

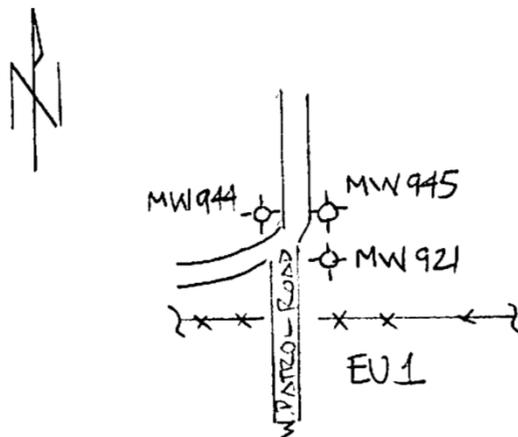
Appendix E  
Drilling Logs

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW944
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N=1173313.590
<b>BORING LOCATION:</b> Northwest of EU1 near well MW921		<b>EASTING:</b>	E=1040008.902
<b>TOTAL DEPTH:</b> 17 ft		<b>GROUND ELEV:</b>	316.04, RISER: 318.64
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/18/12
<b>DEPTH TO GROUNDWATER:</b> dry		<b>DATE FINISHED:</b>	11/18/12
<b>GEO TECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 2.0-2.5, 10.0-11.0, 13.0-13.5		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE				REC%	COLOR	DESCRIPTION MATERIAL DESCRIPTION	USCS	REMARKS	
	STRATA SYMBOL	"S" NO.	Chem	Well Construction					MOISTURE PID	
0		S-1		concrete	100%	Brown	0 - 1': FILL- SILTY SAND and GRAVEL	FILL	0	Moist
1							1 - 3': SILTY SAND, some gravel, trace clay	SM		
5				bentonite		Grayish Brown	3 - 5': CLAYEY SILT, some gravel, coarse sand	ML		Dry
10		S-2		10 slot screen	100%	Brown	5 - 10': SILT, some coarse sand to gravel, trace to some clay, trace cobbles			
15		S-3		#5 Global sand	100%	Brownish Gray	10 - 12': SILTY SAND, some fine gravel, some silty fine sand seams. SILTY CLAY 11-11.5'	SM		Moist
							12 - 14.3': SILTY CLAY, trace gravel	CL		
							14.3 - 16': SILTY fine SAND, some clay and fine to coarse gravel, trace cobble	SM		
		S-4		Sand and cave-in	100%	Brownish Gray	16': SILTY CLAY, trace coarse gravel, - silty fine sand seam at 16.5-16.7 feet	CH		

End of boring at 17 feet bgs

**SITE SKETCH**



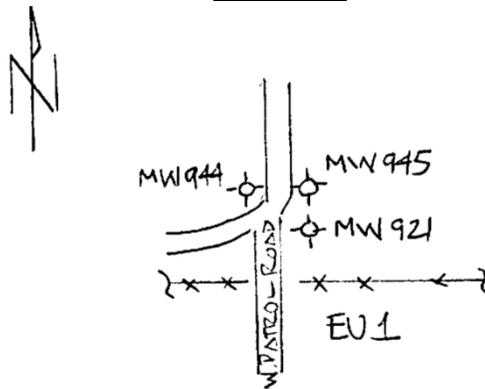
<b>COMMENTS:</b>	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW944
Installed 2" well from 7.5-12.5 feet		

<b>URS Corporation</b>				<b>TEST BORING LOG</b>			
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation				<b>BORING NO.:</b> MW945			
<b>CLIENT:</b> USACE				<b>SHEET:</b> 1 of 1			
<b>BORING CONTRACTOR:</b> Boart Longyear				<b>JOB NO.:</b> 11176781			
<b>DRILLING METHOD:</b> Spyder Sonic rig				<b>NORTHING:</b> N=11173319.797			
<b>BORING LOCATION:</b> Northwest of EU1 near well MW921				<b>EASTING:</b> E=1040037.742			
<b>TOTAL DEPTH:</b> 20 ft				<b>GROUND ELEV:</b> 317.55, <b>RISER:</b> 320.24			
<b>DEPTH TO BEDROCK:</b> N/A				<b>DATE STARTED:</b> 11/20/12			
<b>DEPTH TO GROUNDWATER:</b> dry				<b>DATE FINISHED:</b> 11/20/12			
<b>GEOTECHNICAL SAMPLES:</b> None				<b>DRILLER:</b> [REDACTED]			
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 3.5-4.0, 9.5-10.0, 12.5-13.0				<b>GEOLOGIST:</b> [REDACTED]			
				<b>REVIEWED BY:</b> [REDACTED]			

DEPTH FEET	SAMPLE				DESCRIPTION			USCS	REMARKS	
	STRATA SYMBOL	"S" NO.	Chem	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION		MOISTURE PID	
5	[Pattern]	S-1	-	concrete	100%	Brown	0 - 25': TOPSOIL	ML	0	Moist
				bentonite			0.25 - 3': SAND- medium to coarse, some gravel, trace silt	SP		
							3 - 5': SILTY CLAY, some sand and gravel, hard	CL		
10	[Pattern]	S-2	-	10 slot screen	100%	Grayish Brn.	5 - 8.7': SILT, some gravel, hard	ML		Dry
						Brown	- some medium-coarse sand and gravel			
						Grayish Brown	8.7 - 10.5': CLAYEY SILT, trace coarse sand	CL		
15	[Pattern]	S-3	-	#5 Global sand	100%	Brown	10.5 - 15.5': Interbedded SILTY CLAY and CLAYEY SILT, some gravel and sand			Moist
20	[Pattern]	S-4	-	Sand and cave-in	100%	Gray	15.5 - 20': SILTY CLAY, with silty varves - silty fine sand interbeds at 17.3-17.6 feet and 18.7 feet	CH		Dry Moist-Wet

End of boring at 20 feet bgs

**SITE SKETCH**



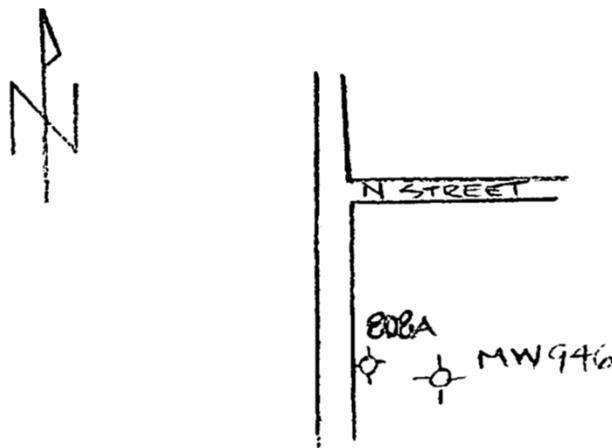
<b>COMMENTS:</b>		<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig		<b>BORING NO.</b>	MW945
Installed 2" well from 6-16 feet			

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW946
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N=1172923.608
<b>BORING LOCATION:</b> EU2, near well 808A		<b>EASTING:</b>	E=1040719.731
<b>TOTAL DEPTH:</b> 15 ft		<b>GROUND ELEV:</b>	316.72, <b>RISER:</b> 319.65
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/13/12
<b>DEPTH TO GROUNDWATER:</b> 15.02 feet below top of riser		<b>DATE FINISHED:</b>	11/14/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 6.0-6.5, 8.0-8.5, 12.0-12.5		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE				DESCRIPTION			USCS	REMARKS	
	STRATA SYMBOL	"S" NO.	Chern	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION		PID	MOISTURE
		Hand Clear		concrete	100%	Brown	0 - 0.5': TOPSOIL	ML	0	Slightly Moist
							0.5 - 4': SILTY CLAY to CLAYEY SILT, trace to some sand and gravel	CL		
5		S-1		bentonite			4 - 5': SILTY CLAY, some gravel, hard			Dry Moist
		S-2		10 slot screen	100%		5 - 7.5': same, less gravel			
10							7.5 - 10.3': CLAYEY SILT and SILTY CLAY, trace to some sand and gravel	ML/CL		Moist-Wet
	S-3		#5 Global sand	100%	Gray	10.3 - 12': SILTY CLAY, trace gravel	CL			
15						12 - 15': CLAY with reddish silty varves, trace gravel, some silty clay layers	CH			

End of boring at 15 feet bgs

SITE SKETCH



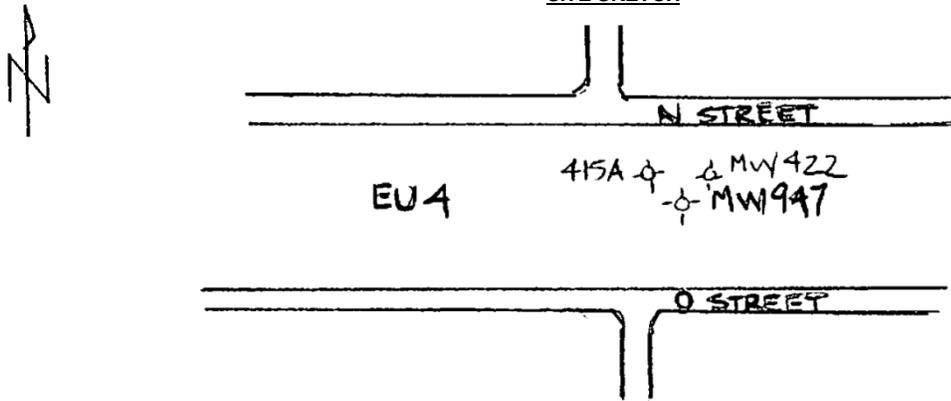
<b>COMMENTS:</b> Hand cleared to 3.5 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW946
Installed 2" well from 7.5-12.5 feet		

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW947
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1172887.178
<b>BORING LOCATION:</b> EU4, southeast of well 415		<b>EASTING:</b>	E= 1042564.36
<b>TOTAL DEPTH:</b> 20 ft		<b>GROUND ELEV:</b>	319.39, <b>RISER:</b> 322.53
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/14/12
<b>DEPTH TO GROUNDWATER:</b> 21.06 feet below top of riser		<b>DATE FINISHED:</b>	11/14/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 2.0-2.5, 14.0-14.5, 18.0-18.5		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE				DESCRIPTION			USCS	REMARKS
	STRATA SYMBOL	"S" NO.	Chem	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION		
0		Hand Clear				Brown	0 - 0.5': TOPSOIL	ML	0
0.5				concrete	100%		0.5 - 2': SILTY SAND, some clay and gravel	SM	Slightly Moist
2							2 - 3.5': SILTY CLAY, some medium to coarse sand and gravel, some gray mottling	CL	
5				Bentonite			3.5 - 5.5': CLAYEY SILT, some gravel	ML	Dry
5.5							5.5 - 6.3': SAND, fine to coarse, some fine gravel	SW	
6.3		S-1			100%		6.3 - 12': SILTY CLAY to CLAYEY SILT, some sand and gravel	CL	Moist
11				10 slot screen	100%		11 - 11.2': Fine silty SAND seam		
12		S-2			100%		12 - 14.5': Fine silty SAND	SP	
14.5				#5 Global sand			14.5 - 15.5': SILT, some fine sand	ML	Moist-Wet
15.5		S-3			100%	Grayish brown	15.5 - 17.7': SILTY CLAY, plastic	CL	
17.7						Gray	17.7 - 20': SILTY CLAY with brown varves, plastic	CH	

End of boring at 20 feet bgs

**SITE SKETCH**



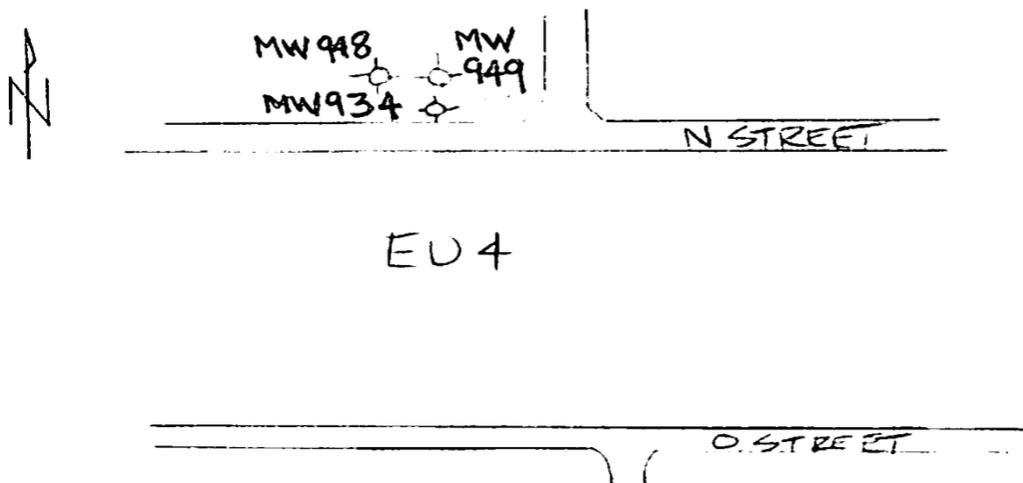
<b>COMMENTS:</b> Hand cleared to 5 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW947
Installed 2" well from 8.5-18.5 feet		

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW948
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1173182.578
<b>BORING LOCATION:</b> EU4, northwestern area north of well MW934		<b>EASTING:</b>	E= 1042263.192
<b>TOTAL DEPTH:</b> 15 ft		<b>GROUND ELEV:</b>	318.04, RISER: 321.04
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/16/12
<b>DEPTH TO GROUNDWATER:</b> dry		<b>DATE FINISHED:</b>	11/16/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 5.5-6.0, 10.0-10.5, 13.0-13.5		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE					DESCRIPTION		USCS	REMARKS		
	STRATA SYMBOL	"S" NO.	Chem	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION		PID	MOISTURE	
0				concrete			Brown	0 - 0.3': TOPSOIL	ML	0	Moist
5		S-1		bentonite	100%			0.3' 9.0': SILTY CLAY, some coarse sand to coarse gravel, hard			
10		S-2		10 slot screen	100%			9.0 - 11': SILTY CLAY, trace sand and gravel, slightly plastic			Very Moist
15		S-3		#5 Global sand	100%		Grayish brown	11 - 14.5': SILTY CLAY, trace fine sand and gravel, plastic			
							Brn Gray	14.5 - 15': SILTY CLAY, very plastic	CH		Wet

End of boring at 15 feet bgs

**SITE SKETCH**



<b>COMMENTS:</b> Hand cleared to 5.0 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW948
Installed 2" well from 5-15 feet		

URS Corporation							TEST BORING LOG			
PROJECT: Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation							BORING NO: MW949			
CLIENT: USACE							SHEET: 1 of 2			
BORING CONTRACTOR: Boart Longyear							JOB NO.: 11176781			
DRILLING METHOD: Spyder Sonic rig							NORTHING: N= 1173182.892			
BORING LOCATION: EU4, northwestern area, just east of MW948							EASTING: E= 1042272.833			
TOTAL DEPTH: 40 ft							GROUND ELEV: 318.07, RISER: 320.96			
DEPTH TO BEDROCK: N/A							DATE STARTED: 11/15/12			
DEPTH TO GROUNDWATER: 13.04 feet below top of riser							DATE FINISHED: 11/17/12			
GEOTECHNICAL SAMPLES: None							DRILLER: [REDACTED]			
CHEMICAL SAMPLES: 0.0-0.5, 16.0-16.5, 29.5-30.0, 34.5-35.0							GEOLOGIST: [REDACTED]			
							REVIEWED BY: [REDACTED]			
DEPTH FEET	SAMPLE					DESCRIPTION			USCS	REMARKS
	STRATA SYMBOL	"S" NO.	Chem	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION	MOISTURE PID		
0						Dk. Brown	0 - 0.25': TOPSOIL	ML	0	
5		S-1		8" Casing set 2' to 17'	100%	Brown to Reddish Brown	0.25 - 15': SILTY CLAY, some fine to coarse gravel, hard	CL	Moist	
10		S-2		bentonite	100%					
15		S-3		grout	100%	Grayish Brown	-some fine gravel, trace to some coarse sand		Moist-wet	
20		S-4			100%	Gray	13 - 13.2': Fine sandy silt seam 13.8 - 14': Fine silty sand seam	CH	Wet	
25		S-5			100%		15 - 22.6': SILTY CLAY to CLAY	CH		
		S-6		bentonite	100%		22.6 - 24': Silty SAND, fine to medium, some gravel	SM	Wet	
30		S-7			100%		24- 32.5': SILTY CLAY, plastic, trace gravel	CH		
		S-8		10 slot screen	100%		24.8 - 25': Silty SAND seam, medium to coarse			
				#5 Global sand	100%	Reddish Brown	32.5 - 34.5': SAND, silty medium-coarse, some gravel	SM		
COMMENTS: Boring advanced with Spyder sonic drilling rig Installed 8" casing from 2- 17 feet, 2" well from 30-40 feet							PROJECT NO. 11176781			
							BORING NO. MW949			

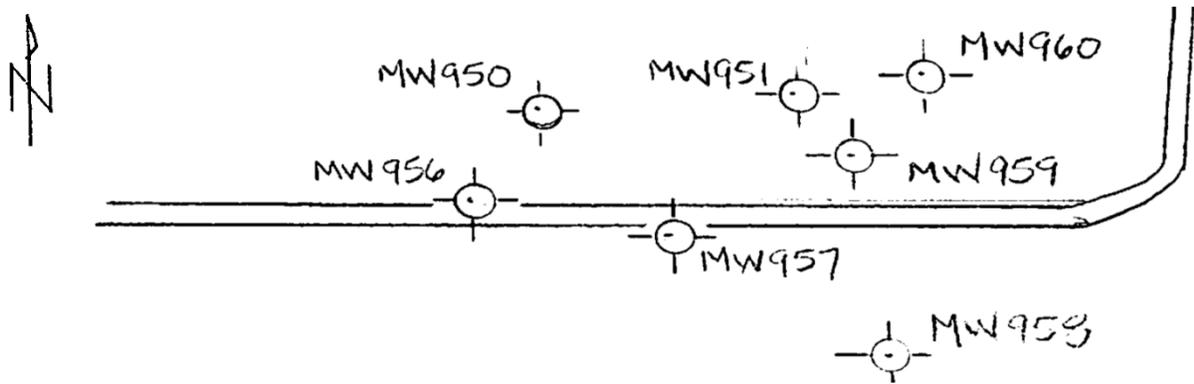
<b>URS Corporation</b>							<b>TEST BORING LOG</b>				
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation							<b>BORING NO.:</b> MW949				
<b>CLIENT:</b> USACE							<b>SHEET:</b> 2 of 2				
<b>BORING CONTRACTOR:</b> Boart Longyear							<b>JOB NO.:</b> 11176781				
<b>DRILLING METHOD:</b> Spyder Sonic rig							<b>NORTHING:</b> N= 1173182.892				
<b>BORING LOCATION:</b> EU4, northwestern area, just east of MW948							<b>EASTING:</b> E= 1042272.833				
<b>TOTAL DEPTH:</b> 40 ft							<b>GROUND ELEV:</b> 318.07, <b>RISER:</b> 320.96				
<b>DEPTH TO BEDROCK:</b> N/A							<b>DATE STARTED:</b> 11/15/12				
<b>DEPTH TO GROUNDWATER:</b> 13.04 feet below top of riser							<b>DATE FINISHED:</b> 11/17/12				
<b>GEOTECHNICAL SAMPLES:</b> None							<b>DRILLER:</b> [REDACTED]				
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 16.0-16.5, 29.5-30.0, 34.5-35.0							<b>GEOLOGIST:</b> [REDACTED]				
							<b>REVIEWED BY:</b> [REDACTED]				
DEPTH FEET	SAMPLE					DESCRIPTION			USCS	REMARKS	
	STRATA SYMBOL	"S" NO.	Chem	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION			MOISTURE PID	
40		S-9		#5 Global sand	100%	Reddish Brown	34.5 - 37': SILTY SAND, some gravel. With Gray SILTY CLAY seams 35-35.5', 36.4-37'.		SM	0 ↓ Wet	
						Brown	37 - 40': SILTY SAND, some coarse sand and gravel, dense - becomes reddish brown		SM		
End of boring at 40 feet bgs											
<b>SITE SKETCH</b>											
<p>The sketch shows a north-south orientation with a north arrow on the left. A horizontal line represents N STREET. Three well locations are marked with circles and labeled: MW948 and MW949 are located north of N STREET, and MW934 is located south of N STREET. A fourth well location, EU4, is marked with a circle and labeled below the sketch. A second horizontal line represents O. STREET, located further south than N STREET.</p>											
<b>COMMENTS:</b>							<b>PROJECT NO.:</b> 11176781				
Boring advanced with Spyder sonic drilling rig							<b>BORING NO.:</b> MW949				
Installed 2" well from 30-40 feet											

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW950
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1170882.707
<b>BORING LOCATION:</b> EU10, south of IWCS near well 831		<b>EASTING:</b>	E= 1040800.395
<b>TOTAL DEPTH:</b> 20 ft		<b>GROUND ELEV:</b>	319.12, <b>RISER:</b> 322.03
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/11/12
<b>DEPTH TO GROUNDWATER:</b> 6.34 feet below top of riser		<b>DATE FINISHED:</b>	11/11/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 2.0-2.5, 10.5-11.0, 15.0-15.5		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE					DESCRIPTION		USCS	REMARKS	
	STRATA SYMBOL	"S" NO.	Chern	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION		SM/SC	MOISTURE PID
0							0 - 0.5': TOPSOIL	ML	0	
5		Hand Clear		concrete	100%	Brown	0.5 - 13.5': CLAYEY SILT to SILTY CLAY, trace to some sand and gravel			Moist
							3': SILT seam, trace to some clay, trace sand			
				bentonite			5 - 7.2': Trace to some gravel, gray mottles			
10		S-1			70%		7.2 - 7.4' and 7.7 - 8.6': Fine SAND seams			Very moist
								SM/SC		Moist
				10 slot screen				CL		
15		S-2			100%	Grayish Brown	- thin sand lens at 13.5 feet 13.5 - 17.5': SILTY CLAY, trace to some gravel, very plastic			
				#5 Global sand			Some thin silty sand partings			
20		S-3			100%	Brownish Gray	17.5 - 20.0': CLAY, trace gravel, very plastic	CH		Wet

End of boring at 20 feet bgs

**SITE SKETCH**



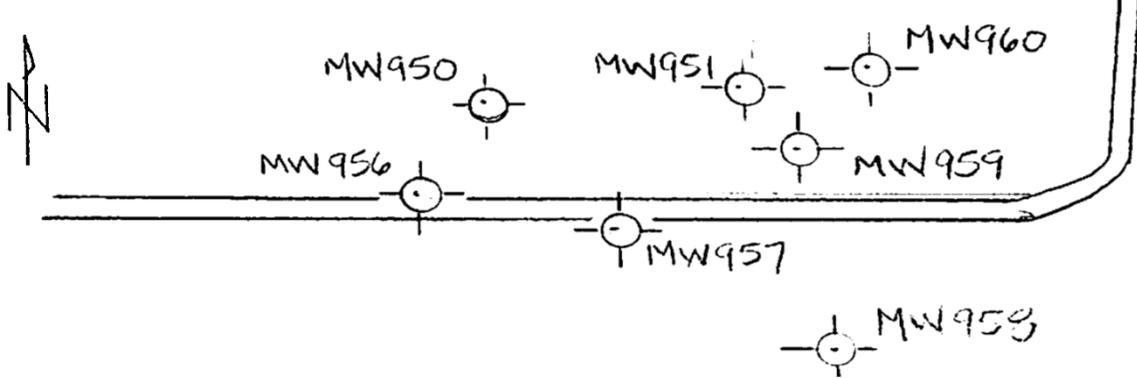
<b>COMMENTS:</b> Hand cleared to 5.0 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW950
Installed 2" well from 10-20 feet		

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW951
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1170894.878
<b>BORING LOCATION:</b> EU10, South side of IWCS near well 833		<b>EASTING:</b>	E= 1040961.694
<b>TOTAL DEPTH:</b> 20 ft		<b>GROUND ELEV:</b>	317.80, <b>RISER:</b> 320.84
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/10/12
<b>DEPTH TO GROUNDWATER:</b> 7.36 feet below top of riser		<b>DATE FINISHED:</b>	11/11/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 15.0-15.5, 17.5-18.0, 18.5-19.0		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE				DESCRIPTION			USCS	REMARKS	
	STRATA SYMBOL	"S" NO.	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION	MOISTURE		PID	
0		HC	concrete	100%	Brown	0 - 0.5': TOPSOIL	ML	0	Moist	
5		S-1	bentonite	70%		0.5 - 5': CLAYEY SILT to SILTY CLAY, trace to some sand and gravel	SM		Wet	
10		S-2	10 slot screen	100%	Brown to Gray	5 - 7': SILTY SAND, fine, trace gravel	CL		Very Moist	
15		S-3	#5 Global sand	100%	Grayish Brown	7 - 10': SILTY CLAY, trace gravel, plastic	SM		Moist	
20					Brownish Gray	10 - 10.5': SILTY SAND, fine, some clay	CL		Very moist	
						10.5 - 14': CLAY, trace silt and gravel			Moist	
						14 - 17': CLAYEY SILT, some fine gravel				
						16.5 - 17': CLAY, trace silt.				
						17 - 20': CLAY, trace silt				
						- trace gravel	CH			

End of boring at 20 feet bgs

**SITE SKETCH**



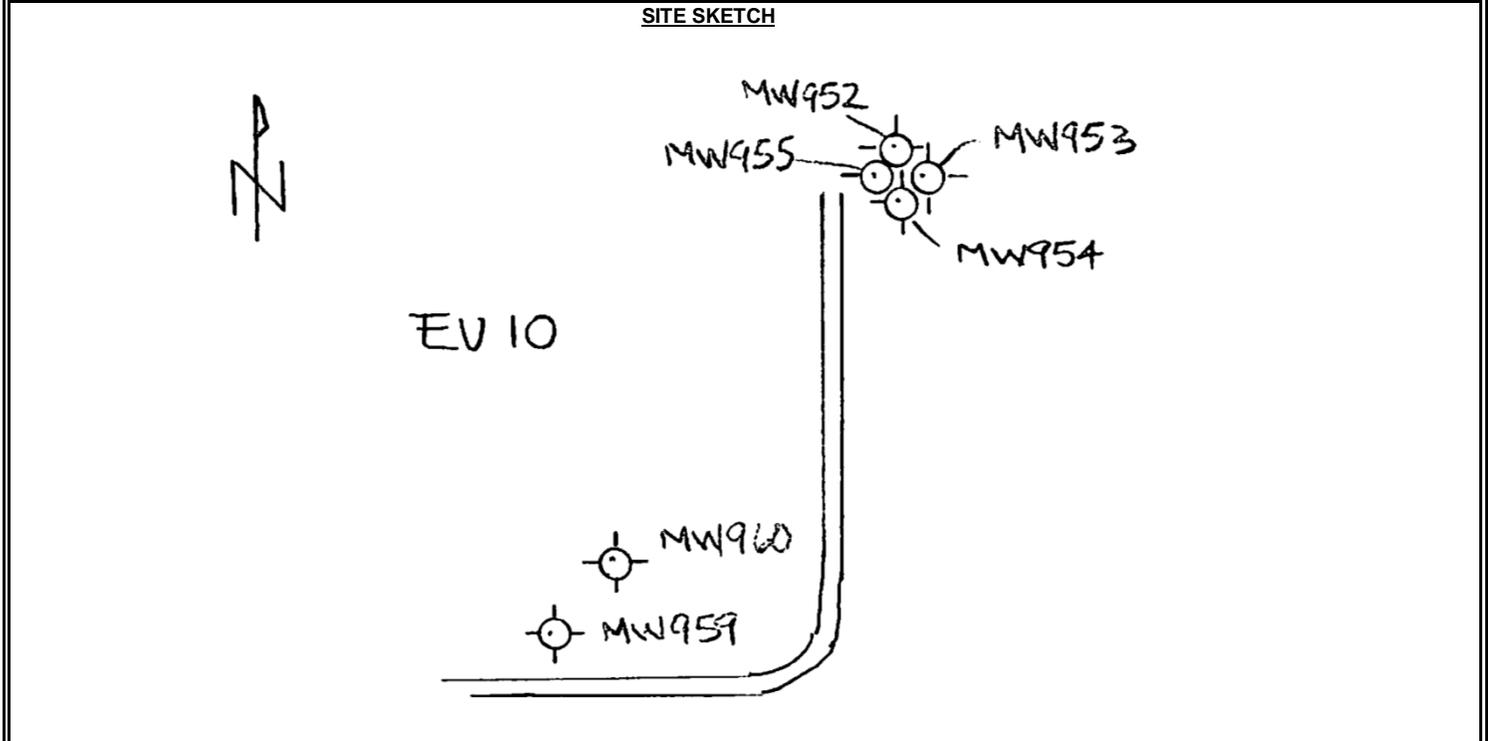
<b>COMMENTS:</b> Hand cleared to 5.0 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW951
Installed 2" well from 10-20 feet		

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW952
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1171236.823
<b>BORING LOCATION:</b> EU10, north of well OW11B		<b>EASTING:</b>	E= 1041253.078
<b>TOTAL DEPTH:</b> 10 ft		<b>GROUND ELEV:</b>	317.13, RISER: 320.16
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/19/12
<b>DEPTH TO GROUNDWATER:</b> 4.53 feet below top of riser		<b>DATE FINISHED:</b>	11/19/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 4.0-4.5, 6.0-6.5, 6.5-7.0		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE				DESCRIPTION			USCS	REMARKS	
	STRATA SYMBOL	"S" NO.	Chern	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION		PID	MOISTURE
0		Hand Clear		concrete	100%	Brown	0 - 0.25': TOPSOIL	ML	0	
5				bentonite			0.25 - 10': CLAYEY SILT to SILTY CLAY, trace to some sand and gravel	CL		Moist
10		S-1		10 slot screen #5 Global sand	100%	Brn Gray	- gray mottles, trace fine to coarse gravel -some silty partings			Moist

End of boring at 10 feet bgs

**SITE SKETCH**



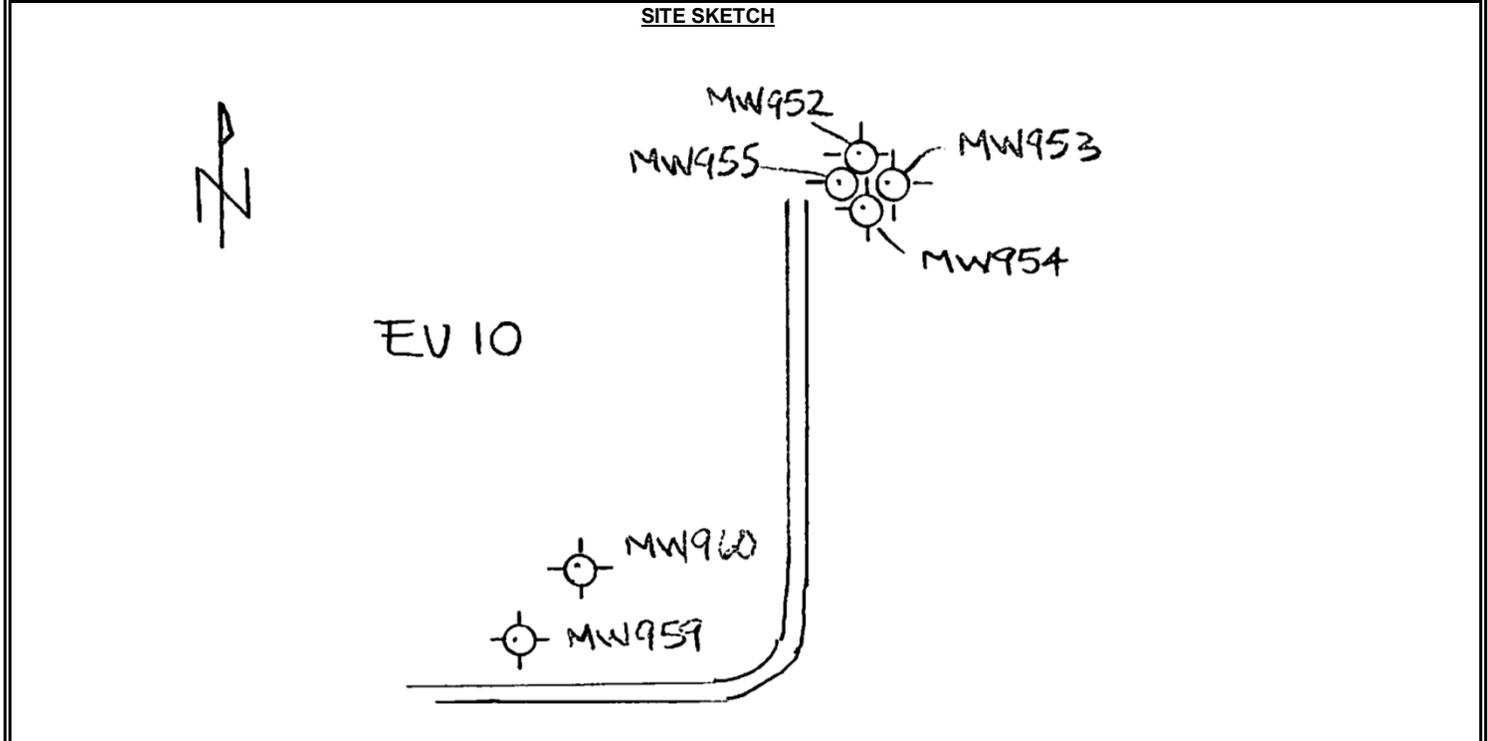
<b>COMMENTS:</b> Hand cleared to 5.0 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW952
Installed 2" well from 4-9 feet		

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW953
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1171214.809
<b>BORING LOCATION:</b> EU10, east of well OW11B		<b>EASTING:</b>	E= 1041274.898
<b>TOTAL DEPTH:</b> 10 ft		<b>GROUND ELEV:</b>	316.94, <b>RISER:</b> 319.94
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/19/12
<b>DEPTH TO GROUNDWATER:</b> 8.11 feet below top of riser		<b>DATE FINISHED:</b>	11/19/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 1.0-2.0, 4.0-4.5, 6.0-6.5		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE				DESCRIPTION			USCS	REMARKS
	STRATA SYMBOL	"S" NO.	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION	MOISTURE PID		
0		Hand Clear	concrete	100%	Brown	0 - 0.25': TOPSOIL	ML	0	
0.25			bentonite			0.25 - 6': SILTY CLAY, trace to some sand and gravel	CL	Moist	
5			10 slot screen			- increasing moisture and plasticity			
6		S-1	#5 Global sand	100%		6 - 6.5': SILT and SAND seam	SM		
6.5						6.5 - 9': SILTY CLAY, trace to some sand and gravel			
9					Brn Gray	9 - 10': SILTY CLAY, very plastic, trace gravel	CH	Moist	

End of boring at 10 feet bgs

**SITE SKETCH**



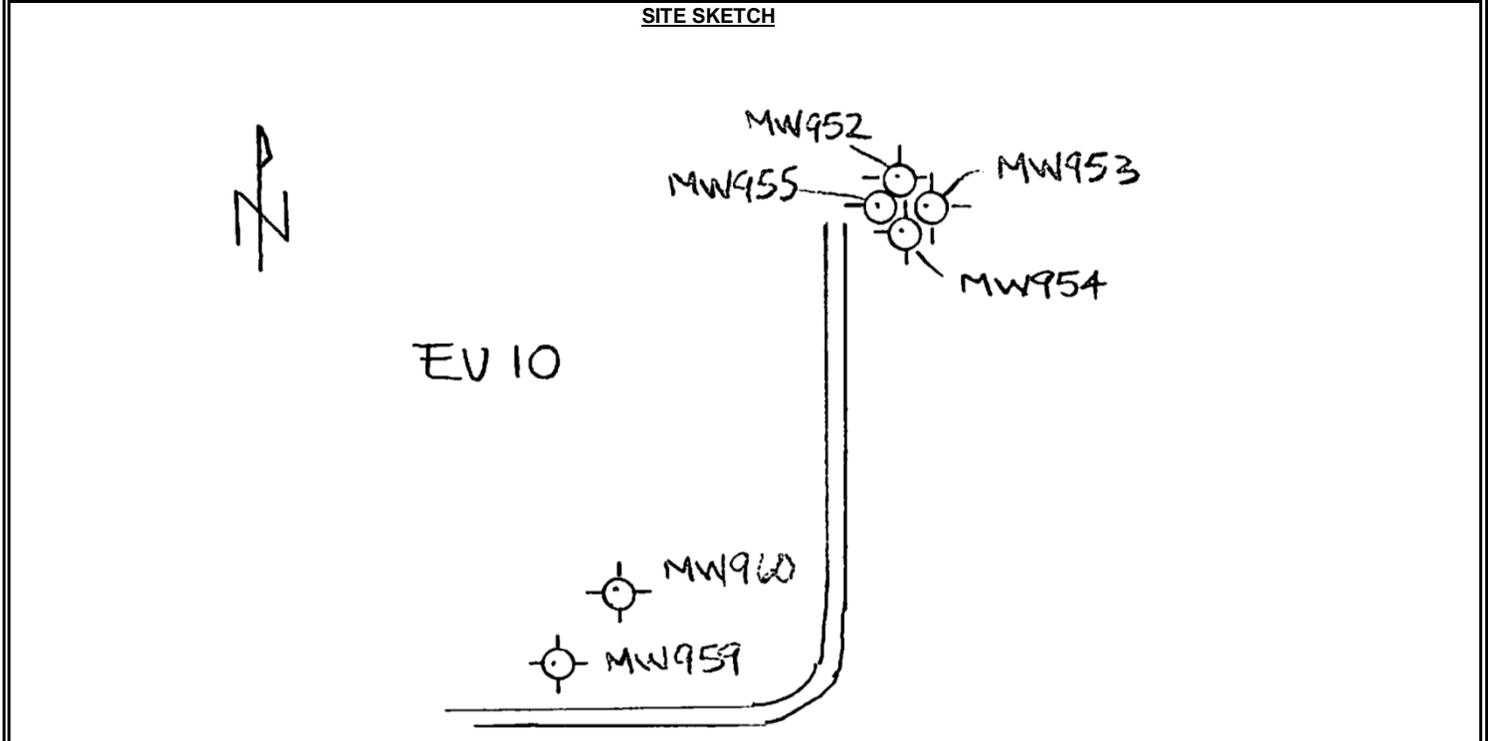
<b>COMMENTS:</b> Hand cleared to 5.0 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW953
Installed 2" well from 4.5-9.5 feet		

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW954
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1171194.942
<b>BORING LOCATION:</b> EU10, south of well OW11B		<b>EASTING:</b>	E= 1041255.184
<b>TOTAL DEPTH:</b> 10 ft		<b>GROUND ELEV:</b>	316.78, RISER: 319.85
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/20/12
<b>DEPTH TO GROUNDWATER:</b> 10.55 feet below top of riser		<b>DATE FINISHED:</b>	11/20/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 2.0-2.5, 5.5-6.0, 8.5-9.0		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE				DESCRIPTION			USCS	REMARKS	
	STRATA SYMBOL	"S" NO.	Chem	Well	REC%	COLOR	MATERIAL DESCRIPTION		MOISTURE	PID
0		Hand Clear		concrete	100%	Brown	0 - 0.25': TOPSOIL	ML	0	Moist
5				bentonite			0.25 - 9.2': SILTY CLAY, some coarse sand to fine gravel	CL		
10		S-1		10 slot screen #5 Global sand	100%	Brn Gray	5': Increase in plasticity, some gray mottles 9.2 - 10': SILTY CLAY, tr to some sand & gravel	CL		

End of boring at 10 feet bgs

**SITE SKETCH**



<b>COMMENTS:</b> Hand cleared to 5.0 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW954
Installed 2" well from 5-10 feet		

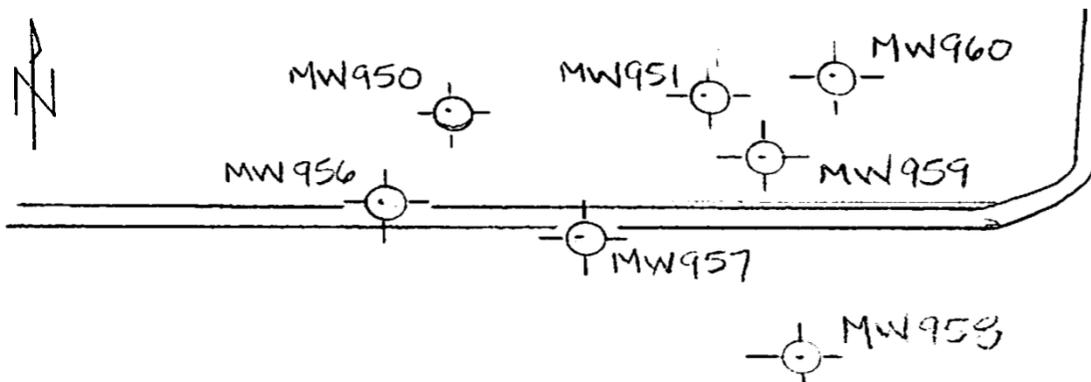


<b>URS Corporation</b>				<b>TEST BORING LOG</b>			
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation				<b>BORING NO.:</b> MW956			
<b>CLIENT:</b> USACE				<b>SHEET:</b> 1 of 1			
<b>BORING CONTRACTOR:</b> Boart Longyear				<b>JOB NO.:</b> 11176781			
<b>DRILLING METHOD:</b> Spyder Sonic rig				<b>NORTHING:</b> N= 1170812.661			
<b>BORING LOCATION:</b> EU10, south of IWCS near fence				<b>EASTING:</b> E= 1040758.599			
<b>TOTAL DEPTH:</b> 20 ft				<b>GROUND ELEV:</b> 320.14, <b>RISER:</b> 323.13			
<b>DEPTH TO BEDROCK:</b> N/A				<b>DATE STARTED:</b> 11/12/12			
<b>DEPTH TO GROUNDWATER:</b> 9.42 feet below top of riser				<b>DATE FINISHED:</b> 11/12/12			
<b>GEOTECHNICAL SAMPLES:</b> None				<b>DRILLER:</b> [REDACTED]			
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 2.0-3.0, 15.5-16.0, 16.5-17.0				<b>GEOLOGIST:</b> [REDACTED]			
				<b>REVIEWED BY:</b> [REDACTED]			

DEPTH FEET	SAMPLE					DESCRIPTION			USCS	REMARKS
	STRATA SYMBOL	"S" NO.	Chem	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION	MOISTURE PID		
0							0 - 0.25': TOPSOIL	ML	0	
5		Hand Clear		concrete	100%	Brown	0.25 - 5.2': SILTY CLAY, trace to some fine to coarse sand and gravel	CL	Moist	
				bentonite			- some gray mottles			
10		S-1			100%		5.2 - 6': SAND, fine, silty	SM	Moist	
							6 - 14': SILTY CLAY to CLAYEY SILT, trace gravel and coarse sand	CL		
15		S-2		10 slot screen	100%	Grayish brown	-trace fine gravel		Moist	
				#5 Global sand	70%	Brown	14 - 16': SILTY SAND, fine, some coarse sand, trace cobble	SM		
20		S-3				Gray	16 - 16.5': SILTY CLAY, plastic	CH	Wet	
							16.5 - 17': Silty fine SAND seam	SM		
							17 - 20': SILTY CLAY, plastic	CH		

End of boring at 20 feet bgs

**SITE SKETCH**



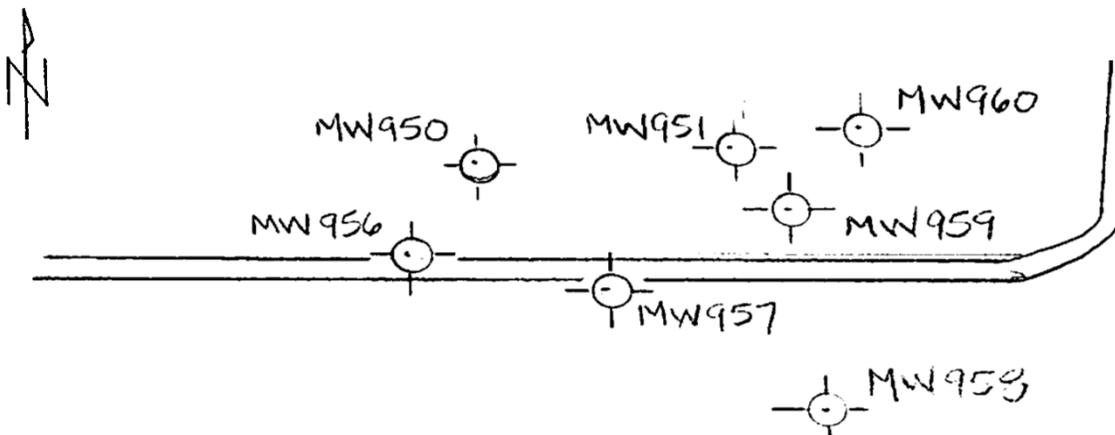
<b>COMMENTS:</b> Hand cleared to 5.0 feet to avoid utilities.	<b>PROJECT NO.</b> 11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b> MW956
Installed 2" well from 10-20 feet	

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW957
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1170788.680
<b>BORING LOCATION:</b> EU10, south of IWCS near fence		<b>EASTING:</b>	E= 1040883.536
<b>TOTAL DEPTH:</b> 15 ft		<b>GROUND ELEV:</b>	321.46, RISER: 324.48
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/13/12
<b>DEPTH TO GROUNDWATER:</b> 9.89 feet below top of riser		<b>DATE FINISHED:</b>	11/13/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 2.0-2.5, 4.0-4.5, 7.0-7.5		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE					DESCRIPTION			USCS	REMARKS
	STRATA SYMBOL	"S" NO.	Chem	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION	PID		
0		HC		concrete	100%	Brown	0 - 0.25': TOPSOIL	ML	Moist	
5				bentonite			0.25 - 5.8': SILTY CLAY to CLAYEY SILT, some sand to coarse gravel	CL		
5									Wet	
10		S-1		10 slot screen	100%		5.8 - 8.0': SILTY SAND	SM		
10				#5 Global sand			8 - 9.8': SILTY CLAY, trace coarse sand	CL	Wet	
15		S-2			100%	Brown to Grayish Brown	9.8 - 10.8': SAND, fine, some gravel	SP		
15						Gray	10.8 - 14': SILTY CLAY	CL		
15							14 - 15': CLAY, trace silt, some brown varves	CH		

End of boring at 15 feet bgs

**SITE SKETCH**



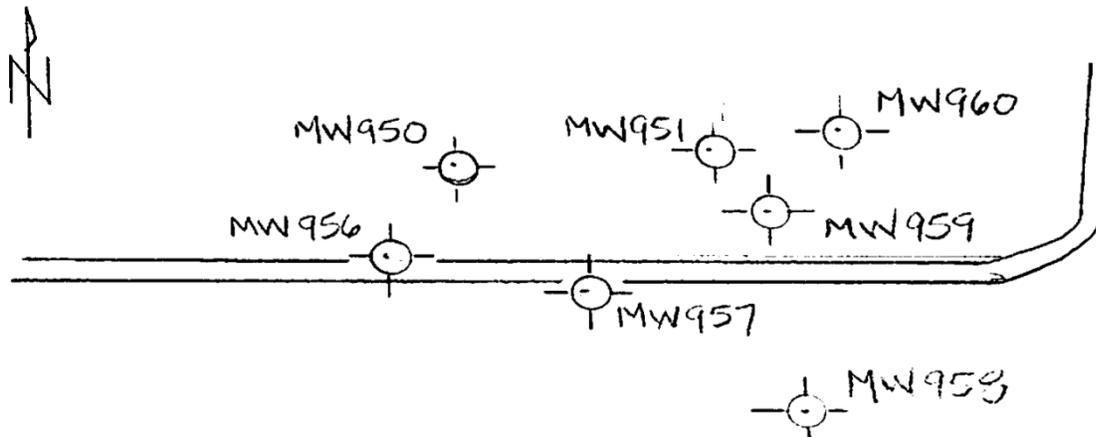
<b>COMMENTS:</b> Hand cleared to 5 feet to avoid utilities.	<b>PROJECT NO.:</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.:</b>	MW957
Installed 2" well from 5-15 feet		

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW958
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1170696.512
<b>BORING LOCATION:</b> EU10, south of IWCS near fence		<b>EASTING:</b>	E= 1041028.952
<b>TOTAL DEPTH:</b> 10 ft		<b>GROUND ELEV:</b>	316.71, RISER: 319.77
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/13/12
<b>DEPTH TO GROUNDWATER:</b> 12.04 feet below top of riser		<b>DATE FINISHED:</b>	11/13/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 4.5-5.0, 7.5-8.0, 8.5-9.0		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE				DESCRIPTION			USCS	REMARKS
	STRATA SYMBOL	"S" NO.	Chern	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION		
0		Hand Clear		concrete	100%	Brown	0 - 0.25': TOPSOIL	ML	Moist
0.25				bentonite			0.25 - 3': SILTY CLAY, some sand and gravel	CL	
3							3 - 3.8': SAND, very fine, trace silt	SM	Very moist
3.8							3.8-5.0 SILTY CLAY	CL	
5.0				10 slot screen			5.0-5.5 SAND, fine, silty	SM	
5.5				#5 Global sand	100%		5.5-8.5 SILTY CLAY, trace gravel	CL	
8.5		S-1				Gray	8.5 - 10': SILTY CLAY, some brown varves	CL	Wet

End of boring at 10 feet bgs

**SITE SKETCH**



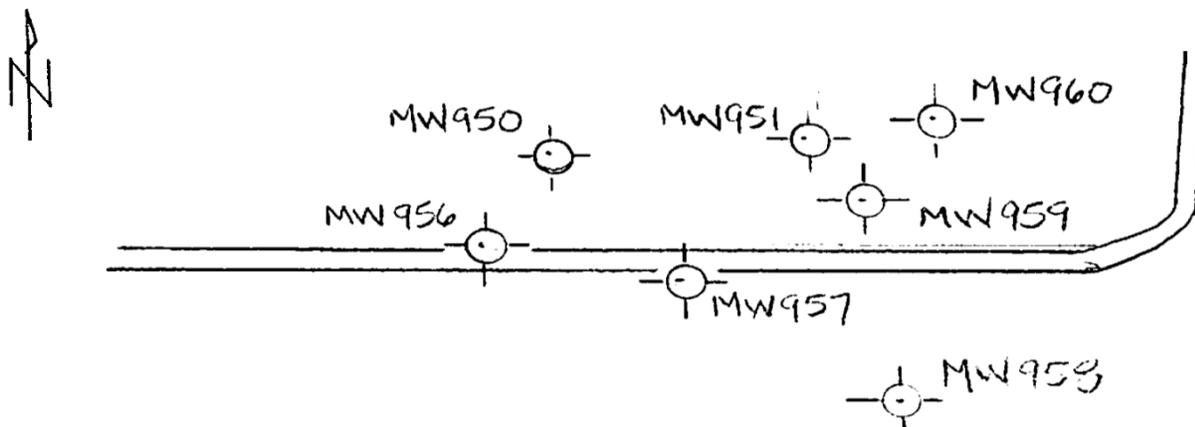
<b>COMMENTS:</b> Hand cleared to 5.0 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW958
Installed 2" well from 5-10 feet		

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW959
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1170851.24
<b>BORING LOCATION:</b> EU10, south of IWCS		<b>EASTING:</b>	E= 1040999.84
<b>TOTAL DEPTH:</b> 15 ft		<b>GROUND ELEV:</b>	317.45, <b>RISER:</b> 320.56
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/12/12
<b>DEPTH TO GROUNDWATER:</b> 8.70 feet below top of riser		<b>DATE FINISHED:</b>	11/12/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 8.0-8.5, 13.0-13.5, 14.0-14.5		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE				DESCRIPTION			USCS	REMARKS
	STRATA SYMBOL	"S" NO.	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION	MOISTURE PID		
0			concrete		Brown to Reddish Brown	0 - 0.25': TOPSOIL	ML	0	
5		Hand Clear	bentonite	100%		0.25 - 13': SILTY CLAY to CLAYEY SILT, trace to some sand and gravel, some gray mottles	CL	Moist	
10		S-1	10 slot screen	100%	Grayish brown	6.8': Fine SAND seam		Moist	
15		S-2	#5 Global sand	100%	Gray	Slightly plastic, trace fine gravel		Wet	
					Brown	Some brown varves			
					Brn Gray	13 -14': Silty fine SAND, some clay, dilatent	SM		
						14-15' SILTY CLAY	CL		

End of boring at 15 feet bgs

**SITE SKETCH**



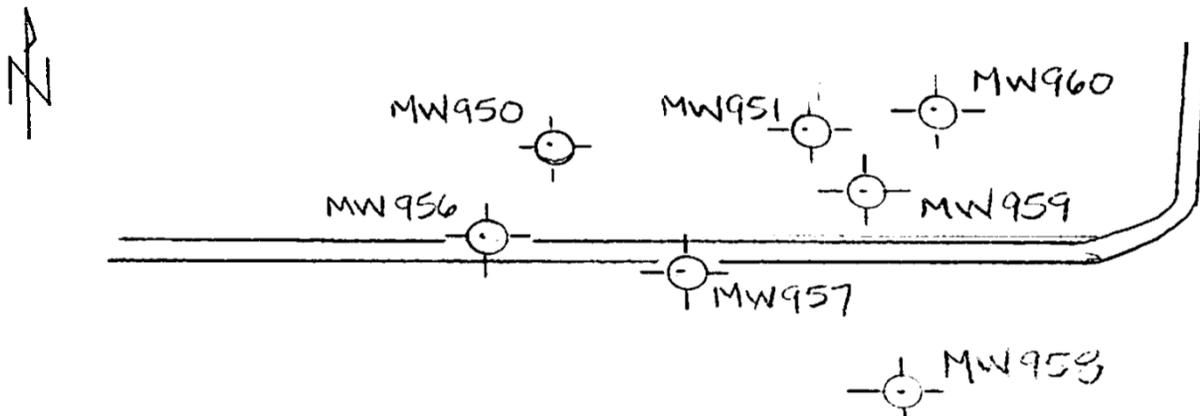
<b>COMMENTS:</b> Hand cleared to 5.0 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW959
Installed 2" well from 5-15 feet		

<b>URS Corporation</b>		<b>TEST BORING LOG</b>	
<b>PROJECT:</b> Niagara Falls Storage Site (Lewiston, NY) BOP Field Investigation		<b>BORING NO.:</b>	MW960
<b>CLIENT:</b> USACE		<b>SHEET:</b>	1 of 1
<b>BORING CONTRACTOR:</b> Boart Longyear		<b>JOB NO.:</b>	11176781
<b>DRILLING METHOD:</b> Spyder Sonic rig		<b>NORTHING:</b>	N= 1170911.415
<b>BORING LOCATION:</b> EU10, south of IWCS		<b>EASTING:</b>	E= 1041044.646
<b>TOTAL DEPTH:</b> 15 ft		<b>GROUND ELEV:</b>	318.01, <b>RISER:</b> 321.02
<b>DEPTH TO BEDROCK:</b> N/A		<b>DATE STARTED:</b>	11/11/12
<b>DEPTH TO GROUNDWATER:</b> 7.24 feet below top of riser		<b>DATE FINISHED:</b>	11/11/12
<b>GEOTECHNICAL SAMPLES:</b> None		<b>DRILLER:</b>	[REDACTED]
<b>CHEMICAL SAMPLES:</b> 0.0-0.5, 2.0-3.0, 9.5-10.0, 12.0-12.5		<b>GEOLOGIST:</b>	[REDACTED]
		<b>REVIEWED BY:</b>	[REDACTED]

DEPTH FEET	SAMPLE				DESCRIPTION			USCS	REMARKS	
	STRATA SYMBOL	"S" NO.	Chern	Well Construction	REC%	COLOR	MATERIAL DESCRIPTION		PID	MOISTURE
0		Hand Clear to 3.5'		concrete	100%	Brown	0 - 0.25': TOPSOIL	ML	0	Moist
0.25 - 4.5'				bentonite			0.25 - 4.5': CLAYEY SILT, trace to some sand and gravel, cobble.			
5		S-1		#5 Global sand	100%		4.5 - 7': SAND, fine, trace silt	SM		Wet
7 - 9.5'		S-2			100%		7 - 9.5': SILT CLAY, very plastic, with fine sand stringer at 8'	CL		Very moist
9.5 - 10.8'							9.5 - 10.8': Silty fine SAND	SM		Wet
10.8 - 15'		S-3			100%	Grayish Brown	10.8 - 15': SILTY CLAY, very plastic	CL		Wet
13 - 15'						Gray	13 - 15': CLAY, some brown varves, very plastic - thin fine sand seam at 13.8'	CH		Wet

End of boring at 15 feet bgs

**SITE SKETCH**



<b>COMMENTS:</b> Hand cleared to 3.5 feet to avoid utilities.	<b>PROJECT NO.</b>	11176781
Boring advanced with Spyder sonic drilling rig	<b>BORING NO.</b>	MW960
Installed 2" well from 5-15 feet		