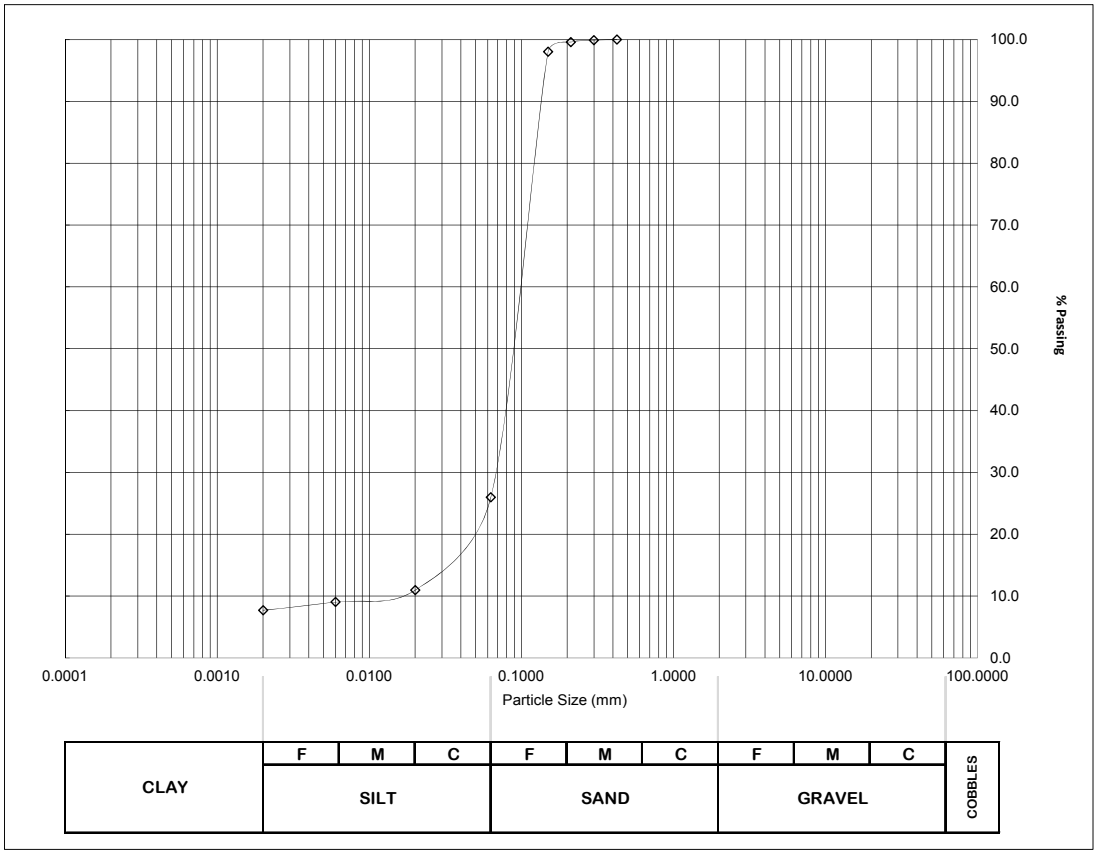
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH24**	**Sample Type/No.**	**B**	**24**	**Top Depth: 22.50 m**	**Bottom Depth:**	**23.00 m**

Soil Description:

Grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	98
0.063	26



Particle Proportions %	
Cobbles	
Gravel	
Sand	74.0
Silt	18.3
Clay	7.7

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	02/11/2016	Checked by:	KM
Date - samples tested:	20/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

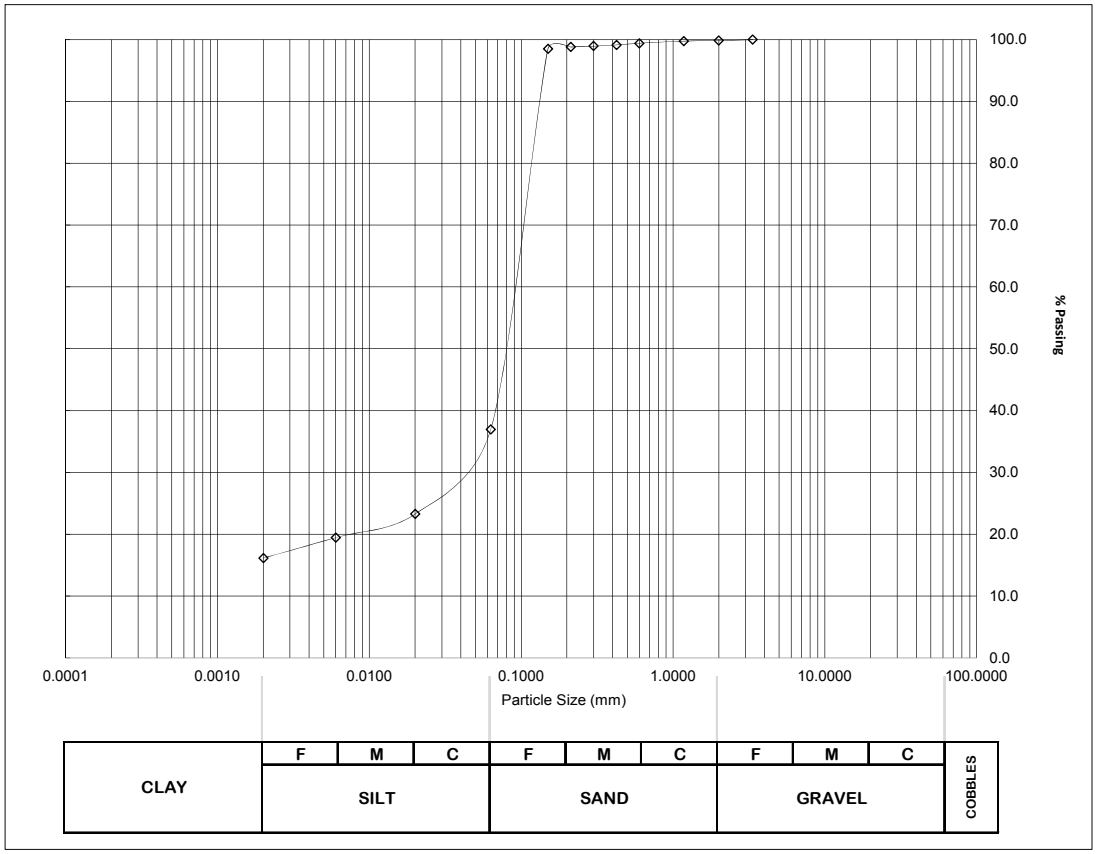
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH24**	**Sample Type/No.**	**B**	**26**	**Top Depth: 24.00 m**	**Bottom Depth:**	**24.50 m**

Soil Description:

Brownish grey clayey fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	99
0.425	99
0.300	99
0.212	99
0.150	98
0.063	37



Particle Proportions %	
Cobbles	
Gravel	0.1
Sand	62.9
Silt	20.8
Clay	16.1

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	02/11/2016	Checked by:	KM
Date - samples tested:	21/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

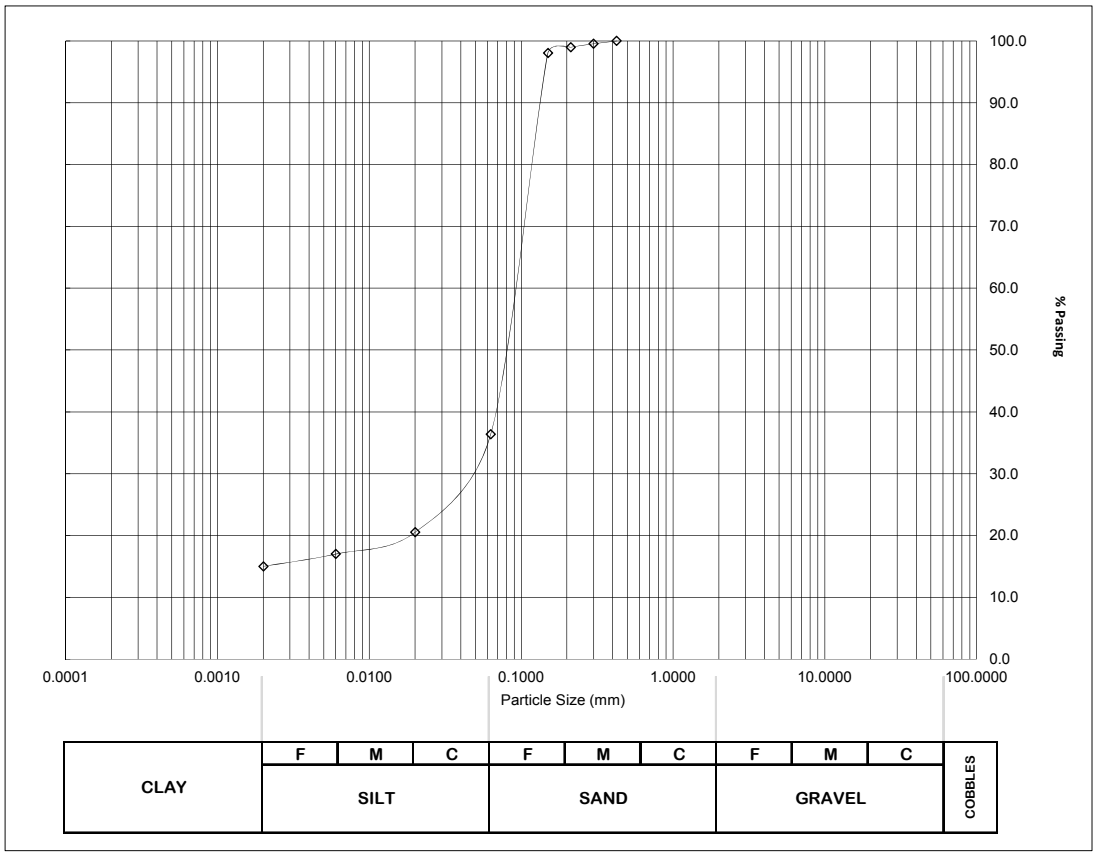
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH24**	**Sample Type/No.**	**B**	**30**	**Top Depth: 27.00 m**	**Bottom Depth:**	**27.50 m**

Soil Description:

Brownish grey clayey fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	99
0.150	98
0.063	36



Particle Proportions %	
Cobbles	
Gravel	
Sand	63.6
Silt	21.4
Clay	15.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING 4503

Remarks:

Date - samples received:	02/11/2016	Checked by:	KM
Date - samples tested:	20/01/2017	Date:	08/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

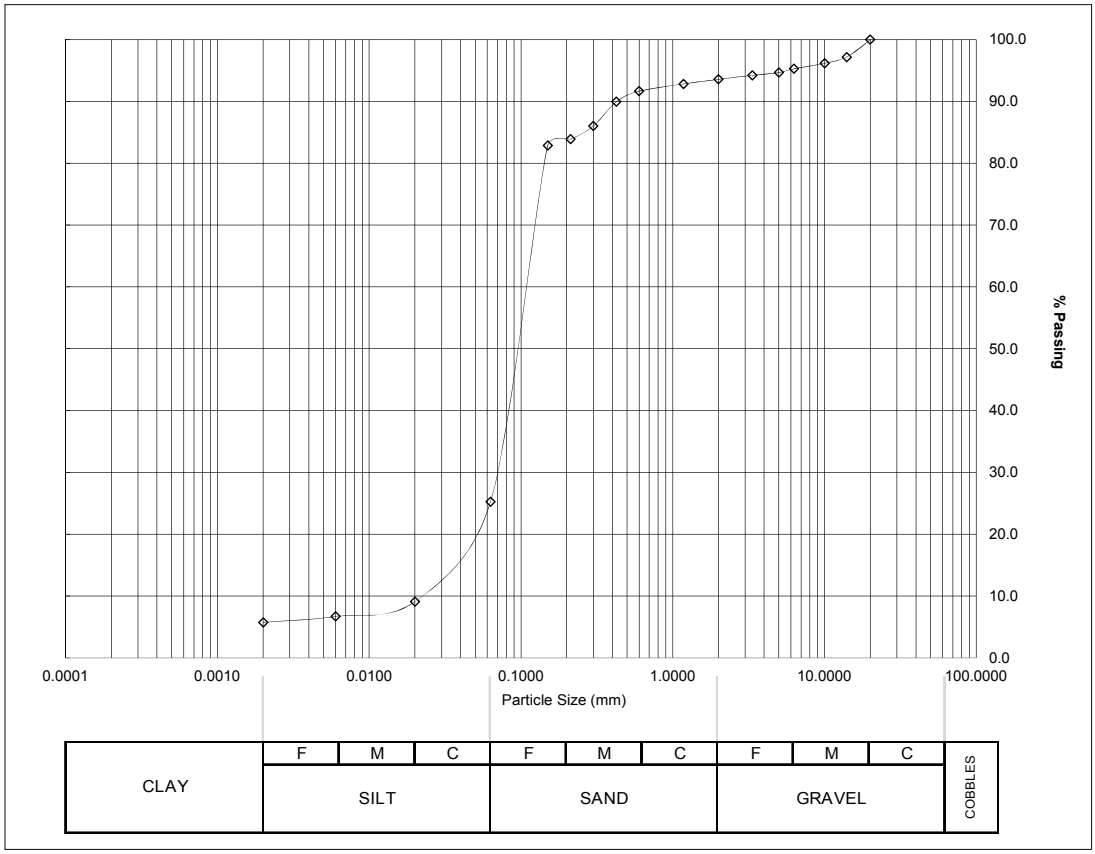
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH25**	**Sample Type/No.**	**B**	**10**	**Top Depth: 14.70 m**	**Bottom Depth:**	**15.00 m**

Soil Description:

Dark grey clayey gravelly silty fine and medium SAND. Gravel is angular to subrounded fine to medium flint

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	97
10.000	96
6.300	95
5.000	95
3.350	94
2.000	94
1.180	93
0.600	92
0.425	90
0.300	86
0.212	84
0.150	83
0.063	25



Particle Proportions %	
Cobbles	
Gravel	6.4
Sand	68.3
Silt	19.5
Clay	5.8

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	24/11/2016	Checked by:	KM
Date - samples tested:	07/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

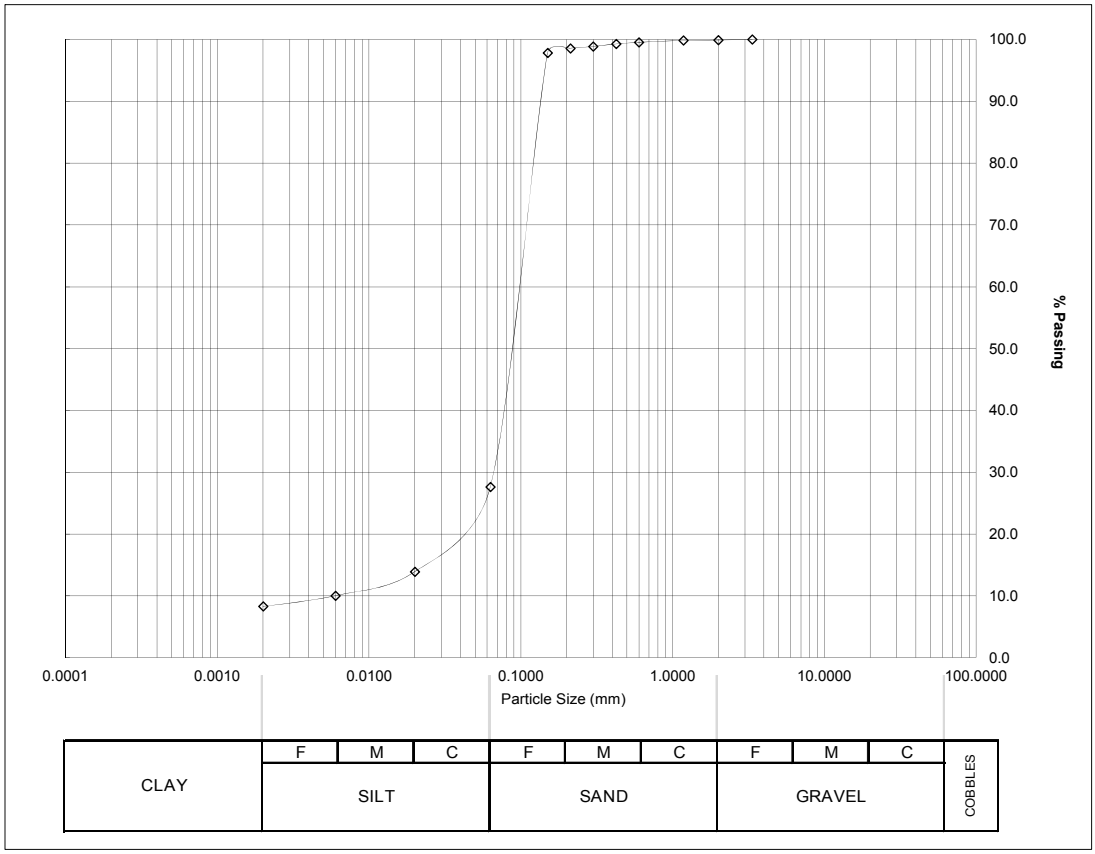
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH25**	**Sample Type/No.**	**B**	**13**	**Top Depth: 16.00 m**	**Bottom Depth:**	**16.50 m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	99
0.212	99
0.150	98
0.063	28



Particle Proportions %	
Cobbles	
Gravel	0.1
Sand	72.3
Silt	19.4
Clay	8.3

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	24/11/2016	Checked by:	KM
Date - samples tested:	07/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

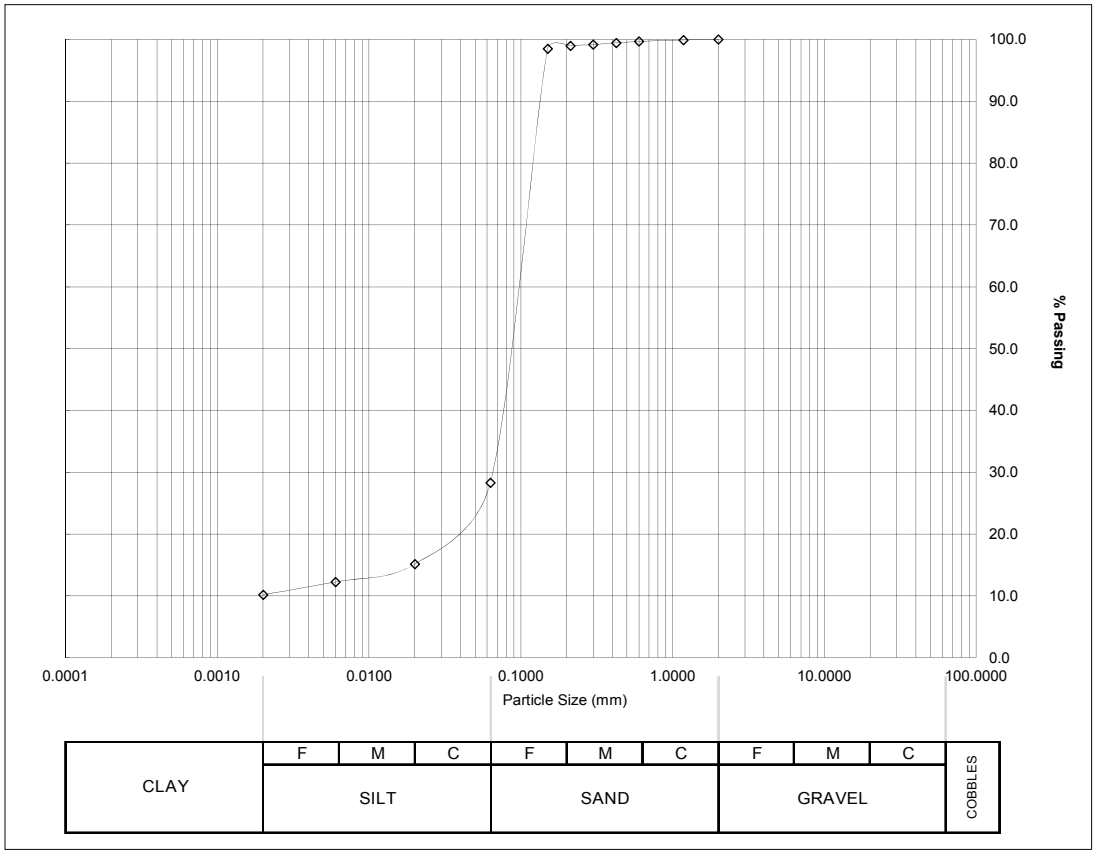
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH25**	**Sample Type/No.**	**B**	**15**	**Top Depth: 17.00 m**	**Bottom Depth:**	**17.50 m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	99
0.212	99
0.150	99
0.063	28



Particle Proportions %	
Cobbles	
Gravel	
Sand	71.7
Silt	18.1
Clay	10.2

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	24/11/2016	Checked by:	KM
Date - samples tested:	07/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

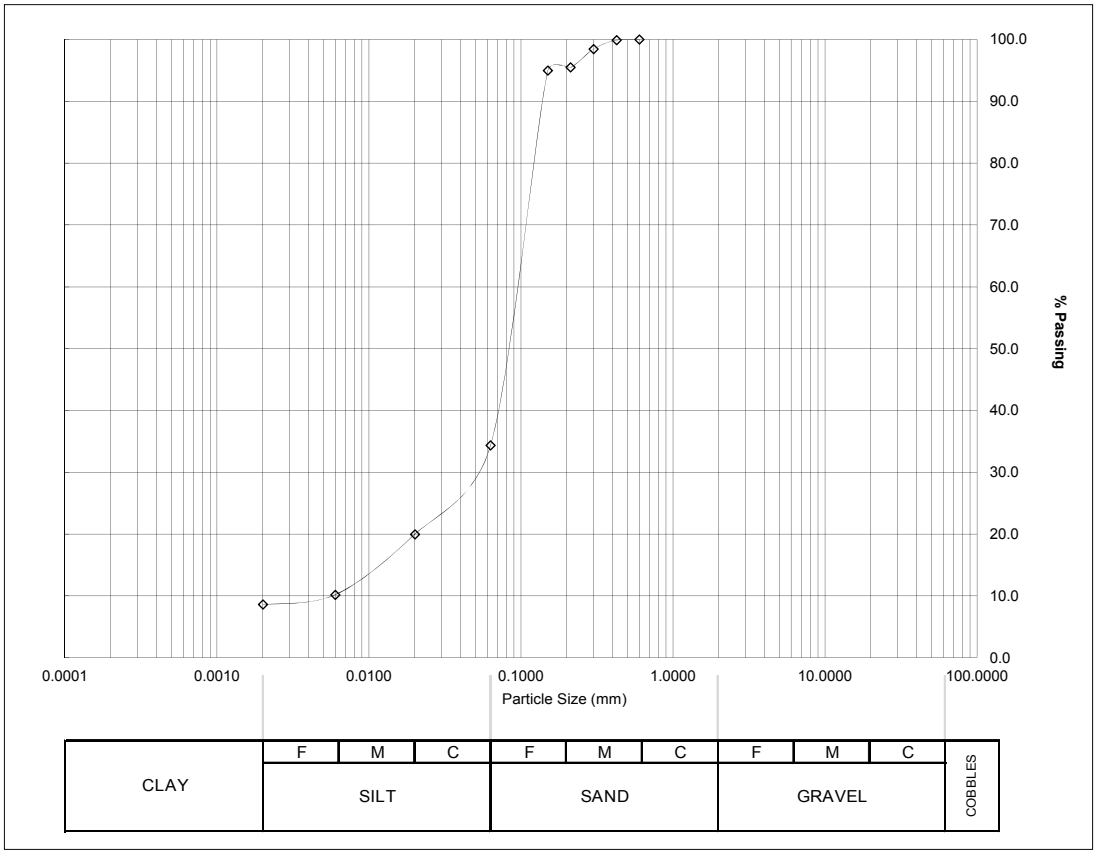
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH25**	**Sample Type/No.**	**B**	**19**	**Top Depth: 20.00 m**	**Bottom Depth:**	**20.50 m**

Soil Description:

Grey clayey very silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	98
0.212	95
0.150	95
0.063	34



Particle Proportions %	
Cobbles	
Gravel	
Sand	65.7
Silt	25.7
Clay	8.6

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	24/11/2016	Checked by:	KM
Date - samples tested:	10/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

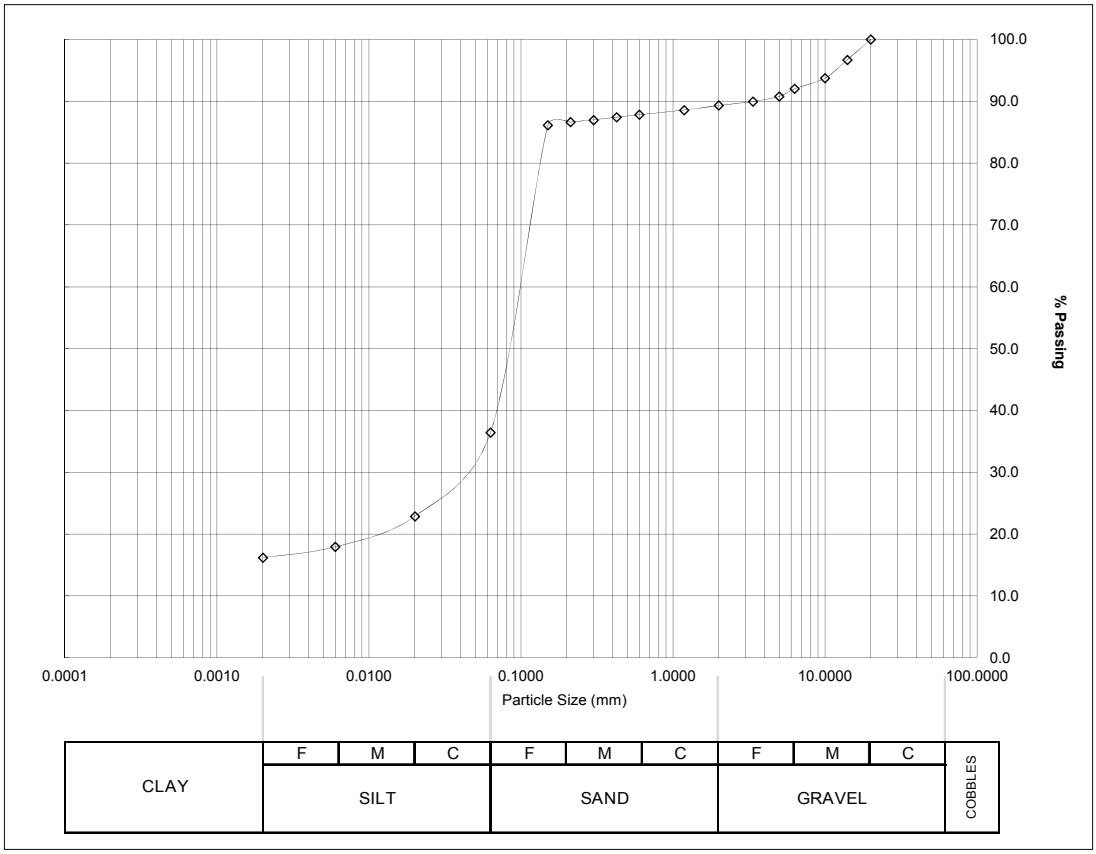
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH25**	**Sample Type/No.**	**B**	**21**	**Top Depth: 21.50 m**	**Bottom Depth:**	**22.00 m**

Soil Description:

Dark grey clayey very silty fine SAND with rare well rounded fine to medium flint gravel

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	97
10.000	94
6.300	92
5.000	91
3.350	90
2.000	89
1.180	89
0.600	88
0.425	87
0.300	87
0.212	87
0.150	86
0.063	36



Particle Proportions %	
Cobbles	
Gravel	10.7
Sand	52.9
Silt	20.2
Clay	16.2

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	24/11/2016	Checked by:	KM
Date - samples tested:	09/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

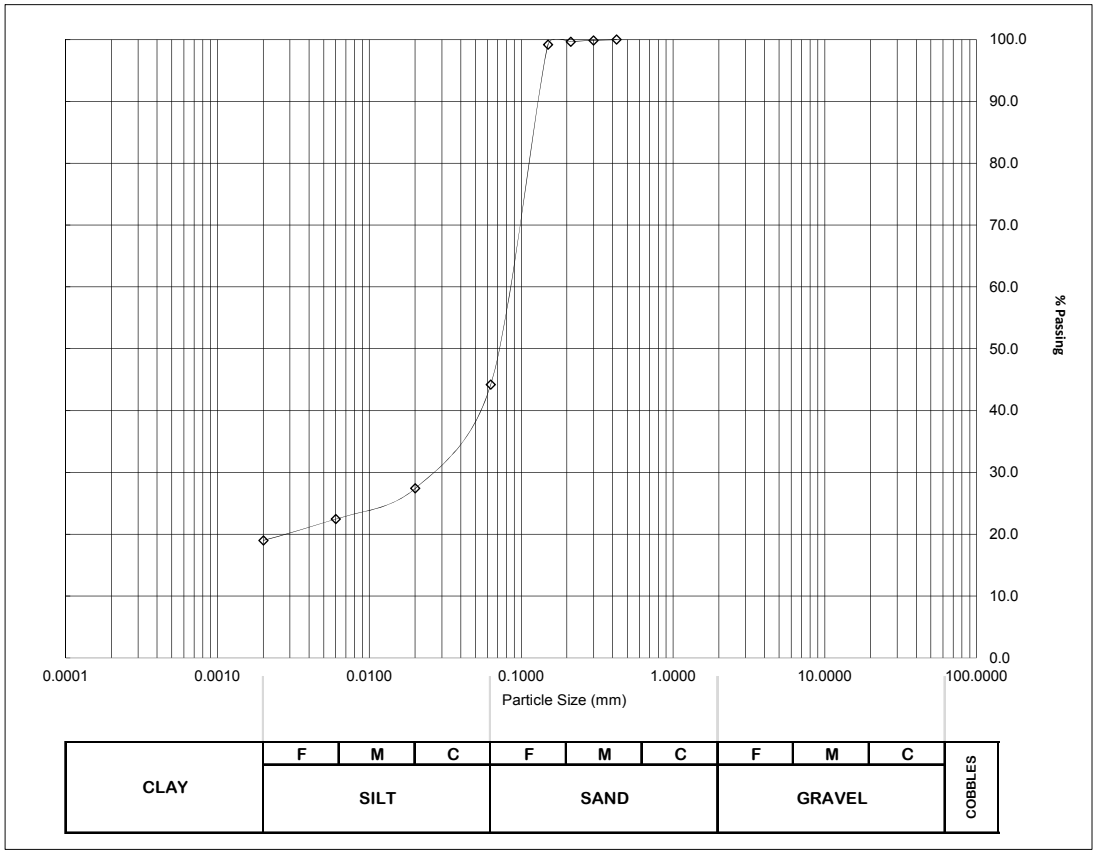
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH25R**	**Sample Type/No.**	**B**	**07**	**Top Depth: 16.50 m**	**Bottom Depth:**	**16.70 m**

Soil Description:

Dark grey silty sandy CLAY

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	44



Particle Proportions %	
Cobbles	
Gravel	
Sand	55.8
Silt	25.2
Clay	19.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	01/12/2016	Checked by:	KM
Date - samples tested:	18/01/2017	Date:	25/01/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

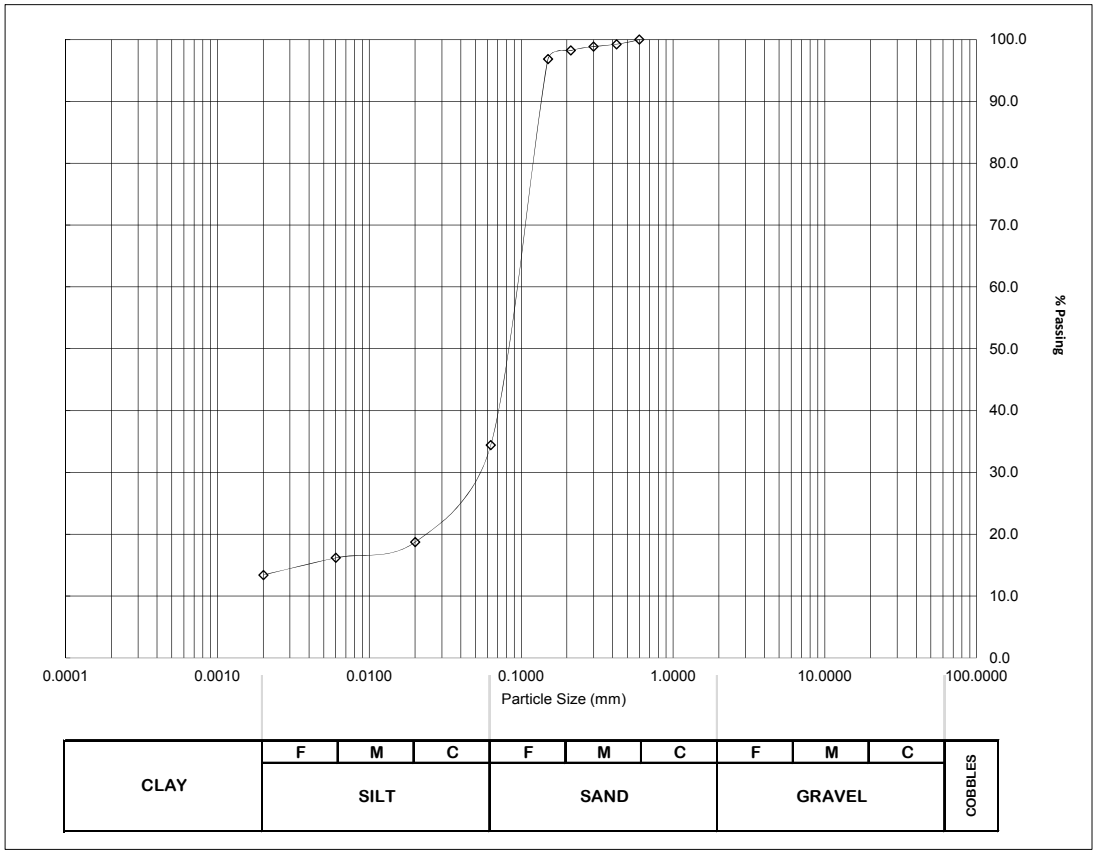
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH25R**	**Sample Type/No.**	**B**	**11**	**Top Depth: 20.70 m**	**Bottom Depth:**	**m**

Soil Description:

Brownish grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	100
0.425	99
0.300	99
0.212	98
0.150	97
0.063	34



Particle Proportions %	
Cobbles	
Gravel	
Sand	65.6
Silt	21.0
Clay	13.4

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING
4503

Remarks:

Date - samples received:	01/12/2016	Checked by:	KM
Date - samples tested:	18/01/2017	Date:	25/01/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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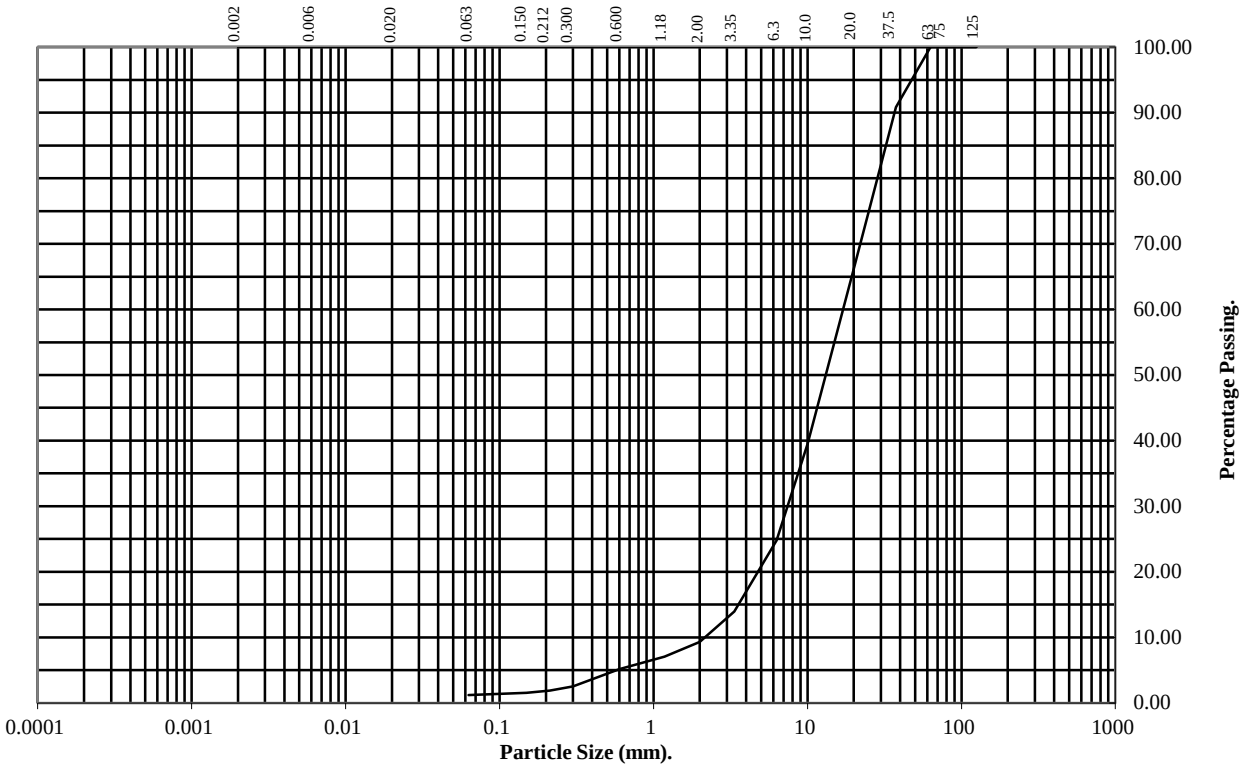
PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH26**	**Top Depth (m):**	**12.50**
Sample Number:	**4**	**Base Depth(m):**	**13.00**
Sample Type:	**B**		



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	91
20	66
10	39
6.3	25
3.35	14
2	9
1.18	7
0.6	5
0.3	3
0.212	2
0.15	2
0.063	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	91
Sand	8
Silt/Clay	1

Remarks:

See summary of soil descriptions.

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**16/01/17**	**Contract No:**
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

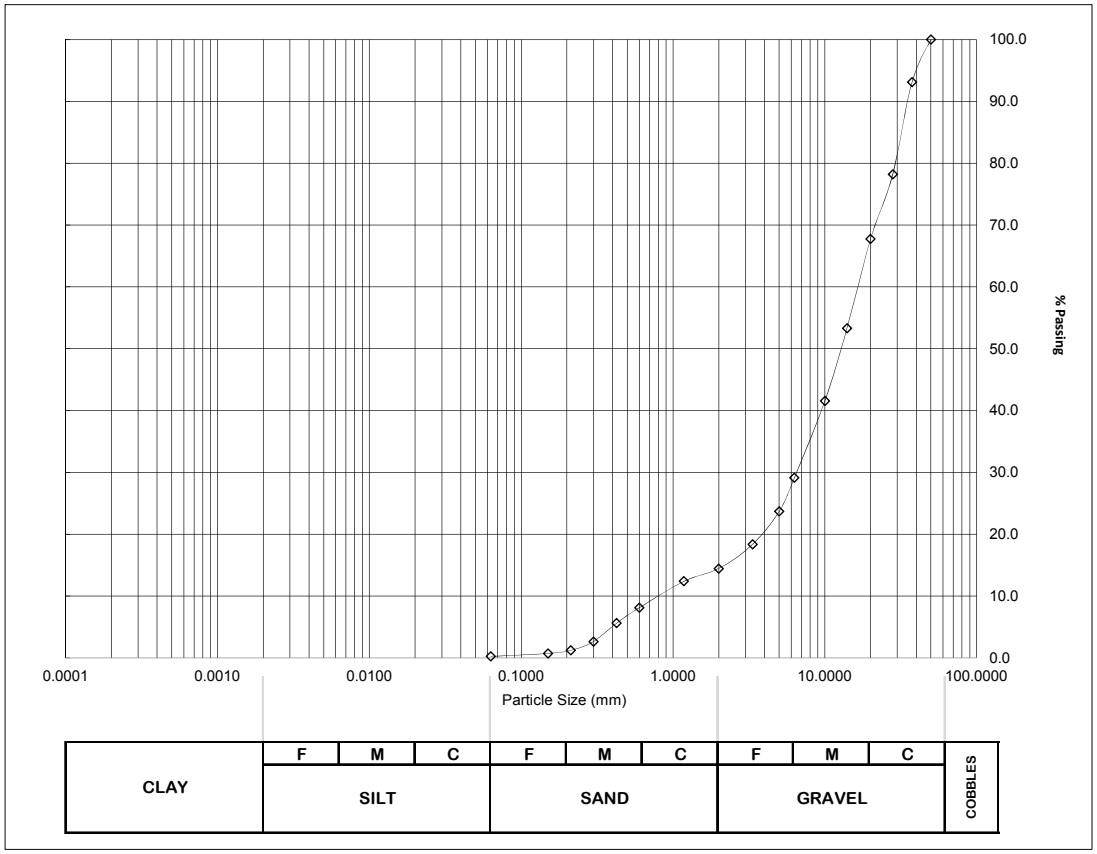
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH26**	**Sample Type/No.**	**B**	**07**	**Top Depth: 13.50 m**	**Bottom Depth:**	**14.00 m**

Soil Description:

Brown and grey sandy angular to well rounded fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	93
28.000	78
20.000	68
14.000	53
10.000	42
6.300	29
5.000	24
3.350	18
2.000	14
1.180	12
0.600	8
0.425	6
0.300	3
0.212	1
0.150	1
0.063	0



Particle Proportions %	
Cobbles	
Gravel	85.5
Sand	14.2
Silt and Clay	0.2

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	05/12/2016	Checked by:	KM
Date - samples tested:	19/01/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

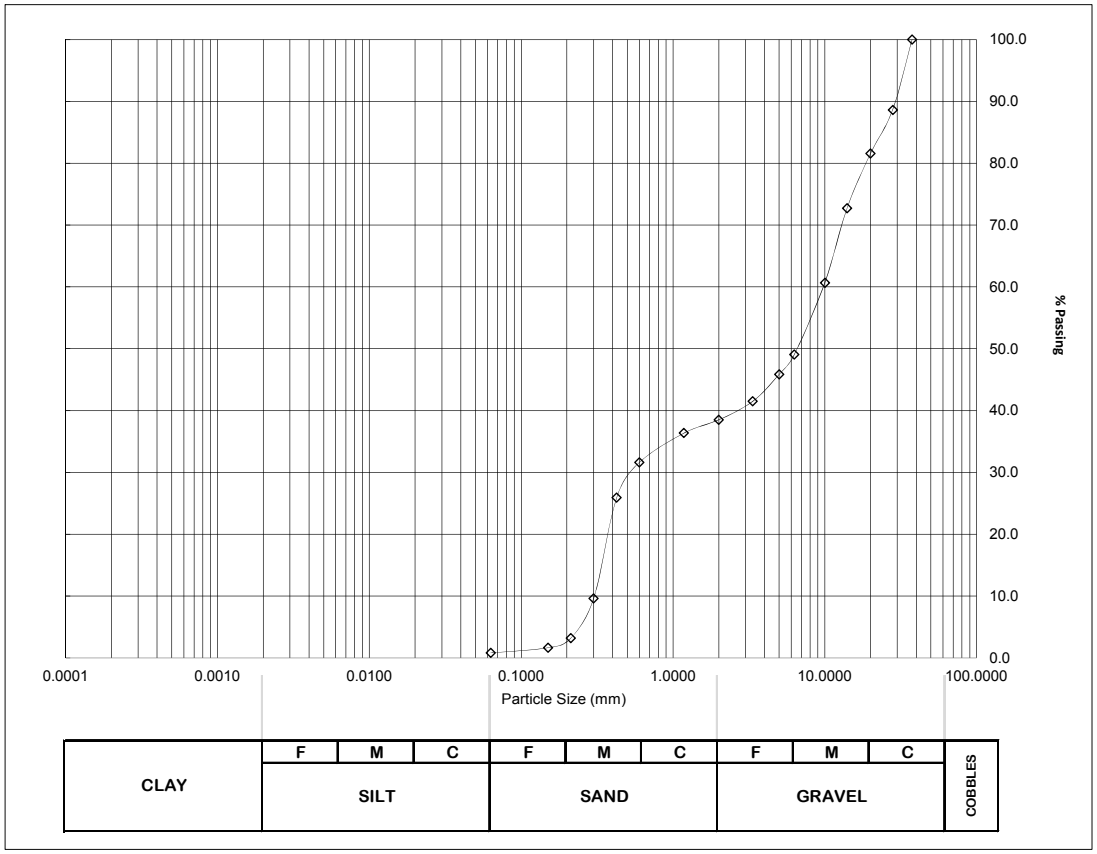
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH26**	**Sample Type/No.**	**B**	**13**	**Top Depth: 16.50 m**	**Bottom Depth:**	**17.00 m**

Soil Description:

Greyish brown very sandy fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	89
20.000	82
14.000	73
10.000	61
6.300	49
5.000	46
3.350	41
2.000	39
1.180	36
0.600	32
0.425	26
0.300	10
0.212	3
0.150	2
0.063	1



Particle Proportions %	
Cobbles	
Gravel	61.5
Sand	37.7
Silt and Clay	0.8

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	05/12/2016	Checked by:	KM
Date - samples tested:	23/01/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

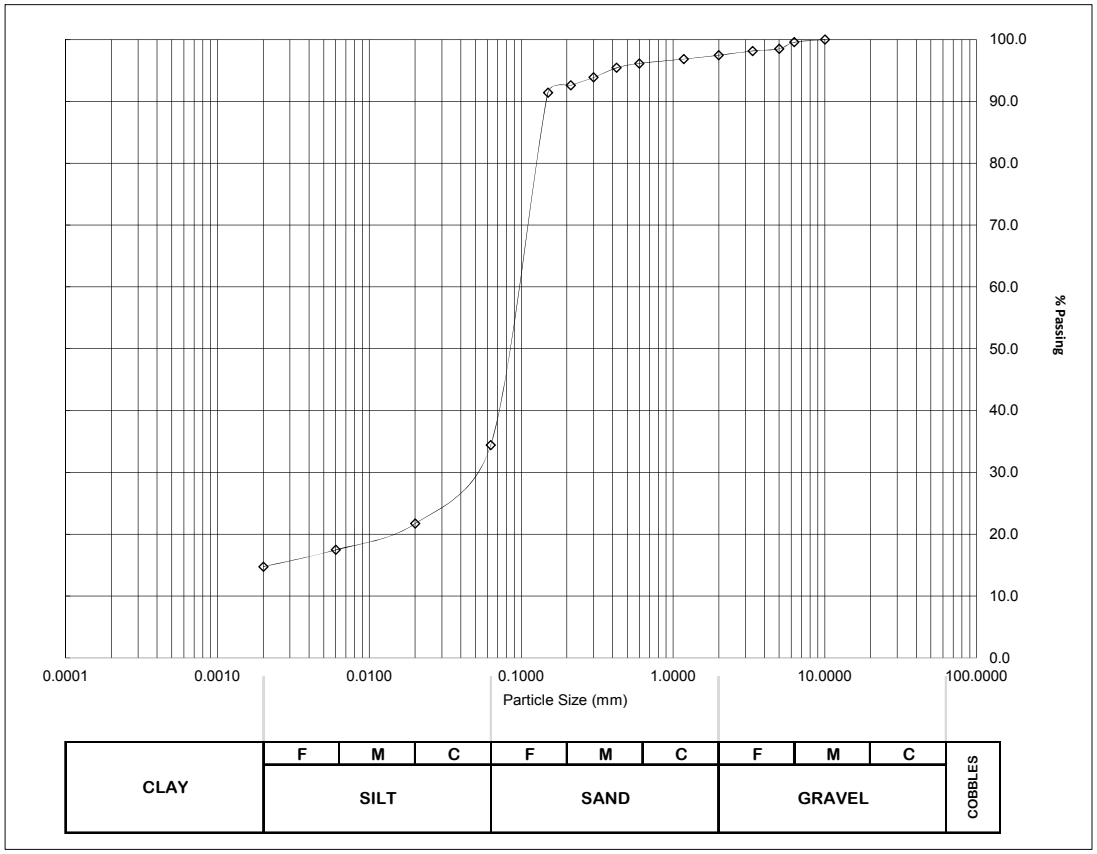
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH26**	**Sample Type/No.**	**B**	**14**	**Top Depth: 17.00 m**	**Bottom Depth:**	**17.50 m**

Soil Description:

Grey clayey silty fine and medium SAND with rare fine flint gravel

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	99
3.350	98
2.000	97
1.180	97
0.600	96
0.425	95
0.300	94
0.212	93
0.150	91
0.063	34



Particle Proportions %	
Cobbles	
Gravel	2.5
Sand	63.1
Silt	19.6
Clay	14.8

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks:

Date - samples received:	05/12/2016	Checked by:	KM
Date - samples tested:	21/01/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

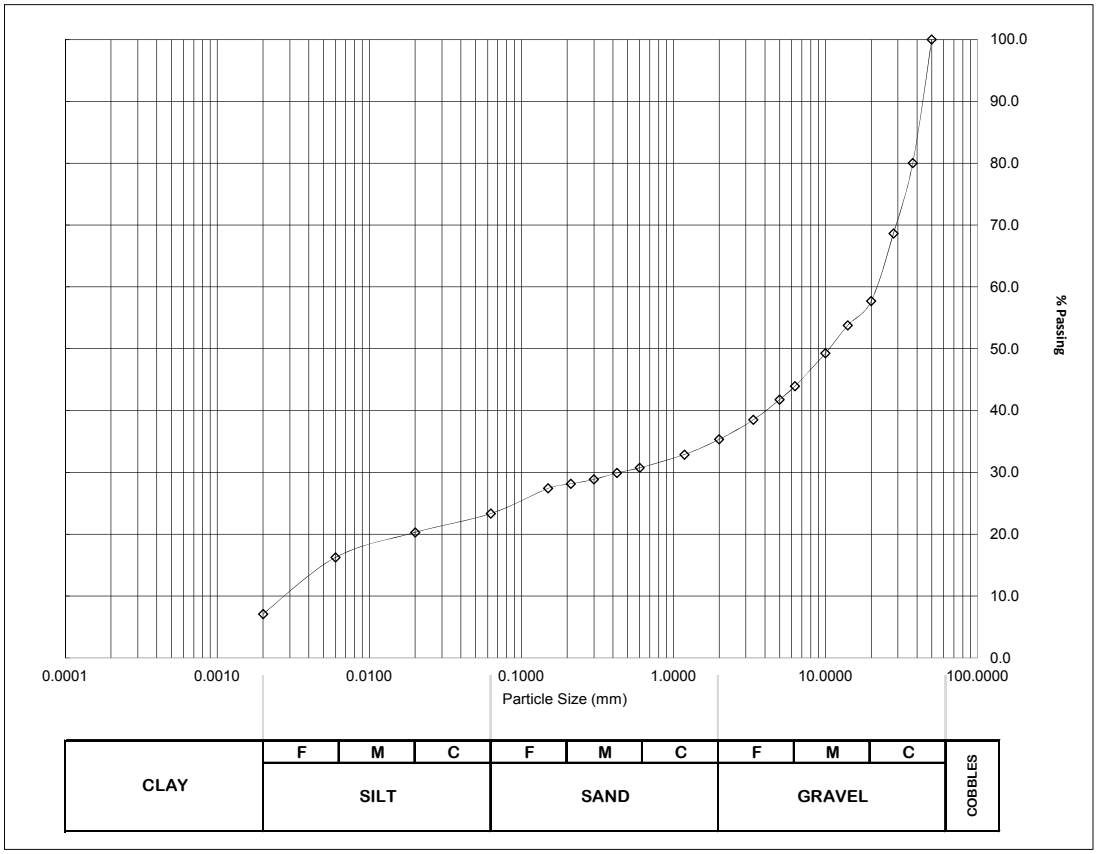
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH26**	**Sample Type/No.**	**B**	**16**	**Top Depth: 18.20 m**	**Bottom Depth:**	**18.50 m**

Soil Description:

Off white CHALK recovered as sandy silty GRAVEL. Gravel comprises of fine to coarse chalk and rare flint

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	80
28.000	69
20.000	58
14.000	54
10.000	49
6.300	44
5.000	42
3.350	39
2.000	35
1.180	33
0.600	31
0.425	30
0.300	29
0.212	28
0.150	27
0.063	23



Particle Proportions %	
Cobbles	
Gravel	64.6
Sand	12.0
Silt	16.3
Clay	7.1

Method/type:	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

4503

Remarks: Sample mass does not meet the requirements of BS1377: Part 2: 1990

Date - samples received:	05/12/2016	Checked by:	KM
Date - samples tested:	30/01/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

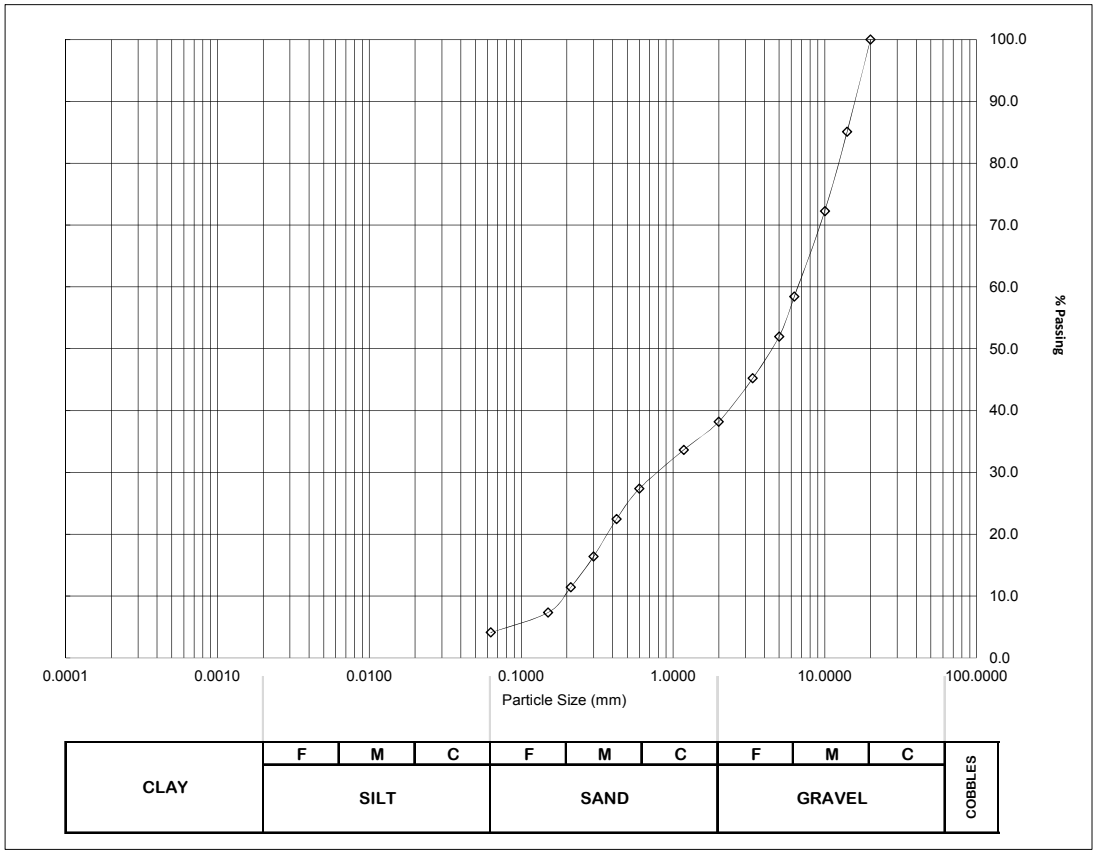
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**22/02/2017**
Borehole No:	**BH27**	**Sample Type/No.**	**D**	**01**	**Top Depth: 16.50 m**	**Bottom Depth:**	**m**

Soil Description:

Brown slightly silty very sandy angular to subangular fine and medium flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	85
10.000	72
6.300	58
5.000	52
3.350	45
2.000	38
1.180	34
0.600	27
0.425	22
0.300	16
0.212	11
0.150	7
0.063	4



Particle Proportions %	
Cobbles	
Gravel	61.8
Sand	34.1
Silt and Clay	4.1

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks: Sample mass does not meet the requirements of BS1377: Part 2: 1990

Date - samples received:	30/01/2017	Checked by:	KM
Date - samples tested:	22/02/2017	Date:	22/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

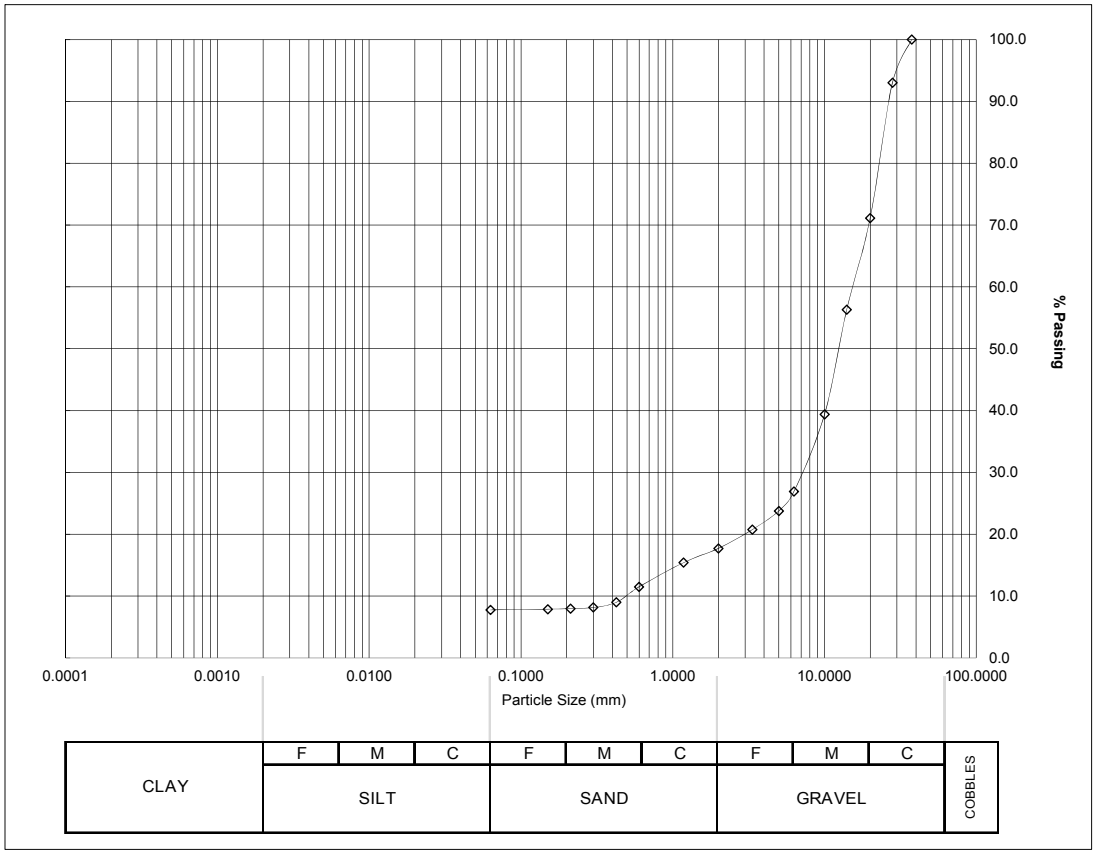
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH28**	**Sample Type/No.**	**B**	**05**	**Top Depth: 13.10 m**	**Bottom Depth:**	**13.50 m**

Soil Description:

Black mottled brown clayey sandy very angular to subangular fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	93
20.000	71
14.000	56
10.000	39
6.300	27
5.000	24
3.350	21
2.000	18
1.180	15
0.600	12
0.425	9
0.300	8
0.212	8
0.150	8
0.063	8



Particle Proportions %	
Cobbles	
Gravel	82.3
Sand	10.0
Silt and Clay	7.8

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	14/11/2016	Checked by:	KM
Date - samples tested:	08/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

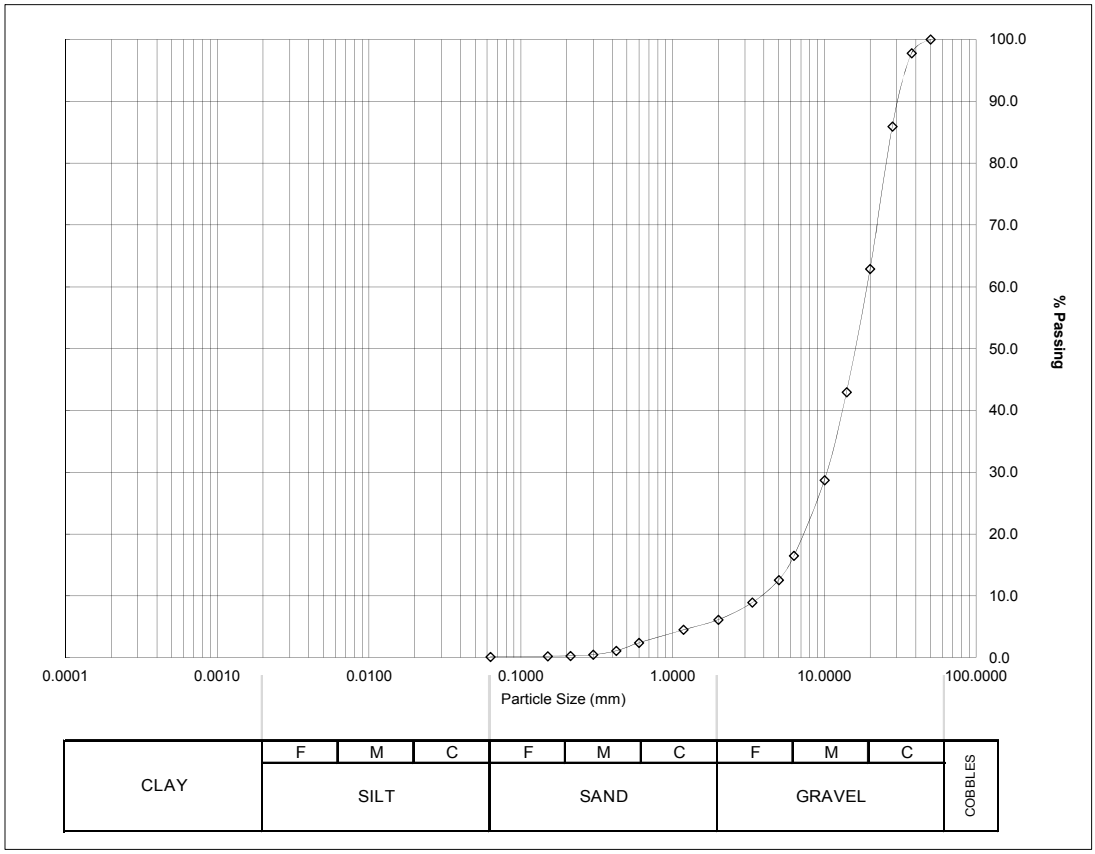
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH28**	**Sample Type/No.**	**B**	**08**	**Top Depth: 13.50 m**	**Bottom Depth:**	**m**

Soil Description:

Brownish grey sandy very angular to well rounded fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	98
28.000	86
20.000	63
14.000	43
10.000	29
6.300	17
5.000	13
3.350	9
2.000	6
1.180	5
0.600	2
0.425	1
0.300	0
0.212	0
0.150	0
0.063	0



Particle Proportions %	
Cobbles	
Gravel	93.8
Sand	6.0
Silt and Clay	0.2

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	14/11/2016	Checked by:	KM
Date - samples tested:	08/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

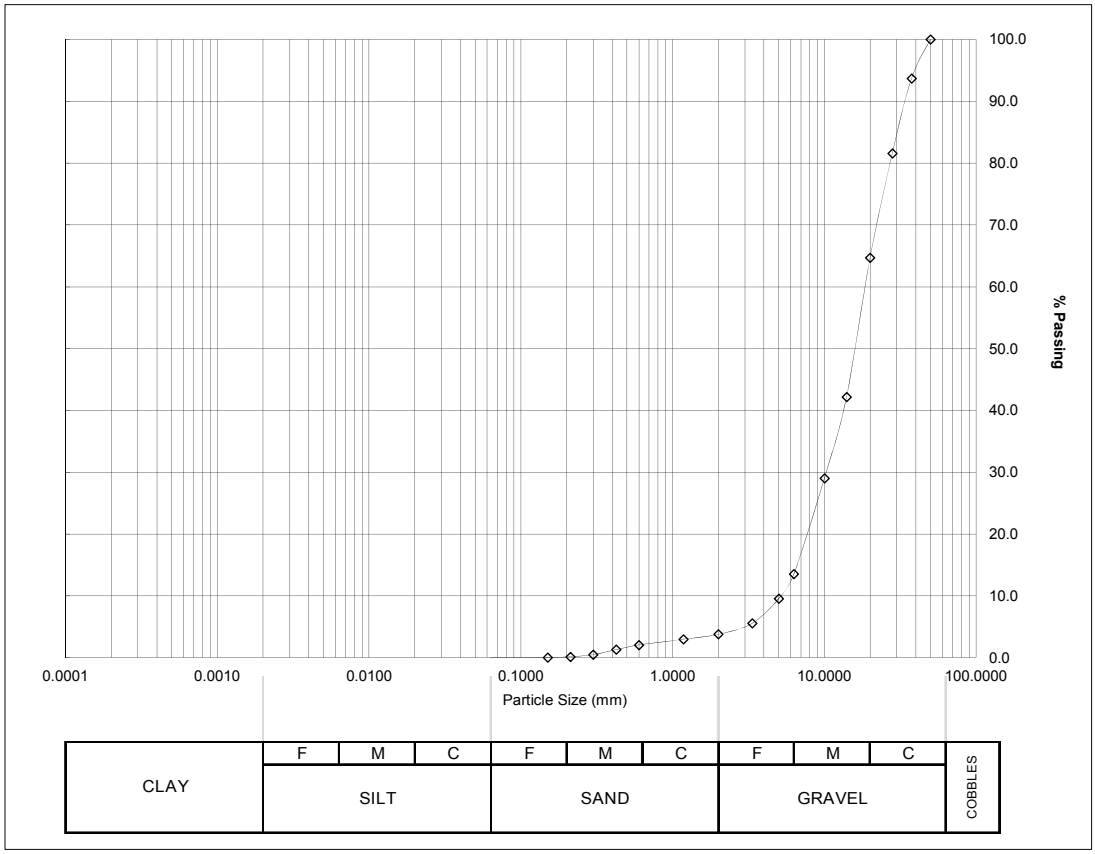
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH28**	**Sample Type/No.**	**B**	**14**	**Top Depth: 16.50 m**	**Bottom Depth:**	**17.00 m**

Soil Description:

Brownish grey slightly sandy very angular to well rounded fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	94
28.000	82
20.000	65
14.000	42
10.000	29
6.300	14
5.000	10
3.350	6
2.000	4
1.180	3
0.600	2
0.425	1
0.300	1
0.212	0
0.150	0
0.063	0



Particle Proportions %	
Cobbles	
Gravel	96.2
Sand	3.8
Silt and Clay	0.0

Method/type:	Dry Sieving

BS 1377: Part 2: Clause 9.3: 1990 Determination of particle size distribution - dry sieving method.

4503

Remarks:

Date - samples received:	14/11/2016	Checked by:	KM
Date - samples tested:	07/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

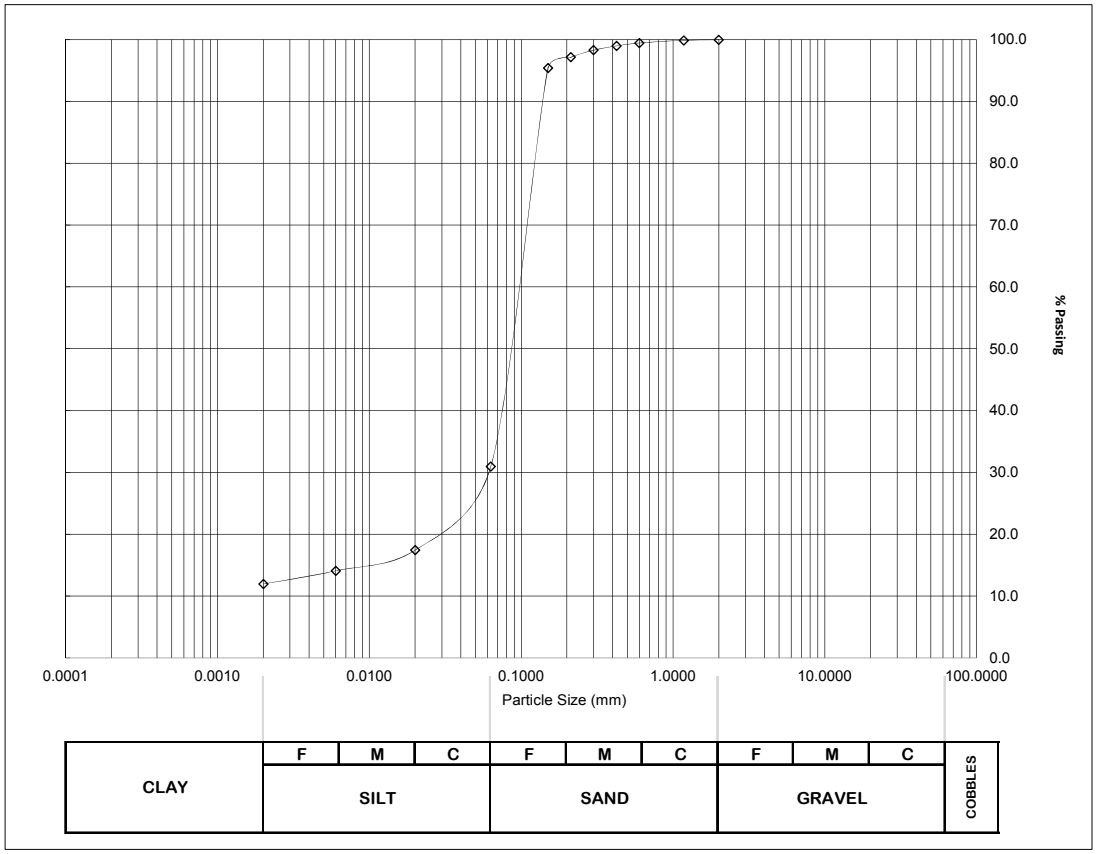
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**20/02/2017**
Borehole No:	**BH29**	**Sample Type/No.**	**B**	**02**	**Top Depth: 17.50 m**	**Bottom Depth:**	**m**

Soil Description:

Dark grey clayey silty fine SAND

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	100
20.000	100
14.000	100
10.000	100
6.300	100
5.000	100
3.350	100
2.000	100
1.180	100
0.600	99
0.425	99
0.300	98
0.212	97
0.150	95
0.063	31



Particle Proportions %	
Cobbles	
Gravel	0.0
Sand	69.1
Silt	19.0
Clay	12.0

Method/type:		
	Wet Sieving	BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.
	Pipette	BS 1377: Part 2: Clause 9.4: 1990 Determination of sedimentation by the pipette method.

AGS

UKAS TESTING
4503

Remarks:

Date - samples received:	19/01/2017	Checked by:	KM
Date - samples tested:	09/02/2017	Date:	17/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

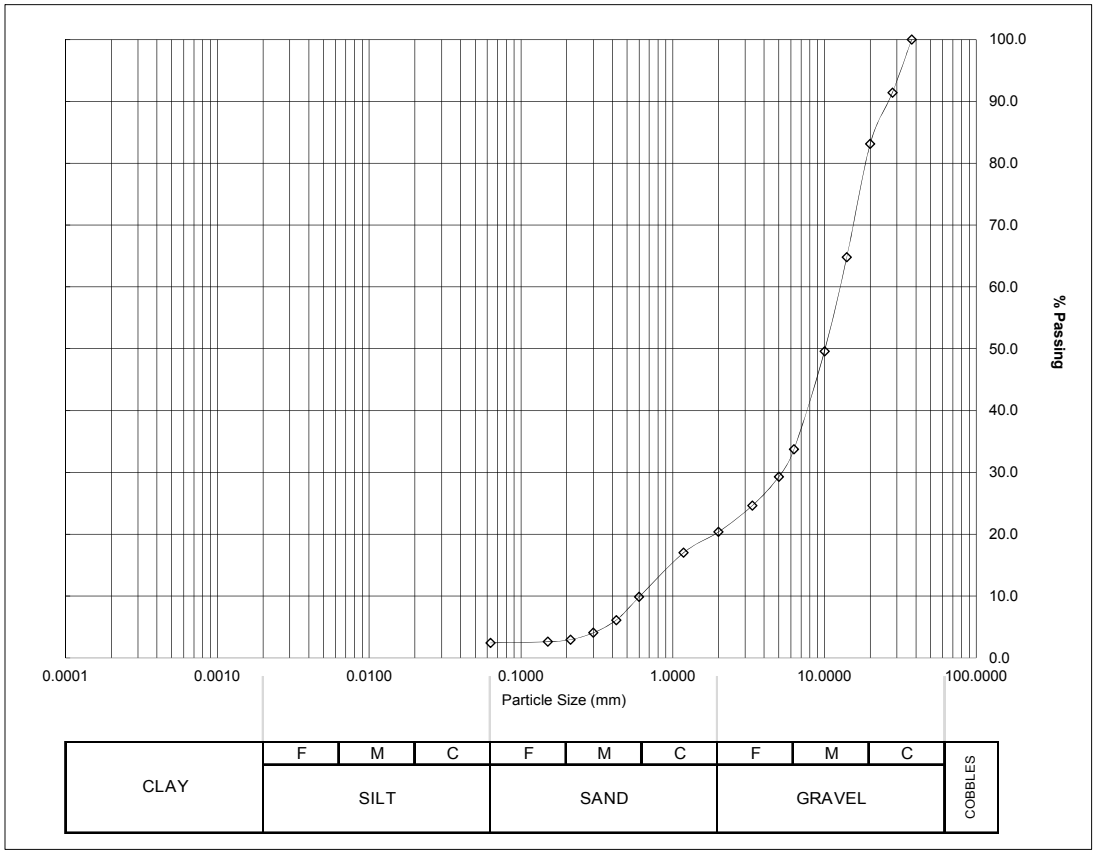
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH31**	**Sample Type/No.**	**B**	**04**	**Top Depth: 12.50 m**	**Bottom Depth:**	**13.00 m**

Soil Description:

Brown mottled black slightly clayey sandy angular to well rounded fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	91
20.000	83
14.000	65
10.000	50
6.300	34
5.000	29
3.350	25
2.000	20
1.180	17
0.600	10
0.425	6
0.300	4
0.212	3
0.150	3
0.063	2



Particle Proportions %	
Cobbles	
Gravel	79.6
Sand	18.0
Silt and Clay	2.4

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	21/11/2016	Checked by:	KM
Date - samples tested:	08/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

CONCEPT
47-49 Brunel Road, London W3 7XR
Tel: 02087401553
Email: lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

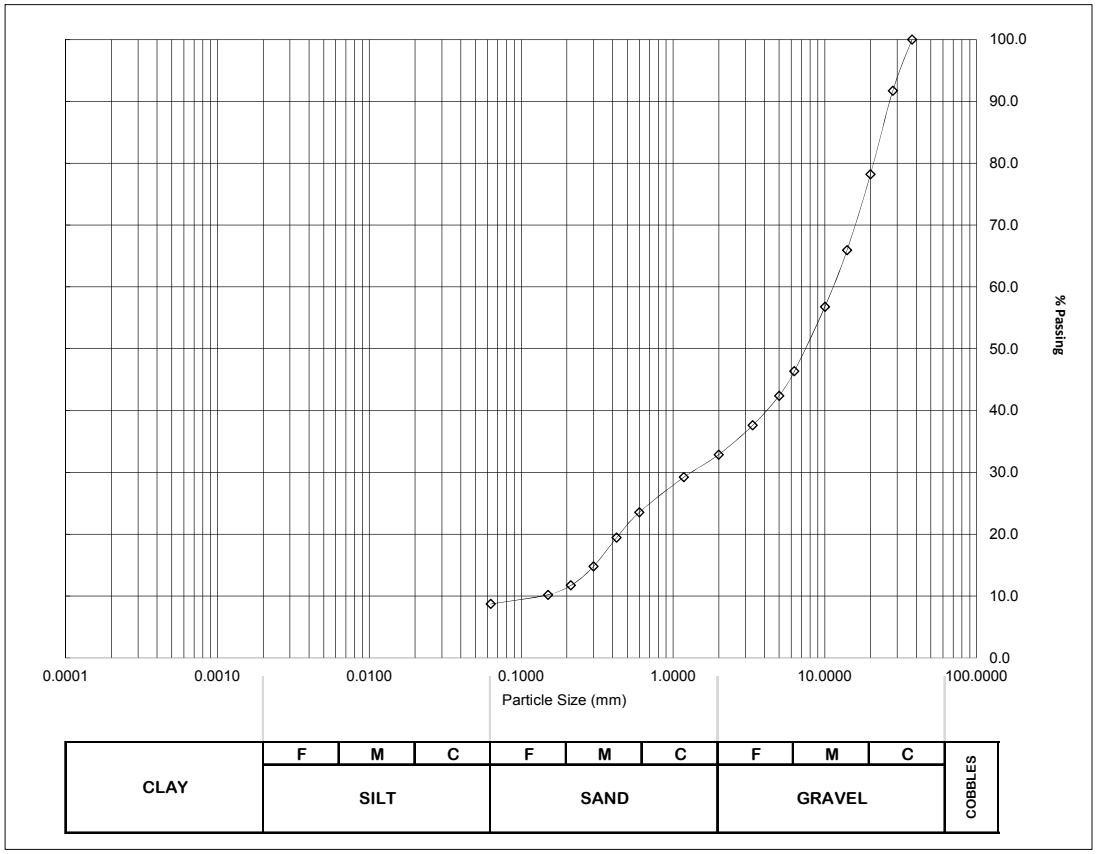
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**10/02/2017**
Borehole No:	**BH33**	**Sample Type/No.**	**B**	**03**	**Top Depth: 13.70 m**	**Bottom Depth:**	**m**

Soil Description:

Grey slightly clayey very sandy subangular to well rounded fine to coarse flint GRAVEL with occasional pockets of dark grey clay (<50mm) and rare pockets of chalk

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	100
28.000	92
20.000	78
14.000	66
10.000	57
6.300	46
5.000	42
3.350	38
2.000	33
1.180	29
0.600	24
0.425	19
0.300	15
0.212	12
0.150	10
0.063	9



Particle Proportions %	
Cobbles	
Gravel	67.1
Sand	24.2
Silt and Clay	8.7

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	09/12/2016	Checked by:	KM
Date - samples tested:	06/02/2017	Date:	10/02/2017

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

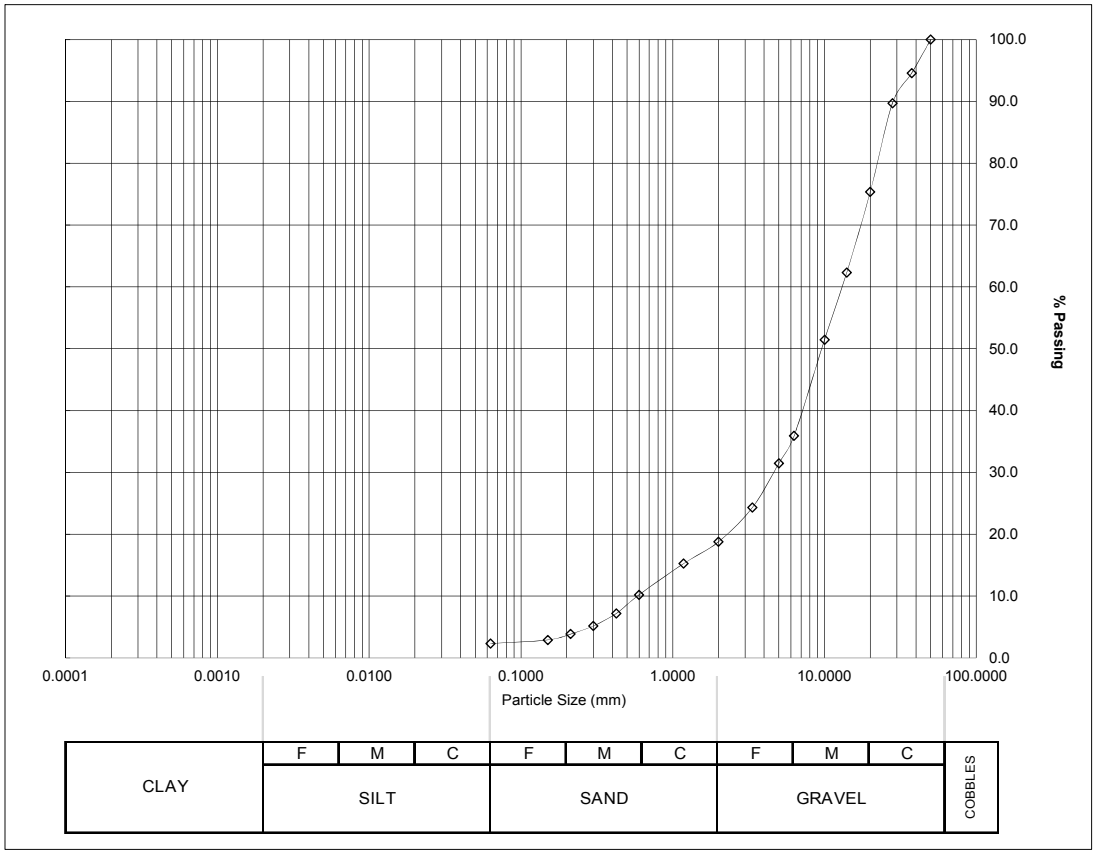
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH34**	**Sample Type/No.**	**B**	**06**	**Top Depth: 13.50 m**	**Bottom Depth:**	**m**

Soil Description:

Brown mottled black slightly clayey sandy angular to well rounded fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	95
28.000	90
20.000	75
14.000	62
10.000	51
6.300	36
5.000	31
3.350	24
2.000	19
1.180	15
0.600	10
0.425	7
0.300	5
0.212	4
0.150	3
0.063	2



Particle Proportions %	
Cobbles	
Gravel	81.2
Sand	16.4
Silt and Clay	2.3

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	18/11/2016	Checked by:	KM
Date - samples tested:	08/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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CONCEPT SITE INVESTIGATIONS

PARTICLE SIZE DISTRIBUTION

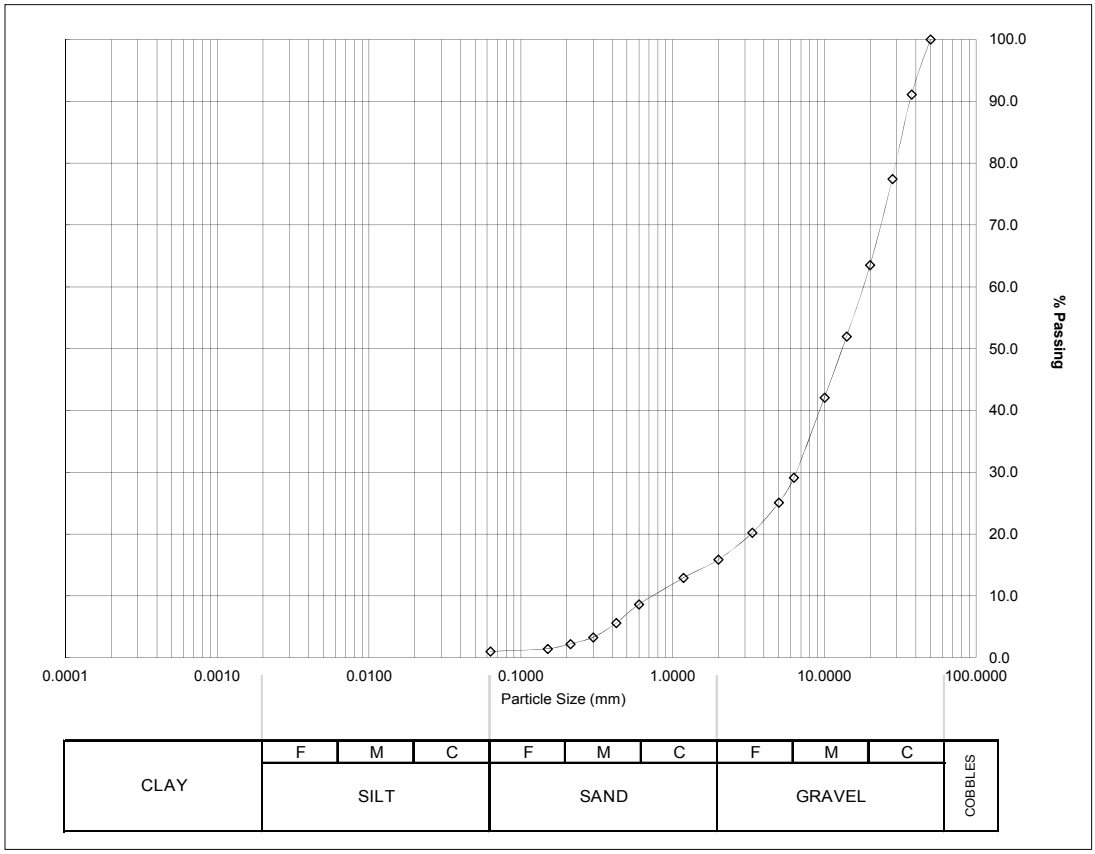
TEST REPORT

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**					**Job Number:**	**16/2900**
Client:	**London City Airport**					**Date Reported:**	**12/12/2016**
Borehole No:	**BH34**	**Sample Type/No.**	**B**	**09**	**Top Depth: 14.00 m**	**Bottom Depth:**	**m**

Soil Description:

Dark brown sandy angular to well rounded fine to coarse flint GRAVEL

BS Test Sieves	
Size (mm)	% Passing
75.000	100
63.000	100
50.000	100
37.500	91
28.000	77
20.000	64
14.000	52
10.000	42
6.300	29
5.000	25
3.350	20
2.000	16
1.180	13
0.600	9
0.425	6
0.300	3
0.212	2
0.150	1
0.063	1



Particle Proportions %	
Cobbles	
Gravel	84.1
Sand	14.9
Silt and Clay	1.0

Method/type:	Wet Sieving

BS 1377: Part 2: Clause 9.2: 1990 Determination of particle size distribution - wet sieving method.

4503

Remarks:

Date - samples received:	18/11/2016	Checked by:	KM
Date - samples tested:	08/12/2016	Date:	12/12/2016

Approved Signatories: L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)

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2683

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-09775
Issue:	1
Date of Issue:	07/12/2016
Contact:	Richard Embery
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q15-00395
Order No:	L1330
Customer Reference:	16/2900
Date Received:	01/12/2016
Date Approved:	07/12/2016
Details:	CADP Surveys - Ground Investigation (Dock) Phase 2
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-09775

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
82230	BH03 B03 13.50 - 14.00	29/11/2016	01/12/2016	Sand + stones	
82231	BH03 D11 21.50	29/11/2016	01/12/2016	Sandy loam	
82232	BH03 B13 25.10	29/11/2016	01/12/2016	Loamy sand	
82233	BH03 C15 31.40 - 31.65	29/11/2016	01/12/2016	chalk	
82234	BH03 C17 33.80 - 34.10	29/11/2016	01/12/2016	chalk	
82235	BH17 D08 18.50	29/11/2016	01/12/2016	Loamy sand	
82236	BH17 D21 32.90	29/11/2016	01/12/2016	chalk	
82237	BH25 B02 11.90 - 12.40	29/11/2016	01/12/2016	wet silty loam	
82238	BH25 B10 14.70 - 15.00	29/11/2016	01/12/2016	wet silty loam	
82239	BH25 D20 21.00	29/11/2016	01/12/2016	Loamy sand	
82240	BH25 D23 22.50	29/11/2016	01/12/2016	chalk	
82241	BH28 B02 12.00 - 12.50	29/11/2016	01/12/2016	wet silty loam	
82242	BH28 B08 13.50	29/11/2016	01/12/2016	Sand + stones	
82243	BH28 B17 18.50 - 19.00	29/11/2016	01/12/2016	chalk	
82244	BH31 B02 12.00 - 12.50	29/11/2016	01/12/2016	wet silty loam	
82245	BH31 D05 13.25	29/11/2016	01/12/2016	stones + sand	
82246	BH31 D08 14.25	29/11/2016	01/12/2016	stones + sand	
82247	BH34 D04 12.75	29/11/2016	01/12/2016	wet silty loam	
82248	BH34 B06 13.50	29/11/2016	01/12/2016	Loamy sand + stones	

Results Summary

Report No.: 16-09775

			ELAB Reference	82230	82231	82232	82233	82234
			Customer Reference	B03	D11	B13	C15	C17
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH03	BH03	BH03	BH03	BH03
			Sample Depth (m)	13.50 - 14.00	21.50	25.10	31.40 - 31.65	33.80 - 34.10
			Sampling Date	29/11/2016	29/11/2016	29/11/2016	29/11/2016	29/11/2016
Determinand	**Codes**	**Units**	**LOD**					
Anions								
Water Soluble Sulphate	M	g/l	0.02	^ 0.09	0.21	n/t	^ 0.08	n/t
Water Soluble Sulphate	M	mg/l	20	n/t	n/t	562	n/t	^ 49
Inorganics								
Acid Soluble Sulphate (SO4)	U	%	0.02	n/t	n/t	n/t	n/t	0.06
Miscellaneous								
Moisture Content	N	%	0.1	n/t	n/t	n/t	n/t	n/t
pH	M	pH units	0.1	^ 8.7	8.6	7.4	^ 8.4	^ 8.4
Soil Organic Matter	U	%	0.1	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 16-09775

			ELAB Reference	82235	82236	82237	82238	82239
			Customer Reference	D08	D21	B02	B10	D20
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH17	BH17	BH25	BH25	BH25
			Sample Depth (m)	18.50	32.90	11.90 - 12.40	14.70 - 15.00	21.00
			Sampling Date	29/11/2016	29/11/2016	29/11/2016	29/11/2016	29/11/2016
Determinand	**Codes**	**Units**	**LOD**					
Anions								
Water Soluble Sulphate	M	g/l	0.02	0.56	^ 0.13	n/t	^ 0.31	0.79
Water Soluble Sulphate	M	mg/l	20	n/t	n/t	n/t	n/t	n/t
Inorganics								
Acid Soluble Sulphate (SO4)	U	%	0.02	n/t	n/t	n/t	n/t	n/t
Miscellaneous								
Moisture Content	N	%	0.1	27.6	n/t	n/t	n/t	28.5
pH	M	pH units	0.1	8.0	^ 8.3	n/t	^ 8.6	7.5
Soil Organic Matter	U	%	0.1	n/t	n/t	2.9	n/t	n/t

Results Summary

Report No.: 16-09775

			ELAB Reference	82240	82241	82242	82243	82244
			Customer Reference	D23	B02	B08	B17	B02
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH25	BH28	BH28	BH28	BH31
			Sample Depth (m)	22.50	12.00 - 12.50	13.50	18.50 - 19.00	12.00 - 12.50
			Sampling Date	29/11/2016	29/11/2016	29/11/2016	29/11/2016	29/11/2016
Determinand	**Codes**	**Units**	**LOD**					
Anions								
Water Soluble Sulphate	M	g/l	0.02	n/t	^ 0.35	^ 0.08	^ 0.11	n/t
Water Soluble Sulphate	M	mg/l	20	^ 107	n/t	n/t	n/t	^ 712
Inorganics								
Acid Soluble Sulphate (SO4)	U	%	0.02	0.08	n/t	n/t	n/t	n/t
Miscellaneous								
Moisture Content	N	%	0.1	29.6	n/t	n/t	38.2	n/t
pH	M	pH units	0.1	^ 8.4	^ 8.1	^ 8.8	^ 8.7	^ 8.0
Soil Organic Matter	U	%	0.1	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 16-09775

			ELAB Reference	82245	82246	82247	82248
			Customer Reference	D05	D08	D04	B06
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH31	BH31	BH34	BH34
			Sample Depth (m)	13.25	14.25	12.75	13.50
			Sampling Date	29/11/2016	29/11/2016	29/11/2016	29/11/2016
Determinand	**Codes**	**Units**	**LOD**				
Anions							
Water Soluble Sulphate	M	g/l	0.02	n/t	n/t	n/t	n/t
Water Soluble Sulphate	M	mg/l	20	^ 93	^ 72	n/t	n/t
Inorganics							
Acid Soluble Sulphate (SO4)	U	%	0.02	n/t	n/t	0.33	0.08
Miscellaneous							
Moisture Content	N	%	0.1	n/t	1.8	n/t	n/t
pH	M	pH units	0.1	^ 8.9	^ 8.9	^ 7.8	^ 8.1
Soil Organic Matter	U	%	0.1	n/t	n/t	n/t	n/t

Method Summary

Report No.: 16-09775

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	07/12/2016	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	07/12/2016	115	Ion Chromatography
Water soluble anions	M	Air dried sample	06/12/2016	172	Ion Chromatography
Soil organic matter	U	Air dried sample	07/12/2016	BS1377:P3	Titrimetry

Report Information

Report No.: 16-09775

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

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2683

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-10004
Issue:	1
Date of Issue:	22/12/2016
Contact:	Richard Embery
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q15-00395
Order No:	L1344
Customer Reference:	16/2900
Date Received:	16/12/2016
Date Approved:	22/12/2016
Details:	CADP Surveys - Ground Investigation (Dock) Phase 2
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-10004

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
83862	BH06 B05 1.70 - 2.00	14/12/2016	16/12/2016	Sand + stones	
83863	BH06 B09 3.10	14/12/2016	16/12/2016	Sand	
83864	BH06 D10 3.20	14/12/2016	16/12/2016	Sand + stones	
83865	BH06 D11 3.70	14/12/2016	16/12/2016	Loamy sand	
83866	BH06 D13 4.20	14/12/2016	16/12/2016	Sand + stones	
83867	BH06 D14 5.20	14/12/2016	16/12/2016	Sand	
83868	BH06 B17 6.80	14/12/2016	16/12/2016	Sand	
83869	BH06 D18 7.20	14/12/2016	16/12/2016	Silty clayey loam	
83870	BH06 D24 9.20	14/12/2016	16/12/2016	Silty clayey loam	
83871	BH06 D28 10.50	14/12/2016	16/12/2016	Silty clayey loam	
83872	BH06 B31 15.00 - 15.20	14/12/2016	16/12/2016	Sand	
83873	BH06 B41 25.30 - 25.70	14/12/2016	16/12/2016	Silty loam	
83874	BH10 B07 13.50 - 14.00	14/12/2016	16/12/2016	Sand + stones	
83875	BH10 D20 21.00	14/12/2016	16/12/2016	Loamy sand	
83876	BH21 B06 13.10 - 13.50	14/12/2016	16/12/2016	Sand + stones	
83877	BH21 D11 14.50	14/12/2016	16/12/2016	Sand	
83878	BH21 D27 25.50	14/12/2016	16/12/2016	Loamy sand	
83879	BH21 D36 31.50	14/12/2016	16/12/2016	chalk	

Results Summary

Report No.: 16-10004

			ELAB Reference	83862	83863	83864	83865	83866	83867
			Customer Reference	B05	B09	D10	D11	D13	D14
			Sample ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH06	BH06	BH06	BH06	BH06	BH06
			Sample Depth (m)	1.70 - 2.00	3.10	3.20	3.70	4.20	5.20
			Sampling Date	14/12/2016	14/12/2016	14/12/2016	14/12/2016	14/12/2016	14/12/2016
Determinand	**Codes**	**Units**	**LOD**						
Anions									
Water Soluble Sulphate	M	g/l	0.02	n/t	n/t	n/t	n/t	n/t	n/t
Water Soluble Sulphate	M	mg/l	20	^ 59	64	^ 51	166	^ 89	90
Miscellaneous									
Moisture Content	N	%	0.1	n/t	n/t	3.0	21.7	11.0	5.5
pH	M	pH units	0.1	^ 8.3	8.3	^ 8.6	8.2	^ 8.5	8.5
Soil Organic Matter	U	%	0.1	n/t	n/t	0.3	n/t	n/t	n/t

Results Summary

Report No.: 16-10004

			ELAB Reference	83868	83869	83870	83871	83872
			Customer Reference	B17	D18	D24	D28	B31
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH06	BH06	BH06	BH06	BH06
			Sample Depth (m)	6.80	7.20	9.20	10.50	15.00 - 15.20
			Sampling Date	14/12/2016	14/12/2016	14/12/2016	14/12/2016	14/12/2016
Determinand	**Codes**	**Units**	**LOD**					
Anions								
Water Soluble Sulphate	M	g/l	0.02	n/t	n/t	n/t	n/t	0.13
Water Soluble Sulphate	M	mg/l	20	79	406	308	n/t	n/t
Miscellaneous								
Moisture Content	N	%	0.1	n/t	71.4	n/t	69.5	n/t
pH	M	pH units	0.1	8.3	8.0	7.8	n/t	8.8
Soil Organic Matter	U	%	0.1	n/t	4.5	4.2	4.8	n/t

Results Summary

Report No.: 16-10004

			ELAB Reference	83873	83874	83875	83876	83877
			Customer Reference	B41	B07	D20	B06	D11
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH06	BH10	BH10	BH21	BH21
			Sample Depth (m)	25.30 - 25.70	13.50 - 14.00	21.00	13.10 - 13.50	14.50
			Sampling Date	14/12/2016	14/12/2016	14/12/2016	14/12/2016	14/12/2016
Determinand	**Codes**	**Units**	**LOD**					
Anions								
Water Soluble Sulphate	M	g/l	0.02	0.78	^ 0.42	0.52	n/t	n/t
Water Soluble Sulphate	M	mg/l	20	n/t	n/t	n/t	^ 667	223
Miscellaneous								
Moisture Content	N	%	0.1	n/t	2.9	n/t	n/t	n/t
pH	M	pH units	0.1	7.5	^ 7.9	7.8	^ 8.1	8.7
Soil Organic Matter	U	%	0.1	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 16-10004

			ELAB Reference	83878	83879
			Customer Reference	D27	D36
			Sample ID		
			Sample Type	SOIL	SOIL
			Sample Location	BH21	BH21
			Sample Depth (m)	25.50	31.50
			Sampling Date	14/12/2016	14/12/2016
Determinand	**Codes**	**Units**	**LOD**		
Anions					
Water Soluble Sulphate	M	g/l	0.02	n/t	n/t
Water Soluble Sulphate	M	mg/l	20	820	^ 171
Miscellaneous					
Moisture Content	N	%	0.1	n/t	20.4
pH	M	pH units	0.1	7.1	^ 8.2
Soil Organic Matter	U	%	0.1	n/t	n/t

Method Summary

Report No.: 16-10004

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	21/12/2016	113	Electromeric
Water soluble anions	M	Air dried sample	21/12/2016	172	Ion Chromatography
Soil organic matter	U	Air dried sample	22/12/2016	BS1377:P3	Titrimetry

Report Information

Report No.: 16-10004

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

Unit A2
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2683

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-10005
Issue:	1
Date of Issue:	22/12/2016
Contact:	Richard Embery
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q15-00395
Order No:	L1345
Customer Reference:	16/2900
Date Received:	16/12/2016
Date Approved:	22/12/2016
Details:	CADP Surveys - Ground Investigation (Dock) Phase 2
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-10005

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
83880	BH23 D04 13.00	15/12/2016	16/12/2016	Silty loam	
83881	BH23 B07 13.50 - 14.00	15/12/2016	16/12/2016	stones	
83882	BH24 B04 12.00 - 12.50	15/12/2016	16/12/2016	Silty loam	
83883	BH24 B10 14.00 - 14.50	15/12/2016	16/12/2016	Sand + stones	
83884	BH24 D16 17.00	15/12/2016	16/12/2016	Sand	
83885	BH26 B13 16.50 - 17.00	15/12/2016	16/12/2016	Sand + stones	
83886	BH26 B16 18.20 - 18.50	15/12/2016	16/12/2016	chalk	
83887	BH26 D21 21.50	15/12/2016	16/12/2016	chalk	

Results Summary

Report No.: 16-10005

			ELAB Reference	83880	83881	83882	83883	83884
			Customer Reference	D04	B07	B04	B10	D16
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH23	BH23	BH24	BH24	BH24
			Sample Depth (m)	13.00	13.50 - 14.00	12.00 - 12.50	14.00 - 14.50	17.00
			Sampling Date	15/12/2016	15/12/2016	15/12/2016	15/12/2016	15/12/2016
Determinand	**Codes**	**Units**	**LOD**					
Anions								
Water Soluble Sulphate	M	g/l	0.02	0.88	n/t	0.61	n/t	n/t
Water Soluble Sulphate	M	mg/l	20	n/t	^ 301	n/t	^ 119	176
Inorganics								
Acid Soluble Sulphate (SO4)	U	%	0.02	n/t	n/t	n/t	n/t	n/t
Miscellaneous								
Moisture Content	N	%	0.1	89.0	n/t	158	n/t	n/t
pH	M	pH units	0.1	8.0	^ 8.2	8.3	^ 8.8	8.9
Soil Organic Matter	U	%	0.1	8.1	n/t	6.1	n/t	n/t

Results Summary

Report No.: 16-10005

			ELAB Reference	83885	83886	83887
			Customer Reference	B13	B16	D21
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH26	BH26	BH26
			Sample Depth (m)	16.50 - 17.00	18.20 - 18.50	21.50
			Sampling Date	15/12/2016	15/12/2016	15/12/2016
Determinand	**Codes**	**Units**	**LOD**			
Anions						
Water Soluble Sulphate	M	g/l	0.02	n/t	n/t	n/t
Water Soluble Sulphate	M	mg/l	20	^ 54	^ 93	^ 61
Inorganics						
Acid Soluble Sulphate (SO4)	U	%	0.02	< 0.02	0.07	0.06
Miscellaneous						
Moisture Content	N	%	0.1	n/t	n/t	21.1
pH	M	pH units	0.1	^ 8.8	^ 8.6	^ 8.7
Soil Organic Matter	U	%	0.1	n/t	n/t	n/t

Method Summary

Report No.: 16-10005

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	21/12/2016	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	21/12/2016	115	Ion Chromatography
Water soluble anions	M	Air dried sample	21/12/2016	172	Ion Chromatography
Soil organic matter	U	Air dried sample	22/12/2016	BS1377:P3	Titrimetry

Report Information

Report No.: 16-10005

Key

U	hold UKAS accreditation
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Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	17-10182
Issue:	1
Date of Issue:	17/01/2017
Contact:	Richard Embery
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q15-00395
Order No:	L1354
Customer Reference:	16/2900
Date Received:	10/01/2017
Date Approved:	17/01/2017
Details:	CADP Surveys - Ground Investigation (Dock) Phase 2
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 17-10182

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
84981	BH15 B07 13.00 - 13.20	09/01/2017	10/01/2017	Loamy sand	
84982	BH15 B10 14.50 - 15.00	09/01/2017	10/01/2017	Loamy sand	
84983	BH18 B01 11.50 - 12.30	09/01/2017	10/01/2017	Silty loam	
84984	BH18 B06 13.50 - 13.70	09/01/2017	10/01/2017	sand + stones	
84985	BH18 B14 17.00 - 17.50	09/01/2017	10/01/2017	Loamy sand	
84986	BH19 B10 14.50 - 15.00	09/01/2017	10/01/2017	Sand	
84987	BH32 B05 16.50	09/01/2017	10/01/2017	chalk	
84988	BH32 B17 24.70	09/01/2017	10/01/2017	chalk	
84989	BH33 B03 13.70	09/01/2017	10/01/2017	Sandy clay	
84990	BH33 B05 15.00	09/01/2017	10/01/2017	chalk	
84991	BH33 B15 22.00	09/01/2017	10/01/2017	chalk	
84992	BH33 B23 28.70	09/01/2017	10/01/2017	chalk	

Results Summary

Report No.: 17-10182

			ELAB Reference	84981	84982	84983	84984	84985
			Customer Reference	B07	B10	B01	B06	B14
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH15	BH15	BH18	BH18	BH18
			Sample Depth (m)	13.00 - 13.20	14.50 - 15.00	11.50 - 12.30	13.50 - 13.70	17.00 - 17.50
			Sampling Date	09/01/2017	09/01/2017	09/01/2017	09/01/2017	09/01/2017
Determinand	**Codes**	**Units**	**LOD**					
Anions								
Water Soluble Sulphate	M	g/l	0.02	n/t	n/t	2.21	^ 0.23	0.20
Miscellaneous								
Moisture Content	N	%	0.1	n/t	n/t	n/t	5.2	n/t
pH	M	pH units	0.1	n/t	n/t	7.9	^ 8.2	8.3
Soil Organic Matter	U	%	0.1	1.2	0.8	13	n/t	n/t

Results Summary

Report No.: 17-10182

			ELAB Reference	84986	84987	84988	84989	84990	84991
			Customer Reference	B10	B05	B17	B03	B05	B15
			Sample ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH19	BH32	BH32	BH33	BH33	BH33
			Sample Depth (m)	14.50 - 15.00	16.50	24.70	13.70	15.00	22.00
			Sampling Date	09/01/2017	09/01/2017	09/01/2017	09/01/2017	09/01/2017	09/01/2017
Determinand	**Codes**	**Units**	**LOD**						
Anions									
Water Soluble Sulphate	M	g/l	0.02	n/t	^ 0.07	^ 0.06	0.59	^ 0.07	^ 0.06
Miscellaneous									
Moisture Content	N	%	0.1	n/t	n/t	n/t	n/t	n/t	n/t
pH	M	pH units	0.1	n/t	^ 8.5	^ 8.5	8.3	^ 8.6	^ 8.6
Soil Organic Matter	U	%	0.1	0.5	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 17-10182

ELAB Reference	84992
Customer Reference	B23
Sample ID	
Sample Type	SOIL
Sample Location	BH33
Sample Depth (m)	28.70
Sampling Date	09/01/2017

Determinand	Codes	Units	LOD	
Anions				
Water Soluble Sulphate	M	g/l	0.02	^ 0.08
Miscellaneous				
Moisture Content	N	%	0.1	n/t
pH	M	pH units	0.1	^ 8.6
Soil Organic Matter	U	%	0.1	n/t

Method Summary

Report No.: 17-10182

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	16/01/2017	113	Electromeric
Water soluble anions	M	Air dried sample	13/01/2017	172	Ion Chromatography
Soil organic matter	U	Air dried sample	16/01/2017	BS1377:P3	Titrimetry

Report Information

Report No.: 17-10182

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	17/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH04	B	28	31.00	Off - white CHALK recovered as silty GRAVEL. Gravel comprises of fine to medium chalk fragments and fine to coarse flint			19		Sample unsuitable for Saturation Moisture Content test
BH04	B	32	34.00	Light grey mottled white CHALK recovered as slightly gravelly SILT. Gravel comprises of fine to medium chalk fragments and fine to coarse flint			17		Sample unsuitable for Saturation Moisture Content test

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	10/01/2017	Checked by:	KM
Date - samples tested:	07/02/2017	Date:	17/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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Email: Lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	22/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH09	B	24	28.00	Off-white CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk and flint			19		Sample unsuitable for Saturation Moisture Content test
BH09	B	26	29.50	Off-white CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk and flint			25		Sample unsuitable for Saturation Moisture Content test
BH09	B	28	31.00	Off-white CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk and flint			28		Sample unsuitable for Saturation Moisture Content test
BH09	B	30	31.50	Off-white CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk and occasional flint			33		Sample unsuitable for Saturation Moisture Content test

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	23/01/2017	Checked by:	KM
Date - samples tested:	16/02/2017	Date:	22/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	11/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH10R	C	15	28.10	White CHALK recovered as a cobble sized chalk fragment	1.94	1.50	29	30	
BH10R	C	17	29.70	White CHALK recovered as a cobble sized chalk fragment	1.96	1.54	28	28	
BH10R	C	18	32.00	White CHALK recovered as a cobble sized chalk fragment with rare medium flint gravel	1.99	1.57	27	27	

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	02/02/2016	Checked by:	KM
Date - samples tested:	19/01/2017	Date:	23/01/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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Tel: 02087401553
Email: Lab@conceptconsultants.co.uk

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	17/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH13	B	28	29.50	White CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk and a cobble of flint			14		Sample unsuitable for Saturation Moisture Content test
BH13	D	31	31.50	White CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk			26		Sample unsuitable for Saturation Moisture Content test

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	11/01/2017	Checked by:	KM
Date - samples tested:	13/02/2017	Date:	17/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH16	20	B	36.50		White CHALK.
BH16	22	C	38.00	38.30	White CHALK.

UKAS TESTING 4043	PSL Professional Soils Laboratory	CADP Surveys Ground Investigation (Dock) - Phase 2	Contract No: PSL17/0797
			Client Ref: 16/2900

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Saturated MC %	Dry Density Mg/m^3	Passing 10mm Sieve %	Chalk Crushing Value CCV	Remarks
BH16	20	B	36.50		29	29	1.51			
BH16	22	C	38.00	38.30	29	30	1.49			

* Chalk Crushing Value is out of our UKAS Scope

UKAS TESTING 4043	PSL Professional Soils Laboratory	CADP Surveys Ground Investigation (Dock) - Phase 2	Contract No: PSL17/0797
			Client Ref: 16/2900

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	12/12/2016

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH17	D	21	32.90	White CHALK			29		
BH17	C	22	33.35	Recovered as a white cobble size CHALK fragment	1.97	1.54	28	28	
BH17	C	23	34.50	Recovered as a white cobble size CHALK fragment	1.98	1.55	28	28	

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	21/11/2016	Checked by:	KM
Date - samples tested:	09/12/2016	Date:	12/12/2016
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

CONCEPT
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SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Saturated MC %	Dry Density Mg/m^3	Passing 10mm Sieve %	Chalk Crushing Value CCV	Remarks
BH17	20	C	31.80	32.10	26	28	1.54			

UKAS TESTING 4043	PSL Professional Soils Laboratory	Checked / Approved	Date 13/12/16	Contract No:
	CADP Surveys - Ground Investigation (Dock) Phase 2			PSL16/5722
				Client Ref:
				16/2900

CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	20/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH20	B	30	32.50	White CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk			30		Sample unsuitable for Saturation Moisture Content test
BH20	D	33	34.50	White CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to medium chalk and black flint			22		Sample unsuitable for Saturation Moisture Content test

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	11/01/2017	Checked by:	KM
Date - samples tested:	08/02/2017	Date:	13/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	11/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH21R	B	15	28.70	White CHALK recovered as a cobble sized chalk fragment			27		
BH21R	C	16	29.90	White CHALK recovered as a cobble sized chalk fragment with rare medium flint gravel	1.95	1.51	29	29	
BH21R	C	17	31.30	White CHALK recovered as a cobble sized chalk fragment	2.00	1.59	26	26	
BH21R	B	18	33.10	White CHALK recovered as a cobble sized chalk fragment			27		

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	09/12/2016	Checked by:	KM
Date - samples tested:	19/01/2017	Date:	23/01/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	22/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH27	B	03	19.00	White CHALK recovered as slightly sandy silty fine to coarse GRAVEL with a chalk cobble	2.00	1.58	27	26	Test performed on chalk cobble
BH27	D	06	22.50	Off-white CHALK recovered as slightly sandy slightly gravelly SILT. Gravel is fine to medium chalk and rare flint			27		Sample unsuitable for Saturation Moisture Content test
BH27	B	09	26.10	Off-white CHALK recovered as slightly sandy silty fine to coarse GRAVEL and COBBLES	2.00	1.58	27	26	Test performed on chalk cobble
BH27	B	11	28.00	White CHALK recovered as slightly sandy slightly silty fine to coarse GRAVEL and COBBLES with rare fine to coarse flint	2.05	1.66	23	23	Test performed on chalk cobble
BH27	B	14	30.50	White CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk and rare fine to coarse flint			28		Sample unsuitable for Saturation Moisture Content test
BH27	D	16	33.00	White CHALK recovered as slightly sandy slightly gravelly SILT. Gravel is fine to coarse chalk			28		Sample unsuitable for Saturation Moisture Content test

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	30/01/2017	Checked by:	KM
Date - samples tested:	21/02/2017	Date:	22/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	20/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH29	B	03	19.10	White CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk and fine to medium black flint			28		Sample unsuitable for Saturation Moisture Content test
BH29	D	05	21.50	White CHALK recovered as slightly sandy SILT			30		
BH29	D	07	23.00	White CHALK recovered as slightly sandy slightly gravelly SILT. Gravel is fine to coarse chalk			29		Sample unsuitable for Saturation Moisture Content test
BH29	D	09	24.50	White CHALK recovered as slightly sandy slightly gravelly SILT. Gravel is fine to medium chalk			27		
BH29	D	11	26.00	White CHALK recovered as slightly sandy SILT with occasional angular fine to coarse flint			27		Sample unsuitable for Saturation Moisture Content test
BH29	D	13	27.50	White CHALK recovered as slightly sandy SILT with rare fine to coarse chalk			29		

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	19/01/2017	Checked by:	KM
Date - samples tested:	16/02/2017	Date:	20/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	20/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH30	B	03	17.50	Off-white silty gravelly CHALK. Gravel comprises fine to coarse chalk fragments and rare fine to medium black flint			26		Sample unsuitable for Saturation Moisture Content test
BH30	B	05	19.50	Off-white CHALK recovered as slightly sandy silty fine to coarse GRAVEL and COBBLES with rare orangish brown staining	2.03	1.62	25	25	Test performed on chalk cobble
BH30	B	07	24.00	Off-white CHALK recovered as slightly sandy silty fine to coarse GRAVEL and COBBLES	2.00	1.58	27	26	Test performed on chalk cobble
BH30	B	11	27.00	Off-white CHALK recovered as slightly sandy silty fine to coarse GRAVEL and COBBLES	2.03	1.62	25	25	Test performed on chalk cobble
BH30	B	15	29.40	Off-white CHALK recovered as slightly sandy silty fine to coarse GRAVEL and COBBLES	2.02	1.60	26	25	Test performed on chalk cobble
BH30	C	16	30.60	Off-white CHALK recovered as slightly sandy silty fine to coarse GRAVEL and COBBLES	2.00	1.59	26	26	Test performed on chalk cobble

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	19/12/2016	Checked by:	KM
Date - samples tested:	16/02/2017	Date:	17/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	11/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH32	D	04	15.80	White CHALK recovered as slightly sandy silty fine to medium GRAVEL			25		
BH32	D	07	17.80	White CHALK recovered as slightly sandy silty fine to medium GRAVEL			39		
BH32	B	08	18.10	White CHALK recovered as slightly sandy gravelly SILT. Gravel is fine to coarse chalk fragments			29		Sample unsuitable for Saturation Moisture Content test
BH32	B	13	21.50	White CHALK recovered as slightly sandy silty fine to coarse GRAVEL			26		Sample unsuitable for Saturation Moisture Content test
BH32	D	16	24.00	White CHALK recovered as slightly sandy silty fine to medium GRAVEL			28		
BH32	B	17	24.70	White CHALK recovered as a cobble sized chalk fragment	2.04	1.60	28	26	
BH32	C	19	26.50	White CHALK recovered as a cobble sized chalk fragment	1.97	1.53	29	28	
BH32	C	23	29.40	White CHALK recovered as a cobble sized chalk fragment	1.99	1.57	27	27	
BH32	C	25	30.20	White CHALK recovered as a cobble sized chalk fragment	2.00	1.57	27	26	

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	19/12/2016	Checked by:	KM
Date - samples tested:	03/02/2017	Date:	11/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mgr.)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	CADP Surveys - Ground Investigation (Dock) Phase 2	Job No.	16/2900
Client:	London City Airport	Date	10/02/2017

Summary Test Report
Determination of Saturation Moisture Content

BH/TP No	Sample Type	Sample No	Depth m	Description	Bulk Density Mg/m^3	Dry Density Mg/m^3	Natural Moisture Content %	Saturation Moisture Content %	Remarks
BH33	B	05	15.00	White CHALK recovered as slightly sandy very silty fine to coarse GRAVEL with rare angular fine flint gravel			29		Sample unsuitable for Saturation Moisture Content test
BH33	B	07	15.70	Black fine to medium flint GRAVEL and CHALK recovered as slightly sandy slightly gravelly SILT			9.7		Sample unsuitable for Saturation Moisture Content test
BH33	B	10	18.10	White CHALK recovered as slightly sandy silty fine to coarse GRAVEL			27		Sample unsuitable for Satutation Moisture Content test
BH33	B	15	22.00	White CHALK recovered as a cobble sized chalk fragment	1.98	1.56	27	27	
BH33	C	19	25.40	White CHALK recovered as a cobble sized chalk fragment	1.99	1.58	26	26	
BH33	B	23	28.70	White CHALK recovered as a cobble sized chalk fragment	1.95	1.52	29	29	
BH33	C	26	30.10	White CHALK recovered as a cobble sized chalk fragment	1.95	1.52	28	29	

BS 1377: Part 2: Clause 3.3: 1990 Determination of the saturation moisture content of chalk

Date - samples received:	09/12/2016	Checked by:	KM
Date - samples tested:	19/01/2107	Date:	10/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Saturated MC %	Dry Density Mg/m^3	Passing 10mm Sieve %	Chalk Crushing Value CCV	Remarks
BH06	42	C	27.50	27.75	27	29	1.57			
BH25R	13	C	22.65	23.00	24	28	1.58			
BH25R	20	C	28.10	28.30	29	29	1.55			

UKAS TESTING 4043	PSL Professional Soils Laboratory	Checked / Approved	AP	Date	13/01/17	Contract No:
	CADP Surveys - Ground Investigation (Dock) Phase 2					PSL16/5960
						Client Ref:
						16/2900

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Saturated MC %	Dry Density Mg/m^3	Passing 10mm Sieve %	Chalk Crushing Value CCV	Remarks
BH06	45	C	30.10	30.40	27	29	1.51			
BH25R	16	C	25.00	25.30	30	32	1.45			
BH25R	18	C	26.80	27.10	29	28	1.54			
BH25R	22	C	29.80	30.15	27	27	1.55			
BH10R	16	C	29.20	29.50	26	27	1.60			

UKAS TESTING 4043	PSL Professional Soils Laboratory	Checked / Approved	Date 16/01/17	Contract No:
	CADP Surveys - Ground Investigation (Dock) Phase 2			PSL16/5990
				Client Ref:
				16/2900

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Saturated MC %	Dry Density Mg/m^3	Passing 10mm Sieve %	Chalk Crushing Value CCV	Remarks
BH07	20	B	29.50		29	29	1.52			
BH07	21	C	31.60	31.90	29	30	1.49			
BH07	24	C	33.00	33.40	29	27	1.55			
BH12	18	C	28.25	28.55	29	29	1.51			
BH12	19	C	29.55	29.75	26	27	1.57			
BH12	21	C	31.20	31.45	27	27	1.57			
BH22	27	B	34.00	34.40	24	24	1.63			
BH22	39	B	35.70		27	26	1.58			
BH22	31	C	36.80	37.10	22	23	1.68			
BH29	17	C	30.00	30.20	25	26	1.61			
BH29	20	B	32.70		26					
BH29	24	B	36.00	36.50	28	27	1.57			
BH29	28	C	39.20	39.50	27	28	1.53			
BH29	32	C	41.90	42.30	26	28	1.55			
BH29	34	C	43.20	43.60	28	30	1.50			
BH29	36	C	45.00	45.30	30	31	1.48			
BH30	17	C	32.10	32.40	27	28	1.54			

* Chalk Crushing Value is out of our UKAS Scope

UKAS TESTING 4043	PSL Professional Soils Laboratory	CADP Surveys - Ground Investigation (Dock) Phase 2	Contract No: PSL17/0601
			Client Ref: 16/2900

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Saturated MC %	Dry Density Mg/m^3	Passing 10mm Sieve %	Chalk Crushing Value CCV	Remarks
BH33	21	C	26.50	26.80	27	26	1.59			
BH12	16	C	27.00	27.25	30	30	1.48			

* Chalk Crushing Value is out of our UKAS Scope

UKAS TESTING 4043

PSL Professional Soils Laboratory

CADP Surveys - Ground Investigations (Dock) Phase 2

Contract No:
PSL17/0312
Client Ref:
16/2900

CONCEPT SITE INVESTIGATIONS

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Job No.:**	**16/2900**
Client:	**London City Airport**	**Date Reported:**	**12/12/2016**

Summary Test Report

Point Load Strength Determination

Borehole No	Sample Type	Sample No	Depth (m) from	Depth (m) to	Moisture (%)	W (mm)	D (mm)	Pressure (kN)	Test Type (D-diametral A-axial L or I - Lump or Irregular Test)	De (mm)	De2 (mm²)	Is (MN/m²)	F	Is(50) (MN/m²)
BH03	C	16	32.70	33.00	28.5	97	104	1.108	D	104.000	10816.00	0.102	1.390	0.142
BH03	C	17	33.80	34.10	27.3	94	97	0.562	D	97.000	9409.00	0.060	1.347	0.080
BH17	C	22	33.35	33.55	29.2	75	85	1.070	A	90.094	8116.90	0.132	1.303	0.172
BH17	C	23	34.50	34.75	28.9	84	90	0.710	D	90.000	8100.00	0.088	1.303	0.114

ISRM Suggested Methods for Point Load Strength Determination: 2007

4503

Date - samples received:	21/11/2016	Checked by:	LG
Date - samples tested:	09/12/2016	Date:	12/12/2016
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Job No.:**	**16/2900**
Client:	**London City Airport**	**Date Reported:**	**11/02/2017**

Summary Test Report

Point Load Strength Determination

Borehole No	Sample Type	Sample No	Depth (m) from	Depth (m) to	Moisture (%)	W (mm)	D (mm)	Pressure (kN)	Test Type (D-diametral A-axial L or I - Lump or Irregular Test)	De (mm)	De2 (mm²)	Is (MN/m²)	F	Is(50) (MN/m²)
BH10R	C	15	28.10	28.30	27.5	100	92	1.307	A	108.230	11713.80	0.112	1.416	0.158
BH10R	C	17	29.70	29.95	28.1	99	103	1.254	A	113.944	12983.22	0.097	1.449	0.140
BH21R	C	16	29.90	30.20	29.2	101	105	1.644	D	105.000	11025.00	0.149	1.396	0.208
BH21R	C	17	31.30	31.55	24.8	101	95	1.132	D	95.000	9025.00	0.125	1.335	0.167
BH32	C	19	26.50	26.70	27.71	90	100	1.161	A	107.047	11459.16	0.101	1.409	0.143
BH32	C	23	29.40	29.70	27.14	101	105	1.567	D	105.000	11025.00	0.142	1.396	0.198
BH32	C	25	30.20	30.40	28.43	105	80	0.432	L	103.418	10695.21	0.040	1.387	0.056
BH33	C	19	25.40	25.70	27.76	101	105	0.803	D	105.000	11025.00	0.073	1.396	0.102
BH33	B	23	28.70		28.50	164	85	0.533	L	133.225	17748.96	0.030	1.554	0.047
BH33	C	26	30.10	30.55	27.99	101	105	0.997	D	105.000	11025.00	0.090	1.396	0.126

ISRM Suggested Methods for Point Load Strength Determination: 2007

4503

Date - samples received:	15/11/2016	Checked by:	LG
Date - samples tested:	20/01/2017	Date:	31/01/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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CONCEPT SITE INVESTIGATIONS

Site Name:	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Job No.:**	**16/2900**
Client:	**London City Airport**	**Date Reported:**	**22/02/2017**

Summary Test Report

Point Load Strength Determination

Borehole No	Sample Type	Sample No	Depth (m) from	Depth (m) to	Moisture (%)	W (mm)	D (mm)	Pressure (kN)	Test Type (D-diametral A-axial L or I - Lump or Irregular Test)	De (mm)	De2 (mm²)	Is (MN/m²)	F	Is(50) (MN/m²)
BH27	B	03	19.00		27.5	115	103	0.995	L	122.807	15081.52	0.066	1.498	0.099
BH27	B	11	28.00		20.2	97	64	0.565	L	88.906	7904.27	0.071	1.296	0.093

ISRM Suggested Methods for Point Load Strength Determination: 2007

4503

Date - samples received:	30/01/2017	Checked by:	LG
Date - samples tested:	20/02/2017	Date:	21/02/2017
Approved Signatories:	L Griffin LG (Quality Manager) – K Mazerant KM (Lab Mngr)		

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SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH06	30.10	45	A	Par	100	44	4400	5602.25	74.85	-	0.65	0.116	1.199	0.14	Valid	
BH25R	25.00	16	A	Par	100	46	4600	5856.90	76.53	-	0.71	0.121	1.211	0.15	Valid	
BH25R	26.80	18	A	Par	100	44	4400	5602.25	74.85	-	0.94	0.168	1.199	0.20	Valid	
BH25R	29.80	22	A	Par	100	40	4000	5092.96	71.36	-	0.80	0.157	1.174	0.18	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular

UKAS TESTING 4043	PSL Professional Soils Laboratory	Checked / Approved		Date	16/01/17	Contract No:
		CADP Surveys - Ground Investigation (Dock) Phase 2				PSL16/5990
						Client Ref:
						16/2900

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH06	27.50	42	A	Par	100	40	4000	5092.96	71.36	-	0.35	0.069	1.174	0.08	Valid	
BH25R	22.65	13	A	Par	100	44	4400	5602.25	74.85	-	0.42	0.075	1.199	0.09	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular

UKAS TESTING 4043	PSL Professional Soils Laboratory	Checked / Approved	Date 13/01/17	Contract No: PSL16/5960
	CADP Surveys - Ground Ivestigation (Dock) Phase 2			Client Ref: 16/2900

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH07	31.60	21	A	Par	100	31	3100	3947.04	62.83	-	0.45	0.114	1.108	0.13	Valid	
BH07	33.00	24	A	Par	100	52	5200	6620.85	81.37	-	1.02	0.154	1.245	0.19	Valid	
BH12	28.25	18	A	Par	100	60	6000	7639.44	87.40	-	1.26	0.165	1.286	0.21	Valid	
BH12	29.55	19	A	Par	100	59	5900	7512.11	86.67	-	0.99	0.132	1.281	0.17	Valid	
BH12	31.20	21	A	Par	100	79	7900	10058.59	100.29	-	0.89	0.088	1.368	0.12	Valid	
BH22	35.70	29	A	Par	100	62	6200	7894.09	88.85	-	1.00	0.127	1.295	0.16	Valid	
BH29	32.70	20	A	Par	100	39	3900	4965.63	70.47	-	1.06	0.213	1.167	0.25	Valid	
BH29	36.00	24	I	Par	80	50	4000	5092.96	71.36	-	0.20	0.039	1.174	0.05	Valid	
BH29	41.90	32	A	Par	100	55	5500	7002.82	83.68	-	0.94	0.134	1.261	0.17	Valid	
BH29	45.00	36	A	Par	100	49	4900	6238.87	78.99	-	0.74	0.119	1.228	0.15	Valid	
BH30	32.10	17	A	Par	100	50	5000	6366.20	79.79	-	1.19	0.187	1.234	0.23	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular

UKAS TESTING 4043

PSL Professional Soils Laboratory

CADP Surveys - Ground Investigation (Dock) Phase 2

Contract No: PSL17/0601

Client Ref: 16/2900

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

Hole Number	Sample Number	Sample Type	Top Depth (m)	Base Depth (m)	Sample Diameter (mm)	Sample Length (mm)	Height Ratio	Initial Mass (g)	Bulk Density (Mg/m)	Moisture Content (%)	Dry Density (Mg/m)	Load Failure (kN)	UCS (MPa)	Failure Mode	Date Tested	Remarks
BH03	15	C	31.40	31.65	95	195	2.1	2711	1.96	28.0	1.53	18.7	2.6	Brittle	13/12/16	
BH17	20	C	31.80	32.10	95	115	1.2	1611	1.98	26.0	1.57	18.0	2.5	Brittle	13/12/16	

PSL Professional Soils Laboratory	Checked / Approved		Date	13/12/16	Contract No:
	CADP Surveys - Ground Investigation (Dock) Phase 2				PSL16/5722
					Client Ref:
					16/2900

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

Hole Number	Sample Number	Sample Type	Top Depth (m)	Base Depth (m)	Sample Diameter (mm)	Sample Length (mm)	Height Ratio	Initial Mass (g)	Bulk Density (Mg/m)	Moisture Content (%)	Dry Density (Mg/m)	Load Failure (kN)	UCS (MPa)	Failure Mode	Date Tested	Remarks
BH06	42	C	27.50	27.75	100	170	1.7	2666	2.00	26.8	1.57	24.3	3.1	Brittle	12/01/17	
BH25R	13	C	22.65	23.00	100	167	1.7	2585	1.97	24.4	1.58	14.3	1.8	Brittle	12/01/17	
BH25R	20	C	28.10	28.30	100	173	1.7	2706	1.99	28.6	1.55	14.7	1.9	Brittle	12/01/17	

PSL Professional Soils Laboratory	Checked / Approved	AP	Date	13/01/17	Contract No:
	CADP Surveys - Ground Investigation (Dock) Phase 2				PSL16/5960
					Client Ref:
					16/2900

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

Hole Number	Sample Number	Sample Type	Top Depth (m)	Base Depth (m)	Sample Diameter (mm)	Sample Length (mm)	Height Ratio	Initial Mass (g)	Bulk Density (Mg/m)	Moisture Content (%)	Dry Density (Mg/m)	Load Failure (kN)	UCS (MPa)	Failure Mode	Date Tested	Remarks
BH10R	16	C	29.20	29.50	100	168	1.7	2670	2.02	26.3	1.60	22.6	2.9	Brittle	11/01/17	

PSL Professional Soils Laboratory	Checked / Approved	AP	Date	16/01/17	Contract No:
	CADP Surveys - Ground Investigation (Dock) Phase 2				PSL16/5990
					Client Ref:
					16/2900

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

Hole Number	Sample Number	Sample Type	Top Depth (m)	Base Depth (m)	Sample Diameter (mm)	Sample Length (mm)	Height Ratio	Initial Mass (g)	Bulk Density (Mg/m)	Moisture Content (%)	Dry Density (Mg/m)	Load Failure (kN)	UCS (MPa)	Failure Mode	Date Tested	Remarks
BH16	22	C	38.00	38.30	101	198	2.0	3183	2.01	29	1.56	13.2	1.6	Brittle	24/02/17	

Professional Soils Laboratory

CADP Surveys Ground Investigation (Dock) - Phase 2

Contract No:
PSL17/0797
Client Ref:
16/2900

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

Hole Number	Sample Number	Sample Type	Top Depth (m)	Base Depth (m)	Sample Diameter (mm)	Sample Length (mm)	Height Ratio	Initial Mass (g)	Bulk Density (Mg/m)	Moisture Content (%)	Dry Density (Mg/m)	Load Failure (kN)	UCS (MPa)	Failure Mode	Date Tested	Remarks
BH22	31	C	36.80	37.10	100	102	1.0	1652	2.06	22	1.69	14.9	1.9	Brittle	17/02/17	
BH29	17	C	30.00	30.20	100	101	1.0	1601	2.02	25	1.61	13.0	1.7	Brittle	17/02/17	
BH29	28	C	39.20	39.50	100	102	1.0	1602	2.00	27	1.57	13.5	1.7	Brittle	17/02/17	
BH29	34	C	43.20	43.60	100	99	1.0	1574	2.02	28	1.58	11.6	1.5	Brittle	17/02/17	

PSL Professional Soils Laboratory	CADP Surveys - Ground Investigation (Dock) Phase 2	Contract No: PSL17/0601
		Client Ref: 16/2900

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

Hole Number	Sample Number	Sample Type	Top Depth (m)	Base Depth (m)	Sample Diameter (mm)	Sample Length (mm)	Height Ratio	Initial Mass (g)	Bulk Density (Mg/m)	Moisture Content (%)	Dry Density (Mg/m)	Load Failure (kN)	UCS (MPa)	Failure Mode	Date Tested	Remarks
BH33	21	C	26.50	26.80	100	102	1.0	1640	2.05	27	1.61	18.5	2.4	Brittle	02/02/17	
BH12	16	C	27.00	27.25	100	100	1.0	1541	1.96	30	1.51	14.6	1.9	Brittle	02/02/17	

PSL
Professional Soils Laboratory

CADP Surveys - Ground Investigation (Dock) Phase 2

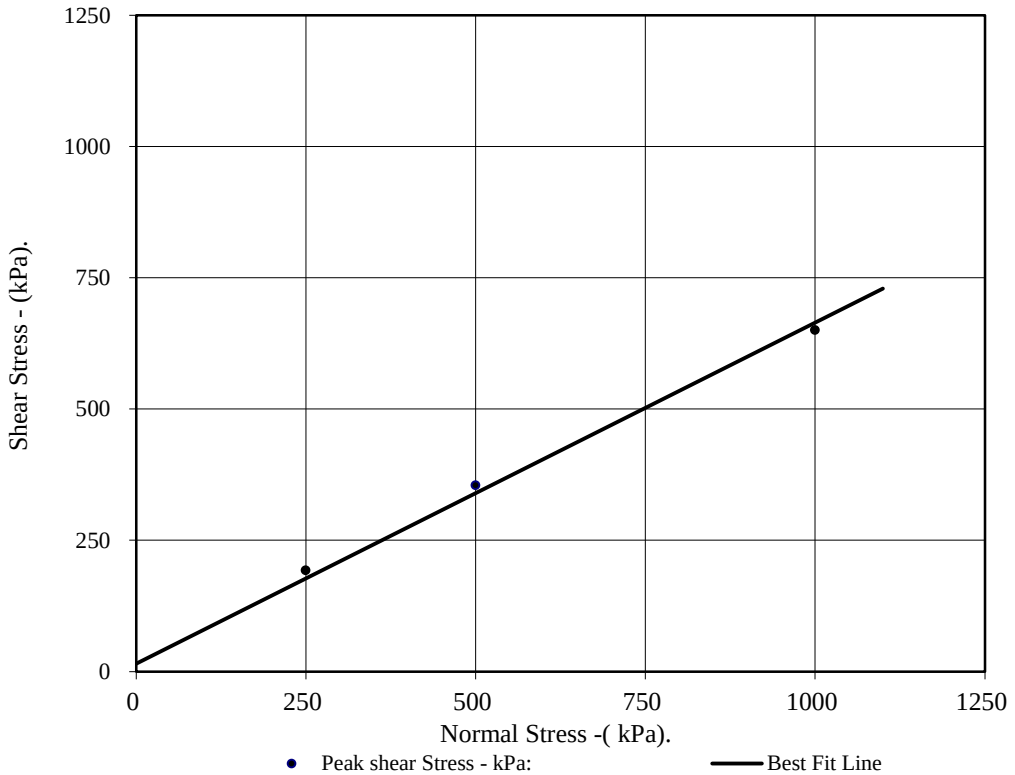
Contract No:
PSL17/0312
Client Ref:
16/2900

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH03**		Top Depth:	**25.10**
Sample Number:	**13**		Base Depth:	
Sample Conditions:	Dry		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped pressure Material tested passing 2mm sieve			
Sample Description:	**Grey sandy SILT.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	33	33	33
Bulk Density - Mg/m3:	1.89	1.90	1.89
Dry Density - Mg/m3:	1.42	1.43	1.43
Voids Ratio:	0.862	0.853	0.855
Normal Pressure- kPa	250	500	1000
Consolidation Stage			
Consolidated Height - mm:	18.54	18.17	17.69
Shearing Stage			
Rate of Strain (mm/min)	0.400	0.400	0.400
Displacement at peak shear stress (mm)	5.00	7.00	10.00
Peak shear Stress - kPa:	192	355	650
Final Consolidated Conditons			
Moisture Content - %:	28	28	26
Bulk Density - Mg/m3:	2.01	2.06	2.12
Dry Density - Mg/m3:	1.57	1.62	1.67
Peak			
Angle of Shearing Resistance:(θ)	**33**		
Effective Cohesion - kPa:	**15**		

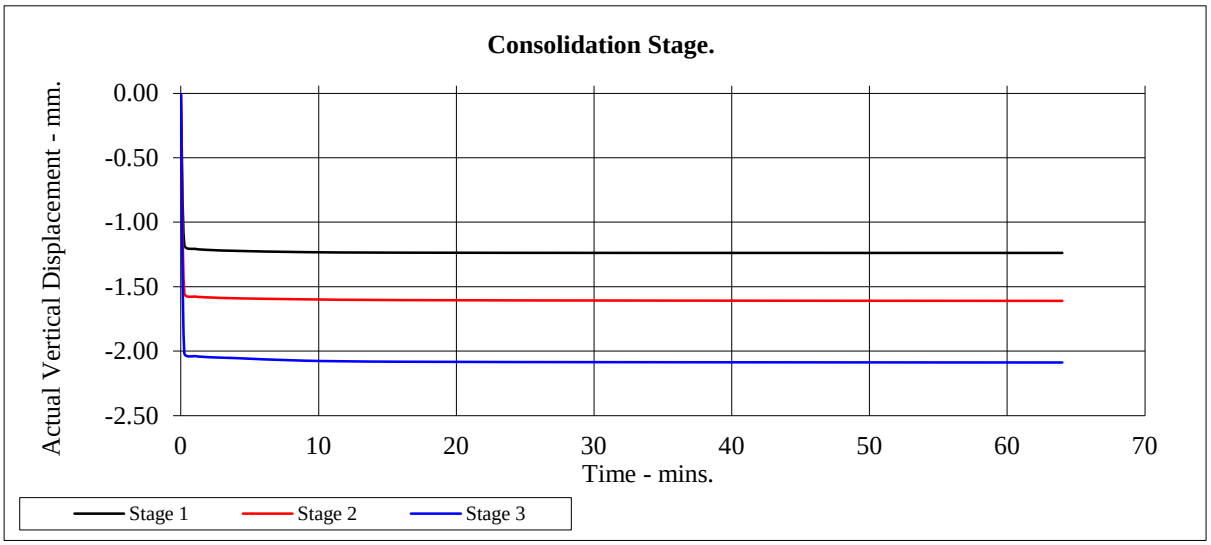


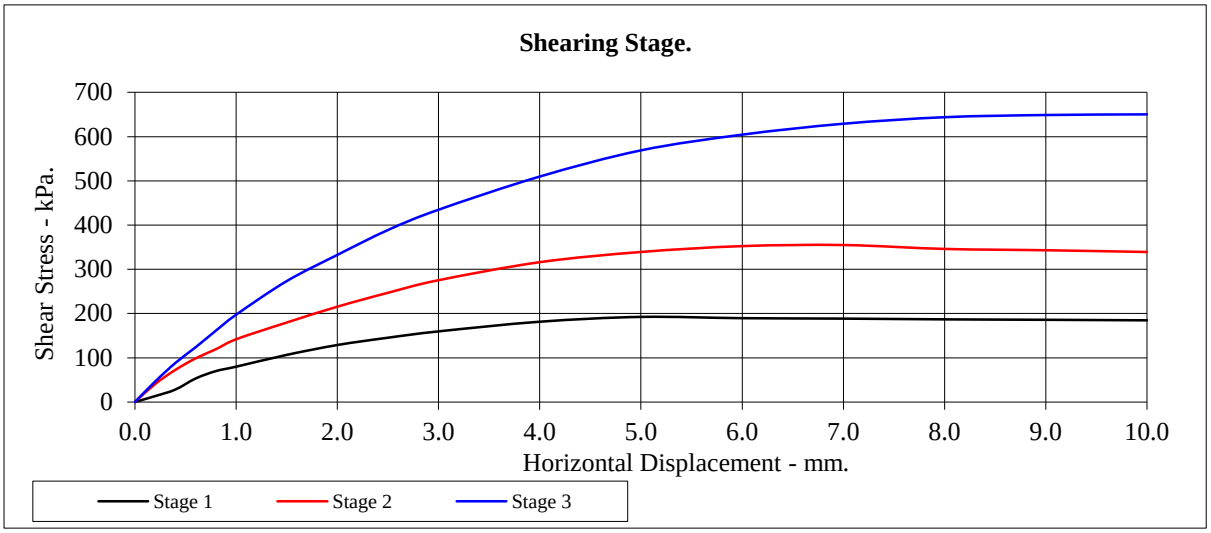
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**13/12/16**	Contract No:
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5722**
						Client Ref:
						16/2900

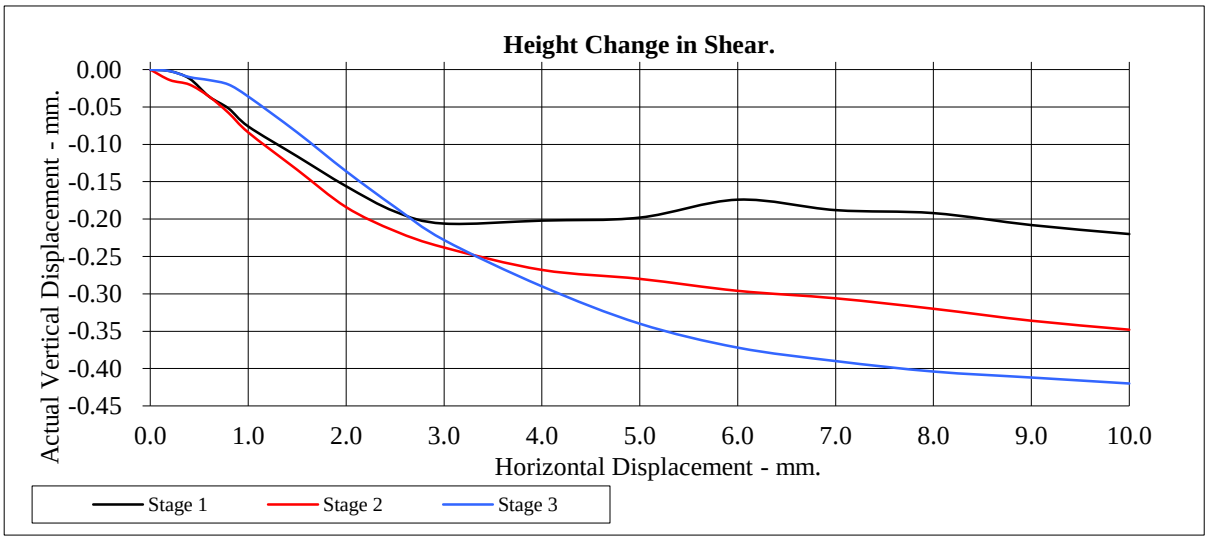
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH03**	Top Depth:	**25.10**
Sample Number:	**13**	Base Depth:	







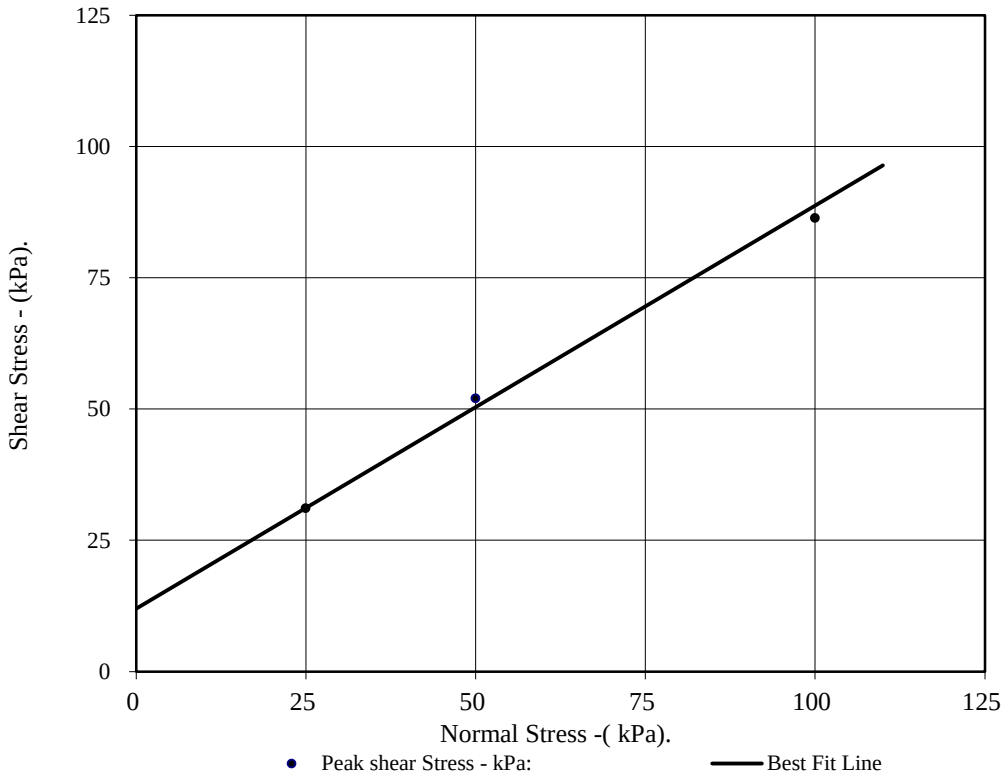
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked/Approved**		**Date**	**13/12/16**	Contract No:
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5722**
						Client Ref:
						16/2900

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH06**		Top Depth:	**17.50**
Sample Number:	**33**		Base Depth:	**17.90**
Sample Conditions:	Dry.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey very silty SAND.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	30	30	30
Bulk Density - Mg/m3:	1.84	1.85	1.85
Dry Density - Mg/m3:	1.42	1.43	1.43
Voids Ratio:	0.861	0.857	0.851
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.54	19.57	19.46
Shearing Stage			
Rate of Strain (mm/min)	0.600	0.600	0.600
Displacement at peak shear stress (mm)	3.00	4.00	4.00
Peak shear Stress - kPa:	31	52	86
Final Consolidated Conditons			
Moisture Content - %:	28	28	28
Bulk Density - Mg/m3:	1.87	1.87	1.89
Dry Density - Mg/m3:	1.46	1.46	1.48
Peak			
Angle of Shearing Resistance:(θ)	**38**		
Effective Cohesion - kPa:	**12**		

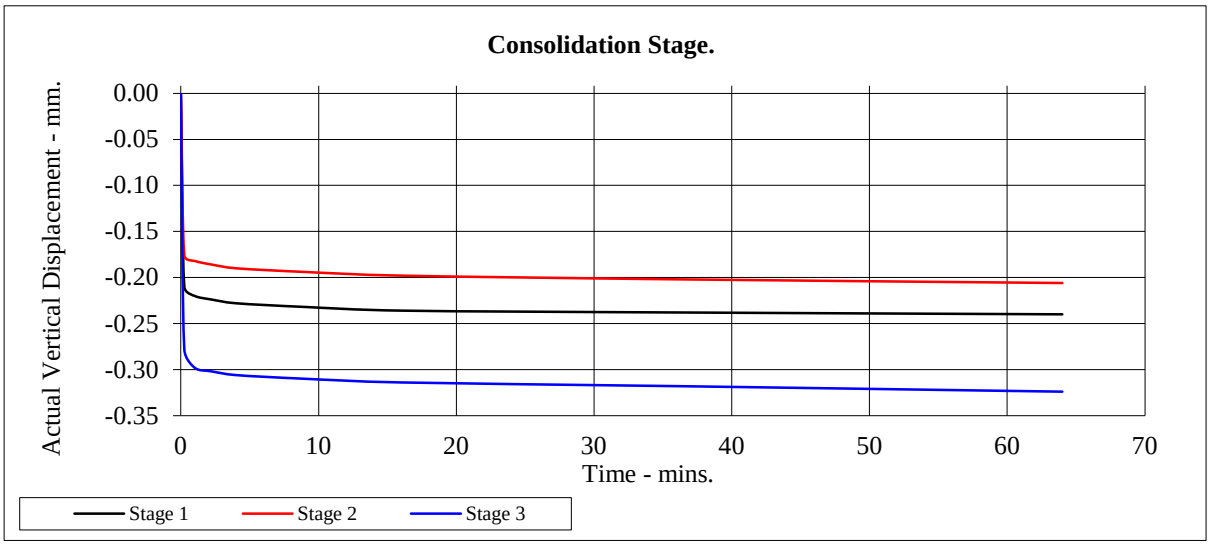


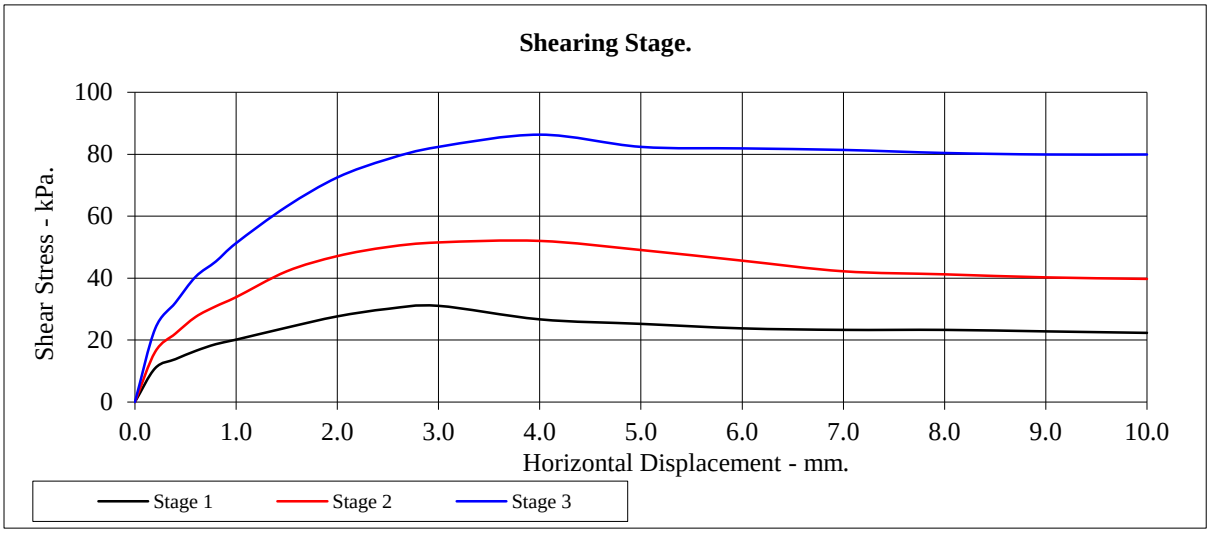
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

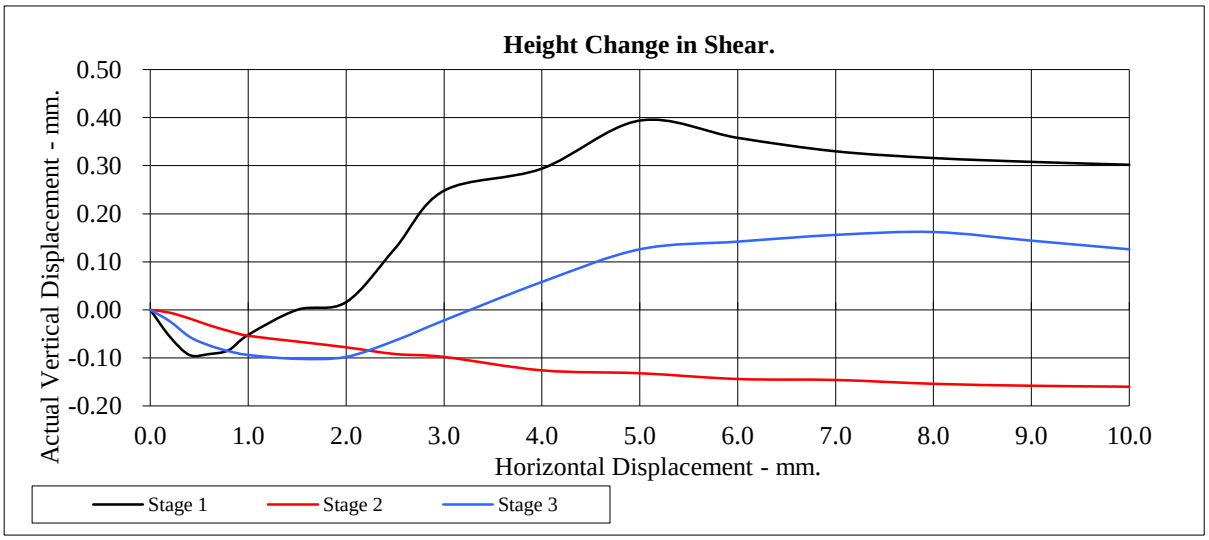
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH06**	Top Depth:	**17.50**
Sample Number:	**33**	Base Depth:	**17.90**







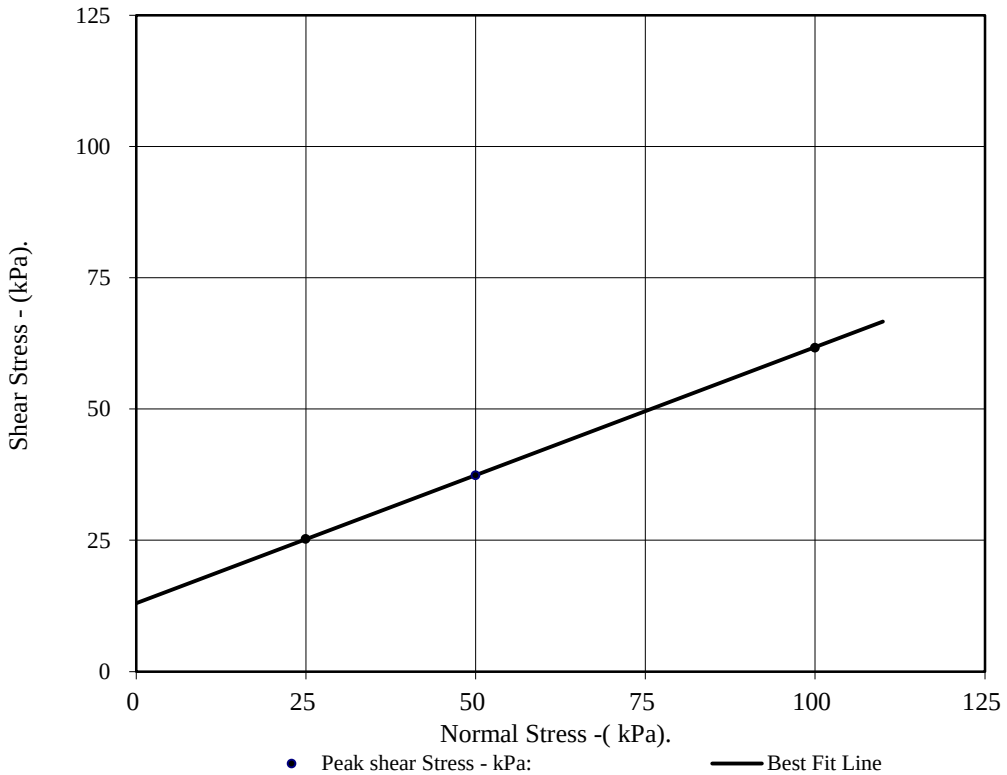
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH06**		Top Depth:	**25.30**
Sample Number:	**41**		Base Depth:	**25.70**
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey very sandy very clayey SILT**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	35	35	35
Bulk Density - Mg/m3:	1.78	1.78	1.79
Dry Density - Mg/m3:	1.31	1.32	1.32
Voids Ratio:	1.017	1.013	1.008
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.11	18.56	17.64
Shearing Stage			
Rate of Strain (mm/min)	0.025	0.025	0.025
Displacement at peak shear stress (mm)	4.00	6.00	9.00
Peak shear Stress - kPa:	25	37	62
Final Consolidated Conditons			
Moisture Content - %:	34	31	29
Bulk Density - Mg/m3:	1.84	1.90	2.00
Dry Density - Mg/m3:	1.38	1.44	1.56
Peak			
Angle of Shearing Resistance:(θ)	**26**		
Effective Cohesion - kPa:	**13**		

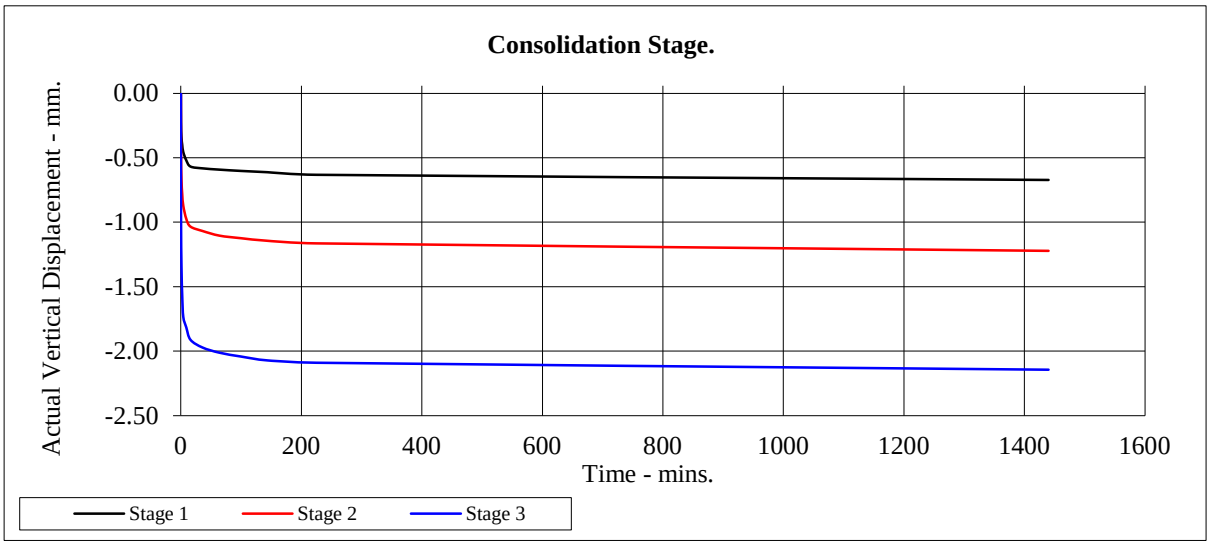


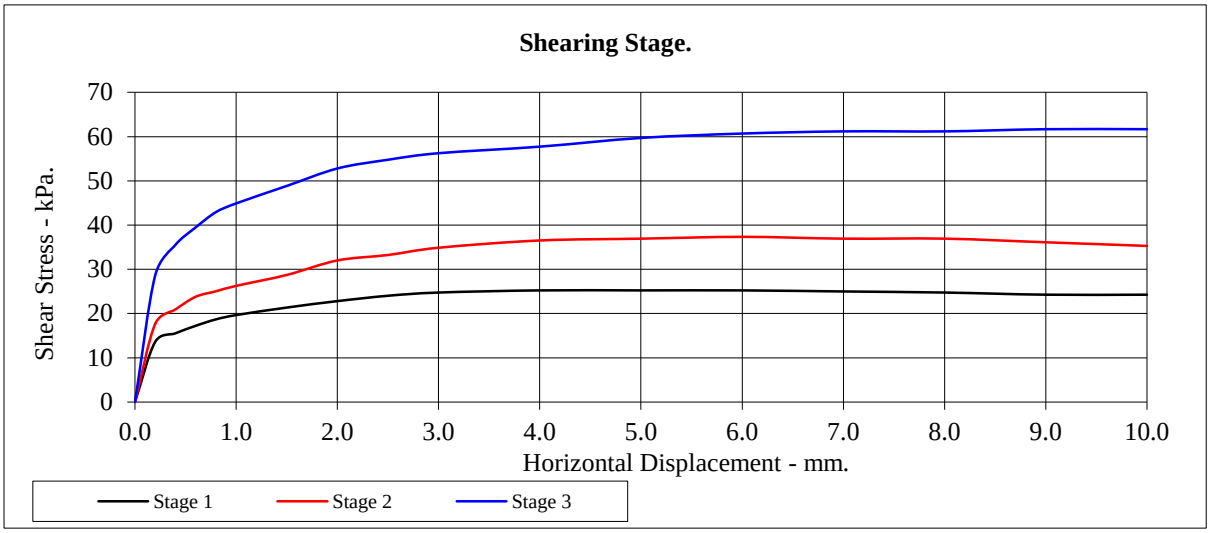
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

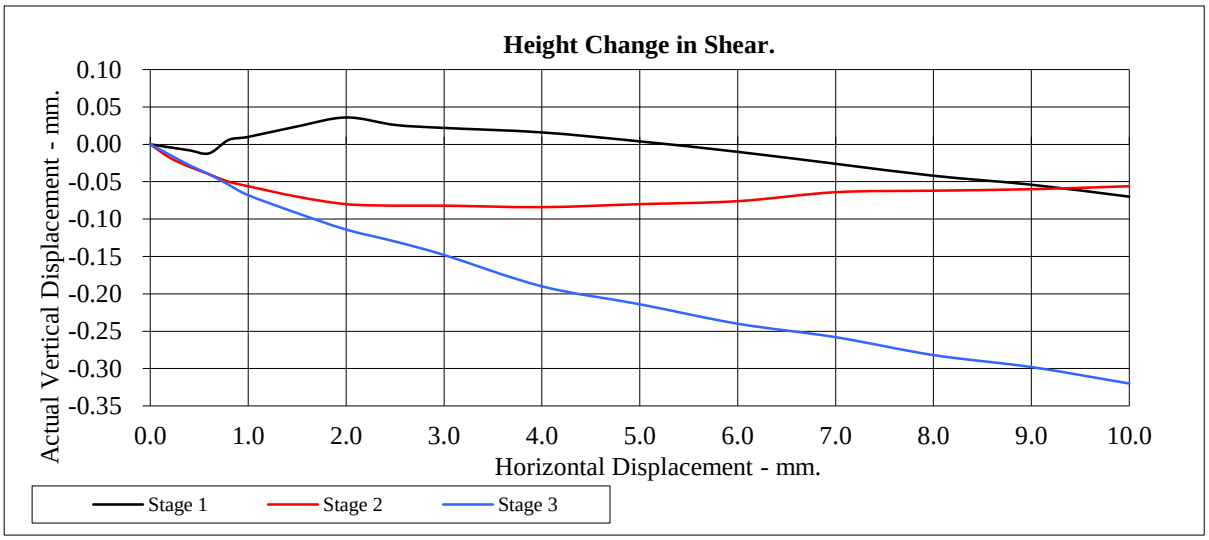
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH06**	Top Depth:	**25.30**
Sample Number:	**41**	Base Depth:	**25.70**







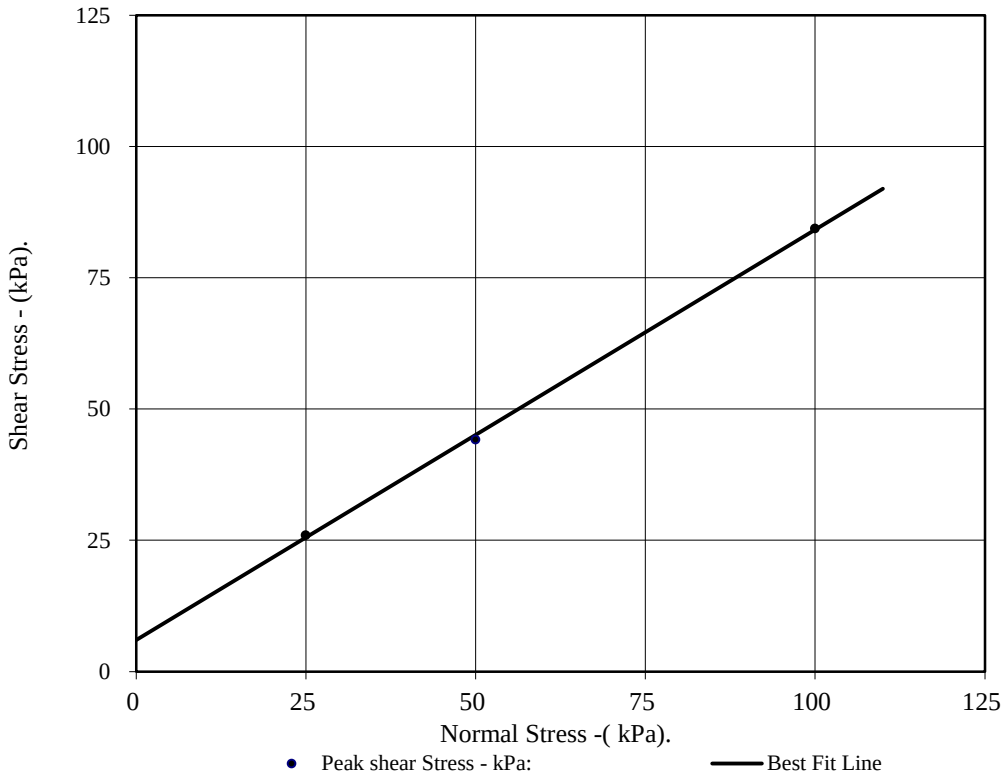
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH10**		Top Depth:	**18.50**
Sample Number:	**17**		Base Depth:	**19.00**
Sample Conditions:	Dry.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey very silty SAND.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	31	31	31
Bulk Density - Mg/m3:	1.90	1.90	1.91
Dry Density - Mg/m3:	1.45	1.45	1.45
Voids Ratio:	0.833	0.832	0.825
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.34	19.19	18.84
Shearing Stage			
Rate of Strain (mm/min)	0.600	0.600	0.600
Displacement at peak shear stress (mm)	5.00	4.00	5.00
Peak shear Stress - kPa:	26	44	84
Final Consolidated Conditons			
Moisture Content - %:	30	29	28
Bulk Density - Mg/m3:	1.94	1.96	2.00
Dry Density - Mg/m3:	1.50	1.52	1.56
Peak			
Angle of Shearing Resistance:(θ)	**38**		
Effective Cohesion - kPa:	**6**		

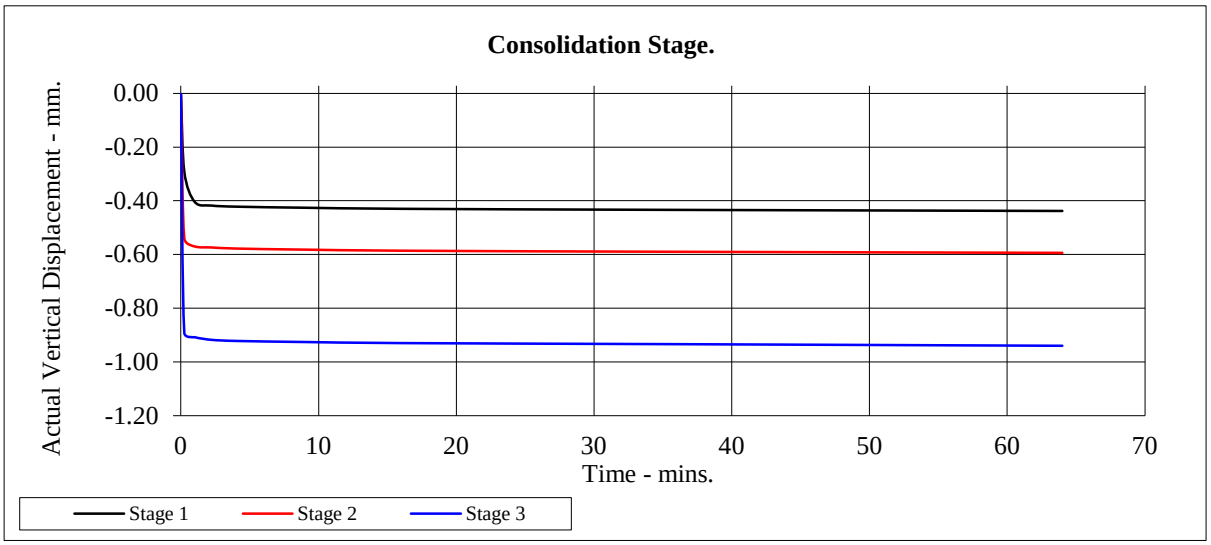


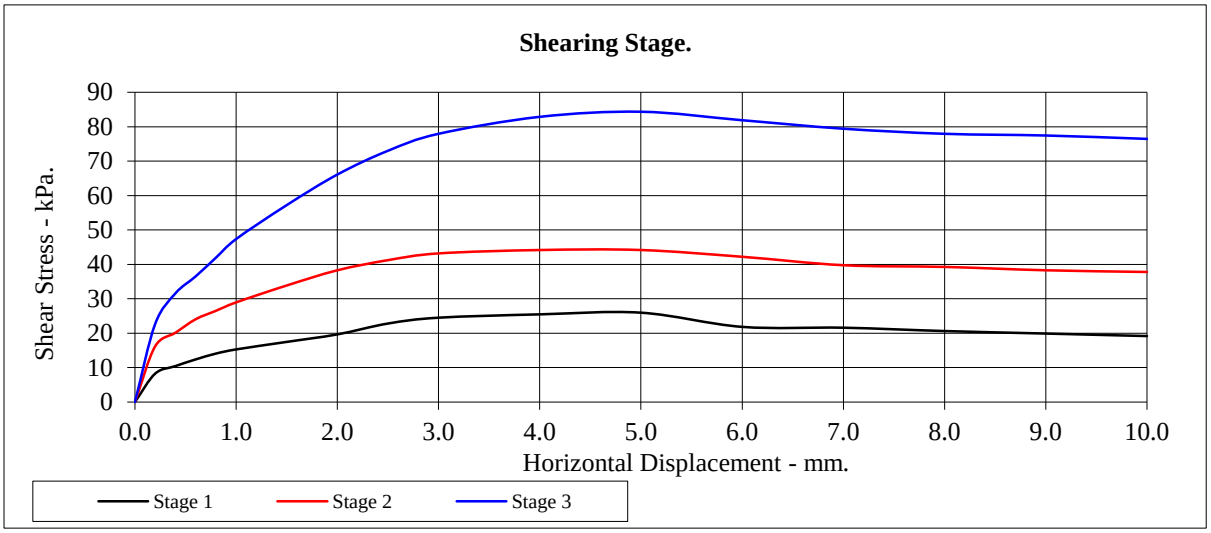
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

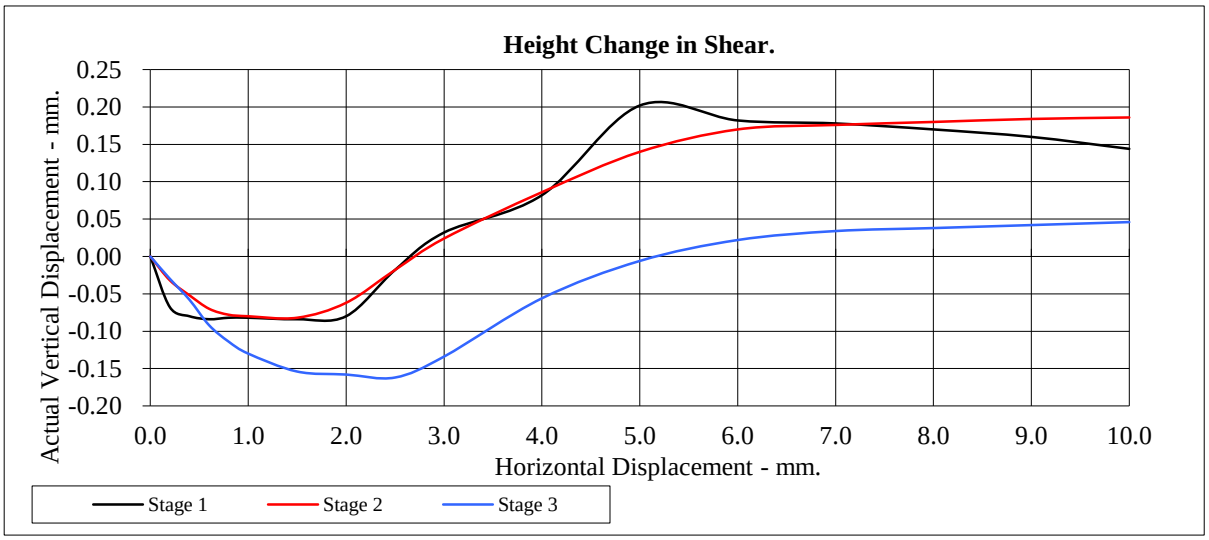
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH10**	Top Depth:	**18.50**
Sample Number:	**17**	Base Depth:	**19.00**







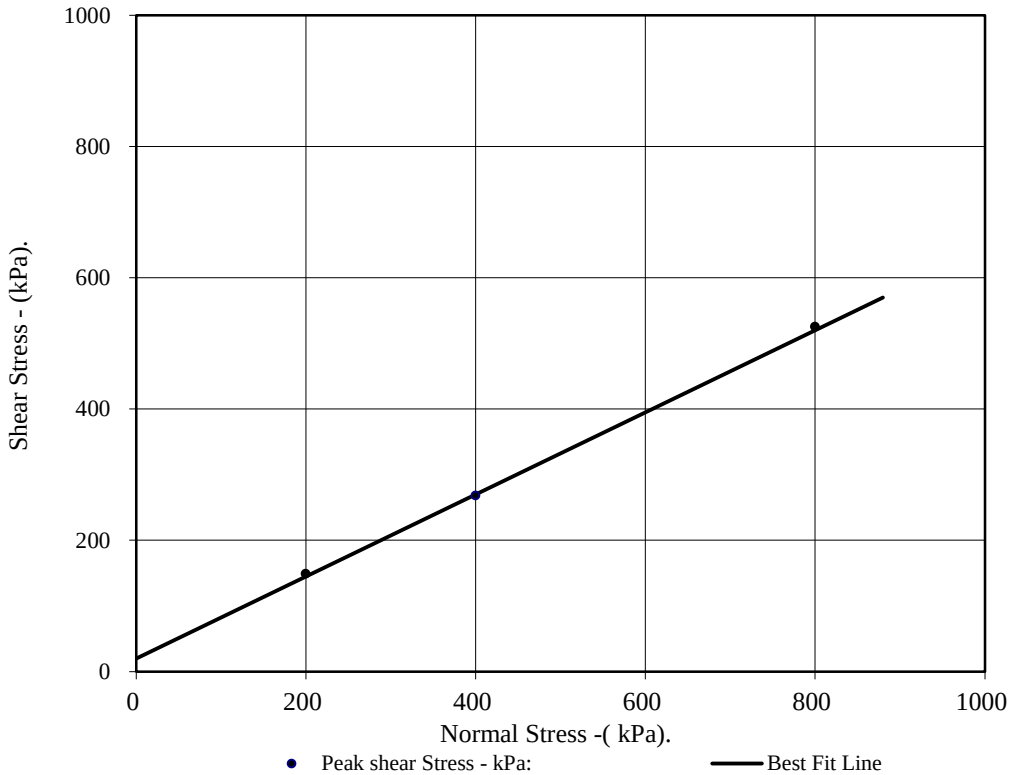
UKAS TESTING 4043 — PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** PSL16/5913
		Client Ref: 16/2900

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH10R**		Top Depth:	**23.50**
Sample Number:	**13**		Base Depth:	
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey very sandy SILT.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	29	29	29
Bulk Density - Mg/m3:	1.88	1.89	1.89
Dry Density - Mg/m3:	1.46	1.47	1.47
Voids Ratio:	0.812	0.808	0.803
Normal Pressure- kPa	200	400	800
Consolidation Stage			
Consolidated Height - mm:	19.46	18.99	18.83
Shearing Stage			
Rate of Strain (mm/min)	0.600	0.600	0.600
Displacement at peak shear stress (mm)	4.00	7.00	8.00
Peak shear Stress - kPa:	149	268	526
Final Consolidated Conditons			
Moisture Content - %:	29	27	26
Bulk Density - Mg/m3:	1.91	1.97	1.99
Dry Density - Mg/m3:	1.49	1.54	1.58
Peak			
Angle of Shearing Resistance:(θ)	**32**		
Effective Cohesion - kPa:	**20**		

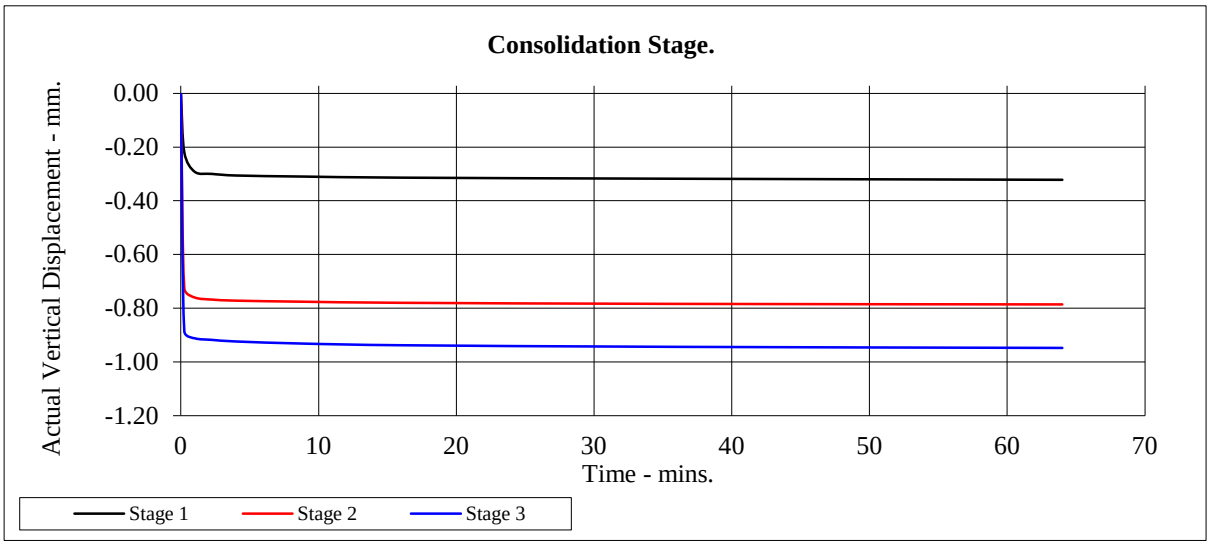


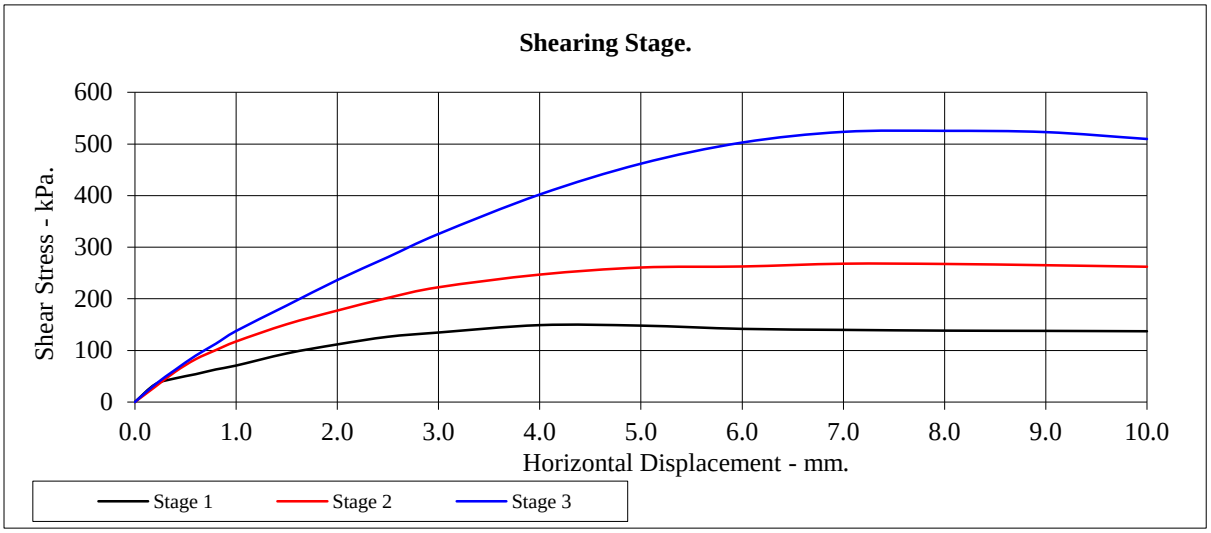
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**	AR	**Date**	**24/01/17**	Contract No:
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

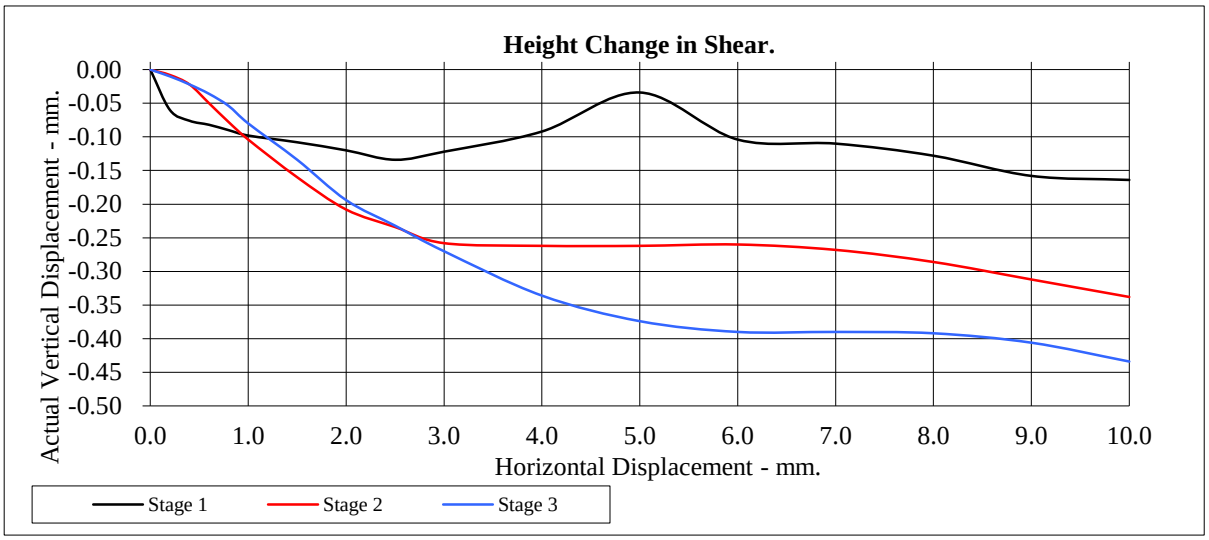
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH10R**	Top Depth:	**23.50**
Sample Number:	**13**	Base Depth:	







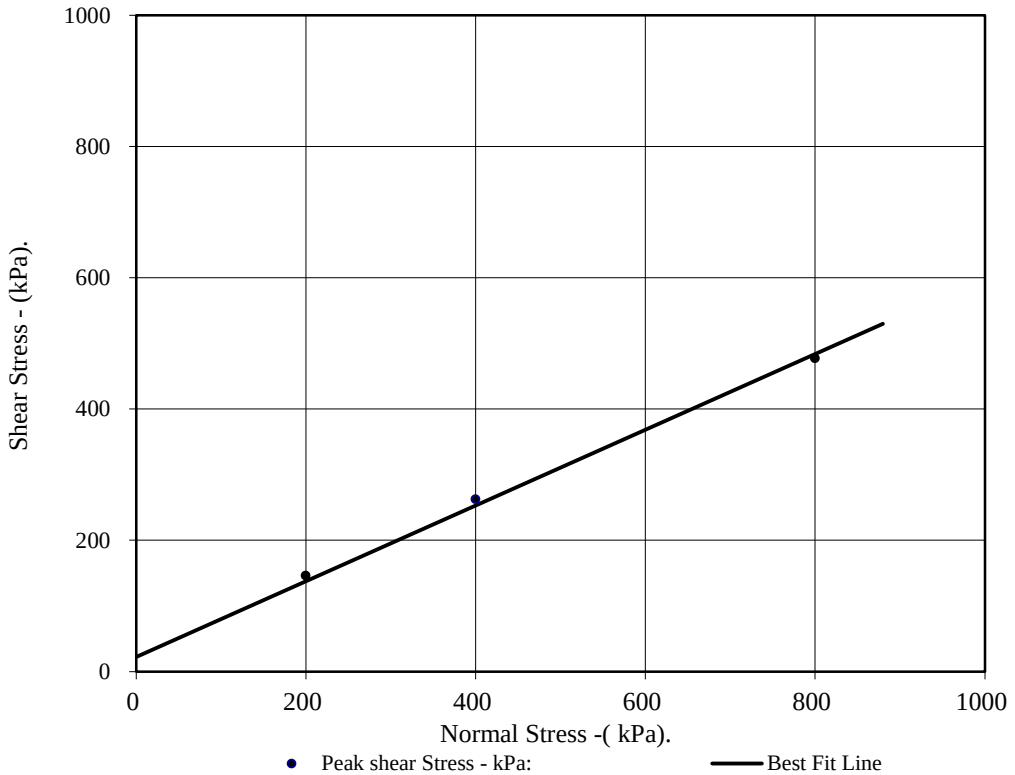
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked/Approved**	AP	**Date**	**24/01/17**	Contract No:
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH17**		Top Depth:	**20.70**
Sample Number:	**10**		Base Depth:	
Sample Conditions:	Dry		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped pressure Material tested passing 2mm sieve			
Sample Description:	**Grey sandy SILT.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	30	30	30
Bulk Density - Mg/m3:	1.88	1.88	1.88
Dry Density - Mg/m3:	1.44	1.44	1.44
Voids Ratio:	0.837	0.836	0.836
Normal Pressure- kPa	200	400	800
Consolidation Stage			
Consolidated Height - mm:	19.09	18.65	18.22
Shearing Stage			
Rate of Strain (mm/min)	0.400	0.400	0.400
Displacement at peak shear stress (mm)	5.00	5.00	7.00
Peak shear Stress - kPa:	146	262	477
Final Consolidated Conditons			
Moisture Content - %:	27	27	27
Bulk Density - Mg/m3:	1.95	2.00	2.04
Dry Density - Mg/m3:	1.53	1.57	1.61
Peak			
Angle of Shearing Resistance:(θ)	**30**		
Effective Cohesion - kPa:	**22**		

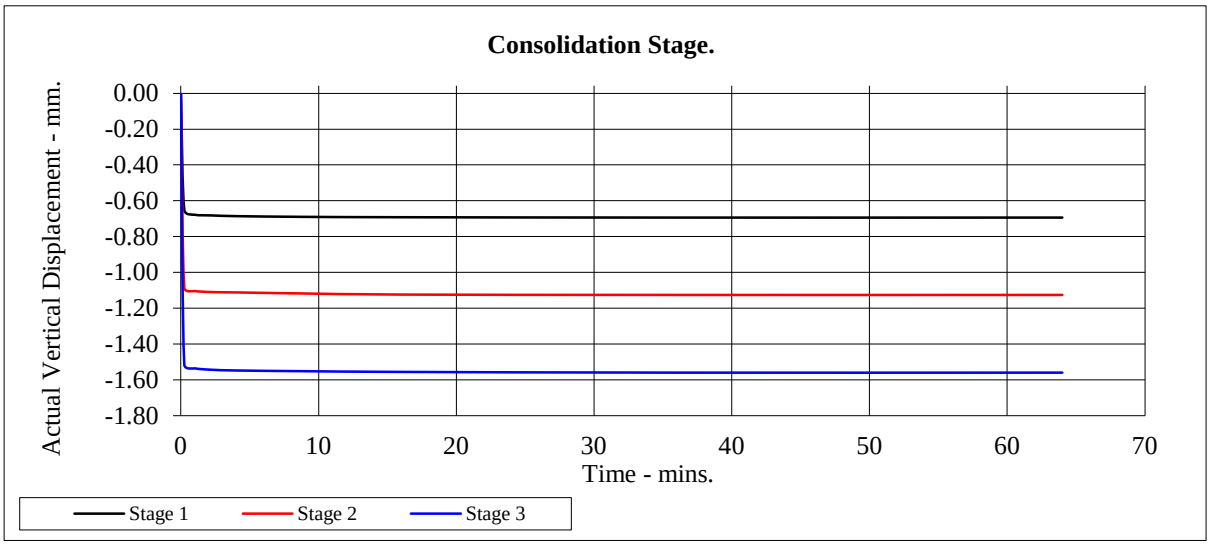


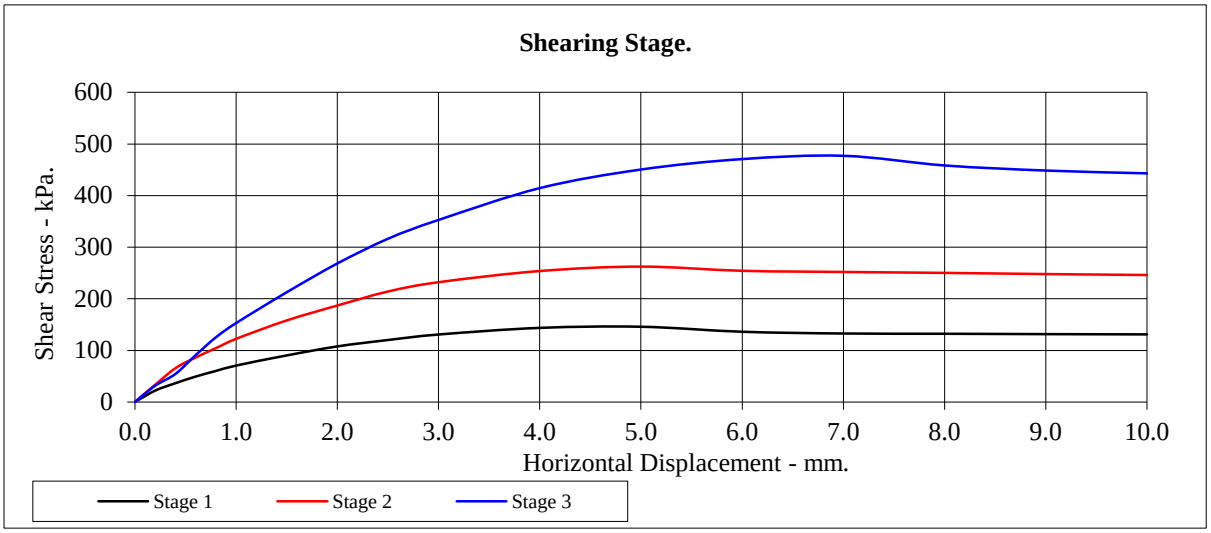
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**		**Date**	**13/12/16**	Contract No:
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5722**
						Client Ref:
						16/2900

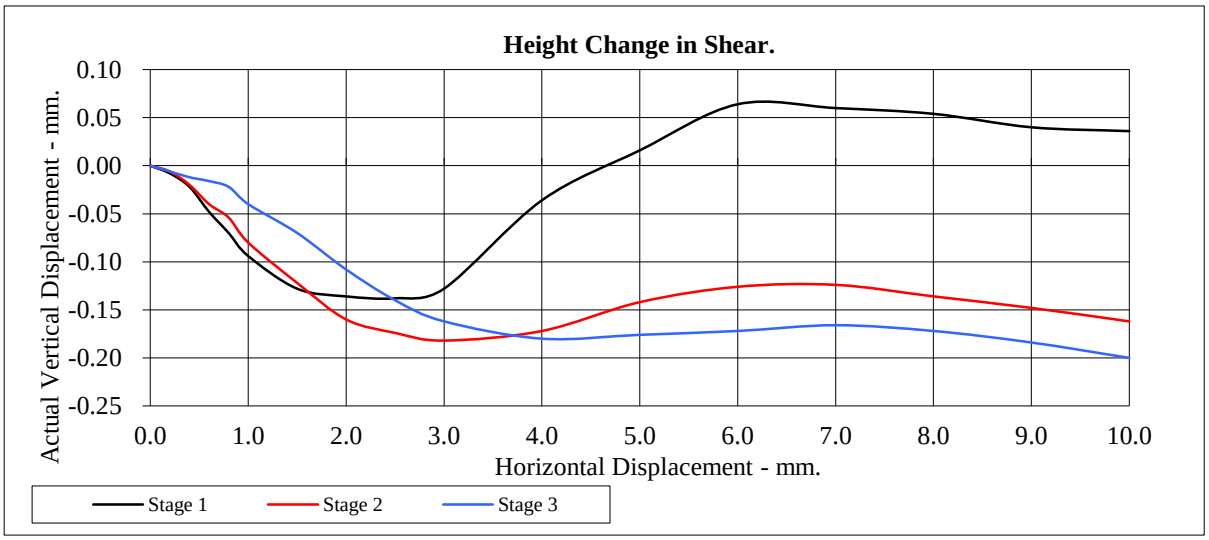
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH17**	Top Depth:	**20.70**
Sample Number:	**10**	Base Depth:	







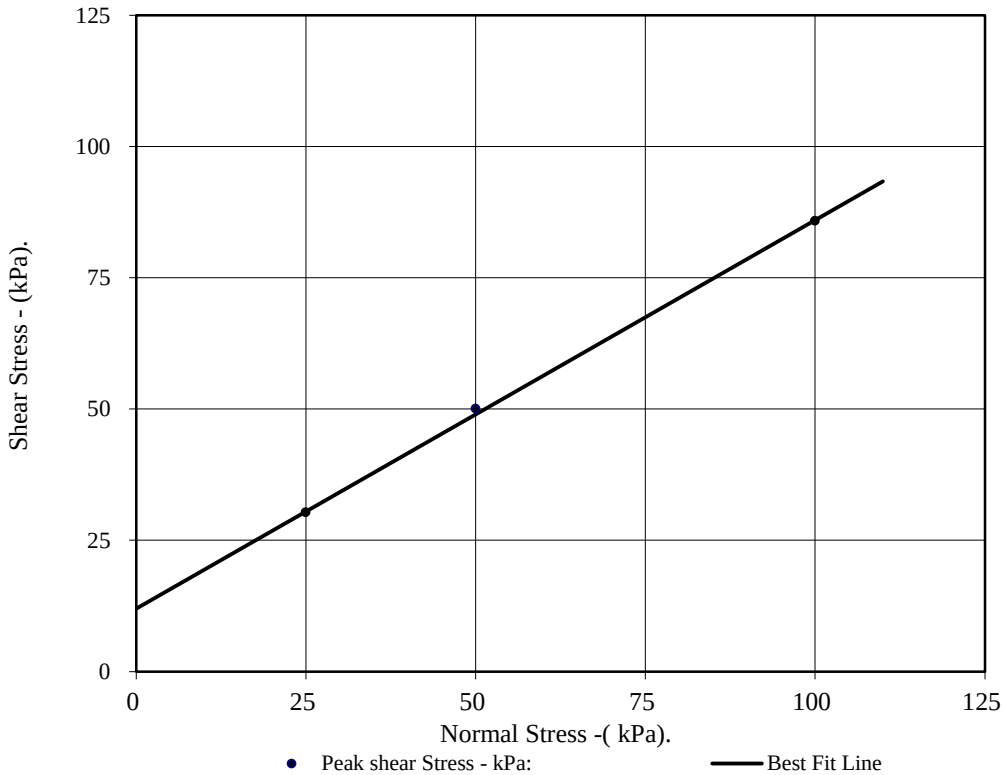
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked/Approved**		**Date**	**13/12/16**	Contract No:
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5722**
						Client Ref:
						16/2900

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH21**		Top Depth:	**16.00**
Sample Number:	**14**		Base Depth:	**16.50**
Sample Conditions:	Dry.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey very silty SAND.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	29	29	29
Bulk Density - Mg/m3:	1.87	1.88	1.88
Dry Density - Mg/m3:	1.45	1.46	1.46
Voids Ratio:	0.823	0.817	0.816
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.61	19.44	19.35
Shearing Stage			
Rate of Strain (mm/min)	0.600	0.600	0.600
Displacement at peak shear stress (mm)	3.00	3.00	4.00
Peak shear Stress - kPa:	30	50	86
Final Consolidated Conditons			
Moisture Content - %:	26	26	26
Bulk Density - Mg/m3:	1.89	1.91	1.92
Dry Density - Mg/m3:	1.50	1.52	1.52
Peak			
Angle of Shearing Resistance:(θ)	**37**		
Effective Cohesion - kPa:	**12**		

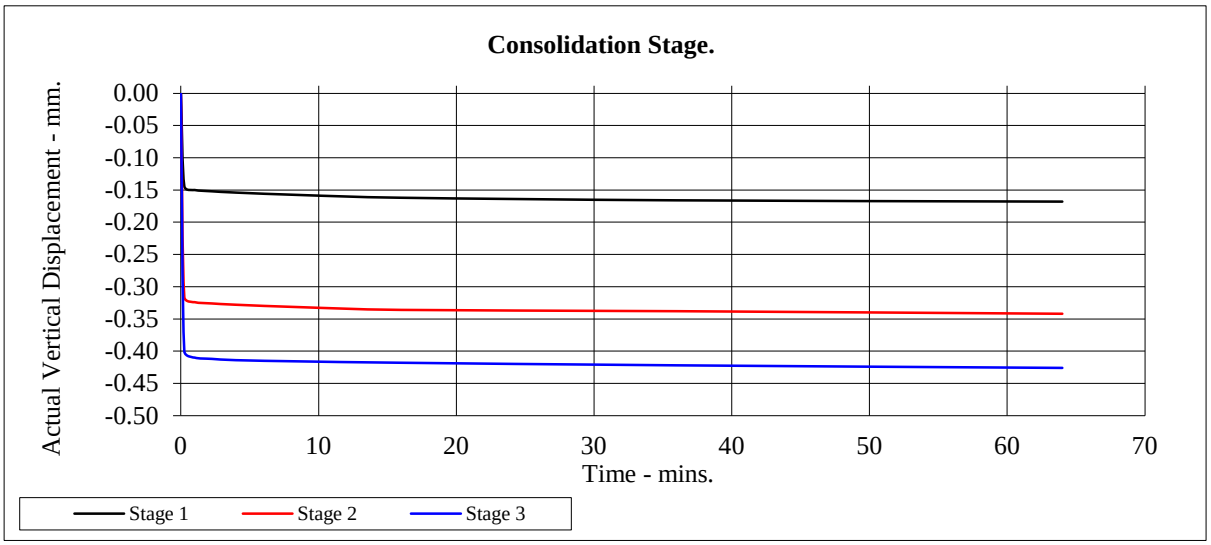


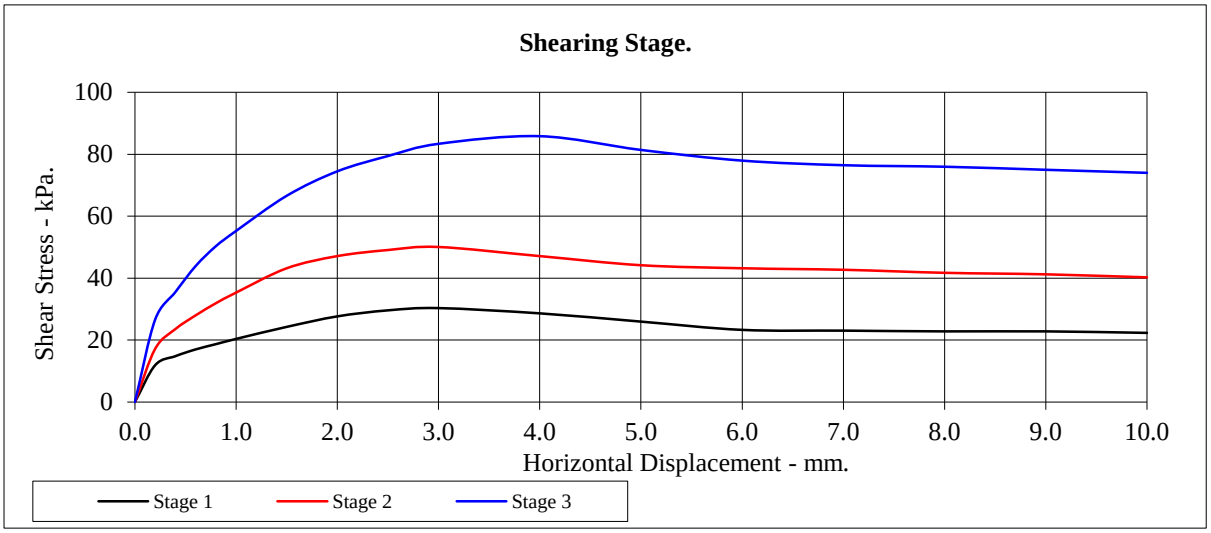
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

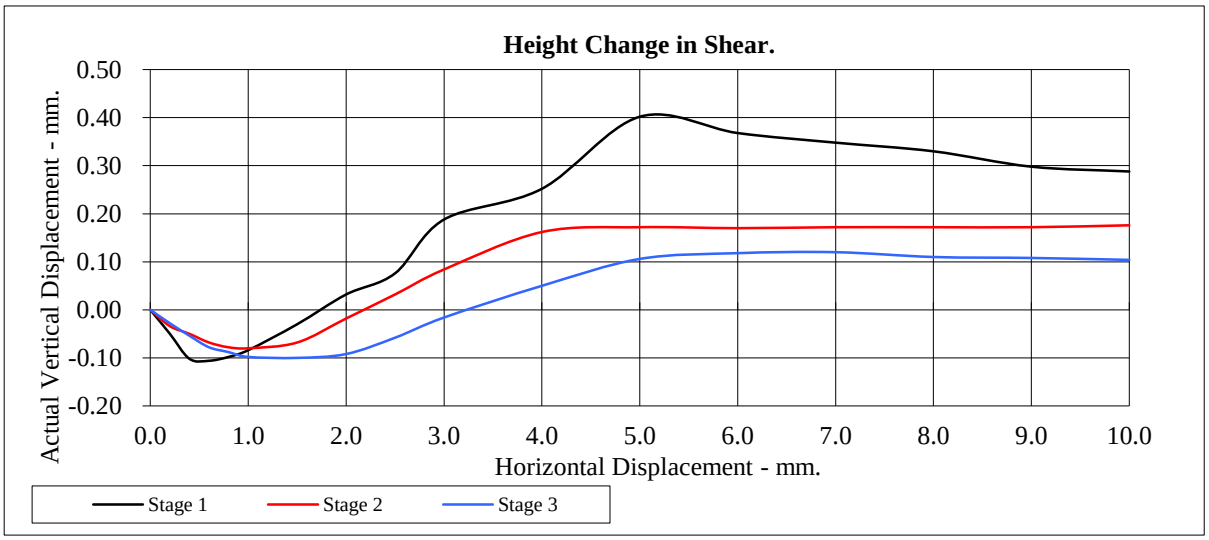
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH21**	Top Depth:	**16.00**
Sample Number:	**14**	Base Depth:	**16.50**







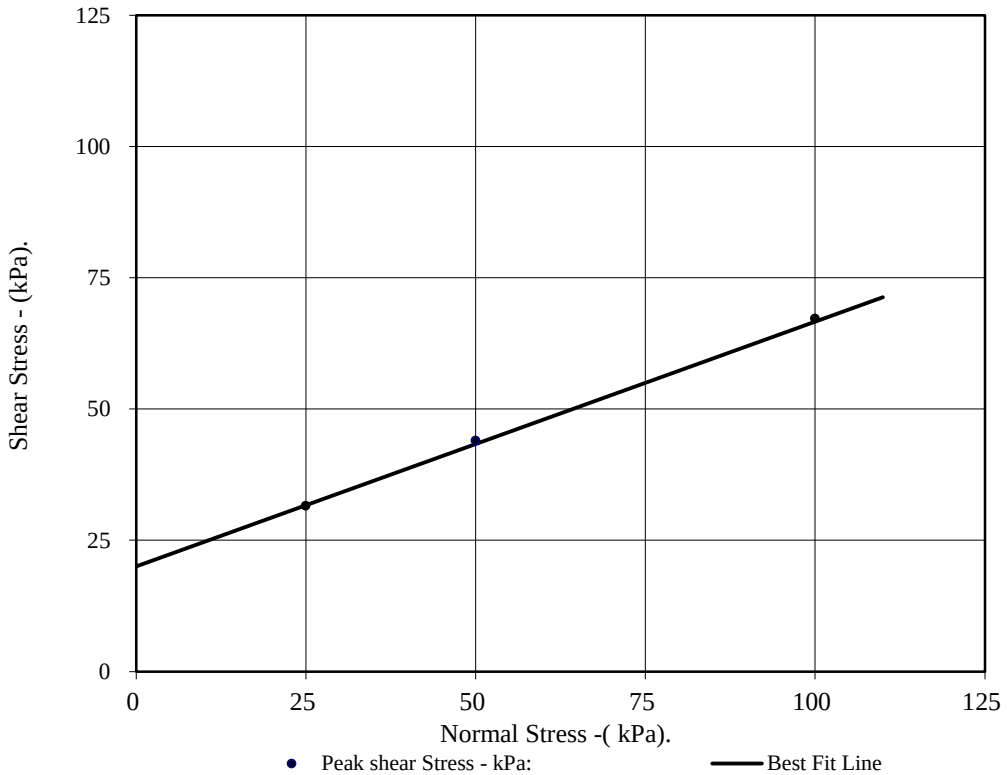
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH21**		Top Depth:	**20.00**
Sample Number:	**20**		Base Depth:	**20.50**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey slightly gravelly sandy very clayey SILT.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	48	48	48
Bulk Density - Mg/m3:	1.73	1.73	1.74
Dry Density - Mg/m3:	1.17	1.17	1.17
Voids Ratio:	1.270	1.268	1.263
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.45	19.33	19.10
Shearing Stage			
Rate of Strain (mm/min)	0.025	0.025	0.025
Displacement at peak shear stress (mm)	9.00	10.00	6.00
Peak shear Stress - kPa:	32	44	67
Final Consolidated Conditons			
Moisture Content - %:	47	44	43
Bulk Density - Mg/m3:	1.76	1.77	1.80
Dry Density - Mg/m3:	1.20	1.23	1.26
Peak			
Angle of Shearing Resistance:(θ)	**25**		
Effective Cohesion - kPa:	**20**		

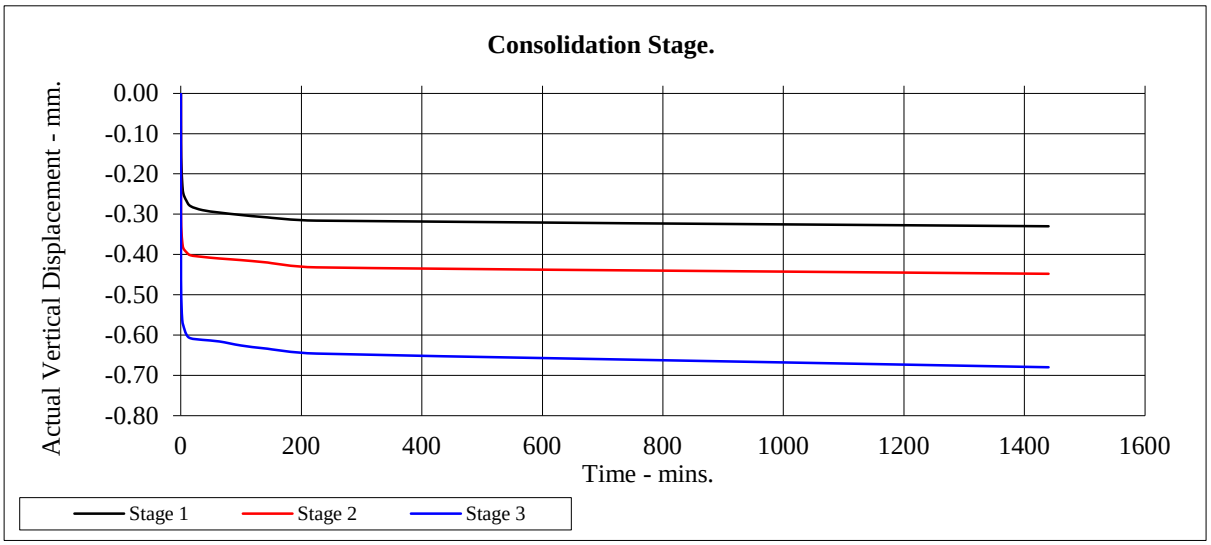


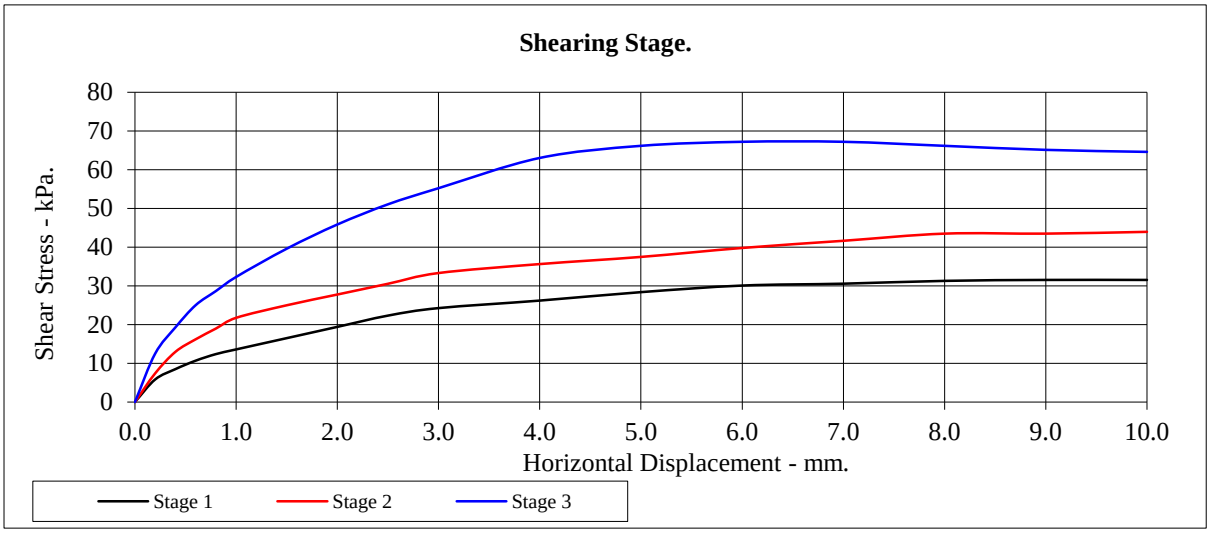
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

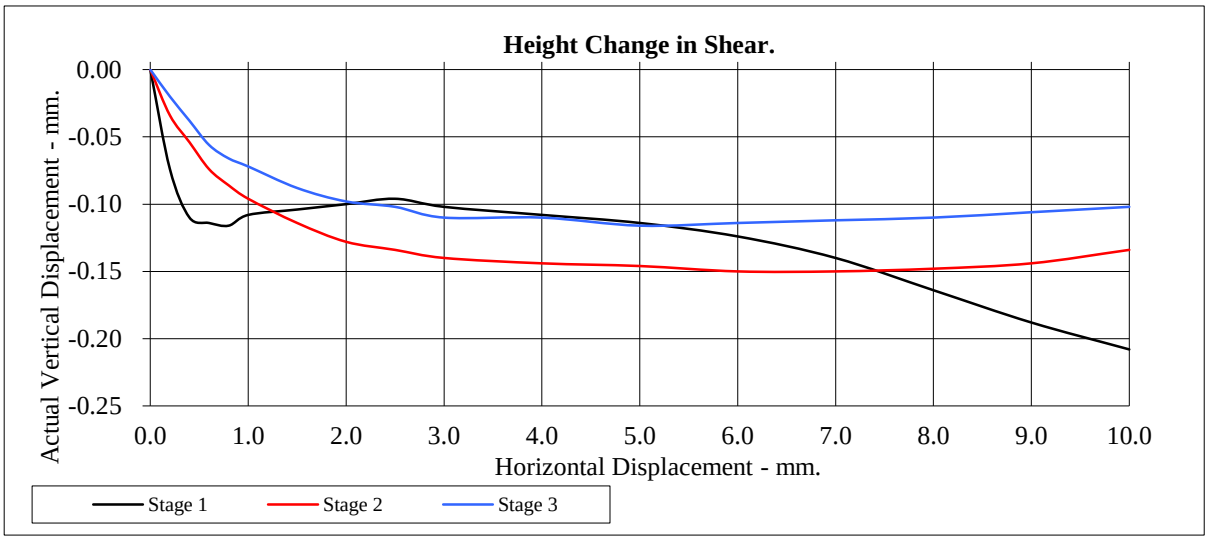
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH21**	Top Depth:	**20.00**
Sample Number:	**20**	Base Depth:	**20.50**







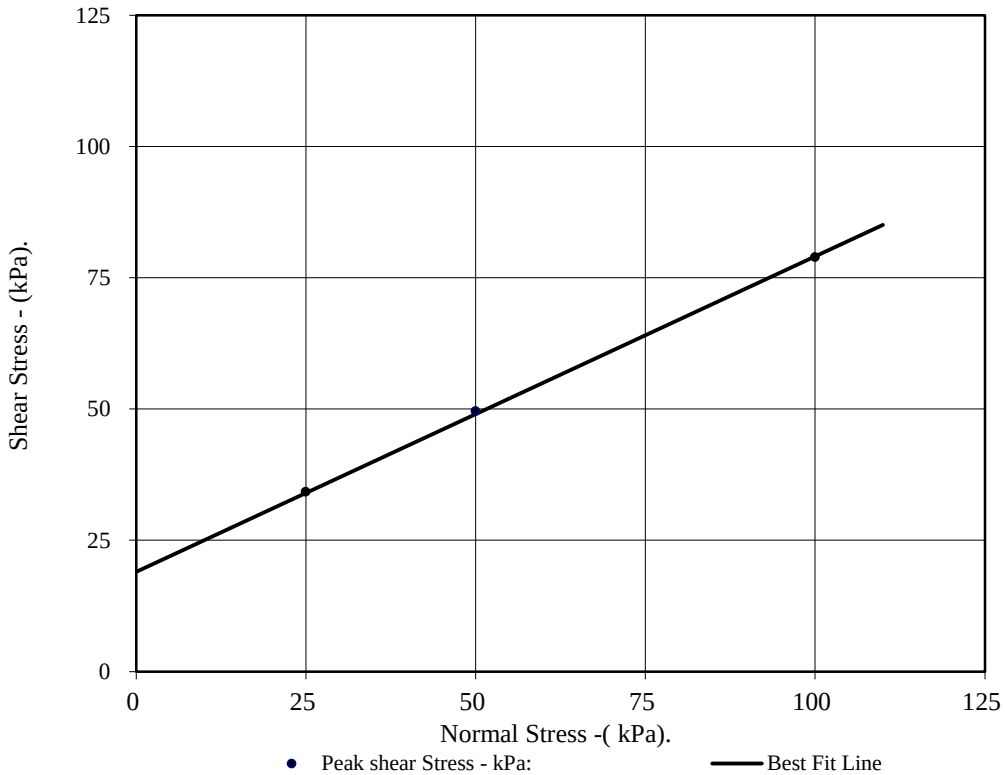
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH21**		Top Depth:	**27.50**
Sample Number:	**30**		Base Depth:	**28.00**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey sandy very clayey SILT.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	43	43	43
Bulk Density - Mg/m3:	1.74	1.74	1.75
Dry Density - Mg/m3:	1.21	1.22	1.22
Voids Ratio:	1.185	1.178	1.174
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.48	19.42	19.38
Shearing Stage			
Rate of Strain (mm/min)	0.025	0.025	0.025
Displacement at peak shear stress (mm)	8.00	9.00	9.00
Peak shear Stress - kPa:	34	50	79
Final Consolidated Conditons			
Moisture Content - %:	41	39	38
Bulk Density - Mg/m3:	1.76	1.77	1.78
Dry Density - Mg/m3:	1.26	1.27	1.29
Peak			
Angle of Shearing Resistance:(θ)	**31**		
Effective Cohesion - kPa:	**19**		

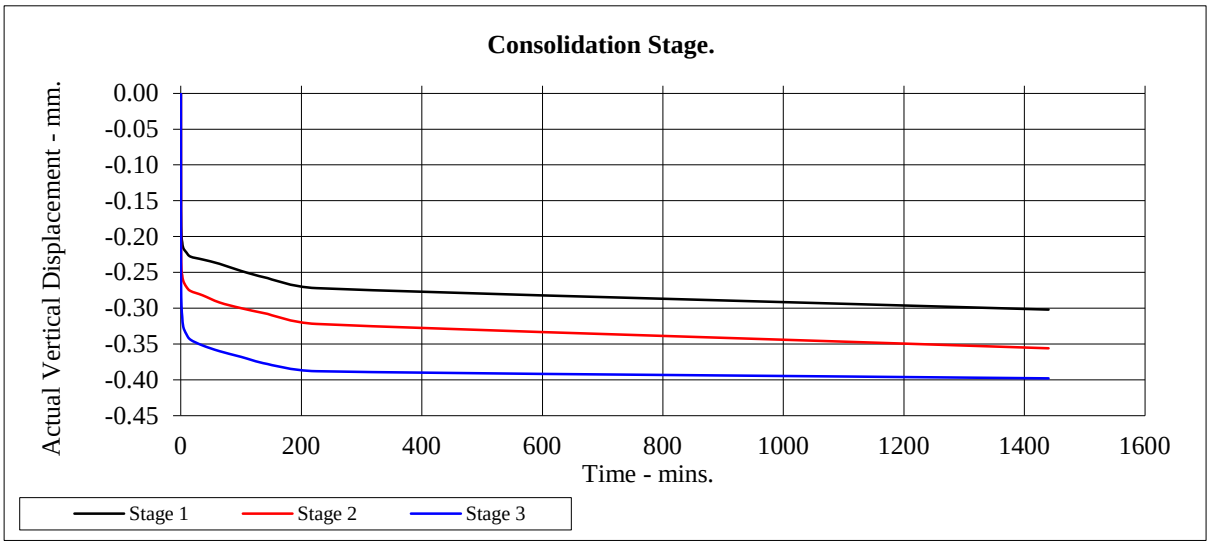


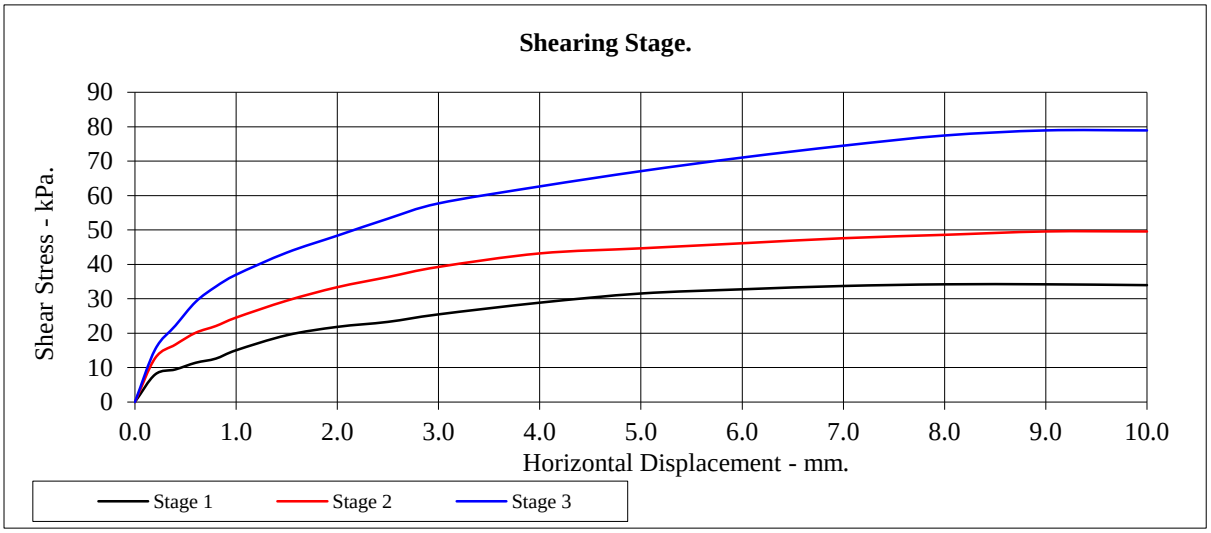
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

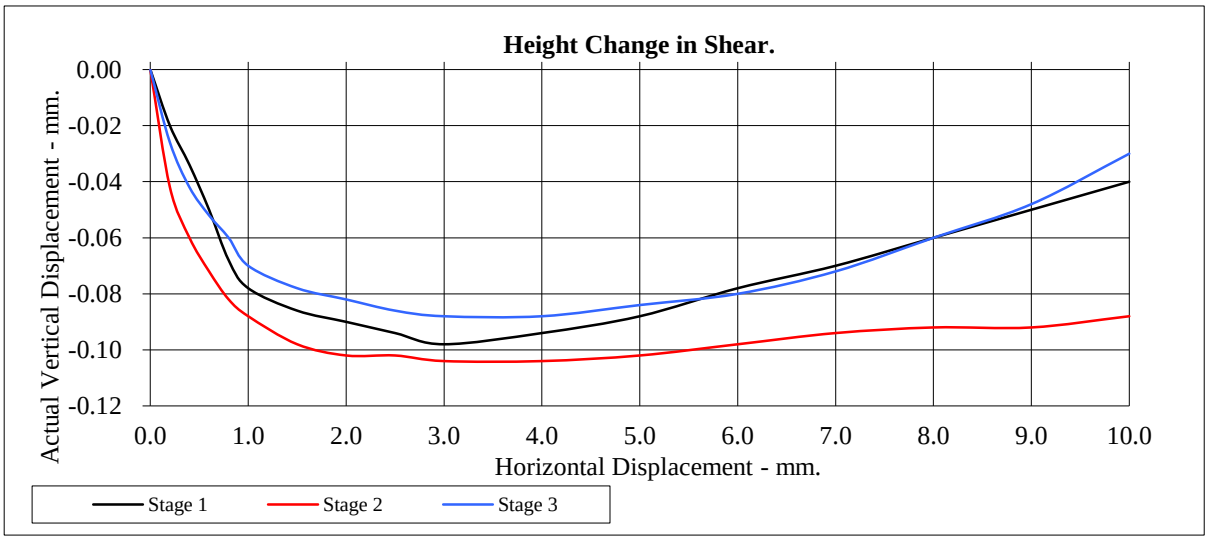
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH21**	Top Depth:	**27.50**
Sample Number:	**30**	Base Depth:	**28.00**







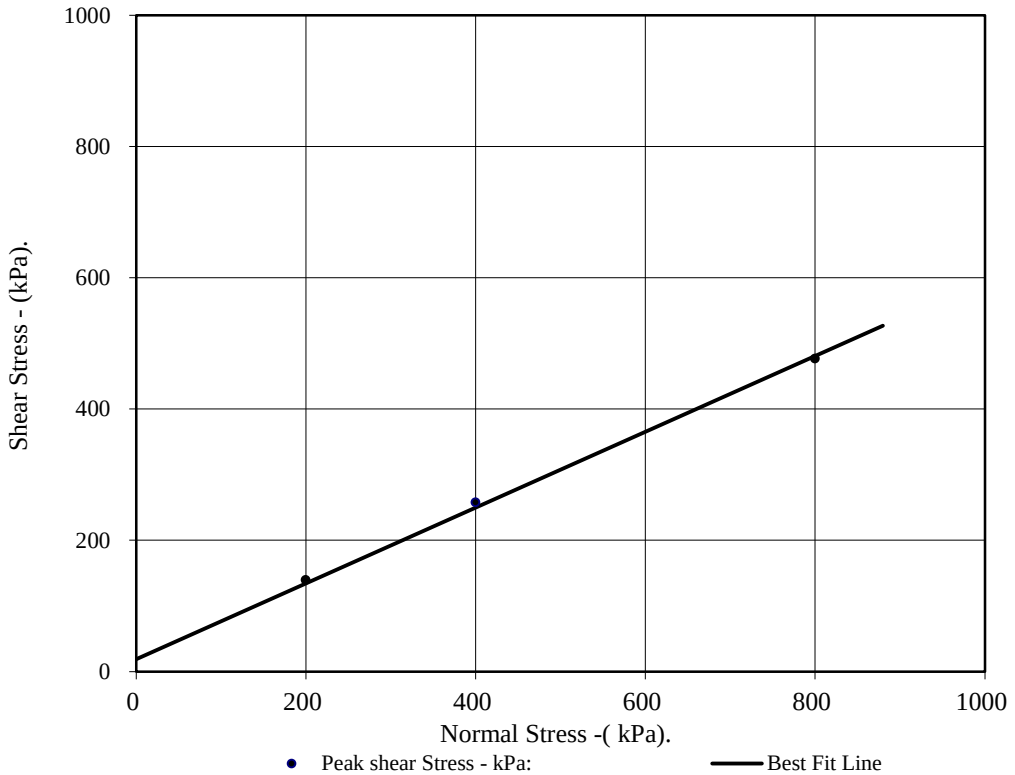
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH21R**		Top Depth:	**25.00**
Sample Number:	**14**		Base Depth:	
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey very sandy SILT.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	30	30	30
Bulk Density - Mg/m3:	1.83	1.83	1.84
Dry Density - Mg/m3:	1.41	1.41	1.41
Voids Ratio:	0.886	0.883	0.879
Normal Pressure- kPa	200	400	800
Consolidation Stage			
Consolidated Height - mm:	18.87	18.56	18.48
Shearing Stage			
Rate of Strain (mm/min)	0.600	0.600	0.600
Displacement at peak shear stress (mm)	7.00	9.00	9.00
Peak shear Stress - kPa:	140	258	477
Final Consolidated Conditons			
Moisture Content - %:	30	28	26
Bulk Density - Mg/m3:	1.92	1.95	1.96
Dry Density - Mg/m3:	1.48	1.53	1.56
Peak			
Angle of Shearing Resistance:(θ)	**30**		
Effective Cohesion - kPa:	**19**		

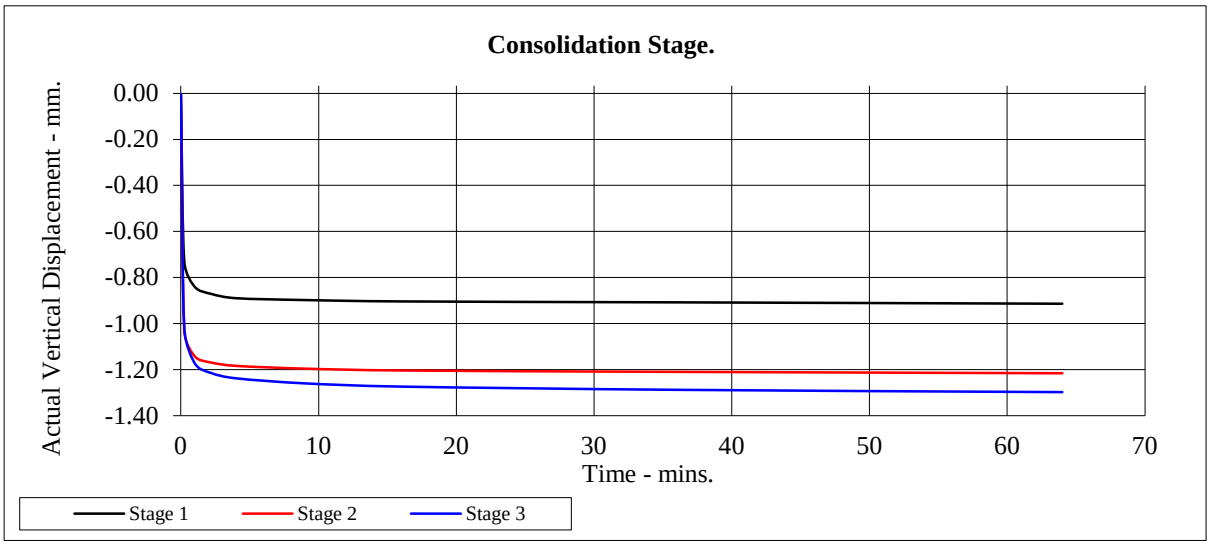


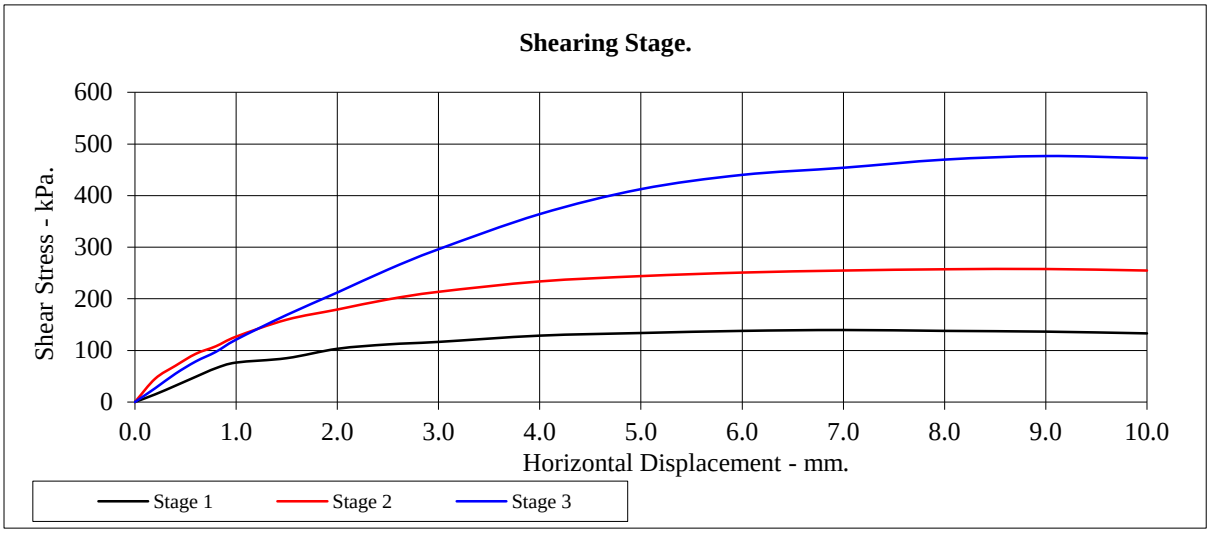
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked / Approved**	AR	**Date**	**24/01/17**	Contract No:
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

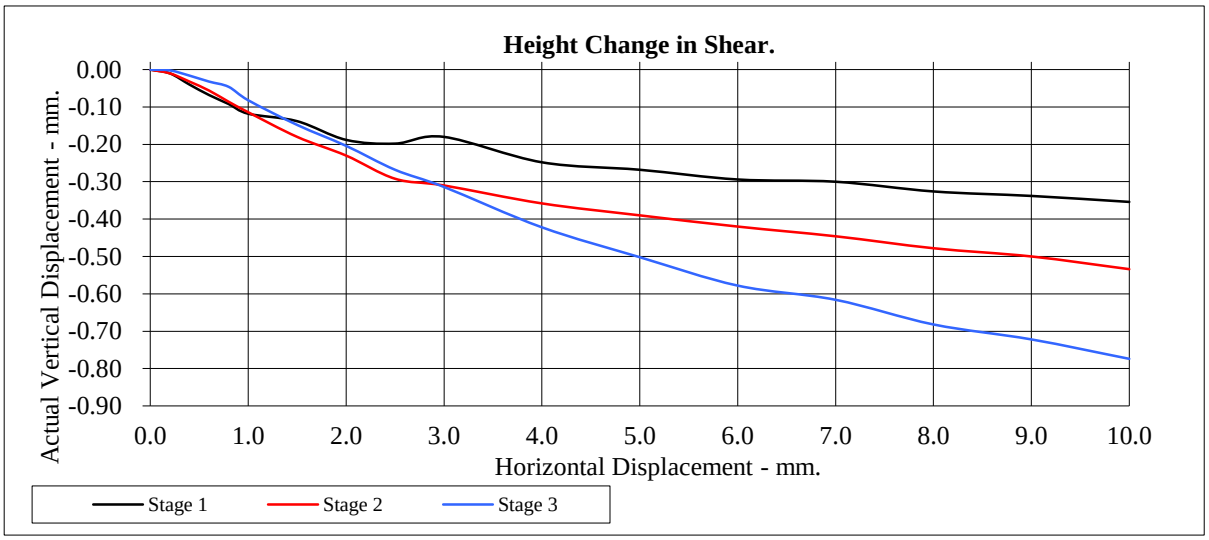
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH21R**	Top Depth:	**25.00**
Sample Number:	**14**	Base Depth:	







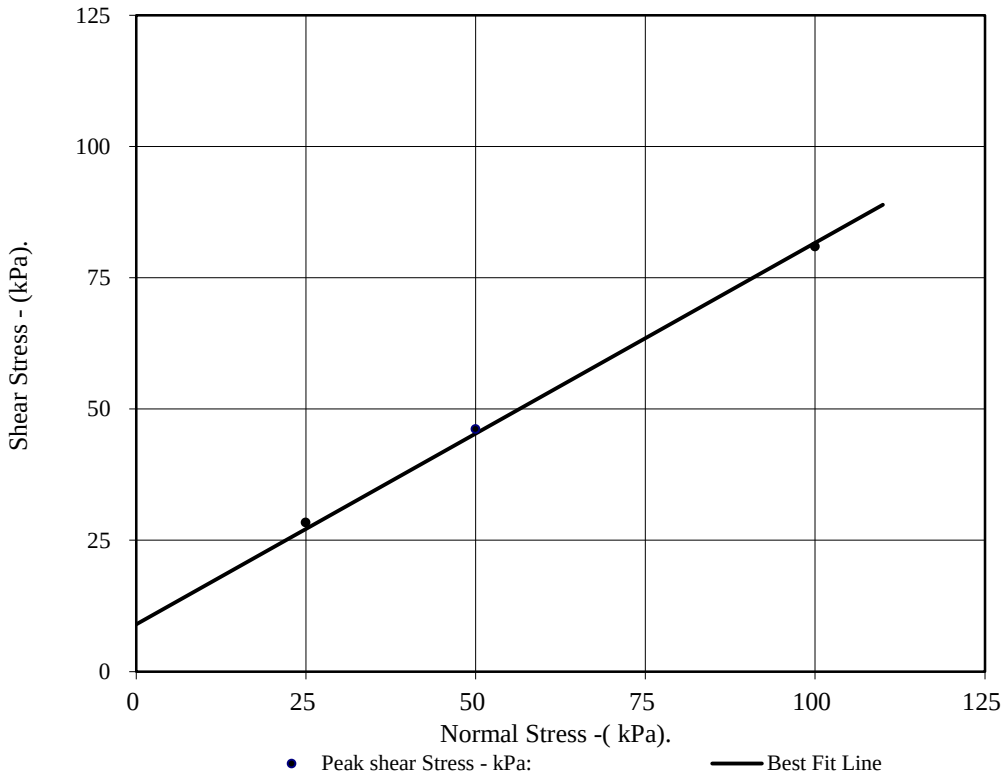
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Checked/Approved**	AP	**Date**	**24/01/17**	Contract No:
		CADP Surveys - Ground Investigation (Dock) Phase 2				**PSL16/5990**
						Client Ref:
						16/2900

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH24**		Top Depth:	**18.00**
Sample Number:	**18**		Base Depth:	**18.50**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey very sandy SILT.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	29	29	29
Bulk Density - Mg/m3:	1.85	1.85	1.85
Dry Density - Mg/m3:	1.43	1.43	1.43
Voids Ratio:	0.857	0.855	0.852
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.52	19.21	19.09
Shearing Stage			
Rate of Strain (mm/min)	0.025	0.025	0.025
Displacement at peak shear stress (mm)	3.00	3.00	4.00
Peak shear Stress - kPa:	28	46	81
Final Consolidated Conditons			
Moisture Content - %:	27	27	26
Bulk Density - Mg/m3:	1.87	1.90	1.92
Dry Density - Mg/m3:	1.48	1.50	1.52
Peak			
Angle of Shearing Resistance:(~~θ~~)	**36**		
Effective Cohesion - kPa:	**9**		

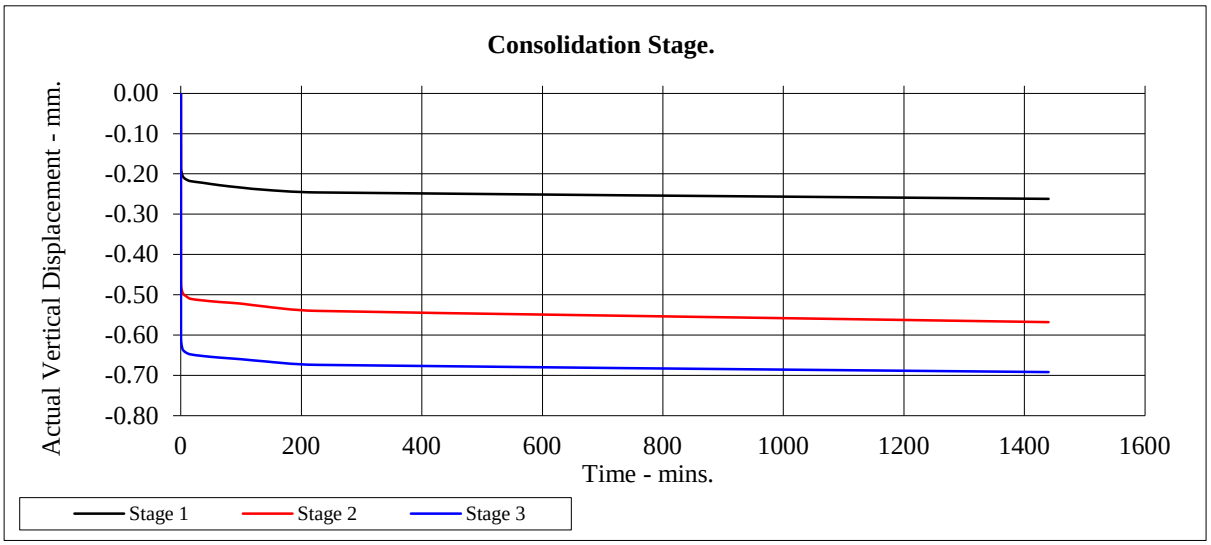


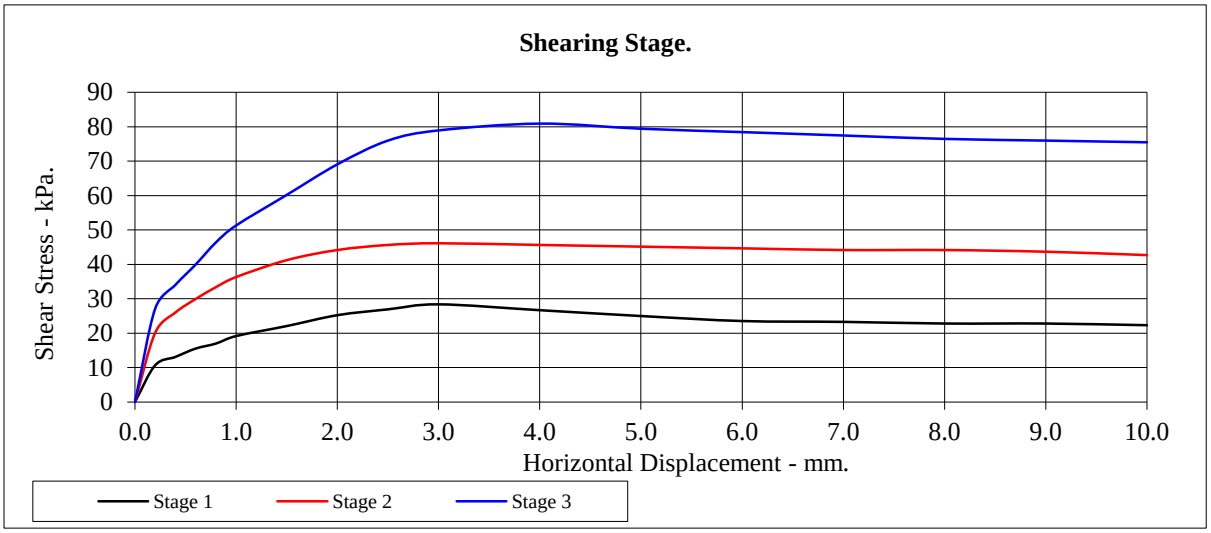
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

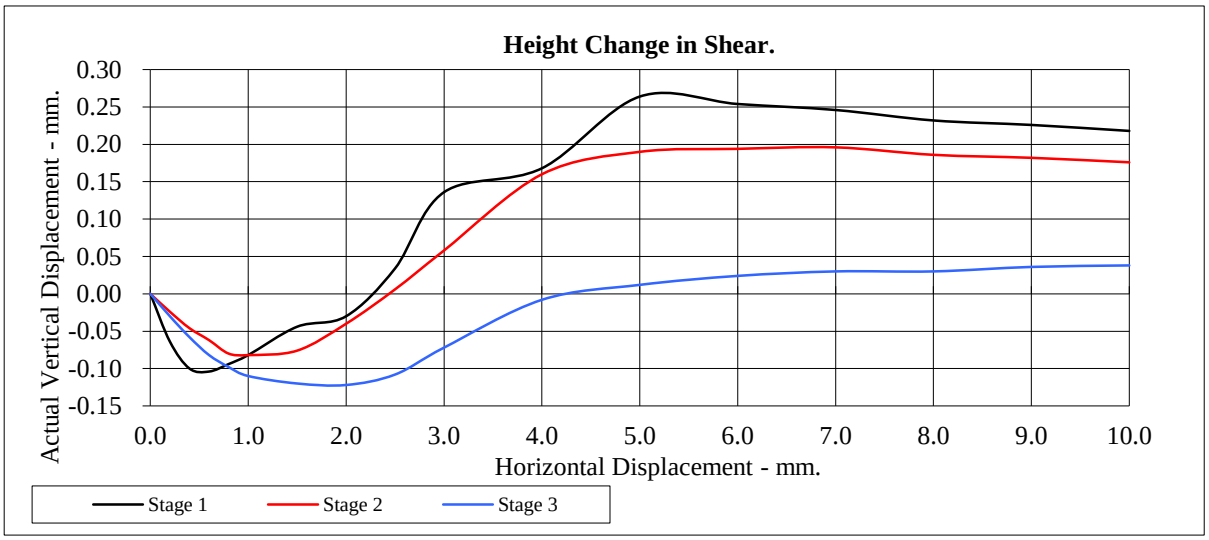
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH24**	Top Depth:	**18.00**
Sample Number:	**18**	Base Depth:	**18.50**







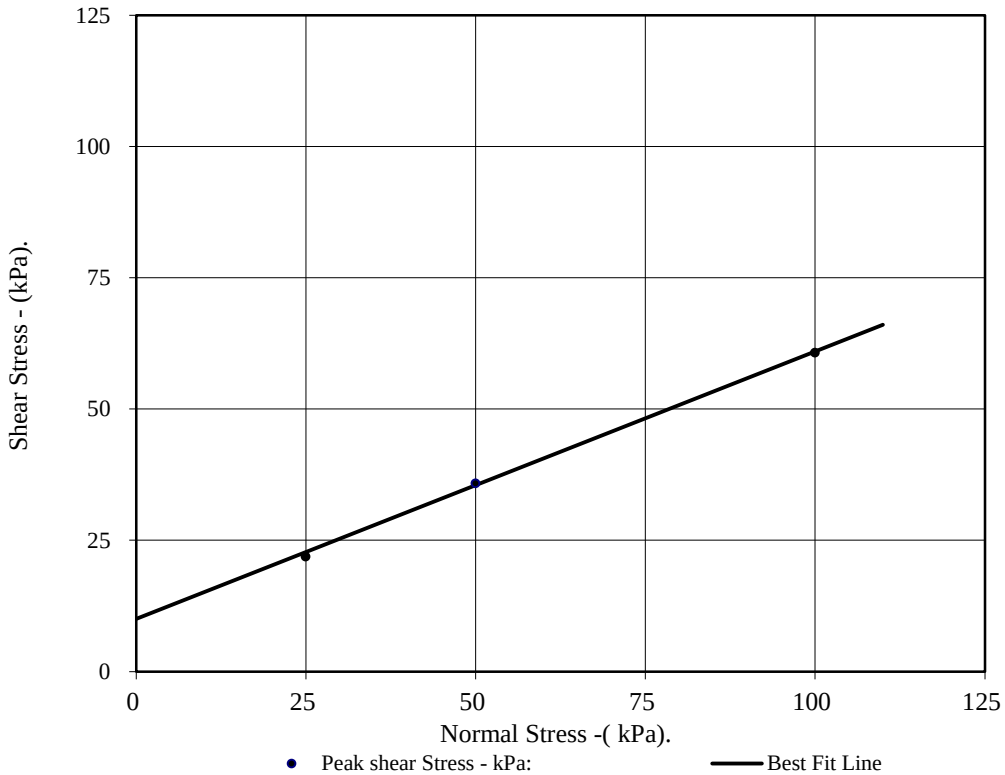
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH24**		Top Depth:	**25.50**
Sample Number:	**28**		Base Depth:	**26.00**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey slightly gravelly sandy very clayey SILT.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	43	43	43
Bulk Density - Mg/m3:	1.73	1.73	1.74
Dry Density - Mg/m3:	1.21	1.21	1.22
Voids Ratio:	1.182	1.181	1.177
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.48	19.39	19.28
Shearing Stage			
Rate of Strain (mm/min)	0.025	0.025	0.025
Displacement at peak shear stress (mm)	8.00	9.00	8.00
Peak shear Stress - kPa:	22	36	61
Final Consolidated Conditons			
Moisture Content - %:	42	39	38
Bulk Density - Mg/m3:	1.76	1.77	1.78
Dry Density - Mg/m3:	1.24	1.27	1.29
Peak			
Angle of Shearing Resistance:(θ)	**27**		
Effective Cohesion - kPa:	**10**		

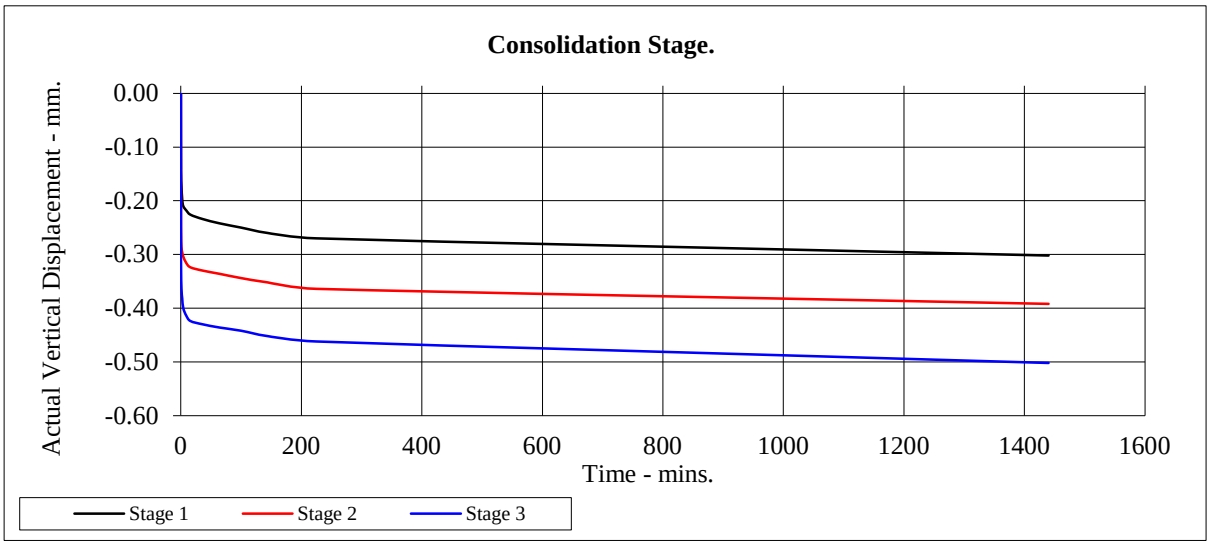


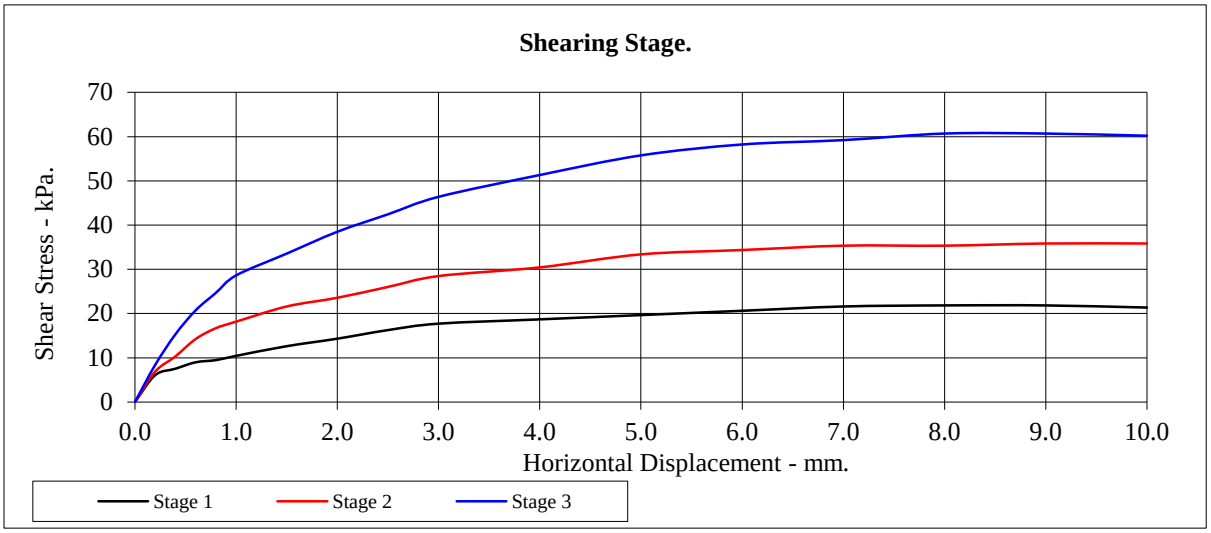
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

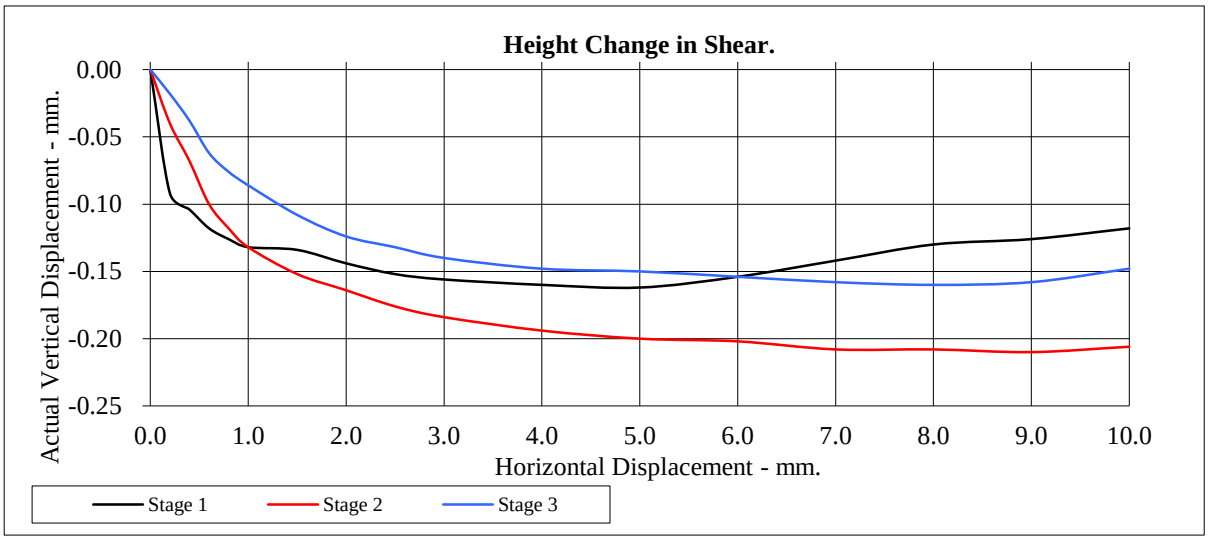
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH24**	Top Depth:	**25.50**
Sample Number:	**28**	Base Depth:	**26.00**







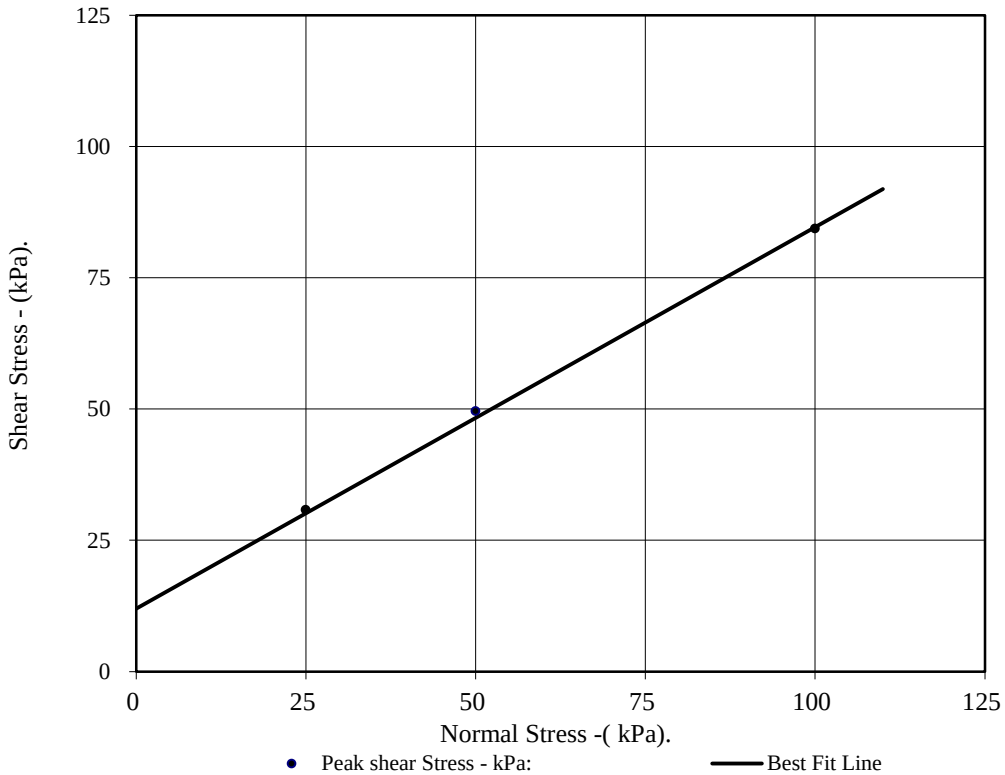
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH25R**		Top Depth:	**17.50**
Sample Number:	**9**		Base Depth:	
Sample Conditions:	Dry.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey very silty SAND.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.78	19.78	19.78
Length - mm:	60.01	60.01	60.01
Moisture Content - %:	32	32	32
Bulk Density - Mg/m3:	1.82	1.83	1.83
Dry Density - Mg/m3:	1.37	1.38	1.38
Voids Ratio:	0.930	0.920	0.918
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.39	18.94	18.87
Shearing Stage			
Rate of Strain (mm/min)	0.600	0.600	0.600
Displacement at peak shear stress (mm)	4.00	5.00	5.00
Peak shear Stress - kPa:	31	50	84
Final Consolidated Conditons			
Moisture Content - %:	29	29	28
Bulk Density - Mg/m3:	1.85	1.91	1.92
Dry Density - Mg/m3:	1.43	1.48	1.49
Peak			
Angle of Shearing Resistance:(θ)	**36**		
Effective Cohesion - kPa:	**12**		

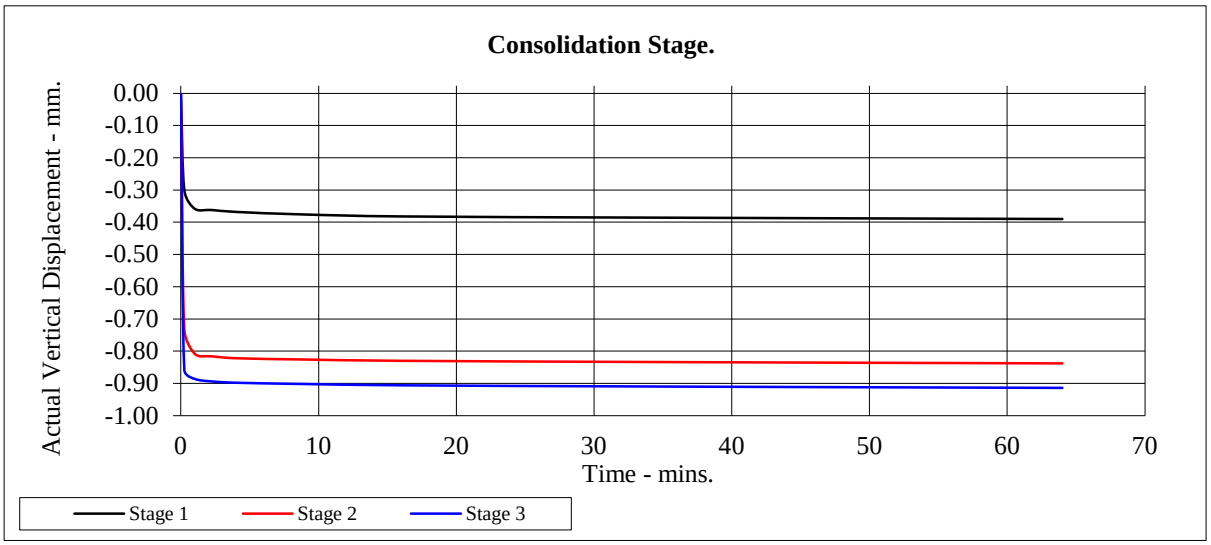


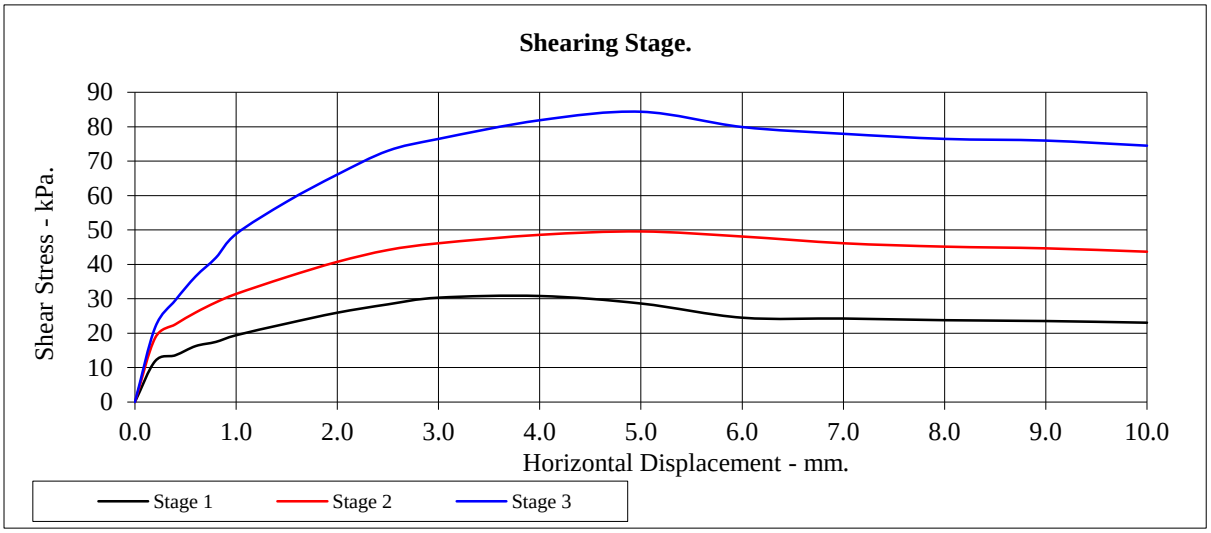
UKAS TESTING 4043	PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** **PSL16/5913** **Client Ref:** **16/2900**

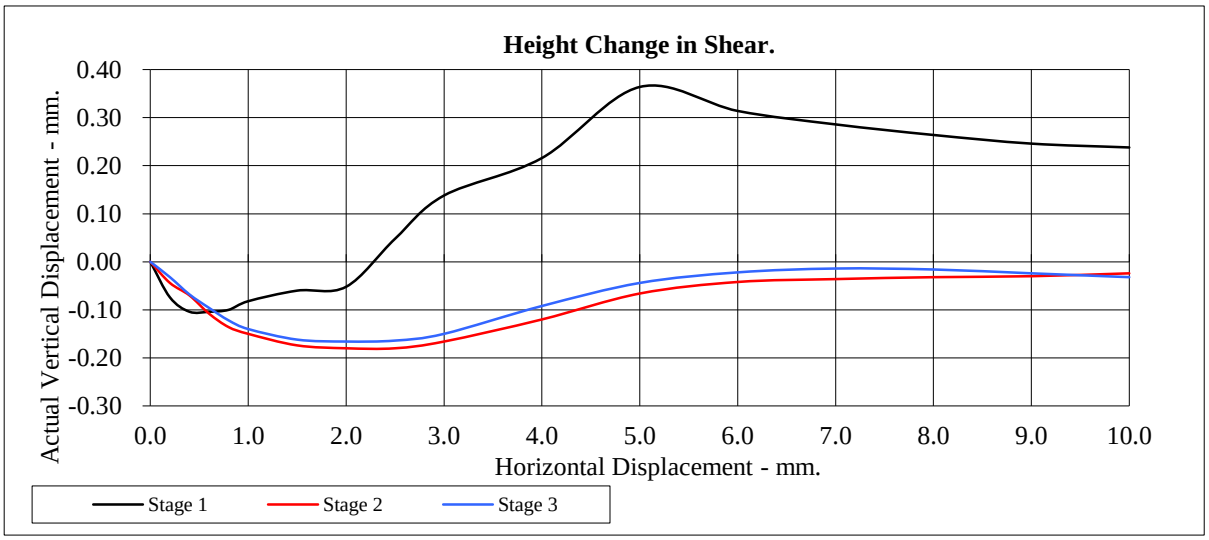
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH25R**	Top Depth:	**17.50**
Sample Number:	**9**	Base Depth:	







UKAS TESTING 4043 — PSL Professional Soils Laboratory	**CADP Surveys - Ground Investigation (Dock) Phase 2**	**Contract No:** PSL16/5913
		Client Ref: 16/2900

13. CHEMICAL LABORATORY TEST RESULTS

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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-09568
Issue:	1
Date of Issue:	23/11/2016
Contact:	Evangelos Kafantaris
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q16-00626
Order No:	CL847
Customer Reference:	16/2900
Date Received:	18/11/2016
Date Approved:	23/11/2016
Details:	London City Airport
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-09568

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
80864	BH3 11.70	16/11/2016	18/11/2016	Silty loam	
80865	BH3 12.70	16/11/2016	18/11/2016	Silty loam	
80866	BH3 13.70	16/11/2016	18/11/2016	sand + stones	
80867	BH3 14.70	16/11/2016	18/11/2016	sand + stones	
80868	BH3 15.70	16/11/2016	18/11/2016	sand + stones	
80869	BH3 16.70	16/11/2016	18/11/2016	sand + stones	
80870	BH34 11.50	16/11/2016	18/11/2016	Silty loam	
80871	BH34 13.70	16/11/2016	18/11/2016	Sandy silty loam	
80872	BH34 14.10	16/11/2016	18/11/2016	sand + stones	

Results Summary

Report No.: 16-09568

			ELAB Reference	80864	80865	80866	80867	80868	80869
			Customer Reference						
			Sample ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH3	BH3	BH3	BH3	BH3	BH3
			Sample Depth (m)	11.70	12.70	13.70	14.70	15.70	16.70
			Sampling Date	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016
Determinand	**Codes**	**Units**	**LOD**						
Metals									
Arsenic	M	mg/kg	1	124	116	^ 6.4	^ 2.3	^ 3.1	^ 3.8
Barium	U	mg/kg	10	616	1280	26.5	13.2	13.7	14.3
Beryllium	U	mg/kg	1	1.9	1.9	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium	M	mg/kg	0.5	7.9	5.0	^ < 0.5	^ < 0.5	^ < 0.5	^ < 0.5
Chromium	M	mg/kg	5	110	90.2	^ 16.5	^ 14.3	^ 15.7	^ 16.8
Copper	M	mg/kg	5	753	512	^ 18.0	^ 8.1	^ 6.8	^ 6.5
Lead	M	mg/kg	5	1630	969	^ 16.6	^ 6.0	^ < 5.0	^ < 5.0
Mercury	M	mg/kg	0.5	47.8	31.8	^ < 0.5	^ < 0.5	^ < 0.5	^ < 0.5
Nickel	M	mg/kg	5	62.6	59.3	^ 9.3	^ 5.2	^ 6.8	^ 7.9
Selenium	M	mg/kg	1	5.4	3.5	^ < 1.0	^ < 1.0	^ < 1.0	^ < 1.0
Vanadium	M	mg/kg	5	88.8	81.4	^ 11.5	^ < 5.0	^ 6.0	^ 9.4
Boron (Total)	N	mg/kg	10	36.5	33.2	< 10.0	< 10.0	< 10.0	< 10.0
Zinc	M	mg/kg	5	3070	2030	^ 45.6	^ 16.8	^ 26.3	^ 14.2
Inorganics									
Complex Cyanide	N	mg/kg	1	2.9	2.8	< 1.0	< 1.0	< 1.0	< 1.0
Elemental Sulphur	N	mg/kg	20	20900	9940	99	34	40	31
Free Cyanide	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Cyanide	M	mg/kg	1	2.9	2.8	^ < 1.0	^ < 1.0	^ < 1.0	^ < 1.0
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	< 0.1	n/t	< 0.1	n/t	n/t	n/t
Loss On Ignition (450°C)	M	%	0.01	19.4	n/t	^ 0.31	n/t	n/t	n/t
pH	M	pH units	0.1	8.1	8.1	^ 8.3	^ 8.6	^ 8.6	^ 8.5
Soil Organic Matter	U	%	0.1	17	14	0.5	0.4	0.4	0.1
Total Organic Carbon	N	%	0.01	17	n/t	0.07	n/t	n/t	n/t
Phenols									
Phenol	M	mg/kg	1	< 1	n/t	n/t	^ < 1	n/t	^ < 1
M,P-Cresol	N	mg/kg	1	< 1	n/t	n/t	< 1	n/t	< 1
O-Cresol	N	mg/kg	1	< 1	n/t	n/t	< 1	n/t	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	n/t	n/t	< 1	n/t	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	n/t	n/t	^ < 1	n/t	^ < 1
2,3,5-trimethylphenol	M	mg/kg	1	< 1	n/t	n/t	^ < 1	n/t	^ < 1
Total Monohydric Phenols	N	mg/kg	5	< 5	n/t	n/t	< 5	n/t	< 5

Results Summary

Report No.: 16-09568

			ELAB Reference	80864	80865	80866	80867	80868	80869
			Customer Reference						
			Sample ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH3	BH3	BH3	BH3	BH3	BH3
			Sample Depth (m)	11.70	12.70	13.70	14.70	15.70	16.70
			Sampling Date	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016
Determinand	**Codes**	**Units**	**LOD**						
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	12.8	3.7	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Acenaphthylene	M	mg/kg	0.1	24.2	6.3	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Acenaphthene	M	mg/kg	0.1	15.8	4.0	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Fluorene	M	mg/kg	0.1	24.1	4.5	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Phenanthrene	M	mg/kg	0.1	71.2	9.6	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Anthracene	M	mg/kg	0.1	21.2	2.9	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Fluoranthene	M	mg/kg	0.1	130	16.5	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Pyrene	M	mg/kg	0.1	104	13.7	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Benzo(a)anthracene	M	mg/kg	0.1	77.2	10.1	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Chrysene	M	mg/kg	0.1	83.4	14.5	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	58.3	8.8	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	56.7	10.9	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Benzo (a) pyrene	M	mg/kg	0.1	91.8	12.7	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	56.0	14.1	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	17.1	3.9	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	46.2	12.8	^ < 0.1	^ < 0.1	^ < 0.1	^ < 0.1
Total PAH(16)	M	mg/kg	0.4	890	149	^ < 0.4	^ < 0.4	^ < 0.4	^ < 0.4
Total PAH (Including Coronene)	N	mg/kg	2	906	n/t	< 2	n/t	n/t	n/t
BTEX									
Benzene	M	ug/kg	10	306	65.5	^ < 10.0	^ < 10.0	^ < 10.0	^ < 10.0
Toluene	M	ug/kg	10	218	28.0	^ < 10.0	^ < 10.0	^ < 10.0	^ < 10.0
Ethylbenzene	M	ug/kg	10	151	28.0	^ < 10.0	^ < 10.0	^ < 10.0	^ < 10.0
Xylenes	M	ug/kg	10	369	74.4	^ < 10.0	^ < 10.0	^ < 10.0	^ < 10.0
MTBE	N	ug/kg	10	99.9	23.0	< 10.0	< 10.0	< 10.0	< 10.0
Total BTEX	M	mg/kg	0.01	1.04	n/t	^ < 0.01	n/t	n/t	n/t
TPH CWG									
>C5-C6 Aliphatic	N	mg/kg	0.01	0.76	0.15	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	0.22	0.02	0.04	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	158	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	615	75.0	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	1800	313	1.5	< 1.0	< 1.0	< 1.0
>C35-C40 Aliphatic	N	mg/kg	1	161	43.4	< 1.0	< 1.0	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	0.31	0.07	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	0.22	0.03	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	50.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	469	60.7	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	1130	160	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	2720	475	2.6	2.1	2.2	1.4
>C35-C40 Aromatic	N	mg/kg	1	225	76.2	< 1.0	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	7320	1200	4.1	2.1	2.2	1.4
Total Petroleum Hydrocarbons									
Mineral Oil	U	mg/kg	5	7220	n/t	9	n/t	n/t	n/t

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09568

			ELAB Reference	80864	80865	80866	80867	80868	80869
			Customer Reference						
			Sample ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH3	BH3	BH3	BH3	BH3	BH3
			Sample Depth (m)	11.70	12.70	13.70	14.70	15.70	16.70
			Sampling Date	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016
Determinand	**Codes**	**Units**	**LOD**						
PCB (ICES 7 congeners)									
PCB 28	M	mg/kg	0.01	n/t	< 0.01	n/t	^ < 0.01	^ < 0.01	^ < 0.01
PCB 52	M	mg/kg	0.01	n/t	< 0.01	n/t	^ < 0.01	^ < 0.01	^ < 0.01
PCB 101	M	mg/kg	0.01	n/t	< 0.01	n/t	^ < 0.01	^ < 0.01	^ < 0.01
PCB 118	M	mg/kg	0.01	n/t	< 0.01	n/t	^ < 0.01	^ < 0.01	^ < 0.01
PCB 153	M	mg/kg	0.01	n/t	< 0.01	n/t	^ < 0.01	^ < 0.01	^ < 0.01
PCB 138	M	mg/kg	0.01	n/t	< 0.01	n/t	^ < 0.01	^ < 0.01	^ < 0.01
PCB 180	M	mg/kg	0.01	n/t	< 0.01	n/t	^ < 0.01	^ < 0.01	^ < 0.01
PCB (Total of 7 Congeners)	M	mg/kg	0.03	< 0.03	< 0.03	^ < 0.03	^ < 0.03	^ < 0.03	^ < 0.03

Results Summary

Report No.: 16-09568

			ELAB Reference	80870	80871	80872
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH34	BH34	BH34
			Sample Depth (m)	11.50	13.70	14.10
			Sampling Date	16/11/2016	16/11/2016	16/11/2016
Determinand	**Codes**	**Units**	**LOD**			
Metals						
Arsenic	M	mg/kg	1	22.4	4.8	^ 3.7
Barium	U	mg/kg	10	147	21.5	11.8
Beryllium	U	mg/kg	1	1.6	< 1.0	< 1.0
Cadmium	M	mg/kg	0.5	4.3	< 0.5	^ < 0.5
Chromium	M	mg/kg	5	130	20.9	^ 15.2
Copper	M	mg/kg	5	129	13.9	^ < 5.0
Lead	M	mg/kg	5	187	16.9	^ < 5.0
Mercury	M	mg/kg	0.5	3.3	< 0.5	^ < 0.5
Nickel	M	mg/kg	5	57.7	8.6	^ 8.1
Selenium	M	mg/kg	1	1.6	< 1.0	^ < 1.0
Vanadium	M	mg/kg	5	71.7	11.2	^ 8.0
Boron (Total)	N	mg/kg	10	45.4	< 10.0	< 10.0
Zinc	M	mg/kg	5	585	52.7	^ 18.5
Inorganics						
Complex Cyanide	N	mg/kg	1	2.3	< 1.0	< 1.0
Elemental Sulphur	N	mg/kg	20	2070	131	< 20
Free Cyanide	N	mg/kg	1	< 1.0	< 1.0	< 1.0
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8
Total Cyanide	M	mg/kg	1	2.3	< 1.0	^ < 1.0
Miscellaneous						
Acid Neutralisation Capacity	N	mol/kg	0.1	< 0.1	n/t	n/t
Loss On Ignition (450°C)	M	%	0.01	7.33	n/t	n/t
pH	M	pH units	0.1	7.7	8.3	^ 8.5
Soil Organic Matter	U	%	0.1	7.4	0.9	0.3
Total Organic Carbon	N	%	0.01	3.8	n/t	n/t
Phenols						
Phenol	M	mg/kg	1	n/t	n/t	n/t
M,P-Cresol	N	mg/kg	1	n/t	n/t	n/t
O-Cresol	N	mg/kg	1	n/t	n/t	n/t
3,4-Dimethylphenol	N	mg/kg	1	n/t	n/t	n/t
2,3-Dimethylphenol	M	mg/kg	1	n/t	n/t	n/t
2,3,5-trimethylphenol	M	mg/kg	1	n/t	n/t	n/t
Total Monohydric Phenols	N	mg/kg	5	n/t	n/t	n/t

Results Summary

Report No.: 16-09568

			ELAB Reference	80870	80871	80872
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH34	BH34	BH34
			Sample Depth (m)	11.50	13.70	14.10
			Sampling Date	16/11/2016	16/11/2016	16/11/2016
Determinand	**Codes**	**Units**	**LOD**			
Polyaromatic hydrocarbons						
Naphthalene	M	mg/kg	0.1	0.4	< 0.1	^ < 0.1
Acenaphthylene	M	mg/kg	0.1	0.3	< 0.1	^ < 0.1
Acenaphthene	M	mg/kg	0.1	0.2	< 0.1	^ < 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	^ < 0.1
Phenanthrene	M	mg/kg	0.1	1.1	< 0.1	^ < 0.1
Anthracene	M	mg/kg	0.1	0.8	< 0.1	^ < 0.1
Fluoranthene	M	mg/kg	0.1	1.5	< 0.1	^ < 0.1
Pyrene	M	mg/kg	0.1	2.6	0.1	^ < 0.1
Benzo(a)anthracene	M	mg/kg	0.1	1.1	< 0.1	^ < 0.1
Chrysene	M	mg/kg	0.1	1.5	0.1	^ < 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	1.7	< 0.1	^ < 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	0.8	< 0.1	^ < 0.1
Benzo (a) pyrene	M	mg/kg	0.1	1.6	< 0.1	^ < 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	3.1	< 0.1	^ < 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	0.8	< 0.1	^ < 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	3.9	< 0.1	^ < 0.1
Total PAH(16)	M	mg/kg	0.4	21.5	< 0.4	^ < 0.4
Total PAH (Including Coronene)	N	mg/kg	2	23	n/t	n/t
BTEX						
Benzene	M	ug/kg	10	40.7	< 10.0	^ < 10.0
Toluene	M	ug/kg	10	22.4	< 10.0	^ < 10.0
Ethylbenzene	M	ug/kg	10	17.2	< 10.0	^ < 10.0
Xylenes	M	ug/kg	10	43.6	< 10.0	^ < 10.0
MTBE	N	ug/kg	10	12.5	< 10.0	< 10.0
Total BTEX	M	mg/kg	0.01	0.12	n/t	n/t
TPH CWG						
>C5-C6 Aliphatic	N	mg/kg	0.01	0.06	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	0.02	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	3.2	< 1.0	3.1
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	0.04	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	0.02	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	2.3	1.3
>C16-C21 Aromatic	N	mg/kg	1	5.8	6.4	3.4
>C21-C35 Aromatic	N	mg/kg	1	12.6	15.1	7.7
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	1.2	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	21.7	25.0	15.5
Total Petroleum Hydrocarbons						
Mineral Oil	U	mg/kg	5	< 5	n/t	n/t

Tests marked N are not UKAS accredited.
The Environmental Laboratory Ltd. Reg. No. 3882193

Results Summary

Report No.: 16-09568

			ELAB Reference	80870	80871	80872
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH34	BH34	BH34
			Sample Depth (m)	11.50	13.70	14.10
			Sampling Date	16/11/2016	16/11/2016	16/11/2016
Determinand	**Codes**	**Units**	**LOD**			
PCB (ICES 7 congeners)						
PCB 28	M	mg/kg	0.01	< 0.01	n/t	^ < 0.01
PCB 52	M	mg/kg	0.01	0.05	n/t	^ < 0.01
PCB 101	M	mg/kg	0.01	0.03	n/t	^ < 0.01
PCB 118	M	mg/kg	0.01	0.02	n/t	^ < 0.01
PCB 153	M	mg/kg	0.01	0.02	n/t	^ < 0.01
PCB 138	M	mg/kg	0.01	0.02	n/t	^ < 0.01
PCB 180	M	mg/kg	0.01	0.01	n/t	^ < 0.01
PCB (Total of 7 Congeners)	M	mg/kg	0.03	0.15	n/t	^ < 0.03

Results Summary

Report No.: 16-09568

			ELAB Reference	80864	80866	80869	80870	80871	80872
			Customer Reference						
			Sample ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH3	BH3	BH3	BH34	BH34	BH34
			Sample Depth (m)	11.70	13.70	16.70	11.50	13.70	14.10
			Sampling Date	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016
Determinand	**Codes**	**Units**	**LOD**						
VOC									
Heptane	N	ug/kg	10	93.9	34.8	< 10.0	13.1	< 10.0	< 10.0
Octane	N	ug/kg	10	124	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Nonane	N	ug/kg	10	21.2	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Benzene	M	ug/kg	10	306	^ < 10.0	^ < 10.0	40.7	< 10.0	^ < 10.0
Toluene	M	ug/kg	10	218	^ < 10.0	^ < 10.0	22.4	< 10.0	^ < 10.0
Ethylbenzene	M	ug/kg	10	151	^ < 10.0	^ < 10.0	17.2	< 10.0	^ < 10.0
m+p-xylene	M	ug/kg	10	251	^ < 10.0	^ < 10.0	28.5	< 10.0	^ < 10.0
o-xylene	M	ug/kg	10	118	^ < 10.0	^ < 10.0	15.1	< 10.0	^ < 10.0
cis-1,2-dichloroethene	M	ug/kg	10	30.3	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
1,1-Dichloroethane	M	ug/kg	10	< 10.0	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
Chloroform	M	ug/kg	10	45.4	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
Tetrachloromethane	M	ug/kg	10	18.2	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
1,1,1-Trichloroethane	M	ug/kg	10	24.2	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
Trichloroethylene	M	ug/kg	10	< 10.0	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
Tetrachloroethylene	M	ug/kg	10	27.3	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
1,1,1,2-Tetrachloroethane	M	ug/kg	10	15.1	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
1,1,2,2-Tetrachloroetha	M	ug/kg	10	33.3	^ < 10.0	^ < 10.0	13.1	< 10.0	^ < 10.0
Chlorobenzene	M	ug/kg	10	< 10.0	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
Bromobenzene	M	ug/kg	10	< 10.0	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
Bromodichloromethane	M	ug/kg	10	30.3	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
Methylethylbenzene	M	ug/kg	10	24.2	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
1,1-Dichloro-1-propene	M	ug/kg	10	27.3	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
Trans - 1-2 -dichloroethylene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
2,2-Dichloropropane	N	ug/kg	10	15.1	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Bromochloromethane	N	ug/kg	10	42.4	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1,2-Dichloroethane	N	ug/kg	10	33.3	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Dibromomethane	M	ug/kg	10	12.1	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
1,2-Dichloropropane	M	ug/kg	10	18.2	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
cis-1,3-Dichloro-1-propene	M	ug/kg	10	15.1	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
trans-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
1,1,2-Trichloroethane	N	ug/kg	10	21.2	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Dibromochloromethane	N	ug/kg	10	12.1	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1,3-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1,2-dibromoethane	M	ug/kg	10	< 10.0	^ < 10.0	^ < 10.0	< 10.0	< 10.0	^ < 10.0
Styrene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Propylbenzene	N	ug/kg	10	24.2	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
2-Chlorotoluene	N	ug/kg	10	21.2	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1,2,4-Trimethylbenzene	N	ug/kg	10	24.2	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
4-Chlorotoluene	N	ug/kg	10	12.1	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
t-butylbenzene	N	ug/kg	10	15.1	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1,3,5-Trimethylbenzene	N	ug/kg	10	78.7	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1-methylpropylbenzene	N	ug/kg	10	12.1	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
o-cymene	N	ug/kg	10	45.4	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1,3-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Butylbenzene	N	ug/kg	10	15.1	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	N	ug/kg	10	15.1	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Hexachlorobutadiene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	11.1	< 10.0	< 10.0
1,2,3-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Naphthalene	N	ug/kg	10	194	< 10.0	< 10.0	16.3	< 10.0	< 10.0
1,2,4-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	18.9	< 10.0	< 10.0
1,4-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1,2-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Bromoform	N	ug/kg	10	33.3	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
VOC TIC									
Various	N	ug/kg	10	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected

Results Summary

Report No.: 16-09568

			ELAB Reference	80864	80866	80869	80870	80871	80872
			Customer Reference						
			Sample ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH3	BH3	BH3	BH34	BH34	BH34
			Sample Depth (m)	11.70	13.70	16.70	11.50	13.70	14.10
			Sampling Date	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016
Determinand	**Codes**	**Units**	**LOD**						
SVOC									
Phenol	N	mg/kg	0.01	0.04	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroethyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Chlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,4-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzyl Alcohol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Methylphenol	N	mg/kg	0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroisopropyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
3 and 4-methylphenol	N	mg/kg	0.01	0.04	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodi-n-propylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachloroethane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Isophorone	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroethoxy)methane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3,5-Trichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	N	mg/kg	0.01	1.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01
3-Chloroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachloro-1,3-butadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-Chloro-3-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Methylnaphthalene	N	mg/kg	0.01	0.90	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1-Methylnaphthalene	N	mg/kg	0.01	1.12	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorocyclopentadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1-Chloronaphthalene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,4-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dimethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1-3-dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-6-dinitrotoluene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	N	mg/kg	0.01	0.96	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
3-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	N	mg/kg	0.01	1.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzofuran	N	mg/kg	0.01	0.43	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,3,5,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,3,4,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Diethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1-chloro-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	N	mg/kg	0.01	1.32	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dinitro-o-cresol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Diphenylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1-bromo-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	N	mg/kg	0.01	7.79	< 0.01	0.02	0.02	0.02	0.01
Anthracene	N	mg/kg	0.01	2.45	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibutyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	N	mg/kg	0.01	12.6	< 0.01	0.05	0.05	0.06	0.03
Pyrene	N	mg/kg	0.01	10.6	< 0.01	0.04	0.05	0.04	0.02
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis-2-ethylhexyladipate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	N	mg/kg	0.01	4.41	< 0.01	0.01	0.02	0.03	< 0.01
Chrysene	N	mg/kg	0.01	6.76	< 0.01	0.02	0.03	0.03	0.01
Bis(2-ethylhexyl)phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N	mg/kg	0.01	3.62	< 0.01	< 0.01	0.01	0.02	< 0.01
Benzo(k)fluoranthene	N	mg/kg	0.01	4.22	< 0.01	< 0.01	0.02	0.01	< 0.01
Benzo(a)pyrene	N	mg/kg	0.01	6.69	< 0.01	< 0.01	0.03	0.03	< 0.01
Indeno(1,2,3-cd)pyrene	N	mg/kg	0.01	3.26	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(ah)anthracene	N	mg/kg	0.01	1.11	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo[g,h,i]perylene	N	mg/kg	0.01	3.96	< 0.01	< 0.01	0.02	0.02	< 0.01

Results Summary

Report No.: 16-09568

			ELAB Reference	80864	80866	80869	80870	80871	80872
			Customer Reference						
			Sample ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH3	BH3	BH3	BH34	BH34	BH34
			Sample Depth (m)	11.70	13.70	16.70	11.50	13.70	14.10
			Sampling Date	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016
Determinand	**Codes**	**Units**	**LOD**						
SVOC									
SVOCTIC									
Various	N	mg/kg	0.01	Y	Y	Y	Y	Y	Y
TIC									
1,12-Bis(2-nitrophenoxy)dodecane	N	mg/kg	0.01	0.28	-	-	-	-	-
1-Eicosene	N	mg/kg	0.01	0.86	-	-	-	-	-
10,18-Bisnorabieta-5,7,9(10),11,13-pentaene	N	mg/kg	0.01	5.9	-	0.29	-	0.57	-
11,13-Dimethyl-12-tetradecen-1-ol acetate	N	mg/kg	0.01	4.41	-	-	-	-	-
13-Methyl-Z-14-nonacosene	N	mg/kg	0.01	0.07	-	-	-	-	-
13-Tetradecen-1-ol acetate	N	mg/kg	0.01	1.36	-	-	-	-	-
17-Pentatriacontene	N	mg/kg	0.01	1.63	-	-	-	-	-
2,6,10,14,18,22-Tetracosahexaene, 2,6,10,15,19,23-hexamethyl-, (all-E)-	N	mg/kg	0.01	-	15.99	-	-	9.83	-
2-Dodecen-1-yl(-)succinic anhydride	N	mg/kg	0.01	8.97	-	-	-	-	-
2-Ethylhexyl mercaptoacetate	N	mg/kg	0.01	-	3.78	-	-	-	-
2-Methyl-Z-4-tetradecene	N	mg/kg	0.01	1.28	-	-	-	-	-
28-Nor-17.alpha.(H)-hopane	N	mg/kg	0.01	0.5	-	-	-	-	-
3,13-Dihydroxy-5,8,11,18,23-pentaoxa-1,15-diazabicyclo[13.5.5]pentacosane	N	mg/kg	0.01	-	-	-	0.22	-	0.21
Cyclohexane, 2-butyl-1,1,3-trimethyl-	N	mg/kg	0.01	0.27	-	-	-	-	-
Cyclopentane, (4-octyldodecyl)-	N	mg/kg	0.01	2.71	-	-	-	-	-
Cyclotetradecane, 1,7,11-trimethyl-4-(1-methylethyl)-	N	mg/kg	0.01	3.43	-	-	-	-	-
Cyclotriacontane	N	mg/kg	0.01	6.61	-	-	-	-	-
D-Homoandrostane, (5.alpha.,13.alpha.)-	N	mg/kg	0.01	10.74	-	-	-	-	-
Eicosane	N	mg/kg	0.01	-	3.01	-	0.64	-	-
Hexadecane, 1-chloro-	N	mg/kg	0.01	3.58	-	-	-	-	-
Hexadecane, 2,6,10,14-tetramethyl-	N	mg/kg	0.01	7.18	-	-	-	-	-
Naphthalene, 1,6,7-trimethyl-	N	mg/kg	0.01	1.39	-	-	-	-	-
Octadecane, 1-chloro-	N	mg/kg	0.01	2.32	-	-	-	-	-
Pentadec-7-ene, 7-bromomethyl-	N	mg/kg	0.01	10.2	-	-	-	-	-
Pentadecane, 2,6,10,14-tetramethyl-	N	mg/kg	0.01	9.71	-	-	-	-	-
Pyridine-3-carboxamide, oxime, N-(2-trifluoromethylphenyl)-	N	mg/kg	0.01	0.22	-	-	-	-	-
Squalene	N	mg/kg	0.01	-	-	4.52	4.98	-	-
Tricosane	N	mg/kg	0.01	-	2.76	-	-	-	-
Undecane, 3,6-dimethyl-	N	mg/kg	0.01	1.17	-	-	-	-	-
m,p'-DDD	N	mg/kg	0.01	-	-	0.38	-	-	-
trans-2,3-Epoxydecane	N	mg/kg	0.01	3.54	-	-	-	-	-

Results Summary

Report No.: 16-09568

WAC Analysis

Elab Ref:	80870					Landfill Waste Acceptance Criteria Limits		
Sample Date:	16/11/2016					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	BH34							
Depth (m)	11.5							
Site:	London City Airport							
Determinand		**Code**	**Units**					
Total Organic Carbon		N	%		3.80	3	5	6
Loss on Ignition		M	%		7.3	--	--	10
Total BTEX		M	mg/kg		0.12	6	--	--
Total PCBs (7 congeners)		M	mg/kg		0.15	1	--	--
TPH Total WAC		M	mg/kg		< 5	500	--	--
Total (of 17) PAHs		N	mg/kg		23.0	100	--	--
pH		M			7.7	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate
Eluate Analysis			**10:1**		**10:1**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
			mg/l		**mg/kg**			
Arsenic		N	0.012		0.12	0.5	2	25
Barium		N	0.019		0.19	20	100	300
Cadmium		N	< 0.001		< 0.01	0.04	1	5
Chromium		N	< 0.005		< 0.05	0.5	10	70
Copper		N	0.008		0.08	2	50	100
Mercury		N	< 0.005		< 0.01	0.01	0.2	2
Molybdenum		N	0.033		0.33	0.5	10	30
Nickel		N	0.012		0.12	0.4	10	40
Lead		N	0.002		< 0.05	0.5	10	50
Antimony		N	0.012		0.12	0.06	0.7	5
Selenium		N	< 0.005		< 0.05	0.1	0.5	7
Zinc		N	0.011		0.11	4	50	200
Chloride		N	861		8610.00	800	15000	25000
Fluoride		N	< 5		< 10	10	150	500
Sulphate		N	40		402.00	1000	20000	50000
Total Dissolved Solids		N	1710		17100.00	4000	60000	100000
Phenol Index		N	< 0.01		< 0.10	1	-	-
Dissolved Organic Carbon		N	48.200		482.00	500	800	1000
Leach Test Information								
pH		N	8.0					
Conductivity (uS/cm)		N	3250					
Dry mass of test portion (g)			101.000					
Dry Matter (%)			33					
Moisture (%)			200					
Eluent Volume (ml)			779					

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ELAB cannot be held responsible for any discrepencies with current legislation

Results Summary

Report No.: 16-09568

WAC Analysis

Elab Ref:	80866					Landfill Waste Acceptance Criteria Limits		
Sample Date:	16/11/2016					**Inert Waste Landfill**	**Stable Non-reactive Hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:	BH3							
Depth (m)	13.7							
Site:	London City Airport							
Determinand		**Code**	**Units**					
Total Organic Carbon		N	%		0.07	3	5	6
Loss on Ignition		M	%		0.3	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		9	500	--	--
Total (of 17) PAHs		N	mg/kg		< 2	100	--	--
pH		M			8.3	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate
Eluate Analysis			**10:1**		**10:1**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
			mg/l		**mg/kg**			
Arsenic		N	< 0.005		< 0.05	0.5	2	25
Barium		N	< 0.005		< 0.05	20	100	300
Cadmium		N	< 0.001		< 0.01	0.04	1	5
Chromium		N	< 0.005		< 0.05	0.5	10	70
Copper		N	< 0.005		< 0.05	2	50	100
Mercury		N	< 0.005		< 0.01	0.01	0.2	2
Molybdenum		N	< 0.005		< 0.05	0.5	10	30
Nickel		N	0.002		< 0.05	0.4	10	40
Lead		N	< 0.001		< 0.05	0.5	10	50
Antimony		N	< 0.005		< 0.05	0.06	0.7	5
Selenium		N	< 0.005		< 0.05	0.1	0.5	7
Zinc		N	0.006		0.06	4	50	200
Chloride		N	35		353.00	800	15000	25000
Fluoride		N	< 5		< 10	10	150	500
Sulphate		N	10		103.00	1000	20000	50000
Total Dissolved Solids		N	< 100		1000.00	4000	60000	100000
Phenol Index		N	< 0.01		< 0.10	1	-	-
Dissolved Organic Carbon		N	13.500		135.00	500	800	1000
Leach Test Information								
pH		N	7.6					
Conductivity (uS/cm)		N	185					
Dry mass of test portion (g)			105.000					
Dry Matter (%)			96					
Moisture (%)			4					
Eluent Volume (ml)			1020					

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ELAB cannot be held responsible for any discrepencies with current legislation

Results Summary

Report No.: 16-09568

WAC Analysis

Elab Ref:	80864					Landfill Waste Acceptance Criteria Limits		
Sample Date:	16/11/2016					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	BH3							
Depth (m)	11.7							
Site:	London City Airport							
Determinand		**Code**	**Units**					
Total Organic Carbon		N	%		17.00	**3**	**5**	**6**
Loss on Ignition		M	%		19.4	--	--	**10**
Total BTEX		M	mg/kg		1.04	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		7220	**500**	--	--
Total (of 17) PAHs		N	mg/kg		906.0	**100**	--	--
pH		M			8.1	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate
Eluate Analysis			**10:1**		**10:1**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
			mg/l		**mg/kg**			
Arsenic		N	0.009		0.09	0.5	2	25
Barium		N	0.033		0.33	20	100	300
Cadmium		N	< 0.001		< 0.01	0.04	1	5
Chromium		N	< 0.005		< 0.05	0.5	10	70
Copper		N	< 0.005		< 0.05	2	50	100
Mercury		N	< 0.005		< 0.01	0.01	0.2	2
Molybdenum		N	0.116		1.16	**0.5**	10	30
Nickel		N	0.004		< 0.05	0.4	10	40
Lead		N	< 0.001		< 0.05	0.5	10	50
Antimony		N	0.006		0.06	0.06	0.7	5
Selenium		N	< 0.005		< 0.05	0.1	0.5	7
Zinc		N	0.006		0.06	4	50	200
Chloride		N	837		8370.00	**800**	15000	25000
Fluoride		N	< 5		< 10	10	150	500
Sulphate		N	176		1760.00	**1000**	20000	50000
Total Dissolved Solids		N	1860		18600.00	**4000**	60000	100000
Phenol Index		N	< 0.01		< 0.10	1	-	-
Dissolved Organic Carbon		N	66.800		668.00	**500**	800	1000
Leach Test Information								
pH		N	8.1					
Conductivity (uS/cm)		N	3570					
Dry mass of test portion (g)			59.000					
Dry Matter (%)			31					
Moisture (%)			221					
Eluent Volume (ml)			439					

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ELAB cannot be held responsible for any discrepencies with current legislation

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Results Summary

Report No.: 16-09568

Asbestos Qualitative Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Result
80864	11.70	BH3	Silty loam	No asbestos detected
80865	12.70	BH3	Silty loam	No asbestos detected
80866	13.70	BH3	sand + stones	No asbestos detected
80867	14.70	BH3	sand + stones	No asbestos detected
80868	15.70	BH3	sand + stones	No asbestos detected
80869	16.70	BH3	sand + stones	No asbestos detected
80870	11.50	BH34	Silty loam	No asbestos detected
80871	13.70	BH34	Sandy silty loam	No asbestos detected
80872	14.10	BH34	sand + stones	No asbestos detected

Method Summary

Report No.: 16-09568

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Free cyanide	N	As submitted sample	21/11/2016		Colorimetry
VOC in solids	M	As submitted sample	18/11/2016		GC-MS
Free cyanide	N	As submitted sample	21/11/2016	107	Colorimetry
Hexavalent chromium	N	As submitted sample	21/11/2016	110	Colorimetry
Aqua regia extractable metals	M	Air dried sample	22/11/2016	118	ICPMS
Phenols in solids	M	As submitted sample	18/11/2016	121	HPLC
Elemental Sulphur	N	Air dried sample	21/11/2016	122	HPLC
PAH (GC-FID)	M	As submitted sample	21/11/2016	133	GC-FID
SVOC in solids	N	As submitted sample	21/11/2016	167	GC-MS
VOC in solids	M	As submitted sample	18/11/2016	181	GC-MS
Total cyanide	M	As submitted sample	21/11/2016	204	Colorimetry
Aliphatic hydrocarbons in soil	N	As submitted sample	21/11/2016	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	23/11/2016	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	21/11/2016	214	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	21/11/2016	214	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	21/11/2016	214	GC-MS
Soil organic matter	U	Air dried sample	22/11/2016	BS1377:P3	Titrimetry
Asbestos identification	U	As submitted sample	21/11/2016	PMAN	Microscopy
Leachate					
Arsenic*	N		23/11/2016	101	ICPMS
Cadmium*	N		23/11/2016	101	ICPMS
Chromium*	N		23/11/2016	101	ICPMS
Lead*	N		23/11/2016	101	ICPMS
Nickel*	N		23/11/2016	101	ICPMS
Copper*	N		23/11/2016	101	ICPMS
Zinc*	N		23/11/2016	101	ICPMS
Mercury*	N		23/11/2016	101	ICPMS
Selenium*	N		23/11/2016	101	ICPMS
Antimony	N		23/11/2016	101	ICPMS
Barium*	N		23/11/2016	101	ICPMS
Molybdenum*	N		23/11/2016	101	ICPMS
pH Value*	N		23/11/2016	113	Electrometric
Electrical Conductivity*	N		23/11/2016	136	Probe
Dissolved Organic Carbon	N		23/11/2016	102	TOC analyser
Chloride*	N		23/11/2016	131	Ion Chromatography
Fluoride*	N		23/11/2016	131	Ion Chromatography
Sulphate*	N		23/11/2016	131	Ion Chromatography
Total Dissolved Solids	N		23/11/2016	144	Gravimetric
Phenol index	N		23/11/2016	121	HPLC
WAC Solids analysis	N				
pH Value**	M	Air dried sample	22/11/2016	113	Electrometric
Total Organic Carbon	N	Air dried sample	22/11/2016	210	IR
Loss on Ignition**	M	Air dried sample	22/11/2016	129	Gravimetric
Acid Neutralization Capacity to pH 7	N	Air dried sample	22/11/2016	NEN 737	Electrometric
Total BTEX**	M	As submitted sample	21/11/2016	181	GCMS
Mineral Oil**	U	As submitted sample	21/11/2016	117	GCFID
Total PCBs (7 congeners)	M	Air dried sample	22/11/2016	120	GCMS
Total PAH (17)**	N	As submitted sample	22/11/2016	133	GCFID

Tests marked N are not UKAS accredited

Report Information

Report No.: 16-09568

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

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2683

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-09650
Issue:	1
Date of Issue:	01/12/2016
Contact:	Evangelos Kafantaris
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q16-00716
Order No:	CL850
Customer Reference:	16/2900
Date Received:	23/11/2016
Date Approved:	01/12/2016
Details:	London City Airport
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-09650

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
81360	BH31 12.00	17/11/2016	23/11/2016	Silty loam	
81361	BH31 12.50	17/11/2016	23/11/2016	Sand + stones	
81362	BH31 13.50	17/11/2016	23/11/2016	Sand + stones	
81363	BH17 11.90	21/11/2016	23/11/2016	Silty clayey loam	
81364	BH17 12.90	21/11/2016	23/11/2016		
81365	BH17 13.90	21/11/2016	23/11/2016	Sand + stones	

Results Summary

Report No.: 16-09650

			ELAB Reference	81360	81361	81362	81363	81365
			Customer Reference					
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH31	BH31	BH31	BH17	BH17
			Sample Depth (m)	12.00	12.50	13.50	11.90	13.90
			Sampling Date	17/11/2016	17/11/2016	17/11/2016	21/11/2016	21/11/2016
Determinand	**Codes**	**Units**	**LOD**					
Metals								
Arsenic	M	mg/kg	1	43.7	^ 6.6	^ 4.8	21.0	^ 9.9
Cadmium	M	mg/kg	0.5	9.3	^ < 0.5	^ < 0.5	0.7	^ < 0.5
Chromium	M	mg/kg	5	171	^ 25.6	^ 19.7	51.4	^ 45.8
Copper	M	mg/kg	5	256	^ 16.0	^ 5.8	50.2	^ 22.1
Lead	M	mg/kg	5	415	^ 35.6	^ 6.8	56.7	^ 17.6
Mercury	M	mg/kg	0.5	8.1	^ < 0.5	^ < 0.5	1.9	^ 0.6
Nickel	M	mg/kg	5	78.7	^ 12.1	^ 8.5	30.8	^ 20.9
Zinc	M	mg/kg	5	979	^ 114	^ 29.9	126	^ 49.0
Anions								
Water Soluble Sulphate	M	g/l	0.02	0.39	^ 0.12	^ 0.05	0.43	^ 0.13
Inorganics								
Total Cyanide	M	mg/kg	1	2.3	^ < 1.0	^ < 1.0	< 1.0	^ < 1.0
Water Soluble Boron	N	mg/kg	0.5	7.0	0.7	< 0.5	3.7	1.4
Miscellaneous								
Soil Organic Matter	U	%	0.1	9.8	0.5	0.1	3.7	0.6
Phenols								
Phenol	M	mg/kg	1	< 1	n/t	n/t	n/t	n/t
M,P-Cresol	N	mg/kg	1	< 1	n/t	n/t	n/t	n/t
O-Cresol	N	mg/kg	1	< 1	n/t	n/t	n/t	n/t
3,4-Dimethylphenol	N	mg/kg	1	< 1	n/t	n/t	n/t	n/t
2,3-Dimethylphenol	M	mg/kg	1	< 1	n/t	n/t	n/t	n/t
2,3,5-trimethylphenol	M	mg/kg	1	< 1	n/t	n/t	n/t	n/t
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6	< 6
Total Monohydric Phenols	N	mg/kg	5	< 5	n/t	n/t	n/t	n/t
Polyaromatic hydrocarbons								
Naphthalene	M	mg/kg	0.1	2.2	^ < 0.1	^ < 0.1	0.1	^ < 0.1
Acenaphthylene	M	mg/kg	0.1	3.1	^ 0.1	^ < 0.1	0.2	^ < 0.1
Acenaphthene	M	mg/kg	0.1	0.8	^ < 0.1	^ < 0.1	0.3	^ < 0.1
Fluorene	M	mg/kg	0.1	0.9	^ < 0.1	^ < 0.1	0.3	^ < 0.1
Phenanthrene	M	mg/kg	0.1	2.7	^ < 0.1	^ < 0.1	1.2	^ < 0.1
Anthracene	M	mg/kg	0.1	2.7	^ < 0.1	^ < 0.1	0.5	^ < 0.1
Fluoranthene	M	mg/kg	0.1	5.0	^ 0.2	^ < 0.1	3.5	^ < 0.1
Pyrene	M	mg/kg	0.1	6.3	^ 0.2	^ < 0.1	3.0	^ < 0.1
Benzo(a)anthracene	M	mg/kg	0.1	3.3	^ 0.1	^ < 0.1	2.4	^ < 0.1
Chrysene	M	mg/kg	0.1	5.7	^ 0.2	^ < 0.1	2.7	^ < 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	4.1	^ 0.2	^ < 0.1	2.3	^ < 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	3.3	^ 0.2	^ < 0.1	2.5	^ < 0.1
Benzo (a) pyrene	M	mg/kg	0.1	4.8	^ 0.1	^ < 0.1	2.8	^ < 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	7.1	^ 0.3	^ < 0.1	2.5	^ < 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	1.2	^ < 0.1	^ < 0.1	0.6	^ < 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	4.2	^ 0.2	^ < 0.1	1.8	^ < 0.1
Total PAH(16)	M	mg/kg	0.4	57.5	^ 2.2	^ < 0.4	26.7	^ < 0.4

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09650

			ELAB Reference	81360	81361	81362	81363	81365
			Customer Reference					
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH31	BH31	BH31	BH17	BH17
			Sample Depth (m)	12.00	12.50	13.50	11.90	13.90
			Sampling Date	17/11/2016	17/11/2016	17/11/2016	21/11/2016	21/11/2016
Determinand	**Codes**	**Units**	**LOD**					
BTEX								
Benzene	M	ug/kg	10	< 10.0	^ < 10.0	^ < 10.0	< 10.0	^ < 10.0
Toluene	M	ug/kg	10	< 10.0	^ < 10.0	^ < 10.0	< 10.0	^ < 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	^ < 10.0	^ < 10.0	< 10.0	^ < 10.0
Xylenes	M	ug/kg	10	< 10.0	^ < 10.0	^ < 10.0	< 10.0	^ < 10.0
MTBE	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
TPH CWG								
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	20.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	269	5.7	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	742	17.6	< 1.0	< 1.0	1.2
>C21-C35 Aliphatic	N	mg/kg	1	2100	50.1	4.6	< 1.0	8.2
>C35-C40 Aliphatic	N	mg/kg	1	292	7.1	< 1.0	< 1.0	1.1
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	134	3.5	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	473	13.7	< 1.0	< 1.0	1.2
>C21-C35 Aromatic	N	mg/kg	1	1410	40.8	4.8	< 1.0	7.5
>C35-C40 Aromatic	N	mg/kg	1	189	5.6	< 1.0	< 1.0	1.6
Total (>C5-C40) Ali/Aro	N	mg/kg	1	5620	144	9.5	< 1.0	20.6
PCB (ICES 7 congeners)								
PCB 28	M	mg/kg	0.01	< 0.01	n/t	n/t	n/t	n/t
PCB 52	M	mg/kg	0.01	0.06	n/t	n/t	n/t	n/t
PCB 101	M	mg/kg	0.01	0.04	n/t	n/t	n/t	n/t
PCB 118	M	mg/kg	0.01	0.05	n/t	n/t	n/t	n/t
PCB 153	M	mg/kg	0.01	0.04	n/t	n/t	n/t	n/t
PCB 138	M	mg/kg	0.01	0.04	n/t	n/t	n/t	n/t
PCB 180	M	mg/kg	0.01	0.04	n/t	n/t	n/t	n/t
PCB (Total of 7 Congeners)	M	mg/kg	0.03	0.28	n/t	n/t	n/t	n/t

Results Summary

Report No.: 16-09650

			ELAB Reference	81360	81362	81363	81365
			Customer Reference				
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH31	BH31	BH17	BH17
			Sample Depth (m)	12.00	13.50	11.90	13.90
			Sampling Date	17/11/2016	17/11/2016	21/11/2016	21/11/2016
Determinand	**Codes**	**Units**	**LOD**				
VOC							
Heptane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Octane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Nonane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Benzene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Toluene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
m+p-xylene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
o-xylene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
cis-1,2-dichloroethene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
1,1-Dichloroethane	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Chloroform	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Tetrachloromethane	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
1,1,1-Trichloroethane	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Trichloroethylene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Tetrachloroethylene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
1,1,1,2-Tetrachloroethane	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
1,1,2,2-Tetrachloroetha	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Chlorobenzene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Bromobenzene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Bromodichloromethane	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Methylethylbenzene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
1,1-Dichloro-1-propene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Trans - 1-2 -dichloroethylene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
2,2-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Bromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2-Dichloroethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Dibromomethane	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
1,2-Dichloropropane	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
cis-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
trans-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
1,1,2-Trichloroethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Dibromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,3-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2-dibromoethane	M	ug/kg	10	< 10.0	^ < 10.0	< 10.0	^ < 10.0
Styrene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Propylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
2-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2,4-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
4-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
t-butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,3,5-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1-methylpropylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
o-cymene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,3-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Hexachlorobutadiene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2,3-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Naphthalene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2,4-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,4-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
1,2-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0
Bromoform	N	ug/kg	10	< 10.0	< 10.0	< 10.0	< 10.0

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09650

			ELAB Reference	81360	81362	81363	81365
			Customer Reference				
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH31	BH31	BH17	BH17
			Sample Depth (m)	12.00	13.50	11.90	13.90
			Sampling Date	17/11/2016	17/11/2016	21/11/2016	21/11/2016
Determinand	**Codes**	**Units**	**LOD**				
SVOC							
Phenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroethyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Chlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,4-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzyl Alcohol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroisopropyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
3 and 4-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodi-n-propylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachloroethane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Isophorone	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroethoxy)methane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3,5-Trichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	N	mg/kg	0.01	0.32	0.07	0.22	< 0.01
3-Chloroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachloro-1,3-butadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-Chloro-3-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Methylnaphthalene	N	mg/kg	0.01	0.19	0.02	0.12	< 0.01
1-Methylnaphthalene	N	mg/kg	0.01	0.15	0.01	0.08	< 0.01
Hexachlorocyclopentadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
1-Chloronaphthalene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,4-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dimethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
1-3-dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-6-dinitrotoluene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	N	mg/kg	0.01	0.66	< 0.01	0.34	< 0.01
1,2-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
3-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	N	mg/kg	0.01	0.31	< 0.01	0.06	< 0.01
4-nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzofuran	N	mg/kg	0.01	< 0.01	< 0.01	0.07	< 0.01
2,3,5,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,3,4,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Diethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
1-chloro-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	N	mg/kg	0.01	0.16	< 0.01	0.03	< 0.01
4-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dinitro-o-cresol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Diphenylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
1-bromo-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09650

			ELAB Reference	81360	81362	81363	81365
			Customer Reference				
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH31	BH31	BH17	BH17
			Sample Depth (m)	12.00	13.50	11.90	13.90
			Sampling Date	17/11/2016	17/11/2016	21/11/2016	21/11/2016
Determinand	**Codes**	**Units**	**LOD**				
SVOC							
Phenanthrene	N	mg/kg	0.01	1.77	0.03	0.30	< 0.01
Anthracene	N	mg/kg	0.01	0.97	< 0.01	0.41	< 0.01
Carbazole	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibutyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	N	mg/kg	0.01	6.23	0.04	2.79	0.01
Pyrene	N	mg/kg	0.01	5.36	0.04	2.43	0.01
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bis-2-ethylhexyladipate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	N	mg/kg	0.01	2.61	0.02	1.28	< 0.01
Chrysene	N	mg/kg	0.01	2.34	0.02	1.87	< 0.01
Bis(2-ethylhexyl)phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N	mg/kg	0.01	3.86	0.01	1.37	< 0.01
Benzo(k)fluoranthene	N	mg/kg	0.01	2.62	0.01	1.49	< 0.01
Benzo(a)pyrene	N	mg/kg	0.01	3.30	0.01	1.71	< 0.01
Indeno(1,2,3-cd)pyrene	N	mg/kg	0.01	1.97	0.01	0.91	< 0.01
Dibenz(ah)anthracene	N	mg/kg	0.01	0.54	< 0.01	0.30	< 0.01
Benzo[g,h,i]perylene	N	mg/kg	0.01	3.88	0.02	1.11	< 0.01

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Results Summary

Report No.: 16-09650

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #)
in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
81360	12.00	BH31	clay, stones, glass	No asbestos detected	n/t	n/t	n/t	n/t
81361	12.50	BH31	Sandy silt loam, stones	No asbestos detected	n/t	n/t	n/t	n/t
81362	13.50	BH31	sand, stones	No asbestos detected	n/t	n/t	n/t	n/t
81363	11.90	BH17	Clay, stones, wood, clinker	No asbestos detected	n/t	n/t	n/t	n/t
81365	13.90	BH17	sand, stones	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 16-09650

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Aqua regia extractable metals	M	Air dried sample	29/11/2016	118	ICPMS
PCB (ICES 7 congeners)	M	Air dried sample	29/11/2016	120	GC-MS
Phenols in solids	M	As submitted sample	25/11/2016	121	HPLC
PAH (GC-FID)	M	As submitted sample	25/11/2016	133	GC-FID
SVOC in solids	N	As submitted sample	25/11/2016	167	GC-MS
Water soluble anions	M	Air dried sample	29/11/2016	172	Ion Chromatography
VOC in solids	M	As submitted sample	24/11/2016	181	GC-MS
BTEX in solids	M	As submitted sample	28/11/2016	181A	GC-MS
Water soluble boron	N	Air dried sample	28/11/2016	202	Colorimetry
Total cyanide	M	As submitted sample	28/11/2016	204	Colorimetry
Aliphatic hydrocarbons in soil	N	As submitted sample	25/11/2016	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	28/11/2016	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	25/11/2016	214	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	28/11/2016	214	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	28/11/2016	214	GC-MS
Soil organic matter	U	Air dried sample	29/11/2016	BS1377:P3	Titrimetry
Asbestos identification	U	As submitted sample	28/11/2016	PMAN	Microscopy

Tests marked N are not UKAS accredited

Report Information

Report No.: 16-09650

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-09701
Issue:	1
Date of Issue:	02/12/2016
Contact:	Evangelos Kafantaris
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q16-00716
Order No:	CL854
Customer Reference:	16/2900
Date Received:	24/11/2016
Date Approved:	02/12/2016
Details:	London City Airport
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-09701

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
81751	BH28 12.00	21/11/2016	25/11/2016	Silty loam	
81752	BH28 13.20	21/11/2016	25/11/2016		
81753	BH28 13.50	21/11/2016	25/11/2016	Stones	
81754	BH25 11.90	22/11/2016	25/11/2016	Silty loam	
81755	BH25 12.50	22/11/2016	25/11/2016		
81756	BH25 13.70	22/11/2016	25/11/2016	Sand + Stones	

Results Summary

Report No.: 16-09701

			ELAB Reference	81751	81753	81754	81756
			Customer Reference				
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH28	BH28	BH25	BH25
			Sample Depth (m)	12.00	13.50	11.90	13.70
			Sampling Date	21/11/2016	21/11/2016	22/11/2016	22/11/2016
Determinand	**Codes**	**Units**	**LOD**				
Metals							
Arsenic	M	mg/kg	1	47.3	^ 3.8	24.7	^ 5.5
Cadmium	M	mg/kg	0.5	9.1	^ < 0.5	2.2	^ < 0.5
Chromium	M	mg/kg	5	164	^ 19.0	49.1	^ 16.3
Copper	M	mg/kg	5	347	^ 8.2	99.6	^ 5.8
Lead	M	mg/kg	5	378	^ 6.8	195	^ 5.9
Mercury	M	mg/kg	0.5	9.9	^ < 0.5	4.9	^ < 0.5
Nickel	M	mg/kg	5	92.9	^ 7.7	25.6	^ 8.6
Zinc	M	mg/kg	5	1470	^ 20.4	361	^ 18.2
Anions							
Water Soluble Sulphate	M	g/l	0.02	0.49	^ 0.07	0.36	^ 0.06
Inorganics							
Total Cyanide	M	mg/kg	1	2.0	^ < 1.0	1.1	^ < 1.0
Water Soluble Boron	N	mg/kg	0.5	7.6	< 0.5	2.2	< 0.5
Miscellaneous							
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	< 0.1	n/t	n/t
Loss On Ignition (450°C)	M	%	0.01	n/t	^ 0.82	n/t	n/t
pH	M	pH units	0.1	n/t	^ 8.7	n/t	n/t
Soil Organic Matter	U	%	0.1	13	0.3	4.4	< 0.1
Total Organic Carbon	N	%	0.01	n/t	0.08	n/t	n/t
Phenols							
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons							
Naphthalene	M	mg/kg	0.1	1.0	^ < 0.1	0.7	^ < 0.1
Acenaphthylene	M	mg/kg	0.1	1.3	^ < 0.1	1.2	^ < 0.1
Acenaphthene	M	mg/kg	0.1	0.6	^ < 0.1	0.5	^ < 0.1
Fluorene	M	mg/kg	0.1	0.6	^ < 0.1	0.6	^ < 0.1
Phenanthrene	M	mg/kg	0.1	0.3	^ 0.4	0.5	^ < 0.1
Anthracene	M	mg/kg	0.1	1.3	^ < 0.1	0.4	^ < 0.1
Fluoranthene	M	mg/kg	0.1	1.8	^ 0.5	3.7	^ < 0.1
Pyrene	M	mg/kg	0.1	2.1	^ 0.5	3.5	^ < 0.1
Benzo(a)anthracene	M	mg/kg	0.1	1.3	^ 0.3	1.9	^ < 0.1
Chrysene	M	mg/kg	0.1	2.3	^ 0.4	2.2	^ < 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	< 0.1	^ 0.3	2.0	^ < 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	^ 0.2	1.9	^ < 0.1
Benzo (a) pyrene	M	mg/kg	0.1	2.5	^ 0.3	3.3	^ < 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	< 0.1	^ 0.3	2.6	^ < 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.6	^ < 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	^ 0.2	1.9	^ < 0.1
Total PAH(16)	M	mg/kg	0.4	15.1	^ 3.8	27.5	^ < 0.4
Total PAH (Including Coronene)	N	mg/kg	2	n/t	4	n/t	n/t

Results Summary

Report No.: 16-09701

			ELAB Reference	81751	81753	81754	81756
			Customer Reference				
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH28	BH28	BH25	BH25
			Sample Depth (m)	12.00	13.50	11.90	13.70
			Sampling Date	21/11/2016	21/11/2016	22/11/2016	22/11/2016
Determinand	**Codes**	**Units**	**LOD**				
BTEX							
Benzene	M	ug/kg	10	n/t	n/t	< 10.0	^ < 10.0
Toluene	M	ug/kg	10	n/t	n/t	< 10.0	^ < 10.0
Ethylbenzene	M	ug/kg	10	n/t	n/t	< 10.0	^ < 10.0
Xylenes	M	ug/kg	10	n/t	n/t	< 10.0	^ < 10.0
MTBE	N	ug/kg	10	n/t	n/t	< 10.0	< 10.0
Total BTEX	M	mg/kg	0.01	n/t	^ < 0.01	n/t	n/t
TPH CWG							
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	29.5	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	345	< 1.0	33.3	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	1060	1.8	80.1	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	3520	21.0	224	2.7
>C35-C40 Aliphatic	N	mg/kg	1	493	1.8	19.4	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	131	< 1.0	10.6	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	826	2.8	50.4	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	3160	24.2	183	4.3
>C35-C40 Aromatic	N	mg/kg	1	517	3.5	21.5	2.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	10100	55.0	623	9.0
Total Petroleum Hydrocarbons							
Mineral Oil	U	mg/kg	5	n/t	24	n/t	n/t
PCB (ICES 7 congeners)							
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	^ < 0.03	n/t	n/t

Results Summary

Report No.: 16-09701

			ELAB Reference	81751	81753
			Customer Reference		
			Sample ID		
			Sample Type	SOIL	SOIL
			Sample Location	BH28	BH28
			Sample Depth (m)	12.00	13.50
			Sampling Date	21/11/2016	21/11/2016
Determinand	**Codes**	**Units**	**LOD**		
VOC					
Heptane	N	ug/kg	10	< 10.0	< 10.0
Octane	N	ug/kg	10	< 10.0	< 10.0
Nonane	N	ug/kg	10	< 10.0	< 10.0
Benzene	M	ug/kg	10	< 10.0	^ < 10.0
Toluene	M	ug/kg	10	< 10.0	^ < 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	^ < 10.0
m+p-xylene	M	ug/kg	10	< 10.0	^ < 10.0
o-xylene	M	ug/kg	10	< 10.0	^ < 10.0
cis-1,2-dichloroethene	M	ug/kg	10	< 10.0	^ < 10.0
1,1-Dichloroethane	M	ug/kg	10	< 10.0	^ < 10.0
Chloroform	M	ug/kg	10	< 10.0	^ < 10.0
Tetrachloromethane	M	ug/kg	10	< 10.0	^ < 10.0
1,1,1-Trichloroethane	M	ug/kg	10	< 10.0	^ < 10.0
Trichloroethylene	M	ug/kg	10	< 10.0	^ < 10.0
Tetrachloroethylene	M	ug/kg	10	< 10.0	^ < 10.0
1,1,1,2-Tetrachloroethane	M	ug/kg	10	< 10.0	^ < 10.0
1,1,2,2-Tetrachloroetha	M	ug/kg	10	< 10.0	^ < 10.0
Chlorobenzene	M	ug/kg	10	< 10.0	^ < 10.0
Bromobenzene	M	ug/kg	10	< 10.0	^ < 10.0
Bromodichloromethane	M	ug/kg	10	< 10.0	^ < 10.0
Methylethylbenzene	M	ug/kg	10	< 10.0	^ < 10.0
1,1-Dichloro-1-propene	M	ug/kg	10	< 10.0	^ < 10.0
Trans - 1-2 -dichloroethylene	N	ug/kg	10	< 10.0	< 10.0
2,2-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0
Bromochloromethane	N	ug/kg	10	< 10.0	< 10.0
1,2-Dichloroethane	N	ug/kg	10	< 10.0	< 10.0
Dibromomethane	M	ug/kg	10	< 10.0	^ < 10.0
1,2-Dichloropropane	M	ug/kg	10	< 10.0	^ < 10.0
cis-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	^ < 10.0
trans-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	^ < 10.0
1,1,2-Trichloroethane	N	ug/kg	10	< 10.0	< 10.0
Dibromochloromethane	N	ug/kg	10	< 10.0	< 10.0
1,3-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0
1,2-dibromoethane	M	ug/kg	10	< 10.0	^ < 10.0
Styrene	N	ug/kg	10	< 10.0	< 10.0
Propylbenzene	N	ug/kg	10	< 10.0	< 10.0
2-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0
1,2,4-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0
4-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0
t-butylbenzene	N	ug/kg	10	< 10.0	< 10.0
1,3,5-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0
1-methylpropylbenzene	N	ug/kg	10	< 10.0	< 10.0
o-cymene	N	ug/kg	10	< 10.0	< 10.0
1,3-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0
Butylbenzene	N	ug/kg	10	< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	N	ug/kg	10	< 10.0	< 10.0
Hexachlorobutadiene	N	ug/kg	10	< 10.0	< 10.0
1,2,3-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0
Naphthalene	N	ug/kg	10	< 10.0	< 10.0
1,2,4-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0
1,4-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0
1,2-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0
Bromoform	N	ug/kg	10	< 10.0	< 10.0

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09701

			ELAB Reference	81751	81753
			Customer Reference		
			Sample ID		
			Sample Type	SOIL	SOIL
			Sample Location	BH28	BH28
			Sample Depth (m)	12.00	13.50
			Sampling Date	21/11/2016	21/11/2016
Determinand	**Codes**	**Units**	**LOD**		
SVOC					
Phenol	N	mg/kg	0.01	< 0.01	< 0.01
Aniline	N	mg/kg	0.01	< 0.01	< 0.01
Bis(2-chloroethyl)ether	N	mg/kg	0.01	< 0.01	< 0.01
2-Chlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
1,3-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01
1,4-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01
Benzyl Alcohol	N	mg/kg	0.01	< 0.01	< 0.01
1,2-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01
2-Methylphenol	N	mg/kg	0.01	< 0.01	< 0.01
Bis(2-chloroisopropyl)ether	N	mg/kg	0.01	< 0.01	< 0.01
3 and 4-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01
N-Nitrosodi-n-propylamine	N	mg/kg	0.01	< 0.01	< 0.01
Hexachloroethane	N	mg/kg	0.01	< 0.01	< 0.01
Nitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01
Isophorone	N	mg/kg	0.01	< 0.01	< 0.01
2-Nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01
2,4-Dimethylphenol	N	mg/kg	0.01	< 0.01	< 0.01
Bis(2-chloroethoxy)methane	N	mg/kg	0.01	< 0.01	< 0.01
2,4-Dichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
1,3,5-Trichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01
Naphthalene	N	mg/kg	0.01	0.19	0.02
3-Chloroaniline	N	mg/kg	0.01	< 0.01	< 0.01
Hexachloro-1,3-butadiene	N	mg/kg	0.01	< 0.01	< 0.01
4-Chloro-3-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01
2-Methylnaphthalene	N	mg/kg	0.01	0.14	0.02
1-Methylnaphthalene	N	mg/kg	0.01	0.10	0.03
Hexachlorocyclopentadiene	N	mg/kg	0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
1-Chloronaphthalene	N	mg/kg	0.01	< 0.01	< 0.01
2-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01
1,4-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01
Dimethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01
1-3-dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01
2-6-dinitrotoluene	N	mg/kg	0.01	< 0.01	< 0.01
Acenaphthylene	N	mg/kg	0.01	0.48	< 0.01
1,2-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01
3-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01
Acenaphthene	N	mg/kg	0.01	0.21	0.06
4-nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01
Dibenzofuran	N	mg/kg	0.01	0.09	0.02
2,3,5,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
2,3,4,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
Diethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01
1-chloro-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01
Fluorene	N	mg/kg	0.01	0.11	0.03
4-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01
Dinitro-o-cresol	N	mg/kg	0.01	< 0.01	< 0.01
Diphenylamine	N	mg/kg	0.01	< 0.01	< 0.01
Azobenzene	N	mg/kg	0.01	< 0.01	< 0.01
1-bromo-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01
Hexachlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01
Pentachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09701

ELAB Reference	81751	81753
Customer Reference		
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	BH28	BH28
Sample Depth (m)	12.00	13.50
Sampling Date	21/11/2016	21/11/2016

Determinand	Codes	Units	LOD		
SVOC					
Phenanthrene	N	mg/kg	0.01	0.43	0.33
Anthracene	N	mg/kg	0.01	0.29	0.08
Carbazole	N	mg/kg	0.01	< 0.01	0.01
Dibutyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01
Fluoranthene	N	mg/kg	0.01	4.05	0.49
Pyrene	N	mg/kg	0.01	4.22	0.47
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01
Bis-2-ethylhexyladipate	N	mg/kg	0.01	< 0.01	< 0.01
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01
Benzo(a)anthracene	N	mg/kg	0.01	1.22	0.14
Chrysene	N	mg/kg	0.01	2.32	0.23
Bis(2-ethylhexyl)phthalate	N	mg/kg	0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N	mg/kg	0.01	2.84	0.18
Benzo(k)fluoranthene	N	mg/kg	0.01	1.84	0.16
Benzo(a)pyrene	N	mg/kg	0.01	2.44	0.17
Indeno(1,2,3-cd)pyrene	N	mg/kg	0.01	0.77	0.08
Dibenz(ah)anthracene	N	mg/kg	0.01	0.29	0.03
Benzo[g,h,i]perylene	N	mg/kg	0.01	1.73	0.11

Results Summary

Report No.: 16-09701

WAC Analysis								
Elab Ref:	81753					**Landfill Waste Acceptance Criteria Limits**		
Sample Date:	21/11/2016					**Inert Waste Landfill**	**Stable Non-reactive Hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:	BH28							
Depth (m)	13.5							
Site:	London City Airport							
Determinand		**Code**	**Units**					
Total Organic Carbon		N	%		0.08	3	5	6
Loss on Ignition		M	%		0.8	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		24	500	--	--
Total (of 17) PAHs		N	mg/kg		4.0	100	--	--
pH		M			8.7	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate
Eluate Analysis			**10:1**		**10:1**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
			mg/l		**mg/kg**			
Arsenic		N	< 0.005		< 0.05	0.5	2	25
Barium		N	< 0.005		< 0.05	20	100	300
Cadmium		N	< 0.001		< 0.01	0.04	1	5
Chromium		N	< 0.005		< 0.05	0.5	10	70
Copper		N	< 0.005		< 0.05	2	50	100
Mercury		N	< 0.005		< 0.01	0.01	0.2	2
Molybdenum		N	< 0.005		< 0.05	0.5	10	30
Nickel		N	< 0.001		< 0.05	0.4	10	40
Lead		N	< 0.001		< 0.05	0.5	10	50
Antimony		N	< 0.005		< 0.05	0.06	0.7	5
Selenium		N	< 0.005		< 0.05	0.1	0.5	7
Zinc		N	< 0.005		< 0.05	4	50	200
Chloride		N	7		67.00	800	15000	25000
Fluoride		N	< 5		< 10	10	150	500
Sulphate		N	3		33.40	1000	20000	50000
Total Dissolved Solids		N	< 100		1000.00	4000	60000	100000
Phenol Index		N	< 0.01		< 0.10	1	-	-
Dissolved Organic Carbon		N	5.770		58.00	500	800	1000
Leach Test Information								
pH		N	7.7					
Conductivity (uS/cm)		N	53					
Dry mass of test portion (g)			107.000					
Dry Matter (%)			99					
Moisture (%)			1					
Eluent Volume (ml)			1040					

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ELAB cannot be held responsible for any discrepencies with current legislation

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Results Summary

Report No.: 16-09701

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #)
in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
81751	12.00	BH28	Brown clay loam	No asbestos detected	n/t	n/t	n/t	n/t
81753	13.50	BH28	Stones with sand	No asbestos detected	n/t	n/t	n/t	n/t
81754	11.90	BH25	Brown clay loam	No asbestos detected	n/t	n/t	n/t	n/t
81756	13.70	BH25	Stones with sand	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 16-09701

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Aqua regia extractable metals	M	Air dried sample	30/11/2016	118	ICPMS
Phenols in solids	N	As submitted sample	29/11/2016	121	HPLC
PAH (GC-FID)	M	As submitted sample	29/11/2016	133	GC-FID
SVOC in solids	N	As submitted sample	29/11/2016	167	GC-MS
Water soluble anions	M	Air dried sample	30/11/2016	172	Ion Chromatography
VOC in solids	M	As submitted sample	29/11/2016	181	GC-MS
Water soluble boron	N	Air dried sample	30/11/2016	202	Colorimetry
Total cyanide	M	As submitted sample	29/11/2016	204	Colorimetry
Aliphatic hydrocarbons in soil	N	As submitted sample	29/11/2016	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	30/11/2016	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	29/11/2016	214	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	30/11/2016	214	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	30/11/2016	214	GC-MS
Soil organic matter	U	Air dried sample	01/12/2016	BS1377:P3	Titrimetry
Asbestos identification	U	As submitted sample	29/11/2016	PMAN	Microscopy
Leachate					
Arsenic*	N		01/12/2016	101	ICPMS
Cadmium*	N		01/12/2016	101	ICPMS
Chromium*	N		01/12/2016	101	ICPMS
Lead*	N		01/12/2016	101	ICPMS
Nickel*	N		01/12/2016	101	ICPMS
Copper*	N		01/12/2016	101	ICPMS
Zinc*	N		01/12/2016	101	ICPMS
Mercury*	N		01/12/2016	101	ICPMS
Selenium*	N		01/12/2016	101	ICPMS
Antimony	N		01/12/2016	101	ICPMS
Barium*	N		01/12/2016	101	ICPMS
Molybdenum*	N		01/12/2016	101	ICPMS
pH Value*	N		01/12/2016	113	Electrometric
Electrical Conductivity*	N		01/12/2016	136	Probe
Dissolved Organic Carbon	N		01/12/2016	102	TOC analyser
Chloride*	N		01/12/2016	131	Ion Chromatography
Fluoride*	N		01/12/2016	131	Ion Chromatography
Sulphate*	N		01/12/2016	131	Ion Chromatography
Total Dissolved Solids	N		01/12/2016	144	Gravimetric
Phenol index	N		01/12/2016	121	HPLC
WAC Solids analysis	N				
pH Value**	M	Air dried sample	01/12/2016	113	Electrometric
Total Organic Carbon	N	Air dried sample	30/11/2016	210	IR
Loss on Ignition**	M	Air dried sample	02/12/2016	129	Gravimetric
Acid Neutralization Capacity to pH 7	N	Air dried sample	01/12/2016	NEN 737	Electrometric
Total BTEX**	M	As submitted sample	30/11/2016	181	GCMS
Mineral Oil**	U	As submitted sample	29/11/2016	117	GCFID
Total PCBs (7 congeners)	M	Air dried sample	30/11/2016	120	GCMS
Total PAH (17)**	N	As submitted sample	30/11/2016	133	GCFID

Tests marked N are not UKAS accredited

Report Information

Report No.: 16-09701

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY
Telephone: (01424) 718618
Facsimile: (01424) 729911
info@elab-uk.co.uk

2683

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-09702
Issue:	1
Date of Issue:	01/12/2016
Contact:	Evangelos Kafantaris
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q16-00716
Order No:	CL855
Customer Reference:	16/2900
Date Received:	28/11/2016
Date Approved:	01/12/2016
Details:	London City Airport
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-09702

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
81757	BH10 11.80	24/11/2016	28/11/2016		
81758	BH10 12.50	24/11/2016	28/11/2016	Stones + Loamy sand	
81759	BH10 13.50	24/11/2016	28/11/2016	Sand + Stones	
81760	BH06 0.60	24/11/2016	28/11/2016	Sandy loam	
81761	BH06 1.00	24/11/2016	28/11/2016	Loamy sand	
81762	BH06 1.50	26/11/2016	28/11/2016		
81763	BH06 2.50	26/11/2016	28/11/2016	Sand	

Results Summary

Report No.: 16-09702

			ELAB Reference	81758	81759	81760	81761	81763
			Customer Reference					
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH10	BH10	BH06	BH06	BH06
			Sample Depth (m)	12.50	13.50	0.60	1.00	2.50
			Sampling Date	24/11/2016	24/11/2016	24/11/2016	24/11/2016	26/11/2016
Determinand	**Codes**	**Units**	**LOD**					
Metals								
Arsenic	M	mg/kg	1	^ 38.9	^ 5.5	14.0	12.3	7.7
Cadmium	M	mg/kg	0.5	^ < 0.5	^ < 0.5	0.7	< 0.5	< 0.5
Chromium	M	mg/kg	5	^ 24.6	^ 16.9	21.4	25.1	19.8
Copper	M	mg/kg	5	^ 19.7	^ < 5.0	29.0	10.3	5.7
Lead	M	mg/kg	5	^ 27.3	^ < 5.0	462	33.2	8.1
Mercury	M	mg/kg	0.5	^ 0.9	^ < 0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	^ 12.3	^ 8.9	20.2	21.8	19.3
Zinc	M	mg/kg	5	^ 55.3	^ 14.0	875	72.5	24.6
Anions								
Water Soluble Sulphate	M	g/l	0.02	^ 0.15	^ 0.06	0.14	0.06	0.05
Inorganics								
Total Cyanide	M	mg/kg	1	^ < 1.0	^ < 1.0	1.6	< 1.0	< 1.0
Water Soluble Boron	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Miscellaneous								
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	n/t	n/t	< 0.1
Loss On Ignition (450°C)	M	%	0.01	n/t	n/t	n/t	n/t	0.40
pH	M	pH units	0.1	n/t	n/t	n/t	n/t	7.8
Soil Organic Matter	U	%	0.1	0.7	0.2	0.3	0.8	0.1
Total Organic Carbon	N	%	0.01	n/t	n/t	n/t	n/t	0.07
Phenols								
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons								
Naphthalene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	0.3	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	^ 0.1	^ < 0.1	0.7	< 0.1	< 0.1
Pyrene	M	mg/kg	0.1	^ 0.2	^ < 0.1	0.4	< 0.1	< 0.1
Benzo(a)anthracene	M	mg/kg	0.1	^ 0.1	^ < 0.1	0.1	< 0.1	< 0.1
Chrysene	M	mg/kg	0.1	^ 0.2	^ < 0.1	0.4	< 0.1	< 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	^ 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	^ 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1
Benzo (a) pyrene	M	mg/kg	0.1	^ 0.2	^ < 0.1	0.3	< 0.1	< 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	^ 0.2	^ < 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	^ 0.1	^ < 0.1	< 0.1	< 0.1	< 0.1
Total PAH(16)	M	mg/kg	0.4	^ 1.6	^ < 0.4	2.2	< 0.4	< 0.4
Total PAH (Including Coronene)	N	mg/kg	2	n/t	n/t	n/t	n/t	< 2
BTEX								
Benzene	M	ug/kg	10	^ < 10.0	^ < 10.0	n/t	n/t	< 10.0
Toluene	M	ug/kg	10	^ < 10.0	^ < 10.0	n/t	n/t	< 10.0
Ethylbenzene	M	ug/kg	10	^ < 10.0	^ < 10.0	n/t	n/t	< 10.0
Xylenes	M	ug/kg	10	^ < 10.0	^ < 10.0	n/t	n/t	< 10.0
MTBE	N	ug/kg	10	< 10.0	< 10.0	n/t	n/t	< 10.0
Total BTEX	M	mg/kg	0.01	n/t	n/t	n/t	n/t	< 0.01

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09702

			ELAB Reference	81758	81759	81760	81761	81763
			Customer Reference					
			Sample ID					
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH10	BH10	BH06	BH06	BH06
			Sample Depth (m)	12.50	13.50	0.60	1.00	2.50
			Sampling Date	24/11/2016	24/11/2016	24/11/2016	24/11/2016	26/11/2016
Determinand	**Codes**	**Units**	**LOD**					
TPH CWG								
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	7.8	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	23.1	1.1	9.9	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	76.6	7.1	47.3	2.6	4.3
>C35-C40 Aliphatic	N	mg/kg	1	9.2	1.3	7.3	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	2.1	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	13.8	< 1.0	5.6	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	55.9	7.4	49.7	2.0	2.6
>C35-C40 Aromatic	N	mg/kg	1	8.0	2.4	17.6	1.2	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	196	19.4	138	5.7	6.9
Total Petroleum Hydrocarbons								
Mineral Oil	U	mg/kg	5	n/t	n/t	n/t	n/t	< 5
PCB (ICES 7 congeners)								
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	n/t	n/t	n/t	< 0.03

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09702

			ELAB Reference	81758	81759	81763
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH10	BH10	BH06
			Sample Depth (m)	12.50	13.50	2.50
			Sampling Date	24/11/2016	24/11/2016	26/11/2016
Determinand	**Codes**	**Units**	**LOD**			
VOC						
Heptane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Octane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Nonane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Benzene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Toluene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
m+p-xylene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
o-xylene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
cis-1,2-dichloroethene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
1,1-Dichloroethane	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Chloroform	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Tetrachloromethane	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
1,1,1-Trichloroethane	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Trichloroethylene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Tetrachloroethylene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
1,1,1,2-Tetrachloroethane	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
1,1,2,2-Tetrachloroetha	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Chlorobenzene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Bromobenzene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Bromodichloromethane	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Methylethylbenzene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
1,1-Dichloro-1-propene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Trans - 1-2 -dichloroethylene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
2,2-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichloroethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Dibromomethane	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
1,2-Dichloropropane	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
cis-1,3-Dichloro-1-propene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
trans-1,3-Dichloro-1-propene	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
1,1,2-Trichloroethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Dibromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-dibromoethane	M	ug/kg	10	^ < 10.0	^ < 10.0	< 10.0
Styrene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Propylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
2-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2,4-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
4-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
t-butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3,5-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1-methylpropylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
o-cymene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Hexachlorobutadiene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2,3-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Naphthalene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2,4-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,4-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromoform	N	ug/kg	10	< 10.0	< 10.0	< 10.0

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09702

			ELAB Reference	81758	81759	81763
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH10	BH10	BH06
			Sample Depth (m)	12.50	13.50	2.50
			Sampling Date	24/11/2016	24/11/2016	26/11/2016
Determinand	**Codes**	**Units**	**LOD**			
SVOC						
Phenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Aniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroethyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Chlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,3-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,4-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzyl Alcohol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,2-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroisopropyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
3 and 4-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodi-n-propylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachloroethane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Nitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Isophorone	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroethoxy)methane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,3,5-Trichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Naphthalene	N	mg/kg	0.01	0.06	< 0.01	< 0.01
3-Chloroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachloro-1,3-butadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
4-Chloro-3-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Methylnaphthalene	N	mg/kg	0.01	0.03	< 0.01	< 0.01
1-Methylnaphthalene	N	mg/kg	0.01	0.02	< 0.01	< 0.01
Hexachlorocyclopentadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1-Chloronaphthalene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,4-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dimethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1-3-dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-6-dinitrotoluene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	N	mg/kg	0.01	0.08	< 0.01	< 0.01
1,2-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
3-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	N	mg/kg	0.01	0.02	< 0.01	< 0.01
4-nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dibenzofuran	N	mg/kg	0.01	0.02	< 0.01	< 0.01
2,3,5,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,3,4,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Diethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1-chloro-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Fluorene	N	mg/kg	0.01	0.02	< 0.01	< 0.01
4-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dinitro-o-cresol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Diphenylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Azobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1-bromo-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09702

			ELAB Reference	81758	81759	81763
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH10	BH10	BH06
			Sample Depth (m)	12.50	13.50	2.50
			Sampling Date	24/11/2016	24/11/2016	26/11/2016
Determinand	**Codes**	**Units**	**LOD**			
SVOC						
Phenanthrene	N	mg/kg	0.01	0.12	< 0.01	< 0.01
Anthracene	N	mg/kg	0.01	0.09	< 0.01	< 0.01
Carbazole	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dibutyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	N	mg/kg	0.01	0.64	< 0.01	< 0.01
Pyrene	N	mg/kg	0.01	0.53	< 0.01	< 0.01
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis-2-ethylhexyladipate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	0.19
Benzo(a)anthracene	N	mg/kg	0.01	0.41	< 0.01	< 0.01
Chrysene	N	mg/kg	0.01	0.31	< 0.01	< 0.01
Bis(2-ethylhexyl)phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N	mg/kg	0.01	0.39	< 0.01	< 0.01
Benzo(k)fluoranthene	N	mg/kg	0.01	0.30	< 0.01	< 0.01
Benzo(a)pyrene	N	mg/kg	0.01	0.36	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	N	mg/kg	0.01	0.14	< 0.01	< 0.01
Dibenz(ah)anthracene	N	mg/kg	0.01	0.05	< 0.01	< 0.01
Benzo[g,h,i]perylene	N	mg/kg	0.01	0.20	< 0.01	< 0.01

Results Summary

Report No.: 16-09702

WAC Analysis

Elab Ref:	81763					Landfill Waste Acceptance Criteria Limits		
Sample Date:	26/11/2016					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	BH06							
Depth (m)	2.5							
Site:	London City Airport							
Determinand		**Code**	**Units**					
Total Organic Carbon		N	%		0.07	3	5	6
Loss on Ignition		M	%		0.4	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		< 5	500	--	--
Total (of 17) PAHs		N	mg/kg		< 2	100	--	--
pH		M			7.8	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate
Eluate Analysis			**10:1**		**10:1**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
			mg/l		**mg/kg**			
Arsenic		N	< 0.005		< 0.05	0.5	2	25
Barium		N	< 0.005		< 0.05	20	100	300
Cadmium		N	< 0.001		< 0.01	0.04	1	5
Chromium		N	< 0.005		< 0.05	0.5	10	70
Copper		N	< 0.005		< 0.05	2	50	100
Mercury		N	< 0.005		< 0.01	0.01	0.2	2
Molybdenum		N	< 0.005		< 0.05	0.5	10	30
Nickel		N	0.002		< 0.05	0.4	10	40
Lead		N	< 0.001		< 0.05	0.5	10	50
Antimony		N	< 0.005		< 0.05	0.06	0.7	5
Selenium		N	< 0.005		< 0.05	0.1	0.5	7
Zinc		N	< 0.005		< 0.05	4	50	200
Chloride		N	6		60.00	800	15000	25000
Fluoride		N	< 5		< 10	10	150	500
Sulphate		N	8		76.00	1000	20000	50000
Total Dissolved Solids		N	< 100		1000.00	4000	60000	100000
Phenol Index		N	< 0.01		< 0.10	1	-	-
Dissolved Organic Carbon		N	14.200		142.00	500	800	1000
Leach Test Information								
pH		N	7.9					
Conductivity (uS/cm)		N	115					
Dry mass of test portion (g)			103.000					
Dry Matter (%)			95					
Moisture (%)			5					
Eluent Volume (ml)			993					

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ELAB cannot be held responsible for any discrepencies with current legislation

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Tel: +44 (0)1424 718618, Email: info@elab-uk.co.uk, Web: www.elab-uk.co.uk

Results Summary

Report No.: 16-09702

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #)
in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
81758	12.50	BH10	Dirty stones	No asbestos detected	n/t	n/t	n/t	n/t
81759	13.50	BH10	Stones with sand	No asbestos detected	n/t	n/t	n/t	n/t
81760	0.60	BH06	Brown soil, with concrete, stones, brick	No asbestos detected	n/t	n/t	n/t	n/t
81761	1.00	BH06	Brown soil, with stones,	No asbestos detected	n/t	n/t	n/t	n/t
81763	2.50	BH06	Brown soil, with stones,	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 16-09702

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Aqua regia extractable metals	M	Air dried sample	30/11/2016	118	ICPMS
Phenols in solids	N	As submitted sample	29/11/2016	121	HPLC
PAH (GC-FID)	M	As submitted sample	29/11/2016	133	GC-FID
SVOC in solids	N	As submitted sample	29/11/2016	167	GC-MS
Water soluble anions	M	Air dried sample	30/11/2016	172	Ion Chromatography
VOC in solids	M	As submitted sample	29/11/2016	181	GC-MS
Water soluble boron	N	Air dried sample	30/11/2016	202	Colorimetry
Total cyanide	M	As submitted sample	29/11/2016	204	Colorimetry
Aliphatic hydrocarbons in soil	N	As submitted sample	29/11/2016	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	30/11/2016	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	29/11/2016	214	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	30/11/2016	214	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	30/11/2016	214	GC-MS
Soil organic matter	U	Air dried sample	29/11/2016	BS1377:P3	Titrimetry
Asbestos identification	U	As submitted sample	29/11/2016	PMAN	Microscopy
Leachate					
Arsenic*	N		01/12/2016	101	ICPMS
Cadmium*	N		01/12/2016	101	ICPMS
Chromium*	N		01/12/2016	101	ICPMS
Lead*	N		01/12/2016	101	ICPMS
Nickel*	N		01/12/2016	101	ICPMS
Copper*	N		01/12/2016	101	ICPMS
Zinc*	N		01/12/2016	101	ICPMS
Mercury*	N		01/12/2016	101	ICPMS
Selenium*	N		01/12/2016	101	ICPMS
Antimony	N		01/12/2016	101	ICPMS
Barium*	N		01/12/2016	101	ICPMS
Molybdenum*	N		01/12/2016	101	ICPMS
pH Value*	N		01/12/2016	113	Electrometric
Electrical Conductivity*	N		01/12/2016	136	Probe
Dissolved Organic Carbon	N		01/12/2016	102	TOC analyser
Chloride*	N		01/12/2016	131	Ion Chromatography
Fluoride*	N		01/12/2016	131	Ion Chromatography
Sulphate*	N		01/12/2016	131	Ion Chromatography
Total Dissolved Solids	N		01/12/2016	144	Gravimetric
Phenol index	N		01/12/2016	121	HPLC
WAC Solids analysis	N				
pH Value**	M	Air dried sample	30/11/2016	113	Electrometric
Total Organic Carbon	N	Air dried sample	30/11/2016	210	IR
Loss on Ignition**	M	Air dried sample	01/12/2016	129	Gravimetric
Acid Neutralization Capacity to pH 7	N	Air dried sample	30/11/2016	NEN 737	Electrometric
Total BTEX**	M	As submitted sample	30/11/2016	181	GCMS
Mineral Oil**	U	As submitted sample	29/11/2016	117	GCFID
Total PCBs (7 congeners)	M	Air dried sample	30/11/2016	120	GCMS
Total PAH (17)**	N	As submitted sample	30/11/2016	133	GCFID

Tests marked N are not UKAS accredited

Report Information

Report No.: 16-09702

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

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UKAS TESTING 2683

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-09774
Issue:	1
Date of Issue:	07/12/2016
Contact:	Evangelos Kafantaris
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q16-00716
Order No:	CL863
Customer Reference:	16/2900
Date Received:	30/11/2016
Date Approved:	07/12/2016
Details:	London City Airport
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-09774

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
82224	BH06 4.10	28/11/2016	01/12/2016	Sand + stones	
82225	BH06 4.50	28/11/2016	01/12/2016		
82226	BH06 5.70	28/11/2016	01/12/2016	Sand + stones	
82227	BH25R 12.30	28/11/2016	01/12/2016		
82228	BH25R 13.10	28/11/2016	01/12/2016		
82229	BH25R 13.90	28/11/2016	01/12/2016	Sand + stones	

Results Summary

Report No.: 16-09774

			ELAB Reference	82224	82226	82229
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH06	BH06	BH25R
			Sample Depth (m)	4.10	5.70	13.90
			Sampling Date	28/11/2016	28/11/2016	28/11/2016
Determinand	**Codes**	**Units**	**LOD**			
Metals						
Arsenic	M	mg/kg	1	^ 12.2	^ 44.5	^ 5.7
Cadmium	M	mg/kg	0.5	^ < 0.5	^ 0.7	^ < 0.5
Chromium	M	mg/kg	5	^ 26.9	^ 24.9	^ 19.3
Copper	M	mg/kg	5	^ 9.9	^ 60.9	^ 7.5
Lead	M	mg/kg	5	^ 13.3	^ 33.4	^ 5.1
Mercury	M	mg/kg	0.5	^ < 0.5	^ 1.7	^ < 0.5
Nickel	M	mg/kg	5	^ 22.6	^ 20.4	^ 10.3
Zinc	M	mg/kg	5	^ 36.3	^ 614	^ 32.8
Anions						
Water Soluble Sulphate	M	g/l	0.02	^ 0.08	^ 0.06	^ 0.09
Inorganics						
Total Cyanide	M	mg/kg	1	^ < 1.0	^ < 1.0	^ < 1.0
Water Soluble Boron	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Miscellaneous						
Soil Organic Matter	U	%	0.1	0.2	0.3	0.4
Phenols						
Total Phenols	N	mg/kg	6	< 6	< 6	< 6
Polyaromatic hydrocarbons						
Naphthalene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Acenaphthylene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Acenaphthene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Fluorene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Phenanthrene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Anthracene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Fluoranthene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Pyrene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Benzo(a)anthracene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Chrysene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Benzo (a) pyrene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	^ < 0.1	^ < 0.1	^ < 0.1
Total PAH(16)	M	mg/kg	0.4	^ < 0.4	^ < 0.4	^ < 0.4

Tests marked N are not UKAS accredited.
The Environmental Laboratory Ltd. Reg. No. 3882193

Results Summary

Report No.: 16-09774

			ELAB Reference	82224	82226	82229
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	BH06	BH06	BH25R
			Sample Depth (m)	4.10	5.70	13.90
			Sampling Date	28/11/2016	28/11/2016	28/11/2016
Determinand	**Codes**	**Units**	**LOD**			
TPH CWG						
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	3.3	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	53.1	9.3	9.6
>C35-C40 Aliphatic	N	mg/kg	1	6.1	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	2.0	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	25.9	2.4	< 1.0
>C35-C40 Aromatic	N	mg/kg	1	2.5	< 1.0	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	92.9	11.7	9.6

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Results Summary

Report No.: 16-09774

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
82224	4.10	BH06	Brown sandy soil, with stones	No asbestos detected	n/t	n/t	n/t	n/t
82226	5.70	BH06	Brown sandy soil, with stones	No asbestos detected	n/t	n/t	n/t	n/t
82229	13.90	BH25R	Grey sandy soil, with stones	No asbestos detected	n/t	n/t	n/t	n/t

2683

Method Summary

Report No.: 16-09774

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Aqua regia extractable metals	M	Air dried sample	06/12/2016	118	ICPMS
Phenols in solids	N	As submitted sample	05/12/2016	121	HPLC
PAH (GC-FID)	M	As submitted sample	02/12/2016	133	GC-FID
Water soluble anions	M	Air dried sample	06/12/2016	172	Ion Chromatography
Water soluble boron	N	Air dried sample	06/12/2016	202	Colorimetry
Total cyanide	M	As submitted sample	05/12/2016	204	Colorimetry
Aliphatic hydrocarbons in soil	N	As submitted sample	02/12/2016	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	05/12/2016	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	02/12/2016	214	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	05/12/2016	214	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	05/12/2016	214	GC-MS
Soil organic matter	U	Air dried sample	07/12/2016	BS1377:P3	Titrimetry
Asbestos identification	U	As submitted sample	05/12/2016	PMAN	Microscopy

Tests marked N are not UKAS accredited

Report Information

Report No.: 16-09774

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

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2683

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	16-09782
Issue:	1
Date of Issue:	07/12/2016
Contact:	Evangelos Kafantaris
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q16-00716
Order No:	CL864
Customer Reference:	16/2900
Date Received:	02/12/2016
Date Approved:	07/12/2016
Details:	London City Airport
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 16-09782

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
82327	BH24 11.50	29/11/2016	01/12/2016		
82328	BH24 12.00	29/11/2016	01/12/2016	wet silty loam	
82329	BH24 13.00	29/11/2016	01/12/2016	Sand	
82330	BH24 14.00	29/11/2016	01/12/2016		
82331	BH21 11.80	28/11/2016	01/12/2016		
82332	BH21 13.10	28/11/2016	01/12/2016	wet silty loam + stones	
82333	BH21 13.80	28/11/2016	01/12/2016	Sand	

Results Summary

Report No.: 16-09782

			ELAB Reference	82328	82329	82332	82333
			Customer Reference				
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH24	BH24	BH21	BH21
			Sample Depth (m)	12.00	13.00	13.10	13.80
			Sampling Date	29/11/2016	29/11/2016	28/11/2016	28/11/2016
Determinand	**Codes**	**Units**	**LOD**				
Metals							
Arsenic	M	mg/kg	1	^ 88.5	9.8	^ 6.4	3.4
Cadmium	M	mg/kg	0.5	^ 8.3	< 0.5	^ < 0.5	< 0.5
Chromium	M	mg/kg	5	^ 156	24.3	^ 24.7	13.7
Copper	M	mg/kg	5	^ 448	14.3	^ 11.9	7.8
Lead	M	mg/kg	5	^ 652	78.6	^ 17.9	12.4
Mercury	M	mg/kg	0.5	^ 18.2	< 0.5	^ < 0.5	< 0.5
Nickel	M	mg/kg	5	^ 83.2	16.8	^ 11.8	6.7
Zinc	M	mg/kg	5	^ 1600	56.2	^ 31.4	29.1
Anions							
Water Soluble Sulphate	M	g/l	0.02	^ 0.68	0.11	^ 0.08	0.09
Inorganics							
Total Cyanide	M	mg/kg	1	^ < 1.0	< 1.0	^ < 1.0	< 1.0
Water Soluble Boron	N	mg/kg	0.5	7.7	0.5	< 0.5	< 0.5
Miscellaneous							
Soil Organic Matter	U	%	0.1	10	0.4	0.6	0.1
Phenols							
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons							
Naphthalene	M	mg/kg	0.1	^ 0.6	< 0.1	^ < 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	^ 1.3	< 0.1	^ < 0.1	0.1
Acenaphthene	M	mg/kg	0.1	^ 0.6	< 0.1	^ < 0.1	< 0.1
Fluorene	M	mg/kg	0.1	^ 0.7	< 0.1	^ < 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	^ < 0.1	< 0.1	^ 0.1	0.1
Anthracene	M	mg/kg	0.1	^ < 0.1	< 0.1	^ < 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	^ 2.5	< 0.1	^ 0.2	0.9
Pyrene	M	mg/kg	0.1	^ 2.7	< 0.1	^ 0.2	0.3
Benzo(a)anthracene	M	mg/kg	0.1	^ 1.4	< 0.1	^ < 0.1	0.2
Chrysene	M	mg/kg	0.1	^ 2.7	< 0.1	^ 0.2	0.3
Benzo (b) fluoranthene	M	mg/kg	0.1	^ 2.1	< 0.1	^ 0.1	0.3
Benzo(k)fluoranthene	M	mg/kg	0.1	^ 2.4	< 0.1	^ 0.2	0.3
Benzo (a) pyrene	M	mg/kg	0.1	^ 2.1	< 0.1	^ < 0.1	0.2
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	^ 3.8	< 0.1	^ < 0.1	0.3
Dibenzo(a,h)anthracene	M	mg/kg	0.1	^ 0.9	< 0.1	^ < 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	^ 3.1	< 0.1	^ < 0.1	0.3
Total PAH(16)	M	mg/kg	0.4	^ 26.8	< 0.4	^ 1.3	3.4
TPH CWG							
>C5-C6 Aliphatic	N	mg/kg	0.01	0.02	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	102	< 1.0	1.7	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	314	< 1.0	5.4	1.7
>C21-C35 Aliphatic	N	mg/kg	1	771	3.5	18.8	6.2
>C35-C40 Aliphatic	N	mg/kg	1	90.1	1.2	1.5	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	51.5	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	297	< 1.0	4.9	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	960	3.4	23.6	5.1

*Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09782

			ELAB Reference	82328	82329	82332	82333
			Customer Reference				
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH24	BH24	BH21	BH21
			Sample Depth (m)	12.00	13.00	13.10	13.80
			Sampling Date	29/11/2016	29/11/2016	28/11/2016	28/11/2016
Determinand	**Codes**	**Units**	**LOD**				
>C35-C40 Aromatic	N	mg/kg	1	115	< 1.0	2.1	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	2700	8.1	58.0	12.9

Results Summary

Report No.: 16-09782

			ELAB Reference	82328	82332
			Customer Reference		
			Sample ID		
			Sample Type	SOIL	SOIL
			Sample Location	BH24	BH21
			Sample Depth (m)	12.00	13.10
			Sampling Date	29/11/2016	28/11/2016
Determinand	**Codes**	**Units**	**LOD**		
VOC					
Heptane	N	ug/kg	10	< 10.0	< 10.0
Octane	N	ug/kg	10	< 10.0	< 10.0
Nonane	N	ug/kg	10	< 10.0	< 10.0
Benzene	M	ug/kg	10	^ < 10.0	^ < 10.0
Toluene	M	ug/kg	10	^ < 10.0	^ < 10.0
Ethylbenzene	M	ug/kg	10	^ < 10.0	^ < 10.0
m+p-xylene	M	ug/kg	10	^ < 10.0	^ < 10.0
o-xylene	M	ug/kg	10	^ < 10.0	^ < 10.0
cis-1,2-dichloroethene	M	ug/kg	10	^ < 10.0	^ < 10.0
1,1-Dichloroethane	M	ug/kg	10	^ < 10.0	^ < 10.0
Chloroform	M	ug/kg	10	^ < 10.0	^ < 10.0
Tetrachloromethane	M	ug/kg	10	^ < 10.0	^ < 10.0
1,1,1-Trichloroethane	M	ug/kg	10	^ < 10.0	^ < 10.0
Trichloroethylene	M	ug/kg	10	^ < 10.0	^ < 10.0
Tetrachloroethylene	M	ug/kg	10	^ < 10.0	^ < 10.0
1,1,1,2-Tetrachloroethane	M	ug/kg	10	^ < 10.0	^ < 10.0
1,1,2,2-Tetrachloroetha	M	ug/kg	10	^ 25.8	^ < 10.0
Chlorobenzene	M	ug/kg	10	^ < 10.0	^ < 10.0
Bromobenzene	M	ug/kg	10	^ < 10.0	^ < 10.0
Bromodichloromethane	M	ug/kg	10	^ < 10.0	^ < 10.0
Methylethylbenzene	M	ug/kg	10	^ < 10.0	^ < 10.0
1,1-Dichloro-1-propene	M	ug/kg	10	^ < 10.0	^ < 10.0
Trans - 1-2 -dichloroethylene	N	ug/kg	10	< 10.0	< 10.0
2,2-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0
Bromochloromethane	N	ug/kg	10	< 10.0	< 10.0
1,2-Dichloroethane	N	ug/kg	10	< 10.0	< 10.0
Dibromomethane	M	ug/kg	10	^ < 10.0	^ < 10.0
1,2-Dichloropropane	M	ug/kg	10	^ < 10.0	^ < 10.0
cis-1,3-Dichloro-1-propene	M	ug/kg	10	^ < 10.0	^ < 10.0
trans-1,3-Dichloro-1-propene	M	ug/kg	10	^ < 10.0	^ < 10.0
1,1,2-Trichloroethane	N	ug/kg	10	< 10.0	< 10.0
Dibromochloromethane	N	ug/kg	10	< 10.0	< 10.0
1,3-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0
1,2-dibromoethane	M	ug/kg	10	^ < 10.0	^ < 10.0
Styrene	N	ug/kg	10	< 10.0	< 10.0
Propylbenzene	N	ug/kg	10	< 10.0	< 10.0
2-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0
1,2,4-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0
4-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0
t-butylbenzene	N	ug/kg	10	< 10.0	< 10.0
1,3,5-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0
1-methylpropylbenzene	N	ug/kg	10	< 10.0	< 10.0
o-cymene	N	ug/kg	10	< 10.0	< 10.0
1,3-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0
Butylbenzene	N	ug/kg	10	< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	N	ug/kg	10	< 10.0	< 10.0
Hexachlorobutadiene	N	ug/kg	10	< 10.0	< 10.0
1,2,3-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0
Naphthalene	N	ug/kg	10	< 10.0	< 10.0
1,2,4-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0
1,4-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0
1,2-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0
Bromoform	N	ug/kg	10	< 10.0	< 10.0

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Results Summary

Report No.: 16-09782

			ELAB Reference	82328	82332
			Customer Reference		
			Sample ID		
			Sample Type	SOIL	SOIL
			Sample Location	BH24	BH21
			Sample Depth (m)	12.00	13.10
			Sampling Date	29/11/2016	28/11/2016
Determinand	**Codes**	**Units**	**LOD**		
SVOC					
Phenol	N	mg/kg	0.01	< 0.01	< 0.01
Aniline	N	mg/kg	0.01	< 0.01	< 0.01
Bis(2-chloroethyl)ether	N	mg/kg	0.01	< 0.01	< 0.01
2-Chlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
1,3-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01
1,4-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01
Benzyl Alcohol	N	mg/kg	0.01	< 0.01	< 0.01
1,2-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01
2-Methylphenol	N	mg/kg	0.01	< 0.01	< 0.01
Bis(2-chloroisopropyl)ether	N	mg/kg	0.01	< 0.01	< 0.01
3 and 4-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01
N-Nitrosodi-n-propylamine	N	mg/kg	0.01	< 0.01	< 0.01
Hexachloroethane	N	mg/kg	0.01	< 0.01	< 0.01
Nitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01
Isophorone	N	mg/kg	0.01	< 0.01	< 0.01
2-Nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01
2,4-Dimethylphenol	N	mg/kg	0.01	< 0.01	< 0.01
Bis(2-chloroethoxy)methane	N	mg/kg	0.01	< 0.01	< 0.01
2,4-Dichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
1,3,5-Trichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01
Naphthalene	N	mg/kg	0.01	0.23	< 0.01
3-Chloroaniline	N	mg/kg	0.01	< 0.01	< 0.01
Hexachloro-1,3-butadiene	N	mg/kg	0.01	< 0.01	< 0.01
4-Chloro-3-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01
2-Methylnaphthalene	N	mg/kg	0.01	0.13	< 0.01
1-Methylnaphthalene	N	mg/kg	0.01	0.10	< 0.01
Hexachlorocyclopentadiene	N	mg/kg	0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
1-Chloronaphthalene	N	mg/kg	0.01	< 0.01	< 0.01
2-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01
1,4-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01
Dimethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01
1-3-dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01
2-6-dinitrotoluene	N	mg/kg	0.01	< 0.01	< 0.01
Acenaphthylene	N	mg/kg	0.01	0.57	0.02
1,2-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01
3-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01
Acenaphthene	N	mg/kg	0.01	0.20	0.01
4-nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01
Dibenzofuran	N	mg/kg	0.01	0.11	< 0.01
2,3,5,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
2,3,4,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01
Diethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01
1-chloro-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01
Fluorene	N	mg/kg	0.01	0.10	0.01
4-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01
Dinitro-o-cresol	N	mg/kg	0.01	< 0.01	< 0.01
Diphenylamine	N	mg/kg	0.01	< 0.01	< 0.01
Azobenzene	N	mg/kg	0.01	< 0.01	< 0.01
1-bromo-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01
Hexachlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01
Pentachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-09782

ELAB Reference	82328	82332
Customer Reference		
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	BH24	BH21
Sample Depth (m)	12.00	13.10
Sampling Date	29/11/2016	28/11/2016

Determinand	Codes	Units	LOD		
SVOC					
Phenanthrene	N	mg/kg	0.01	0.68	0.08
Anthracene	N	mg/kg	0.01	0.77	0.03
Carbazole	N	mg/kg	0.01	< 0.01	< 0.01
Dibutyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01
Fluoranthene	N	mg/kg	0.01	5.01	0.18
Pyrene	N	mg/kg	0.01	4.15	0.14
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01
Bis-2-ethylhexyladipate	N	mg/kg	0.01	< 0.01	< 0.01
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01
Benzo(a)anthracene	N	mg/kg	0.01	1.77	0.09
Chrysene	N	mg/kg	0.01	2.60	0.07
Bis(2-ethylhexyl)phthalate	N	mg/kg	0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N	mg/kg	0.01	4.77	0.09
Benzo(k)fluoranthene	N	mg/kg	0.01	2.39	0.07
Benzo(a)pyrene	N	mg/kg	0.01	4.65	0.13
Indeno(1,2,3-cd)pyrene	N	mg/kg	0.01	3.31	0.09
Dibenz(ah)anthracene	N	mg/kg	0.01	1.42	0.03
Benzo[g,h,i]perylene	N	mg/kg	0.01	3.53	0.09

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Results Summary

Report No.: 16-09782

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #)
in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
82328	12.00	BH24	Grey soil, with stones	No asbestos detected	n/t	n/t	n/t	n/t
82329	13.00	BH24	Brown sandy soil, with stones	No asbestos detected	n/t	n/t	n/t	n/t
82332	13.10	BH21	Brown sandy soil, with stones	No asbestos detected	n/t	n/t	n/t	n/t
82333	13.80	BH21	Brown sandy soil, with stones	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 16-09782

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Aqua regia extractable metals	M	Air dried sample	06/12/2016	118	ICPMS
Phenols in solids	N	As submitted sample	05/12/2016	121	HPLC
PAH (GC-FID)	M	As submitted sample	05/12/2016	133	GC-FID
SVOC in solids	N	As submitted sample	05/12/2016	167	GC-MS
Water soluble anions	M	Air dried sample	06/12/2016	172	Ion Chromatography
VOC in solids	M	As submitted sample	05/12/2016	181	GC-MS
Water soluble boron	N	Air dried sample	06/12/2016	202	Colorimetry
Total cyanide	M	As submitted sample	05/12/2016	204	Colorimetry
Aliphatic hydrocarbons in soil	N	As submitted sample	05/12/2016	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	06/12/2016	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	05/12/2016	214	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	06/12/2016	214	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	06/12/2016	214	GC-MS
Soil organic matter	U	Air dried sample	07/12/2016	BS1377:P3	Titrimetry
Asbestos identification	U	As submitted sample	05/12/2016	PMAN	Microscopy

Tests marked N are not UKAS accredited

Report Information

Report No.: 16-09782

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

Unit A2
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East Sussex
TN38 9BY
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Facsimile: (01424) 729911
info@elab-uk.co.uk

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	17-10155
Issue:	1
Date of Issue:	13/01/2017
Contact:	Richard Embery
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q16-00626
Order No:	CL889
Customer Reference:	16/2900
Date Received:	06/01/2017
Date Approved:	13/01/2017
Details:	London City Airport
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 17-10155

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
84766	BH07 12.00	05/01/2017	09/01/2017	Silty loam	
84767	BH07 14.00	05/01/2017	09/01/2017	Sand + stones	

Results Summary

Report No.: 17-10155

			ELAB Reference	84766	84767
			Customer Reference		
			Sample ID		
			Sample Type	SOIL	SOIL
			Sample Location	BH07	BH07
			Sample Depth (m)	12.00	14.00
			Sampling Date	05/01/2017	05/01/2017
Determinand	**Codes**	**Units**	**LOD**		
Metals					
Arsenic	N	ug/l	5	26	< 5
Cadmium	N	ug/l	1	< 1	< 1
Chromium	N	ug/l	5	< 5	< 5
Copper	N	ug/l	5	< 5	< 5
Lead	N	ug/l	5	< 5	< 5
Mercury	N	ug/l	0.1	0.3	< 0.1
Nickel	N	ug/l	5	< 5	< 5
Selenium	N	ug/l	5	< 5	< 5
Zinc	N	ug/l	5	6	< 5
Inorganics					
Complex cyanide	N	ug/l	5	< 5	< 5
Hexavalent chromium	N	ug/l	100	< 100	< 100
Free Cyanide	N	ug/l	5	< 5	< 5
Total Cyanide	N	ug/l	5	< 5	< 5
Miscellaneous					
pH	N	pH units	0.1	8.3	8.2
Polyaromatic hydrocarbons					
Naphthalene Leachate GCMS	N	ug/l	0.01	0.07	0.11
Acenaphthylene Leachate GCMS	N	ug/l	0.01	0.01	0.02
Acenaphthene Leachate GCMS	N	ug/l	0.01	0.02	0.03
Fluorene Leachate GCMS	N	ug/l	0.01	0.03	0.03
Phenanthrene Leachate GCMS	N	ug/l	0.01	0.07	0.11
Anthracene Leachate GCMS	N	ug/l	0.01	0.03	0.04
Fluoranthene Leachate GCMS	N	ug/l	0.01	0.03	0.08
Pyrene Leachate GCMS	N	ug/l	0.01	0.02	0.05
Benzo (a) anthracene Leachate GCMS	N	ug/l	0.01	0.01	0.06
Chrysene Leachate GCMS	N	ug/l	0.01	< 0.01	0.05
Benzo (b) fluoranthene Leachate GCMS	N	ug/l	0.01	< 0.01	0.08
Benzo (k) fluoranthene Leachate GCMS	N	ug/l	0.01	< 0.01	0.06
Benzo (a) pyrene Leachate GCMS	N	ug/l	0.01	< 0.01	0.05
Indeno (1,2,3-cd) pyrene Leachate GCMS	N	ug/l	0.01	< 0.01	0.03
Dibenzo(a,h)anthracene Leachate GCMS	N	ug/l	0.01	< 0.01	0.01
Benzo(ghi)perylene Leachate GCMS	N	ug/l	0.01	< 0.01	0.04
Total PAH(16) Leachate GCMS	N	ug/l	0.01	0.35	0.85
BTEX					
Benzene	N	ug/l	1	< 1.00	< 1.00
Toluene	N	ug/l	1	< 1.00	< 1.00
Ethylbenzene	N	ug/l	1	< 1.00	< 1.00
Xylenes	N	ug/l	1	< 1.00	< 1.00
MTBE	N	ug/l	1	< 1.00	< 1.00

Method Summary

Report No.: 17-10155

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Cyanide (L) in solids in leachates	N		11/01/2017		Colorimetry
Metals by ICP in leachates	N		11/01/2017		ICPMS
pH of leachates	N		11/01/2017		Electromeric
PAHs and/or PCBs in leachates	N		11/01/2017	135	GC-MS
BTEX in leachates	N		13/01/2017	200A	GC-MS

Tests marked N are not UKAS accredited

Report Information

Report No.: 17-10155

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Sample Retention and Disposal

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All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY
Telephone: (01424) 718618
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info@elab-uk.co.uk

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	17-10248
Issue:	1
Date of Issue:	20/01/2017
Contact:	Olia Savvidou
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q16-00626
Order No:	CL892
Customer Reference:	16/2900
Date Received:	11/01/2017
Date Approved:	20/01/2017
Details:	London City Airport
Approved by:	

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 17-10248

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
85464	BH12 14.10	09/01/2017	16/01/2017	Silty loam + stones	
85465	BH12 15.50	09/01/2017	16/01/2017	Sand	

Results Summary

Report No.: 17-10248

			ELAB Reference	85464	85465
			Customer Reference		
			Sample ID		
			Sample Type	SOIL	SOIL
			Sample Location	BH12	BH12
			Sample Depth (m)	14.10	15.50
			Sampling Date	09/01/2017	09/01/2017
Determinand	**Codes**	**Units**	**LOD**		
Metals					
Arsenic	N	ug/l	5	< 5	8
Cadmium	N	ug/l	1	< 1	< 1
Chromium	N	ug/l	5	< 5	< 5
Copper	N	ug/l	5	< 5	< 5
Lead	N	ug/l	5	< 5	< 5
Mercury	N	ug/l	0.1	< 0.1	< 0.1
Nickel	N	ug/l	5	< 5	< 5
Selenium	N	ug/l	5	< 5	< 5
Zinc	N	ug/l	5	< 5	< 5
Inorganics					
Complex cyanide	N	ug/l	5	< 5	< 5
Hexavalent chromium	N	ug/l	100	< 100	< 100
Free Cyanide	N	ug/l	5	< 5	< 5
Total Cyanide	N	ug/l	5	< 5	< 5
Miscellaneous					
pH	N	pH units	0.1	7.3	7.7
Polyaromatic hydrocarbons					
Naphthalene Leachate GCMS	N	ug/l	0.01	0.08	0.07
Acenaphthylene Leachate GCMS	N	ug/l	0.01	0.02	0.02
Acenaphthene Leachate GCMS	N	ug/l	0.01	0.12	0.04
Fluorene Leachate GCMS	N	ug/l	0.01	0.07	0.16
Phenanthrene Leachate GCMS	N	ug/l	0.01	0.31	0.62
Anthracene Leachate GCMS	N	ug/l	0.01	0.08	0.08
Fluoranthene Leachate GCMS	N	ug/l	0.01	0.03	0.06
Pyrene Leachate GCMS	N	ug/l	0.01	0.02	0.04
Benzo (a) anthracene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Chrysene Leachate GCMS	N	ug/l	0.01	< 0.01	0.02
Benzo (b) fluoranthene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Benzo (k) fluoranthene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Benzo (a) pyrene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Indeno (1,2,3-cd) pyrene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Benzo(ghi)perylene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Total PAH(16) Leachate GCMS	N	ug/l	0.01	0.75	1.12
BTEX					
Benzene	N	ug/l	1	< 1.00	< 1.00
Toluene	N	ug/l	1	< 1.00	< 1.00
Ethylbenzene	N	ug/l	1	< 1.00	< 1.00
Xylenes	N	ug/l	1	< 1.00	< 1.00
MTBE	N	ug/l	1	< 1.00	< 1.00

Method Summary

Report No.: 17-10248

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Cyanide (L) in solids in leachates	N		19/01/2017		Colorimetry
Metals by ICP in leachates	N		18/01/2017		ICPMS
pH of leachates	N		19/01/2017		Electromeric
PAHs and/or PCBs in leachates	N		18/01/2017	135	GC-MS
BTEX in leachates	N		20/01/2017	200A	GC-MS

Tests marked N are not UKAS accredited

Report Information

Report No.: 17-10248

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
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S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
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U/S	Unsuitable sample
n/t	Not tested
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Sample Retention and Disposal

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Contact:	Olia Savvidou
Customer Details:	Concept Engineering Consultants Ltd Unit 8, Warple Mews Warple Way London W3 0RF
Quotation No:	Q16-00626
Order No:	CL893
Customer Reference:	16/2900
Date Received:	13/01/2017
Date Approved:	20/01/2017
Details:	London City Airport
Approved by:	

John Wilson, Operations Manager

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Sample Summary

Report No.: 17-10249

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
85466	BH13 12.50	11/01/2017	16/01/2017	Silty loam	
85467	BH13 13.00	11/01/2017	16/01/2017	Sand + stones	

Results Summary

Report No.: 17-10249

			ELAB Reference	85466	85467
			Customer Reference		
			Sample ID		
			Sample Type	SOIL	SOIL
			Sample Location	BH13	BH13
			Sample Depth (m)	12.50	13.00
			Sampling Date	11/01/2017	11/01/2017
Determinand	**Codes**	**Units**	**LOD**		
Metals					
Arsenic	N	ug/l	5	11	< 5
Cadmium	N	ug/l	1	< 1	< 1
Chromium	N	ug/l	5	< 5	< 5
Copper	N	ug/l	5	< 5	< 5
Lead	N	ug/l	5	< 5	< 5
Mercury	N	ug/l	0.1	< 0.1	< 0.1
Nickel	N	ug/l	5	< 5	< 5
Selenium	N	ug/l	5	< 5	< 5
Zinc	N	ug/l	5	8	< 5
Inorganics					
Complex cyanide	N	ug/l	5	< 5	< 5
Hexavalent chromium	N	ug/l	100	< 100	< 100
Free Cyanide	N	ug/l	5	< 5	< 5
Total Cyanide	N	ug/l	5	< 5	< 5
Miscellaneous					
pH	N	pH units	0.1	7.8	8.1
Polyaromatic hydrocarbons					
Naphthalene Leachate GCMS	N	ug/l	0.01	0.11	0.07
Acenaphthylene Leachate GCMS	N	ug/l	0.01	0.02	< 0.01
Acenaphthene Leachate GCMS	N	ug/l	0.01	0.04	0.02
Fluorene Leachate GCMS	N	ug/l	0.01	0.05	0.03
Phenanthrene Leachate GCMS	N	ug/l	0.01	0.21	0.14
Anthracene Leachate GCMS	N	ug/l	0.01	0.05	0.03
Fluoranthene Leachate GCMS	N	ug/l	0.01	0.04	0.02
Pyrene Leachate GCMS	N	ug/l	0.01	0.02	0.01
Benzo (a) anthracene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Chrysene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Benzo (b) fluoranthene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Benzo (k) fluoranthene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Benzo (a) pyrene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Indeno (1,2,3-cd) pyrene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Benzo(ghi)perylene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Total PAH(16) Leachate GCMS	N	ug/l	0.01	0.58	0.33
BTEX					
Benzene	N	ug/l	1	< 1.00	< 1.00
Toluene	N	ug/l	1	< 1.00	< 1.00
Ethylbenzene	N	ug/l	1	< 1.00	< 1.00
Xylenes	N	ug/l	1	< 1.00	< 1.00
MTBE	N	ug/l	1	< 1.00	< 1.00

Method Summary

Report No.: 17-10249

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Cyanide (L) in solids in leachates	N		19/01/2017		Colorimetry
Metals by ICP in leachates	N		18/01/2017		ICPMS
pH of leachates	N		19/01/2017		Electromeric
PAHs and/or PCBs in leachates	N		18/01/2017	135	GC-MS
BTEX in leachates	N		20/01/2017	200A	GC-MS

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14. PHOTOGRAPHS

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London W3 0RF

CONCEPT SITE INVESTIGATIONS

Tel: 020 8811 2880
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Site Name	CADP Surveys- GI (DOCK) Phase II	Job No.	16/2900	HOLE	BH03
Carried out for	London City Airport	Date		Photograph	01 & 02

Photograph No 01

Photograph No 02