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4. Quality Assurance Project Plan

Table 4-3. SVOC Analysis Method Detection Limits and Reporting Limits

No.	Chemical	MDL (µg/kg)	Report Limit (µg/kg)
1	Acenaphthene	14.2	313
2	Acenaphthylene	13.2	313
3	Anthracene	13.9	313
4	Benzo[a]anthracene	17.2	313
5	Benzo[a]pyrene	17.7	313
6	Benzo[b]fluoranthene	18	313
7	Benzo[g,h,i]perylene	11.2	313
8	Benzo[k]fluoranthene	11.1	313
9	Benzoic Acid	45.9	313
10	Bis(2-chloroethoxy)methane	14.1	313
11	Bis(2-chloroethyl)ether	6.62	313
12	Bis(2-chloroisopropyl)ether	9.94	313
13	Bis(2-ethylhexyl)phthalate	15	313
14	4-bromophenyl phenyl ether	12.2	313
15	Butylbenzylphthalate	11.7	313
16	4-Chloroaniline	25	313
17	4-Chloro-3-methylphenol	15.6	313
18	2-Chloronaphthalene	10	313
19	2-Chlorophenol	16.6	313
20	4-Chlorophenyl phenyl ether	13.7	313
21	Chrysene	13	313
22	Di-n-Butylphthalate	14.8	313
23	Di-n-octylphthalate	17.3	313
24	Dibenzo[a,h]anthracene	14.1	313
25	Dibenzofuran	11.1	313
26	1,2-Dichlorobenzene	15.6	313
27	1,3-Dichlorobenzene	21.1	313
28	1,4-Dichlorobenzene	7.08	313

4. Quality Assurance Project Plan

Table 4-3. SVOC Analysis Method Detection Limits and Reporting Limits

No.	Chemical	MDL (µg/kg)	Report Limit (µg/kg)
29	3,3'-Dichlorobenzidine	15	313
30	2,4-Dichlorophenol	18.1	313
31	Diethylphthalate	16.9	313
32	2,4-Dimethylphenol	22.9	313
33	Dimethylphthalate	12	313
34	2,4-Dinitrotoluene	15.8	313
35	2,6-Dinitrotoluene	22.4	313
36	Diphenylamine	14.1	313
37	Fluoranthene	10.5	313
38	Fluorene	16.6	313
39	Hexachlorobenzene	29.6	313
40	Hexachlorobutadiene	18.7	313
41	Hexachlorocyclopentadiene	94.7	313
42	Hexachloroethane	18	313
43	Indeno(1,2,3-c,d)pyrene	9.7	313
44	Isophorone	14.2	313
45	2-Methylnaphthalene	9.94	313
46	2-Methylphenol	17.3	313
47	3-, 4-Methylphenol	20.3	313
48	N-Nitrosodi-n-propylamine	89.6	313
49	Naphthalene	9.7	313
50	2-Nitroaniline	20.6	313
51	3-Nitroaniline	14.1	313
52	4-Nitroaniline	18	313
53	Nitrobenzene	18	313
54	2-Nitrophenol	15	313
55	Pentachlorophenol	25	313
56	Phenanthrene	9.7	313

4. Quality Assurance Project Plan

Table 4-3. SVOC Analysis Method Detection Limits and Reporting Limits

No.	Chemical	MDL ($\mu\text{g}/\text{kg}$)	Report Limit ($\mu\text{g}/\text{kg}$)
57	Phenol	13	313
58	Pyrene	13.2	313
59	1,2,4-Trichlorobenzene	10.9	313
60	2,4,5-Trichlorophenol	20.9	313
61	2,4,6-Trichlorophenol	21.2	313

Table 4-4. Metals Analysis Method Detection Limits and Reporting Limits

No.	Chemical	MDL(mg/kg)	Report Limit(mg/kg)
1	Arsenic	0.365	4.0
2	Barium	0.388	3.5
3	Cadmium	0.0764	0.5
4	Chromium	0.797	0.5
5	Lead	0.099	0.4
6	Mercury ($\mu\text{g}/\text{kg}$)	0.0101	0.02
7	Selenium	0.24	5.0
8	Silver	0.112	0.5

4. Quality Assurance Project Plan

Table 4-5. Organochlorine Pesticide Analysis Method Detection Limits and Reporting Limits

No.	Chemical	MDL (µg/kg)	Report Limit (µg/kg)
1	4,4'-DDD	0.2150	7.81
2	4,4'-DDE	0.2920	7.81
3	4,4'-DDT	0.2710	7.81
4	Aldrin	0.3240	7.81
5	alpha-BHC	0.2920	7.81
6	alpha-Chlordane	0.2960	7.81
7	beta-BHC	0.2550	7.81
8	Chlordane	3.9400	31.3
9	delta-BHC	0.2730	7.81
10	Dieldrin	0.3060	7.81
11	Endosulfan I	0.3000	7.81
12	Endosulfan II	0.3120	7.81
13	Endosulfan sulfate	0.3470	7.81
14	Endrin	0.2220	7.81
15	Endrin aldehyde	0.3400	7.81
16	Endrin ketone	0.3710	7.81
17	gamma-BHC (Lindane)	0.2890	7.81
18	gamma-Chlordane	0.2970	7.81
19	Heptachlor	0.3610	7.81
20	Heptachlor epoxide	0.3000	7.81
21	Methoxychlor	0.3270	7.81
22	Toxaphene	3.7400	31.3

Table 4-6. Organophosphorus Pesticide Analysis Method Detection Limits and Reporting Limits

No.	Chemical	MDL (µg/kg)	Report Limit (µg/kg)
1	Azinphos methyl	17.0	66
2	Bolstar (Sulprofos)	17.0	66
3	Chlorpyrifos	17.0	66
4	Coumaphos	17.0	66
5	Demeton, O and S	33.0	130
6	Diazinon	17.0	66
7	Dichlorvos	17.0	66
8	Dimethoate	17.0	66
9	Disulfoton	17.0	66
10	EPN	17.0	66
11	Ethoprop	17.0	66
12	Fensulfothion	17.0	66
13	Fenthion	17.0	66
14	Malathion	17.0	66
15	Merphos	17.0	170
16	Mevinphos	17.0	66
17	Monocrotophos	66.0	170
18	Naled	17.0	66
19	Parathion-ethyl	17.0	66
20	Parathion-methyl	17.0	66
21	Phorate	17.0	66
22	Rommel	17.0	66
23	Sulfotep	17.0	66
24	Tepp	66.0	66
25	Stirophos (Tetrachlorovinphos)	17.0	66
26	Tokuthion (Protothiofos)	17.0	66
27	Trichloronate	17.0	66

4. Quality Assurance Project Plan

Table 4-7. Chlorinated Herbicide Analysis Method Detection Limits and Reporting Limits

No.	Chemical	MDL (µg/kg)	Report Limit (µg/kg)
1	2,4-D	7.12	15.6
2	2,4-DB	6.97	15.6
3	2,4,5-TP (Silvex)	4.31	15.6
4	2,4,5-T	4.41	15.6
5	Dicamba	4.8	15.6

Table 4-8. Dioxin and Furan Analysis Method Detection Limits and Reporting Limits

No.	Chemical	MDL (µg/kg)	Report Limit (µg/kg)
1	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.180	0.5
2	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	0.299	2.5
3	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.336	2.5
4	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.264	2.5
5	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	0.405	2.5
6	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	0.603	2.5
7	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	2.877	5.0
8	2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.091	0.5
9	1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.328	2.5
10	2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.241	2.5
11	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.131	2.5
12	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.215	2.5
13	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.250	2.5
14	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.768	2.5
15	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.267	2.5
16	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.611	2.5
17	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	0.642	5.0

APPENDIX IV. SOIL BORING LOGS



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:

DATE STARTED: **12 Jul 11**

FINISHED: **12 Jul 11**

DRILLER:

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**

b6
b6

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 70% fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 0.9ppm FC = F3	
50						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	
1	s2						About 70% fine to coarse Sand; about 30% Fines.	%Recovery = 79 PID = 3.1 - 5.4ppm	
49									
2									
48									
3									
47	s3						About 3% subangular fine gravel (max.2cm); about 67% fine to coarse Sand; about 30% Fines.	%Recovery = 69 PID = 0 - 6.7ppm	
4									
46									
5									
45									
6						CL	SANDY LEAN CLAY: gray; moist; about 30% subangular fine to coarse Sand (max.4.8mm); about 70% Fines; medium plasticity; alluvial soil.		
44	s4					SC	CLAYEY SAND: brown; moist; about 60% subangular fine to coarse Sand (max.4.8mm); about 40% Fines; medium plasticity; alluvial soil.		
43							Wet.		
7									
42									
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 psf.		

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

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE S-KOREA.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: 

DATE STARTED: **13 Jul 11**

FINISHED: **13 Jul 11**

DRILLER: 

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
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	
50								%Recovery = 100 PID = 0 - 1.3ppm	
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).	FC = F3	
49									
2							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	
48							Reddish brown.		
3									
47	S3								
46						SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; low plasticity; residual soil.	%Recovery = 86 PID = 1.4 - 10.5ppm	
45									
44						MI	SANDY SILT: brown; moist; about 30% subangular fine Sand; about 70% Fines; medium plasticity; residual soil.		
43	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									
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



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EXPLORATION LOG

HOLE NO. **E11-116**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:  **bb**

DATE STARTED: **13 Jul 11**

FINISHED: **13 Jul 11**

DRILLER:  **bb**

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
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). About 10% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines.	%Recovery = 100 PID = 0ppm FC - F3	
50	s2					FILL	About 5% subangular fine gravel (max.1cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines.	%Recovery = 100 PID = 0ppm	
49						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	
48	s3					SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.		
47							Sandy silt layer encountered at 5.3-5.4m.	%Recovery = 85 PID = 0.4 - 2.6ppm	
46									
45									
44									
43	s4								
42									
41									
40									
39									
38									
37									
36									
35									
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ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE SIKOREA.GDT 7/22/11

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



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-117**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

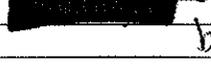
LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: 

DATE STARTED: **14 Jul 11**

FINISHED: **14 Jul 11**

DRILLER: 

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	
60-1	s2					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 = 96 PID = 2.0ppm	
49-2						FILL	CLAYEY SAND: reddish brown; moist; cubangular fine to coarse Sand (max.4.8mm); medium plasticity; residual soil.	%Recovery = 97 PID = 0.1 - 3.5ppm	
48-3	s3					SC	Reddish brown; about 3% subangular fine gravel (max.2cm); about 57% subangular fine to coarse Sand (max.4.8mm); about 40% Fines.	%Recovery = 86 PID = 0 - 2.3ppm	
47-4						SM	SILTY SAND: light brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.		
46-5								Dark brown.	
45-6							Brown.		
44-7							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).		
43-8									
42-9									
41-10									

ENVIRO-EXPLORATION LOG 11-032E.GPJ USA3E SKCREA.EDT 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:

DATE STARTED: **12 Jul 11**

FINISHED: **12 Jul 11**

DRILLER:

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
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	
51	s2					FILL	SILTY SAND: brown; moist; about 5% fine gravel; about 70% subangular fine to coarse Sand; about 25% Fines; fill material (SM). 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	
50							Brown; about 15% fine to coarse gravel; about 70% fine to coarse Sand; about 15% Fines.		
49							About 2% fine gravel; about 68% fine to coarse Sand; about 30% Fines.	%Recovery = 97 PID = 0 - 12.0ppm	
48	s3					FILL	CLAYEY SAND: light brown; moist; about 60% fine to medium Sand; about 40% Fines; low plasticity; fill material (SC).		
47						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	
46							Brown to dark brown.		
45	s4						Grayish brown grades to light brown.		
44									
43							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.GPJ USACE SKGREA.GSDT 7/22/11



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EXPLORATION LOG

HOLE NO. **E11-119**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:  46

DATE STARTED: **13 Jul 11**

FINISHED: **13 Jul 11**

DRILLER:  b6

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	S1					AC FILL	Asphalt pavement thickness = 10 cm.	%Recovery = 94 PID = 2.4ppm FC = F1 FC = F3	
51	S2						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). 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							Clayey sand layer encountered at 2.8-3.0m.	%Recovery = 90 PID = 1.1 - 1.8ppm	
49	S3					SC	CLAYEY SAND: reddish brown; moist; about 60% subangular fine to coarse Sand; about 40% Fines; residual soil; granite texture.		
48						SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil		
47							Hard pushing of sampler at 7.8-7.9m; HDP (Hydraulic Down Pressure) = 1400 psi.	%Recovery = 100 PID = 0.7 - 1.8ppm	
46	S4						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:

DATE STARTED: **15 Jul 11**

FINISHED: **15 Jul 11**

DRILLER:

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**

b6
b6

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	
48						SM	SILTY SAND : light brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.	%Recovery = 90 PID = 0.1 - 0.7ppm	
47	s2								
46									
							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



US Army Corps
Of Engineers

EXPLORATION LOG

HOLE NO. **E11-121**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **15 Jul 11**

FINISHED: **15 Jul 11**

DRILLER:

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	
48-1						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	S2						Hard pushing of sampler at 2.3 - 2.7 m; HDP (Hydraulic Down Proccuro) - 1000 pci.		

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
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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**

b6
b6

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
50	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	
49	S2					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	
48							Light brown.	%Recovery = 94 PID = 0.4 - 0.9ppm	
47	S3								
46									
45								%Recovery = 58 PID = 0.3 - 3.5ppm	
44									
43	S4						With granite rock fragments.		
42									
41							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
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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] *bb*

DATE STARTED: **15 Jul 11**

FINISHED: **15 Jul 11**

DRILLER: [REDACTED] *bb*

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	
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	
48							About 80% subangular fine to coarse Sand (max.4.8mm); about 20% Fines.	%Recovery = 95 PID = 2.1 - 3.8ppm	
47	s3								
46									
45								%Recovery = 91 PID = 2.4 - 4.5ppm	
44	s4								
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
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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] *b6*

DATE STARTED: **13 Jul 11**

FINISHED: **13 Jul 11**

DRILLER: [REDACTED] *b6*

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	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	
51	s2							%Recovery = 100 PID = 0.2 - 39.3ppm	
50									
49						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	
48	s3								
47									
46	s4						Dense; Hard pushing of sampler at 6.5 m (Penetration speed = 5cm / 5min).	%Recovery = 100 PID = 0 - 0.9ppm	
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).		

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: 

DATE STARTED: **14 Jul 11**

FINISHED: **14 Jul 11**

DRILLER: 

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**

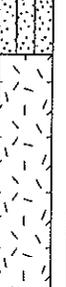
GROUND ELEV.: **50.33 m**

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	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	
50						SM	SILTY SAND: brown; moist; about 70% subangular fine to medium Sand; about 30% Fines; no plasticity; residual soil; granite texture.	%Recovery = 100 PID = 0 - 0.5ppm	
1	S2						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).		
49						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.		
2									
48									

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

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



US Army Corps
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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**

b6
b6

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. Hard pushing of sampler at 1.5 - 1.8 m; HDP (Hydraulic Down Pressure) = 1400 psi.	%Recovery = 100 PID = 0 - 0.5ppm	

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

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



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EXPLORATION LOG

HOLE NO. **E11-127**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED] ^{b6}

DATE STARTED: **14 Jul 11**

FINISHED: **14 Jul 11**

DRILLER: [REDACTED] ^{b6}

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.	%Recovery = 100 PID = 0ppm	
1	s2						Light yellowish brown; w/rock fragments; very dense.		
49							Hard pushing of sampler at 2.0 - 2.3m; HDP (Hydraulic Down Pressure) = 1300 psi.		
2									

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

ENVIRO-EXPLORATION LOG 11-032E.GPJ USACE S KOREA.3D 7/22/11



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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: 

DATE STARTED: **16 Jul 11**

FINISHED: **16 Jul 11**

DRILLER: 

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	
47-1	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 %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).

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



US Army Corps
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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: 

DATE STARTED: **15 Jul 11**

FINISHED: **15 Jul 11**

DRILLER: 

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**

b6
b6

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	
50	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. 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



US Army Corps
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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: 

DATE STARTED: **15 Jul 11**

FINISHED: **15 Jul 11**

DRILLER: 

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	
50	S1					SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.		
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).

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



US Army Corps
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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: 

DATE STARTED: **14 Jul 11**

FINISHED: **14 Jul 11**

DRILLER: 

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.GD 7/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-132**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **15 Jul 11**

FINISHED: **15 Jul 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **3.0 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILL FD: **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	
1						SM	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	
50	S2								
49									
3							Hard pushing of sampler at 2.7-3.0m; HDP (Hydraulic Down Pressure) = 1400 psi.		

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:

DATE STARTED: **15 Jul 11**

FINISHED: **15 Jul 11**

DRILLER:

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.2.5mm); about 15% fine to coarse Sand; about 5% Fines; no plasticity; fill material (GP). 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).	FC = F1 %Recovery = 90 PID = 0.9ppm FC = F3	
50	S2					SM	SILTY SAND: brown; moist; about 70% fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture. Very dense; w/rock fragments. Hard punching of compdor at 2.2 2.46m; HDP (Hydraulic Down Pressure) = 1400 psi.	%Recovery = 100 PID = 0.1 - 1.7ppm	

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]**

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: **3.0 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	S1					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	
						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	
50	S2					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	
1						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). Hammer bit percussion drilling at 1.5-2.0m.		
49	2					SM	SILTY SAND: light brown; moist; fine to coarse Sand; residual soil.		
							Hard pushing of sampler at 2.5 - 3.0m; HDP (Hydraulic Down Pressure) = 1400 psi. Penetration refusal depth = 3.0m (Penetration speed = 2cm / 5min).		
48	3								

ENVIRO-EXPLORATION LOG 11-032E.GP.J USACE SIKOREA.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: 

DATE STARTED: **16 Jul 11**

FINISHED: **16 Jul 11**

DRILLER: 

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	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	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).	FC = F3	
45						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	S3								
43						SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil.		
42								%Recovery = 90 PID = 0 - 0.3ppm	
41	S4								
40									

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).

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



US Army Corps
Of Engineers

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] *56*

DATE STARTED: **15 Jul 11**

FINISHED: **15 Jul 11**

DRILLER: [REDACTED] *66*

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
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	
49	S2					SM	SILTY SAND: light brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.	FC = F3 %Recovery = 100 PID = 0.8 - 1.6ppm	
48	S3						Hard pushing of sampler at 3 - 3.2m; HDP (Hydraulic Down Pressure) = 1400 psi.	%Recovery = 98 PID = 1.1 - 1.4ppm	

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: 

DATE STARTED: **16 Jul 11**

FINISHED: **16 Jul 11**

DRILLER: 

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	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	
47								%Recovery = 97 PID = 0.2 - 1.0ppm	
1	S2					SM	SILTY SAND: light brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil.	FC = F3	
46								%Recovery = 95 PID = 0ppm	
2									
45									
3	S3								
44									
43									
42							Hard pushing of sampler at 6.0-6.75 m; HDP (Hydraulic Down Pressure) = 1000 psi.	%Recovery = 91 PID = 0ppm	
6	S4						Penetration refusal depth = 6.75m (Penetration speed = 3cm / 5min).		
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:

DATE STARTED: **18 Jul 11**

FINISHED: **18 Jul 11**

DRILLER:

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 FC = F3 FC = F3	
49	S1					SM			SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity, fill material (SM).
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	
48	S2								
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
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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] *b6*

DATE STARTED: **18 Jul 11**

FINISHED: **18 Jul 11**

DRILLER: [REDACTED] *b6*

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	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	
49	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 = 4.8 - 18.0ppm FC = F3	
48	S3						Hard pushing of sampler at 3.5-3.66 m; HDP (Hydraulic Down Pressure) = 1300 psi.	%Recovery = 100 PID = 4.3 - 4.9ppm	

Penetration refusal depth = 3.66m (Penetration speed = 1cm / 1min).

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



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-140**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **14 Jul 11**

FINISHED: **14 Jul 11**

DRILLER:

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. Light brown; dense.	%Recovery = 100 PID = 0ppm	
1									
49	S2						Very dense below 2.5m.		
2									
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.ISDT 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]

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						AC FILL	Asphalt pavement thickness = 5 cm.	FC = F1	
47	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	
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	
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	
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.		
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.		
42	S4					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	
41							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 USEACE SKOREA.GCT 7/22/11



US Army Corps
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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:

DATE STARTED: **16 Jul 11**

FINISHED: **16 Jul 11**

DRILLER:

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

b6
b6

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	
48.0	S2							%Recovery = 75 PID = 1.5 - 1.9ppm	
47.0						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	
46.0	S3							%Recovery = 78 PID = 0.5 - 1.7ppm	

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

3136



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EXPLORATION LOG

HOLE NO. **E11-143**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **16 Jul 11**

FINISHED: **16 Jul 11**

DRILLER:

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	
49	S2					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 %Recovery = 90 PID = 3.5 - 4.8ppm	
48	S3						Grayish brown; about 80% subangular fine to coarse Sand; about 20% Fines.	%Recovery = 100 PID = 1.7 - 1.9ppm	
47							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
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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]**

DATE STARTED: **18 Jul 11**

FINISHED: **18 Jul 11**

DRILLER: **[REDACTED]**

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	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	
50						SM	SILTY SAND: light brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture. With rock fragments.	%Recovery = 100 PID = 6.2 - 0.5ppm	
49	s2						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 SKORE3.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] *b6*

DATE STARTED: **17 Jul 11**

FINISHED: **17 Jul 11**

DRILLER: [REDACTED] *b6*

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	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	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								%Recovery = 89 PID = 0.9 - 4.2ppm	
46									
45	S3					SM	SILTY SAND: brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil.		
44									

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 S-KOREA.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&E NO.: **11-032E**

INSPECTOR: 

DATE STARTED: **14 Jul 11**

FINISHED: **14 Jul 11**

DRILLER: 

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						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	
44 - 3	S3							%Recovery = 97 PID = 2.6 - 3.1ppm	
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
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EXPLORATION LOG

HOLE NO. **E11-147**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&E NO.: **11-032E**

INSPECTOR:

DATE STARTED: **16 Jul 11**

FINISHED: **16 Jul 11**

DRILLER:

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 68% 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								
40									

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 7/23/11

3/4/11



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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]

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**

b6
b6

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 = 4 cm.	FC = F1	
47	s1	[Cross-hatched pattern]				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	
46	s2	[Cross-hatched pattern]				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). About 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines.	%Recovery = 85 PID = 0 - 1.5ppm FC = F3 FC = F3	
45							CLAYEY SAND: reddish brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC). 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	s3	[Cross-hatched pattern]					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.		
43						SM	SILTY SAND: light brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil.		
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 USAACE SKORE3.GSDT 7:22/11



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EXPLORATION LOG

HOLE NO. **E11-149**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

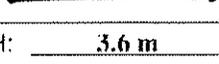
LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: 

DATE STARTED: **18 Jul 11**

FINISHED: **18 Jul 11**

DRILLER: 

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**

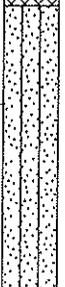
DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

166
166

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	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	S3					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							Hard pushing of sampler at 3.4-3.6m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 3.6m (Penetration speed = 1cm / 1min).		

ENVIRO-EXPLORATION LOG 11-032E.GPJ USA3E SKOREA.GDT 7/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-150**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **18 Jul 11**

FINISHED: **18 Jul 11**

DRILLER:

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**

b6
b7c

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.	%Recovery = 100 PID = 0.4ppm FC = F3	
49 - 1	S2						About 5% subangular fine gravel (max.1cm); about 65% subangular fine to coarse Sand; about 30% Fines.	%Recovery = 97 PID = 0.2 - 2.1ppm	
48 - 2	S3					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.	%Recovery = 157 PID = 1.2 - 4.2ppm	
47 - 3							Brown; about 65% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity.		
46 - 4									
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									
43 - 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).		

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



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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] *b6*

DATE STARTED: **17 Jul 11**

FINISHED: **17 Jul 11**

DRILLER: [REDACTED] *b6*

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). About 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no gravel below 0.5m.	%Recovery = 100 PID = 0.5ppm FC = F3	
47-1	S2					FILL	CLAYEY SAND: reddish brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).	%Recovery = 93 PID = 0.7 - 1.7ppm FC = F3	
46-2						FILL	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).		

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



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EXPLORATION LOG

HOLE NO. **E11-152**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: 

DATE STARTED: **18 Jul 11**

FINISHED: **18 Jul 11**

DRILLER: 

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**

b6
b6

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 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). No gravel below 1.0m.	%Recovery = 100 PID = 1.9ppm FC = F3	
49	S2								%Recovery = 95 PID = 3.8 - 4.2ppm
48						SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; residual soil.		
47								%Recovery = 94 PID = 2.4 - 4.7ppm	
46	S3								
45							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-EXP_ORATION LOG 11-032E.GPJ USACE SKOREA.GDT 7/23/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-153**

Far East
District



PROJECT: **Phase I Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **18 Jul 11**

FINISHED: **18 Jul 11**

DRILLER:

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: **No Water; AD**

COORDINATES: N: **3,983,391.3** E: **447,621.3**

GROUND ELEV.: **50.17 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						AC FILL	Asphalt pavement thickness = 7cm.		
49	S1					FILL	Poorly-graded GRAVEL with Silt and Sand: grayish brown; moist; about 70% subangular fine to coarse gravel (max.5cm); about 20% subangular fine to coarse Sand (max.4.8mm); about 10% Fines; fill material (GP-GM). SILTY SAND: brown; moist; about 10% subangular fine to coarse Sand (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 1.6ppm FC = F3	
48	S2						With scrap of asphalt at 3m.	%Recovery = 93 PID = 1.0 - 10.3ppm	
47						FILL	CLAYEY SAND: reddish brown to gray; moist; about 5% subangular fine gravel (max.2cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity, fill material (SC). About 3% subangular fine gravel (max.1cm); about 67% subangular fine to coarse Sand; about 30% Fines.	%Recovery = 96 PID = 2.9 - 4.3ppm	
46	S3								
45						SC	CLAYEY SAND: reddish brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; residual soil.	%Recovery = 90 PID = 0.5 - 2.0ppm	
44									
43	S4					SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil. Light brown.		
42									
41									
40							Penetration finish depth = 10.0m (Penetration speed = 10cm / 20sce).		

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

3147



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EXPLORATION LOG

HOLE NO. **E11-154**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED] *b6*

DATE STARTED: **11 Aug 11**

FINISHED: **11 Aug 11**

DRILLER: [REDACTED] *b6*

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **2.3 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **2.3 m**

WATER DEPTH: **No water; AD**

COORDINATES: N: **3,983,502.5** E: **447,696.6**

GROUND ELEV.: **52.29 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; moist; about 10% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.0mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 1.5ppm FC = 73	
52	S1						About 5% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines.	%Recovery = 100 PID = 0.6 - 2.0ppm	
51	S2					SM	SILTY SAND: light brown; moist; about 80% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; residual soil; granite texture.		
50							Hard pushing of sampler at 2.1-2.3m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 2.3m (Penetration speed = 1cm / 1min).

EMPRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
Of Engineers

EXPLORATION LOG

HOLE NO. **E11-155**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED]

DATE STARTED: **11 Aug 11**

FINISHED: **11 Aug 11**

DRILLER: [REDACTED]

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **1.8 m**

OVERBURDEN THICKNESS:

DEPTH DRILLED: **1.8 m**

WATER DEPTH: **No water; AD**

COORDINATES: N: **3,983,488.8** E: **447,677.1**

GROUND ELEV.: **51.51 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION:

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

46
66

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 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 2.1ppm FC = F3	
51									
1	S2					SM	SILTY SAND: brown; moist; about 80% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; residual soil; granite texture.		
50									

Penetration refusal depth = 1.0m (Penetration speed = 2cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-156**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED] *b6*

DATE STARTED: **05 Aug 11**

FINISHED: **05 Aug 11**

DRILLER: [REDACTED] *b6*

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **6.45 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **6.45 m**

WATER DEPTH: **0.73 m; AD**

COORDINATES: N: **3,983,460.1** E: **447,679.5**

GROUND ELEV.: **51.40 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11

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	Poorly-graded GRAVEL with Silt and Sand: brown; moist; about 60% angular to subangular fine to coarse gravel (max.2.5cm); about 30% subangular fine to coarse Sand; about 10% Fines; fill material (GP-GM); <i>grass roots at 0-0.15m.</i>	%Recovery = 90 PID = 1.7ppm FC = F1 FC = F3		
51						FILL				SILTY SAND: brown; moist; about 15% subangular fine to coarse gravel (max.3.3cm); about 70% subangular fine to coarse Sand; about 15% Fines; no plasticity; fill material (SM).
1	S2					FILL	CLAYEY SAND: dark brown; moist; about 5% subangular fine gravel (max.2cm); about 55% fine to medium Sand; about 40% Fines; medium plasticity; fill material (SC).	FC = F3		
50						CH				FAT CLAY with Sand: dark brown; moist; about 2% subangular fine gravel (max.2.5cm); about 20% subangular fine Sand; about 78% Fines; high plasticity; alluvial soil.
2	S3					SC	CLAYEY SAND: brown; moist; about 60% fine to medium Sand; about 40% Fines; medium plasticity; alluvial soil.	%Recovery = 99 PID = 2.4 - 4.8ppm		
49						SM				SILTY SAND: light brown; moist; about 60% fine to medium Sand; about 40% Fines; no plasticity; residual soil; Granite texture.
3										About 70% fine to coarse Sand; about 30% Fines; w/ rock fragments at 4.0 - 6.0m.
4							Fine to medium sand size.			
48							Dense.			
47							Hard pushing of sampler at 6.1-6.4m; HDP (Hydraulic Down Pressure) = 1300 psi.			
46							Penetration refusal depth = 6.45m (Penetration speed = 3cm / 2min).			
45										



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EXPLORATION LOG

HOLE NO. **E11-157**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR: [REDACTED] b6
b6
 DATE STARTED: **11 Aug 11** FINISHED: **11 Aug 11** DRILLER: [REDACTED]

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

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **4.5 m**
 OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **4.5 m** WATER DEPTH: **No water; AD**
 COORDINATES: N: **3,983,438.1** E: **447,655.6** GROUND ELEV.: **50.76 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 5% subangular fine gravel (max.1cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; no plasticity; fill material (SM). About 10% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 30% Fines.	%Recovery = 100 PID = 5.2ppm FC = F3	
50	S2						About 3% subangular fine gravel (max.1cm); about 62% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; encountered clayey sand layer at 1.6m to 1.7m.	%Recovery = 97 PID = 7.8 - 11.2ppm	
49	S3					SM	SILTY SAND: light brown; moist; about 80% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; no plasticity; residual soil.	%Recovery = 96 PID = 2.1 - 8.9ppm	
48							Hard pushing of sampler at 4.3-4.5m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 4.5m (Penetration speed = 1.5cm / 1min).

ENVIRO-EXPLORATION LOG_11-032E-PHASE2-FINAL.GPJ _SACE SKOREA.GDT 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-158**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: **66**

DATE STARTED: **12 Aug 11**

FINISHED: **12 Aug 11**

DRILLER: **66**

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **8.5 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **8.5 m**

WATER DEPTH: **8.22 m; AD**

COORDINATES: N: **3,983,435.9** E: **447,697.4**

GROUND ELEV.: **51.31 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: brown; moist; about 5% subangular to angular fine to coarse gravel (max.2.5cm); about 75% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM); Grass roots at 0-0.05m.	%Recovery = 100 PID = 1.8ppm FC = F3	
1							Grayish brown.	%Recovery = 98 PID = 2.9 - 3.7ppm	
50	S2								
2						FILL	CLAYEY SAND: brown; moist; about 5% angular to subangular fine gravel (max.1.5cm); about 55% subangular fine to coarse Sand; about 40% Fines; low plasticity; fill material (SC). Reddish brown.	%Recovery = 80 PID = 1.9 - 2.3ppm	
49							Reddish brown.		
48	S3						Brown.		
47									
46	S4					SM	SILTY SAND: yellowish brown; about 65% subangular fine to coarse Sand; about 35% Fines; low plasticity; residual soil	%Recovery = 94 PID = 0.9 - 1.9ppm	
45									
44							Light brown to brown; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; sampler penetration speed= 7cm/1min at 7.9m.		
43									

Hard pushing of sampler at 8.3-8.5m; HDP (Hydraulic Down Pressure) = 1500 psi.
Penetration refusal depth = 8.5m (Penetration speed = 5cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE S-COREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-159**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **12 Aug 11**

FINISHED: **12 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **12.0 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **12.0 m**

WATER DEPTH: **No water; AD**

COORDINATES: N: **3,983,424.1** E: **447,689.8**

GROUND ELEV.: **50.83 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USA CE SKOREA.GDT 8/22/11

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 to grayish brown; moist; about 10% subangular fine gravel (max.2cm); about 70% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM); Grass roots at 0-0.05m.	%Recovery = 100 PID = 10.6ppm FC = F3	
50	S2						Subangular fine to coarse gravel (max.3cm).	%Recovery = 100 PID = 10.9 - 14.7ppm	
2						FILL	CLAYEY SAND: brown to reddish brown; moist; about 55% fine to medium Sand; about 45% Fines; low plasticity; fill material (SC).	%Recovery = 87 PID = 11.4 - 12.2ppm	
48						FILL	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; fill material (SM).		
4	S3					FILL	CLAYEY SAND: reddish brown; moist; about 55% fine to medium Sand; about 45% Fines; low plasticity; fill material (SC).		
46							Medium to high plasticity; at 4.3-5.0m.	%Recovery = 91 PID = 1.3 - 3.3ppm	
6						CH	FAT CLAY with Sand: reddish brown; moist; about 15% fine Sand; about 85% Fines; high plasticity; residual soil; granite texture.		
44	S4					ML	SILT with Sand: brown; moist; about 25% fine Sand; about 75% Fines; low plasticity; residual soil.		
8						SC	CLAYEY SAND: reddish brown; moist; about 55% fine Sand; about 45% Fines; residual soil.		
42							Grayish brown silty sand soil at 8.8-9.0m.		
10						ML	SILT with Sand: brown; moist; about 20% fine to medium Sand; about 80% Fines; medium plasticity; residual soil; granite texture.		
40						SC	CLAYEY SAND: brown; moist; about 55% subangular fine to coarse Sand; about 45% Fines; medium plasticity; residual soil; granite texture.		
12						SM	SILTY SAND: grayish brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.		

HDP (Hydraulic Down Pressure) = 1500 psi at 11.5-12.0m.
Penetration refusal depth = 12.0m (Penetration speed = 12cm / 1min at 11.9-12.0m).



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EXPLORATION LOG

HOLE NO. **E11-160**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

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

DATE STARTED: **12 Aug 11** FINISHED: **12 Aug 11** DRILLER:  *b6*

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

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **3.4 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **3.4 m** WATER DEPTH: **No water; AD**

COORDINATES: N: **3,983,429.5** E: **447,733.2** GROUND ELEV.: **51.93 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					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 = 4.6ppm FC = F3	
51	s2							%Recovery = 97 PID = 4.9 - 6.6ppm	
50	s3							%Recovery = 36 PID = 3.6 - 5.4ppm	

Hard pushing of sampler at 3.2-3.4m; HNP (Hydraulic Down Pressure) = 1000 psi.

Penetration refusal depth = 3.4m (Penetration speed = 2cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ L_SACE SKOREA.GDT. 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-161**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **05 Aug 11**

FINISHED: **05 Aug 11**

DRILLER:

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: **2.0 m; AD**

COORDINATES: N: **3,983,404.3** E: **447,702.2**

GROUND ELEV.: **50.51 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.3.5cm); about 65% angular to subangular fine to coarse Sand; about 25% Fines; no plasticity; fill material (SM); grass roots at 0-0.1m.	%Recovery = 96 PID = 1.2ppm FC = F3	
50							Subangular fine gravel (max.1.5cm).	%Recovery = 100 PID = 1.2 - 1.6ppm	
1	S2					CH	FAT CLAY: reddish brown; moist; about 10% fine Sand; about 90% Fines; medium plasticity; alluvial soil.	%Recovery = 100 PID = 2.8 - 3.4ppm	
49									
2	S3					CH	SANDY FAT CLAY: reddish brown; moist; about 30% fine Sand; about 70% Fines; medium plasticity; alluvial soil.		
48									
3						ML	SILT with Sand: yellowish red; moist; about 25% fine Sand; about 75% Fines; no to low plasticity; residual soil; granite texture.		
47									
4						SM	SILTY SAND: brown; moist; about 60% fine to medium Sand; about 40% Fines; residual soil, granite texture.	%Recovery = 100 PID = 1.2 - 5.3ppm	
46									
5									
45									
6									
44	C4								
43							Hard pushing of sampler at 7.7-7.9m; HDP (Hydraulic Down Pressure) = 1300 psi.		

Penetration refusal depth = 7.9m (Penetration speed = 2cm / 5min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE S\OREA.GDT 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-162**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: 

DATE STARTED: **05 Aug 11**

FINISHED: **05 Aug 11**

DRILLER: 

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

DRILLING AGENCY: **BFC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **1.52 m**

OVERBURDEN THICKNESS:

DEPTH DRILLED: **1.52 m**

WATER DEPTH: **No water; AD**

COORDINATES: N: **3,983,412.4** E: **447,742.7**

GROUND ELEV.: **52.02 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION:

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

b6
b6

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					FILL	SILTY SAND with Gravel: brown; moist; about 15% subangular fine to coarse gravel (max.3.3cm); about 65% subangular to angular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM); grass roots at 0-0.05m.	%Recovery = 100 PID = 1.8ppm FC = F3	
51 - 1	S2					SM	SILTY SAND: light brown; moist to dry; about 80% angular fine to coarse Sand; about 20% Fines; residual soil, granite texture. Hard pushing of sampler at 1.2-1.5m; HDP (Hydraulic Down Pressure) = 1300 psi.	%Recovery = 100 PID = 2.6 - 4.2ppm	

Penetration refusal depth = 1.52m (Penetration speed = 1cm / 2.5min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ JSACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-163**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **10 Aug 11**

FINISHED: **10 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **10.95 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **10.95 m**

WATER DEPTH: **8.25 m; AD**

COORDINATES: N: **3,983,373.3** E: **447,724.0**

GROUND ELEV.: **50.76 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

66
66

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; dry to moist; about 30% subangular fine to coarse gravel (max. 3.5cm); about 55% angular to subangular fine to coarse Sand; about 15% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 8.3ppm FC = F3	
50	S2					FILL	SILTY SAND: light brown; moist; about 80% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM)	%Recovery = 100 PID = 5.1 - 13.7ppm FC = F3	
2							Grayish brown.	%Recovery = 100 PID = 5.7 - 13.8ppm	
48	S3					FILL FILL SC	CLAYEY SAND: brown; moist; about 55% subangular fine to medium Sand; about 45% Fines; medium plasticity; fill material (SC); at 2.7-2.8m. SILTY SAND: light brown; about 80% fine to coarse Sand; about 20% Fines; fill material (SM); at 2.8-3.1m. CLAYEY SAND: reddish brown; moist; about 65% fine Sand; about 35% Fines; low to medium plasticity; residual soil; granite texture.		
46							Brown to grayish brown; subangular fine to medium Sand; low plasticity.	%Recovery = 94 PID = 8.2 - 17.4ppm	
44	S4					SM	SILTY SAND: brown; moist; about 70% fine to medium Sand; about 30% Fines; no plasticity; residual soil; w/rock fragments (5mm), granite texture. Light brown.		
42							Granite texture. More silty soil at 9-10m.		
40						SC	CLAYEY SAND: brown; wet to moist; about 65% subangular fine to coarse Sand; about 35% Fines; low plasticity; residual soil.		
						SM	SILTY SAND: light brown; about 55% fine to coarse Sand; about 45% Fines; residual soil, dense. End of direct push sampling at 10.95m. Hard pushing of sampler at 10.7-10.95m; HDP (Hydraulic Down Pressure) = 1500 psi; Penetration refusal depth = 10.95m (Penetration speed = 5cm / 1min).		

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE S\COREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-164**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED]

DATE STARTED: **11 Aug 11**

FINISHED: **11 Aug 11**

DRILLER: [REDACTED]

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **11.0 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **11.0 m**

WATER DEPTH: **Caved (8.2m); AD**

COORDINATES: N: **3,983,348.6** E: **447,726.8**

GROUND ELEV.: **50.63 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: **Yes**

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

b6
b6

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	[Cross-hatched pattern]				FILL	SILTY SAND: brown; moist; about 10% subangular fine to coarse gravel (max. 3.5cm); about 70% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM); Grass roots ul 0.05m.	%Recovery = 100 PID = 2ppm FC = F3	
50	S2	[Cross-hatched pattern]				FILL	SILTY SAND with Gravel: about 15% subangular fine to coarse gravel (max. 2.5cm); about 65% subangular fine to coarse Sand; about 20% Fines.	%Recovery = 87 PID = 0.6 - 0.9ppm	
2						FILL	SILTY SAND: about 5% subangular fine to coarse gravel; about 70% subangular fine to coarse Sand; about 25% Fines.	%Recovery = 95 PID = 0 - 0.9ppm	
48						FILL	CLAYEY SAND: reddish brown; moist; about 65% fine to medium Sand; about 35% Fines; low plasticity; fill material (SC).		
46	S3	[Cross-hatched pattern]				FILL	SILTY SAND: grayish brown; moist; about 75% subangular fine to coarse Sand; about 25% Fines; no plasticity; fill material (SM). CLAYEY SAND: reddish brown; about 65% fine to medium Sand; about 35% Fines. SILTY SAND: grayish brown; about 75% subangular fine to coarse Sand; about 25% Fines.		
6		[Dotted pattern]				SW	Brownish gray. Well-graded SAND: bluish gray; moist to wet; about 95% subangular fine to coarse Sand; about 5% Fines; no plasticity; alluvial soil; weak solvent odor.	%Recovery = 79 PID = 4.2 - 50.8ppm	
44		[Dotted pattern]				SC	5.0 to 5.6m; PID = 50.8 ppm. CLAYEY SAND: brown; moist; about 10% subangular fine to coarse gravel; about 60% subangular to angular fine to coarse Sand; about 30% Fines; low plasticity; alluvial soil.		
8	S4	[Diagonal lines]				SM	SILTY SAND: dark brown to brown; moist; about 75% subangular fine to coarse Sand; about 25% Fines; no plasticity; alluvial soil.		
42		[Diagonal lines]				SC	CLAYEY SAND: brown to reddish brown; moist; about 5% subrounded fine gravel; about 50% fine Sand; about 45% Fines; medium plasticity; alluvial soil.		
10		[Horizontal lines]				ML	SANDY SILT: brown mottled with white; about 40% angular to subangular fine Sand; about 60% Fines; low plasticity; residual soil; granite texture.		
		[Horizontal lines]				SM	SILTY SAND: yellowish brown to brown; moist; about 65% angular to subangular fine Sand; about 35% Fines; residual soil; granite texture.		
40		[Horizontal lines]				ML	SANDY SILT: brown mottled with white; about 40%; about 60% Fines; residual soil; End of direct push sampling at 11.0m. Confirmed depths of FILL MATERIAL = 0 - 5 m, ALLUVIAL SOILS = 5 - 8.4m, and RESIDUAL SOIL = 8.4 - 11.0m.		

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-165**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED] *46*

DATE STARTED: **06 Aug 11**

FINISHED: **06 Aug 11**

DRILLER: [REDACTED] *66*

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **11.0 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **11.0 m**

WATER DEPTH: **Caved (3.4m); AD**

COORDINATES: N: **3,983,323.6** E: **447,705.6**

GROUND ELEV.: **49.64 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

ENVIRO-EXPLORATION_LOG 11-032E-PHASE2-FINAL.GPJ USACE SF-OREA.GDT 8/22/11

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 to light brown; moist; about 20% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; no plasticity; fill material (SM). More gravels at 0.5-1m = gravel (35%), sand(45%), fine(20%).	%Recovery = 100 PID = 4.2ppm FC = F3 %Recovery = 93 PID = 2.3 - 5.8ppm FC = F3	
48	S2								
2							Brown; about 15% fine to coarse gravel (max.4cm); about 60% fine to coarse Sand; about 25% Fines; asphalt pavement scrap at 2.3m and 2.7m; PID =17.2 ppm at 2-3m.	%Recovery = 96 PID = 8.0 - 17.2ppm	
46	S3								
4									
44	SC SM					SC SM	About 20% subangular fine to coarse gravel; about 60% subangular fine to coarse Sand; about 20% Fines. CLAYEY SAND: brown; moist; about 55% fine Sand; about 45% Fines; low plasticity; alluvial soil.	%Recovery = 86 PID = 5.6 - 10.6ppm	
6							SILTY SAND with Gravel: brown; moist; about 20% subangular to subrounded fine to coarse gravel (max.3.5cm); about 60% angular fine to coarse Sand; about 20% Fines; no plasticity; alluvial soil; PID =10.6 ppm at 6-7m.		
42	SC					SC	CLAYEY SAND: brown; moist; about 55% fine Sand; about 45% Fines; low plasticity; alluvial soil.		
8	S4								
						CH	FAT CLAY: dark greenish gray grades to brown; moist; about 5% subangular to subrounded fine gravel (max.2cm); about 5% fine Sand; about 90% Fines; high plasticity; alluvial soil; PID in hole = 3.7m.		
40						ML	SILT with Sand: brown; moist; about 20% fine Sand; about 80% Fines; low plasticity; residual soil; granite texture.		
10						SM	SILTY SAND: brown; moist; about 70% fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.		

End of direct push sampling at 11.0m after residual soils encountered at 9.4-11.0m.



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EXPLORATION LOG

HOLE NO. **E11-166**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: 

DATE STARTED: **08 Aug 11**

FINISHED: **08 Aug 11**

DRILLER: 

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: **3,983,422.0** E: **447,813.7**

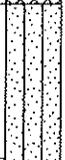
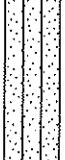
GROUND ELEV.: **55.49 m**

DATUM: **MSL**

GROUND COVER: **Portland cement concrete** CONTAMINATION: _____

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

66
66

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	Portland cement concrete pavement thickness = 15cm.		
						FILL	Poorly-graded GRAVEL with Sand: fill material (GP); base course material.		
55	S1					SM	SILTY SAND: brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil; granitic texture.	%Recovery = 100 PID = 5.2ppm FC = F3	
1								%Recovery = 92 PID = 3.2 - 4.2ppm	
54	S2								
2									
53							Hard pushing of sampler at 2.4-2.7m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 2.7m (Penetration speed = 2cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-167**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED]

DATE STARTED: **07 Aug 11**

FINISHED: **07 Aug 11**

DRILLER: [REDACTED]

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **5.55 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **5.55 m**

WATER DEPTH: **5.03 m; AD**

COORDINATES: N: **3,983,414.3** E: **447,845.9**

GROUND ELEV.: **55.98 m**

DATUM: **MSL**

GROUND COVER: **Dirt**

CONTAMINATION: _____

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

b6
b6

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	CLAYEY SAND: reddish brown; moist; about 5% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).	%Recovery = 100 PID = 2.5ppm FC = F3	
55-1	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 = 100 PID = 3.5 - 4.0ppm FC = F3	
54-2						CH	SANDY FAT CLAY: dark brown; moist; about 40% subangular fine to medium Sand (max.2mm); about 60% Fines; high plasticity; alluvial soil.		
						CH	FAT CLAY with Sand: brown; moist; about 20% subangular fine to medium Sand (max.2mm); about 80% Fines; high plasticity; alluvial soil.	%Recovery = 93 PID = 4.1 - 9.8ppm	
53-3						SC	CLAYEY SAND: dark brown; moist; about 2% subangular fine gravel (max.1cm); about 63% subangular fine to medium Sand (max.2mm); about 35% Fines; medium plasticity; alluvial soil. Brown.		
52-4	S3					SM	SILTY SAND: brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil; granite texture.		
51-5							Hard pushing of sampler at 5.3-5.55m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 5.55m (Penetration speed = 2cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-168**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **09 Aug 11**

FINISHED: **09 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **3.0 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **3.0 m**

WATER DEPTH: **0.27 m; AD**

COORDINATES: N: **3,983,414.1** E: **447,771.8**

GROUND ELEV.: **52.19 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
0						FILL	SILTY SAND: grayish brown; moist; about 10% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 1.8ppm FC = F3	
52	s1					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 = 07 PID = 2.9 - 3.8ppm FC = F3	
51									
50	s2								
3							Hard pushing of sampler at 2.8-3.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 3.0m (Penetration speed = 1cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-169**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

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

DATE STARTED: **09 Aug 11** FINISHED: **09 Aug 11** DRILLER:  **66**

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

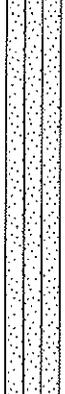
DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **1.8 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **1.8 m** WATER DEPTH: **NA**

COORDINATES: N: **3,983,405.3** E: **447,789.7** GROUND ELEV.: **52.63 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
0	S1					FILL	SILTY SAND: brown; moist; about 10% subangular fine to coarse gravel (max.5cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 2.3ppm FC = F3	
52							About 10% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines.	%Recovery = 100 PID = 2.4 - 3.0ppm	
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	
51							Hard pushing of sampler at 1.7-1.8m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 1.8m (Penetration speed = 1cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USA3E SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-170**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: 

DATE STARTED: **07 Aug 11**

FINISHED: **07 Aug 11**

DRILLER: 

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **7.5 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **7.5 m**

WATER DEPTH: **1.8 m; AD**

COORDINATES: N: **3,983,393.3** E: **447,808.9**

GROUND ELEV.: **53.73 m**

DATUM: **MSL**

GROUND COVER: **Dirt (Inside land farm)** CONTAMINATION: _____

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

b6
b6

ENVIRO-EXPLORATION LOG 11-C32E-PHASE2-FINAL.GPJ USACE-SKOREA.GDT 8/22/11

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 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 90 PID = 18.5ppm FC = F3	
53						FILL	Poorly-graded SAND: yellowish brown; moist; about 05% subangular fine to medium Sand (max.2mm); about 5% Fines; no plasticity; fill material (SP).	FC = NFS	
1	s2					FILL	Poorly-graded GRAVEL with Sand: gray; wet; about 70% rounded fine to coarse gravel (max.3cm); about 25% subangular coarse Sand (max.4.8mm); about 5% Fines; no plasticity; fill material (GP).	%Recovery = 77 PID = 24.7 - 46.7ppm FC = NFS	
52						FILL	FAT CLAY: reddish brown; moist; about 10% fine Sand (max.0.43mm); about 90% Fines; high plasticity; fill material (CH).	FC = F3	
2							CLAYEY SAND: brown to reddish brown; moist; subangular fine gravel (max.1cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC); PID = 46.7 ppm at 1-1.3m.	%Recovery = 86 PID = 31.2 - 36.8ppm	
51						SC	CLAYEY SAND: gray; moist; about 65% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity; alluvial soil; with organics.		
3						CL	SANDY LEAN CLAY: dark brown; moist; about 35% subangular fine to medium Sand (max.2mm); about 65% Fines; medium plasticity; alluvial soil.		
50	s3								
4						SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil; granite texture.		
49								%Recovery = 72 PID = 10.6 - 25.9ppm	
5									
48	s4								
6									
47							Hard pushing of sampler at 7.0-7.5m; HDP (Hydraulic Down Pressure) = 1000 psi.		
7									

Penetration refusal depth = 7.5m (Penetration speed = 2cm / 1min).



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EXPLORATION LOG

HOLE NO. **E11-171**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **09 Aug 11**

FINISHED: **09 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **6.5 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **6.5 m**

WATER DEPTH: **No water; AD**

COORDINATES: N: **3,983,381.7** E: **447,777.2**

GROUND ELEV.: **52.11 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
52	s1					FILL	CLAYEY SAND: dark brown; wet; about 10% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC). Greenish gray to brown; moist.	%Recovery = 30 PID = 1.8ppm FC = F3	
51	s2						Brown; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no gravels.	%Recovery = 45 PID = 2.5 - 3.9ppm	
50						FILL	SILTY SAND with Gravel: grayish brown; moist; about 20% subangular fine gravel (max.2cm); about 55% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM); with waste materials (plywood, scraps of porcelain).	%Recovery = 52 PID = 1.4 - 6.5ppm	
49						FILL	CLAYEY SAND with Gravel: gray to brown; moist; about 25% subangular fine to coarse gravel (max.5cm); about 50% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; medium plasticity; fill material (SC); with waste materials (scraps of sand bag).		
48	s3					SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil; disturbed granite texture at 4.2m to 4.7m.		
47									
46							Hard pushing of sampler at 6.3-6.5m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 6.5m (Penetration speed = 2cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ L\SACE\SCOREA.GDT 8/22/11



US Army Corps
Of Engineers

EXPLORATION LOG

HOLE NO. **E11-172**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **09 Aug 11**

FINISHED: **09 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **8.7 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **8.7 m**

WATER DEPTH: **2.97 m; AD**

COORDINATES: N: **3,983,357.0** E: **447,767.7**

GROUND ELEV.: **51.11 m**

DATUM: **MSL**

GROUND COVER: **Dirt**

CONTAMINATION: _____

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

b6
b6

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 with Gravel: grayish brown; moist; about 30% subangular fine to coarse gravel (max.3cm); about 50% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 2.5ppm FC = F3 FC = NFS FC = F3	
50-1	s2					FILL	Poorly-graded SAND with Silt: brown; moist; about 90% subangular fine to medium Sand (max.2mm); about 10% Fines; no plasticity; fill material (SP-SM). CLAYEY SAND: reddish brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC). Encountered silty sand layer at 0.5m to 0.7m.	%Recovery = 92 PID = 1.0 - 2.6ppm	
49-2						FILL	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).	%Recovery = 86 PID = 5.1 - 8.2ppm	
48-3	s3					FILL	About 10% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 30% Fines. CLAYEY SAND: brown; moist; about 5% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).		
47-4						CH	SANDY FAT CLAY: gray to brown; moist; about 3% subangular fine gravel (max.1cm); about 37% subangular fine to coarse Sand (max.4.8mm); about 60% Fines; high plasticity; alluvial soil; with organics.		
46-5						ML	SANDY SILT: reddish brown; moist; about 40% subangular fine to medium Sand (max.2mm); about 60% Fines; medium plasticity; residual soil.	%Recovery = 90 PID = 0.3 - 5.0ppm	
45-6						SM	SILTY SAND: brown; moist; about 60% subangular fine to medium Sand (max.2mm); about 40% Fines; no to medium plasticity; residual soil; granite texture.		
44-7	s4						About 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity.		
43-8							Hard pushing of sampler at 8.5-8.7m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 8.7m (Penetration speed = 5cm / 1min).

EM/RO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USA/CE SKOREA.GDT 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-173**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **10 Aug 11**

FINISHED: **10 Aug 11**

DRILLER:

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: **NA**

COORDINATES: N: **3,983,363.9** E: **447,811.9**

GROUND ELEV.: **53.53 m**

DATUM: **MSL**

GROUND COVER: **Dirt (Inside land farm)**

CONTAMINATION: _____

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

66
110

ENVIRO-EXPLORATION_LOG 11-032E-PHASE2-FINAL.GPJ LSACE SF.OREA.GDT 8/22/11

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	SANDY LEAN CLAY: gray; wet; about 5% subangular fine gravel (max.2cm); about 30% subangular fine to coarse Sand (max.4.8mm); about 65% Fines; medium plasticity; fill material (CL).	%Recovery = 100 PID = 7.4ppm FC = F3 FC = NFS	
53						FILL	Poorly-graded SAND: brown; wet; about 95% subangular fine to coarse Sand (max.4.8mm); about 5% Fines; no plasticity; fill material (SP).	FC = NFS	
1						FILL	Poorly-graded GRAVEL with Sand: grayish brown; wet; about 70% subangular fine to coarse gravel (max.3cm); about 25% subangular fine to coarse Sand (max.4.8mm); about 5% Fines; no plasticity; fill material (GP).	%Recovery = 93 PID = 3.2 - 4.2µm FC = F3	
52	s2					FILL	FAT CLAY: reddish brown; moist; about 3% subangular fine gravel (max.2cm); about 7% subangular fine to medium Sand (max.2mm); about 90% Fines; high plasticity; fill material (CH). About 10% subangular fine to medium Sand (max.2mm); about 90% Fines; no gravels.		
2						FILL	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).		
51	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).	%Recovery = 88 PID = 4.8 - 5.6ppm	
3						FILL	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM).		
50						FILL	About 5% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines.		
49						FILL	CLAYEY SAND: brown; moist; about 5% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC). Wet zone (4.3m).		
48						CL	SANDY LEAN CLAY: grayish brown; moist to wet; about 40% subangular fine to medium Sand (max.2mm); about 60% Fines; medium plasticity; alluvial soil.	%Recovery = 81 PID = 4.7 - 15.3ppm	
						SP-SM	Poorly-graded SAND with Silt: grayish brown; wet; about 90% subangular fine to coarse Sand (max.4.8mm); about 10% Fines; no plasticity; alluvial soil.		
						SC			



US Army Corps
Of Engineers

EXPLORATION LOG

HOLE NO. **E11-173**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

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

DATE STARTED: **10 Aug 11** FINISHED: **10 Aug 11** DRILLER: [REDACTED] *b6*

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: **NA**

COORDINATES: N: **3,983,363.9** E: **447,811.9** GROUND ELEV.: **53.53 m** DATUM: **MSL**

GROUND COVER: **Dirt (Inside land farm)** 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		
6	S4						CLAYEY SAND: dark brown; wet; about 60% subangular fine to coarse Sand (max.4.8mm); about 40% Fines; medium plasticity; alluvial soil. Brown; about 3% subangular fine gravel (max.1cm); about 67% subangular fine to coarse Sand (max.4.8mm); about 30% Fines.				
47							Light gray to brown; moist; about 60% subangular fine to medium Sand (max.2mm); about 40% Fines; high plasticity.				
7								CH	FAT CLAY: grayish brown; moist; about 5% fine Sand (max.0.43mm); about 95% Fines; high plasticity; alluvial soil.		
46								SC	CLAYEY SAND: brown to grayish brown; moist; about 5% subangular fine gravel (max.2cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; high plasticity; alluvial soil.		
45							Light gray to brown; moist; about 2% subangular fine gravel (max.1cm); about 63% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; high plasticity.				
8											
44											
9											
10						SM	SILTY SAND: brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil; granite texture. Hard pushing of sampler at 9.9-10.0m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 10.0m (Penetration speed = 1.5cm / 1min).				

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE S\QREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-174**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED] *b6*

DATE STARTED: **08 Aug 11**

FINISHED: **08 Aug 11**

DRILLER: [REDACTED] *b6*

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **8.9 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **8.9 m**

WATER DEPTH: **1.92 m; AD**

COORDINATES: N: **3,983,366.3** E: **447,839.1**

GROUND ELEV.: **54.98 m**

DATUM: **MSL**

GROUND COVER: **Portland cement concrete (CONTAMINATION)**

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

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11

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	Portland cement concrete pavement thickness = 20cm.		
						FILL	Poorly-graded GRAVEL with Sand: fill material (GP); base course material.	%Recovery = 80 PID = 11.6ppm FC = F3	
54-1	S1					FILL	CLAYEY SAND: grayish brown to reddish brown; moist; about 10% subangular fine to coarse gravel (max.4cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).	%Recovery = 90 PID = 3.6 - 11.7ppm FC = F3	
53-2	S2					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). About 5% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; encountered clayey sand layer at 1.7m to 1.8m.		
52-3						FILL	CLAYEY SAND: brown; moist to wet; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC); wet zone = 2.8m.	%Recovery = 85 PID = 2.4 - 3.5ppm	
51-4	S3					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). About 5% subangular fine gravel (max.1cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; encountered clayey sand layer at 3.9m to 4.0m.		
50-5						SC	CLAYEY SAND: greenish gray to brown; moist; about 3% subangular fine gravel (max.1cm); about 62% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity; fill material (SC).		
						CH	CLAYEY SAND: greenish gray; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; alluvial soil.		
49-6						SC	SANDY FAT CLAY: dark brown; moist; about 30% subangular fine to medium Sand (max.2mm); about 70% Fines; high plasticity; alluvial soil. CLAYEY SAND: dark brown; moist; about 65% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity; alluvial soil.	%Recovery = 42 PID = 3.7 - 6.2ppm	
48-7	S4					CL	SANDY LEAN CLAY: brown; moist; about 30% subangular fine to medium Sand (max.2mm); about 70% Fines; medium plasticity; alluvial soil.		
47-8						SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil; granite texture. Hard pushing of sampler at 8.7-8.9m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 8.9m (Penetration speed = 2cm / 1min).



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EXPLORATION LOG

HOLE NO. **E11-175**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED] *b6*

DATE STARTED: **10 Aug 11**

FINISHED: **10 Aug 11**

DRILLER: [REDACTED] *b6*

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **7.25 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **7.25 m**

WATER DEPTH: **1.55 m; AD**

COORDINATES: N: **3,983,346.8** E: **447,784.2**

GROUND ELEV.: **51.07 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 grades to brownish gray; moist; about 5% subangular to subrounded fine gravel (max.2cm); about 75% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 6.0ppm FC = F3	
50-1	S2						More gravels at 2.0-2.4m.	%Recovery = 85 PID = 8.4 - 10.0ppm	
49-2						FILL	CLAYEY SAND: brown to reddish brown; moist; about 60% subangular fine to coarse Sand; about 40% Fines; medium plasticity; fill material (SC).	%Recovery = 89 PID = 6.3 - 12.6ppm	
48-3	S3					FILL	SILTY SAND: brownish gray; moist to wet; about 80% subangular to angular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM).		
47-4						FILL	CLAYEY SAND: brown; moist; about 65% angular to subangular fine to coarse Sand; about 35% Fines; low to medium plasticity; fill material (SC).		
46-5						CH	SANDY FAT CLAY: dark greenish gray; moist; about 30% fine to medium Sand; about 70% Fines; medium to high plasticity; alluvial soil. Brownish gray grades to light gray; moist; angular to subangular fine to coarse Sand.	%Recovery = 76 PID = 6.6 - 9.4ppm	
45-6	S4					SC	CLAYEY SAND: yellowish brown; moist; about 60% subangular fine to coarse Sand; about 40% Fines; low plasticity; alluvial soil.		
44-7						SM	SILTY SAND: light brown to brown; moist; about 70% angular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.		

Hard pushing of sampler at 7.1-7.25m; HDP (Hydraulic Down Pressure) = 1500 psi.
Penetration refusal depth = 7.25m (Penetration speed = 1.2cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-176**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **10 Aug 11**

FINISHED: **10 Aug 11**

DRILLER:

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: **NA**

COORDINATES: N: **3,983,341.6** E: **447,801.8**

GROUND ELEV.: **53.36 m**

DATUM: **MSL**

GROUND COVER: **Dirt (Inside land farm)**

CONTAMINATION: _____

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

b6
b6

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	CLAYEY SAND: gray; wet; about 10% subangular fine gravel (max.2cm); about 55% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity; fill material (SC).	%Recovery = 90 PID = 4ppm FC = F3 FC = NFS	
53						FILL	Poorly-graded SAND: brown; wet; about 95% subangular fine to coarse Sand (max.4.8mm); about 5% Fines; no plasticity; fill material (SP).	%Recovery = 80 PID = 2.9 - 3.2ppm FC = NFS FC = F3	
1	s2					FILL	Poorly-graded GRAVEL with Sand: grayish brown; wet; about 70% subangular fine to coarse gravel (max.3cm); about 25% subangular fine to coarse Sand (max.4.8mm); about 5% Fines; no plasticity; fill material (GP).		
52						FILL	FAT CLAY: reddish brown; moist; about 10% subangular fine to medium Sand (max.2mm); about 90% Fines; high plasticity; fill material (CH).		
2	s3					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 = 59 PID = 4.6 - 10.1ppm	
51						FILL	FAT CLAY with Sand: reddish brown; moist; about 20% subangular fine to medium Sand (max.2mm); about 80% Fines; high plasticity; fill material (CH).		
50						FILL	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM); encountered clayey layer(2cm).		
40							About 10% subangular fine to coarse gravel (max.3cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines.		
5						FILL	CLAYEY SAND: brown; moist; about 10% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; medium plasticity; fill material (SC).	%Recovery = 70 PID = 3.3 - 6.2ppm	
48									

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-176**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED] *b6*

DATE STARTED: **10 Aug 11**

FINISHED: **10 Aug 11**

DRILLER: [REDACTED] *b6*

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: **NA**

COORDINATES: N: **3,983,341.6** E: **447,801.8**

GROUND ELEV.: **53.36 m**

DATUM: **MSL**

GROUND COVER: **Dirt (Inside land farm)**

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
6									
47						SC	CLAYEY SAND: gray, moist; about 65% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity; alluvial soil. LEAN CLAY: grayish brown; moist; about 5% fine Sand (max.0.43mm); about 95% Fines; medium plasticity; alluvial soil.		
						CL			
						SC			
7						CH	CLAYEY SAND: dark brown; moist to wet; about 65% subangular fine to medium Sand (max.2mm); about 35% Fines; medium plasticity; alluvial soil. FAT CLAY: dark brown; moist; about 5% fine Sand (max.0.43mm); about 95% Fines; high plasticity; alluvial soil. Gray.		
46	S4						About 10% fine Sand (max.0.43mm); about 90% Fines.		
8									
45						SC	CLAYEY SAND: light gray, moist; subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 40% Fines; high plasticity; alluvial soil.		
9						CH	SANDY FAT CLAY: gray, moist to wet; about 30% subangular fine to medium Sand (max.2mm); about 70% Fines; high plasticity; alluvial soil.		
44						SM	SILTY SAND: light gray to brown; moist; about 5% subangular fine gravel (max.2mm), about 75% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; no plasticity; alluvial soil. Hard pushing of sampler at 9.9-10.0m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 10.0m (Penetration speed = 8cm / 1min).		
10									

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SCOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-177**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **08 Aug 11**

FINISHED: **08 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **9.0 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **9.0 m**

WATER DEPTH: **0.2 m; AD**

COORDINATES: N: **3,983,340.9** E: **447,834.7**

GROUND ELEV.: **54.71 m**

DATUM: **MSL**

GROUND COVER: **Portland cement concrete (DOME FOUNDATION)**

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

b6
b6

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	Portland cement concrete pavement thickness = 20cm.		
						FILL	Poorly-graded GRAVEL with Sand: fill material (GP); base course material.		
54	S1					FILL	CLAYEY SAND: greenish gray; moist; about 5% subangular fine to coarse gravel (max.3cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; medium plasticity; fill material (SC).	%Recovery = 70 PID = 4.1ppm FC = F3	
53	S2					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). About 5% subangular fine gravel (max.1cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; encountered clayey sand layer at 2.2m to 2.3m. About 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no gravels.	%Recovery = 98 PID = 5.1 - 7.2ppm FC = F3	
52						FILL	CLAYEY SAND: reddish brown to brown; moist; about 10% subangular fine gravel (max.2cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC); encountered silty sand layer at 3.7m to 3.8m.	%Recovery = 87 PID = 4.5 - 6.5ppm	
51	S3					FILL	Brown; moist to wet; about 10% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 30% Fines.		
50						SC	CLAYEY SAND: dark brown; moist; about 60% subangular fine to medium Sand (max.2mm); about 40% Fines; medium plasticity; alluvial soil.	%Recovery = 74 PID = 2.7 - 5.2ppm	
49						CH	SANDY FAT CLAY: light grayish brown; moist; about 40% subangular fine to medium Sand (max.2mm); about 60% Fines; high plasticity; alluvial soil.		
48	S4					SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil; granite texture.		
47						SM	Hard pushing of sampler at 8.7-9.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
46							Penetration refusal depth = 9.0m (Penetration speed = 2cm / 1min).		

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-178**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **06 Aug 11**

FINISHED: **06 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **10.0 m**

OVERBURDEN THICKNESS:

DEPTH DRILLED: **10.0 m**

WATER DEPTH: **3.35 m; AD**

COORDINATES: N: **3,983,357.5** E: **447,752.1**

GROUND ELEV.: **50.99 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 grades to light brown; moist; about 10% subangular to subrounded fine to coarse gravel (max.3.5cm); about 70% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 3.3ppm FC = F3 %Recovery = 100 PID = 2.0 - 6.3ppm	
50-1	S2						CLAYEY SAND: brown; moist; about 55% fine Sand; about 45% Fines; medium plasticity; at 1.3-1.5m. SILTY SAND: brown; moist; about 5% subangular fine to coarse gravel (max.3.2cm); about 70% subangular fine to coarse Sand; about 25% Fines; no plasticity; at 1.5-5.0m.	FC = F3	
49-2							No gravels below 3.0m. Clayey sand layers encountered at 3.3-3.6m and 4.0-5.0m.	%Recovery = 95 PID = 7.2 - 8.0ppm	
48-3	S3								
47-4									
46-5						SC	CLAYEY SAND: grayish brown; moist to wet; about 60% fine to medium Sand; about 40% Fines; medium plasticity; alluvial soil.	%Recovery = 71 PID = 4.4 - 8.5ppm	
45-6							Dark greenish gray; groundwater encountered at 6.0m while sampling.		
44-7							Easy sampler penetration at 7 - 8m; PID in hole = 3.0 ppm.		
43-8	S4					SM	SILTY SAND: grayish brown to brown; moist to wet; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; greenish-gray mottled with white; granite texture.		
42-9									
41-10							End of direct push sampling at 10.0m after residual soils encountered at 8.0-10.0m.		

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ _JSACE BKOREA.GDT 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-179**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR:  **bb**
 DATE STARTED: **10 Aug 11** FINISHED: **10 Aug 11** DRILLER:  **bb**

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

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

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **10.0 m** WATER DEPTH: **1.96 m; AD**

COORDINATES: N: **3,983,337.7** E: **447,767.8** GROUND ELEV.: **50.60 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						PCC	Portland cement concrete pavement thickness = 10cm.	FC = F1	
50	s1					FILL	Poorly-graded GRAVEL with Silt and Sand: gray; wet; about 75% angular to subangular fine to coarse gravel (max.3cm); about 15% fine to medium Sand; about 10% Fines; fill material (GP-GM).	%Recovery = 97 PID = 22.5ppm FC = F3	
	s2					FILL	SILTY SAND with Gravel: brown; moist; about 15% subangular fine to coarse gravel (max.4cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; no plasticity; fill material (SM).	FC = F3 %Recovery = 68 PID = 3.2ppm	
2						FILL	CLAYEY SAND: brown to reddish brown; moist; about 5% fine gravel (max. 1cm); about 55% subangular fine to coarse Sand; about 40% Fines; low plasticity; fill material (SC).	%Recovery = 60 PID = 3.0 - 5.4ppm	
48	s3					FILL	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; fill material (SM). Subangular to subrounded coarse gravel (max. 4cm) at 2.0-2.7m. CLAYEY SAND: brown; moist; about 65% fine to coarse Sand; about 35% Fines; low plasticity; at 2.7-2.85m and 3.6-3.75m.		
46							Brown to grayish brown; fine gravel.		
6						CH	FAT CLAY with Sand: grayish brown to brownish gray, moist; fine gravel; about 85%; about 15% Fines; high plasticity; alluvial soil.	%Recovery = 60 PID = 1.2 - 14.5ppm	
14						SC	CLAYEY SAND: brownish gray to brown; moist to wet; about 70% subrounded fine to coarse Sand; about 30% Fines; low to medium plasticity; alluvial soil.		
42	s4					SC	CLAYEY SAND: reddish brown; moist; about 60% fine Sand; about 40% Fines; low plasticity; residual soil; granite texture.		
0							More silty.		
42						ML	SILT with Sand: reddish brown; moist; about 25% fine Sand; about 75% Fines; low plasticity; residual soil; granite texture.		
10						SM	SILTY SAND: brown to light brown; moist; about 70% fine to coarse Sand; about 30% Fines; residual soil; granite texture.		

End of direct push sampling at 10.0m.
Confirmed depths of FILL MATERIAL = 0 - 5.55 m, ALLUVIAL SOILS = 5.55 - 7.4m, and RESIDUAL SOIL = 7.4-10.0m.

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-180**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **09 Aug 11**

FINISHED: **09 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **10.0 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **10.0 m**

WATER DEPTH: **6.59 m; AD**

COORDINATES: N: **3,983,323.0** E: **447,748.9**

GROUND ELEV.: **50.14 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: **Yes**

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

b6
b6

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
50	S1					FILL	SILTY SAND: brown; moist; about 5% subrounded to subangular fine to coarse gravel (max.3.5cm); about 65% subangular fine to coarse Sand; about 30% Fines; no plasticity; till material (SM); grass roots at U-0.1m.	%Recovery = 100 PID = 2.5ppm FC = F3	
	S2						Brown to light brown; about 15% subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand; about 25% Fines; no plasticity; at 1.0-4.0m.	%Recovery = 87 PID = 3.1 - 6.2ppm	
48							2.0 to 3.0m; PID = 279 ppm.	%Recovery = 85 PID = 11 - 366ppm	
	S3						3.0 to 4.0m; PID = 366 ppm.		
46							Dark bluish gray to grayish brown; wet to moist; about 10% subangular fine gravel (max.1cm); about 65% fine to coarse Sand; about 25% Fines; wet sample at 4.3m; more clayey soils.		
						FILL	SILTY SAND: gray to dark bluish gray; wet to moist; about 80% subangular fine to coarse Sand; about 20% Fines; medium plasticity; till material (SM). 5.0 to 6.0m; PID = 314 ppm. CLAYEY SAND: reddish brown; about 60%; about 40% Fines; at 5.65-6.0m.	%Recovery = 71 PID = 7.9 - 314ppm	
44						CL	LEAN CLAY with Sand: brown to grayish brown; moist; about 25% fine Sand; about 75% Fines; medium plasticity; alluvial soil.		
						SC	CLAYEY SAND: dark greenish gray; moist to wet; about 60% subangular fine to coarse Sand; about 40% Fines; alluvial soil.		
						CH	FAT CLAY with Sand: dark brownish gray; moist; about 20% fine Sand; about 80% Fines; high plasticity; alluvial soil.		
42						SC	CLAYEY SAND: brown; moist; about 55% fine Sand; about 45% Fines; medium plasticity; alluvial soil.		
						SC	CLAYEY SAND: yellowish brown; moist; about 60% subangular fine to coarse Sand; about 40% Fines; residual soil; granite texture		
10							End of direct push sampling at 10.0m. Confirmed depths of FILL MATERIAL = 0 - 6.65 m, ALLUVIAL SOILS = 6.65 - 9.8m, and RESIDUAL SOIL = 9.8- 10.0m.		

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.SPJ USACE SKOREA.GDT 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-181**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **08 Aug 11**

FINISHED: **08 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **7.0 m**

OVERBURDEN THICKNESS:

DEPTH DRILLED: **7.0 m**

WATER DEPTH: **Caved (0.3m); AD**

COORDINATES: N: **3,983,318.1** E: **447,762.6**

GROUND ELEV.: **49.93 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION:

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

b6
b6

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 to light brown; moist; about 5% subangular to subrounded fine to coarse gravel (max.4.5cm); about 70% subangular fine to coarse Sand; about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 0.6ppm FC = F3	
49	S2					FILL	CLAYEY SAND: reddish brown; about 60% fine Sand; about 40% Fines; medium plasticity; fill material (SC); at 1.4-1.6m.	FC = F3	
48						FILL	SILTY SAND: brown to light brown; moist; about 5% subangular to subrounded fine to coarse gravel (max.4.5cm); about 70% subangular fine to coarse Sand; about 25% Fines; no plasticity; fill material (SM).	%Recovery = 57 PID = 1.6 - 3.5ppm	
47						FILL	SILTY SAND with Gravel: brown; moist to wet; about 15% subangular fine gravel (max.2cm); about 65% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM).		
40	S3					FILL	CLAYEY SAND: reddish brown; wet to moist; about 10% subrounded fine gravel; about 60% fine to medium Sand; about 30% Fines; low plasticity; fill material (SC). Wet sample at 3.6m.		
15						FILL	SILTY SAND: brown; moist; about 10% subangular fine gravel; about 60% fine to coarse Sand; about 30% Fines; fill material (SM). Water encountered at 5.5m.		
44						CH	FAT CLAY with Sand: dark greenish gray to brownish gray; moist; about 20% fine Sand; about 80% Fines; high plasticity; alluvial soil.		

End of direct push sampling at 7.0m; Confirmed depths of FILL MATERIAL - 0-5.9m and ALLUVIAL SOILS - 5.9 - 7m.

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-182**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED]

DATE STARTED: **07 Aug 11**

FINISHED: **07 Aug 11**

DRILLER: [REDACTED]

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **10.0 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **10.0 m**

WATER DEPTH: **2.53 m; AD**

COORDINATES: N: **3,983,301.8** E: **447,747.3**

GROUND ELEV.: **49.73 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

b6
b6

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ JSACE SKOREA.GDT 8/22/11

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	[Cross-hatched pattern]				FILL	SILTY SAND: brown; moist; about 10% subangular fine to coarse gravel (max.5cm); about 70% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM). Grayish brown.	%Recovery = 100 PID = 0.8ppm FC = F3 %Recovery = 92 PID = 1.1 - 2.1ppm	
48	S2	[Cross-hatched pattern]				FILL	CLAYEY SAND: brown; moist; about 5% subangular fine to coarse gravel (max.4cm); about 55% subangular fine to coarse Sand; about 40% Fines; low plasticity; fill material (SC).	%Recovery = 86 PID = 1.7 - 2.9ppm	
46	S3	[Cross-hatched pattern]				FILL	SILTY SAND: brown to reddish brown; moist; about 10% subangular fine to coarse gravel (max.3cm); about 60% fine to medium Sand; about 30% Fines; no plasticity; fill material (SM). Fine gravel (max.1.5cm).		
44		[Cross-hatched pattern]				FILL	CLAYEY SAND: brown; moist; about 55% subangular fine to coarse Sand; about 45% Fines; low plasticity; fill material (SC).	%Recovery = 90 PID = 1.9 - 7.5ppm	
44		[Cross-hatched pattern]				FILL	SILTY SAND: brown; moist; about 5% subangular fine gravel; about 70% fine to coarse Sand; about 25% Fines; no plasticity; fill material (SM).		
44		[Cross-hatched pattern]				SC	CLAYEY SAND with Gravel: brownish gray; moist; about 25% subrounded fine to coarse gravel (max.4cm); about 40% subangular fine to coarse Sand; about 35% Fines; alluvial soil.		
42	S4	[Diagonal hatched pattern]				CH	SANDY FAT CLAY: dark brownish gray; wet; about 30% fine to medium Sand; about 70% Fines; medium to high plasticity; alluvial soil; A coarse gravel (3cm) encountered at 8.7m.		
40		[Diagonal hatched pattern]				SC	CLAYEY SAND with Gravel: grayish brown; moist; about 20% subrounded fine to coarse gravel; about 65% subangular fine to coarse Sand; about 15% Fines; alluvial soil.		
40		[Diagonal hatched pattern]				CH	FAT CLAY with Sand: brown; moist; about 15% fine Sand; about 85% Fines; high plasticity; alluvial soil.		
40		[Diagonal hatched pattern]				SC	CLAYEY SAND: reddish brown to black; moist; about 60% subangular fine to coarse Sand; about 40% Fines; medium plasticity; alluvial soil. End of direct push sampling at 10.0m; Confirmed depths of FILL MATERIAL = 0-5.8m and ALLUVIAL SOILS = 5.8-10m.		



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-183**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED]

DATE STARTED: **07 Aug 11**

FINISHED: **07 Aug 11**

DRILLER: [REDACTED]

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **12.0 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **12.0 m**

WATER DEPTH: **2.07 m; AD**

COORDINATES: N: **3,983,288.9** E: **447,718.0**

GROUND ELEV.: **49.38 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	S1					FILL	SILTY SAND with Gravel: brown; moist; about 15% subangular fine to coarse gravel (max.4cm); about 65% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM); grass roots at 0-0.05m. Light brown; more gravels at 1.2-1.5m. Brown; PID in hole (0-3m open hole) = 1.4 ppm.	%Recovery = 100 PID = 3.5ppm FC = F3 %Recovery = 97 PID = 4.4 - 5.0ppm		
48	S2							%Recovery = 100 PID = 2.1 - 7.3ppm		
2										
46	S3						FILL	CLAYEY SAND: reddish brown; moist; about 5% subangular fine gravel (max.1cm); about 55% fine to medium Sand; about 40% Fines; medium plasticity; fill material (SC).		
4										
44							FILL	SILTY SAND: grayish brown; moist; about 5% subangular fine gravel (max.2cm); about 65% fine to coarse Sand; about 30% Fines; no plasticity; fill material (SM); PID in hole (0-5m open hole) = 0 ppm.	%Recovery = 85 PID = 1.7 - 5.9ppm	
6										
42	S4						FILL	CLAYEY SAND: brown; moist to wet; about 60% fine to medium Sand; about 40% Fines; low plasticity; fill material (SC); Wet sample at 6.8m.		
8							FILL	LEAN CLAY with Sand: yellowish brown; moist; about 20% fine Sand; about 80% Fines; low plasticity; fill material (CL). CLAYEY SAND: brown; moist to wet; about 60% fine to medium Sand; about 40% Fines; low plasticity; fill material (SC).		
10							CL	LEAN CLAY: greenish black to dark reddish brown; moist; fine to coarse Sand; about 100% Fines; medium plasticity; alluvial soil; 2.5cm subrounded gravel at 9.7m.		
12							SC	CLAYEY SAND: dark brown to grayish brown; moist to wet; about 60% fine to coarse Sand; about 40% Fines; low plasticity; alluvial soil.		
							CL	LEAN CLAY: brown; moist; about 10% fine Sand; about 90% Fines; medium plasticity; alluvial soil; black hard clay (mud crack).		
						SC	CLAYEY SAND: brown; wet; about 60% subangular fine to coarse Sand; about 40% Fines; low plasticity; alluvial soil.			

End of direct push sampling at 12.0m
Confirmed depths of FILL MATERIAL = 0-8.8m and ALLUVIAL SOILS = 8.8-11m.

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-184**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll** G&EE NO.: **11-032E** INSPECTOR:  **b6**
 DATE STARTED: **06 Aug 11** FINISHED: **07 Aug 11** DRILLER:  **b6**

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

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **8.75 m**
 OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **8.75 m** WATER DEPTH: **1.84 m; AD**
 COORDINATES: N: **3,983,296.4** E: **447,800.2** GROUND ELEV.: **50.16 m** DATUM: **MSL**
 GROUND COVER: **Weed** CONTAMINATION: _____
 TYPE OF HOLE: Piezometer Monitoring Well Test Pit Auger Hole other **Direct push sampling hole**

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
50	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 = 100 PID = 1.8ppm FC = F3	
49	s2						About 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no gravels.	%Recovery = 100 PID = 2.6 - 2.8ppm	
48						FILL	SANDY LEAN CLAY: reddish brown; moist; about 35% subangular fine to medium Sand (max.2mm); about 65% Fines; medium plasticity; fill material (CL).	%Recovery = 77 PID = 4.8 - 14.0ppm	
47	s3					FILL	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; fill material (SM). Moist to wet; about 3% subrounded fine to coarse gravel (max.3cm); about 72% subangular fine to coarse Sand (max.4.8mm); about 25% Fines.		
46							About 75%; about 25% Fines; no gravels.		
45						SC	CLAYEY SAND: reddish brown to grayish brown; moist; about 10% subangular fine gravel (max.2cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; alluvial soil; no gravels at 4.6m to 5.0m.	%Recovery = 70 PID = 2.7 - 12.3ppm	
44						CL	SANDY LEAN CLAY: grayish brown; wet; about 40% subangular fine to medium Sand (max.2mm); about 60% Fines; medium plasticity; alluvial soil.		
43	s4					SC	CLAYEY SAND: grayish brown; moist; about 60% subangular fine to coarse Sand (max.4.8mm); about 40% Fines; medium plasticity; alluvial soil.		
42						SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil. Granite texture.		
							Hard pushing of sampler at 8.5-8.75m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 8.75m (Penetration speed = 2cm / 1min).



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EXPLORATION LOG

HOLE NO. **E11-185**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED] *66*

DATE STARTED: **06 Aug 11**

FINISHED: **06 Aug 11**

DRILLER: [REDACTED] *66*

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **8.8 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **8.8 m**

WATER DEPTH: **2.0 m; AD**

COORDINATES: N: **3,983,304.7** E: **447,806.0**

GROUND ELEV.: **50.97 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11

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	[Cross-hatched pattern]				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 = 2.4ppm FC = F3	
50-1	S2	[Cross-hatched pattern]				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 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no gravels; encountered clayey sand layer at 1.8m to 1.9m.	%Recovery = 93 PID = 2.8 - 2.9ppm FC = F3	
49-2		[Cross-hatched pattern]				FILL	CLAYEY SAND: brown; moist; about 5% subangular fine gravel (max.2cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; medium plasticity; fill material (SC).	%Recovery = 87 PID = 2.6 - 3.5ppm	
48-3		[Cross-hatched pattern]					Wet soil at 3.0m to 3.2m.		
47-4	S3	[Cross-hatched pattern]				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). Wet.		
46-5		[Cross-hatched pattern]				CL	SANDY LEAN CLAY: grayish brown; moist; about 40% subangular fine to medium Sand (max.2mm); about 60% Fines; medium plasticity; alluvial soil.		
46-5		[Cross-hatched pattern]				SC	CLAYEY SAND: grayish brown; moist; about 60% subangular fine to medium Sand (max.2mm); about 40% Fines; medium plasticity; alluvial soil.	%Recovery = 63 PID = 0.6 - 4.2ppm	
45-6		[Cross-hatched pattern]				CH	FAT CLAY with Sand: grayish brown; moist; about 20% subangular fine Sand (max.0.43mm); about 80% Fines; high plasticity; alluvial soil. Grayish brown to gray; about 20% subangular fine to medium Sand (max.2mm); about 80% Fines.		
44-7	S4	[Cross-hatched pattern]					Encountered clayey sand layer (5cm).		
43-8		[Cross-hatched pattern]				SC	CLAYEY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; residual soil; disturbed granite texture.		
		[Cross-hatched pattern]				SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil; granite texture. Hard pushing of sampler at 8.55-8.8m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 8.8m (Penetration speed = 1cm / 1min).		



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-186**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **06 Aug 11**

FINISHED: **06 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **8.0 m**

OVERBURDEN THICKNESS:

DEPTH DRILLED: **8.0 m**

WATER DEPTH: **3.4 m; AD**

COORDINATES: N: **3,983,296.6** E: **447,822.8**

GROUND ELEV.: **52.43 m**

DATUM: **MSL**

GROUND COVER: **Weed**

CONTAMINATION:

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

b6
b6

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
0 - 52	S1					FILL	SILTY 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; no plasticity; fill material (SM); encountered clayey sand layer.	%Recovery = 100 PID = 3.6ppm FC = F3 %Recovery = 88 PID = 1.1 - 1.5ppm	
52 - 51	S2					FILL	CLAYEY SAND: reddish brown; moist to wet; about 5% subangular fine gravel (max.2cm); about 60% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity; fill material (SC). Brown; moist; about 5% subangular fine gravel (max.2cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; encountered silty sand layer at 2.5m to 2.6m. Brown to reddish brown; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; encountered silty sand layer at 3.3m to 3.5m.	%Recovery = 90 PID = 2.3 - 4.2ppm	
51 - 49	S3					CL SC	SANDY LEAN CLAY: grayish brown; moist; about 40% subangular fine to coarse Sand (max.4.8mm); about 60% Fines; medium plasticity; alluvial soil; with organics.	%Recovery = 62 PID = 2.6 - 3.5ppm	
49 - 48						CH	CLAYEY SAND: dark brown; moist; about 65% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; high plasticity; alluvial soil.		
48 - 47						CH	SANDY FAT CLAY: dark brown; moist; about 30% subangular fine to coarse Sand (max.4.8mm); about 70% Fines; high plasticity; alluvial soil.		
47 - 46	S4					SC	CLAYEY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; residual soil; disturbed granite texture.		
46 - 45						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
45 - 44						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
44 - 43						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
43 - 42						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
42 - 41						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
41 - 40						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
40 - 39						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
39 - 38						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
38 - 37						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
37 - 36						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
36 - 35						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
35 - 34						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
34 - 33						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
33 - 32						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
32 - 31						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
31 - 30						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
30 - 29						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
29 - 28						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
28 - 27						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
27 - 26						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
26 - 25						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
25 - 24						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
24 - 23						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
23 - 22						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
22 - 21						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
21 - 20						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
20 - 19						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
19 - 18						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
18 - 17						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
17 - 16						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
16 - 15						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
15 - 14						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
14 - 13						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
13 - 12						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
12 - 11						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
11 - 10						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
10 - 9						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
9 - 8						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
8 - 7						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
7 - 6						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
6 - 5						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
5 - 4						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
4 - 3						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
3 - 2						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
2 - 1						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		
1 - 0						SC	Hard pushing of sampler at 7.7-8.0m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 8.0m (Penetration speed = 5cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-187**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **05 Aug 11**

FINISHED: **05 Aug 11**

DRILLER:

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: **5.27 m; AD**

COORDINATES: N: **3,983,323.6** E: **447,829.9**

GROUND ELEV.: **54.91 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

b6
b7c

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 gravel (max.2cm); about 65% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 1.2ppm FC = F3	
54-1	S2						About 5% subangular fine gravel (max.2cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; encountered clayey sand layer.	%Recovery = 97 PID = 1.1 - 1.8ppm	
53-2								%Recovery = 93 PID = 0.8 - 2.0ppm	
52-3	S3					FILL	CLAYEY SAND: reddish brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).		
51-4						FILL	SILTY SAND: dark 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).		
50-5							Brown; moist to wet; about 3% subangular fine gravel (max.1cm); about 72% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; encountered fat clay with sand layer at 5.8m to 5.9m.	%Recovery = 88 PID = 0.3 - 2.3ppm	
49-6							Moist to wet; about 3% subangular fine gravel (max.2cm); about 72% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; encountered clayey sand layer.		
48-7	S4					SC	CLAYEY SAND: dark brown; moist to wet; about 70% subangular fine to medium Sand (max.2mm); about 30% Fines; alluvial soil; encountered fat clay layer at 7.0m to 7.1m.		
47-8						CH	FAT CLAY: dark gray; moist; about 10% fine Sand (max.0.43mm); about 90% Fines; high plasticity; alluvial soil.		
46-9						SC	CLAYEY SAND: brown; moist to wet; about 80% subangular fine to coarse Sand (max.4.8mm); about 20% Fines; medium plasticity; alluvial soil. Wet. Easy pushing of sampler at 9.0-10.0m; HDP (Hydraulic Down Pressure) = 100 psi.		
45-10							Penetration refusal depth = 10.0m (Penetration speed = 10cm / 10sec).		

ENV/RO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-188**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

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

DATE STARTED: **05 Aug 11** FINISHED: **05 Aug 11** DRILLER: [REDACTED]

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

DRILLING AGENCY: **BEC** HOLE DIAMETER: **5.5 cm** TOTAL DEPTH: **9.58 m**

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **9.58 m** WATER DEPTH: **Caved (0.5m); AD**

COORDINATES: N: **3,983,322.2** E: **447,841.8** GROUND ELEV.: **55.03 m** DATUM: **MSL**

GROUND COVER: **Weed** CONTAMINATION: _____

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

b6
b6

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
55 - 0	S1	[Cross-hatched pattern]				FILL	SILTY 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; no plasticity; fill material (SM).	%Recovery = 100 PID = 2.5ppm FC = F3 %Recovery = 100 PID = 3.8 - 4.2ppm	
54 - 1	S2	[Cross-hatched pattern]				FILL	About 5% subangular fine gravel (max.2cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines.	FC = F3	
53 - 2		[Cross-hatched pattern]				FILL	CLAYEY SAND: reddish brown; moist; about 5%; about 65% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).		
53 - 2		[Cross-hatched pattern]				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 = 94 PID = 1.4 - 3.9ppm	
52 - 3	S3	[Cross-hatched pattern]				FILL	CLAYEY SAND: brown to reddish brown; moist to wet; about 5% subangular fine gravel (max.2cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; medium plasticity; fill material (SC); encountered silty sand layer.		
51 - 4		[Cross-hatched pattern]				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).		
50 - 5		[Cross-hatched pattern]				FILL	CLAYEY SAND: reddish brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).	%Recovery = 76 PID = 0.9 - 3.2ppm	
49 - 6		[Cross-hatched pattern]				SC	CLAYEY SAND: gray; moist; about 60% subangular fine to coarse Sand (max.4.8mm); about 40% Fines; medium plasticity; alluvial soil; with organics.		
49 - 6		[Cross-hatched pattern]				CL	LEAN CLAY with Sand: gray; moist; about 25% subangular fine to medium Sand (max.2mm); about 75% Fines; medium plasticity; alluvial soil.		
48 - 7	S4	[Cross-hatched pattern]				SM	SILTY SAND: grayish brown; wet; about 80% subangular fine to medium Sand (max.2mm); about 20% Fines; no plasticity; alluvial soil.		
48 - 7		[Cross-hatched pattern]				SC	CLAYEY SAND: dark brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; alluvial soil; encountered fat clay layer at 7.7m to 7.8m.		
47 - 8		[Cross-hatched pattern]							
46 - 9		[Cross-hatched pattern]				SM	SILTY SAND: brown; moist; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; no plasticity; residual soil; granite texture. Hard pushing of sampler at 9.3-9.58m; HDP (Hydraulic Down Pressure) = 1000 psi.		

Penetration refusal depth = 9.58m (Penetration speed = 5cm / 2min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.SPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-189**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **05 Aug 11**

FINISHED: **05 Aug 11**

DRILLER:

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: **5.36 m; AD**

COORDINATES: N: **3,983,311.0** E: **447,835.5**

GROUND ELEV.: **54.81 m**

DATUM: **MSL**

GROUND COVER: **Weed**

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 fine gravel (max.1cm); about 72% 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; encountered clayey sand layer. No clayey sand layer.	%Recovery = 100 PID = 1.8ppm FC = F3 %Recovery = 93 PID = 2.6 - 2.8ppm	
54	S2								
2								%Recovery = 90 PID = 4.8 - 14.0ppm	
52	S3						About 5% subangular fine to coarse gravel (max.5cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines.		
4							About 5% subangular fine gravel (max.1cm); about 70% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; encountered clayey sand layer at 4.8m to 5.0m.		
50							Moist to wet; about 75%; about 25% Fines; no gravels; encountered clayey sand layer at 5.3m to 5.4m.	%Recovery = 90 PID = 2.7 - 12.3ppm	
6							Moist to wet; encountered clayey sand layer.		
48	S4					CL CH	SANDY LEAN CLAY: gray to brown; moist; about 30% subangular fine to coarse Sand (max.4.8mm); about 70% Fines; medium plasticity; alluvial soil; with organics. FAT CLAY: dark brown; moist; about 10% subangular fine to medium Sand (max.2mm); about 90% Fines; high plasticity; alluvial soil.		
8						CH SM	FAT CLAY with Sand: brown to light gray; moist; about 5% subangular fine gravel (max.2cm); about 15% subangular fine to coarse Sand (max.4.8mm); about 80% Fines; high plasticity; alluvial soil. About 25% fine Sand (max.0.43mm); about 75% Fines; no gravels.		
46							SILTY SAND: light brown; moist; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines; no plasticity; residual soil; granite texture. Hard pushing of sampler at 9.7-10.0m; HDP (Hydraulic Down Pressure) = 800 psi. Penetration refusal depth = 10.0m (Penetration speed = 5cm / 1min).		
10									

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-190**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

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

DATE STARTED: **08 Aug 11** FINISHED: **08 Aug 11** DRILLER:

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

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

OVERBURDEN THICKNESS: _____ DEPTH DRILLED: **10.0 m** WATER DEPTH: **Caved (4.8m); AD**

COORDINATES: N: **3,983,371.5** E: **447,663.9** GROUND ELEV.: **49.61 m** DATUM: **MSL**

GROUND COVER: **Grass** CONTAMINATION: _____

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

b6
b6

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 25% subangular fine to coarse gravel (max.3cm); about 55% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 0.6ppm FC = F3 %Recovery = 93 PID = 2.8 - 3.8ppm	
48	S2						SILTY SAND: moist; about 20% subrounded fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand; about 20% Fines; no plasticity.	%Recovery = 57 PID = 1.6 - 3.5ppm	
46	S3						FILL CLAYEY SAND: reddish brown; moist to wet; about 60% fine to medium Sand; about 40% Fines; low plasticity; fill material (SC).		
44							FILL Water encountered at 4.8m. SILTY SAND: brown; wet; about 70% subangular fine to coarse Sand; about 30% Fines; fill material (SM).	%Recovery = 53 PID = 1.9 - 2.7ppm	
42	S4					FILL CLAYEY SAND: brown; moist; about 60% fine Sand; about 40% Fines; low to medium plasticity; fill material (SC); coarse angular gravel (4.5cm) encountered at 7.4m. CI I FAT CLAY with Sand: dark brown to reddish brown; moist; about 20% fine Sand; about 80% Fines; high plasticity; residual soil.			
40						SC CLAYEY SAND: reddish brown; moist; about 55% fine to medium Sand; about 45% Fines; residual soil; granite texture.			

End of direct push sampling at 10.0m; Confirmed depths of FILL MATERIAL = 0-7.4m, ALLUVIAL SOILS = 7.4-8.4m, and RESIDUAL SOIL = 8.4-10.0m.

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-191**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **09 Aug 11**

FINISHED: **09 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **7.7 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **7.7 m**

WATER DEPTH: **4.42 m; AD**

COORDINATES: N: **3,983,367.8** E: **447,600.8**

GROUND ELEV.: **43.61 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

b6
b6

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% angular to subangular fine to coarse gravel (max.3cm); about 60% subangular fine to coarse Sand; about 30% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 2.7ppm FC = F3	
43						FILL	SILTY SAND with Gravel: brown to dark gray; moist; about 20% subangular to angular fine to coarse gravel (max.4cm); about 55% subangular fine to coarse Sand; about 25% Fines; no plasticity, fill material (SM).	%Recovery = 100 PID = 1.2 - 3.3ppm FC = F3	
42	S2					SM	SILTY SAND: light brown; moist; about 60% fine to medium Sand (max.3mm); about 40% Fines; residual soil; Granite texture.	FC = F3	
41							Light brown.	%Recovery = 100 PID = 2.3 - 4.5ppm	
40	S3								
39									
38									
37	S4						Brown; granite texture. ... water encountered at 6.4m while sampling; wet sample at 6.4-6.5m. Brown; wet; more silty; granite texture.	%Recovery = 100 PID = 2.3 - 4.6ppm	
36									

Hard pushing of sampler at 7.6-7.7m; HDP (Hydraulic Down Pressure) = 1500 psi.
Penetration refusal depth = 7.7m (Penetration speed = 2cm / 1min).

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11



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Of Engineers

EXPLORATION LOG

HOLE NO. **E11-192**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **12 Aug 11**

FINISHED: **12 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **12.0 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **12.0 m**

WATER DEPTH: **no water; AD**

COORDINATES: N: **3,983,360.1** E: **447,699.4**

GROUND ELEV.: **49.96 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11

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% angular to subangular fine to coarse gravel (max.3cm); about 70% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM); grass roots at 0-0.05m.	%Recovery = 100 PID = 0.4ppm FC = F3	
48-2	S2					FILL	SILTY SAND with Gravel: grayish brown to brown; moist to wet; about 35% subangular fine to coarse gravel (max.4.5cm); about 50% angular to subangular fine to coarse Sand; about 15% Fines; no plasticity; fill material (SM).	%Recovery = 77 PID = 4.4 - 8.0ppm FC = F3	
46-4	S3						Subrounded to subangular fine to coarse gravels (max 3.5cm) at 3-4m. Subangular fine gravels (max. 1cm) at 4-5m.	%Recovery = 51 PID = 2.8 - 3.3ppm	
44-6	S4					ML	SANDY SILT: reddish brown to brown; moist; about 40% fine to medium Sand; about 60% Fines; no plasticity; residual soil; granite texture	%Recovery = 63 PID = 1.5 - 3.8ppm	
42-8						ML	SILT: red grades to reddish brown; moist; about 100% Fines; low plasticity; residual soil.		
40-10						GM	SILTY SAND: grayish brown, moist, about 60% angular to subangular fine to coarse Sand; about 40% Fines; no to low plasticity; residual soil; granite texture. Brown mottled with white; granite texture.		
38-12							Light brown to brown; moist; about 70% angular to subangular fine to coarse Sand; about 30% Fines; no plasticity; granite texture.		

HDP (Hydraulic Down Pressure) = 1600 pci at 11.5-12.0m.
Penetration refusal depth =12.0m (Penetration speed = 25cm / 1min at 11.75-12.0m).



US Army Corps
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EXPLORATION LOG

HOLE NO. **E11-193**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED]

DATE STARTED: **12 Aug 11**

FINISHED: **12 Aug 11**

DRILLER: [REDACTED]

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **8.6 m**

OVERBURDEN THICKNESS: _____

DEPTH DRILLED: **8.6 m**

WATER DEPTH: **0.28 m; AD**

COORDINATES: N: **3,983,345.7** E: **447,659.5**

GROUND ELEV.: **43.32 m**

DATUM: **MSL**

GROUND COVER: **Grass**

CONTAMINATION: _____

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

b6
b6

ELEVATION / DEPTH (meters)	SAMPLE TYPE / NUMBER	GRAPHIC LOG	CONTAMINATED	BLOW COUNT	SPT N-VALUE	USCS / STRATA	DESCRIPTION OF MATERIALS	FIELD DATA	LAB DATA
43	S1	[Cross-hatched pattern]				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 = 60 PID = 2.5ppm FC = F3	
42	S2	[Cross-hatched pattern]				FILL	Wet; about 75% subangular fine to coarse Sand (max.4.8mm); about 25% Fines.	%Recovery = 100 PID = 3.4 - 3.5ppm FC = F3 FC = F2	
41						FILL	CLAYEY SAND: reddish brown; moist to wet; about 70% subangular fine to coarse Sand (max.4.8mm); about 30% Fines; medium plasticity; fill material (SC).		
40						FILL	SILTY SAND: brown; wet; about 85% subangular fine to coarse Sand (max.4.8mm); about 15% Fines; no plasticity; fill material (SM).		
39						FILL	CLAYEY SAND: reddish brown to brown; moist; about 65% subangular fine to coarse Sand (max.4.8mm); about 35% Fines; medium plasticity; fill material (SC).	%Recovery = 69 PID = 1.5 - 2.6ppm FC = F2	
38	S3	[Diagonal hatched pattern]				SC	SILTY SAND: brown; wet; about 85% subangular fine to medium Sand (max.2mm); about 15% Fines; no plasticity; fill material (SM). CLAYEY SAND: reddish brown; moist; about 65% subangular fine to medium Sand (max.2mm); about 35% Fines; medium plasticity; residual soil; granite texture.		
37						SM	SILTY SAND: brown; moist; about 60% subangular fine to medium Sand (max.2mm); about 40% Fines; low plasticity; residual soil; granite texture. Reddish brown to yellowish brown; no to low plasticity; with blackish rock fragments. Yellowish brown; low plasticity.	%Recovery = 75 PID = 1.5 - 5.5ppm	
36	S4	[Dotted pattern]					About 70% subangular fine to medium Sand (max.2mm); about 30% Fines. Hard pushing of sampler at 8.4-8.6m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 8.6m (Penetration speed = 2cm / 1min).		

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8:22:11



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EXPLORATION LOG

HOLE NO. **E11-194**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED] *bb*

DATE STARTED: **13 Aug 11**

FINISHED: **13 Aug 11**

DRILLER: [REDACTED] *bb*

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

DRILLING AGENCY: **BFC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **10.0 m**

OVERBURDEN THICKNESS:

DEPTH DRILLED: **10.0 m**

WATER DEPTH: **No water; AD**

COORDINATES: N: **3,983,353.8** E: **447,607.8**

GROUND ELEV.: **42.98 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						AC	Asphalt concrete pavement thickness = 10cm.		
	S1					FILL	Poorly-graded GRAVEL with Silt and Sand: gray to dark gray; dry to moist; about 75% angular to subangular fine to coarse gravel (max. 3.5cm); about 15% subangular fine Sand; about 10% Fines; fill material (GP-GM); Base course material.	FC = F1 FC = F3 %Recovery = 100 PID = 0ppm	
42	S2					SM	SILTY SAND: reddish brown to brown; moist; about 75% angular to subangular fine to coarse Sand; about 25% Fines; no plasticity; fill material (SM).	%Recovery = 100 PID = 5.4ppm	
2							SILTY SAND: reddish brown to brown; moist; about 65% angular to subangular fine to coarse Sand; about 35% Fines; no plasticity; residual soil; granite texture.	%Recovery = 66 PID = 4.9 - 8.4ppm	
40	S3						Light brown grades to brown; about 70% subangular fine to coarse Sand; about 30% Fines.		
4							Light brown; granite texture.		
38							Brown; wet sample at 6.8m.	%Recovery = 69 PID = 0.7 - 9.6ppm	
6	S4						Light brown to pinkish brown; w/ rock fragments; dense at /- 7.4m (sampler penetration speed = 6cm/ 1min).		
36						ML	SILT with Sand: grayish brown; moist; about 25% fine Sand; about 75% Fines; low plasticity; residual soil; granite texture.		
8						SM	SILTY SAND: grayish brown; moist; about 70% subangular fine to coarse Sand; about 30% Fines; no plasticity; residual soil; granite texture.		
34							Hard pushing of sampler at 9.8-10.0m; HDP (Hydraulic Down Pressure) ~ 1500 psi. Penetration refusal depth = 10m (Penetration speed = 5cm / 1min).		
10									

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ JSACE SKOREA.GDT 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-195**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR: [REDACTED]

DATE STARTED: **13 Aug 11**

FINISHED: **13 Aug 11**

DRILLER: [REDACTED]

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **11.0 m**

OVERBURDEN THICKNESS:

DEPTH DRILLED: **11.0 m**

WATER DEPTH: **No water; AD**

COORDINATES: N: **3,983,347.7** E: **447,630.8**

GROUND ELEV.: **42.91 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						AC	Asphalt concrete pavement thickness = 7cm.	FC = F1	
	S1					FILL	Poorly-graded GRAVEL with Silt and Sand: gray to dark gray, dry to moist; about 75% subangular to angular fine to coarse gravel (max.3cm); about 15% fine Sand; about 10% Fines; fill material (GP-GM); Base course material. SILTY SAND: brown; moist; about 5% angular fine gravel (max.1.2cm); about 75% subangular fine to coarse Sand; about 20% Fines; no plasticity; fill material (SM). No gravels below 1m. Dark gray sands at 1.8-2.0m.	FC = F3	
42	S2					FILL		%Recovery = 100 PID = 3.2ppm	
2						FILL	CLAYEY SAND: reddish brown; moist; about 55% fine Sand; about 45% Fines; medium plasticity; fill material (SC).	%Recovery = 100 PID = 4.5ppm	
40	S3					SC	CLAYEY SAND: reddish brown; moist; about 55%; about 45% Fines; medium plasticity; residual soil; reddish brown mottled w/black at 3.8-4m.	%Recovery = 63 PID = 1.9 - 5.2ppm	
4						CH	SANDY FAT CLAY: reddish brown; moist; about 30% fine Sand; about 70% Fines; high plasticity; residual soil.		
38						ML	SANDY SILT: yellowish brown; moist; about 35% angular to subangular fine to coarse Sand; about 65% Fines; low plasticity; residual soil; granite texture.	%Recovery = 65 PID = 1.3 - 2.7ppm	
6	S4					SM	CLAYEY SAND: light brown to yellowish brown; moist; about 65% angular to subangular fine to coarse Sand; about 35% Fines; low plasticity; residual soil; granite texture. SILTY SAND: light brown; moist; about 55% fine to medium Sand; about 45% Fines; no to low plasticity; residual soil; granite texture. Grayish brown; about 60% angular to subangular fine to coarse Sand; about 40% Fines. About 70% angular to subangular fine to coarse Sand; about 30% Fines; at 7-11m; granite texture. Yellowish brown; granite texture.		

Moderate sampler penetration speed (17cm / 1min) at 10.7-11m; HDP (Hydraulic Down Pressure) = 1500 psi.
Penetration end depth = 11m.

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ JSACE SKOREA.GDT 8/22/11



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EXPLORATION LOG

HOLE NO. **E11-196**

Far East
District



PROJECT: **Phase II Site Soil Sampling**

LOCATION: **Camp Carroll**

G&EE NO.: **11-032E**

INSPECTOR:

DATE STARTED: **13 Aug 11**

FINISHED: **13 Aug 11**

DRILLER:

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

DRILLING AGENCY: **BEC**

HOLE DIAMETER: **5.5 cm**

TOTAL DEPTH: **10.3 m**

OVERBURDEN THICKNESS:

DEPTH DRILLED: **10.3 m**

WATER DEPTH: **1.77 m; AD**

COORDINATES: N: **3,983,340.5** E: **447,654.1**

GROUND ELEV.: **42.90 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						AC FILL	Asphalt concrete pavement thickness = 5cm.		
42	S1					FILL	Poorly-graded GRAVEL with Sand: about 70%; about 25%; about 5% Fines; fill material (GP); base course material. CLAYEY SAND: reddish brown; moist; about 70% subangular fine to coarse Sand (max. 4.8mm); about 30% Fines; medium plasticity; fill material (SC). Moist to wet; about 3% subangular fine gravel (max. 1cm); about 57% subangular fine to coarse Sand (max. 4.8mm); about 40% Fines; encountered sandy clay layer at 1.1m to 1.2m; perched water at 0.8m to 1.0m. Moist. Brown; no gravels.	%Recovery = 60 PID = 2.9ppm FC = F3 %Recovery = 73 PID = 4.6 - 5.2ppm	
40	S2					CH SM	FAT CLAY: reddish brown; moist; about 5% fine Sand (max. 0.43mm); about 95% Fines; high plasticity; residual soil; disturbed granite texture. SILTY SAND: reddish brown; moist; about 70% subangular fine to coarse Sand (max. 4.8mm); about 30% Fines, low plasticity; residual soil; granite texture. Brown; no to low plasticity.	%Recovery = 78 PID = 4.2 - 5.8ppm	
38	S3						No plasticity.	%Recovery = 91 PID = 2.8 - 7.0ppm	
36	S4						Light brown.		
34							Hard pushing of sampler at 10.2-10.3m; HDP (Hydraulic Down Pressure) = 1000 psi. Penetration refusal depth = 8.75m (Penetration speed = 5cm / 1min).		

ENVIRO-EXPLORATION LOG 11-032E-PHASE2-FINAL.GPJ USACE SKOREA.GDT 8/22/11

SOIL DESCRIPTIONS



Asphalt



Fat Clay



Fat Clay with Sand



Sandy Fat Clay



Lean Clay



Lean Clay with Sand



Sandy Lean Clay



Fill material



Silt



Silt with Sand



Sandy Silt



Portland Cement Concrete



Clayey Sand



Clayey Sand with Gravel



Silty Sand



Silty Sand with gravel

ROCK DESCRIPTIONS

GROUNDWATER



Groundwater 1st reading
(While drilling or at completion)



Groundwater 2nd reading
(After Drilling or over 12 hours later after drilling)

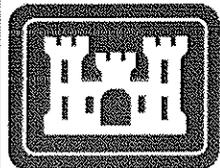
SOIL SAMPLERS



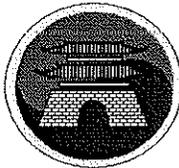
Direct Push Sampling
Run

FIELD / LAB TEST DATA

LL = Liquid Limit
 PI = Plasticity Index
 MC = %Moisture Content
 Fines = %Passing #200 Sieve
 Cc = Compression Index
 OCR = Overconsolidation Ratio
 Tor = Torvane
 PP = Pocket Penetrometer
 PID = Photoionization detector
 Petro FLAG = Petroleum Hydrocarbons detected
 FC = Frost Classification



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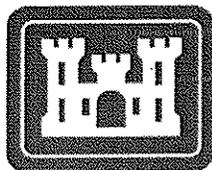


Key to Symbols

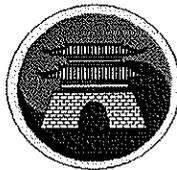
Project Name: Phase II Site Soil Sampling
 Location: Camp Carroll
 G&EE Number: 11-032E

1. The dates of drilling/penetration and type of equipment used are shown on the logs. All soils were classified in accordance with ASTM D 2488. Results of tests conducted on recovered samples are shown on the logs.
2. Borehole locations and elevations were determined using GPS RTK and/or Traverse methods. Equipments used are Trimble GPS RTK and/or Sokkia Total Stations. Survey Datum is WGS84, UTM Zone 52 and Elevations are Mean Sea Level (MSL).
3. The groundwater table is representative of boring location and time of drilling/sampling , and may change according to seasonal precipitation.
4. The exploration logs are subject to the limitations, conclusions, and recommendations provided in the report. Some variation in the subsurface conditions and depth to specific soil strata between boring locations can be expected.
5. Soil and rock conditions and associated stratigraphic features as depicted in the boring logs are specific for the particular drilling/sampling location, and may vary between boreholes.
6. Penetration refusal depth on the logs is based on achieving an penetration speed within dense to very dense residual soil or decomposed bedrock above groundwater table or no water conditions.
7. When direct push sampling system used, some gravelly soils may have the potential to provide poor sample recovery or erroneous penetration speed due to the coarse size of the particles, as compared to the size of the sampler (35mm ID).

NOTE-SURVEY-FOR 11-032E CAMP CARROLL 11-032E-PHASE2.GPJ USACE SKOREA.GDT 8/16/11



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Note

Project Name: Phase II Site Soil Sampling
 Location: Camp Carroll
 G&EE Number: 11-032E

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**APPENDIX V. SOIL DESCRIPTIVE SUMMARY AT THE
BOTTOM OF BORHEOLES.**

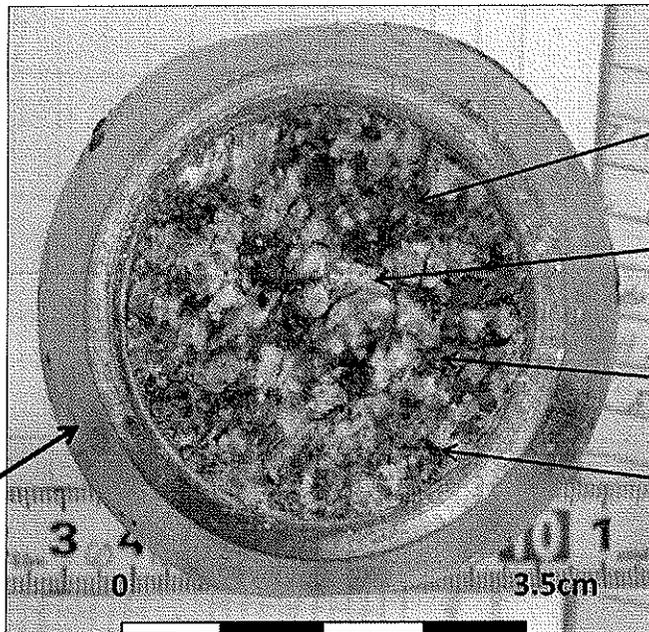
3195

**11-032E
Camp Carroll
Phase I Site
Residual Soil**

Silty Sand (SM): Light brown to brown; Fine to coarse-grained granite texture;

3.5cm ID sampler shoe of direct push sampling system (Model: BEC50PM-2)

Granite Texture



Minerals:

Quartz (gray)

Feldspar (white)

Biotite (brown)

Hornblende (green)

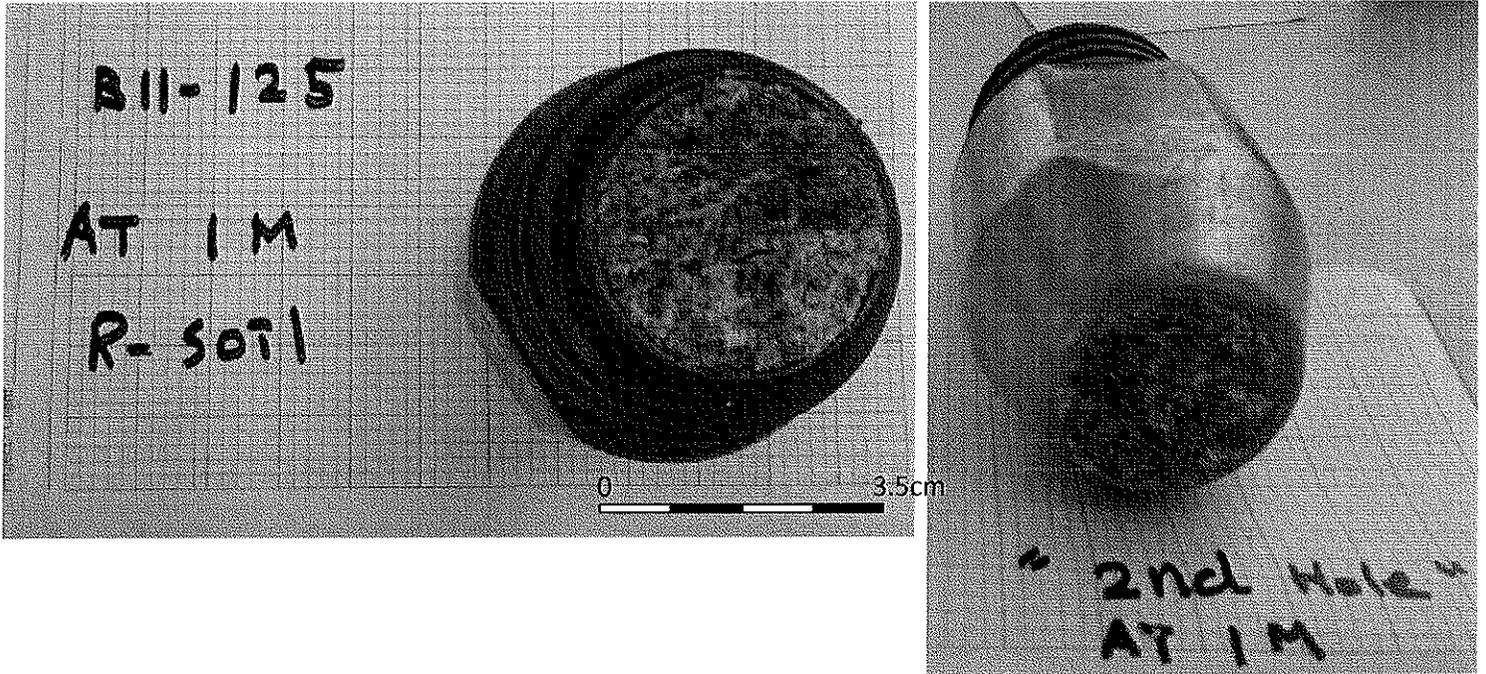
RESIDUAL SOILS

Residual soils are defined as the deposits formed by in-place weathering of rock (Glossary of Geology, 4th Ed. Bates & Jackson, AGI).

At Camp Carroll Phase I investigation project site, **RESIDUAL SOILS** occurred in all 40 boreholes investigated with the depths of 0.1m to 6m below ground surface. Residual soils are originated from underlying GRANITE bedrock by weathering process and show granite rock texture. The collected soil samples consist of typical minerals of granite rock and its residual soils. The constituent minerals are quartz, feldspar, biotite, hornblende and clay minerals as weathering products.

Granite textures are shown in following pictures (Plates 1 to 9) taken at Camp Carroll Phase I site during 12-19 July 2011.

Borehole E11-125
Residual Soil Sample at 1m



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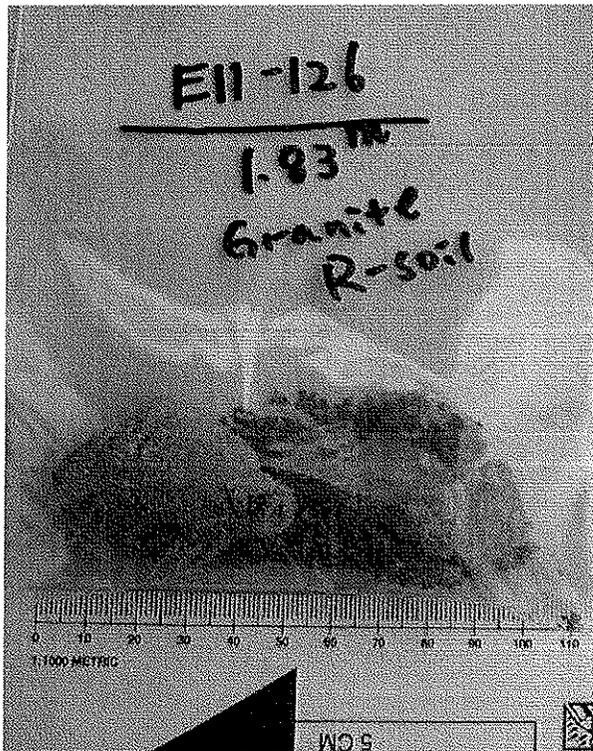
Phase I Site Soil Sampling
Camp Carroll
(G&EE 11-032E)
Jul 2011

Plate 1

3197

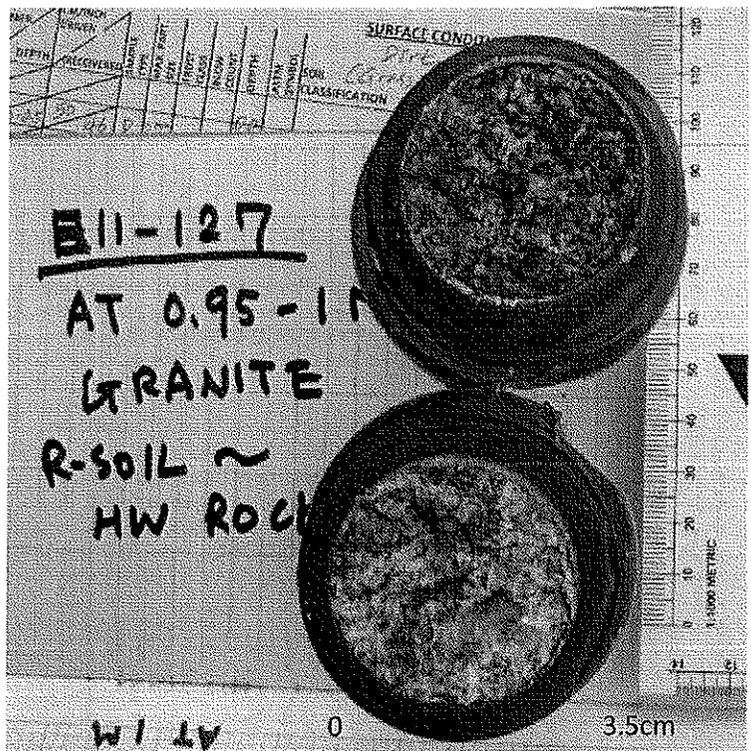
Borehole E11-126

Residual Soil Sample at 1.83m



Borehole E11-127

Residual Soil Sample at 1.0m



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Engineering Branch

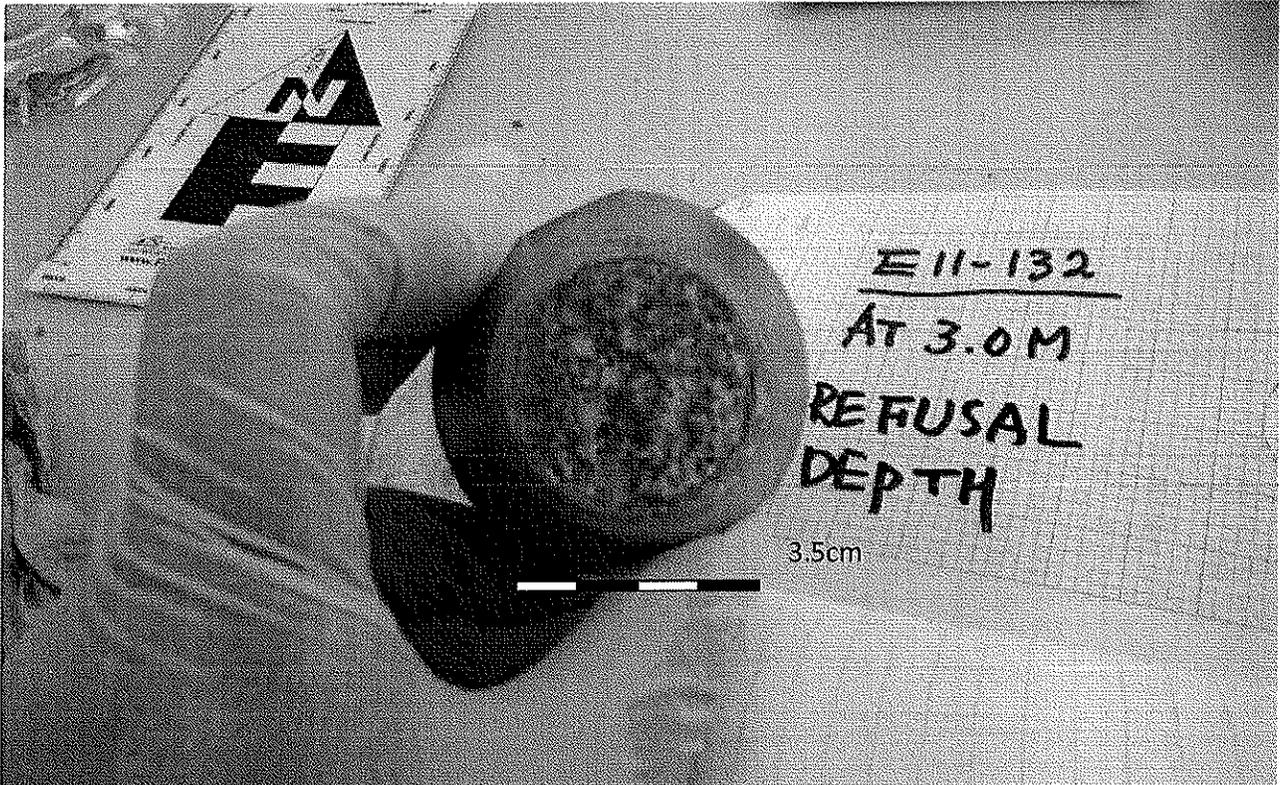
Phase I Site Soil Sampling
Camp Carroll
(G&EE 11-032E)
Jul 2011

Plate 2

3198

Borehole E11-132

Residual Soil Sample at 3.0m



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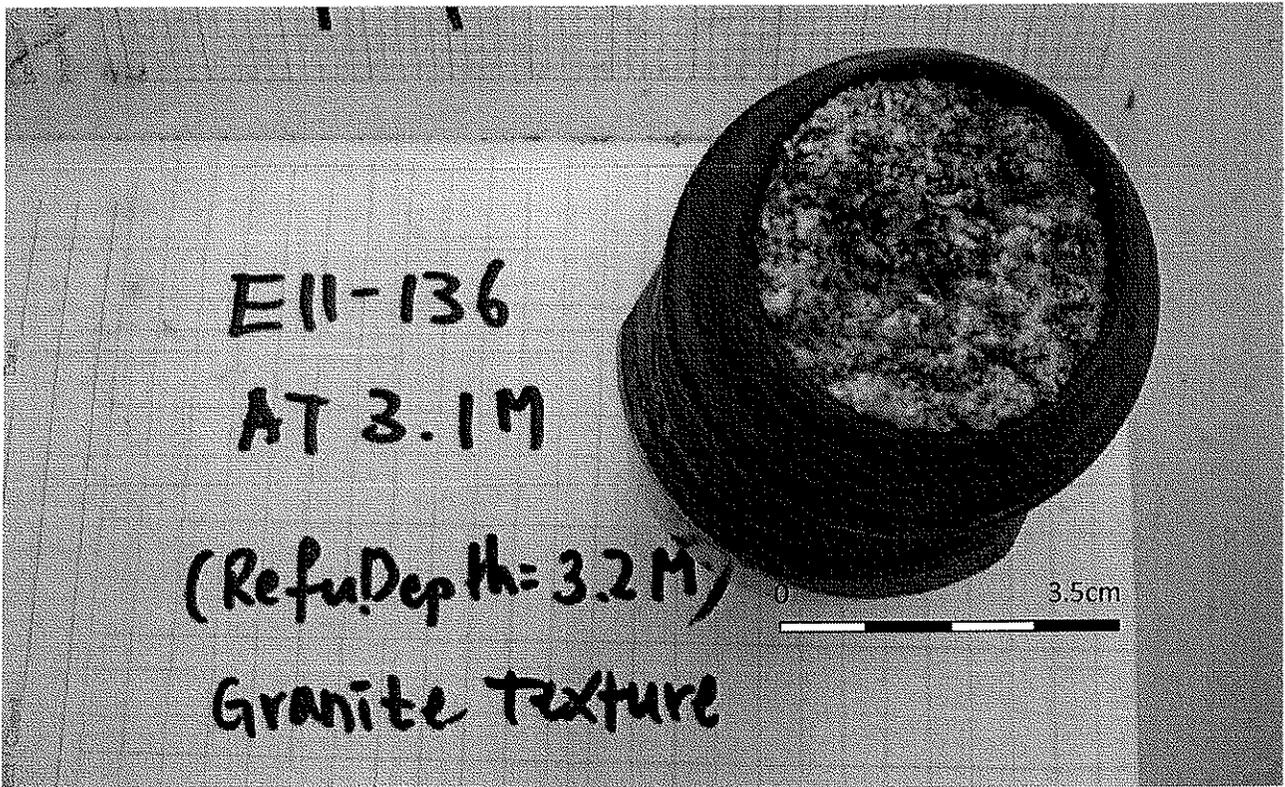
Phase I Site Soil Sampling
Camp Carroll
(G&EE 11-032E)
Jul 2011

Plate 3

3199

Borehole E11-136

Residual Soil Sample at 3.1 m



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Phase I Site Soil Sampling
Camp Carroll
(G&EE 11-032E)
Jul 2011

Plate 4

3200