










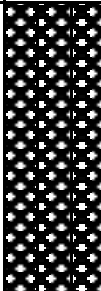












<div> Sovereign Consulting Inc.</div> <div>Science. Service. Solutions</div> <div>www.sovcon.com</div>								Boring/Well ID		Drilling Method Details				
								SHM-13-01		Bit Casing Soil Sampler Rock Core				
								Sheet 1 of 3		Type:	Sonic	Steel	Sonic	Sonic
Client: US ACE								Drilling Co.: Glacier Drilling		Size:	6"	6"	4'	4"
Project: Fort Devens - SHL								Drill Rig: Geoprobe 8140 LS		SPT:	Hammer-	NA	Fall -	NA
Project Number: AC001								Drill Method: Roto-sonic		Monitoring Well Details				
Location: Former Fort Devens								Foreman: Mark Schock		Well Type:	Overburden		Diameter:	2"
Shepley Hill Landfill								SCI Inspector: PJV		Well Head:	Standpipe		Casing:	PVC
								Start Date: 5/23/2013		Latitude:			Surface Elev:	
								Completion Date: 5/28/2013		Longitude:			Casing Elev:	
Sample Information								Sample Description		Stratum Change (ft.)	Notes	Test Boring/ Monitoring Well Construction		
Depth	Sample ID	Pen./Rec. (in.)	Interval (Ft.)	SPT - Blow/6"	Rock coring time minsec/1'	Field Testing PID (ppmv)	Water Table							
2	S-1	120/60	0-10	NA	NA	NA		0-24" - Very dark gray (2.5Y 3/1) moist to wet, Organic Materials, PEAT	PEAT	1		Cement 0 - 2'		
4								24"-36" - Olive brown (2.5Y 4/3), moist to wet, medium to coarse SAND, little fine sand, trace sub-rounded to sub angular fine to coarse gravel	SAND	2		2" Schedule 40 PVC Riser 0' - 39' (+ 2.5' Stick up)		
6								36"-48" - Light yellowish brown (2.5Y 6/3) moist to wet, fine SAND	SAND	2		Drilling Cuttings 2' - 34'		
8								48"-60" - Olive brown (2.5Y 4/3), moist to wet, medium to coarse SAND, little fine sand, trace sub-rounded to sub angular fine to coarse gravel	SAND	2		2" Schedule 40 PVC Riser 0' - 39' (+ 2.5' Stick up)		
10	S-2	120/65	10-20	NA	NA	NA		Olive brown (2.5Y 4/3), moist to wet, medium to coarse SAND, little fine sand, trace sub-rounded to sub angular fine to coarse gravel	SAND	2		Drilling Cuttings 2' - 34'		
12									SAND	2				
14							▼		SAND	2				
16								GP-13-01-015 = <1.0 ppb	SAND	2				
18									SAND	2				
20	S-3	120/0	20-30	NA	NA	NA		NR- 4"sonic bit became lodged and un-threaded, lost in hole. Attempt to re-thread unsuccessful. Over drill with 6" to retrieve 4' bit end.	SAND	2				
22								Observed limited amounts of 6" casing materials removed during retrieval process- appears to be same material as above	SAND	2				
24								GP-13-01-025 = <1.0 ppb	SAND	2				
Notes:								Key:		Cement				
1) Recovery values are skewed due to the soil sample collection bag technique used with roto-sonic drilling								Bedrock						
2) GW profile sampling location for dissolved As								Steel Casing						
3) RQD % maybe skewed low due to sonic method making distinction between natural and mechanical breaks difficult resulting in low sum of sticks (Σ) values								Grout						
4) Bedrock hole grouted on 5/23/13. PVC well installed 5/28/13.								Open bedrock						
5)														
Remarks:														
1) Stratification lines represent approximate boundaries between soil types and the transition may be gradual. Water level readings were completed at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.														
2) Field testing values represent total volatile organic vapors (referenced to an isobutylene standard) measured in the headspace of a sealed soil sample with a Ion Science photoionization detector with a 10.6 Ev lamp and set to a reference factor of 0.53 (benzene).														
▼= Approximate water table NA=Not Applicable NR=No Recovery bgs=below ground surface ags=above ground surface														

Sovereign Consulting Inc. Science. Service. Solutions www.sovcon.com								Boring/Well ID SHM-13-01 Sheet 3 of 3		Drilling Method Details				
Client: US ACE Project: Fort Devens - SHL Project Number: AC001 Location: Former Fort Devens Shepley Hill Landfill								Drilling Co.: Glacier Drilling Drill Rig: Geoprobe 8140 LS Drill Method: Roto-sonic Foreman: Mark Schock SCI Inspector: PJV Start Date: 5/23/2013 Completion Date: 5/28/2013		Type:	Sonic	Steel	Sonic	Sonic
										Size:	6"	6"	4'	4"
										SPT:	Hammer-	NA	Fall -	NA
										Monitoring Well Details				
										Well Type:	Overburden	Diameter:	2"	
										Well Head:	Standpipe	Casing:	PVC	
										Latitude:		Surface Elev:		
										Longitude:		Casing Elev:		
Depth	Sample ID	Pen./Rec. (in.)	Interval (Ft.)	SPT - Blow/6"	Rock coring time minsec/1'	Field Testing PID (ppmv)	Water Table	Sample Description	Stratum Change (ft.)	Notes	Test Boring/ Monitoring Well Construction			
52	R-1	60/31	51-56	NA	NA	NA		GP-13-01-051 = 1.3 ppb Bedrock @ 51' Sonic core 51' - 56' Poor recovery due to jammed catching basket in liner Σ of sticks = 0" RQD = 0%	TILL	2		Grout 50' - 56'		
										3				
54								Igneous rock, coarse grained granodiorite, dark gray (NO3) matrix with white (N9) to very light gray (N8) grains, (Ayer Granodiorite)	BEDROCK	4				
56								BORING END @ 56'						
58														
60														
62														
64														
66														
68														
70														
72														
74														
Notes: 1) Recovery values are skewed due to the soil sample collection bag technique used with roto-sonic drilling 2) GW profile sampling location for dissolved As 3) RQD % maybe skewed low due to sonic method making distinction between natural and mechanical breaks difficult resulting in low sum of sticks (Σ) values 4) Bedrock hole grouted on 5/23/13. PVC well installed 5/28/13. 5)								Key:						 Cement  Drill Cuttings/Native Soils  Bentonite  Sand  Screen  Riser
Remarks: 1) Stratification lines represent approximate boundaries between soil types and the transition may be gradual. Water level readings were completed at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made. 2) Field testing values represent total volatile organic vapors (referenced to an isobutylene standard) measured in the headspace of a sealed soil sample with a Ion Science photoionization detector with a 10.6 Ev lamp and set to a reference factor of 0.53 (benzene). ▼= Approximate water table NA=Not Applicable NR=No Recovery bgs=below ground surface ags=above ground surface														




Drilling Method Details				
	Bit	Casing	Soil Sampler	Rock Core
Type:	Sonic	Steel	Sonic	Sonic
Size:	6"	6"	4'	4"
SPT:	Hammer-	NA	Fall -	NA
Monitoring Well Details				
Well Type:	Overburden		Diameter:	2"
Well Head:	Standpipe		Casing:	PVC
Latitude:	_____		Surface Elev:	_____
Longitude:	_____		Casing Elev:	_____

Stratum Change (ft.)	Notes	Test Boring/ Monitoring Well Construction
SAND & GRAVEL	2	<div>2" Schedule 40 PVC Riser 0' - 60' (+ 2.5' Stick up)</div> <div>Drilling Cuttings 2' - 55'</div>
SAND & GRAVEL	2	<div>2" Schedule 40 PVC Riser 0' - 60' (+ 2.5' Stick up)</div> <div>Drilling Cuttings 2' - 55'</div>
SAND & GRAVEL	2	

Key:		Cement
Bedrock		Drill Cuttings/Native Soils
Steel Casing		Bentonite
Grout		Sand
Open bedrock:		Screen
		Risers

ter level readings were completed at
at the time measurements were made.
the headspace of a sealed soil sample with
ground surface

 Sovereign Consulting Inc. Science. Service. Solutions www.sovcon.com								Boring/Well ID SHM-13-02 Sheet 4 of 4				Drilling Method Details			
Client: US ACE Project: Fort Devens - SHL Project Number: AC001 Location: Former Fort Devens Shepley Hill Landfill								Drilling Co.: Glacier Drilling Drill Rig: Geoprobe 8140 LS Drill Method: Roto-sonic Foreman: Mark Schock SCI Inspector: PJV & JAG Start Date: 4/18/2013 Completion Date: 4/22/2013				Type: Sonic Bit: Steel Soil Sampler: Sonic Rock Core: Sonic Size: 6" 6" 4" 4" SPT: Hammer- NA Fall - NA			
Sample Information								Monitoring Well Details							
Pen./Rec. (in.) Interval (ft.) SPT - Blow/6" Rock coring time min/sec/1' Field Testing PID (ppmv) Water Table								Well Type: Overburden Diameter: 2" Well Head: Standpipe Casing: PVC Latitude: Surface Elev: Longitude: Casing Elev:							
Sample Description								Stratum Change (ft.)		Test Boring/ Monitoring Well Construction					
BORING END @ 77'								BEDROCK		Grout 71' - 77'					
76 78 80 82 84 86 88 90 92 94 96 98															
Notes: 1) Recovery values are skewed due to the soil sample collection bag technique used with roto-sonic drilling 2) GW profile sampling location for dissolved As 3) RQD % maybe skewed low due to sonic method making distinction between natural and mechanical breaks difficult resulting in low sum of sticks (Σ) values 4) Bedrock hole grouted on 4/19/13. PVC well installed 4/22/13. 5)								Key: Bedrock Steel Casing Grout Open bedrock:		Cement Drill Cuttings/Native Soils Bentonite Sand Screen Riser					
Remarks: 1) Stratification lines represent approximate boundaries between soil types and the transition may be gradual. Water level readings were completed at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made. 2) Field testing values represent total volatile organic vapors (referenced to an isobutylene standard) measured in the headspace of a sealed soil sample with a Ion Science photoionization detector with a 10.6 Ev lamp and set to a reference factor of 0.53 (benzene). ▼= Approximate water table NA=Not Applicable NR=No Recovery bgs=below ground surface ags=above ground surface															



Sheet 1 of 3

Sheet 1 of 3

▼= Approximate water table NA=Not Applicable NR=No Recovery bgs=below ground surface ags=above ground surface



Sheet 2 of 3

Longitude: _____ Casing Elev: _____

Completion Date: 4/24/2013

Remarks: 1) Stratification lines represent approximate boundaries between soil types and the transition may be gradual. Water level readings were completed at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.
2) Field testing values represent total volatile organic vapors (referenced to an isobutylene standard) measured in the headspace of a sealed soil sample with a Ion Science photoionization detector with a 10.6 Ev lamp and set to a reference factor of 0.53 (benzene).
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
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


Sheet 3 of 3

Sheet 3 of 3

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<div></div> <div>Sovereign Consulting Inc. Science. Service. Solutions www.sovcon.com</div>								<div>Boring/Well ID</div> <div>SHM-13-04</div> <div>Sheet 2 of 2</div>				<div>Drilling Method Details</div> <table><tr><td>Bit</td><td>Casing</td><td>Soil Sampler</td><td>Rock Core</td></tr><tr><td>Type: Sonic</td><td>Steel</td><td>Sonic</td><td>Sonic</td></tr><tr><td>Size: 6"</td><td>6"</td><td>4'</td><td>4"</td></tr><tr><td>SPT: Hammer-</td><td>NA</td><td>Fall -</td><td>NA</td></tr></table>				Bit	Casing	Soil Sampler	Rock Core	Type: Sonic	Steel	Sonic	Sonic	Size: 6"	6"	4'	4"	SPT: Hammer-	NA	Fall -	NA																																																																																										
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Depth	Sample ID	Pen./Rec. (in.)	Interval (Ft.)	SPT - Blow/6"	Rock coring time minsec/1'	Field Testing PID (ppmv)	Water Table																																																																																																																		
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	Sample ID	Pen./Rec. (in.)	Interval (ft.)	SPT - Blow/6"	Rock coring time minsec/1'	Field Testing PID (ppmv)	Water Table																								
	1	S-1	36/36	0-3	NA	NA	NA							ASPHALT BASE	1	<div><div></div><div></div><div></div></div>	Cement 0 - 1'														
	2																														
	3																														
	4	S-2	84/19	3-10	NA	NA	NA							Brown (10YR 4/3), dry, fine to medium SAND, little coarse sand, little rounded fine gravel, trace rounded coarse gravel	SAND & GRAVEL	2	<div><div></div><div></div><div></div></div>	2" Schedule 40 PVC Riser 0' - 75'													
	5																														
	6																														
	7																														
	8																														
	9																														
	10													Yellowish brown (10YR 5/4), dry, medium to coarse SAND, little fine sand, trace fine rounded gravel	SAND & GRAVEL	2	<div><div></div><div></div><div></div></div>	Drilling Cuttings 1' - 70'													
	11	S-3	60/39	10-15	NA	NA	NA																								
	12																														
	13																														
	14																														
	15																														
	16	S-4	60/37	15-20	NA	NA	NA							Brown (10YR 4/3), damp, fine to medium SAND, some coarse sand, some sub-rounded fine gravel, trace sub-rounded coarse gravel	SAND & GRAVEL	2	<div><div></div><div></div><div></div></div>	2" Schedule 40 PVC Riser 0' - 75'													
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	20																														
	21																														
	22	S-5	120/94	20-30	NA	NA	NA							GP-13-05-020 = <1.0 ppb 0-32" - Brown (10YR 4/3), wet, medium to coarse SAND, trace sub-rounded to sub-angular fine gravel	SAND	2	<div><div></div><div></div><div></div></div>	Drilling Cuttings 1' - 70'													
23																															
24																															
25																															
26																															
27																															
28								32"-94" - Brown (10YR 4/3), wet, fine SAND, little medium sand	SAND	2	<div><div></div><div></div><div></div></div>																				
29																															
30																															
31																															

| Notes: 1) Recovery values are skewed due to the soil sample collection bag technique used with roto-sonic drilling 2) GW profile sampling location for dissolved As 3) RQD % maybe skewed low due to sonic method making distinction between natural and mechanical breaks difficult resulting in low sum of sticks (Σ) values 4) Bedrock hole grouted on 4/17/13. PVC well installed 4/18/13. 5) | | | | | | | | Key: | | | | | |--------------|-------------|-----------------------------|-------------| | Bedrock | <div></div> | Cement | <div></div> | | Steel Casing | <div></div> | Drill Cuttings/Native Soils | <div></div> | | Grout | <div></div> | Bentonite | <div></div> | | Open bedrock | <div></div> | Sand | <div></div> | | | <div></div> | Screen | <div></div> | | | <div></div> | Riser | <div></div> | | | | |
| Remarks: 1) Stratification lines represent approximate boundaries between soil types and the transition may be gradual. Water level readings were completed at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made. 2) Field testing values represent total volatile organic vapors (referenced to an isobutylene standard) measured in the headspace of a sealed soil sample with a Ion Science photoionization detector with a 10.6 Ev lamp and set to a reference factor of 0.53 (benzene). ▼ = Approximate water table NA=Not Applicable NR=No Recovery bgs=below ground surface ags=above ground surface | | | | | | | | | | | |

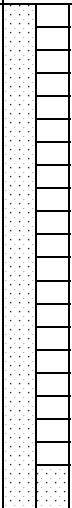
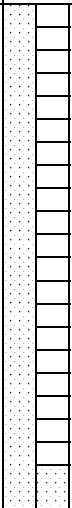
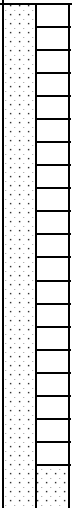
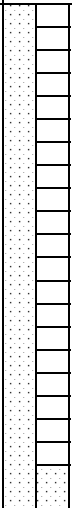
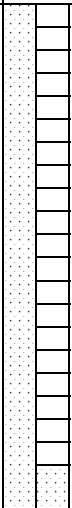
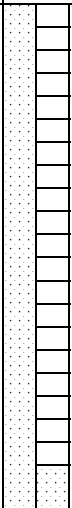
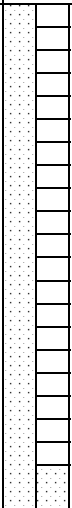
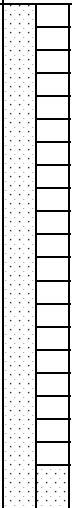
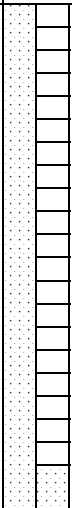
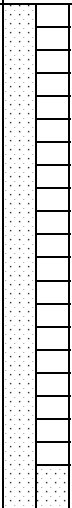
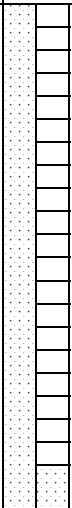
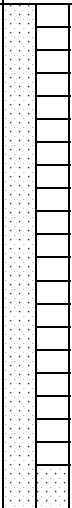


Sheet 3 of 4

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▼= Approximate water table NA=Not Applicable NR=No Recovery bgs=below ground surface ags=above ground surface



Drilling Method Details				
	Bit	Casing	Soil Sampler	Rock Core
Type:	Sonic	Steel	Sonic	Sonic
Size:	6"	6"	4'	4"
SPT:	Hammer-	NA	Fall -	NA
Monitoring Well Details				
Well Type:	Overburden		Diameter:	2"
Well Head:	Flush Mount		Casing:	PVC
Latitude:	_____		Surface Elev:	_____
Longitude:	_____		Casing Elev:	_____

Sample Information								Start Date:	4/16/2013	Latitude:	_____	Surface Elev:	_____
								Completion Date:	4/18/2013	Longitude:	_____	Casing Elev:	_____
Depth	Sample ID	Pen./Rec. (in.)	Interval (Ft.)	SPT - Blow/6"	Rock coring time minsec/1'	Field Testing PID (ppmv)	Water Table	Sample Description	Stratum Change (ft.)	Notes	Test Boring/ Monitoring Well Construction		
76								GP-13-05-080 = 56.8 ppb Light olive brown (2.5Y 5/3), wet-saturated, fine to medium SAND, with lenses of reddish brown (5YR 4/4) sands		2		#2 Morie Sand 73' - 86'	
78								GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'	TILL	2		#2 Morie Sand 85' - 86'	
80	S-11	60/60	80-85	NA	NA	NA		GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'		2		2" Schedule 40 PVC Wellscreen - 0.01" slot 75' - 85'	
82								GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'		2		#2 Morie Sand 85' - 86'	
84								GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'		2		#2 Morie Sand 85' - 86'	
86	R-1	84/84	85-92	NA	NA	NA		GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'		2		#2 Morie Sand 85' - 86'	
88								GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'		2		#2 Morie Sand 85' - 86'	
90								GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'		2		#2 Morie Sand 85' - 86'	
92								GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'		2		#2 Morie Sand 85' - 86'	
94								GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'		2		#2 Morie Sand 85' - 86'	
96								GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'		2		#2 Morie Sand 85' - 86'	
98								GP-13-05-084 = 96.5 ppb Gray (2.5Y 5/1), damp, fine to medium SAND, some coarse sand, some silt, little sub-angular fine gravel, trace sub-angular coarse gravel. Rock frags, pulverized rock and pucks (TILL) Bedrock @ 85' Sonic core 85' - 92'		2		#2 Morie Sand 85' - 86'	

Key:		Cement
Bedrock		Drill Cuttings/Native Soils
Steel Casing		Bentonite
Grout		Sand
Open bedrock		Screen
		Riser

Remarks: 1) Stratification lines represent approximate boundaries between soil types and the transition may be gradual. Water level readings were completed at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made. 2) Field testing values represent total volatile organic vapors (referenced to an isobutylene standard) measured in the headspace of a sealed soil sample with a Ion Science photoionization detector with a 10.6 Ev lamp and set to a reference factor of 0.53 (benzene).

▼= Approximate water table NA=Not Applicable NR=No Recovery bgs=below ground surface ags=above ground surface

Sovereign Consulting Inc. Science. Service. Solutions www.sovcon.com								Boring/Well ID SHM-13-06 Sheet 1 of 3		Drilling Method Details					
Client: US ACE Project: Fort Devens - SHL Project Number: AC001 Location: Former Fort Devens Shepley Hill Landfill								Drilling Co.: Glacier Drilling		Bit	Casing	Soil Sampler	Rock Core		
								Drill Rig: Geoprobe 8140 LS		Type: Sonic	Steel	Sonic	Sonic		
								Drill Method: Roto-sonic		Size: 6"	6"	4'	4"		
								Foreman: Mark Schock		SPT: Hammer-	NA	Fall -	NA		
								SCI Inspector: PJV		Monitoring Well Details					
								Start Date: 5/22/2013		Well Type:	Overburden	Diameter:	2"		
								Completion Date: 5/22/2013		Well Head:	Flush mount	Casing:	PVC		
										Latitude:		Surface Elev:			
										Longitude:		Casing Elev:			
Sample Information								Sample Description		Stratum Change (ft.)	Notes	Test Boring/ Monitoring Well Construction			
Depth	Sample ID	Pen./Rec. (in.)	Interval (ft.)	SPT - Blow/6"	Rock coring time minsec/1'	Field Testing PID (ppmv)	Water Table	Dark olive brown (2.5Y 3/3), dry, fine to medium SAND, little silt, little coarse sand, little sub-rounded to sub-angular fine gravel, trace sub-rounded to sub-angular coarse gravel, trace sub-rounded to sub-angular cobbles (FILL)	SAND	1		Cement 0 - 1'			
2								0-12" Same as above							
4								12"-17" - Dark yellowish brown (10YR 4/4), damp, fine SAND							
6	S-2	120/60	5-15	NA	NA	NA		17"-31" - Very dark brown (10YR 2/2), damp, fine SAND and SILT, trace medium to coarse sand, trace fine gravel. Organic materials							2" Schedule 40 PVC Riser 0' - 36'
8								31"-38" - Yellowish brown (10YR 5/6), moist, fine SAND							
10								38"-60" - Olive yellow (2.5Y 6/6), moist, fine SAND							Drilling Cuttings 1' - 31'
12															
14															
16	S-3	120/40	15-25	NA	NA	NA		0-15" Slump materials from above							
18							▼	15"-40" - Light olive brown (2.5Y 5/4), moist to wet, medium SAND, some coarse sand, little fine sand, little sub-angular fine gravel, trace sub-rounded coarse gravel	SAND	2		2" Schedule 40 PVC Riser 0' - 36'			
20															
22								GP-13-06-020 = 1.0 ppb				Drilling Cuttings 1' - 31'			
24															
Notes:								1) Recovery values are skewed due to the soil sample collection bag technique used with roto-sonic drilling		Key:		Cement			
								2) GW profile sampling location for dissolved As				Drill Cuttings/Native Soils			
								3) RQD % maybe skewed low due to sonic method making distinction between natural and mechanical breaks difficult resulting in low sum of sticks (Σ) values				Bentonite			
								4) Bedrock hole grouted on 5/22/13. PVC well installed 5/22/13.				Sand			
								5)				Screen			
Remarks:								1) Stratification lines represent approximate boundaries between soil types and the transition may be gradual. Water level readings were completed at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.				Riser			
								2) Field testing values represent total volatile organic vapors (referenced to an isobutylene standard) measured in the headspace of a sealed soil sample with a Ion Science photoionization detector with a 10.6 Ev lamp and set to a reference factor of 0.53 (benzene).							
								▼= Approximate water table NA=Not Applicable NR=No Recovery bgs=below ground surface ags=above ground surface							



Sheet 2 of 3

Longitude: Casing Elev:

Completion Date: 5/22/2013


Remarks: 1) Stratification lines represent approximate boundaries between soil types and the transition may be gradual. Water level readings were completed at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.
2) Field testing values represent total volatile organic vapors (referenced to an isobutylene standard) measured in the headspace of a sealed soil sample with a Ion Science photoionization detector with a 10.6 Ev lamp and set to a reference factor of 0.53 (benzene).
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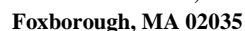


Sheet 3 of 3

Water level readings were completed at 10 cm intervals from the ground surface at the time measurements were made. The headspace of a sealed soil sample with

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 Sovereign Consulting Inc. 16 Chestnut Street, Suite 520 Foxborough, MA 02035		Boring/Well ID: SHM-13-07		Sheet <u> 1 </u> of <u> 2 </u>																																																																																					
Client: Army Corps of Engineers Project: SHL Project Number: AC001.02C Location: NIA		Drilling Co.: Glacier Drilling Drill Rig: Geoprobe 8040 Drill Method: Direct Push Foreman: Barry SCI Inspector: Carolyn Hardt		<table border="1"> <tr> <th>Casing</th> <th>Sampler</th> </tr> <tr> <td>Type: PVC</td> <td>NA</td> </tr> <tr> <td>Size: 2"</td> <td>NA</td> </tr> <tr> <td>Hammer</td> <td></td> </tr> <tr> <td>Pneumatic</td> <td></td> </tr> </table>		Casing	Sampler	Type: PVC	NA	Size: 2"	NA	Hammer		Pneumatic																																																																											
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Type: PVC	NA																																																																																								
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<table border="1"> <tr> <th colspan="6">Sample Information</th> </tr> <tr> <th>Depth</th> <th>Sample ID</th> <th>Pen./Rec. (in.)</th> <th>Interval (Ft.)</th> <th>Blows/6"</th> <th>PID (ppmv)</th> <th>Sample Type</th> </tr> </table>		Sample Information						Depth	Sample ID	Pen./Rec. (in.)	Interval (Ft.)	Blows/6"	PID (ppmv)	Sample Type	Start Date: 10/28/13 Completion Date: 10/28/13		Casing Elevation: Surface Elevation: Wellhead Type:																																																																								
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Depth	Sample ID	Pen./Rec. (in.)	Interval (Ft.)	Blows/6"	PID (ppmv)	Sample Type																																																																																			
		<table border="1"> <tr> <th>Sample Description</th> <th>Stratum Change (ft.)</th> <th>Notes</th> <th>Test Boring/ Monitoring Well Construction</th> </tr> </table>		Sample Description	Stratum Change (ft.)	Notes	Test Boring/ Monitoring Well Construction																																																																																		
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<table border="1"> <tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>12</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>14</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>16</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>18</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>24</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>		2							4							6							8							10							12							14							16							18							20							22							24							No samples collected during monitoring well installation.		<div> <div>2" Schedule 40 PVC Riser 0-27'</div> <div>#2 Morie Sand 0'-25'</div> </div>	
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Sheet 2 of 2

SCI Inspector: Carolyn Hardt

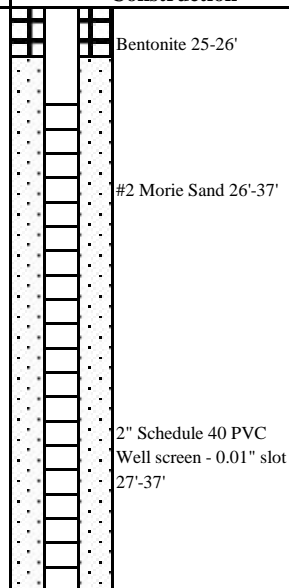
Pneumatic





Wellhead Type:

Completion Date: 10/28/13

**Test Boring/ Monitoring Well
Construction**

No samples collected during monitoring well installation.



Key:		Cement
		Grout
		Bentonite
		Sand


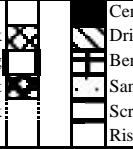
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


Sheet 2 of 4

SPT:	Hammer-	NA	Fall -	NA
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<div> Sovereign Consulting Inc.</div> <div>Science. Service. Solutions www.sovcon.com</div>								Boring/Well ID SHM-13-08 Sheet 3 of 4				Drilling Method Details							
Client: US ACE Project: Fort Devens - SHL Project Number: AC001 Location: Former Fort Devens Shepley Hill Landfill								Drilling Co.: Glacier Drilling				Type: Sonic	Casing: Steel	Soil Sampler: Sonic	Rock Core: Sonic				
								Drill Rig: Geoprobe 8140 LS				Size: 6"	6"	4'	4"				
								Drill Method: Roto-sonic				SPT: Hammer-	NA	Fall -	NA				
								Foreman: Mark Schock				Monitoring Well Details							
								SCI Inspector: PJV				Well Type: Overburden		Diameter: 2"					
								Start Date: 5/29/2013				Well Head: Flush mount		Casing: PVC					
								Completion Date: 5/29/2013				Latitude: _____		Surface Elev: _____					
								Longitude: _____				Casing Elev: _____							
Sample Information								Sample Description				Stratum Change (ft.)		Notes		Test Boring/ Monitoring Well Construction			
Depth	Sample ID	Pen./Rec. (in.)	Interval (Ft.)	SPT - Blow/6"	Rock coring time minsec/1'	Field Testing PID (ppmv)	Water Table												
52	S-6	120/120	50-60	NA	NA	NA		Top 5' - Yellowish red (5YR 4/6), sat, fine to medium SAND, little coarse sand, trace sub-rounded fine gravel				SAND	2						
								GP-13-08-055 = 288 ppb											
								Bot 5' - Olive gray (5Y 5/2), sat, fine to medium SAND, little coarse sand, trace sub-rounded fine gravel											
54												SAND	2						
56												SAND	2						
58												SAND	2						
60												SAND	2						
62	S-7	132/102	60-71	NA	NA	NA		Olive gray (5Y 5/2), sat, fine to medium SAND, little coarse sand, trace sub-rounded fine gravel, occasional sub-rounded coarse gravel and cobbles at bottom				SAND	2						
64												SAND	2						
66												SAND	2						
68												SAND	2						
70												SAND	2						
72	R-1	66/65	71-76.5	NA	NA	NA		GP-13-08-071 = 20.6 ppb Bedrock @ 71' Sonic core 71' - 76.5' Σ of sticks = 0" RQD = 0%				BEDROCK	2 3 4						
74								Igneous rock, coarse grained granodiorite, dark gray (NO3) matrix with white (N9) to very light gray (N8) grains, (Ayer Granodiorite)				BEDROCK	2 3 4						
Notes:								1) Recovery values are skewed due to the soil sample collection bag technique used with roto-sonic drilling 2) GW profile sampling location for dissolved As 3) RQD % maybe skewed low due to sonic method making distinction between natural and mechanical breaks difficult resulting in low sum of sticks (Σ) values 4) Bedrock hole grouted on 5/29/13. PVC well installed 5/29/13. 5)				Key:							
Remarks:								1) Stratification lines represent approximate boundaries between soil types and the transition may be gradual. Water level readings were completed at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made. 2) Field testing values represent total volatile organic vapors (referenced to an isobutylene standard) measured in the headspace of a sealed soil sample with a Ion Science photoionization detector with a 10.6 Ev lamp and set to a reference factor of 0.53 (benzene). ▼= Approximate water table NA=Not Applicable NR=No Recovery bgs=below ground surface ags=above ground surface											

 Sovereign Consulting Inc. Science. Service. Solutions www.sovcon.com		Boring/Well ID SHM-13-08 Sheet 4 of 4		Drilling Method Details			
Client: US ACE Project: Fort Devens - SHL Project Number: AC001 Location: Former Fort Devens Shepley Hill Landfill		Drilling Co.: Glacier Drilling Drill Rig: Geoprobe 8140 LS Drill Method: Roto-sonic Foreman: Mark Schock SCI Inspector: PJV Start Date: 5/29/2013 Completion Date: 5/29/2013		Bit: Sonic Casing: Steel Soil Sampler: Sonic Rock Core: Sonic Size: 6" 6" 4" 4" SPT: Hammer- NA Fall - NA			
				Monitoring Well Details			
				Well Type: Overburden Diameter: 2" Well Head: Flush mount Casing: PVC Latitude: _____ Surface Elev: _____ Longitude: _____ Casing Elev: _____			
Sample Information				Stratum Change (ft.)			
Depth	Sample ID	Pen./Rec. (in.)	Interval (ft.)	SPT - Blow/6"	Rock coring time min/sec/1'	Field Testing PID (ppmv)	Water Table
76							
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
				Test Boring/ Monitoring Well Construction			
				BEDROCK			
				BORING END @ 76.5'			
Notes: 1) Recovery values are skewed due to the soil sample collection bag technique used with roto-sonic drilling 2) GW profile sampling location for dissolved As 3) RQD % maybe skewed low due to sonic method making distinction between natural and mechanical breaks difficult resulting in low sum of sticks (Σ) values 4) Bedrock hole grouted on 5/29/13. PVC well installed 5/29/13. 5)		Key:		Cement Drill Cuttings/Native Soils Bentonite Sand Screen Riser			
Remarks: 1) Stratification lines represent approximate boundaries between soil types and the transition may be gradual. Water level readings were completed at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made. 2) Field testing values represent total volatile organic vapors (referenced to an isobutylene standard) measured in the headspace of a sealed soil sample with a Ion Science photoionization detector with a 10.6 Ev lamp and set to a reference factor of 0.53 (benzene). ▼= Approximate water table NA=Not Applicable NR=No Recovery bgs=below ground surface ags=above ground surface							