



Project: Summit Landfill Piezometer Installation
GEOS Project No: 41-15412
Boring: Location A

PIEZOMETER DETAILS

<u>Depth</u>	<u>Description</u>
+3.3'	Top of Steel Well Cover
+3.0'	Top of 2" PVC Piezometer (top of riser pipe with well cap)
+0.3'	Top of 6" Steel Casing (covered by sloped concrete apron)
0.0'	Ground Surface
-96.7'	Top of Bentonite Seal
-105.0'	Bottom of 6" Steel Casing
-105.2'	Bottom of Bentonite Seal, Top of Sand Filter Pack
-110.0'	Top of Screen
-115.0'	Bottom of Screen
-115.25'	Bottom of Piezometer, Sand Filter Pack (3" bottom cap below screen)
-120.0'	Bottom of Hole – Filled with small rock fragments to -115.25'



Summit Landfill Piezometer Installation
Chattanooga, TN
GEO Services Project No.: 41-15412

LOG OF BORING A
SHEET 1 OF 6

DRILLER T. Brazier
ON-SITE REP. T. Woods

BORING NO. / LOCATION A DRY ON COMPLETION ? No

DATE August 20 - 26, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 97.6 FT. ELEV. -97.60 FT.
SAMPLED 95.7 FT. 29.2 M
TOP OF ROCK DEPTH 95.7 FT. ELEV. -95.70 FT.
BEGAN CORING DEPTH 97.6 FT. ELEV. -97.60 FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 120.0 FT. ELEV. -120.00 FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH 81.8 FT.
ELEV. -81.80 FT.
AFTER 24 HRS. DEPTH FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING WASHBORING X

STRATUM DEPTH	SAMPLE DEPTH		SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS		LABORATORY RESULTS			STRATUM DESCRIPTION
	FROM	TO			N-Value	Qp	LL	PI	%M	
FT.	FT.	FT.								
— — — 2.5 — — — — 5.0 — — — — 7.5 — — — — 10.0 — — — — 12.5 — — — — 15.0 — — — — 17.5 — — — — 20.0 —	0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0	2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0	1 2 3 4 5 6 7 8 9 10	SS SS SS SS SS SS SS SS SS	23 28 28 41* 36* 14 28 13 26 12					Topsoil (2 inches) Fat CLAY (CH) with sand, chert fragments, trace organics - brown; moist; stiff (FILL) Lean CLAY (CL) with sand, chert fragments - reddish-brown and yellowish-brown; slightly moist; very stiff (FILL) Lean CLAY (CL) with trace sand, chert fragments - reddish-brown, red, and yellowish-brown; moist; very stiff to hard (RESIDUUM) Fat CLAY (CH) with sand, chert fragments - reddish-brown, yellow, and gray; moist; hard - (RESIDUUM) Fat CLAY (CH) with trace sand - red and yellowish-brown; moist; stiff (RESIDUUM) Fat CLAY (CH) with sand lenses, chert fragments - red, yellowish-red, and gray; moist; very stiff to stiff (RESIDUUM) Fat CLAY (CH) with trace sand - reddish-brown, yellowish-brown, and gray; moist; stiff to very stiff (RESIDUUM) SILT (ML) - light brown and gray; moist to very moist; stiff (RESIDUUM)

REMARKS: *Inflated blow count due to encountering a high concentration of rock fragments within the test interval. ☐



Summit Landfill Piezometer Installation
Chattanooga, TN

GEO Services Project No.: 41-15412

LOG OF BORING A
SHEET 2 OF 6

DRILLER T. Brazier
ON-SITE REP. T. Woods

BORING NO. / LOCATION A

DRY ON COMPLETION ? No

DATE August 20 - 26, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 97.6 FT. ELEV. -97.60 FT.
SAMPLED 95.7 FT. 29.2 M
TOP OF ROCK DEPTH 95.7 FT. ELEV. -95.70 FT.
BEGAN CORING DEPTH 97.6 FT. ELEV. -97.60 FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 120.0 FT. ELEV. -120.00 FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH 81.8 FT.
ELEV. -81.80 FT.
AFTER 24 HRS. DEPTH FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING WASHBORING X

STRATUM DEPTH	SAMPLE DEPTH		SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS		LABORATORY RESULTS			STRATUM DESCRIPTION
	FROM	TO			N-Value	Qp	LL	PI	%M	
FT.	FT.	FT.								
—	20.0	22.0	11	SS	9					(Continued)
22.5	22.0	24.0	12	SS	13					SILT (ML) - light brown and gray; moist to very moist; stiff (RESIDUUM)
25.0	24.0	26.0	13	SS	15					Fat CLAY (CH) with sand, sand lenses - yellowish-brown and light brown; moist; stiff (RESIDUUM)
27.5	26.0	28.0	14	SS	27*					Clayey SAND (SC) with chert - yellowish-brown; wet; medium dense (RESIDUUM)
30.0	28.0	30.0	15	SS	9					Lean CLAY (CL) with sand, chert fragments - yellowish-brown and reddish-brown; moist with wet zone at 26.5' to 27.0'; very stiff (RESIDUUM)
32.5	30.0	32.0	16	SS	11					Fat CLAY (CH) with sand, chert fragments - yellowish-brown to brown; moist to very moist; stiff (RESIDUUM)
35.0	32.0	34.0	17	SS	12					SILT (ML) with clay, chert zones to 4" - light yellowish-brown; moist; stiff to very stiff (RESIDUUM)
37.5	34.0	36.0	18	SS	20					Lean CLAY (CL) with sand, chert - yellow-brown and gray; wet; stiff (RESIDUUM)
40.0	36.0	38.0	19	SS	15					Fat CLAY (CH) with sand, chert fragments - yellowish-brown and reddish-brown; moist to very moist; stiff (RESIDUUM)
	38.0	40.0	20	SS	13					

REMARKS: *Inflated blow count due to encountering a high concentration of rock fragments within the test interval.



Summit Landfill Piezometer Installation
Chattanooga, TN

GEO Services Project No.: 41-15412

LOG OF BORING A
SHEET 3 OF 6

DRILLER T. Brazier
ON-SITE REP. T. Woods

BORING NO. / LOCATION A

DRY ON COMPLETION ? No

DATE August 20 - 26, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 97.6 FT. ELEV. -97.60 FT.
SAMPLED 95.7 FT. 29.2 M
TOP OF ROCK DEPTH 95.7 FT. ELEV. -95.70 FT.
BEGAN CORING DEPTH 97.6 FT. ELEV. -97.60 FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 120.0 FT. ELEV. -120.00 FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH 81.8 FT.
ELEV. -81.80 FT.
AFTER 24 HRS. DEPTH FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING WASHBORING X

STRATUM DEPTH				SAMPLE DEPTH		SAMPLE OR	SAMPLE	FIELD RESULTS		LABORATORY RESULTS			STRATUM DESCRIPTION
				FROM	TO			N-Value	Qp	LL	PI	%M	
FT.		ELEV.	FT.	FT.	RUN NO.	TYPE							
—	—		40.0	41.2	21	SS	60/8"*					— Fat CLAY (CH) with sand, chert fragments - yellowish-brown and reddish-brown; moist to very moist; stiff (RESIDUUM)	
42.5	—	-42.5										—	
—	—											—	
—	—											—	
—	—											—	
45.0	—	-45.0	44.0	44.4	22	SS	50/5"*					—	
—	—											—	
—	—											—	
—	—											—	
47.5	—	-47.5	46.0	48.0	23	SS	21					—	
—	—											—	
—	—											—	
—	—		48.0	50.0	24	SS	62*					—	
50.0	—	-50.0										—	
—	—											—	
—	—		50.0	52.0	25	SS	11					—	
—	—											—	
52.5	—	-52.5	52.0	54.0	26	SS	10					—	
—	—											—	
—	—											—	
55.0	—	-55.0	54.0	56.0	27	SS	12					—	
—	—											—	
—	—											—	
—	—		56.0	58.0	28	SS	21					—	
57.5	—	-57.5										—	
—	—											—	
—	—											—	
60.0	—	-60.0	58.0	60.0	29	SS	9					—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
												—	
									</				

REMARKS: *Inflated blow count due to encountering a high concentration of rock fragments within the test interval.



Summit Landfill Piezometer Installation
Chattanooga, TN
GEO Services Project No.: 41-15412

LOG OF BORING A
SHEET 4 OF 6

DRILLER T. Brazier
ON-SITE REP. T. Woods

BORING NO. / LOCATION		<u>A</u>		DRY ON COMPLETION ?		<u>No</u>	
DATE	<u>August 20 - 26, 2015</u>		SURFACE ELEV.		<u> </u> FT.		WATER LEVEL DATA (IF APPLICABLE) COMPLETION: DEPTH <u>81.8</u> FT. ELEV. <u>-81.80</u> FT. AFTER 24 HRS. DEPTH <u> </u> FT. ELEV. <u> </u> FT.
REFUSAL:	<u>Yes</u>	DEPTH	<u>97.6</u> FT.	ELEV.	<u>-97.60</u> FT.		
SAMPLED	<u>95.7</u> FT.		<u>29.2</u> M				
TOP OF ROCK		DEPTH	<u>95.7</u> FT.	ELEV.	<u>-95.70</u> FT.		
BEGAN CORING		DEPTH	<u>97.6</u> FT.	ELEV.	<u>-97.60</u> FT.		
FOOTAGE CORED (LF)			<u> </u> FT.				
BOTTOM OF HOLE DEPTH			<u>120.0</u> FT.	ELEV.	<u>-120.00</u> FT.		

BORING ADVANCED BY: POWER AUGERING WASHBORING X

STRATUM DEPTH			SAMPLE DEPTH		SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS		LABORATORY RESULTS			STRATUM DESCRIPTION
FT.		ELEV.	FROM FT.	TO FT.			N-Value	Qp	LL	PI	%M	
—	—	—	60.0	62.0	30	SS	17					(Continued) Lean to Fat CLAY (CL-CH) with sand, sandstone fragments - brown with minor gray; very moist; stiff (RESIDUUM)
62.5	—	-62.5	62.0	64.0	31	SS	40*					
65.0	—	-65.0	64.0	66.0	32	SS	20					
67.5	—	-67.5	66.0	68.0	33	SS	19					Sandy SILT (ML) with occasional thin (<2") chert layers - light brown; very moist to wet (chert layers); hard to stiff (RESIDUUM)
70.0	—	-70.0	68.0	70.0	34	SS	12					
72.5	—	-72.5	70.0	72.0	35	SS	12					
75.0	—	-75.0	72.0	74.0	36	SS	9					Lean CLAY (CL) with sand, chert, thin light brown layers (<4"), relict structures - light brown to reddish-brown; very moist to wet; stiff (RESIDUUM)
77.5	—	-77.5	74.0	76.0	37	SS	9					
80.0	—	-80.0	76.0	78.0	38	SS	18					
			78.0	80.0	39	SS	22					Sandy SILT (ML) with clay zones, chert, few highly weathered dolomite fragments - light brown and reddish-brown with minor black; very moist to wet; stiff to very stiff; (RESIDUUM)
												Fat CLAY (CH) with trace sand, chert, relict structures - reddish-brown; moist to very moist; very stiff (RESIDUUM)

REMARKS: *Inflated blow count due to encountering a high concentration of rock fragments within the test interval.



Summit Landfill Piezometer Installation
Chattanooga, TN

GEO Services Project No.: 41-15412

LOG OF BORING A
SHEET 5 OF 6

DRILLER T. Brazier
ON-SITE REP. T. Woods

BORING NO. / LOCATION		A		DRY ON COMPLETION ?		No	
DATE	August 20 - 26, 2015		SURFACE ELEV.		FT.		WATER LEVEL DATA (IF APPLICABLE) COMPLETION: DEPTH <u>81.8</u> FT. ELEV. <u>-81.80</u> FT. AFTER 24 HRS. DEPTH <u> </u> FT. ELEV. <u> </u> FT.
REFUSAL:	Yes	DEPTH	<u>97.6</u> FT.	ELEV.	<u>-97.60</u> FT.		
SAMPLED	<u>95.7</u> FT.		<u>29.2</u> M				
TOP OF ROCK		DEPTH	<u>95.7</u> FT.	ELEV.	<u>-95.70</u> FT.		
BEGAN CORING		DEPTH	<u>97.6</u> FT.	ELEV.	<u>-97.60</u> FT.		
FOOTAGE CORED (LF)			<u> </u> FT.				
BOTTOM OF HOLE DEPTH			<u>120.0</u> FT.	ELEV.	<u>-120.00</u> FT.		

BORING ADVANCED BY: POWER AUGERING WASHBORING X

STRATUM DEPTH	SAMPLE DEPTH		SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS		LABORATORY RESULTS			STRATUM DESCRIPTION
	FROM	TO			N-Value	Qp	LL	PI	%M	
FT.	FT.	FT.								
82.5	80.0	82.0	40	SS	29					(Continued)
85.0	84.0	86.0	41	SS	24					
87.5	86.0	88.0	42	SS	23					
90.0	88.0	90.0	43	SS	25					
92.5	90.0	92.0	44	SS	12					Lean CLAY (CL) with sand, silt layers to 6", chert fragments, relict structures - brown with minor black; very moist; very stiff (RESIDUUM)
95.0	92.0	94.0	45	SS	18					
97.5	94.0	95.7	46	SS	9					Fat CLAY (CH) with few weathered dolomite, chert fragments - reddish-brown and gray; very moist; stiff (RESIDUUM)
100.0										Weathered sandy DOLOMITE
										Auger Refusal, Began Coring at 97.6 feet
										DOLOMITE , sandy, medium to coarse grained, hard, light gray, with dark chert bands, trace pyrite, bedding dips at 15°

REMARKS: Augered weathered dolomite from 95.7' to auger refusal at 97.6'.



Summit Landfill Piezometer Installation
Chattanooga, TN

GEO Services Project No.: 41-15412

LOG OF BORING A
SHEET 6 OF 6

DRILLER T. Brazier
ON-SITE REP. T. Woods

BORING NO. / LOCATION A DRY ON COMPLETION ? No

DATE August 20 - 26, 2015 SURFACE ELEV. FT.
REFUSAL: Yes DEPTH 97.6 FT. ELEV. -97.60 FT.
SAMPLED 95.7 FT. 29.2 M
TOP OF ROCK DEPTH 95.7 FT. ELEV. -95.70 FT.
BEGAN CORING DEPTH 97.6 FT. ELEV. -97.60 FT.
FOOTAGE CORED (LF) FT.
BOTTOM OF HOLE DEPTH 120.0 FT. ELEV. -120.00 FT.

WATER LEVEL DATA (IF APPLICABLE)
COMPLETION: DEPTH 81.8 FT.
ELEV. -81.80 FT.
AFTER 24 HRS. DEPTH FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING WASHBORING X

STRATUM DEPTH				SAMPLE DEPTH		SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS		LABORATORY RESULTS			STRATUM DESCRIPTION
				FROM	TO			RESULTS					
FT.			ELEV.	FT.	FT.			N-Value	Qp	LL	PI	%M	
	-												-
	-												-
	-												-
	-												-
102.5	-		-102.5										-
	-												-
	-												-
	-												-
	-												-
105.0	-		-105.0										-
	-												-
	-												-
	-												-
107.5	-		-107.5										-
	-												-
	-												-
	-												-
	-												-
110.0	-		-110.0										-
	-												-
	-												-
	-												-
112.5	-		-112.5										-
	-												-
	-												-
	-												-
	-												-
115.0	-		-115.0										-
	-												-
	-												-
	-												-
117.5	-		-117.5										-
	-												-
	-												-
	-												-
120.0	-		-120.0										-

REMARKS: NX core from 97.6' to 110.6', 117.5 to 120.0'; Hole advanced with casing advancer 110.6' to 117.5'. Core bit completely worn
away during coring from 117.5' to 120.0', no sample recovery, interval logged by observation of drill action.

Project: Summit Landfill Piezometer Installation
 GEOS Project No: 41-15412
 Boring: Location A

ROCK CORE FRACTURE/STRUCTURAL DATA

<u>Pull</u>	<u>Run</u>	<u>Depth</u>	<u>Recovery</u>	<u>RQD</u>
1	3.0'	97.6'-100.6'	100%	100%
2	2.1'	100.6'-102.7'	19%	14%
3	2.9'	102.7'-105.6'	0%	0%
4	5.0'	105.6'-110.6'	0%	0%
5	2.5'	117.5'-120.0'	0%	0%

<u>Depth</u>	<u>Description</u>
97.6'	Bedding break, highly weathered, very rough
97.6'	Joint, 80°, highly weathered, very rough
97.6'-99.0'	Joint, vertical, healed, minor separation, irregular
99.0'	Stylolite, near horizontal, slightly weathered
99.4'	Bedding break, fresh, slightly undulating to smooth
99.4'	Joint, 50°, fresh, slightly rough
100.6'	Mechanical break
100.9'	Bedding break, slightly weathered to weathered, slightly rough
100.9'	Joint, 45°, slightly weathered to weathered, slightly rough
100.9'	End of Core Recovery



Project: Summit Landfill Piezometer Installation
GEOS Project No: 41-15412
Boring: Location B

PIEZOMETER DETAILS

<u>Depth</u>	<u>Description</u>
+3.3'	Top of Steel Well Cover
+3.0'	Top of 2" PVC Piezometer (top of riser pipe with well cap)
0.0'	Ground Surface, Top of 6" Steel Casing
-93.6'	Top of Bentonite Seal
-100.3'	Bottom of Bentonite Seal, Top of Sand Filter Pack
-102.25'	Bottom of 6" Steel Casing
-103.9'	Top of Screen
-118.9'	Bottom of Screen
-119.15'	Bottom of Piezometer (3" bottom cap below screen)
-120.5'	Bottom of Hole – Bottom of Sand



Summit Landfill Piezometer Installation
Chattanooga, TN
GEO Services Project No.: 41-15412

LOG OF BORING **B**
SHEET 1 OF 6

DRILLER T. Brazier
ON-SITE REP. T. Woods

BORING NO. / LOCATION B DRY ON COMPLETION ? No

DATE August 28 - September 1, 2015 SURFACE ELEV. FT.

REFUSAL: Yes DEPTH 100.7 FT. ELEV. -100.70 FT.

SAMPLED 96.2 FT. 29.3 M

TOP OF ROCK DEPTH 96.2 FT. ELEV. -96.20 FT.

BEGAN CORING DEPTH 100.7 FT. ELEV. -100.70 FT.

FOOTAGE CORED (LF) FT.

BOTTOM OF HOLE DEPTH 119.7 FT. ELEV. -119.70 FT.

WATER LEVEL DATA (IF APPLICABLE)

COMPLETION: DEPTH 77.2 FT.
ELEV. FT.

AFTER 24 HRS. DEPTH FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING WASHBORING X

STRATUM			SAMPLE DEPTH		SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS		LABORATORY RESULTS			STRATUM DESCRIPTION
DEPTH			FROM	TO			N-Value	Qp	LL	PI	%M	
FT.		ELEV.	FT.	FT.								
—			0.0	2.0	1	SS	23					Lean CLAY (CL), sandy with limestone and chert fragments, trace organics - reddish-brown; dry to slightly moist; very stiff to hard (FILL)
2.5	—	-2.5	2.0	4.0	2	SS	48*					
5.0	—	-5.0	4.0	6.0	3	SS	35*					
7.5	—	-7.5	6.0	8.0	4	SS	26					Fat CLAY (CH), with sand, chert fragments - yellowish-red; slightly moist; hard to very stiff (FILL)
10.0	—	-10.0	8.0	10.0	5	SS	18					
12.5	—	-12.5	10.0	12.0	6	SS	22					Fat CLAY (CH), with trace sand, chert fragments - reddish-brown and gray; slightly moist; very stiff to stiff (RESIDUUM)
15.0	—	-15.0	12.0	14.0	7	SS	22					
17.5	—	-17.5	14.0	16.0	8	SS	13					
20.0	—	-20.0	16.0	18.0	9	SS	26					
			18.0	20.0	10	SS	16					

REMARKS: *Inflated blow count due to encountering a high concentration of rock fragments within the test interval.



Summit Landfill Piezometer Installation
Chattanooga, TN

GEO Services Project No.: 41-15412

LOG OF BORING **B**

SHEET 2 OF 6

DRILLER T. Brazier

ON-SITE REP. T. Woods

BORING NO. / LOCATION

B

DRY ON COMPLETION ?

No

DATE August 28 - September 1, 2015

SURFACE ELEV. FT.

REFUSAL: Yes DEPTH 100.7 FT.

ELEV. -100.70 FT.

SAMPLED 96.2 FT. 29.3 M

TOP OF ROCK DEPTH 96.2 FT.

ELEV. -96.20 FT.

BEGAN CORING DEPTH 100.7 FT.

ELEV. -100.70 FT.

FOOTAGE CORED (LF) FT.

BOTTOM OF HOLE DEPTH 119.7 FT.

ELEV. -119.70 FT.

WATER LEVEL DATA (IF APPLICABLE)

COMPLETION: DEPTH 77.2 FT.

ELEV. FT.

AFTER 24 HRS. DEPTH FT.

ELEV. FT.

BORING ADVANCED BY:

POWER AUGERING

WASHBORING

X

STRATUM DEPTH	SAMPLE DEPTH		SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS		LABORATORY RESULTS			STRATUM DESCRIPTION
	FROM	TO			N-Value	Qp	LL	PI	%M	
FT.	FT.	FT.								
—	20.0	22.0	11	SS	13					Lean to Fat CLAY (CL-CH) with trace sand, occasional chert fragments - reddish-brown; moist; stiff to very stiff (RESIDUUM)
22.5	22.0	24.0	12	SS	20					
25.0	24.0	26.0	13	SS	14					
—	26.0	28.0	14	SS	36*					Fat CLAY (CH) with trace sand, chert fragments and zones to 9" - yellowish-brown and reddish-brown with maroon layers; moist; stiff to hard (RESIDUUM)
27.5	28.0	30.0	15	SS	18					
30.0	30.0	32.0	16	SS	18					
32.5	32.0	34.0	17	SS	24					Fat CLAY (CH) with sand, chert fragments - reddish-brown; moist with trace free water in chert-rich zones; very stiff (RESIDUUM)
35.0	34.0	36.0	18	SS	19					
37.5	36.0	38.0	19	SS	22					
40.0	38.0	40.0	20	SS	24					Fat CLAY (CH) with trace sand, chert fragments yellowish-brown; very moist; very stiff (RESIDUUM)

REMARKS: *Inflated blow count due to encountering a high concentration of rock fragments within the test interval.



Summit Landfill Piezometer Installation
Chattanooga, TN
GEO Services Project No.: 41-15412

LOG OF BORING **B**
SHEET 4 OF 6

DRILLER T. Brazier
ON-SITE REP. T. Woods

BORING NO. / LOCATION B DRY ON COMPLETION ? No

DATE August 28 - September 1, 2015 SURFACE ELEV. FT.

REFUSAL: Yes DEPTH 100.7 FT. ELEV. -100.70 FT.

SAMPLED 96.2 FT. 29.3 M

TOP OF ROCK DEPTH 96.2 FT. ELEV. -96.20 FT.

BEGAN CORING DEPTH 100.7 FT. ELEV. -100.70 FT.

FOOTAGE CORED (LF) FT.

BOTTOM OF HOLE DEPTH 119.7 FT. ELEV. -119.70 FT.

WATER LEVEL DATA (IF APPLICABLE)

COMPLETION: DEPTH 77.2 FT.
ELEV. FT.

AFTER 24 HRS. DEPTH FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING WASHBORING X

STRATUM DEPTH	SAMPLE DEPTH		SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS		LABORATORY RESULTS			STRATUM DESCRIPTION
	FROM	TO			N-Value	Qp	LL	PI	%M	
FT. ELEV.	FT.	FT.								
— — — 62.5 — -62.5 — — 65.0 — -65.0 — — 67.5 — -67.5 — — 70.0 — -70.0 — — 72.5 — -72.5 — — 75.0 — -75.0 — — 77.5 — -77.5 — — 80.0 — -80.0	60.0 62.0 64.0 66.0 68.0 70.0 72.0 74.0 76.0 78.0	62.0 64.0 66.0 68.0 70.0 72.0 74.0 76.0 78.0 80.0	31 32 33 34 35 36 37 38 39 40	SS SS SS SS SS SS SS SS SS	10 17 14 17 10 13 25* 12 16 12					
Fat CLAY (CH) with trace sand, occasional chert fragments - reddish-brown; very moist; stiff (RESIDUUM)										
Lean CLAY (CL) with sand, chert fragments and layers - brown to dark brown with trace black; wet; very stiff to stiff (RESIDUUM)										
Fat CLAY (CH) with sand, rare to occasional chert fragments - brown and red with trace black; moist to wet; very stiff to stiff (RESIDUUM)										
Fat CLAY (CH) with silty sand layers, occasional chert fragments, relict structures - reddish-brown and gray; vert moist to wet at 82'; stiff to very stiff (RESIDUUM)										

REMARKS: *Inflated blow count due to encountering a high concentration of rock fragments within the test interval. ☐



Summit Landfill Piezometer Installation
Chattanooga, TN
GEO Services Project No.: 41-15412

LOG OF BORING **B**
SHEET 5 OF 6

DRILLER T. Brazier
ON-SITE REP. T. Woods

BORING NO. / LOCATION B DRY ON COMPLETION ? No

DATE August 28 - September 1, 2015 SURFACE ELEV. FT.

REFUSAL: Yes DEPTH 100.7 FT. ELEV. -100.70 FT.

SAMPLED 96.2 FT. 29.3 M

TOP OF ROCK DEPTH 96.2 FT. ELEV. -96.20 FT.

BEGAN CORING DEPTH 100.7 FT. ELEV. -100.70 FT.

FOOTAGE CORED (LF) FT.

BOTTOM OF HOLE DEPTH 119.7 FT. ELEV. -119.70 FT.

WATER LEVEL DATA (IF APPLICABLE)

COMPLETION: DEPTH 77.2 FT.
ELEV. FT.

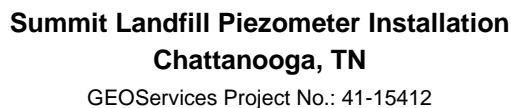
AFTER 24 HRS. DEPTH FT.
ELEV. FT.

BORING ADVANCED BY: POWER AUGERING WASHBORING X

STRATUM			SAMPLE DEPTH		SAMPLE OR RUN NO.	SAMPLE TYPE	FIELD RESULTS		LABORATORY RESULTS			STRATUM DESCRIPTION
DEPTH			FROM	TO					LL	PI	%M	
FT.		ELEV.	FT.	FT.			N-Value	Qp				
—	—	—	80.0	82.0	41	SS	15					(Continued)
82.5	—	-82.5	82.0	84.0	42	SS	16					
85.0	—	-85.0	84.0	86.0	43	SS	11					
87.5	—	-87.5	86.0	88.0	44	SS	12					
90.0	—	-90.0	90.0	92.0	45	SS	10					
92.5	—	-92.5	92.0	94.0	46	SS	10					Fat CLAY (CH) and silty SAND (SM) - reddish-brown and gray; very moist to wet; stiff (RESIDUUM)
95.0	—	-95.0	94.0	96.0	47	SS	9					
97.5	—	-97.5	96.0	96.2	48	SS	50/2"*					Weathered sandy DOLOMITE
—	—	—										
100.0	—	-100.0										

REMARKS: *Inflated blow count due to encountering a high concentration of rock fragments within the test interval. ☐

No sample from 88' to 90', sampler and rods fell 40', disturbed sample interval. Material same as at 86' to 88'.



DRILLER	T. Brazier
ON-SITE REP.	T. Woods

DATE	August 28 - September 1, 2015		SURFACE ELEV.	FT.
REFUSAL:	Yes	DEPTH 100.7	ELEV. -100.70	FT.
SAMPLED	96.2	FT. 29.3		M
TOP OF ROCK		DEPTH 96.2	ELEV. -96.20	FT.
BEGAN CORING		DEPTH 100.7	ELEV. -100.70	FT.
FOOTAGE CORED (LF)				FT.
BOTTOM OF HOLE	DEPTH	119.7	ELEV. -119.70	FT.

BORING ADVANCED BY:	POWER AUGERING	WASHBORING	X
---------------------	----------------	------------	---

[illegible]

REMARKS:

Project: Summit Landfill Piezometer Installation
 GEOS Project No: 41-15412
 Boring: Location B

ROCK CORE FRACTURE/STRUCTURAL DATA

<u>Pull</u>	<u>Run</u>	<u>Depth</u>	<u>Recovery</u>	<u>RQD</u>
1	1.0'	100.7'-101.7'	80%	0%
2	1.6'	101.7'-103.3'	88%	44%
3	1.4'	103.3'-104.7'	114%	71%
4	5.0'	104.7'-109.7'	100%	54%
5	5.0'	109.7'-114.7'	100%	57%
6	5.0'	114.7'-119.7'	100%	66%

<u>Depth (ft.)</u>	<u>Description</u>
100.7-101.7	Core badly fractured
101.7	Mechanical break
101.7	Joint, 25°, slightly weathered, rough
102.0	Bedding break, fresh, very rough
102.2	Mechanical break
102.4-102.5	Bedding breaks (2), fresh, slightly rough
102.5	Joint, vertical, fresh, slightly rough
103.0-103.1	Mechanical breaks (2)
103.1-103.2	Core badly fractured
103.5	Bedding break, slightly stained, slightly rough
103.5	Joint, 30°, stained, slightly rough
104.2	Joint, 15° (opposite bedding), slightly stained, rough
104.7	Mechanical break
104.7	Joint, 40°, fresh, slightly rough
104.9-105.9	Joint, 75°-vertical, slightly stained, slightly curved, slightly rough
105.6	Joint, 5°, slightly weathered, rough
106.0	Joint, 10°≤, stained, rough

Project: Summit Landfill Piezometer Installation
 GEOS Project No: 41-15412
 Boring: Location B

ROCK CORE FRACTURE/STRUCTURAL DATA

<u>Pull</u>	<u>Run</u>	<u>Depth</u>	<u>Recovery</u>	<u>RQD</u>
1	1.0'	100.7'-101.7'	80%	0%
2	1.6'	101.7'-103.3'	88%	44%
3	1.4'	103.3'-104.7'	114%	71%
4	5.0'	104.7'-109.7'	100%	54%
5	5.0'	109.7'-114.7'	100%	57%
6	5.0'	114.7'-119.7'	100%	66%

<u>Depth (ft.)</u>	<u>Description</u>
100.7-101.7	Core badly fractured
101.7	Mechanical break
101.7	Joint, 25°, slightly weathered, rough
102.0	Bedding break, fresh, very rough
102.2	Mechanical break
102.4-102.5	Bedding breaks (2), fresh, slightly rough
102.5	Joint, vertical, fresh, slightly rough
103.0-103.1	Mechanical breaks (2)
103.1-103.2	Core badly fractured
103.5	Bedding break, slightly stained, slightly rough
103.5	Joint, 30°, stained, slightly rough
104.2	Joint, 15° (opposite bedding), slightly stained, rough
104.7	Mechanical break
104.7	Joint, 40°, fresh, slightly rough
104.9-105.9	Joint, 75°-vertical, slightly stained, slightly curved, slightly rough
105.6	Joint, 5°, slightly weathered, rough
106.0	Joint, 10°≤, stained, rough

Project: Summit Landfill Piezometer Installation
 GEOS Project No: 41-15412
 Boring: Location B

ROCK CORE FRACTURE/STRUCTURAL DATA

<u>Depth (ft.)</u>	<u>Description</u>
106.3	Bedding break, weathered, rough
106.5	Joint, 40°, weathered, very rough
106.5-106.7	Core highly weathered, pitted
106.7	Bedding break (?), weathered, very rough
107.8	Joint, near horizontal (stylolite?), weathered, irregular, very rough
108.3	Joint, 10° ≤ , with thin clay layer, irregular
108.4	Joint, 10° ≤ , slightly stained, irregular, very rough
108.4	Joint, 75°, fresh, very rough
108.4	Bedding break, fresh, rough
108.7	Joint, 35°, stained, irregular, very rough
108.7-109.4	Core badly fractured
109.4	Joint, 40°, stained, very rough
109.7	Mechanical break
109.7	Bedding break, slightly weathered, rough
109.9	Bedding break, slightly weathered, rough
110.4	Joint, 10°, fresh, slightly rough
110.4	Joint, 75°-vertical (overturned), fresh, rough
110.7-110.8	Joints (2), 40°, fresh to slightly weathered, irregular
110.9	Joint, 10°, fresh, very rough
111.3	Bedding break, fresh, rough
111.4	Joint, 60°, fresh, rough
111.5	Mechanical break
111.7-111.8	Bedding breaks (2), fresh, slightly curved
111.8-112.4	Joint, 80°-vertical, fresh, rough

Project: Summit Landfill Piezometer Installation
 GEOS Project No: 41-15412
 Boring: Location B

ROCK CORE FRACTURE/STRUCTURAL DATA

<u>Depth (ft.)</u>	<u>Description</u>
113.3	Joint, near horizontal, irregular, very rough, slightly weathered
113.3	Core slightly pitted
114.0	Bedding break, slightly stained, rough
114.0	Joint, vertical, weathered, rough
114.3-114.9	Core badly fractured, weathered
114.9	Mechanical break
115.2	Joint, horizontal, weathered, irregular, very rough
115.2	Joint, 65°, fresh, rough
115.2	Joint, 80°, fresh, slightly rough
115.5	Joint, 65°, fresh, rough
115.6	Joint, 40°, fresh, rough
115.8	Joint, 30°, slightly stained, slightly curved, slightly rough
115.8-118.2	Numerous calcite-filled healed fractures
116.1-116.7	Joints (3), 60°, fresh, rough
117.3	Joint, 45°, fresh, rough
117.6	Bedding break, slightly stained, very rough
117.6	Joint, vertical, incipient to slightly open
118.4	Bedding break, slightly stained, slightly rough to rough
118.4-118.7	Core badly fractured, slight staining on joint surfaces
118.7	Joint, 70°, fresh, irregular
119.0	Joint, 80°, fresh, slightly irregular
119.2-119.5	Core badly fractured
119.7	Mechanical break – END OF CORING