



Stantec

Stantec Consulting Services Inc.
1409 North Forbes Road
Lexington, KY 40511-2050
Tel: (859) 422-3000
Fax: (859) 422-3100

March 23, 2012

let_032_17560005

Mr. Roberto Sanchez, PE, PG, D, GE, PH-GW
Tennessee Valley Authority
1101 Market Street, LP 3P-C
Chattanooga, Tennessee 37402

Re: Letter for Additional & Replacement Instrumentation Installations
Dry Fly Ash Stack
John Sevier Fossil Plant
Rogersville, Tennessee

Dear Mr. Sanchez:

Stantec Consulting Services Inc. (Stantec) has completed installation of additional instrumentation for the Dry Fly Ash Stack (DFAS) at the John Sevier Fossil (JFS) Plant. The additional instrumentation installations were conducted in general accordance with proposal pro_008_17560005, dated October 4, 2011. This letter includes general site information, scope of work performed, summary of new instrumentation, revised instrumentation layout, instrumentation installation schematics, and typed boring logs.

General Information

It is understood at JSF, dry fly ash is collected in silos and transferred to the 90-acre DFAS for disposal. The DFAS was originally developed as a series of ash ponds receiving sluiced ash when the plant was brought online in 1955. Since that time, the DFAS has been re-configured and re-graded and has received dry fly ash and dredged bottom ash. The DFAS covers approximately 118 acres and includes the filled area, a sedimentation basin, access roads, and buffer areas. The filled portion is approximately 92 acres and includes the 27-acre 1997 Partial Closure area, the 40-acre area covered with an interim soil cover (i.e., the Interim Soil Cover Area), and the 25-acre active area that is still in operation.

On December 14, 2010 Stantec submitted a draft MINA letter (let_008_175660005) which contained recommendations for installation and automation of piezometers and slope inclinometers at JSF. Upon receipt of comments, Stantec submitted a Final MINA Letter of recommendations (let_019_175660005) on July 22, 2001. Stantec recommended the installation of nine (9) piezometers and four (4) slope inclinometers along the north side of the DFAS following the construction of the toe drain seepage collection system, which was completed in August 2011. Five (5) of the piezometers and one (1) of the slope inclinometers were replacements of instruments abandoned for the toe drain construction project and installed near the locations of the abandoned instruments. Four (4) piezometers

Stantec Consulting Services Inc.
One Team. Infinite Solutions.

and three (3) slope inclinometers were installed at new locations along the north slope as shown in the attached revised instrumentation layout. The recommendations for the instrument installations were based on results from 2009 geotechnical explorations, proposed corrective measures (as designed by Stantec and URS Corporation), instrumentation data, and planned operational activities. The purpose of the piezometers is to observe the phreatic surface in the areas where the piezometers were placed.

Scope of Work

Fieldwork for the additional instrumentation was performed by Stantec during the months of December 2011, January 2012 and March 2012. The field work consisted of advancing a total of thirteen (13) borings at the project site. Boring locations were chosen by Stantec, then surveyed and staked by TVA. The locations of the borings and their corresponding elevations are given on the updated instrumentation layout drawing enclosed. The additional instrumentation installations was performed using 4¼ inch (ID) hollow stem augers following a carbide tipped tooth bit and NQ-size rock coring equipment.

Standard Penetration Testing (SPT) was performed in all the borings continuously or on 2.5 feet depth intervals. A standard penetration test consists of dropping a 140-pound hammer to drive a split-barrel sampler 18 inches. The consistency or relative density of the soil material is estimated by the number of blows it takes to drive the split spoon sampler the last 12 inches. This method is typically used to obtain soil samples, estimate the consistency or relative density of the soil and also to estimate the vertical limits of the subsurface soil horizons. The results of SPT testing are presented on the typed boring logs enclosed.

Upon completion of the drilling and sampling procedures, the boreholes were either backfilled with well backfill materials (cement, sand and/or bentonite) depending on the type of instrumentation (piezometer versus slope inclinometer) the borehole was planned to receive. A geotechnical engineer was present on-site throughout the drilling and sampling operations. The engineer directed the drill crew, logged the subsurface materials encountered during the exploration and collected soil samples. Particular attention was given to the soil's color, texture, moisture content and consistency or relative density. The bedrock was logged with particular attention to rock type, color, grain size, hardness, and bedding characteristics. Following the field exploration, the SPT samples and rock core were transported to Stantec's Lexington, Kentucky laboratory for analyses. The samples will be available for review up to thirty (30) days following the submittal of this report, at which time the samples will be discarded unless prior arrangements for storage have been made.

Laboratory Testing and Analyses

Laboratory testing was performed on soil samples obtained from the geotechnical exploration. SPT samples from the borings were tested for natural moisture content in accordance with ASTM D 2216. The results of laboratory testing are presented in boring logs enclosed.

Summary of Instruments

This scope of work includes preparation and submittal of an updated instrumentation layout drawing, instrumentation installation schematics, and typed boring logs. Additionally, information relative to instruments installed previously is shown on the layout drawing. A summary of additional instrumentation (installed December 2011, January 2012 and March 2012) and boring information is presented in Table 1, where all measurements are expressed in feet.

Table 1. Summary of Additional Instrumentation

Instrument ID	Cross Section	Instrument Type	Surface Elevation (ft)	PZ Tip Elevation (ft)	Location	
					Northing	Easting
JS-28R	E-E'	Piezometer	1078.9	1062.9	736,041.33	2,891,216.02
JS-35R	D-D'	Piezometer	1081.3	1059.3	735,540.94	2,890,693.02
JS-43R	C-C'	Piezometer	1083.1	1058.3	735,270.41	2,890,358.61
JS-47R	B-B'	Piezometer	1078.5	1064.0	735,007.66	2,890,006.13
JS-53R	A-A'	Piezometer	1082.3	1071.2	734,735.90	2,889,582.52
JS-54R	A-A'	Inclinometer	1100.2	--	734,688.35	2,889,606.40
JS-66	--	Piezometer	1081.3	1067.0	736,237.45	2,891,412.24
JS-67	--	Piezometer	1098.7	1071.1	736,204.38	2,891,447.95
JS-68	--	Piezometer	1081.4	1069.3	735,862.54	2,891,067.05
JS-69	--	Inclinometer	1097.6	--	735,836.69	2,891,100.43
JS-70	--	Piezometer	1111.3	1080.5	735,812.68	2,891,128.74
JS-71	D-D'	Inclinometer	1093.8	--	735,514.47	2,890,719.29
JS-72	--	Inclinometer	1079.5	--	735,165.03	2,890,198.16

Note: R - represents a replacement instrument.

Subsurface Soil Conditions

The subsurface conditions encountered during the geotechnical exploration of the Dry Fly Ash Stack were dependent on the vertical location of the borings. In general, borings advanced above elevation 1110 feet encountered three or more of seven predominant soil types. These included clay fill (cap material), compacted fly ash fill, sluiced fly ash fill, alluvial clay, alluvial gravel and alluvial sand. Borings advanced below elevation 1110 feet (upper perimeter road) but above the lower perimeter road encountered a clay fill layer (cap material) underlain by what is believed to be original starter dike clay, alluvial clay, and alluvial gravel and sand. Borings advanced along the lower perimeter road encountered mostly alluvial materials consisting of clay, sand and gravel. Logs of sample borings are enclosed. The soil numbers described below were developed based on Stantec's Report of Geotechnical Exploration - Dry Fly Ash Stack, Bottom Ash Disposal Area 2 and Ash Disposal Area J, dated February 8, 2010.

Clay fill (Soil 1) or cap material, typically located above ash deposits, was visually classified in the field as lean clay with sand and gravel, light brown to brown, soft to stiff, moist, with mottling and occasional silty zones.

Alluvial clay (Soil 2) was visually classified in the field as lean clay, brown to tan, soft to very stiff, moist to wet, with occasional manganese concretions, silty zones, with sand and gravel.

Bottom ash (Soil 3) was not encountered during this exploration.

Compacted or dry fly ash (Soil 4) and Sluiced fly ash (Soil 5) was visually classified in the field as fly ash, gray to dark gray and black, dry to wet, very loose to very dense, with occasional clay seams, gravel, coal fragments, and traces of bottom ash.

Alluvial sand (Soil 7) and gravel (Soil 6) were typically encountered in thin zones above the shale bedrock. The sand was visually classified in the field as brown and tan, medium grained, moist, and loose to very dense. The gravel was visually classified in the field as brown to gray, medium grained, wet, loose to very dense, poorly graded with sand.

Dike material (Soil 8) was visually classified in the field as lean clay with sand and silt, light brown to brown and gray, medium stiff to very stiff, moist, with traces of gravel and manganese concretions.

Subsurface Water

Subsurface water was encountered in some of the borings advanced during this project. The water level reading was taken after the boring had been drilled and before the installation of instrumentation. The depths to water noted immediately after drilling are shown on the boring logs enclosed. Additional water level readings were obtained from piezometers installed in the borings. The results of the additional water level readings will be included in Stantec's Monthly Instrumentation Report.

Closure

Subsurface profiles are generally based on straight line interpolation between borings and no warranties can be made regarding the continuity of subsurface conditions between the borings.

Tennessee Valley Authority
March 23, 2012
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Stantec appreciates the opportunity to provide engineering services for this project. If you have any questions, or if we may be of further assistance, please contact our office.

Sincerely,

STANTEC CONSULTING SERVICES INC.



Zachary C. Massey, PE
Geotechnical Engineer



Hugo R. Aparicio, PE
Principal

/rws

Enclosures: 3 1. Updated Instrumentation Layout
 2. Instrumentation Schematics
 3. Typed Boring Logs

INSTRUMENTATION LOCATION TABLE

INSTRUMENT	NORTHING	EASTING	ELEVATION (FEET)	INSTRUMENT TYPE
BA-1	734,343.87	2,893,639.94	1,145.4	PZ
BA-2	734,229.93	2,893,695.53	1,145.9	PZ
BA-3	733,939.03	2,893,286.73	1,145.3	PZ
BA-5	733,604.48	2,889,750.33	1,144.9	PZ
BA-8	733,946.71	2,891,566.83	1,145.2	PZ
JP-3	733,483.09	2,886,974.16	1,105.8	PZ
JP-4	733,323.27	2,886,393.14	1,105.6	PZ
JP-5	732,679.06	2,886,045.57	1,104.5	PZ
JP-6	732,662.78	2,886,526.80	1,106.3	PZ
JS-10	736,877.33	2,892,782.32	1,085.0	SI
JS-11	736,817.60	2,892,703.95	1,115.3	SI
JS-12	736,796.96	2,892,666.90	1,114.8	SI
JS-13	736,741.69	2,892,570.62	1,132.5	SI
JS-15	737,186.07	2,892,539.85	1,084.1	SI
JS-16	737,079.51	2,892,528.69	1,115.7	SI
JS-17	737,004.19	2,892,496.33	1,114.5	SI
JS-18	736,848.84	2,892,429.18	1,136.3	SI
JS-19	736,913.99	2,891,993.30	1,077.3	SI
JS-20	736,826.84	2,892,070.81	1,113.8	SI
JS-21	736,784.15	2,892,107.96	1,111.0	SI
JS-22	736,662.66	2,892,209.60	1,134.7	SI
JS-23	736,562.81	2,891,652.34	1,075.1	SI
JS-24	736,463.59	2,891,743.40	1,113.4	SI
JS-25	736,417.96	2,891,781.01	1,108.1	SI
JS-26	736,300.23	2,891,894.54	1,141.8	SI
JS-27	736,239.87	2,891,944.24	1,158.3	SI
JS-28R	736,041.33	2,891,216.02	1,078.9**	PZ
JS-29	736,036.74	2,891,217.73	1,114.5	SI
JS-30	735,899.72	2,891,288.23	1,105.6	SI
JS-31	735,755.45	2,891,418.56	1,151.1	SI
JS-32*	735,766.70	2,891,431.00	1,150.6	SI
JS-34	735,045.58	2,892,029.28	1,142.4	SI
JS-35R	735,540.94	2,890,893.02	1,081.3**	PZ
JS-36	735,476.63	2,890,742.66	1,068.5	SI
JS-36A	735,355.98	2,890,578.53	1,106.2	SI
JS-36B	735,703.43	2,891,025.07	1,110.8	SI
JS-37	735,429.18	2,890,784.99	1,103.8	SI
JS-38	735,263.83	2,890,906.40	1,151.5	SI
JS-39*	735,175.12	2,890,973.42	1,181.3	SI
JS-42	734,740.66	2,891,295.41	1,138.2	SI
JS-43R	735,270.41	2,890,558.61	1,083.1**	PZ
JS-44	735,292.94	2,890,595.60	1,107.2	SI
JS-45	735,171.68	2,890,440.72	1,101.3	SI
JS-46	735,006.11	2,890,560.28	1,144.7	SI
JS-47R	735,007.66	2,890,006.13	1,078.5**	PZ
JS-48	734,956.57	2,890,074.99	1,161.3	SI
JS-49	734,898.66	2,890,091.75	1,098.8	SI
JS-50	734,760.24	2,890,196.57	1,138.7	SI
JS-52	734,518.95	2,890,384.61	1,136.8	SI
JS-53R	734,735.90	2,889,582.52	1,082.3**	PZ
JS-54R	734,688.35	2,889,608.40	1,100.2**	SI
JS-55	734,611.70	2,889,621.92	1,097.7	SI
JS-56	734,506.50	2,889,656.35	1,131.0	SI
JS-57	734,277.92	2,889,720.99	1,130.1	SI
JS-58	734,222.32	2,889,559.16	1,100.2	SI
JS-59	734,047.10	2,889,202.69	1,099.3	SI
JS-60B	736,515.46	2,891,699.27	1,090.0	SI
JS-61A	735,980.74	2,891,206.58	1,090.3	SI
JS-62B	735,316.23	2,890,442.25	1,090.0	SI
JS-67*	734,987.89	2,890,023.29	1,089.7	SI
JS-66	736,237.45	2,891,412.24	1,081.3**	PZ
JS-67	736,204.38	2,891,447.95	1,098.7**	PZ
JS-68	735,862.54	2,891,067.05	1,081.4**	PZ
JS-69	735,836.69	2,891,100.43	1,097.6**	SI
JS-70	735,812.68	2,891,128.74	1,111.3**	SI
JS-71	735,514.47	2,890,719.29	1,093.8**	SI
JS-72	735,165.03	2,890,198.16	1,079.5**	SI

SURVEY CONTROL NOTE:

A GLOBAL POSITIONING SYSTEM (GPS) BASE STATION HAS BEEN ESTABLISHED AND TRANSFORMATION PARAMETERS DETERMINED BY TVA USING SELECTED SURVEY CONTROL MONUMENTS. CONTACT WITH TVA SURVEYING DEPARTMENT (423)751-8416 OR (423)751-2571 SHALL BE MADE BEFORE ANY SURVEY OR CONSTRUCTION WORK IS COMMENCED. BASE STATION FREQUENCIES AND TRANSFORMATION PARAMETERS WILL BE PROVIDED TO THE CONTRACTOR FOR USE IN CONSTRUCTION ACTIVITIES AT THE SITE. PREVIOUSLY USED OR ESTABLISHED CONTROL POINTS AND MONUMENTS SHALL NOT BE USED BY THE CONTRACTOR WITHOUT PRIOR APPROVAL BY TVA SURVEYING DEPARTMENT.

NOTES:

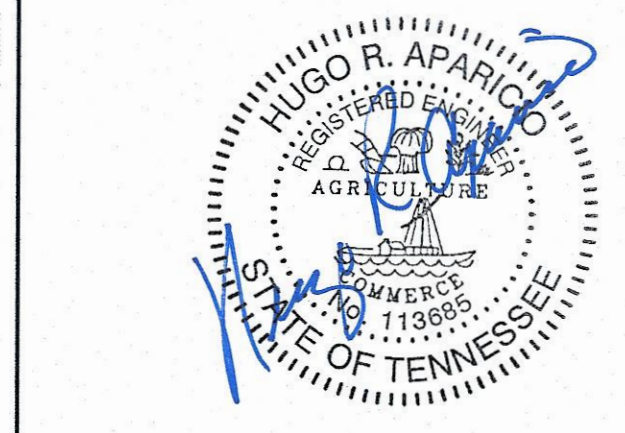
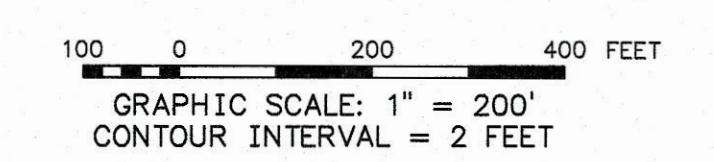
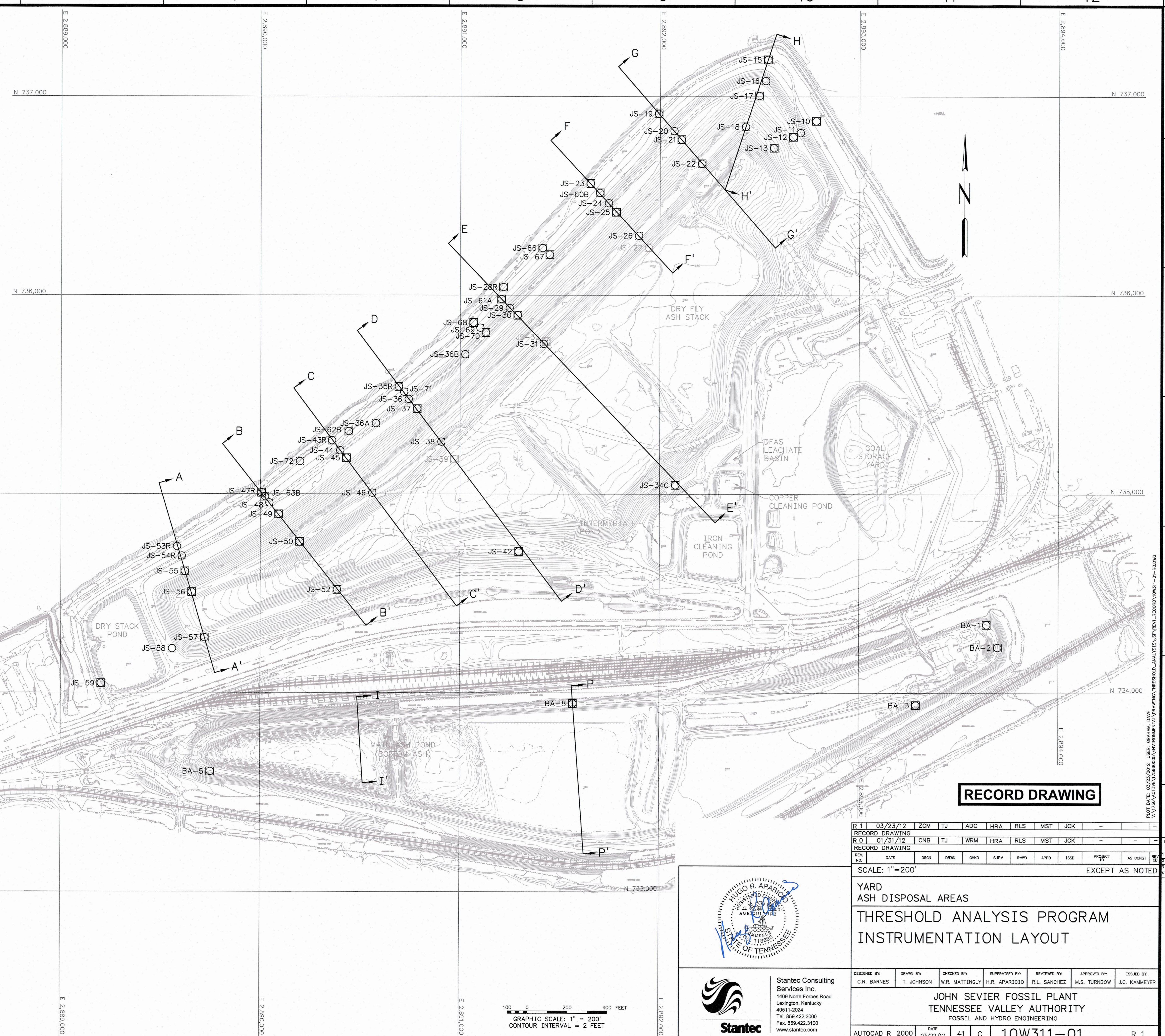
- TOPOGRAPHIC MAPPING WAS DEVELOPED BY THE TENNESSEE VALLEY AUTHORITY SURVEYING AND PROJECT SERVICES ON MARCH 27, 2009.
- A HYDROGRAPHIC SURVEY WAS PERFORMED ON THE BOTTOM ASH DISPOSAL AREA 2 ON JANUARY 2, 2006.
- THE GEOTECHNICAL INFORMATION AND DATA FURNISHED HEREIN ARE NOT INTENDED AS REPRESENTATION OR WARRANTIES BUT ARE FURNISHED FOR INFORMATION ONLY. IT SHALL BE DISTINCTLY UNDERSTOOD THAT THE OWNER OR ENGINEER WILL NOT BE RESPONSIBLE FOR ANY DEDUCTION, INTERPRETATION OR CONCLUSION DRAWN THEREFROM. THE INFORMATION IS MADE AVAILABLE IN ORDER THAT THE CONTRACTOR MAY HAVE READY ACCESS TO THE SAME INFORMATION AVAILABLE TO THE OWNER AND THE ENGINEER AND IS NOT PART OF THIS CONTRACT.

4. UPON COMPLETION OF THE DFAS TOE DRAIN CONSTRUCTION PROJECT, FIVE (5) PIEZOMETERS AND ONE (1) SLOPE INCLINOMETER (DENOTED WITH R) WERE INSTALLED AS REPLACEMENTS OF INSTRUMENTS ABANDONED FOR CONSTRUCTION. ADDITIONALLY, BASED ON RECOMMENDATIONS AND RESULTS FROM STANTEC'S 2009 GEOTECHNICAL EXPLORATIONS, PROPOSED CORRECTIVE MEASURES (AS DESIGNED BY STANTEC AND URS CORPORATION), INSTRUMENTATION DATA AND PLANNED OPERATIONAL ACTIVITIES, FOUR (4) PIEZOMETERS AND THREE (3) SLOPE INCLINOMETERS WERE INSTALLED ALONG THE NORTH SLOPE OF THE DFAS (DENOTED AS JS-66 THROUGH JS-72).

LEGEND

- JS-53 □ PIEZOMETER
- JS-44 □ SLOPE INCLINOMETER
- JS-27 □ PIEZOMETER (ABANDONED)
- - - EDGE OF RIVER POOL

NORTHING, EASTING AND GROUND SURFACE ELEVATIONS WERE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES. HORIZONTAL DATUM: NAD 27 (TENNESSEE LAMBERT). VERTICAL DATUM: NGVD29. "PZ" DENOTES PIEZOMETER "SI" DENOTES SLOPE INCLINOMETER * ABANDONED ** TOP OF CONCRETE PAD (ASSUMED LESS THAN 2" ABOVE GRADE)



Stantec
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Tel: 859.422.3000
Fax: 859.422.3100
www.stantec.com

R 1	03/23/12	ZCM	TJ	ADC	HRA	RLS	MST	JCK	-	-	-
RECORD DRAWING	RECORD DRAWING	RECORD DRAWING	RECORD DRAWING	RECORD DRAWING	RECORD DRAWING	RECORD DRAWING	RECORD DRAWING	RECORD DRAWING	RECORD DRAWING	RECORD DRAWING	RECORD DRAWING
REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	INVD	APPD	ISSD	PROJECT	AS CONST	REV. NO.

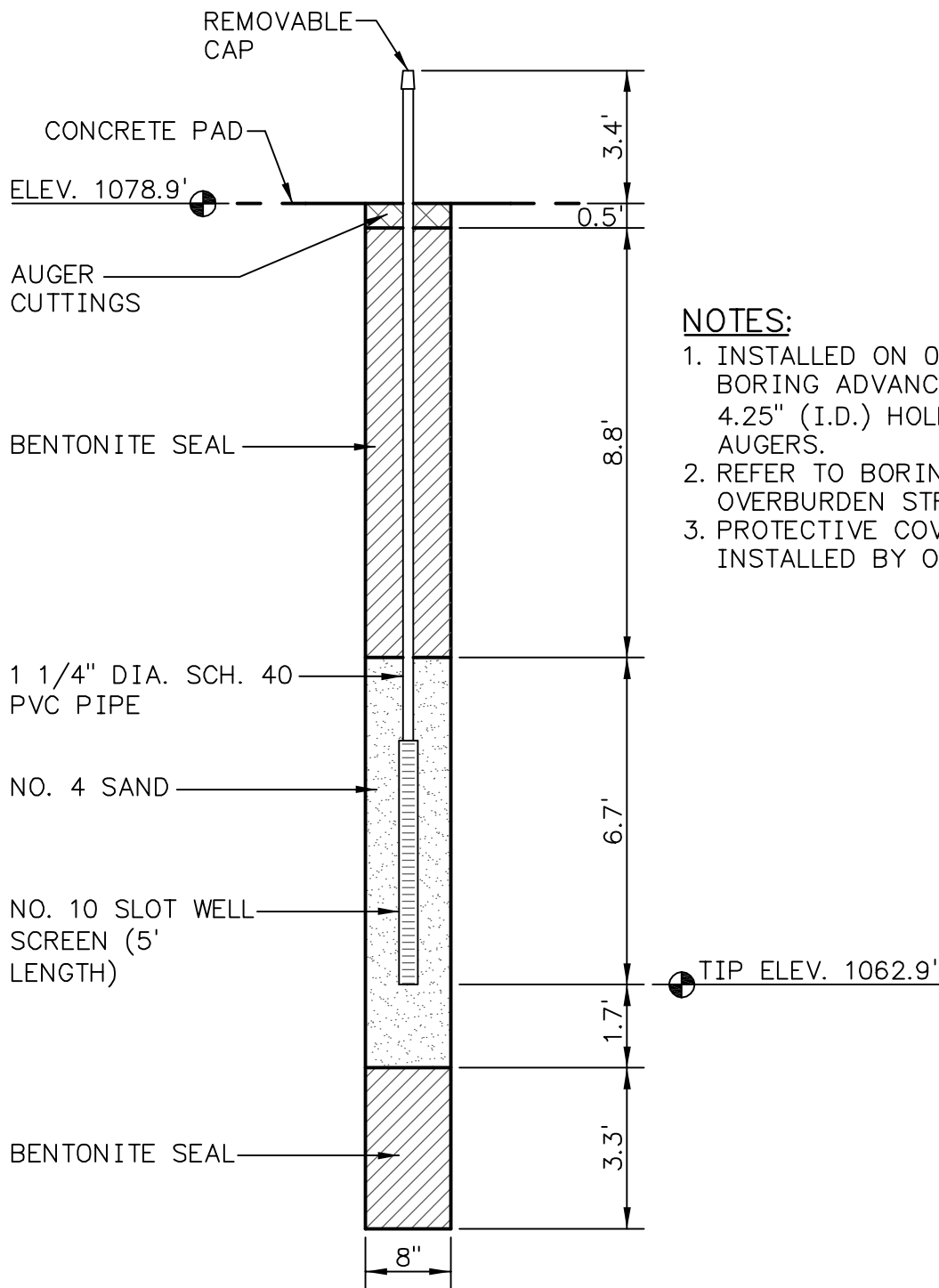
SCALE: 1"=200'
EXCEPT AS NOTED

YARD ASH DISPOSAL AREAS THRESHOLD ANALYSIS PROGRAM INSTRUMENTATION LAYOUT

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
C.N. BARNES	T. JOHNSON	W.R. MATTINGLY	H.R. APARICIO	R.L. SANCHEZ	M.S. TURNBOW	J.C. KAMMEYER

JOHN SEVIER FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2000 DATE: 03/22/12 41 C **10W311-01** R 1




NOTES:

1. INSTALLED ON 01/04/2012. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

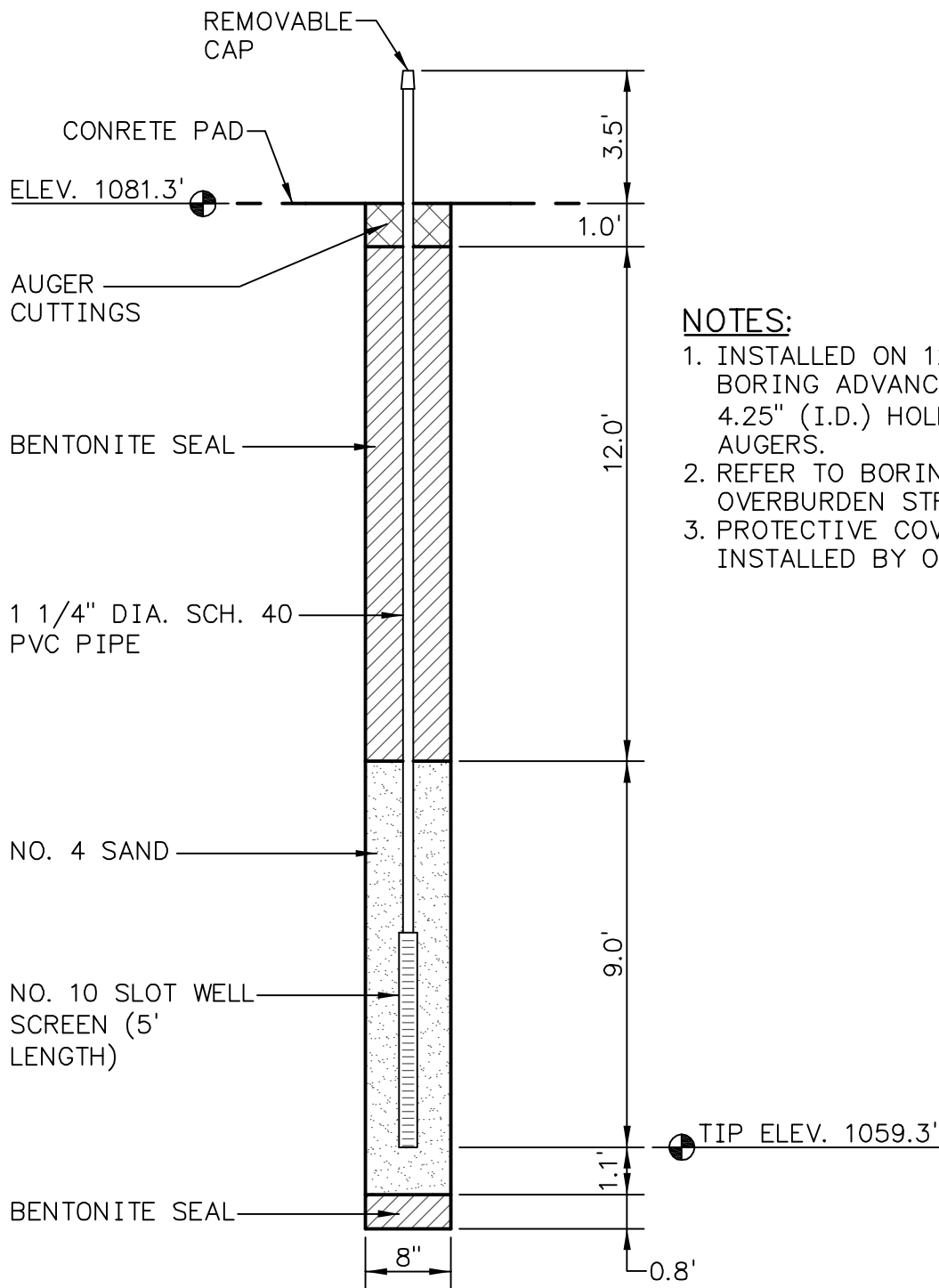
LOCATION:

NORTHING: 736,041.33
 EASTING: 2,891,216.02
 CONCRETE PAD ELEVATION:
 1078.9'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

PIEZOMETER - JS-28R INSTALLATION DETAIL JOHN SEVIER FOSSIL PLANT			
 Stantec		Stantec Consulting Services Inc. 1409 N. Forbes Rd. Lexington, Kentucky 40511-2050 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	MARCH, 2012
CHECKED BY	ADC	PROJ. NO.	175660005
CHECKED BY	ZCM	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET 1 OF 1

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE V: \\1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-28R.DWG




NOTES:

1. INSTALLED ON 12/15/2011. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

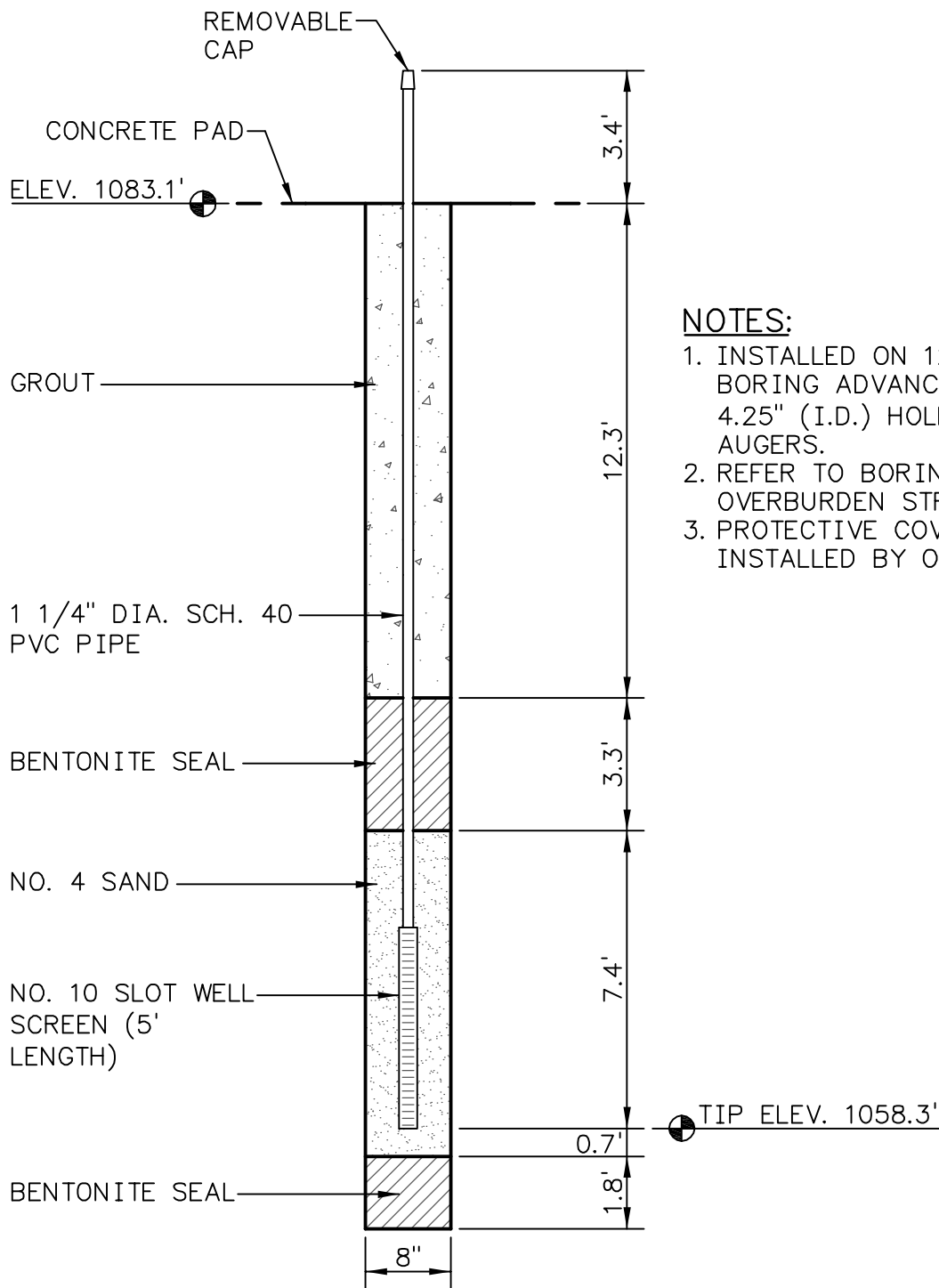
LOCATION:

NORTHING: 735,540.94
 EASTING: 2,890,693.02
 CONCRETE PAD ELEVATION:
 1081.3'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

PIEZOMETER - JS-35R INSTALLATION DETAIL JOHN SEVIER FOSSIL PLANT			
		Stantec Consulting Services Inc. 1409 N. Forbes Rd. Lexington, Kentucky 40511-2050 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	MARCH, 2012
CHECKED BY	ADC	PROJ. NO.	175660005
CHECKED BY	ZCM	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET 1 OF 1

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE V: \\1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-35R.DWG



NOTES:

1. INSTALLED ON 12/15/2011. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

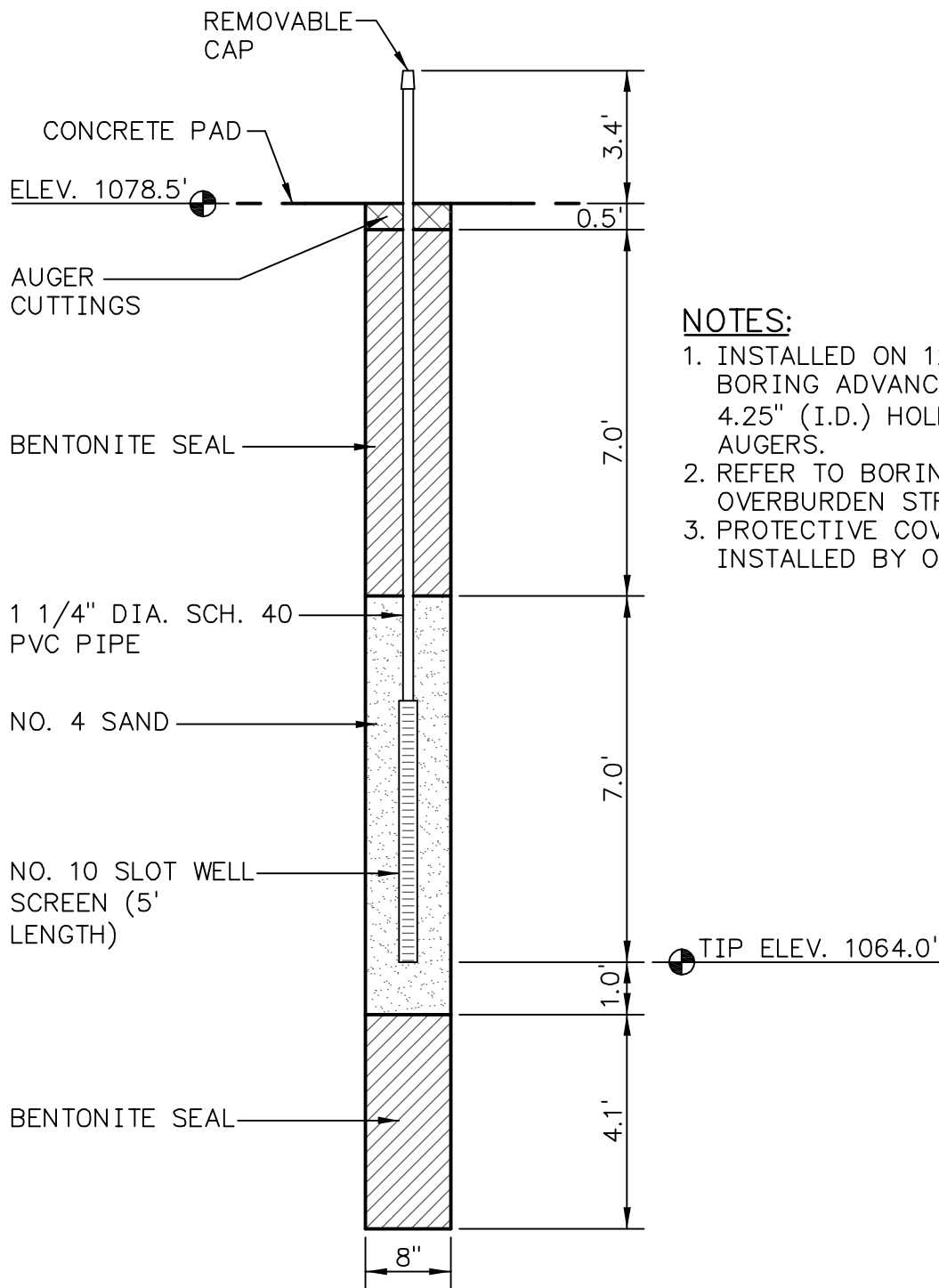
LOCATION:

NORTHING: 735,270.41
 EASTING: 2,890,358.61
 CONCRETE PAD ELEVATION:
 1083.1'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

PIEZOMETER - JS-43R INSTALLATION DETAIL JOHN SEVIER FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 1409 N. Forbes Rd. Lexington, Kentucky 40511-2050 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	MARCH, 2012
CHECKED BY	ADC	PROJ. NO.	175660005
CHECKED BY	ZCM	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE V: \\1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-43R.DWG



NOTES:

1. INSTALLED ON 12/09/2011. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

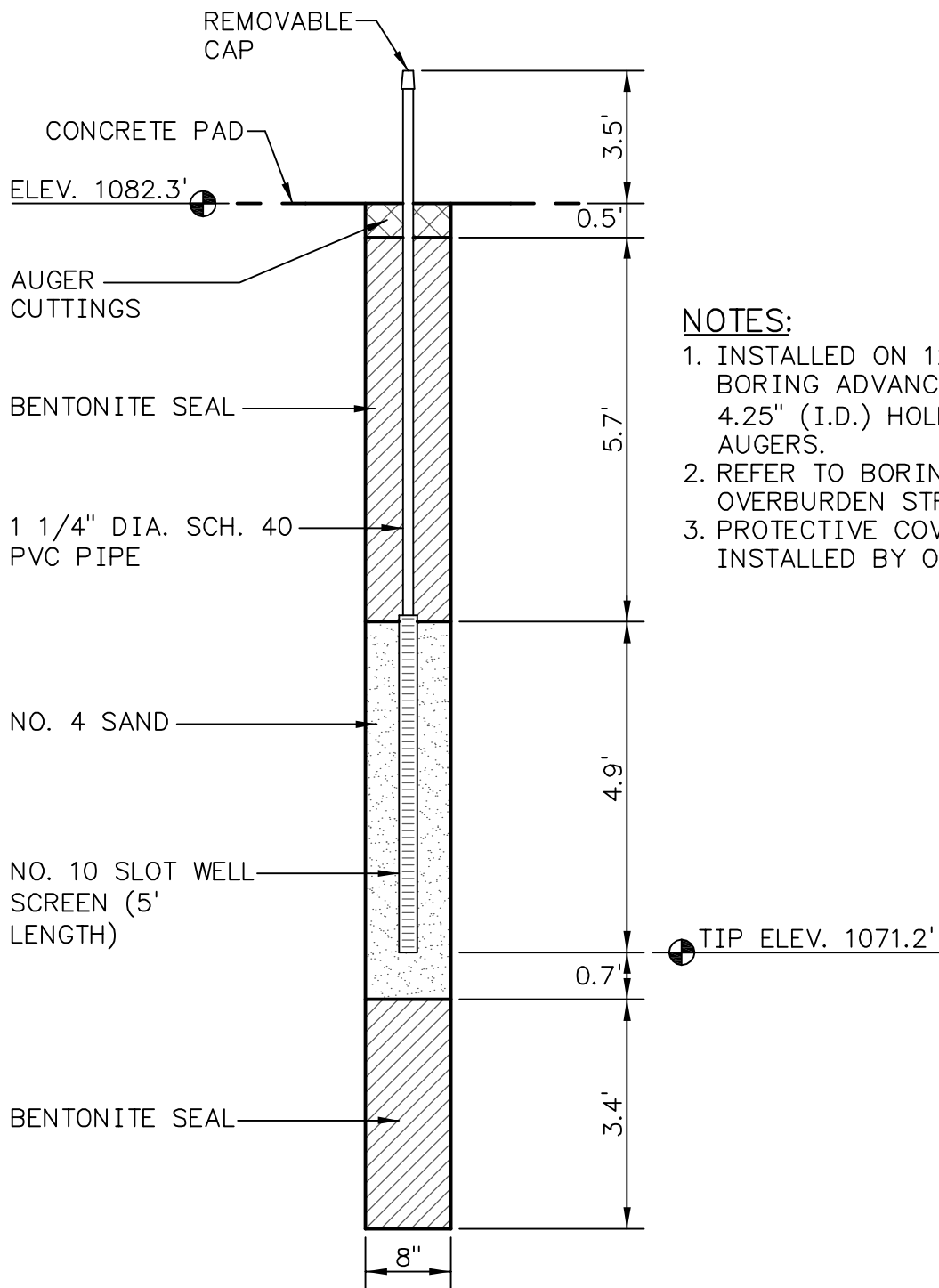
LOCATION:

NORTHING: 735,007.66
 EASTING: 2,890,006.13
 CONCRETE PAD ELEVATION:
 1078.5'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

PIEZOMETER - JS-47R INSTALLATION DETAIL JOHN SEVIER FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 1409 N. Forbes Rd. Lexington, Kentucky 40511-2050 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	MARCH, 2012
CHECKED BY	ADC	PROJ. NO.	175660005
CHECKED BY	ZCM	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE
 V: \\1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-47R.DWG



NOTES:

1. INSTALLED ON 12/08/2011. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

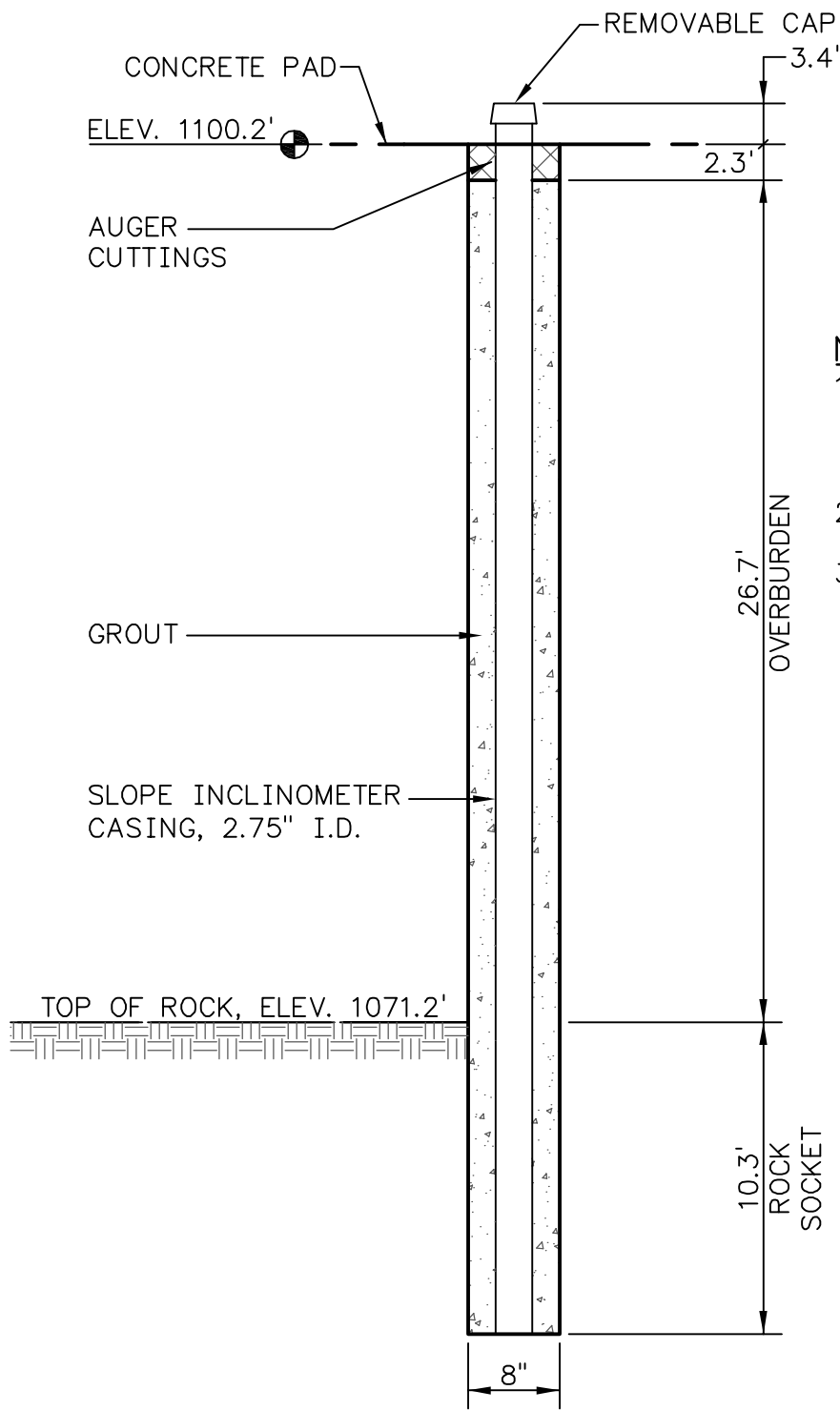
LOCATION:

NORTHING: 734,735.9
 EASTING: 2,889,582.52
 CONCRETE PAD ELEVATION: 1082.3'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

PIEZOMETER - JS-53R INSTALLATION DETAIL JOHN SEVIER FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 1409 N. Forbes Rd. Lexington, Kentucky 40511-2050 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	MARCH, 2012
CHECKED BY	ADC	PROJ. NO.	175660005
CHECKED BY	ZCM	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE V: \\1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-53R.DWG




NOTES:

1. INSTALLED ON 12/13/2011. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

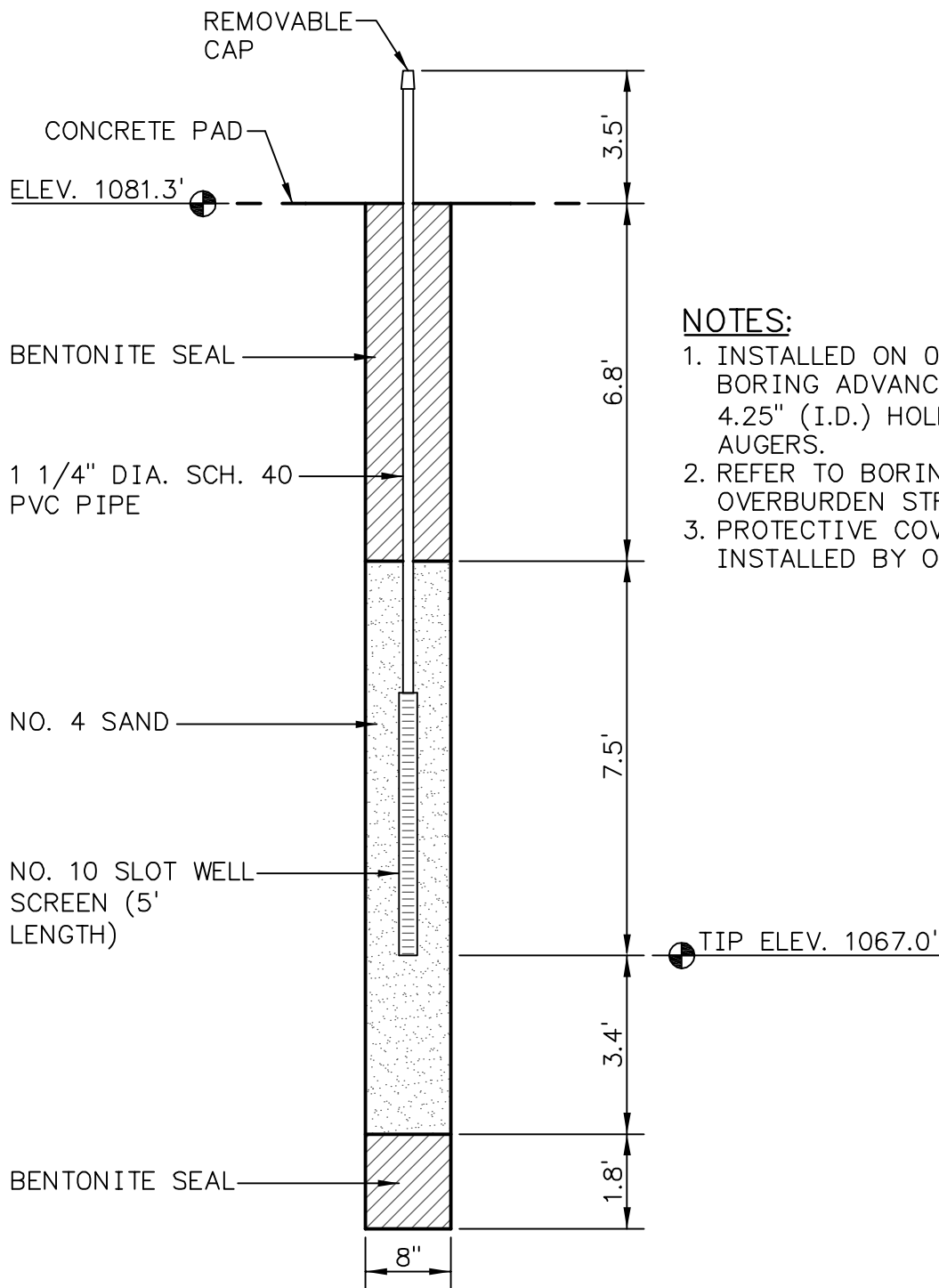
LOCATION:

NORTHING: 734,688.35
 EASTING: 2,889,606.40
 CONCRETE PAD ELEVATION: 1100.2'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

SLOPE INCLINOMETER - JS-54R INSTALLATION DETAIL JOHN SEVIER FOSSIL PLANT			
		Stantec Consulting Services Inc. 1409 N. Forbes Rd. Lexington, Kentucky 40511-2050 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	MARCH, 2012
CHECKED BY	ADC	PROJ. NO.	175660005
CHECKED BY	ZCM	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET 1 OF 1

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE
 V: 1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-54R.DWG



NOTES:

1. INSTALLED ON 01/04/2012. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

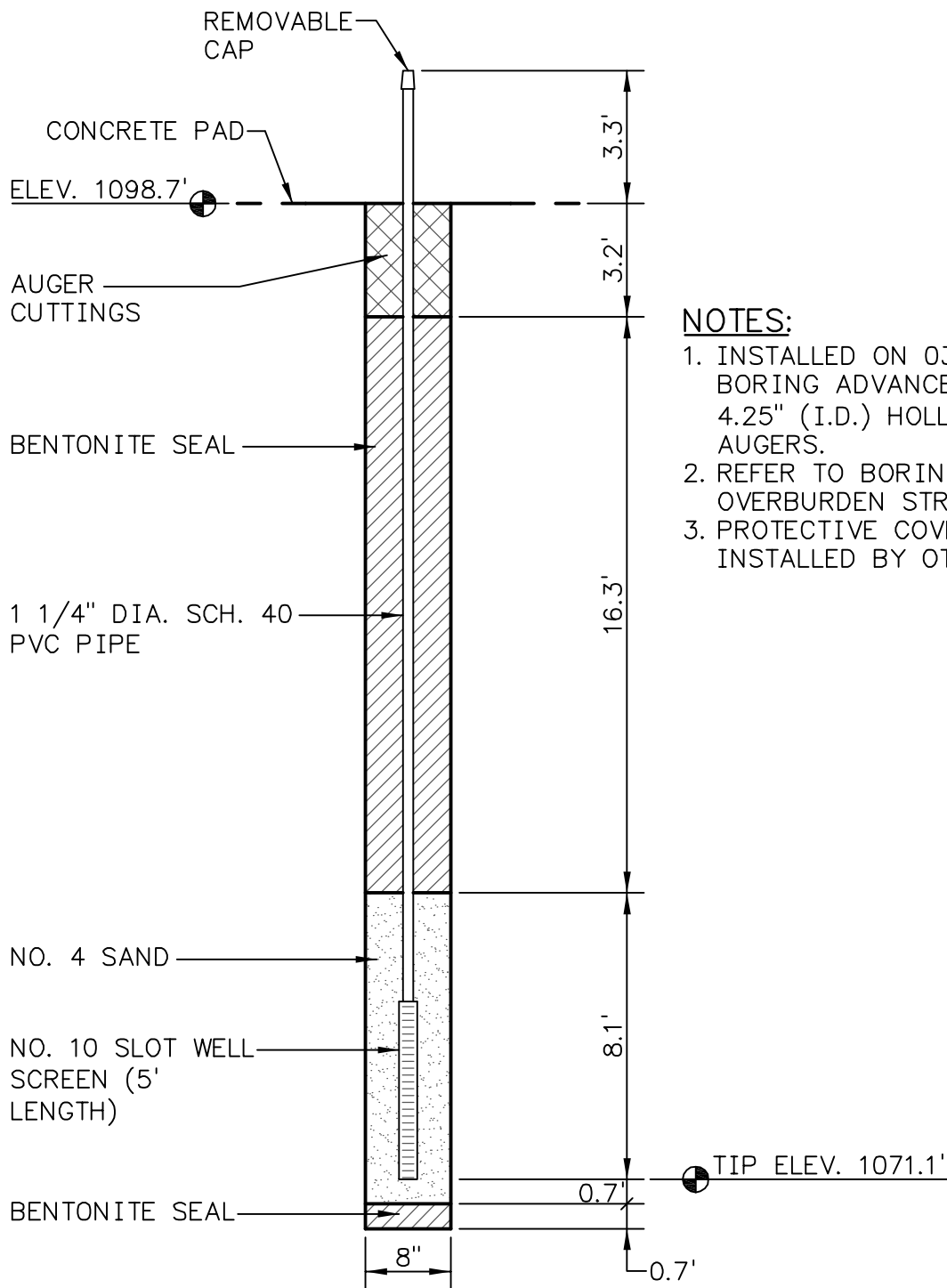
LOCATION:

NORTHING: 736,237.45
 EASTING: 2,891,412.24
 CONCRETE PAD ELEVATION:
 1081.3'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

PIEZOMETER - JS-66 INSTALLATION DETAIL JOHN SEVIER FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 1409 N. Forbes Rd. Lexington, Kentucky 40511-2050 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	MARCH, 2012
CHECKED BY	ADC	PROJ. NO.	175660005
CHECKED BY	ZCM	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE
 V: \\1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-66.DWG



NOTES:

1. INSTALLED ON 03/06/2012. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

LOCATION:

NORTHING: 736,204.38
 EASTING: 2,891,447.95
 CONCRETE PAD ELEVATION:
 1098.7'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

**PIEZOMETER - JS-67
 INSTALLATION DETAIL
 JOHN SEVIER FOSSIL PLANT**

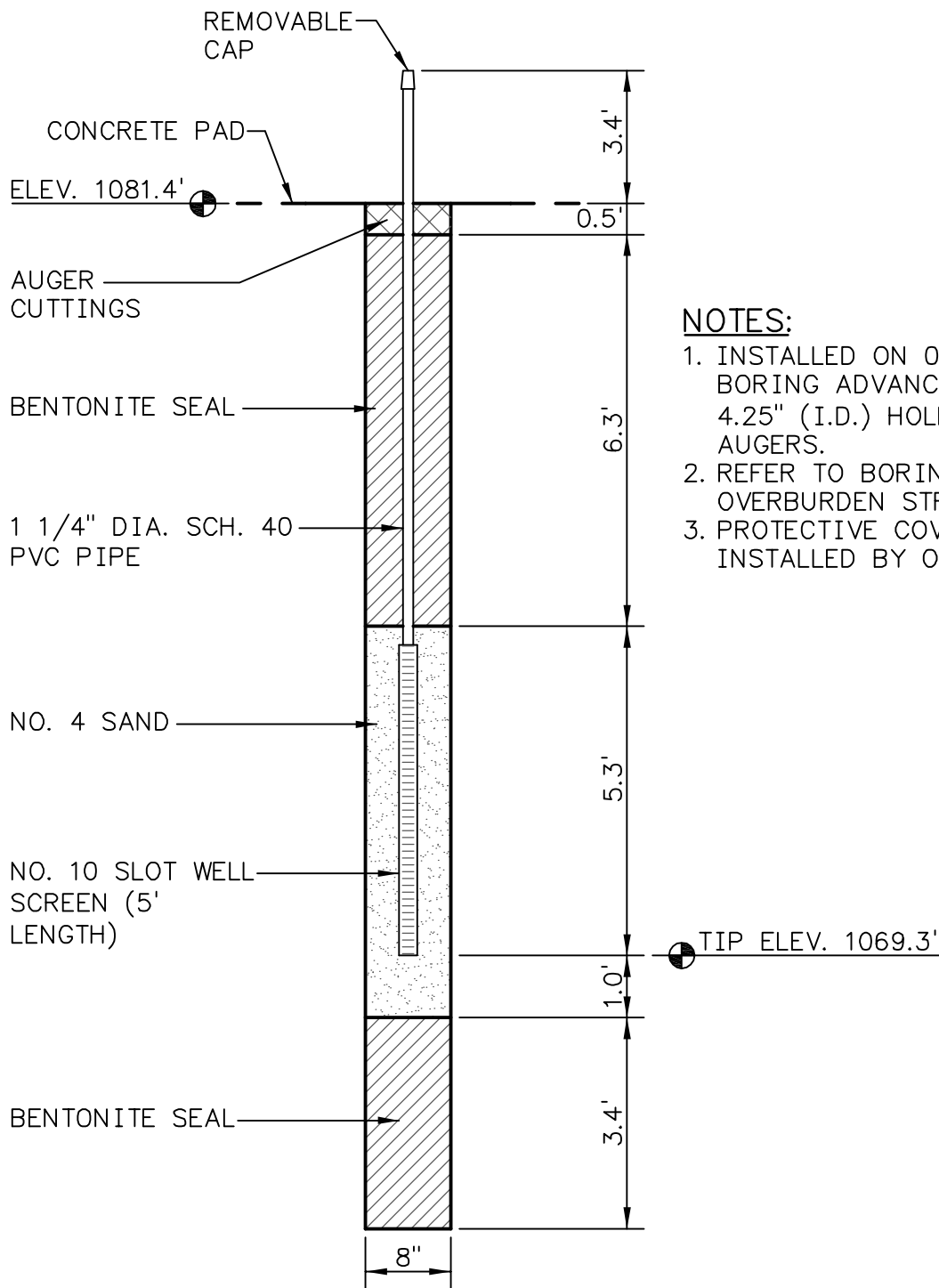


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DRAWN BY	RWE	DATE	MARCH, 2012	REVISED	
CHECKED BY	ADC	PROJ. NO.	175660005	1.	3.
CHECKED BY	ZCM	SCALE	NTS	2.	4.

SHEET
1 OF 1



NOTES:

1. INSTALLED ON 01/03/2012. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

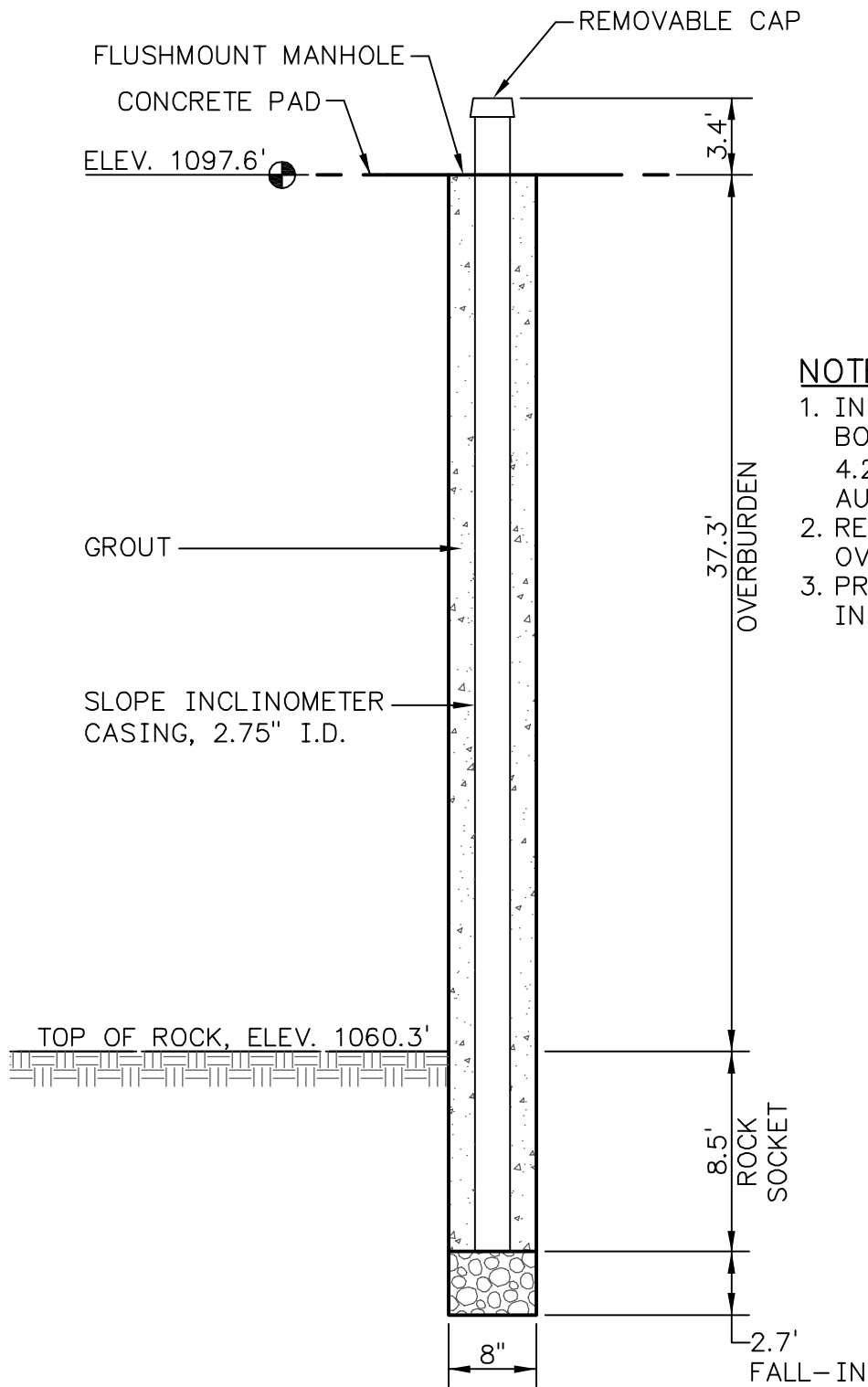
LOCATION:

NORTHING: 735,862.54
 EASTING: 2,891,067.05
 CONCRETE PAD ELEVATION:
 1081.4'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

PIEZOMETER - JS-68 INSTALLATION DETAIL JOHN SEVIER FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 1409 N. Forbes Rd. Lexington, Kentucky 40511-2050 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	MARCH, 2012
CHECKED BY	ADC	PROJ. NO.	175660005
CHECKED BY	ZCM	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE V: \\1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-68.DWG



NOTES:

1. INSTALLED ON 03/07/2012. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE
V: \1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-69.DWG

LOCATION:

NORTHING: 735,836.69
 EASTING: 2,891,100.43
 CONCRETE PAD ELEVATION:
 1097.6'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

**SLOPE INCLINOMETER - JS-69
 INSTALLATION DETAIL
 JOHN SEVIER FOSSIL PLANT**

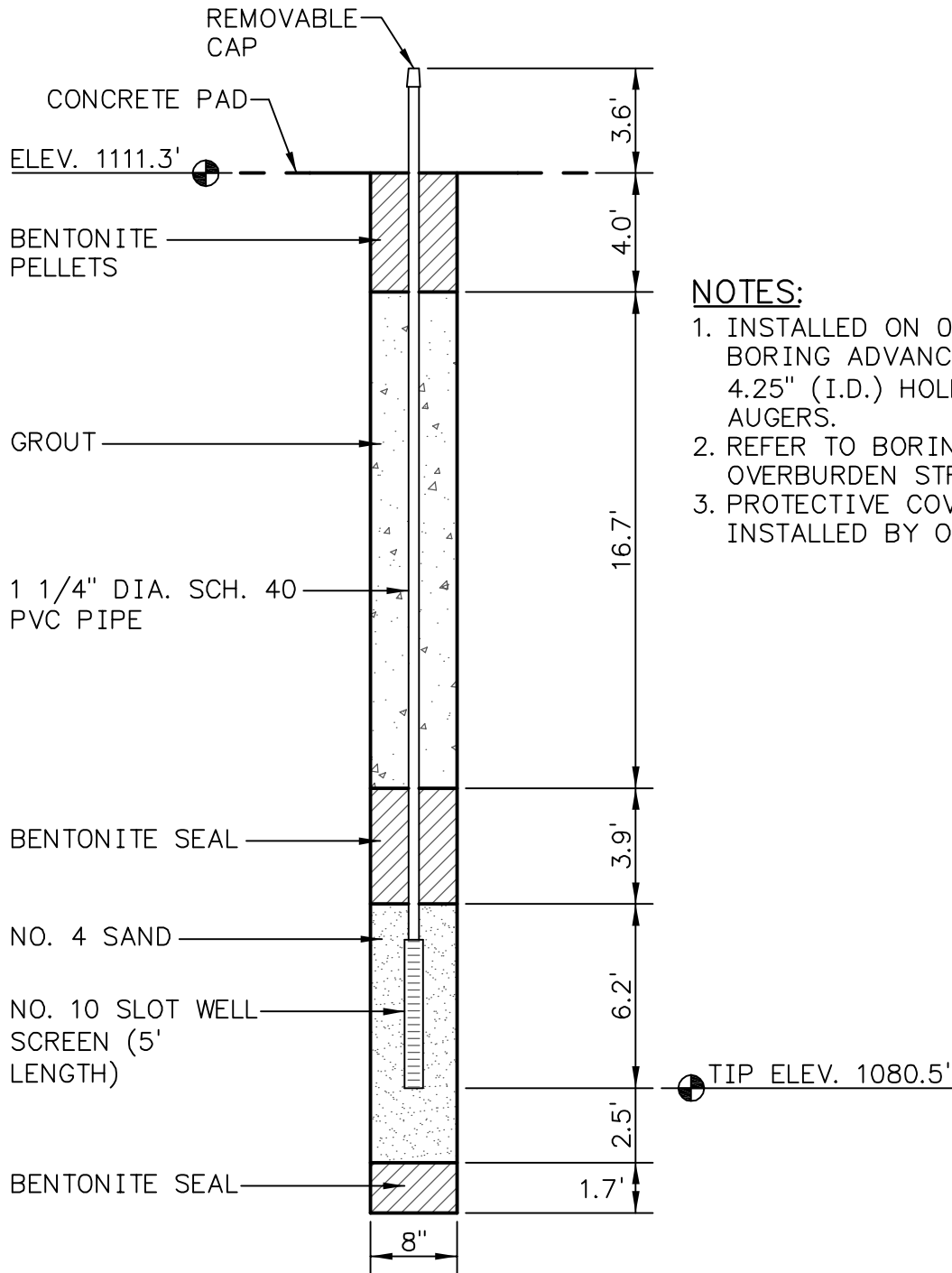


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DRAWN BY	RWE	DATE	MARCH, 2012	REVISED	
CHECKED BY	ADC	PROJ. NO.	175660005	1.	3.
CHECKED BY	ZCM	SCALE	NTS	2.	4.

SHEET
1 OF 1



NOTES:

1. INSTALLED ON 01/05/2012. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

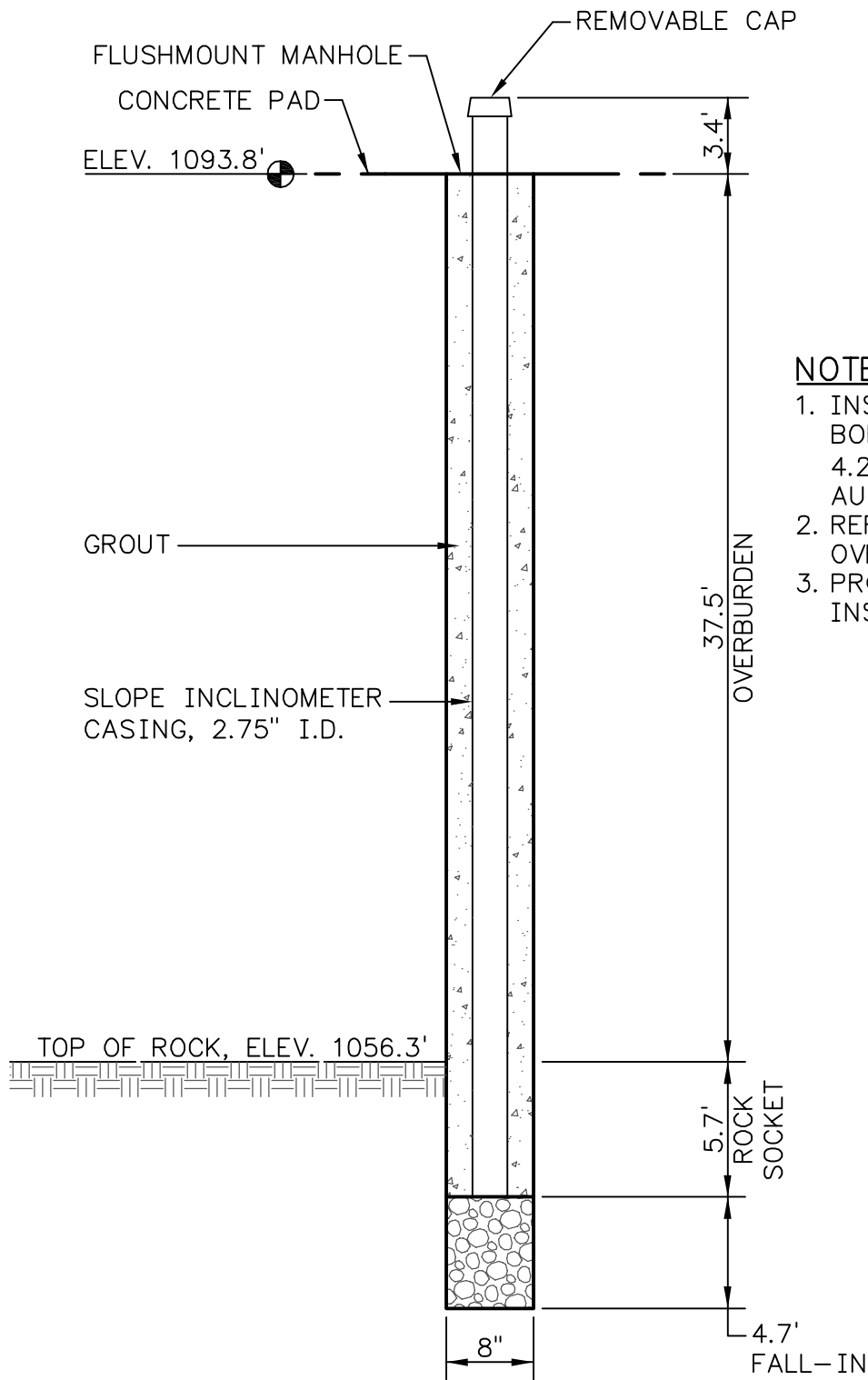
LOCATION:

NORTHING: 735,812.68
 EASTING: 2891128.74
 CONCRETE PAD ELEVATION:
 1111.3'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

PIEZOMETER - JS-70 INSTALLATION DETAIL JOHN SEVIER FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 1409 N. Forbes Rd. Lexington, Kentucky 40511-2050 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	MARCH, 2012
CHECKED BY	ADC	PROJ. NO.	175660005
CHECKED BY	ZCM	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE V: \\1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-70.DWG



NOTES:

1. INSTALLED ON 03/08/2012. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE
V: \\1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-71.DWG

LOCATION:

NORTHING: 735,514.47
 EASTING: 2,890,719.29
 CONCRETE PAD ELEVATION:
 1093.8'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

**SLOPE INCLINOMETER - JS-71
 INSTALLATION DETAIL
 JOHN SEVIER FOSSIL PLANT**

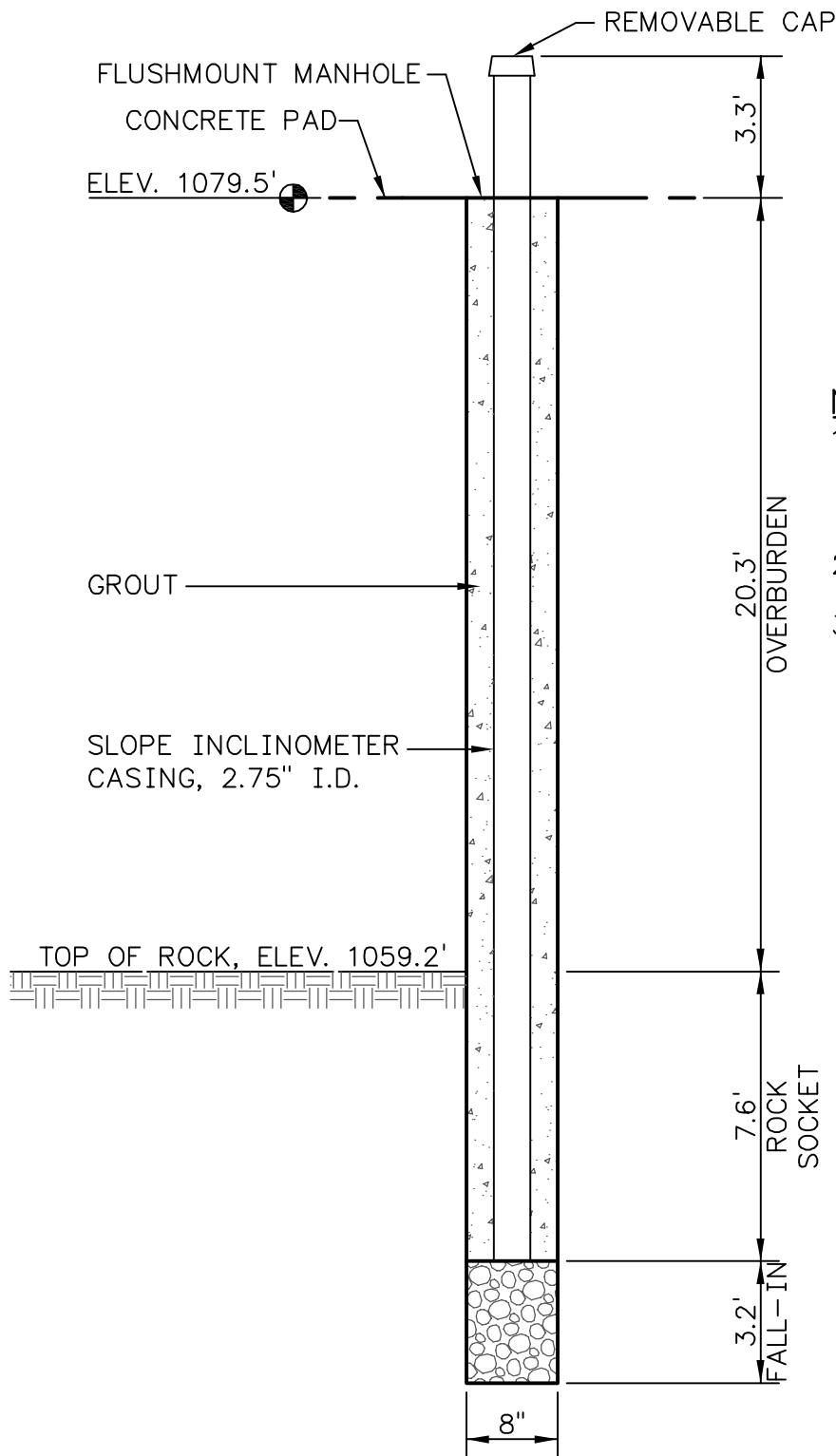


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DRAWN BY	RWE	DATE	MARCH, 2012	REVISED	
CHECKED BY	ADC	PROJ. NO.	175660005	1.	3.
CHECKED BY	ZCM	SCALE	NTS	2.	4.

SHEET
1 OF 1




NOTES:

1. INSTALLED ON 12/14/2011. BORING ADVANCED WITH 4.25" (I.D.) HOLLOW STEM AUGERS.
2. REFER TO BORING LOG FOR OVERBURDEN STRATIGRAPHY.
3. PROTECTIVE COVER INSTALLED BY OTHERS.

LOCATION:

NORTHING: 735,165.03
 EASTING: 2,890,198.16
 CONCRETE PAD ELEVATION:
 1079.5'

LOCATIONS TO BE PROVIDED BY TVA, POWER SYSTEMS OPERATIONS, SURVEYING AND PROJECT SERVICES.
 HORIZONTAL DATUM: NAD 27
 VERTICAL DATUM: NGVD29

SLOPE INCLINOMETER - JS-72 INSTALLATION DETAIL JOHN SEVIER FOSSIL PLANT			
 Stantec		Stantec Consulting Services Inc. 1409 N. Forbes Rd. Lexington, Kentucky 40511-2050 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	MARCH, 2012
CHECKED BY	ADC	PROJ. NO.	175660005
CHECKED BY	ZCM	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET 1 OF 1

PLOT DATE: 03/23/2012 USER: GRAHAM, DAVE
 V: \\1756\ACTIVE\175660005\ENVIRONMENTAL\DRAWING\INST_DETAILS\JSF\JS-72.DWG

Project Number	175660005	Location	Rogersville, TN		
Project Name	Additional & Replacment Instruments	Boring No.	JS-28R	Total Depth	21.0 ft
County	Hawkins, TN	Surface Elevation	1078.9 ft		
Project Type	Drilling & Instrument Installation	Date Started	1/4/12	Completed	1/4/12
Supervisor	A. Cantrell Driller S. Bradford	Depth to Water	11.8 ft	Date/Time	1/4/12
Logged By	A. Cantrell	Depth to Water	N/A	Date/Time	N/A

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
1078.9	0.0	Top of Hole							
1070.3	8.6	Soil 1: LEAN CLAY with Sand and Gravel, light brown to brown/gray, moist, soft to stiff, mottling		SPT-1	0.0 - 1.5	0.9	2-2-2	18	Boring advanced with 4 1/4" ID hollow stem augers Installed PZ with 5' of slotted screen at 16.0' and 20' of riser with cap. Boring backfilled from 0.5' to 21.0' with well installation materials.
				SPT-2	1.5 - 3.0	1.2	4-5-3	18	
				SPT-3	3.0 - 4.5	0.7	2-4-5	22	
				SPT-4	4.5 - 6.0	1.1	2-5-7	22	
				SPT-5	6.0 - 7.5	1.5	5-5-7	23	
				SPT-6	7.5 - 9.0	1.5	6-6-8	22	
1059.5	19.4	Soil 2: LEAN CLAY, light brown and tan, moist to wet, medium stiff to very stiff, with sand and gravel		SPT-7	9.0 - 10.5	1.5	3-5-9	21	
				SPT-8	10.5 - 12.0	1.5	10-12-18	16	
				SPT-9	12.0 - 13.5	0.7	7-10-12	19	
				SPT-10	13.5 - 15.0	1.3	3-3-5	22	
				SPT-11	15.0 - 16.5	1.4	3-4-14	22	
				SPT-12	16.5 - 18.0	1.1	8-16-18	17	
				SPT-13	18.0 - 19.5	0.1	3-5-12	18	
				SPT-14	19.5 - 21.0	1.5	7-8-10	28	
1057.9	21.0	Soil 6: GRAVEL with Sand, gray to brown, medium grained, poorly graded, wet, medium dense SHALE (from SPT sample) No Refusal / Bottom of Hole Top of Rock = 20.7 Elevation (1058.2)							

STANTECFINSM_LEGACY_STANDARD_GINTDATABASE.GPJ_FINSM-GRAPHIC.LOG.GDT_3/23/12

Project Number		175660005		Location		Rogersville, TN				
Project Name		Additional & Replacment Instruments		Boring No.		JS-35R		Total Depth		23.9 ft
County		Hawkins, TN		Surface Elevation		1081.3 ft				
Project Type		Drilling & Instrument Installation		Date Started		12/15/11		Completed		12/15/11
Supervisor		A. Cantrell Driller S. Bradford		Depth to Water		19.2 ft		Date/Time		12/15/11
Logged By		A. Cantrell		Depth to Water		N/A		Date/Time		N/A
Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks	
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth		
1081.3	0.0	Top of Hole								
		Soil 1: LEAN CLAY with Sand and Gravel, brown and gray, moist to wet, soft to stiff, mottling		SPT-1	0.0 - 1.5	1.2	1-2-2	25	Boring advanced with 4 1/4" ID hollow stem augers Installed PZ with 5' of slotted screen at 22.0' tip depth with 20.0' of riser. Boring backfilled from 1.0' to 23.9'.	
				SPT-2	1.5 - 3.0	1.3	3-3-3	19		
				SPT-3	3.0 - 4.5	1.5	4-4-6	18		
				SPT-4	4.5 - 6.0	1.1	3-4-4	20		
				SPT-5	6.0 - 7.5	1.2	4-5-7	21		
				SPT-6	7.5 - 9.0	1.5	5-6-6	19		
1071.3	10.0			SPT-7	9.0 - 10.5	1.5	4-4-6	19		
		Soil 2: LEAN CLAY, brown, stiff to very stiff, damp to moist, with sand		SPT-8	10.5 - 12.0	1.5	4-4-7	18		
				SPT-9	12.0 - 13.5	1.5	3-5-6	18		
				SPT-10	13.5 - 15.0	1.5	3-5-6	19		
				SPT-11	15.0 - 16.5	1.2	3-3-6	19		
				SPT-12	16.5 - 18.0	1.1	4-15-20	12		
1062.8	18.5			SPT-13	18.0 - 19.5	0.5	20-15-10	17		
		Soil 6: GRAVEL with Sand, gray to brown, wet, medium dense, medium to coarse grained, subrounded		SPT-14	19.5 - 21.0	1.5	3-5-7	28		
1059.8	21.5			SPT-15	21.0 - 22.5	1.3	5-10-15	29		
		SHALE (augered)								
1057.4	23.9									
		No Refusal / Bottom of Hole								
		Top of Rock = 21.5 Elevation (1059.8)								

STANTECFRMSM_LEGACY_STANDARD_GINTDATABASE.GPJ_FINSM-GRAPHIC.LOG.GDT_3/23/12

Project Number	175660005	Location	Rogersville, TN		
Project Name	Additional & Replacment Instruments	Boring No.	JS-43R	Total Depth	25.5 ft
County	Hawkins, TN	Surface Elevation	1083.1 ft		
Project Type	Drilling & Instrument Installation	Date Started	12/14/11	Completed	12/15/11
Supervisor	A. Cantrell Driller S. Bradford	Depth to Water	Dry	Date/Time	12/15/11
Logged By	A. Cantrell	Depth to Water	N/A	Date/Time	N/A

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
1083.1	0.0	Top of Hole							
		Soil 1: LEAN CLAY with Sand and Gravel, light brown and gray, damp to moist, medium stiff to very stiff, mottling		SPT-1	0.0 - 1.5	1.5	1-2-3	27	Boring advanced with 4 1/4" ID hollow stem augers Installed PZ with 5' of slotted screen at 23.0' and 30.0' of riser. Boring backfilled from 0.0' to 25.4'.
				SPT-2	1.5 - 3.0	0.7	6-7-8	18	
				SPT-3	3.0 - 4.5	1.1	7-8-11	16	
				SPT-4	4.5 - 6.0	1.5	7-6-7	19	
				SPT-5	6.0 - 7.5	0.7	5-9-10	16	
				SPT-6	7.5 - 9.0	1.1	10-10-10	19	
				SPT-7	9.0 - 10.5	0.8	5-6-7	22	
				SPT-8	10.5 - 12.0	1.3	7-10-11	19	
				SPT-9	12.0 - 13.5	1.5	6-10-11	17	
1069.9	13.2	Soil 2: LEAN CLAY, brown, moist, stiff to very stiff		SPT-10	13.5 - 15.0	1.5	5-5-6	20	
				SPT-11	15.0 - 16.5	1.5	3-3-6	18	
				SPT-12	16.5 - 18.0	1.3	2-6-6	16	
				SPT-13	18.0 - 19.5	1.1	6-7-8	19	
				SPT-14	19.5 - 21.0	1.5	3-8-11	20	
				SPT-15	21.0 - 22.5	1.2	10-12-10	18	

STANTECFRSM_LEGACY_STANDARD_GINTDATABASE.GPJ FINSM-GRAPHIC.LOG.GDT 3/23/12

Project Number	175660005	Location	Rogersville, TN	
Project Name	Additional & Replacment Instruments	Boring No.	JS-43R	Total Depth 25.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		Soil 2: LEAN CLAY , brown, moist, stiff to very stiff <i>(Continued)</i>		SPT-16	22.5 - 24.0	1.3	10-10-11	18	
				SPT-17	24.0 - 25.5	1.3	4-5-50+	17	

1057.7	25.4								
1057.6	25.5	SHALE (augered)							
		No Refusal / Bottom of Hole							
		Top of Rock = 25.4 Elevation (1057.7)							

STANTEC\FISM_LEGACY_STANDARD_GINTDATABASE.GPJ_FISM-GRAPHIC.LOG.GDT_3/23/12

Project Number		175660005		Location		Rogersville, TN				
Project Name		Additional & Replacment Instruments		Boring No.		JS-47R		Total Depth		19.6 ft
County		Hawkins, TN		Surface Elevation		1078.5 ft				
Project Type		Drilling & Instrument Installation		Date Started		12/8/11		Completed		12/9/11
Supervisor		A. Cantrell Driller S. Bradford		Depth to Water		4.8 ft		Date/Time		12/9/11
Logged By		A. Cantrell		Depth to Water		N/A		Date/Time		N/A

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks	
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth		
1078.5	0.0	Top of Hole								
		Soil 1: LEAN CLAY with Sand and Gravel, light brown to brown, damp to moist, medium stiff to hard, mottling, manganese concretions		SPT-1	0.0 - 1.5	0.6	3-4-5	13	Boring advanced with 4 1/4" ID hollow stem augers Installed PZ with 5' of slotted screen at 14.5' tip depth with 20' of riser pipe. Boring backfilled from 0.0' to 19.6' with well installation materials.	
				SPT-2	1.5 - 3.0	1.3	5-20-15	13		
				SPT-3	3.0 - 4.5	0.1	10-14-10	14		
				SPT-4	4.5 - 6.0	1.0	5-5-9	18		
				SPT-5	6.0 - 7.5	0.7	8-9-12	20		
1071.0	7.5	Soil 2: LEAN CLAY, brown, damp to moist, medium stiff to very stiff, with sand		SPT-6	7.5 - 9.0	0.9	4-5-6	22		
	SPT-7		9.0 - 10.5	1.3	2-3-4	23				
	SPT-8		10.5 - 12.0	1.5	3-5-3	21				
	SPT-9		12.0 - 13.5	0.7	5-10-13	19				
	SPT-10		13.5 - 15.0	1.1	5-6-20	15				
1061.8	16.7	Soil 6: GRAVEL with Sand, gray and brown/light brown, wet, medium dense, medium grained, poorly graded, subrounded		SPT-11	15.0 - 16.5	0.6	7-14-7	20		
1060.7	17.8			SPT-12	16.5 - 18.0	0.7	6-10-15	24		
1058.9	19.6	SHALE (augered)								
		No Refusal / Bottom of Hole								
		Top of Rock = 17.8 Elevation (1060.7)								

STANTECFINSM_LEGACY_STANDARD_GINTDATABASE.GPJ_FINSM-GRAPHIC.LOG.GDT_3/23/12

Project Number	175660005		Location	Rogersville, TN			
Project Name	Additional & Replacment Instruments		Boring No.	JS-53R	Total Depth	15.2 ft	
County	Hawkins, TN		Surface Elevation	1082.3 ft			
Project Type	Drilling & Instrument Installation		Date Started	12/8/11	Completed	12/8/11	
Supervisor	A. Cantrell	Driller	S. Bradford	Depth to Water	5.7 ft	Date/Time	12/8/11
Logged By	A. Cantrell		Depth to Water	N/A	Date/Time	N/A	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
1082.3	0.0	Top of Hole							
1078.8	3.5	Soil 1: LEAN CLAY with Sand and Gravel, light brown with occasional gray mottling, moist, medium stiff to stiff, manganese concretions		SPT-1	0.0 - 1.5	0.9	2-4-3	18	Boring advanced with 4 1/4" ID hollow stem augers Installed PZ with 5' of slotted screen at 11.1' tip depth with 10' of riser pipe. Boring backfilled from 0.0' to 15.2' with well installation materials.
				SPT-2	1.5 - 3.0	1.3	4-5-8	21	
	SPT-3	3.0 - 4.5	1.4	4-8-11	17				
	SPT-4	4.5 - 6.0	0.7	4-6-12	18				
	SPT-5	6.0 - 7.5	0.2	12-16-16	17				
	SPT-6	7.5 - 9.0	1.4	4-6-15	14				
	SPT-7	9.0 - 10.5	1.0	4-4-4	26				
	SPT-8	10.5 - 12.0	1.4	2-8-12	26				
	SPT-9	12.0 - 13.5	1.5	5-10-14	29				
1068.4	13.9	Soil 2: LEAN CLAY, brown, moist, stiff to hard		SPT-10	13.5 - 15.0	1.5	10-14-9	21	
1067.1	15.2		SHALE (augered)						

No Refusal /
Bottom of Hole

Top of Rock = 13.9
Elevation (1068.4)

STANTEC\FINSM_LEGACY_STANDARD_GINTDATABASE.GPJ FINSM-GRAPHIC.LOG.GDT 3/23/12

Project Number		175660005		Location		Rogersville, TN				
Project Name		Additional & Replacment Instruments		Boring No.		JS-54R		Total Depth		39.3 ft
County		Hawkins, TN		Surface Elevation		1100.2 ft				
Project Type		Drilling & Instrument Installation		Date Started		12/12/11		Completed		12/13/11
Supervisor		A. Cantrell Driller S. Bradford		Depth to Water		26.3 ft		Date/Time		12/13/11
Logged By		A. Cantrell		Depth to Water		N/A		Date/Time		N/A
Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks	
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth		
1100.2	0.0	Top of Hole								
1099.7	0.5	GRAVEL, (Roadway) Fill								
		Soil 8: LEAN CLAY with Sand and Gravel, light brown to brown/gray, moist, stiff to hard, mottling		SPT-1	0.0 - 1.5	0.9	1-2-7	16	Boring advanced with 4 1/4" ID hollow stem augers	
				SPT-2	1.5 - 3.0	1.0	8-17-18	12		
				SPT-3	3.0 - 4.5	0.7	12-12-14	15		
				SPT-4	4.5 - 6.0	1.1	4-5-10	23		Installed 40.0' of slope inclinometer casing. Boring grouted fom 2.3' to 39.3'. Casing imbedded 10.3' in rock.
				SPT-5	6.0 - 7.5	0.1	50+	17		
				SPT-6	7.5 - 9.0	1.5	22-8-14	15		
				SPT-7	9.0 - 10.5	1.3	8-6-6	18		
				SPT-8	10.5 - 12.0	1.2	5-8-8	17		
				SPT-9	12.0 - 13.5	1.1	9-8-7	18		
				SPT-10	13.5 - 15.0	1.5	5-7-9	17		
				SPT-11	15.0 - 16.5	1.3	6-8-7	17		
1083.7	16.5	Soil 2: LEAN CLAY, brown and gray, moist to wet, stiff to very stiff, with sand and gravel		SPT-12	16.5 - 18.0	1.3	9-11-14	18		
				SPT-13	18.0 - 19.5	1.2	13-13-14	19		
				SPT-14	19.5 - 21.0	1.5	8-15-11	17		
				SPT-15	21.0 - 22.5	1.2	8-10-16	15		

STANTECFRSM_LEGACY_STANDARD_GINTDATABASE.GPJ_FINSM-GRAPHIC.LOG.GDT_3/23/12

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
1077.2	23.0								
		Soil 6: GRAVEL with Sand, brown and gray, moist to wet, medium dense to dense		SPT-16	22.5 - 24.0	1.0	14-23-50+	6	Began Core
				SPT-17	24.0 - 25.5	0.9	22-32-31	8	
				SPT-18	25.5 - 27.0	1.0	22-18-26	11	
				SPT-19	27.0 - 28.5	1.1	18-18-9	12	
1071.2	29.0								
		SHALE, brown to gray, very thin bedded and laminated, slickensides on high (45 degree plus) dip, few stingers and seams of limestone		SPT-20	28.5 - 30.0	1.1	22-8-50+	20	
				18	5.0	5.0	100	34.0	
1060.9	39.3			87	5.3	5.3	100	39.3	
<p>Bottom of Hole</p> <p>Top of Rock = 29.0 Elevation (1071.2)</p>									

STANTECFRMSM_LEGACY_STANDARD_GINTDATABASE.GPJ_FINSM-GRAPHIC.LOG.GDT_3/23/12

Project Number		175660005			Location		Rogersville, TN				
Project Name		Additional & Replacment Instruments			Boring No.		JS-66	Total Depth		19.5 ft	
County		Hawkins, TN			Surface Elevation		1081.3 ft				
Project Type		Drilling & Instrument Installation			Date Started		1/4/12	Completed		1/5/12	
Supervisor		A. Cantrell	Driller		S. Bradford	Depth to Water		11.3 ft	Date/Time		1/4/12
Logged By		A. Cantrell			Depth to Water		N/A	Date/Time		N/A	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks	
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth		
1081.3	0.0	Top of Hole								
		Soil 1: LEAN CLAY with Sand and Gravel, light brown and gray, moist, medium stiff to very stiff, mottling		SPT-1	0.0 - 1.5	1.1	3-3-3	23	Boring advanced with 4 1/4" ID hollow stem augers Installed PZ with 5' of slotted screen at 14.3' and 15.0' of riser with cap. Boring backfilled from 0' to 19.5' with well installation materials. Rock fragment blocked SPT-9	
				SPT-2	1.5 - 3.0	0.5	5-6-5	19		
				SPT-3	3.0 - 4.5	0.2	5-3-3	28		
				SPT-4	4.5 - 6.0	0.4	2-2-3	21		
				SPT-5	6.0 - 7.5	0.3	2-2-3	26		
				SPT-6	7.5 - 9.0	0.9	7-8-9	26		
1072.3	9.0	Soil 2: LEAN CLAY, light brown and gray, moist to wet, medium stiff to very stiff, with sand and gravel		SPT-7	9.0 - 10.5	1.2	3-3-5	24		
				SPT-8	10.5 - 12.0	1.5	3-4-5	24		
				SPT-9	12.0 - 13.5	1.5	3-5-8	24		
				SPT-10	13.5 - 15.0	1.4	2-3-5	23		
				SPT-11	15.0 - 16.5	1.1	3-5-14	19		
				SPT-12	16.5 - 18.0	1.4	3-6-6	20		
				SPT-13	18.0 - 19.5	1.3	3-5-5	23		
1061.8	19.5	No Refusal / Bottom of Hole								

STANTEC\FINSM_LEGACY_STANDARD_GINTDATABASE.GPJ_FINSM-GRAPHIC.LOG.GDT_3/23/12

Project Number		175660005			Location		Rogersville, TN				
Project Name		Additional & Replacment Instruments			Boring No.		JS-67	Total Depth		29.0 ft	
County		Hawkins, TN			Surface Elevation		1098.7 ft				
Project Type		Drilling & Instrument Installation			Date Started		3/6/12	Completed		3/6/12	
Supervisor		A. Cantrell	Driller		M. Wethington	Depth to Water		17.1 ft	Date/Time		3/6/12
Logged By		A. Cantrell			Depth to Water		N/A	Date/Time		N/A	
Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks		
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth			
1098.7	0.0	Top of Hole									
		Soil 1: LEAN CLAY with Sand, light brown and light gray with orange spots, moist, soft, mottling		SPT-1	0.0 - 1.5	0.8	1-2-2	22	Boring advanced with 4 1/4" ID hollow stem augers Installed PZ with 5' of slotted screen at 27.6' tip depth with 30' of riser pipe. Boring backfilled from 3.2' to 29.0' with well installation materials.		
				SPT-2	2.5 - 4.0	0.9	2-2-2	23			
1092.5	6.2	Soil 4: FLY ASH, gray to dark gray, damp to wet, loose		SPT-3	5.0 - 6.5	1.0	1-4-3	22			
				SPT-4	7.5 - 9.0	1.4	3-2-2	45			
				SPT-5	10.0 - 11.5	1.1	2-1-1	33			
				SPT-6	12.5 - 14.0	1.5	3-1-2	37			
				SPT-7	15.0 - 16.5	1.5	2-2-2	36			
				SPT-8	17.5 - 19.0	1.5	1-1-2	42			
				SPT-9	20.0 - 21.5	1.4	1-1-1	44			

STANTECFMISM_LEGACY_STANDARD_GINTDATABASE.GPJ_FMSM-GRAPHIC.LOG.GDT_3/23/12

Project Number <u>175660005</u>	Location <u>Rogersville, TN</u>
Project Name <u>Additional & Replacment Instruments</u>	Boring No. <u>JS-67</u> Total Depth <u>29.0 ft</u>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks	
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth		
1074.8	23.9	Soil 4: FLY ASH, gray to dark gray, damp to wet, loose <i>(Continued)</i>		SPT-10	22.5 - 24.0	1.5	4-3-5	26		
			Soil 2: LEAN CLAY, light brown and light gray, damp, stiff, with sand and gravel		SPT-11	25.0 - 26.5	1.5	5-7-8	25	
1069.7	29.0				SPT-12	27.5 - 29.0	1.5	5-7-7	22	

No Refusal /
Bottom of Hole

Top of Rock = 29.0
Elevation (1069.7)

STANTECFRMSM_LEGACY_STANDARD_GINTDATABASE.GPJ FINSM-GRAPHIC.LOG.GDT_3/23/12

Project Number		175660005		Location		Rogersville, TN				
Project Name		Additional & Replacment Instruments		Boring No.		JS-68		Total Depth		16.5 ft
County		Hawkins, TN		Surface Elevation		1081.4 ft				
Project Type		Drilling & Instrument Installation		Date Started		1/3/12		Completed		1/3/12
Supervisor		A. Cantrell Driller S. Bradford		Depth to Water		0.5 ft		Date/Time		1/3/12
Logged By		A. Cantrell		Depth to Water		N/A		Date/Time		N/A
Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks	
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth		
1081.4	0.0	Top of Hole								
		Soil 1: LEAN CLAY with Sand and Gravel, brown and gray, moist, medium stiff to stiff, mottling		SPT-1	0.0 - 1.5	1.1	3-5-6	18	Boring advanced with 4 1/4" ID hollow stem augers Installed PZ with 5' of slotted screen at 12.1' and 15.0' of riser with cap. Boring backfilled from 0.5' to 16.5' with well installation materials.	
				SPT-2	1.5 - 3.0	0.7	5-4-5	19		
				SPT-3	3.0 - 4.5	0.6	3-4-5	23		
				SPT-4	4.5 - 6.0	1.0	2-3-3	23		
				SPT-5	6.0 - 7.5	1.2	5-5-10	19		
				SPT-6	7.5 - 9.0	1.1	2-2-3	20		
				SPT-7	9.0 - 10.5	1.0	2-3-7	20		
				SPT-8	10.5 - 12.0	1.4	2-3-8	21		
1069.6	11.8	Soil 2: LEAN CLAY, brown and gray, moist, medium stiff to stiff, with sand		SPT-9	12.0 - 13.5	0.8	2-3-5	20		
				SPT-10	13.5 - 15.0	1.5	3-5-7	20		
				SPT-11	15.0 - 16.5	1.2	4-6-6	19		
1064.9	16.5	No Refusal / Bottom of Hole								

STANTECFRSM_LEGACY_STANDARD_GINTDATABASE.GPJ_FINSM-GRAPHIC.LOG.GDT_3/23/12

Project Number		175660005		Location		Rogersville, TN				
Project Name		Additional & Replacment Instruments		Boring No.		JS-69		Total Depth		48.5 ft
County		Hawkins, TN		Surface Elevation		1097.6 ft				
Project Type		Drilling & Instrument Installation		Date Started		3/7/12		Completed		3/7/12
Supervisor		A. Cantrell		Driller		M. Wethington		Depth to Water		Dry
Logged By		A. Cantrell		Date/Time		3/7/12		Depth to Water		N/A
Date/Time		N/A		Date/Time		N/A		Date/Time		N/A

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
1097.6	0.0	Top of Hole							
		Soil 1: LEAN CLAY with Sand and Gravel, light brown and light gray, moist, soft to medium stiff, mottling		SPT-1	0.0 - 1.5	1.3	1-1-2	20	Boring advanced with 4 1/4" ID hollow stem augers
1093.7	3.9			SPT-2	2.5 - 4.0	1.9	2-2-3	19	
		Soil 4: FLY ASH, dark gray, damp to wet, loose		SPT-3	5.0 - 6.5	1.1	2-2-2	28	Installed 50.0' of slope inclinometer casing. Boring grouted from 0.0' to 45.8'. Casing imbedded 8.5' in rock.
				SPT-4	7.5 - 9.0	1.3	2-2-3	34	
				SPT-5	10.0 - 11.5	1.4	2-1-2	37	
				SPT-6	12.5 - 14.0	1.3	2-1-2	36	
				SPT-7	15.0 - 16.5	1.3	2-1-2	36	
				SPT-8	17.5 - 19.0	1.4	2-5-8	23	
1076.8	20.8			SPT-9	20.0 - 21.5	1.5	4-8-9	20	
			Soil 2: LEAN CLAY, light gray and brown, moist, very stiff, with sand and gravel		SPT-10	22.5 - 24.0	1.5	4-8-9	

STANTEC\FM\SM_LEGACY_STANDARD\GINT\DATABASE\GPI_FM\SM-GRAPHIC.LOG.GDT_3/23/12

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		Soil 2: LEAN CLAY, light gray and brown, moist, very stiff, with sand and gravel <i>(Continued)</i>		SPT-11	25.0 - 26.5	1.4	4-7-8	21	
				SPT-12	27.5 - 29.0	1.5	3-4-7	21	
				SPT-13	30.0 - 31.5	1.5	2-4-4	23	
				SPT-14	32.5 - 34.0	0.2	2-3-3	30	
1061.6	36.0			SPT-15	35.0 - 36.5	1.1	12-15-6	26	
1060.3	37.3	Soil 6: GRAVEL with Sand, light gray and brown, moist, medium dense, medium grained, poorly graded							Advanced auger to 38.2'. Began Core
		SHALE, gray to brown, soft to moderately hard, weathered							Fracture seams noticed during drilling.
				81	5.3	5.3	100	43.5	
1049.1	48.5			60	5.0	3.5	70	48.5	
Bottom of Hole									
Top of Rock = 37.3 Elevation (1060.3)									

STANTECFMISM_LEGACY_STANDARD_GINTDATABASE.GPJ_FISM-GRAPHIC.LOG.GDT_3/23/12

Project Number		175660005			Location		Rogersville, TN				
Project Name		Additional & Replacment Instruments			Boring No.		JS-70	Total Depth		35.0 ft	
County		Hawkins, TN			Surface Elevation		1111.3 ft				
Project Type		Drilling & Instrument Installation			Date Started		1/5/12	Completed		1/5/12	
Supervisor		A. Cantrell	Driller		S. Bradford	Depth to Water		27.5 ft	Date/Time		1/5/12
Logged By		A. Cantrell			Depth to Water		N/A	Date/Time		N/A	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
1111.3	0.0	Top of Hole							
1107.6	3.7	Soil 1: LEAN CLAY, light brown and gray, moist, stiff, mottling, with sand and gravel (surface gravel from roadway)		SPT-1	0.0 - 1.5	0.8	5-6-7	16	Boring advanced with 4 1/4" ID hollow stem augers Installed PZ with 5' of slotted screen at 30.8' and 30' of riser with cap. Boring backfilled from 1.0' to 35.0' with well installation materials.
				SPT-2	1.5 - 3.0	0.4	7-5-5	17	
			SPT-3	3.0 - 4.5	1.2	7-8-10	20		
			SPT-4	4.5 - 6.0	0.6	4-4-7	20		
			SPT-5	6.0 - 7.5	0.8	5-5-5	22		
			SPT-6	7.5 - 9.0	1.1	5-10-7	16		
			SPT-7	9.0 - 10.5	1.4	4-6-10	17		
			SPT-8	10.5 - 12.0	1.3	10-8-5	19		
			SPT-9	12.0 - 13.5	0.7	3-4-5	23		
			SPT-10	13.5 - 15.0	1.2	3-4-4	24		
			SPT-11	15.0 - 16.5	0.0	4-2-3	--		
1094.8	16.5	Soil 5: SLUCED FLY ASH, gray to dark gray, moist to wet, very loose to loose		SPT-12	16.5 - 18.0	0.2	2-2-2	19	
				SPT-13	18.0 - 19.5	0.4	3-3-3	16	
				SPT-14	19.5 - 21.0	1.0	2-2-3	23	
				SPT-15	21.0 - 22.5	1.4	3-3-3	26	

STANTECFRSM_LEGACY_STANDARD_GINTDATABASE.GPJ_FINSM-GRAPHIC.LOG.GDT_3/23/12

Project Number	175660005	Location	Rogersville, TN	
Project Name	Additional & Replacment Instruments	Boring No.	JS-70	Total Depth 35.0 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
1085.3	26.0	Soil 5: SLICED FLY ASH, gray to dark gray, moist to wet, very loose to loose (Continued)		SPT-16	22.5 - 24.0	1.5	2-3-4	22	
				SPT-17	24.0 - 25.5	1.3	WOH-3-3	20	
1076.3	35.0	Soil 2: LEAN CLAY, light gray, wet, very soft to stiff, with sand and gravel		SPT-18	25.5 - 27.0	1.5	5-6-4	35	
				SPT-19	27.0 - 28.5	1.1	3-5-6	46	
				SPT-20	28.5 - 30.0	1.5	2-3-3	47	
				SPT-21	30.0 - 31.5	1.0	WOR	51	
				SPT-22	31.5 - 33.0	1.5	2-2-2	28	
				SPT-23	33.0 - 34.5	1.5	2-2-2	32	

No Refusal /
Bottom of Hole

Project Number		175660005			Location		Rogersville, TN				
Project Name		Additional & Replacment Instruments			Boring No.		JS-71	Total Depth		47.9 ft	
County		Hawkins, TN			Surface Elevation		1093.8 ft				
Project Type		Drilling & Instrument Installation			Date Started		3/7/12	Completed		3/8/12	
Supervisor		A. Cantrell	Driller		M. Wethington	Depth to Water		Dry	Date/Time		3/8/12
Logged By		A. Cantrell			Depth to Water		N/A	Date/Time		N/A	
Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks		
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth			
1093.8	0.0	Top of Hole									
		Soil 1: LEAN CLAY with Sand and Gravel, light brown and dark brown, damp to moist, soft to stiff, mottling		SPT-1	0.0 - 1.5	0.3	1-1-1	30	Boring advanced with 4 1/4" ID hollow stem augers Installed 50.0' of slope inclinometer casing. Boring grouted from 0.0' to 47.9'. Casing imbedded 5.7' in rock.		
				SPT-2	2.5 - 4.0	1.3	2-5-5	20			
				SPT-3	5.0 - 6.5	1.2	2-3-3	21			
				SPT-4	7.5 - 9.0	1.0	1-1-2	22			
1082.5	11.3			SPT-5	10.0 - 11.5	0.6	1-1-2	22			
		Soil 5: SLUICED FLY ASH, dark gray, moist, soft, very loose		SPT-6	12.5 - 14.0	1.3	1-2-2	23			
				SPT-7	15.0 - 16.5	1.5	1-2-2	23			
1076.3	17.5			SPT-8	17.5 - 19.0	1.5	1-3-4	19			
		Soil 8: LEAN CLAY with Sand and Silt, light gray and brown, moist, medium stiff		SPT-9	20.0 - 21.5	1.4	2-2-3	20			
1071.3	22.5			SPT-10	22.5 - 24.0	1.5	WOH-2-4	22			
		Soil 4: SLUICED FLY ASH, dark gray, moist to wet, loose									

STANTECFRSM_LEGACY_STANDARD_GINTDATABASE.GPJ_FINSM-GRAPHIC.LOG.GDT_3/23/12

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
1062.4	31.4	Soil 4: SLUICED FLY ASH, dark gray, moist to wet, loose <i>(Continued)</i>		SPT-11	25.0 - 26.5	1.5	2-2-2	26	Advanced auger to 38.2'. Began Core
				SPT-12	27.5 - 29.0	1.5	2-3-3	30	
				SPT-13	30.0 - 31.5	1.2	2-3-2	24	
1056.3	37.5	Soil 2: LEAN CLAY, brown and gray, wet, very stiff, with sand		SPT-14	32.5 - 34.0	1.5	3-5-10	27	
				SPT-15	35.0 - 36.5	1.3	4-8-10	30	
				SPT-16	37.5 - 37.7	0.2	50+	10	
1045.9	47.9	SHALE, brown to gray, soft to moderately hard, weathered							
				24	7.2	3.5	49	45.4	
				80	2.5	2.4	96	47.9	
Bottom of Hole Top of Rock = 37.5 Elevation (1056.3)									

STANTECFRSM_LEGACY_STANDARD_GINTDATABASE.GPJ FINSM-GRAPHIC.LOG.GDT 3/23/12

Project Number		175660005		Location		Rogersville, TN				
Project Name		Additional & Replacment Instruments		Boring No.		JS-72		Total Depth		31.1 ft
County		Hawkins, TN		Surface Elevation		1079.5 ft				
Project Type		Drilling & Instrument Installation		Date Started		12/13/12		Completed		12/14/11
Supervisor		A. Cantrell Driller S. Bradford		Depth to Water		16.7 ft		Date/Time		12/14/11
Logged By		A. Cantrell		Depth to Water		N/A		Date/Time		N/A
Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks	
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth		
1079.5	0.0	Top of Hole								
		Soil 1: LEAN CLAY with Sand and Gravel, brown and gray, moist, medium stiff to very stiff, mottling		SPT-1	0.0 - 1.5	0.9	3-4-6	15	Boring advanced with 4 1/4" ID hollow stem augers	
				SPT-2	1.5 - 3.0	1.3	6-5-6	19		
				SPT-3	3.0 - 4.5	1.0	5-5-5	20		
				SPT-4	4.5 - 6.0	1.1	3-3-3	16		Installed 30.0' of slope inclinometer casing. Boring grouted fom 0.5' to 31.1'. Casing imbedded 7.6' in rock.
				SPT-5	6.0 - 7.5	1.3	4-10-10	17		
				SPT-6	7.5 - 9.0	0.2	4-5-8	19		
				SPT-7	9.0 - 10.5	1.4	5-7-12	15		
1068.5	11.0	Soil 2: LEAN CLAY, gray to brown, moist to wet, medium stiff to very stiff, with sand and silt		SPT-8	10.5 - 12.0	1.3	8-8-8	24		
				SPT-9	12.0 - 13.5	1.5	6-5-4	30		
				SPT-10	13.5 - 15.0	1.0	1-2-3	29		
				SPT-11	15.0 - 16.5	1.5	1-3-4	26		
				SPT-12	16.5 - 18.0	1.2	4-5-6	27		
				SPT-13	18.0 - 19.5	1.5	5-5-7	24		
1059.2	20.3			SPT-14	19.5 - 21.0	1.5	4-8-24	23	Began Core	
		SHALE, brown to gray, soft to moderately hard, weathered		SPT-15	21.0 - 22.5	0.3	3-10-50+	11		

STANTECFRSM_LEGACY_STANDARD_GINTDATABASE.GPJ FINSM-GRAPHIC.LOG.GDT 3/23/12

Project Number	175660005	Location	Rogersville, TN	
Project Name	Additional & Replacment Instruments	Boring No.	JS-72	Total Depth 31.1 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
1048.4	31.1	SHALE, brown to gray, soft to moderately hard, weathered (Continued)		0	3.4	1.1	32	23.7	Extra core recovered from previous run.
				26	5.0	3.3	66	28.7	
				117	2.4	2.4	100	31.1	
			Bottom of Hole						
Top of Rock = 20.3 Elevation (1059.2)									

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