

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 19/12/16	Ground Level (mOD) 4.68	Co-Ordinates E 542452.3 N 180279.1	Final Depth 33.95m
Date Completed 21/12/16				
Client London City Airport Limited	Method/ Plant Used Cable Percussion			Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
21/12/16	25.00	1.80				29.50 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL with rare black rinded flint cobbles. Gravel comprises weak, medium density chalk fragments and black rinded flint	30.50 30.50-30.95	D28	N50	4, 5 / 4, 19, 12, 15	
					(4.95)	30.50 ... [NI] recovered as: soft, white gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint	31.00-31.50	B29			
21/12/16	25.00	3.00				32.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse weak, medium density chalk fragments	32.00 32.00-32.50	D30	N36	4, 5 / 7, 8, 8, 13	
						32.50 ... with no black rinded flint cobbles	32.50-33.00	B31			
21/12/16	25.00	2.00				33.50 ... [NI] recovered as: white slightly gravelly SILT. Gravel is angular to subangular fine to coarse weak, medium density chalk fragments	33.50 33.50-33.95	D32	N50	5, 5 / 10, 15, 12, 13	
21/12/16	25.00	2.00	-29.27		33.95	End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16	Ground Level (mOD) 5.69	Co-Ordinates E 542560.3 N 180240.5	Final Depth 30.80m
Date Completed 01/12/16				

Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	1.20	IP	24/11/2016	24/11/2016	JB	CB			Hand Excavated	
1.20	15.20	DS	24/11/2016	29/11/2016	JB	CB			Comacchio 405	C1
15.20	30.80	RC	29/11/2016	01/12/2016	JB	CB	112	PDC	Comacchio 405	C1

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200	1.20	2.20		100
5.20	200	5.20	200	2.20	3.20		100
14.50	150	14.50	150	3.20	4.20		0
30.80	146			4.20	5.20		100
				5.20	6.20		80
				6.20	7.20		100
				7.20	8.20		50
				8.20	9.20		80
				9.20	10.20		100
				10.20	11.20		60
				11.20	12.20		100
				12.20	13.20		80
				13.20	14.20		100
				14.20	15.20		100
				15.20	17.30		24
				17.30	18.80		100
				18.80	20.30		100
				20.30	21.80		100
				21.80	23.30		100
				23.30	24.80		100
				24.80	26.30		67
				26.30	27.80		100
				27.80	29.30		90
				29.30	30.80		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
15.20	20.30	Water	98	
20.30	30.80	Water	95	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation
SPGW	50	10.00	2.00	10.00	01/12/2016
SPGW	50	23.70	12.70	23.70	01/12/2016

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
0.00	0.30	Concrete / Flush cover	01/12/2016
0.30	2.00	Bentonite pellets	
2.00	10.00	Pea shingle	
10.00	12.00	Bentonite pellets	
12.00	23.70	Pea shingle	
23.70	30.80	Bentonite pellets	

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16	Ground Level (mOD) 5.69	Co-Ordinates E 542560.3 N 180240.5	Final Depth 30.80m
Date Completed 01/12/16				

Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
24/11/16	0.00				S	1.20	N5	1, 2 / 1, 1, 2, 1	0.00	
24/11/16	4.20	4.20			S	2.20	N4	1, 1 / 1, 1, 1, 1	0.00	
25/11/16	4.20	4.20			S	3.20	N4	1, 2 / 2, 0, 1, 1	0.00	
25/11/16	7.20	7.20			S	4.20	N8	2, 2 / 2, 1, 3, 2	4.20	
28/11/16	7.20	7.20			S	5.20	N7	1, 2 / 1, 2, 2, 2	5.20	
28/11/16	14.20	14.50			S	6.20	N2	0, 0 / 1, 0, 0, 1	5.20	
29/11/16	14.20	14.50			S	7.20	N0	0, 0 / 0, 0, 0, 0	7.20	
29/11/16	20.30	14.50			S	8.20	N0	0, 0 / 0, 0, 0, 0	8.20	
30/11/16	20.30	14.50			S	9.20	N0	0, 0 / 0, 0, 0, 0	9.20	
30/11/16	30.80	14.50			S	10.20	N0	0, 0 / 0, 0, 0, 0	10.20	
					C	11.20	N54	4, 8 / 13, 13, 14, 14	11.20	
					C	12.20	N47	3, 7 / 9, 12, 13, 13	12.20	
					C	13.20	N12	1, 2 / 2, 2, 4, 4	13.20	
					C	14.20	N52	3, 4 / 6, 14, 16, 16	14.50	
					C	15.20	N50/0.18	9, 11 / 14, 18, 18	14.50	
					C	17.30	N50/0.115	10, 10 / 25, 25	14.50	
					C	18.80	N50/0.105	11, 9 / 27, 23	14.50	
					C	20.30	N50/0.245	5, 11 / 12, 13, 17, 8	14.50	
					S	21.80	N37	3, 4 / 7, 9, 10, 11	14.50	
					S	23.30	N39	4, 5 / 6, 10, 11, 12	14.50	
					S	24.80	N38	4, 6 / 7, 8, 10, 13	14.50	
					S	27.80	N50/0.105	3, 15 / 20, 30	14.50	
					S	29.30	N28	5, 6 / 6, 6, 6, 10	14.50	
					S	30.80	N35	5, 6 / 7, 8, 9, 11	14.50	

GENERAL REMARKS

1. Inspection pit hand excavated prior to boring.
2. Clearance by UXO Magnetometer probe.
3. Dynamic sampling techniques used from 1.20m to 15.20m. Rotary boring carried out thereafter.
4. Pressuremeter tests carried out at 15.80m and 25.40m depths.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling/Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Mini-Multi Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16	Ground Level (mOD) 5.69	Co-Ordinates E 542560.3 N 180240.5	Final Depth 30.80m
Date Completed 01/12/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 1 of 6		

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
24/11/16								(0.40)	CONCRETE (0.30m) over concrete rubble.						
						5.29		0.40							
						4.94		0.75	Dark brown, clayey silty gravelly fine to coarse SAND with rare flint cobbles and a metal nail (85mm). Gravel is angular to rounded fine to coarse flint. (MADE GROUND)	0.60 0.60	ES01		... VOC 0.4ppm		
									Orangish brown gravelly fine to medium SAND with rare pockets of soft, brown clay (<40mm). Gravel is angular to rounded fine to coarse flint gravel. (MADE GROUND)	1.00 1.00	ES02		... VOC 0.6ppm		
			100							1.20 1.20	D03	N5	1, 2 / 1, 1, 2, 1		
								(1.65)		1.50 1.50	ES04		... VOC 2.1ppm		
									1.70 ... becoming fine to coarse 1.80 ... becoming very gravelly	1.70-2.00	B05				
						3.29		2.40		2.20 2.20	D06	N4	1, 1 / 1, 1, 1, 1		
						3.09		2.60	Orangish brown very sandy angular to subrounded fine to coarse GRAVEL. Sand is fine to coarse. (MADE GROUND)	2.50 2.50	ES07		... VOC 2.8ppm		
			100						2.40 - 2.60 ... becoming very sandy GRAVEL. Gravel is angular to subrounded fine to coarse flint						
								(0.60)	Orangish brown gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse flint. (MADE GROUND)	3.00-3.10	B08 B09		1, 2 / 2, 0, 1, 1		
						2.49		3.20	2.90 ... becoming fine to medium	3.10 3.20 3.20	D10	N4			
						2.39		3.30	Soft, orangish brown slightly sandy slightly gravelly silty CLAY with occasional dark grey staining. Gravel is subangular to rounded fine to medium flint. (MADE GROUND)						
						2.19		3.50							
			0						Brown, slightly clayey very sandy GRAVEL. Gravel is angular to well rounded fine to coarse flint. Sand is fine to coarse. (MADE GROUND)	3.70	D11				
						1.99		3.70							
						1.79		3.90	Orangish brown silty very clayey fine to medium SAND. (MADE GROUND)						
								(0.30)	Soft, orangish brown slightly sandy silty CLAY with occasional dark grey staining. (MADE GROUND)	4.10 4.10 4.20	ES12		... VOC 0.5ppm		
24/11/16	4.20					1.49		4.20	Dark brown gravelly fine to coarse SAND. Gravel is angular to well rounded fine to coarse flint. (MADE GROUND)	4.20 4.20 4.20	D13	N8	2, 2 / 2, 1, 3, 2		
25/11/16	4.20							(0.50)	Brown, very sandy angular to well rounded fine to coarse flint GRAVEL. Sand is fine to coarse. (MADE GROUND)						
						0.98		4.70							
						0.89		4.80	Soft, yellowish brown silty CLAY with occasional to frequent dark grey staining. (MADE GROUND)						
						0.73		4.95	4.75 ... with occasional reddish brown fine to coarse gravel size brick fragments						
									Brown very sandy angular to well rounded fine to coarse flint GRAVEL. Sand is fine to coarse. (MADE GROUND)	5.20 5.20	D14	N7	1, 2 / 1, 2, 2, 2		
								(0.70)	Brown angular to well rounded fine to coarse flint GRAVEL. (MADE GROUND)						
			80			0.03		5.65	5.05 ... with rare pockets of very soft gravelly clay. Gravel is angular to subrounded fine to medium flint 5.50 ... with occasional wood fragments (<85mm) 5.60 ... with rare tile fragments (<20mm)	5.70 5.70	ES15		... VOC 0.2ppm		
									Light brown gravelly fine to medium SAND. Gravel is angular to rounded fine to coarse flint. (MADE GROUND)						
									5.80 - 5.85 ... with a band of soft orangish brown silty clay						

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CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16	Ground Level (mOD) 5.69	Co-Ordinates E 542560.3 N 180240.5	Final Depth 30.80m
Date Completed 01/12/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 2 of 6		

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No			Test Result
25/11/16 28/11/16	7.20 7.20		80					(0.85)	6.10 ... becoming dark grey with hydrocarbon odour and rare wood fragments (<45mm) 6.20 - 6.30 ... with a band of angular to well-rounded fine to coarse flint gravel with rare tile fragments (<55mm)	6.20	ES16	N2	0, 0 / 1, 0, 0, 1	
			-0.82			6.50		6.50 6.50	... VOC 0.2ppm					
			-1.02			6.70		Very soft to soft, dark grey SILT with strong hydrocarbon odour. (MADE GROUND)	6.80	B17				
						(0.40)		Orangish brown gravelly fine to coarse SAND. Gravel is fine to coarse angular to rounded flint. (MADE GROUND)						
			-1.42			7.10								
										Very soft to soft, dark grey clayey SILT with hydrocarbon odour. (ALLUVIUM)	7.20 7.20	D18	N0	0, 0 / 0, 0, 0, 0
									7.50 7.50	ES19	... VOC 0.2ppm			
									8.00	D20				
									8.20 8.20	D21	N0	0, 0 / 0, 0, 0, 0		
									8.50 8.50	ES22	... VOC 0.3ppm			
									9.00	D23				
									9.20 9.20	D24	N0	0, 0 / 0, 0, 0, 0		
									9.50 9.50	ES25	... VOC 0.3ppm			
									10.00	D26				
									10.20 10.20	D27	N0	0, 0 / 0, 0, 0, 0		
									10.50	D28				
				</										

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 28/11/16
Date Completed 01/12/16

Ground Level (mOD)
5.69

Co-Ordinates
E 542560.3 N 180240.5

Final Depth
30.80m

Client
London City Airport Limited

Method/ Plant Used Dynamic Sampling / Rotary

Sheet
3 of 6

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
28/11/16	14.50		100						12.20 ... becoming slightly sandy	12.20		N47	3, 7 / 9, 12, 13, 13	
29/11/16	14.50					-6.82		12.50	Yellowish brown gravelly fine to coarse SAND with occasional flint cobbles. Gravel is angular to well rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)	12.50-13.10	B29			
			80					(0.70)						
						-7.52		13.20	13.10 ... becoming very gravelly with flint cobbles	13.20		N12	1, 2 / 2, 2, 4, 4	
									Dark brown sandy GRAVEL with rare flint cobbles. Gravel is angular to well rounded fine to coarse flint. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	13.20-13.50	B30			
			100					(1.20)	13.70 ... with no sand					
						-8.72		14.40				N52	3, 4 / 6, 14, 16, 16	
						-8.82		14.50	Yellowish brown gravelly fine to coarse SAND. Gravel is angular to well rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)					
			100						Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	15.00-15.20	B31			
										15.20		N50/ 180 mm	9, 11 / 14, 18, 18	
										15.80			... Pressuremeter test at 15.80m depth	
			24											
									16.80 ... becoming clayey	16.80-17.30	B32			
									17.30 ... becoming slightly clayey	17.30		N50/ 115 mm	10, 10 / 25, 25	
			100							17.50-17.90	B33			

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 28/11/16
Date Completed 01/12/16

Ground Level (mOD)
5.69

Co-Ordinates
E 542560.3 N 180240.5

Final Depth
30.80m

Client
London City Airport Limited

Method/ **Dynamic Sampling /**
Plant Used **Rotary**

Sheet
4 of 6

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/Backfill
29/11/16	14.50		100							18.80		N50/105 mm	11, 9 / 27, 23	
30/11/16	14.50								19.50 ... becoming clayey	19.80-20.10	B34			
										20.30		N50/245 mm	5, 11 / 12, 13, 17, 8	
			100							21.00-21.50	B35			
										21.80		N37	3, 4 / 7, 9, 10, 11	
										21.80	D36			
			100							22.90-23.20	B37			
									23.30 ... becoming locally very clayey	23.30		N39	4, 5 / 6, 10, 11, 12	
										23.30	D38			
			100							24.00-24.70	B39			

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CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16	Ground Level (mOD) 5.69	Co-Ordinates E 542560.3 N 180240.5	Final Depth 30.80m
Date Completed 01/12/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 5 of 6		

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No			Test Result
			100							24.80 24.80	D40	N38	4, 6 / 7, 8, 10, 13	
									25.30 ... becoming very clayey	25.30-25.70 25.40	B41		... Pressuremeter test at 25.40m depth	
			67			-20.52 -20.62		26.20 26.30	Black angular to subangular medium to coarse rinded flint GRAVEL with rare angular to subangular rinded flint cobbles. (THANET SAND FORMATION: BULLHEAD BED) Strong, medium density white CHALK with occasional light grey marling. (SEAFORD CHALK FORMATION) 26.60 - 26.80 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL. Gravel comprises weak, medium density white chalk fragments and rare black rinded flint					
			100	63	53				27.10 - 27.25 ... [NI] recovered as: soft to firm, white gravelly SILT. Gravel comprises angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint 27.50 ... with a horizontal fracture and at 27.75m	27.50-27.75	C42			
									27.80 - 27.90 ... [NI] recovered as: soft, white gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments 28.00 - 28.10 ... with a band of angular to subangular fine to coarse black rinded flint gravel, occasional medium to coarse gravel size extremely weak, low density chalk fragments and rare rinded flint cobbles 28.30 ... with occasional subhorizontal fractures and 1No horizontal fracture	27.80 27.80	D43	N50/ 105 mm	3, 15 / 20, 30	
			90	66	57			(4.50)	28.55 - 28.65 ... [NI] recovered as: moderately strong, medium density white chalk COBBLES 28.85 ... with a subvertical fracture 29.00 - 29.10 ... with occasional subhorizontal fractures					
			100	63	27				29.25 - 29.30 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL. Gravel comprises weak, medium density white chalk fragments 29.50 - 29.70 ... with 1No wide open fracture 29.70 - 29.80 ... with occasional subvertical fractures	29.30 29.30	D44	N28	5, 6 / 6, 6, 6, 10	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16	Ground Level (mOD) 5.69	Co-Ordinates E 542560.3 N 180240.5	Final Depth 30.80m
Date Completed 01/12/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 6 of 6		

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
30/11/16	14.50		100	63	27	-25.12		30.00 - 30.10 ... [NI] recovered as: white gravelly SILT. Gravel comprises angular to subangular fine to coarse weak, medium density chalk fragments and black rimmed flint	30.10-30.40	C45	N35	5, 6 / 7, 8, 9, 11		
								30.45 ... with 1 No open horizontal fracture 30.50 ... with occasional subvertical off-white open fractures	30.80 30.80	D46				
								30.70 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare moderately weak, medium density white chalk cobbles. Gravel is moderately weak, medium density chalk fragments End of Borehole						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 03/01/17 Date Completed 05/01/17	Ground Level (mOD) 4.95	Co-Ordinates E 542513.8 N 180296.4	Final Depth 33.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00 15.80	15.80 33.50	DS RC	14/12/2016 15/12/2016	15/12/2016 16/12/2016	TC TC	CB CB	112	PDC	Geotec 350 Geotec 350	AR779 AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00 15.80 33.50	150 150 146	0.00 13.50	150 150	11.80 12.80 13.80 14.80 15.80 16.90 18.20 19.70 21.20 22.70 23.00 24.50 26.00 27.50 29.00 30.50 32.00	12.80 13.80 14.80 15.80 16.90 18.20 19.70 21.20 22.70 23.00 24.50 26.00 27.50 29.00 30.50 32.00 33.50		100 100 80 100 73 91 93 93 93 100 100 93 100 60 100 100 100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
15.80 16.90 18.20 22.70	16.90 18.20 22.70 33.50	Water Water Water Water	20 10 0 25	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.80	33.50	Cement / Bentonite Grout	05/01/2017

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 03/01/17	Ground Level (mOD) 4.95	Co-Ordinates E 542513.8 N 180296.4	Final Depth 33.50m
Date Completed 05/01/17				

Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
03/01/17	0.00				S	16.90	N50/0.075	25 / 50	13.50	
03/01/17	12.50	12.50		... see Remark 4	S	18.20	N50/0.095	18, 7 / 39, 11	13.50	
03/01/17	14.80	12.50	1.80		S	19.70	N50/0.15	8, 15 / 24, 26	13.50	
04/01/17	14.80	12.50	4.80		S	21.20	N50/0.16	11, 14 / 22, 26, 2	13.50	
04/01/17	15.80	13.50		... Rotary flush	S	23.00	N50/0.22	6, 11 / 15, 18, 17	13.50	
04/01/17	22.70	13.50	2.10		S	24.50	N50/0.245	3, 9 / 12, 13, 18, 7	13.50	
05/01/17	22.70	13.50	3.20		S	26.00	N50/0.255	6, 9 / 12, 13, 15, 10	13.50	
05/01/17	33.50	13.50	2.10		S	27.50	N50/0.23	7, 9 / 14, 16, 18, 2	13.50	
					S	29.00	N50/0.02	25 / 50	13.50	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Dynamic sampling techniques used from 11.80m to 15.80m. Rotary boring carried out thereafter.
- Water present in the borehole from casing installation through the dock.
- Poor flush return throughout.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGVW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling / Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Piezometer, MP Multi-point Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key



Borehole No

BH07

Project	
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CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 03/01/17	Ground Level (mOD) 4.95	Co-Ordinates E 542513.8 N 180296.4	Final Depth 33.50m
	Date Completed 05/01/17			
Client London City Airport Limited			Method/ Dynamic Sampling / Plant Used Rotary	Sheet 1 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth <i>(Thickness)</i>	Strata Description	Depth (m)	Type No	Test Result		
03/01/17								</						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 03/01/17
Date Completed 05/01/17

Ground Level (mOD)
4.95

Co-Ordinates
E 542513.8 N 180296.4

Final Depth
33.50m

Client
London City Airport Limited

Method/ **Dynamic Sampling /**
Plant Used **Rotary**

Sheet
2 of 4

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
03/01/17	12.50		100			-6.86	x	11.80	Very soft, dark grey SILT with strong hydrocarbon odour. (DOCK SEDIMENT)	12.00	ES01		... VOC 2.5ppm	
						(1.00)	x		12.30 ... becoming clayey	12.50	D02			
						-7.86	x	12.80	12.50 ... becoming firm very clayey with strong hydrocarbon odour					
			100			-8.36	x	13.30	Dark grey, silty very sandy angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. Sand is fine to coarse (RIVER TERRACE DEPOSITS)	13.50	D03			
						(1.30)	x		Dark brown, gravelly fine to coarse SAND with hydrocarbon odour. Gravel is angular to rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)	14.00	ES04		... VOC 2.0ppm	
			80			-9.66	x	14.60						
03/01/17	12.50	1.80				(0.75)	x		Brown very sandy angular to well rounded fine to coarse flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	15.20	B05			
04/01/17	12.50	4.80	100			-10.41	x	15.35	14.80 ... with no sand					
04/01/17	13.50						x		Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	16.00	B06			
			73				x							
							x			16.90		N50/ 75 mm	25 / 50	
							x			16.90	D07			
			91				x			17.00	B08			
							x			18.20		N50/ 95 mm	18, 7 / 39, 11	
							x			18.20	D09			
			93				x			18.50	B10			
							x		19.00 ... becoming clayey					
							x			19.70		N50/ 150 mm	8, 15 / 24, 26	
			93				x							

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 03/01/17	Ground Level (mOD) 4.95	Co-Ordinates E 542513.8 N 180296.4	Final Depth 33.50m
Date Completed 05/01/17				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 3 of 4		

PROGRESS			STRATA					SAMPLES & TESTS			Field Records	Instrument/ Backfill		
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
04/01/17 05/01/17	13.50 13.50	2.10 3.20	93							19.70	D11	N50/ 160 mm	11, 14 / 22, 26, 2	
										20.50	B12			
			93					(12.95)		21.20	B13	N50/ 220 mm	6, 11 / 15, 18, 17	
										22.00				
			100						22.70 ... becoming very clayey	23.00	D14	N50/ 245 mm	3, 9 / 12, 13, 18, 7	
										23.00				
			100							24.00	B15	N50/ 255 mm	6, 9 / 12, 13, 15, 10	
										24.50	B16			
			93							25.00	N50/ 230 mm	7, 9 / 14, 16, 18, 2		
										26.00				D17
			100							26.00	N50/ 20 mm	25 / 50		
										27.00				B18
			60			-23.36			Black angular to subangular fine to coarse rinded flint GRAVEL with rare cobbles. Cobbles are angular to subangular rinded flint. (THANET SAND FORMATION: BULLHEAD BED)	27.50	B19			
										28.00				
						-24.26		(0.90)	Strong, white CHALK. (SEAFORD CHALK FORMATION)	29.00	B20			
										29.50				
			100	77	60				29.30 ... with 1No horizontal fracture and at 29.40m 29.60 ... with occasional angular to subangular fine to coarse black rinded flint 29.70 ... with occasional subhorizontal and					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 03/01/17	Ground Level (mOD) 4.95	Co-Ordinates E 542513.8 N 180296.4	Final Depth 33.50m
Date Completed 05/01/17				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 4 of 4		

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
05/01/17	13.50	2.10	100	77	60				subvertical fractures 29.90 ... with 1No horizontal fracture 30.00 - 30.20 ... with occasional subvertical fractures and subhorizontal fractures 30.20 - 30.40 ... [NI] recovered as: very silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint 30.45 ... with 1No subhorizontal fracture 30.50 - 30.90 ... [NI] recovered as: very silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint 30.90 ... with 1No horizontal fracture and at 30.95m 31.10 ... with 1No wide open fracture 31.30 ... with 1No wide open fracture infilled with weak, medium density gravel size chalk fragments and angular to subangular fine to coarse black rinded flint 31.40 ... with 1No subhorizontal fracture 31.50 ... with 1No subvertical fracture 31.55 ... with 1No wide open fracture and at 31.90m 32.00 - 32.50 ... [NI] recovered as: very silty GRAVEL. Gravel comprises weak, medium density chalk fragments and angular to subangular fine to coarse black rinded flint 32.40 - 32.50 ... with angular to subangular fine to coarse black rinded flint 32.60 ... with 1No horizontal fracture infilled with angular to subangular fine to coarse gravel. Gravel comprises weak, medium density chalk fragments and rare black rinded flint cobbles 33.40 ... with 1No open fracture and at 33.45m End of Borehole	31.60-31.90	C21			
							(4.30)		32.00	D22				
										32.60-32.90	C23			
						100	73	63			33.00-33.40	C24		
						-28.56		33.50						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 19/01/17	Ground Level (mOD) 5.02	Co-Ordinates E 542594.1 N 180293.7	Final Depth 32.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	32.00	CP	17/01/2017	19/01/2017	ST	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					14.00	18.00	25.50	26.40	0:40	Sand
					25.00	27.00	26.70	27.00	0:30	Flinty Chalk
					28.00	31.50	28.50	30.00	1:15	Flinty Chalk
							31.00	32.00	1:00	Flinty Chalk

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
24.00	200	15.00	200				
32.00	150	26.70	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.80	32.00	Cement / Bentonite Grout	19/01/2017

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17	Ground Level (mOD) 5.02	Co-Ordinates E 542594.1 N 180293.7	Final Depth 32.00m
Date Completed 19/01/17				

Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
17/01/17	0.00				C	13.00	N50/0.275	4, 7 / 7, 9, 17, 17	12.90	1.00
17/01/17	12.80	12.80	1.00	... see Remark 3	C	14.00	N50/0.07	25 / 50	13.60	2.00
17/01/17	13.00	12.90	1.00		S	15.00	N50/0.07	15, 10 / 50	13.60	2.40
17/01/17	14.00	13.60	2.00		S	16.00	N50/0.105	11, 14 / 35, 15	14.50	3.00
17/01/17	15.00	13.60	2.40		S	17.00	N50/0.16	7, 12 / 22, 20, 8	15.00	3.10
17/01/17	16.00	14.50	3.00		S	18.00	N50/0.21	8, 12 / 17, 20, 13	15.00	3.60
17/01/17	17.00	15.00	3.10		S	19.50	N50/0.2	7, 15 / 15, 23, 12	15.00	3.10
17/01/17	18.00	15.00	3.60		S	21.00	N50/0.25	5, 7 / 11, 16, 18, 5	15.00	2.90
17/01/17	19.50	15.00	3.10		S	22.50	N50/0.19	8, 12 / 18, 20, 12	15.00	1.00
17/01/17	21.00	15.00	2.90		S	24.00	N50/0.28	7, 10 / 12, 13, 15, 10	15.00	1.50
18/01/17	21.00	15.00	1.00		S	25.50	N38	5, 8 / 8, 9, 10, 11	25.00	1.70
18/01/17	24.00	15.00	1.50		S	27.00	N50/0.255	6, 7 / 8, 15, 15, 12	26.70	1.80
18/01/17	25.50	25.00	1.70		S	28.50	N50	8, 13 / 10, 20, 7, 13	26.70	1.00
18/01/17	27.00	26.70	1.80		S	30.00	N50/0.265	5, 7 / 8, 10, 20, 12	26.70	1.20
18/01/17	27.00	26.70	2.10		S	31.50	N43	8, 8 / 6, 7, 11, 19	26.70	1.50
19/01/17	27.00	26.70	1.00							
19/01/17	28.50	26.70	1.00							
19/01/17	30.00	26.70	1.30							
19/01/17	31.50	26.70	1.50							
19/01/17	32.00	26.70	1.50							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 15.00m depth. Bentonite seal inserted between 14.00m and 15.00m and borehole re-drilled with Ø150mm casing to 26.70m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling/Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Multi-Media Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 17/01/17
Date Completed 19/01/17

Ground Level (mOD)
5.02

Co-Ordinates
E 542594.1 N 180293.7

Final Depth
32.00m

Client
London City Airport Limited

**Method/
Plant Used** Cable Percussion

Sheet
2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
17/01/17	12.80	1.00	-7.78		12.80		12.80-13.00	B01			
17/01/17	12.90	1.00	-7.98	x x x	13.00	Dark grey, very clayey SILT. (DOCK SEDIMENT)	13.00		N50/ 275 mm	4, 7 / 7, 9, 17, 17	
				o o o	(1.00)	Dark grey, clayey sandy angular to well rounded fine to coarse flint GRAVEL with occasional flint cobbles (<70mm). (RIVER TERRACE DEPOSITS)	13.00-13.50	B02			
17/01/17	13.60	2.00	-8.98	o o o	14.00		14.00		N50/ 70 mm	25 / 50	
				x x x		Light grey, silty fine SAND. (THANET SAND FORMATION: THANET SAND)	14.00-14.50	B03			
				x x x		14.00 ... becoming slightly sandy	15.00		N50/ 70 mm	15, 10 / 50	
17/01/17	13.60	2.40		x x x			15.00-15.20 15.50-16.00	D04 B05			
				x x x			16.00		N50/ 105 mm	11, 14 / 35, 15	
17/01/17	14.50	3.00		x x x			16.00-16.40 16.50-17.00	D06 B07			
				x x x			17.00		N50/ 160 mm	7, 12 / 22, 20, 8	
17/01/17	15.00	3.10		x x x			17.00-17.45 17.50-18.00	D08 B09			
				x x x			18.00		N50/ 210 mm	8, 12 / 17, 20, 13	
17/01/17	15.00	3.60		x x x		18.00 ... becoming clayey	18.00-18.35	D10			
				x x x			19.00-19.50	B11			
17/01/17	15.00	3.10		x x x			19.50		N50/ 200 mm	7, 15 / 15, 23, 12	
				x x x			19.50-19.85 20.00-20.50	D12 B13			

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 19/01/17	Ground Level (mOD) 5.02	Co-Ordinates E 542594.1 N 180293.7	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
17/01/17	15.00	2.90		x	(12.70)	20.00 ... becoming very clayey	21.00		N50/ 250 mm	5, 7 / 11, 16, 18, 5	
18/01/17	15.00	1.00		x			21.00-21.45	D14			
				x			22.00-22.50	B15			
				x			22.50		N50/ 190 mm	8, 12 / 18, 20, 12	
				x			22.50-23.00	D16			
				x			23.50-24.00	B17			
18/01/17	15.00	1.50		x			24.00		N50/ 280 mm	7, 10 / 12, 13, 15, 10	
				x			24.00-24.50	D18			
				x			25.00-25.50	B19			
18/01/17	25.00	1.70		x			25.50		N38	5, 8 / 8, 9, 10, 11	
				x			25.50-25.90	D20			
				x			26.40-26.80	B21			
			-21.68	x	26.70		26.70-27.00	B22			
18/01/17	26.70	1.80	-21.98	x	27.00	Black, silty angular to subangular fine to coarse rinded flint GRAVEL with rare angular to subangular black rinded flint cobbles. (THANET SAND FORMATION: BULLHEAD BEDS)	27.00		N50/ 255 mm	6, 7 / 8, 15, 15, 12	
19/01/17	26.70	1.00		x		[NI] White CHALK recovered as: soft, white gravelly SILT. Gravel is weak, medium to low density angular to subangular fine to coarse chalk fragments. (SEAFORD CHALK FORMATION)	27.00-27.50	D23			
				x		28.00 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density white chalk fragments and black rinded flint with rare black angular to subangular rinded flint cobbles	28.00-28.50	B24			
19/01/17	26.70	1.00		x		28.50 ... [NI] recovered as: soft, white gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint with rare black rinded flint cobbles	28.50-28.90	D25	N50	8, 13 / 10, 20, 7, 13	
				x		29.50 ... with occasional cobble size medium density, angular to subangular chalk fragments	29.50-30.00	B26			
19/01/17	26.70	1.30		x	(5.00)		30.00		N50/ 265 mm	5, 7 / 8, 10, 20, 12	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 17/01/17
Date Completed 19/01/17

Ground Level (mOD)
5.02

Co-Ordinates
E 542594.1 N 180293.7

Final Depth
32.00m

Client
London City Airport Limited

**Method/
Plant Used** Cable Percussion

Sheet
4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
19/01/17	26.70	1.50				30.00 ... [NI] recovered as: soft, white gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments	30.00-30.45	D27		8, 8 / 6, 7, 11, 19	
							31.00-31.50	B28			
							31.50		N43		
						31.50 ... becoming silty with rare cobble size chalk fragments	31.50-31.90	D29			
19/01/17	26.70	1.50	-26.98		32.00	31.51 ... [NI] recovered as: soft, white gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments	31.50-32.00	B30			
						End of Borehole					

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Approved By: OS

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 24/11/16	Ground Level (mOD) 4.34	Co-Ordinates E 542647.5 N 180376.8	Final Depth 32.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	32.50	CP	23/11/2016	24/11/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					23.50	27.50				

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
17.50	200	17.50	200				
32.50	150	24.00	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.80	32.50	Cement / Bentonite Grout	24/11/2016

Issue No: 01

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Log Print Date & Time: 03/03/2017 17:42

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16	Ground Level (mOD) 4.34	Co-Ordinates E 542647.5 N 180376.8	Final Depth 32.50m
Date Completed 24/11/16				

Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
23/11/16	0.00			... see Remark 3	C	12.50	N18	3, 4 / 5, 5, 4, 4	12.50	1.20
23/11/16	12.50	12.50	1.20		C	13.50	N12	2, 3 / 3, 4, 3, 2	13.50	1.50
23/11/16	13.50	13.50	1.50		C	14.50	N16	2, 2 / 3, 4, 4, 5	14.50	1.60
23/11/16	14.50	14.50	1.60		C	15.50	N28	3, 4 / 5, 7, 7, 9	15.50	1.30
23/11/16	15.50	15.50	1.30		S	16.50	N50/0.085	4, 10 / 39, 11	16.50	1.80
23/11/16	16.50	16.50	1.80		S	18.00	N50/0.153	5, 14 / 21, 24, 5	18.00	1.10
23/11/16	17.50	16.60	1.65		S	19.50	N50/0.13	7, 15 / 25, 25	19.00	1.40
24/11/16	17.50	16.60	1.10		S	21.00	N50/0.17	6, 15 / 17, 21, 12	19.00	2.10
24/11/16	18.00	18.00	1.10		S	22.50	N50/0.165	4, 10 / 16, 23, 11	19.00	2.70
24/11/16	19.50	19.00	1.40		S	24.00	N50/0.155	7, 15 / 21, 21, 8	24.00	GL
24/11/16	21.00	19.00	2.10		S	25.50	N50/0.155	6, 12 / 19, 24, 7	24.00	GL
24/11/16	22.50	19.00	2.70		S	27.00	N55/0.25	4, 13 / 20, 15, 12, 8	24.00	GL
24/11/16	24.00	24.00	GL		S	28.50	N31	3, 5 / 7, 7, 8, 9	24.00	1.10
24/11/16	25.50	24.00	GL		S	30.00	N36	4, 6 / 8, 8, 10, 10	24.00	1.90
24/11/16	27.00	24.00	GL		S	31.50	N42	5, 7 / 8, 10, 12, 12	24.00	2.70
24/11/16	28.50	24.00	1.10							
24/11/16	30.00	24.00	1.90							
24/11/16	31.50	24.00	2.70							
24/11/16	32.50	24.00	2.70							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 17.50m depth. Bentonite seal inserted between 16.00m and 17.50m and borehole re-drilled with Ø150mm casing to 24.00m depth.
- Borehole collapsing at 23.50m up to 19.00m depth. Casing advanced and borehole re-drilled.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB - Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
- DS - Dynamic Sampling, DS/R - Dynamic Sampling / Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Mini-Multi Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project	
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CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16	Ground Level (mOD) 4.34	Co-Ordinates E 542647.5 N 180376.8	Final Depth 32.50m
	Date Completed 24/11/16			
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
23/11/16					(11.80)	Water					

Issue No: 01	Checked By: AN	Approved By: OS	Log Print Date & Time: 03/03/2017 17:45	 AGS AGS - ASSOCIATION OF GUYANAN STUDENTS AGS - ASSOCIATION OF GUYANAN STUDENTS
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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

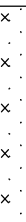
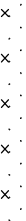
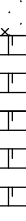
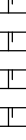
Job No 16/2900	Date Started 23/11/16	Ground Level (mOD) 4.34	Co-Ordinates E 542647.5 N 180376.8	Final Depth 32.50m
Date Completed 24/11/16				
Client London City Airport Limited	Method/ Plant Used Cable Percussion			Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
23/11/16	12.50	1.20	-7.46		11.80		11.80			... VOC 0.4ppm	
				x x x x x	(0.70)	Dark grey slightly sandy gravelly SILT with strong hydrocarbon odour. Gravel is angular to subrounded fine to coarse flint. Sand is fine to coarse. (DOCK SEDIMENT)	11.80-12.20	ES01 B02			
			-8.16	x x x x x	12.50		12.50		N18	3, 4 / 5, 5, 4, 4	
23/11/16	13.50	1.50			(0.75)	Dark grey sandy angular to well rounded fine to coarse flint GRAVEL with rare well rounded flint cobbles and strong hydrocarbon odour. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	12.50-13.00	ES03 B04		... VOC 0.2ppm	
			-8.91		13.25		13.25	D05			
						Dark brown very sandy angular to well rounded fine to coarse flint GRAVEL with rare subangular flint cobbles. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	13.50-14.00	ES06 B07	N12	2, 3 / 3, 4, 3, 2	
23/11/16	14.50	1.60			(2.25)	14.25 ... becoming slightly sandy	14.25	D08			
							14.50		N16	2, 2 / 3, 4, 4, 5	
							14.50-15.00	B09			
23/11/16	15.50	1.30	-11.16		15.50		15.25	D10			
						Dark brown very gravelly fine to coarse SAND. Gravel is angular to well rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)	15.50-15.80	B11	N28	3, 4 / 5, 7, 7, 9	
			-11.46		15.80		15.80-16.00	B12			
23/11/16	16.50	1.80				Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	16.25	D13			
							16.50		N50/ 85 mm	4, 10 / 39, 11	
							16.50	D14			
23/11/16	16.60	1.65				17.00 ... becoming clayey	17.00-17.50	B15			
24/11/16	18.00	1.10					18.00		N50/ 153 mm	5, 14 / 21, 24, 5	
							18.00	D16			
							18.50-19.00	B17			
24/11/16	19.00	1.40					19.50		N50/ 130 mm	7, 15 / 25, 25	
							19.50	D18			
							20.00-20.50	B19			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 24/11/16	Ground Level (mOD) 4.34	Co-Ordinates E 542647.5 N 180376.8	Final Depth 32.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
24/11/16	19.00	2.10			(11.20)	21.50 ... becoming slightly clayey	21.00 21.00 21.50-22.00	D20 B21	N50/ 170 mm	6, 15 / 17, 21, 12	
24/11/16	19.00	2.70					22.50 22.50 23.00-23.50	D22 B23	N50/ 165 mm	4, 10 / 16, 23, 11	
24/11/16	24.00	GL					24.00 24.00 24.50-25.00	D24 B25	N50/ 155 mm	7, 15 / 21, 21, 8	
24/11/16	24.00	GL					25.50 25.50 26.00-26.50	D26 B27	N50/ 155 mm	6, 12 / 19, 24, 7	
24/11/16	24.00	GL	-22.66		27.00	White CHALK recovered as: soft, white gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint with occasional pockets of dark green glauconitic fine sand (<10mm). (SEAFORD CHALK FORMATION) White CHALK recovered as: very silty angular to subangular fine to coarse GRAVEL with rare moderately weak, medium density white chalk cobbles. Gravel comprises weak, medium density white chalk fragments and black rinded flint. (SEAFORD CHALK FORMATION) 28.50 ... [NI] recovered as: soft to firm, white gravelly SILT. Gravel is angular to subangular fine to medium black rinded flint 29.00 ... with rare cobble size black rinded flint	27.00 27.00 27.50-28.00	D28 B29	N55/ 250 mm	4, 13 / 20, 15, 12, 8	
24/11/16	24.00	1.10	-23.16		(0.50) 27.50			28.50 28.50 29.00-29.50	D30 B31	N31	3, 5 / 7, 7, 8, 9
24/11/16	24.00	1.90						30.00		N36	4, 6 / 8, 8, 10, 10

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 23/11/16
Date Completed 24/11/16

Ground Level (mOD)
4.34

Co-Ordinates
E 542647.5 N 180376.8

Final Depth
32.50m

Client

London City Airport Limited

**Method/
Plant Used** Cable Percussion

Sheet
4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
24/11/16	24.00	2.70			(5.00)	30.00 ... [NI] recovered as: soft to firm, white slightly gravelly SILT. Gravel is angular to subangular fine to medium extremely weak, low density chalk fragments	30.00	D32			
							31.00	D33			
						31.00 ... [NI] recovered as: very soft, white gravelly SILT. Gravel comprises angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint	31.50		N42	5, 7 / 8, 10, 12, 12	
						31.50 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel comprises angular to subangular fine to medium weak, medium density chalk fragments and black rinded flint	31.50	D34			
						32.00 ... with rare angular to subangular fine to coarse black rinded flint gravel	32.00-32.50	B35			
24/11/16	24.00	2.70	-28.16		32.50	End of Borehole					

Issue No: 01

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Log Print Date & Time: 03/03/2017 17:45

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.46	Co-Ordinates E 542651.7 N 180376.7	Final Depth 32.80m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00 16.00	16.00 32.80	DS RC	29/11/2016 29/11/2016	29/11/2016 01/12/2016	TC TC	CB CB	112	PDC	Geotec 350 Geotec 350	AR779 AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00 17.00 32.00	150 150 146	0.00 17.00	150 150	12.00 12.70 13.70 14.40 15.40 16.00 16.50 17.80 20.00 21.00 21.90 23.00 24.50 26.00 27.50 29.00 29.80 31.30	12.70 13.70 14.40 15.40 16.00 16.50 17.80 20.00 21.00 21.90 23.00 24.50 26.00 27.50 29.00 29.80 31.30 32.80		100 100 100 100 100 100 100 0 100 100 100 100 0 90 100 100 100 100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
16.00 16.50 17.80 20.00 24.50 26.00	16.50 17.80 20.00 24.50 26.00 32.80	Water Water Water Water Water Water	20 30 90 30 90 30	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.00	32.80	Cement / Bentonite Grout	01/12/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.46	Co-Ordinates E 542651.7 N 180376.7	Final Depth 32.80m
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Client

London City Airport Limited

PROGRESS

SPT DETAILS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
29/11/16	0.00									
29/11/16	16.50	15.50	0.90	... see Remark 4						
30/11/16	16.50	15.50	1.60							
30/11/16	17.80	15.50	1.40							
01/12/16	17.80	15.50	2.10							
01/12/16	21.90	17.00	GL							
01/12/16	32.80	17.00	1.20							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Dynamic sampling techniques used from 12.00m to 16.00m. Rotary boring carried out thereafter.
- Water present in the borehole from casing installation through the dock.
- Pressuremeter tests carried out at 19.00m and 25.10m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Mini-Multi Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Issue No: 01 Checked By: AN Approved By: OS Log Print Date & Time: 03/03/2017 17:43



CADP Surveys Ground Investigation (Dock) - Phase 2

Final Depth	32.80m
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Sheet 1 of 4

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No		
29/11/16									Water				



Borehole No

BH10R

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16	Ground Level (mOD) 4.46	Co-Ordinates E 542651.7 N 180376.7	Final Depth 32.80m
	Date Completed 28/11/16			
Client London City Airport Limited			Method/ Plant Used Dynamic Sampling / Rotary	Sheet 2 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
						-7.54		12.00						
			100					(0.60)	Very soft, brown silty CLAY with occasional dark grey staining. (DOCK SEDIMENT)	12.50			... VOC 0.1ppm	
						-8.14		12.60	12.20 ... becoming dark grey with strong hydrocarbon odour.	12.50	ES01			
						-8.44		12.90	12.40 ... with 1No wood fragment	12.50	D02			
			100					(0.90)	Dark grey angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. (RIVER TERRACE DEPOSITS)				... VOC 0.0ppm	
									12.70 ... with no hydrocarbon odour	13.50				
						-9.34		13.80	Dark brown very gravelly fine to coarse SAND. Gravel is angular to well rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)	13.50	ES03 B04			
			100					(0.60)	Dark brown angular to well rounded fine to coarse flint GRAVEL. (RIVER TERRACE DEPOSITS)	14.10	B05			
						-9.94		14.40	14.00 ... with rare flint cobbles					
								(0.40)	Light brown fine to coarse SAND. (RIVER TERRACE DEPOSITS)					
			100			-10.34		14.80						
								(0.90)	Dark brown very sandy angular to well rounded fine to coarse flint GRAVEL. (RIVER TERRACE DEPOSITS)	15.10	B06			
									15.30 ... becoming sandy. Sand is fine to coarse	15.50	B07			
			100			-11.24		15.70	15.40 ... with occasional wood fragments (<50mm) and no sand					
									15.60 ... becoming sandy. Sand is fine to coarse	16.00	B08			
									Light grey fine silty SAND. (THANET SAND FORMATION: THANET SAND)					
			100						16.00 ... with occasional angular to well rounded fine to coarse flint gravel					
29/11/16	15.50	0.90								17.00	B09			
30/11/16	15.50	1.60												
			100											
30/11/16	15.50	1.40												
01/12/16	15.50	2.10												
			0							19.00			... Pressuremeter test at 19.00m depth	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16	Ground Level (mOD) 4.46	Co-Ordinates E 542651.7 N 180376.7	Final Depth 32.80m
Date Completed 28/11/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 3 of 4		

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
01/12/16	17.00	GL	100				x		20.00 ... becoming clayey					... Pressuremeter test at 25.10m depth	
							x		20.50 ... becoming slightly clayey	20.50	B10				
							x		21.00 ... becoming locally clayey						
			100				x	(11.60)		21.50	B11				
							x		21.90 ... becoming clayey						
			100				x			22.50	B12				
							x			23.50	B13				
			100				x			25.10					
			0				x								
							x								
			90				x			26.00 ... becoming very clayey					
							x				27.00	B14			
						-22.84	x	27.30							
						-23.04	o	27.50	Black angular to subangular medium to coarse rinded flint GRAVEL with rare flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)						
			100	80	73			Strong, medium density white CHALK with rare coarse flint cobbles. (SEAFORD CHALK FORMATION)	28.10-28.30	C15					
								27.75 ... with 1No horizontal fracture							
								27.90 ... with 1No wide open horizontal fracture							
								28.10 ... with 1No wide open horizontal fracture							
								infilled with gravel size angular to subangular fine to coarse weak, medium density chalk fragments and at 28.25m							
								28.40 ... with 1No horizontal fracture and at 28.50m							
								28.50 - 28.90 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density off-white chalk fragments and black rinded flint	29.20-29.50	C16					
			100	84	81			28.90 - 29.00 ... with a vertical fracture	29.70-29.95	C17					
								29.10 ... with rinded flint gravel							
			100	73	53			29.30 ... with 1No horizontal fracture							

... Pressuremeter test at 25.10m depth

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 23/11/16
Date Completed 28/11/16

Ground Level (mOD)
4.46

Co-Ordinates
E 542651.7 N 180376.7

Final Depth
32.80m

Client
London City Airport Limited

Method/ **Dynamic Sampling /**
Plant Used **Rotary**

Sheet
4 of 4

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
01/12/16	17.00	1.20	100	73	53	-28.34		(5.30)	29.50 ... with rinded flint gravel 29.55 - 29.70 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL with rare weak, medium density white chalk cobbles. Gravel comprises weak, medium density chalk fragments and black rinded flint 29.85 ... with 1No horizontal fracture and at 29.90m 30.10 ... with 1No wide open fracture infilled with gravel size angular to subangular fine to coarse weak, medium density chalk fragments 30.40 - 30.70 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL with occasional weak, medium density white chalk cobbles and rare black rinded flint cobbles. Gravel comprises weak, medium density white chalk fragments and medium to coarse black rinded flint 31.30 - 31.40 ... with 1No vertical fracture 31.40 - 31.50 ... with 1No wide open horizontal fracture infilled with gravel size angular to subangular fine to coarse weak, medium density chalk fragments 31.60 ... with 1No horizontal fracture and at 31.65m 31.70 ... with 1No wide open horizontal fracture infilled with gravel size angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint with 1No black rinded flint cobble 32.00 ... with 1No horizontal fracture and at 32.30m and 32.35m 32.60 ... with 1No wide open fracture 32.75 ... with 1No wide open fracture infilled with angular to subangular medium to coarse black rinded flint gravel 32.80 ... with occasional angular to subangular medium to coarse black rinded flint gravel End of Borehole	32.00-32.20	C18			

Issue No: 01

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Log Print Date & Time: 03/03/2017 17:48

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 15/12/16	Ground Level (mOD) 4.92	Co-Ordinates E 542650.5 N 180345.6	Final Depth 31.50m
Date Completed 19/12/16				

Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	31.50	CP	15/12/2016	19/12/2016	ST	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
							21.00	24.00	2:00	

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
24.00	200	17.40	200				
31.50	150	25.00	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
13.50	31.50	Cement / Bentonite Grout	19/12/2016

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 15/12/16 Date Completed 19/12/16	Ground Level (mOD) 4.92	Co-Ordinates E 542650.5 N 180345.6	Final Depth 31.50m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
15/12/16	0.00					14.00	N50/0.08	25 / 42, 8	13.90	3.00
15/12/16	14.00	13.90	3.00	... see Remark 3		15.00	N50/0.075	10, 15 / 50	14.80	0.80
15/12/16	15.00	14.80	0.80			16.00	N50/0.115	14, 11 / 30, 20	15.70	2.00
15/12/16	16.00	15.70	2.00			17.00	N50/0.18	8, 8 / 18, 26, 6	16.90	1.30
15/12/16	17.00	16.90	1.30			18.00	N50/0.155	6, 10 / 15, 23, 12	17.10	2.00
15/12/16	18.00	17.10	2.00			19.50	N50/0.155	8, 16 / 20, 24, 6	17.40	1.60
16/12/16	18.00	17.10	1.50			21.00	N50/0.17	10, 14 / 18, 22, 10	17.40	1.20
16/12/16	19.50	17.40	1.60			22.50	N50/0.275	10, 10 / 12, 14, 8, 16	17.40	2.00
16/12/16	21.00	17.40	1.20			24.00	N50/0.225	4, 8 / 14, 15, 21	17.40	1.50
16/12/16	22.50	17.40	2.00			25.50	N50/0.225	6, 9 / 12, 18, 20	25.00	1.70
16/12/16	24.00	17.40	1.50			27.00	N26	4, 5 / 5, 7, 7, 7	25.00	2.30
16/12/16	25.50	25.00	1.70			28.50	N50/0.23	12, 12 / 12, 14, 20, 4	25.00	3.10
16/12/16	27.00	25.00	2.30			30.00	N41	6, 7 / 8, 7, 9, 17	25.00	4.00
16/12/16	28.50	25.00	3.10			31.50	N33	5, 7 / 6, 8, 8, 11	25.00	5.00
19/12/16	28.50	25.00								
19/12/16	30.00	25.00	4.00							
19/12/16	31.50	25.00	5.00							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 17.40m depth. Bentonite seal inserted between 22.00m and 24.00m and borehole re-drilled with Ø150mm casing to 25.00m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB - Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R - Dynamic Sampling / Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Mini-Multi Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 15/12/16
Date Completed 19/12/16

Ground Level (mOD)
4.92

Co-Ordinates
E 542650.5 N 180345.6

Final Depth
31.50m

Client

London City Airport Limited

Method/
Plant Used Cable Percussion

Sheet
2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
15/12/16	13.90	3.00	-8.58		13.50		13.50-13.80	B01		25 / 42, 8	
			-8.88		13.80	Soft, dark grey very gravelly silty CLAY with strong hydrocarbon odour. Gravel is angular to rounded fine to coarse flint. (DOCK SEDIMENT)	13.80-14.00	B02			
			-9.08		14.00		14.00		N50/ 80 mm		
15/12/16	14.80	0.80				Dark grey very clayey silty sandy angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. (RIVER TERRACE DEPOSITS)	14.00-14.50	B03		10, 15 / 50	
						Light grey silty fine SAND. Sand is fine to coarse. (THANET SAND FORMATION: THANET SAND)	15.00		N50/ 75 mm		
							15.00	D04			
15/12/16	15.70	2.00					15.50-16.00	B05		14, 11 / 30, 20	
						16.00 ... becoming clayey	16.00		N50/ 115 mm		
							16.00	D06			
15/12/16	16.90	1.30					16.50-17.00	B07		8, 8 / 18, 26, 6	
							17.00		N50/ 180 mm		
							17.00	D08			
15/12/16	17.10	2.00					17.50-18.00	B09		6, 10 / 15, 23, 12	
							18.00		N50/ 155 mm		
							18.00	D10			
16/12/16	17.40	1.60					18.50-19.00	B11		8, 16 / 20, 24, 6	
							19.50		N50/ 155 mm		
							19.50	D12			

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 15/12/16 Date Completed 19/12/16	Ground Level (mOD) 4.92	Co-Ordinates E 542650.5 N 180345.6	Final Depth 31.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
16/12/16	17.40	1.20			(12.50)	23.00 ... becoming very clayey	20.50-21.00	B13	N50/ 170 mm	10, 14 / 18, 22, 10		
							21.00					
							21.00 21.50-22.00	D14 B15				
16/12/16	17.40	2.00						22.50		N50/ 275 mm		10, 10 / 12, 14, 8, 16
								22.50 23.00-23.50	D16 B17			
16/12/16	17.40	1.50						24.00		N50/ 225 mm		4, 8 / 14, 15, 21
								24.00 24.50-25.00	D18 B19			
16/12/16	25.00	1.70						25.50		N50/ 225 mm		6, 9 / 12, 18, 20
								25.50	D20			
			-21.58		26.50			26.50-27.00	B21			
16/12/16	25.00	2.30	-22.08		(0.50) 27.00		Black angular to subangular fine to coarse rinded flint GRAVEL with rare flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)	27.00 27.00	D22	N26		4, 5 / 5, 7, 7, 7
								27.50-28.00	B23			
16/12/16 19/12/16	25.00 25.00	3.10				White CHALK recovered as: firm, white SILT. (SEAFORD CHALK FORMATION) 27.50 ... becoming very gravelly. Gravel comprises angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint	28.50		N50/ 230 mm	12, 12 / 12, 14, 20, 4		
							28.50 29.00-29.50	D24 B25				
19/12/16	25.00	4.00			(4.50)	29.00 - 29.50 ... with rare angular to subangular black rinded flint cobbles	30.00		N41	6, 7 / 8, 7, 9, 17		

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started	15/12/16	Ground Level (mOD) 4.92	Co-Ordinates E 542650.5 N 180345.6	Final Depth 31.50m
	Date Completed	19/12/16			
Client London City Airport Limited				Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
19/12/16	25.00	5.00	-26.58		31.50		30.00	D26	N33	5, 7 / 6, 8, 8, 11	
				30.50-31.00			B27				
					End of Borehole	31.50	D28				
							31.50				

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 06/01/17 Date Completed 09/01/17	Ground Level (mOD) 5.29	Co-Ordinates E 542653.4 N 180305.6	Final Depth 32.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	32.00	RC	06/01/2017	09/01/2017	TC	CB	112	PDC	Geotec 350	AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	14.00	15.50		73
14.00	150	14.00	150	15.50	17.00		100
32.00	146			17.00	18.50		93
				18.50	20.00		93
				20.00	21.50		93
				21.50	23.00		100
				23.00	24.50		93
				24.50	26.00		87
				26.00	27.50		73
				27.50	29.00		93
				29.00	30.50		100
				30.50	32.00		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
14.00	32.50	Water	100	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
14.00	32.00	Cement / Bentonite Grout	09/01/2017

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 06/01/17
Date Completed 09/01/17

Ground Level (mOD)
5.29

Co-Ordinates
E 542653.4 N 180305.6

Final Depth
32.00m

Client

London City Airport Limited

PROGRESS

SPT DETAILS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks
06/01/17	0.00			
06/01/17	14.00	14.00		... Rotary flush
06/01/17	23.00	14.00	2.10	
09/01/17	23.00	14.00		
09/01/17	32.00	14.00		

Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
S	17.00	N50/0.225	4, 8 / 10, 17, 23	14.00	
S	18.50	N50/0.25	6, 9 / 12, 13, 18, 7	14.00	
S	20.00	N50/0.17	7, 10 / 15, 20, 15	14.00	
S	21.50	N50/0.21	8, 8 / 15, 18, 17	14.00	
S	23.00	N50/0.225	8, 10 / 13, 17, 20	14.00	
S	24.50	N50/0.225	7, 11 / 14, 16, 19, 1	14.00	
S	26.00	N34	5, 4 / 6, 8, 9, 11	14.00	
S	27.50	N50/0.26	5, 7 / 9, 13, 16, 12	14.00	
S	29.00	N48	4, 7 / 8, 10, 11, 19	14.00	
S	30.50	N37	3, 6 / 8, 8, 9, 12	14.00	
S	32.00	N41	4, 7 / 9, 9, 10, 13	14.00	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPIE/TW - 0.1m Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VQC-Vibrating Wire Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 06/01/17	Ground Level (mOD) 5.29	Co-Ordinates E 542653.4 N 180305.6	Final Depth 32.00m
	Date Completed 09/01/17			
Client London City Airport Limited			Method/ Plant Used Rotary	Sheet 1 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth <i>(Thickness)</i>	Strata Description	Depth (m)	Type No	Test Result		
06/01/17								</						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 06/01/17
Date Completed 09/01/17

Ground Level (mOD)
5.29

Co-Ordinates
E 542653.4 N 180305.6

Final Depth
32.00m

Client
London City Airport Limited

**Method/
Plant Used**
Rotary

Sheet
2 of 4

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
06/01/17	14.00					-8.71		14.00		14.10				
						-8.91	○	14.20	Dark grey clayey silty angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. (DOCK SEDIMENT / RIVER TERRACE DEPOSITS)	14.10	ES01		... VOC 0.1ppm	
			73				x		Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	14.50	B02			
							x			15.50			... VOC 0.0ppm	
							x			15.50	ES03			
							x			16.00	B04			
			100				x		16.20 ... becoming slightly clayey					
							x			17.00		N50/ 225 mm	4, 8 / 10, 17, 23	
							x			17.00	D05			
							x			17.50	B06			
			93				x					N50/ 250 mm	6, 9 / 12, 13, 18, 7	
							x			18.50				
							x			18.50	D07			
			93				x			19.50	B08			
							x			20.00		N50/ 170 mm	7, 10 / 15, 20, 15	

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 06/01/17	Ground Level (mOD) 5.29	Co-Ordinates E 542653.4 N 180305.6	Final Depth 32.00m
Date Completed 09/01/17				
Client London City Airport Limited	Method/ Plant Used Rotary	Sheet 3 of 4		

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill					
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No			Test Result				
06/01/17 09/01/17	14.00 14.00	2.10	93						20.00 ... becoming clayey	20.00 20.00 20.50	D09 D10 B11	N50/ 210 mm	8, 8 / 15, 18, 17					
									21.50	B12	N50/ 225 mm			8, 10 / 13, 17, 20				
									22.50									
									23.00									
									23.00 23.50									
									24.50									
			87							23.00 ... becoming very clayey	23.00 23.50	D13 B14	N50/ 225 mm	7, 11 / 14, 16, 19, 1				
										25.50	B15							
										26.00		N34			5, 4 / 6, 8, 9, 11			
										27.00-27.25						C16	N50/ 260 mm	5, 7 / 9, 13, 16, 12
										27.50								
										27.50								
			28.25-28.55	C18	N48	4, 7 / 8, 10, 11, 19												
			29.00															
29.55-29.75	C19																	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 06/01/17	Ground Level (mOD) 5.29	Co-Ordinates E 542653.4 N 180305.6	Final Depth 32.00m
Date Completed 09/01/17				
Client London City Airport Limited	Method/ Plant Used Rotary	Sheet 4 of 4		

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
09/01/17	14.00		100	47	40				black rinded flint	30.50	D20	N37	3, 6 / 8, 8, 9, 12	
									29.60 ... with 1No horizontal fracture					
									29.80 ... with 1No wide open horizontal fracture					
									infilled with weak, medium density chalk fragments					
			100	67	57				29.90 ... with subhorizontal and subvertical fractures	30.50				
									30.00 - 30.10 ... with occasional subhorizontal and subvertical fractures					
									30.20 ... with 1No subhorizontal fracture	31.20-31.45	C21			
									30.35 - 30.45 ... with angular to subangular fine to coarse gravel size and cobble size black rinded flint					
									30.50 - 30.80 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL. Gravel is weak, medium density chalk fragments					
									30.90 ... with 1No subvertical fracture and at 31.10m and 31.40m	32.00		N41	4, 7 / 9, 9, 10, 13	
									31.60 ... with 1No horizontal fracture					
									End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/01/17 Date Completed 10/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542716.5 N 180368.2	Final Depth 34.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	34.50	CP	05/01/2017	10/01/2017	ST	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
19.50	18.53	20	17.50		16.00	23.50	29.50	34.50	4:00	Flinty chalk

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
24.00	200	17.50	200				
34.50	150	25.50	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.50	34.50	Cement / Bentonite Grout	10/01/2017

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/01/17 Date Completed 10/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542716.5 N 180368.2	Final Depth 34.50m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
05/01/17	0.00				C	13.00	N34	5, 6 / 8, 8, 10, 8	12.90	1.80
05/01/17	13.00	12.90	1.80	... see Remark 3	C	14.00	N50/0.115	1, 8 / 25, 25	13.50	1.30
05/01/17	14.00	13.50	1.30		S	15.00	N50/0.04	10, 15 / 50	14.40	1.50
05/01/17	15.00	14.40	1.50		S	16.00	N50/0.06	25 / 50	15.50	1.00
09/01/17	15.00	14.40	1.00		S	17.00	N50/0.07	11, 14 / 50	16.50	1.30
09/01/17	16.00	15.50	1.00		S	18.00	N50/0.07	15, 10 / 50	17.50	2.00
09/01/17	17.00	16.50	1.30		S	19.50	N40/0.2	11, 10 / 7, 23, 10	17.50	1.10
09/01/17	18.00	17.50	2.00		S	21.00	N63	14, 7 / 13, 14, 22, 14	17.50	0.90
09/01/17	19.50	17.50	1.10	... Water Strike	S	22.50	N50/0.18	8, 12 / 16, 22, 12	17.50	1.00
09/01/17	21.00	17.50	0.90		S	24.00	N50/0.22	7, 11 / 13, 20, 17	17.50	1.20
09/01/17	22.50	17.50	1.00		S	25.50	N50/0.155	10, 15 / 20, 27, 3	25.00	1.20
09/01/17	24.00	17.50	1.20		S	27.00	N50/0.2	6, 10 / 17, 20, 13	25.50	1.10
09/01/17	24.00	24.00	1.20		S	28.50	N39	5, 5 / 8, 8, 10, 13	25.50	1.50
10/01/17	24.00	24.00	1.20		S	30.00	N27	5, 5 / 3, 6, 10, 8	25.50	1.60
10/01/17	25.50	25.00	1.20		S	31.50	N38	4, 4 / 6, 7, 10, 15	25.50	2.00
10/01/17	27.00	25.50	1.10		S	33.00	N50	7, 8 / 8, 12, 15, 15	25.50	1.60
10/01/17	28.50	25.50	1.50		S	34.50	N50/0.07	6, 19 / 50	25.50	1.15
10/01/17	30.00	25.50	1.60							
10/01/17	31.50	25.50	2.00							
10/01/17	33.00	25.50	1.60							
10/01/17	34.50	25.50	1.15							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Water seepage encountered at 19.50m depth, rising to 18.40m (5 mins), 18.45m (10 mins), 18.60m (15 mins) and 18.53m (20 mins).
- Ø200mm casing used from pontoon level to 17.50m depth. Bentonite seal inserted between 24.00m and 26.00m and borehole re-drilled with Ø150mm casing to 25.50m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator
- HOLE TYPES
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling / Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key



Borehole No

BH13

Project	
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CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542716.5 N 180368.2	Final Depth 34.50m
	Date Completed 10/01/17			
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
05/01/17					</						

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 05/01/17
Date Completed 10/01/17

Ground Level (mOD)
4.88

Co-Ordinates
E 542716.5 N 180368.2

Final Depth
34.50m

Client

London City Airport Limited

**Method/
Plant Used** Cable Percussion

Sheet
2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
05/01/17	12.90	1.80	-7.62		12.50		12.50			... VOC 0.2ppm	
					(0.50)	Dark grey clayey silty angular to well rounded fine to coarse flint GRAVEL. Sand is fine to coarse. (DOCK SEDIMENT / RIVER TERRACE DEPOSITS)	12.50-13.00	ES01 B02			
			-8.12		13.00		13.00		N34	5, 6 / 8, 8, 10, 8 ... VOC 0.1ppm	
05/01/17	13.50	1.30			(2.00)	Light brown sandy angular to well rounded fine to coarse flint GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular to well rounded flint. (RIVER TERRACE DEPOSITS)	13.00-13.50	ES03 B04			
							14.00		N50/ 115 mm	1, 8 / 25, 25	
						14.00 ... with angular to subangular flint gravel	14.00-14.50	B05			
05/01/17 09/01/17	14.40	1.50 1.00	-10.12		15.00		15.00		N50/ 40 mm	10, 15 / 50	
						Light grey fine SAND. (THANET SAND FORMATION: THANET SAND)	15.00-16.00	D06 B07			
							16.00		N50/ 60 mm	25 / 50	
09/01/17	15.50	1.00					16.00		D08 B09		
							16.50-17.00				
							17.00		N50/ 70 mm	11, 14 / 50	
09/01/17	16.50	1.30					17.00		D10 B11		
							17.50-18.00				
							18.00		N50/ 70 mm	15, 10 / 50	
09/01/17	17.50	2.00				18.00 ... becoming slightly clayey	18.00		D12		
							18.00				
							19.00-19.50	B13			
09/01/17	17.50	1.1					19.50		N40/ 200 mm	11, 10 / 7, 23, 10	
						19.50 ... becoming clayey	19.50	D14			

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542716.5 N 180368.2	Final Depth 34.50m
Date Completed 10/01/17				
Client London City Airport Limited	Method/ Plant Used Cable Percussion			Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
09/01/17	17.50	0.90					20.50-21.00	B15			
							21.00		N63	14, 7 / 13, 14, 22, 14	
							21.00	D16			
							21.50-22.00	B17			
09/01/17	17.50	1.00			(14.50)		22.50		N50/ 180 mm	8, 12 / 16, 22, 12	
							22.50	D18			
09/01/17	17.50	1.20					23.50-24.00	B19			
10/01/17	24.00	1.20				24.00 ... becoming very clayey	24.00		N50/ 220 mm	7, 11 / 13, 20, 17	
							24.00	D20			
							24.50-25.00	B21			
10/01/17	25.00	1.20					25.50		N50/ 155 mm	10, 15 / 20, 27, 3	
							25.50	D22			
							26.00-26.50	B23			
10/01/17	25.50	1.10					27.00		N50/ 200 mm	6, 10 / 17, 20, 13	
							27.00	D24			
							27.50-28.00	B25			
10/01/17	25.50	1.50					28.50		N39	5, 5 / 8, 8, 10, 13	
							28.50	D26			
							28.50-29.00	B27			
			-24.62		29.50		29.50-30.00	B28			
10/01/17	25.50	1.60	-25.12		(0.50) 30.00	Black angular to subangular fine to coarse rinded flint GRAVEL with rare flint cobbles and occasionally weak, medium density chalk	30.00		N27	5, 5 / 3, 6, 10, 8	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 05/01/17
Date Completed 10/01/17

Ground Level (mOD)
4.88

Co-Ordinates
E 542716.5 N 180368.2

Final Depth
34.50m

Client
London City Airport Limited

Method/
Plant Used Cable Percussion

Sheet
4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
10/01/17	25.50	2.00				fragments. (THANET SAND FORMATION: BULLHEAD BED) White CHALK recovered as: soft to firm, silty gravelly SILT. Gravel comprises weak medium density, angular to subangular fine to coarse chalk fragments. (SEAFORD CHALK FORMATION) 31.00 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density white chalk fragments and black rinded flint 31.50 ... [NI] recovered as: soft to firm, white gravelly SILT. Gravel comprises weak, medium density angular to subangular fine to coarse chalk fragments	30.00 31.00-31.50 31.50 31.50 32.50-33.00	D29 B30 D31 B32	N38	4, 4 / 6, 7, 10, 15	
10/01/17	25.50	1.60			(4.50)	32.50 ... becoming very gravelly. Gravel comprises weak, medium density angular to subangular fine to coarse chalk fragments and black rinded flint 33.00 ... becoming slightly gravelly. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments	33.00 33.00 34.00	D33 D34	N50	7, 8 / 8, 12, 15, 15	
10/01/17	25.50	1.15	-29.62		34.50	34.49 ... becoming gravelly. Gravel comprises angular to subangular fine to coarse black rinded flint and rare weak, medium density angular to subangular fine to coarse chalk fragments End of Borehole	34.50 34.50	D35	N50/ 70 mm	6, 19 / 50	

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 13/12/16	Ground Level (mOD) 4.67	Co-Ordinates E 542716.9 N 180326.6	Final Depth 31.50m
Date Completed 15/12/16				

Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	31.50	CP	13/12/2016	15/12/2016	ST	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					19.00	23.50	26.50	28.00	1:00	Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
24.00	200	16.80	200				
31.50	150	26.40	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.50	31.50	Cement / Bentonite Grout	15/12/2016

Issue No: 01

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Log Print Date & Time: 03/03/2017 17:42

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 13/12/16	Ground Level (mOD) 4.67	Co-Ordinates E 542716.9 N 180326.6	Final Depth 31.50m
Date Completed 15/12/16				

Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
13/12/16	0.00				C	13.50	N9	2, 2 / 3, 3, 2, 1	13.45	3.50
13/12/16	13.50	13.45	3.50	... see Remark 3	C	14.50	N50/0.295	3, 3 / 7, 7, 13, 23	14.30	2.00
13/12/16	14.50	14.30	2.00		S	15.50	N50/0.17	2, 8 / 15, 20, 15	15.40	1.50
13/12/16	15.50	15.40	1.50		S	16.50	N50/0.22	3, 5 / 11, 20, 19	15.90	4.00
13/12/16	16.50	15.90	4.00		S	17.50	N50/0.21	4, 7 / 15, 20, 15	15.90	3.10
13/12/16	17.50	15.90	3.10		S	19.00	N50/0.225	5, 8 / 11, 17, 22	15.90	5.00
13/12/16	19.00	15.90	5.00		S	20.50	N50/0.285	3, 7 / 16, 12, 13, 9	15.90	
13/12/16	23.50	15.90	1.50		S	22.00	N50/0.19	6, 5 / 16, 22, 12	15.90	
14/12/16	23.50	15.90	2.00		S	23.50	N50/0.195	7, 11 / 17, 12, 21	15.90	1.50
14/12/16	25.00	24.90	1.00		S	25.00	N30	4, 7 / 7, 8, 6, 9	24.90	1.00
14/12/16	26.50	26.40	2.00		S	26.50	N43	5, 6 / 9, 9, 10, 15	26.40	2.00
14/12/16	28.00	26.40	1.90		S	28.00	N45	4, 7 / 10, 11, 7, 17	26.40	1.90
14/12/16	29.50	26.40	1.30		S	29.50	N29	5, 5 / 7, 6, 6, 10	26.40	1.30
15/12/16	29.50	26.40	3.50		S	31.00	N50	5, 5 / 13, 10, 14, 13	26.40	5.00
15/12/16	31.00	26.40	5.00							
15/12/16	31.50	26.40	5.00							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 16.80m depth. Bentonite seal inserted between 22.00m and 24.00m and borehole re-drilled with Ø150mm casing to 26.40m depth.
- Borehole blowing in the gravels between 19.00m and 23.50m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator
- HOLE TYPES
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling / Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MF-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project	
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CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started	13/12/16	Ground Level (mOD) 4.67	Co-Ordinates E 542716.9 N 180326.6	Final Depth 31.50m
	Date Completed	15/12/16			
Client London City Airport Limited				Method/ Plant Used	Sheet
				Cable Percussion	1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
13/12/16											

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 13/12/16
Date Completed 15/12/16

Ground Level (mOD)
4.67

Co-Ordinates
E 542716.9 N 180326.6

Final Depth
31.50m

Client

London City Airport Limited

**Method/
Plant Used** Cable Percussion

Sheet
2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
			-7.83		12.50		12.50-13.00	B01			
13/12/16	13.45	3.50	-8.83		(1.00) 13.50	Dark grey silty very clayey angular to well rounded fine to coarse flint GRAVEL with rare angular to subrounded flint cobbles and strong hydrocarbon odour. (DOCK SEDIMENT / RIVER TERRACE DEPOSITS)	13.50 13.50-14.00	B02	N9	2, 2 / 3, 3, 2, 1	
13/12/16	14.30	2.00			(2.00) 14.50	Yellowish brown very sandy angular to well rounded fine to coarse flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	14.50 14.50-15.00	B03	N50/ 295 mm	3, 3 / 7, 7, 13, 23	
13/12/16	15.40	1.50	-10.83		15.50		15.50 15.50		N50/ 170 mm	2, 8 / 15, 20, 15	
13/12/16	15.90	4.00				Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND) 16.00 ... becoming slightly clayey	15.50 16.00-16.50	D04 B05			
13/12/16	15.90	3.10					16.50 16.50		N50/ 220 mm	3, 5 / 11, 20, 19	
13/12/16	15.90	5.00					16.50 17.00-17.50	D06 B07			
							17.50 17.50		N50/ 210 mm	4, 7 / 15, 20, 15	
							17.50 18.00-18.50	D08 B09			
							19.00 19.00		N50/ 225 mm	5, 8 / 11, 17, 22	
						19.50 ... becoming clayey	19.50-20.00	D10 B11			

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 13/12/16
Date Completed 15/12/16

Ground Level (mOD)
4.67

Co-Ordinates
E 542716.9 N 180326.6

Final Depth
31.50m

Client

London City Airport Limited

Method/

Plant Used Cable Percussion

Sheet

3 of 4

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/Backfill
13/12/16	15.90	1.50					20.50		N50/285 mm	3, 7 / 16, 12, 13, 9	
14/12/16	15.90	2.00			(11.00)	21.00 ... becoming very clayey	20.50 21.00-21.50	D12 B13			
							22.00		N50/190 mm	6, 5 / 16, 22, 12	
							22.00	D14			
							23.00-23.50	B15			
							23.50		N50/195 mm	7, 11 / 17, 12, 21	
							23.50 24.00-24.50	D16 B17			
14/12/16	24.90	1.00					25.00 25.00	D18	N30	4, 7 / 7, 8, 6, 9	
							25.50-26.00	B19			
14/12/16	26.40	2.00	-21.83		26.50		26.50 26.50	D20	N43	5, 6 / 9, 9, 10, 15	
						White CHALK recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint. (SEAFORD CHALK FORMATION) 27.00 - 27.50 ... with angular to subangular fine to coarse black rinded flint with occasional flint cobbles	27.00-27.50	B21			
14/12/16	26.40	1.90				28.00 ... becoming soft	28.00 28.00	D22	N45	4, 7 / 10, 11, 7, 17	
						28.50 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint	28.50-29.00	B23			
14/12/16	26.40	1.30			(5.00)		29.50 29.50	D24	N29	5, 5 / 7, 6, 6, 10	
15/12/16	26.40	3.50				29.50 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse	30.00-30.50	B25			

Issue No: 01

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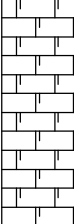
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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 13/12/16	Ground Level (mOD) 4.67	Co-Ordinates E 542716.9 N 180326.6	Final Depth 31.50m
Date Completed 15/12/16				
Client London City Airport Limited	Method/ Plant Used Cable Percussion			Sheet 4 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
15/12/16	26.40	5.00				chalk fragments	31.00 31.00	D26	N50	5, 5 / 13, 10, 14, 13	
15/12/16	26.40	5.00	-26.83		31.50	31.00 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments					
						End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 08/12/16 Date Completed 12/12/16	Ground Level (mOD) 4.10	Co-Ordinates E 542718.8 N 180279.0	Final Depth 30.45m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	30.45	CP	08/12/2016	12/12/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
							24.60 26.50	25.00 28.50	1:00 2:00	Gravel Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00 23.50 30.45	200 200 150	0.00 15.10 23.80	200 200 150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
10.60	30.45	Cement / Bentonite Grout	12/12/2016

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 08/12/16	Ground Level (mOD) 4.10	Co-Ordinates E 542718.8 N 180279.0	Final Depth 30.45m
Date Completed 12/12/16				

Client

London City Airport Limited

PROGRESS					SPT DETAILS						
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)	
08/12/16	0.00			... see Remark 3	S	12.00	N18	0, 0 / 2, 4, 6, 6	12.00	1.30	
08/12/16	11.00	11.00	1.10		C	13.00	N50/0.182	4, 7 / 10, 19, 21	13.00	1.10	
08/12/16	12.00	12.00	1.30		S	14.00	N50/0.065	13, 12 / 50	14.00	1.30	
08/12/16	13.00	13.00	1.10		S	15.00	N50/0.135	10, 15 / 20, 30	15.00	1.00	
08/12/16	14.00	14.00	1.30		S	16.50	N50/0.15	7, 13 / 20, 30	15.00	1.30	
08/12/16	14.50	14.50	1.35		S	18.00	N50/0.21	9, 11 / 12, 19, 19	15.00	0.50	
09/12/16	14.50	14.50	1.10		S	19.50	N50/0.22	10, 13 / 15, 17, 18	15.00	0.40	
09/12/16	15.00	15.10	1.00		S	21.00	N50/0.19	10, 15 / 17, 20, 13	15.00	0.90	
09/12/16	16.50	15.10	1.30		S	22.50	N50/0.225	5, 10 / 15, 16, 19	15.00	0.50	
09/12/16	18.00	15.10	0.50		S	24.00	N43	4, 6 / 7, 9, 15, 12	23.80	1.00	
09/12/16	19.50	15.10	0.40		S	25.50	N25	4, 7 / 7, 6, 5, 7	23.80	1.40	
09/12/16	21.00	15.10	0.90		S	27.00	N50/0.22	15, 10 / 16, 16, 18	23.80	1.25	
09/12/16	22.50	15.10	0.50		S	28.50	N41	5, 4 / 7, 7, 8, 19	23.80	1.40	
09/12/16	24.00	23.80	1.00		S	30.00	N50	9, 13 / 9, 13, 18, 10	23.80	1.35	
09/12/16	25.50	23.80	1.40								
09/12/16	26.50	23.80	1.85								
12/12/16	26.50	23.80	1.25								
12/12/16	28.50	23.80	1.40								
12/12/16	30.00	23.80	1.35								
GENERAL REMARKS											
1. Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level. 2. Clearance by UXO Magnetometer probe. 3. Water present in the borehole from casing installation through the dock. 4. Ø200mm casing used from pontoon level to 15.10m depth. Bentonite seal inserted between 21.50m and 23.50m and borehole re-drilled with Ø150mm casing to 23.80m depth.											
KEY											
SAMPLES											
ES - Environmental Sample (Tub, Vial, Jar)											
U - 100mm Diameter Undisturbed Sample											
UT - 100mm Diameter Thin Wall Undisturbed Sample											
U38 - 38mm Diameter Undisturbed Sample											
D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample											
C - Core Sample, W-Water Sample, R-Root Sample											
INSTALLATION DETAILS											
SPIE - Standpipe Piezometer											
SPGW - Groundwater Monitor Standpipe											
SPG/GW - Gas / Groundwater Monitor Standpipe											
VWP - Vibrating Wire Piezometer											
ICM - Inclinator											
HOLE TYPES											
IP - Inspection Pit, TP-Trial Pit TT - Trial Trench											
CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic											
DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary											
DC - Diamond Coring, CP/R-Cable Percussion Rotary follow on											
TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds											



Borehole No

BH15

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 08/12/16	Ground Level (mOD) 4.10	Co-Ordinates	Final Depth 30.45m
	Date Completed 12/12/16		E 542718.8 N 180279.0	
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result					
08/12/16					(10.60)	Water								

Issue No: 01	Checked By: AN	Approved By: OS	Log Print Date & Time: 03/03/2017 17:46	 AGS AGS - ASSOCIATION OF GENERAL SECRETARIES
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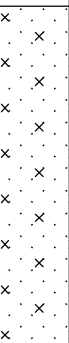
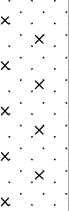
Sheet 2 of 4

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 08/12/16 Date Completed 12/12/16	Ground Level (mOD) 4.10	Co-Ordinates E 542718.8 N 180279.0	Final Depth 30.45m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
09/12/16	15.10	0.90					21.00		N50/ 190 mm	10, 15 / 17, 20, 13	
							21.00 21.50-22.00	D19 B20			
09/12/16	15.10	0.50					22.50		N50/ 225 mm	5, 10 / 15, 16, 19	
							22.50 23.00-23.50	D21 B22			
09/12/16	23.80	1.00					24.00 24.00	D23	N43	4, 6 / 7, 9, 15, 12	
			-20.40		24.50		24.50-25.00	B24			
09/12/16	23.80	1.40	-21.40		(1.00) 25.50	Black angular to subangular fine to coarse rinded flint and weak, medium density white chalk GRAVEL with occasional flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)	25.50 25.50	D25	N25	4, 7 / 7, 6, 5, 7	
						White CHALK recovered as: firm, white SILT. (SEAFORD CHALK FORMATION)	26.00-26.50	B26			
09/12/16	23.80	1.85				26.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL. Gravel comprises weak, medium density white chalk fragments and black rinded flint					
12/12/16	23.80	1.25					27.00		N50/ 220 mm	15, 10 / 16, 16, 18	
						27.00 ... with a band of fine to coarse rinded flint gravel and flint cobbles	27.00	D27			
					(4.95)		28.00	B28			
12/12/16	23.80	1.40				28.50 ... [NI] recovered as: firm, slightly gravelly SILT. Gravel is fine to coarse weak, medium density chalk fragments	28.50 28.50	D29	N41	5, 4 / 7, 7, 8, 19	
						29.00 ... with rare weak, medium density white chalk cobbles	29.00-29.50	D30			
12/12/16	23.80	1.35					30.00		N50	9, 13 / 9, 13, 18, 10	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 08/12/16
Date Completed 12/12/16

Ground Level (mOD)
4.10

Co-Ordinates
E 542718.8 N 180279.0

Final Depth
30.45m

Client
London City Airport Limited

**Method/
Plant Used** Cable Percussion

Sheet
4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
			-26.35		30.45	30.00 ... [NI] recovered as: firm white SILT	30.00	D31			
						End of Borehole					

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 24/01/17	Ground Level (mOD) 5.01	Co-Ordinates E 542785.3 N 180379.7	Final Depth 39.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	39.00	RC	17/01/2017	24/01/2017	FD	CB	112	PDC	Geotec 350	AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	13.00	16.50		0
16.00	150	16.00	150	16.50	18.00		0
39.00	146			18.00	19.50		0
				19.50	21.00		0
				21.00	22.50		0
				22.50	24.00		100
				24.00	25.50		100
				25.50	27.00		100
				27.00	28.50		67
				28.50	30.00		40
				30.00	31.50		93
				31.50	33.00		100
				33.00	34.50		33
				34.50	36.00		67
				36.00	37.50		67
				37.50	39.00		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
13.00	36.00	Water	100	
36.00	39.00	Water	0	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
13.00	39.00	Cement / Bentonite Grout	24/01/2017

Issue No: 01

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Log Print Date & Time: 03/03/2017 17:42

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 17/01/17
Date Completed 24/01/17

Ground Level (mOD)
5.01

Co-Ordinates
E 542785.3 N 180379.7

Final Depth
39.00m

Client

London City Airport Limited

PROGRESS

SPT DETAILS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks
17/01/17	0.00			
17/01/17	19.50	16.00	13.00	... Rotary flush
17/01/17	22.50	16.00	13.00	
18/01/17	22.50	16.00	13.00	
18/01/17	31.50	16.00	13.00	
19/01/17	31.50	16.00	13.00	
19/01/17	36.00	16.00	13.00	
24/01/17	36.00	16.00	13.00	
24/01/17	39.00	16.00	13.00	

Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
S	18.00	N50/0.04	25 / 50	16.00	
S	19.50	N50/0.11	3, 9 / 30, 20	16.00	
S	21.00	N50/0.075	9, 16 / 50	16.00	
S	22.50	N50/0.125	13, 12 / 30, 20	16.00	
S	24.00	N50/0.125	8, 14 / 20, 30	16.00	
S	25.50	N50/0.09	7, 18 / 26, 24	16.00	
S	27.00	N50/0.17	8, 13 / 18, 25, 7	16.00	
S	28.50	N50/0.195	5, 9 / 16, 19, 15	16.00	
S	30.00	N50/0.175	7, 16 / 21, 22, 7	16.00	
S	31.50	N50/0.175	6, 12 / 20, 23, 7	16.00	
S	33.00	N50/0.21	5, 7 / 11, 18, 21	16.00	
S	34.50	N36	5, 4 / 6, 7, 9, 14	16.00	
S	36.00	N49	15, 10 / 12, 12, 12, 13	16.00	
S	37.50	N36	5, 6 / 8, 9, 9, 10	16.00	
S	39.00	N50/0.01	11, 14 / 50	16.00	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Borehole carried out open hole between 13.00m and 16.50m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling/Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Piezometer, MP Multi-Point Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started	17/01/17	Ground Level (mOD) 5.01	Co-Ordinates E 542785.3 N 180379.7	Final Depth 39.00m
	Date Completed	24/01/17			
Client London City Airport Limited				Method/ Plant Used Rotary	Sheet 1 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
17/01/17									Water					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 17/01/17
Date Completed 24/01/17

Ground Level (mOD)
5.01

Co-Ordinates
E 542785.3 N 180379.7

Final Depth
39.00m

Client
London City Airport Limited

**Method/
Plant Used**
Rotary

Sheet
2 of 4

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						-7.99		13.00						
			0					(3.50)	Open Hole.					
						-11.49		16.50	No recovery (loose SAND).					
			0					(3.00)		18.00		N50/ 40 mm	25 / 50	
			0											
17/01/17	16.00	13.00				-14.49		19.50	Light grey, slightly clayey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	19.50		N50/ 110 mm	3, 9 / 30, 20	
			0							19.50	D01			

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 17/01/17
Date Completed 24/01/17

Ground Level (mOD)
5.01

Co-Ordinates
E 542785.3 N 180379.7

Final Depth
39.00m

Client
London City Airport Limited

**Method/
Plant Used**
Rotary

Sheet
3 of 4

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/Backfill
17/01/17	16.00	13.00	0							21.00		N50/75 mm	9, 16 / 50	
18/01/17	16.00	13.00	0							21.00	D02			
										22.50		N50/125 mm	13, 12 / 30, 20	
										22.50	D03			
			100							23.50	B04			
										24.00		N50/125 mm	8, 14 / 20, 30	
										24.00	D05			
			100							25.50		N50/90 mm	7, 18 / 26, 24	
										25.50	D06			
										25.80	B07			
			100							27.00		N50/170 mm	8, 13 / 18, 25, 7	
										27.00	D08			
										28.00	B09			
										28.50		N50/195 mm	5, 9 / 16, 19, 15	
										28.50	D10			
			40							29.50	B11			
										30.00		N50/175 mm	7, 16 / 21, 22, 7	

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17	Ground Level (mOD) 5.01	Co-Ordinates E 542785.3 N 180379.7	Final Depth 39.00m
Date Completed 24/01/17				
Client London City Airport Limited	Method/ Plant Used Rotary			Sheet 4 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
18/01/17 19/01/17	16.00 16.00	13.00 13.00	93							30.00	D12	N50/ 175 mm	6, 12 / 20, 23, 7	
										31.00	B13			
			100							31.50	D14	N50/ 210 mm	5, 7 / 11, 18, 21	
										31.50				B15
			33							32.50	D16	N36	5, 4 / 6, 7, 9, 14	
										33.00				B17
										34.00	D18			
										34.50				B18
			67	13	7	-29.99 -30.09		35.00 35.10	Black, angular to subangular fine to coarse rinded flint GRAVEL with occasional black angular to subangular rinded flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)					
									[NI] White CHALK recovered as: soft, white slightly gravelly SILT. Gravel comprises angular to subangular fine to medium black rinded flint and rare weak, medium density chalk fragments. (SEAFORD CHALK FORMATION)	36.00	D19	N49	15, 10 / 12, 12, 12, 13	
19/01/17 24/01/17	16.00 16.00	13.00 13.00	67					(2.90)	35.60 - 35.80 ... becoming strong, medium density chalk	36.00				B20
									36.50					
										36.00 ... [NI] recovered as: white, weak to moderately weak medium density chalk COBBLES	37.50	D21	N36	5, 6 / 8, 9, 9, 10
										36.50 ... with rare coarse gravel size and cobble size angular to subangular black rinded flint	37.50			
			100	67	60	-32.99		38.00	37.50 - 38.00 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint	38.00-38.30	C22			
									Strong, medium density white CHALK. (SEAFORD CHALK FORMATION)					
								(1.00)	38.00 ... becoming strong, medium density CHALK					
									38.20 ... with 1No subhorizontal fracture					
24/01/17	16.00	13.00				-33.99		39.00	38.50 ... with 1No subhorizontal fracture and at 38.60m	39.00	D23	N50/ 10 mm	11, 14 / 50	
									38.65 ... with rare black rinded flint cobbles					
									38.70 ... with 1No subhorizontal fracture and at 38.80m	39.00				
									38.90 ... with 1No angular to subangular black rinded flint cobble					
									End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16 Date Completed 22/11/16	Ground Level (mOD) 5.24	Co-Ordinates E 542780.8 N 180342.4	Final Depth 35.90m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00 15.90	15.90 35.90	DS RC	18/11/2016 21/11/2016	21/11/2016 22/11/2016	TC TC	CB CB	112	PDC	Geotec 350 Geotec 350	AR779 AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00 12.50 35.90	150 150 146	0.00 12.50	150 150	11.70 12.70 13.60 14.00 14.20 15.70 15.90 17.00 18.50 20.00 21.30 23.00 24.50 26.00 27.50 29.00 30.40 31.40 32.90 34.40	12.70 13.60 14.00 14.20 15.70 15.90 17.00 18.50 20.00 21.30 23.00 24.50 26.00 27.50 29.00 30.40 31.40 32.90 34.40		100 100 100 100 0 100 100 0 13 100 0 80 100 0 93 86 100 100 100 100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
15.90 18.50 23.00 26.00 27.50	17.00 21.30 24.50 27.50 29.00	Water Water Water Water Water	30 30 20 90 10	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.70	35.90	Cement / Bentonite Grout	22/11/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16	Ground Level (mOD) 5.24	Co-Ordinates E 542780.8 N 180342.4	Final Depth 35.90m
Date Completed 22/11/16				

Client

London City Airport Limited

PROGRESS

SPT DETAILS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
18/11/16	0.00			... see Remark 3 & 4	C	12.70	N50/0.115	2, 14 / 21, 29	12.50	
18/11/16	14.00	12.50	3.80		C	13.60	N50/0.17	6, 5 / 18, 24, 8	12.50	
21/11/16	14.00	12.50	6.10		S	15.70	N50/0.155	2, 14 / 22, 26, 2	12.50	
21/11/16	21.30	12.50	3.10		S	18.50	N50/0.15	3, 14 / 21, 29	12.50	
22/11/16	21.30	12.50	2.10		S	20.00	N50/0.135	8, 17 / 26, 24	12.50	
22/11/16	35.90	12.50	3.80		S	23.00	N50/0.155	3, 14 / 18, 24, 8	12.50	
					S	24.50	N50/0.155	6, 15 / 22, 26, 2	12.50	
					S	27.50	N50/0.17	3, 11 / 18, 21, 11	12.50	
					S	29.00	N50/0.125	11, 14 / 24, 26	12.50	
					S	30.40	N50/0.04	25 / 50	12.50	
					S	31.40	N48	10, 9 / 7, 11, 11, 19	12.50	
					S	32.90	N50/0.06	25 / 50	12.50	
					S	34.40	N50/0.18	6, 6 / 10, 26, 14	12.50	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Dynamic sampling techniques used from 11.70m to 15.90m. Rotary boring carried out thereafter.
- Water present in the borehole from casing installation through the dock.
- Pressuremeter tests carried out at 14.80m, 17.60m, 21.90m and 26.60m.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling/Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Multi-Media Probe, VOC-Volatile Organic Compounds

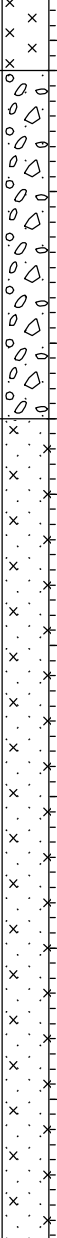
Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16	Ground Level (mOD) 5.24	Co-Ordinates E 542780.8 N 180342.4	Final Depth 35.90m
Date Completed 22/11/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 2 of 4		

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
18/11/16 21/11/16	12.50 12.50	3.80 6.10	100	100	100	-6.46 -6.96 -9.26		11.70	Very soft, light brown mottled dark grey SILT with strong hydrocarbon odour. (DOCK SEDIMENT) 11.90 ... becoming dark grey and slightly gravelly. Gravel is angular to subangular fine to medium flint Dark grey very sandy angular to well rounded fine to coarse flint GRAVEL with hydrocarbon odour. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) 12.70 ... becoming dark brown Light grey fine silty SAND. (THANET SAND FORMATION: THANET SAND)	11.90 11.90	ES01	... VOC 0.2ppm		
								(0.50) 12.20		12.70				N50/ 115 mm
								12.70-13.60		B02	... VOC 0.0ppm			
								12.90 12.90		ES03	N50/ 170 mm	6, 5 / 18, 24, 8		
								13.60			... VOC 0.0ppm			
								13.90 13.90		ES04	... VOC 0.0ppm			
								14.80			... Pressuremeter Test at 14.80m			
								15.70		B05 D06	N50/ 155 mm	2, 14 / 22, 26, 2		
								15.70-15.90 15.70			B07	... Pressuremeter Test at 17.60m		
								16.70		D08	N50/ 150 mm	3, 14 / 21, 29		
								17.60			8, 17 / 26, 24			
								18.50 18.50						
								20.00						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 18/11/16
Date Completed 22/11/16

Ground Level (mOD)
5.24

Co-Ordinates
E 542780.8 N 180342.4

Final Depth
35.90m

Client
London City Airport Limited

Method/ **Dynamic Sampling /**
Plant Used **Rotary**

Sheet
3 of 4

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/Backfill
21/11/16	12.50	3.10	100							20.00	D09			
22/11/16	12.50	2.10								20.70	B10			
			0							22.30			... Pressuremeter Test at 21.90m	
										23.00		N50/155 mm	3, 14 / 18, 24, 8	
										23.00	D11			
			80							24.50		N50/155 mm	6, 15 / 22, 26, 2	
										24.50	D12			
			100							25.80	B13			
										25.80	B14			
			0							26.60			... Pressuremeter Test at 26.60m	
										27.50		N50/170 mm	3, 11 / 18, 21, 11	
			93						27.50 ... becoming clayey					
									28.75 ... becoming very clayey	29.00		N50/125 mm	11, 14 / 24, 26	
									29.00 ... becoming clayey	29.00	D15			
			86							29.50	B16			
									29.80 ... becoming very clayey					

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16	Ground Level (mOD) 5.24	Co-Ordinates E 542780.8 N 180342.4	Final Depth 35.90m
Date Completed 22/11/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary		Sheet 4 of 4	

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill			
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result					
22/11/16	12.50	3.80	86			-25.16		30.40	Black angular to subangular fine to coarse rinded flint GRAVEL with rare flint cobbles. (THANET SAND FORMATION: BULLHEAD BED) White CHALK recovered as: weak, medium density silty chalk cobbles. (SEAFORD CHALK FORMATION) 30.80 ... [NI] recovered as: angular to subangular medium to coarse silty GRAVEL. Gravel comprises weak, medium density white chalk fragments with occasional grey marling and rare black rinded flint 30.85 ... fractures very closely spaced horizontal occasionally vertical 30.90 ... [NI] recovered as: silty angular to subangular COBBLES 31.10 - 31.30 ... with occasional subvertical to subhorizontal fractures 31.40 - 31.60 ... [NI] recovered as: white slightly gravelly SILT. Gravel comprises angular to subangular fine to coarse extremely weak, low density chalk fragments and medium to coarse black rinded flint Strong, high density white CHALK with occasional dark grey marling. (SEAFORD CHALK FORMATION) 32.40 - 32.65 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare moderately weak, medium density chalk cobbles. Gravel comprises weak, medium density white chalk fragments and medium to coarse black rinded flint 32.80 - 32.85 ... with wide open fractures infilled with gravel size angular to subangular fine to coarse weak, medium density chalk fragments 32.85 ... with rare gravel size black rinded flint 32.90 - 33.00 ... with a band of gravel size and rare cobble size angular to subangular medium to coarse black rinded flint 33.10 - 33.30 ... with occasional subvertical and subhorizontal fractures 33.75 ... with occasional fractures very closely spaced and horizontal 34.05 ... with horizontal fractures infilled with coarse gravel size angular to subangular black rinded flint 34.10 - 34.25 ... with subvertical fractures 34.35 - 34.40 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare moderately weak, medium density white chalk cobbles. Gravel is weak, medium density white chalk fragments 34.55 ... with 1No open fracture infilled with gravel size angular to subangular fine to coarse extremely weak, low density chalk fragments 34.80 ... with 1No horizontal fracture 34.90 - 35.10 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare black rinded flint cobbles. Gravel comprises weak to moderately weak, medium density white chalk fragments and black rinded flint 35.15 - 35.38 ... with 1No vertical fracture 35.40 ... with 1No horizontal fracture 35.55 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with occasional weak, medium density white chalk cobbles. Gravel is weak, medium density white chalk fragments End of Borehole	30.40	D17	N50/ 40 mm	25 / 50				
				-25.46	30.70	30.40											
			100	60	15	(0.90)	31.20	B18		N48		10, 9 / 7, 11, 11, 19					
							31.40										
						-26.36	31.60	31.40			D19						
						100	60	46				31.80-32.10	C20				
														32.90		N50/ 60 mm	25 / 50
														32.90	D21		
						100	77	65		(4.30)				33.35-33.55	C22		
														34.40		N50/ 180 mm	6, 6 / 10, 26, 14
														34.50-34.75	C23		
						100	57	53									
										-30.66		35.90					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 07/12/16 Date Completed 08/12/16	Ground Level (mOD) 4.18	Co-Ordinates E 542783.2 N 180300.6	Final Depth 33.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.50	CP	07/12/2016	08/12/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
24.00	200	15.10	200				
33.50	150	24.40	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.50	33.50	Cement / Bentonite Grout	22/11/2016

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 07/12/16 Date Completed 08/12/16	Ground Level (mOD) 4.18	Co-Ordinates E 542783.2 N 180300.6	Final Depth 33.50m
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Client

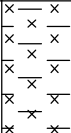
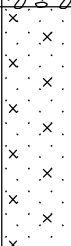
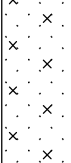
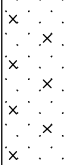
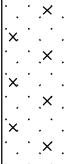
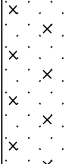
London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
07/12/16	0.00				C	12.50	N43	4, 6 / 7, 8, 10, 18	12.50	1.10
07/12/16	12.50	12.50	1.10	... see Remark 3	C	13.50	N50/0.153	5, 9 / 17, 27, 6	13.50	1.00
07/12/16	13.50	13.50	1.00		S	14.50	N50/0.08	14, 11 / 38, 12	14.50	1.30
07/12/16	14.50	14.50	1.30		S	15.50	N50/0.07	18, 7 / 50	15.10	1.50
07/12/16	15.50	15.10	1.50		S	16.50	N50/0.08	13, 12 / 40, 10	15.10	1.20
07/12/16	16.50	15.10	1.20		S	18.00	N50/0.155	7, 17 / 17, 28, 5	15.10	1.10
07/12/16	18.00	15.10	1.10		S	19.50	N50/0.15	7, 15 / 22, 28	15.10	1.40
07/12/16	19.50	15.10	1.40		S	21.00	N50/0.085	15, 10 / 39, 11	15.10	1.60
07/12/16	21.00	15.10	1.60		S	22.50	N50/0.153	8, 15 / 21, 26, 3	15.10	1.40
07/12/16	22.50	15.10	1.40		S	24.00	N50/0.145	8, 16 / 21, 29	15.10	1.60
07/12/16	24.00	15.10	1.60		S	25.50	N50/0.228	7, 14 / 15, 17, 15, 3	24.40	1.20
07/12/16	25.00	15.10	1.25		S	27.00	N50/0.24	6, 12 / 13, 15, 12, 10	24.40	0.50
08/12/16	25.00	15.10	1.00		S	28.60	N30	5, 6 / 7, 7, 6, 10	24.40	0.70
08/12/16	25.50	24.40	1.20		S	30.00	N50/0.22	6, 6 / 9, 14, 27	24.40	1.00
08/12/16	27.00	24.40	0.50		S	31.50	N40	5, 7 / 8, 10, 10, 12	24.40	1.30
08/12/16	28.60	24.40	0.70		S	33.00	N49	5, 8 / 11, 13, 11, 14	24.40	1.70
08/12/16	30.00	24.40	1.00							
08/12/16	31.50	24.40	1.30							
08/12/16	33.50	24.40	1.70							
GENERAL REMARKS 1. Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level. 2. Clearance by UXO Magnetometer probe. 3. Water present in the borehole from casing installation through the dock. 4. Ø200mm casing used from pontoon level to 18.10m depth. Bentonite seal inserted between 22.00m and 24.00m and borehole re-drilled with Ø150mm casing to 24.40m depth.										
KEY SAMPLES ES - Environmental Sample (Tub, Vial, Jar) U - 100mm Diameter Undisturbed Sample UT - 100mm Diameter Thin Wall Undisturbed Sample U38 - 38mm Diameter Undisturbed Sample D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample C - Core Sample, W-Water Sample, R-Root Sample INSTALLATION DETAILS SPIE - Standpipe Piezometer SPGW - Groundwater Monitor Standpipe SPO/UW - 0.1µm Groundwater Monitor Standpipe VWP - Vibrating Wire Piezometer ICM - Inclinator HOLE TYPES IP - Inspection Pit, TP-Trial Pit TT - Trial Trench CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rosary DC - Diamond Coring, CPR-Cable Percussion Rotary follow on										
TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP Mackintosh Probe, VOC Volatile Organic Compounds Note: All depths are in metres, all diameters in millimetres, water velocity rate time in minutes. For details of abbreviations see Key										

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 07/12/16	Ground Level (mOD) 4.18	Co-Ordinates E 542783.2 N 180300.6	Final Depth 33.50m
	Date Completed 08/12/16			
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
07/12/16	12.50	1.10	-7.32		11.50		11.50-12.30	B01		... VOC 0.3ppm	
					(1.00)	Soft, dark grey very clayey SILT with strong hydrocarbon odour. (DOCK SEDIMENT)	11.80 11.80	ES02			
			-8.32		12.50		12.50 12.50 12.50-13.00	ES03 B04	N43		4, 6 / 7, 8, 10, 18 ... VOC 0.2ppm
07/12/16	13.50	1.00			(1.20)	Yellowish brown very sandy angular to well rounded fine to coarse flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	13.25 13.50	D05	N50/ 153 mm	5, 9 / 17, 27, 6	
07/12/16	14.50	1.30	-9.52		13.70		13.50-13.70 13.70-14.00	B06 B07		14, 11 / 38, 12	
						Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	14.25 14.50	D08	N50/ 80 mm		
						14.50 ... becoming slightly clayey	14.50 15.00-15.50	D09 B10			
07/12/16	15.10	1.50					15.50 15.50 16.00-16.50	D11 B12	N50/ 70 mm	18, 7 / 50	
07/12/16	15.10	1.20					16.50 16.50 17.00-17.50	D13 B14	N50/ 80 mm	13, 12 / 40, 10	
07/12/16	15.10	1.10					18.00 18.00 18.50-19.00	D15 B16	N50/ 155 mm	7, 17 / 17, 28, 5	
07/12/16	15.10	1.40					19.50 19.50 20.00-20.50	D17 B18	N50/ 150 mm	7, 15 / 22, 28	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 07/12/16	Ground Level (mOD) 4.18	Co-Ordinates E 542783.2 N 180300.6	Final Depth 33.50m
	Date Completed 08/12/16			
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
08/12/16	24.40	1.30			(4.90)	30.00 ... becoming slightly gravelly	30.00	D32	N40	5, 7 / 8, 10, 10, 12	
						30.50 ... [NI] recovered as: silty white chalk GRAVEL	30.50-31.00	B33			
						31.50 ... [NI] recovered as: white slightly gravelly SILT	31.50	D34			
						32.00 ... gravel becoming angular to subangular fine to coarse dark grey rinded flint and angular to subangular fine to medium weak, medium density chalk fragments	32.00-32.50	B35			
08/12/16	24.40	1.70	-29.32		33.50		33.00	D36	N49	5, 8 / 11, 13, 11, 14	
						End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.34	Co-Ordinates E 542846.4 N 180360.8	Final Depth 36.60m
Date Completed 06/12/16				

Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	36.60	CP	05/12/2016	06/12/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					26.00	33.00	33.05	33.30	0:45	Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
25.00	200	15.85	200				
36.60	150	25.30	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.00	36.60	Cement / Bentonite Grout	06/12/2016

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 05/12/16
Date Completed 06/12/16

Ground Level (mOD)
4.34

Co-Ordinates
E 542846.4 N 180360.8

Final Depth
36.60m

Client

London City Airport Limited

PROGRESS

SPT DETAILS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
05/12/16	0.00				C	13.50	N23	4, 6 / 5, 5, 6, 7	13.50	1.00
05/12/16	12.50	12.50	1.20	... see Remark 3	C	14.50	N50/0.28	3, 8 / 11, 13, 15, 11	14.50	1.10
05/12/16	13.50	13.50	1.00		S	15.50	N50/0.055	14, 11 / 50	15.50	1.30
05/12/16	14.50	14.50	1.10		S	16.50	N50/0.078	16, 9 / 46, 4	15.85	1.10
05/12/16	15.50	15.50	1.30		S	18.00	N50/0.07	19, 6 / 50	15.85	1.20
05/12/16	16.50	15.85	1.10		S	19.50	N50/0.08	13, 12 / 41, 9	15.85	1.40
05/12/16	18.00	15.85	1.20		S	21.00	N50/0.125	9, 16 / 22, 28	15.85	1.40
05/12/16	19.50	15.85	1.40		S	22.50	N50/0.153	7, 14 / 19, 27, 4	15.85	1.10
05/12/16	21.00	15.85	1.40		S	24.00	N50/0.12	10, 15 / 23, 27	15.85	1.30
05/12/16	22.50	15.85	1.10		S	25.50	N50/0.205	7, 13 / 16, 20, 14	25.30	1.50
05/12/16	24.00	15.85	1.30		S	27.00	N50/0.2	7, 15 / 15, 17, 18	25.30	
05/12/16	25.50	25.30	1.50		S	28.50	N50/0.23	6, 10 / 13, 16, 16, 5	25.30	
05/12/16	26.00	25.30	1.25		S	30.00	N36	3, 5 / 6, 10, 9, 11	25.30	
06/12/16	26.00	25.30	1.05	... Water added	S	31.50	N31	4, 4 / 5, 6, 7, 13	25.30	
06/12/16	27.00	25.30			S	33.00	N46	5, 19 / 20, 12, 7, 7	25.30	
06/12/16	28.50	25.30			S	34.50	N34	6, 8 / 7, 6, 6, 15	25.30	
06/12/16	30.00	25.30			S	36.00	N50/0.245	6, 7 / 11, 17, 15, 7	25.30	
06/12/16	31.50	25.30								
06/12/16	33.00	25.30								
06/12/16	34.50	25.30								
06/12/16	36.00	25.30								
06/12/16	36.60	25.30								

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 15.85m depth. Bentonite seal inserted between 23.00m and 25.00m and borehole re-drilled with Ø150mm casing to 25.30m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB - Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclometer
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R - Dynamic Sampling / Rotary
- DC - Diamond Coring, CPR - Cable Percussion Rotary follow on

TESTS S-C SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Multi-Media Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Issue No: 01

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Borehole No

BH19

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.34	Co-Ordinates E 542846.4 N 180360.8	Final Depth 36.60m
	Date Completed 06/12/16			
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result					
05/12/16					(12.00)	Water								

Issue No: 01	Checked By: AN	Approved By: OS	Log Print Date & Time: 03/03/2017 17:46	
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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16 Date Completed 06/12/16	Ground Level (mOD) 4.34	Co-Ordinates E 542846.4 N 180360.8	Final Depth 36.60m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
05/12/16	12.50	1.20	-7.66		12.00		12.00			... VOC 1.2ppm	
					(1.25)	Dark grey slightly gravelly clayey SILT with strong hydrocarbon odour. Gravel is angular to subangular fine to coarse flint. (DOCK SEDIMENT)	12.00	ES01			
							12.00	B02			
							12.50-12.95	UT03	8 blows	100% Recovery	
05/12/16	13.50	1.00	-8.91		13.25		13.00	D04			
					(2.00)	Yellowish brown to dark grey slightly clayey angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. (RIVER TERRACE DEPOSITS)	13.25	D05			
							13.50		N23	4, 6 / 5, 5, 6, 7	
							13.50	ES06		... VOC 0.4ppm	
05/12/16	14.50	1.10					13.50-14.00	B07			
							14.25	D08			
						14.50 ... becoming very sandy with rare flint cobbles. Sand is fine to coarse	14.50		N50/ 280 mm	3, 8 / 11, 13, 15, 11	
							14.50			... VOC 0.1ppm	
05/12/16	15.50	1.30	-10.91		15.25		14.50-15.00	ES09			
						Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	15.25	B10			
						15.50 ... becoming slightly clayey	15.50	D11		N50/ 55 mm	14, 11 / 50
							15.50			... VOC 0.1ppm	
05/12/16	15.85	1.10					16.00	D12			
						16.50 ... becoming clayey	16.00-16.50	ES13			
							16.50	B14		N50/ 78 mm	16, 9 / 46, 4
						17.00 ... becoming locally clayey	16.50				
05/12/16	15.85	1.20					17.00-17.50	D15			
							17.50	B16			
						18.00 ... with no clay	18.00			N50/ 70 mm	19, 6 / 50
							18.00				
05/12/16	15.85	1.40					18.50-19.00	D17			
							19.00	B18			
							19.50			N50/ 80 mm	13, 12 / 41, 9
							19.50				
							20.00-20.50	D19			
								B20			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.34	Co-Ordinates E 542846.4 N 180360.8	Final Depth 36.60m
Date Completed 06/12/16				
Client London City Airport Limited	Method/ Plant Used Cable Percussion			Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
05/12/16	15.85	1.40		x		21.10 ... becoming clayey	21.00		N50/ 125 mm	9, 16 / 22, 28	
				x			21.00	D21			
				x			21.50-22.00	B22			
				x							
05/12/16	15.85	1.10		x		(16.25)	22.50		N50/ 153 mm	7, 14 / 19, 27, 4	
				x			22.50	D23			
				x			23.00-23.50	B24			
				x							
05/12/16	15.85	1.30		x			24.00		N50/ 120 mm	10, 15 / 23, 27	
				x			24.00	D25			
				x			24.50-25.00	B26			
				x							
05/12/16	25.30	1.50		x			25.50		N50/ 205 mm	7, 13 / 16, 20, 14	
				x			25.50	D27			
05/12/16	25.30	1.25		x			26.00-26.50	B28			
06/12/16	25.30	1.05		x							
06/12/16	25.30			x		26.00 ... becoming very clayey	27.00		N50/ 200 mm	7, 15 / 15, 17, 18	
				x			27.00	D29			
				x			27.50-28.00	B30			
				x							
06/12/16	25.30			x			28.50		N50/ 230 mm	6, 10 / 13, 16, 16, 5	
				x			28.50	D31			
				x			29.00-29.50	B32			
				x							
06/12/16	25.30			x			30.00		N36	3, 5 / 6, 10, 9, 11	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started	05/12/16	Ground Level (mOD)	Co-Ordinates	Final Depth
	Date Completed	06/12/16			
Client London City Airport Limited				Method/ Plant Used	Sheet
				Cable Percussion	4 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill	
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
06/12/16	25.30		-27.16		31.50		30.00	D33	N31	4, 4 / 5, 6, 7, 13		
							30.50-31.00	B34				
06/12/16	25.30				(5.10)	White CHALK recovered as: firm, white SILT. (SEAFORD CHALK FORMATION)	31.50 31.50	D35	N46	5, 19 / 20, 12, 7, 7		
						32.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with occasional weak, medium density white chalk cobbles. Gravel is weak to moderately weak, medium density white chalk fragments	32.00-32.50	B36				
06/12/16	25.30				(5.10)	33.00 - 33.50 ... with a band of angular to subangular fine to coarse black rinded flint with frequent flint cobbles	33.00 33.00-33.50	B37	N34	6, 8 / 7, 6, 6, 15		
						33.50 - 34.00 ... with rare fine gravel size very weak, low density chalk fragments	33.50-34.00	B38				
06/12/16	25.30				(5.10)	34.50 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments	34.50 34.50	D39	N50/ 245 mm	6, 7 / 11, 17, 15, 7		
						35.00 ... [NI] recovered as: soft to firm, white slightly gravelly SILT. Gravel comprises weak, low density angular to subangular fine to medium chalk fragments and black rinded flint	35.00-35.50	B40				
06/12/16	25.30					36.00 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel comprises weak, medium density angular to subangular fine to medium chalk fragments and fine black rinded flint	36.00	D41				
06/12/16	25.30		-32.26		36.60		36.00					
						End of Borehole						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 11/01/17 Date Completed 13/01/17	Ground Level (mOD) 4.92	Co-Ordinates E 542853.1 N 180316.1	Final Depth 35.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/Method	SPT Hammer Reference
0.00	35.50	CP	11/01/2017	13/01/2017	ST	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
18.00	200	17.50	200				
35.50	150	25.50	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.50	35.50	Cement / Bentonite Grout	13/01/2017

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 11/01/17
Date Completed 13/01/17

Ground Level (mOD)
4.92

Co-Ordinates
E 542853.1 N 180316.1

Final Depth
35.50m

Client

London City Airport Limited

PROGRESS

SPT DETAILS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks
11/01/17	0.00			
11/01/17	12.50		1.05	... see Remark 3
11/01/17	13.00	12.90	1.05	
11/01/17	14.00	13.50	1.40	
11/01/17	15.00	14.50	1.00	
11/01/17	16.00	15.50	1.50	
11/01/17	17.00	16.50	1.30	
11/01/17	18.00	17.50	1.00	
12/01/17	18.00	17.50	2.00	
12/01/17	19.50	17.50	1.20	
12/01/17	21.00	17.50	1.70	
12/01/17	22.50	17.50	1.70	
12/01/17	24.00	17.50	2.00	
12/01/17	25.50	25.00	2.30	
12/01/17	27.00	26.00	2.60	
13/01/17	27.00	25.50	1.00	
13/01/17	28.50	25.50	1.30	
13/01/17	30.00	25.50	2.10	
13/01/17	31.50	25.50	2.50	
13/01/17	33.00	25.50	4.00	
13/01/17	34.50	25.50	4.10	
13/01/17	35.50	25.50	4.10	

Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
C	13.00	N9	2, 3 / 2, 2, 2, 3	12.90	1.05
C	14.00	N50/0.145	10, 15 / 25, 25	13.50	1.40
S	15.00	N45/0.005	4, 21 / 45	14.50	1.00
S	16.00	N50/0.075	12, 13 / 50	15.50	1.50
S	17.00	N50/0.075	12, 13 / 50	16.50	1.30
S	18.00	N50/0.09	11, 14 / 30, 20	17.50	1.00
S	19.50	N50/0.22	7, 13 / 13, 20, 17	17.50	1.20
S	21.00	N50/0.21	9, 13 / 17, 20, 13	17.50	1.70
S	22.50	N50/0.185	6, 12 / 16, 20, 14	17.50	1.70
S	24.00	N38/0.19	9, 11 / 13, 20, 5	17.50	2.00
S	25.50	N50/0.115	8, 14 / 27, 23	25.00	2.30
S	27.00	N50/0.155	10, 13 / 20, 25, 5	26.00	2.60
S	28.50	N34	4, 5 / 8, 9, 7, 10	25.50	1.30
S	30.00	N23	5, 5 / 6, 3, 4, 10	25.50	2.10
S	31.50	N39	4, 6 / 6, 8, 10, 15	25.50	2.50
S	33.00	N50/0.225	8, 8 / 10, 10, 30	25.50	4.00
S	34.50	N39	6, 9 / 11, 7, 9, 12	25.50	4.10

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- As the casing was being retracted one of the joints sheared off leaving 13.50m of 150mm casing at the bottom of the borehole between the depths of 12.00m and 25.50m below ground level. Attempts to recover the casing involved the use of a fishing tool and hydraulic jacks with maximum pull capacity of 100 ton. Attempts to recover this casing were unsuccessful and were eventually abandoned. The casing was left in-situ and the borehole was backfilled with cement/bentonite grout between 35.50m and 12.50m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPGW - 0.09" Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rosary
DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water volume rate time in minutes. For details of abbreviations see Key

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started	11/01/17	Ground Level (mOD) 4.92	Co-Ordinates E 542853.1 N 180316.1	Final Depth 35.50m
	Date Completed	13/01/17			
Client London City Airport Limited				Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
11/01/17					(12.50)	Water					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 11/01/17
Date Completed 13/01/17

Ground Level (mOD)
4.92

Co-Ordinates
E 542853.1 N 180316.1

Final Depth
35.50m

Client

London City Airport Limited

**Method/
Plant Used** Cable Percussion

Sheet
2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
11/01/17		1.05	-7.58		12.50		12.50-13.00	B01			
11/01/17	12.90	1.05	-8.08		(0.50) 13.00	Dark grey, very clayey silty angular to well rounded flint GRAVEL. (DOCK SEDIMENT / RIVER TERRACE DEPOSIT)	13.00 13.00-13.50	B02	N9	2, 3 / 2, 2, 2, 3	
11/01/17	13.50	1.40	-9.08		(1.00) 14.00	Dark brown, angular to subangular fine to coarse flint GRAVEL. (RIVER TERRACE DEPOSITS)	14.00		N50/ 145 mm	10, 15 / 25, 25	
11/01/17	14.50	1.00				Light grey fine silty SAND. (THANET SAND FORMATION: THANET SAND)	14.00-14.50	B03			
11/01/17	15.50	1.50					15.00 15.50-16.00	D04 B05	N45/ 5 mm	4, 21 / 45	
11/01/17	16.50	1.30					16.00 16.50-17.00	D06 B07	N50/ 75 mm	12, 13 / 50	
11/01/17	17.50	1.00					17.00 17.50-18.00	D08 B09	N50/ 75 mm	12, 13 / 50	
11/01/17	17.50	1.00				17.50 ... becoming slightly clayey	18.00		N50/ 90 mm	11, 14 / 30, 20	
12/01/17	17.50	2.00					18.00	D10			
						19.00 ... becoming clayey	19.00-19.50	B11			
12/01/17	17.50	1.20					19.50		N50/ 220 mm	7, 13 / 13, 20, 17	
							19.50	D12			

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 11/01/17 Date Completed 13/01/17	Ground Level (mOD) 4.92	Co-Ordinates E 542853.1 N 180316.1	Final Depth 35.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
12/01/17	17.50	1.70					20.50-21.00	B13			
							21.00		N50/ 210 mm	9, 13 / 17, 20, 13	
							21.00	D14			
					(16.00)		22.00-22.50	B15			
12/01/17	17.50	1.70					22.50		N50/ 185 mm	6, 12 / 16, 20, 14	
							22.50	D16			
						23.50 ... becoming very clayey	23.50-24.00	B17			
12/01/17	17.50	2.00					24.00		N38/ 190 mm	9, 11 / 13, 20, 5	
							24.00	D18			
							25.00-25.50	B19			
12/01/17	25.00	2.30					25.50		N50/ 115 mm	8, 14 / 27, 23	
							25.50	D20			
							26.50-27.00	B21			
12/01/17	26.00	2.60					27.00		N50/ 155 mm	10, 13 / 20, 25, 5	
13/01/17	25.50	1.00					27.00	D22			
							28.00-28.50	B23			
13/01/17	25.50	1.30					28.50		N34	4, 5 / 8, 9, 7, 10	
							28.50	D24			
							29.50-30.00	B25			
13/01/17	25.50	2.10	-25.08		30.00		30.00		N23	5, 5 / 6, 3, 4, 10	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 11/01/17	Ground Level (mOD) 4.92	Co-Ordinates E 542853.1 N 180316.1	Final Depth 35.50m
Date Completed 13/01/17				
Client London City Airport Limited	Method/ Plant Used Cable Percussion			Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
13/01/17	25.50	2.50	-26.08		(1.00)	Black, angular to subangular fine to coarse rinded flint GRAVEL with rare cobble size of angular to subangular black rinded flint. (THANET SAND FORMATION: BULLHEAD BEDS)	30.00 30.00-30.50	D26 B27		4, 6 / 6, 8, 10, 15	
					31.00		31.00-31.50	B28			
13/01/17	25.50	4.00			(4.50)	White CHALK [NI] recovered as: firm, white SILT. (SEAFORD CHALK FORMATION) 31.00 ... [NI] recovered as: silty, angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint with rare angular to subangular cobble size black rinded flint 32.00 ... with rare cobble size weak, medium density angular to subangular chalk fragments	31.50 31.50	D29	N39	8, 8 / 10, 10, 30	
							32.50-33.00	B30			
13/01/17	25.50	4.10			(4.50)	33.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel comprises weak to extremely weak, medium density angular to subangular fine to coarse chalk fragments and angular to subangular fine to coarse black rinded flint 34.00 ... becoming very silty	33.00 33.00	D31	N50/ 225 mm	6, 9 / 11, 7, 9, 12	
							34.00-34.50	B32			
13/01/17	25.50	4.10			(4.50)	34.50 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint	34.50 34.50	D33	N39		
							35.00-35.50	B34			
13/01/17	25.50	4.10	-30.58		35.50	End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.00	CP	25/11/2016	28/11/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					21.00	23.00				

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
19.00	200	19.00	200				
33.00	150	24.00	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.80	33.00	Cement / Bentonite Grout	28/11/2016

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
25/11/16	0.00			... see Remark 3	C	13.50	N50/0.18	4, 7 / 11, 26, 13	13.50	0.90
25/11/16	12.50	12.50	1.00		S	14.50	N50/0.08	12, 13 / 38, 12	14.50	1.10
25/11/16	13.50	13.50	0.90		S	15.50	N50/0.07	16, 9 / 50	15.10	1.00
25/11/16	14.50	14.50	1.10		S	16.50	N50/0.228	8, 16 / 17, 14, 16, 3	15.10	1.20
25/11/16	15.50	15.10	1.00		S	18.00	N50/0.155	10, 15 / 21, 23, 6	15.10	1.10
25/11/16	16.50	15.10	1.20		S	19.50	N50/0.225	6, 9 / 12, 17, 21	19.50	1.30
25/11/16	18.00	15.10	1.10		S	21.00	N50/0.22	5, 14 / 14, 16, 20	21.00	1.80
25/11/16	19.50	19.50	1.30		S	22.50	N50/0.21	6, 12 / 13, 19, 18	21.00	0.40
25/11/16	21.00	21.00	1.80		S	24.00	N50/0.23	7, 13 / 12, 15, 15, 8	24.00	0.60
25/11/16	22.50	21.00	0.40		S	25.50	N50/0.29	6, 7 / 9, 12, 14, 15	24.00	0.50
25/11/16	24.00	24.00	0.60		S	27.00	N43	4, 8 / 8, 10, 12, 13	24.00	0.70
25/11/16	25.50	24.00	0.50		S	28.50	N27	4, 5 / 6, 5, 8, 8	24.00	0.50
25/11/16	26.00	24.00	0.50		S	30.00	N31	5, 7 / 9, 7, 7, 8	24.00	1.20
28/11/16	26.00	24.00	0.90		S	31.50	N50/0.23	4, 8 / 10, 19, 15, 6	24.00	1.70
28/11/16	27.00	24.00	0.70		S	32.50	N44	6, 8 / 9, 11, 11, 13	24.00	1.90
28/11/16	28.50	24.00	0.50							
28/11/16	30.00	24.00	1.20							
28/11/16	31.50	24.00	1.70							
28/11/16	32.50	24.00	1.90							
28/11/16	33.00	24.00	1.90							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 19.00m depth. Bentonite seal inserted between 17.50m and 19.00m and borehole re-drilled with Ø150mm casing to 24.00m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling/Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Mini-Multi Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key



Borehole No

BH21

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
	Date Completed 28/11/16			
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
25/11/16					(11.80)	Water					

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
	Date Completed 28/11/16			
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
25/11/16	12.50	1.00	-7.55		11.80		11.80			... VOC 0.2ppm		
							Soft, dark grey SILT with strong hydrocarbon odour. (DOCK SEDIMENT)	11.80-12.30	ES01 B02			
					(1.30)			12.50-12.95	UT03	6 blows		100% Recovery
												
25/11/16	13.50	0.90	-8.85		13.10		13.00	D04		... VOC 0.7ppm		
					(0.40)		Dark grey sandy angular to well rounded fine to coarse flint GRAVEL with occasional angular to rounded flint cobbles and strong hydrocarbon odour. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	13.10-13.50	ES05 B06	N50/ 180 mm		4, 7 / 11, 26, 13
					(0.75)		Dark grey very gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse flint with stong hydrocarbon odour. (RIVER TERRACE DEPOSITS)	13.50-13.80	B07			... VOC 0.1ppm
							13.80 ... becoming slightly gravelly to gravelly fine to medium sand	13.80-14.00	ES08 B09 D10	N50/ 80 mm		12, 13 / 38, 12
25/11/16	14.50	1.10	-10.00		14.25		13.80					
							Light grey fine silty SAND. (THANET SAND FORMATION: THANET SAND)	14.25				
								14.50				
												
25/11/16	15.10	1.00					14.50	D11 B12				
								15.00-15.50				
								15.50		N50/ 70 mm		16, 9 / 50
												
25/11/16	15.10	1.20					15.50	D13 B14				
								16.00-16.50				
								16.50		N50/ 228 mm		8, 16 / 17, 14, 16, 3
							16.50 ... becoming slightly clayey					
25/11/16	15.10	1.10					16.50	D15 B16				
								17.00-17.50				
												
							18.00 ... becoming locally clayey					
25/11/16	15.10	1.10					18.00		N50/ 155 mm	10, 15 / 21, 23, 6		
								18.00	D17 B18			
								18.50-19.00				
												
25/11/16	19.50	1.30					19.50		N50/ 225 mm	6, 9 / 12, 17, 21		
								19.50	D19 B20			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
	Date Completed 28/11/16			
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill		
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result				
25/11/16	21.00	1.80			(13.75)	21.00 ... becoming clayey	21.00	D21 B22	N50/ 220 mm	5, 14 / 14, 16, 20			
												21.00 21.50-22.00	
25/11/16	21.00	0.40							22.50	D23 B24	N50/ 210 mm	6, 12 / 13, 19, 18	
									22.50 23.00-23.50				
25/11/16	24.00	0.60							24.00	D25 B26	N50/ 230 mm	7, 13 / 12, 15, 15, 8	
									24.00 24.50-25.00				
25/11/16	24.00	0.50							25.50 ... becoming very clayey	25.50	D27 B28	N50/ 290 mm	6, 7 / 9, 12, 14, 15
25/11/16 28/11/16	24.00 24.00	0.50 0.90							25.50 26.00-26.50				
28/11/16	24.00	0.70							27.00 - 27.90 ... with occasional angular to subangular fine to coarse black rinded flint gravel with occasional black rinded flint cobbles	27.00 27.00	D29	N43	4, 8 / 8, 10, 12, 13
										27.50-28.00	B30		
										28.00-28.50	B31		
28/11/16	24.00	0.50				-23.75		28.00	White CHALK recovered as: angular to subangular fine to coarse silty GRAVEL with rare black rinded flint cobbles. Gravel comprises weak, medium density chalk fragments and occasional black rinded flint. (SEAFORD CHALK FORMATION) 28.50 ... [NI] recovered as: firm, white SILT. 29.00 - 29.50 ... becoming very silty with no cobbles	28.50 28.50	D32	N27	4, 5 / 6, 5, 8, 8
							29.00-29.50	B33					
28/11/16	24.00	1.20					30.00		N31	5, 7 / 9, 7, 7, 8			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 25/11/16
Date Completed 28/11/16

Ground Level (mOD)
4.25

Co-Ordinates
E 542847.1 N 180282.3

Final Depth
33.00m

Client

London City Airport Limited

Method/
Plant Used Cable Percussion

Sheet
4 of 4

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/Backfill
28/11/16	24.00	1.70			(5.00)	30.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular medium, weak, medium density chalk fragments	30.00 30.50-31.00	D34 B35			
28/11/16	24.00	1.90				31.50 ... [NI] recovered as: white gravelly SILT. Gravel is angular to subangular fine to coarse weak, medium density chalk fragments with fine to medium black rinded flint	31.50 31.50 32.00	D36 D37	N50/ 230 mm	4, 8 / 10, 19, 15, 6	
28/11/16	24.00	1.90				32.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare moderately weak, medium density white chalk cobbles. Gravel is weak, medium density white chalk fragments	32.50 32.50	D38	N44	6, 8 / 9, 11, 11, 13	
28/11/16	24.00	1.90	-28.75		33.00	32.50 ... [NI] recovered as: white slightly gravelly SILT. Gravel is angular to subangular fine to coarse weak, medium density chalk fragments					
						End of Borehole					

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.54	Co-Ordinates E 542843.0 N 180278.2	Final Depth 33.50m
Date Completed 06/12/16				

Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.50	RC	05/12/2016	06/12/2016	TC	CB	112	PCD	Geotec 350	AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	146	0.00	150	11.50	12.50		100
33.50	146	14.50	150	12.50	13.50		100
				13.50	14.50		100
				14.50	16.00		0
				16.00	17.00		100
				17.00	18.50		100
				18.50	20.00		100
				20.00	21.40		100
				21.40	23.00		100
				23.00	24.50		100
				24.50	26.00		100
				26.00	27.50		0
				27.50	29.00		100
				29.00	30.50		100
				30.50	32.00		100
				32.00	33.50		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
24.50	27.50	Water	80	
27.50	33.50	Water	50	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.50	33.50	Cement / Bentonite Grout	05/12/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.54	Co-Ordinates E 542843.0 N 180278.2	Final Depth 33.50m
Date Completed 06/12/16				

Client

London City Airport Limited

PROGRESS

SPT DETAILS

Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
05/12/16	0.00									
05/12/16	11.50		1.50	... see Remark 3						
05/12/16	24.50		1.10							
06/12/16	24.50		1.20							
06/12/16	33.50									

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Poor flush return throughout.
- Pressuremeter tests carried out at 15.00m and 26.60m.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclometer

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling / Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Piezometer, MP Miniature Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.54	Co-Ordinates E 542843.0 N 180278.2	Final Depth 33.50m
Date Completed 06/12/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 2 of 4		

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill		
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No			Test Result	
05/12/16		1.50													
		100								Very soft, dark grey slightly gravelly very clayey SILT. Gravel is angular to well rounded fine to coarse flint. (DOCK SEDIMENT) 11.80 ... with no gravel	11.90 12.00 12.00	D01 ES02	... VOC 1.0ppm		
										12.50 ... becoming soft and slightly gravelly	12.70	D03	... VOC 0.3ppm		
		100								13.00 ... becoming very gravelly	13.00 13.00	ES04	... VOC 0.3ppm		
										13.40 ... with strong hydrocarbon odour and pieces of geotextile membrane	13.50-13.70	B05	... VOC 0.1ppm		
		100								Dark grey and yellowish brown slightly clayey very gravelly fine to coarse SAND with strong hydrocarbon odour. Gravel is angular to well rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)	14.00 14.00	ES06	... VOC 0.1ppm		
										15.00	... Pressuremeter test at 15.00m				
		0									16.10 16.10	ES07	... VOC 0.1ppm		
										16.80-17.00	B08				
100									17.50	B09					
								18.50 ... becoming clayey	19.00	B10					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.54	Co-Ordinates E 542843.0 N 180278.2	Final Depth 33.50m
Date Completed 06/12/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 3 of 4		

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill		
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth <i>(Thickness)</i>	Strata Description	Depth (m)	Type No			Test Result	
05/12/16 06/12/16		1.10 1.20	100								21.00	B11		... Pressuremeter test at 26.60m	
									(11.50)		22.00	B12			
			100												
			100							24.00	B13				
									24.50 ... becoming very clayey						
										25.00	B14				
			100												
										26.60					
			0												
						-22.96		27.50	Strong to very strong medium density white CHALK. (SEAFORD CHALK FORMATION) 27.85 - 27.90 ... [NI] recovered as : GRAVEL comprising moderately weak to weak medium density angular to subangular fine to coarse chalk fragments and black rinded flint 28.00 ... [NI] recovered as GRAVEL comprising weak medium density angular to subangular fine to coarse chalk fragments and black rinded flint 28.10 - 28.90 ... with 1No vertical open fracture ... with occasional vertical fractures between 28.10m and 28.40m 28.90 ... with a band of angular to subangular fine to coarse gravel sized black rinded flint and 1No black rinded flint cobble 28.95 ... with 1No wide open horizontal fracture infilled with medium density angular to subangular fine to coarse gravel sized chalk fragments	28.70-28.90	B15				
			100	80	57										
			100							29.90-30.20	C16				

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.54	Co-Ordinates E 542843.0 N 180278.2	Final Depth 33.50m
Date Completed 06/12/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 4 of 4		

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
06/12/16			100						29.10 ... with 1No wide open horizontal fracture 29.20 ... with rare weak medium density angular to subangular coarse gravel sized chalk fragments 29.30 ... with 2No wide open fractures infilled infilled with weak medium density angular to subangular fine to coarse chalk fragments and black rinded flint 29.55 - 29.70 ... with a band of weak medium density fine to coarse gravel sized chalk fragments and black rinded flint cobbles 29.70 - 29.90 ... with 1No vertical and 1No open horizontal fracture infilled with weak medium density angular to subangular fine to coarse chalk fragments and black rinded flint 30.20 ... with 1No horizontal fracture and at 30.25m 30.60 ... with 1No wide open fracture 30.70 - 30.80 ... [NI] recovered as : moderately weak medium density angular to subangular fine to coarse chalk fragments and black rinded flint 30.80 ... with rare black rinded flint cobbles 30.90 ... with 1No wide open horizontal fracture 31.50 - 31.70 ... with 1No vertical and occasional horizontal fractures 31.80 ... with occasional wide open horizontal and vertical fractures 32.00 ... with rare weak medium density angular to subangular medium to coarse chalk fragments and black rinded flint 32.10 ... with 1No horizontal fracture 32.15 ... with 1No wide open horizontal fracture infilled with moderately weak medium density angular to subangular medium to coarse chalk fragments and black rinded flint 32.50 ... with 1No horizontal fracture at 32.50m, 32.60m, 32.70m and 32.90m End of Borehole	31.30-31.55	C17			
			100	83	63									
			100	90	57					33.10-33.50	B18			
						-28.96		33.50						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 16/12/16 Date Completed 21/12/16	Ground Level (mOD) 4.44	Co-Ordinates E 542914.0 N 180377.1	Final Depth 37.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00 16.70	16.70 37.50	DS RC	16/12/2016 19/12/2016	16/12/2016 21/12/2016	TC BF	CB CB	112	PDC	Geotec 350 Geotec 350	AR779 AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00 16.70 32.00	150 150 146	0.00 14.00	150 150	12.70 13.70 14.70 15.70 16.70 18.00 18.00 19.50 21.00 22.50 22.50 24.00 25.50 27.00 28.50 30.00 31.50 33.00 34.50 36.00	13.70 14.70 15.70 16.70 18.00 19.50 21.00 22.50 24.00 25.50 27.00 30.00 31.50 33.00 34.50 36.00 37.50		100 100 100 100 85 40 100 90 100 73 100 47 100 93 73 93 100 87

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
16.70 22.50 31.50	22.50 31.50 37.50	Water Water Water	95 90 95	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.70	37.50	Cement / Bentonite Grout	21/12/2016

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 16/12/16	Ground Level (mOD) 4.44	Co-Ordinates E 542914.0 N 180377.1	Final Depth 37.50m
Date Completed 21/12/16				

Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
16/12/16	0.00				S	18.00	N50/0.11	17, 8 / 25, 25	14.00	
16/12/16	16.70	14.00	1.90	... see Remark 4	S	19.50	N50/0.075	16, 9 / 50	14.00	
19/12/16	16.70	14.00	3.50		S	21.00	N50/0.12	11, 14 / 23, 27	14.00	
19/12/16	22.50	14.00	5.00		S	22.50	N50/0.185	7, 12 / 16, 20, 14	14.00	
20/12/16	22.50	14.00	3.50		S	24.00	N50/0.225	8, 13 / 13, 17, 20	14.00	
20/12/16	31.50	14.00	5.00		S	25.50	N50/0.205	6, 13 / 22, 23, 5	14.00	
21/12/16	31.50	14.00	3.00		S	27.00	N50/0.22	3, 8 / 14, 18, 18	14.00	
21/12/16	37.50	14.00	5.00		S	28.50	N50/0.215	5, 10 / 16, 23, 11	14.00	
					S	30.00	N50/0.23	4, 8 / 12, 16, 18, 4	14.00	
					S	31.50	N50/0.265	5, 6 / 12, 13, 16, 9	14.00	
					S	33.00	N50/0.205	6, 17 / 15, 18, 17	14.00	
					S	34.50	N50/0.175	9, 17 / 24, 19, 7	14.00	
					S	36.00	N50/0.175	5, 7 / 11, 11, 28	14.00	
					S	37.50	N50/0.15	6, 8 / 11, 12, 27	14.00	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Dynamic sampling techniques used from 12.70m to 16.70m. Rotary boring carried out thereafter.
- Water present in the borehole from casing installation through the dock.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling/Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Mini-Multi Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Sheet 1 of 4

Issue No: 01	Checked By: AN	Approved By: OS	Log Print Date & Time: 03/03/2017 17:48	
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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 16/12/16
Date Completed 21/12/16

Ground Level (mOD)
4.44

Co-Ordinates
E 542914.0 N 180377.1

Final Depth
37.50m

Client
London City Airport Limited

Method/ **Dynamic Sampling /**
Plant Used **Rotary**

Sheet
2 of 4

PROGRESS

STRATA

SAMPLES & TESTS

Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	Field Records	Instrument/ Backfill
						-8.26		12.70						
			100			-9.06		13.50	Soft, light brown silty CLAY with occasional dark grey staining and strong hydrocarbon odour. (DOCK SEDIMENT) 12.90 ... becoming very soft and dark grey	12.90	D01			
			100						Dark grey sandy angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) 13.90 ... with no clay 14.00 ... with no hydrocarbon odour and no sand	14.00	B02			
			100							15.00	B03			
			100							16.00	B04			
16/12/16	14.00	1.90				-12.26		16.70	16.50 ... with rare flint cobbles					
19/12/16	14.00	3.50							Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	17.00	B05			
			85							18.00		N50/ 110 mm	17, 8 / 25, 25	
										18.00	D06			
			40							19.00	B07			
										19.50		N50/ 75 mm	16, 9 / 50	
			100							19.50	D08			
										20.00	B09			

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 16/12/16 Date Completed 21/12/16	Ground Level (mOD) 4.44	Co-Ordinates E 542914.0 N 180377.1	Final Depth 37.50m
Client London City Airport Limited			Method/ Dynamic Sampling / Plant Used Rotary	Sheet 3 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
19/12/16	14.00	5.00	100				x						11, 14 / 23, 27	
							x			21.00		N50/ 120 mm		
20/12/16	14.00	3.50					x			21.00	D10			
			90				x		22.10	B11				
							x		22.10 ... becoming slightly clayey	22.50		N50/ 185 mm	7, 12 / 16, 20, 14	
							x			22.50	D12			
							x			23.00	B13			
			100				x		23.50 ... becoming locally clayey				8, 13 / 13, 17, 20	
							x			24.00		N50/ 225 mm		
							x			24.00	D14			
							x						6, 13 / 22, 23, 5	
			73				x	(15.90)	25.00	B15		N50/ 205 mm		
							x			25.50				
							x			25.50	D16			
							x			26.00	B17			
			100				x		26.40 ... becoming clayey				3, 8 / 14, 18, 18	
							x		27.00 ... becoming very clayey	27.00		N50/ 220 mm		
							x			27.00	D18			
							x			27.50	B19			
			47				x						5, 10 / 16, 23, 11	
							x		28.50			N50/ 215 mm		
							x			28.50	D20			
							x			29.00	B21			
			100				x						4, 8 / 12, 16, 18, 4	
							x		30.00			N50/ 230 mm		

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 16/12/16 Date Completed 21/12/16	Ground Level (mOD) 4.44	Co-Ordinates E 542914.0 N 180377.1	Final Depth 37.50m
Client London City Airport Limited			Method/ Plant Used Dynamic Sampling / Rotary	Sheet 4 of 4

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No			Test Result
20/12/16 21/12/16	14.00 14.00	5.00 3.00	93							30.00	D22		5, 6 / 12, 13, 16, 9	
										31.00	B23			
										31.50		N50/ 265 mm		
										31.50 32.00	D24 B25			
			73											
						-28.16 -28.26		32.60 32.70	Black, angular to subangular fine to coarse rinded flint GRAVEL. (THANET SAND FORMATION: BULLHEAD BED)	33.00		N50/ 205 mm	6, 17 / 15, 18, 17	
			93	46	43			33.30	White CHALK recovered as: white SILT. (SEAFORD CHALK FORMATION) 33.20 ... [NI] recovered as: very gravelly SILT. Gravel comprises angular to subangular fine extremely weak, low density chalk fragments and angular to subangular fine to medium black rinded flint	33.00	D26			
									Strong, medium density white CHALK. (SEAFORD CHALK FORMATION) 33.30 ... becoming strong, medium density white CHALK 33.50 ... [NI] recovered as: fine to coarse weak, medium density GRAVEL. Gravel comprises angular to subangular chalk fragments and black rinded flint 33.65 ... with 1No wide open fracture infilled with extremely weak, low density angular to subangular fine to medium chalk fragments 33.80 - 34.00 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel comprises weak medium density chalk fragments and black rinded flint 34.10 - 34.20 ... [NI] recovered as: GRAVEL comprising angular to subangular fine to coarse weak, medium density chalk fragments 34.50 ... with rare coarse gravel size angular to subangular black rinded flint 34.60 - 35.00 ... [NI] recovered as: white angular to subangular fine to coarse silty GRAVEL. Gravel comprises weak medium density chalk fragments and rare weak medium density cobble size chalk fragments 35.10 ... with 1No wide open fracture 35.10 - 35.50 ... with 1No wide open fracture at 35.10m and at 35.20m, 35.40m and 35.50m 35.30 ... with 1No wide open fracture 36.20 - 36.50 ... [NI] recovered as: gravelly SILT. Gravel is angular to subangular extremely weak to weak, chalk fragments 36.40 ... with 1No fracture 36.70 - 36.75 ... with 1No fracture and at 36.75m 36.80 ... with 1No wide open fracture 37.10 ... with 1No wide open fracture infilled with angular to subangular fine to coarse gravel comprising weak, medium density chalk fragments and black rinded flint End of Borehole	34.00-34.40	B27			
									34.50		N50/ 175 mm	9, 17 / 24, 19, 7		
									34.50	D28				
			100	47	32			(4.20)						
										35.70	B29			
										36.00		N50/ 175 mm	5, 7 / 11, 11, 28	
										36.00	D30			
			87	69	75					36.80-37.10	C31			
										37.20-37.40	C32			
21/12/16	14.00	5.00				-33.06		37.50		37.50		N50/ 150 mm	6, 8 / 11, 12, 27	
										37.50	D33			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 01/12/16	Ground Level (mOD) 4.55	Co-Ordinates E 542909.7 N 180338.9	Final Depth 36.50m
Date Completed 02/12/16				

Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.00	CP	01/12/2016	02/12/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					25.00	31.50	31.10	31.40	1:00	Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
25.00	200	15.10	200				
36.50	150	25.50	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.00	36.50	Cement / Bentonite Grout	02/12/2016

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 01/12/16	Ground Level (mOD) 4.55	Co-Ordinates E 542909.7 N 180338.9	Final Depth 36.50m
Date Completed 02/12/16				

Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
01/12/16	0.00				C	13.50	N27	5, 7 / 6, 6, 7, 8	13.50	1.30
01/12/16	12.50	12.50	1.10	... see Remark 3	S	14.50	N50/0.07	5, 18 / 50	14.50	1.00
01/12/16	13.50	13.50	1.30		S	15.50	N50/0.08	13, 12 / 41, 9	15.10	1.10
01/12/16	14.50	14.50	1.00		S	16.50	N50/0.1	14, 11 / 33, 17	15.10	1.30
01/12/16	15.50	15.10	1.10		S	18.00	N50/0.125	8, 16 / 29, 21	15.10	1.50
01/12/16	16.50	15.10	1.30		S	19.50	N50/0.14	10, 15 / 26, 24	15.10	1.20
01/12/16	18.00	15.10	1.50		S	21.00	N50/0.135	7, 15 / 25, 25	15.10	1.10
01/12/16	19.50	15.10	1.20		S	22.50	N50/0.165	9, 12 / 17, 22, 11	15.10	1.10
01/12/16	21.00	15.10	1.10		S	24.00	N50/0.155	7, 15 / 19, 24, 7	15.10	1.30
01/12/16	22.00	15.10	1.05		S	25.50	N50/0.19	4, 11 / 16, 20, 14	25.50	1.00
02/12/16	22.00	15.10	0.95		S	27.00	N50/0.285	5, 9 / 12, 14, 13, 11	25.50	0.50
02/12/16	22.50	15.10	1.10		S	28.50	N46	5, 7 / 8, 11, 12, 15	25.50	0.80
02/12/16	24.00	15.10	1.30		S	30.00	N43	4, 8 / 10, 9, 11, 13	25.50	1.10
02/12/16	25.50	25.50	1.00		S	31.50	N50	4, 9 / 13, 12, 13, 12	25.50	0.50
02/12/16	27.00	25.50	0.50		S	33.00	N50/0.295	5, 7 / 10, 14, 14, 12	25.50	1.20
02/12/16	28.50	25.50	0.80		S	34.50	N49	4, 6 / 9, 12, 15, 13	25.50	1.60
02/12/16	30.00	25.50	1.10		S	36.00	N50/0.27	6, 10 / 10, 13, 15, 12	25.50	1.90
02/12/16	31.50	25.50	0.50							
02/12/16	33.00	25.50	1.20							
02/12/16	34.50	25.50	1.60							
02/12/16	36.00	25.50	1.90							
02/12/16	36.50	25.50	1.90							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 18.10m depth. Bentonite seal inserted between 23.00m and 25.00m and borehole re-drilled with Ø150mm casing to 25.50m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling/Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Multi-Meter Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Issue No: 01

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 01/12/16 Date Completed 02/12/16	Ground Level (mOD) 4.55	Co-Ordinates E 542909.7 N 180338.9	Final Depth 36.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
01/12/16					(12.00)	Water.					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 01/12/16 Date Completed 02/12/16	Ground Level (mOD) 4.55	Co-Ordinates E 542909.7 N 180338.9	Final Depth 36.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
01/12/16	12.50	1.10	-7.45		12.00		12.00			... VOC 0.3ppm	
						Very soft, dark grey clayey SILT with strong hydrocarbon odour. (DOCK SEDIMENT)	12.00-12.50	ES01 B02			
							12.50-12.95	UT03			
					(1.50)		13.00	D04			
01/12/16	13.50	1.30	-8.95		13.50	13.00 ... becoming gravelly. Gravel is angular to rounded fine to coarse flint	13.25	D05			
							13.50		N27	5, 7 / 6, 6, 7, 8	
							13.50			... VOC 1.3ppm	
							13.50-14.00	ES06 B07			
01/12/16	14.50	1.00	-9.55		14.10	Dark grey angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. (RIVER TERRACE DEPOSITS)	14.10			... VOC 0.1ppm	
					(0.60)		14.10-14.50	ES08 B09			
						Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	14.50		N50/ 70 mm	5, 18 / 50	
							14.50				
01/12/16	15.10	1.10					15.00-15.50	D10 B11			
							15.50		N50/ 80 mm	13, 12 / 41, 9	
						15.50 ... becoming clayey	15.50				
							16.00-16.50	D12 B13			
01/12/16	15.10	1.30					16.50		N50/ 100 mm	14, 11 / 33, 17	
							16.50				
							17.00-17.50	D14 B15			
							18.00		N50/ 125 mm	8, 16 / 29, 21	
01/12/16	15.10	1.50					18.00				
							18.50-19.00	D16 B17			
							19.50		N50/ 140 mm	10, 15 / 26, 24	
							19.50				
							20.00-20.50	D18 B19			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 01/12/16
Date Completed 02/12/16

Ground Level (mOD)
4.55

Co-Ordinates
E 542909.7 N 180338.9

Final Depth
36.50m

Client

London City Airport Limited

**Method/
Plant Used** Cable Percussion

Sheet
3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
01/12/16	15.10	1.10		x			21.00		N50/ 135 mm	7, 15 / 25, 25	
				x			21.00	D20			
				x			21.50-22.00	B21			
01/12/16	15.10	1.05		x							
02/12/16	15.10	0.95		x							
				x							
02/12/16	15.10	1.10		x			22.50		N50/ 165 mm	9, 12 / 17, 22, 11	
				x			22.50	D22			
				x			23.00-23.50	B23			
				x							
02/12/16	15.10	1.30		x			24.00		N50/ 155 mm	7, 15 / 19, 24, 7	
				x			24.00	D24			
				x			24.50-25.00	B25			
				x							
02/12/16	25.50	1.00		x		25.50 ... becoming slightly clayey	25.50		N50/ 190 mm	4, 11 / 16, 20, 14	
				x			25.50	D26			
				x			26.00-26.50	B27			
				x							
02/12/16	25.50	0.50		x			27.00		N50/ 285 mm	5, 9 / 12, 14, 13, 11	
				x			27.00	D28			
				x			27.50-28.00	B29			
				x							
02/12/16	25.50	0.80		x		28.50 ... becoming very clayey	28.50		N46	5, 7 / 8, 11, 12, 15	
				x			28.50	D30			
				x			29.00-29.50	B31			
				x							
02/12/16	25.50	1.10		x			30.00		N43	4, 8 / 10, 9, 11, 13	

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:46

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No
16/2900

Date Started 01/12/16
Date Completed 02/12/16

Ground Level (mOD)
4.55

Co-Ordinates
E 542909.7 N 180338.9

Final Depth
36.50m

Client
London City Airport Limited

Method/
Plant Used Cable Percussion

Sheet
4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
02/12/16	25.50	0.50	-26.55	x x x x x x x x	31.10		30.00	D32		4, 9 / 13, 12, 13, 12	
							30.50-31.00	B33			
							31.10-31.50	B34			
			-26.95	o o o o	(0.40) 31.50	Black angular to subangular fine to coarse rinded flint GRAVEL with occasional rinded flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)	31.50	D35	N50		
02/12/16	25.50	1.20				White CHALK recovered as: white slightly gravelly SILT. Gravel is angular to subangular medium to coarse, weak, medium density chalk fragments. (SEAFORD CHALK FORMATION)	32.00-32.50	B36		5, 7 / 10, 14, 14, 12	
						32.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare flint cobbles. Gravel is weak, medium density white chalk fragments	33.00		N50/ 295 mm		
						33.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint	33.00	D37			
						33.50 ... with occasional cobble size moderately strong, medium density chalk fragments and black rinded flint	33.50-34.00	B38			
02/12/16	25.50	1.60			(5.00)		34.50		N49	4, 6 / 9, 12, 15, 13	
						34.50 ... [NI] recovered as: firm, white SILT	34.50	D39			
						35.00 - 35.50 ... with angular to subangular fine to coarse black rinded flint gravel	35.00-35.50	B40			
02/12/16	25.50	1.90				36.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments	36.00		N50/ 270 mm	6, 10 / 10, 13, 15, 12	
02/12/16	25.50	1.90	-31.95		36.50	End of Borehole	36.00	D41			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16 Date Completed 29/11/16	Ground Level (mOD) 3.54	Co-Ordinates E 542909.9 N 180291.6	Final Depth 33.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.00	CP	28/11/2016	29/11/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					23.50	28.00	31.30	31.60	0:45	Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
23.50	200	16.60	200				
33.00	150	25.00	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.50	32.50	Cement / Bentonite Grout	29/11/2016

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16 Date Completed 29/11/16	Ground Level (mOD) 3.54	Co-Ordinates E 542909.9 N 180291.6	Final Depth 33.00m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
28/11/16	0.00			... see Remark 3	S	12.00	N1	0, 0 / 0, 1, 0, 0	12.00	1.00
28/11/16	12.00	12.00	1.00		C	13.00	N26	5, 7 / 7, 7, 7, 5	13.00	1.20
28/11/16	13.00	13.00	1.20		C	14.00	N21	3, 4 / 4, 6, 5, 6	14.00	1.00
28/11/16	14.00	14.00	1.00		C	15.00	N32	3, 5 / 7, 7, 8, 10	15.00	1.40
28/11/16	15.00	15.00	1.40		C	16.00	N50/0.21	5, 7 / 12, 19, 19	16.00	1.60
28/11/16	16.00	16.00	1.60		S	17.50	N50/0.09	11, 14 / 36, 14	16.60	1.10
28/11/16	17.50	16.60	1.10		S	19.00	N50/0.21	5, 10 / 14, 17, 19	16.60	1.10
28/11/16	18.00	16.60	0.95		S	20.50	N50/0.23	5, 11 / 14, 13, 16, 7	16.60	1.00
29/11/16	18.00	16.60	0.95		S	22.00	N50/0.265	6, 8 / 11, 13, 15, 11	16.60	1.30
29/11/16	19.00	16.60	1.10		S	23.50	N50/0.23	5, 9 / 12, 15, 18, 5	16.60	0.60
29/11/16	20.50	16.60	1.00		S	25.00	N47	6, 8 / 9, 11, 14, 13	25.00	0.30
29/11/16	22.00	16.60	1.30		S	26.50	N45	4, 7 / 8, 11, 12, 14	25.00	0.90
29/11/16	23.50	16.60	0.60		S	28.00	N34	4, 5 / 7, 8, 9, 10	25.00	0.50
29/11/16	25.00	25.00	0.30		S	29.50	N37	3, 5 / 7, 9, 9, 12	25.00	1.10
29/11/16	26.50	25.00	0.90		S	31.00	N50/0.295	4, 9 / 11, 13, 11, 15	25.00	1.30
29/11/16	28.00	25.00	0.50		S	32.50	N48	5, 8 / 10, 12, 13, 13	25.00	1.10
29/11/16	29.50	25.00	1.10							
29/11/16	31.00	25.00	1.30							
29/11/16	32.50	25.00	1.10							
29/11/16	33.00	25.00	1.10							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 16.60m depth. Bentonite seal inserted between 22.00m and 23.50m and borehole re-drilled with Ø150mm casing to 25.00m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB-Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPGW - GWT (Groundwater) Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling/Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S-C-SPT / CPT, V-Shear Vane, PP Pocket Penetrometer, MP Mini-Multi Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key