

**APPENDIX C –
WELL INSTALLATION LOGS**

APPENDIX C.1

TEMPORARY WELLS

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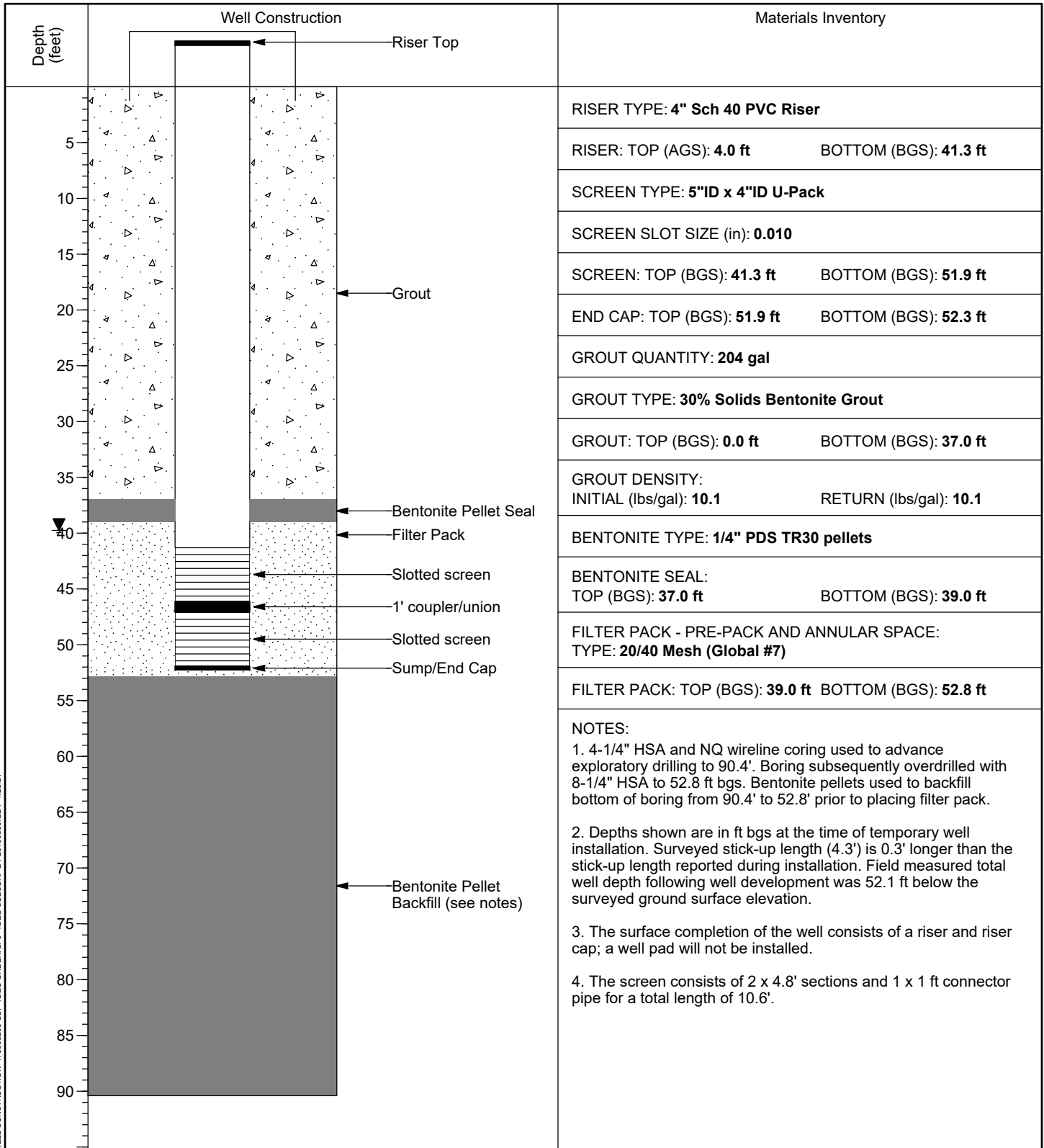


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: **CUF-TW01 (Boring CUF-TW01)** PAGE 1 OF 1

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 75#2, #712**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes**
 OBSERVED BY: **M. Edmunds**
 REVIEWED BY: **S. Bolden**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **4/15/19** COMPLETED: **4/16/19**
 LOCATION: **729,394.08 N; 1,512,993.69 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Gypsum Storage Area**
 LATITUDE: **36° 23' 4.07"** LONGITUDE: **-87° 39' 16.03"**
 GROUND ELEV (ft): **426.7** TOC ELEV (ft): **430.99**
 ELEVATION DATUM: **NGVD29**
 BOREHOLE DEPTH (ft): **90.4** WELL DEPTH (ft, bgs): **52.3**
 DTW AT COMPLETION (ft, bgs): **39.8**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



WELL CONSTRUCTION 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF.DT 20190530.GDT 1/26/21

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

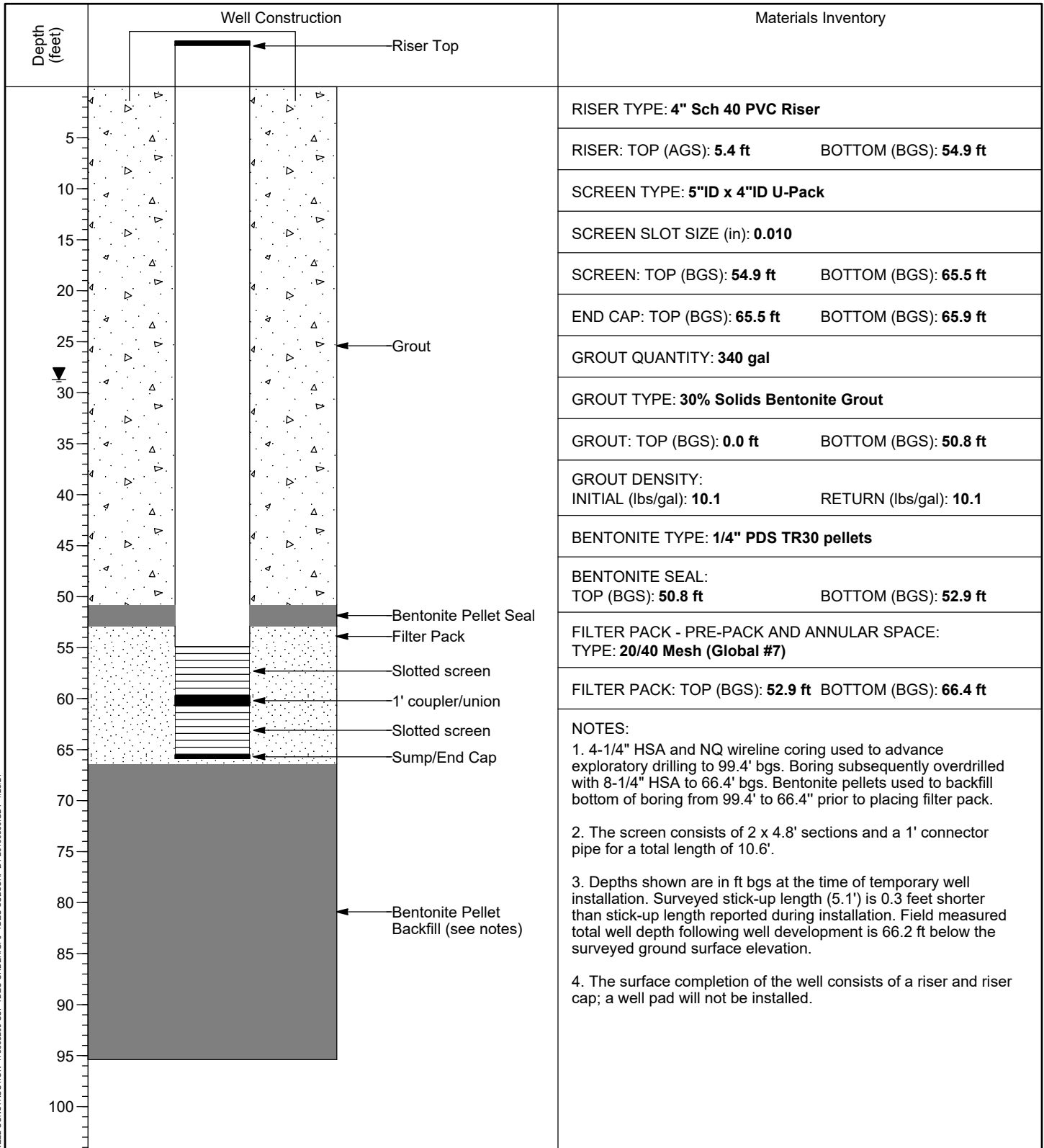


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: **CUF-TW03 (Boring CUF-TW03)** PAGE 1 OF 1

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 75#2, #712**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes**
 OBSERVED BY: **M. Edmunds**
 REVIEWED BY: **S. Bolden**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **4/17/19** COMPLETED: **4/19/19**
 LOCATION: **728,847.22 N; 1,512,494.43 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Gypsum Storage Area**
 LATITUDE: **36° 22' 58.58"** LONGITUDE: **-87° 39' 22.02"**
 GROUND ELEV (ft): **424.4** TOC ELEV (ft): **429.53**
 ELEVATION DATUM: **NGVD29**
 BOREHOLE DEPTH (ft): **99.4** WELL DEPTH (ft, bgs): **65.9**
 DTW AT COMPLETION (ft, bgs): **28.7**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



WELL CONSTRUCTION 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 1/26/21

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

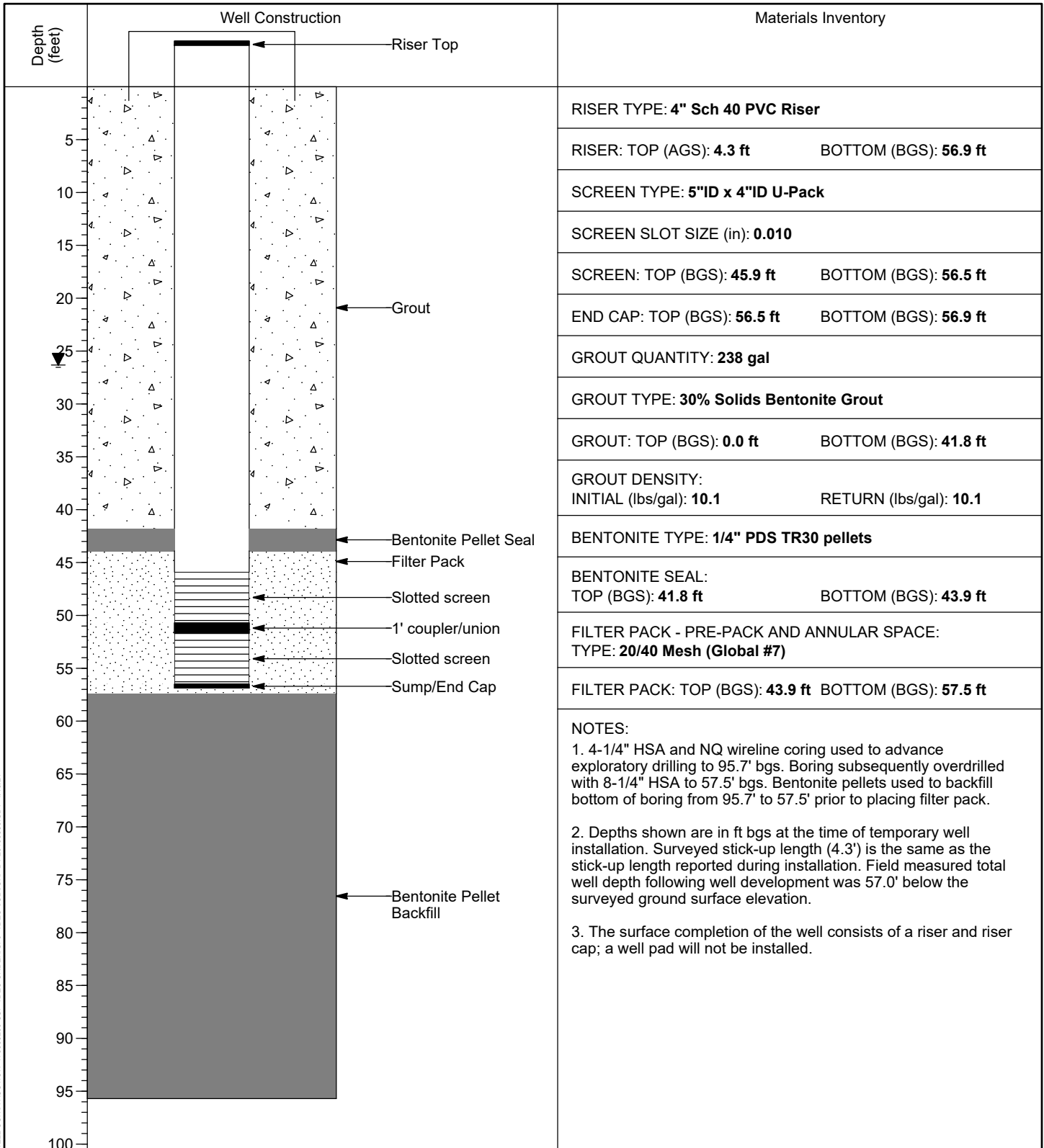


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: **CUF-TW05 (Boring CUF-TW05)** PAGE 1 OF 1

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 75#2, #712**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes**
 OBSERVED BY: **M. Edmunds**
 REVIEWED BY: **S. Bolden**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **4/23/19** COMPLETED: **4/25/19**
 LOCATION: **729,690.72 N; 1,511,953.03 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Gypsum Storage Area**
 LATITUDE: **36° 23' 6.83"** LONGITUDE: **-87° 39' 28.82"**
 GROUND ELEV (ft): **422.5** TOC ELEV (ft): **426.80**
 ELEVATION DATUM: **NGVD29**
 BOREHOLE DEPTH (ft): **95.7** WELL DEPTH (ft, bgs): **56.9**
 DTW AT COMPLETION (ft, bgs): **26.3**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



WELL CONSTRUCTION 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF.DT 20190530.GDT 4/13/21

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

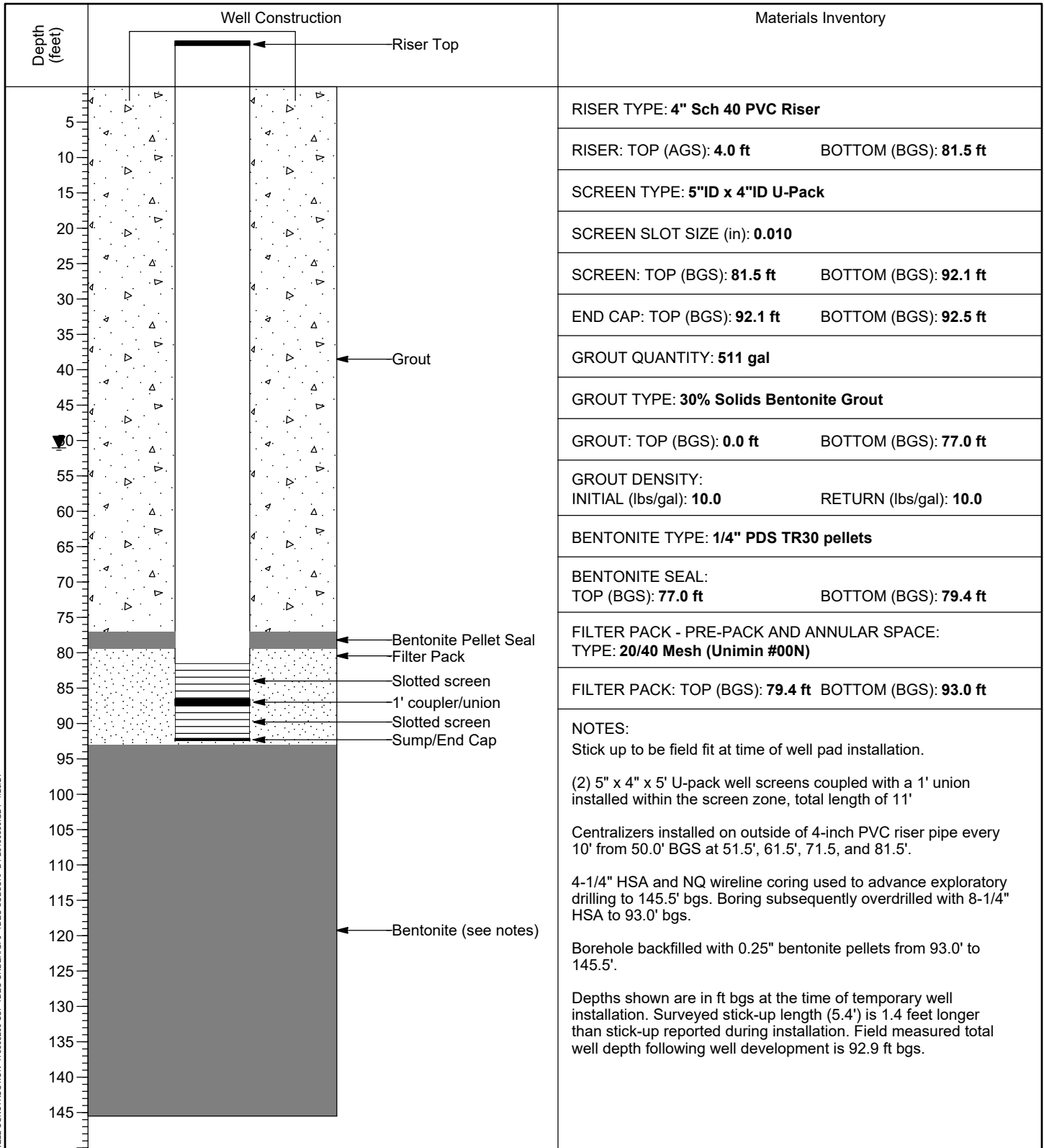


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: **CUF-TW07 (Boring CUF-TW07)** PAGE 1 OF 1

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 75#2, #712**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes**
 OBSERVED BY: **M. Edmunds**
 REVIEWED BY: **D. Norman**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **2/14/19** COMPLETED: **2/18/19**
 LOCATION: **731,283.83 N; 1,510,951.08 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Dry Ash Stack**
 LATITUDE: **36° 23' 22.41"** LONGITUDE: **-87° 39' 41.40"**
 GROUND ELEV (ft): **438.3** TOC ELEV (ft): **443.69**
 ELEVATION DATUM: **NGVD29**
 BOREHOLE DEPTH (ft): **145.5** WELL DEPTH (ft, bgs): **92.5**
 DTW AT COMPLETION (ft, bgs): **51.1**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



WELL CONSTRUCTION 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 1/26/21

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

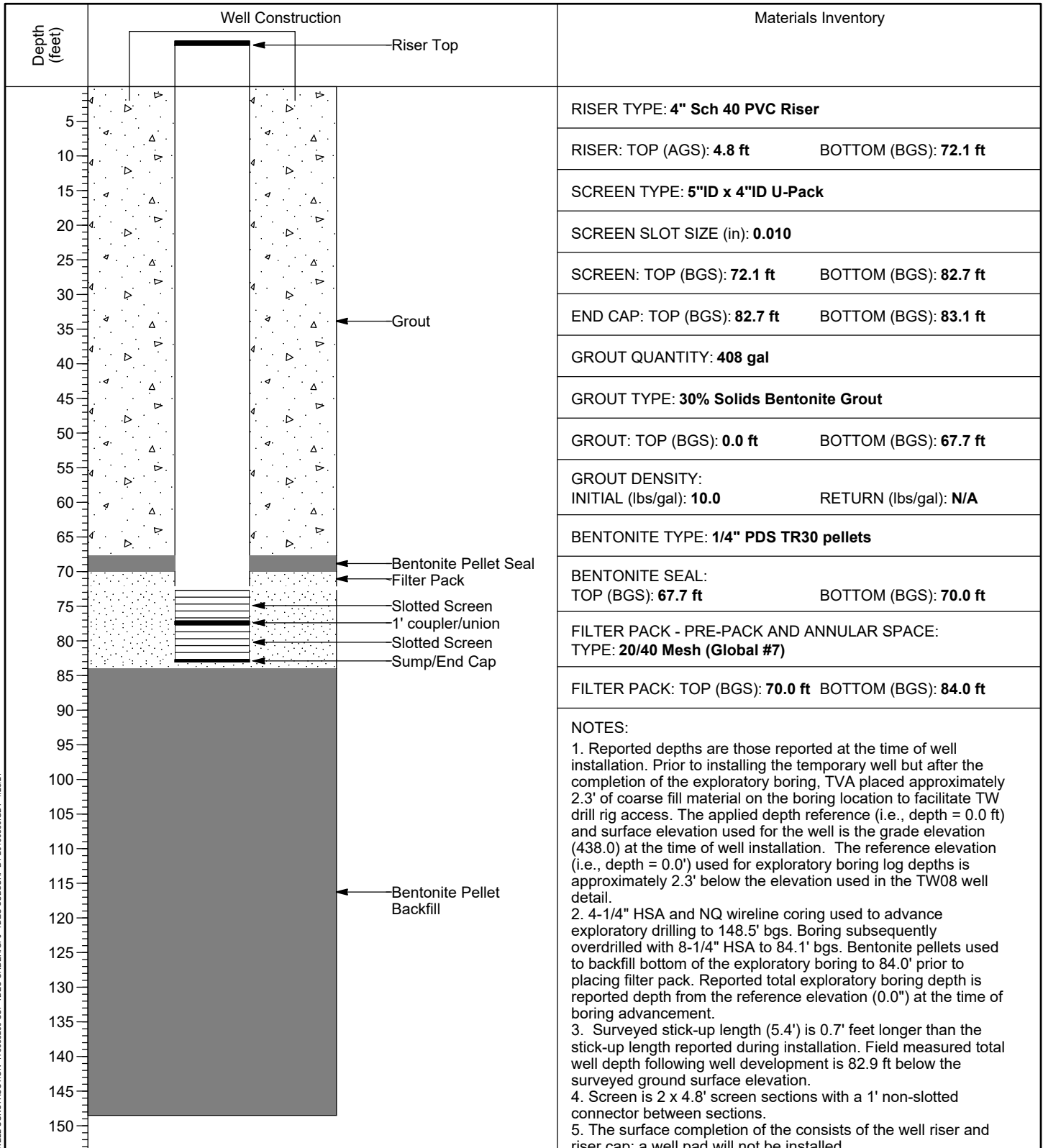


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: **CUF-TW08 (Boring CUF-TW08)** PAGE 1 OF 1

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 75#2, #712**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes**
 OBSERVED BY: **C. Kocka**
 REVIEWED BY: **S. Bolden**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **3/25/19** COMPLETED: **3/27/19**
 LOCATION: **731,314.89 N; 1,510,074.98 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Dry Ash Stack**
 LATITUDE: **36° 23' 22.57"** LONGITUDE: **-87° 39' 52.12"**
 GROUND ELEV (ft): **438.0** TOC ELEV (ft): **443.36**
 ELEVATION DATUM: **NGVD29**
 BOREHOLE DEPTH (ft): **148.5** WELL DEPTH (ft, bgs): **83.1**
 DTW AT COMPLETION (ft, bgs): **N/A**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



WELL CONSTRUCTION 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 1/26/21

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

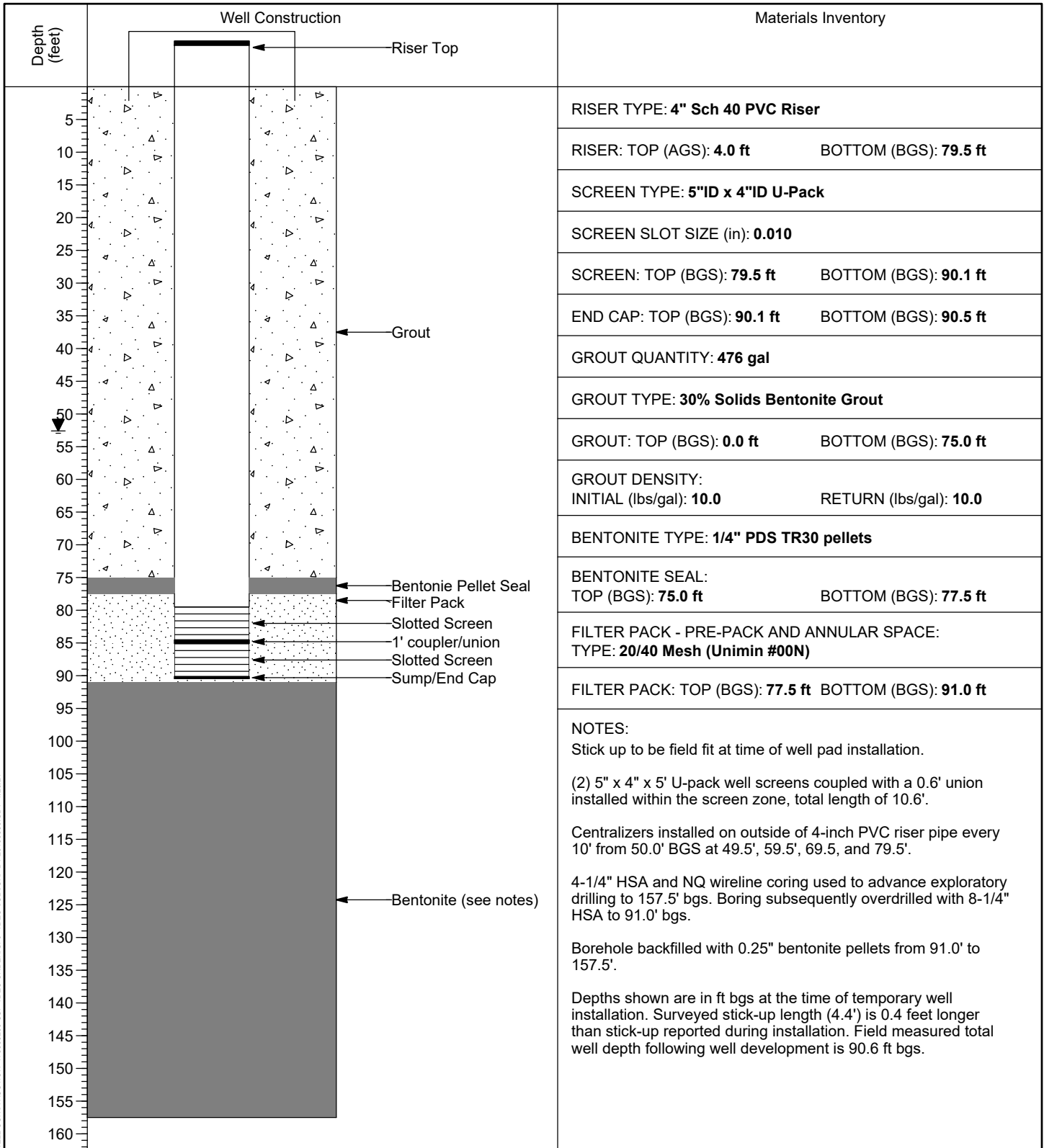


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: PAGE 1 OF 1
CUF-TW09 (Boring CUF-TW09)

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 75#2, #712**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes**
 OBSERVED BY: **G. Budd**
 REVIEWED BY: **D. Norman**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **2/19/19** COMPLETED: **2/25/19**
 LOCATION: **730,542.31 N; 1,510,294.38 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Dry Ash Stack**
 LATITUDE: **36° 23' 14.97"** LONGITUDE: **-87° 39' 49.27"**
 GROUND ELEV (ft): **442.1** TOC ELEV (ft): **446.44**
 ELEVATION DATUM: **NGVD29**
 BOREHOLE DEPTH (ft): **157.7** WELL DEPTH (ft, bgs): **90.5**
 DTW AT COMPLETION (ft, bgs): **52.6**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



WELL CONSTRUCTION 175568209 CUF TDEC ORDER.GPJ TDEC SURSUF.DT 20190530.GDT 1/26/21

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

APPENDIX C.2

PIEZOMETERS

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PIEZOMETER INSTALLATION DETAIL

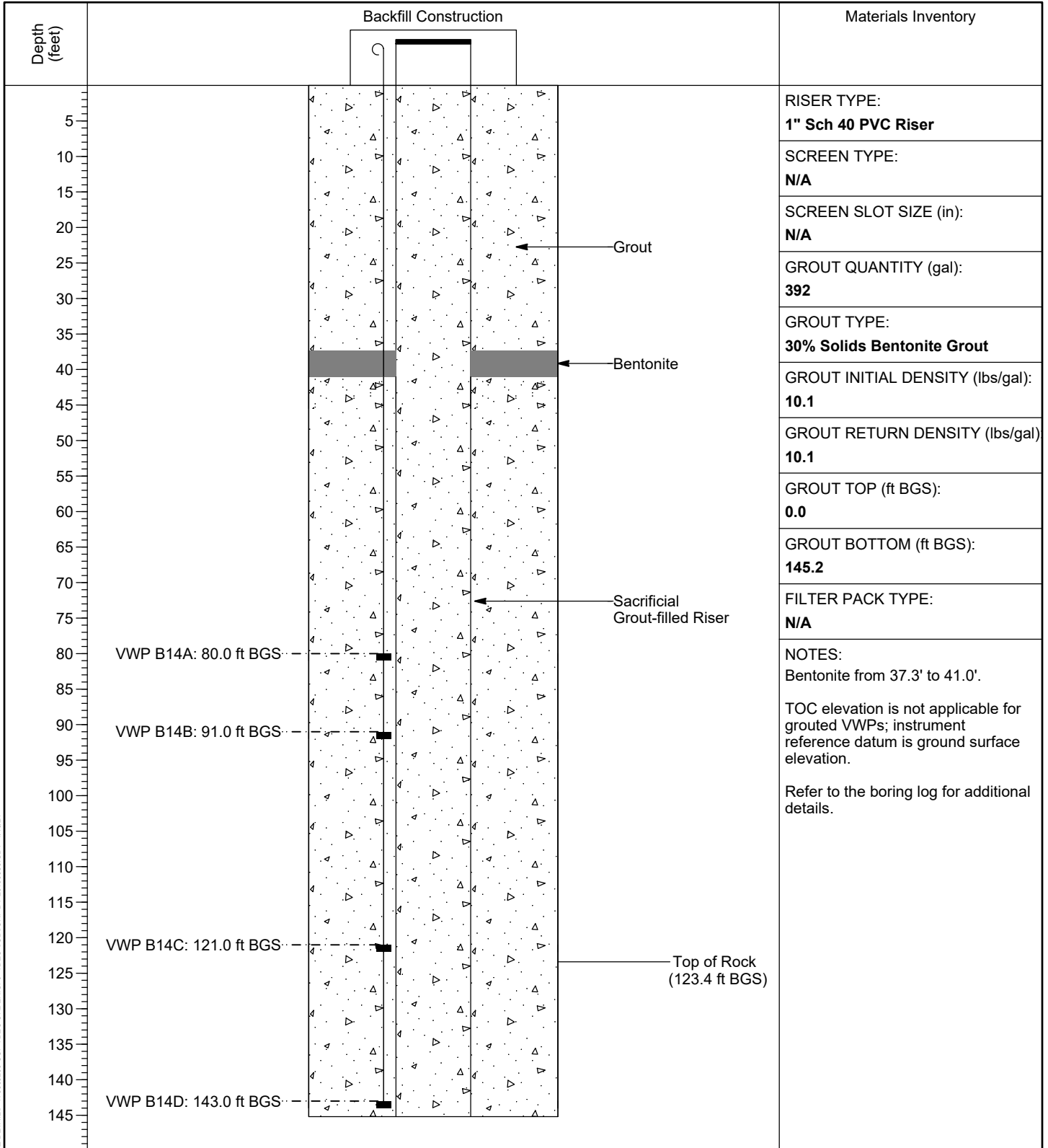
WELL / PROBEHOLE / BOREHOLE NO:

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CUF-B14

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 75#2, #712**
 DRILLING METHOD: **4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes**
 SAMPLING METHOD: **4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes**
 OBSERVED BY: **L. Eaves**
 REVIEWED BY: **B. Halada**
 APPROVED BY: **A. Welshans**

INSTALLATION: STARTED: **5/8/19** COMPLETED: **5/8/19**
 LOCATION: **731,519.55 N; 1,511,209.75 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIPTION: **Dry Ash Stack**
 LATITUDE: **36° 23' 24.78"** LONGITUDE: **-87° 39' 38.28"**
 GROUND ELEV (ft): **440.8** TOC ELEV (ft): **N/A**
 ELEVATION DATUM: **NGVD29**
 BOREHOLE DEPTH (ft): **145.1** RISER DEPTH (ft): **145.2**
 DTW AT COMPLETION (ft, bgs): **N/A**
 BOREHOLE DIA. (in): **9.0** RISER DIA. (in): **1.0**



PZ DETAILS: 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 4/13/21

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)



PIEZOMETER INSTALLATION DETAIL

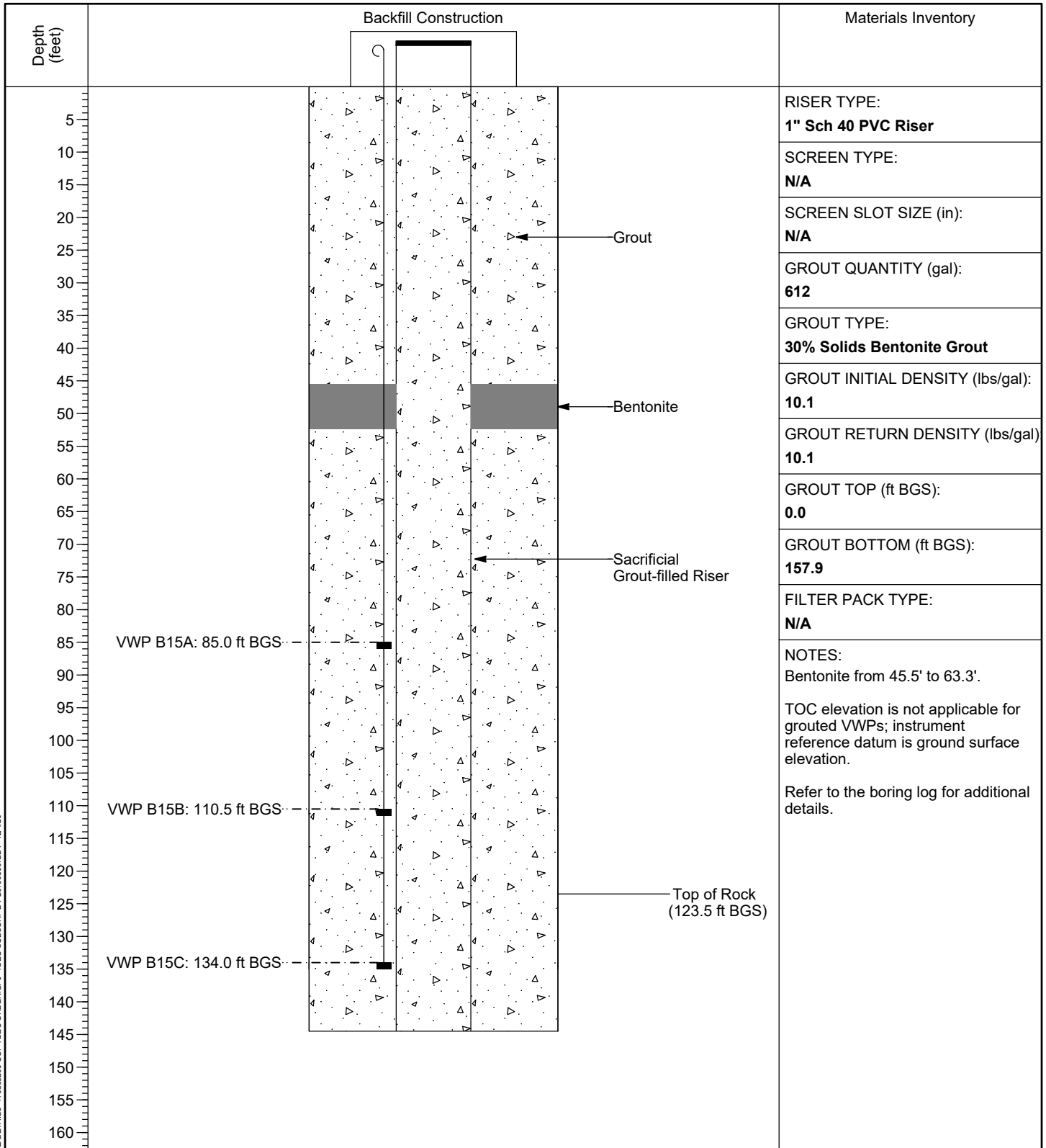
WELL / PROBEHOLE / BOREHOLE NO:

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CUF-B15

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 85#2, #951**
 DRILLING METHOD: **4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes**
 SAMPLING METHOD: **4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes**
 OBSERVED BY: **L. Eaves**
 REVIEWED BY: **B. Halada**
 APPROVED BY: **A. Welshans**

INSTALLATION: STARTED: **5/7/19** COMPLETED: **5/8/19**
 LOCATION: **730,949.04 N; 1,510,827.32 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIPTION: **Dry Ash Stack**
 LATITUDE: **36° 23' 19.08"** LONGITUDE: **-87° 39' 42.84"**
 GROUND ELEV (ft): **438.3** TOC ELEV (ft): **N/A**
 ELEVATION DATUM: **NGVD29**
 BOREHOLE DEPTH (ft): **157.9** RISER DEPTH (ft): **145.0**
 DTW AT COMPLETION (ft, bgs): **N/A**
 BOREHOLE DIA. (in): **9.0** RISER DIA. (in): **1.0**



PZ DETAILS: 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 12/4/20

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)



PIEZOMETER INSTALLATION DETAIL

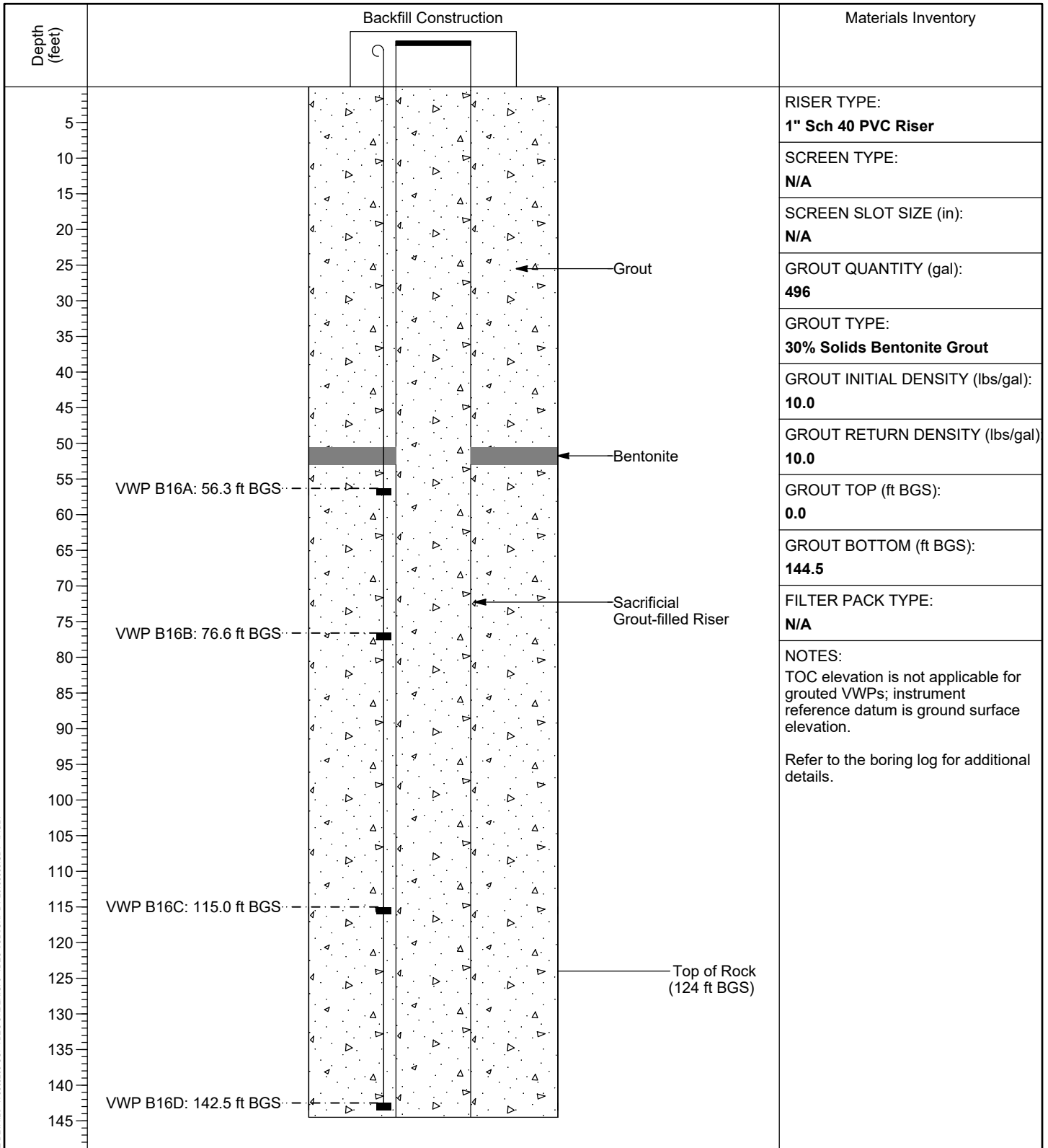
WELL / PROBEHOLE / BOREHOLE NO:

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CUF-B16

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 75#2, #712**
 DRILLING METHOD: **4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes**
 SAMPLING METHOD: **4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes**
 OBSERVED BY: **M. Aplin**
 REVIEWED BY: **B. Halada**
 APPROVED BY: **A. Welshans**

INSTALLATION: STARTED: **2/12/19** COMPLETED: **2/13/19**
 LOCATION: **730,628.44 N; 1,510,693.12 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIPTION: **Dry Ash Stack**
 LATITUDE: **36° 23' 15.89"** LONGITUDE: **-87° 39' 44.42"**
 GROUND ELEV (ft): **439.7** TOC ELEV (ft): **N/A**
 ELEVATION DATUM: **NGVD29**
 BOREHOLE DEPTH (ft): **144.5** RISER DEPTH (ft): **144.5**
 DTW AT COMPLETION (ft, bgs): **N/A**
 BOREHOLE DIA. (in): **9.0** RISER DIA. (in): **1.0**



PZ DETAILS: 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20190630.GDT 4/13/21

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)



PIEZOMETER INSTALLATION DETAIL

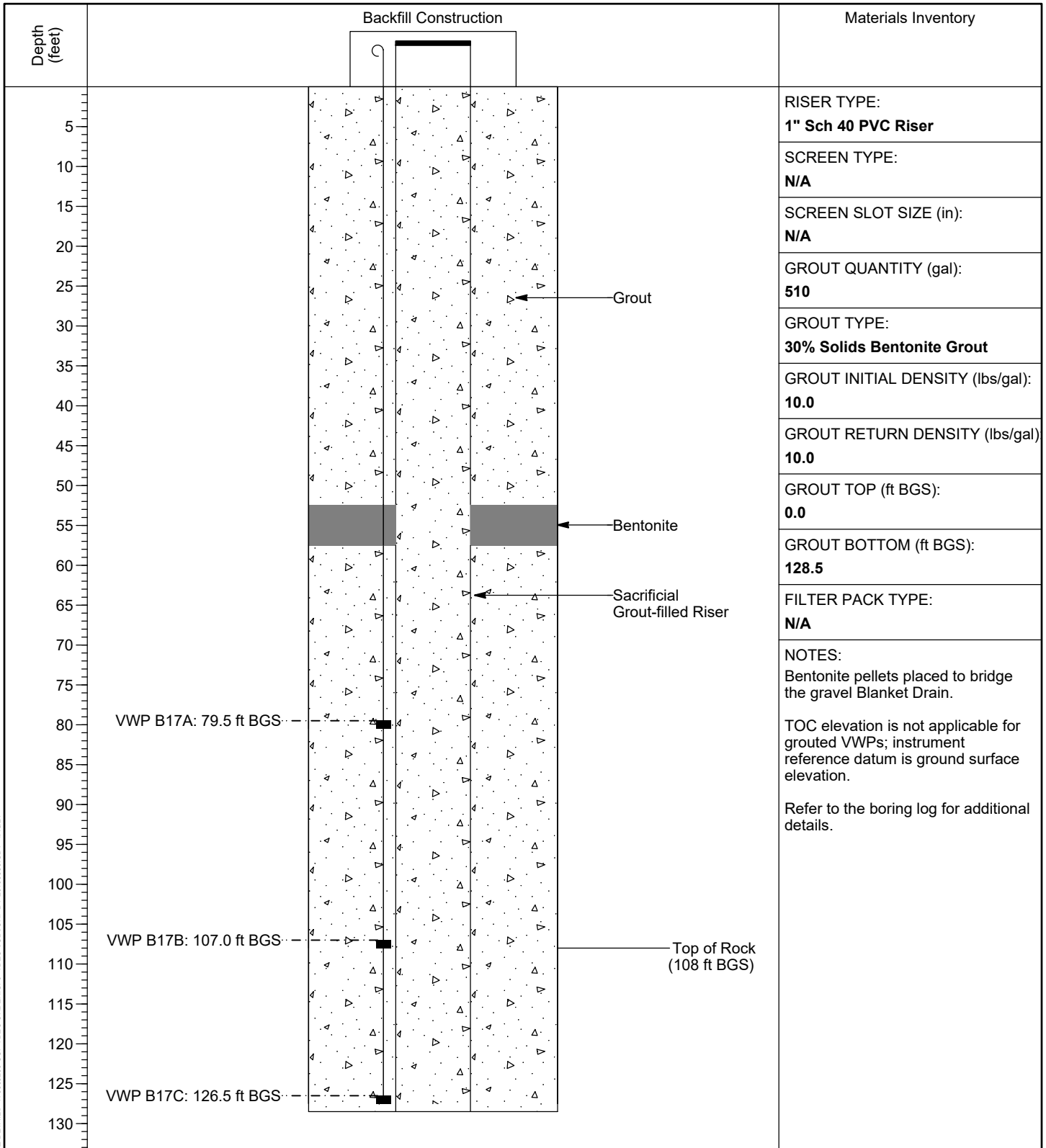
WELL / PROBEHOLE / BOREHOLE NO:

PAGE 1 OF 1

CUF-B17

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 75#2, #712**
 DRILLING METHOD: **4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes**
 SAMPLING METHOD: **4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes**
 OBSERVED BY: **M. Aplin**
 REVIEWED BY: **B. Halada**
 APPROVED BY: **A. Welshans**

INSTALLATION: STARTED: **1/31/19** COMPLETED: **2/4/19**
 LOCATION: **730,040.74 N; 1,510,810.30 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIPTION: **Dry Ash Stack**
 LATITUDE: **36° 23' 10.10"** LONGITUDE: **-87° 39' 42.86"**
 GROUND ELEV (ft): **443.4** TOC ELEV (ft): **N/A**
 ELEVATION DATUM: **NGVD29**
 BOREHOLE DEPTH (ft): **128.5** RISER DEPTH (ft): **128.5**
 DTW AT COMPLETION (ft, bgs): **N/A**
 BOREHOLE DIA. (in): **9.0** RISER DIA. (in): **0.9**



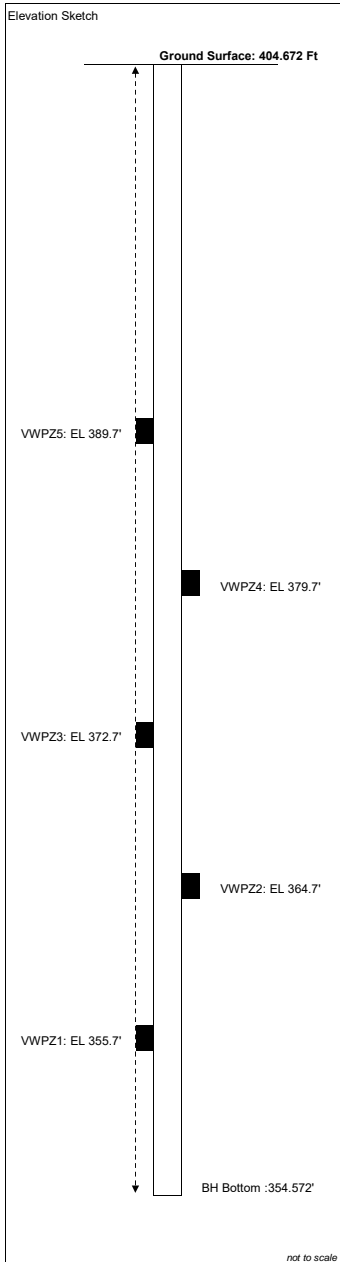
PZ DETAILS: 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF.DT 20190630.GDT 4/13/21

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

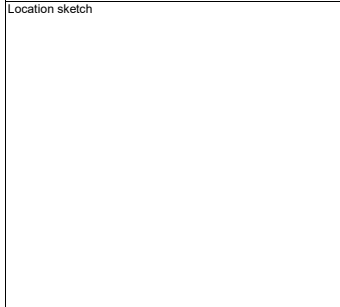
Project Name: CUF GDC Seismic Assessment
CUF-BASHP-4D Vibrating Wire Piezometer Installation Sheet

Installation Start Date 12/14/2017
 Installation Finish Date 12/15/2017
 Weather Windy/Cloudy, 40°F
 Installed by Danny Jessie - Stantec
 Supervised by Ryan Lavorati

Easting 1511841.808
 Northing 730855.205
 Grnd Elev. 404.7 ft PD
 Grout mix Cement/Bentonite



Note: PD = Project Datum, bgl = below ground level, cf = cubic feet



Geology

Planned Installation

	VWPZ1	VWPZ2	VWPZ3	
BH bottom (depth)	50	50	50	ft bgl
BH bottom (elev. PD)	354.7	354.7	354.7	ft PD
Piezometer Tip (depth)	49	40	32	ft

Actual Installation

BH bottom (depth)	50.1	50.1	50.1	ft bgl
BH bottom (elev. PD)	354.6	354.6	354.6	ft PD
Piezometer Tip (depth)	49	40	32	ft

Installation Details

Tip Elevation	355.7	364.7	372.7	ft PD
VWPZ Model	Geokon 4500S	Geokon 4500S	Geokon 4500S	
Serial	1731574	1731548	1731549	
VWPZ wire length	60	60	60	ft
VWPZ body length	5.25	5.25	5.25	in
Calibration Factor	-0.01580	-0.01752	-0.01544	(psi/digit)
Thermal Factor	-0.01492	-0.01101	-0.01915	(psi/°C)
Zero Reading	8761.3	8687.5	8782.4	Digits
Zero Temperature	3.7	3.6	3.5	deg C

Planned Installation

	VWPZ4	VWPZ5	
BH bottom (depth)	50	50	ft bgl
BH bottom (elev. PD)	354.7	354.7	ft PD
Piezometer Tip (depth)	25	15	ft

Actual Installation

BH bottom (depth)	50.1	50.1	ft bgl
BH bottom (elev. PD)	354.6	354.6	ft PD
Piezometer Tip (depth)	25	15	ft

Installation Details

Tip Elevation	379.7	389.7	ft PD
VWPZ Model	Geokon 4500S	Geokon 4500S	
Serial	1731550	1731551	
VWPZ wire length	60	60	ft
VWPZ body length	5.25	5.25	in
Calibration Factor	-0.01613	-0.01468	(in/digit)
Thermal Factor	0.0004172	-0.0176	(in/°C)
Zero Reading	7285.6	8804.8	Digits
Zero Temperature	3.5	3.7	deg C

Notes

Boring terminated at 50.1 feet bgs.
 Ground surface elevation based on survey information provided to Geocomp on March 15, 2018.

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION

BORING #: CUF-DAS-A-1 DATE: 09/19/2017

NORTHING: 731,842.09 EASTING: 1,510,659.75

DRILLER: E. CAUDILL SUPERVISORS: M. APLIN

TOP OF SLOPE INCLINOMETER
CASING ELEV. 393.1'

GROUND SURFACE
ELEV. 388.0'

PZ NAME	SERIAL NO.
VWPZ-1	1729769
VWPZ-2	1730766
VWPZ-3	1729250

CEMENT-BENTONITE
GROUT

2.75" (O.D.) INCLINOMETER
CASING

TOP OF ROCK AT 107.5'
(ELEV. 280.5')

32.0'

VWPZ-1 PZ TIP
TIP DEPTH AT 32.0'
ELEV. 356.0'

21.0'

VWPZ-2 PZ TIP
TIP DEPTH AT 53.0'
ELEV. 335.0'

42.0'

VWPZ-3 PZ TIP
TIP DEPTH AT 95.0'
ELEV. 293.0'

12.5'

BOTTOM OF HOLE AT
109.5' (ELEV. 278.5')

NOTES:

1. INSTALLED ON 09/19/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 12/5/2017. TOP OF CASING ELEV. PROVIDED ON 7/12/18. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\DAS_A-A.DWG

**CUF-DAS-A-1
CUMBERLAND FOSSIL PLANT
CUMBERLAND CITY, TENNESSEE**



Stantec

Stantec Consulting
Services Inc.
1110 Market St. Suite #214A
Chattanooga, Tennessee
37402-2863
423-800-5350

www.stantec.com

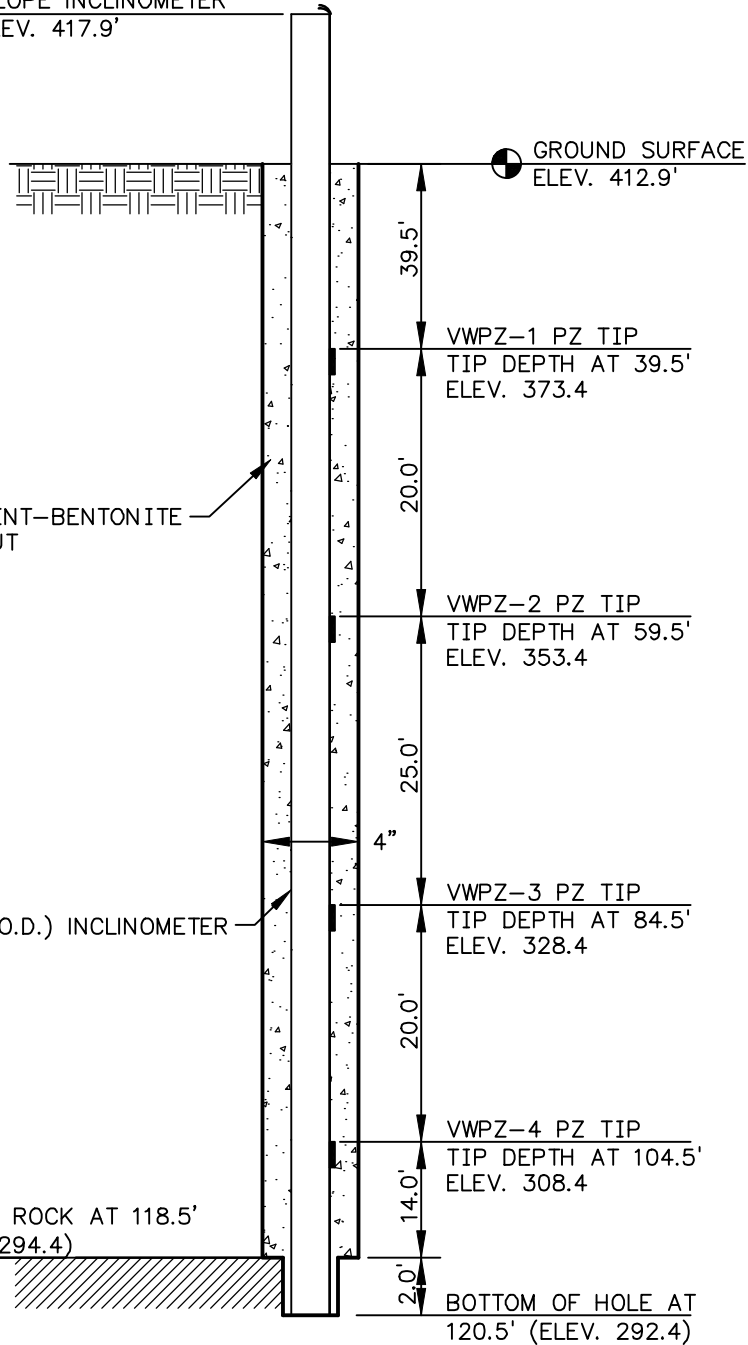
DRAWN BY	MWA	DATE	APRIL, 2018	REVISED	
CHECKED BY	JRC	PROJ. NO.	175567314	1.	3.
CHECKED BY	-	SCALE	NTS	2.	4.

SHEET
1 OF 1

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-DAS-A-2	DATE: 09/20/2017–09/23/2017
NORTHING: 731,746.31	EASTING: 1,510,658.71
DRILLER: E. CAUDILL	SUPERVISORS: M. APLIN

TOP OF SLOPE INCLINOMETER
CASING ELEV. 417.9'

PZ NAME	SERIAL NO.
VWPZ-1	1730768
VWPZ-2	1730763
VWPZ-3	1729249
VWPZ-4	1729248



NOTES:

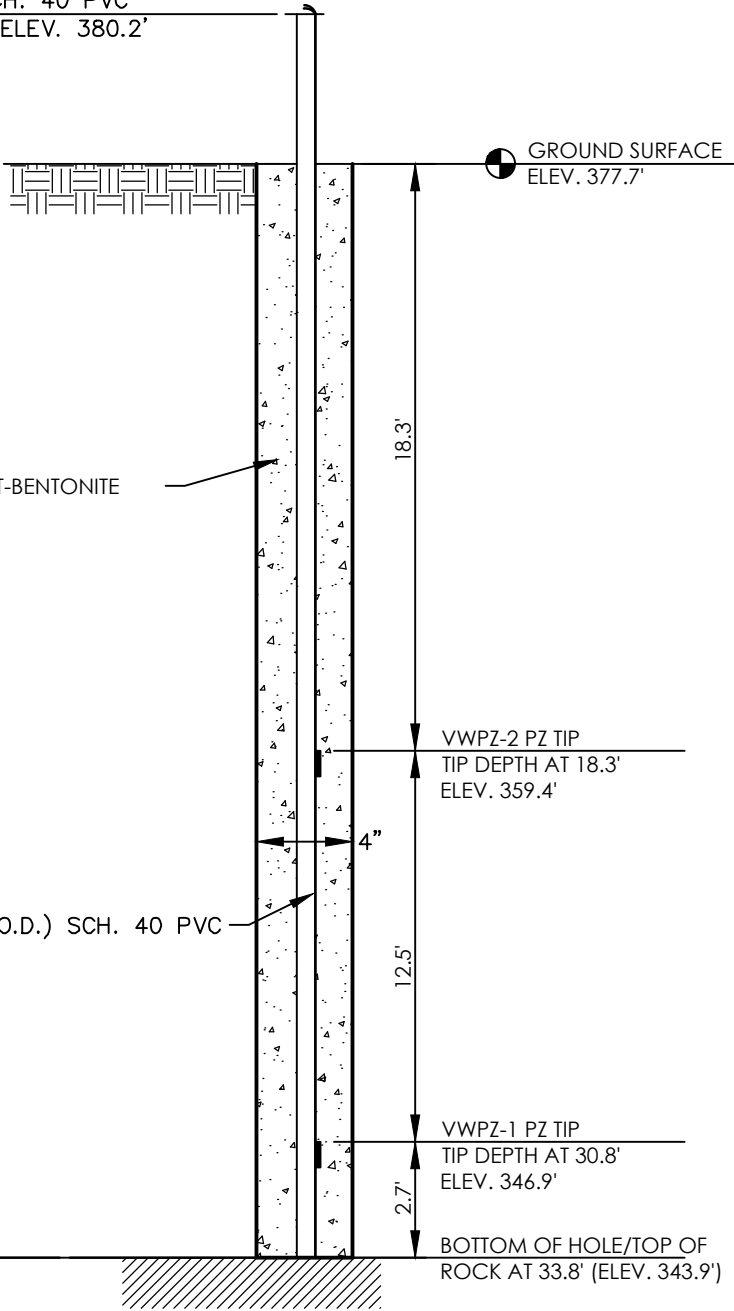
1. INSTALLED ON 09/23/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 12/5/2017. TOP OF CASING ELEV. PROVIDED ON 7/12/18. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\DAS_A-B.DWG

CUF-DAS-A-2			
CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, TENNESSEE			
		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	—	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET
			1 OF 1

PROJECT: CUF - PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-DAS-C-1	DATE: 09/09/2017
NORTHING: 731,507.31	EASTING: 1,509,327.23
DRILLER: E. CAUDILL	SUPERVISORS: M. APLIN

TOP OF SCH. 40 PVC
STICK-UP ELEV. 380.2'



PZ NAME	SERIAL NO.
VWPZ-1	1729238
VWPZ-2	1729239

CEMENT-BENTONITE
GROUT

1" (O.D.) SCH. 40 PVC

NOTES:

1. INSTALLED ON 09/09/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. LOCATIONS PROVIDED BY TVA IES. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

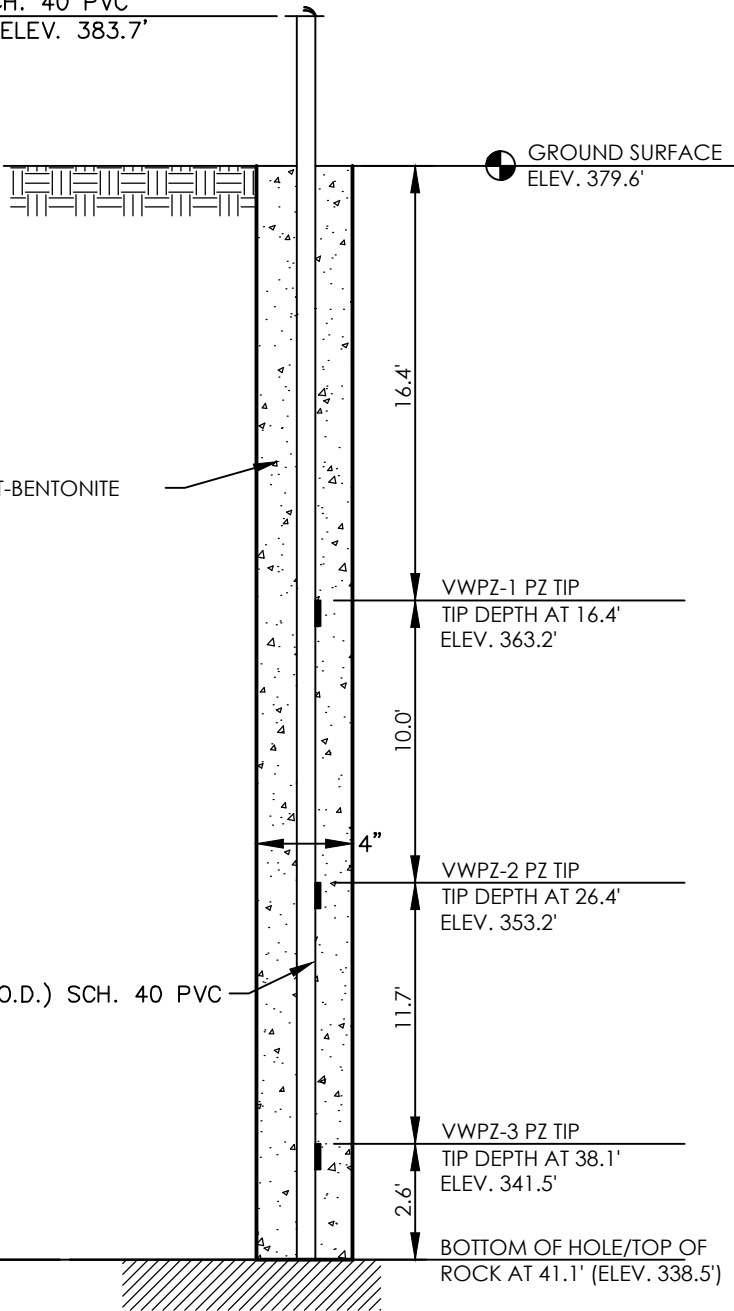
PLOT DATE: 05/22/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\DAS_C-A.DWG

CUF-DAS-C-1 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
Stantec		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	-	SCALE	NTS
REVISED		SHEET	
1.	3.	1 OF 1	
2.	4.		

PROJECT: CUF - PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-DAS-D-1	DATE: 09/08/2017
NORTHING: 730,673.23	EASTING: 1,509,341.18
DRILLER: E. CAUDILL	SUPERVISORS: M. APLIN

TOP OF SCH. 40 PVC
STICK-UP ELEV. 383.7'


PZ NAME	SERIAL NO.
VWPZ-1	1729243
VWPZ-2	1729246
VWPZ-3	1729247



NOTES:

1. INSTALLED ON 09/08/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. LOCATIONS PROVIDED BY TVA IES. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

PLOT DATE: 05/22/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\DAS_D--A.DWG

CUF-DAS-D-1 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
 Stantec		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY MWA	DATE APRIL, 2018	REVISED	
CHECKED BY JRC	PROJ. NO. 175567314	1.	3.
CHECKED BY -	SCALE NTS	2.	4.
			SHEET 1 OF 1

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-DAS-D-2	DATE: 09/09/2017–09/10/2017
NORTHING: 730,737.58	EASTING: 1,509,494.34
DRILLER: E. CAUDILL	SUPERVISORS: M. APLIN

TOP OF SLOPE INCLINOMETER
CASING ELEV. 404.0'

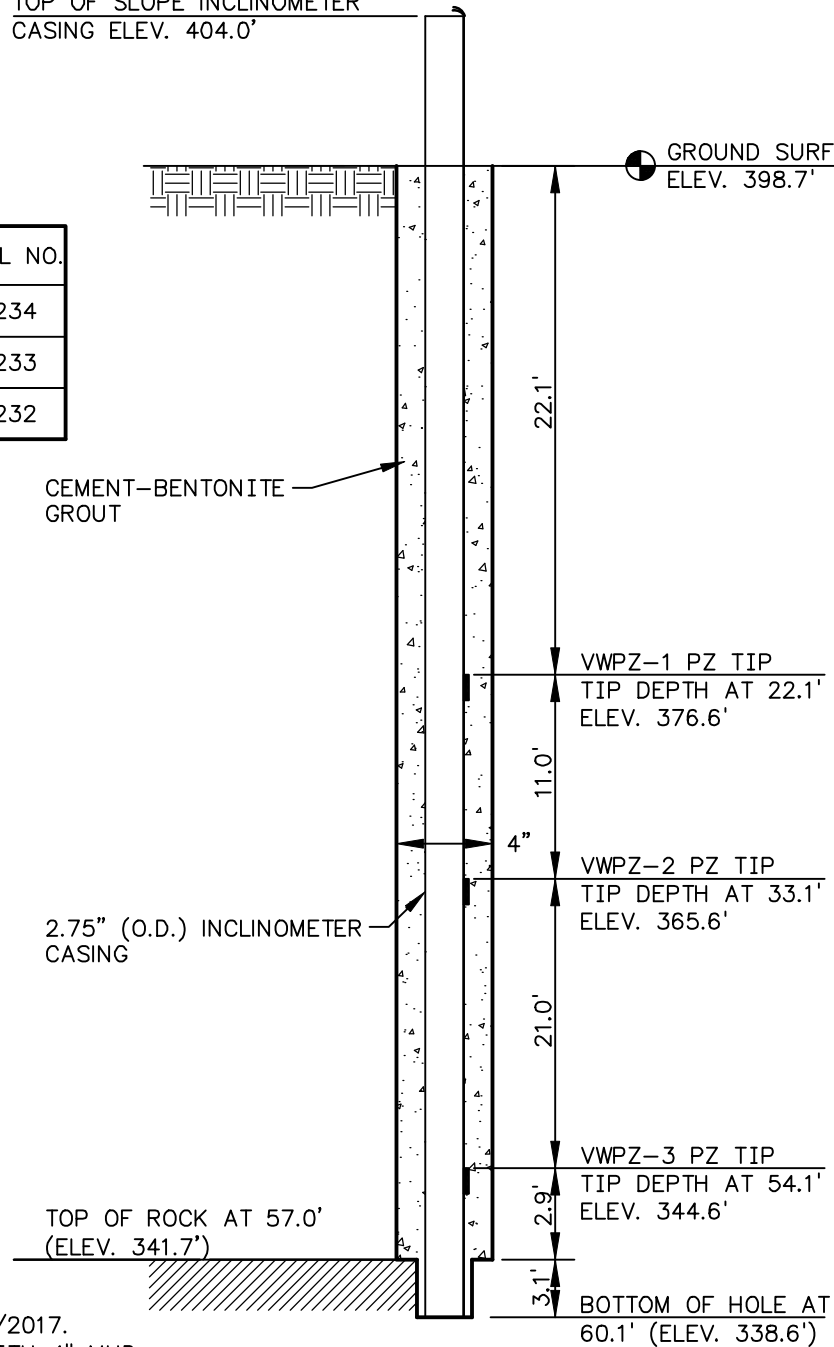
GROUND SURFACE
ELEV. 398.7'

PZ NAME	SERIAL NO.
VWPZ-1	1727234
VWPZ-2	1729233
VWPZ-3	1729232

CEMENT-BENTONITE
GROUT

2.75" (O.D.) INCLINOMETER
CASING


TOP OF ROCK AT 57.0'
(ELEV. 341.7')



NOTES:

1. INSTALLED ON 09/10/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 12/5/2017. TOP OF CASING ELEV. PROVIDED ON 7/12/18. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

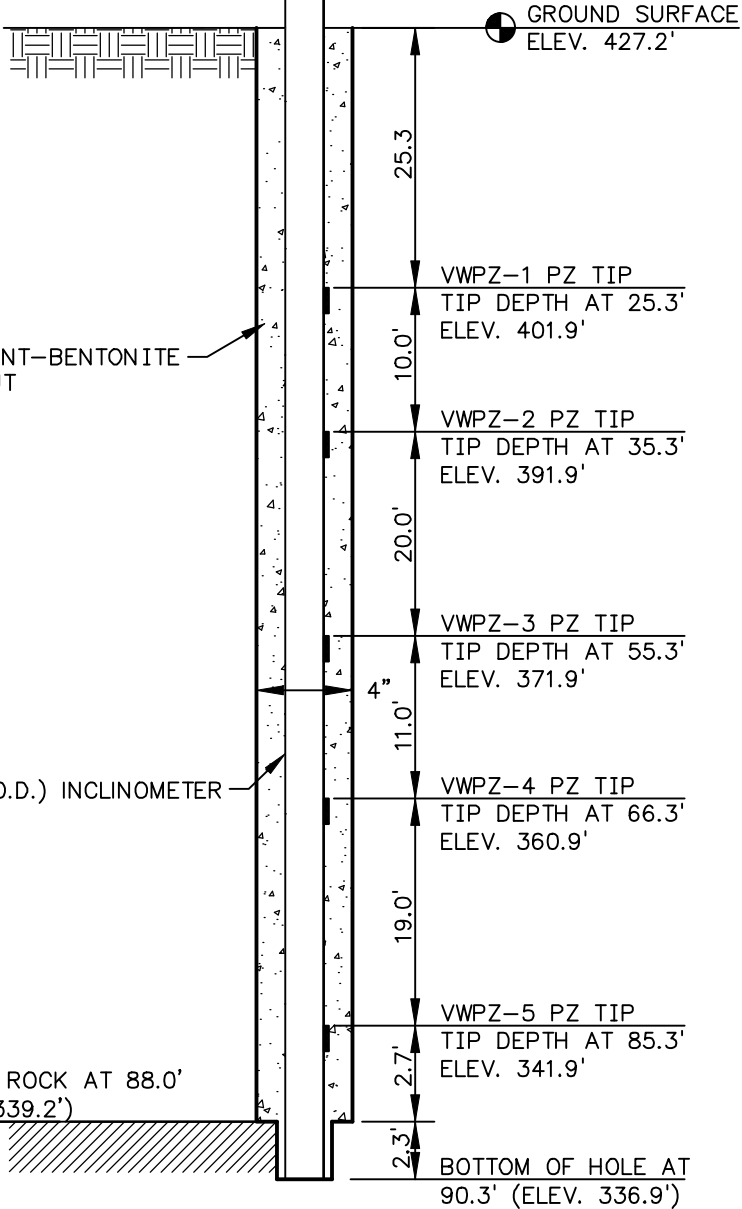
PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\DAS_D-B.DWG

CUF-DAS-D-2 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
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DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	—	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET 1 OF 1

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-DAS-D-3	DATE: 09/06/2017–09/07/2017
NORTHING: 730,783.71	EASTING: 1,509,585.65
DRILLER: E. CAUDILL	SUPERVISORS: M. APLIN

TOP OF SLOPE INCLINOMETER
CASING ELEV. 432.1'

PZ NAME	SERIAL NO.
VWPZ-1	1729231
VWPZ-2	1729230
VWPZ-3	1729229
VWPZ-4	1729228
VWPZ-5	1729227



NOTES:

1. INSTALLED ON 09/07/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 12/5/2017. TOP OF CASING ELEV. PROVIDED ON 7/12/18. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

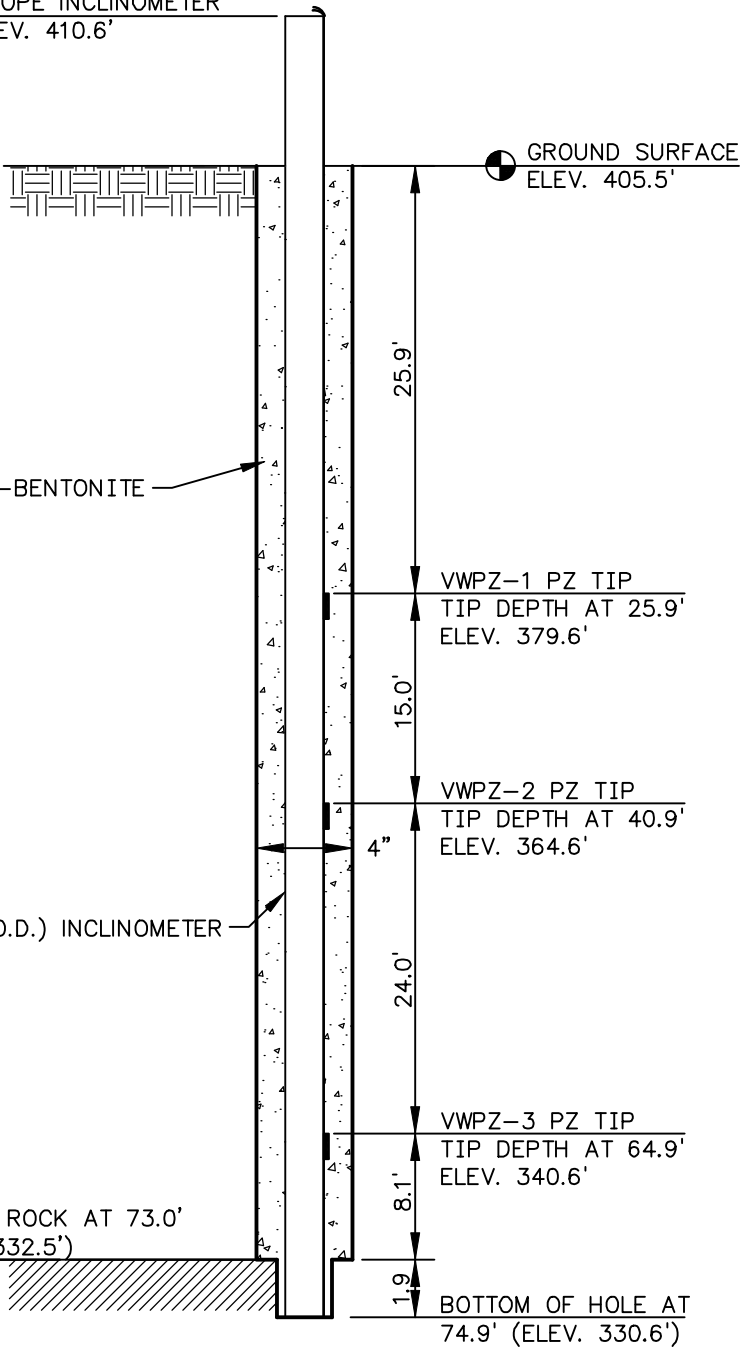
PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\DAS_D-C.DWG

CUF-DAS-D-3 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
Stantec		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	-	SCALE	NTS
REVISED		SHEET	
1.	3.	1 OF 1	
2.	4.		

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-DAS-G-1	DATE: 10/02/2017–10/03/2017
NORTHING: 730,075.64	EASTING: 1,511,239.06
DRILLER: E. CAUDILL	SUPERVISORS: B. HERRIES

TOP OF SLOPE INCLINOMETER
CASING ELEV. 410.6'


PZ NAME	SERIAL NO.
VWPZ-1	1731568
VWPZ-2	1732569
VWPZ-3	1732570



NOTES:

1. INSTALLED ON 10/03/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 12/5/2017. TOP OF CASING ELEV. PROVIDED ON 7/12/18. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

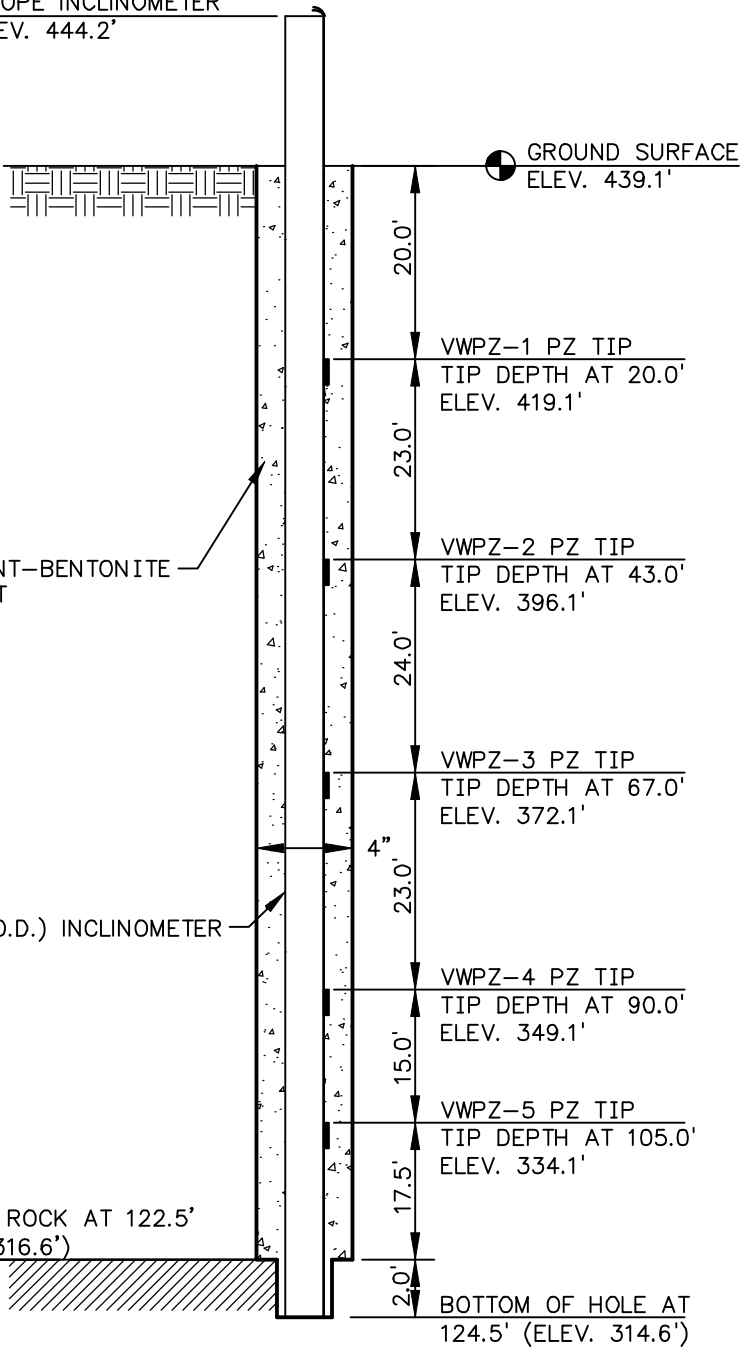
PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ DRAWINGS\DAS_G-A.DWG

CUF-DAS-G-1 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
 Stantec		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	—	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET 1 OF 1

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-DAS-G-2	DATE: 10/04/2017–10/05/2017
NORTHING: 730,138.31	EASTING: 1,511,119.21
DRILLER: E. CAUDILL	SUPERVISORS: B. HERRIES

TOP OF SLOPE INCLINOMETER CASING ELEV. 444.2'


PZ NAME	SERIAL NO.
VWPZ-1	1731562
VWPZ-2	1731563
VWPZ-3	1731564
VWPZ-4	1731565
VWPZ-5	1731566



NOTES:

1. INSTALLED ON 10/05/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 12/5/2017. TOP OF CASING ELEV. PROVIDED ON 7/12/18. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

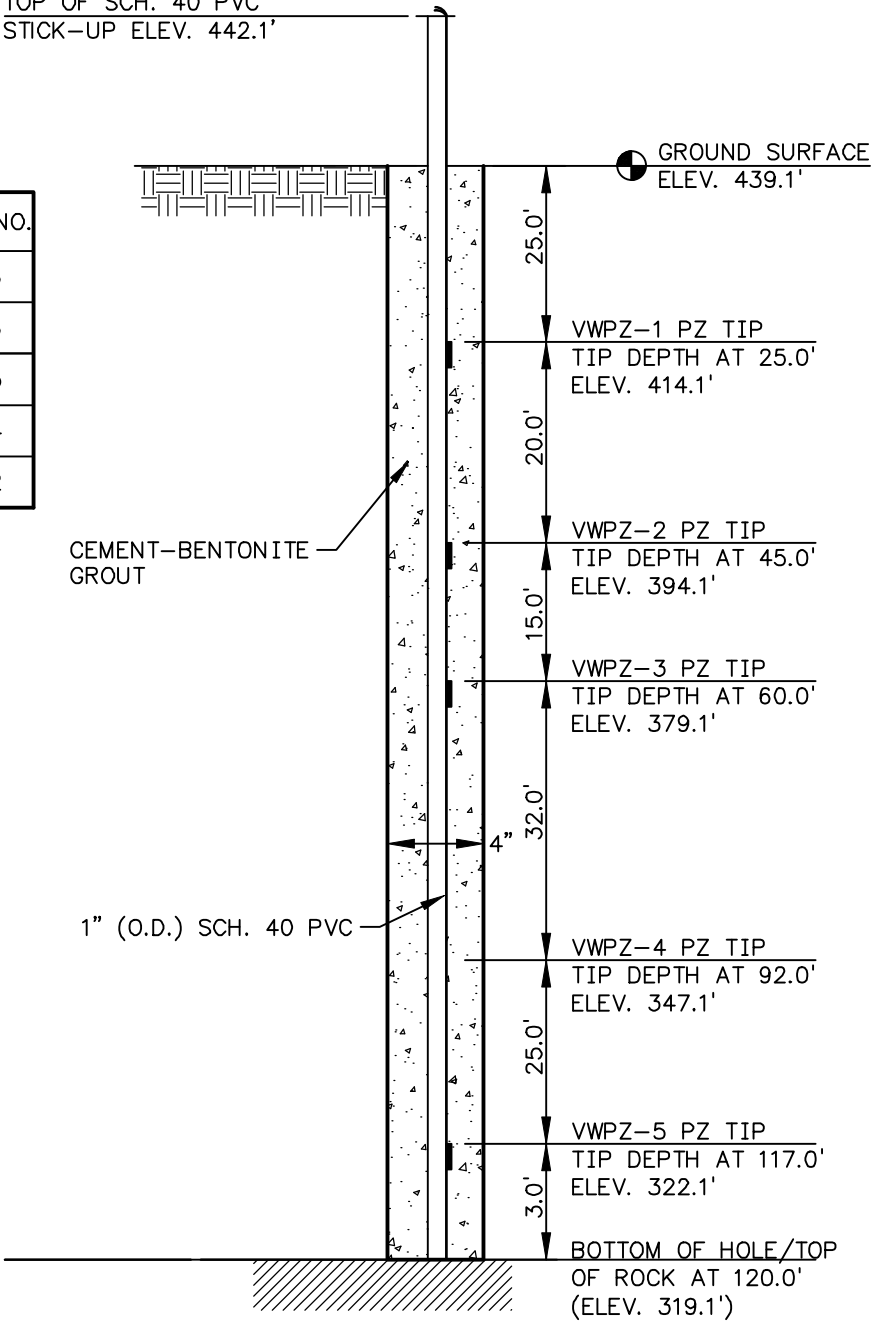
PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\DAS_G-B.DWG

CUF-DAS-G-2 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
		Stantec	
		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	—	SCALE	NTS
REVISED		SHEET	
		1.	3.
		2.	4.
			1 OF 1

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION	
BORING#: CUF-DAS-INT-1	DATE: 10/05/2017–10/07/2017
NORTHING: 730,437.75	EASTING: 1,510,738.81
DRILLER: E. CAUDILL	SUPERVISORS: B. HERRIES


TOP OF SCH. 40 PVC
STICK-UP ELEV. 442.1'

PZ NAME	SERIAL NO.
VWPZ-1	1731576
VWPZ-2	1731556
VWPZ-3	1731555
VWPZ-4	1731554
VWPZ-5	1731552



NOTES:

1. INSTALLED ON 10/07/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 12/5/2017. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

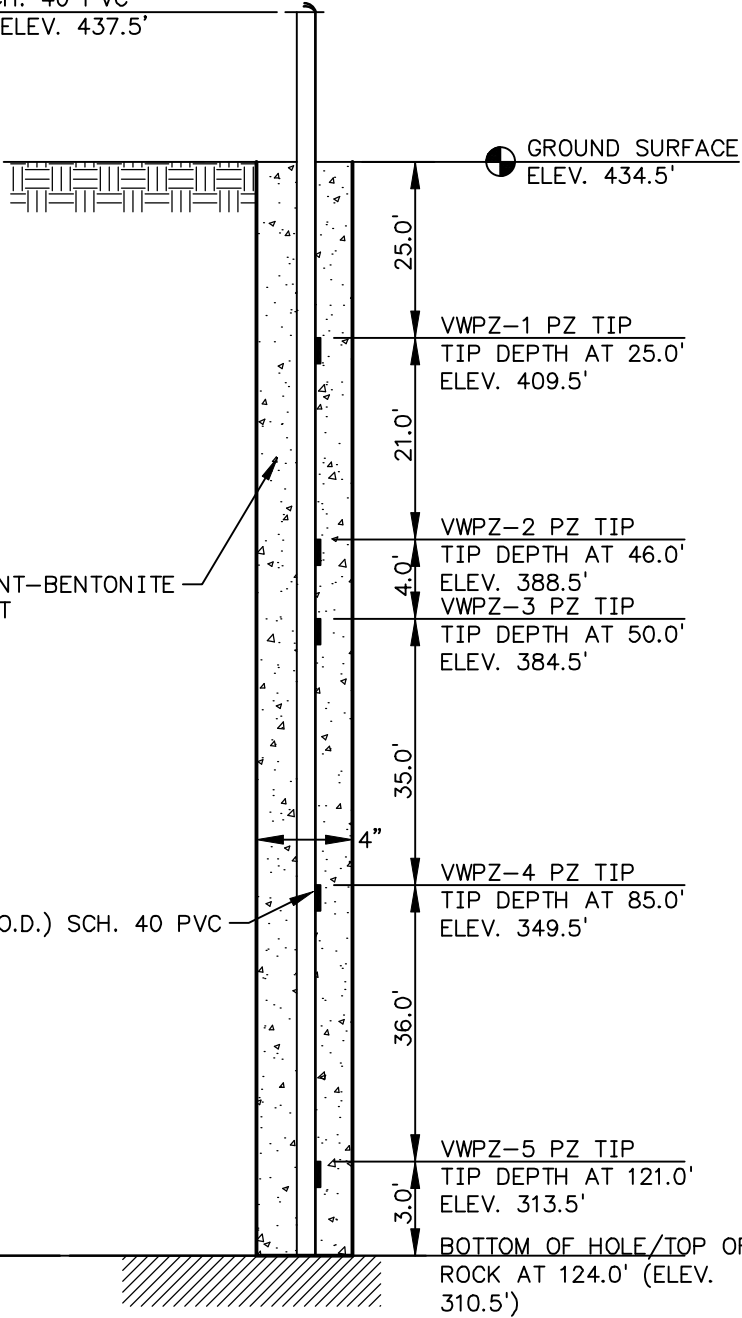
CUF-DAS-INT-1 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
 Stantec		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	—	SCALE	NTS
REVISED		SHEET	
1.		3.	
2.		4.	
			1 OF 1

PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\DAS_INT-A.DWG

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-DAS-INT-2	DATE: 10/07/2017–10/09/2017
NORTHING: 731,036.36	EASTING: 1,510,397.40
DRILLER: E. CAUDILL	SUPERVISORS: B. HERRIES

TOP OF SCH. 40 PVC
STICK-UP ELEV. 437.5'


PZ NAME	SERIAL NO.
VWPZ-1	1731561
VWPZ-2	1731560
VWPZ-3	1731559
VWPZ-4	1731558
VWPZ-5	1731557



NOTES:

1. INSTALLED ON 10/09/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 12/5/2017. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
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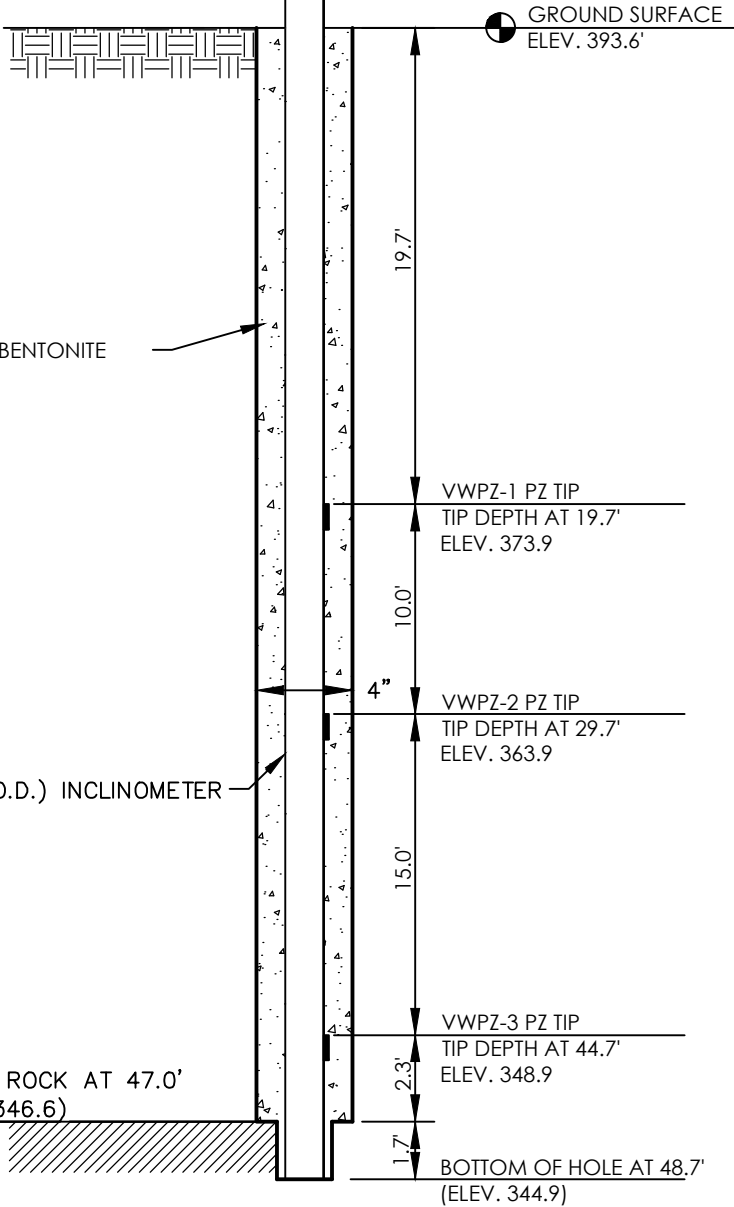
PLOT DATE: 08/01/2018 USER: APJUN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\VPZ_DRAWINGS\DAS_INT-B.DWG

CUF-DAS-INT-2 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
 Stantec		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	—	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET 1 OF 1

PROJECT: CUF - PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-DAS-X-1	DATE: 09/23/2017-09/24/2017
NORTHING: 731,513.16	EASTING: 1,511,429.96
DRILLER: E. CAUDILL	SUPERVISORS: M. APLIN

TOP OF SLOPE INCLINOMETER CASING ELEV. 398.0'


PZ NAME	SERIAL NO.
VWPZ-1	1731573
VWPZ-2	1731572
VWPZ-3	1731571



NOTES:

1. INSTALLED ON 09/24/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. LOCATIONS PROVIDED BY TVA IES. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

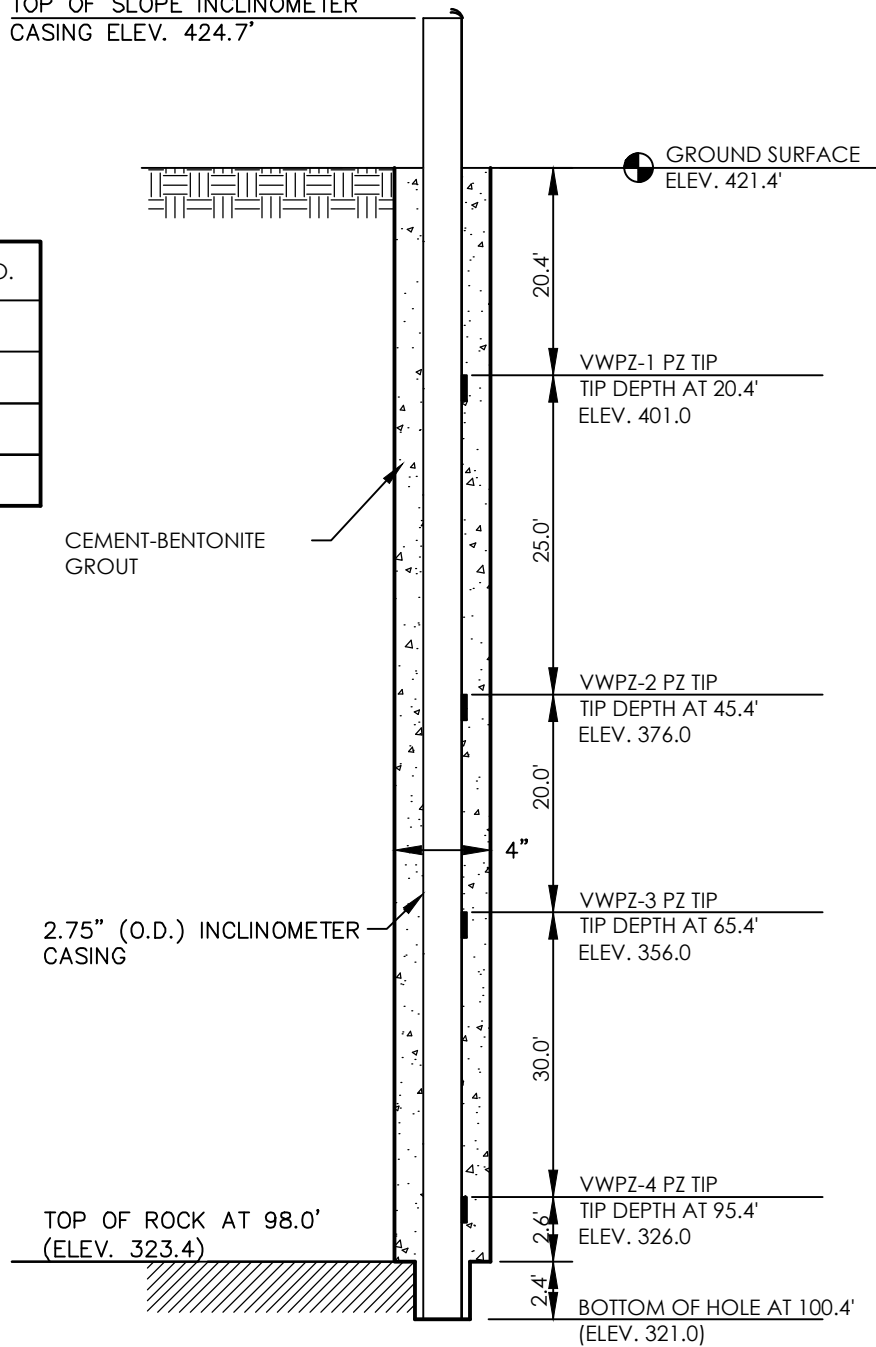
PLOT DATE: 05/22/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\DAS_X-A.DWG

CUF-DAS-X-1 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
		Stantec	
DRAWN BY MWA DATE APRIL, 2018		REVISED	
CHECKED BY JRC PROJ. NO. 175567314		1.	3.
CHECKED BY - SCALE NTS		2.	4.
Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com			SHEET 1 OF 1

PROJECT: CUF - PARTIAL CLOSURE INSTRUMENTATION	
HOLE #: CUF-DAS-X-2	DATE: 09/24/2017-09/26/2017
NORTHING: 731,487.77	EASTING: 1,511,324.23
DRILLER: E. CAUDILL	SUPERVISORS: M. APLIN


TOP OF SLOPE INCLINOMETER CASING ELEV. 424.7'

PZ NAME	SERIAL NO.
VWPZ-1	1730772
VWPZ-2	1730767
VWPZ-3	1730765
VWPZ-4	1730761



NOTES:

1. INSTALLED ON 09/26/2017.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. LOCATIONS PROVIDED BY TVA IES. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

CUF-DAS-X-2 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
 Stantec		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY MWA	DATE APRIL, 2018	REVISED	
CHECKED BY JRC	PROJ. NO. 175567314	1.	3.
CHECKED BY -	SCALE NTS	2.	4.
			SHEET 1 OF 1

PLOT DATE: 05/22/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\DAS_X-B.DWG

Vibrating Wire Piezometer Installation Log

Station:	CUF-F-2A
BH Bottom Depth (ft):	114
Ground Elevation (ft):	433.56
BH Bottom Elevation (ft):	319.56

Client: Tennessee Valley Authority
 Project: TVA CCP EPA
 Location: CUF Plant, Cumberland City, TN

Instrument Type: Vibrating Wire PZ
 Manufacturer: Geokon
 Model No.: 4500-S

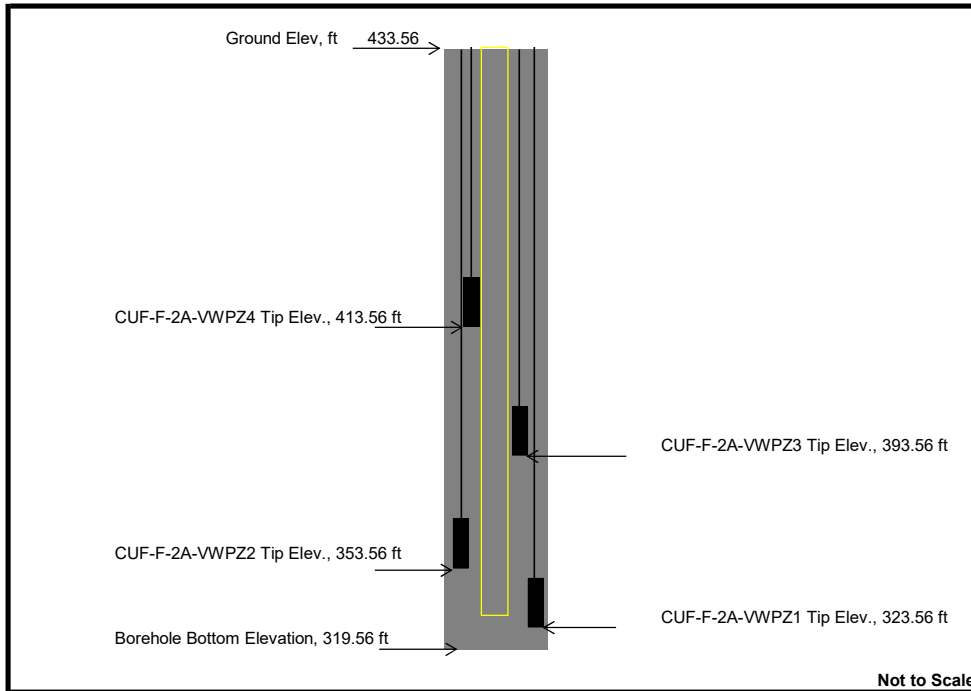
Installation Start Date: 4/26/2012
 Installation Finish Date: 4/26/2012
 Weather: Sunny, Mid-70's

Installer: Murrell Wethington
 Supervisor: Mir Karim

Unique Assigned ID #: CUF-F-2A

Planned Installation:
 WWPZ₅ Tip (ft): N/A
 WWPZ₄ Tip (ft): 20
 WWPZ₃ Tip (ft): 40
 WWPZ₂ Tip (ft): 80
 WWPZ₁ Tip (ft): 110

Actual Installation:
 WWPZ₅ Tip (ft): N/A
 WWPZ₄ Tip (ft): 20
 WWPZ₃ Tip (ft): 40
 WWPZ₂ Tip (ft): 80
 WWPZ₁ Tip (ft): 110



VW PZ No.	Serial No.	Cable Length	Material Type	Installed Depth, ft	Installed Elevation, ft	Zero Reading	Zero Temp, °C	Initial Reading, Hz	Initial Temp, °C	Initial Elevation, ft
CUF-F-2A-VWPZ4	1146155	20	Fly Ash Stacked	20	413.56	8663	25.9	7982	24.1	439
CUF-F-2A-VWPZ3	1146156	40	Fly Ash Stacked	40	393.56	9041.6	26.4	7845	25.9	439.4
CUF-F-2A-VWPZ2	1146157	80	Fly Ash Sluiced	80	353.56	8891.1	26.8	7252.4	26.8	417.5
CUF-F-2A-VWPZ1	1146158	110	Alluvial Granular	110	323.56	8779.8	26.7	5925.8	25.7	439.3

VW PZ No.	Serial No.	Installed Elevation, ft	Reading 2 4/30/2012 10:30	Elevation Reading 2, ft	Reading 3 5/2/2012 07:00	Elevation Reading 3, ft	Reading 4 5/12/2012 15:20	Elevation Reading 4, ft	Reading 5 5/16/2012 07:00	Elevation Reading 5, ft
CUF-F-2A-VWPZ4	1146155	413.56	8657.3 / 19.3	413.19	8657 / 19	413.29	8660.7 / 18.2	412.91	8659.4 / 18.2	413.13
CUF-F-2A-VWPZ3	1146156	393.56	9033.4 / 20.1	393.31	9033.6 / 19.9	393.40	9035.9 / 19.1	393.07	9034.8 / 19.2	393.29
CUF-F-2A-VWPZ2	1146157	353.56	8122.4 / 19.1	383.17	8122 / 19	383.28	8123 / 18.5	383.03	8123.1 / 18.5	383.20
CUF-F-2A-VWPZ1	1146158	323.56	7479.9 / 17.7	375.65	7474.9 / 17	375.93	7513.9 / 17.2	374.16	7517 / 17.2	374.20

Notes: _____

Vibrating Wire Piezometer Installation Log

Station: CUF-F-2B
 BH Bottom Depth (ft): 99
 Ground Elevation (ft): 412.09
 BH Bottom Elevation (ft): 313.09

Client: Tennessee Valley Authority
 Project: TVA CCP EPA
 Location: CUF Plant, Cumberland City, TN

Instrument Type: Vibrating Wire PZ
 Manufacturer: Geokon
 Model No.: 4500-S

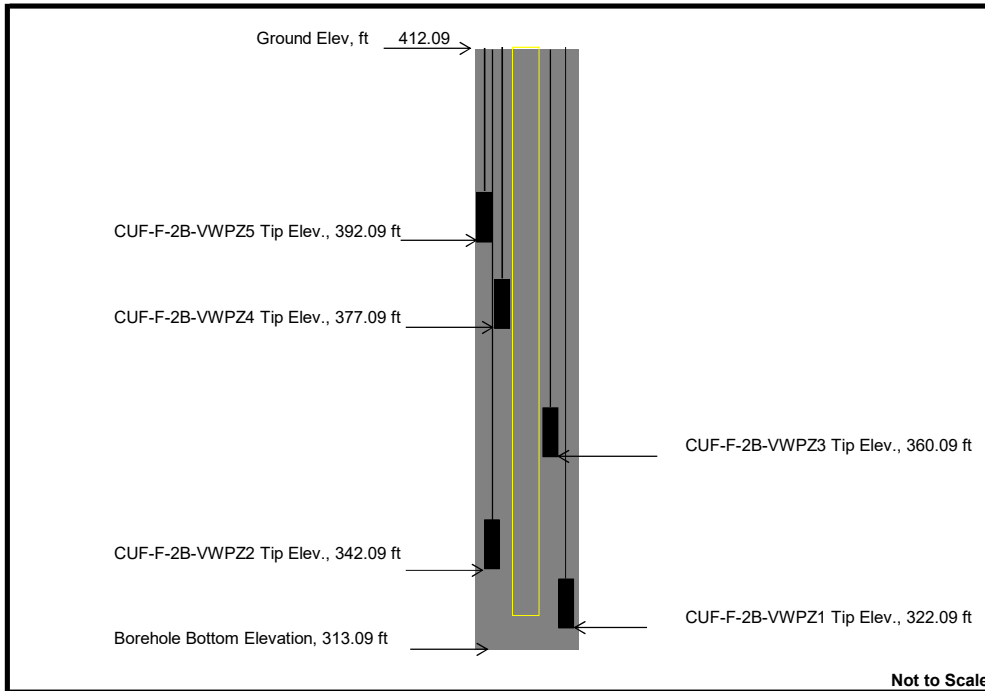
Installation Start Date: 5/2/2012
 Installation Finish Date: 5/2/2012
 Weather: Sunny, Mid-70's

Installer: Murrell Wethington
 Supervisor: Mir Karim

Unique Assigned ID #: CUF-F-2B

Planned Installation: **VWPZ₅ Tip (ft):** 20
 VWPZ₄ Tip (ft): 35
 VWPZ₃ Tip (ft): 52
 VWPZ₂ Tip (ft): 70
 VWPZ₁ Tip (ft): 90

Actual Installation: **VWPZ₅ Tip (ft):** 20
 VWPZ₄ Tip (ft): 35
 VWPZ₃ Tip (ft): 52
 VWPZ₂ Tip (ft): 70
 VWPZ₁ Tip (ft): 90



VW PZ No.	Serial No.	Cable Length	Material Type	Installed Depth, ft	Installed Elevation, ft	Zero Reading	Zero Temp, °C	Initial Reading	Initial Temp, °C	Initial Elevation, ft
CUF-F-2B-VWPZ5	1146159	25	Fly Ash Sluiced	20	392.09	8900.5	23.5	8349.6	25.4	409.8
CUF-F-2B-VWPZ4	1146160	40	Fly Ash Sluiced	35	377.09	8959.2	24.1	8090.8	27.9	412.8
CUF-F-2B-VWPZ3	1146161	55	Fly Ash Sluiced	52	360.09	8956	23.6	7544.1	27.5	414.5
CUF-F-2B-VWPZ2	1146162	75	Fly Ash Sluiced	70	342.09	8941.8	23.5	6667.7	28	416.7
CUF-F-2B-VWPZ1	1146163	95	Alluvial Clay	90	322.09	8844.3	23.5	6057.9	27.7	421.0

VW PZ No.	Serial No.	Installed Elevation, ft	Reading 2 5/15/2012 15:15	Elevation Reading 2, ft	Reading 3 5/16/12 07:00	Elevation Reading 3, ft	Reading 4	Elevation Reading 4, ft	Reading 5	Elevation Reading 5, ft
CUF-F-2B-VWPZ5	1146159	392.09	8977.3 / 18.5	389.62	8977.3 / 18.5	389.62	---	---	---	---
CUF-F-2B-VWPZ4	1146160	377.09	8738.6 / 19.4	386.12	8738.8 / 19.4	386.11	---	---	---	---
CUF-F-2B-VWPZ3	1146161	360.09	8328.2 / 18.9	384.32	8328.1 / 18.9	384.32	---	---	---	---
CUF-F-2B-VWPZ2	1146162	342.09	7881.9 / 17.6	376.83	7882.8 / 17.7	376.80	---	---	---	---
CUF-F-2B-VWPZ1	1146163	322.09	7787.9 / 16.9	359.62	7791 / 16.9	359.51	---	---	---	---

Notes:

Vibrating Wire Piezometer Installation Log

Station:	CUF-F-2C
BH Bottom Depth (ft):	66.6
Ground Elevation (ft):	379.39
BH Bottom Elevation (ft):	312.79

Client: Tennessee Valley Authority
 Project: TVA CCP EPA
 Location: CUF Plant, Cumberland City, TN

Instrument Type: Vibrating Wire PZ
 Manufacturer: Geokon
 Model No.: 4500-S

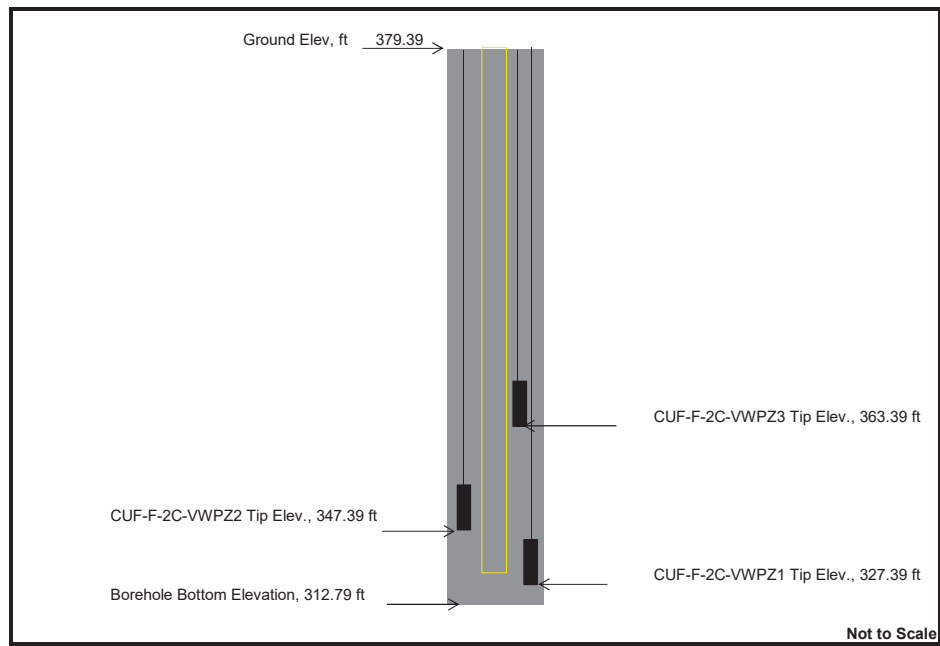
Installation Start Date: 5/2/2012
 Installation Finish Date: 5/2/2012
 Weather: Sunny, Mid-70's

Installer: Murrell Wethington
 Supervisor: Michael Dagher

Unique Assigned ID #: CUF-F-2C

Planned Installation:	VWPZ ₅ Tip (ft):	N/A
	VWPZ ₄ Tip (ft):	N/A
	VWPZ ₃ Tip (ft):	16
	VWPZ ₂ Tip (ft):	32
	VWPZ ₁ Tip (ft):	66.6

Actual Installation:	VWPZ ₅ Tip (ft):	N/A
	VWPZ ₄ Tip (ft):	N/A
	VWPZ ₃ Tip (ft):	16
	VWPZ ₂ Tip (ft):	32
	VWPZ ₁ Tip (ft):	52



VW PZ No.	Serial No.	Cable Length	Material Type	Installed Depth, ft	Installed Elevation, ft	Zero Reading	Zero Temp, °C	Initial Reading	Initial Temp, °C	Initial Elevation, ft
---	---	---	---	---	---	---	---	---	---	---
CUF-F-2C-VWPZ3	1146164	30	Dike 1 Clay	16	363.39	9061	20.8	8970.6	20.6	366.9
CUF-F-2C-VWPZ2	1146165	45	Alluvial Clay	32	347.39	8795.4	20.6	8664.6	20.7	352.4
CUF-F-2C-VWPZ1	1146166	75	Alluvial Granular	52	327.39	8888.6	20.6	8707.6	21.1	334.4

VW PZ No.	Serial No.	Installed Elevation, ft	Reading 2 4/30/12 10:26	Elevation Reading 2, ft	Reading 3 5/15/12 15:10	Elevation Reading 3, ft	Reading 4 5/16/12 07:00	Elevation Reading 4, ft	Reading 5 10/17/12 09:30	Elevation Reading 5, ft
---	---	---	---	---	---	---	---	---	---	---
CUF-F-2C-VWPZ3	1146164	363.39	8996.7 / 15.2	365.62	8990.1 / 15.6	365.95	8988.8 / 15.7	366.00	1933.9 / 18.8	364.50
CUF-F-2C-VWPZ2	1146165	347.39	8461.2 / 17.2	359.91	8462 / 17.1	359.94	8463.1 / 17	359.90	8475.2 / 17.1	359.70
CUF-F-2C-VWPZ1	1146166	327.39	8101 / 17.6	357.62	8093.1 / 17.4	357.99	8098 / 17.4	357.80	8125.3 / 17.3	357.00

Notes:

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION

BORING #: CUF-GSA-G-1

DATE: 01/30/2018

NORTHING: 729,976.18

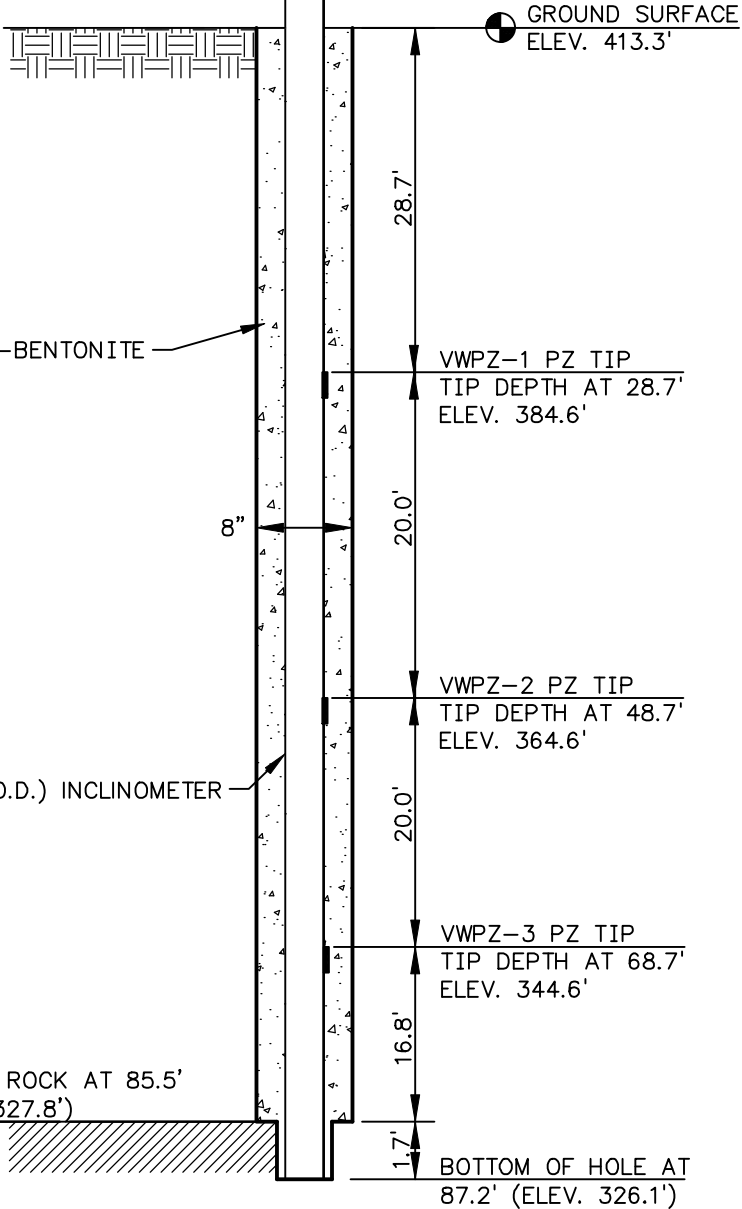
EASTING: 1,511,434.87

DRILLER: D. JESSIE

SUPERVISORS: W. PADGETT

TOP OF SLOPE INCLINOMETER
CASING ELEV. 418.6'

PZ NAME	SERIAL NO.
VWPZ-1	1747780
VWPZ-2	1747779
VWPZ-3	1747782



NOTES:

1. INSTALLED ON 01/30/2018.
2. BORING ADVANCED WITH 4.25" HOLLOW STEM AUGER.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 3/15/2018. TOP OF CASING ELEV. PROVIDED ON 7/12/18. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\GDC-G-A.DWG

CUF-GSA-G-1 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	-	SCALE	NTS
REVISED		SHEET	
1.	3.	1 OF 1	
2.	4.		

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION

BORING #: CUF-GSA-G-2 DATE: 01/29/2018

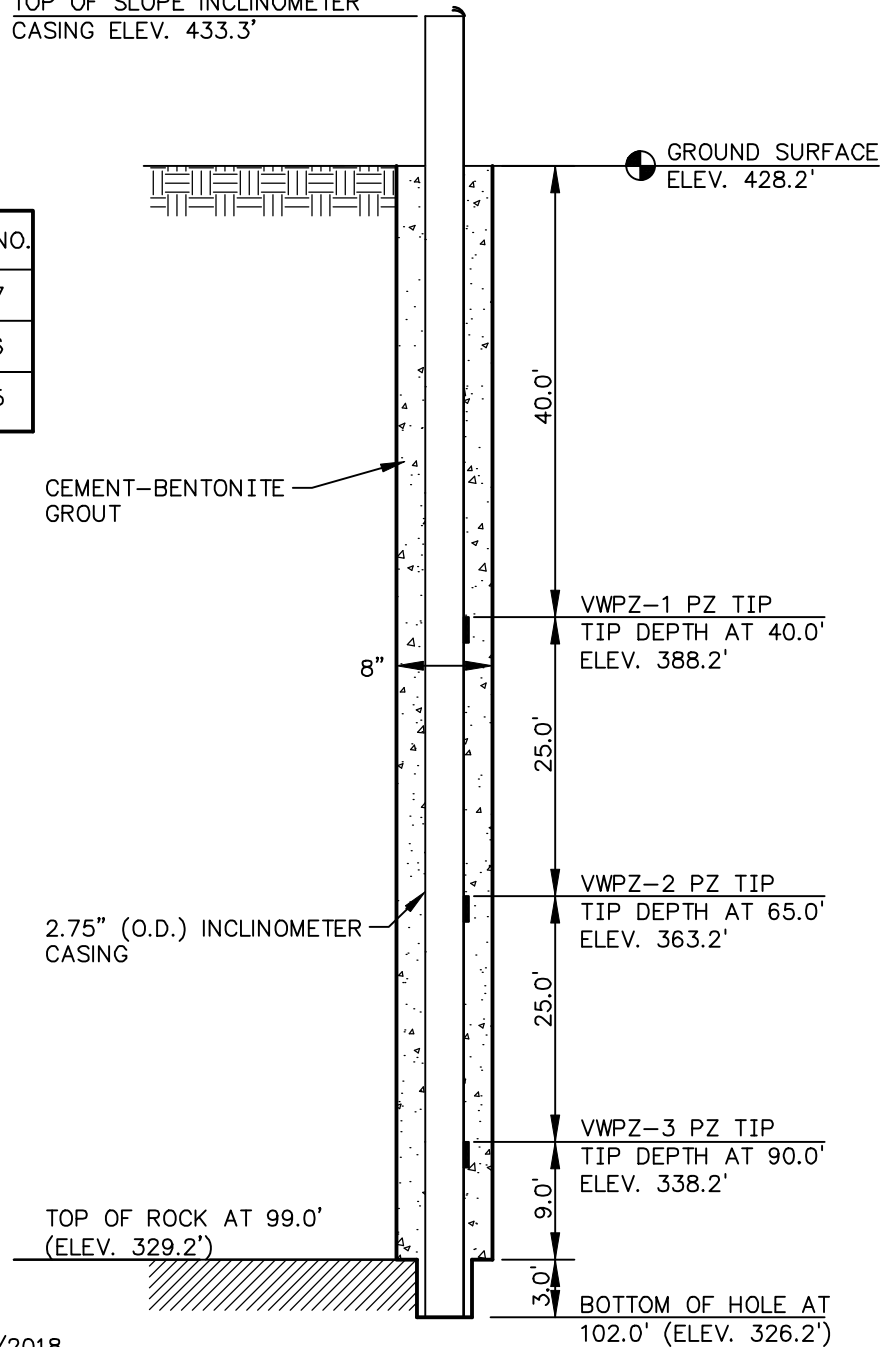
NORTHING: 729,935.04 EASTING: 1,511,506.76

DRILLER: D. JESSIE SUPERVISORS: W. PADGETT

TOP OF SLOPE INCLINOMETER CASING ELEV. 433.3'

GROUND SURFACE ELEV. 428.2'

PZ NAME	SERIAL NO.
VWPZ-1	1747777
VWPZ-2	1747776
VWPZ-3	1747775



NOTES:

1. INSTALLED ON 01/29/2018.
2. BORING ADVANCED WITH 4.25" HOLLOW STEM AUGER.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 3/15/2018. TOP OF CASING ELEV. PROVIDED ON 7/12/18. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

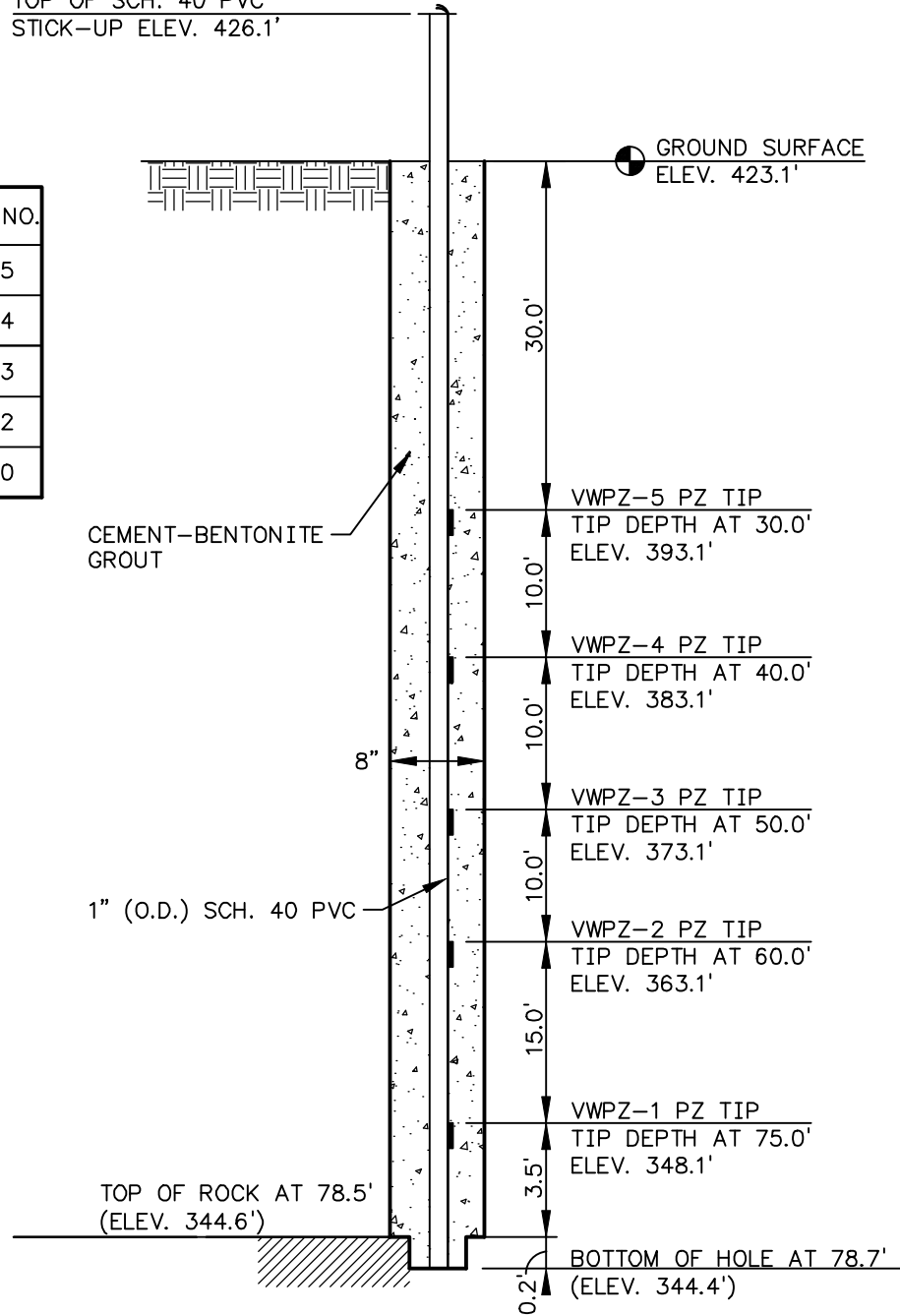
PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\GDC-G-B.DWG

CUF-GSA-G-2 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	-	SCALE	NTS
REVISED		SHEET	
1.	3.	1 OF 1	
2.	4.		

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION	
BORING#: CUF-GSA-INT-1	DATE: 02/05/2018–02/06/2018
NORTHING: 729,063.02	EASTING: 1,512,013.42
DRILLER: D. JESSIE	SUPERVISORS: W. MODRALL

TOP OF SCH. 40 PVC
STICK-UP ELEV. 426.1'

PZ NAME	SERIAL NO.
VWPZ-1	1747765
VWPZ-2	1747764
VWPZ-3	1747763
VWPZ-4	1747762
VWPZ-5	1747760



NOTES:

1. INSTALLED ON 02/06/2018.
2. BORING ADVANCED WITH 4.25" HOLLOW STEM AUGER.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 3/15/2018. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

CUF-GSA-INT-1 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
		Stantec	
		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	—	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET 1 OF 1

PLOT DATE: 08/01/2018 USER: APLIN, MATT
V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ DRAWINGS\GDC-INT-A.DWG

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION

BORING#: CUF-GSA-INT-2

DATE: 02/06/2018

NORTHING: 729,205.68

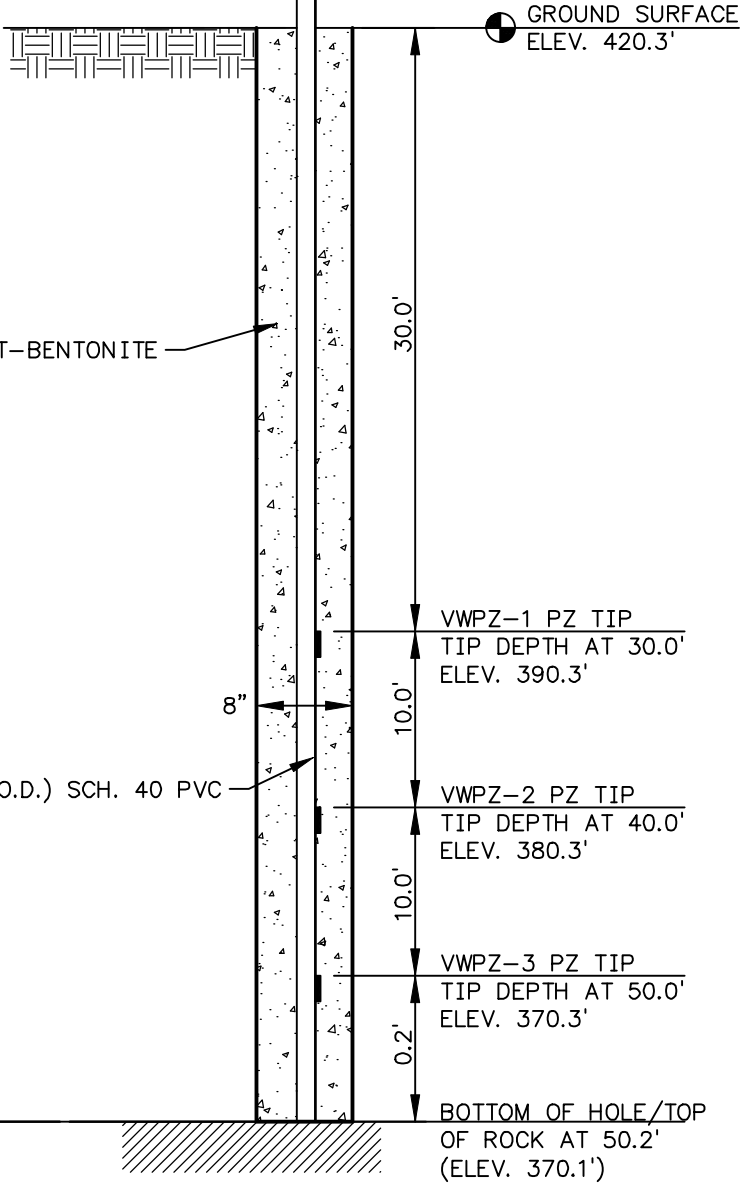
EASTING: 1,512,988.51

DRILLER: D. JESSIE

SUPERVISORS: W. MODRALL

TOP OF SCH. 40 PVC
STICK-UP ELEV. 423.3'

PZ NAME	SERIAL NO.
VWPZ-1	1747757
VWPZ-2	1747758
VWPZ-3	1747759



NOTES:

1. INSTALLED ON 02/06/2018.
2. BORING ADVANCED WITH 4.25" HOLLOW STEM AUGER.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 3/15/2018. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

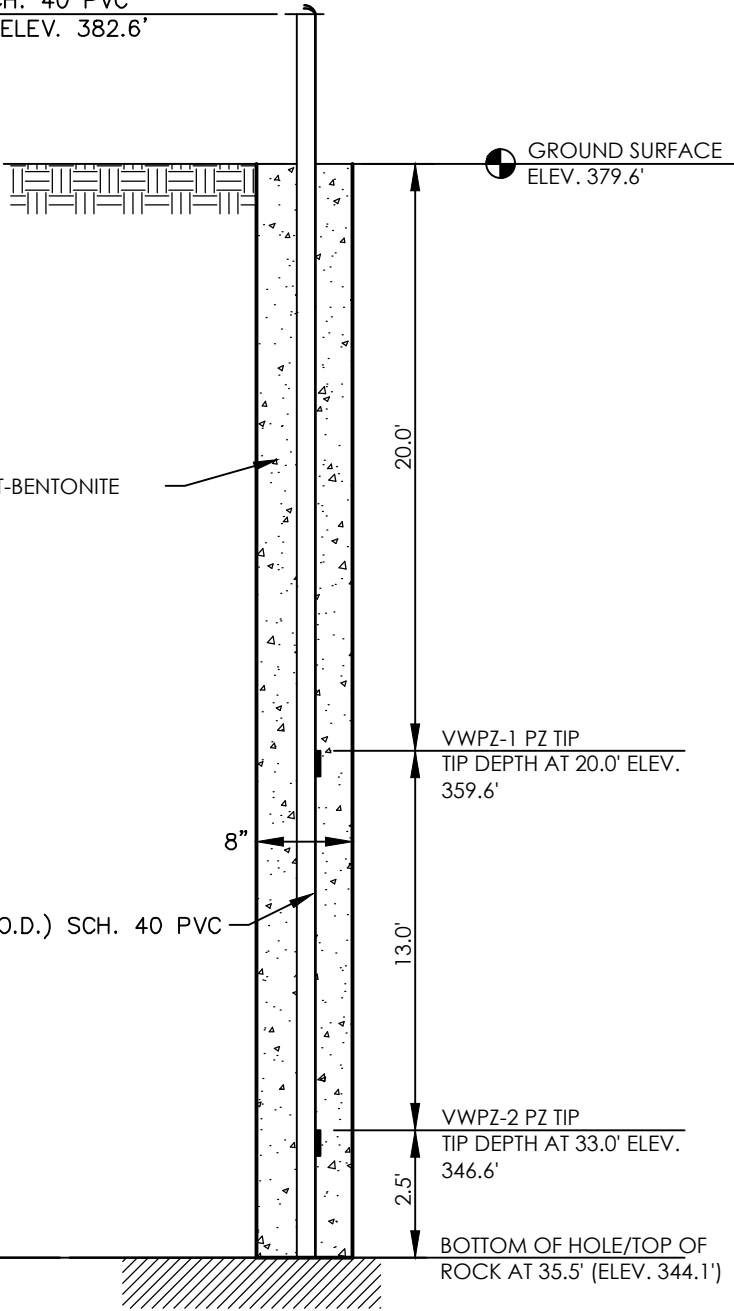
PLOT DATE: 08/01/2018 USER: APLIN, MATT
V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\GDC-INT-B.DWG

CUF-GSA-INT-2			
CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, TENNESSEE			
		Stantec	
		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	-	SCALE	NTS
REVISED		1.	3.
REVISED		2.	4.
SHEET			1 OF 1

PROJECT: CUF - PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-GSA-J-1	DATE: 01/25/2018
NORTHING: 728,157.75	EASTING: 1,512,693.93
DRILLER: D. JESSIE	SUPERVISORS: W. PADGETT

TOP OF SCH. 40 PVC
STICK-UP ELEV. 382.6'


PZ NAME	SERIAL NO.
VWPZ-1	1746990
VWPZ-2	1746989



NOTES:

1. INSTALLED ON 01/25/2018.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. LOCATIONS PROVIDED BY TVA IES.
HORIZONTAL DATUM: NAD 27 (LOCAL)
VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

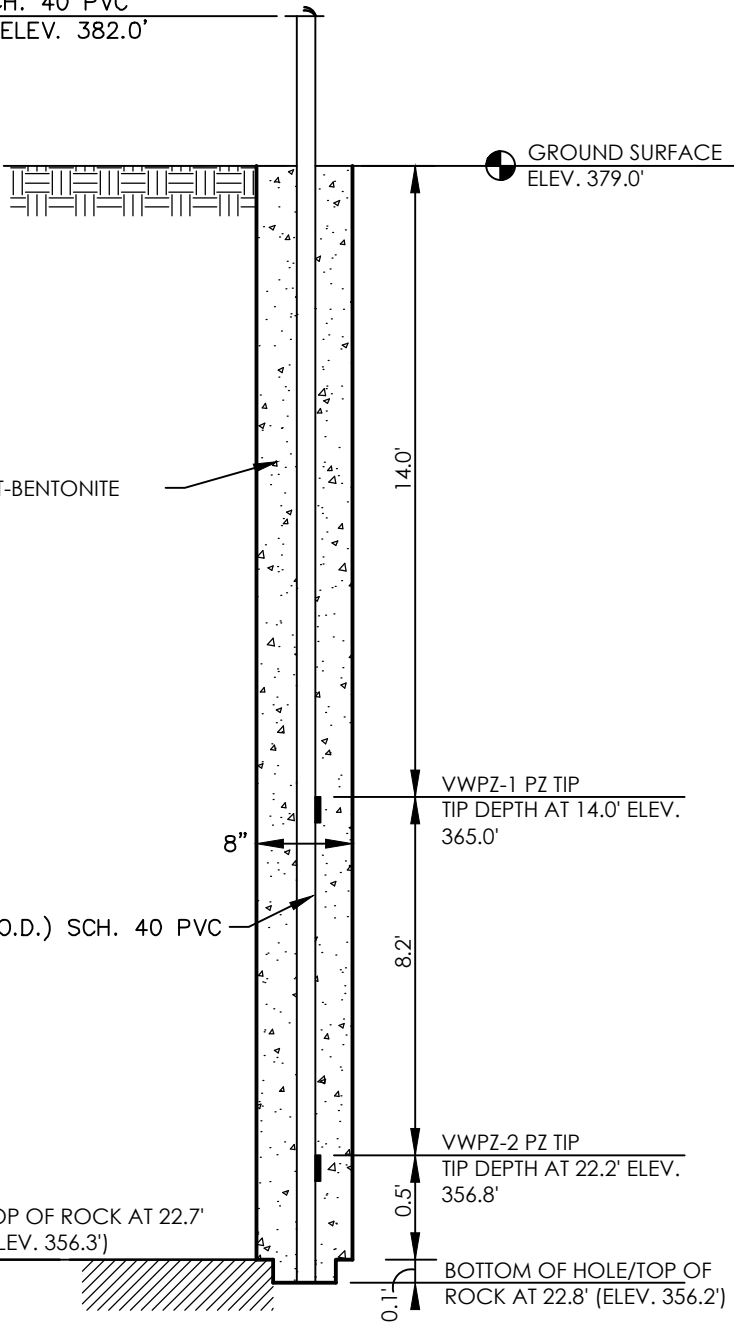
PLOT DATE: 05/22/2018 USER: APLIN, MATT
V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\GDC-J-A.DWG

CUF-GSA-J-1 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
 Stantec		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY MWA	DATE APRIL, 2018	REVISED	
CHECKED BY JRC	PROJ. NO. 175567314	1.	3.
CHECKED BY -	SCALE NTS	2.	4.
			SHEET 1 OF 1

PROJECT: CUF - PARTIAL CLOSURE INSTRUMENTATION	
BORING #: CUF-GSA-K-1	DATE: 01/25/2018
NORTHING: 728,090.86	EASTING: 1,513,838.69
DRILLER: D. JESSIE	SUPERVISORS: W. PADGETT

TOP OF SCH. 40 PVC
STICK-UP ELEV. 382.0'


PZ NAME	SERIAL NO.
VWPZ-1	1746992
VWPZ-2	1746991



NOTES:

1. INSTALLED ON 01/25/2018.
2. BORING ADVANCED WITH 4" MUD ROTARY UPWARD DISCHARGING BIT.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. LOCATIONS PROVIDED BY TVA IES.
HORIZONTAL DATUM: NAD 27 (LOCAL)
VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

PLOT DATE: 05/22/2018 USER: APLIN, MATT
V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\GDC-K-A.DWG

CUF-GSA-K-1 CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE			
 Stantec		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY MWA	DATE APRIL, 2018	REVISED	
CHECKED BY JRC	PROJ. NO. 175567314	1.	3.
CHECKED BY -	SCALE NTS	2.	4.
			SHEET 1 OF 1

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION

BORING #: CUF-GSA-L-1

DATE: 01/28/2018

NORTHING: 728,782.77

EASTING: 1,513,695.37

DRILLER: D. JESSIE

SUPERVISORS: W. PADGETT

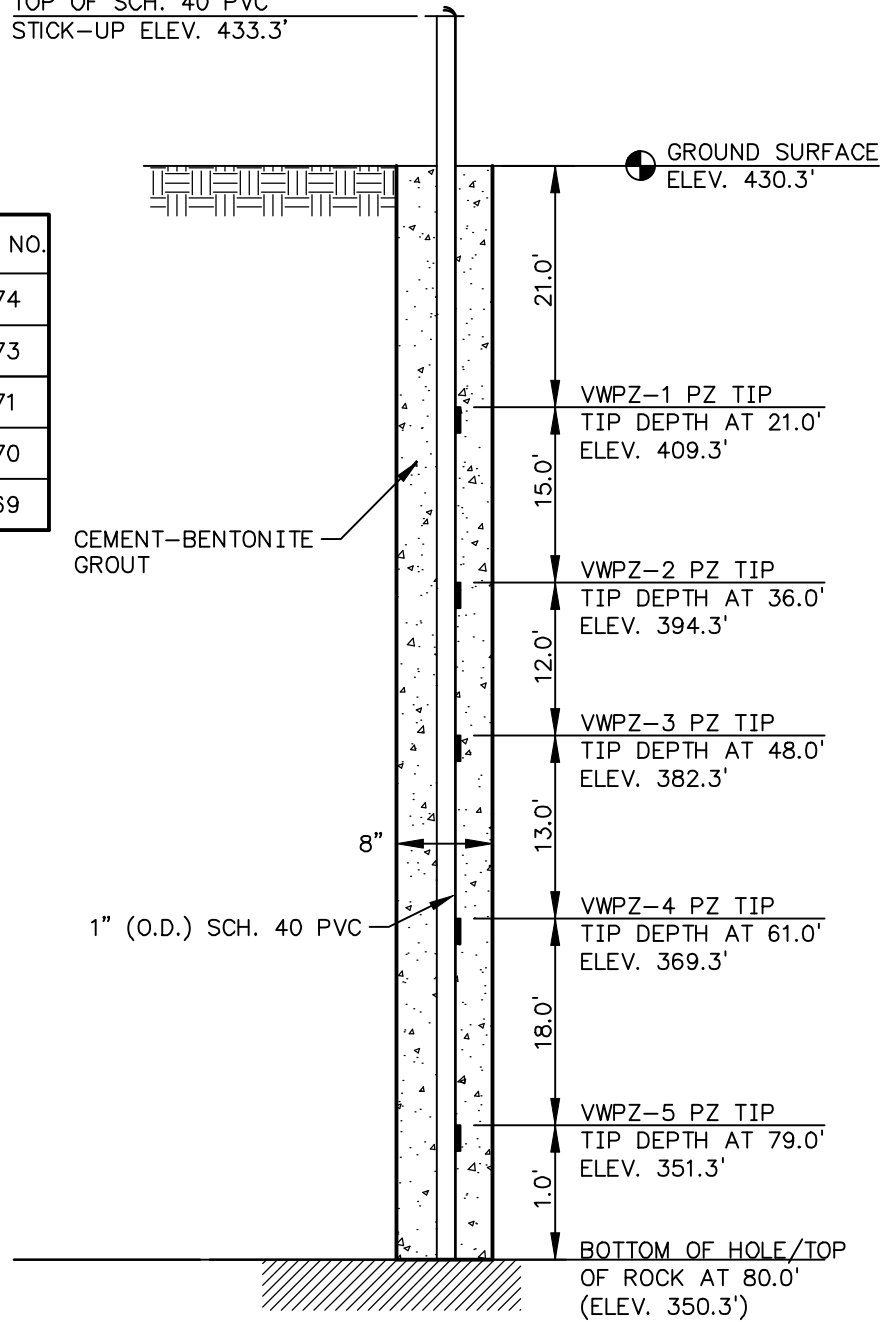
TOP OF SCH. 40 PVC
STICK-UP ELEV. 433.3'

GROUND SURFACE
ELEV. 430.3'

PZ NAME	SERIAL NO.
VWPZ-1	1747774
VWPZ-2	1747773
VWPZ-3	1747771
VWPZ-4	1747770
VWPZ-5	1747769

CEMENT-BENTONITE
GROUT

1" (O.D.) SCH. 40 PVC



NOTES:

1. INSTALLED ON 01/28/2018.
2. BORING ADVANCED WITH 4.25" HOLLOW STEM AUGER.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 3/15/2018. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

**CUF-GSA-L-1
CUMBERLAND FOSSIL PLANT
CUMBERLAND CITY, TENNESSEE**



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DRAWN BY	MWA	DATE	APRIL, 2018	REVISED	
CHECKED BY	JRC	PROJ. NO.	175567314	1.	3.
CHECKED BY	-	SCALE	NTS	2.	4.

SHEET
1 OF 1

PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ DRAWINGS\GDC-L-A.DWG

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION

BORING #: CUF-GSA-M-1

DATE: 01/28/2018

NORTHING: 729,772.46

EASTING: 1,513,379.26

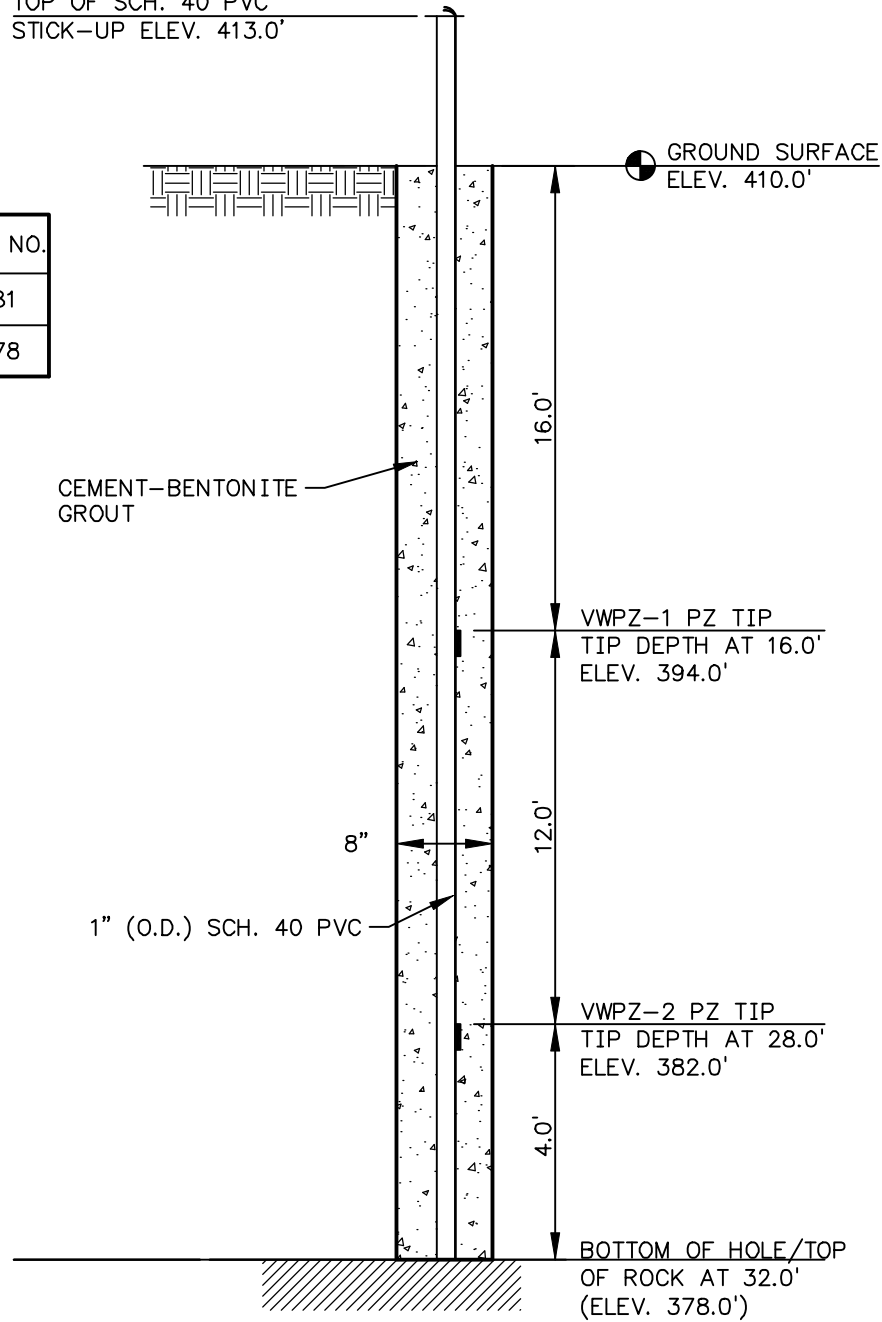
DRILLER: E. CAUDILL

SUPERVISORS: W. PADGETT

TOP OF SCH. 40 PVC
STICK-UP ELEV. 413.0'

GROUND SURFACE
ELEV. 410.0'

PZ NAME	SERIAL NO.
VWPZ-1	1747781
VWPZ-2	1747778



NOTES:

1. INSTALLED ON 01/28/2018.
2. BORING ADVANCED WITH 4.25" HOLLOW STEM AUGER.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 3/15/2018. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

**CUF-GSA-M-1
CUMBERLAND FOSSIL PLANT
CUMBERLAND CITY, TENNESSEE**



Stantec

Stantec Consulting Services Inc.
1110 Market St. Suite #214A
Chattanooga, Tennessee
37402-2863
423-800-5350

www.stantec.com

DRAWN BY MWA	DATE APRIL, 2018	REVISED		SHEET
CHECKED BY JRC	PROJ. NO. 175567314	1.	3.	1 OF 1
CHECKED BY -	SCALE NTS	2.	4.	

PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\GDC-M-A.DWG

PROJECT: CUF – PARTIAL CLOSURE INSTRUMENTATION

BORING #: CUF-GSA-M-2 DATE: 01/27/2018

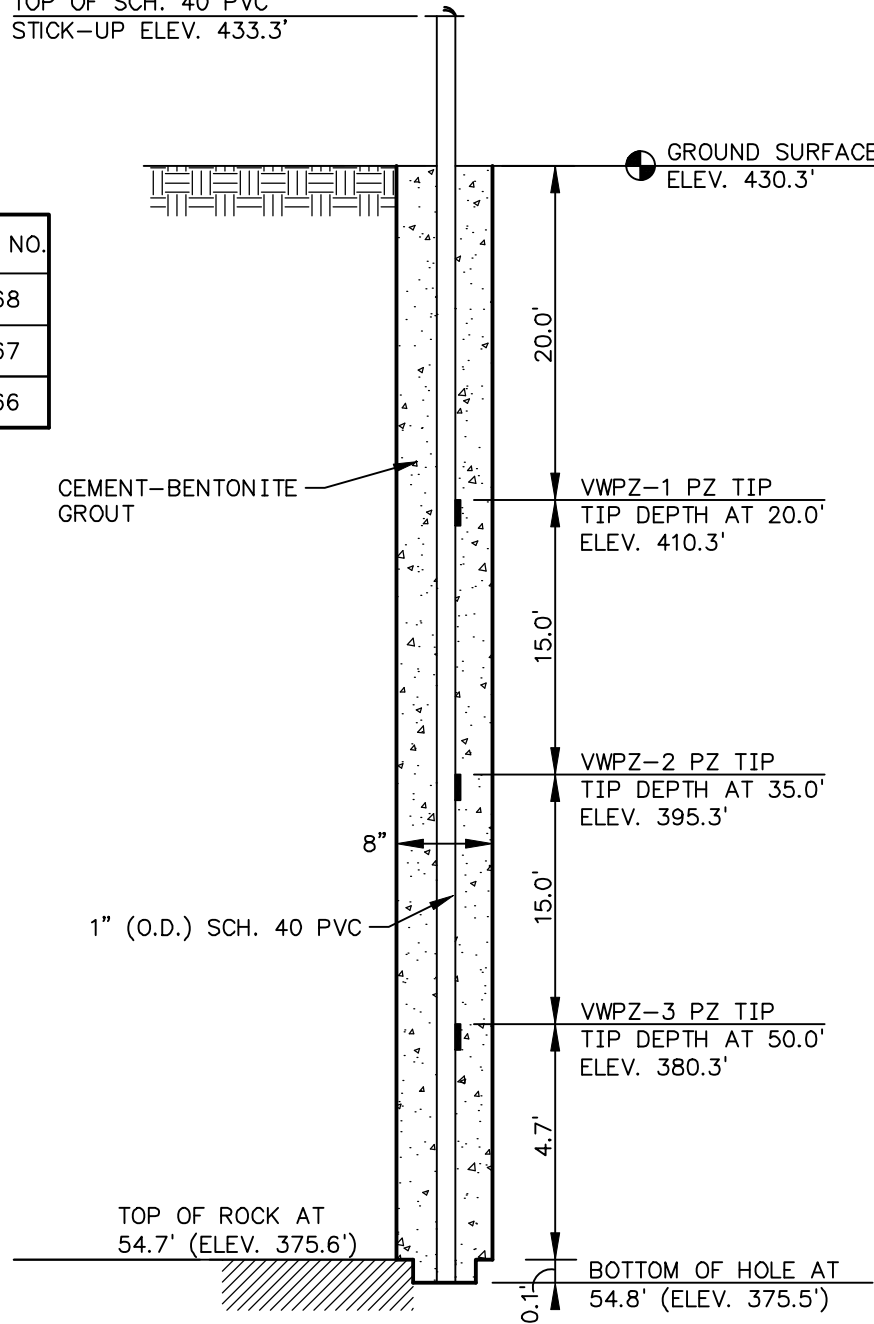
NORTHING: 729,670.56 EASTING: 1,513,323.64

DRILLER: E. CAUDILL SUPERVISORS: W. PADGETT

TOP OF SCH. 40 PVC
STICK-UP ELEV. 433.3'

GROUND SURFACE
ELEV. 430.3'

PZ NAME	SERIAL NO.
VWPZ-1	1747768
VWPZ-2	1747767
VWPZ-3	1747766



NOTES:

1. INSTALLED ON 01/27/2018.
2. BORING ADVANCED WITH 4.25" HOLLOW STEM AUGER.
3. REFER TO BORING LOG FOR OVERBURDEN AND BEDROCK STRATIGRAPHY.
4. GROUND SURFACE ELEV. AND LOCATIONS PROVIDED BY TVA IES ON 3/15/2018. HORIZONTAL DATUM: NAD 27 (LOCAL) VERTICAL DATUM: NGVD 29
5. SURFACE FINISHING (PAD, COVER, BOLLARD) TO BE INSTALLED BY OTHERS.

PLOT DATE: 08/01/2018 USER: APLIN, MATT V:\1755\ACTIVE\175567314\TECHNICAL_PRODUCTION\ANALYSIS\PZ_DRAWINGS\GDC-M-B.DWG

CUF-GSA-M-2			
CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, TENNESSEE			
		Stantec Consulting Services Inc. 1110 Market St. Suite #214A Chattanooga, Tennessee 37402-2863 423-800-5350 www.stantec.com	
DRAWN BY	MWA	DATE	APRIL, 2018
CHECKED BY	JRC	PROJ. NO.	175567314
CHECKED BY	—	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET
			1 OF 1

Vibrating Wire Piezometer Installation Log

Station: CUF-H-2A
 BH Bottom Depth (ft): 106.7
 Ground Elevation (ft): 423.97
 BH Bottom Elevation (ft): 317.27

Client: Tennessee Valley Authority
 Project: TVA CCP EPA
 Location: CUF Plant, Cumberland City, TN

Instrument Type: Vibrating Wire PZ
 Manufacturer: Geokon
 Model No.: 4500-S

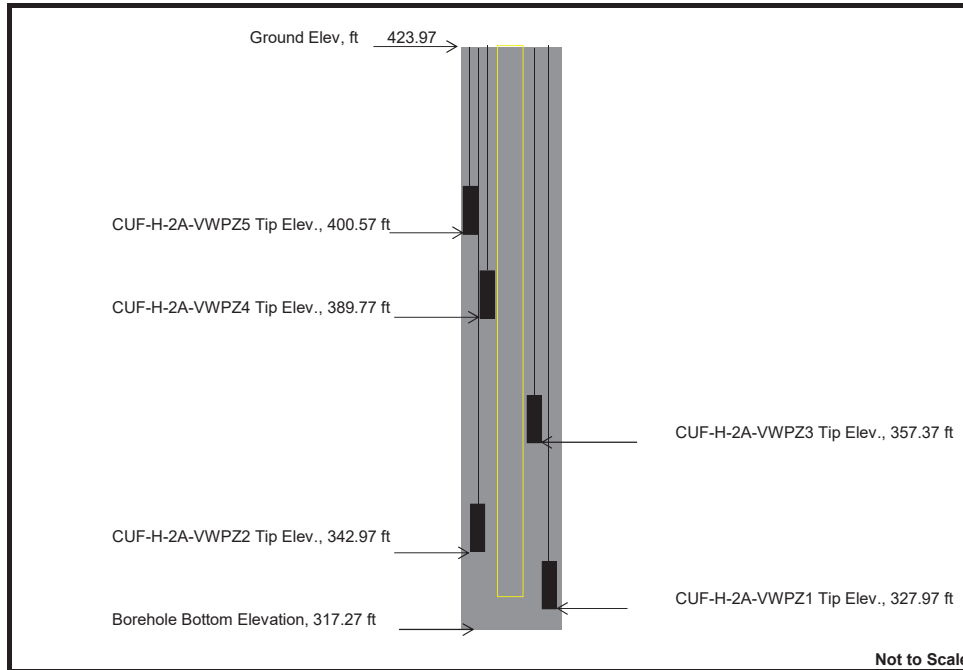
Planned Installation: VWPZ₅ Tip (ft): 23.4
 VWPZ₄ Tip (ft): 34.2
 VWPZ₃ Tip (ft): 66.6
 VWPZ₂ Tip (ft): 81
 VWPZ₁ Tip (ft): 96

Installation Start Date: 4/26/2012
 Installation Finish Date: 4/26/2012
 Weather: Sunny, mid-upper 60's

Actual Installation: VWPZ₅ Tip (ft): 23.4
 VWPZ₄ Tip (ft): 34.2
 VWPZ₃ Tip (ft): 66.6
 VWPZ₂ Tip (ft): 81
 VWPZ₁ Tip (ft): 96

Installer: Lance Wethington
 Supervisor: Michael Dagher

Unique Assigned ID #: CUF-H-2A



VW PZ No.	Serial No.	Cable Length	Material Type	Installed Depth, ft	Installed Elevation, ft	Zero Reading	Zero Temp, °C	Initial Reading	Initial Temp, °C	Initial Elevation, ft
CUF-H-2A-VWPZ5	1146168	30	Gypsum	23.4	400.57	8942	25.6	8156.8	24.6	429.9
CUF-H-2A-VWPZ4	1146169	35	Fly Ash Sluiced	34.2	389.77	8937.8	25.4	7846.9	30.3	431.8
CUF-H-2A-VWPZ3	1146268	75	Fly Ash Sluiced	66.6	357.37	9029.5	26.5	7025.4	30	435.7
CUF-H-2A-VWPZ2	1146269	90	Alluvial Clay	81	342.97	8791.5	27.6	6468.7	30	437.3
CUF-H-2A-VWPZ1	1146270	110	Alluvial Granular	96	327.97	8789.5	28	5886.8	29	438.9

VW PZ No.	Serial No.	Installed Elevation, ft	Reading 2 5/1/2012 17:00	Elevation Reading 2, ft	Reading 3 5/15/2012 15:00	Elevation Reading 3, ft	Reading 4 5/16/2012 07:00	Elevation Reading 4, ft	Reading 5	Elevation Reading 5, ft
CUF-H-2A-VWPZ5	1146168	400.57	8971.6 / 23.9	399.16	8980 / 18.3	398.60	8980.3 / 18.3	398.59	---	---
CUF-H-2A-VWPZ4	1146169	389.77	8808.8 / 23.8	394.42	8832.3 / 18.9	393.31	8834.6 / 18.9	393.22	---	---
CUF-H-2A-VWPZ3	1146268	357.37	8298.8 / 27.4	385.68	8298.1 / 19.4	385.60	8298.5 / 19.4	385.58	---	---
CUF-H-2A-VWPZ2	1146269	342.97	8230.1 / 25.4	365.43	8192.7 / 19.4	366.72	8197.4 / 19.3	366.53	---	---
CUF-H-2A-VWPZ1	1146270	327.97	8057.8 / 24.9	355.65	8037.7 / 18.9	356.33	8042.6 / 18.9	356.15	---	---

Notes: _____

Vibrating Wire Piezometer Installation Log

Station: CUF-H-2B
 BH Bottom Depth (ft): 93.1
 Ground Elevation (ft): 410.7
 BH Bottom Elevation (ft): 317.6

Client: Tennessee Valley Authority
 Project: TVA CCP EPA
 Location: CUF Plant, Cumberland City, TN

Instrument Type: Vibrating Wire PZ
 Manufacturer: Geokon
 Model No.: 4500-S

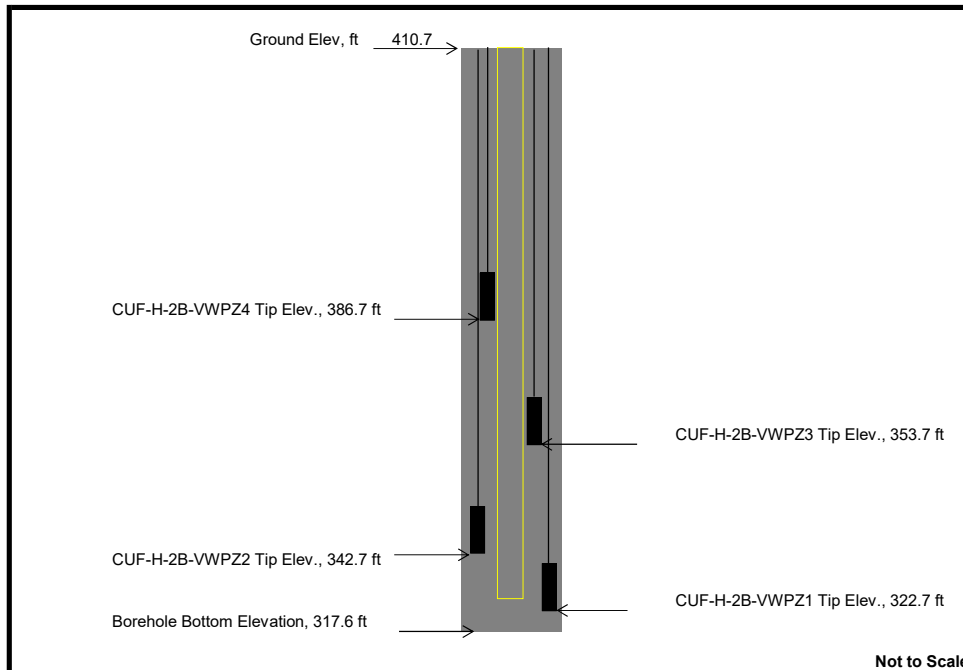
Installation Start Date: 4/26/2012
 Installation Finish Date: 4/26/2012
 Weather: Sunny, mid-upper 60's

Installer: Lance Wethington
 Supervisor: Michael Dagher

Unique Assigned ID #: CUF-H-2B

Planned Installation: VWPZ₅ Tip (ft): ---
 VWPZ₄ Tip (ft): 24
 VWPZ₃ Tip (ft): 57
 VWPZ₂ Tip (ft): 68
 VWPZ₁ Tip (ft): 88

Actual Installation: VWPZ₅ Tip (ft): ---
 VWPZ₄ Tip (ft): 24
 VWPZ₃ Tip (ft): 57
 VWPZ₂ Tip (ft): 68
 VWPZ₁ Tip (ft): 88



VW PZ No.	Serial No.	Cable Length	Material Type	Installed Depth, ft	Installed Elevation, ft	Zero Reading	Zero Temp, °C	Initial Reading	Initial Temp, °C	Initial Elevation, ft
---	---	---	---	---	---	---	---	---	---	---
CUF-H-2B-VWPZ4	1146271	35	Dike 3 Clay	24	386.7	8913.8	30.7	8161.9	26.1	415.8
CUF-H-2B-VWPZ3	1146272	65	Bottom Ash Sluiced	57	353.7	8823.5	30.5	7070.5	28	420.9
CUF-H-2B-VWPZ2	1146273	80	Alluvial Clay	68	342.7	8620.3	29.7	6548.3	27.9	422.9
CUF-H-2B-VWPZ1	1146274	95	Alluvial Granular	88	322.7	8861.3	29.3	6192.1	28.9	425.7

VW PZ No.	Serial No.	Installed Elevation, ft	Reading 2 5/15/2012 14:50	Elevation Reading 2, ft	Reading 3 5/16/2012 07:00	Elevation Reading 3, ft	Reading 4	Elevation Reading 4, ft	Reading 5	Elevation Reading 5, ft
---	---	---	---	---	---	---	---	---	---	---
CUF-H-2B-VWPZ4	1146271	386.7	8701.6 / 18.5	394.76	8712 / 18.5	394.36	---	---	---	---
CUF-H-2B-VWPZ3	1146272	353.7	7968.1 / 19.3	386.37	7968.7 / 19.3	386.34	---	---	---	---
CUF-H-2B-VWPZ2	1146273	342.7	7509.4 / 19.2	385.28	7510.3 / 19.1	385.24	---	---	---	---
CUF-H-2B-VWPZ1	1146274	322.7	7962.3 / 18.7	357.23	7967.5 / 18.6	357.03	---	---	---	---

Notes: _____

Vibrating Wire Piezometer Installation Log

Station: CUF-H-2C
 BH Bottom Depth (ft): 75.6
 Ground Elevation (ft): 395.32
 BH Bottom Elevation (ft): 319.72

Client: Tennessee Valley Authority
 Project: TVA CCP EPA
 Location: CUF Plant, Cumberland City, TN

Instrument Type: Vibrating Wire PZ
 Manufacturer: Geokon
 Model No.: 4500-S

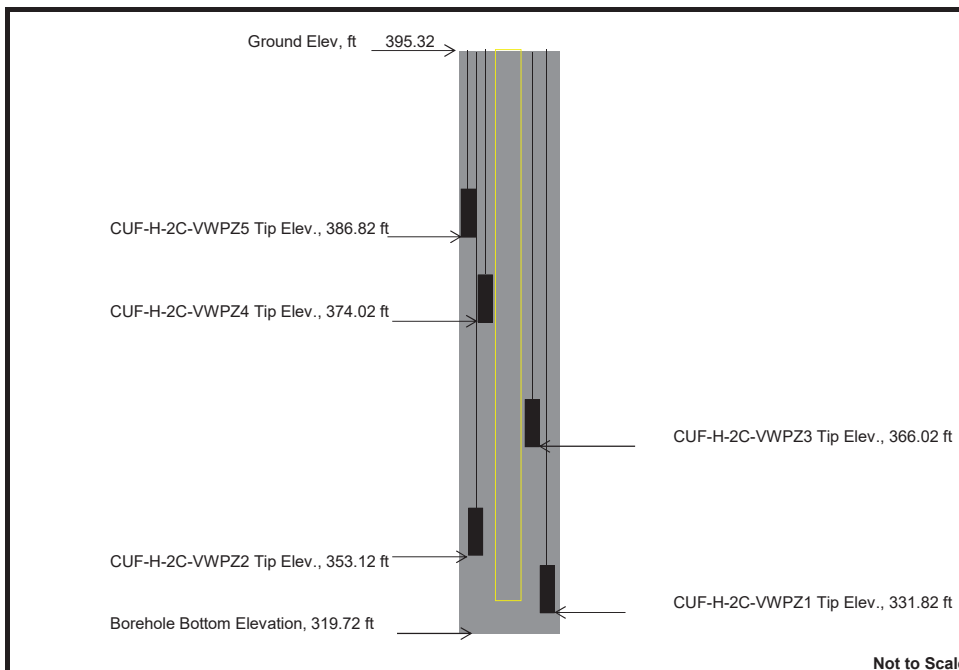
Installation Start Date: 4/20/2012
 Installation Finish Date: 4/20/2012
 Weather: Sunny upper 60's

Installer: Lance Wethington
 Supervisor: Michael Dagher

Unique Assigned ID #: CUF-H-2C

Planned Installation: **VWPZ₅ Tip (ft):** 8.5
 VWPZ₄ Tip (ft): 21.3
 VWPZ₃ Tip (ft): 29.3
 VWPZ₂ Tip (ft): 42.2
 VWPZ₁ Tip (ft): 63.5

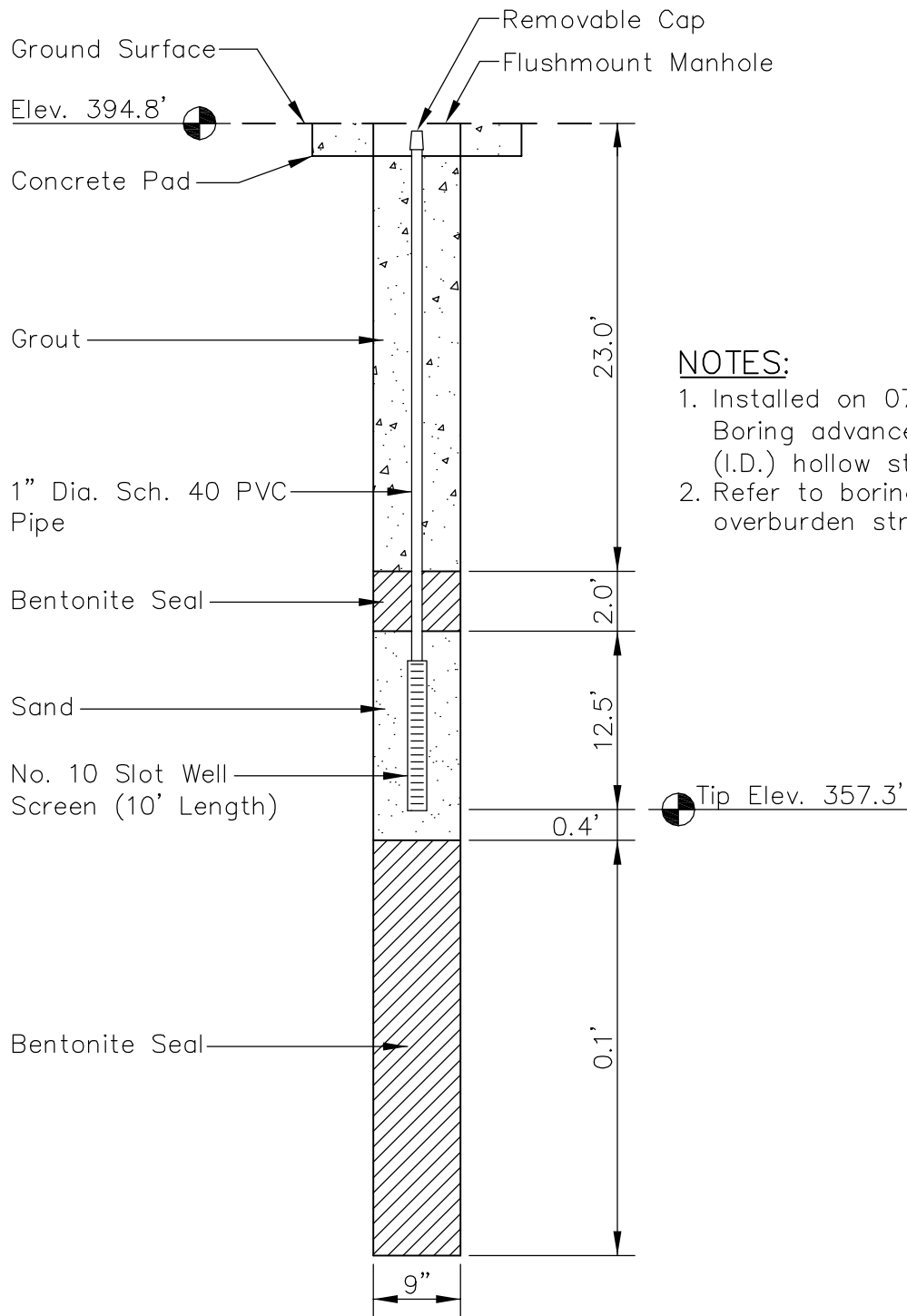
Actual Installation: **VWPZ₅ Tip (ft):** 8.5
 VWPZ₄ Tip (ft): 21.3
 VWPZ₃ Tip (ft): 29.3
 VWPZ₂ Tip (ft): 42.2
 VWPZ₁ Tip (ft): 63.5



VW PZ No.	Serial No.	Cable Length	Material Type	Installed Depth, ft	Installed Elevation, ft	Zero Reading	Zero Temp, °C	Initial Reading	Initial Temp, °C	Initial Elevation, ft
CUF-H-2C-VWPZ5	1146275	30	Dike 2 Clay	8.5	386.82	8916.4	20	8675.3	21.4	395.2
CUF-H-2C-VWPZ4	1146276	45	Bottom Ash Sluiced	21.3	374.02	8924.9	20.2	8266.4	23.3	396.1
CUF-H-2C-VWPZ3	1146278	55	Bottom Ash Sluiced	29.3	366.02	8791	20.6	8018.2	22.8	396.5
CUF-H-2C-VWPZ2	1146279	70	Alluvial Clay	42.2	353.12	8790.5	20.6	7704.5	22	392.9
CUF-H-2C-VWPZ1	1146280	85	Alluvial Granular	63.5	331.82	8892.2	20.6	7143.6	22.1	399.2

VW PZ No.	Serial No.	Installed Elevation, ft	Reading 2 4/30/12 10:37	Elevation Reading 2, ft	Reading 3 5/15/2012 14:45	Elevation Reading 3, ft	Reading 4 5/16/2012 07:00	Elevation Reading 4, ft	Reading 5	Elevation Reading 5, ft
CUF-H-2C-VWPZ5	1146275	386.82	8887.6 / 16.2	387.41	8889 / 16.9	387.48	8889.4 / 17	387.46	---	---
CUF-H-2C-VWPZ4	1146276	374.02	8521.8 / 17.5	387.14	8525.4 / 17.3	387.11	8524.8 / 17.3	387.13	---	---
CUF-H-2C-VWPZ3	1146278	366.02	8252.1 / 18.4	386.89	8260.1 / 18.2	386.67	8260.7 / 18.2	386.64	---	---
CUF-H-2C-VWPZ2	1146279	353.12	8390.8 / 18.8	367.37	8446.3 / 18.7	365.43	8458 / 18.7	365.01	---	---
CUF-H-2C-VWPZ1	1146280	331.82	8256.1 / 18.7	355.99	8249.5 / 18.6	356.35	8254.9 / 18.6	356.14	---	---

Notes: _____



NOTES:

1. Installed on 07/15/2009. Boring advanced with 4.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

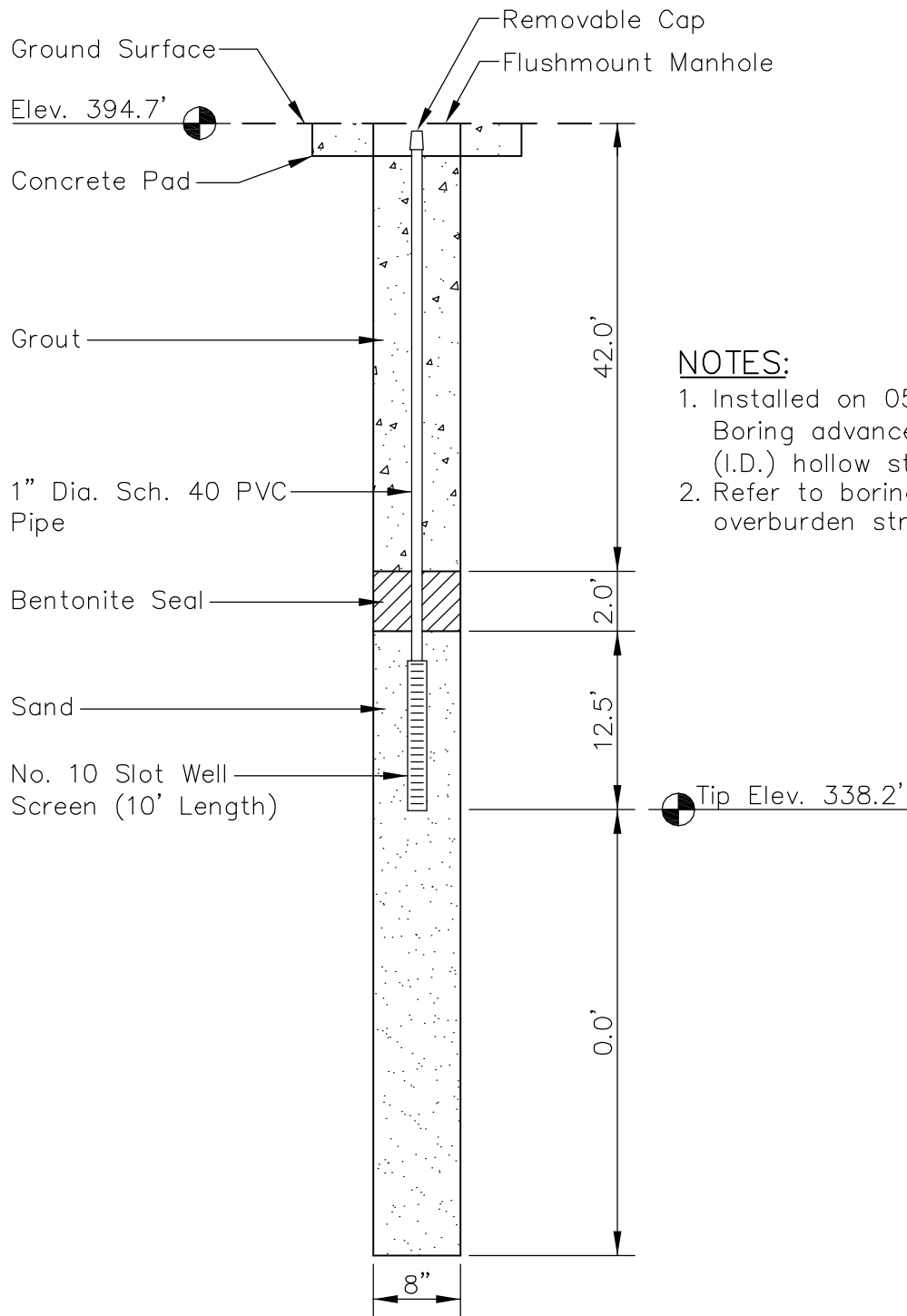
LOCATION:

Northing: 732,139.24
 Easting: 1,509,474.38
 Ground Elevation: 394.8'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

PIEZOMETER STN-3A DRY FLY ASH STACK CUMBERLAND FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 11687 Lebanon Rd. Cincinnati, Ohio 45241-2012 513-842-8200 www.stantec.com	
DRAWN BY	CW	DATE	OCT., 2009
CHECKED BY	DBR	PROJ. NO.	175539009
CHECKED BY	SAH	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 10/07/2009 USER: WITHERS, CHEYENNE
 V: 1755\ACTIVE\175539009\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39009B-CUF-301-PZ3A.DWG



NOTES:

1. Installed on 05/05/2009.
Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

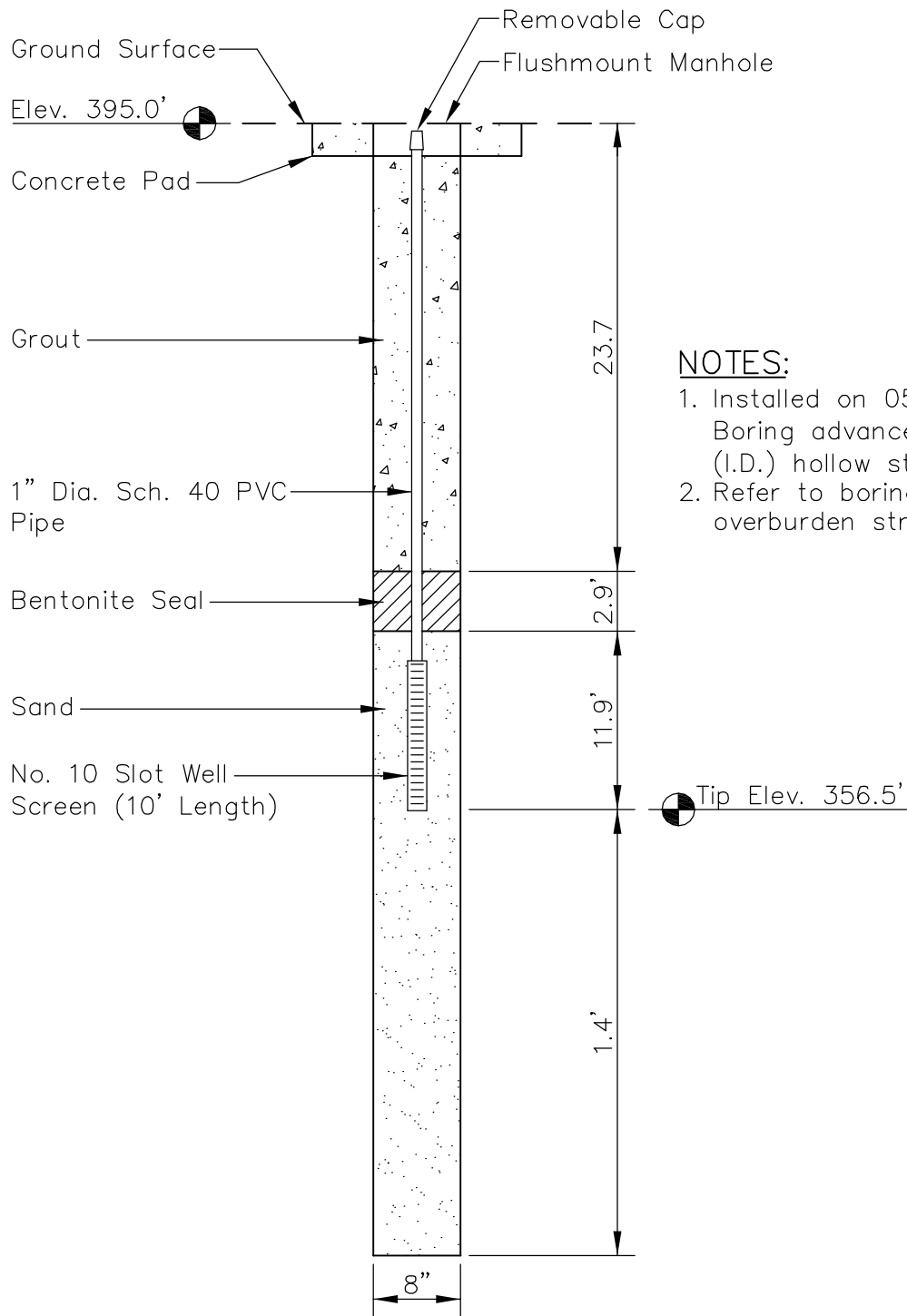
LOCATION:

Northing: 730,659.51
 Easting: 1,509,396.49
 Ground Elevation: 394.7'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

PIEZOMETER STN-9 DRY FLY ASH STACK CUMBERLAND FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 11687 Lebanon Rd. Cincinnati, Ohio 45241-2012 513-842-8200 www.stantec.com	
DRAWN BY	CW	DATE	OCT., 2009
CHECKED BY	DBR	PROJ. NO.	175539009
CHECKED BY	SAH	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 10/12/2009 USER: WITHERS, CHEYENNE V: 1755\ACTIVE\175539009\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39009B-CUF-301-PZ9.DWG



NOTES:

1. Installed on 05/13/2009.
Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 729,713.11
 Easting: 1,510,331.12
 Ground Elevation: 395.0'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.

Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-15A
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**



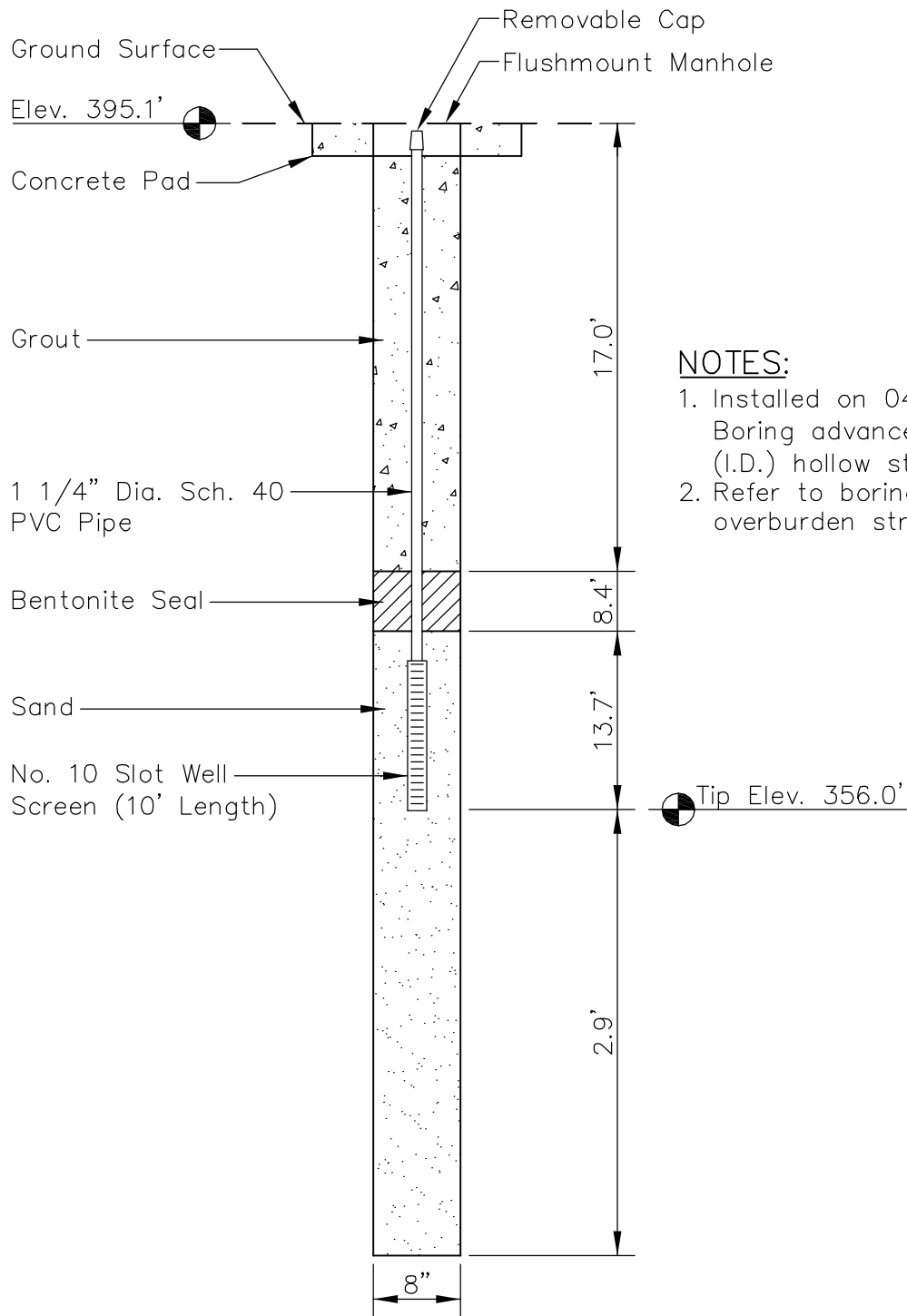
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DRAWN BY	CW	DATE	OCT., 2009	REVISED		SHEET 1 OF 1
CHECKED BY	DBR	PROJ. NO.	175539009	1.	3.	
CHECKED BY	SAH	SCALE	NTS	2.	4.	

PLOT DATE: 10/12/2009 USER: WITHERS, CHEYENNE
 V: 1755\ACTIVE\175539009\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39009B-CUF-301-PZ15A.DWG



NOTES:

1. Installed on 04/30/2009. Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

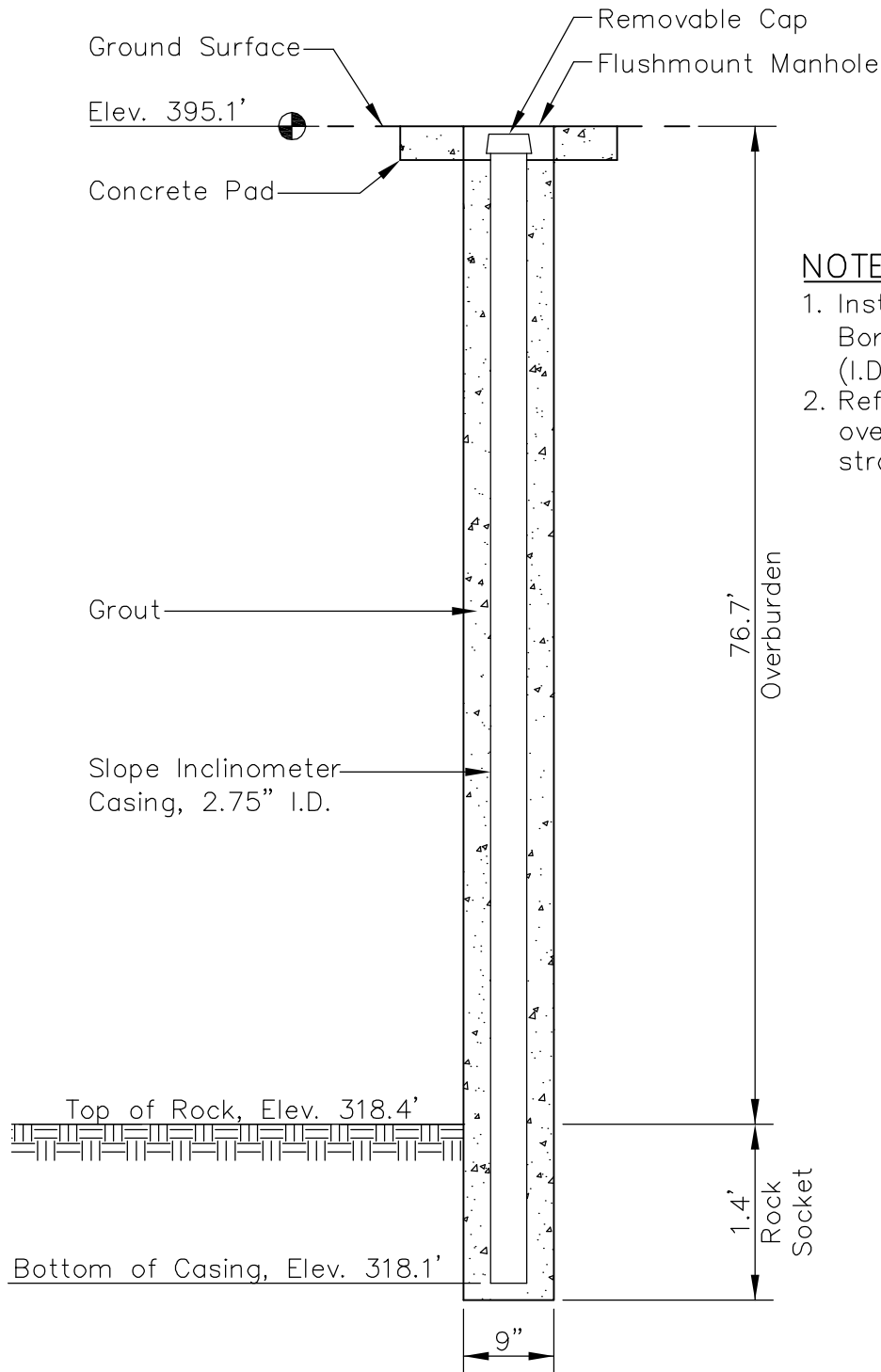
LOCATION:

Northing: 728,813.36
 Easting: 1,510,875.59
 Ground Elevation: 395.1'

Locations to be provided by TVA, Power Systems Operations, Surveying and Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

PIEZOMETER STN-21 DRY FLY ASH STACK CUMBERLAND FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 11687 Lebanon Rd. Cincinnati, Ohio 45241-2012 513-842-8200 www.stantec.com	
DRAWN BY	CW	DATE	OCT., 2009
CHECKED BY	DBR	PROJ. NO.	175539009
CHECKED BY	SAH	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 10/12/2009 USER: WITHERS, CHEYENNE V: 1755\ACTIVE\175539009\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39009B-CUF-301-PZ21.DWG



NOTES:

1. Installed on 07/15/2009. Boring advanced with 4.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden and rock stratigraphy.

PLOT DATE: 10/12/2009 USER: WITHERS, CHEYENNE V: 1755\ACTIVE\175539009\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39009B-CUF-301-SI21B.DWG

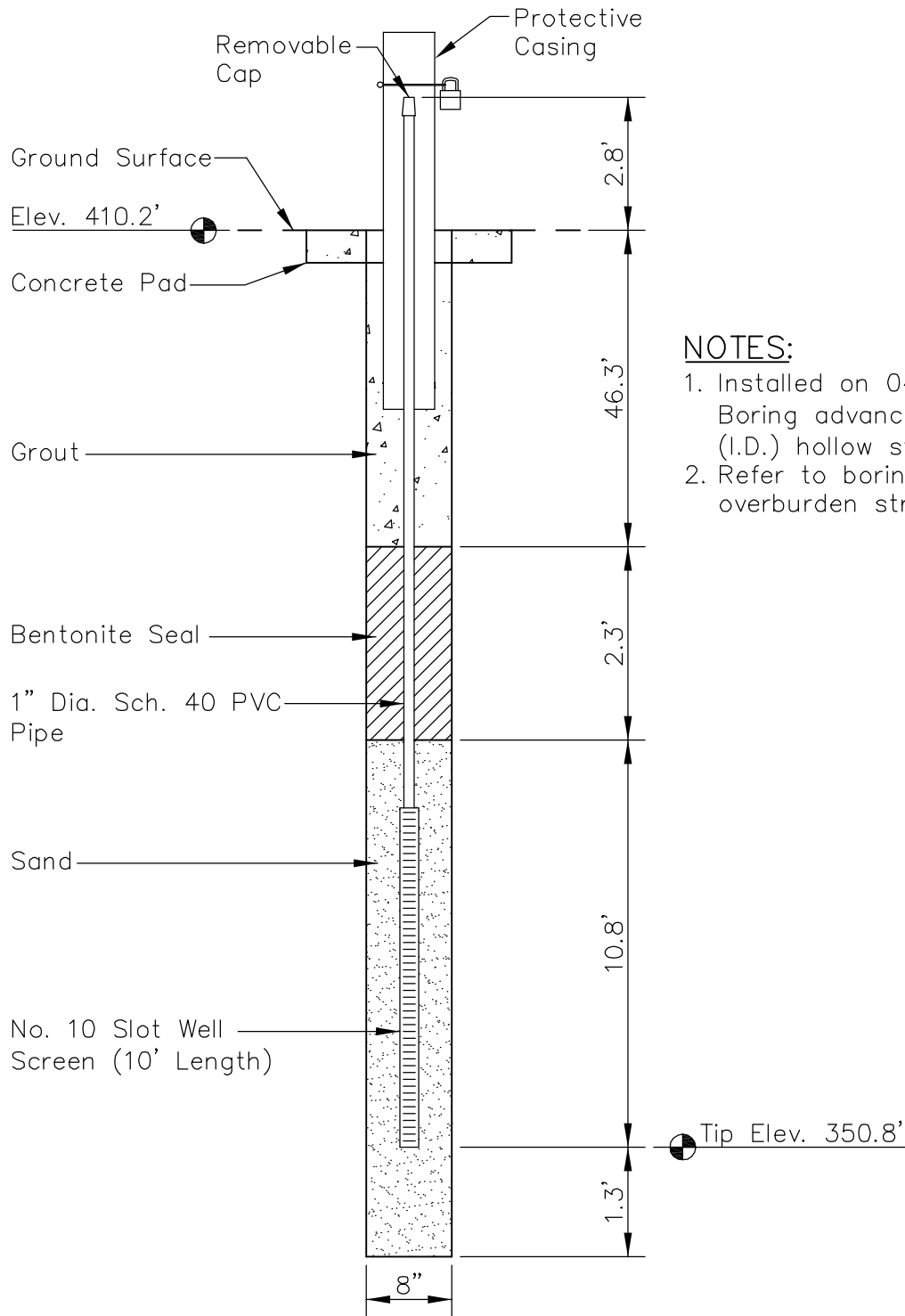
LOCATION:

Northing: 728,804.50
 Easting: 1,510,879.50
 Ground Elevation: 395.1'

Locations to be provided by TVA, Power Systems Operations, Surveying and Project Services.

Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

SLOPE INCLINOMETER STN-21B DRY FLY ASH STACK CUMBERLAND FOSSIL PLANT			
<b style="font-size: 2em; vertical-align: middle;">Stantec		Stantec Consulting Services Inc. 11687 Lebanon Rd. Cincinnati, Ohio 45241-2012 513-842-8200 www.stantec.com	
DRAWN BY	CW	DATE	OCT., 2009
CHECKED BY	DBR	PROJ. NO.	175539009
CHECKED BY	SAH	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1



NOTES:

1. Installed on 04/29/2009. Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 728,829.60
 Easting: 1,510,964.76
 Ground Elevation: 410.2'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.

Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-22A
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**



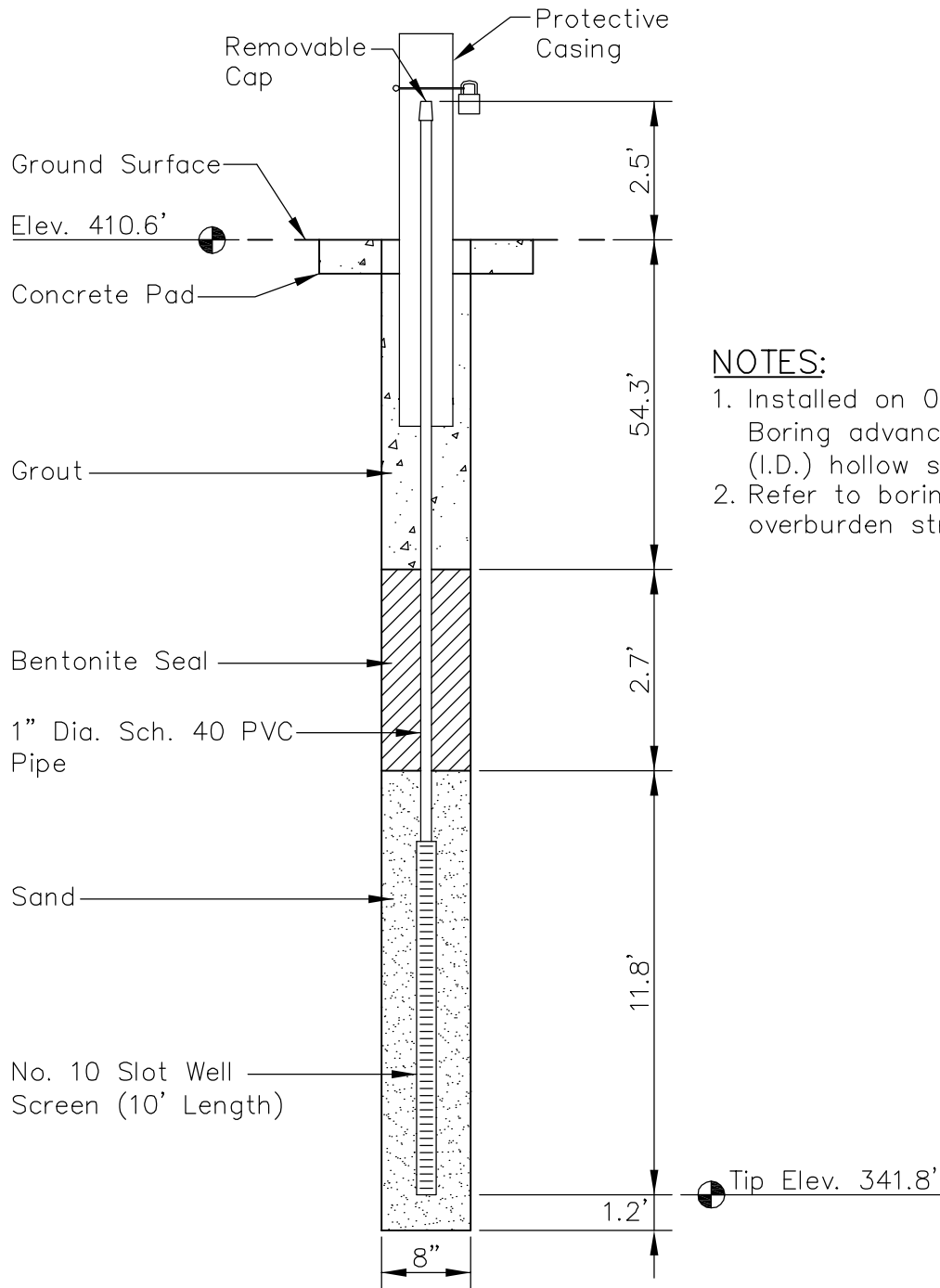
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DRAWN BY	CW	DATE	OCT., 2009	REVISED		SHEET 1 OF 1
CHECKED BY	DBR	PROJ. NO.	175539009	1.	3.	
CHECKED BY	SAH	SCALE	NTS	2.	4.	

PLOT DATE: 10/12/2009 USER: WITHERS, CHEYENNE
 V: 1755\ACTIVE\175539009\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39009B-CUF-301-PZ22A.DWG



NOTES:

1. Installed on 05/19/2009. Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

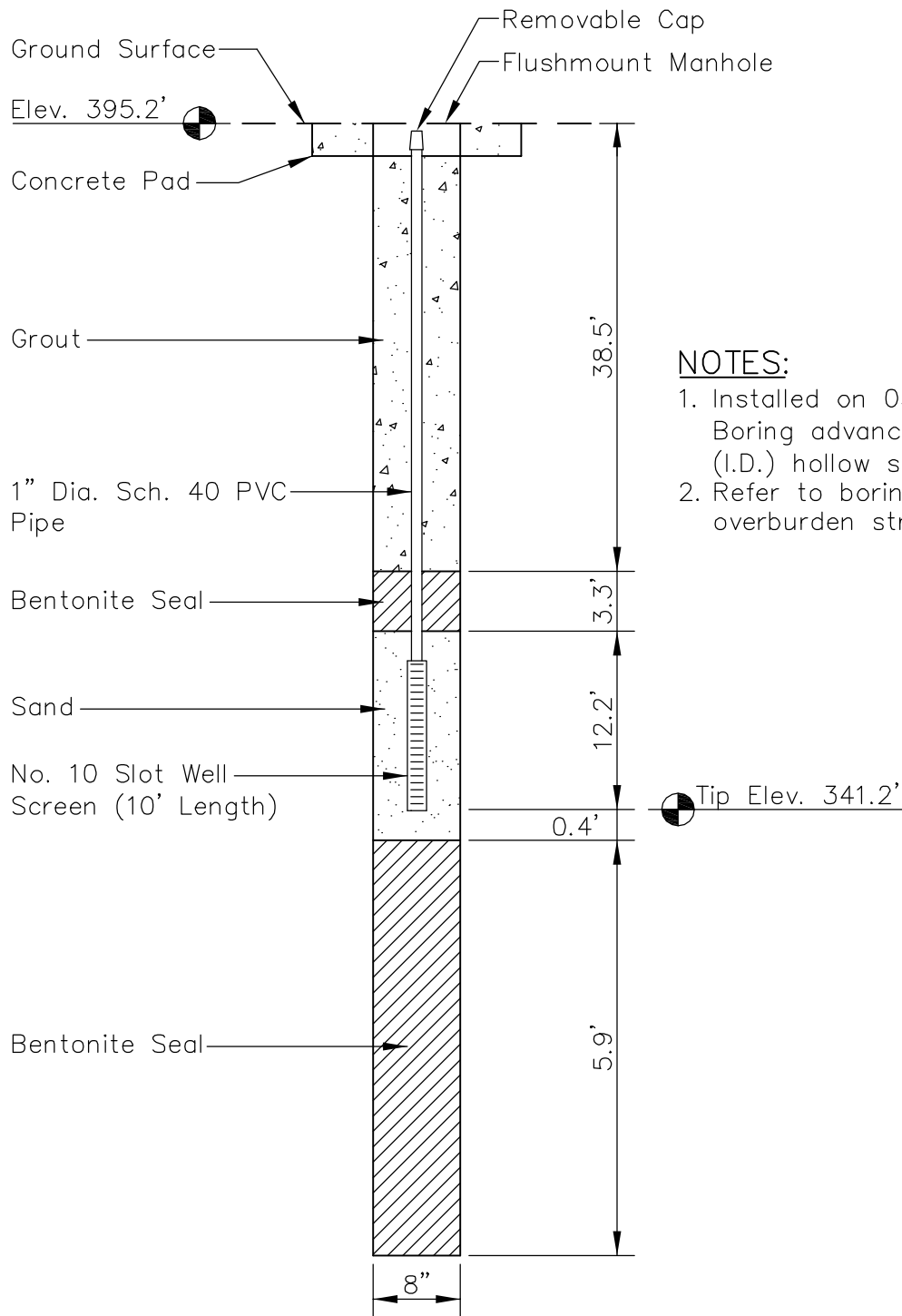
LOCATION:

Northing: 728,264.15
 Easting: 1,512,555.40
 Ground Elevation: 410.6'

Locations to be provided by TVA, Power Systems Operations, Surveying and Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

PIEZOMETER STN-28 DRY FLY ASH STACK CUMBERLAND FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 11687 Lebanon Rd. Cincinnati, Ohio 45241-2012 513-842-8200 www.stantec.com	
DRAWN BY	CW	DATE	OCT., 2009
CHECKED BY	DBR	PROJ. NO.	175539009
CHECKED BY	SAH	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 10/12/2009 USER: WITHERS, CHEYENNE V: 1755\ACTIVE\175539009\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39009B-CUF-301-PZ28.DWG



NOTES:

1. Installed on 05/16/2009.
Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 728,179.37
 Easting: 1,512,587.54
 Ground Elevation: 395.2'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.

Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-29
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**

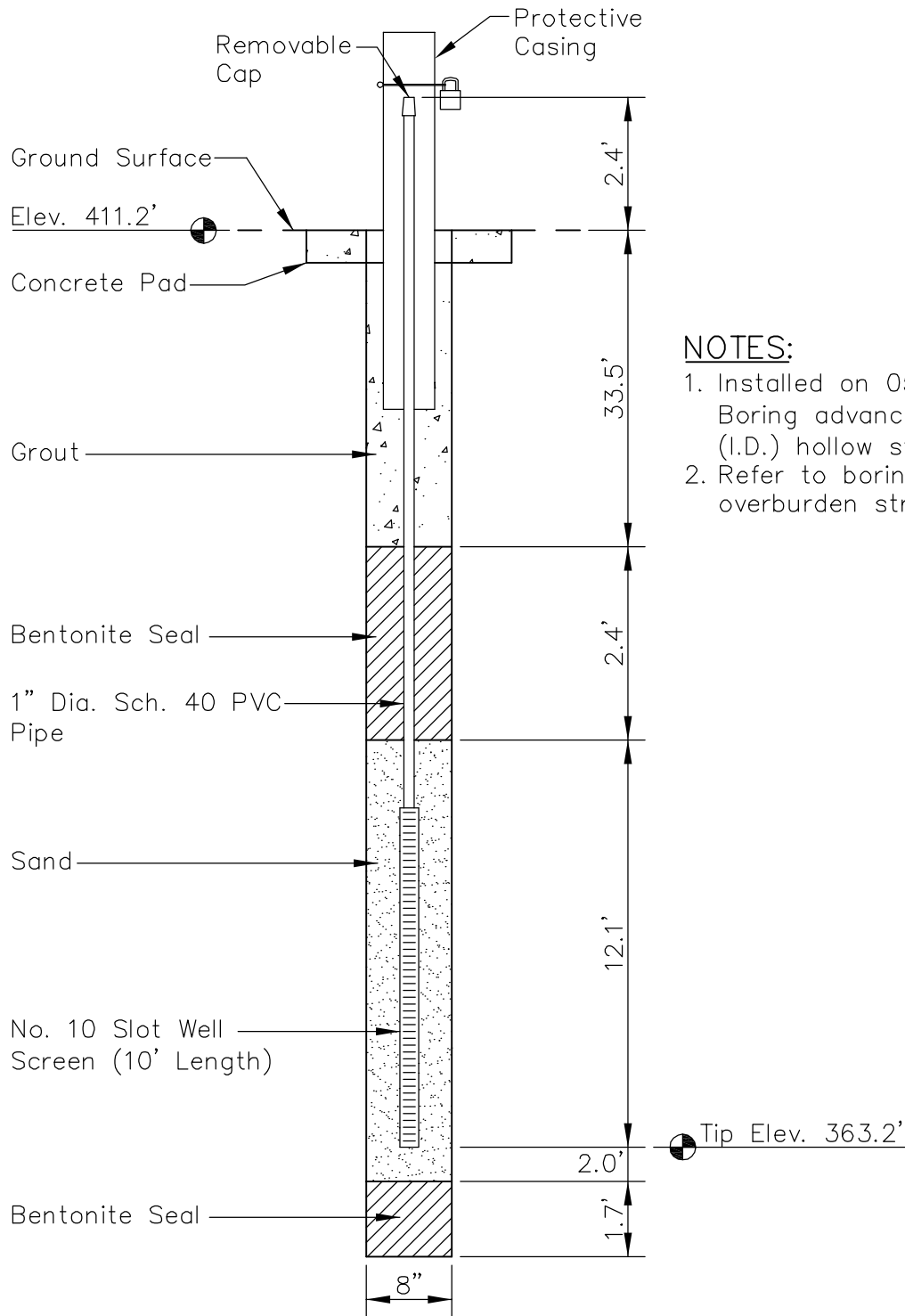


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DRAWN BY	CW	DATE	OCT., 2009	REVISED		SHEET 1 OF 1
CHECKED BY	DBR	PROJ. NO.	175539009	1.	3.	
CHECKED BY	SAH	SCALE	NTS	2.	4.	



NOTES:

1. Installed on 05/17/2009. Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

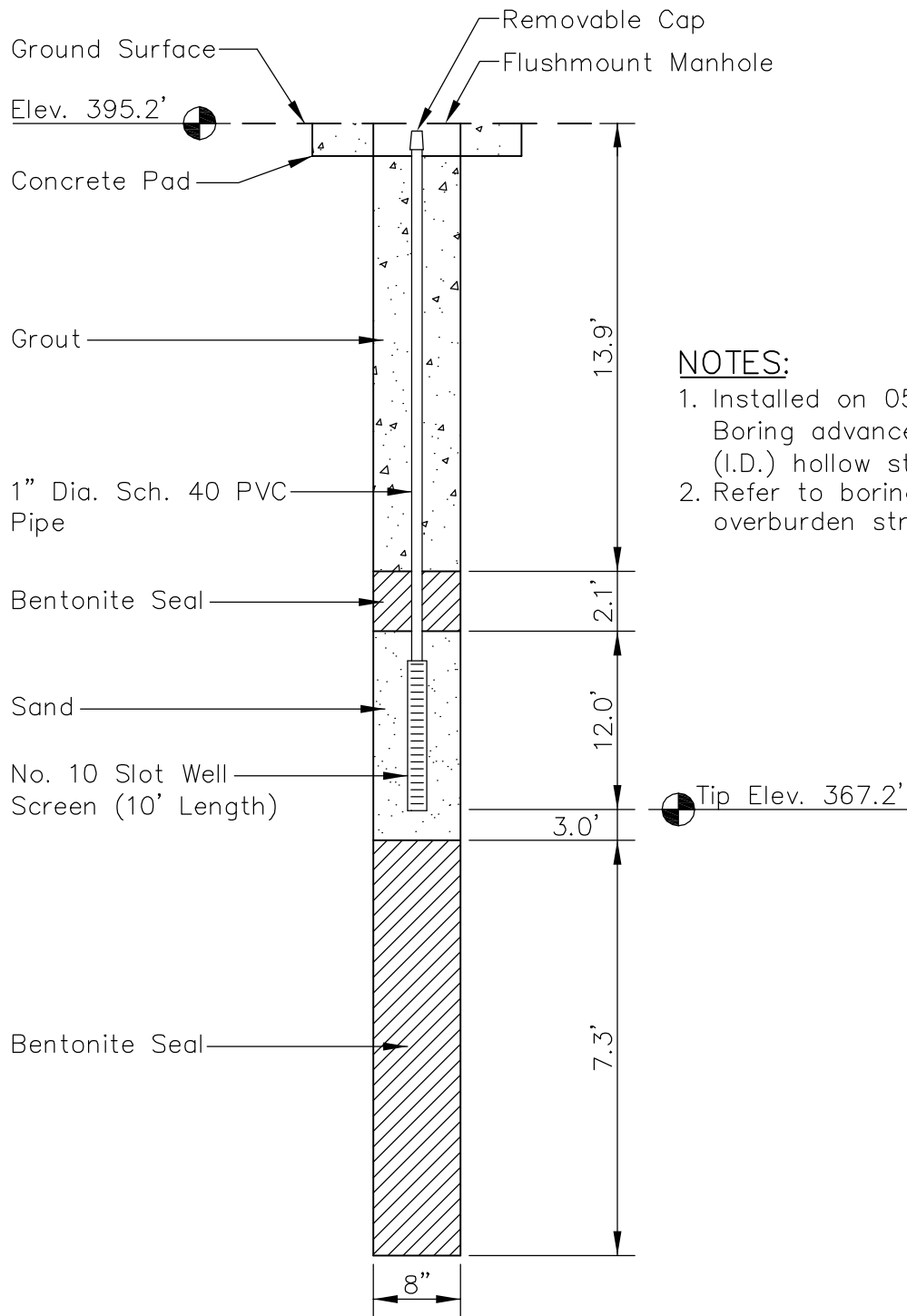
LOCATION:

Northing: 728,879.61
 Easting: 1,513,930.45
 Ground Elevation: 411.2'

Locations to be provided by TVA, Power Systems Operations, Surveying and Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

PIEZOMETER STN-36 DRY FLY ASH STACK CUMBERLAND FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 11687 Lebanon Rd. Cincinnati, Ohio 45241-2012 513-842-8200 www.stantec.com	
DRAWN BY	CW	DATE	OCT., 2009
CHECKED BY	DBR	PROJ. NO.	175539009
CHECKED BY	SAH	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 10/07/2009 USER: WITHERS, CHEYENNE V: 1755\ACTIVE\175539009\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39009B-CUF-301-PZ36.DWG



NOTES:

1. Installed on 05/17/2009. Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 728,853.00
 Easting: 1,514,022.47
 Ground Elevation: 395.2'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.

Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-37
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**

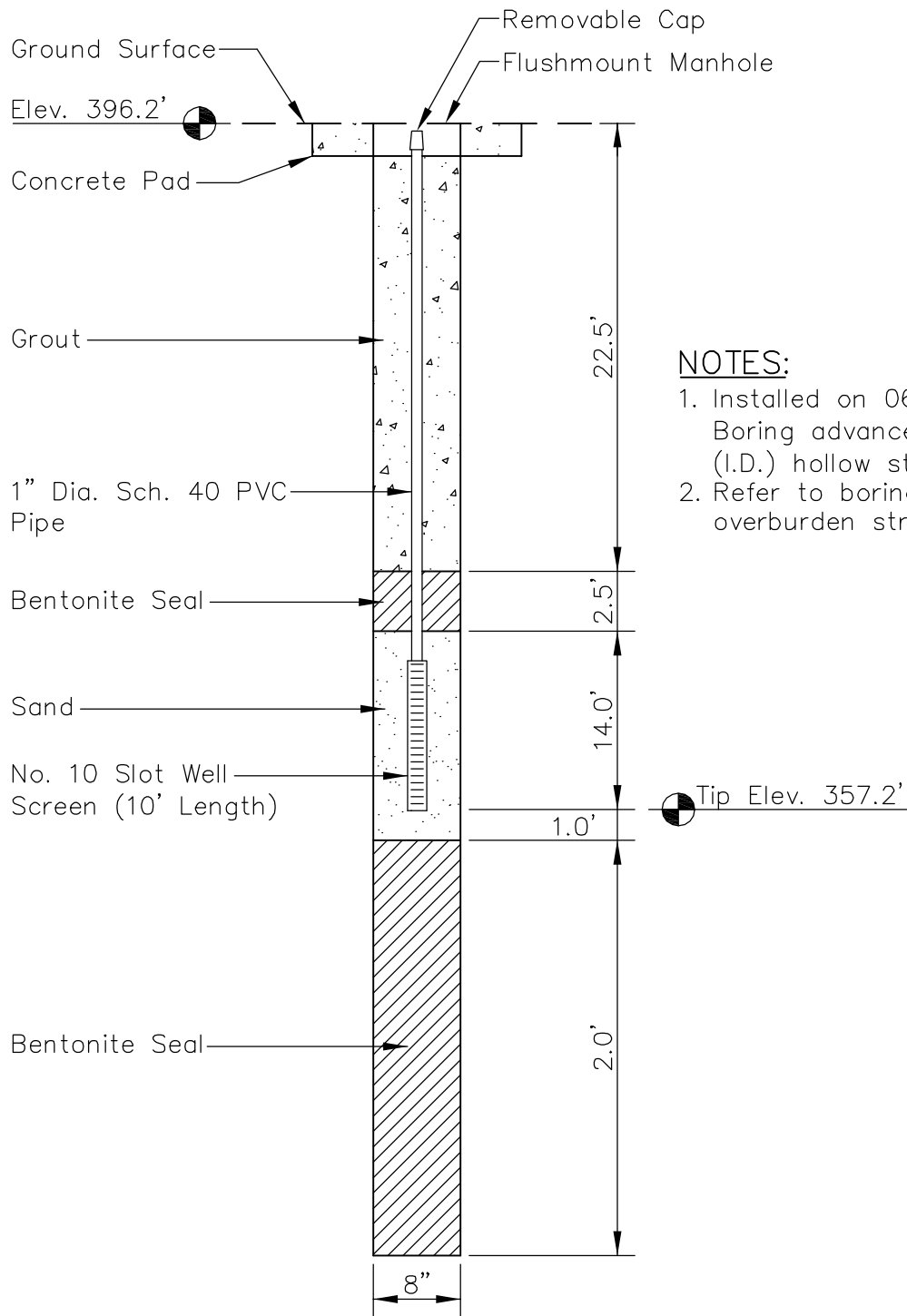


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CHECKED BY	DBR	PROJ. NO.	175539009	1.	3.	
CHECKED BY	SAH	SCALE	NTS	2.	4.	



NOTES:

1. Installed on 06/14/2009. Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 730,342.74
 Easting: 1,512,760.25
 Ground Elevation: 396.2'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.

Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-42
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**

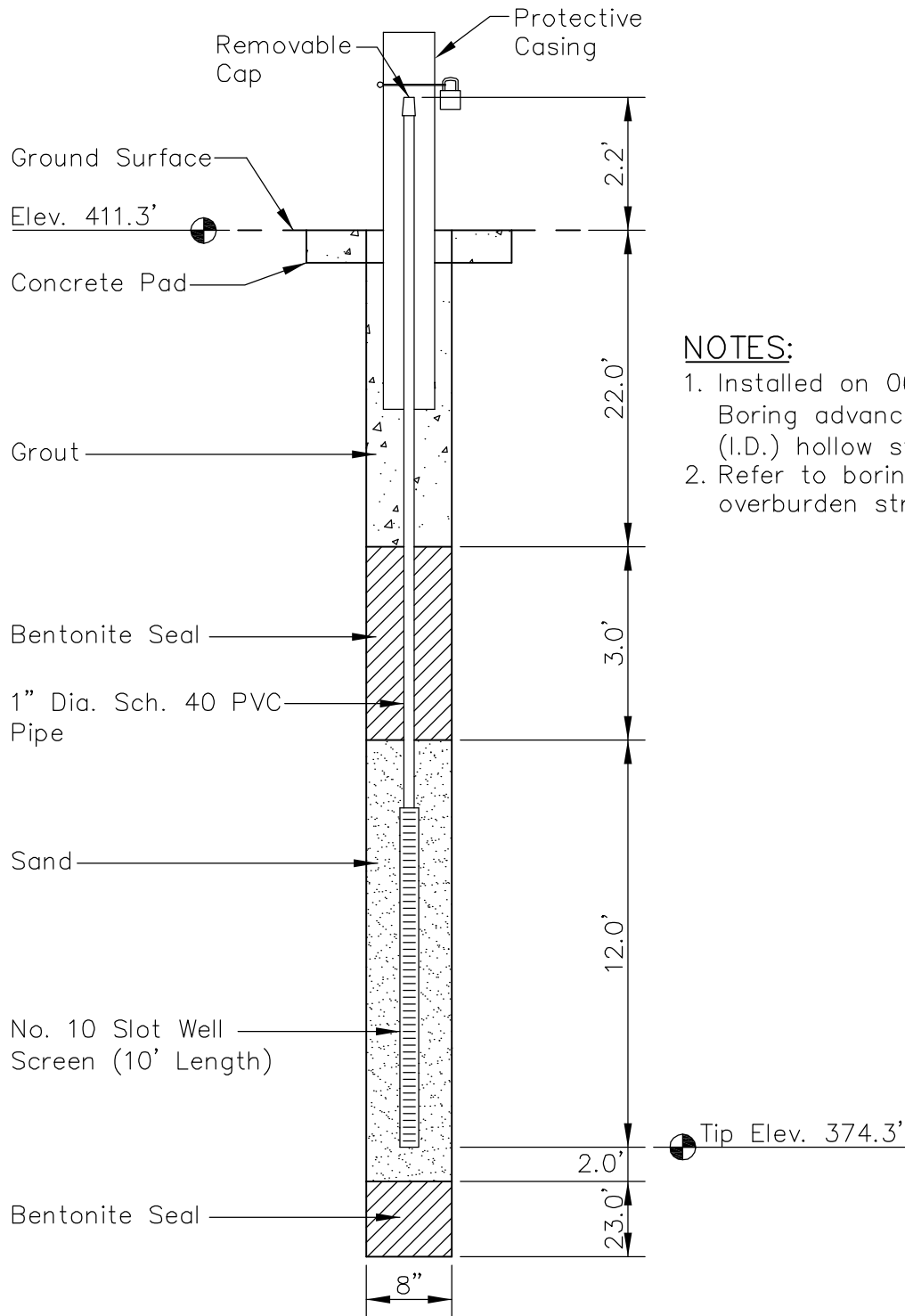


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CHECKED BY	DBR	PROJ. NO.	175539009	1.	3.	
CHECKED BY	SAH	SCALE	NTS	2.	4.	



NOTES:

1. Installed on 06/16/2009. Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

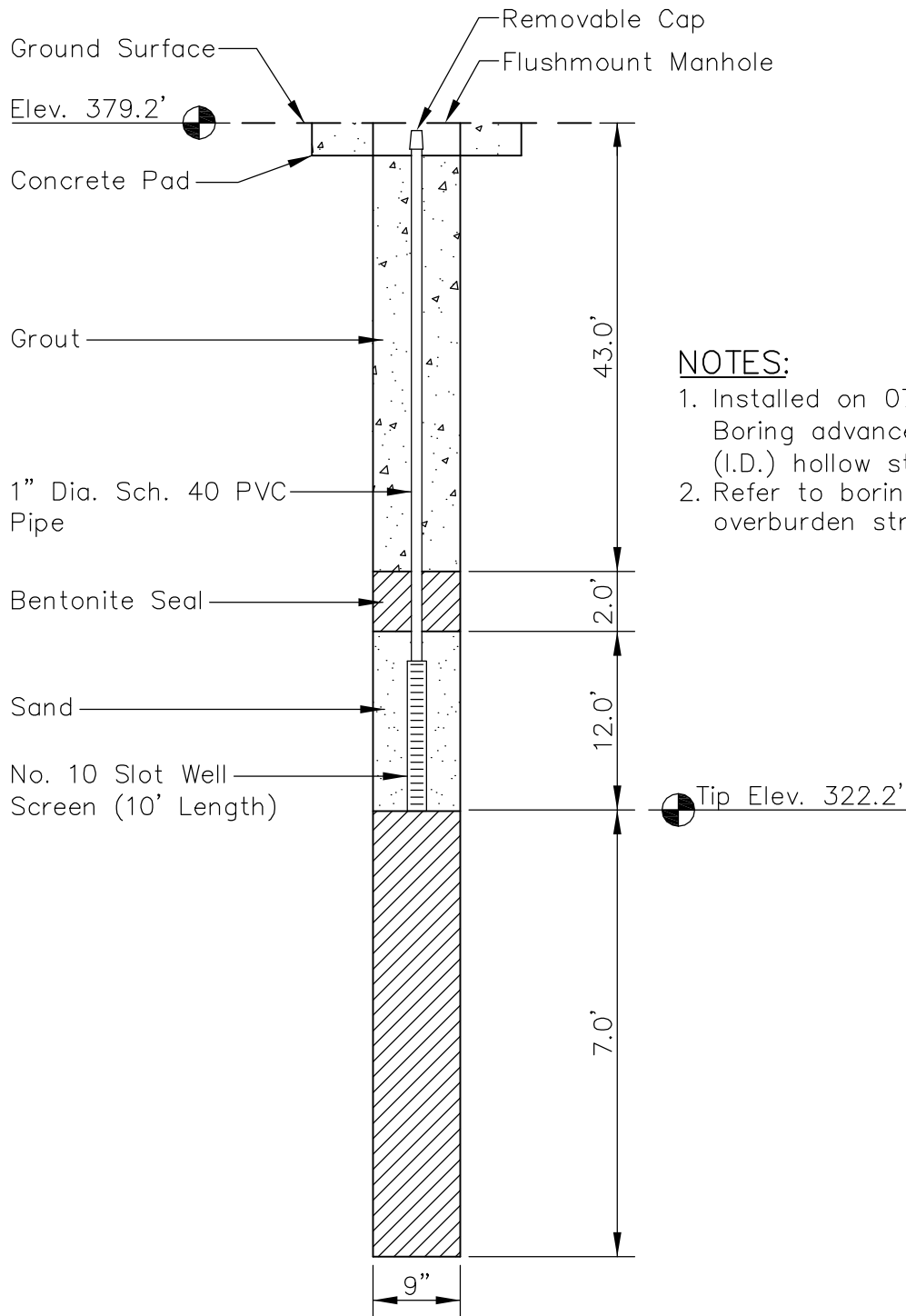
LOCATION:

Northing: 730,394.20
 Easting: 1,512,495.22
 Ground Elevation: 411.3'

Locations to be provided by TVA, Power Systems Operations, Surveying and Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

PIEZOMETER STN-43 DRY FLY ASH STACK CUMBERLAND FOSSIL PLANT			
Stantec		Stantec Consulting Services Inc. 11687 Lebanon Rd. Cincinnati, Ohio 45241-2012 513-842-8200 www.stantec.com	
DRAWN BY	CW	DATE	OCT., 2009
CHECKED BY	DBR	PROJ. NO.	175539009
CHECKED BY	SAH	SCALE	NTS
		REVISED	SHEET
		1.	3.
		2.	4.
			1 OF 1

PLOT DATE: 10/12/2009 USER: WITHERS, CHEYENNE V: 1755\ACTIVE\175539009\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39009B-CUF-301-PZ43.DWG



NOTES:

1. Installed on 07/22/2009. Boring advanced with 4.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 732,928.84
 Easting: 1,509,696.68
 Ground Elevation: 379.2'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-49
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**



Stantec

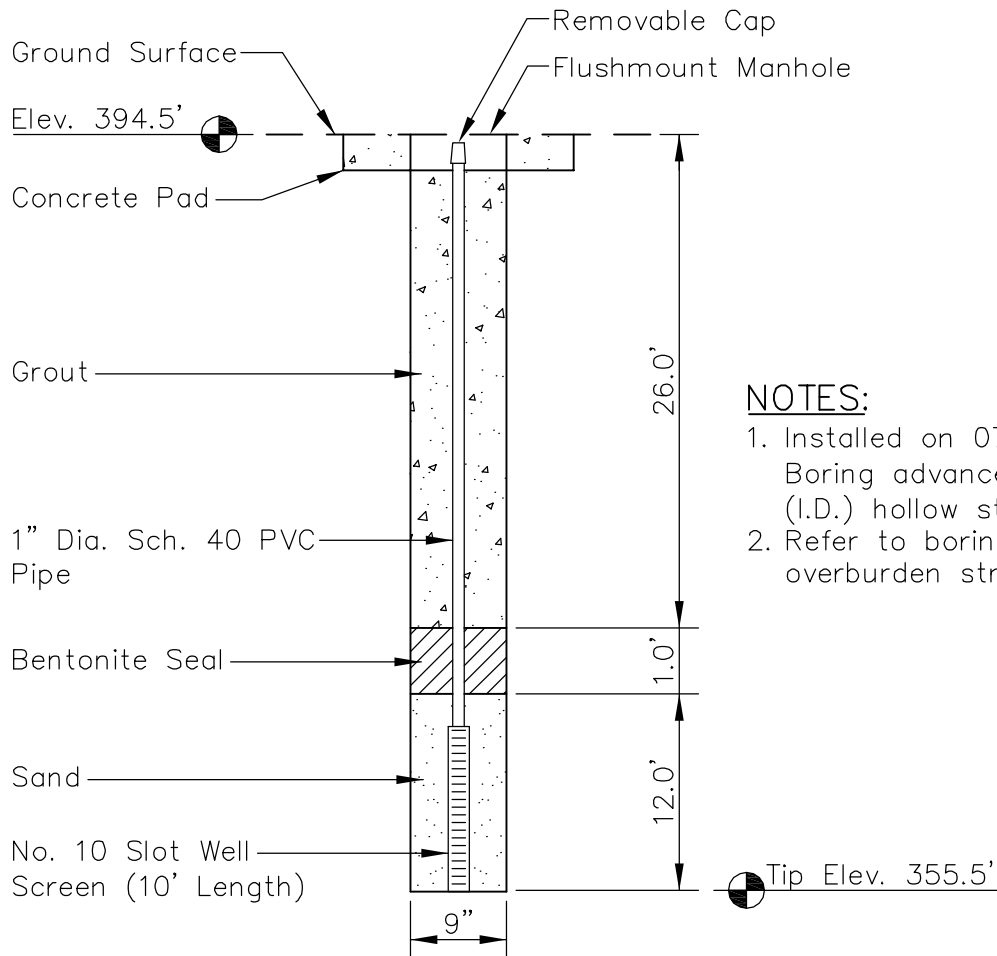
**Stantec Consulting
 Services Inc.**
 11687 Lebanon Rd.
 Cincinnati, Ohio
 45241-2012
 513-842-8200

www.stantec.com

DRAWN BY	MJ	DATE	JAN., 2010	REVISED		SHEET
CHECKED BY	DBR	PROJ. NO.	175539016	1.	3.	
CHECKED BY	SAH	SCALE	NTS	2.	4.	

1 OF 1

PLOT DATE: 01/12/2010 USER: JENNINGS, MATTHEW
 V: \\1755\ACTIVE\175539016\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39016B-CUF-3XX-P749.DWG



NOTES:

1. Installed on 07/28/2009.
Boring advanced with 4.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 732,875.32
 Easting: 1,509,728.33
 Ground Elevation: 394.5'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.

Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-50B
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**



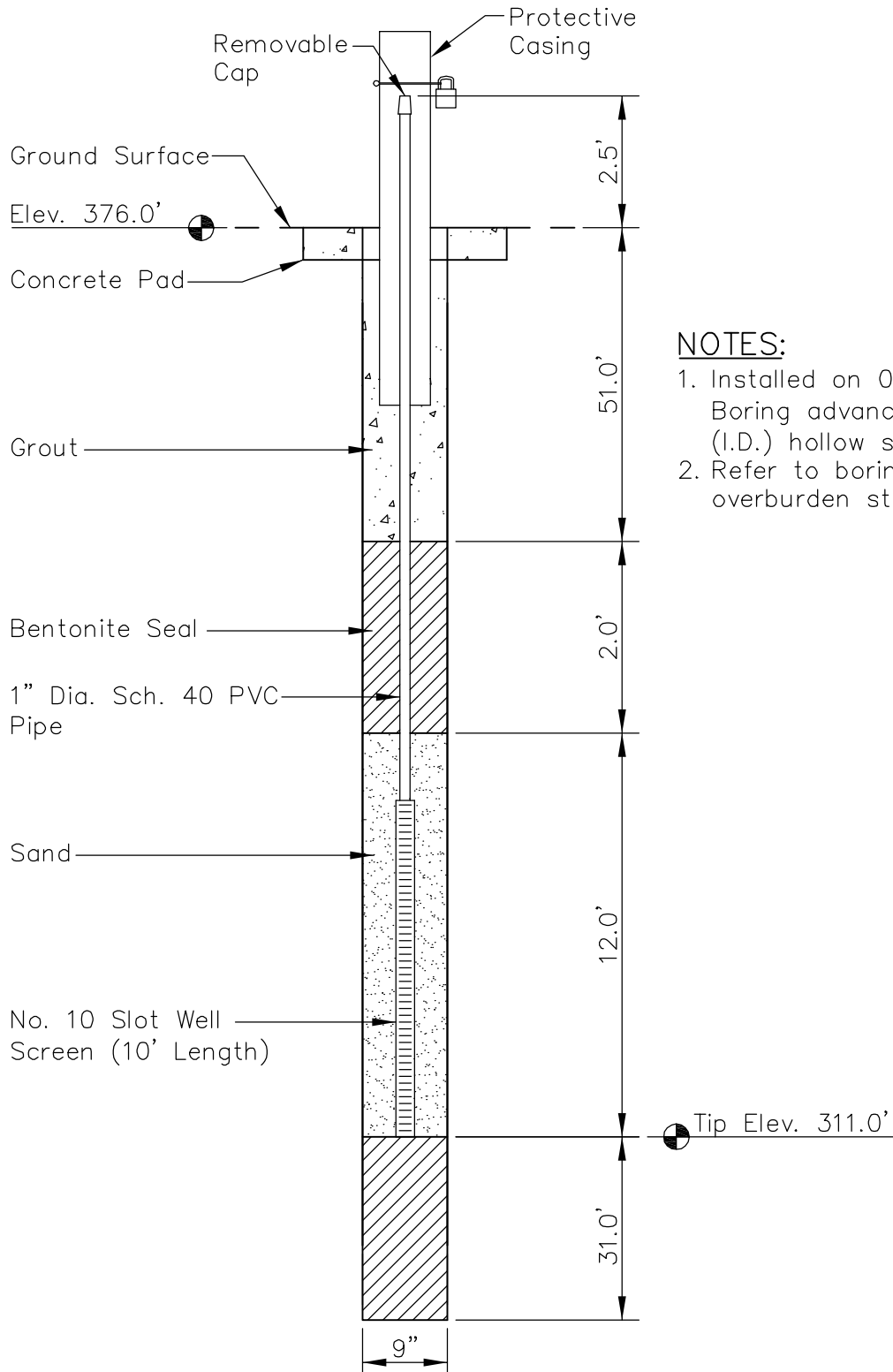
Stantec

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 Cincinnati, Ohio
 45241-2012
 513-842-8200

www.stantec.com

DRAWN BY	MJ	DATE	JAN., 2010	REVISED		SHEET
CHECKED BY	DBR	PROJ. NO.	175539016	1.	3.	1 OF 1
CHECKED BY	SAH	SCALE	NTS	2.	4.	

PLOT DATE: 01/12/2010 USER: JENNINGS, MATTHEW
 V: \\1755\ACTIVE\175539016\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39016B-CUF-3XX-P250B.DWG



NOTES:

1. Installed on 07/24/2009. Boring advanced with 4.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 733,456.66
 Easting: 1,510,307.93
 Ground Elevation: 376.0'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-53A
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**



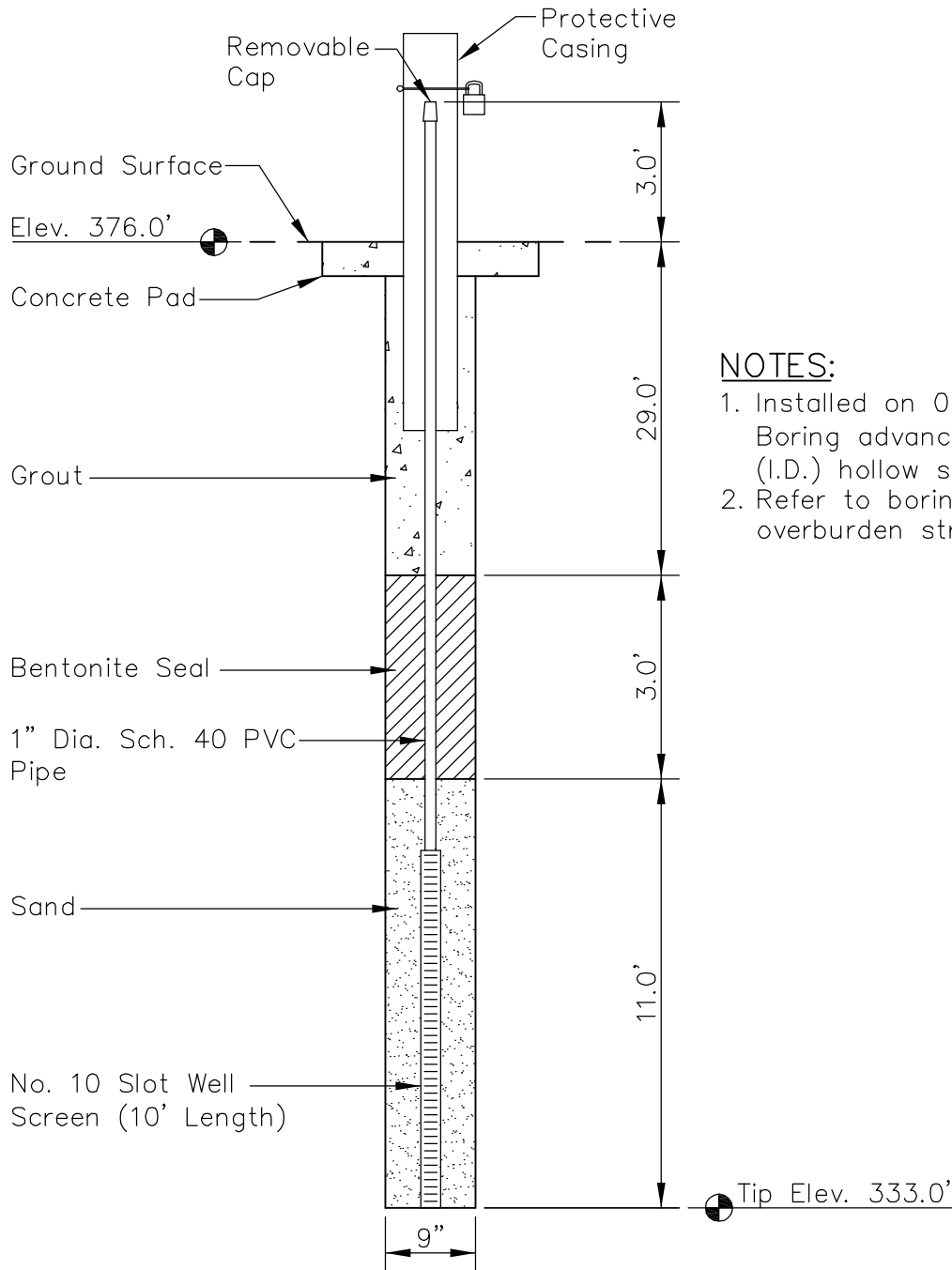
Stantec

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 Cincinnati, Ohio
 45241-2012
 513-842-8200

www.stantec.com

DRAWN BY	CW	DATE	JAN., 2010	REVISED		SHEET
CHECKED BY	DBR	PROJ. NO.	175539016	1.	3.	
CHECKED BY	SAH	SCALE	NTS	2.	4.	

1 OF 1



NOTES:

1. Installed on 07/24/2009. Boring advanced with 4.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 733,450.68
 Easting: 1,510,313.25
 Ground Elevation: 376.0'

Locations to be provided by TVA, Power Systems Operations, Surveying and Project Services.

Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-53B
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**

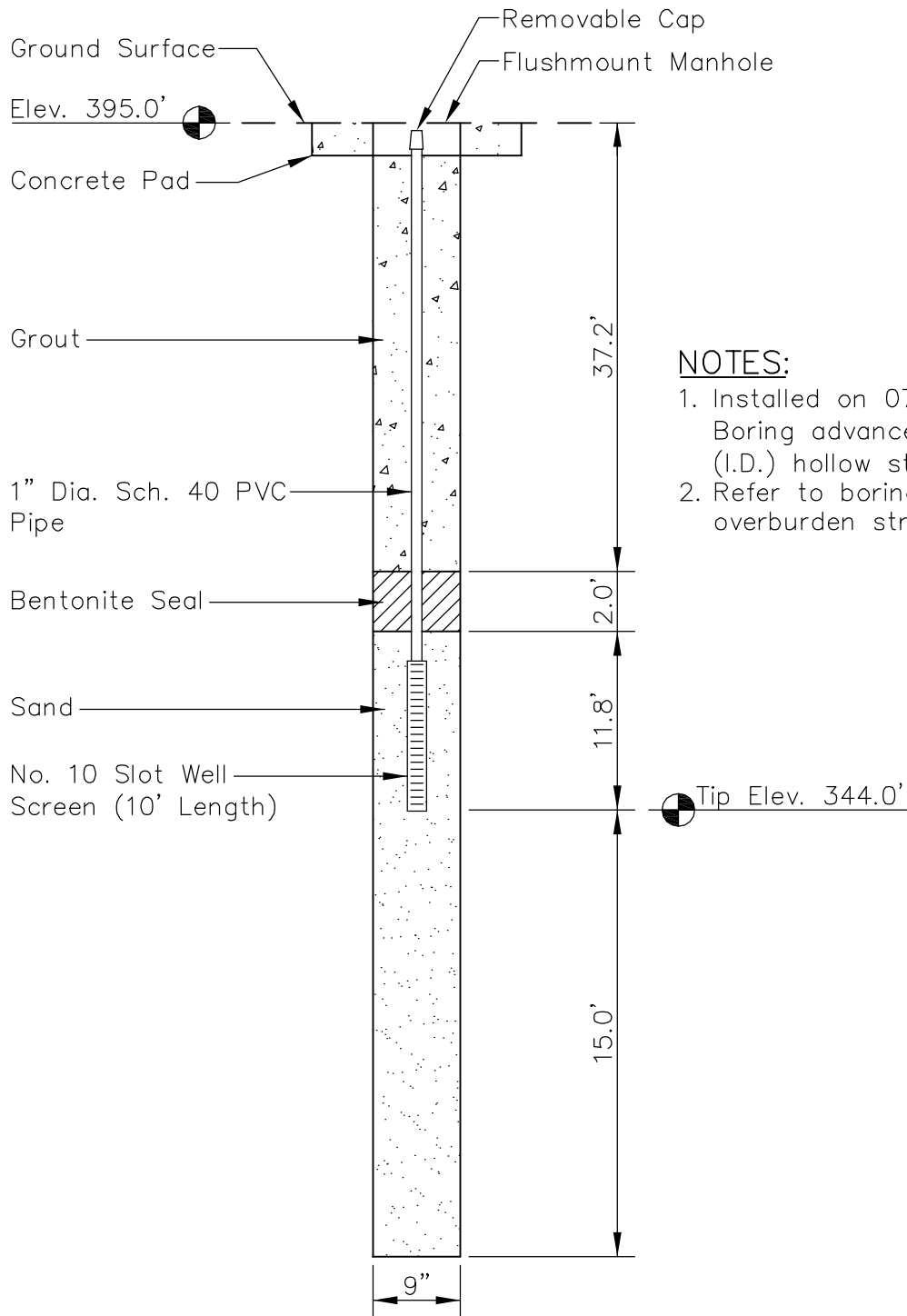


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 513-842-8200

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DRAWN BY MJ	DATE JAN., 2010	REVISED		SHEET
CHECKED BY DBR	PROJ. NO. 175539016	1.	3.	1 OF 1
CHECKED BY SAH	SCALE NTS	2.	4.	



NOTES:

1. Installed on 07/29/2009. Boring advanced with 4.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 733,417.30
 Easting: 1,510,371.66
 Ground Elevation: 395.0'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.

Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-54A
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**



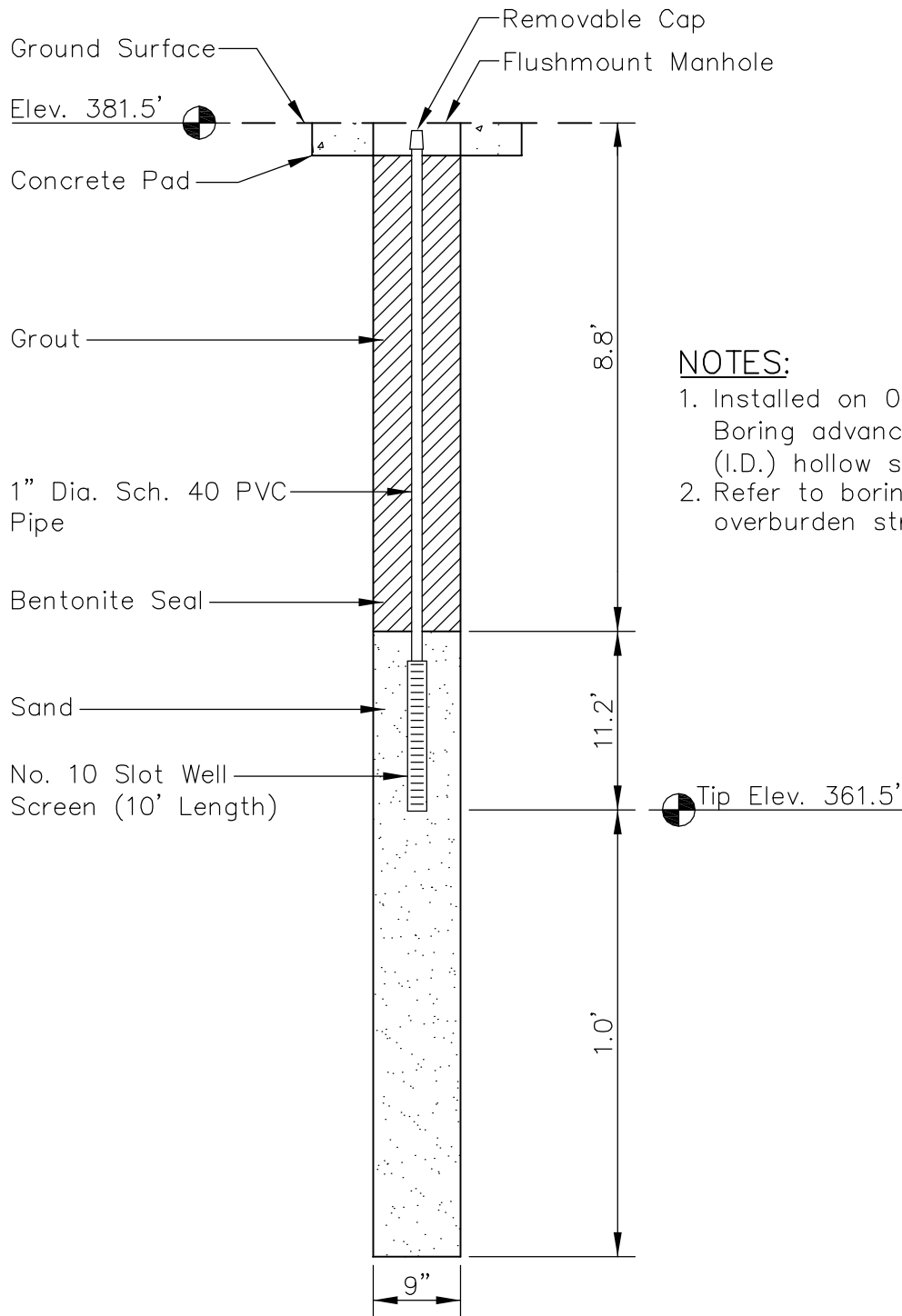
Stantec

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 Cincinnati, Ohio
 45241-2012
 513-842-8200

www.stantec.com

DRAWN BY	MJ	DATE	JAN., 2010	REVISED		SHEET
CHECKED BY	DBR	PROJ. NO.	175539016	1.	3.	1 OF 1
CHECKED BY	SAH	SCALE	NTS	2.	4.	

PLOT DATE: 01/12/2010 USER: JENNINGS, MATTHEW
 V: \\1755\ACTIVE\175539016\GEO\TECHNICAL\DRAWING\GEO\TECH\INSTRUMENTS\39016B-CUF-3XX-PZ54A.DWG



NOTES:

1. Installed on 08/06/2009. Boring advanced with 4.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 733,368.89
 Easting: 1,511,362.59
 Ground Elevation: 381.5'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-57A
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**



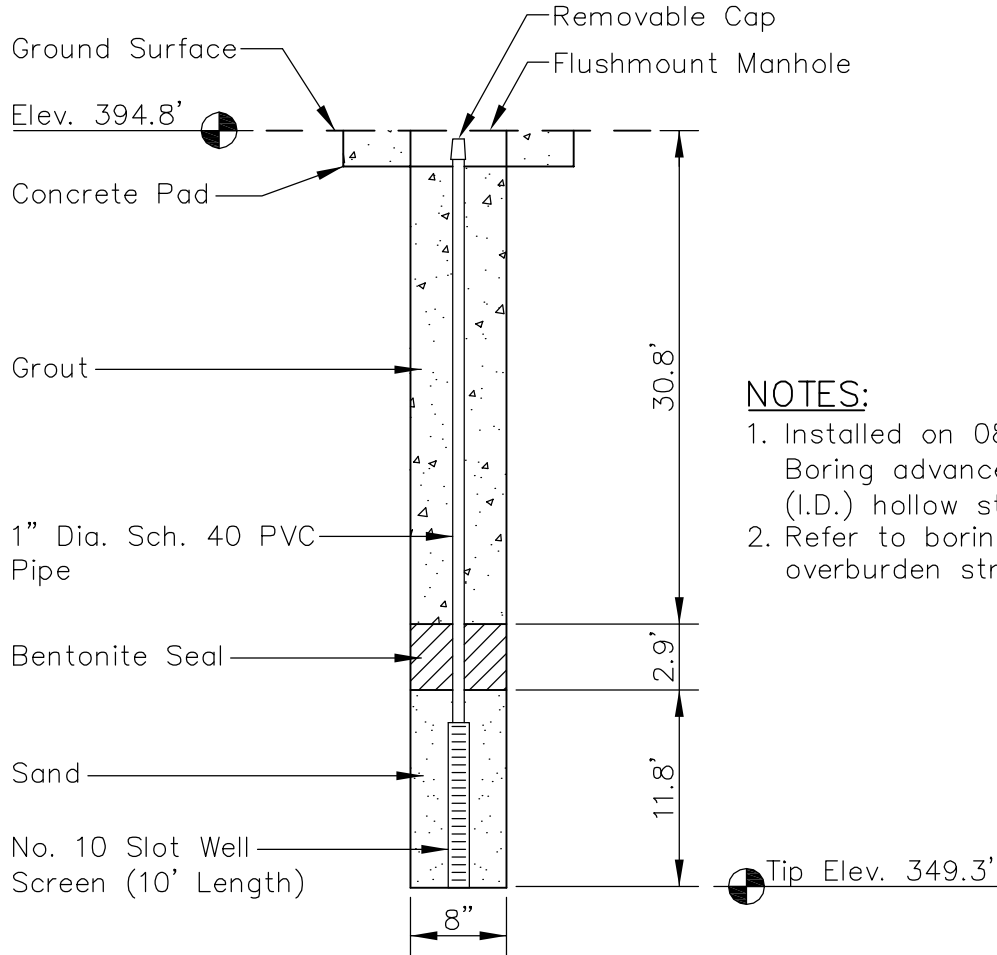
Stantec

**Stantec Consulting
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 11687 Lebanon Rd.
 Cincinnati, Ohio
 45241-2012
 513-842-8200

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DRAWN BY	MJ	DATE	JAN., 2010	REVISED		SHEET
CHECKED BY	DBR	PROJ. NO.	175539016	1.	3.	
CHECKED BY	SAH	SCALE	NTS	2.	4.	

1 OF 1



NOTES:

1. Installed on 08/04/2009. Boring advanced with 3.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden stratigraphy.

LOCATION:

Northing: 733,308.70
 Easting: 1,511,311.51
 Ground Elevation: 394.8'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.

Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**PIEZOMETER STN-58A
 DRY FLY ASH STACK
 CUMBERLAND FOSSIL PLANT**



Stantec

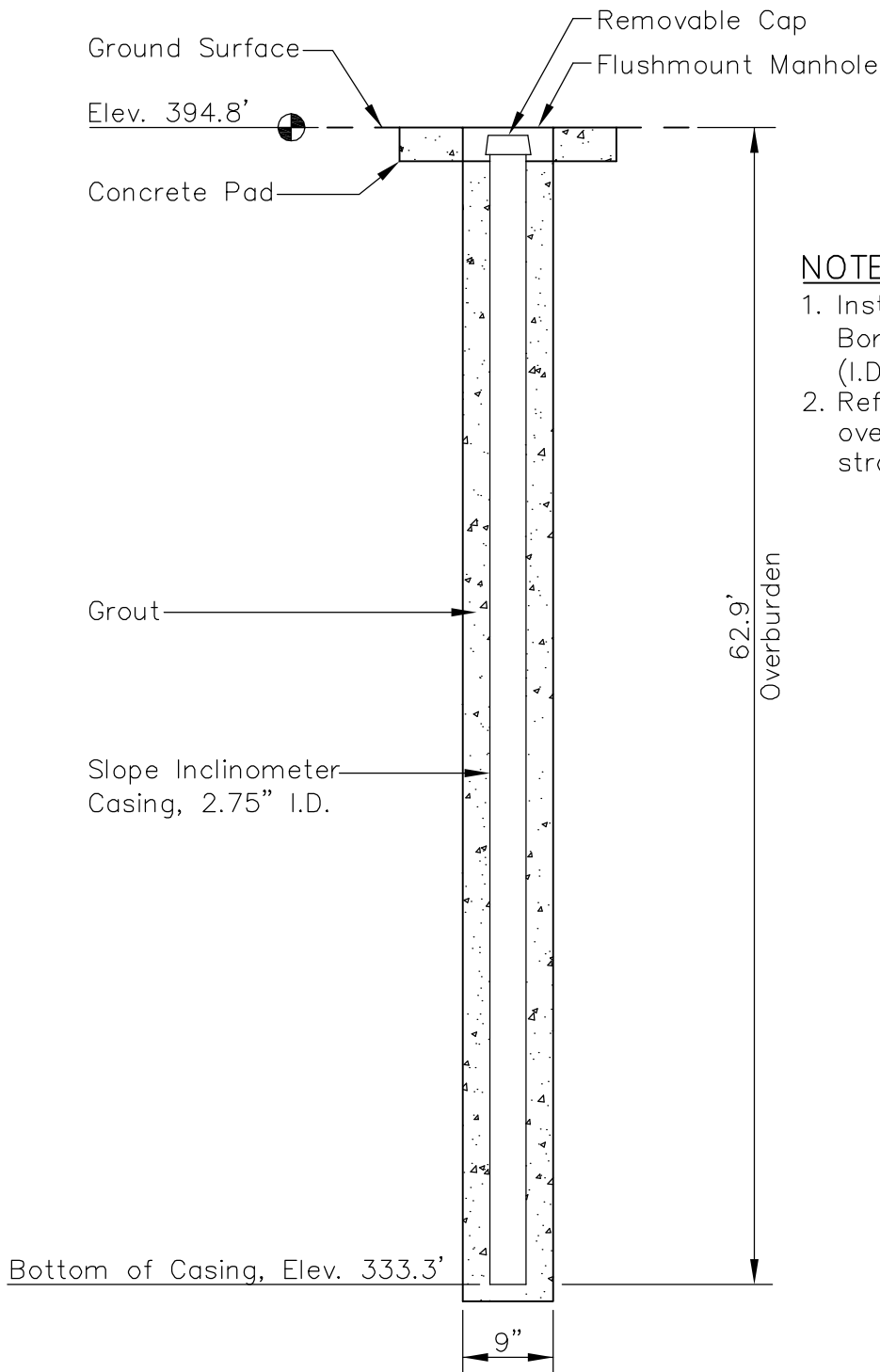
**Stantec Consulting
 Services Inc.**
 11687 Lebanon Rd.
 Cincinnati, Ohio
 45241-2012
 513-842-8200

www.stantec.com

DRAWN BY	MJ	DATE	JAN., 2010	REVISED	
CHECKED BY	DBR	PROJ. NO.	175539016	1.	3.
CHECKED BY	SAH	SCALE	NTS	2.	4.

SHEET

1 OF 1



NOTES:

1. Installed on 07/28/2009. Boring advanced with 4.25" (I.D.) hollow stem augers.
2. Refer to boring log for overburden and rock stratigraphy.

LOCATION:

Northing: 733,305.89
 Easting: 1,511,314.36
 Ground Elevation: 394.8'

Locations to be provided by
 TVA, Power Systems
 Operations, Surveying and
 Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

SLOPE INCLINOMETER STN-58
DRY FLY ASH STACK
CUMBERLAND FOSSIL PLANT

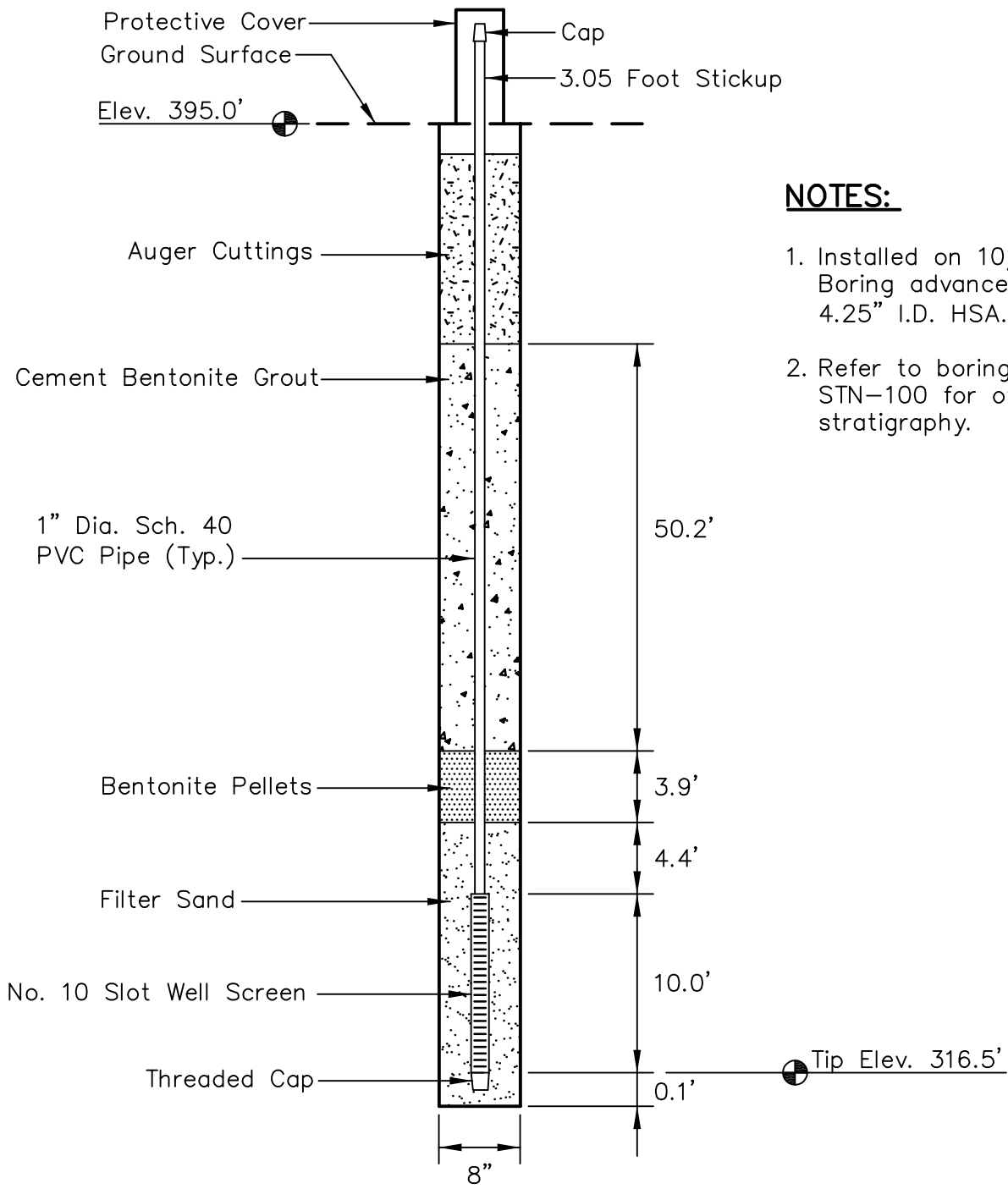


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 Cincinnati, Ohio
 45241-2012
 513-842-8200

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DRAWN BY	MJ	DATE	JAN., 2010	REVISED		SHEET
CHECKED BY	DBR	PROJ. NO.	175539016	1.	3.	1 OF 1
CHECKED BY	SAH	SCALE	NTS	2.	4.	



NOTES:

1. Installed on 10/08/12. Boring advanced with 4.25" I.D. HSA.
2. Refer to boring log STN-100 for overburden stratigraphy.

PLOT DATE: 11/05/2012 USER: PETTY, RICHARD V: 1755\ACTIVE\17552005\GEO\TECHNICAL\DRAWING\SHEET_FILES\59035PZ-STN-100.DWG

LOCATION

Northing: 732,555.67
 Easting: 1,509,526.03
 Ground Elevation: 395.0'

Locations provided by TVA,
 Power Systems Operations,
 Surveying and Project Services.
 Horizontal Datum: NAD 27
 Vertical Datum: NGVD29

**STN-100
PIEZOMETER INSTALLATION DETAIL
CUMBERLAND FOSSIL PLANT
ASH POND**

Stantec Consulting Services Inc.
 1901 Nelson Miller Parkway
 Louisville, Kentucky
 40223-2177
 502-212-5000
www.stantec.com

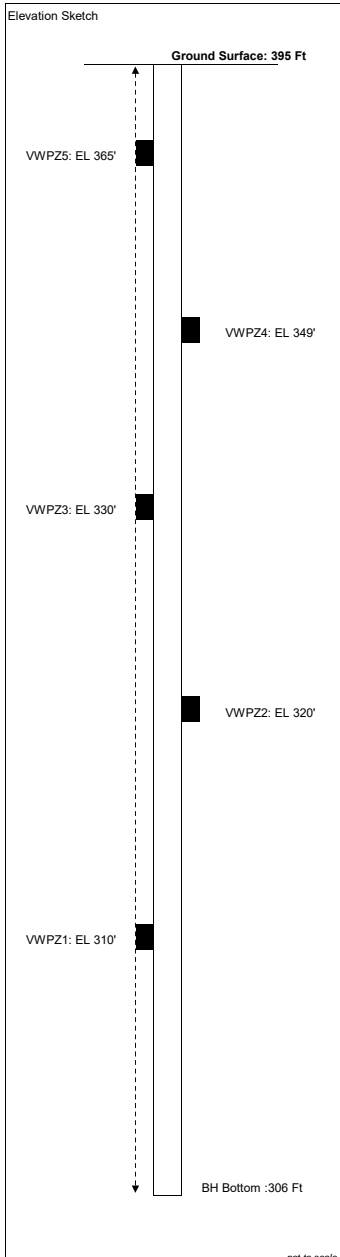
DRAWN BY	RRP	DATE	OCT. 2012	REVISED	
CHECKED BY	JRC	PROJ. NO.	17552005	1.	3.
CHECKED BY	NAB	SCALE	NTS	2.	4.

1 OF 2

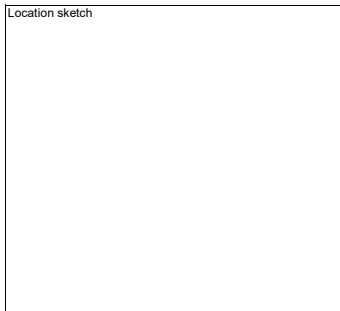
Project Name: Cumberland Seismic Assessment
CUF-R-2B Vibrating Wire Piezometer Installation Sheet

Installation Start Date 12/6/2015
 Installation Finish Date 12/6/2015
 Weather Sunny 50F
 Installed by Matthew Chance
 Supervised by Justin Robichaud

Easting 733226.6
 Northing 1510124.38
 Grnd Elev. 395 ft PD
 Grout mix Cement/Bentonite



Note: PD = Project Datum, bgl = below ground level, cf = cubic feet



Geology

Planned Installation

	VWPZ#1	VWPZ#2	VWPZ#3	
BH bottom (depth)	100	100	100	ft bgl
BH bottom (elev. PD)	295	295	295	ft PD
Piezometer Tip (depth)				ft

Actual Installation

BH bottom (depth)	89	89	89	ft bgl
BH bottom (elev. PD)	306	306	306	ft PD
Piezometer Tip (depth)	85	75	65	ft

Installation Details

Tip Elevation	310.0	320.0	330.0	ft PD
VWPZ Model	Geokon 4500S	Geokon 4500S	Geokon 4500S	
Serial	1534828	1534830	4534841	
VWPZ wire length	130	130	90	ft
VWPZ body length	5.25	5.25	5.25	in
Calibration Factor	-0.01677	-0.01572	-0.01702	(psi/digit)
Thermal Factor	-0.006657	-0.01281	0.00164	(psi/°C)
Zero Reading	8807.6	8814.5	8741.5	Digits
Zero Temperature	17.9	18.5	18.8	deg C

Planned Installation

	VWPZ#4	VWPZ#5	
BH bottom (depth)	100	100	ft bgl
BH bottom (elev. PD)	295	295	ft PD
Piezometer Tip (depth)			ft

Actual Installation

BH bottom (depth)	89	89	ft bgl
BH bottom (elev. PD)	306	306	ft PD
Piezometer Tip (depth)	46	30	ft

Installation Details

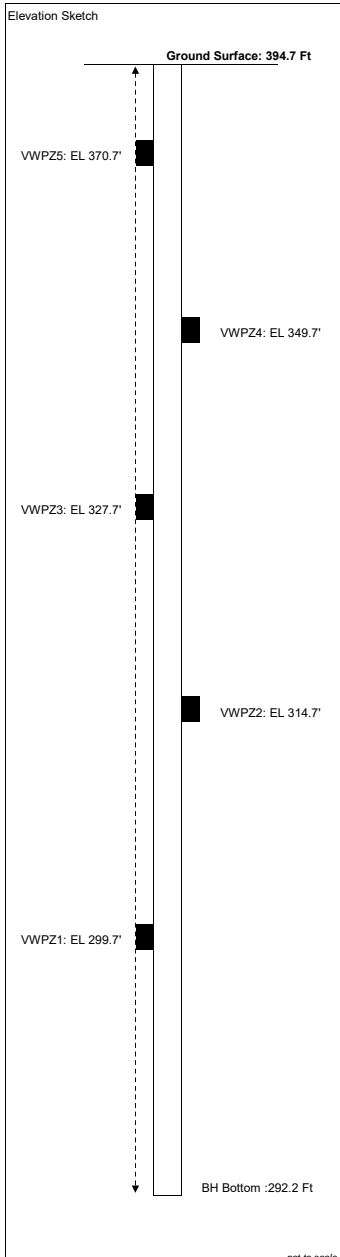
Tip Elevation	349.0	365.0	ft PD
VWPZ Model	Geokon 4500S	Geokon 4500S	
Serial	1534842	1527895	
VWPZ wire length	90	75	ft
VWPZ body length	5.25	5.25	in
Calibration Factor	-0.01564	-0.01683	(psi/digit)
Thermal Factor	-0.003874	-0.007211	(psi/°C)
Zero Reading	8813.7	8536.5	Digits
Zero Temperature	17.7	16.9	deg C

Notes Boring terminated at 89 feet bgl.

**Project Name: Cumberland Seismic Assessment
CUF-S-2A Vibrating Wire Piezometer Installation Sheet**

Installation Start Date 12/9/2015
 Installation Finish Date 12/9/2015
 Weather Sunny 50F
 Installed by Matthew Chance
 Supervised by Justin Robichaud

Easting 733481.65
 Northing 1510452.3
 Grnd Elev. 394.7 ft PD
 Grout mix Cement/Bentonite



Geology

Planned Installation

	VWPZ#1	VWPZ#2	VWPZ#3	
BH bottom (depth)	100	100	100	ft bgl
BH bottom (elev. PD)	294.7	294.7	294.7	ft PD
Piezometer Tip (depth)				ft

Actual Installation

BH bottom (depth)	102.5	102.5	102.5	ft bgl
BH bottom (elev. PD)	292.2	292.2	292.2	ft PD
Piezometer Tip (depth)	95	80	67	ft

Installation Details

	VWPZ#1	VWPZ#2	VWPZ#3	
Tip Elevation	299.7	314.7	327.7	ft PD
VWPZ Model	Geokon 4500S	Geokon 4500S	Geokon 4500S	
Serial	1534831	1534829	1534840	
VWPZ wire length	130	130	105	ft
VWPZ body length	5.25	5.25	5.25	in
Calibration Factor	-0.01563	-0.01653	-0.0154	(psi/digit)
Thermal Factor	-0.006476	0.000059	-0.003649	(psi/°C)
Zero Reading	8842.5	8822.8	8867.9	Digits
Zero Temperature	15.3	17	16.9	deg C

Planned Installation

	VWPZ#4	VWPZ#5	
BH bottom (depth)	100	100	ft bgl
BH bottom (elev. PD)	294.7	294.7	ft PD
Piezometer Tip (depth)			ft

Actual Installation

BH bottom (depth)	102.5	102.5	ft bgl
BH bottom (elev. PD)	292.2	292.2	ft PD
Piezometer Tip (depth)	45	24	ft

Installation Details

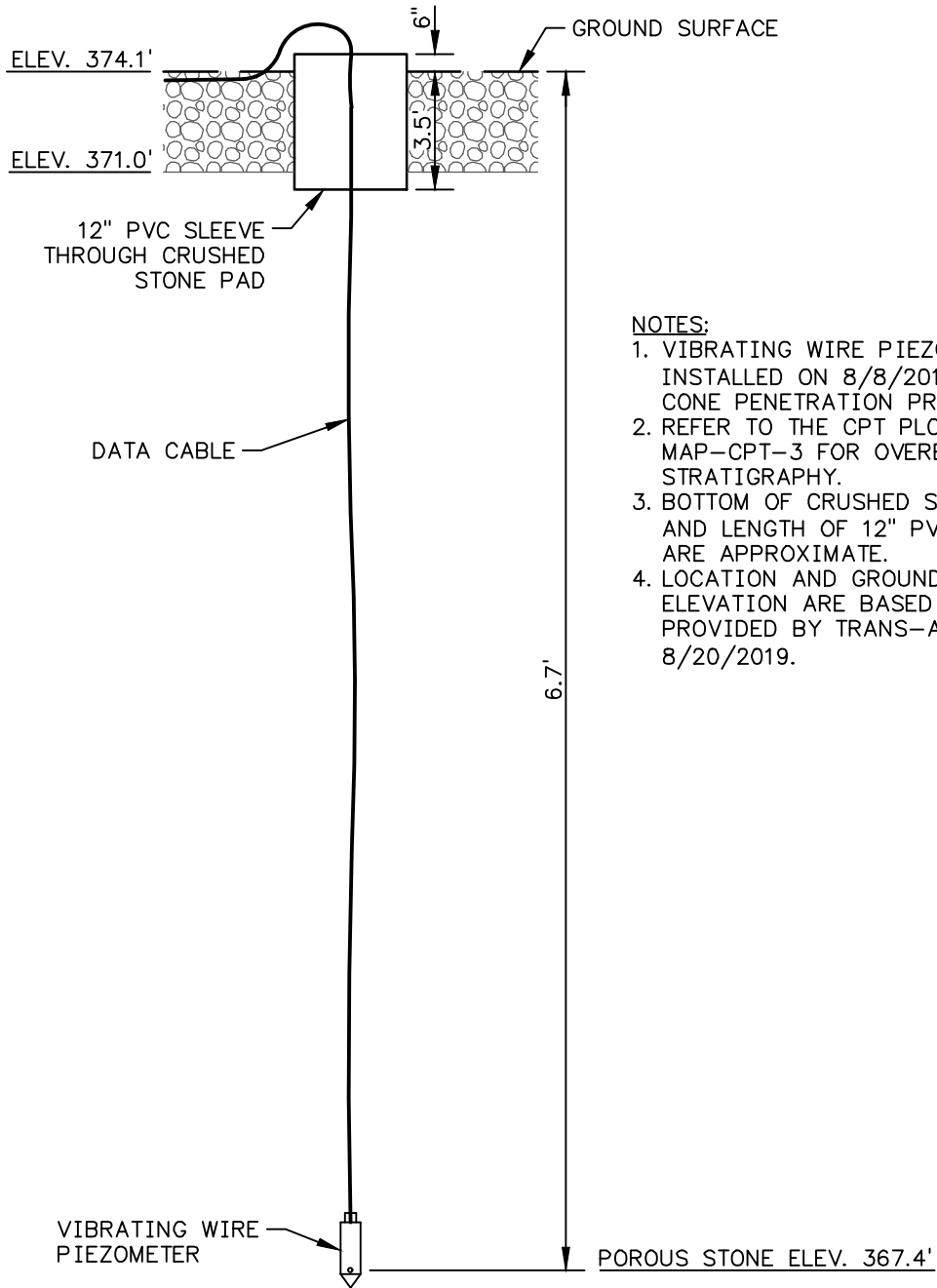
	VWPZ#4	VWPZ#5	
Tip Elevation	349.7	370.7	ft PD
VWPZ Model	Geokon 4500S	Geokon 4500S	
Serial	1534837	1534838	
VWPZ wire length	105	105	ft
VWPZ body length	5.25	5.25	in
Calibration Factor	-0.01623	-0.01566	(psi/digit)
Thermal Factor	-0.006309	-0.006844	(psi/°C)
Zero Reading	8760.3	8701.6	Digits
Zero Temperature	15.7	15.6	deg C

Notes: Boring terminated at 102.5 feet bgl.

Note: PD = Project Datum, bgl = below ground level, cf = cubic feet

Location sketch

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/8/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-3 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

LOCATION:

NORTHING: 732,396.14
EASTING: 1,510,808.25

METADATA:

HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.

HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

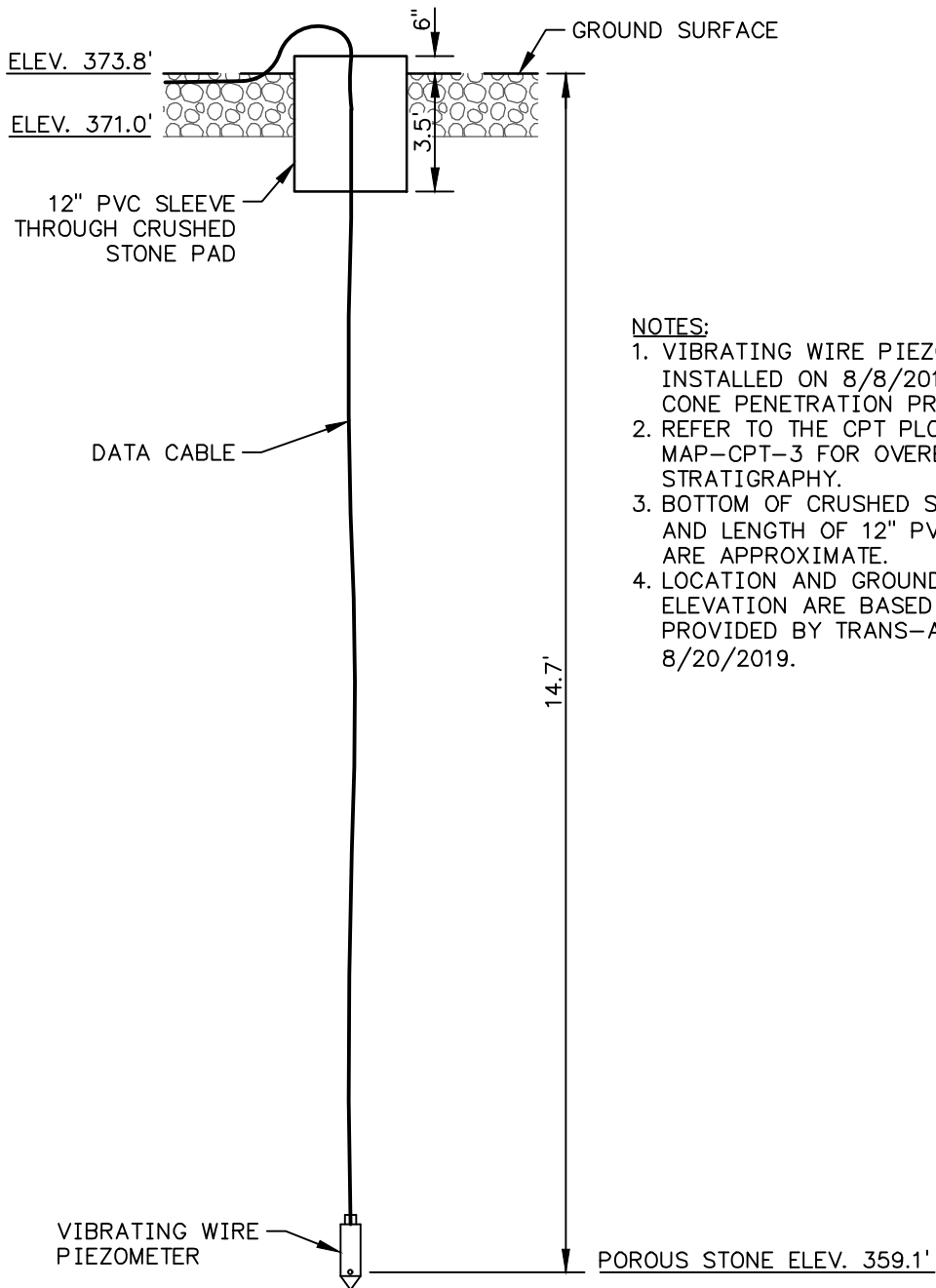
PIEZOMETER TPZ-18A
(S/N: 1841677)
MAIN ASH POND
CUMBERLAND FOSSIL PLANT



Stantec

SCALE:	NTS
DATE:	OCT., 2019
CHECKED BY:	MRB
DRAWN BY:	RRP
PROJECT NO.:	175558055
SHEET	1 OF 1

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/8/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-3 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

PLOT DATE: 10/30/2019 USER: SAMS, BRIAN V:\17558055\TECHNICAL_PRODUCTION\DRAWING\SHEET_DETAILS\TPZ18B.DWG

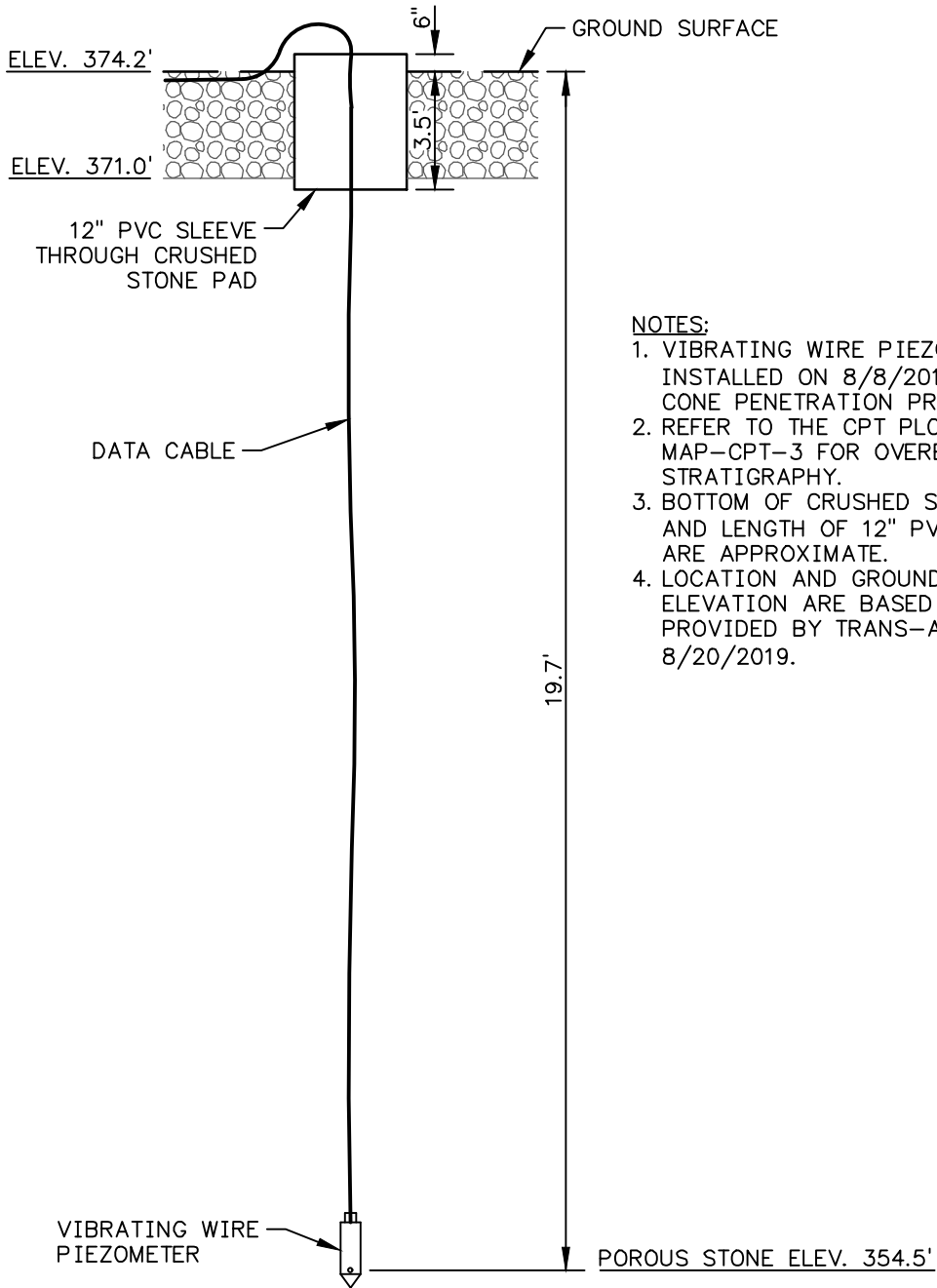
LOCATION:
NORTHING: 732,393.19
EASTING: 1,510,803.04

METADATA:
HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

PIEZOMETER TPZ-18B (S/N: 1841678) MAIN ASH POND CUMBERLAND FOSSIL PLANT	
	SCALE: NTS
	DATE: OCT., 2019
	CHECKED BY: MRB
	DRAWN BY: RRP
	PROJECT NO. 17558055
SHEET 1 OF 1	

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/8/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-3 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

PLOT DATE: 10/11/2019 USER: ELLISON, DOC V:\17558055\TECHNICAL_PRODUCTION\DRAWING\SHEET_DETAILS\TPZ18C.DWG

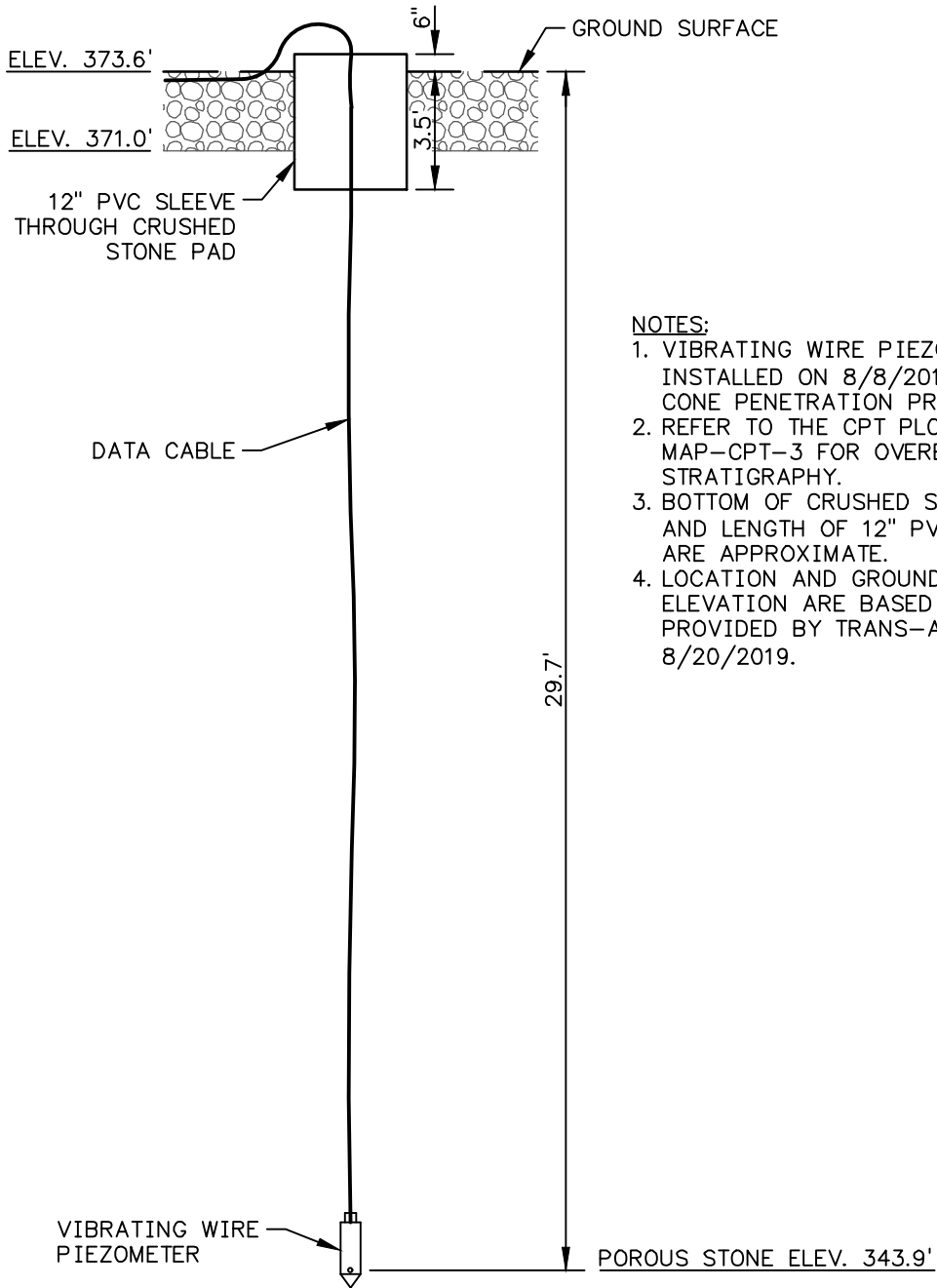
LOCATION:
NORTHING: 732,391.15
EASTING: 1,510,811.17

METADATA:
HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

PIEZOMETER TPZ-18C (S/N: 1841679) MAIN ASH POND CUMBERLAND FOSSIL PLANT	
	SCALE: NTS
	DATE: OCT., 2019
	CHECKED BY: MRB
	DRAWN BY: RRP
	PROJECT NO. 17558055
SHEET 1 OF 1	

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/8/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-3 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

PLOT DATE: 10/11/2019 USER: ELLISON, DOC V:\17558055\TECHNICAL_PRODUCTION\DRAWING\SHEET_DETAILS\TPZ18D.DWG

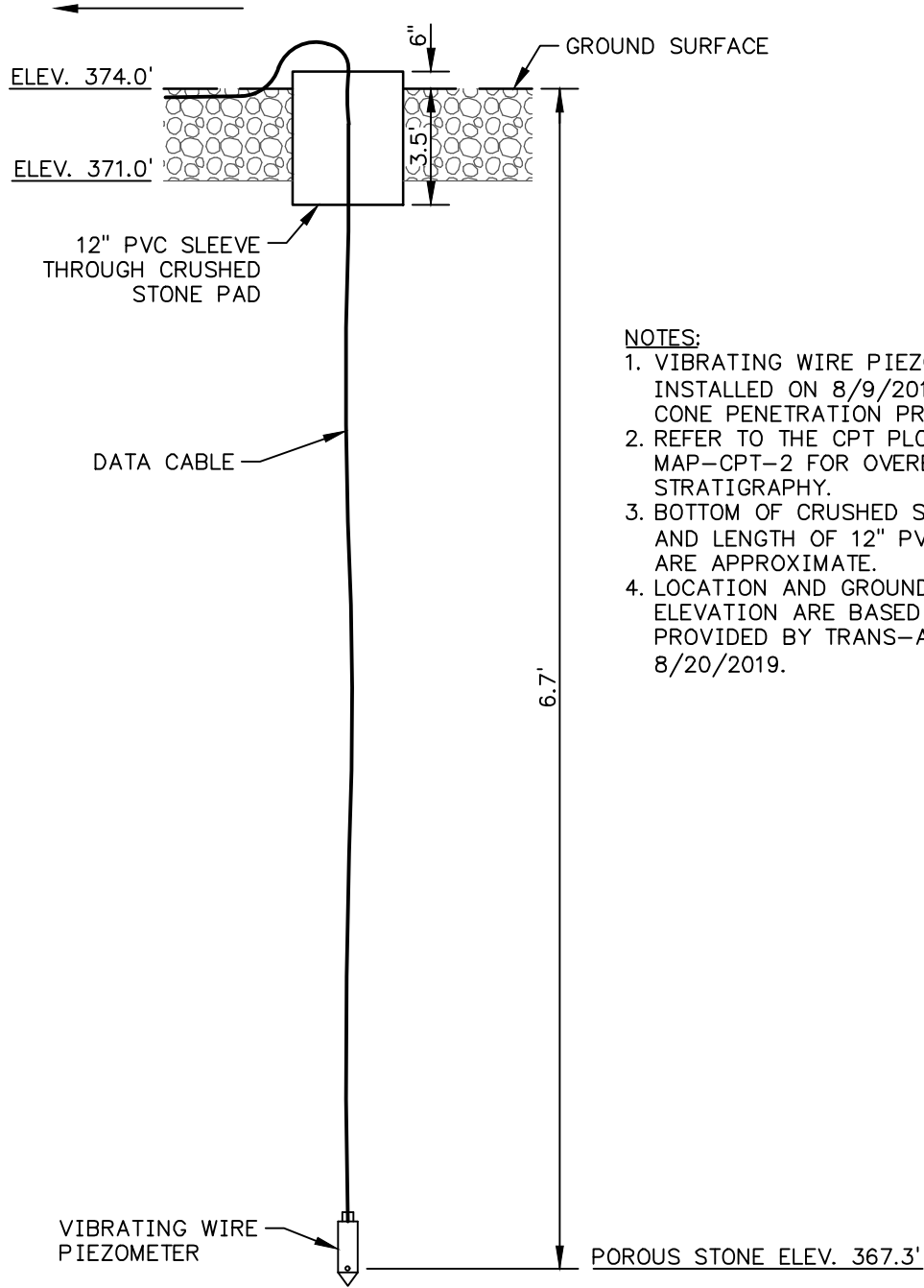
LOCATION:
NORTHING: 732,388.12
EASTING: 1,510,806.24

METADATA:
HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

PIEZOMETER TPZ-18D (S/N: 1841680) MAIN ASH POND CUMBERLAND FOSSIL PLANT	
	SCALE: NTS
	DATE: OCT., 2019
	CHECKED BY: MRB
	DRAWN BY: RRP
	PROJECT NO. 17558055
SHEET 1 OF 1	

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/9/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-2 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

PLOT DATE: 10/11/2019 USER: ELLISON, DOC V:\17558055\TECHNICAL_PRODUCTION\DRAWING\SHEET_DETAILS\TPZ19A.DWG

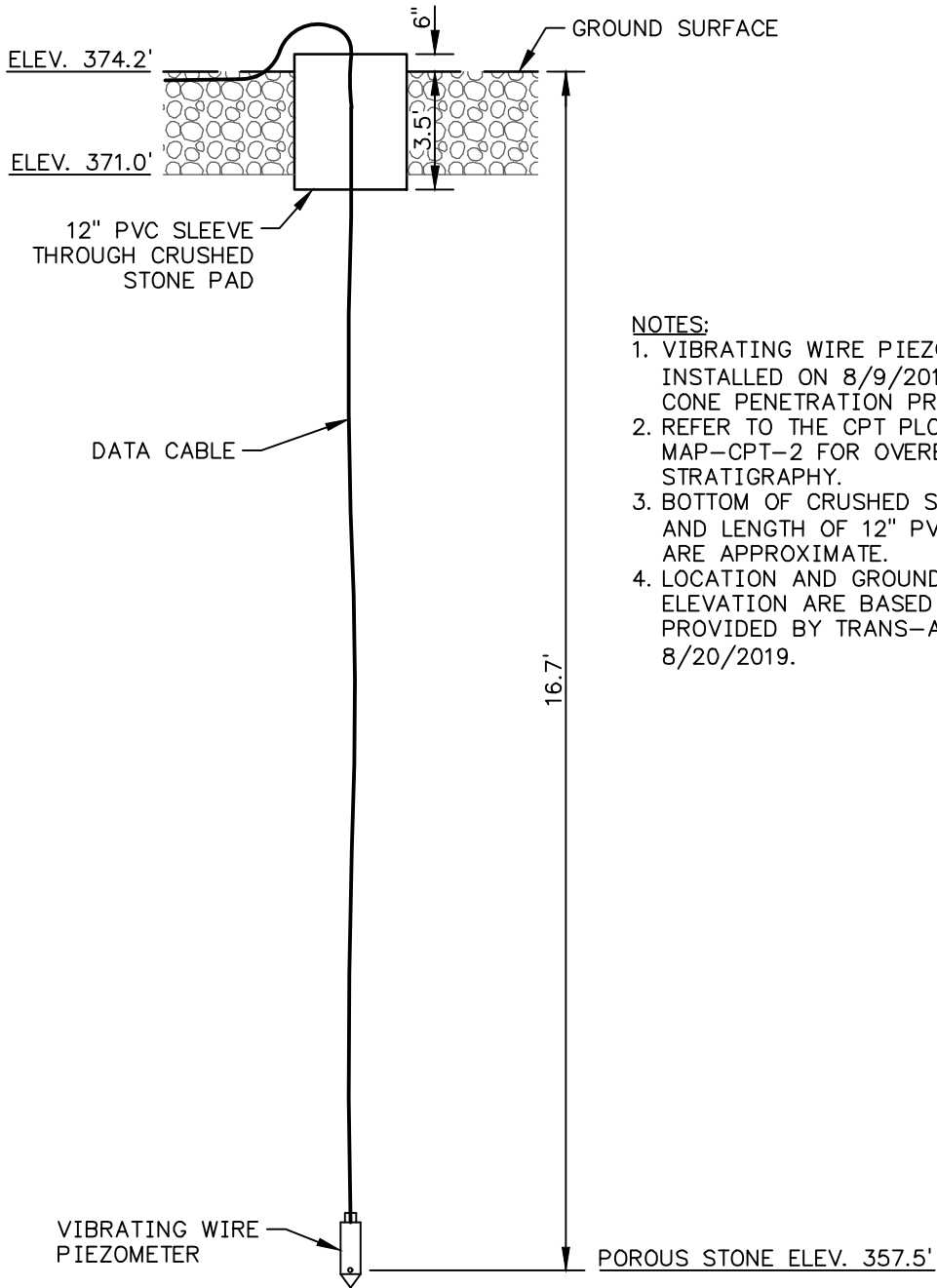
LOCATION:
NORTHING: 732,442.14
EASTING: 1,510,780.22

METADATA:
HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

PIEZOMETER TPZ-19A (S/N: 1841673) MAIN ASH POND CUMBERLAND FOSSIL PLANT	
	SCALE: NTS
	DATE: OCT., 2019
	CHECKED BY: MRB
	DRAWN BY: RRP
	PROJECT NO. 17558055
SHEET 1 OF 1	

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/9/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-2 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

LOCATION:

NORTHING: 732,439.13
EASTING: 1,510,775.07

METADATA:

HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.

HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

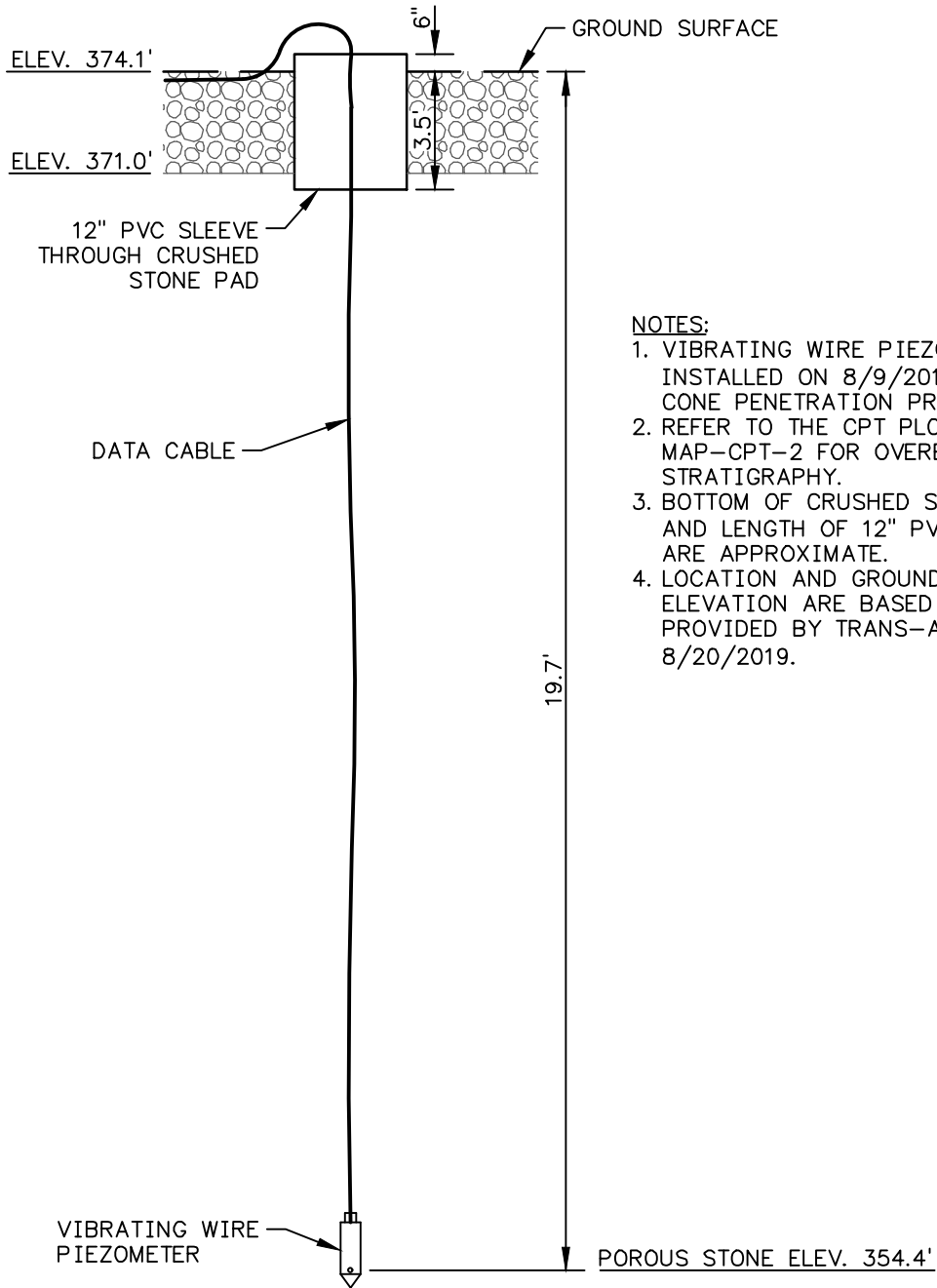
PIEZOMETER TPZ-19B
(S/N: 1841674)
MAIN ASH POND
CUMBERLAND FOSSIL PLANT



Stantec

SCALE:	NTS
DATE:	OCT., 2019
CHECKED BY:	MRB
DRAWN BY:	RRP
PROJECT NO.:	175558055
SHEET	1 OF 1

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/9/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-2 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

LOCATION:

NORTHING: 732,444.71
EASTING: 1,510,772.08

METADATA:

HORIZONTAL PROJECTION: PLANT LOCAL GROUND

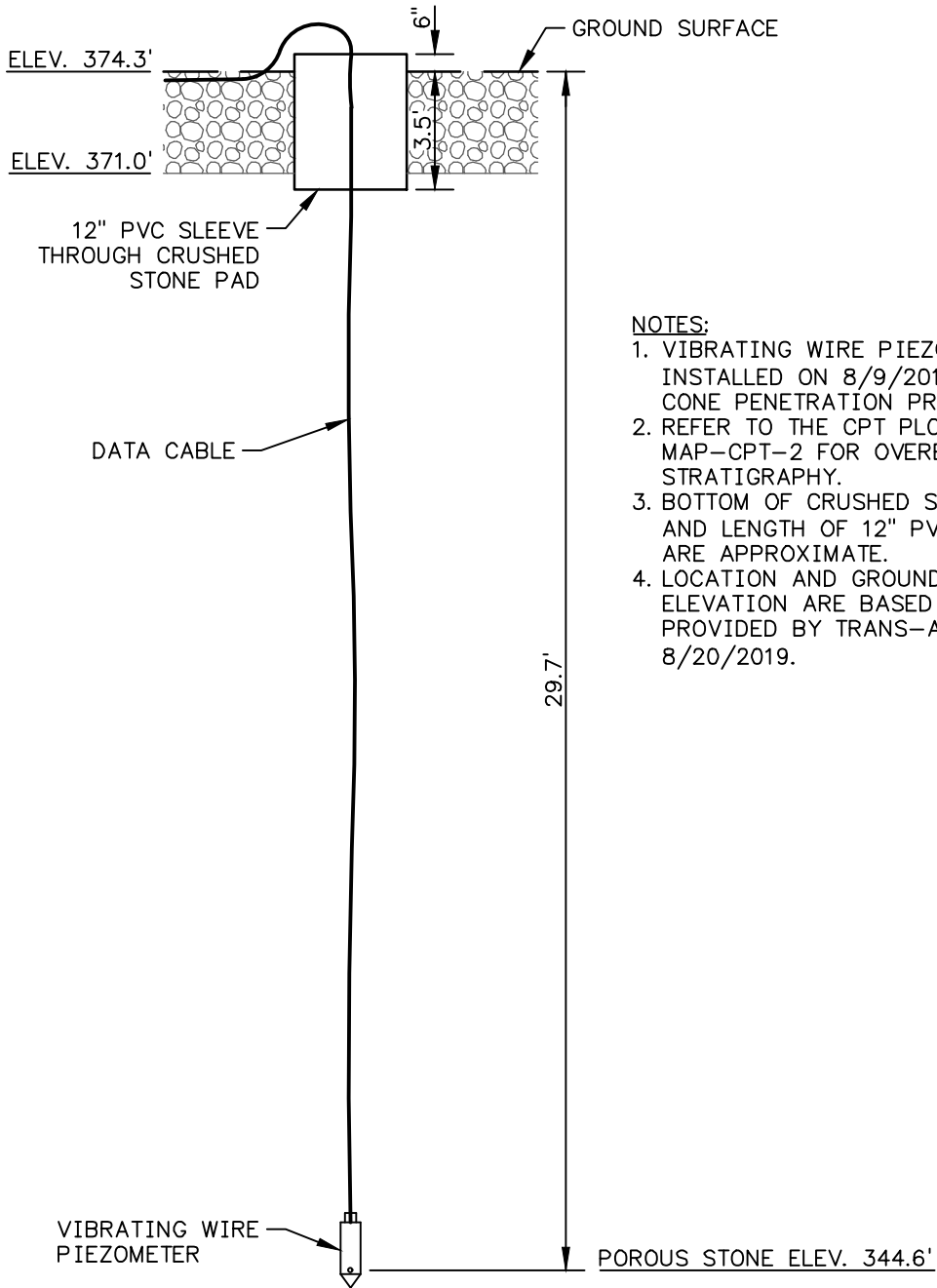
PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.

HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

PLOT DATE: 10/11/2019 USER: ELLISON, DOC V:\17558\ACTIVE\175558055\TECHNICAL_PRODUCTION\DRAWING\SHEET_DETAILS\TPZ19C.DWG

PIEZOMETER TPZ-19C	
(S/N: 1841675)	
MAIN ASH POND	
CUMBERLAND FOSSIL PLANT	
	SCALE: NTS
	DATE: OCT., 2019
	CHECKED BY: MRB
	DRAWN BY: RRP
	PROJECT NO. 175558055
SHEET 1 OF 1	

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/9/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-2 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

LOCATION:

NORTHING: 732,434.15
EASTING: 1,510,778.66

METADATA:

HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.

HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

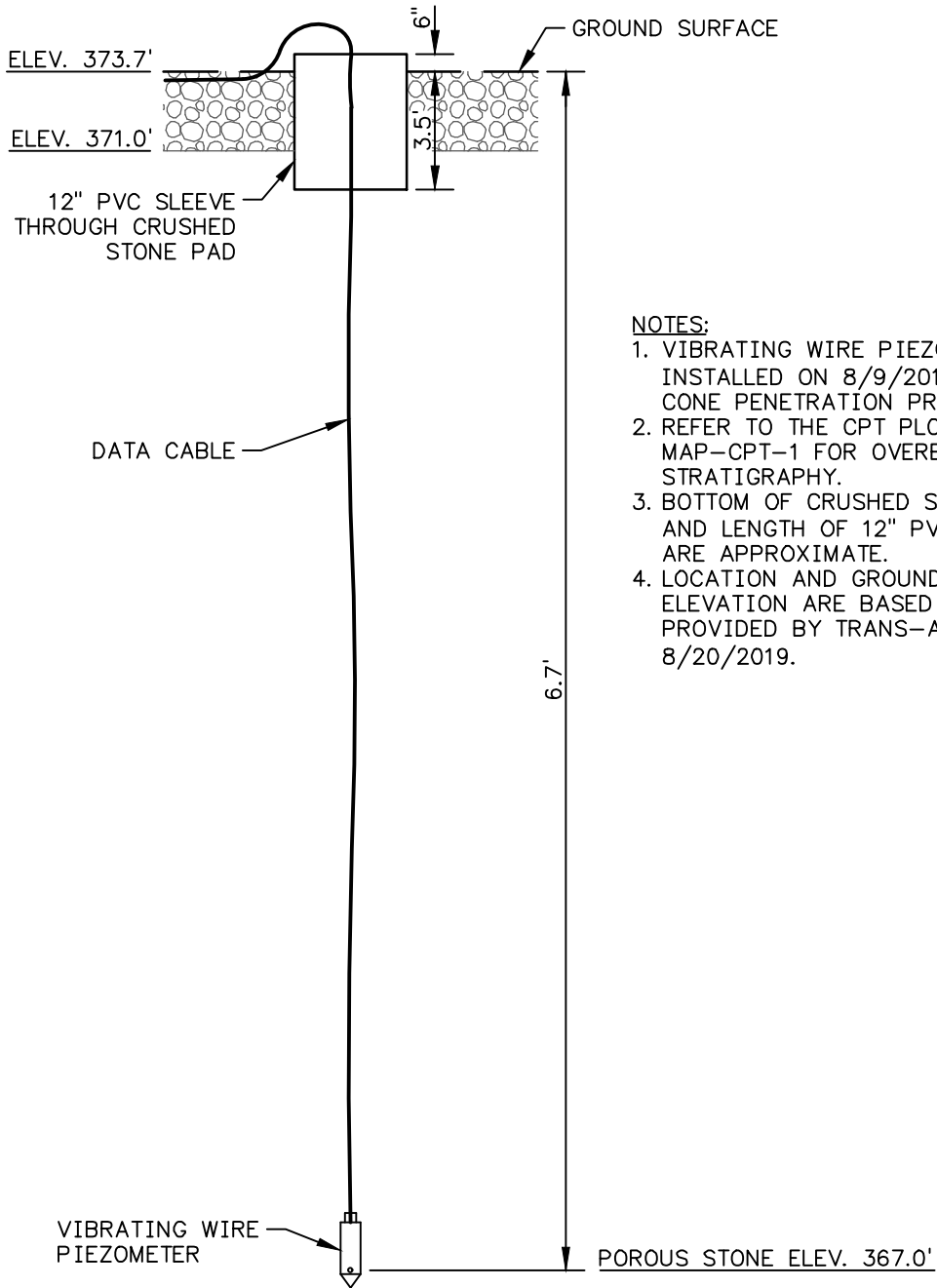
PIEZOMETER TPZ-19D
(S/N: 1843333)
MAIN ASH POND
CUMBERLAND FOSSIL PLANT



Stantec

SCALE:	NTS
DATE:	OCT., 2019
CHECKED BY:	MRB
DRAWN BY:	RRP
PROJECT NO.:	175558055
SHEET	1 OF 1

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/9/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-1 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

PLOT DATE: 10/11/2019 USER: ELLISON, DOC V:\17558055\TECHNICAL_PRODUCTION\DRAWING\SHEET_DETAILS\TPZ20A.DWG

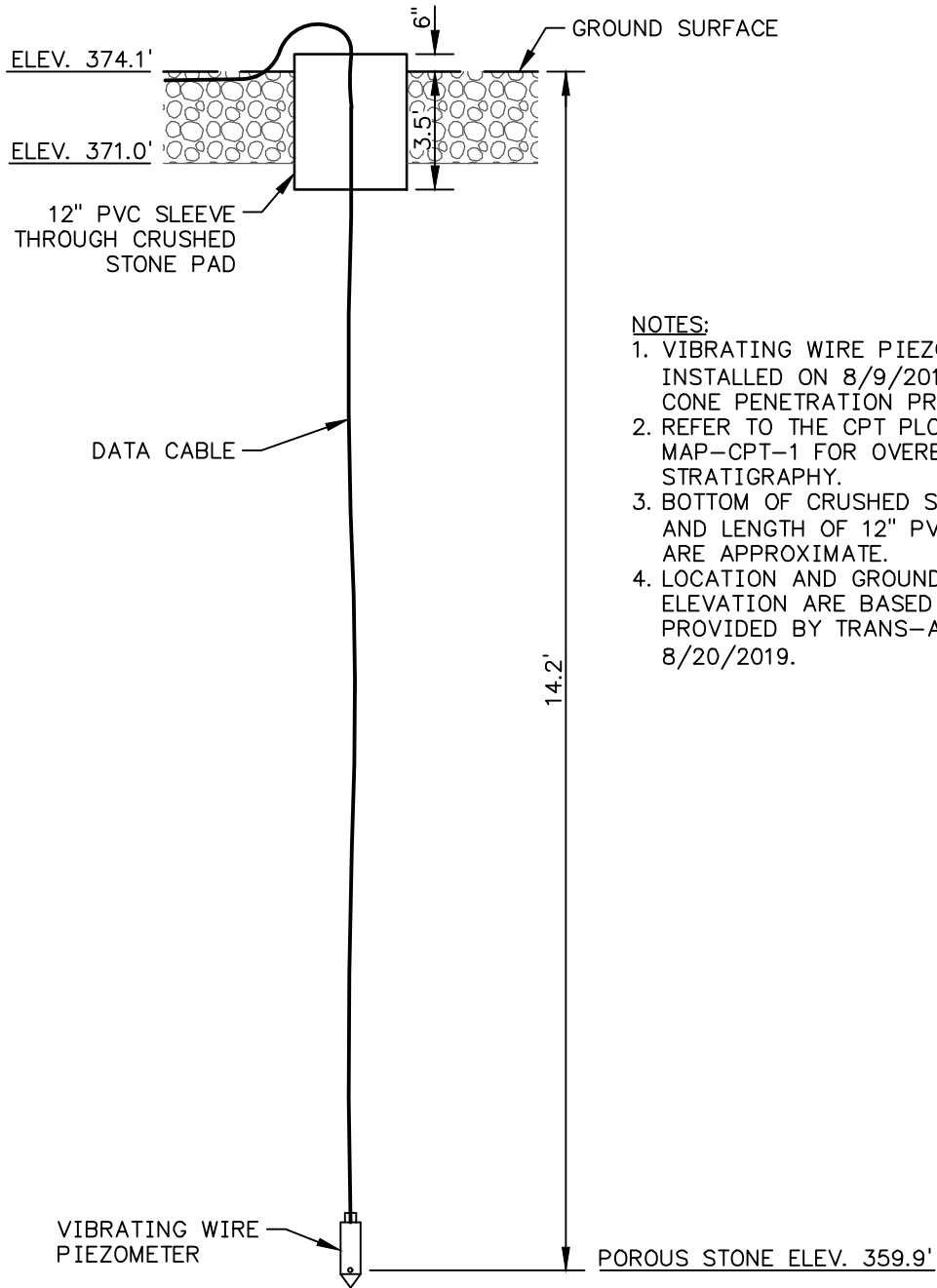
LOCATION:
NORTHING: 732,473.14
EASTING: 1,510,765.23

METADATA:
HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

PIEZOMETER TPZ-20A (S/N: 1841669) MAIN ASH POND CUMBERLAND FOSSIL PLANT	
	SCALE: NTS
	DATE: OCT., 2019
	CHECKED BY: MRB
	DRAWN BY: RRP
	PROJECT NO. 17558055
SHEET 1 OF 1	

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/9/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-1 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

LOCATION:

NORTHING: 732,469.93
EASTING: 1,510,759.92

METADATA:

HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.

HORIZONTAL DATUM: LOCAL

VERTICAL DATUM: NGVD 29

H&V ACCURACY: GPS RTK

UNITS: US SURVEY FEET (SFT)

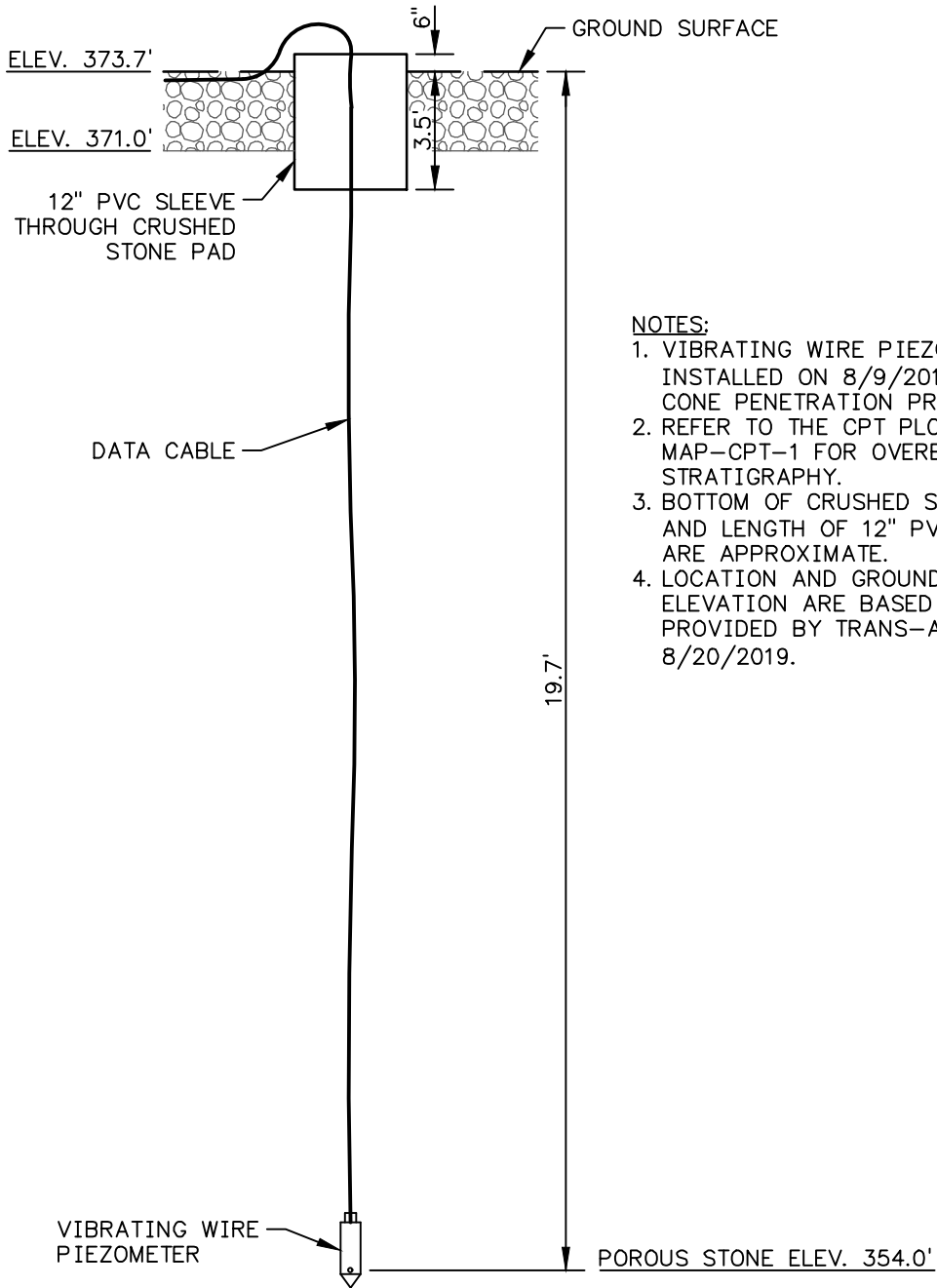
PIEZOMETER TPZ-20B
(S/N: 1841670)
MAIN ASH POND
CUMBERLAND FOSSIL PLANT



Stantec

SCALE:	NTS
DATE:	OCT., 2019
CHECKED BY:	MRB
DRAWN BY:	RRP
PROJECT NO.:	175558055
SHEET	1 OF 1

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/9/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-1 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

LOCATION:

NORTHING: 732,475.01
EASTING: 1,510,756.56

METADATA:

HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.

HORIZONTAL DATUM: LOCAL

VERTICAL DATUM: NGVD 29

H&V ACCURACY: GPS RTK

UNITS: US SURVEY FEET (SFT)

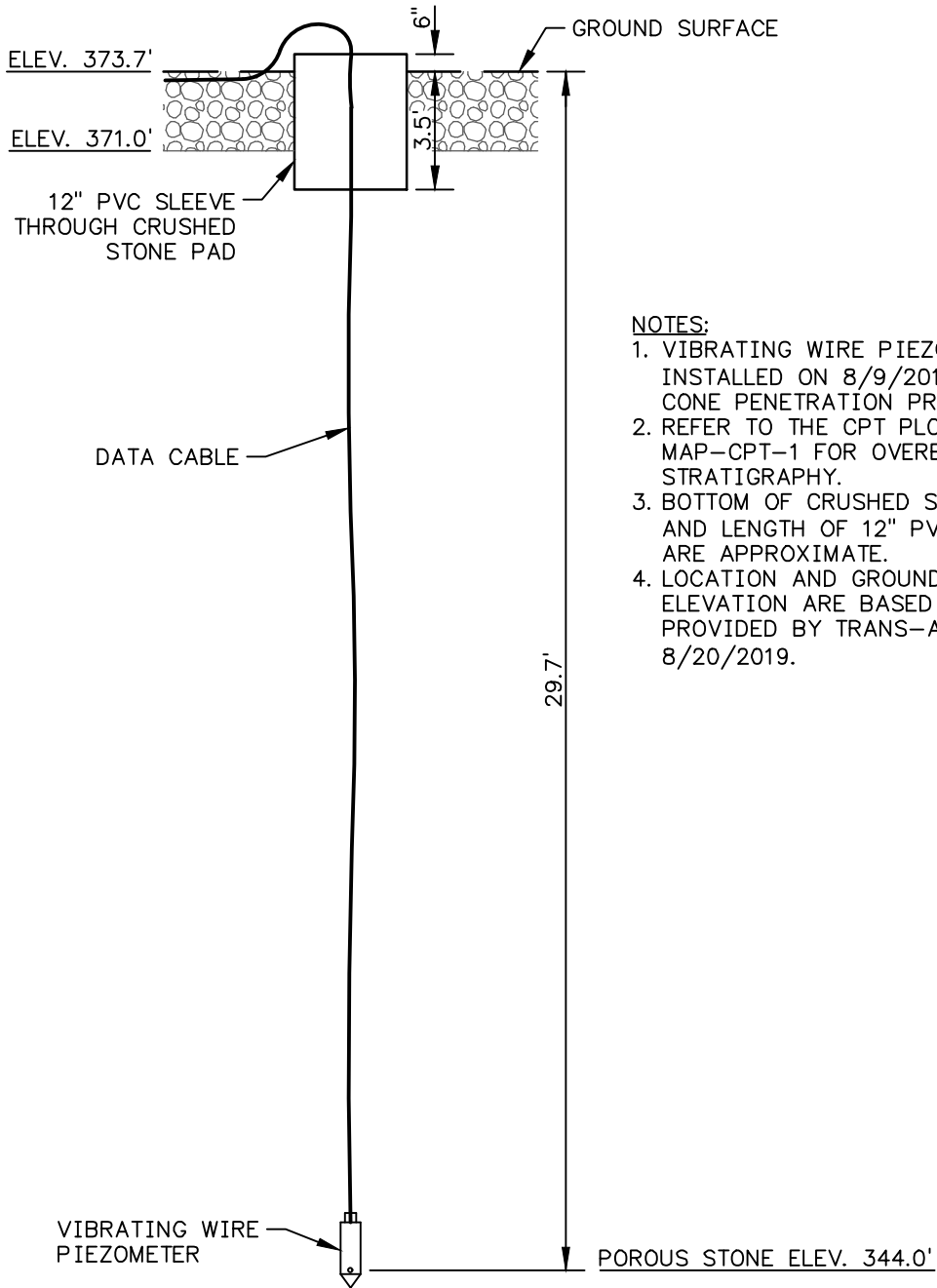
PIEZOMETER TPZ-20C
(S/N: 1841671)
MAIN ASH POND
CUMBERLAND FOSSIL PLANT



Stantec

SCALE:	NTS
DATE:	OCT., 2019
CHECKED BY:	MRB
DRAWN BY:	RRP
PROJECT NO.:	175558055
SHEET	1 OF 1

TO CENTRAL RISER PIPE THROUGH
BURIED 2" PVC CONDUIT



NOTES:

1. VIBRATING WIRE PIEZOMETER INSTALLED ON 8/9/2019 USING CONE PENETRATION PROBE.
2. REFER TO THE CPT PLOT FOR MAP-CPT-1 FOR OVERBURDEN STRATIGRAPHY.
3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" PVC SLEEVE ARE APPROXIMATE.
4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PROVIDED BY TRANS-ASH ON 8/20/2019.

LOCATION:

NORTHING: 732,478.59
EASTING: 1,510,761.45

METADATA:

HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.

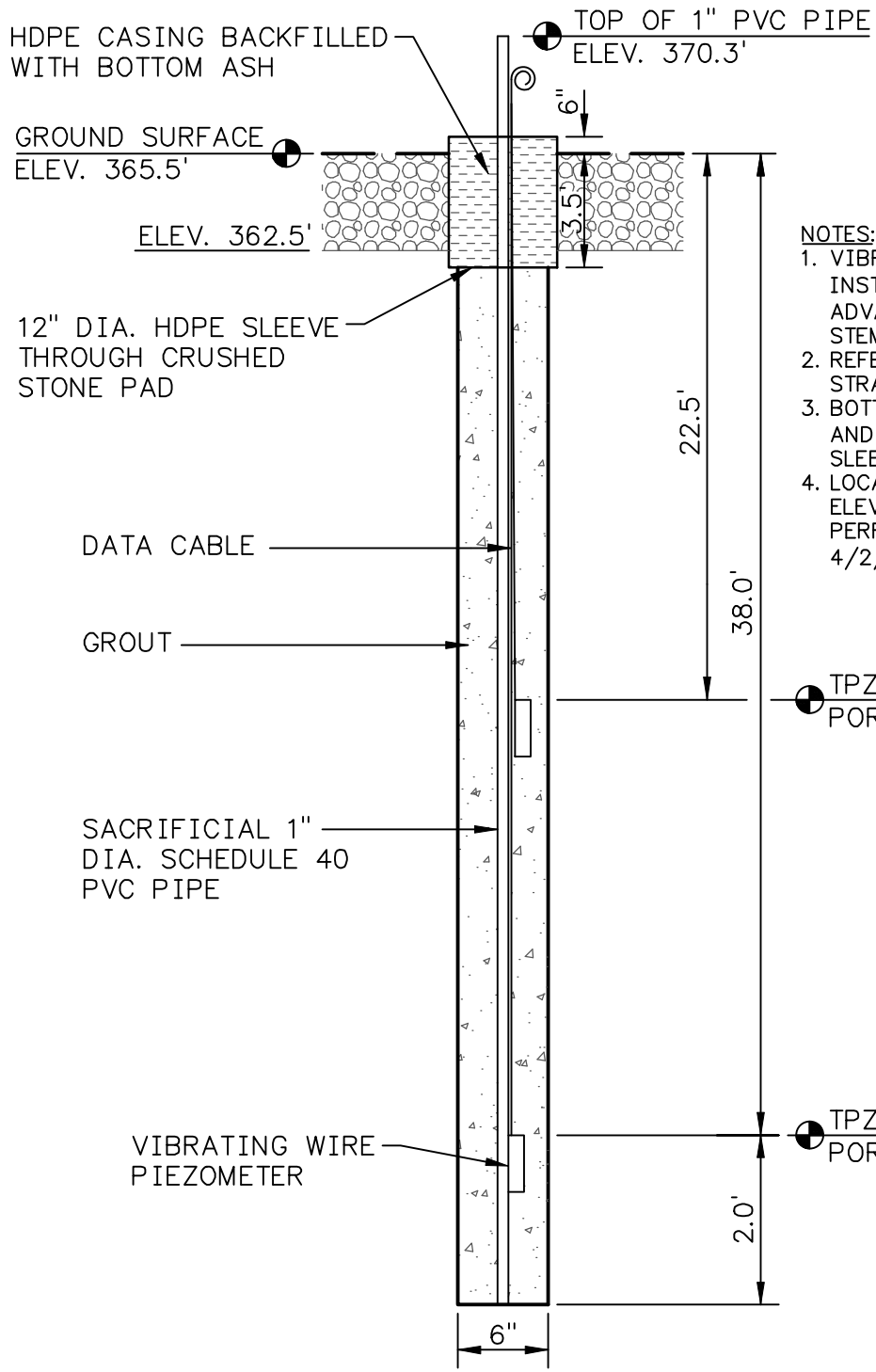
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

PIEZOMETER TPZ-20D
(S/N: 1841672)
MAIN ASH POND
CUMBERLAND FOSSIL PLANT



Stantec

SCALE:	NTS
DATE:	OCT., 2019
CHECKED BY:	MRB
DRAWN BY:	RRP
PROJECT NO.:	175558055
SHEET:	1 OF 1



- NOTES:**
1. VIBRATING WIRE PIEZOMETERS INSTALLED ON 3/30/2021. BORING ADVANCED WITH 4 1/4" HOLLOW STEM AUGERS.
 2. REFER TO BORING LOG B-6 FOR STRATIGRAPHY.
 3. BOTTOM OF CRUSHED STONE PAD AND LENGTH OF 12" DIA. HDPE SLEEVE ARE APPROXIMATE.
 4. LOCATION AND GROUND SURFACE ELEVATION ARE BASED ON SURVEY PERFORMED BY BARNARD ON 4/2/2021.


● TPZ-34A (S/N 1511535)
POROUS STONE ELEV. 343.0'

● TPZ-34B (S/N 1513569)
POROUS STONE ELEV. 327.5'

LOCATION:
NORTHING: 732,560.49
EASTING: 1,510,390.76

METADATA:
HORIZONTAL PROJECTION: PLANT LOCAL GROUND

PLANT LOCAL GROUND COORDINATES ARE BASED ON THE TENNESSEE NAD 27 STATE PLANE COORDINATE SYSTEM, BUT REPRESENT LOCATIONS ON THE GROUND. THEY ARE NOT EQUIVALENT TO GRID POSITIONS.
HORIZONTAL DATUM: LOCAL
VERTICAL DATUM: NGVD 29
H&V ACCURACY: GPS RTK
UNITS: US SURVEY FEET (SFT)

PIEZOMETERS TPZ-34A AND TPZ-34B MAIN ASH POND CUMBERLAND FOSSIL PLANT	
 Stantec	SCALE: NTS
	DATE: APRIL, 2021
	CHECKED BY: JSA
	DRAWN BY: RWE
	PROJECT NO. 175558210
SHEET 1 OF 1	

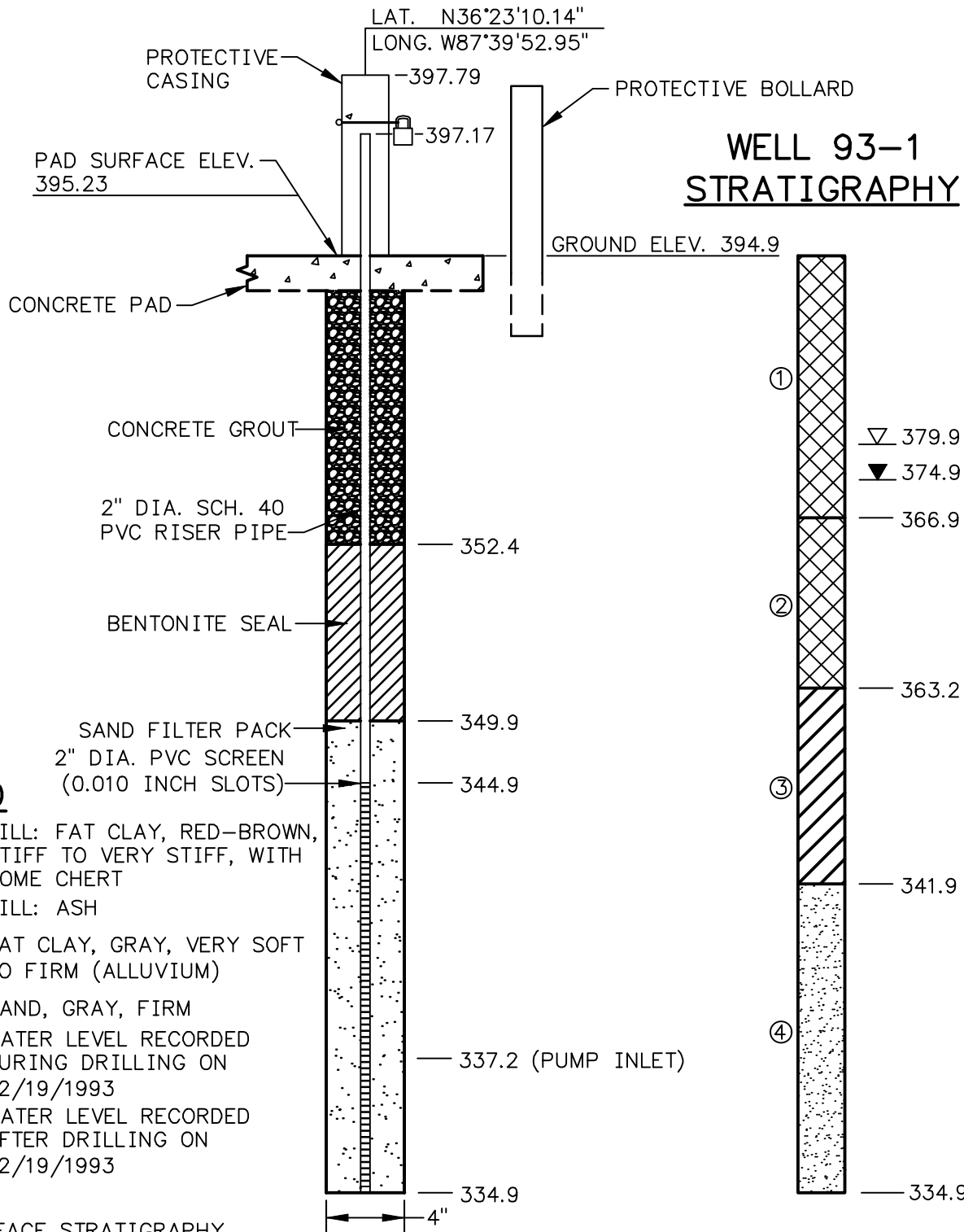
PLOT DATE: 04/21/2021 USER: ELLISON.DOC V:\175558210\TECHNICAL_PRODUCTION\DRAWING\SHEET_DETAILS\TPZ34A-34B.DWG

APPENDIX C.3

PERMANENT WELLS

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LEGEND

- ① FILL: FAT CLAY, RED-BROWN, STIFF TO VERY STIFF, WITH SOME CHERT
- ② FILL: ASH
- ③ FAT CLAY, GRAY, VERY SOFT TO FIRM (ALLUVIUM)
- ④ SAND, GRAY, FIRM
- WATER LEVEL RECORDED DURING DRILLING ON 02/19/1993
- WATER LEVEL RECORDED AFTER DRILLING ON 02/19/1993

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG 93-1 BY LAW ENGINEERING ON 02/19/1993.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 02/19/1993 BY LAW ENGINEERING.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 11/09/2016).

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_93-1.DWG

CUF 93-1 MONITORING WELL INSTALLATION DETAIL			
TVA CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, STEWART COUNTY, TN			
		Stantec Consulting Services Inc. 3052 Beaumont Centre Circle Lexington, Kentucky 40513 859-422-3000 www.stantec.com	
DRAWN BY MSJ	DATE OCT. 2017	REVISED	
CHECKED BY JGB	PROJ. NO. 175565299	1.	3.
CHECKED BY BLB	SCALE NTS	2.	4.
			SHEET
			1 of 1



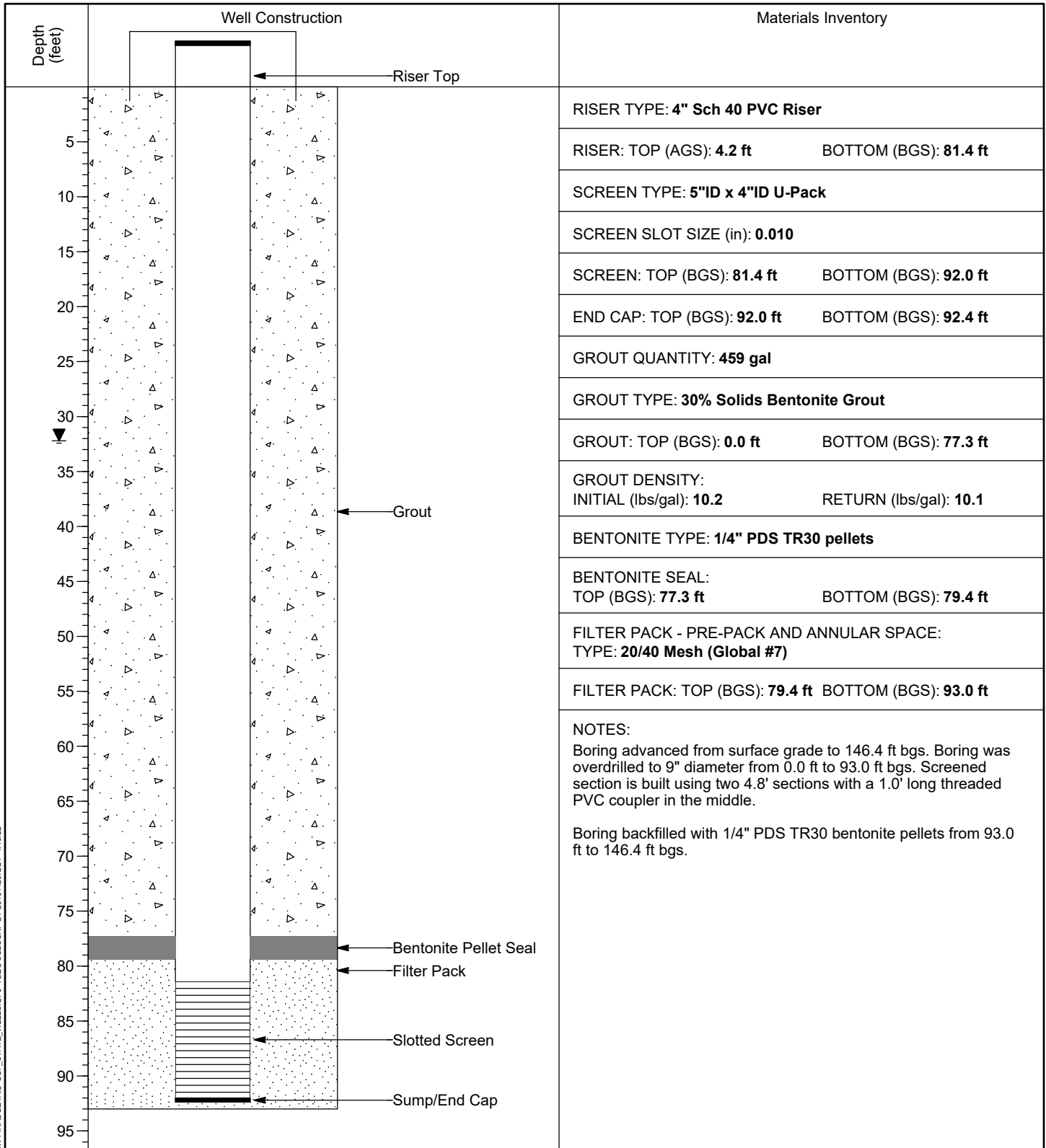
WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO:
93-1D (Boring 93-1D)

PAGE 1 OF 1

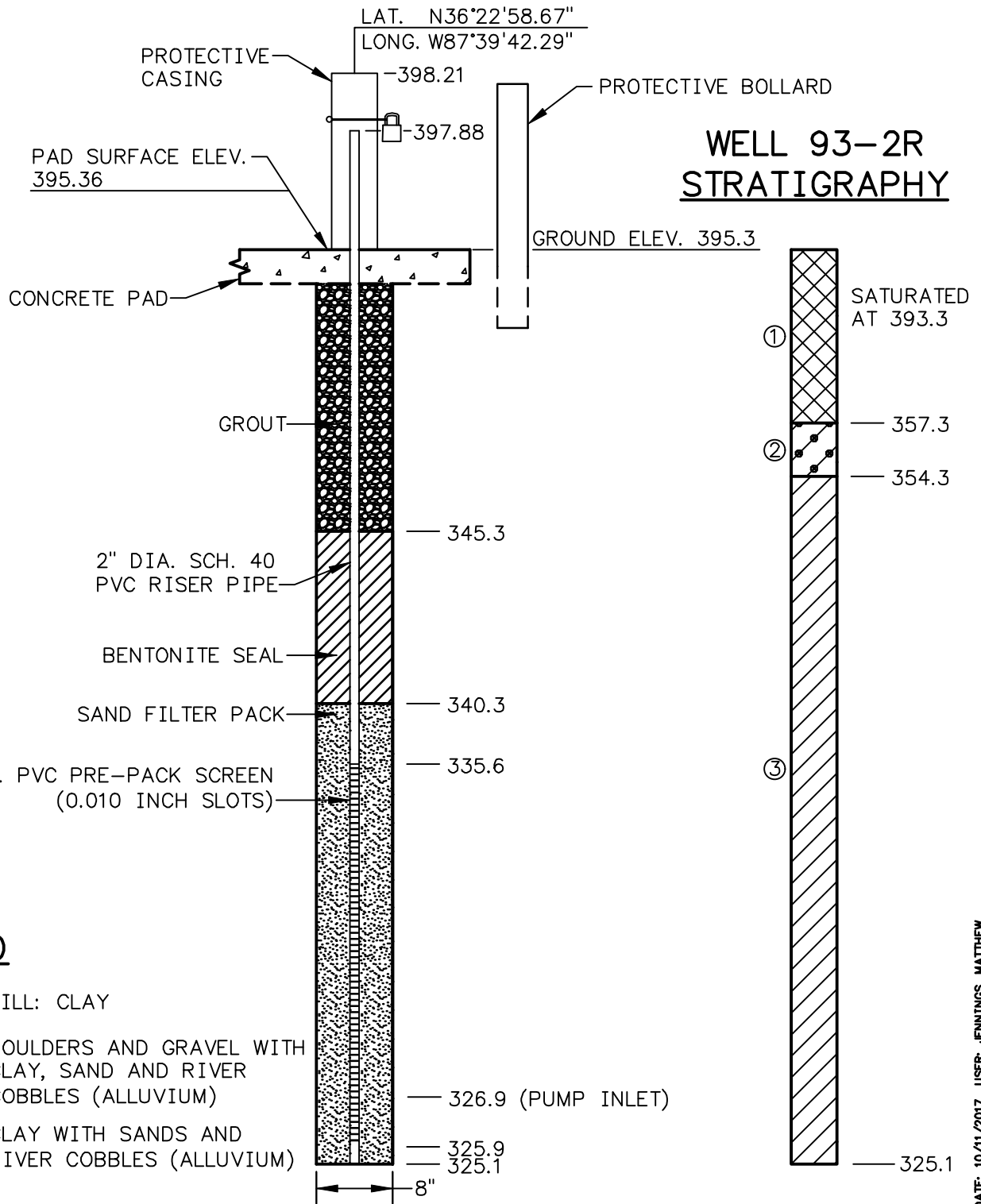
PROJECT: **CUF State Wells**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Cascade Drilling Company**
 DRILLING EQUIPMENT: **TSI #1159 Track Mounted Sonic Drill Rig**
 DRILLING METHOD: **4" x 9" Sonic**
 SAMPLING METHOD: **4-1/4" HSA, 2" SS w/o liners**
 OBSERVED BY: **G. Budd**
 REVIEWED BY: **E. Hicks**
 APPROVED BY: **C. Millhollin**

INSTALLATION: STARTED: **4/19/19** COMPLETED: **4/22/19**
 LOCATION: **730,125.13 N; 1,509,887.11 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Dry Ash Stack**
 LATITUDE: **36° 23' 10.78"** LONGITUDE: **-87° 39' 54.17"**
 GROUND ELEV (ft): **395.1** TOC ELEV (ft): **399.28**
 ELEVATION DATUM: **NGVD29**
 WELL DEPTH (ft, bgs): **92.0**
 DTW AT COMPLETION (ft, bgs): **32.2**
 BOREHOLE DIA. (in): **9.0** WELL DIA. (in): **4.0**



MW FINAL DETAIL - CUF - STATE WELLS - GPI - TDEC SUBSURF DT 20191120.GDT - 4/13/22

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)



LEGEND

- ① FILL: CLAY
- ② BOULDERS AND GRAVEL WITH CLAY, SAND AND RIVER COBBLES (ALLUVIUM)
- ③ CLAY WITH SANDS AND RIVER COBBLES (ALLUVIUM)

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG 93-2R BY S&ME ON 02/19/1993.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 09/29/2005 BY S&ME.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/07/2016).

CUF 93-2R MONITORING WELL INSTALLATION DETAIL TVA CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, STEWART COUNTY, TN

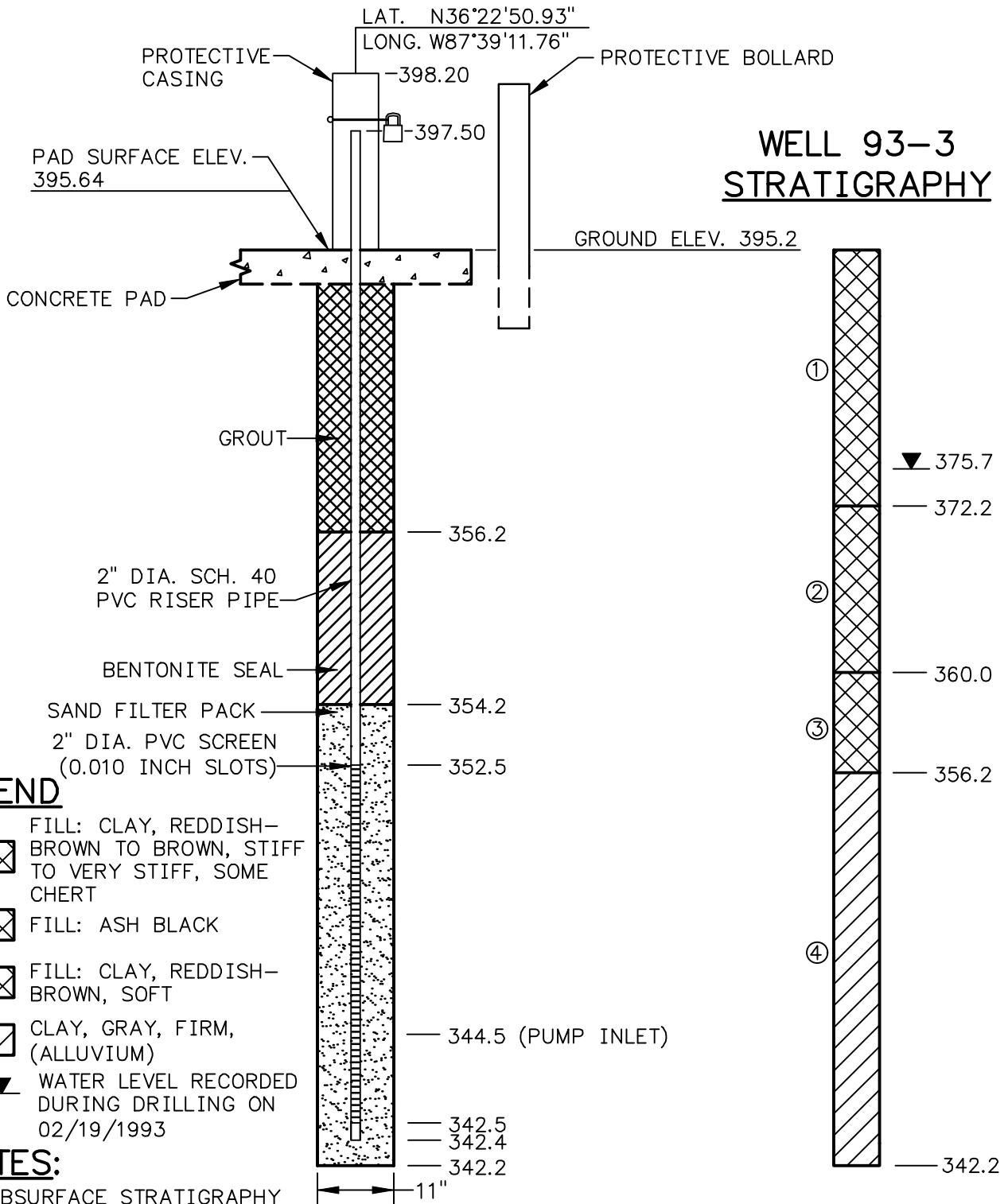


Stantec

Stantec Consulting Services Inc.
3052 Beaumont Centre Circle
Lexington, Kentucky 40513
859-422-3000
www.stantec.com

DRAWN BY	MSJ	DATE	OCT. 2017	REVISED	SHEET
CHECKED BY	JGB	PROJ. NO.	175565299	1.	3.
CHECKED BY	BLB	SCALE	NTS	2.	4.

1 of 1



LEGEND

- ① FILL: CLAY, REDDISH-BROWN TO BROWN, STIFF TO VERY STIFF, SOME CHERT
- ② FILL: ASH BLACK
- ③ FILL: CLAY, REDDISH-BROWN, SOFT
- ④ CLAY, GRAY, FIRM, (ALLUVIUM)
- ▼ WATER LEVEL RECORDED DURING DRILLING ON 02/19/1993

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG 93-3 BY LAW ENGINEERING ON 02/18/1993.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 02/18/1993 BY LAW ENGINEERING.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 11/09/2016).

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW
U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_93-3.DWG

CUF 93-3 MONITORING WELL INSTALLATION DETAIL TVA CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, STEWART COUNTY, TN

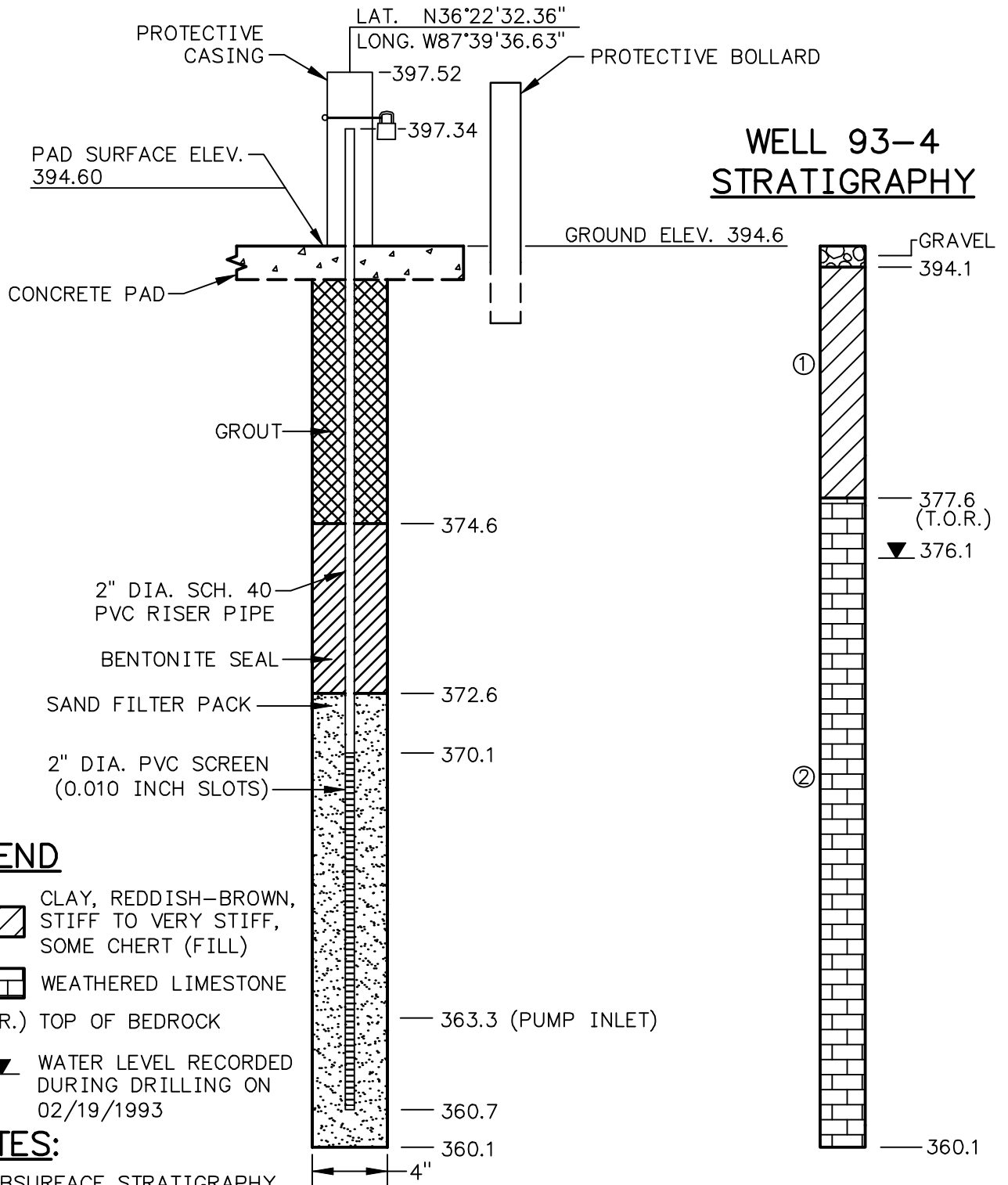


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Lexington, Kentucky
40513
859-422-3000
www.stantec.com

DRAWN BY	MSJ	DATE	OCT. 2017	REVISED	SHEET
CHECKED BY	JGB	PROJ. NO.	175565299	1.	3.
CHECKED BY	BLB	SCALE	NTS	2.	4.

1 of 1



LEGEND

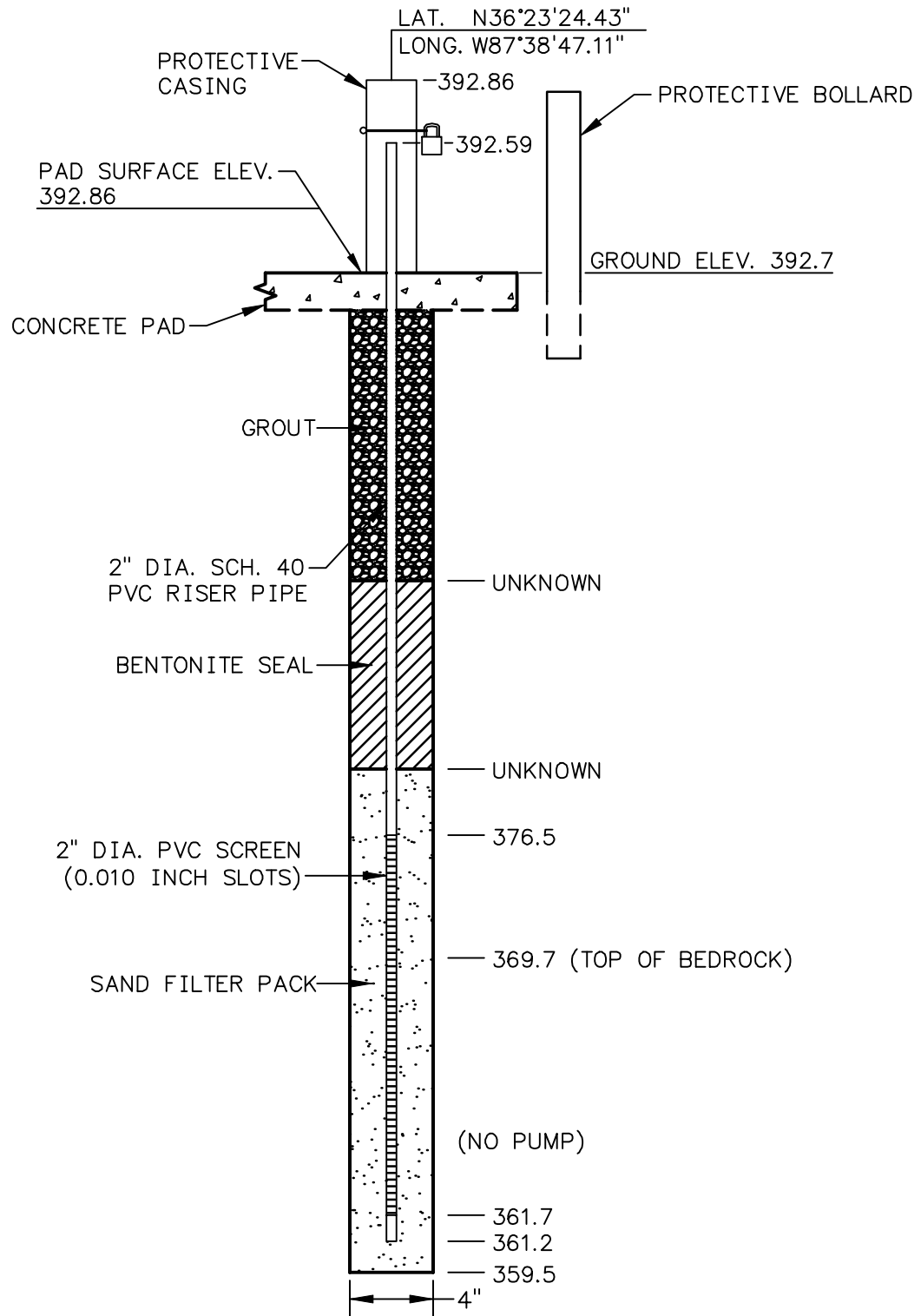
- ① CLAY, REDDISH-BROWN, STIFF TO VERY STIFF, SOME CHERT (FILL)
- ② WEATHERED LIMESTONE (T.O.R.) TOP OF BEDROCK
- WATER LEVEL RECORDED DURING DRILLING ON 02/19/1993

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG 93-4 BY LAW ENGINEERING ON 02/17/1993.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 02/17/1993 BY LAW ENGINEERING.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 11/09/2016).

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_93-4.DWG


CUF 93-4 MONITORING WELL INSTALLATION DETAIL			
TVA CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, STEWART COUNTY, TN			
		Stantec Consulting Services Inc. 3052 Beaumont Centre Circle Lexington, Kentucky 40513 859-422-3000 www.stantec.com	
DRAWN BY	MSJ	DATE	OCT. 2017
CHECKED BY	JGB	PROJ. NO.	175565299
CHECKED BY	BLB	SCALE	NTS
REVISED		SHEET	
1.	3.	1 of 1	
2.	4.		



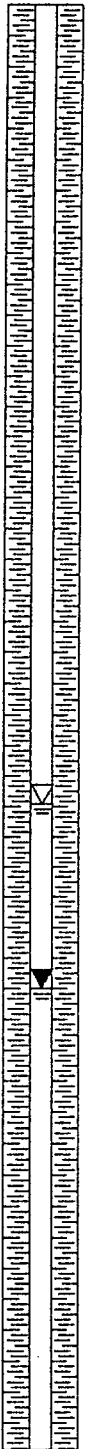
NOTES:

1. THE SUBSURFACE STRATIGRAPHY FOR WELL 96-9 IS UNAVAILABLE.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 05/08/1996 BY LAW ENGINEERING.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANREC, 10/07/2016).

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_96-9.DWG

CUF 96-9 OBSERVATION WELL INSTALLATION DETAIL			
TVA CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, STEWART COUNTY, TN			
		Stantec	
<small>Stantec Consulting Services Inc. 3052 Beaumont Centre Circle Lexington, Kentucky 40513 859-422-3000 www.stantec.com</small>			
DRAWN BY	MSJ	DATE	OCT. 2017
CHECKED BY	JGB	PROJ. NO.	175565299
CHECKED BY	BLB	SCALE	NTS
		REVISED	
		1.	3.
		2.	4.
			SHEET
			1 of 1

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																		
			0	10	20	30	40	60	80	100											
0.0	STIFF TO VERY STIFF RED SANDY CLAY WITH CHERT FRAGMENTS - FILL	394.4																			
		389.4																			
	STIFF BROWN SLIGHTLY SANDY CLAY WITH CHERT FRAGMENTS - FILL	384.4																			
14.0		379.4																			
	FIRM GRAY AND BROWN SLIGHTLY CLAYEY SAND WITH CRUSHED STONE - FILL	374.4																			
19.0		374.4																			
	VERY STIFF RED AND BROWN SLIGHTLY SANDY CLAY WITH CHERT AND LIMESTONE FRAGMENTS - FILL UNDISTURBED SAMPLE OBTAINED FROM 29.0 TO 31.0 FEET	369.4																			
24.0		364.4																			
		359.4																			
37.0	AUGER REFUSAL AT 37.0 FEET ROCK TYPE - RED AND WHITE ARGILLACEOUS LIMESTONE, PROBABLE DIXON FORMATION, HIGHLY																				



REMARKS:

INSTALLED TWO INCH DIAMETER PVC TYPE II PIEZOMETER, STABILIZED GROUNDWATER MEASURED AT 27.3 FEET ON MAY 1, 1992.

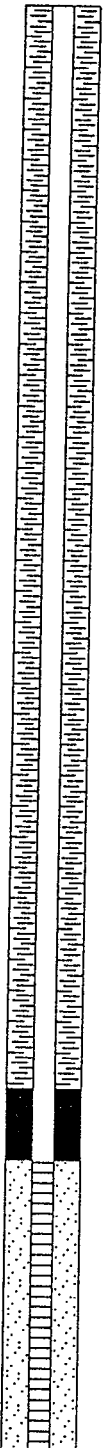
SOIL TEST BORING RECORD

BORING NUMBER	B-103
DATE DRILLED	April 7, 1992
PROJECT NUMBER	57401442.04
PROJECT	TVA - CUMBERLAND
PAGE 1 OF 3	

LAW ENGINEERING


SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
45.0	WEATHERED/SOLUTIONED CORE RUN #1 - FROM 37.0' TO 42.0' CAVITIES FROM 40.0 TO 45.5' PARTIALLY MUD FILLED REC. = 30.4% RQD. = 7.1% SET NW CASING TO 45.0 FEET	349.4																		
52.0	CORE RUN #2 - FROM 45.5' TO 52.5' CAVITIES FROM 55.5' TO 63.5' PARTIALLY MUD FILLED WITH SOME ORGANIC FIBERS	344.4																		
62.0	CORE RUN #3 - FROM 52.5' TO 62.5' CAVITIES FROM 55.5' TO 63.5' PARTIALLY MUD FILLED WITH SOME ORGANIC FIBERS REC. = 35% RQD. = 35%	339.4																		
68.5	CORE RUN #4 - FROM 62.5' TO 68.5' INTERMITTENT THIN ROCK LENSES AND MUD FROM 62.5' TO 68.5' REC. = 8.3% RQD. = 0%	329.4																		
	BEGIN SOIL TEST BORING AT 68.5 FEET	324.4																		
		319.4																		



REMARKS:

INSTALLED TWO INCH DIAMETER PVC
TYPE II PIEZOMETER, STABILIZED
GROUNDWATER MEASURED AT 27.3 FEET
ON MAY 1, 1992.

SOIL TEST BORING RECORD	
BORING NUMBER	B-103
DATE DRILLED	April 7, 1992
PROJECT NUMBER	57401442.04
PROJECT	TVA - CUMBERLAND
PAGE 2 OF 3	
 LAW ENGINEERING	

SEE KEY SHEET FOR EXPLANATION OF
SYMBOLS AND ABBREVIATIONS USED ABOVE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
85.0	WASH BORING - 68.5' TO 85.0' VERY STIFF TAN AND RED CLAY WITH CHERT AND LIMESTONE FRAGMENTS - RESIDUAL	309.4			●															
87.0	STIFF WHITE TO LIGHT GRAY CLAY - RESIDUAL	304.4																		
	BORING TERMINATED AT 87.0 FEET	304.4																		
		299.4																		
		294.4																		
		289.4																		
		284.4																		
		279.4																		

REMARKS:

INSTALLED TWO INCH DIAMETER PVC
TYPE II PIEZOMETER, STABILIZED
GROUNDWATER MEASURED AT 27.3 FEET
ON MAY 1, 1992.

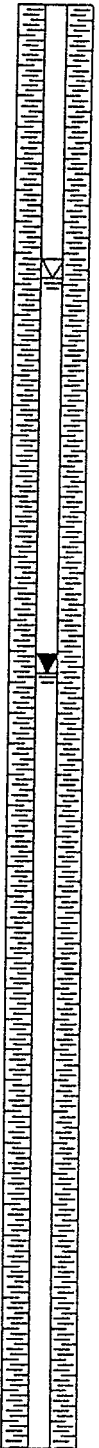
SEE KEY SHEET FOR EXPLANATION OF
SYMBOLS AND ABBREVIATIONS USED ABOVE

SOIL TEST BORING RECORD	
BORING NUMBER	B-103
DATE DRILLED	April 7, 1992
PROJECT NUMBER	57401442.04
PROJECT	TVA - CUMBERLAND
PAGE 3 OF 3	

▲ LAW ENGINEERING


Note: This well installation log represents well construction details as documented at the time of installation and may vary from well details presented in more recent tables or documents based on updated well measurements in 2016.

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
0.0		395.7																		
0.5	GRAVEL																			
	FILL - FIRM RED SLIGHTLY SANDY CLAY WITH SOME GRAVEL																			
		390.7																		
10.0	FILL - STIFF TO VERY STIFF BROWN SLIGHTLY SANDY SILTY CLAY WITH SOME GRAVEL	385.7																		
		380.7																		
		375.7																		
25.0	FILL - FIRM GRAY SILTY SAND	370.7																		
26.0	FLY ASH - VERY SOFT GRAY SILT BOTTOM ASH - VERY LOOSE CINDERS AND SLAG UNDISTURBED SAMPLE ATTEMPTED FROM 32.0-34.0 FEET (NO RECOVERY)	365.7																		
35.5	ALLUVIAL - FIRM TO VERY STIFF BROWN AND GRAY SLIGHTLY SANDY CLAY WITH SOME PEBBLES	360.7																		



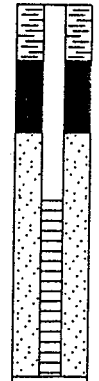
REMARKS:

INSTALLED TWO INCH PVC DIAMETER PVC TYPE II PIEZOMETER, STABILIZED GROUNDWATER MEASURED 18.5 FEET ON MAY 1, 1992.

SOIL TEST BORING RECORD	
BORING NUMBER	B-110
DATE DRILLED	April 14, 1992
PROJECT NUMBER	57401442.04
PROJECT	TVA - CUMBERLAND
PAGE 1 OF 3	
 LAW ENGINEERING	

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
49.1	FIRM TO VERY STIFF BROWN AND GRAY SLIGHTLY SANDY CLAY WITH SOME PEBBLES	350.7		●																
		345.7			●															
57.0	AUGER REFUSAL AT 49.1 FEET ROCK TYPE - LIGHT GRAY LIMESTONE REC. = 100% RQD. = 98% PROBABLE KNOX FORMATION CRACKLE BRECCIATED MODERATELY FRACTURED IN RANDOM DIRECTIONS. FRACTURED TYPICALY RECEMENTED WITH CALCITE OR DOLOMITE.	340.7																		
		335.7																		
67.0	CORE RUN #2 - FROM 57.3' TO 67.3' REC. = 95.8% RQD. = 89.2%	330.7																		
		325.7																		
76.0	CORE RUN #3 - FROM 67.3' TO 76.9' REC. = 97.4% RQD. = 89.2%	320.7																		
	CORE RUN #4 - FROM 76.9' TO 86.9' REC. = 100% RQD. = 95%																			



REMARKS:

INSTALLED TWO INCH PVC DIAMETER
PVC TYPE II PIEZOMETER, STABILIZED
GROUNDWATER MEASURED 18.5 FEET ON
MAY 1, 1992.

SOIL TEST BORING RECORD

BORING NUMBER B-110
DATE DRILLED April 14, 1992
PROJECT NUMBER 57401442.04
PROJECT TVA - CUMBERLAND
PAGE 2 OF 3


SEE KEY SHEET FOR EXPLANATION OF
SYMBOLS AND ABBREVIATIONS USED ABOVE

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)	● PENETRATION - BLOWS/FOOT																	
			0	10	20	30	40	60	80	100										
85.5	CORE RUN #4 - FROM 76.9' TO 86.9' REC. = 100% RQD. = 95%	310.7																		
93.5	CORE RUN #5 - FROM 86.9' TO 94.6' REC. = 100% RQD. = 95%	305.7																		
100.0	CORE RUN #6 - FROM 94.6' TO 100.0' REC. = 100% RQD. = 58.5%	300.7																		
	CORE TERMINATED AT 100.0 FEET	295.7																		
		290.7																		
		285.7																		
		280.7																		

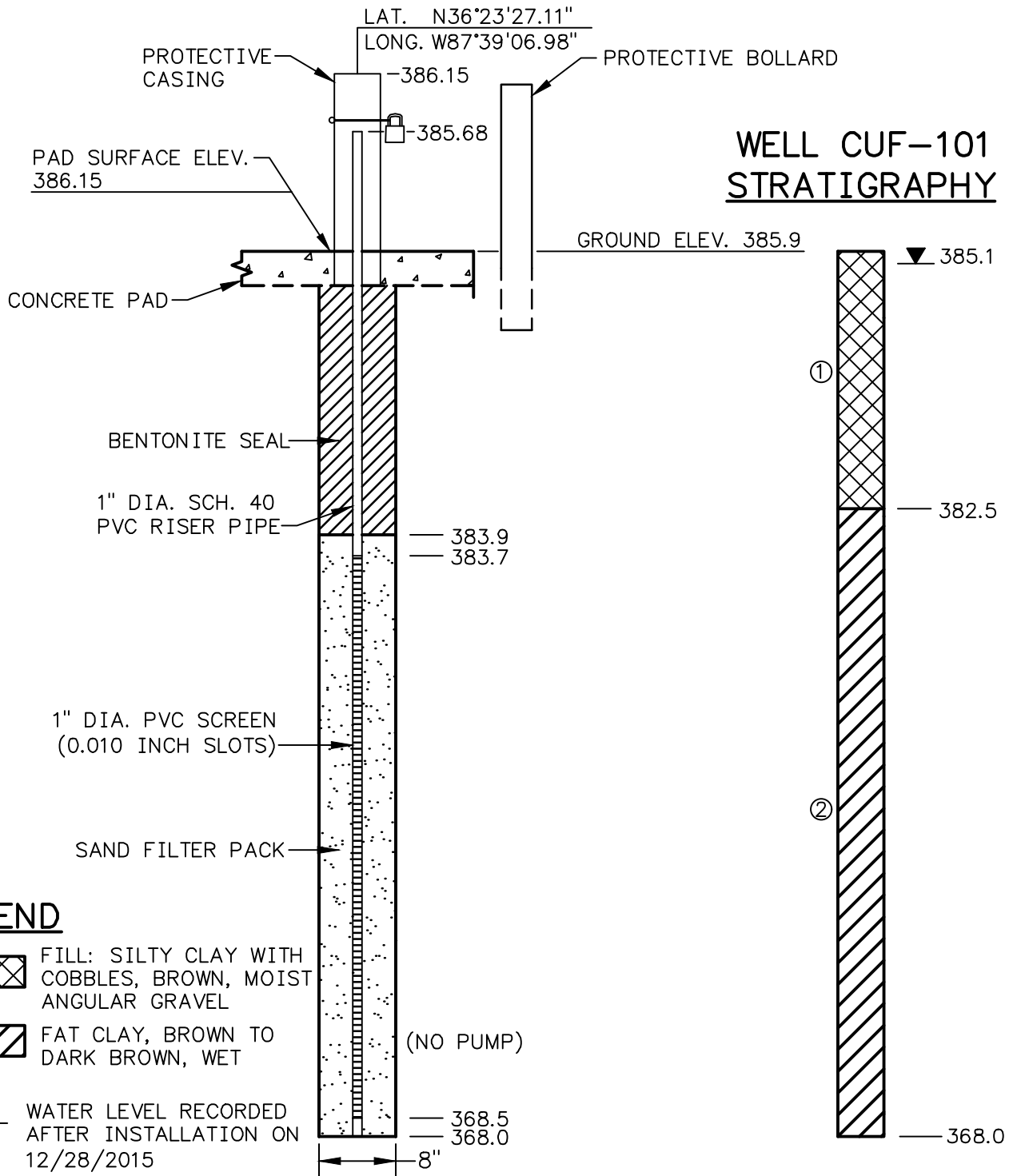
REMARKS:

INSTALLED TWO INCH PVC DIAMETER
PVC TYPE II PIEZOMETER, STABILIZED
GROUNDWATER MEASURED 18.5 FEET ON
MAY 1, 1992.

SEE KEY SHEET FOR EXPLANATION OF
SYMBOLS AND ABBREVIATIONS USED ABOVE

SOIL TEST BORING RECORD	
BORING NUMBER	B-110
DATE DRILLED	April 14, 1992
PROJECT NUMBER	57401442.04
PROJECT	TVA - CUMBERLAND
PAGE 3 OF 3	
 LAW ENGINEERING	

Note: This well installation log represents well construction details as documented at the time of installation and may vary from well details presented in more recent tables or documents based on updated well measurements in 2016.



LEGEND

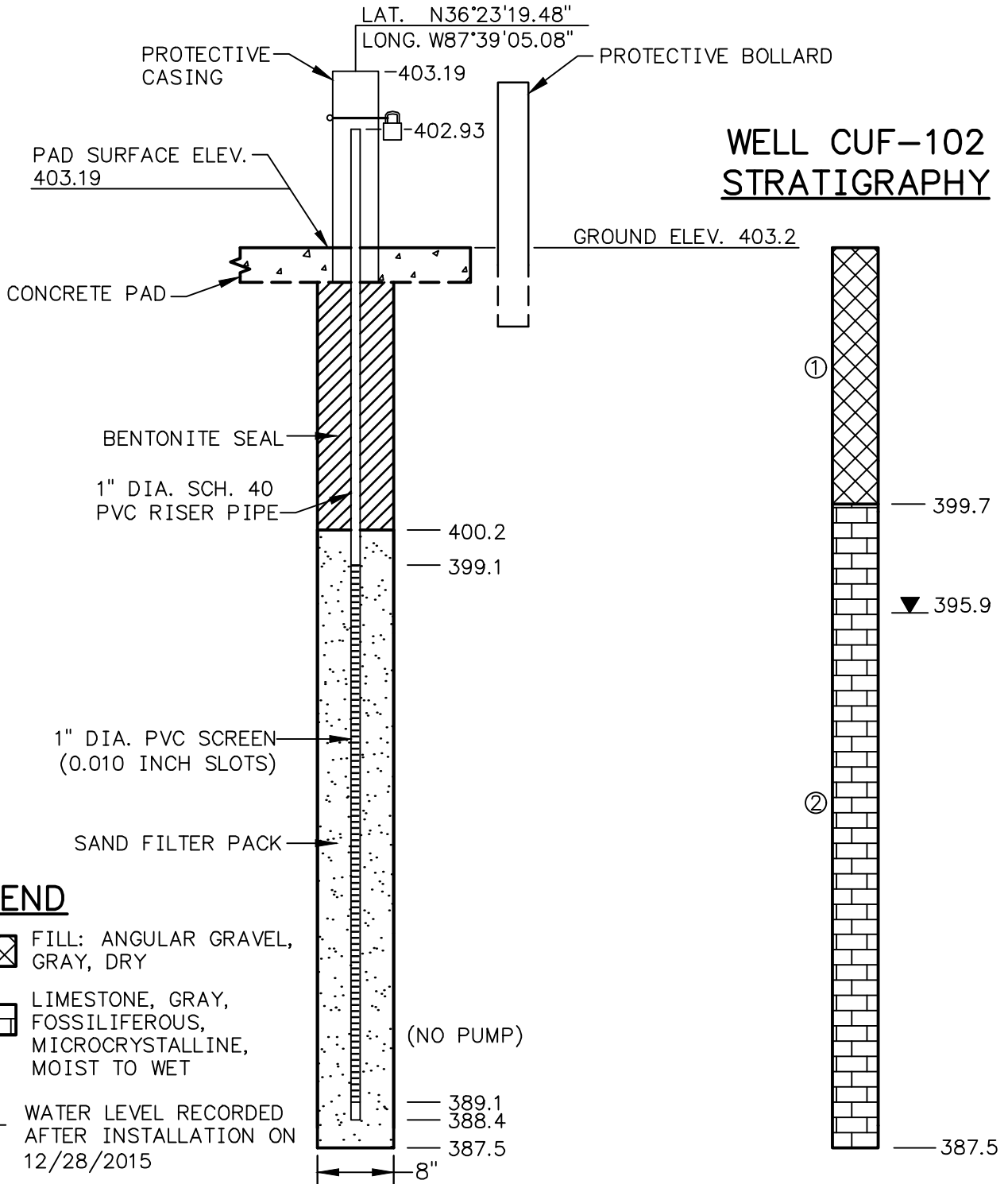
- ① FILL: SILTY CLAY WITH COBBLES, BROWN, MOIST ANGULAR GRAVEL
- ② FAT CLAY, BROWN TO DARK BROWN, WET
- WATER LEVEL RECORDED AFTER INSTALLATION ON 12/28/2015

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-101 BY AECOM ON 11/24/2015.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 11/24/2015 BY AECOM
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/10/2016).

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_101.DWG

CUF-101 OBSERVATION WELL INSTALLATION DETAIL			
TVA CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, STEWART COUNTY, TN			
		Stantec Consulting Services Inc. 3052 Beaumont Centre Circle Lexington, Kentucky 40513 859-422-3000 www.stantec.com	
DRAWN BY	MSJ	DATE	OCT. 2017
CHECKED BY	JGB	PROJ. NO.	175565299
CHECKED BY	BLB	SCALE	NTS
		REVISED	
		1. NOV., 2017	3.
		2.	4.
			SHEET
			1 of 1



LEGEND

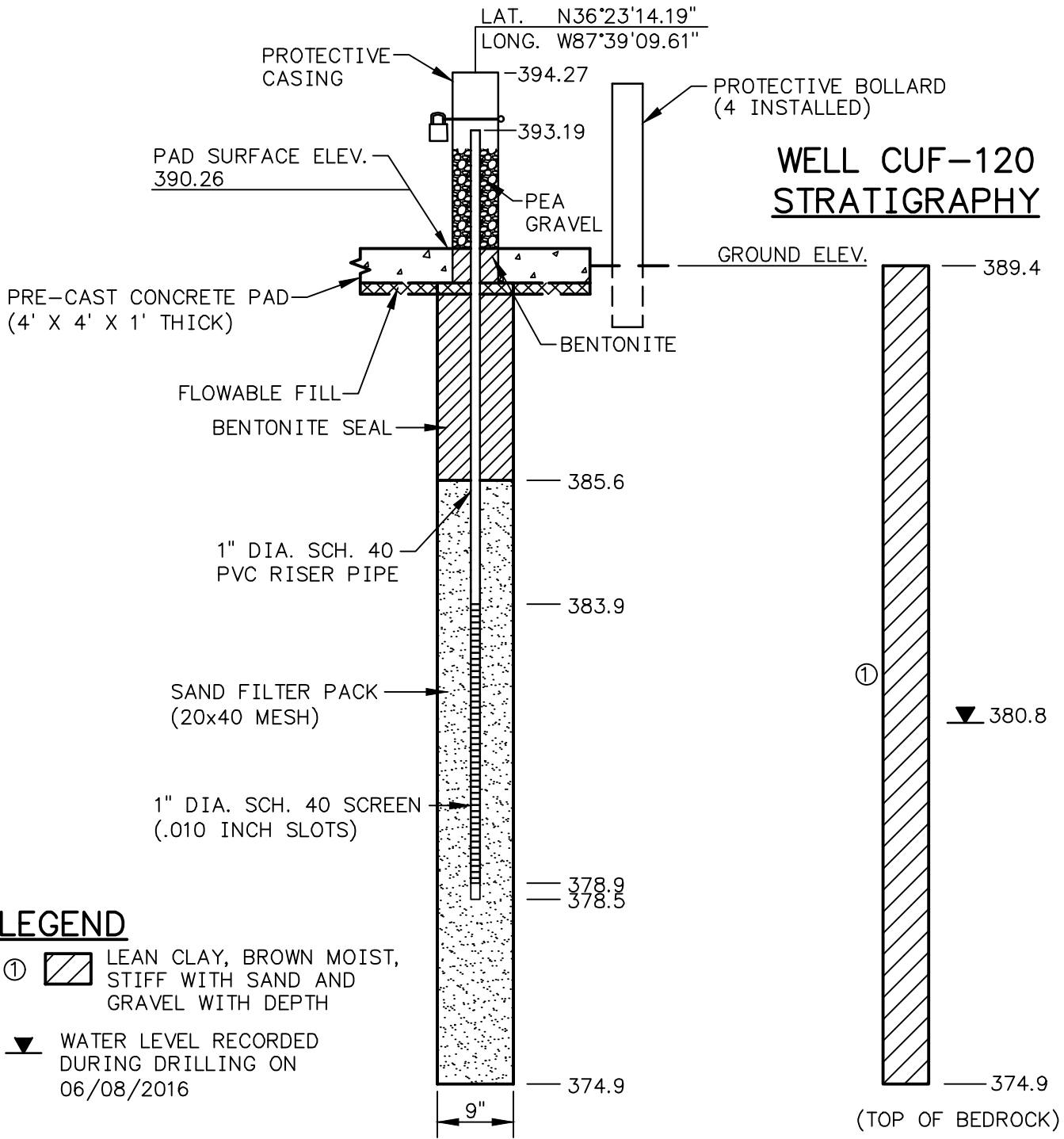
- ① FILL: ANGULAR GRAVEL, GRAY, DRY
- ② LIMESTONE, GRAY, FOSSILIFEROUS, MICROCRYSTALLINE, MOIST TO WET
- WATER LEVEL RECORDED AFTER INSTALLATION ON 12/28/2015

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-101 BY AECOM ON 11/23/2015.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 11/23/2015 BY AECOM.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/07/2016).

CUF-102 OBSERVATION WELL INSTALLATION DETAIL			
TVA CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, STEWART COUNTY, TN			
		Stantec Consulting Services Inc. 3052 Beaumont Centre Circle Lexington, Kentucky 40513 859-422-3000 www.stantec.com	
DRAWN BY	MSJ	DATE	OCT. 2017
CHECKED BY	JGB	PROJ. NO.	175565299
CHECKED BY	BLB	SCALE	NTS
		REVISED	
		1. JAN., 2018	3.
		2.	4.
			SHEET 1 of 1

PLOT DATE: 10/11/2017 USER: SAMS, BRIAN V:\1755\ACTIVE\175565299\GEOTECHNICAL\DRAWING\SHEET_FILES\CUF\GW_MON_WELLS\175565299 - INSTALL\CUF_102.DWG



LEGEND

- ① LEAN CLAY, BROWN MOIST, STIFF WITH SAND AND GRAVEL WITH DEPTH
- WATER LEVEL RECORDED DURING DRILLING ON 06/08/2016

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-120 BY STANTEC ON 06/08/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 06/08/2016 BY STANTEC.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/10/2016).

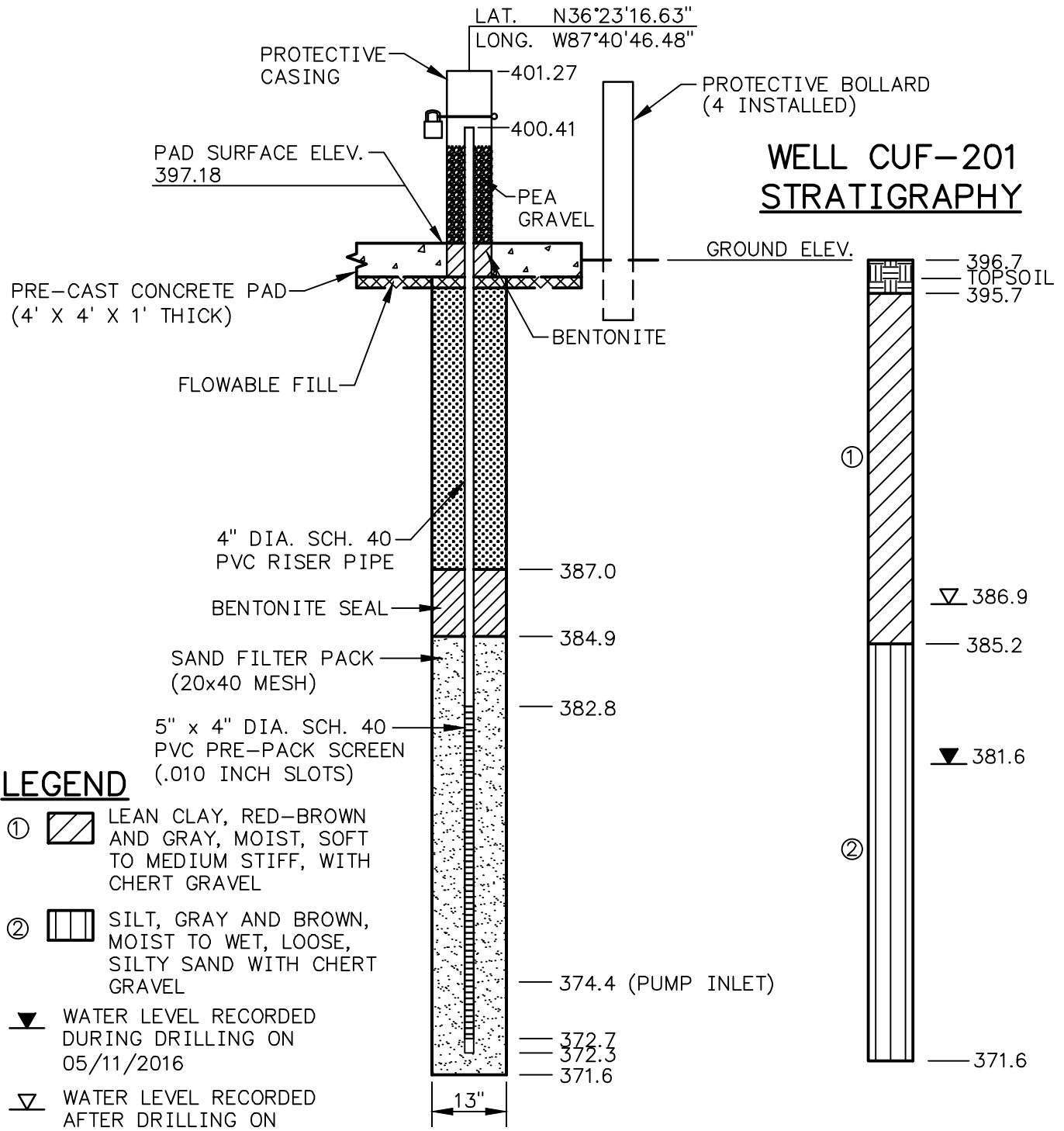
CUF-120 OBSERVATION WELL INSTALLATION DETAIL
TVA CUMBERLAND FOSSIL PLANT
CUMBERLAND CITY, STEWART COUNTY, TN

Stantec Consulting Services Inc.
3052 Beaumont Centre Circle
Lexington, Kentucky 40513
859-422-3000
www.stantec.com

DRAWN BY	RWE	DATE	JAN. 2017	REVISED	SHEET
CHECKED BY	DRP	PROJ. NO.	175565299	1. OCT. 2017	3.
CHECKED BY	BLB	SCALE	NTS	2. JAN., 2018	4.

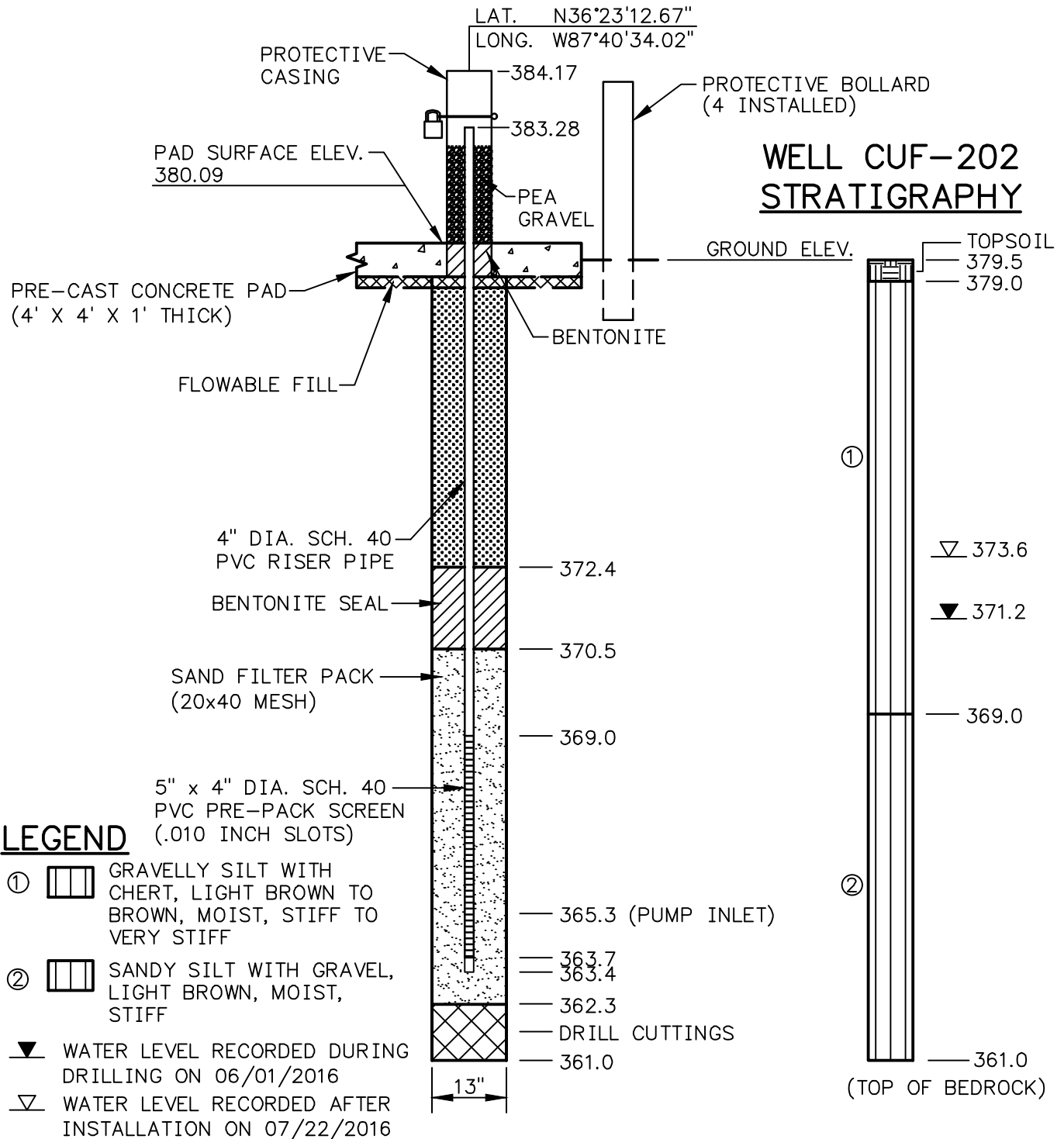
1 of 1

PLOT DATE: 10/11/2017 USER: SAMS, BRIAN V:\1755\ACTIVE\175565299\GECOTECHNICAL\DRAWING\SHEET_FILES\CUF\GW_MON_WELLS\INSTALL\CUF_120.DWG



PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW
U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_201.DWG

CUF-201 MONITORING WELL INSTALLATION DETAIL			
TVA CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, STEWART COUNTY, TN			
		Stantec Consulting Services Inc. 3052 Beaumont Centre Circle Lexington, Kentucky 40513 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	JAN. 2017
CHECKED BY	DRP	PROJ. NO.	175565299
CHECKED BY	BLB	SCALE	NTS
		REVISED	
		1. OCT. 2017	3.
		2.	4.
			SHEET
			1 of 1



LEGEND

- ① GRAVELLY SILT WITH CHERT, LIGHT BROWN TO BROWN, MOIST, STIFF TO VERY STIFF
- ② SANDY SILT WITH GRAVEL, LIGHT BROWN, MOIST, STIFF
- ▼ WATER LEVEL RECORDED DURING DRILLING ON 06/01/2016
- ▽ WATER LEVEL RECORDED AFTER INSTALLATION ON 07/22/2016

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-202 BY STANTEC ON 06/01/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 06/01/2016 BY STANTEC.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/10/2016).

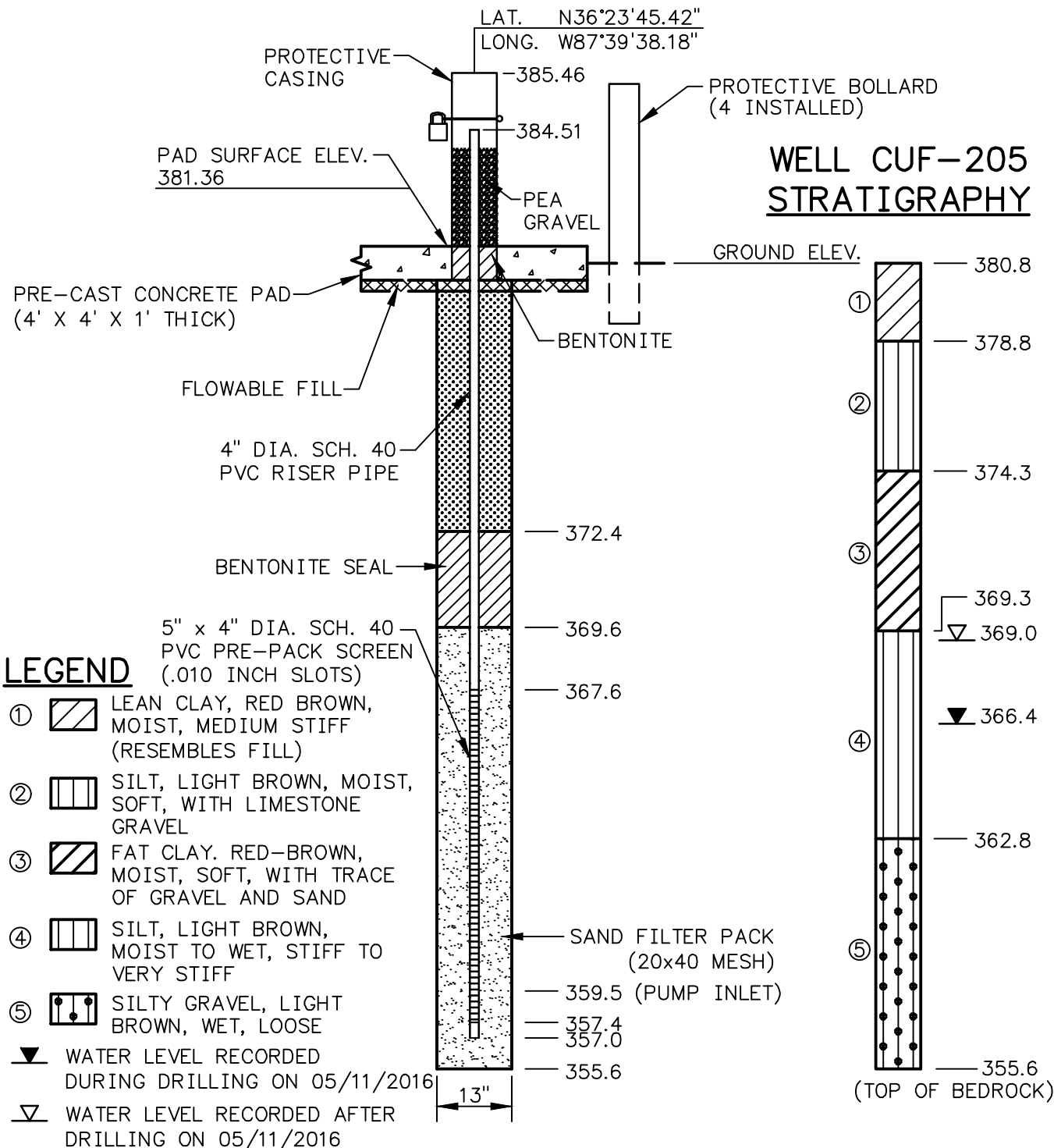
CUF-202 MONITORING WELL INSTALLATION DETAIL
TVA CUMBERLAND FOSSIL PLANT
CUMBERLAND CITY, STEWART COUNTY, TN

Stantec Consulting Services Inc.
3052 Beaumont Centre Circle
Lexington, Kentucky 40513
859-422-3000
www.stantec.com

DRAWN BY	RWE	DATE	JAN. 2017	REVISED	SHEET
CHECKED BY	DRP	PROJ. NO.	175565299	1. OCT. 2017	3.
CHECKED BY	BLB	SCALE	NTS	2.	4.

1 of 1

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_202.DWG



LEGEND

- ① LEAN CLAY, RED BROWN, MOIST, MEDIUM STIFF (RESEMBLES FILL)
- ② SILT, LIGHT BROWN, MOIST, SOFT, WITH LIMESTONE GRAVEL
- ③ FAT CLAY, RED-BROWN, MOIST, SOFT, WITH TRACE OF GRAVEL AND SAND
- ④ SILT, LIGHT BROWN, MOIST TO WET, STIFF TO VERY STIFF
- ⑤ SILTY GRAVEL, LIGHT BROWN, WET, LOOSE
- ▼ WATER LEVEL RECORDED DURING DRILLING ON 05/11/2016
- ▽ WATER LEVEL RECORDED AFTER DRILLING ON 05/11/2016

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-205 BY STANTEC ON 05/11/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 05/11/2016 BY STANTEC.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/07/2016).

**CUF-205 MONITORING WELL INSTALLATION DETAIL
TVA CUMBERLAND FOSSIL PLANT
CUMBERLAND CITY, STEWART COUNTY, TN**

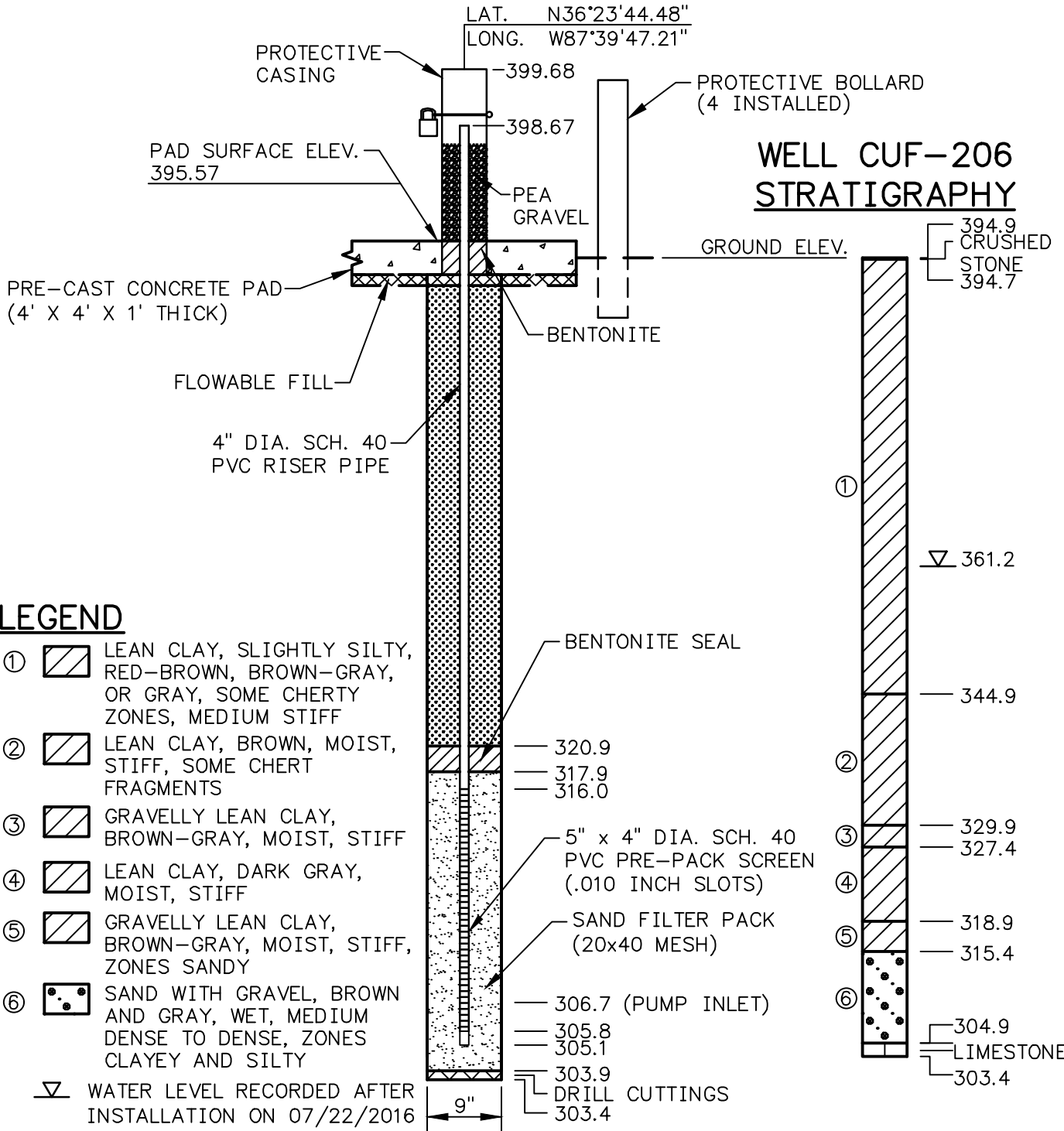
Stantec Consulting Services Inc.
3052 Beaumont Centre Circle
Lexington, Kentucky 40513
859-422-3000
www.stantec.com

DRAWN BY	RWE	DATE	JAN. 2017	REVISED	SHEET
CHECKED BY	DRP	PROJ. NO.	175565299	1. OCT. 2017	3.
CHECKED BY	BLB	SCALE	NTS	2.	4.

1 of 1

PLOT DATE: 02/03/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_205.DWG

LAT. N36°23'44.48"
LONG. W87°39'47.21"

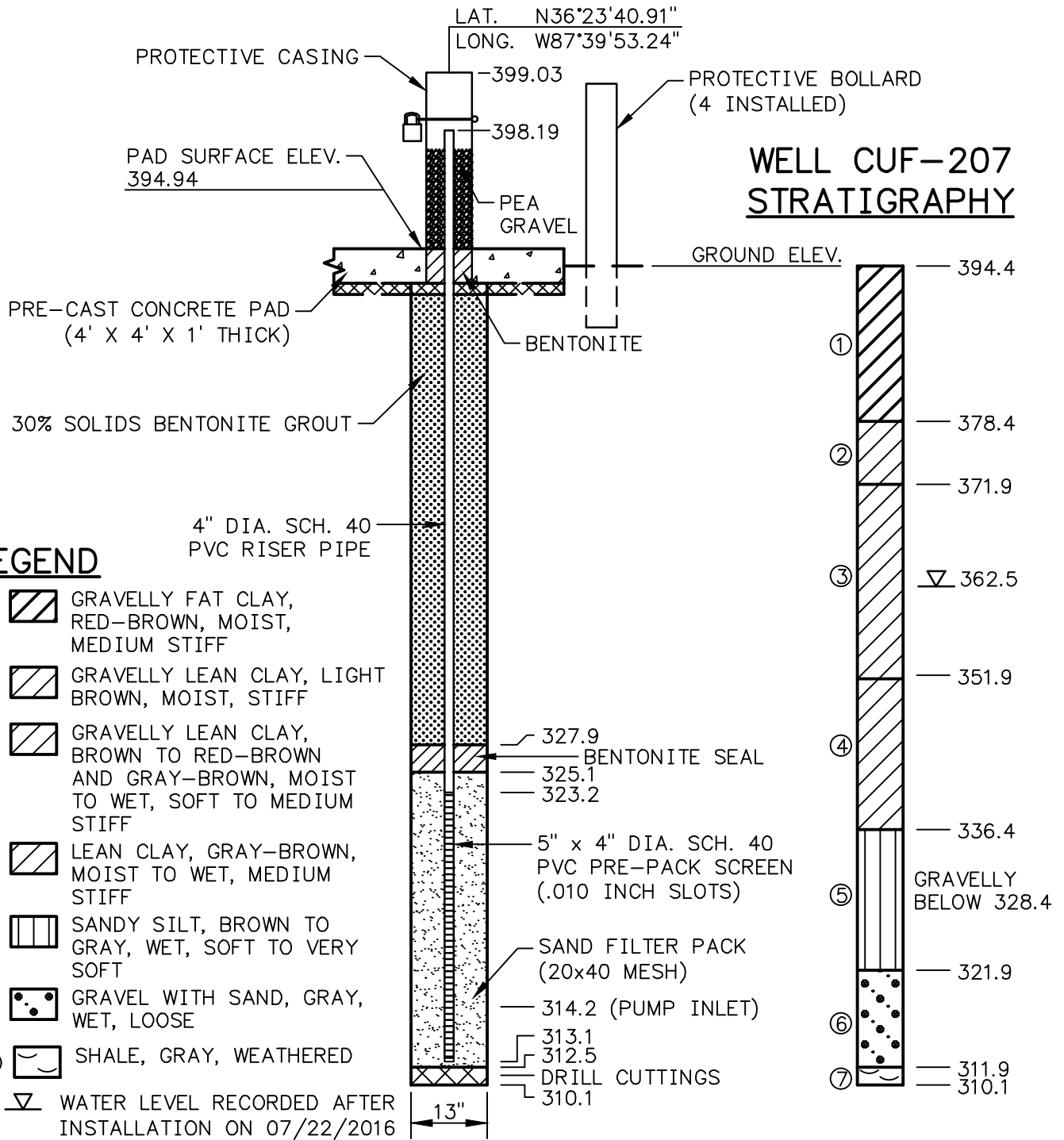


NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-206 BY STANTEC ON 06/02/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 06/02/2016 BY STANNTEC.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/06/2016).

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW
U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_206.DWG

CUF-206 MONITORING WELL INSTALLATION DETAIL			
TVA CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, STEWART COUNTY, TN			
		Stantec Consulting Services Inc. 3052 Beaumont Centre Circle Lexington, Kentucky 40513 859-422-3000 www.stantec.com	
DRAWN BY	RWE	DATE	JAN. 2017
CHECKED BY	DRP	PROJ. NO.	175565299
CHECKED BY	BLB	SCALE	NTS
		REVISION	
		1. OCT. 2017	3.
		2.	4.
			SHEET
			1 of 1



LEGEND

- ① GRAVELLY FAT CLAY, RED-BROWN, MOIST, MEDIUM STIFF
- ② GRAVELLY LEAN CLAY, LIGHT BROWN, MOIST, STIFF
- ③ GRAVELLY LEAN CLAY, BROWN TO RED-BROWN AND GRAY-BROWN, MOIST TO WET, SOFT TO MEDIUM STIFF
- ④ LEAN CLAY, GRAY-BROWN, MOIST TO WET, MEDIUM STIFF
- ⑤ SANDY SILT, BROWN TO GRAY, WET, SOFT TO VERY SOFT
- ⑥ GRAVEL WITH SAND, GRAY, WET, LOOSE
- ⑦ SHALE, GRAY, WEATHERED
- WATER LEVEL RECORDED AFTER INSTALLATION ON 07/22/2016

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-207 BY STANTEC ON 05/12/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 05/12/2016 BY STANTEC.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/06/2016).

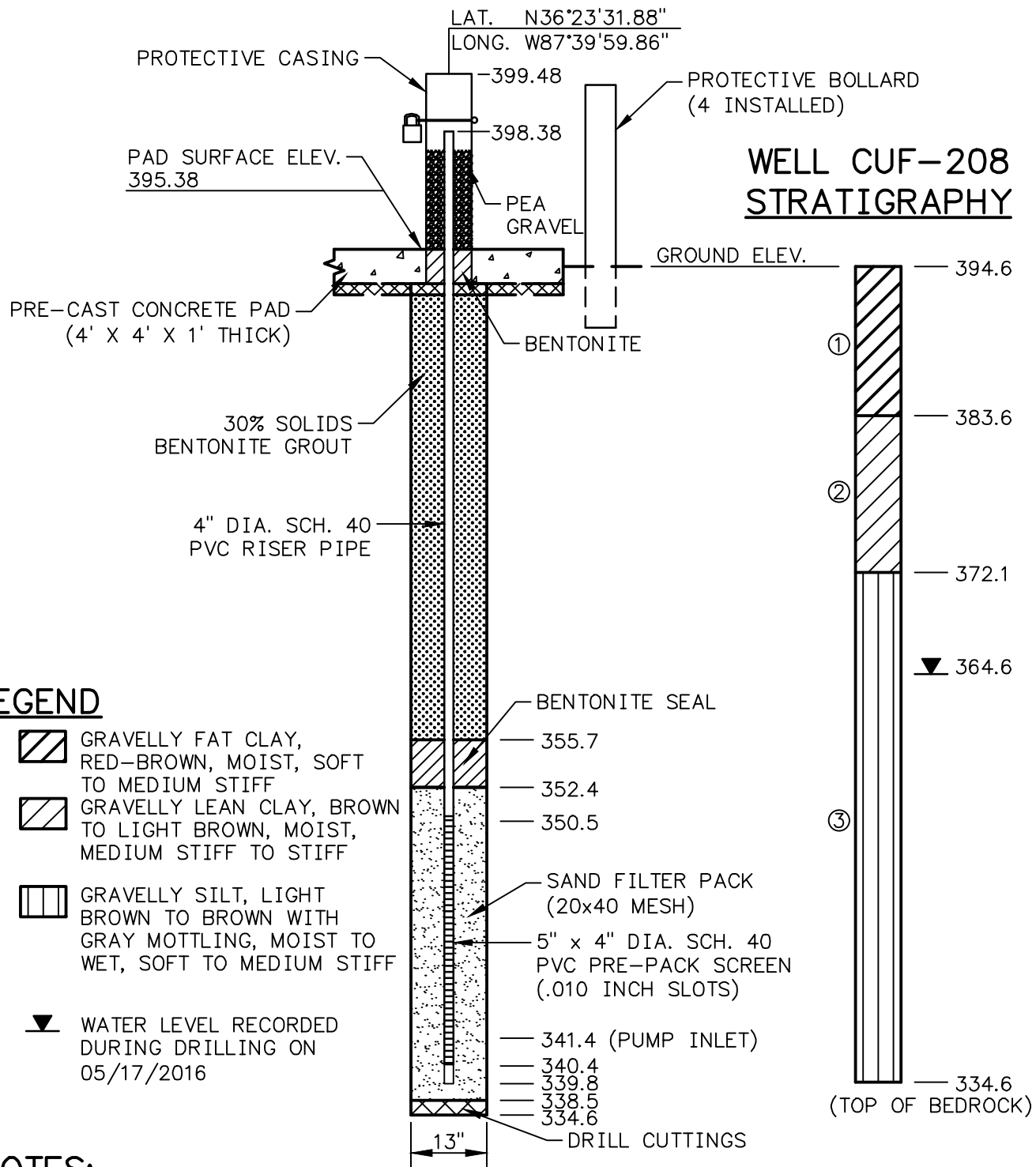
**CUF-207 MONITORING WELL INSTALLATION DETAIL
TVA CUMBERLAND FOSSIL PLANT
CUMBERLAND CITY, STEWART COUNTY, TN**

Stantec Consulting Services Inc.
3052 Beaumont Centre Circle
Lexington, Kentucky 40513
859-422-3000
www.stantec.com

DRAWN BY	BMS	DATE	JAN. 2017	REVISED	SHEET
CHECKED BY	DRP	PROJ. NO.	175565299	1. OCT. 2017	3.
CHECKED BY	BLB	SCALE	NTS	2.	4.

1 of 1

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_207.DWG



LEGEND

- ① GRAVELLY FAT CLAY, RED-BROWN, MOIST, SOFT TO MEDIUM STIFF
 - ② GRAVELLY LEAN CLAY, BROWN TO LIGHT BROWN, MOIST, MEDIUM STIFF TO STIFF
 - ③ GRAVELLY SILT, LIGHT BROWN TO BROWN WITH GRAY MOTTLING, MOIST TO WET, SOFT TO MEDIUM STIFF
- WATER LEVEL RECORDED DURING DRILLING ON 05/17/2016

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-208 BY STANTEC ON 05/17/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 05/17/2016 BY STANTEC.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/06/2016).

CUF-208 MONITORING WELL INSTALLATION DETAIL TVA CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, STEWART COUNTY, TN

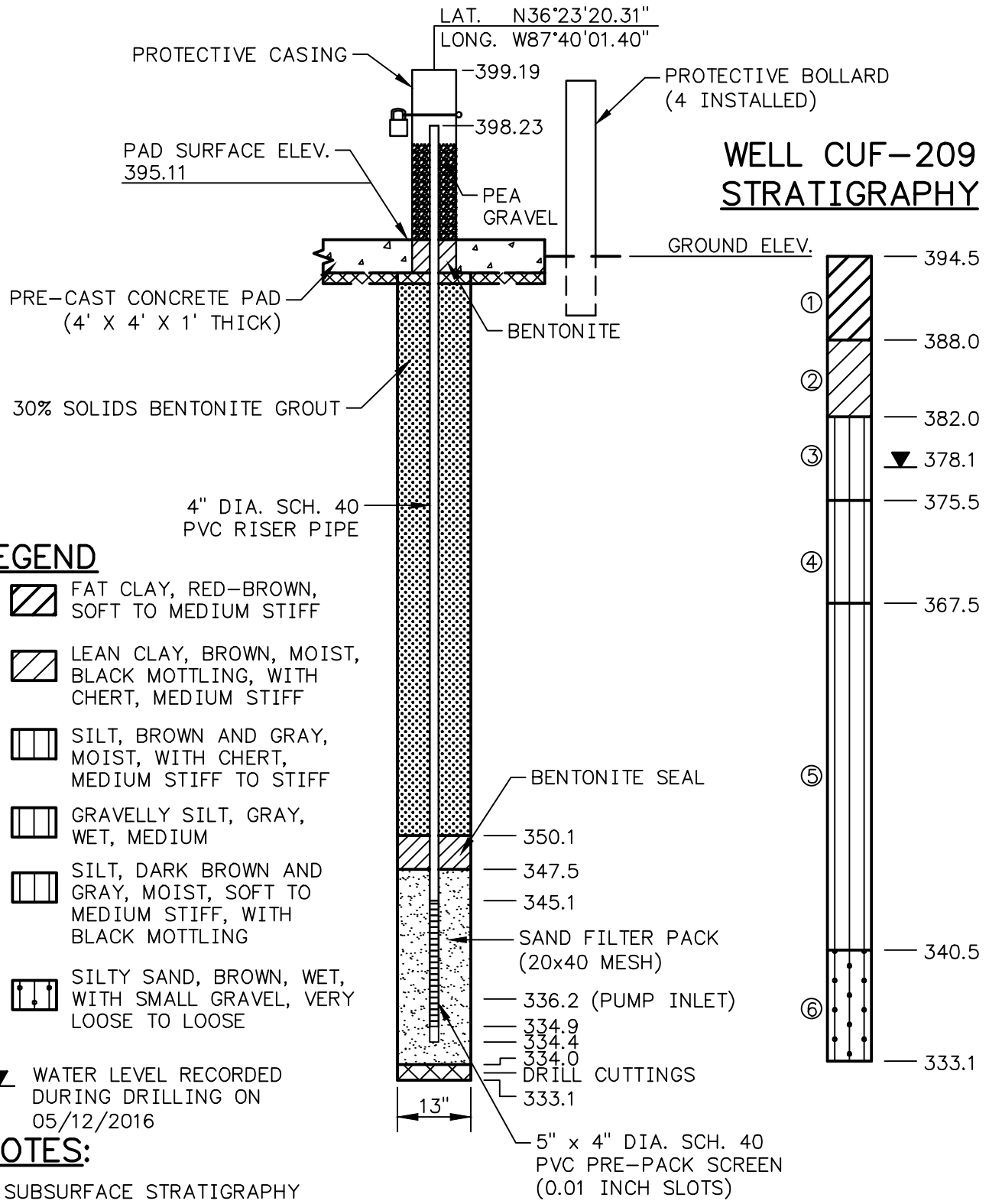


Stantec

Stantec Consulting Services Inc.
3052 Beaumont Centre Circle
Lexington, Kentucky 40513
859-422-3000
www.stantec.com

DRAWN BY	BMS	DATE	JAN. 2017	REVISED		SHEET
CHECKED BY	DRP	PROJ. NO.	175565299	1. OCT. 2017	3.	1 of 1
CHECKED BY	BLB	SCALE	NTS	2.	4.	

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_208.DWG



LEGEND

- ① FAT CLAY, RED-BROWN, SOFT TO MEDIUM STIFF
- ② LEAN CLAY, BROWN, MOIST, BLACK MOTTLING, WITH CHERT, MEDIUM STIFF
- ③ SILT, BROWN AND GRAY, MOIST, WITH CHERT, MEDIUM STIFF TO STIFF
- ④ GRAVELLY SILT, GRAY, WET, MEDIUM
- ⑤ SILT, DARK BROWN AND GRAY, MOIST, SOFT TO MEDIUM STIFF, WITH BLACK MOTTLING
- ⑥ SILTY SAND, BROWN, WET, WITH SMALL GRAVEL, VERY LOOSE TO LOOSE

▼ WATER LEVEL RECORDED DURING DRILLING ON 05/12/2016

NOTES:

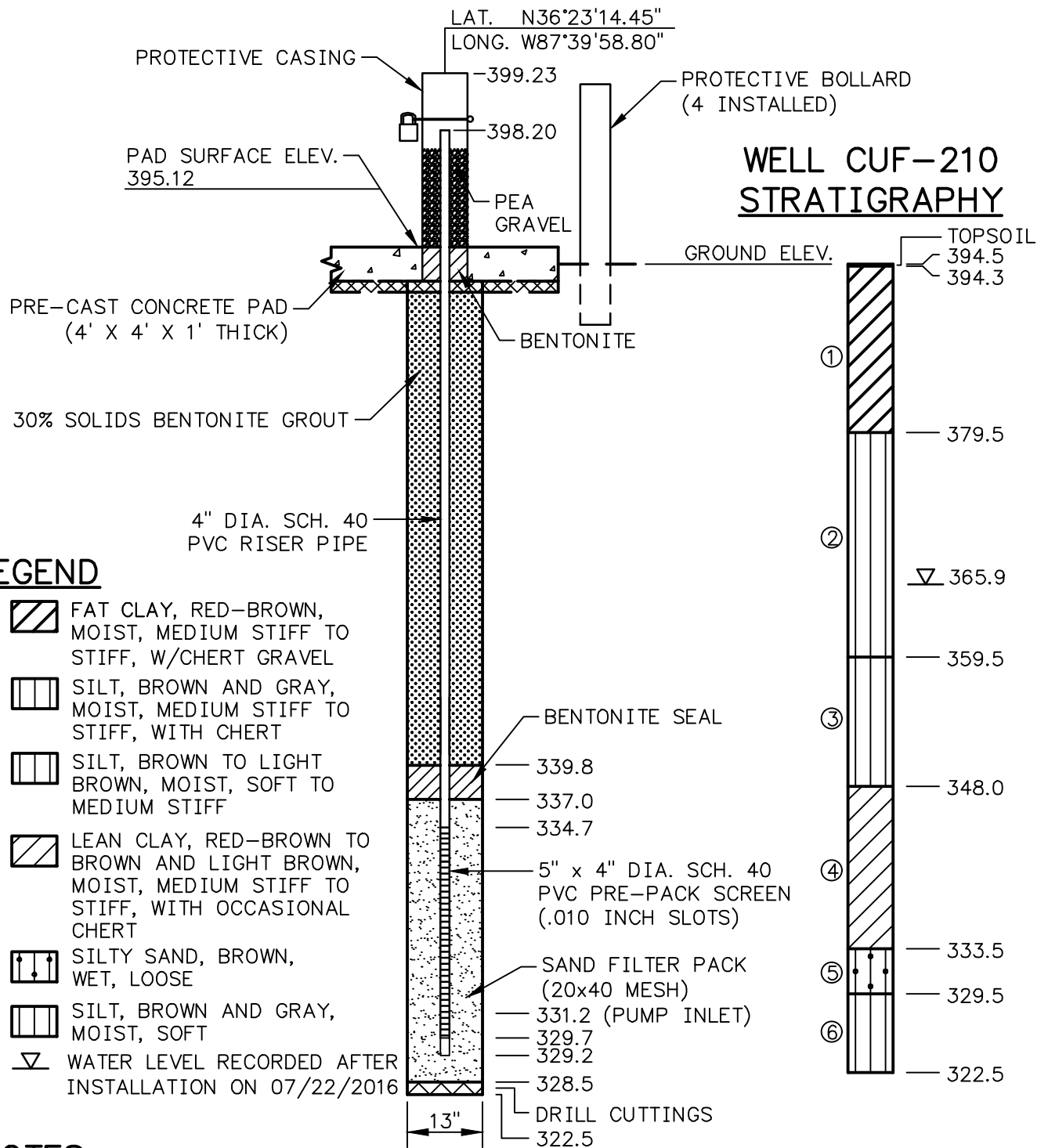
1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-209 BY STANTEC ON 05/12/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 05/12/2016 BY STANTEC
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/06/2016).

CUF- 209 MONITORING WELL INSTALLATION DETAIL
TVA CUMBERLAND FOSSIL PLANT
CUMBERLAND CITY, STEWART COUNTY, TN

Stantec Consulting Services Inc.
 3052 Beaumont Centre Circle
 Lexington, Kentucky 40513
 859-422-3000
www.stantec.com

DRAWN BY	BMS	DATE	JAN. 2017	REVISED		SHEET
CHECKED BY	DRP	PROJ. NO.	175565299	1. OCT. 2017	3.	1 of 1
CHECKED BY	BLB	SCALE	NTS	2.	4.	

PLOT DATE: 02/03/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_209.DWG

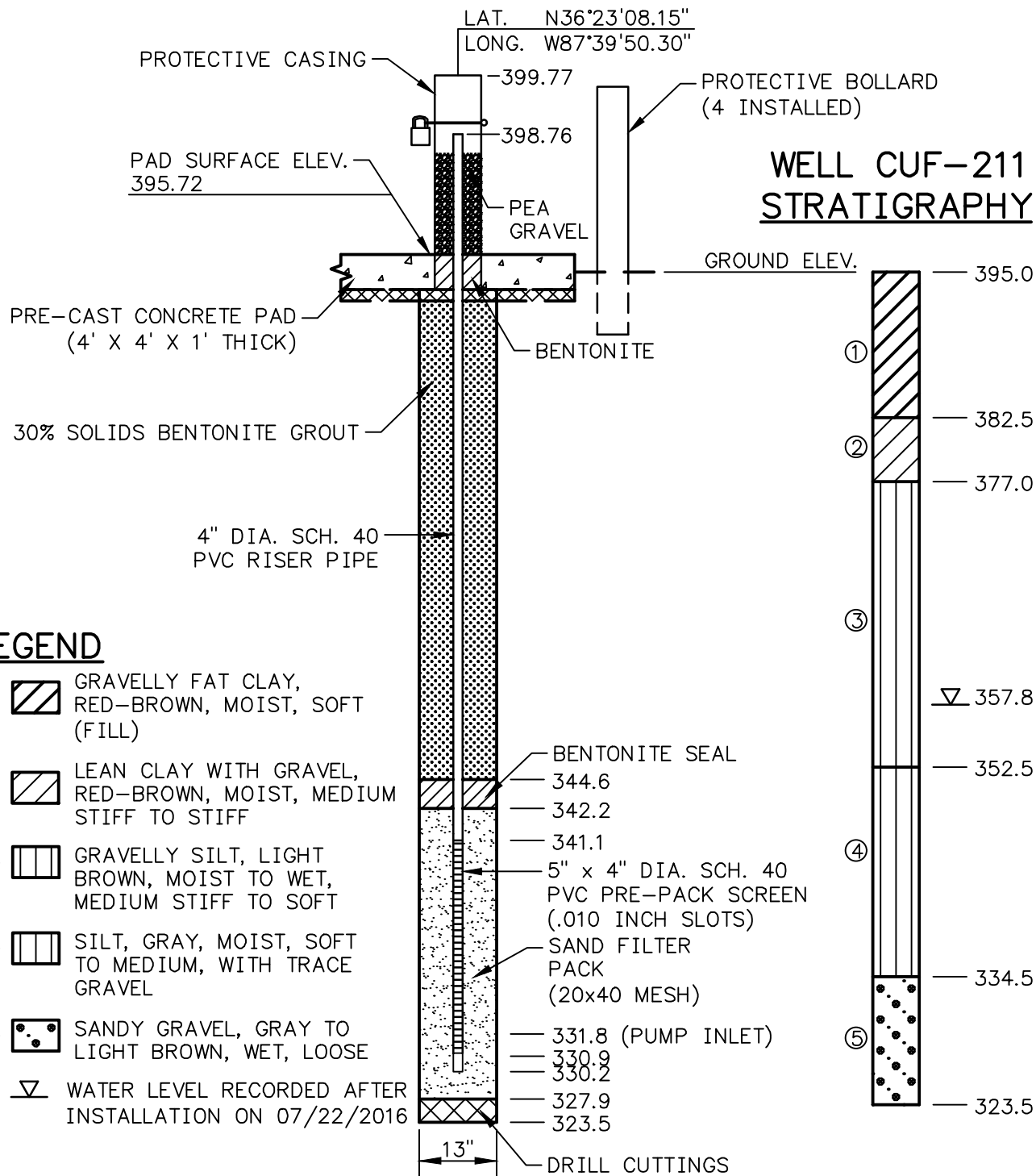


NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-210 BY STANTEC ON 05/17/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 05/17/2016 BY STANTEC.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/06/2016).

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_210.DWG

CUF-210 MONITORING WELL INSTALLATION DETAIL			
TVA CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, STEWART COUNTY, TN			
		Stantec Consulting Services Inc. 3052 Beaumont Centre Circle Lexington, Kentucky 40513 859-422-3000 www.stantec.com	
DRAWN BY	BMS	DATE	JAN. 2017
CHECKED BY	DRP	PROJ. NO.	175565299
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		REVISED	
		1. OCT. 2017	3.
		2.	4.
			SHEET
			1 of 1



LEGEND

- ① GRAVELLY FAT CLAY, RED-BROWN, MOIST, SOFT (FILL)
- ② LEAN CLAY WITH GRAVEL, RED-BROWN, MOIST, MEDIUM STIFF TO STIFF
- ③ GRAVELLY SILT, LIGHT BROWN, MOIST TO WET, MEDIUM STIFF TO SOFT
- ④ SILT, GRAY, MOIST, SOFT TO MEDIUM, WITH TRACE GRAVEL
- ⑤ SANDY GRAVEL, GRAY TO LIGHT BROWN, WET, LOOSE
- WATER LEVEL RECORDED AFTER INSTALLATION ON 07/22/2016

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-211 BY STANTEC ON 05/19/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 05/19/2016 BY STANTEC.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/06/2016).

CUF- 211 MONITORING WELL INSTALLATION DETAIL TVA CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, STEWART COUNTY, TN

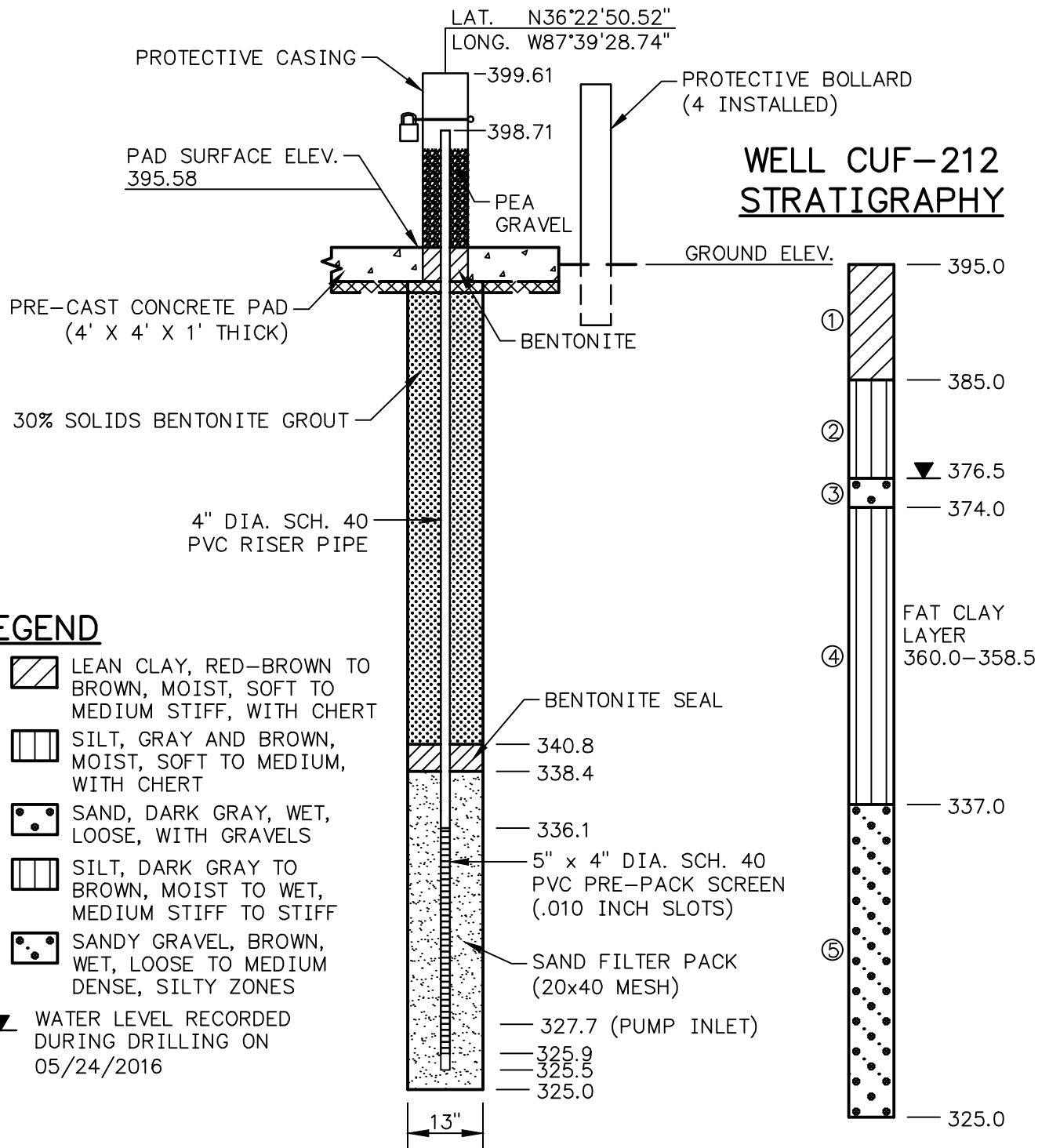


Stantec

Stantec Consulting Services Inc.
3052 Beaumont Centre Circle
Lexington, Kentucky 40513
859-422-3000
www.stantec.com

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CHECKED BY	BLB	SCALE	NTS	2.	4.

1 of 1



LEGEND

- ① LEAN CLAY, RED-BROWN TO BROWN, MOIST, SOFT TO MEDIUM STIFF, WITH CHERT
 - ② SILT, GRAY AND BROWN, MOIST, SOFT TO MEDIUM, WITH CHERT
 - ③ SAND, DARK GRAY, WET, LOOSE, WITH GRAVELS
 - ④ SILT, DARK GRAY TO BROWN, MOIST TO WET, MEDIUM STIFF TO STIFF
 - ⑤ SANDY GRAVEL, BROWN, WET, LOOSE TO MEDIUM DENSE, SILTY ZONES
- ▼ WATER LEVEL RECORDED DURING DRILLING ON 05/24/2016

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-212 BY STANTEC ON 05/24/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 05/24/2016 BY STANTEC.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/06/2016).

CUF-212 MONITORING WELL INSTALLATION DETAIL TVA CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, STEWART COUNTY, TN



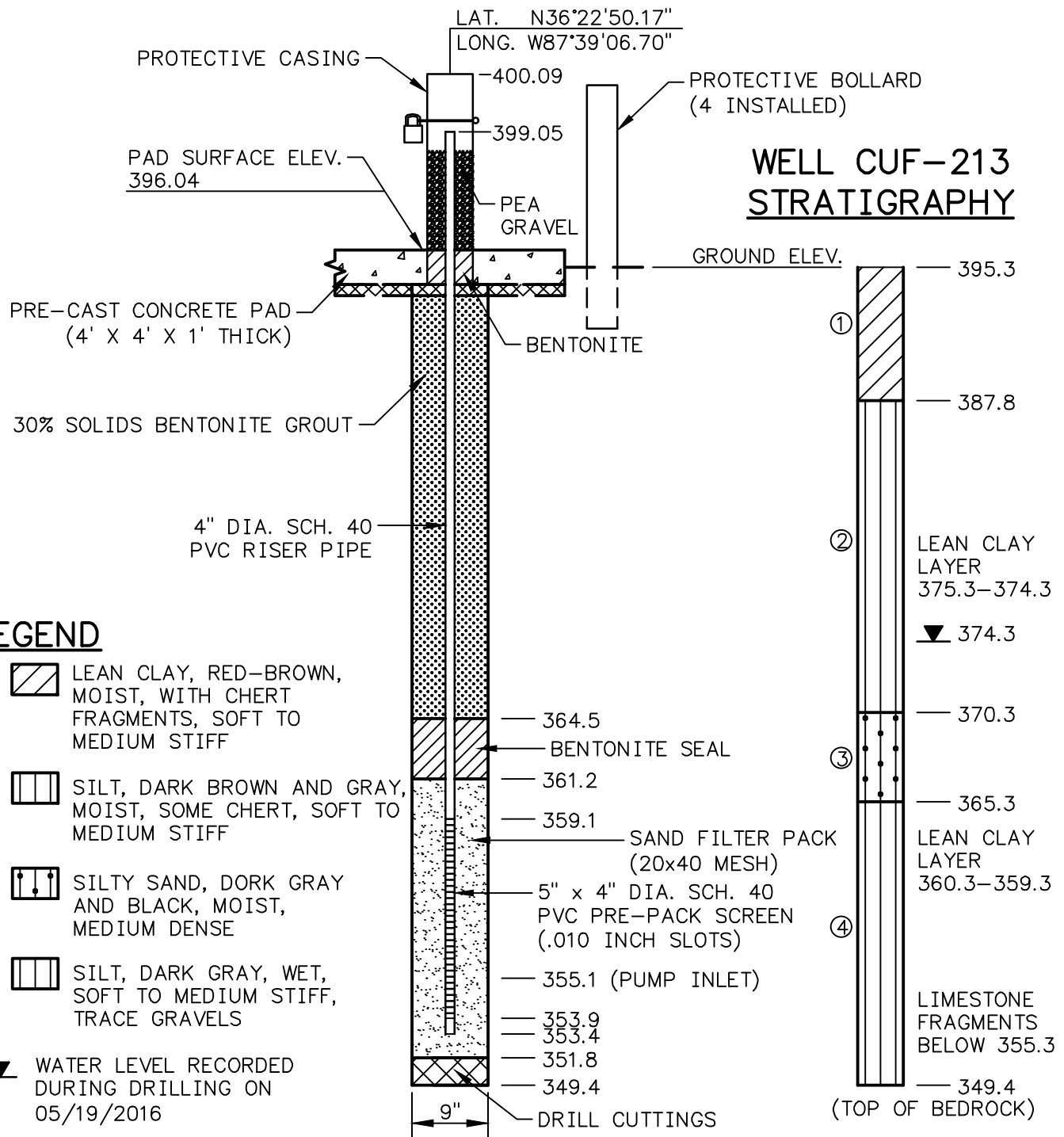
Stantec

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3052 Beaumont Centre Circle
Lexington, Kentucky 40513
859-422-3000
www.stantec.com

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CHECKED BY	DRP	PROJ. NO.	175565299	1. OCT. 2017	3.
CHECKED BY	BLB	SCALE	NTS	2.	4.

1 of 1

PLOT DATE: 10/11/2017 USER: JENNINGS, MATTHEW
U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_212.DWG



LEGEND

- ① LEAN CLAY, RED-BROWN, MOIST, WITH CHERT FRAGMENTS, SOFT TO MEDIUM STIFF
 - ② SILT, DARK BROWN AND GRAY, MOIST, SOME CHERT, SOFT TO MEDIUM STIFF
 - ③ SILTY SAND, DORK GRAY AND BLACK, MOIST, MEDIUM DENSE
 - ④ SILT, DARK GRAY, WET, SOFT TO MEDIUM STIFF, TRACE GRAVELS
- WATER LEVEL RECORDED DURING DRILLING ON 05/19/2016

NOTES:

1. SUBSURFACE STRATIGRAPHY BASED ON BORING LOG CUF-213 BY STANTEC ON 05/19/2016.
2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83/NGVD29 SHOWN).
3. WELL INSTALLED ON 05/19/2016 BY STANTEC.
4. SCREEN INTERVAL AND WELL DEPTH BASED ON VIDEO LOGGING (STANTEC, 10/06/2016).

PLOT DATE: 02/03/2017 USER: JENNINGS, MATTHEW U:\1755\TVA GW MONITORING WELLS - CADD\CUF\175565299 - INSTALL\FROM_LEX\CUF_213.DWG

CUF-213 MONITORING WELL INSTALLATION DETAIL			
TVA CUMBERLAND FOSSIL PLANT			
CUMBERLAND CITY, STEWART COUNTY, TN			
		Stantec	
		Stantec Consulting Services Inc. 3052 Beaumont Centre Circle Lexington, Kentucky 40513 859-422-3000 www.stantec.com	
DRAWN BY	BMS	DATE	JAN. 2017
CHECKED BY	DRP	PROJ. NO.	175565299
CHECKED BY	BLB	SCALE	NTS
		REVISED	SHEET
		1. OCT. 2017	3.
		2.	4.
			1 of 1

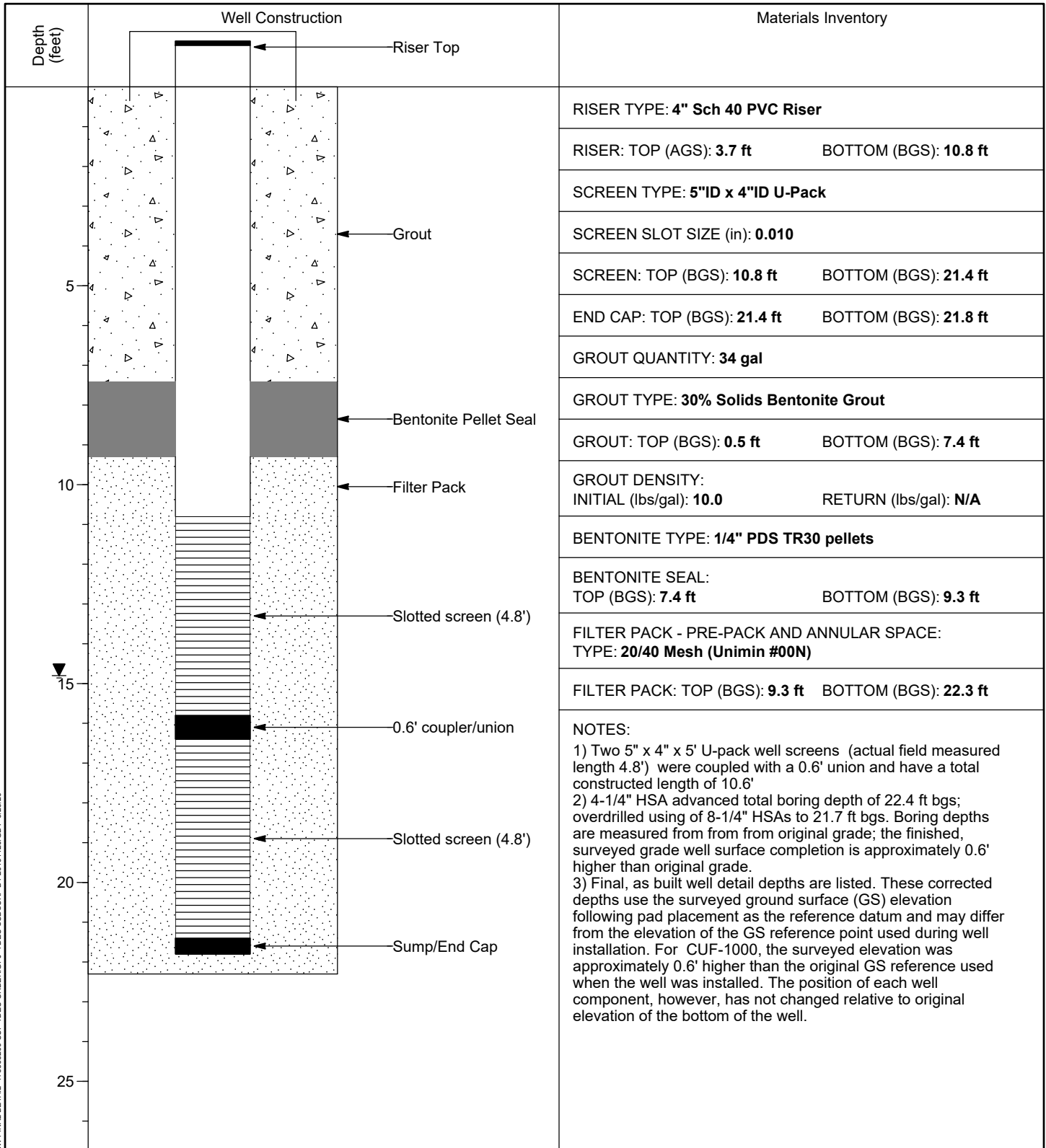


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: **CUF-1000 (Boring CUF-1000ALTA)** PAGE 1 OF 1

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 850XR, #953**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 3" SS w/o liners**
 OBSERVED BY: **G. Budd**
 REVIEWED BY: **D. Norman**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **12/3/18** COMPLETED: **12/4/18**
 LOCATION: **729,161.60 N; 1,507,389.51 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP:
 LATITUDE: **36° 23' 0.83"** LONGITUDE: **-87° 40' 24.51"**
 GROUND ELEV (ft): **391.6** TOC ELEV (ft): **395.29**
 ELEVATION DATUM: **NGVD29**
 WELL DEPTH (ft, bgs): **21.8**
 DTW AT COMPLETION (ft, bgs): **14.8**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



MW FINAL DETAIL 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20191120.GDT 6/29/20

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

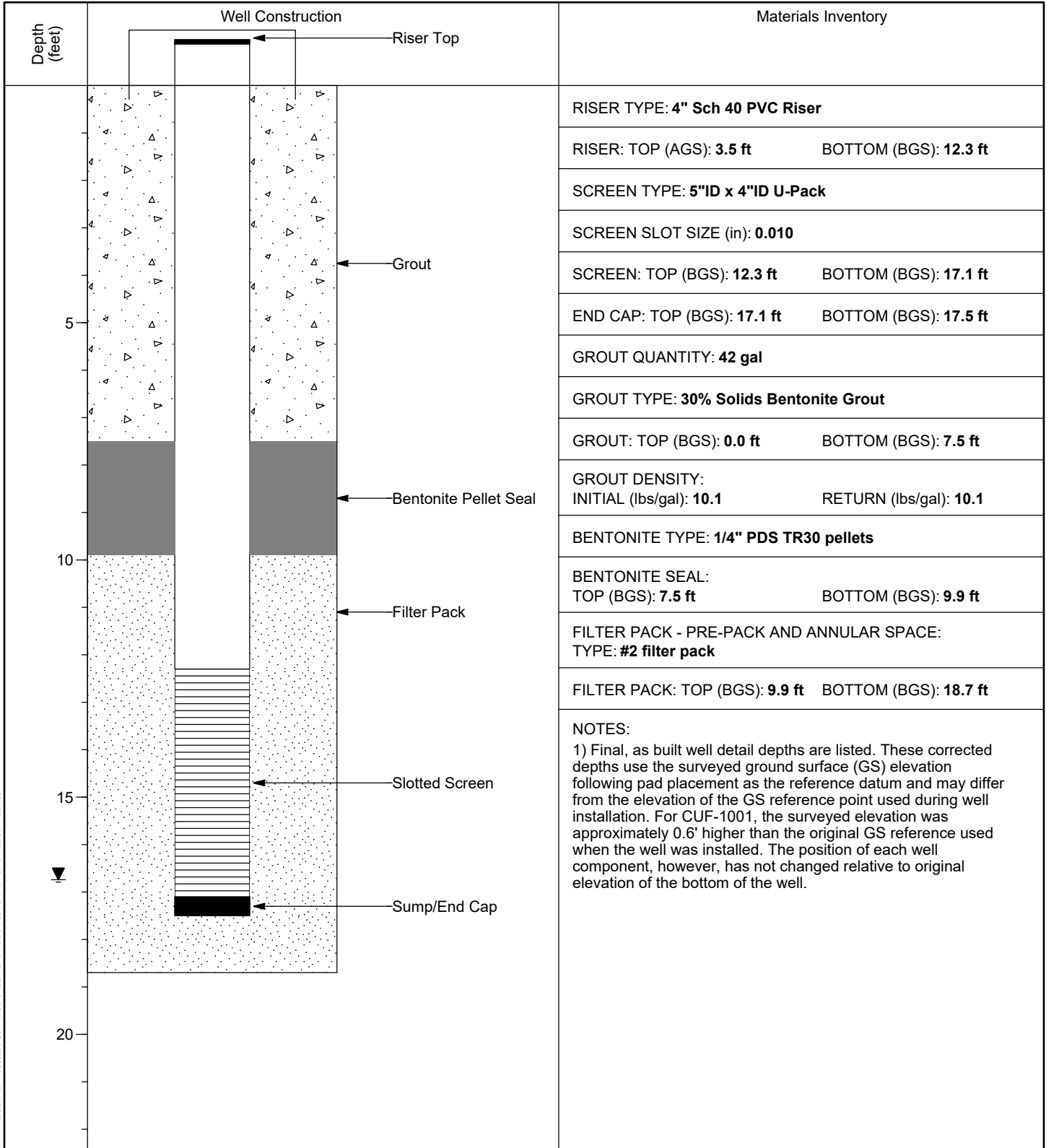


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: PAGE 1 OF 1
CUF-1001 (Boring CUF-1001ALT2)

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 85#1, #950**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 2" SS w/o liners**
 OBSERVED BY: **M. Edmunds**
 REVIEWED BY: **A. Blair**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **4/10/19** COMPLETED: **4/10/19**
 LOCATION: **730,376.03 N; 1,513,548.74 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Gravel/grass area by AECOM construction**
 LATITUDE: **36° 23' 13.87"** LONGITUDE: **-87° 39' 9.45"**
 GROUND ELEV (ft): **390.3** TOC ELEV (ft): **393.75**
 ELEVATION DATUM: **NGVD29**
 WELL DEPTH (ft, bgs): **17.5**
 DTW AT COMPLETION (ft, bgs): **16.7**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



MW FINAL DETAIL 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20191120.GDT 6/29/20

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

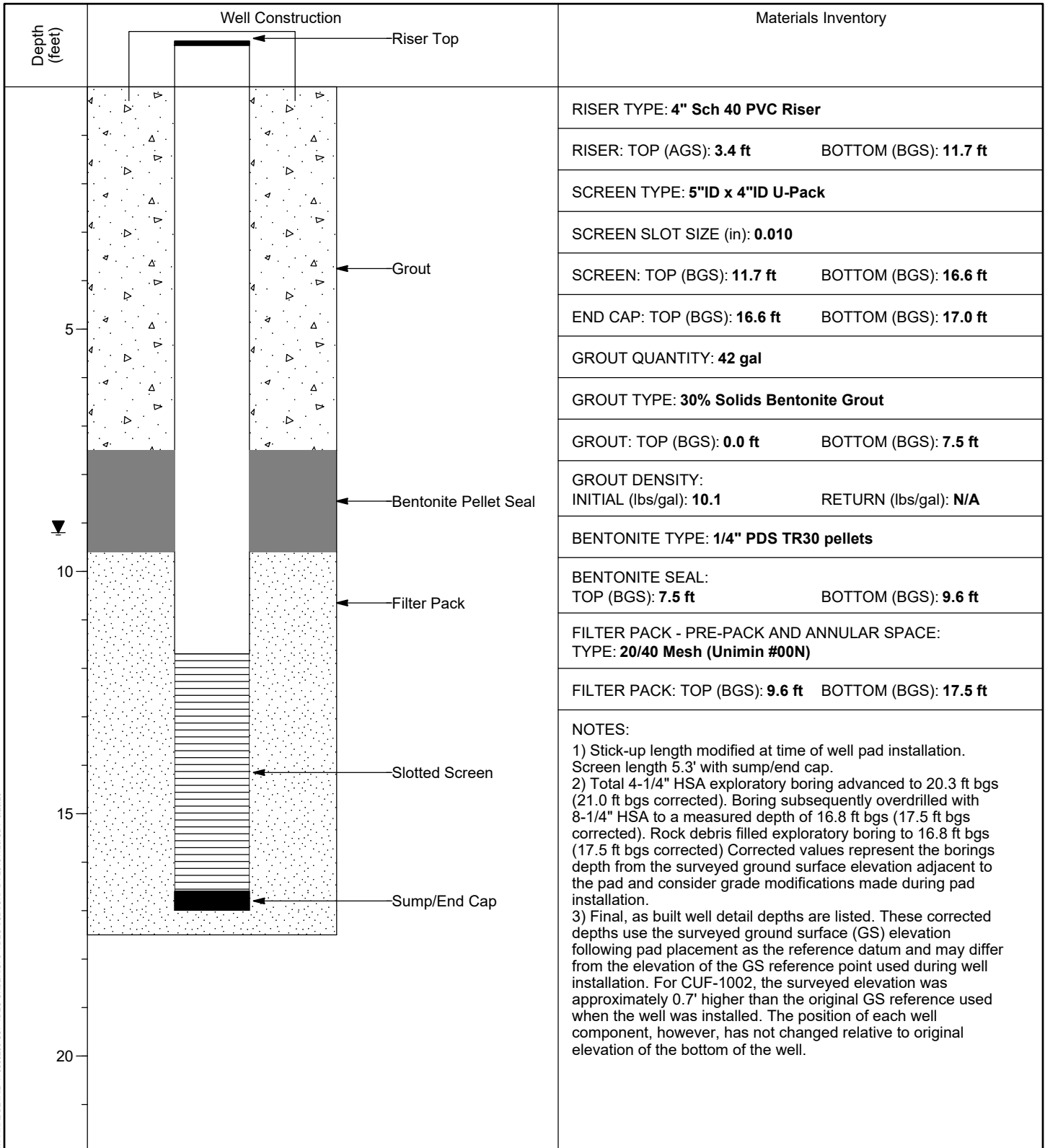


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: PAGE 1 OF 1
CUF-1002 (Boring CUF-1002ALT2)

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 850XR, #953**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 2" SS w/o liners**
 OBSERVED BY: **G. Budd**
 REVIEWED BY: **D. Norman**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **1/24/19** COMPLETED: **1/25/19**
 LOCATION: **731,662.39 N; 1,511,771.92 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Dry Ash Stack**
 LATITUDE: **36° 23' 26.29"** LONGITUDE: **-87° 39' 31.44"**
 GROUND ELEV (ft): **385.8** TOC ELEV (ft): **389.26**
 ELEVATION DATUM: **NGVD29**
 WELL DEPTH (ft, bgs): **17.0**
 DTW AT COMPLETION (ft, bgs): **9.2**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



MW FINAL DETAIL 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20191120.GDT 6/29/20

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

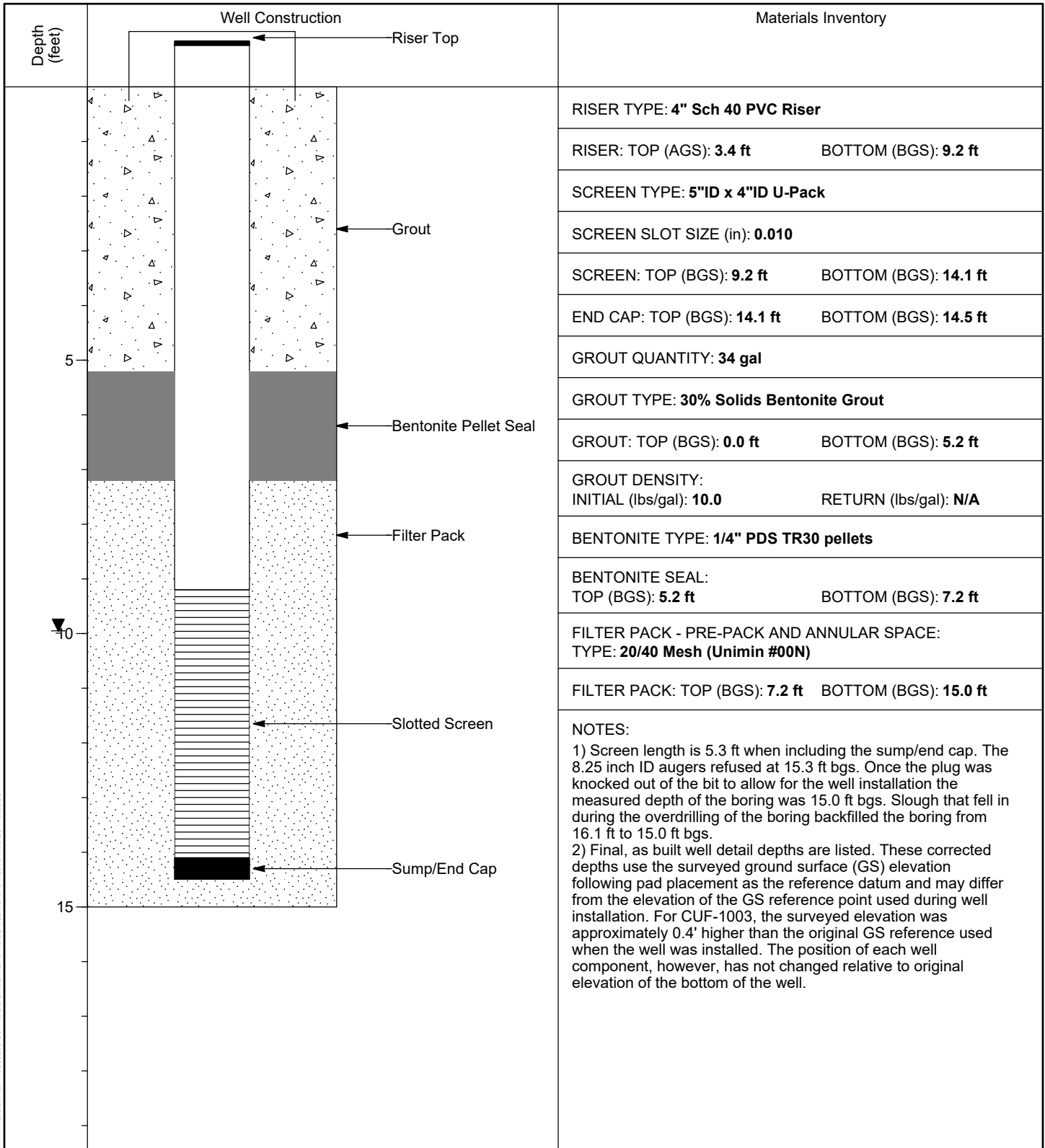


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: PAGE 1 OF 1
CUF-1003 (Boring CUF-1003B)

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 850XR, #953**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 2" SS w/o liners**
 OBSERVED BY: **G. Budd**
 REVIEWED BY: **D. Norman**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **12/18/18** COMPLETED: **12/19/18**
 LOCATION: **729,882.92 N; 1,513,710.90 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Plant North of Gypsum Storage Area**
 LATITUDE: **36° 23' 9.02"** LONGITUDE: **-87° 39' 7.36"**
 GROUND ELEV (ft): **393.0** TOC ELEV (ft): **396.39**
 ELEVATION DATUM: **NGVD29**
 WELL DEPTH (ft, bgs): **14.5**
 DTW AT COMPLETION (ft, bgs): **10.0**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



MW FINAL DETAIL 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20191120.GDT 6/29/20

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

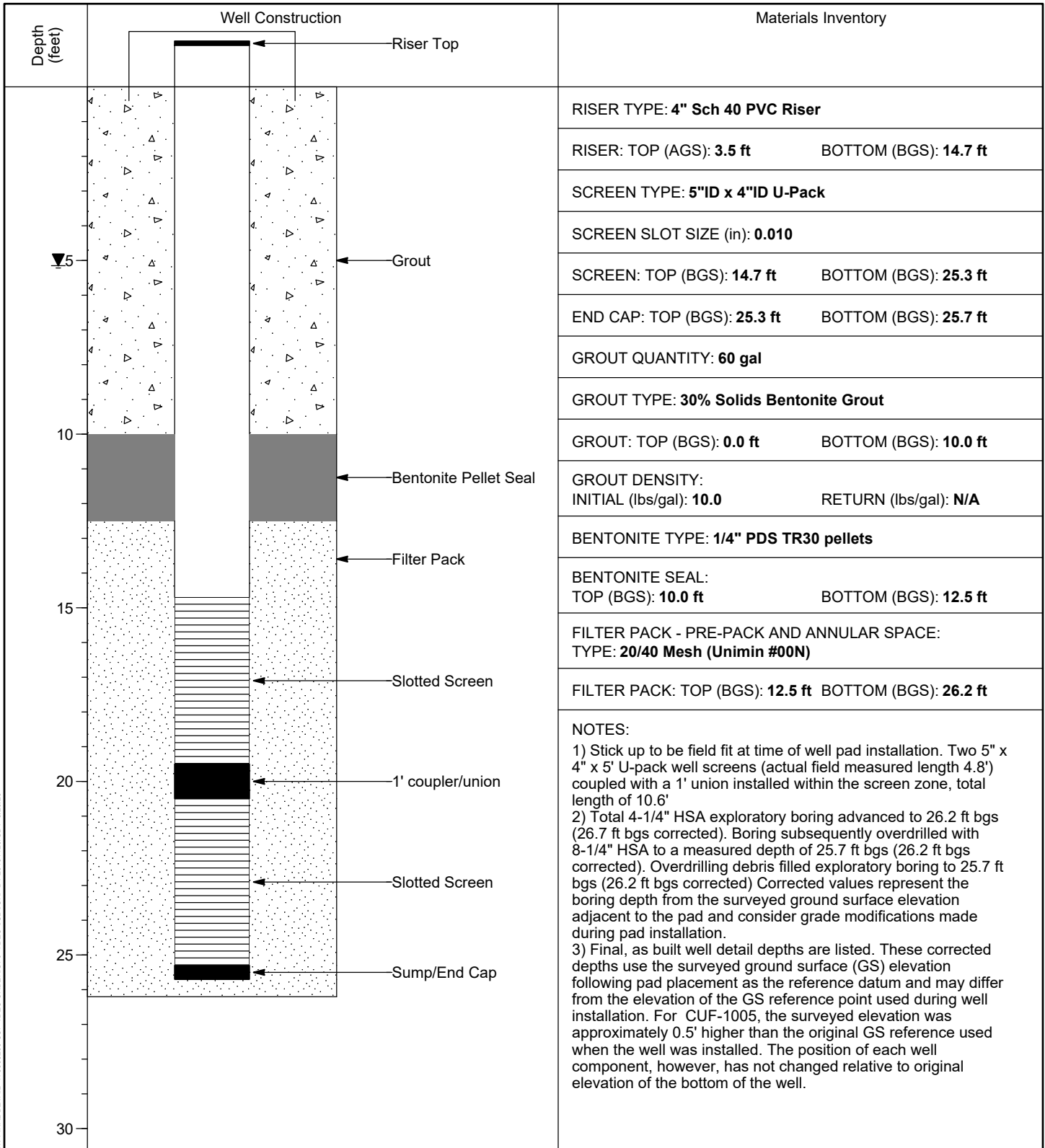


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: PAGE 1 OF 1
CUF-1005 (Boring CUF-1005)

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 850XR, #953**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4-1/4" HSA, 2" SS w/o liners**
 OBSERVED BY: **G. Budd**
 REVIEWED BY: **D. Norman**
 APPROVED BY: **P. Dunne**

INSTALLATION: STARTED: **1/21/19** COMPLETED: **1/22/19**
 LOCATION: **728,368.88 N; 1,513,879.56 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **Gypsum Storage Area**
 LATITUDE: **36° 22' 54.08"** LONGITUDE: **-87° 39' 4.99"**
 GROUND ELEV (ft): **396.1** TOC ELEV (ft): **399.58**
 ELEVATION DATUM: **NGVD29**
 WELL DEPTH (ft, bgs): **25.7**
 DTW AT COMPLETION (ft, bgs): **5.2**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



MW FINAL DETAIL 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20191120.GDT 6/29/20

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)

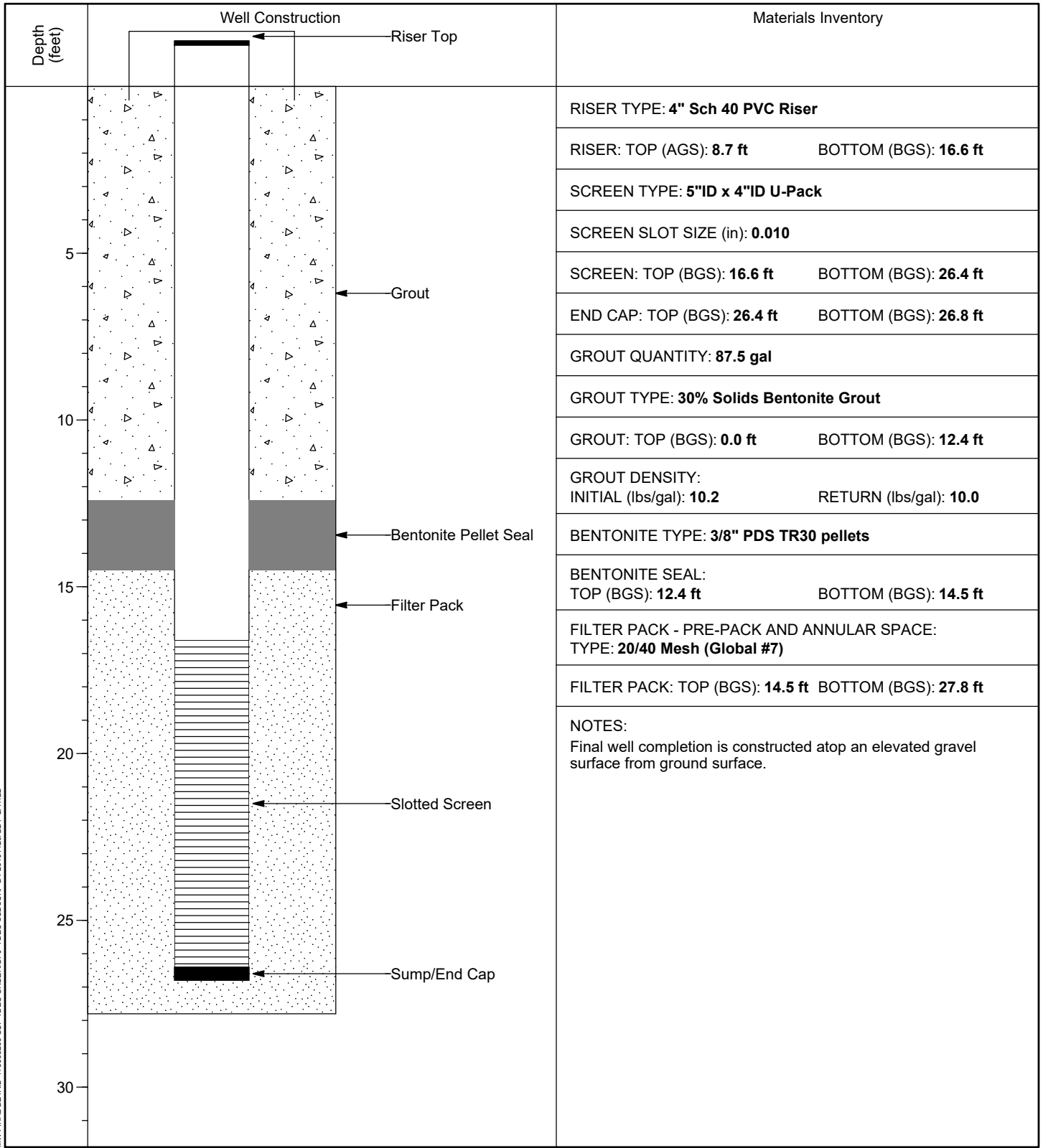


WELL INSTALLATION DETAIL

WELL / PROBEHOLE / BOREHOLE NO: PAGE 1 OF 1
CUF-1006 (Boring CUF-1006)

PROJECT: **CUF TDEC Order**
 PROJECT NUMBER: **175568209**
 DRILLING COMPANY: **Stantec Consulting Services Inc.**
 DRILLING EQUIPMENT: **CME 55LCX #714**
 DRILLING METHOD: **8-1/4" HSA overdrill of boring**
 SAMPLING METHOD: **4.25" HSA, 2" SS w/o liners**
 OBSERVED BY: **B. Evans**
 REVIEWED BY: **C. Sexton**
 APPROVED BY: **C. Millhollin**

INSTALLATION: STARTED: **3/18/21** COMPLETED: **3/18/21**
 LOCATION: **728,366.86 N; 1,513,925.62 E** DATUM: **NAD27 Plant Local**
 LOC. DESCRIP: **East of Gypsum Disposal Area**
 LATITUDE: **36° 22' 54.07"** LONGITUDE: **-87° 39' 4.42"**
 GROUND ELEV (ft): **378.8** TOC ELEV (ft): **387.58**
 ELEVATION DATUM: **NGVD29**
 WELL DEPTH (ft, bgs): **26.8**
 DTW AT COMPLETION (ft, bgs): **N/A**
 BOREHOLE DIA. (in): **13.0** WELL DIA. (in): **4.0**



MW FINAL DETAIL 175568209 CUF TDEC ORDER.GPJ TDEC SUBSURF DT 20191120.GDT 2/17/22

VERTICAL SCALE: AS SHOWN. HORIZONTAL SCALE: NOT TO SCALE (EXAGGERATED TO SHOW DETAIL)