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US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-114**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **12 Jul 11** FINISHED: **12 Jul 11** DRILLER: [redacted] bb

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **8.4 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **8.4 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,549.4** E: **447,604.1** GROUND ELEV.: **50.44 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 / 50	S1					FILL	**SILTY SAND**: brown; moist; about 70% fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 0.9ppm FC = F3	
1 / 49	S2					FILL	**CLAYEY SAND**: brown; about 3% subangular fine gravel (max.2cm); about 67% fine to coarse Sand (max.4.8mm); about 30% Fines; fill material (SC).	%Recovery = 100 PID = 1.4 - 2.2ppm FC = F3	
2 / 48	S3						About 70% fine to coarse Sand; about 30% Fines.	%Recovery = 79 PID = 3.1 - 5.4ppm	
3 / 47							About 3% subangular fine gravel (max.2cm); about 67% fine to coarse Sand; about 30% Fines.		
4 / 46									
5 / 45	S4							%Recovery = 69 PID = 0 - 6.7ppm	
6 / 44						CL SC	**SANDY LEAN CLAY**: gray; moist; about 30% subangular fine to coarse Sand (max.4.8mm); about 70% Fines; medium plasticity; alluvial soil. **CLAYEY SAND**: brown; moist; about 60% subangular fine to coarse Sand (max.4.8mm); about 40% Fines; medium plasticity; alluvial soil.		
7 / 43							Wet.		
8						SM	**SILTY SAND**: brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; residual soil. Hard pushing of sampler at 8-8.4 m; HDP (Hydraulic Down Pressure)= 700 psi.		

Penetration refusal depth = 8.4m (Penetration speed = 5cm / 5min).

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-115**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] b6

DATE STARTED: **13 Jul 11** FINISHED: **13 Jul 11** DRILLER: [redacted] b6

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **9.4 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **9.4 m** WATER DEPTH: **7.0 m; AD**

COORDINATES: N: **3,983,539.7** E: **447,614.0** GROUND ELEV.: **50.57 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
50 / 0	S1					FILL	**SILTY SAND**: brown; moist; about 5% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand; about 30% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 5.7ppm FC = F3	
49 / 1	S2					FILL	**CLAYEY SAND**: brown; moist; about 10% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand; about 30% Fines; medium plasticity; fill material (SC).	%Recovery = 100 PID = 0 - 1.3ppm FC = F3	
48 / 2	S3						About 3% subangular fine to coarse gravel (max.3cm); about 67% subangular fine to coarse Sand; about 30% Fines.	%Recovery = 98 PID = 3.7 - 8.4ppm	
47 / 3							Reddish brown.		
46 / 4						SM	**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; low plasticity; residual soil.		
45 / 5								%Recovery = 86 PID = 1.4 - 10.5ppm	
44 / 6						ML	**SANDY SILT**: brown; moist; about 30% subangular fine Sand; about 70% Fines; medium plasticity; residual soil.		
43 / 7	S4					SM	**SILTY SAND**: light brown; moist; about 80% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; no plasticity; residual soil.		
42 / 8									
9							Hard pushing of sampler at 9-9.4 m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 9.4m (Penetration speed = 5cm / 5min).

ENVIRO-EXPLORATION LOG 11-032E GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-116**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **13 Jul 11** FINISHED: **13 Jul 11** DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **9.7 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **9.7 m** WATER DEPTH: **7.24 m; AD**

COORDINATES: N: **3,983,538.9** E: **447,617.6** GROUND ELEV.: **50.73 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
50 / 0	S1					FILL	**SILTY SAND**: brown; moist; about 3% subangular fine gravel (max.2cm); about 72% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 0ppm FC = F3	
	S2						About 10% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines.	%Recovery = 100 PID = 0ppm	
49 / 2							About 5% subangular fine gravel (max.1cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines.		
	S3					FILL	**CLAYEY SAND**: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).	%Recovery = 92 PID = 0 - 4.6ppm	
47 / 4						SM	**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.		
46 / 5							Sandy silt layer encountered at 5.3-5.4m.	%Recovery = 85 PID = 0.4 - 2.6ppm	
45 / 6									
44 / 7	S4								
43 / 8									
42 / 9							Hard pushing of sampler at 9-9.7 m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 9.7m (Penetration speed = 5cm / 5min).

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-117**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] b6 b6

DATE STARTED: **14 Jul 11** FINISHED: **14 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **10.0 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **10.0 m** WATER DEPTH: **7.59 m; AD**

COORDINATES: N: **3,983,542.8** E: **447,621.3** GROUND ELEV.: **51.05 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
51–0	S1					FILL	**SILTY SAND**: brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM). About 10% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines. About 3% subangular fine gravel (max.1cm); about 67% subangular fine to coarse Sand (max.4.8mm); about 30% Fines.	%Recovery = 100 PID = 0.9ppm FC = F3	
50–1	S2							%Recovery = 96 PID = 2.0ppm	
49–2	S3					FILL	**CLAYEY SAND**: brown; moist; about 3% subangular fine gravel (max.2cm); about 67% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).	%Recovery = 97 PID = 0.1 - 3.5ppm	
48–3									
47–4							Reddish brown; about 3% subangular fine gravel (max.2cm); about 57% subangular fine to coarse Sand (max.4.8mm); about 40% Fines.		
46–5						SC	**CLAYEY SAND**: reddish brown; moist; subangular fine to coarse Sand (max.4.8mm); medium plasticity; residual soil.	%Recovery = 86 PID = 0 - 2.3ppm	
45–6						SM	**SILTY SAND**: light brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.		
44–7	S4 ▼								
43–8							Dark brown.		
42–9							Brown.		
10							Hard pushing of sampler at 9.7-10.0 m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 10.0m (Penetration speed = 10cm / 30sec).		

ENVIRO-EXPLORATION LOG 11-032E.3PJ USACE SKOREA.GDT 7/22/11

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EXPLORATION LOG

HOLE NO. **E11-118**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted]

DATE STARTED: **12 Jul 11** FINISHED: **12 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **8.9 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **8.9 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,542.6** E: **447,636.9** GROUND ELEV.: **51.68 m** DATUM: **MSL**

GROUND COVER: **Dirt** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
51 / 0	S1					FILL	**Poorly-graded GRAVEL with Silt and Sand**: light gray; dry to moist; about 75% angular fine to coarse gravel (max.3cm); about 15% fine to coarse Sand; about 10% Fines; no plasticity; fill material (GP-GM).	%Recovery = 90 PID = 0.2ppm	
						FILL	**SILTY SAND**: brown; moist; about 5% fine gravel; about 70% subangular fine to coarse Sand; about 25% Fines; fill material (SM).		
50 / 1	S2						**SILTY SAND with Gravel**: light brown; moist; about 35% fine to coarse gravel; about 50% fine to coarse Sand; about 15% Fines; no plasticity.	%Recovery = 90 PID = 0.5 - 46.0ppm	
							Brown; about 15% fine to coarse gravel; about 70% fine to coarse Sand; about 15% Fines.		
49 / 2	S3						About 2% fine gravel; about 68% fine to coarse Sand; about 30% Fines.	%Recovery = 97 PID = 0 - 12.0ppm	
							Clayey sand layer encountered at 2.6-2.8m..		
48 / 3							Light brown; about 70% fine to medium Sand; about 30% Fines.		
47 / 4						FILL	**CLAYEY SAND**: light brown; moist; about 60% fine to medium Sand; about 40% Fines; low plasticity; fill material (SC).		
46 / 5						SM	**SILTY SAND**: light brown; moist; about 70% fine to coarse Sand; about 30% Fines; residual soil; granite texture.	%Recovery = 100 PID = 0.5 - 2.0ppm	
45 / 6	S4						Brown to dark brown.		
44 / 7							Grayish brown grades to light brown.		
43 / 8							Hard pushing of sampler at 8.5-8.9 m; HDP (Hydraulic Down Pressure)= 1400 psi.		
							Penetration refusal depth = 8.9m (Penetration speed = 10cm / 8min).		

ENVIRO-EXPLORATION LOG 11-032E.3PJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-119**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **13 Jul 11** FINISHED: **13 Jul 11** DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **7.9 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **7.9 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,538.7** E: **447,661.0** GROUND ELEV.: **52.21 m** DATUM: **MSL**

GROUND COVER: **Asphalt pavement** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
52 / 0	S1					AC / FILL / FILL	Asphalt pavement thickness = 10 cm. **Poorly-graded GRAVEL with Silt and Sand**: gray; dry; about 75% angular fine to coarse gravel (max.3.5cm); about 15% fine to coarse Sand (max.4.8mm); about 10% Fines; no plasticity; fill material (GP-GM).	%Recovery = 94 PID = 2.4ppm FC = F1 FC = F3	
51 / 1	S2						**SILTY SAND**: brown; moist; about 5% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 84 PID = 1.3 - 2.0ppm	
50 / 2	S3							%Recovery = 90 PID = 1.1 - 1.8ppm	
49 / 3							Clayey sand layer encountered at 2.8-3.0m.		
48 / 4						SC	**CLAYEY SAND**: reddish brown; moist; about 60% subangular fine to coarse Sand; about 40% Fines; residual soil; granite texture.		
47 / 5	S4					SM	**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.	%Recovery = 100 PID = 0.7 - 1.8ppm	
46 / 6									
45 / 7							Hard pushing of sampler at 7.8-7.9m; HDP (Hydraulic Down Pressure) = 1400 psi.		
							Penetration refusal depth = 7.9m (Penetration speed = 7cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-120**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **15 Jul 11** FINISHED: **15 Jul 11** DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **3.3 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **3.3 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,527.6** E: **447,586.6** GROUND ELEV.: **48.89 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0	S1					ML	**SILT**: yellowish brown; moist; about 10% fine Sand; about 90% Fines; low plasticity; residual soil.	%Recovery = 100 PID = 0.3ppm FC = F4 FC = F3	
						SM	**SILT SAND**: light brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.		
48 — 1								%Recovery = 98 PID = 0.1 - 0.7ppm	
47 — 2	S2								
46 — 3							Hard pushing of sampler at 3.0 - 3.3 m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 3.3m (Penetration speed = 5cm / 5min).

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

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EXPLORATION LOG

HOLE NO. **E11-121**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **15 Jul 11** FINISHED: **15 Jul 11** DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **2.7 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **2.7 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,522.5** E: **447,592.9** GROUND ELEV.: **49.04 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
49 — 0	S1					FILL	**SILTY SAND with Gravel**: gray to brown; moist; about 15% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 0.5ppm FC = F3	
								%Recovery = 85 PID = 0.4ppm	
48 — 1	S2					SM	**SILTY SAND**: light brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.	FC = F3	
47 — 2							Hard pushing of sampler at 2.3 - 2.7 m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 2.7 m (Penetration speed = 5cm / 5min).

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-122**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted]

DATE STARTED: **14 Jul 11** FINISHED: **14 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **9.3 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **9.3 m** WATER DEPTH: **6.69 m; AD**

COORDINATES: N: **3,983,526.4** E: **447,617.3** GROUND ELEV.: **50.16 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
50–0	S1					FILL	**CLAYEY SAND**: brown; moist; about 3% subangular fine to coarse gravel (max.3cm); about 67% subangular fine to coarse Sand; about 30% Fines; medium plasticity; fill material (SC).	%Recovery = 100 PID = 0ppm FC = F3	
						SM	**SILTY SAND**: reddish brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; residual soil.	%Recovery = 97 PID = 0 - 0.1ppm FC = F3	
49–1	S2								
48–2	S3						Light brown.	%Recovery = 94 PID = 0.4 - 0.9ppm	
47–3									
46–4									
45–5	S4						With granite rock fragments.	%Recovery = 58 PID = 0.3 - 3.5ppm	
44–6									
43–7									
42–8									
41–9							Hard pushing of sampler at 9-9.3 m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 9.3m (Penetration speed = 3cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-123**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 06 06

DATE STARTED: **15 Jul 11** FINISHED: **15 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **7.7 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **7.7 m** WATER DEPTH: **7.32 m; AD**

COORDINATES: N: **3,983,525.3** E: **447,622.3** GROUND ELEV.: **50.38 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 / 50	S1					FILL / SM	**CLAYEY SAND**: grayish brown; moist; about 3% subangular fine gravel (max.2cm); about 57% subangular fine to coarse Sand (max.4.8mm); about 40% Fines; medium plasticity; fill material (SC).	%Recovery = 100 PID = 1.2ppm FC = F3 FC = F3	
1 / 49	S2						**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.	%Recovery = 100 PID = 1.7 - 3.3ppm	
2 / 48	S3						About 80% subangular fine to coarse Sand (max.4.8mm); about 20% Fines.	%Recovery = 95 PID = 2.1 - 3.8ppm	
3 / 47									
4 / 46									
5 / 45	S4							%Recovery = 91 PID = 2.4 - 4.5ppm	
6 / 44									
7 / 43							Hard pushing of sampler at 7-7.7 m; HDP (Hydraulic Down Pressure) = 500 psi.		

Penetration refusal depth = 7.7m (Penetration speed = 5cm / 5min).

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-124**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted]

DATE STARTED: **13 Jul 11** FINISHED: **13 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **7.35 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **7.35 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,521.0** E: **447,648.4** GROUND ELEV.: **51.70 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 / 51	S1					FILL	**SILTY SAND with Gravel**: brown; moist; about 15% subangular to angular fine to coarse gravel (max.3.5cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; no plasticity; fill material (SC). About 5% fine to coarse gravel (max.3cm); about 80% subangular fine to medium Sand; about 15% Fines. Light brown to brown.	%Recovery = 100 PID = 1.2ppm FC = F3	
1 / 50	S2							%Recovery = 100 PID = 0.2 - 39.3ppm	
2 / 49	S3					SM	**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.	%Recovery = 100 PID = 0.3 - 1.8ppm FC = F3	
3 / 48									
4 / 47									
5 / 46	S4						Dense; Hard pushing of sampler at 6.5 m (Penetration speed = 5cm / 5min).	%Recovery = 100 PID = 0 - 0.9ppm	
6 / 45							Hard pushing of sampler at 7.0 -7.35 m; HDP (Hydraulic Down Pressure) = 1400 psi. Penetration refusal depth = 7.35m (Penetration speed = 5cm / 10min).		
7									

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-125**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** | G&EE NO.: **11-032E** | INSPECTOR: [redacted] 66

DATE STARTED: **14 Jul 11** | FINISHED: **14 Jul 11** | DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** | HOLE DIAMETER: **5.5 cm** | TOTAL DEPTH: **2.53 m**

OVERBURDEN THICKNESS: | DEPTH DRILLED: **2.53 m** | WATER DEPTH: **1.63 m; AD**

COORDINATES: N: **3,983,510.3** E: **447,621.7** | GROUND ELEV.: **50.33 m** | DATUM: **MSL**

GROUND COVER: **Grass** | CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 / 50	S1					FILL	**SILTY SAND**: brown; moist; subangular fine gravel; about 65% fine to medium Sand; about 35% Fines; fill material (SM).	%Recovery = 100 PID = 0ppm	
1 / 49	S2					SM	**SILTY SAND**: brown; moist; about 70% subangular fine to medium Sand; about 30% Fines; no plasticity; residual soil; granite texture. Hard pushing of sampler at 1.3 - 1.5 m; HDP (Hydraulic Down Pressure) = 1400 psi. Penetration refusal depth = 1.56m (Penetration speed = 4cm / 5min).	%Recovery = 100 PID = 0 - 0.5ppm	
2 / 48						ROCK	**GRANITE**: light brown mottled with brown; highly weathered to moderately weathered; Fragmented rock chips at the sampler shoe.. Percussion drilling at 1.5 - 2.5m.		

Penetration speed = 3cm / 5min at 2.5m.

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-126**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted]

DATE STARTED: **14 Jul 11** FINISHED: **14 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **1.83 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **1.83 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,512.9** E: **447,631.5** GROUND ELEV.: **50.88 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0	S1					FILL	**SILTY SAND**: brown; moist; about 2% subangular fine gravel; about 73% fine to coarse Sand; about 25% Fines; fill material (SM); grass roots at 0 - 0.15m.	%Recovery = 100 PID = 0ppm	
50	S2					SM	**SILTY SAND**: brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil; granite texture.	%Recovery = 100 PID = 0 - 0.5ppm	
1							Hard pushing of sampler at 1.5 - 1.8 m; HDP (Hydraulic Down Pressure) = 1400 psi.		

Penetration refusal depth = 1.83m (Penetration speed = 5cm / 5min).

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-127**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66 06

DATE STARTED: **14 Jul 11** FINISHED: **14 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **2.32 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **2.32 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,502.4** E: **447,623.4** GROUND ELEV.: **50.45 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0	S1					FILL	**SILTY SAND**: grayish brown to brown; moist; about 2% subangular fine gravel; about 60% fine to coarse Sand; about 38% Fines; fill material (SM).	%Recovery = 92 PID = 0ppm	
50						SM	**SILTY SAND**: light brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil; granite texture.		
1	S2						Light yellowish brown; w/rock fragments; very dense.	%Recovery = 100 PID = 0ppm	
49									
2							Hard pushing of sampler at 2.0 - 2.3m; HDP (Hydraulic Down Pressure) = 1300 psi.		

Penetration refusal depth = 2.32m (Penetration speed = 9cm / 5min).

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EXPLORATION LOG

HOLE NO. **E11-128**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] b6 b6

DATE STARTED: **16 Jul 11** FINISHED: **16 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **3.2 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **3.2 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,500.8** E: **447,594.5** GROUND ELEV.: **48.06 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
48 — 0	S1					FILL	**SILTY SAND with Gravel**: grayish brown; moist; about 20% subangular fine to coarse gravel (max.3cm); about 50% fine to coarse Sand; about 30% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 0.3ppm FC = F3	
						SM	**SILTY SAND**: light brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.	FC = F3	
47 — 1	S2							%Recovery = 97 PID = 0.6ppm	
46 — 2	S3							%Recovery = 98 PID = 0ppm	
45 — 3							Hard pushing of sampler at 2.9 - 3.2m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 3.3m (Penetration speed = 5cm / 5min).

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EXPLORATION LOG

HOLE NO. **E11-129**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] b6

DATE STARTED: **15 Jul 11** FINISHED: **15 Jul 11** DRILLER: [redacted] b6

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **0.76 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **0.76 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,492.2** E: **447,622.9** GROUND ELEV.: **50.46 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0						FILL	**SILTY SAND**: dark brown; moist; fill material (SM); grass roots.	%Recovery = 96 PID = 1.2ppm	
	S1					SM	**SILTY SAND**: light brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil; granite texture.		
50							Light yellowish brown; w/rock fragments; very dense below 0.65m. Hard pushing of sampler at 0.6 - 0.75m; HDP (Hydraulic Down Pressure) = 1300 psi.		
						ROCK	**GRANITE**: grayish brown; highly weathered. Penetration refusal depth = 0.76m (Penetration speed = 1 cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

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EXPLORATION LOG

HOLE NO. **E11-130**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] bb

DATE STARTED: **15 Jul 11** FINISHED: **15 Jul 11** DRILLER: [redacted] bb

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **1.22 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **1.22 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,489.1** E: **447,633.2** GROUND ELEV.: **50.91 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0						FILL	**SILTY SAND**: brown to dark brown; moist; fill material (SM); grass roots.	%Recovery = 100 PID = 0 - 2.2ppm	
						SM	**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.		
	S1								
50									
1							Hard pushing of sampler at 1 - 1.2m; HDP (Hydraulic Down Pressure) = 1400 psi.		
							Penetration refusal depth = 1.22m (Penetration speed = 5 cm / 5min).		

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EXPLORATION LOG

HOLE NO. **E11-131**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted]

DATE STARTED: **14 Jul 11** FINISHED: **14 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **1.7 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **1.7 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,495.6** E: **447,655.1** GROUND ELEV.: **51.64 m** DATUM: **MSL**

GROUND COVER: **Asphalt pavement** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0						AC	Asphalt pavement thickness = 12 cm.		
	S1					FILL	**Poorly-graded GRAVEL with Silt and Sand**: dark greenish gray; moist; about 75% subangular to angular fine to coarse gravel (max.3.5cm); about 15% fine to coarse Sand; about 10% Fines; no plasticity; fill material (GP-GM).	%Recovery = 92 PID = 0.1ppm FC = F1	
51						FILL	**SILTY SAND**: brown; moist; about 10% subangular fine to coarse gravel (max.3cm); about 70% fine to coarse Sand; about 20% Fines; fill material (SM).	%Recovery = 100 PID = 0 - 0.4ppm	
1	S2					SM	**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil; granite texture.		
50							Hard pushing of sampler at 1.5 - 1.7 m; HDP (Hydraulic Down Pressure) = 1400 psi.		

Penetration refusal depth = 1.7m (Penetration speed = 5cm / 10min).

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-132**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted]

DATE STARTED: **15 Jul 11** FINISHED: **15 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **3.0 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **3.0 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,481.4** E: **447,639.7** GROUND ELEV.: **51.21 m** DATUM: **MSL**

GROUND COVER: **Cement concrete** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0						PCC	Cement concrete pavement thickness = 10 cm.		
51	S1					FILL	**Poorly-graded GRAVEL with Silt and Sand**: gray; dry; about 60% angular to subangular coarse gravel (max.3cm); about 30% fine to coarse Sand (max.4.8mm); about 10% Fines; no plasticity; fill material (GP-GM).	%Recovery = 100 PID = 2.3ppm FC = F1 FC = F3	
						FILL	**SILTY SAND**: grayish brown to brown; moist; about 10% subangular fine to coarse gravel (max.3cm); about 70% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM).	%Recovery = 99 PID = 0.4 - 2.2ppm	
1						SM	**SILTY SAND**: brown to light brown; moist; about 70% fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.		
50	S2								
2									
49							Hard pushing of sampler at 2.7-3.0m; HDP (Hydraulic Down Pressure) = 1400 psi.		
3							Penetration refusal depth = 3.0m (Penetration speed = 5cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-133**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] b6

DATE STARTED: **15 Jul 11** FINISHED: **15 Jul 11** DRILLER: [redacted] b6

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **2.46 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **2.46 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,467.3** E: **447,626.8** GROUND ELEV.: **50.93 m** DATUM: **MSL**

GROUND COVER: **Cement concrete** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0						PCC	Cement concrete pavement thickness = 10 cm.		
	S1					FILL	**Poorly-graded GRAVEL with Sand**: gray; dry; about 80% angular to subangular coarse gravel (max.2.5cm); about 15% fine to coarse Sand; about 5% Fines; no plasticity; fill material (GP).	FC = F1 %Recovery = 90 PID = 0.9ppm FC = F3	
						FILL	**SILTY SAND**: brown; moist; about 10% subangular fine to coarse gravel; about 60% subangular fine to coarse Sand; about 30% Fines; no plasticity; fill material (SM).		
						SM	**SILTY SAND**: brown; moist; about 70% fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.	%Recovery = 100 PID = 0.1 - 1.7ppm	
50 — 1	S2						Very dense; w/rock fragments.		
							Hard pushing of sampler at 2.2-2.45m; HDP (Hydraulic Down Pressure) = 1400 psi.		
49 — 2							Penetration refusal depth = 2.46m (Penetration speed = 1cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-134**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **16 Jul 11** FINISHED: **16 Jul 11** DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **3.0 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **3.0 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,459.5** E: **447,638.7** GROUND ELEV.: **50.90 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0						FILL	**Poorly-graded GRAVEL**: gray; moist; about 1% fine to coarse gravel (max.3cm); about 59% fine to coarse Sand; about 40% Fines; fill material (GP).	%Recovery = 80 PID = 1.1ppm FC = F1	
	S1					FILL	**SILTY SAND**: brown; moist; about 5% subangular fine gravel; about 70% fine to coarse Sand; about 25% Fines; no plasticity; fill material (SM).	FC = F3	
						SM	**SILTY SAND**: brown; moist; about 70% fine to medium Sand; about 30% Fines; residual soil.	%Recovery = 97 PID = 1.4 - 3.1ppm FC = F3	
50 1	S2					SC	**CLAYEY SAND**: light brown; moist; about 65% fine to coarse Sand; about 35% Fines; low plasticity; residual soil; granite texture.		
							Hard pushing of sampler at 1.3 - 1.5m; HDP (Hydraulic Down Pressure) = 1400 psi; Penetration refusal depth = 1.51m (Penetration speed = 1cm / 5min).		
49 2							Hammer bit percussion drilling at 1.5-2.0m.		
						SM	**SILTY SAND**: light brown; moist; fine to coarse Sand; residual soil.		
48 3							Hard pushing of sampler at 2.5 - 3.0m; HDP (Hydraulic Down Pressure) = 1400 psi. Penetration refusal depth = 3.0m (Penetration speed = 2cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-135**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **16 Jul 11** FINISHED: **16 Jul 11** DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **7.65 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **7.65 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,482.4** E: **447,578.2** GROUND ELEV.: **47.26 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
47–0	S1					FILL	**SILTY SAND with Gravel**: brown; moist; about 20% subangular fine to coarse gravel (max.4cm); about 55% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 80 PID = 0.1ppm FC = F3	
46–1	S2					FILL	**SILTY SAND**: brown to grayish brown; moist; about 5% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 84 PID = 0.4ppm FC = F3	
45–2						FILL	**CLAYEY SAND**: reddish brown; moist; about 5% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand; about 35% Fines; fill material (SC).	%Recovery = 63 PID = 0 - 0.4ppm	
44–3	S3								
43–4						SM	**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.		
42–5								%Recovery = 90 PID = 0 - 0.3ppm	
41–6	S4								
40–7							Many rock fragments at 7.5-7.65m; Hard pushing of sampler at 7.4-7.65 m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 7.65m (Penetration speed = 3cm / 5min).		

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EXPLORATION LOG

HOLE NO. **E11-136**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] bb

DATE STARTED: **15 Jul 11** FINISHED: **15 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **3.2 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **3.2 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,473.0** E: **447,608.8** GROUND ELEV.: **50.12 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 / 50	S1					FILL	**SILTY SAND**: brown; moist; about 1% subangular fine gravel (max.1cm); about 59% fine to coarse Sand; about 40% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 0.4ppm FC = F3	
						SM	**SILTY SAND**: light brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.	FC = F3	
1 / 49	S2							%Recovery = 100 PID = 0.8 - 1.6ppm	
2 / 48	S3						Hard pushing of sampler at 3 - 3.2m; HDP (Hydraulic Down Pressure) = 1400 psi.	%Recovery = 98 PID = 1.1 - 1.4ppm	
3 / 47							Penetration refusal depth = 3.2m (Penetration speed = 4cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-137**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] b6 b6

DATE STARTED: **16 Jul 11** FINISHED: **16 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **6.75 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **6.75 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,469.1** E: **447,589.2** GROUND ELEV.: **47.46 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 / 47	S1					FILL	SILTY SAND: brown; moist; about 5% subangular fine gravel (max.2cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 80 PID = 0.7ppm FC = F3	
1 / 46	S2					SM	SILTY SAND: light brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil.	%Recovery = 97 PID = 0.2 - 1.0ppm FC = F3	
2 / 45	S3							%Recovery = 95 PID = 0ppm	
3 / 44									
4 / 43									
5 / 42	S4						Hard pushing of sampler at 6.0-6.75 m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 6.75m (Penetration speed = 3cm / 5min).	%Recovery = 91 PID = 0ppm	
6 / 41									

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-138**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **18 Jul 11** FINISHED: **18 Jul 11** DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **2.22 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **2.22 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,461.8** E: **447,612.0** GROUND ELEV.: **49.75 m** DATUM: **MSL**

GROUND COVER: **Brick tile** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0						PCC	Brick tile thickness = 7 cm.		
						PCC	Cement concrete pavement thickness = 25 cm.		
						FILL	**Poorly-graded GRAVEL with Silt and Sand**: gray; moist; about 65% angular to subangular fine gravel (max.2cm); about 25% fine to coarse Sand (max.4.8mm); about 10% Fines; no plasticity; fill material (GP-GM).	FC = F1 %Recovery = 100 PID = 4.6ppm	
	S1					FILL		FC = F3	
49						SM	**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; fill material (SM).	FC = F3	
1							**SILTY SAND**: brown to light brown; moist; about 70% fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.	%Recovery = 96 PID = 3.8 - 8.6ppm	
	S2								
48									
2							Hard pushing of sampler at 2.0 - 2.22m; HDP (Hydraulic Down Pressure) = 1300 psi.		
							Penetration refusal depth = 2.22m (Penetration speed = 1.5cm / 1min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-139**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **18 Jul 11** FINISHED: **18 Jul 11** DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **3.66 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **3.66 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,454.7** E: **447,608.4** GROUND ELEV.: **50.06 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION: _____

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
50 — 0	S1					FILL	**SILTY SAND with Gravel**: grayish brown to brown; moist; about 35% subangular fine to coarse gravel (max.3cm); about 50% subangular fine to coarse Sand; about 15% Fines; no plasticity; fill material (SM).	%Recovery = 90 PID = 13.1ppm FC = F3	
								%Recovery = 100 PID = 4.8 ~ 18.0ppm	
49 — 1	S2					SM	**SILTY SAND**: brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil; granite texture.	FC = F3	
48 — 2								%Recovery = 100 PID = 4.3 ~ 4.9ppm	
	S3						Hard pushing of sampler at 3.5-3.66 m; HDP (Hydraulic Down Pressure) = 1300 psi.		
47 — 3							Penetration refusal depth = 3.66m (Penetration speed = 1cm / 1min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-140**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] bb

DATE STARTED: **14 Jul 11** FINISHED: **14 Jul 11** DRILLER: [redacted] bb

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **3.0 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **3.0 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,445.7** E: **447,642.2** GROUND ELEV.: **50.41 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0	S1					FILL	**SILTY SAND**: brown; moist; about 3% subangular to angular fine to coarse gravel; about 77% fine to coarse Sand; about 20% Fines; fill material (SM).	%Recovery = 94 PID = 0ppm	
50						SM	**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture; w/rock fragments.	%Recovery = 100 PID = 0ppm	
1							Light brown; dense.		
49	S2								
2							Very dense below 2.5m.		
48							Hard pushing of sampler at 2.5 - 3m; HDP (Hydraulic Down Pressure) = 1400 psi.		
3							Penetration refusal depth = 3m (Penetration speed = 3cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-141**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66 66

DATE STARTED: **16 Jul 11** FINISHED: **16 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **7.2 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **7.2 m** WATER DEPTH: **4.46 m; AD**

COORDINATES: N: **3,983,448.1** E: **447,578.6** GROUND ELEV.: **47.54 m** DATUM: **MSL**

GROUND COVER: **Asphalt pavement** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 / 47						AC	Asphalt pavement thickness = 5 cm.	FC = F1	
						FILL			
	S1					FILL	**Poorly-graded GRAVEL with Silt and Sand**: grayish brown; moist; about 70% subangular coarse gravel (max.5cm); about 20% subangular fine to coarse Sand (max.4.8mm); about 10% Fines; no plasticity; fill material (GP-GM).	%Recovery = 100 PID = 2.2ppm FC = F3	
1 / 46	S2						**SILTY SAND**: brown; moist; about 5% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM). Subangular fine gravel (max.2cm).	%Recovery = 100 PID = 0.5 - 1.1ppm	
2 / 45							About 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no gravel below 2.3m.	%Recovery = 72 PID = 0.3 - 1.2ppm	
3 / 44	S3					FILL	**CLAYEY SAND**: reddish brown; moist; about 65% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity; fill material (SC). Easy pushing of sampler at 3.3-4.3m; HDP=100 psi.		
4 / 43							Silty sand layer encountered at 4.0-4.3m; perched water encountered at 4.3m. Brown; wet; about 5% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand; about 30% Fines.		
5 / 42						SM	**SILTY SAND**: light brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.	%Recovery = 71 PID = 0.9 - 2.1ppm	
6 / 41	S4								
7							Hard pushing of sampler at 7.0-7.2m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 7.2m (Penetration speed = 3cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

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EXPLORATION LOG

HOLE NO. **E11-142**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66 66

DATE STARTED: **16 Jul 11** FINISHED: **16 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **4.73 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **4.73 m** WATER DEPTH: **1.7 m; AD**

COORDINATES: N: **3,983,442.5** E: **447,600.2** GROUND ELEV.: **49.13 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
49 — 0	S1					FILL	**SILTY SAND**: brown; moist; about 1% subangular fine gravel; about 69% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 90 PID = 1.2ppm FC = F3	
								%Recovery = 75 PID = 1.5 - 1.9ppm	
48 — 1	S2					SM	**SILTY SAND**: brown; moist to wet; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil; granite texture.	FC = F3	
47 — 2								%Recovery = 78 PID = 0.5 - 1.7ppm	
46 — 3	S3								
45 — 4							Hard pushing of sampler at 4.5-4.73 m; HDP (Hydraulic Down Pressure) = 1300 psi. Penetration refusal depth = 4.73m (Penetration speed = 4cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-143**

Far East District

PROJECT: **Phase I Site Soil Sampling**
LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted]
DATE STARTED: **16 Jul 11** FINISHED: **16 Jul 11** DRILLER: [redacted]
DRILLING METHOD/EQUIPMENT: **BEC50PM-2**
DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **3.55 m**
OVERBURDEN THICKNESS: DEPTH DRILLED: **3.55 m** WATER DEPTH: **No Water; AD**
COORDINATES: N: **3,983,444.6** E: **447,613.9** GROUND ELEV.: **49.57 m** DATUM: **MSL**
GROUND COVER: **Grass** CONTAMINATION:
TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0	S1					FILL	**SILTY SAND**: dark brown grades to brown; moist; about 1% subangular fine gravel (max.1cm); about 69% subangular fine to coarse Sand; about 30% Fines; no plasticity; fill material (SM); grass roots at 0-0.15m.	%Recovery = 90 PID = 2.6ppm FC = F3	
						SM	**SILTY SAND**: brown to light brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil; granite texture.	FC = F3	
49								%Recovery = 90 PID = 3.5 - 4.8ppm	
1	S2								
48									
2							Grayish brown; about 80% subangular fine to coarse Sand; about 20% Fines.	%Recovery = 100 PID = 1.7 - 1.9ppm	
47	S3								
3							Hard pushing of sampler at 3.2-3.55 m; HDP (Hydraulic Down Pressure) = 1300 psi.		

Penetration refusal depth = 3.55m (Penetration speed = 1cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-144**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **18 Jul 11** FINISHED: **18 Jul 11** DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **1.52 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **1.52 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,435.9** E: **447,632.4** GROUND ELEV.: **50.10 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 50	S1					FILL	**SILTY SAND with Gravel**: grayish brown grades to brown; moist; about 15% subangular fine gravel (max.1.5cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; fill material (SM); grass roots at 0-0.1m.	%Recovery = 96 PID = 5.8ppm	
	S2					SM	**SILTY SAND**: light brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.	%Recovery = 100 PID = 6.2 - 6.5ppm	
1 49							With rock fragments.		
							Hard pushing of sampler at 1.4 - 1.52m; HDP (Hydraulic Down Pressure) = 1400 psi.		
							Penetration refusal depth = 1.52m (Penetration speed = 1 cm / 1min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-145**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted]

DATE STARTED: **17 Jul 11** FINISHED: **17 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **5.8 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **5.8 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,417.9** E: **447,586.7** GROUND ELEV.: **49.30 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
49 / 0	S1					FILL	**SILTY SAND with Gravel**: grayish brown; moist; about 25% subangular fine to coarse gravel (max.3cm); about 50% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM); with scraps of asphalt.	%Recovery = 100 PID = 0.5ppm FC = F1 FC = F3	
48 / 1	S2					FILL	**SILTY SAND**: brown; moist; about 5% subangular fine to coarse gravel (max.3cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; low plasticity; fill material (SM). About 10% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; encountered clayey sand layer at 1.6m to 1.7m.	%Recovery = 90 PID = 0.7 - 4.8ppm	
47 / 2								%Recovery = 89 PID = 0.9 - 4.2ppm	
46 / 3	S3					SM	**SILTY SAND**: brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil.		
45 / 4									
44 / 5							Hard pushing of sampler at 5.4-5.8 m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 5.8m (Penetration speed = 5cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-146**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted]

DATE STARTED: **14 Jul 11** FINISHED: **14 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **4.85 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **4.85 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,435.9** E: **447,584.6** GROUND ELEV.: **47.01 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
47—0	S1					FILL	**CLAYEY SAND**: brown; moist; about 10% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; medium plasticity; fill material (SC).	%Recovery = 100 PID = 1.0ppm FC = F3	
46—1	S2					FILL	**SILTY SAND**: brown; moist; about 5% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 98 PID = 0.5ppm FC = F3	
45—2	S3					SM	**SILTY SAND**: yellowish brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil. Light brown.	FC = F3 %Recovery = 97 PID = 2.6 - 3.1ppm	
44—3									
43—4							Hard pushing of sampler at 4.5-4.85 m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 4.85m (Penetration speed = 3cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-147**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] bb

DATE STARTED: **16 Jul 11** FINISHED: **16 Jul 11** DRILLER: [redacted] bb

DRILLING METHOD/EQUIPMENT: **BEC50PM-2**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **1.97 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **1.97 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,432.1** E: **447,610.0** GROUND ELEV.: **49.45 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0	S1					FILL	SILTY SAND: brown; moist; about 1% fine gravel; about 69% subangular fine to coarse Sand; about 30% Fines; fill material (SM); grass roots at 0-0.1m.	%Recovery = 100 PID = 2.1ppm	
49						SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.	%Recovery = 100 PID = 3.5 - 4.1ppm	
1	S2								
48							Hard pushing of sampler at 1.8 - 1.97m; HDP (Hydraulic Down Pressure) = 1300 psi. Penetration refusal depth = 1.97m (Penetration speed = 4 cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-148**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66 66

DATE STARTED: **17 Jul 11** FINISHED: **17 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **5.8 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **5.8 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,429.0** E: **447,574.6** GROUND ELEV.: **47.53 m** DATUM: **MSL**

GROUND COVER: **Asphalt pavement** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 / 47						AC	Asphalt pavement thickness = 4 cm.	FC = F1	
						FILL	**Poorly-graded GRAVEL with Silt and Sand**: grayish brown; moist; about 70% subangular coarse gravel (max.5cm); about 20% subangular fine to coarse Sand (max.4.8mm); about 10% Fines; no plasticity; fill material (GP-GM).	%Recovery = 100 PID = 0.2ppm FC = F3	
1 / 46	S1					FILL	**SILTY SAND**: brown; moist; about 10% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 85 PID = 0 - 1.5ppm FC = F3	
2	S2					FILL	About 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines.	FC = F3	
							CLAYEY SAND: reddish brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).		
3 / 45							**SILTY SAND**: brown; moist; about 5% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM). Low plasticity.	%Recovery = 66 PID = 0 - 1.4ppm	
44							Brown; wet; about 5% subangular fine to coarse gravel (max.3cm); about 75% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; no plasticity; easy pushing of sampler at 3.3-4.3m; HDP=100 psi; perched water encountered at 3.3m.		
4	S3								
43						SM	**SILTY SAND**: light brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil.		
5 / 42							With rock fragments. Hard pushing of sampler at 5.5-5.8m; HDP (Hydraulic Down Pressure) = 1000 psi.		
							Penetration refusal depth = 5.8m (Penetration speed = 5cm / 5min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11

US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-149**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] bb

DATE STARTED: **18 Jul 11** FINISHED: **18 Jul 11** DRILLER: [redacted] bb

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **3.6 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **3.6 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,424.7** E: **447,599.3** GROUND ELEV.: **49.81 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0	S1					FILL	**SILTY SAND with Gravel**: brown; moist; about 15% subangular coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 5.3ppm FC = F3	
49 — 1	S2					FILL	**SILTY SAND**: brown; moist; about 5% subangular coarse gravel (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 93 PID = 1.1 - 2.0ppm FC = F3	
48 — 2						SM	**SILTY SAND**: light brown; moist; subangular fine to coarse Sand (max.4.8mm); no plasticity; residual soil.	%Recovery = 97 PID = 3.1 - 3.6ppm	
47 — 3	S3						Hard pushing of sampler at 3.4-3.6m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 3.6m (Penetration speed = 1cm / 1min).

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US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-150**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66

DATE STARTED: **18 Jul 11** FINISHED: **18 Jul 11** DRILLER: [redacted] 66

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **7.0 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **7.0 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,413.4** E: **447,628.5** GROUND ELEV.: **50.06 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
50—0	S1					FILL	**SILTY SAND**: brown; moist; about 5% subangular fine gravel (max.1cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM). About 10% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand; about 25% Fines. About 5% subangular fine gravel (max.1cm); about 65% subangular fine to coarse Sand; about 30% Fines.	%Recovery = 100 PID = 0.4ppm FC = F3	
49—1	S2							%Recovery = 97 PID = 0.2 - 2.1ppm	
48—2	S3							%Recovery = 157 PID = 1.2 - 4.2ppm	
47—3						FILL	**CLAYEY SAND**: reddish brown to gray; moist; about 5% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity; fill material (SC). Gray; wet; about 60% subangular fine to coarse Sand; about 40% Fines; no gravel below 3.0m.		
46—4							Brown; about 65% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity.		
45—5	S4					SM	**SILTY SAND**: light brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil.	%Recovery = 86 PID = 3.9 - 4.3ppm	
44—6									
—7							Hard pushing of sampler at 6.7-7.0m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 7.0m (Penetration speed = 1cm / 1min).		

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US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-151**

Far East District

PROJECT: **Phase I Site Soil Sampling**
LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66
DATE STARTED: **17 Jul 11** FINISHED: **17 Jul 11** DRILLER: [redacted] 66
DRILLING METHOD/EQUIPMENT: **BEC50PM-1**
DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **7.85 m**
OVERBURDEN THICKNESS: DEPTH DRILLED: **7.85 m** WATER DEPTH: **No Water; AD**
COORDINATES: N: **3,983,398.9** E: **447,580.1** GROUND ELEV.: **47.93 m** DATUM: **MSL**
GROUND COVER: **Grass** CONTAMINATION:
TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0	S1					FILL	**SILTY SAND**: brown; moist; about 10% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 0.5ppm FC = F3	
47 — 1	S2					FILL	About 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no gravel below 0.5m.	%Recovery = 93 PID = 0.7 - 1.7ppm FC = F3	
						FILL	**CLAYEY SAND**: reddish brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).	FC = F3	
46 — 2							**SILTY SAND**: brown; moist; about 3% subangular fine gravel (max.1cm); about 67% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM). About 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no gravel below 2.0m.	%Recovery = 82 PID = 0.7 - 1.4ppm	
45 — 3	S3						Low plasticity.		
44 — 4						FILL	**SILTY SAND with Gravel**: brown; moist; about 15% subangular fine gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).		
43 — 5							About 70% fine to coarse Sand; about 30% Fines; no gravel below 5.5m.	%Recovery = 86 PID = 0 - 1.9ppm	
42 — 6	S4					SM	**SILTY SAND**: light brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil.		
41 — 7							Hard pushing of sampler at 7.5-7.85m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 7.85m (Penetration speed = 5cm / 5min).		

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US Army Corps Of Engineers

EXPLORATION LOG

HOLE NO. **E11-152**

Far East District

PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [redacted] 66 66

DATE STARTED: **18 Jul 11** FINISHED: **18 Jul 11** DRILLER: [redacted]

DRILLING METHOD/EQUIPMENT: **BEC50PM-1**

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **5.0 m**

OVERBURDEN THICKNESS: DEPTH DRILLED: **5.0 m** WATER DEPTH: **No Water; AD**

COORDINATES: N: **3,983,402.8** E: **447,610.1** GROUND ELEV.: **49.65 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION:

TYPE OF HOLE: ☐ Piezometer ☐ Monitoring Well ☐ Test Pit ☐ Auger Hole ☒ other **Direct push sampling hole**

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 / 49	S1					FILL	**SILTY SAND**: brown; moist; about 5% subangular fine to coarse gravel (max.3cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 1.9ppm FC = F3	
1	S2						No gravel below 1.0m.	%Recovery = 95 PID = 3.8 - 4.2ppm	
48 / 2						SM	**SILTY SAND**: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; residual soil.		
47 / 3	S3							%Recovery = 94 PID = 2.4 - 4.7ppm	
46 / 4									
45 / 5							Hard pushing of sampler at 4.7-5.0m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 5.0m (Penetration speed = 1cm / 1min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/22/11