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MAP NOS. 12SW11D, 12SW12C,
12SW16B, 12SW16D,
12SW17A, 12SW17C

SITE SPECIFIC SI STATION IN DESGN STAGE

- SITE SPECIFIC DRILLHOLE IN DESIGN STAGE
- SITE SPECIFIC INCLINED DRILLHOLE IN DESIGN STAGE
- SITE SPECIFIC VIBROCORE AND GRAB SAMPLE IN DESIGN STAGE
- SITE SPECIFIC STRIPPING IN DESIGN STAGE
- SITE SPECIFIC TRIAL PIT IN DESIGN STAGE

EXISTING SI STATION

- EXISTING DRILLHOLE WITH STANDPIPE/PIEZOMETER INSTALLED WITH AUTOMATIC GROUNDWATER MONITORING DEVICE (AGMD)
- # DRILLHOLE WITH STANDPIPE/PIEZOMETER
- * DRILLHOLE WITH STANDPIPE/PIEZOMETER INSTALLED WITH AUTOMATIC GROUNDWATER MONITORING DEVICE (AGMD)

SITE SPECIFIC DRILLHOLE IN DESIGN STAGE (SUPPLEMENTARY)

Revision	Date	Description	Initial	
	Designed	Checked	Drawn	Checked
Initial	YLC	CKH	SZ	WLS
Date	02/17	02/17	02/17	02/17

Approved

Agreement No. CE 8/2015 (WS)

Contract Title

FIRST STAGE OF
DESALINATION PLANT AT
TSEUNG KWAN O –INVESTIGATION,
DESIGN AND CONSTRUCTION

Drawing Title

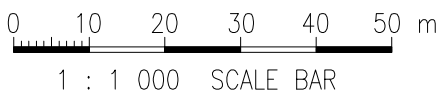
SITE SPECIFIC SI STATION
LAYOUT PLAN (DESIGN STAGE)

Drawing No.	Revision
190495/B/SIR/00-10003 Supplementary	—

Scale	A1 1 : 2000	A3 1 : 4000

水務署
Water Supplies
Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司



		DRILLHOLE RECORD CONTRACT NO. GE/2015/24				HOLE NO. FB-ADH 1								
		SHEET 1 of 9												
PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction														
METHOD ROTARY				CO-ORDINATES E 846462.45 N 814440.08		WORKS ORDER NO. GE/2015/24.3D								
MACHINE SD35						DATE 27.11.2017 to 21.12.2017								
FLUSHING MEDIUM WATER				ORIENTATION VERTICAL		GROUND LEVEL +33.22 mPD								
Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
27.11.2017	SW									+33.22	0.00			Percussive drilling, assumed to be FILL.
1														
2														
3														
4														
5														
6														
7														
8														
9														
10										+23.22	10.00			
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p> ↓ SMALL DISTURBED SAMPLE ↓ LARGE DISTURBED SAMPLE ▨ U76 SAMPLE ▨ PISTON SAMPLE (76mm) ▨ MAZIER SAMPLE □ SPT LINER SAMPLE ▲ WATER SAMPLE ■ U100 SAMPLE </p> </div> <div style="width: 45%;"> <p> ↓ STANDARD PENETRATION TEST ✓ IN-SITU VANE SHEAR TEST ✓ PACKER TEST ✓ PERMEABILITY TEST ✓ PRESSUREMETER TEST ✓ BOREHOLE TELEVIEWER ▨ PIEZOMETER TIP □ STANDPIPE TIP </p> </div> </div>								LOGGED S.L. Chiu DATE 29.12.2017 CHECKED R. Chu DATE 03.01.2018		REMARKS 1. No inspection pit was excavated. 2. Constant head permeability tests were carried out at sections from 57.30m to 58.80m and 61.50m to 63.00m. 3. A groundwater sample was taken at 80.65m. 4. A piezometer was installed with tip at 60.00m.				

		DRILLHOLE RECORD		HOLE NO. FB-ADH 1										
		CONTRACT NO. GE/2015/24		SHEET 2 of 9										
PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction														
METHOD ROTARY		CO-ORDINATES E 846462.45 N 814440.08		WORKS ORDER NO. GE/2015/24.3D										
MACHINE SD35				DATE 27.11.2017 to 21.12.2017										
FLUSHING MEDIUM WATER		ORIENTATION VERTICAL		GROUND LEVEL +33.22 mPD										
Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
11														As sheet 1 of 9.
12														
13														
14														
15														
16														
17														
18														
19														
20														
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p> <input type="checkbox"/> SMALL DISTURBED SAMPLE <input type="checkbox"/> LARGE DISTURBED SAMPLE <input checked="" type="checkbox"/> U78 SAMPLE <input type="checkbox"/> PISTON SAMPLE (76mm) <input type="checkbox"/> MAZIER SAMPLE <input type="checkbox"/> SPT LINER SAMPLE <input type="checkbox"/> WATER SAMPLE <input type="checkbox"/> U100 SAMPLE </p> </div> <div style="width: 45%;"> <p> <input type="checkbox"/> STANDARD PENETRATION TEST <input checked="" type="checkbox"/> IN-SITU VANE SHEAR TEST <input type="checkbox"/> PACKER TEST <input type="checkbox"/> PERMEABILITY TEST <input type="checkbox"/> PRESSUREMETER TEST <input type="checkbox"/> BOREHOLE TELEVIEWER <input type="checkbox"/> PIEZOMETER TIP <input type="checkbox"/> STANDPIPE TIP </p> </div> </div>									LOGGED <u>S.L. Chiu</u> DATE <u>29.12.2017</u> CHECKED <u>R. Chu</u> DATE <u>03.01.2018</u>		REMARKS			



		DRILLHOLE RECORD CONTRACT NO. GE/2015/24		HOLE NO. FB-ADH 1 SHEET 4 of 9											
		PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction													
METHOD ROTARY		CO-ORDINATES E 846462.45 N 814440.08		WORKS ORDER NO. GE/2015/24.3D											
MACHINE SD35				DATE 27.11.2017 to 21.12.2017											
FLUSHING MEDIUM WATER		ORIENTATION VERTICAL		GROUND LEVEL +33.22 mPD											
Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description	
31			0	60					T2-120		30.80			As sheet 3 of 9. From 30.50m to 33.90m: With much angular to subangular cobble of rock fragments.	
32			0	34					T2-120		32.38				
33			0	38					T2-120		33.84				
34		30.50 at 1800 30.20 at 0800							T2-120		35.28				
35			0	45					T2-120		36.34				
36			0	55					T2-120		37.70				
37			0	46					T2-120		38.70				
38			0	59					T2-120		39.28				
39			0	57					T2-120		40.00				
40			0	81					T2-120		-6.78				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p> SMALL DISTURBED SAMPLE LARGE DISTURBED SAMPLE U76 SAMPLE PISTON SAMPLE (76mm) MAZIER SAMPLE SPT LINER SAMPLE WATER SAMPLE U100 SAMPLE </p> <p> STANDARD PENETRATION TEST IN-SITU VANE SHEAR TEST PACKER TEST PERMEABILITY TEST PRESSUREMETER TEST BOREHOLE TELEVIEWER PIEZOMETER TIP STANDPIPE TIP </p> </div> <div style="width: 45%;"> <p>LOGGED <u>S.L. Chiu</u></p> <p>DATE <u>29.12.2017</u></p> <p>CHECKED <u>R. Chu</u></p> <p>DATE <u>03.01.2018</u></p> </div> </div>														REMARKS	



DRILLHOLE RECORD

CONTRACT NO. GE/2015/24

HOLE NO. **FB-ADH 1**SHEET **5** of **9**

PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction

METHOD		ROTARY		CO-ORDINATES		WORKS ORDER NO.								
MACHINE		SD35		E 846462.45 N 814440.08		GE/2015/24.3D								
FLUSHING MEDIUM		WATER		ORIENTATION		VERTICAL								
GROUND LEVEL		+33.22 mPD												
Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
28.11.2017 28.11.2017	30.50 at 1800	30.20 at 0800	0	36					T2-120	-8.98	40.20			As sheet 4 of 9.
41			0	36					T2-120		41.28			Light grey (7.5YR 7/1), angular to subangular, fine to coarse GRAVEL and COBBLE of rock fragments and with some concrete fragments. (FILL)
42			0	37					T2-120		42.26			
43			0	52					T2-120		43.40			
44			0	57					T2-120		44.80			
28.11.2017 30.11.2017	30.55 at 1800	30.20 at 0800	0	59					T2-101	-11.58	44.80			Light grey (7.5YR 7/1) spotted pink and brown, angular to subangular, slightly clayey silty sandy fine to coarse GRAVEL and some cobble of rock fragments and with some concrete and wood fragments. (FILL)
45			0	59					T2-101		46.08			
46			0	55					T2-101		47.60			
47			0	75					T2-101		48.65			
30.11.2017 01.12.2017	30.50 at 1900	30.50 at 0800	0	49					T2-101					From 49.70m to 50.20m: With much angular to
48			0	49										
49			0	49										
50			0	49										

SMALL DISTURBED SAMPLE

LARGE DISTURBED SAMPLE

U76 SAMPLE

PISTON SAMPLE (76mm)

MAZIER SAMPLE

SPT LINER SAMPLE

WATER SAMPLE

U100 SAMPLE

STANDARD PENETRATION TEST

IN-SITU VANE SHEAR TEST

PACKER TEST

PERMEABILITY TEST

PRESSUREMETER TEST

BOREHOLE TELEVIEWER

PIEZOMETER TIP

STANDPIPE TIP

LOGGED
DATE
CHECKED
DATE

S.L. Chiu
29.12.2017
R. Chu
03.01.2018

REMARKS

		DRILLHOLE RECORD CONTRACT NO. GE/2015/24		HOLE NO. FB-ADH 1									
				SHEET 6 of 9									
PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction													
METHOD ROTARY		CO-ORDINATES E 846462.45 N 814440.08		WORKS ORDER NO. GE/2015/24.3D									
MACHINE SD35				DATE 27.11.2017 to 21.12.2017									
FLUSHING MEDIUM WATER		ORIENTATION VERTICAL		GROUND LEVEL +33.22 mPD									
Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return% TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
51			0 47					T2-101 50.20					subangular cobble of rock fragments.
52		30.50 at 1800	0 60					T2-101 51.64					
53		30.20 at 0800	0 49					T2-101 52.50					
54			0 36					T2-101 53.68					From 53.40m to 53.68m: With much angular to subangular cobble of rock fragments.
55			0 100					1 54.80	-21.58	54.80			Soft to firm, dark greenish grey (5G 4/1) spotted white, slightly sandy clayey SILT with occasional shell fragments. (MARINE DEPOSIT)
56		30.60 at 1800					1.1 1.1, 1.1, 1.1 N=4	2 55.80 3 55.90 4 56.30					
57		30.30 at 0800	100					5 56.80					
58		30.20 at 1800					1.1 1.2, 3.3 N=9	6 57.75 7 57.00	-24.58	57.80			Stiff, dark greyish brown (10YR 4/2) spotted light grey, slightly sandy clayey SILT with some wood fragments. (ESTUARINE DEPOSIT)
59		30.25 at 0800	0 72					8 58.20	-25.03	58.25			Dark grey (10YR 4/1) spotted light grey, angular to subangular, gravelly COBBLE and BOULDER of moderately decomposed tuff fragments. (COLLUVIUM)
60		30.30 at	0 100					T2-101 59.00	-25.78	59.00		V	Extremely weak, pale brown (10YR 6/3) spotted light brown mottled brown, completely decomposed coarse ash TUFF. (Stiff, slightly sandy clayey SILT)
LOGGED S.L. Chiu DATE 29.12.2017 CHECKED R. Chu DATE 03.01.2018								REMARKS					



DRILLHOLE RECORD

CONTRACT NO. GE/2015/24

HOLE NO. **FB-ADH 1.**

SHEET 7 of 9

PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction

METHOD	ROTARY	CO-ORDINATES	WORKS ORDER NO.
MACHINE	SD35	E 846462.45 N 814440.08	GE/2015/24.3D
FLUSHING MEDIUM	WATER	ORIENTATION	VERTICAL
		GROUND LEVEL	+33.22 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
05.12.2017 06.12.2017	1800	30.30 at 0800						7.7 9.11,13,15 N=48	10 68.90 11 60.20 12 60.50				V	As sheet 6 of 9.
61			0	100					13 61.00					
62								7.9 12.15,17,20 N=64	14 62.00 15 62.20 16 62.50					
06.12.2017 07.12.2017	30.30 at 1800	30.26 at 0800	0	100					17 63.00					
64								7.10 12.16,18,22 N=68	18 64.00 19 64.10 20 64.20					
65			0	100					21 65.00					
66								8.11 14.16,20,25 N=75	22 66.00 23 66.10 24 66.50	-32.88	66.10		V	Extremely weak, light brown (7.5YR 6/4), completely decomposed coarse ash TUFF. (Slightly clayey silty fine to coarse SAND with occasional angular fine to coarse gravel of tuff fragments)
07.12.2017 08.12.2017	30.40 at 1800	30.30 at 0800	0	100					25 67.00					
67								10.12 14.19,23,27 N=83	26 68.00 27 68.10 28 68.20	-35.33	68.55		III	
68									T2-101 68.50	-35.49	68.71		V	
69			0	69	0	0	>20	NR		-35.60	68.82		V	Moderately strong to strong, grey (10YR 5/1) streaked light brown, moderately decomposed coarse ash TUFF. (CORESTONE)
			0	45	0	0	NR		T2-101 69.00	-35.82	69.04		III	
							>20			-36.30	69.52		V	
70									T2-101 69.77	-36.77	70.00		III	From 68.71m to 68.82m, 69.04m to 69.52m, 70.53m to 71.00m and 71.78m to 72.03m: No recovery, assumed to be completely decomposed TUFF.

- SMALL DISTURBED SAMPLE

LARGE DISTURBED SAMPLE

U78 SAMPLE

PISTON SAMPLE (70mm)

MAZIER SAMPLE

SPT LINER SAMPLE

WATER SAMPLE

U100 SAMPLE
- STANDARD PENETRATION TEST

IN-SITU VANE SHEAR TEST

PACKER TEST

PERMEABILITY TEST

PRESSUREMETER TEST

BOREHOLE TELEVIEWER

PIEZOMETER TIP

STANDPIPE TIP

LOGGED S.L. Chiu
DATE 29.12.2017
CHECKED R. Chu
DATE 03.01.2018

REMARKS



DRILLHOLE RECORD

CONTRACT NO. GE/2015/24

HOLE NO. **FB-ADH 1**SHEET **8** of **9**

PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction

METHOD	ROTARY	CO-ORDINATES	WORKS ORDER NO.
MACHINE	SD35	E 846462.45 N 814440.08	GE/2015/24.3D
FLUSHING MEDIUM	WATER	ORIENTATION	VERTICAL
		GROUND LEVEL	+33.22 mPD


Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return %	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
71			0	68	0	0	6.6		T2-101	-37.31	70.53		III	As sheet 7 of 9.
08.12.2017							NR						V	
09.12.2017		30.35 at 1800											III	
		30.50 at 0800					10.3						V	
72			0	77	44	44			T2-101	-38.56	71.78		III	Extremely weak, yellowish red (5YR 5/6) spotted brown and white, completely decomposed coarse ash TUFF. (Slightly clayey very silty fine to coarse SAND)
							NR						V	
							14.8						III	
													V	
73			0	100									III	Strong to very strong, dark grey mottled brown, moderately decomposed coarse ash TUFF. (CORESTONE)
							>20						V	
							NR						III	
													V	
74	PW 74.00m		0	78	0	0			T2-101	-40.54	73.78		III	From 73.76m to 73.90m: No recovery, assumed to be completely decomposed TUFF. Strong to very strong, dark grey spotted light grey, slightly decomposed coarse ash TUFF. Joints are medium to widely spaced, occasionally closely spaced, rough planar and rough undulating, iron and manganese oxide stained, dipping at 10° to 20°, 30° to 40° and 60° to 70°.
09.12.2017	HW 74.30m	30.20 at 1800	0	100	4	0	>20		T2-101	-40.68	73.90		V	
21.12.2017		30.00 at 0800											III	
			50	100	100	100	3.3		T2-101		74.30		II	
75			50	100	69	69			T2-101		74.95		II	
							>20		T2-101		75.21		II	
									T2-101		75.35		II	
76			50	100	98	98	1.6		T2-101		75.47		II	
													II	
77			50	100	100	100			T2-101		76.60		II	
													II	
78			50	100	100	100			T2-101		76.75		II	
													II	
79			50	100	100	100	2.4		T2-101		78.22		II	
													II	
80			50	100	100	100			T2-101		79.09		II	
													II	
									T2-101		80.00		II	
													II	









- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE









- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED S.L. Chiu
DATE 29.12.2017
CHECKED R. Chu
DATE 03.01.2018

REMARKS

										DRILLHOLE RECORD CONTRACT NO. GE/2015/24					HOLE NO. FB-ADH 1	
										SHEET 9 of 9						
PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction																
METHOD ROTARY										CO-ORDINATES E 846462.45 N 814440.08					WORKS ORDER NO. GE/2015/24.3D	
MACHINE SD35															DATE 27.11.2017 to 21.12.2017	
FLUSHING MEDIUM WATER										ORIENTATION VERTICAL					GROUND LEVEL +33.22 mPD	
Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description		
21.12.2017		30.20 at 1800							T2-101	-47.43	80.65		II	As sheet 8 of 9.		
81														End of hole at 80.65 m.		
82																
83																
84																
85																
86																
87																
88																
89																
90																

 SMALL DISTURBED SAMPLE
 LARGE DISTURBED SAMPLE
 U70 SAMPLE
 PISTON SAMPLE (76mm)
 MAZIER SAMPLE
 SPT LINER SAMPLE
 WATER SAMPLE
 U100 SAMPLE

 STANDARD PENETRATION TEST
 IN-SITU VANE SHEAR TEST
 PACKER TEST
 PERMEABILITY TEST
 PRESSUREMETER TEST
 BOREHOLE TELEVIEWER
 PIEZOMETER TIP
 STANDPIPE TIP

LOGGED S.L. Chiu
 DATE 29.12.2017
 CHECKED R. Chu
 DATE 03.01.2018

REMARKS

		DRILLHOLE RECORD CONTRACT NO. GE/2015/24				HOLE NO. FB-ADH 2								
		SHEET 1 of 9												
PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction														
METHOD ROTARY				CO-ORDINATES E 846472.97 N 814376.26		WORKS ORDER NO. GE/2015/24.3D								
MACHINE SD08						DATE 25.11.2017 to 21.12.2017								
FLUSHING MEDIUM WATER				ORIENTATION VERTICAL		GROUND LEVEL +32.95 mPD								
Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
30.11.2017	SW									+32.95	0.00			Percussive drilling, assumed to be FILL.
1														
2														
3														
4														
5														
6														
7														
8														
9														
10										+22.95	10.00			
<div style="display: flex; justify-content: space-between;"> <div> ⬇ SMALL DISTURBED SAMPLE ⬆ LARGE DISTURBED SAMPLE ▨ U76 SAMPLE ▤ PISTON SAMPLE (76mm) ▩ MAZIER SAMPLE □ SPT LINER SAMPLE ▲ WATER SAMPLE ■ U100 SAMPLE </div> <div> ⬇ STANDARD PENETRATION TEST √ IN-SITU VANE SHEAR TEST ▽ PACKER TEST ▤ PERMEABILITY TEST ▩ PRESSUREMETER TEST ▤ BOREHOLE TELEVIEWER ▨ PIEZOMETER TIP □ STANDPIPE TIP </div> </div>									LOGGED <u>S.L. Chiu</u> DATE <u>29.12.2017</u> CHECKED <u>R. Chu</u> DATE <u>03.01.2018</u>		REMARKS 1. No inspection pit was excavated. 2. Constant head permeability test was carried out at section from 60.15m to 61.65m. 3. A groundwater sample was taken at 81.40m. 4. A piezometer was installed with tip at 62.00m.			



DRILLHOLE RECORD

CONTRACT NO. GE/2015/24

HOLE NO. **FB-ADH 2**SHEET **2** of **9**

PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction

METHOD	ROTARY	CO-ORDINATES	WORKS ORDER NO.
MACHINE	SD08	E 846472.97 N 814376.26	GE/2015/24.3D
FLUSHING MEDIUM	WATER	ORIENTATION	DATE
		VERTICAL	25.11.2017 to 21.12.2017
		GROUND LEVEL	+32.95 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
11														As sheet 1 of 9.
12														
13														
14														
15														
16														
17														
18														
19														
20														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U78 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE

- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED S.L. Chiu
DATE 29.12.2017
CHECKED R. Chu
DATE 03.01.2018

REMARKS

		DRILLHOLE RECORD CONTRACT NO. GE/2015/24		HOLE NO. FB-ADH 2											
				SHEET 3 of 9											
PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction															
METHOD ROTARY		CO-ORDINATES E 846472.97 N 814376.26		WORKS ORDER NO. GE/2015/24.3D											
MACHINE SD08				DATE 25.11.2017 to 21.12.2017											
FLUSHING MEDIUM WATER		ORIENTATION VERTICAL		GROUND LEVEL +32.95 mPD											
Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description	
21														As sheet 2 of 9.	
22															
23															
24															
25															
26															
27															
28															
29															
30															
28		SW 28.50m PW									+4.95 28.00			Wash boring, assumed to be FILL.	
29		30.20 at 1800 30.30 at 0800									+4.45 28.50			Light grey (7.5YR 7/1) mottled black, angular to subangular, COBBLE and occasional coarse gravel of rock fragments and with some concrete and asphalt fragments. (FILL)	
30											+2.95 30.00				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p> ↓ SMALL DISTURBED SAMPLE ↑ LARGE DISTURBED SAMPLE ▨ U75 SAMPLE ▩ PISTON SAMPLE (75mm) ▨ MAZIER SAMPLE □ SPT LINER SAMPLE ▲ WATER SAMPLE ■ U100 SAMPLE </p> </div> <div style="width: 45%;"> <p> ↓ STANDARD PENETRATION TEST ∇ IN-SITU VANE SHEAR TEST ▨ PACKER TEST ▨ PERMEABILITY TEST ▨ PRESSUREMETER TEST ▨ BOREHOLE TELEVIEWER ▨ PIEZOMETER TIP □ STANDPIPE TIP </p> </div> </div>														LOGGED <u>S.L. Chiu</u> DATE <u>29.12.2017</u> CHECKED <u>R. Chu</u> DATE <u>03.01.2018</u>	REMARKS



DRILLHOLE RECORD

CONTRACT NO. GE/2015/24

HOLE NO. **FB-ADH 2**

SHEET 4 of 9

PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction

METHOD **ROTARY**CO-ORDINATES
E 846472.97
N 814376.26WORKS ORDER NO. **GE/2015/24.3D**MACHINE **SD08**DATE **25.11.2017** to **21.12.2017**FLUSHING MEDIUM **WATER**ORIENTATION **VERTICAL**GROUND LEVEL **+32.95 mPD**

Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
31			0	59					T2-120					As sheet 3 of 9.
			0	88					T2-120					
			0	92					T2-120					
32		30.30 et 1800	0	100					T2-120					Light grey (7.5YR 7/1) mottled grey, angular to subangular, slightly clayey silty sandy fine to coarse GRAVEL and some cobble of rock fragments and with some concrete and refuse fragments. (FILL)
01.12.2017		30.20 et 0800	0	100					T2-120	+0.80	-32.15			
02.12.2017			0	100					T2-120					
			0	100					T2-120					
			0	86					T2-120					
			0	88					T2-120					
			0	79					T2-120					
			0	92					T2-120					
33			0	93					T2-120					
02.12.2017		30.30 et 1800	0	88					T2-120					
04.12.2017		30.30 et 0800	0	88					T2-120					
36		30.17 et 1800	0	74					T2-120					
04.12.2017		30.20 et 0800	0	74					T2-120					
05.12.2017			0	79					T2-120					
37			0	84					T2-120					
			0	89					T2-120					
38			0	100					T2-120					
			0	74					T2-120					
39		30.22 et 1800	0						T2-120					
05.12.2017		30.05 et 0800							T2-120					
08.12.2017	PW 40.00m								T2-120	-7.05	40.00			
40									T2-120					

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE

- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED

S.L. Chiu

DATE

29.12.2017

CHECKED

R. Chu

DATE

03.01.2018

REMARKS

<div style="display: inline-block; border: 2px solid black; padding: 5px; font-weight: bold; font-size: 1.2em;">DRILTECH</div> <div style="display: inline-block; margin-left: 20px;"> DRILLHOLE RECORD CONTRACT NO. GE/2015/24 </div> <div style="display: inline-block; margin-left: 20px; text-align: right;"> HOLE NO. FB-ADH 2 SHEET 5 of 9 </div>														
PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction														
METHOD ROTARY					CO-ORDINATES E 846472.97 N 814376.26		WORKS ORDER NO. GE/2015/24.3D							
MACHINE SD08							DATE 25.11.2017 to 21.12.2017							
FLUSHING MEDIUM WATER					ORIENTATION VERTICAL		GROUND LEVEL +32.95 mPD							
Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
41	HW		0	98					T2-120		40.20			As sheet 4 of 9.
			0	98					T2-120		40.88			
42			0	79					T2-101		42.00			
			0	59					T2-101		43.00			
43			0	65					T2-101		43.70			
			0	82					T2-101		44.20			
44		30.17 at 1800 26.89 at 0800	0	88					T2-101	-11.85	44.80			Light grey (7.5YR 6/1) mottled grey and pinkish grey, angular to subangular, medium to coarse GRAVEL and occasional cobble of rock fragments and with some concrete and steel fragments. (FILL)
			0	76					T2-101		45.48			
45		30.20 at 1800 26.95 at 0800	0	66					T2-101		46.40			From 44.80m to 45.48m, 49.47m to 50.31m and 54.00m to 54.30m: With some boulder (<300mm) of moderately decomposed tuff fragments.
			0	58					T2-101		47.08			
46			0	62					T2-101		47.82			
			0	77					T2-101		48.61			
47			0	93					T2-101		49.47			
			0	93					T2-101		50.00			
50			0	93					T2-101	-17.05	50.00			

SMALL DISTURBED SAMPLE
 LARGE DISTURBED SAMPLE
 U70 SAMPLE
 PISTON SAMPLE (70mm)
 MAZIER SAMPLE
 SPT LINER SAMPLE
 WATER SAMPLE
 U100 SAMPLE

STANDARD PENETRATION TEST
 IN-SITU VANE SHEAR TEST
 PACKER TEST
 PERMEABILITY TEST
 PRESSUREMETER TEST
 BOREHOLE TELEVIEWER
 PIEZOMETER TIP
 STANDPIPE TIP

LOGGED S.L. Chiu

DATE 29.12.2017

CHECKED R. Chu

DATE 03.01.2018

REMARKS



DRILLHOLE RECORD

CONTRACT NO. GE/2015/24

HOLE NO. **FB-ADH 2**

SHEET 6 of 9

PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction

METHOD **ROTARY**CO-ORDINATES
E 846472.97
N 814376.26WORKS ORDER NO. **GE/2015/24.3D**MACHINE **SD08**DATE **25.11.2017** to **21.12.2017**FLUSHING MEDIUM **WATER**ORIENTATION **VERTICAL**GROUND LEVEL **+32.95 mPD**

Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
06.12.2017 09.12.2017	30.30 at 1800	30.12 at 0800	0	89					T2-101	50.31				As sheet 5 of 9.
51			0	87					T2-101	50.97				
06.12.2017 11.12.2017	30.30 at 1800	30.30 at 0800	0	62					T2-101	51.76				
52			0	69					T2-101	52.60				
53			0	76					T2-101	53.28				
54			0	88					T2-101	53.82				Grey (10YR 5/1) mottled light brown and red, angular to subangular, slightly silty sandy fine to coarse GRAVEL of rock fragments and with occasional tile fragments. (FILL)
55			0	40					1	54.30	54.30			
56			0	100					2	55.60	55.60			
57	30.15 at 1800	30.30 at 0800	0	80					3	55.60	55.60			Firm, light grey (7.5YR 1/4) streaked black, slightly silty CLAY. (ALLUVIUM)
58			0	18					4	56.50	56.62			Dark grey (10YR 4/1) spotted light grey, BOULDER of slightly decomposed tuff fragments. (COLLUVIUM)
59			0	95					T2-101	57.24	57.24			Light grey (10YR 7/1) streaked light brown and dark grey, angular to subangular, slightly clayey silty sandy fine to coarse GRAVEL and some cobble of rock fragments. (COLLUVIUM)
60	30.15 at 1800	30.12 at 0800							5	58.10	58.10		V	Extremely weak, pale olive (5Y 6/3) mottled yellowish red, completely decomposed, chloritised, coarse ash TUFF. (Very stiff, clayey sandy SILT)
									6	59.10	59.20			Extremely weak, brown (7.5YR 5/3) spotted light brown and white, completely decomposed coarse ash TUFF. (Slightly clayey silty fine to coarse SAND)
									7	59.30	59.30		V	
									8	59.60	59.60			
										27.05	60.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE

- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED S.L. Chiu
DATE 29.12.2017
CHECKED R. Chu
DATE 03.01.2018

REMARKS

DRILTECH**DRILLHOLE RECORD**

CONTRACT NO. GE/2015/24

HOLE NO. **FB-ADH 2**

SHEET 7 of 9

PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction

METHOD **ROTARY**

CO-ORDINATES

E 846472.97

N 814376.26

WORKS ORDER NO.

GE/2015/24.3D

MACHINE

SD08

DATE

25.11.2017 to 21.12.2017

FLUSHING MEDIUM

WATER

ORIENTATION **VERTICAL**

GROUND LEVEL

+32.95 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
61			0	100					9 60.10 10 61.10 11 61.20 12 61.58				V	As sheet 6 of 9.
62								7.11 14, 18, 34, 34/50mm 100bbl/275mm	13 62.10					
63		13.12.2017 15.12.2017 30.10 at 1800 30.15 at 0800	0	98				12.15 20, 26, 29, 25/40mm 100bbl/265mm	14 63.10 15 63.20 16 63.57					
64									17 64.10	-31.15	64.10		V	Extremely weak, brown (7.5YR 5/3) spotted light brown and white, completely decomposed coarse ash TUFF. (Slightly silty fine to coarse SAND)
65			0	97				8.11 13, 15, 20, 30 Note	18 65.10 19 65.20 20 65.30	-32.25	65.20		V	Extremely weak, brown (7.5YR 3/5) spotted light grey and white, completely decomposed coarse ash TUFF. (Slightly clayey very silty fine to coarse SAND)
66									21 66.10					From 68.10m to 68.60m: No recovery, assumed to be completely decomposed TUFF.
67			0	97				3.7 17, 33/75mm 100bbl/150mm	22 67.10 23 67.20 24 67.45					
68									T2-101 68.10		68.10			
69		15.12.2017 16.12.2017 30.20 at 1800 30.20 at 0800	0	0			NR		T2-101 68.60	-35.85 -35.77	68.60 68.72		IV III	Weak to moderately weak, reddish brown (5YR 5/3) spotted light brown, highly decomposed coarse ash TUFF. (Angular, fine to coarse GRAVEL of highly decomposed tuff fragments)
70			0	98	94	94	4.1		T2-101 68.72		68.72			From 68.72m to 70.18m: Moderately strong to strong and moderately decomposed. (CORESTONE)

SMALL DISTURBED SAMPLE

LARGE DISTURBED SAMPLE

U70 SAMPLE

PISTON SAMPLE (70mm)

MAZIER SAMPLE

SPT LINER SAMPLE

WATER SAMPLE

U100 SAMPLE

STANDARD PENETRATION TEST

IN-SITU VANE SHEAR TEST

PACKER TEST

PERMEABILITY TEST

PRESSUREMETER TEST

BOREHOLE TELEVIEWER

PIEZOMETER TIP

STANDPIPE TIP

LOGGED S.L. Chiu

DATE 29.12.2017

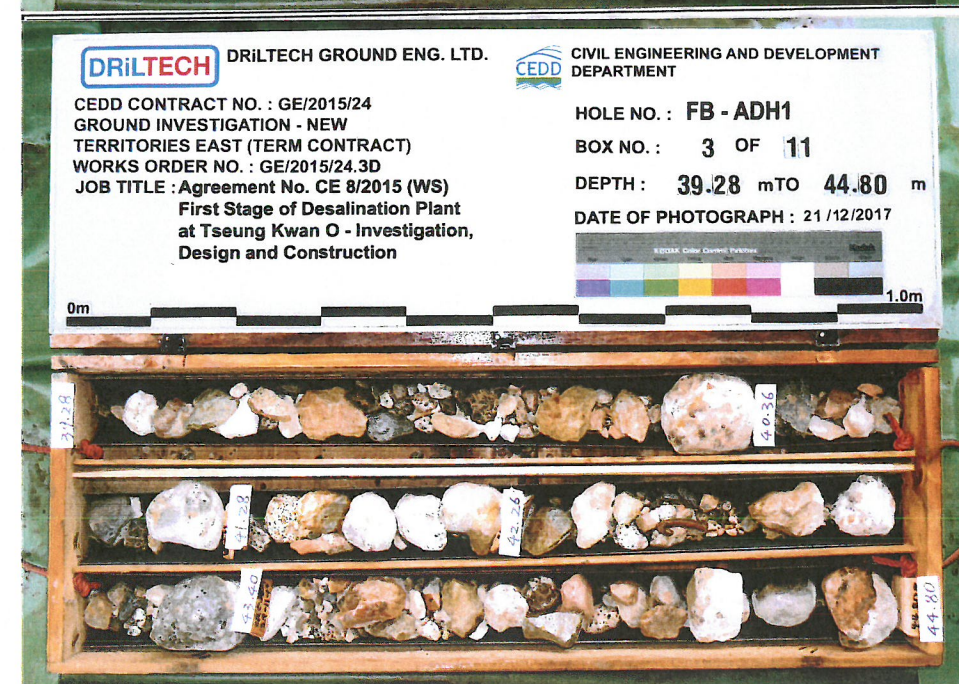
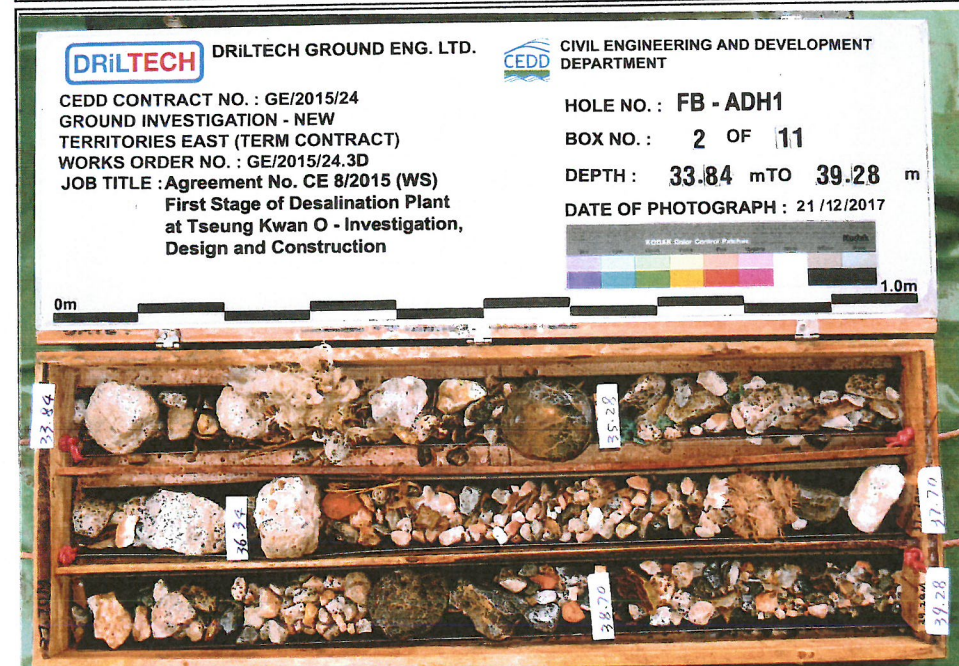
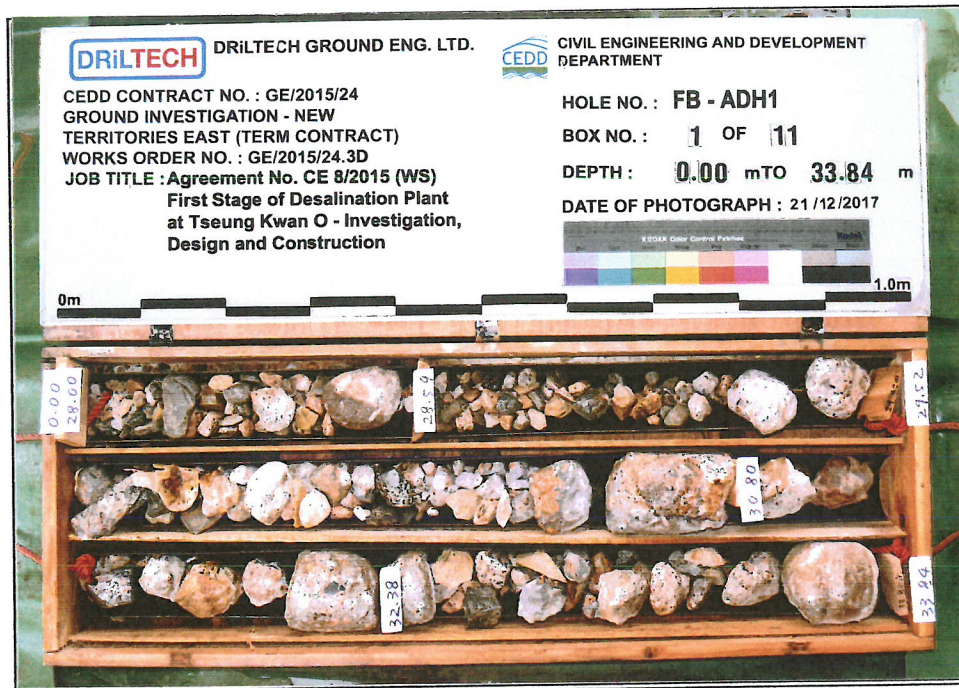
CHECKED R. Chu

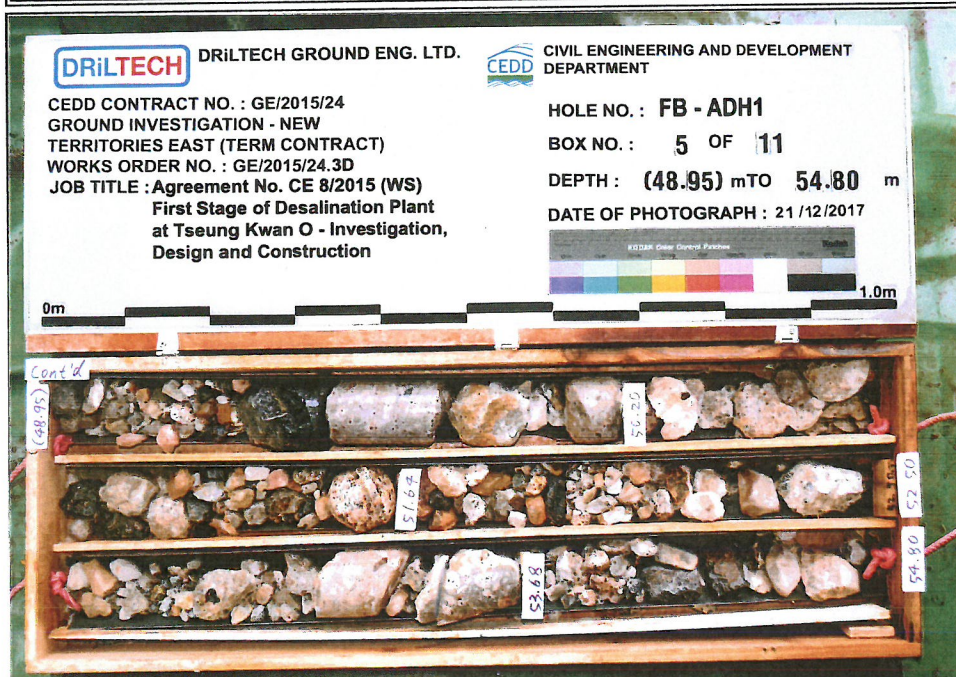
DATE 03.01.2018

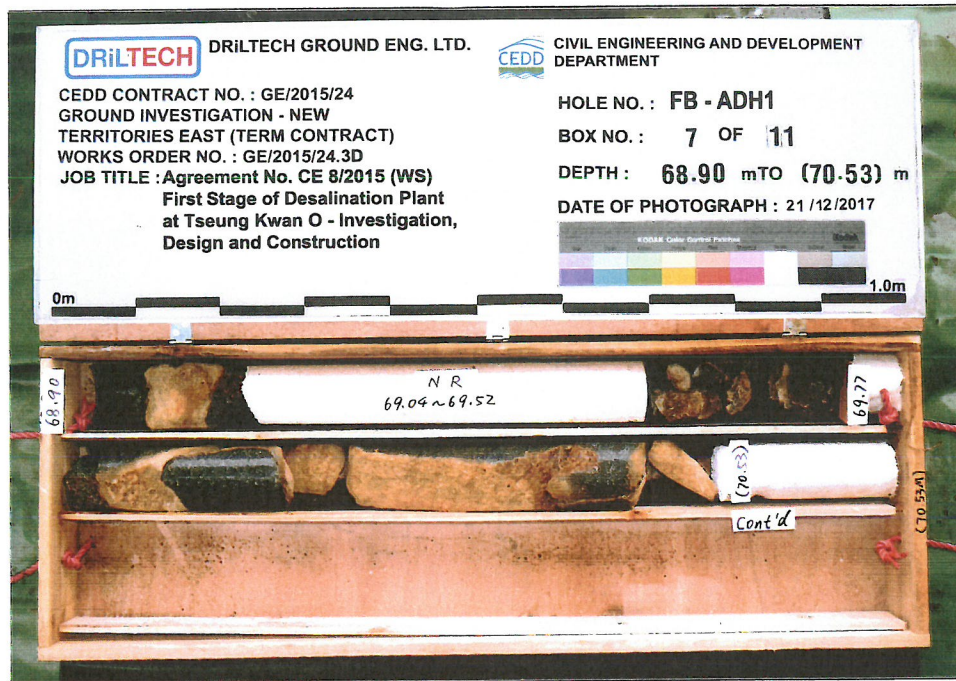
REMARKS



		DRILLHOLE RECORD CONTRACT NO. GE/2015/24		HOLE NO. FB-ADH 2										
		SHEET 9 of 9												
PROJECT Ground Investigation - New Territories East (Term Contract), Agreement No. CE 8/2015 (WS), First Stage of Desalination Plant at Tseung Kwan O - Investigation, Design and Construction														
METHOD ROTARY			CO-ORDINATES E 846472.97 N 814376.26		WORKS ORDER NO. GE/2015/24.3D									
MACHINE SD08			DATE 25.11.2017 to 21.12.2017											
FLUSHING MEDIUM WATER			ORIENTATION VERTICAL		GROUND LEVEL +32.95 mPD									
Drilling Progress	Casing Size	Water Level (m) Shift Start/End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
20.12.2017 21.12.2017	30.30 at 1800	30.05 at 0800	40	100	90	90	1.2		T2-101 80.29 T2-101	48.45	81.40		II	As sheet 5 of 9.
81	30.30 at 1800													End of hole at 81.40 m.
82														
83														
84														
85														
86														
87														
88														
89														
90														
<div style="display: flex; justify-content: space-between;"> <div> <p>SMALL DISTURBED SAMPLE</p> <p>LARGE DISTURBED SAMPLE</p> <p>U70 SAMPLE</p> <p>PISTON SAMPLE (76mm)</p> <p>MAZIER SAMPLE</p> <p>SPT LINER SAMPLE</p> <p>WATER SAMPLE</p> <p>U100 SAMPLE</p> </div> <div> <p>STANDARD PENETRATION TEST</p> <p>IN-SITU VANE SHEAR TEST</p> <p>PACKER TEST</p> <p>PERMEABILITY TEST</p> <p>PRESSUREMETER TEST</p> <p>BOREHOLE TELEVIEWER</p> <p>PIEZOMETER TIP</p> <p>STANDPIPE TIP</p> </div> </div>								LOGGED <u>S.L. Chiu</u> DATE <u>29.12.2017</u> CHECKED <u>R. Chu</u> DATE <u>03.01.2018</u>		REMARKS				



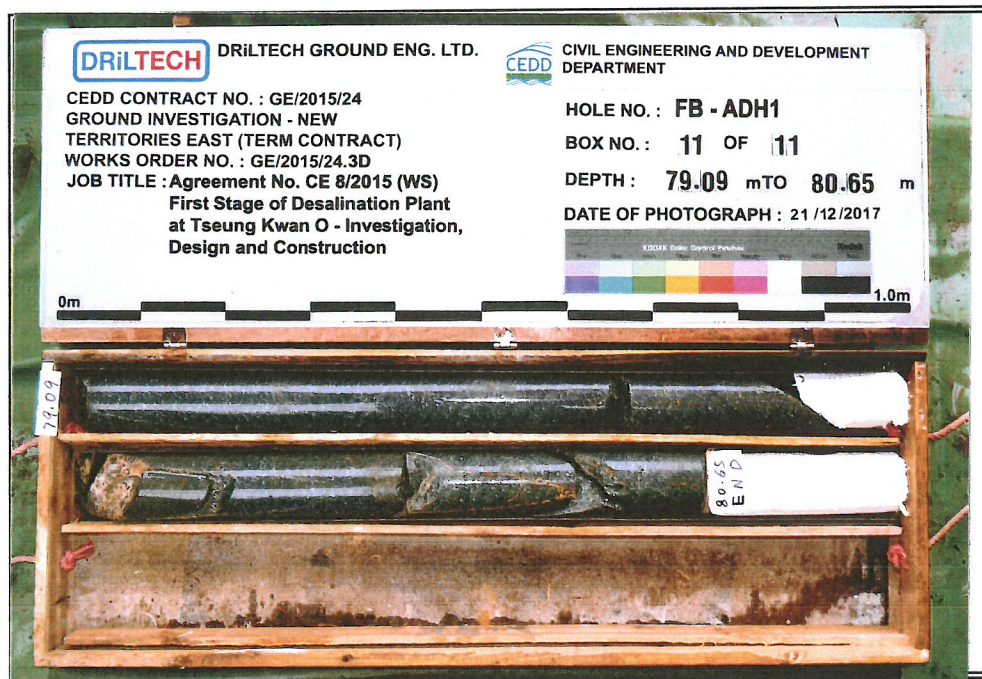


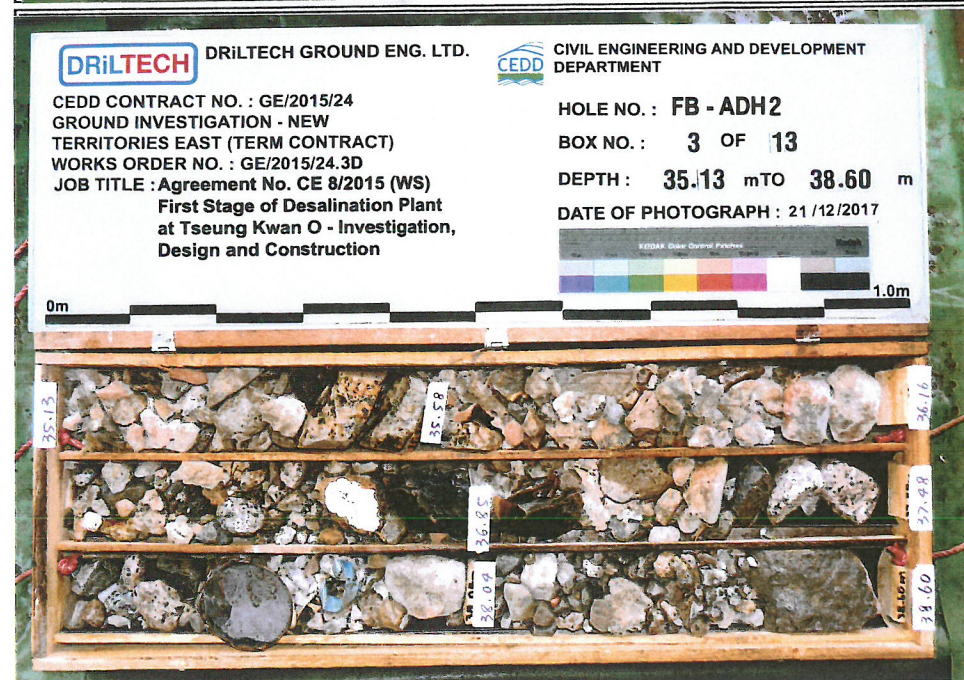


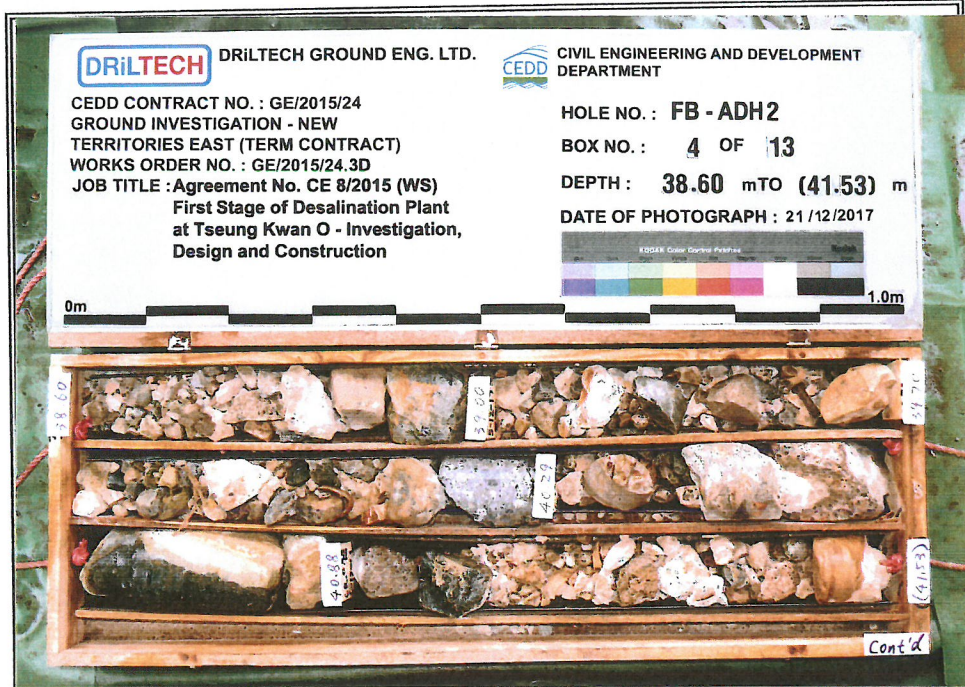


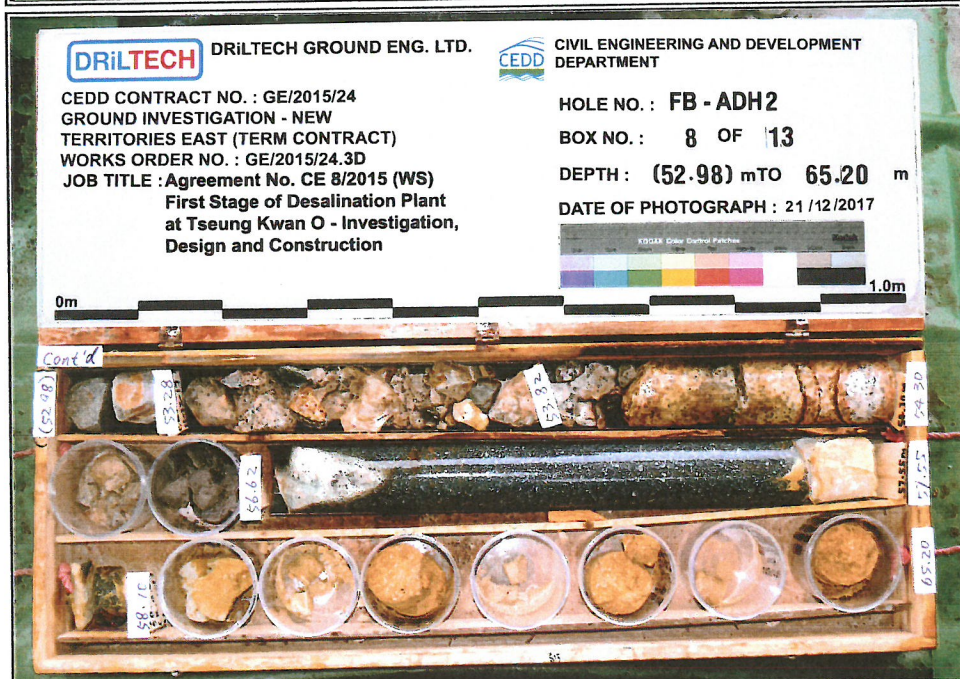
DrilTech Ground Engineering Ltd.

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