

GROUNDWATER MONITORING PLAN

PLANT YATES -
R6 CCR LANDFILL - ASH MANAGEMENT AREA
COWETA COUNTY, GEORGIA

FOR



Georgia
Power

October 2025



ATLANTIC COAST
CONSULTING, INC.

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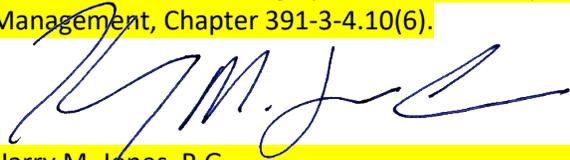
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I. CERTIFICATION

I hereby certify that this Groundwater Monitoring Plan was prepared by, or under the direct supervision of, a Qualified Groundwater Scientist, in accordance with the Georgia Environmental Protection Division (EPD) Rules of Solid Waste Management. According to 391-3-4-.01, a Qualified Groundwater Scientist is “a professional engineer or geologist registered to practice in Georgia who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields that enable individuals to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.” The design of the groundwater monitoring system was developed in compliance with the Georgia EPD Rules of Solid Waste Management, Chapter 391-3-4.10(6).



Harry M. Jones, P.G.
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Date: 10/3/2025



Richard T. Deason, P.E.
Reviewer
Date: 10/3/2025



1. INTRODUCTION

Groundwater monitoring is required by the Georgia Environmental Protection Division (EPD) to detect and quantify potential changes in groundwater chemistry. This Groundwater Monitoring Plan (plan) describes the groundwater monitoring program for the site. This plan meets the requirements of EPD rules and uses EPD's Manual for Ground Water Monitoring dated September 1991 as a guide. Groundwater monitoring well locations are presented on [Figure A1 of Appendix A](#) and well construction details are presented in [Table A1 of Appendix A](#).

Monitoring will occur in accordance with 391-3-4-.10 of the Georgia Solid Waste Management Rules. If the monitoring requirements specified in this plan conflict with EPD rules (391-3-4), the EPD rules will take precedent.

In accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Rule (CCR) (§257.90), which is incorporated in the Georgia State [CCR](#) Rule by reference, a detection monitoring well network for R6 Ash Monofill-Ash Management Area (R6-AMA) has been installed [and certified by a qualified groundwater scientist](#). [This plan focuses on multi-units within R6 CCR Landfill \(R6\) and the Ash Management Area \(AMA\)](#). The existing monitoring wells were installed following the guidelines presented herein. Additionally, this plan documents the methods for future monitoring well installation and/or replacement, and procedures for well abandonment. As required by 391-3-4.10(6)(g), a minor modification will be submitted to the EPD prior to the unscheduled installation or abandonment of monitoring wells. [Well installation and/or abandonment must be directed by a qualified groundwater scientist](#). [Currently, routine assessment monitoring is completed as required by 391-3-4.10\(6\)\(a\), §257.94, and §257.95. An Assessment of Corrective Measures was initiated in June 2019, as required by 391-3-4.10\(6\)\(a\) and §257.96.](#)

2. GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

A Hydrogeological Assessment report was prepared in 2018, which has been updated in 2024 (ACC, 2024), and provides a more comprehensive review of both the geological lithology and the hydrogeological conceptual site model. R6-AMA is located within Plant Yates property.

Plant Yates lies within the Inner Piedmont of western Georgia, immediately southeast of the Brevard Fault Zone, an inactive fault which forms the northern boundary of the Inner Piedmont and the Dadeville Complex lithologies. The rocks in the area have been subjected to several episodes of metamorphism and intrusion by igneous bodies, creating a complex geologic picture. Surface expressions of the joints are observed on topographic maps and aerial photos of the Plant Yates area.

Granitic gneiss and schist units have been identified in the Plant Yates area. Both units are covered by a thick layer of saprolite. The schist unit is a sequence of amphibolites interlayered with chlorite schists and other metasedimentary rocks. Amphibolites are well foliated and may be retrograded to chlorite. The granitic gneiss is metamorphosed light-gray granitic pluton of medium- to coarse-grained texture. The unit is exposed in outcrops that trend northeast.

A thin soil layer from one to two feet thick overlies a thick layer of saprolite. The saprolite, which extends to typical depths of 20-40 feet below ground surface, was formed from the weathering of the underlying metamorphic rocks. There is typically a zone of variable thickness (approximately 5-20 feet) of weathered rock between the saprolite and competent bedrock.

Shallow groundwater is typically encountered near the saprolite/weathered rock interface. Bedrock becomes increasingly competent with depth, and movement of groundwater occurs only in fractures (i.e., secondary porosity). Recharge to the water-bearing zones in fractured bedrock takes place by seepage through the overlying mantle of soil/saprolite, or by direct entrance through openings in outcrops. A recent water table elevation contour map showing overall flow directions is provided in Appendix A, Figure A2. Average depth of the water table at Plant Yates varies with topography (range of approximately 5 to 50 feet below ground surface).

At the site, groundwater in the saturated overburden represents the uppermost aquifer. This uppermost aquifer is comprised of both residual soils, saprolite, and partially weather rock, and is generally unconfined. This groundwater is recharged by precipitation stored in residual soils and also recharges the underlying bedrock through preferentially weathered discontinuities in the bedrock. The groundwater typically discharges to streams through both the overburden and inter-connected bedrock fractures. Hydraulic conductivity (K) is defined as the rate at which water can move through a permeable medium. In situ rising head and falling slug tests were performed at multiple locations at R6-AMA to determine horizontal K values. Vertical K values for locations throughout Plant Yates were determined by laboratory testing of undisturbed overburden samples (Shelby Tubes) collected at multiple Plant Yates locations. The range in K values at these locations is small, indicating fairly uniform hydrogeologic layers across the saprolite and weathered rock horizon (typically range from 10^{-3} cm/sec to 10^{-4} cm/sec). Appendix A, Table A1, Monitoring System Details, presents summaries of the K testing values from R6-AMA monitoring wells and piezometers and laboratory test results for locations throughout Plant Yates. The values from the field and laboratory tests fall within the standard range of hydraulic conductivity values associated with a silty sand. Supporting data for the K testing values are provided in Appendix B, Hydraulic Conductivity Testing Results.

Boring logs and well construction diagrams for monitoring well locations within R6-AMA are presented in Appendix C.

The horizontal hydraulic gradient across R6-AMA was measured during the August 2023 groundwater monitoring event from YGWA-40 to YGWC-42 and YGWC-49 to PZ-24IB resulting in an average estimated horizontal gradient of 0.022 ft/ft.

Average groundwater flow velocity in the R6-AMA area is based on horizontal K, lateral gradient (i) and effective porosity (P_e). The average horizontal K for the site is 544 feet/year, and the gradient across R6-AMA was 0.019 ft/ft, and the effective porosity (P_e) was estimated at 0.20. The average groundwater velocity is calculated as:

Equation

$$v = \frac{K (dh/dl)}{P_e}$$

where: v = groundwater velocity

K = hydraulic conductivity

dh/dl = hydraulic gradient

P_e = effective porosity

Values Used in Calculation

	Value	Source
K =	5.3E-04 cm/sec 1.49 ft/day	See note 1.
dh/dl ₁ =	0.020 unitless	Hydraulic gradient from YGWA-40 to YGWC-42
dh/dl ₂ =	0.019 unitless	YGWC-49 to PZ-24IB
dh/dl _{avg} =	0.019 unitless	Average of dh/dl _{1,2}
P _e =	0.20 unitless	See note 2.

Calculated Flow Velocity

$$v = \frac{(1.49) (0.019)}{0.20}$$

$$v = 0.145 \text{ ft/day, or } 53 \text{ ft/year}$$

Notes

(1) Slug tests performed by Atlantic Coast Consulting, Inc. at R6/AMA (2014-2017)

(2) Default value recommended by USEPA for silty sand-type soil (USEPA, 1989)

(3) Groundwater elevations altered by dewatering activities are not used in gradient calculations

3. WELL LOCATIONS

Groundwater monitoring wells are installed to monitor the uppermost occurrence of groundwater beneath the site. Locations are selected based on disposal cell layouts and site geologic and hydrogeologic considerations. Locations were chosen to serve as upgradient (GWA designation) or downgradient (GWC designation) based on groundwater flow direction determined by potentiometric evaluation. The well naming nomenclature is based on Georgia EPD's Industrial Waste Disposal Site Design and Operations Plan – Supplemental Data for Solid Waste Handling Permit (undated).

Monitoring wells will generally be located outside of areas with frequent auto traffic; however, wells may be installed in heavily trafficked areas when necessary, to meet the groundwater monitoring objectives of the EPD rules.

A map depicting monitoring well locations is provided on Figure A1 in Appendix A. A tabulated list of individual monitoring wells and piezometers (included in the potentiometric map) with well construction details such as location coordinates, top-of-casing elevations, well depths, and screened intervals is included in Table A1 of Appendix A. Any change to the groundwater monitoring network must be made by a minor modification to the permit pursuant to 391-3-4.10(6)(g).

A multi-unit groundwater monitoring network has been designed and installed to monitor groundwater at R6-AMA. There are eight additional site-wide upgradient wells located within Plant Yates that are included in the overall upgradient monitoring network system, and include YGWA-1I, YGWA-1D, YGWA-2I, YGWA-3I, YGWA-3D, YGWA-14S, YGWA-30I, and YGWA-47. The comprehensive list of upgradient wells is included in Table A1 of Appendix A.

The monitoring well locations are shown in Appendix A, Figure A1. Boring logs and well construction diagrams for the existing monitoring wells are provided in Appendix C, Boring Logs, Well Construction Diagrams, EPD Bond Continuation Certificates, and Survey Data. Copies of the driller's EPD bond continuation certificates from the period of well installation (2007 – 2024) and June 2020 well re-survey data certified by Georgia Registered Land Surveyor are also included in Appendix C.

4. MONITORING WELL DRILLING, CONSTRUCTION, ABANDONMENT & REPORTING

The existing monitoring wells were installed following the latest version of the Region 4 USEPA Science and Ecosystem Support Division (SESD) Operating Procedure for Design and Installation of Monitoring Wells (USEPA, SESDGUID-101-R#) as a general guide for best practices. Monitoring well construction data are provided on Table A1 of Appendix A.

4.1 DRILLING

A variety of well drilling methods are available for the purpose of installing groundwater wells. Drilling methodology may include, but not be limited to: hollow stem augers, direct push, air rotary, mud rotary, or roto sonic techniques. The drilling method shall minimize the disturbance of subsurface materials and shall not cause impact to the groundwater. Borings will be advanced using an appropriate drilling technology capable of drilling and installing a well in the site-specific geology. Monitoring wells will be installed using the most current version of the USEPA SESD SESDGUID-101-R# as a general guide for best practices. Drilling equipment shall be decontaminated before use and between borehole locations using the procedures described in the latest version of the Region 4 USEPA Laboratory Services and Applied Science Division (LSASD), Operating Procedure for Field Equipment Cleaning and Decontamination (LSASDPROC-205-R#) as a guide.

Sampling and/or coring may be used to help determine the stratigraphy and geology. Samples will be logged by trained personnel working under the direction of a Professional Geologist/Engineer registered in the State of Georgia. Screen depths will be chosen based on the depth of the uppermost aquifer.

Well installation will be directed by a qualified groundwater scientist. All drilling for any subsurface hydrologic investigation, installation or abandonment of groundwater monitoring wells must be performed by a driller that has, at the time of installation, a performance bond on file with the Water Well Standards Advisory Council.

4.2 DESIGN AND CONSTRUCTION

Well construction materials will be sufficiently durable to resist chemical and physical degradation and will not interfere with the quality of groundwater samples.

WELL CASINGS AND SCREENS

American Society for Testing and Materials International (ASTM), National Science Foundation (NSF) rated, Schedule 40, 2-inch diameter polyvinyl chloride (PVC) pipe with flush threaded connections will be used for the well riser and screens. Compounds that can cause PVC to deteriorate (e.g., organic compounds) are not expected at this facility. If conditions warrant, other appropriate materials may be used for construction with prior written approval from the EPD.

WELL INTAKE DESIGN

The design and construction of the intake of the groundwater wells shall: (1) allow sufficient groundwater flow to the well for sampling; (2) minimize the passage of formation materials (turbidity) into the well; and (3) ensure sufficient structural integrity to prevent the collapse of the intake structure.

Each groundwater monitoring well will include a well screen designed to limit the amount of formation material passing into the well when it is purged and sampled. Screens with 0.010-inch slots have proven effective for the earth materials at the site and will be used unless geologic conditions discovered at the time of installation dictate a different size. Screen length shall not exceed 10 feet without justification as to why a longer screen is necessary (e.g., significant variation in groundwater level). If the above prove ineffective for developing a well with sufficient yield or acceptable turbidity, further steps will be taken to assure that the well screen is appropriately sized for the formation material. This may include performing sieve analysis of the formation material and determining well screen slot size based on the grain size distribution.

Pre-packed dual-wall well screens may be used for well construction. Pre-packed well screens combine a centralized inner well screen, a developed filter sand pack, and an outer conductor screen in one integrated unit composed of inert materials. Pre-packed well screens will be installed following general industry standards and using the latest version of the Region 4 **USEPA SEDD** Operating Procedure for Design and Installation of Monitoring Wells (**USEPA, SEDDGUID-101-R#**) as a general guide.

FILTER PACK AND ANNULAR SEAL

The materials used to construct the filter pack will be clean quartz sand of a size that is appropriate for the screened formation. Fabric filters will not be used as filter pack material. Sufficient filter material will be placed in the **boring** and measurements taken to ensure that no bridging occurs. Upon placement of the filter pack, the well may be pumped to assure settlement of the pack. If pumping is performed, the top of filter pack depth will be measured, and additional sand added if necessary. The filter pack will extend **a minimum of** two feet above the top of the well screen.

The materials used to seal the annular space **above the well pack** must prevent hydraulic communication between strata and prevent migration from overlying areas into the well screen interval. A minimum of two feet of bentonite (chips, pellets, or slurry) will be placed immediately above the filter pack. The bentonite seal will extend up to the base of any overlying confining zone or the top of the water-bearing zone to prevent **cementitious** grout from entering the water-bearing or screened zone. If dry bentonite is used, the bentonite must be hydrated with potable water prior to grouting the remaining annulus.

The annulus above the bentonite seal will be grouted with a cement and bentonite mixture (approximately 94 pounds cement / 3 to 5 pounds bentonite / 6.5 gallons of potable water) placed via tremie pipe from the top of the bentonite seal. During grouting, care will be taken to assure that the bentonite seal is not disturbed by locating the base of the tremie pipe approximately 2 feet above the bentonite seal and injecting grout at low pressure/velocity.

PROTECTIVE CASING AND WELL COMPLETION

After allowing the grout to settle, the well will be finished by installing a flush-mount or above-ground protective casing as appropriate, and building a surface cap. The use of flush-mount wells will generally be limited to paved surfaces unless site operations warrant otherwise. The surface cap will extend from the top of the cementitious grout to ground surface, where it will become a concrete apron extending outward with a radius of at least 2 feet from the edge of the well casing and sloped to drain water away from the well.

Each well will be fitted with a cap that contains a hole or opening to allow the pressure in the well to equalize with atmospheric pressure. In wells with above-ground protection, the space between the well casing and the protective casing will be filled with coarse sand or pea-gravel to within approximately 6 inches of the top of the well casing. A small weep hole will be drilled at the base of the metal casing for the drainage of moisture from the casing. Above ground protective covers will be locked.

Protective bollards will be installed around each above-grade groundwater monitoring well. Well construction in high traffic areas will generally be limited unless site conditions warrant otherwise.

The groundwater monitoring well details attached in Appendix D1, Groundwater Monitoring Well Detail and Appendix D2, Groundwater Monitoring Well Detail Flush-Mount Surface Completion, illustrates the general design and construction details for a monitoring well.

WELL DEVELOPMENT

Well development will be conducted under supervision of a qualified groundwater scientist. After well construction is completed, wells will be developed by alternately purging and surging until relatively clear discharge water with little turbidity is observed. The goal will be to achieve a turbidity of less than 5 nephelometric turbidity units (NTUs); however, formation-specific conditions may not allow this target to be accomplished. Development can be discontinued once a turbidity of less than 10 NTU is achieved. Additionally, the stabilization criteria contained in Appendix E, Groundwater Sampling Procedures, should be met. A variety of techniques may be used to develop site groundwater monitoring wells. The method used must create reversals or surges in flow to eliminate bridging by particles around the well screen. These reversals or surges can be created by using surge blocks, bailers, or pumps. The wells will be developed using a pump capable of inducing the stress necessary to achieve the development goals. All development equipment will be decontaminated prior to first use and between wells using the procedures described in the latest version of the Region 4 USEPA LSASD, Operating Procedure for Field Equipment Cleaning and Decontamination (LSASDPROC-205-R#) as a guide. Well development data will be included in installation documentation reports.

In low yielding wells, potable water may be added to the well to facilitate surging of the well screen interval and removal of fine-grained sediment. If water is added, the volume will be documented and at minimum, an equal volume purged from the well.

Many geologic formations contain clay and silt particles that are small enough to work their way through the wells' filter packs over time. Therefore, the turbidity of the groundwater from the monitoring wells may gradually increase over time after initial well development. As a result, the monitoring wells may have to be redeveloped periodically to remove the silt and clay that has worked its way into the filter pack of the monitoring wells. Each monitoring well should be redeveloped when sample turbidity values have

significantly increased since initial development or since prior redevelopment. The redevelopment should be performed as described above.

4.3 ABANDONMENT

Per Georgia Rule 391-3-4-.10(6)(g): Monitoring wells require abandonment and replacement after two consecutive dry sampling events, unless an alternate schedule is approved by the Georgia EPD. Well abandonment will be directed by a qualified groundwater scientist, and in accordance with the Manual for Groundwater Monitoring (1991) and the Annotated (O.C.G.A) § 12-5-120, 1985. These wells will be abandoned under the direction of a Professional Geologist (P.G.) or Professional Engineer (P.E.) registered in Georgia. Neat Portland cement or bentonite will be used in accordance with the references stated above to complete abandonment and seal the well borehole. Any piezometers or groundwater wells located within the footprint of the R6-AMA unit will be over-drilled prior to abandonment. A minor modification shall be submitted in accordance with Rule 391-3-4-.10(3)(b)(6) prior to the installation or decommissioning of monitoring wells.

4.4 DOCUMENTATION

Within 60 days of the construction, development, and survey or abandonment of each new groundwater monitoring well completed under the direction of a qualified groundwater scientist or engineer, a well installation/abandonment report will be submitted to the EPD. The following information will be documented in the report as applicable to installation or abandonment:

- Well identification,
- Name of drilling contractor and type of drill rig,
- Documentation stating that a Georgia-registered professional surveyor shall certify that the horizontal accuracy for the installed monitoring wells is 0.5 feet, and vertical accuracy for top of casing elevations to 0.01 feet from an acceptable survey point datum,
- Documentation that the driller, at the time the monitoring wells were installed, had a bond on file with the Water Well Standards Advisory Council,
- Type of protective well cap and sump dimensions for each well,
- Dates of drilling and initial well emplacement,
- Drilling method and drilling fluid, if applicable,
- Borehole diameter and well casing diameter,
- Well depth given to within an accuracy of 0.01 feet based upon survey from acceptable survey point,
- Lithologic logs,
- Well casing materials,
- Screen materials and design (i.e., interval in feet below ground surface and elevation),
- Screen length,
- Screen slot size and joint type,
- Filter pack material/size and volume (placement narrative),
- Seal emplacement method and type/volume of sealant,
- Surface seal and volumes/mix of annular seal material,
- Well development date and documentation that water quality field parameters meet well development criteria,
- Sealant materials and volume,

- Well turbidity following development,
- Narrative of well development method - specific well development,
- Documentation of ground surface elevation (± 0.01 feet),
- Documentation of top of casing elevation (± 0.01 feet), and
- Schematic of the well with dimensions for all components (e.g., casing, screen, sump, well pad)

5. GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

The following describes groundwater sampling requirements with respect to parameters for analysis, sampling frequency, sample preservation and shipment, and analytical methods. Groundwater samples used to provide compliance monitoring data will not be filtered prior to collection.

Table 1, Groundwater Monitoring Parameters and Frequency, presents the groundwater monitoring parameters and sampling frequency. A minimum of eight independent samples from each groundwater well will be collected and analyzed for 40 CFR 257, Subpart D, Appendix III and Appendix IV test parameters to establish a background statistical dataset. Subsequently, in accordance with 391-3-4-.10(6), the monitoring frequency for the Appendix III parameters will be at least semi-annual during the active life of the facility and post-closure care period. Assessment monitoring was initiated on May 15, 2018 at Former Ash Ponds 3, B, and B', September 2019 for Former Ash Pond A, and November 13, 2019 for R6 Landfill, per Chapter 391-3-4-.10, Georgia Rules for Solid Waste Management.

When referenced throughout this plan, Appendix III and Appendix IV parameters refer to the parameters contained in Appendix III and Appendix IV of 40 CFR 257, Subpart D, 80 Fed. Reg. 21468 (April 17, 2015).

As shown on Table 2, Analytical Methods, the groundwater samples will be analyzed using methods specified in USEPA Manual SW-846, EPA 600/4-79-020, Standard Methods for the Examination of Water and Wastewater (SM18-20), USEPA Methods for the Chemical Analysis of Water and Wastes (MCAWW), ASTM, or other suitable analytical methods approved by the Georgia EPD. The method used will be able to reach a suitable practical quantification limit to detect natural background conditions at the facility. The groundwater samples will be analyzed by licensed and accredited laboratories through the National Environmental Laboratory Accreditation Program (NELAP). Field instruments used to measure pH must be accurate and reproducible to within 0.1 Standard Units (S.U.).

**TABLE 1
 GROUNDWATER MONITORING PARAMETERS & FREQUENCY**

MONITORING PARAMETER		GROUNDWATER MONITORING	
		Background	Semiannual Events
Field Parameters	Temperature	X	X
	pH	X	X
	Specific Conductance	X	X
	Turbidity	X	X
	Dissolved Oxygen	X	X
Appendix III (Detection)	Boron	X	X
	Calcium	X	X
	Chloride	X	X
	Fluoride	X	X
	pH	X	X
	Sulfate	X	X
	Total Dissolved Solids	X	X
Appendix IV (Assessment)	Antimony	X	X ¹
	Arsenic	X	X ¹
	Barium	X	X ¹
	Beryllium	X	X ¹
	Cadmium	X	X ¹
	Chromium	X	X ¹
	Cobalt	X	X ¹
	Fluoride	X	X ¹
	Lead	X	X ¹
	Lithium	X	X ¹
	Mercury	X	X ¹
	Molybdenum	X	X ¹
	Selenium	X	X ¹
	Thallium	X	X ¹
Radium 226 & 228	X	X ¹	

1. As needed during assessment monitoring.

**TABLE 2
 ANALYTICAL METHODS**

Parameters	EPA Method Number
Boron	6010D/6020B
Calcium	7140/6010D/6020B
Chloride	300.0/300.1/9250/9251/9253/9056A
Fluoride	300.0/300.1/9214/9056A
Ph	150.1field/90405C
Sulfate	9035/9036/9038/300.0/300.1/9056A
Total Dissolved Solids (TDS)	160/2540C
Antimony	7040/7041/6010D/6020B
Arsenic	7060A/7061A/6010D/6020B
Barium	7080A/7081/6010D/6020B
Beryllium	7090/7091/6010D/6020B
Cadmium	7130/7131A/6020B
Chromium	7190/7191/6010D/6020B
Cobalt	7200/7201/6010D/6020B
Fluoride	300.0/300.1/9214/9056A
Lead	7420/7421/6010D/6020B
Lithium	6010D/6020B
Mercury	7470A/7471B
Molybdenum	6010D/6020B
Selenium	7740/7741A/6010D/6020B
Thallium	7840/7841/6010D/6020B
Radium 226 and 228 combined	903/9320/9315

6. SAMPLE COLLECTION

During each sampling event, samples will be collected and handled in accordance with the procedures specified in Appendix E, Groundwater Sampling Procedures. Sampling procedures were developed using standard industry practice and USEPA Region 4 Field Branches Quality System and Technical Procedures as a guide. Low-flow sampling methodology will be utilized for sample collection. Alternative industry accepted sampling techniques may be used when appropriate with prior EPD approval.

For groundwater sampling, positive gas displacement PVC, Teflon™ or stainless-steel bladder pumps will be used for purging. If dedicated bladder pumps are not used, portable bladder pumps or peristaltic pumps (with dedicated or disposable tubing) may be used. When non-dedicated equipment is used, it will be decontaminated prior to use and between wells using the procedures described in the latest version of the Region 4 USEPA LSASD, Operating Procedure for Field Equipment Cleaning and Decontamination (LSASDPROC-205-R#) as a guide. The applied groundwater purging and sampling methodologies will be discussed in the groundwater semi-annual monitoring reports submitted to EPD.

Per Georgia Rule 391-3-4-.10(6)(g), monitoring wells require replacement after two consecutive dry sampling events. Well installation will be directed by a qualified groundwater scientist. A minor modification will be submitted to the EPD in accordance with Rule 391-3-4-.02(3)(b)(6) prior to the installation or decommissioning of monitoring wells.

7. CHAIN-OF-CUSTODY

All samples will be handled under chain-of-custody (COC) procedures beginning in the field. The COC record will contain the following information:

- Sample identification numbers
- Signature of collector
- Date and time of collection
- Sample type
- Sample point identification
- Number of sample containers
- Notated date(s) and time(s) of sample transfer between individuals
- Signature of person(s) involved in the chain of possession

The samples will remain in the custody of assigned personnel, an assigned agent, or the laboratory. If the samples are transferred to other employees for delivery or transport, the sampler or possessor must relinquish possession and the samples must be received by the new owner.

If the samples are being shipped, a hard copy COC will be signed and enclosed within the shipping container.

Samplers must use COC forms provided by the analytical laboratory or use a COC form similarly formatted and containing the information listed above.

8. FIELD AND LABORATORY QUALITY ASSURANCE / QUALITY CONTROL

All field quality control samples will be prepared the same as compliance samples with regard to sample volume, containers, and preservation. The following quality control samples will be collected during each sampling event:

- Field Equipment Rinsate Blanks – Where sampling equipment is not new or dedicated, an equipment rinsate blank will be collected at a rate of one blank per 10 samples using non-dedicated equipment.
- Field Duplicates – Field duplicates will be collected by filling additional containers at the same location, and the field duplicate is assigned a unique sample identification number. One blind field duplicate will be collected for every 20 samples.
- Field Blanks – Field blanks will be collected in the field using the same water source that is used for decontamination. The water will be poured directly into the supplied sample containers in the field and submitted to the laboratory for analysis of target constituents. One field blank will be collected for every 20 samples.

Calibration of field instruments will occur daily and follow the recommended (specific) instrument calibration procedures provided by the manufacturer and/or equipment manual specific to each instrument. Daily calibration will be documented on field forms and these field forms will be included in all groundwater monitoring reports. Instruments will be recalibrated as necessary (e.g., when calibration checks indicate significant variability), and all checks and recalibration steps will also be documented on field calibration forms. Calibration of the instruments will also be checked if any readings during sampling activities are suspect. Replacement probes and meters will be obtained as a corrective action in the event that recalibration does not improve instrument function. Calibration field forms will be provided with the semi-annual groundwater monitoring reports.

Groundwater samples will be analyzed by licensed and accredited laboratories through the NELAP.

9. REPORTING RESULTS

A semi-annual groundwater report that documents the results of sampling and analysis will be submitted to EPD, added to the site Operating Record, and posted to Georgia Power's CCR Website. Semi-annual groundwater monitoring reports will be submitted to the EPD within 90 days of receipt and analysis of the groundwater analytical data from the laboratory. At a minimum, semi-annual reports will include:

1. A narrative describing sampling activities and findings including a summary of the number of samples collected, the dates the samples were collected and whether the samples were required by the detection or assessment monitoring programs.
2. A narrative of purging/sampling methodologies, which will include the type of sampling equipment used.
3. Discussion of results.
4. Recommendations for the future monitoring consistent with the Rules.
5. Potentiometric surface contour map for the aquifer(s) being monitored, signed and sealed by a Georgia-registered P.G. or P.E.
6. Table of as-built information for groundwater monitoring wells including top of casing elevations, ground elevations, screened elevations, current groundwater elevations and depth to water measurements.
7. Groundwater flow rate and direction calculations.
8. Identification of any groundwater wells that were installed or decommissioned during the preceding year, along with a narrative description of why these actions were taken.
9. A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels).
10. If applicable, semi-annual assessment monitoring results.
11. Any alternate source demonstration completed during the previous monitoring period, if applicable.
12. Laboratory Reports.
13. COC documentation.
14. Field sampling logs including field instrument calibration, indicator parameters and parameter stabilization data.

15. Field logs and forms will be kept for each sampling event, and will include the following, but not be limited to, well signage, well access, sampling and purging equipment condition, and any site conditions that may affect sampling.
16. Documentation of non-functioning wells.
17. Table of current analytical results for each well, highlighting statistically significant increases and concentrations above maximum contaminant level (MCL).
18. Statistical analyses of Appendix III statistically significant increases (SSI) and Appendix IV statistically significant limits (SSL), including trend analyses of SSLs of Appendix IV constituents if the unit is currently undergoing assessment of corrective measures.
19. Certification by a qualified groundwater scientist.
20. Plume delineation (if applicable).
21. Updated potable water well survey (annually, if applicable).

10. STATISTICAL ANALYSIS

Groundwater quality data from each sampling event will be statistically evaluated to determine if there has been a statistically significant change in groundwater chemistry. Historical background data will be used to determine statistical limits. Sitewide upgradient wells at Plant Yates are included in site background. Statistical analysis techniques will be consistent with the USEPA document Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance (Unified Guidance) (USEPA, 2009).

According to EPD rules (391-3-4-.10(6)(a)), which incorporates the statistical analysis requirements of 40 CFR 257.93 by reference, the site must specify in the operating record the statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent. The statistical test chosen shall be conducted separately for each constituent in each well. As authorized by the rule, statistical tests that will be used include:

1. A prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper prediction limit. [§257.93(f)(3)].
2. A control chart approach that gives control limits for each constituent. [§257.93(f)(4)].
3. Another statistical test method (such as prediction limits or control charts) that meets the performance standards of §257.93(g) [§257.93(f)(5)]. A justification for an alternative method will be placed in the operating record and the Director notified of the use of an alternative test. The justification will demonstrate that the alternative method meets the performance standards of §257.93(g).

An inter-well statistical method will be used to compare Appendix III groundwater monitoring data to background conditions. Confidence intervals will be constructed for each downgradient well and used to compare Appendix IV groundwater monitoring data to groundwater protection standards.

A site-specific statistical analysis plan that provides details regarding the statistical methods to be used will be placed in the site's operating record pursuant to 391-3-4-.10(6). Figure 1, Statistical Analysis Plan Overview, includes a flowchart that depicts the process that will be followed to develop the site-specific plan. Figure 2, Decision Logic for Computing Prediction Limits, presents the logic that will be used to calculate site-specific statistical limits and test compliance results against those limits.

11. REFERENCES

Arcadis U.S., Inc., 2024. 2023 Annual Groundwater Monitoring and Corrective Action Report, Plant Yates AP-3, A, B, B', and R6 CCR Landfill. August 2023.

ACC, Inc., 2024. *Hydrogeologic Assessment Report*. Plant Yates R6 CCR Landfill and Ash Management Area.

Georgia Environmental Protection Division (EPD), 1991. *Manual for Groundwater Monitoring*. (PP. 38).

Georgia Rules and Regulations, 2018. Chapter 391-3-4, *Solid Waste Management*. Revised March 28, 2018.

Official Code of Georgia Annotated, 1985. O.C.G.A. § 12-5-120. *Water Well Standards Act of 1985*.

United States Environmental Protection Agency, 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*. Office of Resource Conservation and Recovery – Program Implementation and Information Division.

United States Environmental Protection Agency, Region 4 Science and Ecosystem Support Division, 2013. *Operating Procedure for Design and Installation of Monitoring Wells*. SESDGUID-101-R2.

United States Environmental Protection Agency, Region 4 Science and Ecosystem Support Division, 2015. *Operating Procedure for Field Equipment Cleaning and Decontamination*. SESDPROC-205- R3.

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United States Environmental Protection Agency, 2015. 40 CFR Parts 257 and 261. *Hazardous and Solid Waste Management System, Disposal of Coal Combustion Residuals from Electric Utilities, Final Rule*.

FIGURE 1. STATISTICAL ANALYSIS PLAN OVERVIEW

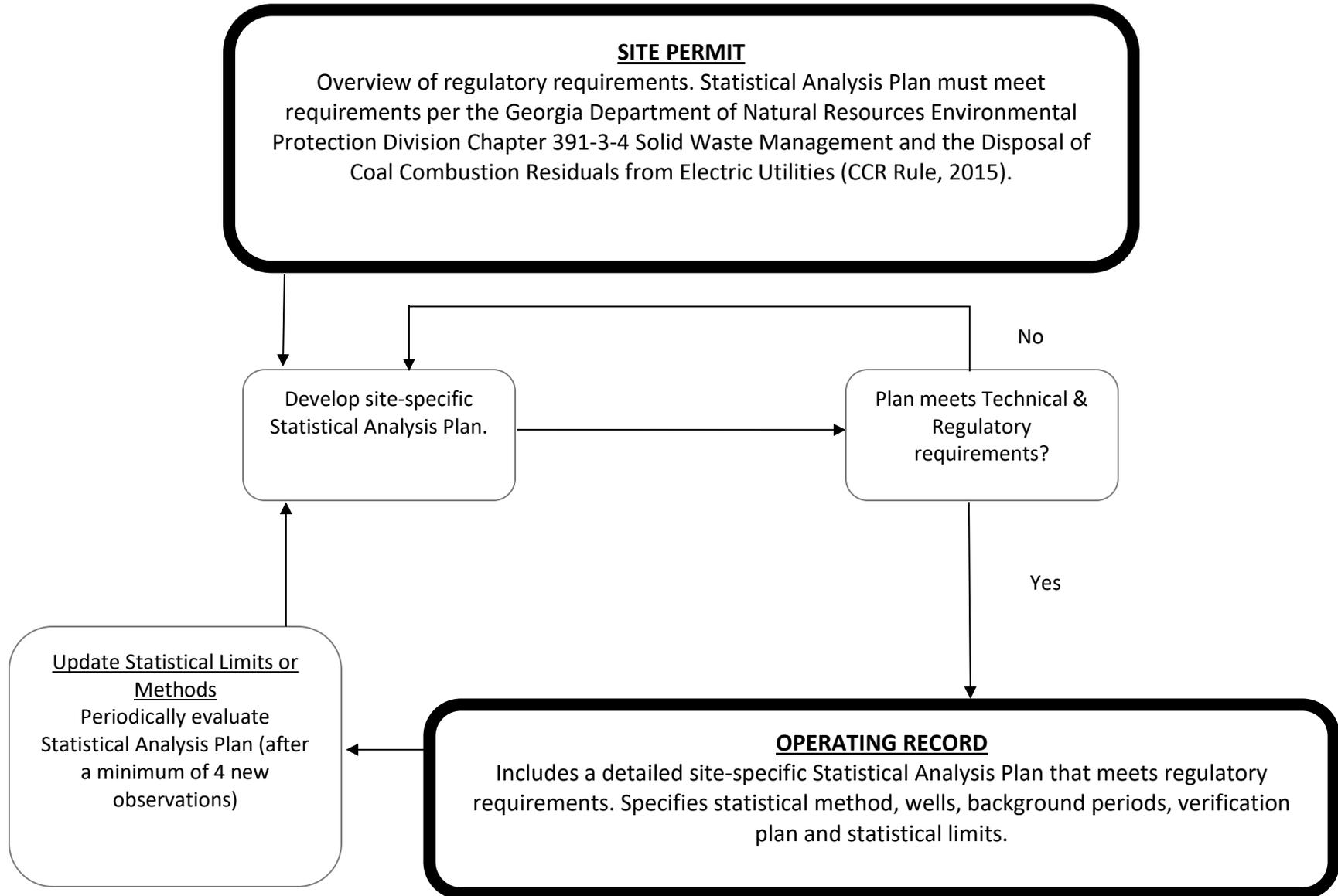
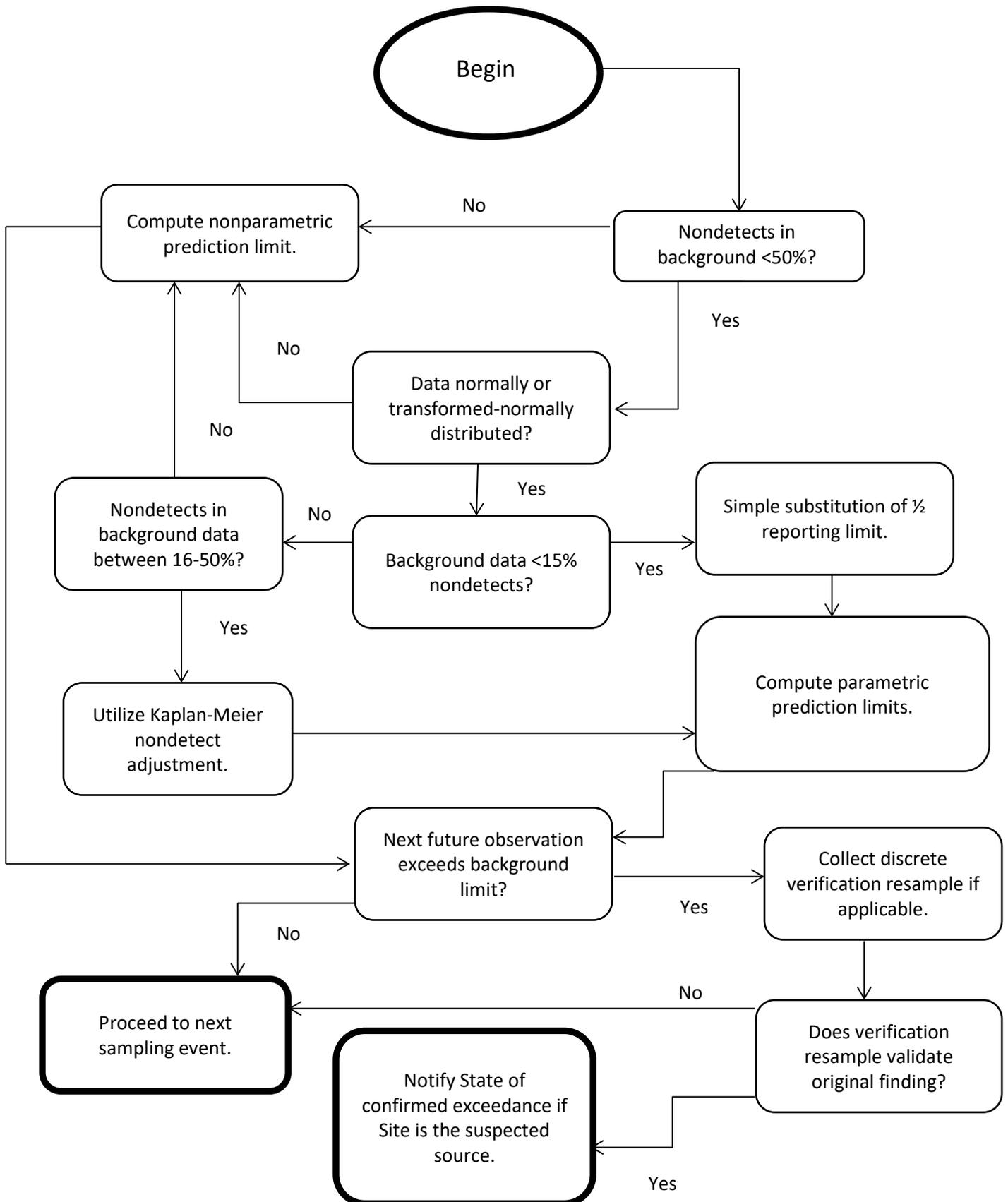


FIGURE 2. DECISION LOGIC WITH INTER-WELL PREDICTION LIMITS



APPENDICES

APPENDIX A. MONITORING SYSTEM DETAILS

TABLE A1 MONITORING WELL AND PIEZOMETER NETWORK

FIGURE A1 MONITORING WELL NETWORK

FIGURE A2 AUGUST 2023 POTENTIOMETRIC SURFACE CONTOUR MAP

APPENDIX B. HYDRAULIC CONDUCTIVITY TESTING RESULTS

TABLE B1 HORIZONTAL HYDRAULIC CONDUCTIVITY DATA SUMMARY

TABLE B2 SITEWIDE VERTICAL HYDRAULIC CONDUCTIVITY DATA SUMMARY

APPENDIX C. BORING LOGS, WELL CONSTRUCTION DIAGRAMS, EPD BOND CONTINUATION CERTIFICATES, AND SURVEY DATA

APPENDIX D1. GROUNDWATER MONITORING WELL DETAIL

APPENDIX D2. GROUNDWATER MONITORING WELL DETAIL FLUSH-MOUNT SURFACE COMPLETION

APPENDIX E. GROUNDWATER SAMPLING PROCEDURES

APPENDIX A. MONITORING SYSTEM DETAILS

Table A1
Groundwater Monitoring Well Construction Details

Monitoring Well ID	Installation Date	Well Designation	Hydraulic Location	Total Well Depth (ft btoc)	Top of Casing (ft)	Screen Interval Elevation (ft)	Depth to Groundwater (ft BTOC)	August 2024 Groundwater Elevation (ft)	Screened Lithology	Horizontal Hydraulic Conductivity (cm/sec)	Vertical Hydraulic Conductivity (cm/sec)
YGWA-1I	5/20/2014	Detection	Upgradient	53.60	836.60	793.30 - 783.30	38.46	798.14	PWR/Transition Zone	1.80E-04	n/a
YGWA-1D	5/20/2014	Detection	Upgradient	128.85	837.25	759.20 - 709.20	50.88	786.37	Deep Bedrock	6.17E-05	n/a
YGWA-2I	5/20/2014	Detection	Upgradient	63.75	866.25	812.80 - 802.80	45.81	820.44	PWR/Transition Zone	3.53E-06	n/a
YGWA-3I	5/20/2014	Detection	Upgradient	59.05	796.55	747.70 - 737.70	53.09	743.46	PWR/Transition Zone	1.16E-04	n/a
YGWA-3D	5/20/2014	Detection	Upgradient	134.18	796.78	712.90 - 662.90	33.15	763.63	Deep Bedrock	4.90E-04	n/a
YGWA-4I	5/21/2014	Detection	Upgradient	48.81	784.21	745.70 - 735.70	24.73	759.48	PWR/Transition Zone	8.55E-05	n/a
YGWA-5I	5/21/2014	Detection	Upgradient	58.94	784.54	735.90 - 725.90	20.48	764.06	PWR/Transition Zone	2.90E-04	n/a
YGWA-5D	5/21/2014	Detection	Upgradient	129.13	784.53	705.70 - 655.70	20.47	764.06	Deep Bedrock	1.11E-04	n/a
YGWA-14S	5/20/2014	Detection	Upgradient	34.96	748.76	724.10 - 714.10	17.10	731.66	Saprolite	4.94E-04	n/a
YGWA-17S	9/10/2015	Detection	Upgradient	39.85	783.05	753.20 - 743.20	13.55	769.50	Saprolite	3.46E-04	6.91E-04
YGWA-18S	9/8/2015	Detection	Upgradient	39.97	790.57	760.90 - 750.90	21.67	768.90	Saprolite	1.06E-04	n/a
YGWA-18I	9/8/2015	Detection	Upgradient	79.97	790.57	720.90 - 710.90	24.75	765.82	PWR/Transition Zone	6.42E-04	n/a
YGWA-20S	9/29/2015	Detection	Upgradient	29.52	767.12	747.90 - 737.90	11.80	755.32	Saprolite	2.93E-04	9.72E-05
YGWA-21I	9/28/2015	Detection	Upgradient	79.90	783.70	714.10 - 704.10	31.88	751.82	PWR/Transition Zone	2.20E-05	n/a
YGWA-30I	9/23/2015	Detection	Upgradient	59.48	762.58	713.40 - 703.40	43.27	719.31	PWR/Transition Zone	2.27E-03	n/a
YGWA-39	7/7/2016	Detection	Upgradient	68.59	818.19	760.10 - 750.10	19.63	798.56	Upper Fractured Bedrock	1.85E-03	n/a
YGWA-40	7/7/2016	Detection	Upgradient	48.23	815.73	778.00 - 768.00	24.92	790.81	Upper Fractured Bedrock	6.50E-04	n/a
YGWA-47	7/11/2016	Detection	Upgradient	59.19	758.22	709.60 - 699.60	34.93	723.29	Bedrock	8.04E-04	n/a
YGWC-23S	9/21/2015	Detection	Downgradient	38.91	764.91	736.30 - 726.30	16.65	748.26	Saprolite	2.22E-04	n/a
YGWC-24SB	10/13/2022	Detection	Downgradient	57.79	764.89	717.30 - 707.30	25.49	739.40	Saprolite	n/a	n/a
YGWC-36A	9/22/2020	Detection	Downgradient	51.20	740.88	699.70 - 689.70	7.72	733.16	Saprolite	n/a	n/a
YGWC-38	7/23/2016	Detection	Downgradient	49.89	799.69	760.10 - 750.10	30.18	769.51	Upper Fractured Bedrock	1.91E-04	n/a
YGWC-41	7/8/2016	Detection	Downgradient	67.12	803.92	747.10 - 737.10	29.33	774.59	Upper Fractured Bedrock	5.79E-04	n/a
YGWC-42	7/8/2016	Detection	Downgradient	59.76	797.86	748.50 - 738.50	29.34	768.52	Upper Fractured Bedrock	1.84E-04	n/a
YGWC-43	7/9/2016	Detection	Downgradient	78.66	744.96	675.80 - 665.80	17.12	727.84	Upper Fractured Bedrock	3.14E-03	n/a
YGWC-49	7/13/2016	Detection	Downgradient	78.53	782.73	715.10 - 705.10	32.84	749.89	PWR/Transition Zone	7.46E-04	n/a
YGWC-50	10/14/2022	Detection	Downgradient	39.28	729.78	701.80 - 691.80	5.72	724.06	Saprolite	n/a	n/a
Non-Network Locations											
YGWA-6S	5/19/2014	Piezometer	Upgradient	39.87	782.47	752.90 - 742.90	21.02	761.45	Saprolite	n/a	n/a
YGWA-6I	5/19/2014	Piezometer	Upgradient	69.03	782.73	724.00 - 714.00	21.25	761.48	Upper Fractured Bedrock	n/a	n/a
PZ-04S	5/21/2014	Piezometer	Upgradient	32.75	784.25	761.80 - 751.80	26.14	758.11	Saprolite	4.47E-04	n/a
PZ-05S	5/21/2014	Piezometer	Upgradient	41.94	784.64	753.00 - 743.00	20.45	764.19	Saprolite	4.34E-04	n/a
PZ-06D	5/19/2014	Piezometer	Upgradient	134.02	782.02	698.30 - 648.30	23.69	758.33	Deep Bedrock	n/a	n/a
PZ-24IB	10/11/2022	Piezometer	Downgradient	73.42	764.92	701.90 - 691.90	25.87	739.05	Transition Zone/Upper Fractured Bedrock	n/a	n/a
PZ-35	7/20/2016	Assessment	Downgradient	49.21	743.81	704.90 - 694.90	8.72	735.09	Saprolite/PWR	2.59E-03	n/a
PZ-37	7/6/2016	Piezometer	Downgradient	49.78	760.78	721.50 - 711.50	10.80	749.98	Upper Fractured Bedrock	1.88E-03	n/a
PZ-37D	4/16/2021	Assessment	Downgradient	202.30	761.12	568.80 - 558.80	2.85	758.27	Deep Bedrock	n/a	n/a
PZ-48	7/12/2016	Piezometer	Downgradient	58.73	779.83	731.40 - 721.40	22.56	757.27	Upper Fractured Bedrock	6.06E-04	n/a
PZ-51	11/8/2019	Piezometer	Downgradient	36.32	744.30	717.98 - 707.98	7.90	736.40	Upper Fractured Bedrock	n/a	n/a
PZ-52D	9/28/2021	Assessment	Downgradient	94.89	762.79	677.90 - 667.90	6.37	756.42	Deep Bedrock	n/a	n/a
PZ-53D	9/28/2021	Piezometer	Downgradient	162.90	762.80	609.90 - 599.90	4.53	758.27	Deep Bedrock	n/a	n/a
PZ-54D	1/22/2024	Assessment	Downgradient	137.36	795.56	668.50 - 658.50	103.82	691.74	Deep Bedrock	n/a	n/a
PZ-55	12/16/2023	Assessment	Downgradient	68.02	774.02	716.30 - 706.30	28.55	745.47	Upper Fractured Bedrock	n/a	n/a
PZ-56D	1/22/2024	Piezometer	Downgradient	198.36	795.56	607.50 - 597.50	43.13	752.43	Deep Bedrock	n/a	n/a
YAMW-1	9/19/2018	Assessment	Downgradient	69.93	743.83	683.90 - 673.90	8.58	735.25	Upper Fractured Bedrock	n/a	n/a
YAMW-2	11/12/2019	Assessment	Downgradient	46.78	781.04	744.56 - 734.56	24.20	756.84	Deep Bedrock	n/a	n/a
YAMW-3	11/6/2019	Assessment	Downgradient	91.74	796.05	714.61 - 704.61	37.43	758.62	Deep Bedrock	n/a	n/a
YAMW-4	11/7/2019	Assessment	Downgradient	96.85	805.59	719.04 - 709.04	33.14	772.45	Deep Bedrock	n/a	n/a
YAMW-5	11/13/2019	Assessment	Downgradient	90.64	788.90	708.56 - 698.56	15.57	773.33	Deep Bedrock	n/a	n/a

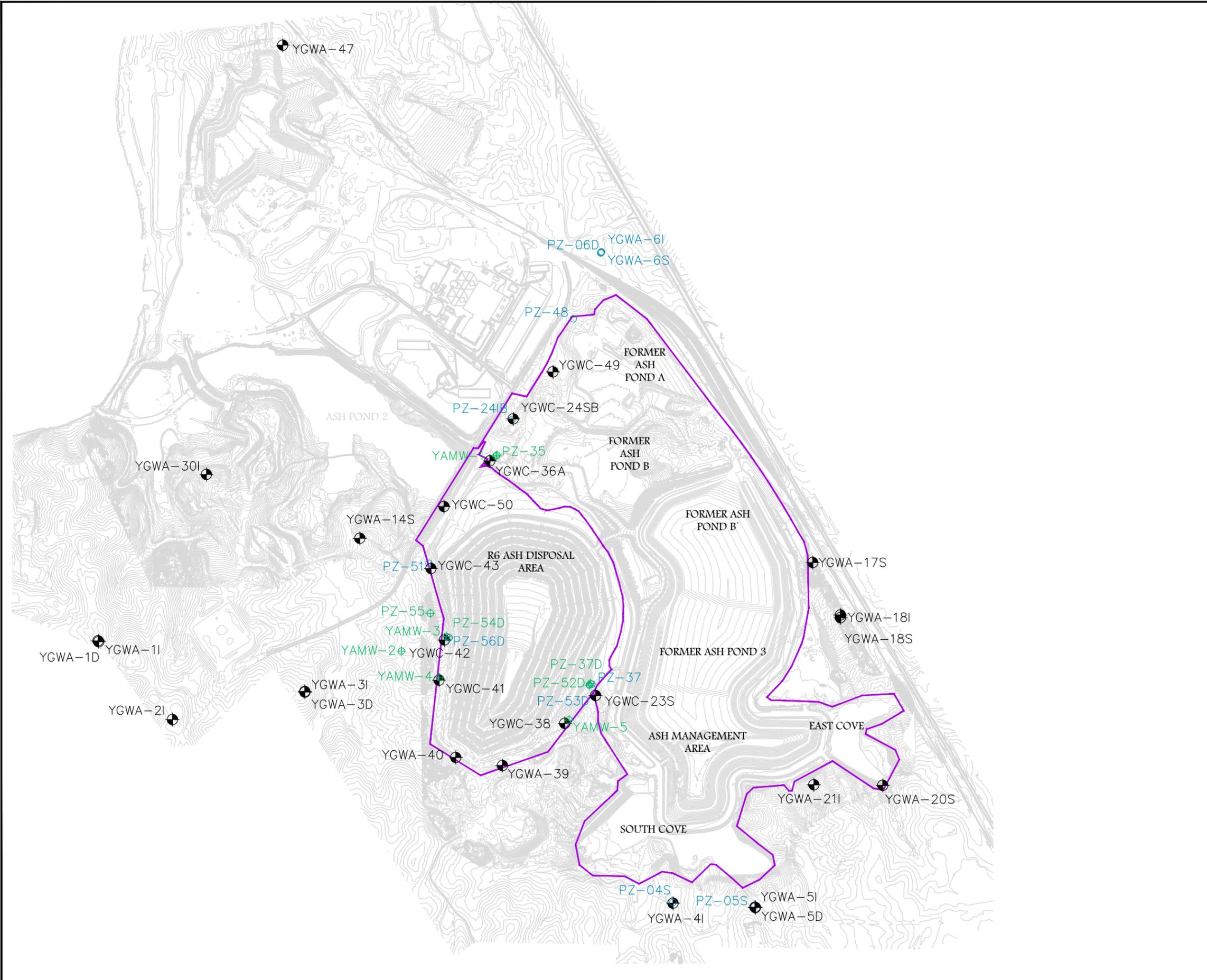
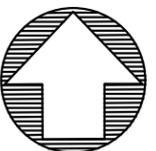
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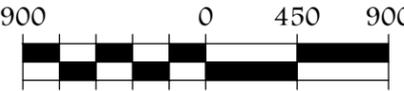
ft BTOC = feet below top of casing; cm/sec = centimeters per second

Elevation in U.S. Survey Feet (NAVD88) based on surveys completed in June 2020, May 2021, November 2021, December 2022, and February 2024.

PWR = Partially weathered rock; TBD = to be determined; n/a = not applicable

Note that the total well depth differs from the boring depth on the boring logs, as the total well depth is measured from the top of casing and boring depth is measured from ground surface.



SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
	BOUNDARY PER D&O PLAN
	DETECTION WELL LOCATION
	ASSESSMENT WELL LOCATION
	PIEZOMETER LOCATION

NOTES:
 1. TOPOGRAPHIC SURVEY DATED JANUARY 22, 2024, JULY 26, 2021, AND MAY 26, 2017.

PROJECT



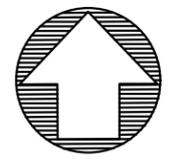
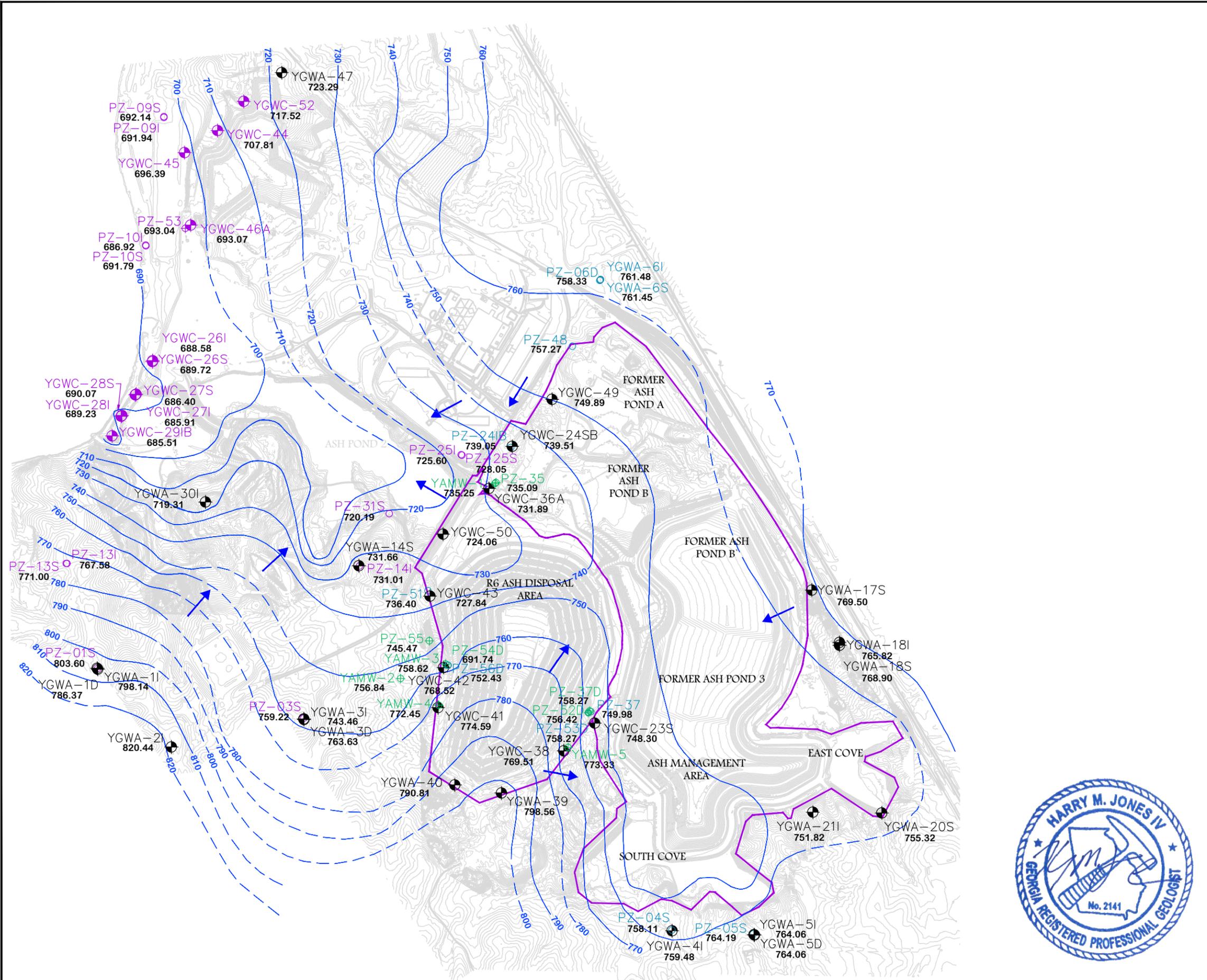
Georgia Power

GEORGIA POWER COMPANY
 PLANT YATES MULTI-UNIT R6-AMA

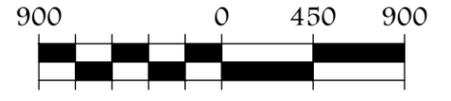
MONITORING WELL NETWORK

PROJECT NO. I054-107 May 2025

<u>DRAWN BY:</u>	MM	<u>FIGURE:</u>	A1
<u>CHECKED BY:</u>	MJ		



Acc



SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
	BOUNDARY PER D&O PLAN
	YGWC-43 DETECTION WELL LOCATION
	YAMW-1 ASSESSMENT WELL LOCATION
	PZ-04S PIEZOMETER LOCATION
	YGWC-46A DETECTION WELL NOT ASSOCIATED WITH R6-AMA
	PZ-53 ASSESSMENT WELL NOT ASSOCIATED WITH R6-AMA
	PZ-01S PIEZOMETER NOT ASSOCIATED WITH R6/AMA
804.10	GROUNDWATER ELEVATION
	750 — 750 GROUNDWATER ELEVATION CONTOUR (DASHED LINE WHERE INFERRED)
	GROUNDWATER FLOW DIRECTION

- NOTES:
1. TOPOGRAPHIC SURVEY DATED JANUARY 22, 2024, JULY 26, 2021, AND MAY 26, 2017.
 2. POTENTIOMETRIC SURFACE CONTOURS, GROUNDWATER ELEVATIONS, AND GROUNDWATER FLOW DIRECTIONS ARE DERIVED FROM FIGURE 5, SITEWIDE GROUNDWATER ELEVATION MAP, AUGUST 2024, FROM THE 2024 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT BY ARCADIS, DATED JANUARY 31, 2025.

PROJECT



GEORGIA POWER COMPANY
PLANT YATES MULTI-UNIT R6-AMA

**AUGUST 2024 POTENTIOMETRIC
SURFACE CONTOUR MAP**

PROJECT NO. I054-107 May 2025

DRAWN BY: MM

FIGURE:

CHECKED BY: MJ

A2



APPENDIX B. HYDRAULIC CONDUCTIVITY TESTING RESULTS

**TABLE B1
HORIZONTAL HYDRAULIC CONDUCTIVITY DATA**

Location	Test	Hydraulic Conductivity (cm/sec)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (ft/yr)
PZ-4S	Slug-In Test	7.41E-04	2.10	767
	Slug-Out Test	1.52E-04	0.43	157
YGWA-4I	Slug-In Test	9.17E-05	0.26	95
	Slug-Out Test	8.11E-05	0.23	84
PZ-5S	Slug-In Test	N/A	N/A	N/A
	Slug-Out Test	4.34E-04	1.23	449
YGWA-5I	Slug-In Test	N/A	N/A	N/A
	Slug-Out Test	3.77E-04	1.07	391
YGWA-5D	Slug-In Test	1.16E-04	0.33	121
	Slug-Out Test	1.06E-04	0.30	110
YGWA-17S	Slug-In Test	3.42E-04	0.97	354
	Slug-Out Test	3.46E-04	0.98	358
YGWA-18S	Slug-In Test	9.52E-05	0.27	99
	Slug-Out Test	8.47E-05	0.24	88
YGWA-18I	Slug-In Test	7.76E-04	2.20	804
	Slug-Out Test	5.12E-04	1.45	530
YGWC-19S	Slug-In Test	3.39E-04	0.96	351
	Slug-Out Test	N/A	N/A	N/A
YGWA-20S	Slug-In Test	3.63E-04	1.03	376
	Slug-Out Test	2.22E-04	0.63	230
YGWC-22S	Slug-In Test	3.14E-04	0.89	325
	Slug-Out Test	2.93E-04	0.83	303
YGWC-23S	Slug-In Test	2.15E-04	0.61	223
	Slug-Out Test	2.40E-04	0.68	248
YGWC-24S	Slug-In Test	2.79E-04	0.79	289
	Slug-Out Test	2.93E-04	0.83	303
PZ-35	Slug-In Test	3.12E-03	8.84	3229
	Slug-Out Test	2.05E-03	5.80	2117
YGWC-32S	Slug-In Test	1.45E-03	4.10	1498
	Slug-Out Test	2.39E-03	6.77	2475
YGWC-32I	Slug-In Test	1.88E-03	5.32	1942
	Slug-Out Test	2.39E-03	6.77	2471
YGWC-33S	Slug-In Test	2.37E-03	6.71	2452
	Slug-Out Test	1.58E-03	4.49	1640
YGWC-34I	Slug-In Test	1.99E-03	5.63	2055
	Slug-Out Test	1.78E-03	5.06	1847
YGWC-36	Slug-In Test	2.34E-04	0.66	243
	Slug-Out Test	2.46E-04	0.70	255
PZ-37	Slug-In Test	2.11E-03	5.99	2188
	Slug-Out Test	1.65E-03	4.69	1711
YGWC-38 (PZ-38)	Slug-In Test	2.08E-04	0.59	215
	Slug-Out Test	1.73E-04	0.49	179
YGWA-39 (PZ-39)	Slug-In Test	1.81E-03	5.13	1874
	Slug-Out Test	1.89E-03	5.34	1952
YGWA-40 (PZ-40)	Slug-In Test	5.79E-04	1.64	599
	Slug-Out Test	7.20E-04	2.04	745
YGWC-42	Slug-In Test	2.20E-04	0.62	228
	Slug-Out Test	1.47E-04	0.42	152
YGWC-43	Slug-In Test	3.66E-03	10.38	3793
	Slug-Out Test	2.61E-03	7.41	2706
PZ-48	Slug-In Test	6.54E-04	1.85	677
	Slug-Out Test	5.58E-04	1.58	577
YGWC-49	Slug-In Test	6.92E-04	1.96	716
	Slug-Out Test	8.00E-04	2.27	828
Slug Test Geometric Mean		5.26E-04	1.49	544

Notes:

1. Slug Test on locations -1 through -16 completed in 2014, -17 through -30 in 2015, -31 and higher performed by ACC, Inc. personnel 3/2-3/9, 2017.
2. N/A = Result not available.
3. cm/sec = centimeters per second; ft/day = feet per day; ft/yr = feet per year

TABLE B2
Sitewide Vertical Hydraulic Conductivity Data Summary

Location	Depth (ft bgs)	Hydraulic Conductivity (cm/sec)
YGWA-17S	17 - 19	6.91E-04
YGWC-19S	17 - 19	1.78E-04
YGWA-20S	17 - 19	9.72E-05
YGWC-22S	7 - 9	1.63E-03
YGWC-22S	17 - 19	4.66E-04
YGWC-24S	17 - 19	2.51E-03
YGWC-24S	37 - 39	2.50E-05
PZ-25S	33 - 35	4.13E-05
PZ-25S	44 - 46	2.00E-04
YGWC-26S	17 - 19	1.79E-06
YGWC-26S	27 - 29	3.36E-05
YGWC-27S	17 - 19	4.58E-07
YGWC-27S	27 - 29	3.56E-06
YGWC-28S	17 - 19	2.08E-07
PZ-30S	27 - 29	1.38E-05
PZ-31S	44 - 46	7.85E-04
Geometric Mean		4.88E-05

Notes:

1. Data from Shelby Tube sample analysis completed by Cardno ATC, 2015.
2. All locations original IDs were originally pre-fixed with "PZ"; pre-fixes of locations incorporated into a groundwater monitoring network were changed to "YGWA" or "YGWC" as appropriate.
3. ft bgs = feet below ground surface
4. cm/sec = centimeters per second

**APPENDIX C. BORING LOGS, WELL CONSTRUCTION DIAGRAMS, EPD
BOND CONTINUATION CERTIFICATES, AND SURVEY
DATA**



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-11
PAGE 1 OF 2
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/8/2014 COMPLETED 5/20/2014 SURF. ELEV. 834.3 COORDINATES: N:1,256,876.13 E:2,070,097.91

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 51.3 ft. GROUND WATER DEPTH: DURING _____ COMP. 33.18 ft. DELAYED _____

NOTES Top of Casing Elevation = 836.6

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
		ELEV.	ELEV. (DEPTH)
		Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
	Silt (ML) - reddish brown to rusty red, dry, stiff, low plasticity, very fine (silt/clay) with lower fine to upper fine sand grain, cohesive; trace mica; trace organics	831.3	832.3 (2.0)
	Silty Sand (SM) - reddish brown to red (pink) with zones of light gray mottling, dry, medium dense to loose, no plasticity, lower fine to lower medium grain, noncohesive; trace gravel sized rock fragments; micaceous	828.3	
	Poorly-graded Sand with Silt (SP-SM) - rusty red with greenish gray mottling, damp, medium dense to dense, no plasticity, lower fine to upper fine grain, slightly cohesive; increasing fines (clay/silt); micaceous; quartz, plagioclase, muscovite, biotite, trace chlorite visible	825.3	
	Silty Sand (SM) - reddish pink grading to light gray with pinkish to yellowish tan to dark brown mottling, damp, medium dense to loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; trace pea to gravel sized rock fragments; brittle rock fragments		
	- SM: light gray/tan grading to reddish brown, damp, medium dense to loose, no plasticity, upper fine to upper medium grain, <i>saprolite</i> , slightly cohesive; zones of increased fines/clay content; completely weathered to residual soil; trace to little mica; quartz, plagioclase, muscovite, biotite visible		
	Poorly-graded Sand with Silt (SP-SM) - light brown/tan with rusty red to light gray to dark brown/black mottling, moist, medium dense, no plasticity, upper fine to upper medium grain, <i>saprolite</i> , slightly cohesive; remnant banding visible; trace mica	808.3	
	Interlayered/Alternating Biotite Gneiss and Mica Schist - light gray to white (gneiss) with zones of dark gray/black (schist), upper fine to lower coarse grain, medium hard to hard, slightly to not weathered, gneiss banding with zones of schistose foliation, quartz, plagioclase, biotite, muscovite, trace chlorite, pyrite, garnet; low to moderate angled fractures; most fracturing tends to occur in zones of	799.3	799.3 (35.0)
			794.8

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/23/14 12:27 - VALTRCF502X2DBSMEL\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-11
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION		WELL DATA
45		alternating gneiss and schist; no visible healing/fracture fill Interlayered/Alternating Biotite Gneiss and Mica Schist(Con't)	ELEV. (CONTINUED)	Surface: protective aluminum cover with bollards; 4-foot square concrete pad
50		- Interlayered/Alternating Biotite Gneiss and Mica Schist: light gray to white (gneiss) with zones of dark gray/black (schist), upper fine to lower coarse grain, medium hard to hard, slightly to not weathered, gneiss banding with zones of schistose foliation, quartz, plagioclase, biotite, muscovite, trace chlorite, pyrite, garnet; low to moderate angled fractures; most fracturing tends to occur in zones of alternating gneiss and schist; no visible healing/fracture fill	783.3	Filter: 20/30 Silica Sand (39.5) Filter: 20/30 Silica Sand (793.3) Well: 2" OD PVC (SCH 40) (41.0) Screen: 10 ft; pre-pack Sump: 0.30 ft. (783.0)
		Bottom of borehole at 51.3 feet.		783.3

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/23/14 12:27 - \\VALTRCF02\X2\DB\SMEL\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-1D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DATE STARTED 4/28/2014 COMPLETED 5/20/2014 SURF. ELEV. 834.9 COORDINATES: N:1,256,867.34 E:2,070,104.61

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 126.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 45.89 ft. DELAYED _____

NOTES Top of Casing Elevation = 837.25

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
		ELEV.	ELEV. (DEPTH)
		Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
			← Surface Seal: concrete
	Silt (ML) - reddish brown to rusty red, dry, stiff, low plasticity, very fine (silt/clay) with lower fine to upper fine sand grain, cohesive; trace mica; trace organics	831.9	832.9 (2.0)
5	Silty Sand (SM) - reddish brown to red (pink) with zones of light gray mottling, dry, medium dense to loose, no plasticity, lower fine to lower medium grain, noncohesive; trace gravel sized rock fragments; micaceous	828.9	
10	Poorly-graded Sand with Silt (SP-SM) - rusty red with greenish gray mottling, damp, medium dense to dense, no plasticity, lower fine to upper fine grain, slightly cohesive; increasing fines (clay/silt); micaceous; quartz, plagioclase, muscovite, biotite, trace chlorite visible	825.9	
15	Silty Sand (SM) - reddish pink grading to light gray with pinkish to yellowish tan to dark brown mottling, damp, medium dense to loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; trace pea to gravel sized rock fragments; brittle rock fragments		
20	- SM: light gray/tan grading to reddish brown, damp, medium dense to loose, no plasticity, upper fine to upper medium grain, <i>saprolite</i> , slightly cohesive; zones of increased fines/clay content; completely weathered to residual soil; trace to little mica; quartz, plagioclase, muscovite, biotite visible		
25			
30	Poorly-graded Sand with Silt (SP-SM) - light brown/tan with rusty red to light gray to dark brown/black mottling, moist, medium dense, no plasticity, upper fine to upper medium grain, <i>saprolite</i> , slightly cohesive; remnant banding visible; trace mica	808.9	
35			
40	Mica Schist with thinly interlayered/alternating Biotite Gneiss - dark gray/black to greenish gray (schist) with thin zones of med gray to light gray (Gneiss), lower fine to upper fine with trace lower medium to upper medium grain, medium hard to soft, slightly to moderately weathered, schistose foliation, trace banding, biotite, chlorite, muscovite, quartz, plagioclase, hornblende, trace garnet, pyrite with some pyrite being porphyroblastic; trace low angle fractures visible; fracturing tends to occur along schistose zones of	800.9	

Annular Fill: 90/10 Portland Cement/Bentonite Powder

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/23/14 12:36 - \\VALTRCF02X2DB\$MEL\$GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-1D
PAGE 2 OF 3
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

	DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	ELEV. (CONTINUED)	WELL DATA
		<p>phyllosilicate minerals; no healing/fracture fill visible Mica Schist with thinly interlayered/alternating Biotite Gneiss(Con't)</p>		<p>Surface: protective aluminum cover with bollards; 4-foot square concrete pad</p>
	45			
	50	<p>Biotite Gneiss - medium gray to light gray, very fine to lower medium grain, medium hard, not to slightly weathered, banded, quartz, plagioclase, muscovite, biotite, hornblende; low angle fractures visible; total to partial healing visible; some zones of orangish brown staining observed</p>	788.4	
	55			
	60	<p>- Granitic Gneiss: very light gray to white, very fine to upper fine grain, hard to very hard, not weathered, slight/trace banding visible, quartz, plagioclase, muscovite, trace biotite (less mafic minerals than above); low to high angle fracturing observed; unable to distinguish between natural and mechanical fracturing; no visible healing/fracture fill;</p>		
	65			
	70	<p>- Biotite Gneiss: medium gray to light gray, lower fine to upper medium grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, pyrite, hornblende (increase in mafic minerals); some zones of thinly interlayered (1-2 mm) greenish gray mica schist; low to moderately angled fractures visible; no visible healing/fracture fill; fracturing tends to occur along planes of thinly interlayered schist;</p>	768.4 (66.5)	<p>Annular Fill: 90/10 Portland Cement/Bentonite Powder</p>
	75			
	80	<p>Mica Schist with thinly interlayered/alternating Biotite Gneiss - dark gray to greenish gray, lower medium to upper medium with some upper coarse plagioclase /quartz grain, medium hard to soft, not to slightly weathered, schistose foliation, biotite, muscovite, quartz, plagioclase, pyrite; low angle fractures visible; no visible healing/fracture fill; thin zone of highly fractured (rubble zone) biotite gneiss with orangish brown staining @ approx. 88'</p>	755.9	<p>Annular Seal: 3/8 Hole Plug (medium bentonite chips)</p> <p>Filter: 20/30 Silica Sand</p>
	85			
				759.2 (75.7)
				<p>Screen: 50 ft; 0.01" slotted</p>

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/23/14 12:36 - \\ALTRCF02X2DBSME\\$\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-1D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (CONTINUED) ELEV. (DEPTH)
90		Mica Schist with thinly interlayered/alternating Biotite Gneiss(Con't)	
95		Biotite Gneiss - medium gray to light gray, upper fine to lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende; pyrite, garnet; @ approx. 109' thin zone with porphyroblastic garnets (2-5 mm in size); low to moderately angled fractures visible; trace to partial healing/some quartz/plagioclase fracture fill; @ approx. 110' thin (1') zone of amphibolite (very mafic, dark gray to black with white flecks, biotite, hornblende, plagioclase, trace quartz, trace pyrite in fractures; no visible texture; upper fine to upper medium grain size; low to high angled fractures; no visible healing/fracture fill, moderately hard to hard, not weathered (fresh))	738.4
100			
105			
110			
115		Biotite Gneiss: medium gray to light gray, upper fine to lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende; pyrite, trace garnet; low to moderately angled fractures visible; trace to partial healing/some quartz/plagioclase fracture fill; highly fractured (rubble zone) @ approx. 125-126'	
120			
125			
		Bottom of borehole at 126.5 feet.	708.4
			709.2 (125.7) 708.9
			Screen: 50 ft; 0.01" slotted Well: 2" OD PVC (SCH 40) Sump: 0.30 ft.

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/23/14 12:36 - \\ALTRCF502X2DB\$MEL\$GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

Note: Top of Casing Elevation = 805.62.

SOUTHERN COMPANY <i>Energy to Serve Your World™</i>		DRILLING LOG			Hole No. GWA-2	
		GEOLOGICAL SERVICE			Sheet 1 of 2	
SITE Plant Yates		HOLE DEPTH 49.5		SURF. ELEV. 803.1		
LOCATION Gypsum Stacking Area		COORDINATES N 1,261,383.11		E 2,073,509.98		
ANGLE 0	BEARING 0	CONTRACTOR SCS, Inc.		DRILL NO. _____		
DRILLING METHOD HAS/SS -31' Rock core-49.5'		NO. SAMPLES 6	NO. U.D. SAMPLES 0			
CASING SIZE 6"	LENGTH _____	CORE SIZE 2"	TOTAL % REC. _____			
WATER TABLE DEPTH 37.6		ELEV. 767.71	TIME AFTER COMP. 0	DATE TAKEN 4/17/2007		
TYPE GROUT Portland Type I/II		QUANTITY 18 gallons	MIX 6 gal:94 lbs	DRILLING START DATE 4/16/2007		
DRILLER Shawn Milan	RECORDER Lea Millet	APPROVED _____		DRILLING COMP. DATE 4/17/2007		

Graphic Log	Depth	Elev.	Material Description, Classification and Remarks	Standard Penetration Test			Sample No.	Comments
				From To	Blows	N		
	0	803.1						
	1	802.1						
	2	801.1						
	3	800.1						
	4	799.1						
	5	798.1	Orange and tan silty CLAY, dry, black mottling, high mica content	4.5-6.0	2/5/6	11		50%
	6	797.1						
	7	796.1						
	8	795.1						
	9	794.1						
	10	793.1	As above	9.5-11.0	4/4/5	9		40%
	11	792.1						
	12	791.1						
	13	790.1						
	14	789.1						
	15	788.1	As above - last 3" starting into saprolite	14.5-16.0	3/5/7	12		50%
	16	787.1						
	17	786.1						
	18	785.1						
	19	784.1						
	20	783.1	Orange gneissic saprolite with mica, dry, weathered feldspar pebbles	19.5-21.0	4/3/8	11		50%
	21	782.1						
	22	781.1						
	23	780.1						
	24	779.1						

DRILLING LOG
GEOLOGICAL SERVICE

Hole No. GWA-2

Sheet 2 of 2

SITE Plant Yates TOTAL DEPTH 49.5 SURF. ELEV. 805.31

Graphic Log	Depth	Elev.	Material Description, Classification and Remarks	Standard Penetration Test			Sample No.	Comments
				From To	Blows	N		
	25	778.1	As above, no pebbles	24.5-26.0	4/4/50-3	R		
	26	777.1						
	27	776.1						
	28	775.1						
	29	774.1						
	30	773.1	Granular gneissic saprolite	29.5-31.0	50-3	R		20
	31	772.1	32' - Top of Rock					
	32	771.1	Black & white schist, verging on gneiss - chlorite, biotite, white minerals	32-40				
				7.9/8				
	33	770.1	Fracture with iron staining, chlorite/biotite schist					
			33.7-Fracture with iron staining					
	34	769.1	Fracture with pyrite					
	35	768.1	Schist verging on gneiss, iron staining, small amount pyrite					
	36	767.1	Chlorite/biotite schist, iron staining, light clay rind					
			36.9-Iron staining in fracture					
	37	766.1	Fracture with clay rind					
			37.1-Clay rind with minimal pyrite					
	38	765.1	Visible amphibole					
	39	764.1	Pyrite crystal, high chlorite content					
	40	763.1	Abundant pyrite	40-45				
				4.8/5				
	41	762.1	Thin clay rind					
	42	761.1						
			42.7-High chlorite content, heavier clay rind					
	43	760.1	Gneissic with visible biotite books, chlorite, pyrite, thin clay rind					
	44	759.1						
	45	758.1	Chlorite/biotite schist, pyrite, thin clay rind	45-50				
				4/5				
	46	757.1	Visible amphibole					
	47	756.1	Gneissic, visible biotite, pyrite					
	48	755.1	Schistic, visible amphibole, clay rind					
			48.1-Heavy clay rind					
	49	754.1						
			49.5- Bottom of Boring					
	50	753.1						
	51							
	52							
	53							
	54							
	55							
	56							

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

SOUTHERN COMPANY SERVICES, INC.			
WELL CONSTRUCTION LOG		PROJECT	WELL NO.
SITE Plant Yates		Background well installation	GWA-2
LOCATION Gypsum Stacking Area			
DATE STARTED	4/17/2007	ENDED	4/17/2007
		PREPARED	L. Millet
		DEPTH	ELEVATION
	TOP OF CASING		805.62
	GROUND SURFACE	0	803.1
	PROTECTIVE CASING DIA 4" TYPE Sch 40 PVC		
	BOTTOM OF PROTECTIVE CASING	2	801.1
	BACKFILL MATERIAL TYPE Portland Type I/II		
	RISER CASING DIA 2" TYPE Sch 40 PVC		
WATER LEVEL: 37.6			
	TOP OF SEAL	35.3	767.8
	ANNULAR SEAL TYPE Bentonite		
	TOP OF FILTER PACK	37.3	765.8
	FILTER PACK TYPE: Grade 1A Filter Sand		
	BOTTOM OF RISER/ TOP OF SCREEN	39.3	763.8
	SCREEN DIA 2" TYPE Sch 40 PVC OPENING WIDTH 0.01 OPENING TYPE Slot		
	BOTTOM OF SCREEN	49.3	753.8
	BOTTOM OF CASING	49.3	753.8
	BOTTOM OF HOLE	49.5	753.6
HOLE DIA:	6"		



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-21
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/8/2014 COMPLETED 5/20/2014 SURF. ELEV. 864.0 COORDINATES: N:1,256,144.08 E:2,070,790.49

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 61.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 41.44 ft. DELAYED _____

NOTES Top of Casing Elevation = 866.25

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/23/14 12:18 - \VALTRCF02X2DB\$ME\\$\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	ELEV. (DEPTH)
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
				ELEV.
				(DEPTH)
			← Surface Seal: concrete	862.0
				(2.0)
5		Sandy Silt (ML) - rusty red, damp, stiff to very stiff, low plasticity, very fine to fine grain, cohesive; trace organics; micaceous		861.5
10		Silty Sand (SM) - rusty red to orangish brown, dry, loose, no plasticity, lower fine to upper fine grain, noncohesive; fine gravel sized rock fragments included; micaceous - SM: light brown to tan with some yellowish brown to rusty red mottling, dry, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , completely weathered/residual soil; noncohesive; fine to coarse gravel sized rock fragments included; rock fragments highly weathered and brittle with angular to subangular angularity; micaceous - SM: <i>saprolite</i> , rock fragments increase in size and are less brittle/ more competent with depth; angular rock fragment angularity		
20		- SM: light gray to light brown, dry, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , continued rock fragment size increase (fine to coarse gravel sized); included rock fragments brittle/highly weathered to harder/ more competent; angular rock fragments; minimal to no mottling visible;		
25				
30		- SM: light gray to tan, dry, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , coarse gravel with some cobble sized rock fragments; included rock fragments harder/more competent but brittle along cleavage planes of included micas (muscovite and biotite); angular rock fragments, micaceous rock fragments are gray to brown in color		
35		Partially Weathered Rock - light gray to tan, Pulverized Rock (powder) due to sonic drilling; no describable sample - No Recovery (36' - 40')		829.0
40			← Annular Fill: 90/10 Portland Cement/Bentonite Powder	824.0

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-21
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ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (CONTINUED) ELEV. (DEPTH)
45		<p>Interlayered Biotite Gneiss and Granitic Gneiss</p> <p>- dark gray (Biotite Gneiss) to med gray to light gray (Granitic Gneiss), lower fine to upper fine with zones of lower medium to upper medium grain, medium hard, slightly weathered, slight banding visible, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, garnet visible; very thin 0.5 - 1.0 cm interlayered greenish gray to black schist; visible zones of predominately mafic minerals (Biotite Gneiss) and predominately felsic minerals (Granitic Gneiss); schistose foliation visible in some zones and in areas of mechanical fracture; moderate to high angle fractures visible; total to partial healing with quartz fracture fill</p>	<p>Annular Fill: 90/10 Portland Cement/Bentonite Powder</p> <p style="text-align: right;">818.9 (45.1)</p> <p>← Annular Seal: 3/8 Hole Plug (medium bentonite chips)</p> <p style="text-align: right;">814.3 (49.7)</p> <p>← Filter: 20/30 Silica Sand</p> <p style="text-align: right;">812.8 (51.2)</p> <p style="text-align: center;">Well: 2" OD PVC (SCH 40)</p> <p>← Screen: 10 ft; pre-pack</p> <p style="text-align: right;">802.8</p> <p>← Sump: 0.30 ft.</p> <p style="text-align: right;">802.5</p>
50		<p>- Interlayered Biotite Gneiss/Granitic Gneiss/ Mica Schist: greenish black to greenish gray (Schist) to dark gray to medium gray (Biotite Gneiss) to light gray (Granitic Gneiss), lower fine to lower medium grain, medium hard, quartz, plagioclase, biotite, muscovite, hornblende pyrite, garnet and chlorite visible; faint banding visible within the interlayered zones of Gneiss and a schistose foliation visible in the zones of Mica Schist; decreasing high and moderate angled fracture increasing low angle fractures with apparent rubble zone @ approx. 54'-55'; minimal to no healing visible; hardness ranges from hard to moderately hard (Gneiss) to moderately soft (Schist); slight weathering in zones of softer schist with fresh Gneiss observed</p>	
55			
60			
		Bottom of borehole at 61.5 feet.	

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/23/14 12:18 - \\VALTRCF502X2DB\$MEL\$GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-3I
PAGE 1 OF 2
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DATE STARTED 5/7/2014 COMPLETED 5/20/2014 SURF. ELEV. 794.0 COORDINATES: N:1,256,405.20 E:2,072,024.20

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 56.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 46.38 ft. DELAYED _____

NOTES Top of Casing Elevation = 796.55

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
		ELEV.	ELEV. (DEPTH)
		Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
	Lean Clay (CL) - rusty red, moist, medium stiff, medium plasticity, very fine grain, cohesive; micaceous; trace organics		
	Silt (ML) - rusty red, damp, medium dense, low plasticity, very fine to lower fine grain, cohesive; trace clay; micaceous	791.5	792.0 (2.0)
	Silty Sand (SM) - reddish brown to pinkish red with orangish brown mottling, dry, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; angular to subangular grains; micaceous; zone @ approx. 5-5.5' with competent but brittle, gravel to cobble sized angular rock fragments; zone (5-5.5' approx.) is completely weathered but rock fabric is visibly intact - SM: reddish brown to pinkish red with orangish brown to tan to light gray mottling, dry, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; angular to subangular grains; quartz, plagioclase, muscovite identifiable; interbedded coarse gravel to cobble sized rock fragments; rock fragments brittle/frangible to moderately hard; angular to subangular grains	789.0	
	- SM: reddish brown to light brown grading to tan to grayish brown to light gray (change in color alternated from light to dark depending on whether muscovite or biotite in more abundant), damp, loose with zones of medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; zones of remnant rock fabric visible; trace hard rock fragments included; quartz, plagioclase, muscovite, biotite identifiable; micaceous; angular to subangular grains		
	- SM: light brown to light gray/white with orangish brown and dark brown mottling, damp, loose with zones of medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; quartz, plagioclase, muscovite, biotite identifiable; trace brittle, gravel sized rock fragments included; angular grains; micaceous		
			Annular Fill: 90/10 Portland Cement/Bentonite Powder

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 19:57 - \\VALTRCF02X2DBSMEL\$GINT\PIANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

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LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-3I
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 19:57 - \\ALTRCF02\X2\DB\SMEL\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
		ELEV. (CONTINUED)	ELEV. (DEPTH)
35	<p>Silty Sand (SM)(Cont)</p> <p>- SM: light brown to light gray/white with orangish brown and dark brown mottling, damp, loose with zones of medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; quartz, plagioclase, muscovite, biotite identifiable; trace brittle, gravel sized rock fragments included; angular grains; micaceous</p>		
40		754.0	
45	<p>Granitic Gneiss</p> <p>- light gray, very fine to upper fine grain, medium hard, slightly to moderately weathered, slight banding visible, limited recovery, sample primarily broken into gravel sized chips; quartz, plagioclase, biotite, hornblende, porphyroblastic pyrite; overall, sample is too broken up to identify fracturing, but some low angle fractures with partial quartz fracture fill is visible</p>		752.7 (41.3)
		749.0	
50	<p>Amphibolite</p> <p>- dark gray to greenish gray to black, lower fine to upper fine grain, hard, not weathered, slight banding visible in some zones with increased biotite, trace zones with a slight schistose foliation, hornblende, biotite, plagioclase, trace quartz, trace pyrite; zone of augen plagioclase with trace quartz; augen zone and fracture fill/pyrite have upper medium to lower coarse grain size; grain size decreases with depth; low to high angle fractures visible</p>		749.0 (45.0)
55		744.0	747.7 (46.3)
	<p>Biotite Gneiss</p> <p>- medium gray to light gray, lower fine to upper medium grain, hard, not weathered, banded, quartz, plagioclase, biotite, hornblende visible; trace low angle fractures visible; total healing/quartz fracture fill; zone of very coarse grained quartz and plagioclase (Granulite? high grade metamorphic)</p>		
		737.5	737.7
	Bottom of borehole at 56.5 feet.		737.5

Surface: protective aluminum cover with bollards; 4-foot square concrete pad

Annular Fill: 90/10 Portland Cement/Bentonite Powder

Annular Seal: 3/8 Hole Plug (medium bentonite chips)

Filter: 20/30 Silica Sand

Well: 2" OD PVC (SCH 40)

Screen: 10 ft; pre-pack

Sump: 0.20 ft.



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-3D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DATE STARTED 5/6/2014 COMPLETED 5/20/2014 SURF. ELEV. 794.1 COORDINATES: N:1,256,399.94 E:2,072,026.21

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 131.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 28.62 ft. DELAYED _____

NOTES Top of Casing Elevation = 796.78

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
		ELEV.	ELEV. (DEPTH)
		Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
			← Surface Seal: concrete
	Lean Clay (CL) - rusty red, moist, medium stiff, medium plasticity, very fine grain, cohesive; micaceous; trace organics	791.6	792.1 (2.0)
	Silt (ML) - rusty red, damp, medium dense, low plasticity, very fine to lower fine grain, cohesive; trace clay; micaceous	789.1	
	Silty Sand (SM) - reddish brown to pinkish red with orangish brown mottling, dry, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; angular to subangular grains; micaceous; zone @ approx. 5-5.5' with competent but brittle, gravel to cobble sized angular rock fragments; zone (5-5.5' approx.) is completely weathered but rock fabric is visibly intact - SM: reddish brown to pinkish red with orangish brown to tan to light gray mottling, dry, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; angular to subangular grains; quartz, plagioclase, muscovite identifiable; interbedded coarse gravel to cobble sized rock fragments; rock fragments brittle friable to moderately hard; angular to subangular rock fragments		
	- SM: reddish brown to light brown grading to tan to grayish brown to light gray (change in color alternated from light to dark depending on whether muscovite or biotite in more abundant), damp, loose with zones of medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; zones of remnant rock fabric visible; trace hard rock fragments included; quartz, plagioclase, muscovite, biotite identifiable; micaceous; angular to subangular grains		
	- SM: light brown to light gray/white with orangish brown and dark brown mottling, damp, loose with zones of medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; quartz, plagioclase, muscovite, biotite identifiable; trace brittle, gravel sized rock fragments included; angular grains; micaceous		
			Annular Fill: 90/10 Portland Cement/Bentonite Powder

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 20:30 - \\VALTRCF02\X2\BDBSMEL\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

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LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-3D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 20:30 - VALTRCF502X2DBSMEL\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
		ELEV. (CONTINUED)	ELEV. (DEPTH)
35	<p>Silty Sand (SM)(Cont)</p> <p>- SM: light brown to light gray/white with orangish brown and dark brown mottling, damp, loose with zones of medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; quartz, plagioclase, muscovite, biotite, identifiable; trace brittle, gravel sized rock fragments included; angular grains; micaceous</p>		
40	<p>Granitic Gneiss</p> <p>- light gray, very fine to upper fine grain, medium hard, slightly to moderately weathered, slight banding visible, limited recovery, sample primarily broken into gravel sized chips; quartz, plagioclase, biotite, hornblende, porphyroblastic pyrite; overall, sample is too broken up to identify fracturing, but some low angle fractures with partial quartz fracture fill is visible</p>	754.1	
45	<p>Amphibolite</p> <p>- dark gray to greenish gray to black, lower fine to upper fine grain, hard, not weathered, slight banding visible in some zones with increased biotite, trace zones with a slight schistose foliation, hornblende, biotite, plagioclase, trace quartz, trace pyrite; zone of augen plagioclase with trace quartz; augen zone and fracture fill/pyrite have upper medium to lower coarse grain size; grain size decreases with depth; low to high angle fractures visible; fracturing tends to be very thin with moderate to total healing visible; grades to/alternates with Biotite Gneiss towards the bottom of the sample</p>	749.1	
50	<p>Biotite Gneiss</p> <p>- medium gray to light gray, lower fine to upper medium grain, hard, not weathered, banded, quartz, plagioclase, biotite, hornblende visible; trace low angle fractures visible; total healing/quartz fracture fill; zone of very coarse grained quartz and plagioclase (Granulite? high grade metamorphic) @ approx. 56', 30 mm thick plagioclase with a 10mm thick vertical seam of translucent, grayish quartz; quartz vein stops @ the contact with the gneiss above and below the zone</p>	744.1	
55			
60	<p>Amphibolite</p> <p>- dark gray to greenish gray to black, lower fine to upper fine grain, hard, not weathered, slight banding visible in some zones with increased biotite, hornblende, biotite, plagioclase, trace quartz, trace pyrite; low to high angle fractures visible; moderate to total healing visible</p>	735.1	
65	<p>Interlayered/Alternating Biotite Gneiss, Granitic Gneiss and thin (1-2 mm to 4-6 mm) Mica Schist</p> <p>- medium gray to light gray (Gneiss) with dark gray to greenish gray (Schist), upper fine to lower medium grain, hard to medium hard, not to slightly weathered, banded, slight schistose foliation, quartz,</p>	731.1	

Annular Fill: 90/10 Portland Cement/Bentonite Powder

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LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-3D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 20:30 - \\VALTRCF02\X2\DBS\ME\G\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	ELEV. (DEPTH)
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
			(CONTINUED)	
70		plagioclase, biotite, hornblende, muscovite, pyrite visible; low to moderate angled fractures; partial to no visible healing; some visible staining around the interlayered zones of schist Interlayered/Alternating Biotite Gneiss, Granitic Gneiss and thin (1-2 mm to 4-6 mm) Mica Schist (Con't) Granitic Gneiss - light gray, very fine to lower fine grain, hard, not weathered, slight banding (white with thin black bands), quartz, plagioclase, decreased biotite, increased muscovite, trace hornblende, trace pyrite; some muscovite grains are upper medium to lower coarse; high to moderate angled fractures; no visible healing/fracture fill	Annular Fill: 90/10 Portland Cement/Bentonite Powder	726.1 720.7 (73.4)
75		Interlayered/Alternating Biotite Gneiss, Granitic Gneiss and thin (1-2 mm to 4-6 mm) Mica Schist - medium gray to light gray (Gneiss) with dark gray to greenish gray (Schist), upper fine to lower medium grain, hard to medium hard, not to slightly weathered, banded, slight schistose foliation, quartz, plagioclase, biotite, hornblende, muscovite, pyrite visible; low to moderate angled fractures; partial to no visible healing	Annular Seal: 3/8 Hole Plug (medium bentonite chips)	719.1 715.7 (78.4)
80		Granitic Gneiss - light gray, very fine to lower fine grain, hard, not weathered, slight banding (white with thin black bands), quartz, plagioclase, trace biotite, muscovite, trace hornblende; trace pyrite; some muscovite grains are upper medium to lower coarse; high to moderate angled fractures; no visible healing/fracture fill	Filter: 20/30 Silica Sand	710.1 712.9 (81.2)
85		Interlayered/Alternating Amphibolite and Biotite Gneiss - dark gray to black (Amphibolite) with medium gray to light gray (Biotite Gneiss), lower fine to lower coarse grain, hard, not weathered, banded, hornblende, biotite, quartz, plagioclase, muscovite, pyrite; increase in pyrite content and crystal size from above; zones of porphyroblastic plagioclase, occurring along the amphibolite/gneiss contacts; high to moderate fractures visible; quartz fracture fill visible; grain size alternates throughout the sample from fine/medium/coarse	Screen: 50 ft; 0.01" slotted	
90			Well: 2" OD PVC (SCH 40)	
95		- Interlayered/Alternating Amphibolite and Biotite Gneiss: dark gray to black (Amphibolite) with medium gray to light gray (Biotite Gneiss), lower fine to lower coarse grain, hard, not weathered, banded, hornblende, biotite, quartz, plagioclase, muscovite, pyrite; increase in pyrite content and crystal size from above; zones of porphyroblastic plagioclase, occurring along the amphibolite/gneiss contacts; high to moderate fractures visible; quartz fracture fill visible		
100				

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LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-3D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 20:30 - VALTRCF502X2DBSMEL\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
		Surface: protective aluminum cover with bollards; 4-foot square concrete pad
		ELEV. (CONTINUED) ELEV. (DEPTH)
105	Interlayered/Alternating Amphibolite and Biotite Gneiss(Con't) - Interlayered/Alternating Amphibolite and Biotite Gneiss: dark gray to black (Amphibolite) with medium gray to light gray (Biotite Gneiss), lower fine to lower coarse grain, hard, not weathered, banded, hornblende, biotite, quartz, plagioclase, muscovite, pyrite; increase in pyrite content and crystal size from above; zones of porphyroblastic plagioclase, occurring along the amphibolite/gneiss contacts; high to moderate fractures visible; quartz fracture fill visible	
110		
115		
120	Biotite Gneiss - medium gray to light gray, lower fine to upper medium grain, hard, not to slightly weathered, banded, quartz, plagioclase, biotite, hornblende visible; trace low angle fractures visible; staining visible associated with weathering	Screen: 50 ft; 0.01" slotted
125		
130	- Biotite Gneiss: medium gray to light gray, lower fine to upper medium grain, hard, not to slightly weathered, banded, quartz, plagioclase, biotite, hornblende visible; @ approx. 127' slight mineral dissolution visible along with some staining	
	662.6	662.9
	662.6	662.6

Bottom of borehole at 131.5 feet.

Sump: 0.30 ft.



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-4I
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/10/2014 COMPLETED 5/21/2014 SURF. ELEV. 781.9 COORDINATES: N:1,254,436.68 E:2,075,455.62

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 46.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 17.72 ft. DELAYED _____

NOTES Top of Casing Elevation = 784.21

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 19:25 - VALTRCF502X2DBSMEL\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	WELL DATA
				Surface: protective aluminum cover with bollards; 4-foot square concrete pad
				ELEV. (DEPTH)
		Sandy Silt (ML) - rusty red, damp, medium stiff, low plasticity, very fine grain, cohesive; micaceous; trace organics	779.4	← Surface Seal: concrete
		Silty Sand (SM) - reddish brown to light brown, dry, medium dense to loose, no plasticity, lower fine to upper medium grain, some to trace clay decreasing with depth; trace mica; trace organics - SM: medium to light brown to tan, dry, loose, no plasticity, lower fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; noncohesive; trace rock fragments (brittle); trace mica - SM: light brown to tan grading to reddish brown @ 15', damp, loose, no plasticity, lower fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; noncohesive; trace rock fragments (brittle); trace mica - SM: reddish brown to tan to white with a greenish tan zone @ approx. 18-20', moist, medium dense, no plasticity, lower fine to upper medium grain, <i>saprolite</i> , visible zones where <i>saprolite</i> has not completely broken down to residual soil and remnant rock fabric visible; zone of more competent <i>saprolite</i> observed; gravel sized rock fragments included; muscovite, biotite, chlorite phyllosilicates visible - SM: orangish brown to light gray to white, moist, medium dense, no plasticity, lower fine to upper medium grain, <i>saprolite</i> , increasing rock fragment size and abundance with depth; rock fragments range from coarse gravel to cobble size; angular fragments		779.9 (2.0)
				← Annular Fill: 90/10 Portland Cement/Bentonite Powder
			751.4	751.3 (30.6)
		Interlayered Granitic Gneiss and Biotite Gneiss - light gray to white with rusty red to orangish brown staining, lower fine to lower medium grain, medium hard, moderately weathered, trace banding, quartz, biotite, muscovite, plagioclase, hornblende; low to moderate angle fractures visible; slight schistose foliation visible in some weathered zones; some zones highly weathered		← Annular Seal: 3/8 Hole Plug
				← Filter: 20/30 Silica Sand
				747.4 (34.5)
				745.7 (36.2)
				Well: 2" OD PVC (SCH 40)
				← Screen: 10 ft; pre-pack
			735.4	735.7
				← Sump: 0.30 ft.
				735.4

Bottom of borehole at 46.5 feet.



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-51
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ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DATE STARTED 4/9/2014 COMPLETED 5/21/2014 SURF. ELEV. 782.1 COORDINATES: N:1,254,399.95 E: 2,076,218.86

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 56.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 13.66 ft. DELAYED _____

NOTES Top of Casing Elevation = 784.54

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:41 - \VALTRCF02X2DB\$ME\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (DEPTH)
			780.1
			(2.0)
5		<p>Silty Sand (SM) - brown, dry, medium dense, no plasticity, upper fine to lower medium grain, noncohesive; trace organics; angular to sub angular grains - SM: brown, dry, medium dense, no plasticity, upper fine to lower medium grain, slight increase in clay content with depth; cohesive (slight); trace mica; trace coarse grains</p>	<p>← Surface Seal: concrete</p>
		777.1	
10		<p>Poorly-graded Sand (SP) - light gray to off white, dry, very loose, no plasticity, upper fine to upper medium grain, noncohesive; upper coarse to coarse gravel sized weathered rock fragments; angular to subangular grains; angular rock fragments</p> <p>- SP: med gray to tan to light gray /white with orangish brown to greenish gray mottling, damp, medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; zones of more competent (completely weathered) rock increasing with depth; trace lenses of silt/clay interbedded within the sand/saprolite; brittle upper coarse to lower gravel sized rock fragments included; micaceous</p>	
15			
20		<p>- SP: light gray/white grading to med gray with orangish brown to dark gray mottling, damp, medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; angular to subangular grains</p>	<p>← Annular Fill: 90/10 Portland Cement/Bentonite Powder</p>
25			
30		<p>- SP: light gray to med gray, damp, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, increasing in gravel sized rock fragments (completely weathered, very brittle)</p>	
35			
40		<p>- SP: medium gray to light gray, damp, loose, no plasticity, upper fine to upper coarse grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil with zones of more competent but brittle rock fragments; angular grains; micaceous</p>	
		742.1	

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-51
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV. (CONTINUED)	WELL DATA	ELEV. (DEPTH)
			741.1	Surface: protective aluminum cover with bollards; 4-foot square concrete pad	741.8
45	[Graphic Log]	Partially Weathered Rock - light gray, Pulverized Rock (powder) due to sonic drilling; no describable sample Biotite Gneiss - light brown to light gray to white, upper fine to upper medium grain, medium hard to soft, moderately weathered, banded, quartz, biotite, muscovite, plagioclase, hornblende, trace chlorite; low to moderate angled fractures; no visible healing/fracture fill		Annular Seal: 3/8 Hole Plug (medium bentonite chips)	(40.3)
50	[Graphic Log]			Filter: 20/30 Silica Sand	737.6
55	[Graphic Log]	- Biotite Gneiss: light gray to medium gray, upper fine to upper medium grain, medium hard to hard, moderately weathered, banded, quartz, biotite, muscovite, plagioclase, hornblende, trace chlorite; increase in mafic minerals; orangish brown staining visible in zones; low to moderate angled fractures visible; no visible healing/fracture fill; slight schistose foliation observed in zones		Well: 2" OD PVC (SCH 40)	735.9
				Screen: 10 ft; pre-pack	(46.2)
		Bottom of borehole at 56.5 feet.	725.6	Sump: 0.30 ft.	725.9
					725.6

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:41 - \\VALTRCF502X2DBSMEL\$GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-5D
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/11/2014 COMPLETED 5/21/2014 SURF. ELEV. 781.9 COORDINATES: N:1,254,396.67 E:2,076,223.63

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 126.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 6.84 ft. DELAYED _____

NOTES Top of Casing Elevation = 784.53

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
		ELEV.	ELEV. (DEPTH)
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			Surface Seal: concrete
5	Silty Sand (SM) - brown, dry, medium dense, no plasticity, upper fine to lower medium grain, noncohesive; trace organics; angular to sub angular grains - SM: brown, dry, medium dense, no plasticity, upper fine to lower medium grain, slight increase in clay content with depth; cohesive (slight); trace mica; trace coarse grains	779.9	779.9 (2.0)
10	Poorly-graded Sand (SP) - light gray to off white, dry, very loose, no plasticity, upper fine to upper medium grain, noncohesive; upper coarse to coarse gravel sized weathered rock fragments; angular to subangular grains; angular rock fragments - SP: med gray to tan to light gray /white with orangish brown to greenish gray mottling, damp, medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; zones of more competent (completely weathered) rock increasing with depth; trace lenses of silt/clay interbedded within the sand/saprolite; brittle upper coarse to lower gravel sized rock fragments included; micaceous - SP: light gray/white grading to med gray with orangish brown to dark gray mottling, damp, medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; angular to subangular grains - SP: light gray to med gray, damp, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i> , increasing in gravel sized rock fragments (completely weathered, very brittle) - SP: medium gray to light gray, damp, loose, no plasticity, upper fine to upper coarse grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil with zones of more competent but brittle rock fragments; angular grains; micaceous	776.9	
40		742.1	Annular Fill: 90/10 Portland Cement/Bentonite Powder

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:56 - \\VALTRCF02X2DBSME\\$\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-5D
PAGE 2 OF 3
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (CONTINUED) ELEV. (DEPTH)
45		Biotite Gneiss - light gray to white with light brown to tan staining, lower fine to upper fine grain, medium hard to soft, slightly to moderately weathered, banded, quartz, biotite, plagioclase, muscovite, hornblende, trace chlorite; low angle fracturing visible; 1-2 mm to 6-8 mm thick quartz fracture fill; moderate to partial healing; visible weathering characteristics include staining/discoloration and some mineral decomposition	
50		- Biotite Gneiss: light gray to white with light brown to tan staining, lower fine to upper fine grain, medium hard, moderately weathered, banded, quartz, biotite, plagioclase, muscovite, hornblende, trace chlorite; low to moderate angle fracturing visible; some quartz fracture fill visible; partial to no visible healing	
55		- Interlayered/Alternating Biotite Gneiss and Mica Schist: alternating dark gray and white bands (Gneiss) interlayered with thin (1-2 mm to 5-6 mm) dark gray to greenish gray (Schist), upper fine to lower medium grain, medium hard to hard, not weathered, banded, slight schistose foliation associated with the interlayered mica schist, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite, trace chlorite; primarily low to moderate angled fracturing observed, difficult to distinguish between natural and mechanical fractures; no fracture healing visible; fracturing tends to occur along thinly interlayered zones of schist	
60		- Interlayered/Alternating Biotite Gneiss and Mica Schist: alternating dark gray and white bands (Gneiss) interlayered with thin (1-2 mm to 5-6 mm) dark gray to greenish gray (Schist), upper fine to lower medium grain, medium hard to hard, not weathered, banded, slight schistose foliation associated with the interlayered mica schist, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite, trace chlorite; primarily low to moderate angled fracturing observed; no to partial healing visible; fracturing tends to occur along thinly interlayered zones of schist; @ approx. 66' and 74', 90-120 mm thick zones of white, localized, coarse grained plagioclase feldspar and quartz (Granulite? unclassified metamorphic) with thinly interlayered mica schist; no banding visible in the plagioclase/quartz zone; trace augen plagioclase surrounded by flaky/bladed habit biotite and muscovite, around the zones associated with the coarse grain plagioclase	
65		- Interlayered/Alternating Biotite Gneiss and Mica Schist: alternating dark gray and white bands (Gneiss) interlayered with thin (1-2 mm to 5-6 mm) dark gray to greenish gray (Schist), upper fine to lower medium grain, medium hard to hard, not to slightly weathered, banded, slight schistose foliation associated with the interlayered mica schist, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite, trace chlorite; primarily low to moderate angled fracturing observed; no to partial healing visible; highly fractured (rubble zone) @ approx. 84-86' with some discoloration/staining	
70		- Biotite Gneiss: light gray to white with dark gray to med gray bands, lower medium to upper medium with zones of lower coarse to trace	
75			712.2 (69.7) ← Annular Seal: 3/8 Hole Plug (medium bentonite chips)
80			707.7 (74.2) ← Filter: 20/30 Silica Sand
85			705.7 (76.2) Screen: 50 ft; 0.01" slotted

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:56 - \\ALTRCF02\X2\BBSMEL\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-5D
PAGE 3 OF 3
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV. (CONTINUED)	WELL DATA
90		upper coarse grain, medium hard to hard, not weathered, banded, trace schistose foliation, quartz, plagioclase, biotite, muscovite, hornblende, pyrite; decrease to trace interlayered dark gray to greenish gray mica schist; low to moderate angled fractures, no visible healing/ fracture fill Biotite Gneiss(Cont)		Surface: protective aluminum cover with bollards; 4-foot square concrete pad ELEV. (DEPTH) Screen: 50 ft; 0.01" slotted Well: 2" OD PVC (SCH 40)
95		Interlayered/Alternating Unclassified Metamorphic and Biotite Gneiss - white to light gray, lower medium (gneiss) to lower coarse to upper coarse (unclassified metamorphic) grain, hard, not weathered, no banding visible, quartz, plagioclase, biotite, muscovite, hornblende, pyrite; white, coarse grained plagioclase with thin inclusions of porphyroblastic biotite, muscovite crystals in alternating layers; low to moderate angled fractures, no visible healing/ fracture fill; difficult to distinguish between natural and mechanical fractures due to sonic drilling	685.9	
100				
105			675.9	
110		Biotite Gneiss - alternating light gray and dark gray, lower medium to upper medium with trace lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite; @ approx. 114-116', highly fractured (rubble zone -no visible weathering or healing/fracture fill) of greenish gray to dark gray to medium gray alternating schist and gneiss; low angled fractures visible; no visible healing/fracture fill		
115		- Biotite Gneiss: alternating light gray and dark gray, lower medium to upper medium with trace lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite; low angled fractures visible; no visible healing/fracture fill		
120				
125		- Biotite Gneiss: alternating light gray and dark gray, lower medium to upper medium with trace lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite; low angled fractures visible; no visible healing/fracture fill	655.4	
		Bottom of borehole at 126.5 feet.		655.7 ← Sump: 0.30 ft. → 655.4

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:56 - VALTRCF02X2DBSME1\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-14S
PAGE 1 OF 1
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/23/2014 COMPLETED 5/20/2014 SURF. ELEV. 746.8 COORDINATES: N:1,257,828.64 E:2,072,537.24

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 33 ft. GROUND WATER DEPTH: DURING _____ COMP. 12.14 ft. DELAYED _____

NOTES Top of Casing Elevation = 748.76

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/23/14 13:22 - \\ALTRCF02\X2\BBSME\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (DEPTH)
			744.8
		Clayey Sand (SC) - dark brown grading to rusty red/brown, damp, dense, no plasticity, lower fine to upper fine grain, cohesive; organics visible 0-8" organics decreasing with depth; decreasing clay content with depth	← Surface Seal: concrete
			(2.0)
5			
			743.3
10		- SM: light brown/tan to orangish brown with zones of dark brown to rusty red, dry, loose, no plasticity, lower fine to lower medium with trace upper medium grain, <i>saprolite</i> , noncohesive; micaceous; visible mineralogy includes quartz, plagioclase, muscovite, biotite; completely weathered to residual soil; trace brittle rock fragments; zone of more competent rock fragments observed; lighter brown and tan zones, muscovite is the dominate mica visible; in darker brown zones biotite is the dominate mica visible; distinct platy crystal habit visible of micas (muscovite or biotite) within zones where saprolite is completely weathered and brittle but still competent enough not to be completely broken down to residual soil	← Annular Fill: 90/10 Portland Cement/Bentonite Powder
15			
			731.9
			(16.7)
20		- SM: light brown/tan to orangish brown with zones of dark brown to rusty red, damp, loose, no plasticity, upper fine to upper medium grain, <i>saprolite</i> , noncohesive; micaceous; trace lower coarse grains observed; increasing rock fragments with depth; in zones of more competent rock fragments/saprolite, remnant rock fabric visible; lighter brown and tan zones, muscovite is the dominate mica visible; in darker brown zones biotite is the dominate mica visible	← Annular Seal: 3/8 Hole Plug (medium bentonite chips)
25			
			726.0
			(20.8)
			← Filter: 20/30 Silica Sand
			724.1
			(22.7)
30		- SM: light brown to tan to orangish brown, damp, loose, no plasticity, upper fine to upper medium grain, <i>saprolite</i> , noncohesive; micaceous; trace lower coarse grains observed; increasing rock fragments with depth; in zones of more competent rock fragments/saprolite, remnant rock fragment visible; saprolite (3.5-33.0') remained relatively consistent throughout the unit	Well: 2" OD PVC (SCH 40)
			← Screen: 10 ft; pre-pack
			714.1
			713.8
		Bottom of borehole at 33.0 feet.	← Sump: 0.30 ft.
			713.8



LOG OF TEST BORING

BORING YGWA-17S
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ECS37967

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
LOCATION Plant Yates

DATE STARTED 9/10/2015 COMPLETED 9/10/2015 SURF. ELEV. 780.2 COORDINATES: N:1,257,602.79 E:2,076,758.31

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 37 ft. GROUND WATER DEPTH: DURING 15 ft. COMP. 20 ft. DELAYED 10.3 ft. after 24 hrs.

NOTES Top of casing elev: 783.05

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:03 - \\ALTRFP01\WSHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES2015 PIEZOMETERS\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
						Completion: protective aluminum cover with bollards; 4-foot square concrete pad
5		Silty Sand (SM) - very pale brown (10YR 7/3) dry, fine to coarse-grained, with mica				Surface Seal: concrete
10		- mottled very pale brown (10YR 7/3) and white (10YR 8/1) - pale brown (10YR 6/3)				Annular Fill: cement-bentonite grout
15		▽ - brownish yellow (10YR 6/8) - light reddish brown (2.5YR 7/3) thin banding				
20		▽ - white (10YR 8/1) wet, massive feldspar and quartz seam - light reddish brown (2.5YR 7/3) - light reddish brown (2.5YR 7/4) wet				Annular Seal: bentonite pellets
25		▼ - mottled pale yellow (2.5Y 8/3) and white / yellowish gray (5Y 8/1)				Filter: silica filter sand
30		- grayish brown (2.5Y 5/2) saprolite - banded pale yellow (2.5Y 7/3) and white / yellowish gray (5Y 8/1)				Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack
35						
40		Bottom of borehole at 37.0 feet.				Sump:0.299999999999997 ft.



LOG OF TEST BORING

BORING YGWA-18S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
LOCATION Plant Yates

DATE STARTED 9/4/2015 COMPLETED 9/8/2015 SURF. ELEV. 787.6 COORDINATES: N:1,257,116.05 E: 2,077,015.25

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 37 ft. GROUND WATER DEPTH: DURING 18 ft. COMP. 19 ft. DELAYED 18.5 ft. after 24 hrs.

NOTES Top of casing elev: 790.57

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:03 - \\ALTRFP01\W\SHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES\2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
5		Clayey Sand (SC) - yellowish red (5YR 5/8) dry, no, fine to medium-grained - with mica				Completion: protective aluminum cover with bollards; 4-foot square concrete pad
10		Silty Sand (SM) - mottled reddish yellow (7.5YR 6/8) and very pale brown (10YR 8/4) dry, fine to medium-grained, with mica - mottled pale yellow (2.5Y 7/4) and very pale brown / very pale orange (10YR 8/2) dry				Surface Seal: concrete
15		- moist - saprolite				Annular Fill: cement-bentonite grout
20		- banded light yellowish brown (2.5Y 6/3) and white (N9) moist, fine to coarse-grained - pale olive (5Y 6/3) very moist, fine to medium-grained - mottled light yellowish brown (2.5Y 6/3) and dark olive brown (2.5Y 3/3) - mottled pale olive (5Y 6/3), dark olive brown (2.5Y 3/3) and white (N9)				Annular Seal: bentonite pellets
25		- wet				Filter: silica filter sand
30		Clayey Silty Sand (SC-SM) - pale olive / dusky yellow (5Y 6/4) saturated, fine to coarse-grained, with mica - mottled olive / moderate olive brown (5Y 4/4) and white (N9) - pale yellow (5Y 8/2)				Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack
35		- banded olive brown (2.5Y 4/4) and white (N9) - regolith - mottled pale yellow (5Y 7/3) and pale yellow (2.5Y 8/2) wet				Sump: 0.299999999999997 ft.
40		Bottom of borehole at 37.0 feet.				



LOG OF TEST BORING

BORING YGWA-181
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
LOCATION Plant Yates

DATE STARTED 9/3/2015 COMPLETED 9/8/2015 SURF. ELEV. 787.9 COORDINATES: N:1,257,090.05 E: 2,077,015.82

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 77 ft. GROUND WATER DEPTH: DURING _____ COMP. 19 ft. DELAYED 18.5 ft. after 24 hrs.

NOTES Top of casing elev: 790.57

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:03 - \\ALTRC01\W\SHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES\2015 PIEZOMETERS\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
						Completion: protective aluminum cover with bollards; 4-foot square concrete pad
5		Clayey Sand (SC) - olive / light olive brown (5Y 5/6) moist, fine to coarse-grained				Surface Seal: concrete
10		Silty Sand (SM) - mottled strong brown (7.5YR 5/6) and very pale brown / grayish orange (10YR 7/4) dry, fine to coarse-grained, with mica - pale yellow (2.5Y 8/3) dry, some residual quartz gravel - pale yellow (2.5Y 7/3)				
15		- mottled pale yellow (2.5Y 7/3) and yellow (2.5Y 7/6) - mottled light brownish gray (2.5Y 6/2) and light gray (2.5Y 7/1) damp				Annular Fill: cement-bentonite grout
20		Clayey Silty Sand (SC-SM) - mottled pale yellow (2.5Y 7/4) and white / yellowish gray (5Y 8/1) wet, fine to coarse-grained, massive white quartz+feldspar (completely weathered), with mica - mottled pale yellow (2.5Y 7/3) and white (2.5Y 8/1)				
25		- white / yellowish gray (5Y 8/1) fine to coarse-grained, massive white quartz+feldspar (completely weathered), with mica - pale olive (5Y 6/3)				
30		- banded light olive gray (5Y 6/2) and white (2.5Y 8/1) wet, fine to coarse-grained, with mica - banded light yellowish brown (2.5Y 6/3) and white (2.5Y 8/1)				
35		- saprolite				
40		- mottled light gray (2.5Y 7/2) and white (2.5Y 8/1) wet, fine to coarse-grained				

(Continued Next Page)



LOG OF TEST BORING

BORING YGWA-181
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SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers

LOCATION Plant Yates

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:03 - \\ALTR0FP01\W\SHAUGNE\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES\2015 PIEZOMETERS\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	GROUNDWATER OBSERVATIONS	WELL DATA
45		Clayey Silty Sand (SC-SM) (Con't) - mottled light gray (2.5Y 7/2) and white / yellowish gray (5Y 8/1) massive quartz+feldspar - mottled dark yellowish brown (10YR 4/6) and very dark gray (10YR 3/1) weathered schist seam - mottled light gray (2.5Y 7/2) and white (2.5Y 8/1)				Completion: protective aluminum cover with bollards; 4-foot square concrete pad (CONTINUED)
50		Silty Sand (SM) - brown (10YR 5/3) wet, cohesive, fine to coarse-grained				
55		Granitic gneiss - transition zone, quartz, interbedded with mica schist - pale yellow (2.5Y 7/3) slightly to completely weathered, with gravelly silty sand (weathered zones) - dark yellowish brown (10YR 4/6) and pale yellow (2.5Y 7/3) fine to coarse grain, medium hard, slightly to completely weathered				Annular Fill: cement-bentonite grout Annular Seal: bentonite pellets Filter: silica filter sand Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack Sump:0.299999999999997 ft.
60		- yellowish brown (10YR 5/6) and very dark greenish gray (10G 3/1) coarse grain, soft to medium hard, highly weathered, thinly foliated, moderately fractured, fractures sub-horizontal, separates at foliation planes, feldspar, quartz, mica, water stained - dark greenish gray (10BG 4/1) and light bluish gray (5PB 7/1) slightly weathered - yellowish brown (10YR 5/6) and very dark gray (10YR 3/1) highly weathered				
65		- highly weathered, water stained				
70		- grayish brown (10YR 5/2) and black (5Y 2.5/1) coarse grain, moderately weathered, thinly foliated, moderately fractured, fractures sub-horizontal - brownish yellow (10YR 6/8) and white (10R 8/1) - white (10R 8/1) massive feldspar and quartz seam				
75		- grayish brown (10YR 5/2) and white (10R 8/1) massive quartzite seam - thinly foliated - bluish gray (5PB 6/1) and white (10R 8/1) not weathered, fresh competent rock				
		Bottom of borehole at 77.0 feet.				
80						
85						



LOG OF TEST BORING

BORING YGWA-20S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
LOCATION Plant Yates

DATE STARTED 9/28/2015 COMPLETED 9/29/2015 SURF. ELEV. 764.6 COORDINATES: N:1,255,531.55 E: 2,077,410.37

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 27 ft. GROUND WATER DEPTH: DURING 7 ft. COMP. 6.5 ft. DELAYED 6.5 ft. after 24 hrs.

NOTES Top of casing elev: 767.12

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:04 - \\VALTRC\FP01\W\SHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES\2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
5		Clayey Silty Sand (SC-SM) - dark grayish brown (2.5Y 4/2) wet, fine grained - very pale brown (10YR 7/3) and yellowish brown / moderate yellowish brown (10YR 5/4) fine to coarse-grained, with quartzite gravel - mottled very pale brown (10YR 7/3) and reddish yellow (7.5YR 7/8) moist - moist				Completion: protective aluminum cover with bollards; 4-foot square concrete pad
10		Silty Sand (SM) - mottled light yellowish brown (2.5Y 6/3) and pale yellow (2.5Y 8/3) very moist, fine to coarse grained - dark grayish brown / dark yellowish brown (10YR 4/2) - mottled brownish yellow / dark yellowish orange (10YR 6/6) and white (10YR 8/1)				Surface Seal: concrete Annular Fill: cement-bentonite grout
15						Annular Seal: bentonite pellets Filter: silica filter sand
20		Silty Sand (SM) - mottled brownish yellow / dark yellowish orange (10YR 6/6) and white (10YR 8/1) saprolite wet, fine to coarse-grained - light yellowish brown (2.5Y 6/3), pale yellow (2.5Y 8/2) and white (2.5Y 8/1)				Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack
25		Clayey Silty Sand (SC-SM) - mottled white (2.5Y 8/1) and pinkish white (5YR 8/2) moist, massive weathered feldspar and quartzite				Sump: 0.300000000000001 ft.
Bottom of borehole at 27.0 feet.						
30						
35						
40						



LOG OF TEST BORING

BORING YGWA-211
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ECS37967

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
LOCATION Plant Yates

DATE STARTED 9/23/2015 COMPLETED 9/28/2015 SURF. ELEV. 780.8 COORDINATES: N:1,255,538.27 E: 2,076,768.14

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 77 ft. GROUND WATER DEPTH: DURING _____ COMP. 24 ft. DELAYED 24 ft. after 48 hrs.

NOTES Top of casing elev: 783.7

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:04 - \\ALTRFP01\W\SHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
						Completion: protective aluminum cover with bollards; 4-foot square concrete pad
5		Clayey Sand (SC) - mottled strong brown (7.5YR 5/6) and yellowish red / light brown (5YR 5/6) dry, fine to coarse-grained, mica Silty Sand (SM) - reddish yellow (7.5YR 6/8) soil fine to coarse-grained Well-graded Sand (SW) - very pale brown (10YR 7/3) fine to coarse-grained, mica, gravel (residual rock)				Surface Seal: concrete
10		Poorly-graded Sand with Silt (SP-SM) - pale yellow (2.5Y 8/3) and pale yellow (2.5Y 8/2) dry - fine to medium-grained - yellow (2.5Y 7/6)				
15		Silty Sand (SM) - mottled yellow (2.5Y 7/6), white (2.5Y 8/1) and olive brown (2.5Y 4/4) saprolite weathered schist, feldspar, quartz, fine to coarse-grained				
20		Poorly-graded Sand with Silt (SP-SM) - mottled white (2.5Y 8/1) and yellowish brown / moderate yellowish brown (10YR 5/4) dry, fine to medium-grained - highly decomposed granitic gneiss interbedded with biotite schist - mottled olive brown (2.5Y 4/3) and white (2.5Y 8/1)				Annular Fill: cement-bentonite grout
25		- yellowish brown / moderate yellowish brown (10YR 5/4) - mottled light olive brown (2.5Y 5/4) and pale yellow (2.5Y 8/3) moist, highly decomposed mica scist - mottled white (2.5Y 8/1) and pale brown (10YR 6/3) dry, highly decomposed granitic gneiss, feldspar quartz, mica				
35		Well-graded Sand (SW) - mottled brown (10YR 4/3) and pale yellow (2.5Y 8/2) moist, fine to coarse grained, mica, quartz - Granitic gneiss interbedded with biotite gneiss: mottled light gray (2.5Y 7/2) and white (2.5Y 8/1) - Bedrock transition zone				
40						

(Continued Next Page)



LOG OF TEST BORING

BORING YGWA-211
 PAGE 2 OF 2
 ECS37967

SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
 LOCATION Plant Yates

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:04 - \\VALTR0FP01\W\SHAUGNES\DESKTOP\PIANTS PROJECTS\GEORGIA POWER\YATES2015 PIEZOMETERS\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	GROUNDWATER OBSERVATIONS	WELL DATA
						Completion: protective aluminum cover with bollards; 4-foot square concrete pad
45		(Cont) - white (2.5Y 8/1) and dark grayish brown (2.5Y 4/2) coarse grain, soft to hard, slightly to moderately weathered, medium to thick foliation, banded, moderately fractured (vertical to sub-vertical)				(CONTINUED) Annular Fill: cement-bentonite grout Annular Seal: bentonite pellets Filter: silica filter sand Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack Sump: 0.299999999999997 ft.
50		- white (2.5Y 8/1), dark grayish brown (2.5Y 4/2) and pale yellow (2.5Y 7/3) coarse grain, soft to hard, not to highly weathered, medium to thick foliation, banded, moderately fractured (near vertical), biotite gneiss				
55						
60		- gray (2.5Y 6/1), dark gray (2.5Y 4/1) and white (2.5Y 8/1) coarse grain, not to highly weathered, thin to medium foliation, moderately fractured (vertical to sub-vertical), pyrite, biotite, feldspar, quartz - pale yellow / grayish yellow (5Y 8/4)				
65						
70		- very dark gray (2.5Y 3/1) and white (2.5Y 8/1) coarse grain, not to slightly weathered, thin to medium foliation, moderately fractured (vertical to sub-vertical)				
75						
80		Bottom of borehole at 77.0 feet.				
85						



LOG OF TEST BORING

BORING YGWA-301
PAGE 1 OF 2
ECS37967

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
LOCATION Plant Yates

DATE STARTED 9/22/2015 COMPLETED 9/23/2015 SURF. ELEV. 760.1 COORDINATES: N: 1,258,421.86 E: 2,071,107.11

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 57 ft. GROUND WATER DEPTH: DURING _____ COMP. 34 ft. DELAYED 34 ft. after 48 hrs.

NOTES Top of casing elev: 762.58

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:04 - \\ALTRCF01\WSHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES\2015 PIEZOMETERS\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
5		Clayey Sand (SC) - yellowish red (5YR 5/8) dry, fine to coarse-grained, with mica - mottled yellowish red (5YR 5/8) and strong brown (7.5YR 5/6)				Completion: protective aluminum cover with bollards; 4-foot square concrete pad ← Surface Seal: concrete
10		Silty Sand (SM) - light reddish brown (2.5YR 7/3) fine to coarse-grained, with mica - mottled light gray (5Y 7/1) and very dark grayish brown (2.5Y 3/2) dry - light yellowish brown (2.5Y 6/3) fine to coarse-grained, some fine angular gravel (residual rock)				
15		- brownish yellow / dark yellowish orange (10YR 6/6) - light yellowish brown (2.5Y 6/3)				
20		- yellowish brown (10YR 5/6) dry, fine to coarse-grained - olive yellow (2.5Y 6/6)				← Annular Fill: cement-bentonite grout
25						
30		Clayey Silty Sand (SC-SM) - dark yellowish brown (10YR 4/6) wet, fine to medium grained - dry				
35		Granitic Gneiss - Bedrock transition zone ▼ - light gray (2.5Y 7/2), yellow (2.5Y 7/8) and yellowish red (5YR 5/8) coarse grain, soft to medium hard, moderately to completely weathered, inclined, moderately fractured (sub-vertical and on foliation planes), thin to medium foliation, water stained				
40		- light gray (2.5Y 7/2) and brownish yellow (10YR 6/8) coarse grain, soft to medium hard, moderately to completely weathered, inclined,				

(Continued Next Page)



LOG OF TEST BORING

BORING YGWA-301
 PAGE 2 OF 2
 ECS37967

SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
 LOCATION Plant Yates

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:04 - \\VALTR0FP01\W\SHAUGNES\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES2015 PIEZOMETERS\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA	
						(CONTINUED)	Completion: protective aluminum cover with bollards; 4-foot square concrete pad
45		moderately fractured (sub-vertical and on foliation planes), thin to medium foliation, water stained Granitic Gneiss (Cont) - light gray (10YR 7/1), very pale brown (10YR 7/3) and brownish yellow (10YR 6/8) medium to coarse grain, hard, slightly to moderately weathered, inclined, slight to moderately fractured (sub-vertical to horizontal), quartz, feldspar, biotite - yellowish red / light brown (5YR 5/6) moderately to highly weathered, water stained				Annular Fill: cement-bentonite grout Annular Seal: bentonite pellets Filter: silica filter sand Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack Sump:0.299999999999997 ft.	
50		- light gray (10YR 7/1) and brownish yellow (10YR 6/8) medium to coarse grain, hard, not to slightly weathered, inclined, slight to moderately fractured (horizontal), quartz, feldspar, biotite					
55							
		Bottom of borehole at 57.0 feet.					
60							
65							
70							
75							
80							
85							

RECORD OF BOREHOLE YGWA-39/PZ-39

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 66.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/6/16
 DATE COMPLETED: 7/7/16

NORTHING: 1,255,717.13
 EASTING: 2,073,865.58
 GS ELEVATION: 815.6
 TOC ELEVATION: 818.19 ft

DEPTH W.L.: 19.15 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0	815	0.00 - 0.40 topsoil	TOPSOIL		0.40				WELL CASING Interval: 0.0'-55.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 55.5'-65.5' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" Slotted Screen End Cap: Schedule 40 PVC FILTER PACK Interval: 52.5'-66.0' Type: #1 Type Sand FILTER PACK SEAL Interval: 47.5'-52.5' Type: Bentonite Pellets and Chips ANNULUS SEAL Interval: 0.0'-47.5' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic
		0.40 - 7.00 poorly sorted SAND with SILT, trace gravel, tan, mica fragments, dry, firm	SP-SM		7.00	1		7.00 7.00	
5	810				808.6				
		7.00 - 17.00 some silt, tan, dry, firm			7.00				
10	805				798.6				
		17.00 - 19.00 silty SAND, non-plastic fines, orange tan, micaceous, cohesive, firm	SM		17.00				
		19.00 - 21.00 poorly graded SAND with SILT, non-plastic fines, moist, firm	SP-SM		19.00	3		4.00 4.00	
20	795				796.6				
		21.00 - 24.00 silty SAND, 15-20% fines, orange tan with iron staining, wet (saprolite)	SM		21.00				
		24.00 - 29.00 SAND to silty SAND, some fines, mica, orange tan to tan, severely weathered fragments, dry to moist (saprolite)	SP-SM		24.00	4		6.00 6.00	
25	790				791.6				
		29.00 - 32.00 transitionally weathered rock - sand, some gravel, tan, rock seams, iron staining	PWR		29.00	5		3.80 6.00	
30	785				786.6				
		32.00 - 33.00 pulverized GNEISS, tan			32.00				
		33.00 - 37.00 bedrock - biotite GNEISS, fresh to medium weathered, medium strong to extremely strong, iron stains and deposits	GNEISS		33.00	6		4.00 4.00	
35	780				783.6				
		37.00 - 39.00 biotite GNEISS, severely weathered, iron staining and deposits			37.00				
		39.00 - 43.00 biotite GNEISS, severely weathered, sand layers noted iron staining and deposits			39.00				
40	775				778.6				
		43.00 - 47.00 biotite GNEISS, severely weathered, iron staining and deposits			43.00				
45	770				776.6				
		47.00 - 57.00 biotite GNEISS, fresh to slightly weathered, medium strong to extremely strong			47.00	7		7.00 10.00	
50					772.6				
					768.6				

BOREHOLE RECORD_YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

Log continued on next page

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWA-39/PZ-39

SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 66.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/6/16
 DATE COMPLETED: 7/7/16

NORTHING: 1,255,791.95
 EASTING: 2,073,431.34
 GS ELEVATION: 815.6
 TOC ELEVATION: 818.19 ft

DEPTH W.L.: 19.15 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
50	765	47.00 - 57.00 biotite GNEISS, fresh to slightly weathered, medium strong to extremely strong (<i>Continued</i>)				7		7.00 10.00		<p>WELL CASING Interval: 0.0'-55.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 55.5'-65.5' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" Slotted Screen End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 52.5'-66.0' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 47.5'-52.5' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-47.5' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
55	760	57.00 - 66.00 biotite GNEISS, fresh to moderately weathered, discoloration, iron stains, medium strong to extremely strong			758.6 57.00			5.00 9.00		
60	755	Boring completed at 66.00 ft								
65	750				749.6					
70	745									
75	740									
80	735									
85	730									
90	725									
95	720									
100										

BOREHOLE RECORD_YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWA-40/PZ-40

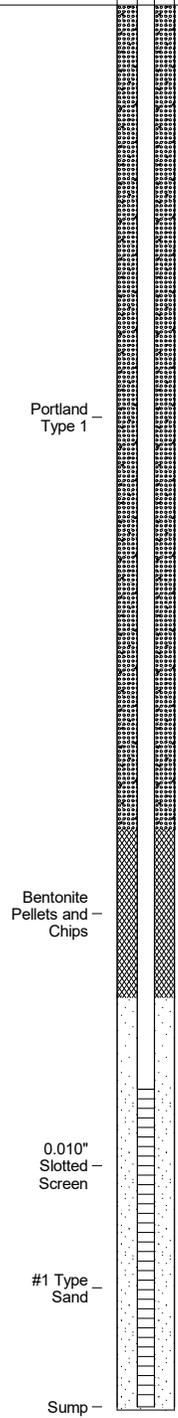
SHEET 1 of 1

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 46.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/6/16
 DATE COMPLETED: 7/7/16

NORTHING: 1,255,791.95
 EASTING: 2,073,431.34
 GS ELEVATION: 813.5
 TOC ELEVATION: 815.73 ft

DEPTH W.L.: 23.1 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 2.00 sandy SILT, fine to medium sand, reddish brown, low plastic	SM		811.5				WELL CASING Interval: 0.0'-35.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 35.5'-45.5' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" Slotted Screen End Cap: Schedule 40 PVC FILTER PACK Interval: 32.5'-46.0' Type: #1 Type Sand FILTER PACK SEAL Interval: 27.0'-32.5' Type: Bentonite Pellets and Chips ANNULUS SEAL Interval: 0.0'-27.0' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic	
810		2.00 - 6.00 fine to medium sand, light orange brown, micaceous, dry, loose			2.00	1				6.00 6.00
5		6.00 - 16.00 fine to coarse sand, low plastic silt, some gravel, brown grey to grey, corasening downward, relict laminations, more dense with depth, saprolitic, dry			807.5	2				12.00 10.00
805		16.00 - 17.00 coarse, competent	PWR		797.5			Portland Type 1 Bentonite Pellets and Chips 0.010" Slotted Screen #1 Type Sand Sump		
800		17.00 - 19.00 transitionally weathered rock - highly weathered GNEISS, red, white, dark brown			16.00 796.5	3			3.00 3.00	
795		19.00 - 36.00 highly weathered biotite GNEISS, oxidized staining			17.00	4			7.00 7.00	
790					794.5	5			10.00 10.00	
25					777.5	6			9.00 10.00	
785		36.00 - 46.00 bedrock - biotite GNEISS, some weathering, trace pyrite	GNEISS							
780										
35										
775										
40										
770										
45										
767.5		Boring completed at 46.00 ft								
765										
50										

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Adam M.

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE PZ-47/YGWA-47

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 56.50 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/10/16
 DATE COMPLETED: 7/11/16

NORTHING: 1,262,411.84
 EASTING: 2,071,818.05
 GS ELEVATION: 755.6
 TOC ELEVATION: 758.22

DEPTH W.L.: 21.6 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/11/2016
 TIME W.L.: 07:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE ft			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0	755	0.00 - 10.00 no recovery, hydrovac							<p>WELL CASING Interval: 0.0'-46.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 46.1'-56.1' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 43.4'-56.5' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 33.7'-43.4' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-33.7' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4"x4"x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
5	750								
10	745	10.00 - 13.00 silt SAND fining downward to low-plasticity CLAY, red, dry loose	SM-CL		745.6 10.00				
15	740	13.00 - 20.00 sandy SILT, orange to white, loose, dry	ML		742.6 13.00	1	6.00 6.00		
20	735	20.00 - 21.00 highly weathered, mica schist, relict laminations (saprolite) 21.00 - 24.00 orange to white, loose, dry			735.6 20.00 734.6 21.00	2	10.00 10.00		
25	730	24.00 - 26.00 orange to white, relict laminations, loose, dry (saprolite)			731.6 24.00				
		26.00 - 28.00 well sorted sand with some silt, relict laminations, saprolite - schistose 28.00 - 30.00 orange to white, relict laminations, loose, dry			729.6 26.00	3	3.00 4.00		
30	725	30.00 - 36.00 transitionally weathered rock, highly weathered mica SCHIST, pulverized from drilling, dry	PWR		727.6 28.00				
35	720				725.6 30.00	4	6.00 6.00		
40	715	36.00 - 46.00 bedrock - AMPHIBOLITE/SCHIST, deep oxide staining, secondary mineralization	SCHIST		719.6 36.00				
45	710	46.00 - 56.00 AMPHIBOLITE/SCHIST grading to GNEISS, secondary mineralization, garnet, pyrite inclusions, some quartzite banding			709.6 46.00	6	7.00 10.00		

Log continued on next page

BOREHOLE RECORD, YATES BORING LOGS.GPJ, PIEDMONT.GDT, 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Dale

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE PZ-47/YGWA-47

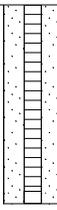
SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 56.50 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/10/16
 DATE COMPLETED: 7/11/16

NORTHING: 1,262,411.84
 EASTING: 2,071,818.05
 GS ELEVATION: 755.6
 TOC ELEVATION: 758.22

DEPTH W.L.: 21.6 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/11/2016
 TIME W.L.: 07:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE ft				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50	705	46.00 - 56.00 AMPHIBOLITE/SCHIST grading to GNEISS, secondary mineralization, garnet, pyrite inclusions, some quartzite banding <i>(Continued)</i>				6		7.00 10.00	 <p>#1 Type Sand</p> <p>Sump</p>	<p>WELL CASING Interval: 0.0'-46.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 46.1'-56.1' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 43.4'-56.5' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 33.7'-43.4' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-33.7' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
55	700		699.6							
		Boring completed at 56.50 ft		56.00						
60	695									
65	690									
70	685									
75	680									
80	675									
85	670									
90	665									
95	660									
100										

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Dale

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17





LOG OF TEST BORING

BORING YGWC-23S
PAGE 1 OF 1
ECS37967

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
LOCATION Plant Yates

DATE STARTED 9/18/2015 COMPLETED 9/21/2015 SURF. ELEV. 762.0 COORDINATES: N:1,256,366.93 E:2,074,734.07

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 36 ft. GROUND WATER DEPTH: DURING 16 ft. COMP. 12.8 ft. DELAYED 12.6 ft. after 24 hrs.

NOTES Top of Casing Elevation = 764.91

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:04 - \\VALTR0FP01\W\SHAUGHNESSY\DESKTOP\PIANTS PROJECTS\GEORGIA POWER\YATES2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
5		Clayey Sand (SC) - red (2.5YR 4/6) damp, fine to coarse-grained, with mica - mottled red (2.5YR 4/6) and reddish yellow (5YR 6/8)				Completion: protective aluminum cover with bollards; 4-foot square concrete pad
10		Silty Sand (SM) - mottled red (2.5YR 4/6) and reddish yellow (5YR 6/8) damp, fine to coarse-grained, with mica				
15		▼ - saprolite - mottled dark brown (7.5YR 3/3), light yellowish brown (10YR 6/4) and black (10YR 2/1) damp				
20		- mottled brownish yellow (10YR 6/8) and white (2.5Y 8/1) wet - mottled brown (10YR 4/3) and white (2.5Y 8/1)				
25		Clayey Sand (SC) - mottled brown (10YR 4/3) and white (2.5Y 8/1) wet, fine to medium-grained				Annular Seal: bentonite pellets
30		Silty Sand (SM) - mottled light olive brown (2.5Y 5/4) and white (2.5Y 8/1) dry, fine to coarse-grained, massive weathered feldspar and quartzite - mottled yellowish brown (10YR 5/6) and white (2.5Y 8/1) - yellowish brown (10YR 5/8)				Filter: silica filter sand
35		- mottled strong brown (7.5YR 5/6) and very pale brown / very pale orange (10YR 8/2) - pale brown (10YR 6/3) damp				Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack
		Bottom of borehole at 36.0 feet.				Sump: 0.299999999999997 ft.
40						

RECORD OF BOREHOLE YGWC-24SB

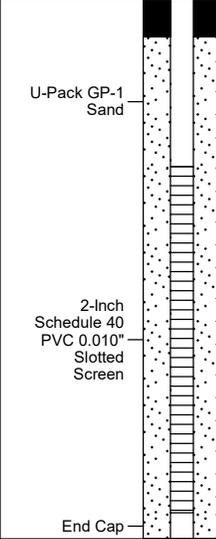
SHEET 2 of 2

PROJECT: Georgia Power Plant Yates
 PROJECT NUMBER: 30143622
 DRILLED DEPTH: 54.5 ft
 LOCATION: Newnan, GA

DRILL RIG: TerraSonic 150CC
 DATE STARTED: 10/13/2022
 DATE COMPLETED: 10/13/2022

NORTHING: 1258938.45
 EASTING: 2073965.94
 GS ELEVATION: 761.6
 TOC ELEVATION: 764.89

DEPTH W.L.: 23.4
 ELEVATION W.L.: 707.1
 DATE W.L.: 10/14/2022
 TIME W.L.: 2:45:00 PM

DEPTH (ft)	DESCRIPTION	USCS	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	PHOTO	REC	YGWC-24SB MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45	40.0 - 48.0 (ML) Sandy SILT; 2.5Y 6/3, firm; non-plastic; moist; micaceous. Grading to 2.5Y 7/2; dry; heavily weathered rock pulverized by sonic rig; friable silty sand and gravel; micaceous.	ML		40.0	5		8.0 10.0	 <p style="font-size: small;">U-Pack GP-1 Sand</p> <p style="font-size: small;">2-Inch Schedule 40 PVC 0.010" Slotted Screen</p> <p style="font-size: small;">End Cap</p>	<p>WELL CASING Interval: 0'-44.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 44.3'-54.3' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 0.8'</p> <p>FILTER PACK Interval: 41'-54.5' Type: U-Pack GP-1 Sand Quantity: 4 bags</p> <p>FILTER PACK SEAL Interval: 37.5'-41' Type: 3/8" Bariod Bentonite Pellets Quantity: 1 x 5 gal bucket</p> <p>ANNULUS SEAL Interval: 0'-41' Type: Aquaguard Bentonite Grout Quantity: 2 bags + 30 gal H2O</p> <p>DRILLING METHODS Soil Drill: 4-Inch Sonic Rock Drill: 4-Inch Sonic Sample Type: Sonic</p>
50	48.0 - 51.0 (SP) SAND; 2.5Y 6/3; loose; poorly sorted; fine to medium grained; subangular; saturated.	SP		48.0	6		5.0 4.5		
55	51.0 - 54.5 (SP) SAND; 10YR 8/3; loose; poorly sorted; fine to coarse grained; subangular; dry; with trace silt and some friable gravel sized weathered rock.	SP		51.0					
60									
65									
70									
75									
80									

DRILLING COMPANY: Cascade Drilling
 DRILLER: Cory Franklin

CHECKED BY: David Prouty
 DATE: 12/12/2022



Soil Boring Log

Project Name: Yates Date Started: 09/21/2020 Logger: Becky Steever
 Project Number: 30061098 Date Completed: 09/22/2020 Editor: Geoff Gay
 Project Location: Newnan, Georgia Weather Conditions: Sunny & Warm

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Well Construction	
								TOC	40.88A
1							(0-8.0'): Fill, Silty Clayey Sand (SM); tan to orange-red; fine grained to medium grained sand; no staining/odor; wet		Aluminum Stick-up with 4x4 Pad
2									
3									
4									
5									
6									
7									
8									
9							(8.0-10'): Sand; tan to medium gray; medium grained sand; no staining/odor; some silt; moist		
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
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26									
27									
28									
29									
30									
31									
32									
33									
34									
35									

Drilling Co.: Cascade Sampling Method: Cont.
 Driller: _____ Sampling Interval: Cont.
 Drilling Method: Sonic Water Level Start: 14
 Drilling Fluid: None Water Level Finish: 12.1
 Remarks: _____ Converted to Well: Yes No
 Surface Elev.: 737.7
 North Coord.: 1258547.74
 East Coord.: 2073748.73

SOIL BORING LOG C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\PROJECT FILE\Z.GPJ\ARCADIS.GDT 11/11/20

Soil Boring Log

Project Name: Yates Date Started: 09/21/2020 Logger: Becky Steever
 Project Number: 30061098 Date Completed: 09/22/2020 Editor: Geoff Gay
 Project Location: Newnan, Georgia Weather Conditions: Sunny & Warm

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Well Construction
36							(35-38'); Silty Sand (SM); brown to gray; fine to medium grained sand; no staining/odor; slightly moist	<p>So. Products Filter Pack #1 (16-40)</p> <p>Top of Screen</p> <p>2" PVC Screen</p> <p>Bottom of Screen</p> <p>HOLEPLUG Bentonite Backfill</p>
37							Same as above, some clay	
38							Pulverized rock sand; pale gray; some fine plagioclase gravel; fine grained sand	
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								
52								
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60								
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67								
68								
69								
70								
71								
72								

Remarks:

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWC-38/PZ-38

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 67.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/20/16
 DATE COMPLETED: 7/23/16

NORTHING: 1,256,108.38
 EASTING: 2,074,446.80
 GS ELEVATION: 797.1
 TOC ELEVATION: 799.69 ft

DEPTH W.L.: 26.35 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/23/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	795	0.00 - 1.00 silty SAND, goethite, loose, moist	SM		796.10	1		5.00 7.00	Well casing: Schedule 40 PVC, 2" diameter, threaded joints.	
5	790	1.00 - 8.00 tan to brown, mottled, loose, dry			1.00					
10	785	8.00 - 9.00 white to tan, plagioclase, loose, dry	SM		789.10	2		10.00 10.00	Well screen: U-Pack Schedule 40 PVC, 2" diameter, 0.010" slot size.	
15	780	9.00 - 27.00 tan to brown, mottled, micaceous, loose, dry			8.00 788.10 9.00					
20	775		SM		770.10	3		10.00 10.00	Filter pack: #1 Type Sand, 35.0'-48.0' interval.	
25	770	27.00 - 34.00 brown to tan, relict structure, moist to wet, loose (saprolite)			27.00					
30	765		PWR		763.10	4		7.00 10.00	Filter pack seal: Bentonite Pellets and Chips, 30.0'-35.0' interval.	
35	760	34.00 - 37.00 transitionally weathered rock - weathered GNEISS to high grade SCHIST, garnet, muscovite, biotite, recrystallization, fractured, friable			34.00					
40	755	37.00 - 39.00 bedrock - muscovite/biotite GNEISS, hornblende, fresh	GNEISS		760.10	5		7.00 10.00	Annulus seal: Portland Type 1, 0.0'-30.0' interval.	
45	750	39.00 - 40.00 muscovite/biotite GNEISS, hornblende, iron staining			37.00					
50	750	40.00 - 56.00 muscovite/biotite GNEISS, hornblende, fresh			758.10 39.00 757.10 40.00					
50		Log continued on next page				6		6.00 10.00	Well completion: 4'x4" pad, aluminum casing.	

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Kirk Fraley
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-38/PZ-38

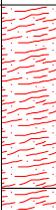
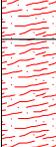
SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 67.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/20/16
 DATE COMPLETED: 7/23/16

NORTHING: 1,256,108.38
 EASTING: 2,074,446.80
 GS ELEVATION: 797.1
 TOC ELEVATION: 799.69 ft

DEPTH W.L.: 26.35 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/23/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50	745	40.00 - 56.00 muscovite/biotite GNEISS, hornblende, fresh <i>(Continued)</i>			741.10 56.00	6		6.00 10.00	Bentonite Pellet Backfill 	<p>WELL CASING Interval: 0.0'-37.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 37.0'-47.0' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 35.0'-48.0' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 30.0'-35.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-30.0' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
55	740	56.00 - 58.00 muscovite/biotite GNEISS, hornblende, iron staining			739.10 58.00			7.00 10.00		
60	735	58.00 - 67.00 muscovite/biotite GNEISS, hornblende, fresh			730.10	7				
65	730	Boring completed at 67.00 ft								
70	725									
75	720									
80	715									
85	710									
90	705									
95	700									
100										

BOREHOLE RECORD: YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Kirk Fraley
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWC-41/PZ-41

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 64.50 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/7/16
 DATE COMPLETED: 7/8/16

NORTHING: 1,256,510.62
 EASTING: 2,073,274.41
 GS ELEVATION: 801.1
 TOC ELEVATION: 803.92 ft

DEPTH W.L.: 22.1 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: 07:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0	800	0.00 - 2.00 sandy SILT, dark reddish brown, severely weathered gneiss, dry	ML		799.10	1		4.00 4.00	<p>WELL CASING Interval: 0.0'-54.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 54.0'-64.0' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 51.0'-64.5' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 45.5'-51.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-45.5' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
		2.00 - 4.00 silty SAND, light brown, dry, non-cohesive	SM		797.10				
		4.00 - 14.00 light brown, quartz sand at ~5', dry			4.00				
5	795					2		10.00 10.00	
		14.00 - 24.00 light brown, dry			787.10				
10	790				14.00				
		24.00 - 29.00 trace gravel, sand coarsening, light brown, dry			777.10				
15	785				24.00			9.00 10.00	
20	780					3			
		29.00 - 38.00 transitionally weathered rock - highly weathered biotite/muscovite GNEISS	PWR		772.10				
25	775				29.00			5.00 5.00	
		38.00 - 39.00 more competent			763.10				
		39.00 - 44.00 bedrock - biotite GNEISS, red to orange staining	GNEISS		38.00 762.1				
30	770				39.00			5.00 5.00	
		44.00 - 54.00 transitionally weathered rock - highly weathered biotite GNEISS, red oxide staining	PWR		757.10				
35	765				44.00			5.00 10.00	
40	760					7		4.00 5.00	
45	755					8			
50		Log continued on next page							

BOREHOLE RECORD - YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER:

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWC-42/ PZ-42

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 57.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/7/16
 DATE COMPLETED: 7/8/16

NORTHING: 1,256,882.87
 EASTING: 2,073,326.52
 GS ELEVATION: 795.1
 TOC ELEVATION: 797.86 ft

DEPTH W.L.: 26.2 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	795	0.00 - 3.00 silty SAND, plastic fines, orange brown, micaceous, firm, decreasing moisture with depth	SM		792.10 3.00	1		7.00 7.00	<p>WELL CASING Interval: 0.0'-47' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 46.6'-56.6' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 46.0'-57.0' Type: #1 Sand</p> <p>FILTER PACK SEAL Interval: 37.5'-46.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-37.5' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>	
5	790	3.00 - 7.00 poorly graded SAND, some silt, tan to black, white to red, micaceous, dry	SP		788.10 7.00					
		7.00 - 10.50 some silt, tan to black, white to red, dry			784.60 10.50	2		10.00 10.00		
10	785	10.50 - 18.00 some silt, tan to black, white to red, increasing biotite, dry			777.10 18.00					
		18.00 - 19.00 silty SAND, red seam	SM		776.10 19.00					
		19.00 - 27.00 poorly graded SAND, some silt, tan to black, white to red, plagioclase, dry	SP		768.10 27.00	3		10.00 10.00		
20	775				765.10 30.00					
		27.00 - 30.00 no recovery			761.10 34.00	4		5.00 10.00		
25	770	30.00 - 34.00 bedrock - biotite GNEISS, fresh to moderately weathered, medium strong to extremely strong, foliated	GNEISS		758.10 37.00					
		34.00 - 37.00 biotite GNEISS, increased biotite, fresh to moderately weathered, medium strong to extremely strong, foliated			755.10 40.00	5		8.00 10.00		
30	765	37.00 - 40.00 biotite GNEISS, fresh to moderately weathered, medium strong to extremely strong, fractured, foliated			745.10	6		6.00 10.00		
35	760	40.00 - 50.00 biotite GNEISS, fresh to moderately weathered, medium strong to extremely strong, foliated								
40	755									
45	750									
50										

Log continued on next page

BOREHOLE RECORD - YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-42/ PZ-42

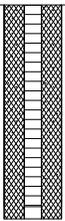
SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 57.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/7/16
 DATE COMPLETED: 7/8/16

NORTHING: 1,256,882.87
 EASTING: 2,073,326.52
 GS ELEVATION: 795.1
 TOC ELEVATION: 797.86 ft

DEPTH W.L.: 26.2 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
50	745	50.00 - 56.00 biotite GNEISS, fresh to moderately weathered, iron staining, medium strong to extremely strong, foliated			50.00			 <p style="font-size: small;">0.010" Slotted - Screen</p>	<p>WELL CASING Interval: 0.0'-47' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 46.6'-56.6' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 46.0'-57.0' Type: #1 Sand</p> <p>FILTER PACK SEAL Interval: 37.5'-46.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-37.5' Type: Portlant Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
		56.00 - 57.00 biotite GNEISS, fresh to moderately weathered, iron staining, medium strong to extremely strong, foliated, stained, fractured Boring completed at 57.00 ft			739.10 56.00 738.10	6	6.00 10.00		
55	740								
60	735								
65	730								
70	725								
75	720								
80	715								
85	710								
90	705								
95	700								
100									

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWC-43/ PZ-43

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 77.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/8/16
 DATE COMPLETED: 7/9/16

NORTHING: 1,257,547.41
 EASTING: 2,073,199.65
 GS ELEVATION: 742.3
 TOC ELEVATION: 744.96 ft

DEPTH W.L.: 30.5 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/9/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	745	0.00 - 5.00 SAND to silty SAND, 10-15% fines, red to tan to brown, micaceous, dry to moist	SM		737.30				WELL CASING Interval: 0.0'-66.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 66.5'-75.5' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 63.7'-77.0' Type: #1 Sand FILTER PACK SEAL Interval: 58.5'-63.7' Type: Bentonite Pellets and Chips ANNULUS SEAL Interval: 0.0'-58.5' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic	
5	740	5.00 - 6.00 10-15% fines, red to tan to brown, plagioclase, micaceous, dry to moist			5.00					8.00
		6.00 - 14.00 10-15% fines, red to tan to brown, micaceous, dry to moist			736.30					8.00
10	735									
15	730	14.00 - 28.00 transitionally weathered rock - feldspathic GNEISS, moderately to highly weathered, medium strong to extremely strong, discolored, iron stains and deposits	PWR		14.00					
20	725									3.50
										4.00
25	720									
30	715	28.00 - 33.00 bedrock - feldspathic GNEISS, fresh to slightly weathered, medium strong to extremely strong, discolored, iron stains and deposits	GNEISS		714.30				Portland Type 1	
										3.00
										8.00
35	710	33.00 - 38.00 feldspathic GNEISS, fresh to lightly weathered, medium strong to extremely strong, fabric, discolored, some iron stains and deposits			709.30					
					33.00				10.00	
									10.00	
40	705	38.00 - 77.00 feldspathic GNEISS, fresh, olive colored mineral, some garnet, quartz, biotite			704.30					
					38.00				10.00	
									10.00	
45	700									
50										

Log continued on next page

BOREHOLE RECORD - YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-43/ PZ-43

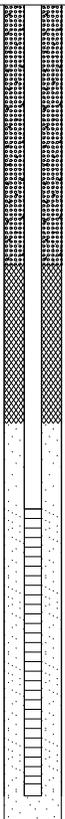
SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 77.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/8/16
 DATE COMPLETED: 7/9/16

NORTHING: 1,257,547.41
 EASTING: 2,073,199.65
 GS ELEVATION: 742.3
 TOC ELEVATION: 744.96 ft

DEPTH W.L.: 30.5 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/9/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC	
50	695	38.00 - 77.00 feldspathic GNEISS, fresh, olive colored mineral, some garnet, quartz, biotite (Continued)						<div style="text-align: center;">  </div>	<p>WELL CASING Interval: 0.0'-66.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 66.5'-75.5' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 63.7'-77.0' Type: #1 Sand</p> <p>FILTER PACK SEAL Interval: 58.5'-63.7' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-58.5' Type: Portlant Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>		
										10.00 10.00	
55	690										10.00 10.00
60	685										10.00 10.00
65	680										10.00 10.00
70	675						7.00 10.00				
75	670						7.00 10.00				
		Boring completed at 77.00 ft			665.30						
80	665										
85	660										
90	655										
95	650										
100											

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWC-49/ PZ-49

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 75.90 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/12/16
 DATE COMPLETED: 7/13/16

NORTHING: 1,259,375.23
 EASTING: 2,074,337.51
 GS ELEVATION: 780.1
 TOC ELEVATION: 782.73 ft

DEPTH W.L.: 26.95 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/13/2016
 TIME W.L.: 15:26

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 10.00 No recovery; Hydrovac						Portland Type I	WELL CASING Interval: 0.0'-65.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 65.4-75.4 Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 63.3'-75.9' Type: #1 Sand FILTER PACK SEAL Interval: 58.7'-62.2' Type: Bentonite Pellets and Chips ANNULUS SEAL Interval: 0.0'-58.7' Type: N/A WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic
5	775								
10	770	10.00 - 16.00 silty SAND, fine sand, greyish brown to reddish brown, non-cohesive, dry, loose	SM	10.00	1		6.00 6.00		
15	765			764.0					
20	760	16.00 - 26.00 No recovery due to soil washing out of core barrel		16.00	2		0.00 10.00		
25	755			754.0					
30	750	26.00 - 36.00 silty SAND, dark brown to grayish brown, relict laminations, fully weathered schist, dry, loose (saprolite)	SM	26.00	3		10.00 10.00		
35	745			774.0					
40	740	36.00 - 46.00 softer zone		36.00	4		9.00 10.00		
45	735			734.0					
50	730	46.00 - 54.00 some silt and some gravel increasing with depth, mottled dark brown to orange, relict laminations, dry, loose (saprolite)	SP	46.00	5		8.00 8.00		

Log continued on next page

BOREHOLE RECORD, YATES BORING LOGS.GPJ, PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Dale

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-49/ PZ-49

SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 75.90 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/12/16
 DATE COMPLETED: 7/13/16

NORTHING: 1,259,375.23
 EASTING: 2,074,337.51
 GS ELEVATION: 780.1
 TOC ELEVATION: 782.73 ft

DEPTH W.L.: 26.95 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/13/2016
 TIME W.L.: 15:26

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
50		46.00 - 54.00 some silt and some gravel increasing with depth, mottled dark brown to orange, relict laminations, dry, loose (saprolite) <i>(Continued)</i>	SP	[Dotted Pattern]	726.0	5		8.00 8.00	<p>WELL CASING Interval: 0.0'-65.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 65.4-75.4 Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 63.3'-75.9' Type: #1 Sand</p> <p>FILTER PACK SEAL Interval: 58.7'-62.2' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-58.7' Type: N/A</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
55	725	54.00 - 65.00 transitionally weathered rock -biotite mica SCHIST, deeply stained, highly weathered, friable		[Biotite mica pattern]	54.00				
60	720		PWR	[PWR pattern]		6	0.50 11.00		
65	715	65.00 - 76.00 highly fractured		[Fractured pattern]	715.0 65.00				
70	710			[Fractured pattern]		7	2.00 11.00		
75	705			[Fractured pattern]	704.0 76.00				
		Boring completed at 75.90 ft							
80	700								
85	695								
90	690								
95	685								
100	680								

BOREHOLE RECORD - YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Dale

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-50

SHEET 1 of 1

PROJECT: Georgia Power Plant Yates
 PROJECT NUMBER: 30143622
 DRILLED DEPTH: 40.0 ft
 LOCATION: Newnan, GA

DRILL RIG: TerraSonic 150CC
 DATE STARTED: 10/14/2022
 DATE COMPLETED: 10/14/2022

NORTHING: 1258123.39
 EASTING: 2073321.00
 GS ELEVATION: 726.5
 TOC ELEVATION: 729.78

DEPTH W.L.:
 ELEVATION W.L.: 686.5
 DATE W.L.:
 TIME W.L.:

DEPTH (ft)	DESCRIPTION	USCS	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	PHOTO	REC	YGWC-50 MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
5	0.0 - 13.5 (SM) Silty SAND; 2.5YR 4/6; poorly sorted; fine to medium grained; moist; FILL.	SM		0.0	1		5.0 10.0	Aquaguard Bentonite Grout 2-Inch Schedule 40 PVC Riser	WELL CASING Interval: 0'-24.9' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 24.7'-34.7' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 0.8' FILTER PACK Interval: 21.7'-35.6' Type: U-Pack GP-1 Sand Quantity: 5 bags FILTER PACK SEAL Interval: 17.6'-21.7' Type: 3/8" Bariod Bentonite Pellets Quantity: 1 x 5 gal bucket ANNULUS SEAL Interval: 0'-17.6' Type: Aquaguard Bentonite Grout Quantity: 1 bag + 15 gal H2O DRILLING METHODS Soil Drill: 4-Inch Sonic Rock Drill: 4-Inch Sonic Sample Type: Sonic BACKFILL Interval: 35.6'-40' Type: 3/4" Bentonite Chips Quantity: 1/2 50 lb bag
	13.5 - 14.7 (SC) Clayey SILT; 2.5YR 5/3; cohesive; poorly sorted; fine to medium grained; low plasticity; saturated.			SC					
14.7 - 20.0 (SP) SAND; 2.5Y 5/3; poorly sorted; fine to medium grained; subrounded; saturated; organic rich. Peat. Peat. Wood. Peat.	SP	14.7							
20	20.0 - 20.8 (CL) Sandy CLAY; 2.5Y 5/2; firm; low to medium plasticity; saturated.	CL		20.0	3		10.0 10.0	3/8" Bariod Bentonite Pellets U-Pack GP-1 Sand	
	20.8 - 30.0 (SP) SAND; Gley2 6/10G; well graded; fine to medium grained; moist; some silt; some quartzite gravel 20.8-21.3; SAPROLITE. Grading to 2.5Y 5/3. Grading to 2.5Y 4/4. Grading to dry with weathered friable rock fragment; 10YR 8/3 very pale brown.	SP		20.8					
25	30.0 - 31.2 (SP) SAND; 10YR 4/6 dark yellowish brown; loose; well graded; medium grained; subrounded; moist.	SP		30.0	4		5.0 5.0	2-Inch Schedule 40 PVC 0.010" Slotted Screen	
	31.2 - 35.0 (SP) SAND; 10YR 8/3; loose; well graded; fine to coarse grained; subrounded; with some silt and friable weathered rock fragments.	SP		31.2					
35	35.0 - 40.0 ROCK; Gley1 7/N; granite gneiss; slight weathering; thinly foliated; interbedded weathered zones washed away by coring fluids.	BED-ROCK		35.0	5		2.2 5.0	End Cap 3/8" Bariod Bentonite Pellets	

DRILLING COMPANY: Cascade Drilling
 DRILLER: Cory Franklin

CHECKED BY: David Prouty
 DATE: 12/12/2022





LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-4S
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/11/2014 COMPLETED 5/21/2014 SURF. ELEV. 781.8 COORDINATES: N:1,254,442.86 E:2,075,454.20

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

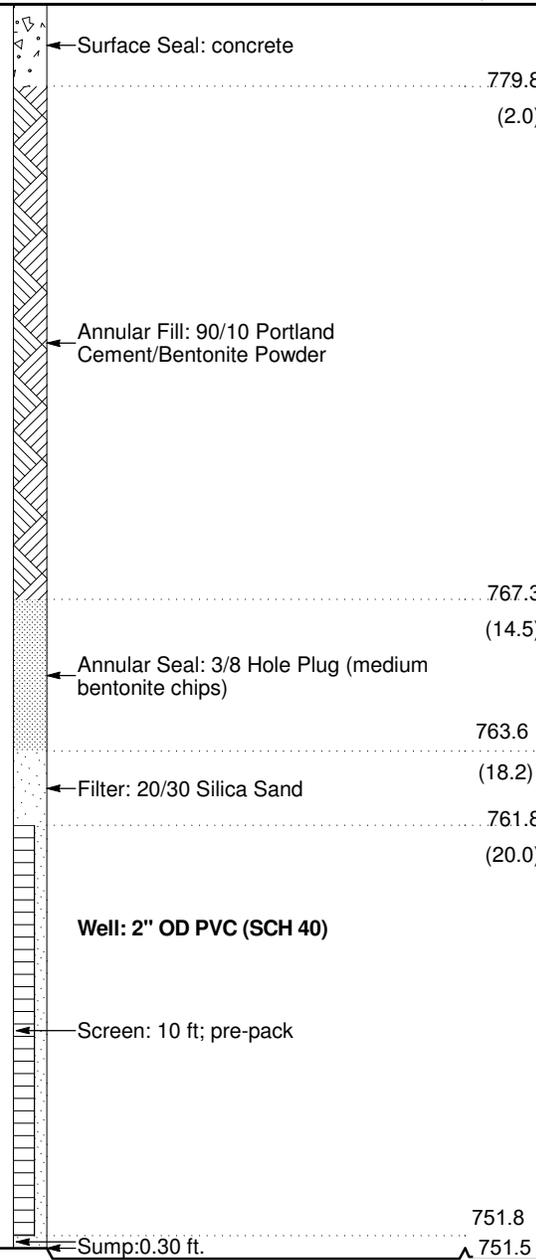
DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 30.3 ft. GROUND WATER DEPTH: DURING _____ COMP. 18.98 ft. DELAYED _____

NOTES Top of Casing Elevation = 784.25

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 19:09 - VALTRCF502X2DBSME.L\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
		ELEV.	ELEV. (DEPTH)
		Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
	Sandy Silt (ML) - rusty red, damp, medium stiff, low plasticity, very fine grain, cohesive; micaceous; trace organics	779.3	779.8
	Silty Sand (SM) - reddish brown to light brown, dry, medium dense to loose, no plasticity, lower fine to upper medium grain, some to trace clay decreasing with depth; trace mica; trace organics		(2.0)
5	- SM: medium to light brown to tan, dry, loose, no plasticity, lower fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; noncohesive; trace rock fragments (brittle); trace mica		
10	- SM: light brown to tan grading to reddish brown @ 15', damp, loose, no plasticity, lower fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; noncohesive; trace rock fragments (brittle); trace mica		
15	- SM: reddish brown to tan to white with a greenish tan zone @ approx. 18-20', moist, medium dense, no plasticity, lower fine to upper medium grain, <i>saprolite</i> , visible zones where <i>saprolite</i> has not completely broken down to residual soil and remnant rock fabric visible; zone of more competent <i>saprolite</i> observed; gravel sized rock fragments included; muscovite, biotite, chlorite phyllosilicates visible		
20		763.6	763.6
			(14.5)
25		761.8	761.8
			(20.0)
30	- SM: orangish brown to light gray to white, moist, medium dense, no plasticity, lower fine to upper medium grain, <i>saprolite</i> , increasing rock fragment size and abundance with depth; rock fragments range from coarse gravel to cobble size; angular fragments	751.5	751.8
	Bottom of borehole at 30.3 feet.		751.5





LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DATE STARTED 4/10/2014 COMPLETED 5/21/2014 SURF. ELEV. 782.2 COORDINATES: N:1,254,404.42 E:2,076,211.43

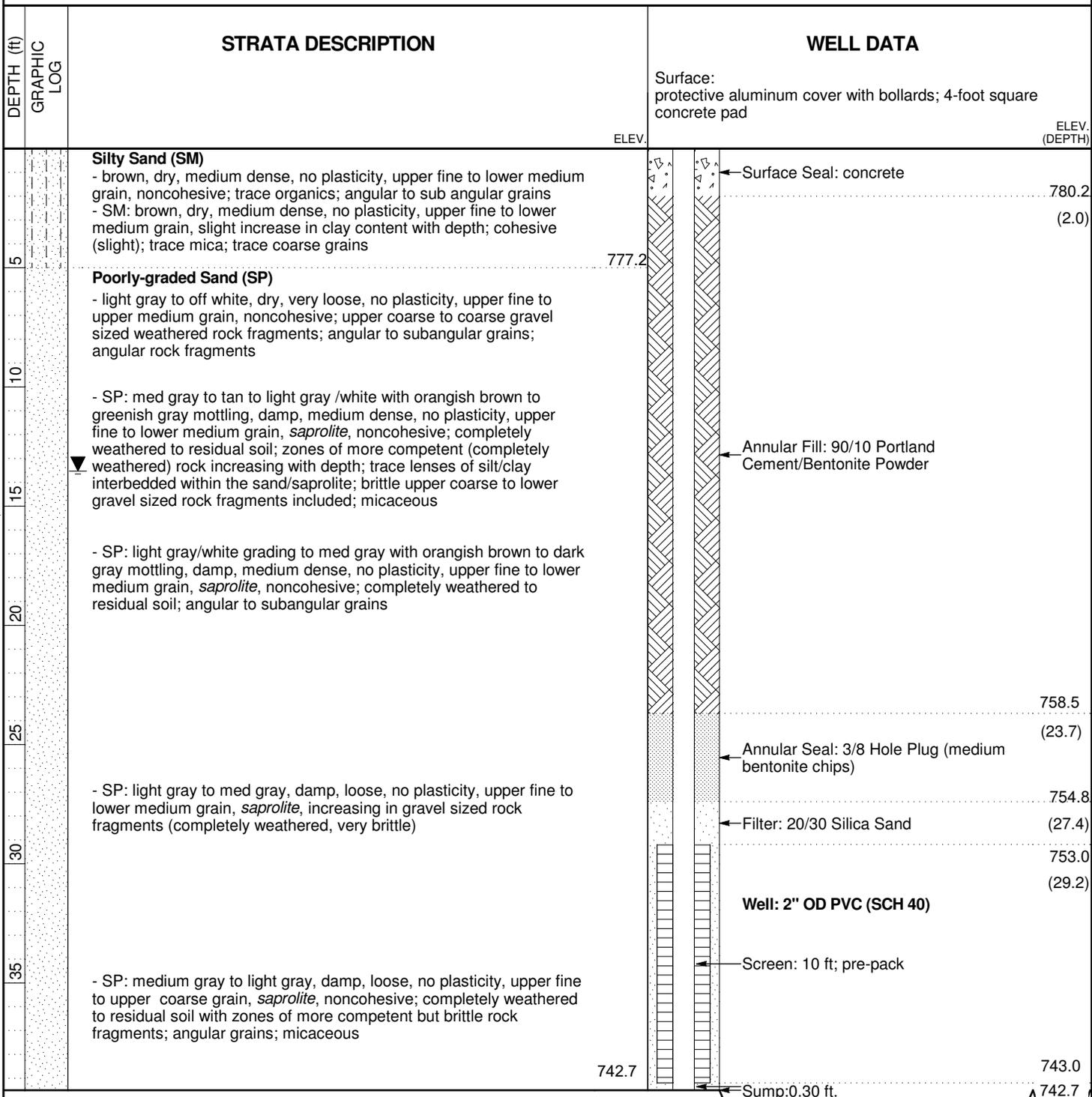
CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 39.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 13.53 ft. DELAYED _____

NOTES Top of Casing Elevation = 784.64

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:37 - \\VALTRCF502\X2DBSMEL\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ



Bottom of borehole at 39.5 feet.



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-6S/PZ-6S

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ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DATE STARTED 4/22/2014 COMPLETED 5/19/2014 SURF. ELEV. 779.8 COORDINATES: N: 1,260,484.87 E: 2,074,786.49

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 37.2 ft. GROUND WATER DEPTH: DURING _____ COMP. 14.77 ft. DELAYED _____

NOTES Top of Casing Elevation = 782.47

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:32 - \VALTRCF502X2DBSMEL\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (DEPTH)
			777.8 (2.0)
5		<p>Poorly-graded Sand with Silt (SP-SM) - dark brown, damp, loose, no plasticity, lower fine to upper fine grain, cohesive; trace organics; trace gravel sized rock fragments; angular to subangular grains</p> <p>Silty Sand (SM) - rusty red, dry, medium dense, no plasticity, lower fine to upper fine grain, cohesive; slight increase in clay content; micaceous</p> <p>- SM: orangish brown to tan grading to light gray/white, dry, medium dense to loose, no plasticity, upper fine to lower medium with trace upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; trace gravel sized rock fragments; rock fragments range from brittle/friable to hard/more competent; micaceous; muscovite, chlorite, biotite, quartz, plagioclase identifiable</p>	<p>Surface Seal: concrete</p>
10			776.8
15		<p>- SM: medium brown/orangish brown to medium gray with greenish gray mottling, damp, medium dense to loose, no plasticity, upper fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; zones of remnant banding visible; brittle to hard rock fragments included; chlorite, biotite, muscovite, quartz, plagioclase identifiable; harder/more competent rock fragments tend to be felsic (quartz, plagioclase) and brittle/friable rock fragments tend to be mafic (biotite, chlorite)</p>	<p>Annular Fill: 90/10 Portland Cement/Bentonite Powder</p>
20			759.0 (20.8)
25		<p>- SM: white to light gray with zones of orangish brown to brown, damp, medium dense to loose, no plasticity, fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; remnant banding visible in darker (more mafic) zones; gravel sized, angular rock fragments included; rock fragment size and strength (hardness) increases with depth; micaceous</p>	<p>Annular Seal: 3/8 Hole Plug (medium bentonite chips)</p>
30			754.8 (25.0)
35		<p>- SM: white to light gray with zones of orangish brown to brown, damp, medium dense to loose, no plasticity, fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; remnant banding visible in darker (more mafic) zones; gravel sized, angular rock fragments included; rock fragment size and strength (hardness) increases with depth; micaceous</p>	<p>Filter: 20/30 Silica Sand</p>
			752.9 (26.9)
			Well: 2" OD PVC (SCH 40)
			Screen: 10 ft; pre-pack
			742.9
			742.6
			Sump: 0.30 ft.
			742.8
		Bottom of borehole at 37.2 feet.	



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-6I/PZ-6I

PAGE 1 OF 2

ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DATE STARTED 4/21/2014 COMPLETED 5/19/2014 SURF. ELEV. 780.2 COORDINATES: N:1,260,490.02 E:2,074,790.49

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 66.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 14.9 ft. DELAYED _____

NOTES Top of Casing Elevation = 782.73

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:36 - \\VALTRCF02\X2DBSME\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (DEPTH)
		<p>Poorly-graded Sand with Silt (SP-SM) - dark brown, damp, loose, no plasticity, lower fine to upper fine grain, cohesive; trace organics; trace gravel sized rock fragments; angular to subangular grains</p>	778.2
			(2.0)
5		<p>Silty Sand (SM) - rusty red, dry, medium dense, no plasticity, lower fine to upper fine grain, cohesive; slight increase in clay content; micaceous</p>	
10		<p>- SM: orangish brown to tan grading to light gray/white, dry, medium dense to loose, no plasticity, upper fine to lower medium with trace upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; trace gravel sized rock fragments; rock fragments range from brittle/friable to hard/more competent; micaceous; muscovite, chlorite, biotite, quartz, plagioclase identifiable</p>	
15		<p>▼ - SM: medium brown/orangish brown to medium gray with greenish gray mottling, damp, medium dense to loose, no plasticity, upper fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; zones of remnant banding visible; brittle to hard rock fragments included; chlorite, biotite, muscovite, quartz, plagioclase identifiable; harder/more competent rock fragments tend to be felsic (quartz, plagioclase) and brittle/friable rock fragments tend to be mafic (biotite, chlorite)</p>	
20			Annular Fill: 90/10 Portland Cement/Bentonite Powder
25		<p>- SM: white to light gray with zones of orangish brown to brown, damp, medium dense to loose, no plasticity, fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; remnant banding visible in darker (more mafic) zones; gravel sized, angular rock fragments included; rock fragment size and strength (hardness) increases with depth; micaceous;</p>	
30			

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-6I/PZ-6I

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ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012.DATABASE.GDT - 6/10/14 17:36 - \\VALTRCF502\X2DBSMEL\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV. (CONTINUED)	WELL DATA
				Surface: protective aluminum cover with bollards; 4-foot square concrete pad
35		Silty Sand (SM) (Con't) - SM: white to light gray with zones of orangish brown to brown, damp, medium dense to loose, no plasticity, fine to upper medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; remnant banding visible in darker (more mafic) zones; gravel sized, angular rock fragments included; rock fragment size and strength (hardness) increases with depth; micaceous;	743.2	
40		Unclassified Metamorphic - white with orangish brown to pinkish staining, lower medium to upper coarse grain, soft to medium hard, moderately weathered, no banding visible, felsic rock; abundant plagioclase with trace quartz; high to moderate angled fractures; quartz fracture fill visible; low recovery; driller notes rubble zone with no recovery 38-40.5'	739.7	Annular Fill: 90/10 Portland Cement/Bentonite Powder
45		Interlayered/Alternating Mica Schist and Granitic Gneiss - dark gray/black to greenish gray (schist) with light gray (gneiss), lower fine to upper fine grain size grain, medium hard, moderately to slightly weathered, schistose foliation visible along with slight banding in the zones of interlayered gneiss, gneiss is thinly interlayered and alternating (1-2" to 4-6"); quartz, plagioclase; biotite; chlorite; muscovite; trace pyrite, hornblende; high to moderate angled fractures with rusty red to dark brown staining	732.2	
50		Granitic Gneiss - light gray with trace greenish gray interlayering, lower fine to upper fine grain, medium hard to hard, slightly to not weathered, slight banding, slight schistose foliation visible, greenish gray interlayering decreases with depth; thin zone of localized, coarse grained plagioclase with trace to some quartz @ 55-56' (Granulite? Unclassified Metamorphic); increase in siliceous/felsic minerals decrease in mafic; quartz, plagioclase, biotite; muscovite; trace chlorite; trace pyrite; garnet, possible hornblende visible; high to moderate angled fractures; complete to partial healing	729.7 (50.5)	
55		Unclassified Metamorphic - white, upper coarse grain, hard, not weathered, zone of coarse grained plagioclase with slightly pinkish quartz; plagioclase crystals are tabular; interlayered within the unclassified plagioclase zone is thinly (1 cm) layered schist, dark greenish gray with bladed to elongated chlorite, biotite, hornblende; moderately to high angled fractures; moderate angled fractures show more fracture fill and more complete healing than high angle fractures	725.8 (54.4)	← Annular Seal: 3/8 Hole Plug (medium bentonite chips)
60		Unclassified Metamorphic - white, upper coarse grain, hard, not weathered, zone of coarse grained plagioclase with slightly pinkish quartz; plagioclase crystals are tabular; interlayered within the unclassified plagioclase zone is thinly (1 cm) layered schist, dark greenish gray with bladed to elongated chlorite, biotite, hornblende; moderately to high angled fractures; moderate angled fractures show more fracture fill and more complete healing than high angle fractures	724.0 (56.2)	← Filter: 20/30 Silica Sand
65		Interlayered/Alternating Granitic Gneiss and Mica Schist - light gray to white (gneiss) with dark gray /black to greenish gray (schist), lower fine to upper fine with trace lower medium to lower coarse quartz fracture fill grain, medium hard to hard, slightly weathered, banded, schistose foliation visible within some fracture zones and interlayered schist, quartz, plagioclase, biotite, muscovite, trace pyrite, trace chlorite; schist layers range in thickness from 1-2" to 5-6"; moderate to high angle fractures visible; total to moderate healing/quartz fracture fill; quartz fracture fill thickness 1-2 cm to 1-2" in thickness	723.7 721.7 713.7	← Well: 2" OD PVC (SCH 40) ← Screen: 10 ft; pre-pack
				← Sump: 0.30 ft.
		Bottom of borehole at 66.5 feet.		



LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/22/2014 COMPLETED 5/19/2014 SURF. ELEV. 779.5 COORDINATES: N: 1,260,480.15 E: 2,074,782.68

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 131.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 18.93 ft. DELAYED _____

NOTES Top of Casing Elevation = 782.02

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:40 - \\VALTRCF502\X2DBSMEL\S\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
		Surface: protective aluminum cover with bollards; 4-foot square concrete pad
		ELEV. (DEPTH)
	<p>Poorly-graded Sand with Silt (SP-SM) - dark brown, damp, loose, no plasticity, lower fine to upper fine grain, cohesive; trace organics; trace gravel sized rock fragments; angular to subangular grains</p>	777.5 (2.0)
5	<p>Silty Sand (SM) - rusty red, dry, medium dense, no plasticity, lower fine to upper fine grain, cohesive; slight increase in clay content; micaceous - SM: orangish brown to tan grading to light gray/white, dry, medium dense to loose, no plasticity, upper fine to lower medium with trace upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; trace gravel sized rock fragments; rock fragments range from brittle/friable to hard/more competent; micaceous; muscovite, chlorite, biotite, quartz, plagioclase identifiable</p>	776.5
10		
15	<p>- SM: medium brown/orangish brown to medium gray with greenish gray mottling, damp, medium dense to loose, no plasticity, upper fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; zones of remnant banding visible; brittle to hard rock fragments included; chlorite, biotite, muscovite, quartz, plagioclase identifiable; harder/more competent rock fragments tend to be felsic (quartz, plagioclase) and brittle/friable rock fragments tend to be mafic (biotite, chlorite)</p>	
20		
25	<p>- SM: white to light gray with zones of orangish brown to brown, damp, medium dense to loose, no plasticity, fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; remnant banding visible in darker (more mafic) zones; gravel sized, angular rock fragments included; rock fragment size and strength (hardness) increases with depth; micaceous</p>	
30		
		Annular Fill: 90/10 Portland Cement/Bentonite Powder

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-6D
PAGE 2 OF 4
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:40 - \\VALTRCF02\X2\BDSMEL\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad	ELEV. (DEPTH)
			(CONTINUED)	
35		<p>Silty Sand (SM) (Cont)</p> <p>- SM: white to light gray with zones of orangish brown to brown, damp, medium dense to loose, no plasticity, fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; remnant banding visible in darker (more mafic) zones; gravel sized, angular rock fragments included; rock fragment size and strength (hardness) increases with depth; micaceous</p>		
		- No Recovery (36.5-46.5')		
40				
45				
50		<p>Interlayered/Alternating Granitic Gneiss and Biotite Gneiss</p> <p>- dark gray to light gray, lower fine to upper fine grain, medium hard, moderately to slightly weathered, trace banding visible, slight schistose foliation visible along thin zones of interlayered schist, quartz, biotite, plagioclase, muscovite, pyrite, trace chlorite, hornblende (elongated crystal habit visible); thin (1") interlayered zones of dark gray/black to greenish gray schist; moderate to high angle fractures visible; difficult to distinguish between natural and mechanical fractures; moderately angled fractures show total to moderate healing; high angled fractures not healed and tend to follow interlayered zones of schist; some dark brown staining within fractures; white to light gray, upper medium quartz fracture fill</p> <p>Unclassified Metamorphic</p> <p>- white with trace greenish gray veining (fractures?), upper medium to lower coarse grain, medium hard to hard, moderately to slightly weathered, no visible banding or foliation, Granulite? localized, high grade metamorphic; plagioclase (large, white, tabular to bladed crystals), quartz (pinkish, translucent), muscovite, trace mafics i.e. chlorite, biotite; trace orangish brown staining visible; low angled fracturing with trace high angle fractures; high angle fractures show a greenish gray, schistose appearance; difficult to distinguish between natural and mechanical fracturing; slight to no visible healing</p> <p>Granitic Gneiss</p> <p>- light gray to white, upper fine to lower medium grain, medium hard to hard, slightly weathered, banding visible, orangish brown staining @ approx. 51-52' and 56-56.5'; quartz, plagioclase, chlorite, biotite, hornblende, muscovite, trace pyrite; thin, high angled fractures observed; partially healed with greenish gray fracture fill</p> <p>- Interlayered/Alternating Granitic Gneiss, Biotite Gneiss and Mica Schist: light gray to medium gray to greenish gray, upper fine to lower medium grain, medium hard to hard, slightly to not weathered, banded (dark bands grading from dark gray to greenish gray in appearance, quartz, plagioclase, muscovite, biotite, chlorite, hornblende, increase in pyrite along fracture planes, trace garnet;</p>		
55				
60				
65				
			Annular Fill: 90/10 Portland Cement/Bentonite Powder	

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-6D
PAGE 3 OF 4
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:40 - \\VALTRCF502\X2DBSME\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	ELEV. (DEPTH)
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
			ELEV. (CONTINUED)	
70		thin, high angled fractures observed; partially healed with greenish gray fracture fill; interlayered, greenish gray schist averages 1-2 mm thick throughout the unit Granitic Gneiss (Cont) - Interlayered/Alternating Granitic Gneiss, Biotite Gneiss and Mica Schist: light gray to medium gray to greenish gray, upper fine to upper medium grain, medium hard to hard, not weathered, banded (dark bands grading from dark gray to greenish gray in appearance, quartz, plagioclase, muscovite, biotite, chlorite, hornblende, increase in pyrite along fracture planes, trace garnet; thin, high angled fractures observed; partially healed with greenish gray fracture fill; interlayered, greenish gray schist averages 1-2 mm thick	Annular Fill: 90/10 Portland Cement/Bentonite Powder	705.9 (73.6)
75		Unclassified Metamorphic - white to light gray with dark gray /black veining (fractures?), upper medium to lower coarse to upper coarse, mafic minerals tend to be upper fine to lower medium grain, medium hard to hard, slightly to not weathered, zones of trace banding visible, Granulite? localized, high grade metamorphic; large, tabular to bladed to elongated plagioclase with quartz; dark veins of biotite, chlorite, trace muscovite; visible platy crystal habit of biotite and muscovite; veining shows a slight schistose foliation	Annular Seal: 3/8 Hole Plug (medium bentonite chips)	701.0 (78.5)
80		Interlayered/Alternating Granitic Gneiss and Biotite Gneiss - medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, trace banding with some zones having a schistose foliation, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; pyrite abundant in fractures; thinly (1-2 cm to 1-2") interlayered, dark gray to greenish gray schist; moderate to high angle fractures; trace weathering visible in some fractures	Filter: 20/30 Silica Sand	698.3 (81.2)
85		- Interlayered/Alternating Granitic Gneiss and Biotite Gneiss: medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, trace banding with some zones having a schistose foliation, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; pyrite abundant in fractures; thinly (1-2 cm to 1-2") interlayered, dark gray to greenish gray schist; moderate to high angle fractures; trace weathering visible in some fractures		
90		- Interlayered/Alternating Granitic Gneiss and Biotite Gneiss: medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, trace banding with some zones having a schistose foliation, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; pyrite abundant in fractures; thinly (1-2 cm to 1-2") interlayered, dark gray to greenish gray schist; moderate to high angle fractures; trace weathering visible in some fractures	Screen: 50 ft; 0.01" slotted	
95		- Interlayered/Alternating Granitic Gneiss and Biotite Gneiss: medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, trace banding with some zones having a schistose foliation, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; pyrite abundant in fractures; thinly (1-2 cm to 1-2") interlayered, dark gray to greenish gray schist; moderate to high angle fractures; trace weathering visible in some fractures	Well: 2" OD PVC (SCH 40)	
100		- Interlayered/Alternating Granitic Gneiss and Biotite Gneiss: medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, trace banding with some zones having a schistose foliation, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; pyrite abundant in fractures; thinly (1-2 cm to 1-2") interlayered, dark gray to greenish gray schist; moderate to high angle fractures; trace weathering visible in some fractures		

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-6D
PAGE 4 OF 4
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:40 - \\VALTRCF02\X2\BDSME\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (CONTINUED) ELEV. (DEPTH)
105		Interlayered/Alternating Granitic Gneiss and Biotite Gneiss (Con't) 673.5	
110		Unclassified Metamorphic - white to light gray with dark gray /black veining (fractures?), upper medium to lower coarse to upper coarse, mafic minerals tend to be upper fine to lower medium grain, medium hard to hard, not weathered, zones of trace banding visible, Granulite? localized, high grade metamorphic; large, tabular to bladed to elongated plagioclase with quartz; dark veins of biotite, chlorite, trace muscovite; visible platy crystal habit of biotite and muscovite; veining shows a slight schistose foliation; moderate to high angled fractures; partial healing/fracture fill visible - Unclassified Metamorphic: white to light gray with dark gray /black veining (fractures?), upper medium to lower coarse to upper coarse, mafic minerals tend to be upper fine to lower medium grain, medium hard to hard, not weathered, zones of trace banding visible, Granulite? localized, high grade metamorphic; large, tabular to bladed to elongated plagioclase with quartz; dark veins of biotite, chlorite, trace muscovite; visible platy crystal habit of biotite and muscovite; veining shows a slight schistose foliation 658.5	Screen: 50 ft; 0.01" slotted
120		Interlayered/Alternating Granitic Gneiss and Biotite Gneiss - medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; less, thinly interlayered, dark gray to greenish gray schist than above; moderate to high angle fractures; no visible healing/fracture fill; trace weathering visible in some fractures; little to no schistose foliation observed - Interlayered/Alternating Granitic Gneiss and Biotite Gneiss: medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; less, thinly interlayered, dark gray to greenish gray schist than above; moderate to high angle fractures; no visible healing/fracture fill; trace weathering visible in some fractures 648.5	
130			648.3
		Bottom of borehole at 131.5 feet.	648.0
			← Sump: 0.30 ft.

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE PZ-35

SHEET 1 of 1

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 47.10 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/13/16
 DATE COMPLETED: 7/20/16

NORTHING: 1,258,593.16
 EASTING: 2,073,805.60
 GS ELEVATION: 740.9
 TOC ELEVATION: 743.81

DEPTH W.L.: 9.99 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/20/16
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE ft			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0	740	0.00 - 10.00 No recovery; Hydrovac							<p>WELL CASING Interval: 0.0'-36.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 36.0'-46.0' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 34.0'-46.0' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 31.0'-34.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-31.0' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4"x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
5	735								
10	730	10.00 - 11.00 silty SAND, ash in core sample possibly recovered from hydrovac zone above	SM		730.90 10.007 29.90 11.00				
		11.00 - 14.00 CLAY, dark reddish brown, cohesive, moist	CH						
		14.00 - 17.00 SAND, fine sand, mottled brown and grey, moist, loose	SP		726.90 14.00	1	7.00 7.00		
15	725	17.00 - 27.00 fine sand, mottled brown and grey, relict laminations, moist, loose			723.90 17.00				
20	720					2	10.00 10.00		
25	715				713.90 27.00				
30	710	27.00 - 30.00 silty SAND, dull grey to brown, moist, loose	SM		710.90 30.00				
		30.00 - 32.00 mottled brown to tan, lamination, dry to moist, loose			708.90 32.00	3	5.00 10.00		
		32.00 - 37.00 mottled brown to tan, lamination, micaceous, dry to moist, loose							
35	705				703.90 37.00				
		37.00 - 42.00 grey, dry, loose							
40	700				698.90 42.00	4	4.00 10.00		
		42.00 - 47.00 transitionally weathered rock - biotite/muscovite GNEISS, weathered, friable	PWR						
45	695				693.90 47.00				
		Boring completed at 47.10 ft							
50									

BOREHOLE RECORD - YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Dale

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE PZ-37A

SHEET 1 of 1

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 47.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 6/29/16
 DATE COMPLETED: 7/6/16

NORTHING: 1,256,471.61
 EASTING: 2,074,111.11
 GS ELEVATION: 751.61
 TOC ELEVATION: 760.11

DEPTH W.L.: 6.0 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/6/2016
 TIME W.L.: 07:40

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE ft			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. (ft)	SAMPLE NO.	TYPE		
0		0.00 - 3.00 silty CLAY, red to brown, micaceous	CL-ML		75I			Portland Type 1	<p>WELL CASING Interval: 0.0'-36' Material: Schedule 40 PVC Diameter: 2 Joint Type: Threaded</p> <p>WELL SCREEN Interval: 36.5'-46.5' Material: U-Pack Schedule 40 PVC Diameter: 2 Slot Size: 0.010" Slotted Screen End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 33.0'-47.0' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 25.0'-33.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-25.0' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4"x4"x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
755		3.00 - 5.00 silty SAND, trace gravel, pale grey to green, plagioclase nodules (saprolite)	SM		75H	1	7.00 7.00		
5		5.00 - 7.00 trace clay, white and orange nodules, plagioclase, dry (saprolite)			75F				
750		7.00 - 9.50 trace gravel, white to dark brown, muscovite			74J				
10		9.50 - 17.00 trace clay, pale yellow brown, plagioclase nodules, dry (saprolite)			74K				
745						2	10.00 10.00		
740		17.00 - 27.00 pale yellow brown to brown, white and brown nodules, saprolitic gneiss, dry			74F				
735						3	10.00 10.00		
730		27.00 - 37.00 transitionally weathered rock- feldspathic GNEISS, muscovite, biotite, feldspar, quartz, foliated and layered, dark green, amphibole lense	PWR		73F			Bentonite Pellets and Chips	
725						4	10.00 10.00		
720		37.00 - 43.00 bedrock - feldspathic GNEISS, biotite, muscovite, quartz, plagioclase, grey to white, more feldspar and quartz, oxidized and fractured	GNEISS		72F			0.010" Slotted Screen	
715		43.00 - 47.00 more granitic, lots of feldspar and quartz			71I	5	8.00 10.00		
710		Boring completed at 47.00 ft			71F			#1 Type Sand	
50		Sump							

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Tim Richards
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



Boring Log/Well Construction Log

Project Name: Plant Yates Date Started: 04/05/2021 Logger: Grant Willford
 Project Number: 30086734 Date Completed: 04/16/2021 Editor: Grant Willford
 Project Location: Newnan, GA Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
0									
1							Sandy clay (CL); 2.5YR 5/8; some silt; little very fine grained to fine grained sand; angular to sub angular; low plasticity; dry.	Surface completion consists of a locking monument 2.32 ft. above ground surface with a weep hole, vent hole in well casing; 4'x4' concrete pad; four bollards	
2						Silty sand (SM); 2.5Y 8/3 (pale brown) with some 2.5Y 7/1 (light gray); very fine grained to medium grained sand; angular to sub angular; little silt; trace clay; trace granules; angular; granules composed of quartz; micaceous; dry.			
3			120					30% solids bentonite grout (AQUAGUARD) 3-in. outer dia. with 2-in inner dia. Sch 40 PVC riser.	
4									
5									
6									
7									
8									
9									
10									
11							Silty sand (SM); 2.5Y 6/4 (light yellowish brown) with 2.5Y 7/1 (light gray) and GLEY1 10GY 5/1 (greenish gray) mottled through out; very fine grained to fine grained sand; angular to sub angular; some silt; little clay; micaceous; saprolitic; moist.		
12									
13									
14									
15			120						
16									

Drilling Co.: Cascade Sampling Method: Core Barrel
 Driller: David Wilcox Sampling Interval: Continuous
 Drilling Method: Rotosonic Water Level Start (ft. bgs.): _____
 Drilling Fluid: Water Water Level Finish (ft. btoc.): 5.98
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; Converted to Well: Yes No
 NA = not applicable / available. Surface Elev.: 758.8
 North Coord.: 1256478.32
 East Coord.: 2074688.08

MPC BORING LOGS TO GINT L. C:\USERS\G\WILLFORD\DRIVE - ARCADIS\DESKTOP\SOUTHERN COMPANY\GA POWER PLANT YATES\BZ-37D GINT\MPC BORING LOGS PASF P.GPJ / ARCADIS.GDT. 5/14/21

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30086734
 Project Location: Newnan, GA

Date Started: 04/05/2021 Date Completed: 04/16/2021
 Logger: Grant Willford Editor: Grant Willford
 Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
17							Well-graded sand (SW); 2.5Y 8/1 (white); very fine grained to very coarse grained sand; trace gravel; gravel composed of quartz.		
18			Silty sand (SM); 2.5Y 6/4 (light yellowish brown) with 2.5Y 7/1 (light gray) and GLEY1 10GY 5/1 (greenish gray) mottled through out; very fine grained to fine grained sand; angular to sub angular; some silt; little clay; micaceous; saprolitic; moist.						
19									
20							Pulverized rock composed of quartz.	30% solids bentonite grout (AQUAGUARD) 3-in. outer dia. with 2-in inner dia. Sch 40 PVC riser.	
21									
22									
23									
24							Gneiss (Partially Weathered Rock); black, white and some greenish gray mineral grains; fine grained to very coarse mineral grains; gneissic rock texture; strong to very strong rock strength; partially weathered; rock cobbles range from 0.2 to 0.4 ft in length; some dark red staining on majority of rock cobbles; some pyrite crystals observed.		
25									
26									
27		30							
28									
29									
30									
31									
32									
33									
34									
35			90				Decrease in mineral grain size; very fine grained to fine grained mineral grains; dark to light orange staining on rock cobbles; slight increase in cobble size.		

Remarks:

MPC BORING LOGS TO GINT L C:\USERS\GINTL\FORDIONEDRIVE - ARCADIS\DESKTOP\SOUTHERN COMPANY\GA POWER PLANT YATES\PZ-37D GINTMPC BORING LOGS PASF P.GPJ - ARCADIS.GDT_5/14/21

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30086734
 Project Location: Newnan, GA

Date Started: 04/05/2021 Date Completed: 04/16/2021
 Logger: Grant Willford Editor: Grant Willford
 Weather Conditions: -

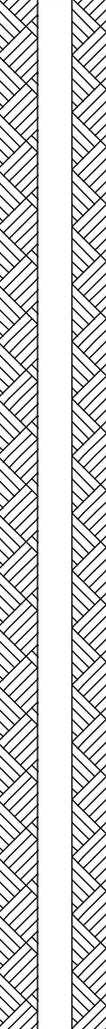
Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
36							Gneiss (Bedrock); black and white with little greenish gray minerals grains; very fine grained to very coarse grained mineral grains; gneissic rock texture; very strong rock strength; fresh rock; trace partially weathered rock cobbles; little to trace red staining on rock cobbles; some pyrite crystals observed.		
37									
38								30% solids bentonite grout (AQUAGUARD) 3-in. outer dia. with 2-in inner dia. Sch 40 PVC riser.	
39									
40									
41									
42									
43									
44									
45			96						
46									
47									
48									
49									
50							Trace red staining on rock cobbles		
51									
52									
53									
54									

Remarks: _____

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30086734
 Project Location: Newnan, GA

Date Started: 04/05/2021 Date Completed: 04/16/2021
 Logger: Grant Willford Editor: Grant Willford
 Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
55			120				Gneiss (Bedrock); black and white with little greenish gray minerals grains; very fine grained to very coarse grained mineral grains; gneissic rock texture; very strong rock strength; fresh rock; trace partially weathered rock cobbles; little to trace red staining on rock cobbles; some pyrite crystals observed.		
56									
57									
58									
59									
60									
61									
62									
63									
64									
65			108				Gneiss (Partially Weathered Rock); same composition as described above; partially weathered zone.		
66									
67									
68									
69									
70									
71									
72									
73						Gneiss (Bedrock); same composition as described above; trace to no staining on rock cobbles.			

30% solids bentonite grout (AQUAGUARD) 3-in. outer dia. with 2-in inner dia. Sch 40 PVC riser.

Remarks: _____

MPC BORING LOGS TO GINT L. C:\USERS\G\MILLFORD\DRIVE - ARCADIS\DESKTOP\SOUTHERN COMPANY\GA POWER PLANT YATES\BZ-37D GINT\MPC BORING LOGS PASF P.GPJ / ARCADIS.GDT 5/14/21

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30086734
 Project Location: Newnan, GA

Date Started: 04/05/2021 Date Completed: 04/16/2021
 Logger: Grant Willford Editor: Grant Willford
 Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
75			108				Gneiss (Bedrock); same composition as described above; trace to no staining on rock cobbles.	30% solids bentonite grout (AQUAGUARD) 3-in. outer dia. with 2-in inner dia. Sch 40 PVC riser.	
76							78.0-79.0 ft bgs; some staining on rock pieces.		
77									
78									
79							Gneiss (Partially Weathered Rock); same composition as described above; partially weathered zone; abundant red staining on rock cobbles.		
80			104						
81									
82									
83							Gneiss (Bedrock); same composition as described above; trace to no red staining on rock cobbles.		
84									
85									
86									
87							Gneiss (Partially Weathered Rock); same composition as described above; partially weathered zone.		
88							Gneiss (Bedrock); same composition as described above; trace red staining on rock cobbles.		
89									
90									
91									
92									
93									

Remarks: _____

MPC BORING LOGS TO GINT L C:\USERS\GIML\FORD\DRIVE - ARCADIS\DESKTOP\SOUTHERN COMPANY\GA POWER PLANT YATES\PZ-37D GINT\MPC BORING LOGS PASF P.GPJ - ARCADIS.GDT 5/14/21

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30086734
 Project Location: Newnan, GA

Date Started: 04/05/2021 Date Completed: 04/16/2021
 Logger: Grant Willford Editor: Grant Willford
 Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
94			102				Gneiss (Bedrock); same composition as described above; trace red staining on rock cobbles.		
95									
96									
97									
98									
99									
100									
101			108				30% solids bentonite grout (AQUAGUARD) 3-in. outer dia. with 2-in inner dia. Sch 40 PVC riser.		
102									
103									
104									
105									
106									
107									
108									
109									
110									
111									
112									

Remarks: _____

MPC BORING LOGS TO GINT L C:\USERS\GIML\FORD\DRIVE - ARCADIS\DESKTOP\SOUTHERN COMPANY\YGA POWER PLANT YATES\PZ-37D GINT\MPC BORING LOGS\PSAF P.GPJ - ARCADIS.GDT 5/14/21

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30086734
 Project Location: Newnan, GA

Date Started: 04/05/2021 Date Completed: 04/16/2021
 Logger: Grant Willford Editor: Grant Willford
 Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
113			108				Gneiss (Partially Weathered Rock); same composition as described above; partially weathered zone.	30% solids bentonite grout (AQUAGUARD) 3-in. outer dia. with 2-in inner dia. Sch 40 PVC riser.	
114		Gneiss (Bedrock); same composition as described above; little to trace red-orangish red staining on rock cobbles							
115									
116									
117									
118			117.0-120.0 ft bgs; some red staining on fracture surfaces.						
119									
120			96						
121									
122									
123									
124									
125									
126									
127									
128									
129									
130									
131									

Remarks: _____

MPC BORING LOGS TO GINT L C:\USERS\G\M\WILLFORD\DRIVE - ARCADIS\DESKTOP\SOUTHERN COMPANY\GA POWER PLANT YATES\PZ-37D GINT\MPC BORING LOGS PASF P.GPJ - ARCADIS.GDT 5/14/21

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30086734
 Project Location: Newnan, GA

Date Started: 04/05/2021 Date Completed: 04/16/2021
 Logger: Grant Willford Editor: Grant Willford
 Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
132			42				Gneiss (Bedrock); same composition as described above; little to trace red-orangish red staining on rock cobbles		
133									
134									
135			54						
136									
137									
138			102				30% solids bentonite grout (AQUAGUARD) 3-in. outer dia. with 2-in inner dia. Sch 40 PVC riser.		
139									
140									
141									
142									
143									
144									
145									
146									
147									
148									
149									
150									
151									

Remarks: _____

MPC BORING LOGS TO GINT L. C:\USERS\GINTL\FORD\DRIVE - ARCADIS\DESKTOP\SOUTHERN COMPANY\GA POWER PLANT YATES\BZ-37D GINT\MPC BORING LOGS PASF P.GPJ - ARCADIS.GDT 5/14/21

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30086734
 Project Location: Newnan, GA

Date Started: 04/05/2021 Date Completed: 04/16/2021
 Logger: Grant Willford Editor: Grant Willford
 Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well			
152			102				Gneiss (Bedrock); same composition as described above; little to trace red-orangish red staining on rock cobbles					
153												
154												
155												
156												
157												
158												
159												
160												
161					96						158.0 ft bgs; began observing 5-10% very fine grained garnets in rock matrix; trace porphyblast garnets 0.5 inches in diameter.	30% solids bentonite grout (AQUAGUARD) 3-in. outer dia. with 2-in inner dia. Sch 40 PVC riser.
162												
163												
164												
165												
166												
167												
168												
169												
170												

Remarks: _____

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30086734
 Project Location: Newnan, GA

Date Started: 04/05/2021 Date Completed: 04/16/2021
 Logger: Grant Willford Editor: Grant Willford
 Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
171							Gniess (Bedrock); same composition as described above; little to trace red-orangish red staining on rock cobbles	30% solids bentonite grout (AQUAGUARD) 3-in. outer dia. with 2-in inner dia. Sch 40 PVC riser.	
172									
173									
174									
175			120						
176									
177									
178									
179									
180									
181							Gniess (Bedrock); same composition as described above; little to trace red-orangish red staining on rock cobbles	Bentonite seal (Pel-Plug 3/8-inch pellets).	
182									
183									
184									
185			120						
186									
187									
188									
189									
								So. Products Filter Pack No.1 (16-40)	

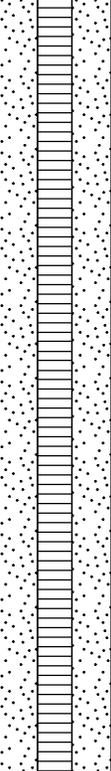
Remarks: _____

MPC BORING LOGS TO GINT L. C:\USERS\GIML\FORD\DRIVE - ARCADIS\DESKTOP\SOUTHERN COMPANY\YGA POWER PLANT YATES\PZ-37D GINT\MPC BORING LOGS PASF P.GPJ / ARCADIS.GDT 5/14/21

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30086734
 Project Location: Newnan, GA

Date Started: 04/05/2021 Date Completed: 04/16/2021
 Logger: Grant Willford Editor: Grant Willford
 Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
190							Gneiss (Bedrock); same composition as described above; little to trace red-orangish red staining on rock cobbles	3-inch outer dia. with 2 inch inner dia U-Pack Sch. 40 PVC, 0.010-in slot; 16-40 filter pack	
191									
192									
193									
194									
195			114						
196									
197									
198									
199									
200									
End of boring 200.0 ft bgs.									
201									
202									
203									
204									
205									
206									
207									
208									

Remarks: _____

MPC BORING LOGS TO GINT L. C:\USERS\G\WILLFORD\DRIVE - ARCADIS\DESKTOP\SOUTHERN COMPANY\GA POWER PLANT YATES\PZ-37D GINT\MPC BORING LOGS PASF P.GPJ / ARCADIS.GDT 5/14/21

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWC-48/ PZ-48A

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 56.10 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/11/16
 DATE COMPLETED: 7/12/16

NORTHING: 1,259,868.61
 EASTING: 2,074,521.66
 GS ELEVATION: 777.64
 TOC ELEVATION: 779.11 ft

DEPTH W.L.: 17.71 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/13/2016
 TIME W.L.: 15:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	775	0.00 - 10.00 No recovery; hydrovac								WELL CASING Interval: 0.0'-45.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 45.8'-55.8' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 43.1'-56.1' Type: #1 Type Sand FILTER PACK SEAL Interval: 38.5'-43.1' Type: Bentonite Pellets and Chips ANNULUS SEAL Interval: 0.0'-38.5' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic
10	765	10.00 - 12.00 clayey SAND, coarse sand, dark red, cohesive	SC		767.26 10.00					
12	765	12.00 - 14.00 sandy SILT to silty SAND, pinkish orange	SP-ML		765.26 12.00	1		6.00	6.00	
14	765	14.00 - 16.00 sandy SILT, reddish brown, moist loose	ML		763.26 14.00					
16	760	16.00 - 22.00 sandy SILT to silty SAND, dark reddish brown, trace gravel, dry, loose	SP-ML		761.26 16.00					
20	755	22.00 - 26.00 silty SAND, mottled white and grey, high plagioclase content	SM		755.26 22.00	2		10.00	10.00	
26	750	26.00 - 32.00 poorly sorted, greyish brown, dry, loose			751.26 26.00					
32	745	32.00 - 36.00 transitionally weathered rock, pegmatite GRANITE, highly weathered, large plagioclase and quartz crystals	PWR		745.12 32.00	3		10.00	10.00	
36	740	36.00 - 46.00 biotite GNEISS, some staining near top of core, pyrite inclusions			741.26 36.00					
46	730	46.00 - 49.00 biotite GNEISS	GNEISS		731.26 46.00	4		10.00	10.00	
49	730				728.26 49.00	5		10.00	10.00	

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

Log continued on next page

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Dale

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-48/ PZ-48

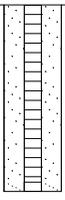
SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 56.10 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/11/16
 DATE COMPLETED: 7/12/16

NORTHING: 1,259,868.04
 EASTING: 2,074,528.00
 GS ELEVATION: 777.2
 TOC ELEVATION: 779.83 ft

DEPTH W.L.: 17.71 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/13/2016
 TIME W.L.: 15:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50		49.00 - 52.00 biotite GNEISS, migmatic gneiss bands with iron staining <i>(Continued)</i>			725.26					<p>WELL CASING Interval: 0.0'-45.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 45.8'-55.8' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 43.1'-56.1' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 38.5'-43.1' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-38.5' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
725		52.00 - 56.00 biotite GNEISS			52.00	5		10.00 10.00		
55		Boring completed at 56.10 ft								
720					721.26					
60					56.00					
715										
65										
710										
70										
705										
75										
700										
80										
695										
85										
690										
90										
685										
95										
680										
100										

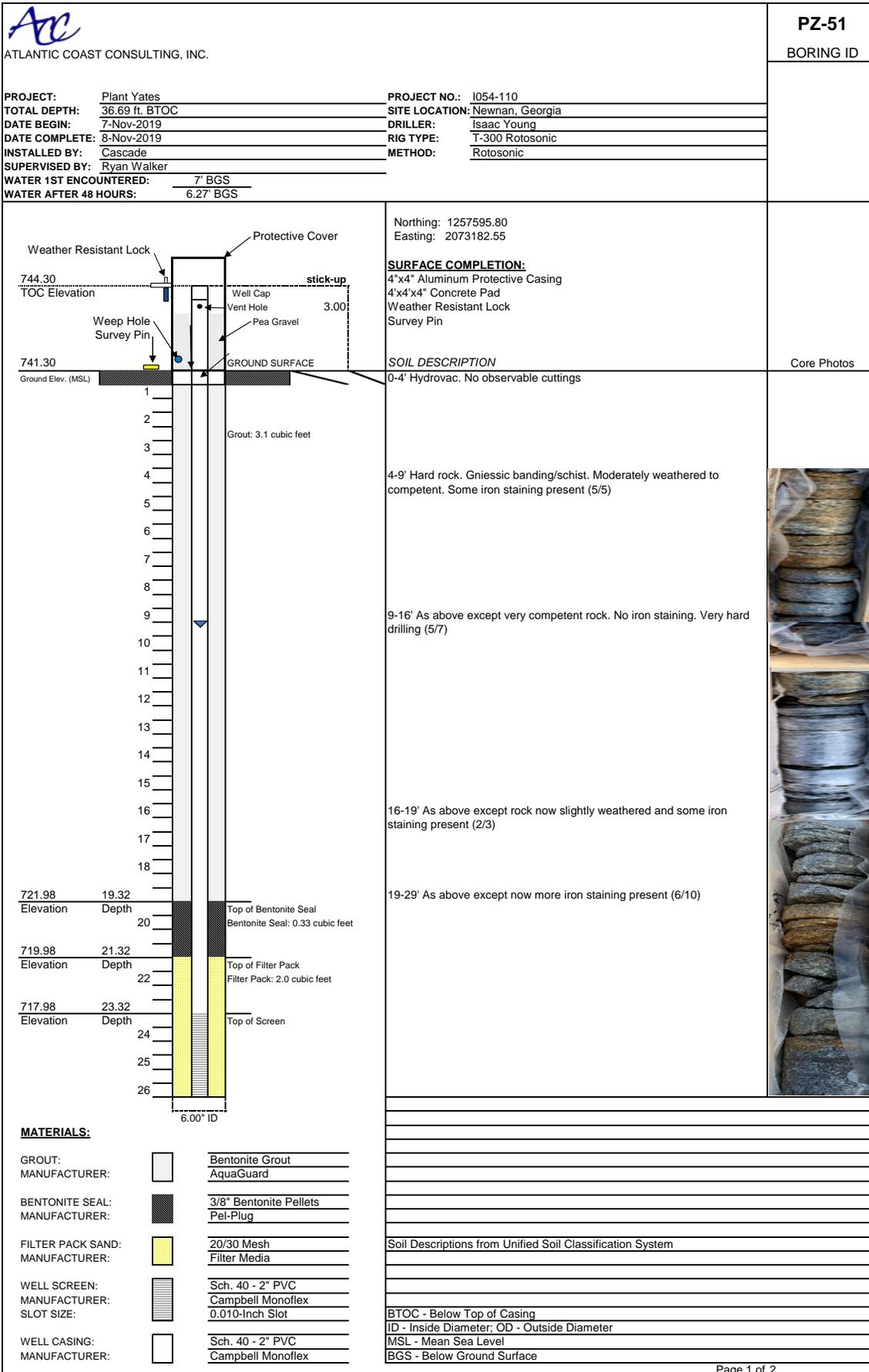
BOREHOLE RECORD - YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Dale

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).



PZ-51

BORING ID

Core Photos



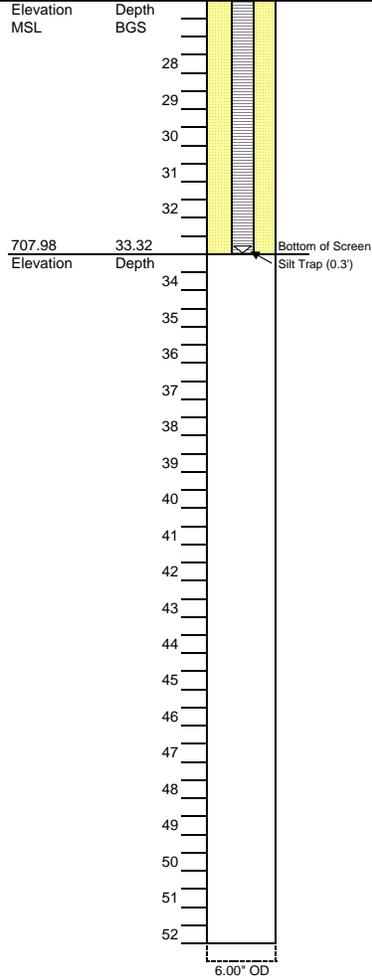


ATLANTIC COAST CONSULTING, INC.

PZ-51
BORING ID

PROJECT: Plant Yates	PROJECT NO.: 1054-110
TOTAL DEPTH: 36.69 ft. BTOC	SITE LOCATION: Newnan, Georgia
DATE BEGIN: 7-Nov-2019	DRILLER: Isaac Young
DATE COMPLETE: 8-Nov-2019	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Ryan Walker	
WATER 1ST ENCOUNTERED: 7' BGS	
WATER AFTER 48 HOURS: 6.27' BGS	

Core Photos



29-33' As above except rock now very competent. No iron staining present. Very hard drilling (4/4)

Total well depth 33.62' BGS



MATERIALS:

GROUT: MANUFACTURER:		Bentonite Grout AquaGuard
BENTONITE SEAL: MANUFACTURER:		3/8" Bentonite Pellets Pel-Plug
FILTER PACK SAND: MANUFACTURER:		20/30 Mesh Filter Media
WELL SCREEN: MANUFACTURER: SLOT SIZE:		Sch. 40 - 2" PVC Silver-Line 0.010-Inch Slot
WELL CASING: MANUFACTURER:		Sch. 40 - 2" PVC Silver-Line

TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
 MSL - Mean Sea Level
 BGS - Below Ground Surface

Soil Boring and Construction Log

Client Name: Southern Company Services Date Started: 08-18-2021 Logger: Auguste Parrinello
 Project Number: 30055278 Date Completed: 09-28-2021 Reviewer: Geoffrey Gay
 Project Name: GPC Yates Drilling Oversight Total Depth: 200.0 ft bgs

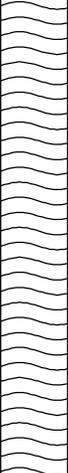
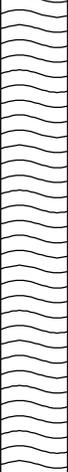
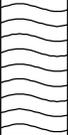
Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Graphic	Description	Drilling Fluid and Notes	Optical Viewer	Construction Details
1		5			(0-17 ft) SAND, fine to coarse, subangular; some silt; trace clay; poorly sorted; moist; loose; 7.5YR 6/6 - reddish yellow; no odor; blocky structure; saprolite.	(0-5 ft) Hand Auger		8" Borehole
2								
3								
4								
5								
6		5			(17-20 ft) SAND, very fine to very coarse, subangular; little silt; little small to very large pebbles, angular; trace granules, angular; trace clay; poorly sorted; dry to moist; loose; 7.5YR 6/8 - reddish yellow; no odor; saprolite. NOTE: Pebbles are highly weathered.	(5-55 ft) Drilled with water, Rough drilling	▼	6.25" Surface Casing grouted in Portland cement
7								
8								
9								
10								
11		5			(20-22 ft) SAND and CLAY, medium, subangular, medium plasticity, rapid dilatancy; little silt; well sorted; moist; dense; 7.5YR 4/3 - brown; no odor; homogeneous structure; saprolite.			Aquagard 30% solids bentonite grout
12								
13								
14								
15								
16		5			(22-24 ft) SAND, very fine to very coarse, angular to subangular; some silt; little granules, angular to subangular; little clay; poorly sorted; dry; loose; 7.5YR 6/8 - reddish yellow; no odor; blocky structure; saprolite.			2" Sch. 40 PVC, PZ-52D Casing
17								
18								
19								
20								
21		2			(24-30 ft) SAND, medium to coarse, angular to subangular; little small to very large pebbles, angular to subangular; little granules, angular to subangular; trace small to large cobbles, angular to subangular; trace silt; trace clay; poorly sorted; dry; loose; 10YR 8/2 - pale orange yellow; no odor; Saprolite/ weathered rock. NOTE: Clasts of mechanically broken weathered rock from drilling.			1" Sch. 40 PVC, PZ-53D Casing
22								
23								
24								
25								
26		2						
27								
28								
29								
30								

Drilling Co.: Cascade Sampling Method: Sonic
 Driller: Cory Franklin, Mike Coleman Sampling Dimensions: Continuous
 Drilling Method: Roto-Sonic First Encountered Water (ft bgs): 5
 Drill Rig: Roto-Sonic Static Water Level (ft bgs): 5.91
 Remarks: Lithology modifiers: 'and' = 36-50% of total sample (by volume), 'some' = 21-35%, 'little' = 10-20%, and 'trace' = <10%. Top of Casing Elev: 762.80
 Surface Elev: 759.90
 North Coord: 1256463.09
 East Coord: 2074676.14

SOIL BORING AND CONSTRUCTION LOG - C:\USERS\WOODSON\DRIVE - ARCADIS\FULCRUM-GINT PROJECTS\CHEVRON CHARLOTTE\GINT PROJECT-06\SLP73.GPJ - GINT DATA TEMPLATE.GDT 11/19/21

Soil Boring and Construction Log

Client Name: Southern Company Services Date Started: 08-18-2021 Logger: Auguste Parrinello
 Project Number: 30055278 Date Completed: 09-28-2021 Reviewer: Geoffrey Gay
 Project Name: GPC Yates Drilling Oversight Total Depth: 200.0 ft bgs

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Graphic	Description	Drilling Fluid and Notes	Optical Viewer	Construction Details
31		10			(30-40 ft) Partially Weathered Rock, medium grained (0.25-0.5 mm) to coarse grained (0.5-2.0 mm), angular; White\orange\grey; 5Y 7/1 - light gray; highly weathered; medium hard (easily scratched by penknife); moderately fractured (0.1-0.3 m). NOTE: High m-f sand in cores accompanying broken rock fragments..	(5-55 ft) Drilled with water, Rough drilling		6.25" Surface Casing grouted in Portland cement Aquagard 30% solids bentonite grout 2" Sch. 40 PVC, PZ-52D Casing 1" Sch. 40 PVC, PZ-53D Casing 6" Borehole Bentonite Pellets
32								
33								
34								
35		10			(40-72 ft) Metamorphic Rock, medium grained (0.25-0.5 mm) to coarse grained (0.5-2.0 mm), angular; Grey/ white; fresh; very hard (cannot be scratched by penknife); moderately fractured (0.1-0.3 m); Chlorite, biotite, feldspars, quartz; pitted; Foliated Gneiss . NOTE: Micaceous, foliated.	(40-160 ft) Drilled with water, Drill rods chattering		
36								
37								
38								
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43		10						
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55		10						
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60								
61								
62								
63								

Remarks: _____

SOIL BORING AND CONSTRUCTION LOG - C:\USERS\WOODSON\DRIVE - ARCADIS\FULCRUM-GINT PROJECTS\CHEVRON CHARLOTTE\GINT PROJECT-06\SLP73.GPJ - GINT DATA TEMPLATE.GDT 11/9/21

Soil Boring and Construction Log

Client Name: Southern Company Services Date Started: 08-18-2021 Logger: Auguste Parrinello
 Project Number: 30055278 Date Completed: 09-28-2021 Reviewer: Geoffrey Gay
 Project Name: GPC Yates Drilling Oversight Total Depth: 200.0 ft bgs

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Graphic	Description	Drilling Fluid and Notes	Optical Viewer	Construction Details
64		10			(40-72 ft) Metamorphic Rock, medium grained (0.25-0.5 mm) to coarse grained (0.5-2.0 mm), angular; Grey/ white; fresh; very hard (cannot be scratched by penknife); moderately fractured (0.1-0.3 m); Chlorite, biotite, feldspars, quartz; pitted; Foliated Gneiss . NOTE: Micaceous, foliated.	(40-160 ft) Drilled with water, Drill rods chattering		
65								
66								
67								
68								
69								
70								
71		10			(72-100 ft) Metamorphic Rock, fine grained (0.06-0.25 mm) to coarse grained (0.5-2.0 mm), angular; Light grey; fresh; hard (difficult to scratch with penknife); intensely fractured (0.03-0.1 m); Chlorite, biotite, feldspars, quartz; Granitic-gneiss, foliated . NOTE: Fractures present causing yellow staining and increased localized weathering..			
72								
73								
74								
75								
76								
77								
78		10						
79								
80								
81								
82								
83								
84								
85		10						
86								
87								
88								
89								
90								
91								
92		10						
93								
94								
95								
96								

Remarks: _____

SOIL BORING AND CONSTRUCTION LOG - C:\USERS\WOODSON\DRIVE - ARCADIS\FULCRUM-GINT PROJECTS\CHEVRON CHARLOTTE\GINT PROJECT-06\SLP73.GPJ - GINT DATA TEMPLATE.GDT 11/13/21

Soil Boring and Construction Log

Client Name: Southern Company Services Date Started: 08-18-2021 Logger: Auguste Parrinello
 Project Number: 30055278 Date Completed: 09-28-2021 Reviewer: Geoffrey Gay
 Project Name: GPC Yates Drilling Oversight Total Depth: 200.0 ft bgs

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Graphic	Description	Drilling Fluid and Notes	Optical Viewer	Construction Details
97		10			(72-100 ft) Metamorphic Rock, fine grained (0.06-0.25 mm) to coarse grained (0.5-2.0 mm), angular; Light grey, fresh; hard (difficult to scratch with penknife); intensely fractured (0.03-0.1 m); Chlorite, biotite, feldspars, quartz; Granitic-gneiss, foliated. NOTE: Fractures present causing yellow staining and increased localized weathering..	(40-160 ft) Drilled with water, Drill rods chattering		
98								
99								
100		10			(100-130 ft) Metamorphic Rock, fine grained (0.06-0.25 mm) to medium grained (0.25-0.5 mm), angular; Grey, fresh; hard (difficult to scratch with penknife); moderately fractured (0.1-0.3 m); Biotite, muscovite, quartz, feldspars, trace euhedral garnet; Foliated granitic gneiss .			
101								
102								
103		10						
104								
105								
106		10						
107								
108								
109		10						
110								
111								
112		10						
113								
114								
115		10						
116								
117								
118		10						
119								
120								
121		10						
122								
123								
124		10						
125								
126								
127		10						
128								
129								

Bentonite Chips

1" Sch. 40 PVC, PZ-53D Casing

Remarks: _____

Soil Boring and Construction Log

Client Name: Southern Company Services Date Started: 08-18-2021 Logger: Auguste Parrinello
 Project Number: 30055278 Date Completed: 09-28-2021 Reviewer: Geoffrey Gay
 Project Name: GPC Yates Drilling Oversight Total Depth: 200.0 ft bgs

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Graphic	Description	Drilling Fluid and Notes	Optical Viewer	Construction Details
130		10			(130-140 ft) Metamorphic Rock, fine grained (0.06-0.25 mm), angular; Light grey; fresh; hard (difficult to scratch with penknife); slightly fractured (0.3-1 m); Biotite, muscovite, quartz, feldspars, garnet, pyrite ; Fine grained granitic gneiss. Finely Foliated.	(40-160 ft) Drilled with water, Drill rods chattering		
131								
132								
133								
134								
135		10						
136								
137								
138								
139								
140					(140-200 ft) Metamorphic Rock, fine grained (0.06-0.25 mm) to medium grained (0.25-0.5 mm), angular; fresh; hard (difficult to scratch with penknife); moderately fractured (0.1-0.3 m); Biotite, muscovite, quartz, feldspars, garnet, pyrite ; Foliated granitic gneiss.			
141								
142								
143								
144								
145		10						
146								
147								
148								
149								
150								
151								
152								
153								
154								
155		10						
156								
157								
158								
159								
160								
161								
162								

Remarks: _____

SOIL BORING AND CONSTRUCTION LOG - C:\USERS\WOODSON\DRIVE - ARCADIS\FULCRUM-GINT PROJECTS\CHEVRON CHARLOTTE\GINT PROJECT-06\SLP73.GPJ - GINT DATA TEMPLATE.GDT 11/19/21

Soil Boring and Construction Log

Client Name: Southern Company Services Date Started: 08-18-2021 Logger: Auguste Parrinello
 Project Number: 30055278 Date Completed: 09-28-2021 Reviewer: Geoffrey Gay
 Project Name: GPC Yates Drilling Oversight Total Depth: 200.0 ft bgs

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Graphic	Description	Drilling Fluid and Notes	Optical Viewer	Construction Details
163					(140-200 ft) Metamorphic Rock, fine grained (0.06-0.25 mm) to medium grained (0.25-0.5 mm), angular; fresh; hard (difficult to scratch with penknife); moderately fractured (0.1-0.3 m); Biotite, muscovite, quartz, feldspars, garnet, pyrite ; Foliated granitic gneiss.			
164					(167-168 ft) NOTE: Fine grained mafic intrusion. Foliated.			
165								
166								
167								
168								
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195								

Remarks: _____

SOIL BORING AND CONSTRUCTION LOG - C:\USERS\WOODSON\DRIVE - ARCADIS\FULCRUM-GINT PROJECTS\CHEVRON CHARLOTTE\GINT PROJECT-06\SLP73.GPJ - GINT DATA TEMPLATE.GDT 11/13/21

Soil Boring and Construction Log

Client Name: Southern Company Services Date Started: 08-18-2021 Logger: Auguste Parrinello
 Project Number: 30055278 Date Completed: 09-28-2021 Reviewer: Geoffrey Gay
 Project Name: GPC Yates Drilling Oversight Total Depth: 200.0 ft bgs

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Graphic	Description	Drilling Fluid and Notes	Optical Viewer	Construction Details
196					(140-200 ft) Metamorphic Rock, fine grained (0.06-0.25 mm) to medium grained (0.25-0.5 mm), angular; fresh; hard (difficult to scratch with penknife); moderately fractured (0.1-0.3 m); Biotite, muscovite, quartz, feldspars, garnet, pyrite ; Foliated granitic gneiss.			
197								
198								
199								
200								
200 ft. bgs End of Boring								
201								
202								
203								
204								
205								
206								
207								
208								
209								
210								
211								
212								
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215								
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225								
226								
227								
228								

Remarks: _____

SOIL BORING AND CONSTRUCTION LOG - C:\USERS\WOODSON\DRIVE - ARCADIS\FULCRUM-GINT PROJECTS\ICHEVRON CHARLOTTE\GINT PROJECT-06\SLP73.GPJ - GINT DATA TEMPLATE.GDT 11/13/21

RECORD OF BOREHOLE BH-54D: PZ-54D & PZ-56D

SHEET 1 of 5

PROJECT: Georgia Power Plant Yates
 PROJECT NUMBER: 30143622
 DRILLED DEPTH: 200.0 ft
 LOCATION: Newnan, GA

DRILL RIG: TerraSonic 150CC
 DATE STARTED: 12/17/2023
 DATE COMPLETED: 01/22/2024

NORTHING: 1256904.08
 EASTING: 2073369.06
 GS ELEVATION: 792.5
 TOC ELEVATION: 795.56

DEPTH W.L.: 25.40 / 45.75
 ELEVATION W.L.: 770.16 / 749.81
 DATE W.L.: 01/29/24
 TIME W.L.: 09:36

DEPTH (ft)	DESCRIPTION	USCS	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	PHOTO	REC	BH-54 MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0.0 - 3.0	(SM) Silty SAND; 5YR 4/6; loose; poorly sorted; fine grained; moist; trace gravel; FILL.	SM		0.0				PZ-54D: 2-inch diameter PVC Riser PZ-56D: 1-inch diameter PVC Riser Aquaguard Bentonite Grout	PZ-54D WELL CASING Interval: -3.06'-124' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded PZ-54D WELL SCREEN Interval: 124'-134' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" PZ-54D FILTER PACK Interval: 121.9'-137.4' Type: Southern Products and Silica GP#2 Quantity: 2.25 cf PZ-56D WELL CASING Interval: -3.06'-185' Material: Schedule 40 PVC Diameter: 1" Joint Type: Threaded PZ-56D WELL SCREEN Interval: 185'-195' Material: Schedule 40 PVC Diameter: 1" Slot Size: 0.010" PZ-56D FILTER PACK Interval: 182.8'-200' Type: Southern Products and Silica GP#2 Quantity: 3.5 cf FILTER PACK SEAL Interval: 118'-121.9' Type: 3/8" Pel-Plug Bentonite Pellets Quantity: 0.6 cf ANNULUS SEAL Interval: 25'-118' Type: 3/8" Hole Plug Bentonite Chips Quantity: 21.5 cf ANNULUS SEAL Interval: 0.5'-25' Type: Aquaguard Bentonite Grout Quantity: 7 cf SURFACE COMPLETION Protection: 6"x6" Aluminum Pad: 4'x4' Concrete Lock: Yes Date: 1/22/2024
3.0 - 15.0	(SP) SAND; 10YR 7/3; well sorted; fine grained; dry; with some silt and coarse sand and gravel	SP		3.0	1		8.2 10.0		
15.0 - 23.0	(SM) Silty SAND; 10YR 7/3; poorly sorted; fine grained; dry; some friable gravel-sized fragments.	SM		15.0	2		10.0 10.0		
23.0 - 25.0	(ML) Sandy SILT; 5Y 5/3; hard; non-plastic; slightly moist.	ML		23.0	3		10.0 10.0		
25.0 - 36.0	(SM) Silty SAND; 10YR 6/2; poorly sorted; fine grained; dry; some friable gravel-sized fragments.	SM		25.0	4		8.0 8.0		
36.0 - 200.0	Biotite Gneiss; GLEY2 6/5PB; hard; medium grained; finely foliated; slightly weathered.	BED-ROCK		36.0	5	2.0 2.0	3/8" Hole Plug Bentonite Chips		
80	80 degree fracture, iron staining.								

DRILLING COMPANY: Betts Drilling
 DRILLER: Ryan McCormack

CHECKED BY: David Prouty
 DATE: 2/12/2024



RECORD OF BOREHOLE BH-54D: PZ-54D & PZ-56D SHEET 2 of 5

PROJECT: Georgia Power Plant Yates
 PROJECT NUMBER: 30143622
 DRILLED DEPTH: 200.0 ft
 LOCATION: Newnan, GA

DRILL RIG: TerraSonic 150CC
 DATE STARTED: 12/17/2023
 DATE COMPLETED: 01/22/2024

NORTHING: 1256904.08
 EASTING: 2073369.06
 GS ELEVATION: 792.5
 TOC ELEVATION: 795.56

DEPTH W.L.: 25.40 / 45.75
 ELEVATION W.L.: 770.16 / 749.81
 DATE W.L.: 01/29/24
 TIME W.L.: 09:36

DEPTH (ft)	DESCRIPTION	USCS	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	PHOTO	REC	BH-54 MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
40.0	Biotite Gneiss; GLEY2 6/5PB; hard; medium grained; finely foliated; slightly weathered. Biotite Schist 40.5 to 41 feet bgs.								
45					6		7.6 10.0		
50	Slightly weathered irregular joint								
55	Weathered zone 10 degree iron stained fracture.				7		7.8 10.0		
60	1 foot weathered zone								
65	Grading to GLEY2 6/5 PB	BED-ROCK			8		10.0 10.0		
70	Grading to GLEY2 7/5 NB				9		7.5 10.0		
80	Moderately weathered zone 88-89								

3/8" Hole Plug
Bentonite
Chips

DRILLING COMPANY: Betts Drilling
 DRILLER: Ryan McCormack

CHECKED BY: David Prouty
 DATE: 2/12/2024



RECORD OF BOREHOLE BH-54D: PZ-54D & PZ-56D SHEET 3 of 5

PROJECT: Georgia Power Plant Yates
 PROJECT NUMBER: 30143622
 DRILLED DEPTH: 200.0 ft
 LOCATION: Newnan, GA

DRILL RIG: TerraSonic 150CC
 DATE STARTED: 12/17/2023
 DATE COMPLETED: 01/22/2024

NORTHING: 1256904.08
 EASTING: 2073369.06
 GS ELEVATION: 792.5
 TOC ELEVATION: 795.56

DEPTH W.L.: 25.40 / 45.75
 ELEVATION W.L.: 770.16 / 749.81
 DATE W.L.: 01/29/24
 TIME W.L.: 09:36

DEPTH (ft)	DESCRIPTION	USCS	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	PHOTO	REC	BH-54 MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
80.0	Biotite Gneiss; GLEY2 6/5PB; hard; medium grained; finely foliated; slightly weathered. Slightly weathered, iron stained vertical fracture.			80.0				3/8" Hole Plug Bentonite Chips	
85	Slightly weathered, iron stained horizontal fracture.				10		8.4 10.0		
90	Fresh; no staining to 200 feet.								
95					11		3.9 10.0		
100		BED-ROCK							
105					12		5.0 10.0		
110									
115					13		7.9 10.0		
120								3/8" Hole Plug Bentonite Chips	

DRILLING COMPANY: Betts Drilling
 DRILLER: Ryan McCormack

CHECKED BY: David Prouty
 DATE: 2/12/2024



RECORD OF BOREHOLE BH-54D: PZ-54D & PZ-56D

SHEET 4 of 5

PROJECT: Georgia Power Plant Yates
 PROJECT NUMBER: 30143622
 DRILLED DEPTH: 200.0 ft
 LOCATION: Newnan, GA

DRILL RIG: TerraSonic 150CC
 DATE STARTED: 12/17/2023
 DATE COMPLETED: 01/22/2024

NORTHING: 1256904.08
 EASTING: 2073369.06
 GS ELEVATION: 792.5
 TOC ELEVATION: 795.56

DEPTH W.L.: 25.40 / 45.75
 ELEVATION W.L.: 770.16 / 749.81
 DATE W.L.: 01/29/24
 TIME W.L.: 09:36

DEPTH (ft)	DESCRIPTION	USCS	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	PHOTO	REC	BH-54 MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
125	Biotite Gneiss; GLEY2 6/5PB; hard; medium grained; finely foliated; slightly weathered.			120.0				3/8" Pel-Plug Bentonite Pellets GP#2 (7-35) Silica Sand U-Pack Screen, slotted (0.010-inch) 3/8" Hole Plug Bentonite Chips	
130				14		5.0 10.0			
135				15		8.4 10.0			
140		BED-ROCK		16		8.6 10.0			
145	Grading very coarse grained biotite.			17		3.4 10.0			
150	Visible mineral grains								
155									
160									

DRILLING COMPANY: Betts Drilling
 DRILLER: Ryan McCormack

CHECKED BY: David Prouty
 DATE: 2/12/2024



RECORD OF BOREHOLE BH-54D: PZ-54D & PZ-56D SHEET 5 of 5

PROJECT: Georgia Power Plant Yates
 PROJECT NUMBER: 30143622
 DRILLED DEPTH: 200.0 ft
 LOCATION: Newnan, GA

DRILL RIG: TerraSonic 150CC
 DATE STARTED: 12/17/2023
 DATE COMPLETED: 01/22/2024

NORTHING: 1256904.08
 EASTING: 2073369.06
 GS ELEVATION: 792.5
 TOC ELEVATION: 795.56

DEPTH W.L.: 25.40 / 45.75
 ELEVATION W.L.: 770.16 / 749.81
 DATE W.L.: 01/29/24
 TIME W.L.: 09:36

DEPTH (ft)	DESCRIPTION	USCS	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	PHOTO	REC	BH-54 MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
160.0	Biotite Gneiss; GLEY2 6/5PB; hard; medium grained; finely foliated; slightly weathered. No apparent foliation 160.2 - 164 ft	BED-ROCK		160.0			9.2 10.0	3/8" Hole Plug Bentonite Chips	
165				18			6.5 10.0		
170	Very finely foliated with greenish mineral; visible mineral grains.			19			10.0 10.0		
175	Recovered core section 0.5 feet. Bedrock grading more competent.			20			6.5 10.0		
180	Recovered core section 0.8 feet. Recovered core section 1.5 feet.			21					
185								GP#2 (7-35) Silica Sand	
190	Gneiss with visible biotite; fresh; interfoliated GLEY23/5PB and GLEY2 6/5PB							1-inch ID Screen, slotted (0.010-inch)	
195									
200	Boring terminated.								

DRILLING COMPANY: Betts Drilling
 DRILLER: Ryan McCormack

CHECKED BY: David Prouty
 DATE: 2/12/2024



RECORD OF BOREHOLE PZ-55

SHEET 1 of 2

PROJECT: Georgia Power Plant Yates
 PROJECT NUMBER: 30143622
 DRILLED DEPTH: 65.3 ft
 LOCATION: Newnan, GA

DRILL RIG: TerraSonic 150CC
 DATE STARTED: 12/13/2023
 DATE COMPLETED: 12/16/2023

NORTHING: 1257131.73
 EASTING: 2073193.74
 GS ELEVATION: 771.3
 TOC ELEVATION: 774.02

DEPTH W.L.: 29.4
 ELEVATION W.L.: 744.62
 DATE W.L.: 12/21/2023
 TIME W.L.: 11:15:00 AM

DEPTH (ft)	DESCRIPTION	USCS	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	PHOTO	REC	PZ-55 MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
5	0.0 - 22.0 (SM) Silty SAND; 10YR 7/4; loose; poorly sorted; fine to medium grained; slightly moist; trace coarse to medium mica; some relic rock structure. Grading to 10YR 6/6.	SM		0.0	1		8.5 10.0	2-inch diameter PVC Riser Aquaguard Bentonite Grout	WELL CASING Interval: -2.72'-55' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 55'-65' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" FILTER PACK Interval: 52.5'-65.3' Type: Southern Products and Silica GP#2 Quantity: 2.5 cf FILTER PACK SEAL Interval: 50.5'-52.5' Type: 3/8" Pel-Plug Bentonite Pellets Quantity: 0.6 cf ANNULUS SEAL Interval: 22'-50.5' Type: 3/8" Hole Plug Bentonite Chips Quantity: 6.3 cf ANNULUS SEAL Interval: 0.5'-22' Type: Aquaguard Bentonite Grout Quantity: 4.6 cf SURFACE COMPLETION Protection: 4"x4" Aluminum Pad: 4"x4' Concrete Lock: Yes Date: 1/5/2024
10	Grading to 7.5YR 5/6			2	10.0 10.0				
15	Grading to 10YR 5/3.			3	10.0 10.0				
20	Grading to 10YR 6/6; moist.			4	6.5 10.0				
25	22.0 - 65.3 Biotite Gneiss; 5Y 7/2' highly weathered; dry; with some gravel-size less weathered fragments. Grading 10YR 6/4.	BED-ROCK		22.0	3		10.0 10.0	3/8" Hole Plug Bentonite Chips	
30	grading some 2 to 3 inch sections of moderately weathered gneiss and highly weathered gneiss. No recovery 30-33 ft likely due to advancing core barrel with water.			4	6.5 10.0				
35	PWR; Partially to moderately weathered; Gneiss; some competent to moderately weathered rock; some pieces of friable rock. Core fragments medium to large pebbles to 1-3 inch pieces of core. 35 to 36.5 ft; Fine to coarse grained sandy zone.								
40									

DRILLING COMPANY: Betts Drilling
 DRILLER: Ryan McCormack

CHECKED BY: David Prouty
 DATE: 2/12/2024



RECORD OF BOREHOLE PZ-55

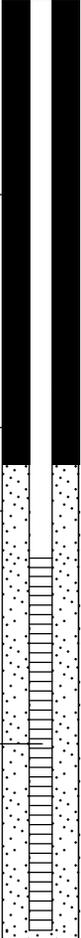
SHEET 2 of 2

PROJECT: Georgia Power Plant Yates
 PROJECT NUMBER: 30143622
 DRILLED DEPTH: 65.3 ft
 LOCATION: Newnan, GA

DRILL RIG: TerraSonic 150CC
 DATE STARTED: 12/13/2023
 DATE COMPLETED: 12/16/2023

NORTHING: 1257131.73
 EASTING: 2073193.74
 GS ELEVATION: 771.3
 TOC ELEVATION: 774.02

DEPTH W.L.: 29.4
 ELEVATION W.L.: 744.62
 DATE W.L.: 12/21/2023
 TIME W.L.: 11:15:00 AM

DEPTH (ft)	DESCRIPTION	USCS	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	PHOTO	REC	PZ-55 MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45	Biotite Gneiss; 5Y 7/2' highly weathered; dry; with some gravel-size less weathered fragments. 40 to 45 ft; Gneiss; fresh; competent; no staining; very hard; micro-crystalline to coarse crystals; mostly felsic mineralogy; no staining; black and white; observed some pyrite in rock; multiple horizontal fractures; likely due to sonic drilling.	BED-ROCK		40.0	5		4.0 5.0	<div style="text-align: center;">  <p>3/8" Hole Plug Bentonite Chips</p> <p>3/8" Pel-Plug Bentonite Pellets</p> <p>GP#2 (7-35) Silica Sand</p> <p>U-Pack Screen, slotted (0.010-inch)</p> </div>	
50	45 to 55 ft; Poor recovery, possible fracture zone; no observable loss in drilling fluid; observed some red staining on rock core; moderately fractured; mostly horizontal-low angle.			6	4.5 10.0				
55	55 to 65 ft; Poor recovery; possible fractures zone; no observed loss in drilling fluid; observed some red or orange staining. Staining on rock core around possible fracture zone; moderately fractured; fractures mostly horizontal-low angle.			7	4.9 10.0				
65	Boring terminated at 65.3 feet bgs.								
70									
75									
80									

DRILLING COMPANY: Betts Drilling
 DRILLER: Ryan McCormack

CHECKED BY: David Prouty
 DATE: 2/12/2024



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

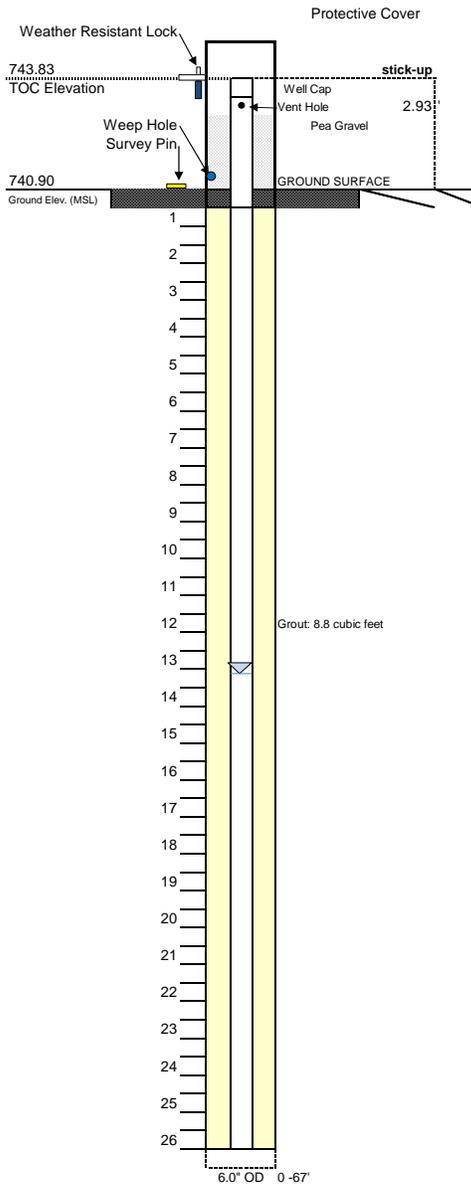


ATLANTIC COAST CONSULTING, INC.

YAMW-1
BORING ID

PROJECT: Plant Yates - Ash Pond 3	PROJECT NO.: 1054-110
TOTAL DEPTH: 70.53 ft btoC	SITE LOCATION: Newnan, Georgia
DATE BEGIN: 18-Sep-2018	DRILLER: Ray Whitt
DATE COMPLETE: 19-Sep-2018	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Ryan Walker	TOC Elev: 743.83 ft msl
WATER 1ST ENCOUNTERED: 49' BGS	
WATER AFTER 48 HOURS: 13.10' TOC	

Northing: 1258602.12
Easting: 2073814.55



SURFACE COMPLETION:
4"x4" Aluminum Protective Casing
4"x4" Concrete Pad
Weather Resistant Lock
Survey Pin

SOIL DESCRIPTION

0.00 - 10.00'
No recovery; Hydrovac

9.0 - 19.0

Light brown, moist to saturated sandy SILT (ML),
feldspathic soil overburden

19.00 - 29.00

Light to medium brown, gray and white, saturated, silty SAND, saprolitic (SM)

MATERIALS:

GROUT:		Portland Type I/II Cement
MANUFACTURER:		Sakrete
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		PDS
FILTER PACK SAND:		20/40 Mesh
MANUFACTURER:		Filter Media GP#1
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line™
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line™

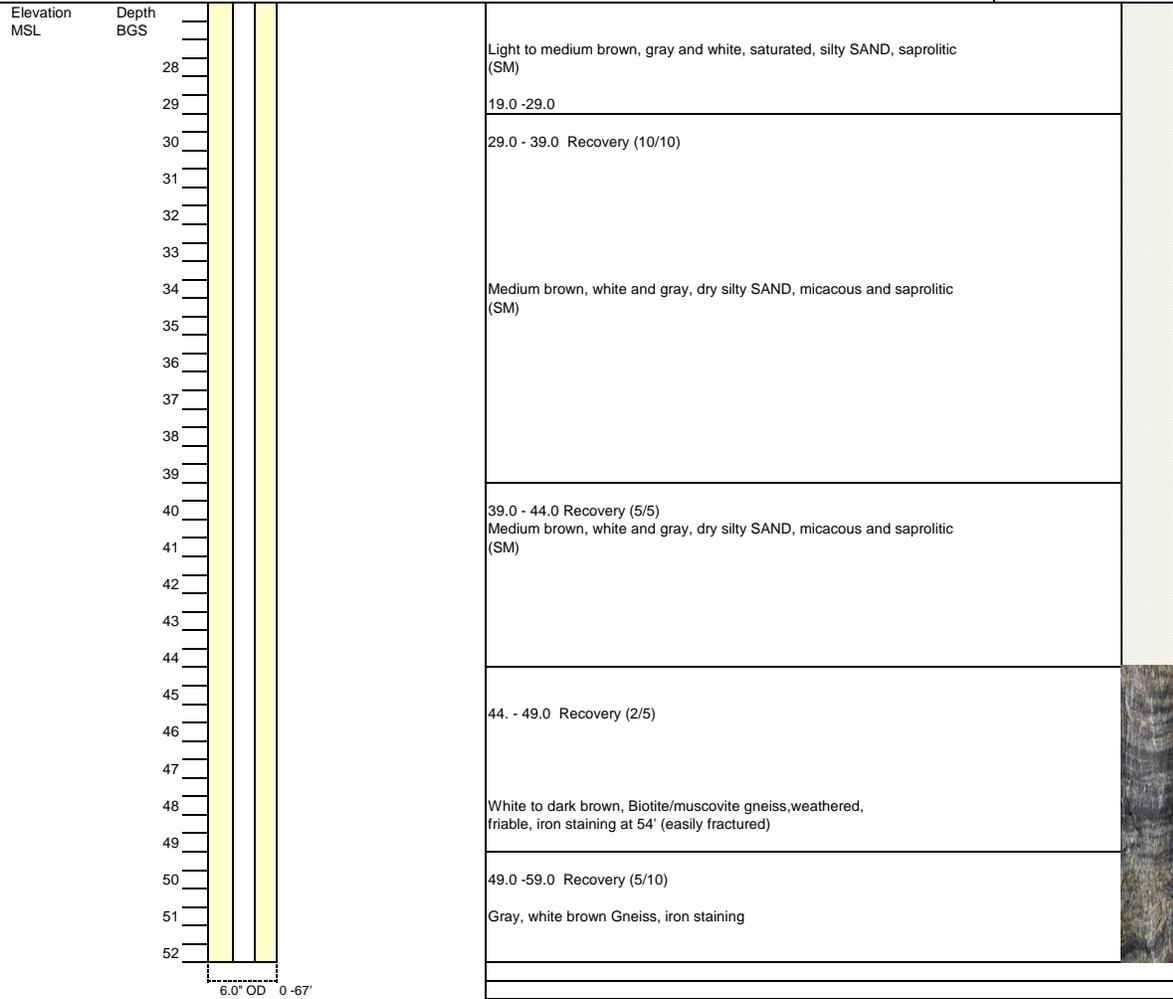
TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
MSL - Mean Sea Level
BGS - Below Ground Surface



ATLANTIC COAST CONSULTING, INC.

YAMW-1
BORING ID

PROJECT:	Plant Yates - Ash Pond 3	PROJECT NO.:	I054-110
TOTAL DEPTH:	70.53 ft. TOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	18-Sep-2018	DRILLER:	Ray Whitt
DATE COMPLETE:	19-Sep-2018	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker	TOC Elev:	743.83 ft msl
WATER 1ST ENCOUNTERED:	49' BGS		
WATER AFTER 48 HOURS:	13.10' TOC		



MATERIALS:

GROUT:		Portland Type I/II Cement
MANUFACTURER:		Sakrete
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		PDS
FILTER PACK SAND:		20/40 Mesh
MANUFACTURER:		Filter Media GP#1
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line™
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line™

TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
 MSL - Mean Sea Level
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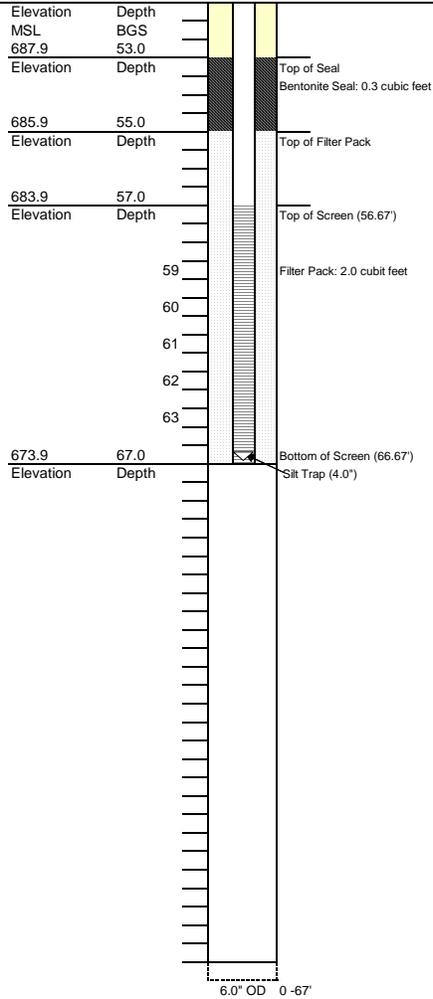
ATLANTIC COAST CONSULTING, INC.

YAMW-1

BORING ID

PROJECT: Plant Yates - Ash Pond 3	PROJECT NO.: I054-110
TOTAL DEPTH: 70.53 ft. TOC	SITE LOCATION: Newnan, Georgia
DATE BEGIN: 18-Sep-2018	DRILLER: Ray Whitt
DATE COMPLETE: 19-Sep-2018	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Ryan Walker	TOC Elev: 743.83 ft msl

WATER 1ST ENCOUNTERED: 49' BGS
WATER AFTER 48 HOURS: 13.10' TOC



49.0 - 59.0 Recovery (5/10)

Gray, white brown Gneiss, iron staining, highly fractured

59.0 - 62.0 Recovery (2.1/3.0)

Gray, white brown Gneiss, iron staining, highly fractured

62.0 - 70.0 Recovery (7.2/8.0)

Hard rock. Visibly harder drilling. Biotite/muscovite gneiss, non-friable.

Gray, white brown Gneiss, iron staining, highly fractured

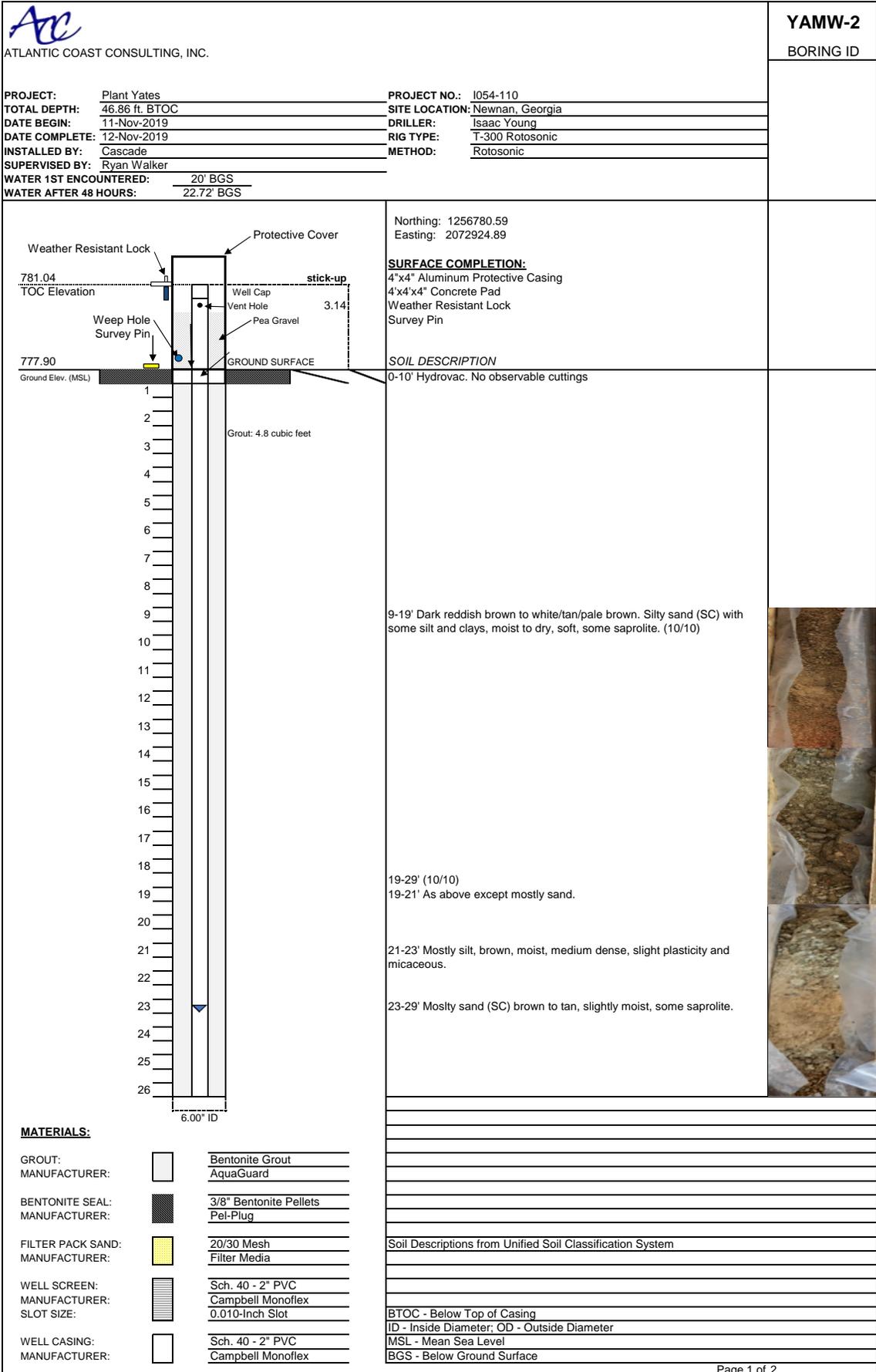
Boring terminated at 70.0' BGS

MATERIALS:

- | | | |
|-------------------|--|--------------------------|
| GROUT: | | Portland Type VII Cement |
| MANUFACTURER: | | Sakrete |
| BENTONITE SEAL: | | 3/8" Bentonite Pellets |
| MANUFACTURER: | | PDS |
| FILTER PACK SAND: | | 20/40 Mesh |
| MANUFACTURER: | | Filter Media GP#1 |
| WELL SCREEN: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line™ |

TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
 MSL - Mean Sea Level
 BGS - Below Ground Surface

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).





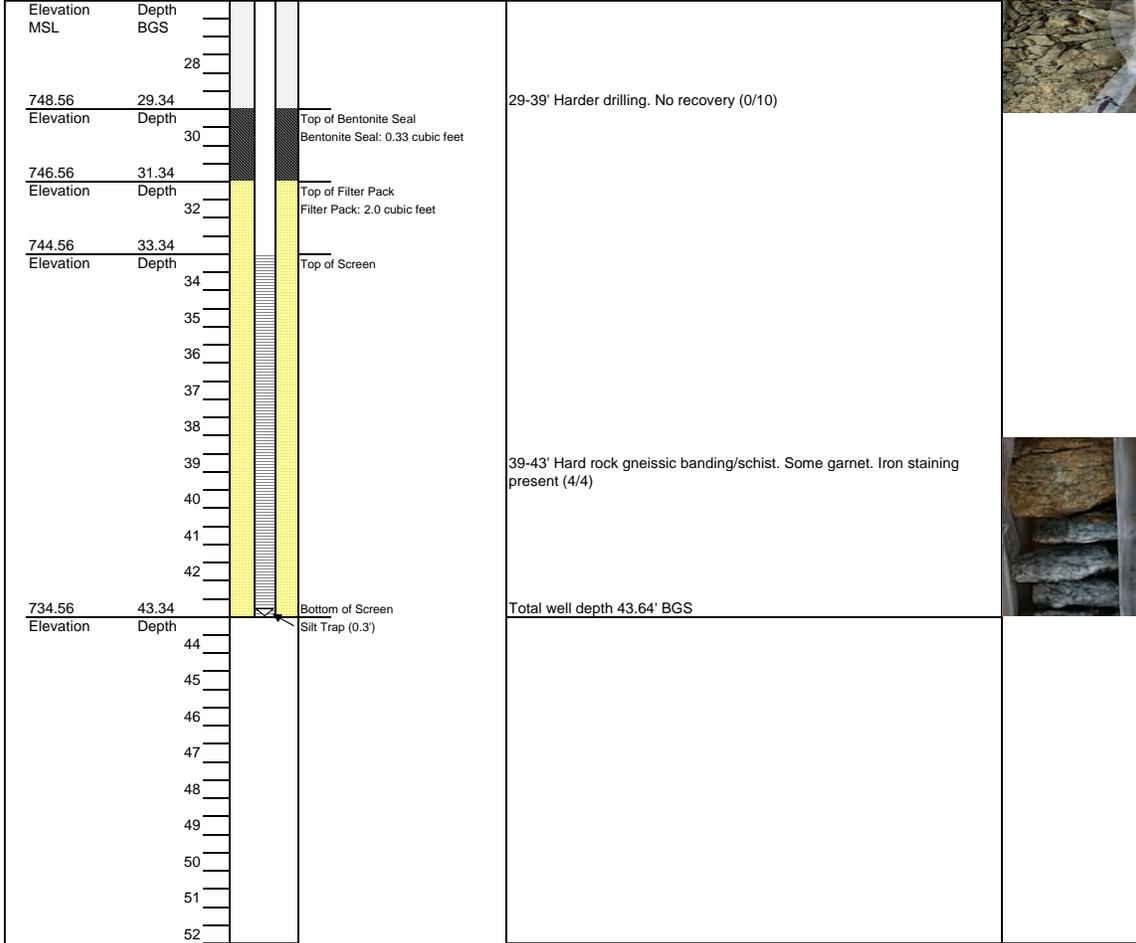
ATLANTIC COAST CONSULTING, INC.

YAMW-2

BORING ID

PROJECT: Plant Yates	PROJECT NO.: I054-110
TOTAL DEPTH: 46.86 ft. BTOC	SITE LOCATION: Newnan, Georgia
DATE BEGIN: 11-Nov-2019	DRILLER: Isaac Young
DATE COMPLETE: 12-Nov-2019	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Ryan Walker	
WATER 1ST ENCOUNTERED: 20' BGS	
WATER AFTER 48 HOURS: 22.72' BGS	

Core Photos



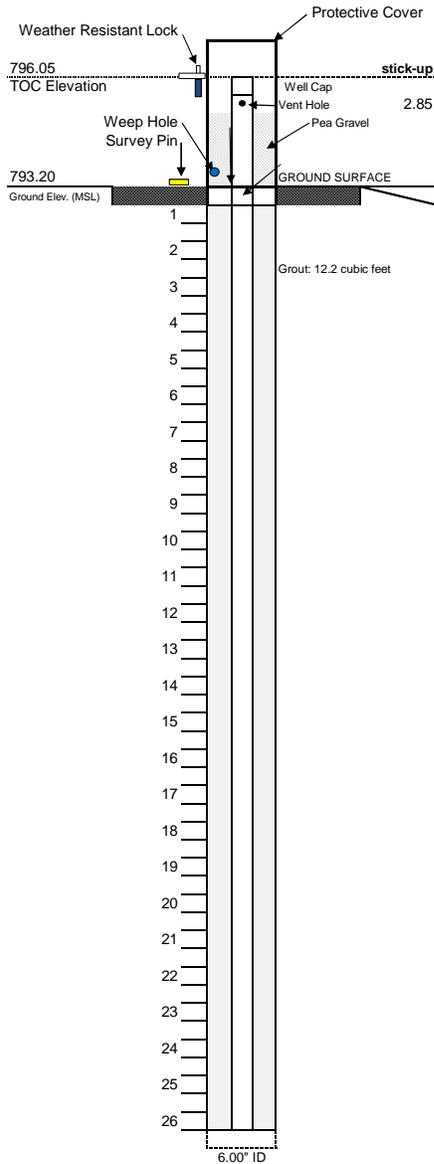
MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
 MSL - Mean Sea Level
 BGS - Below Ground Surface

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

PROJECT:	Plant Yates	PROJECT NO.:	1054-110
TOTAL DEPTH:	91.96 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	6-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	34.44' BGS		



Northing: 1256915.25
Easting: 2073345.21

SURFACE COMPLETION:
4"x4" Aluminum Protective Casing
4"x4"x4" Concrete Pad
Weather Resistant Lock
Survey Pin

SOIL DESCRIPTION
0-9' Hydrovac. No observable cuttings

Core Photos

9-19' Dark to pale brown silty sand. Dry, soft with some clay and gravel
Gravel is friable and medium to highly weathered

19-29' As above-tan to medium brown, some hard gravel pieces
(10/10)



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex

Soil Descriptions from Unified Soil Classification System

BTOC - Below Top of Casing
ID - Inside Diameter; OD - Outside Diameter
MSL - Mean Sea Level
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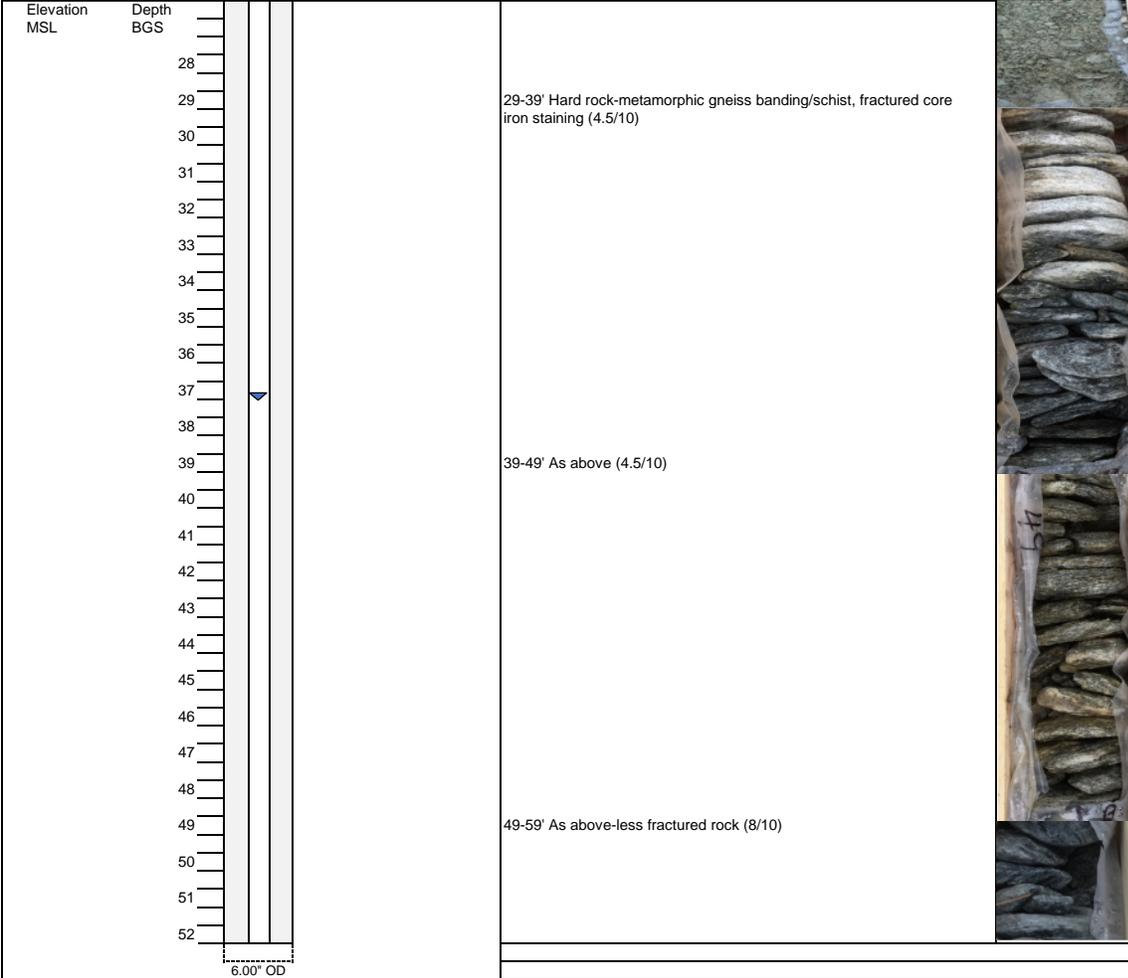
ATLANTIC COAST CONSULTING, INC.

YAMW-3

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	1054-110
TOTAL DEPTH:	91.96 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	6-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	34.44' BGS		

Core Photos



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pei-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
 MSL - Mean Sea Level
 BGS - Below Ground Surface



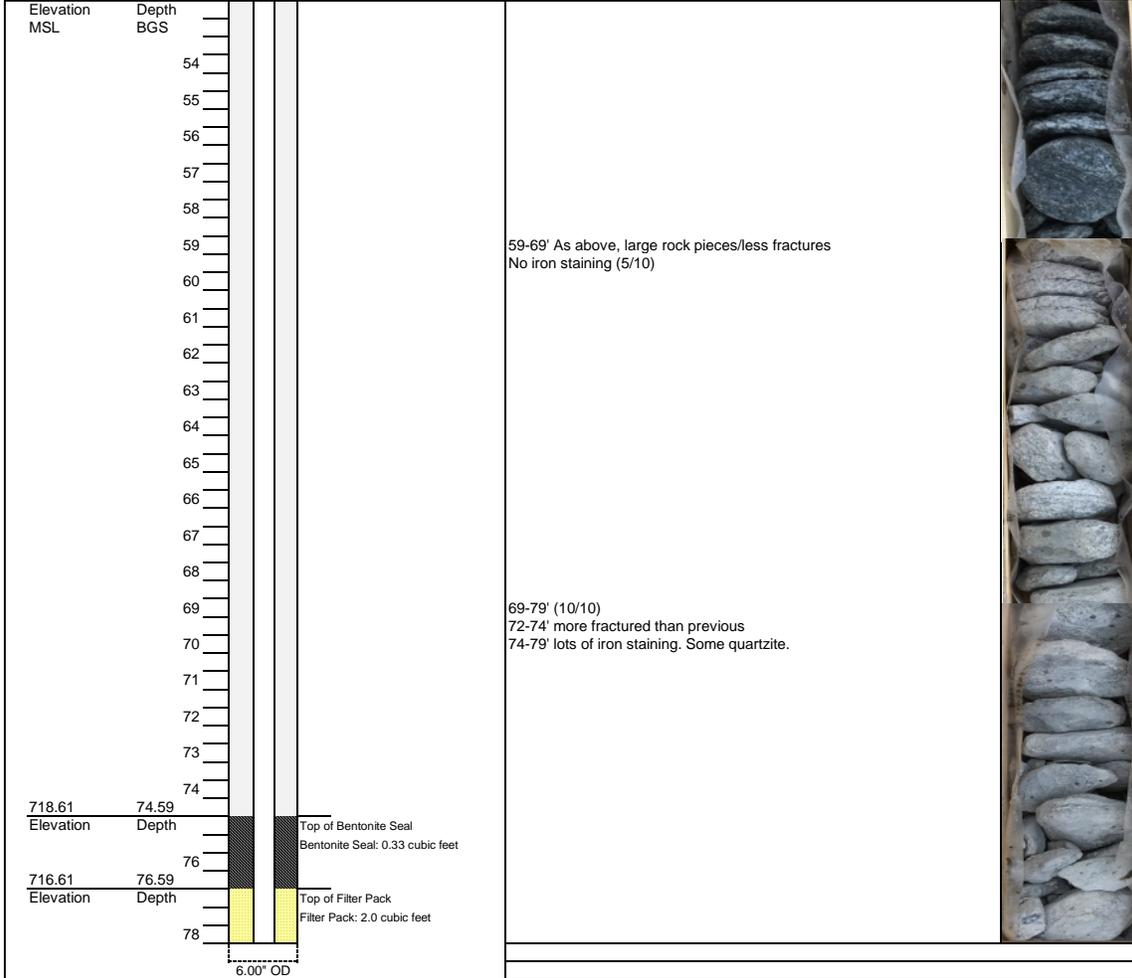
ATLANTIC COAST CONSULTING, INC.

YAMW-3

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	91.96 ft. BTOC	SITE LOCATION:	Newman, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	6-Nov-2019	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	34.44' BGS		

Core Photos



59-69' As above, large rock pieces/less fractures
No iron staining (5/10)

69-79' (10/10)
72-74' more fractured than previous
74-79' lots of iron staining. Some quartzite.

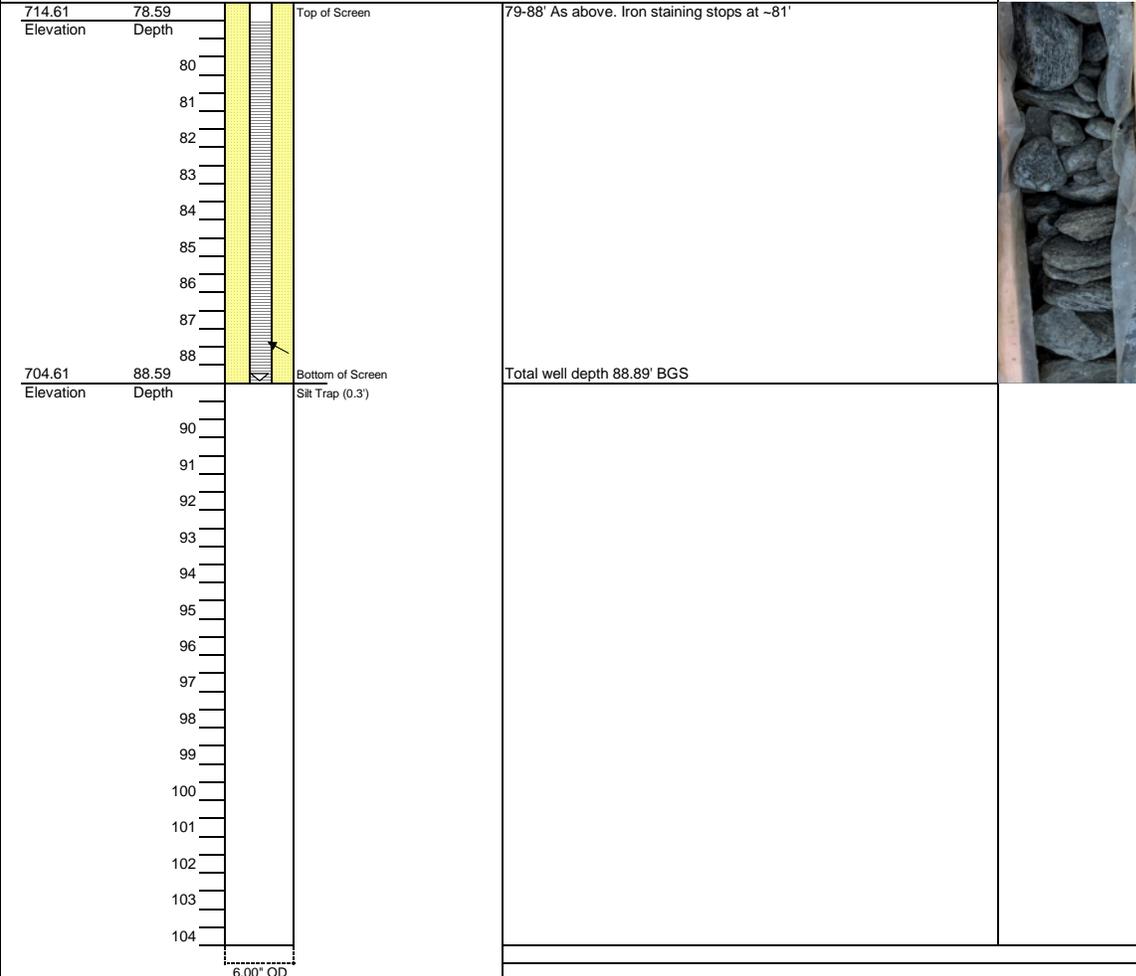
MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
 MSL - Mean Sea Level
 BGS - Below Ground Surface

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	91.96 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	6-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	34.44' BGS		

Core Photos

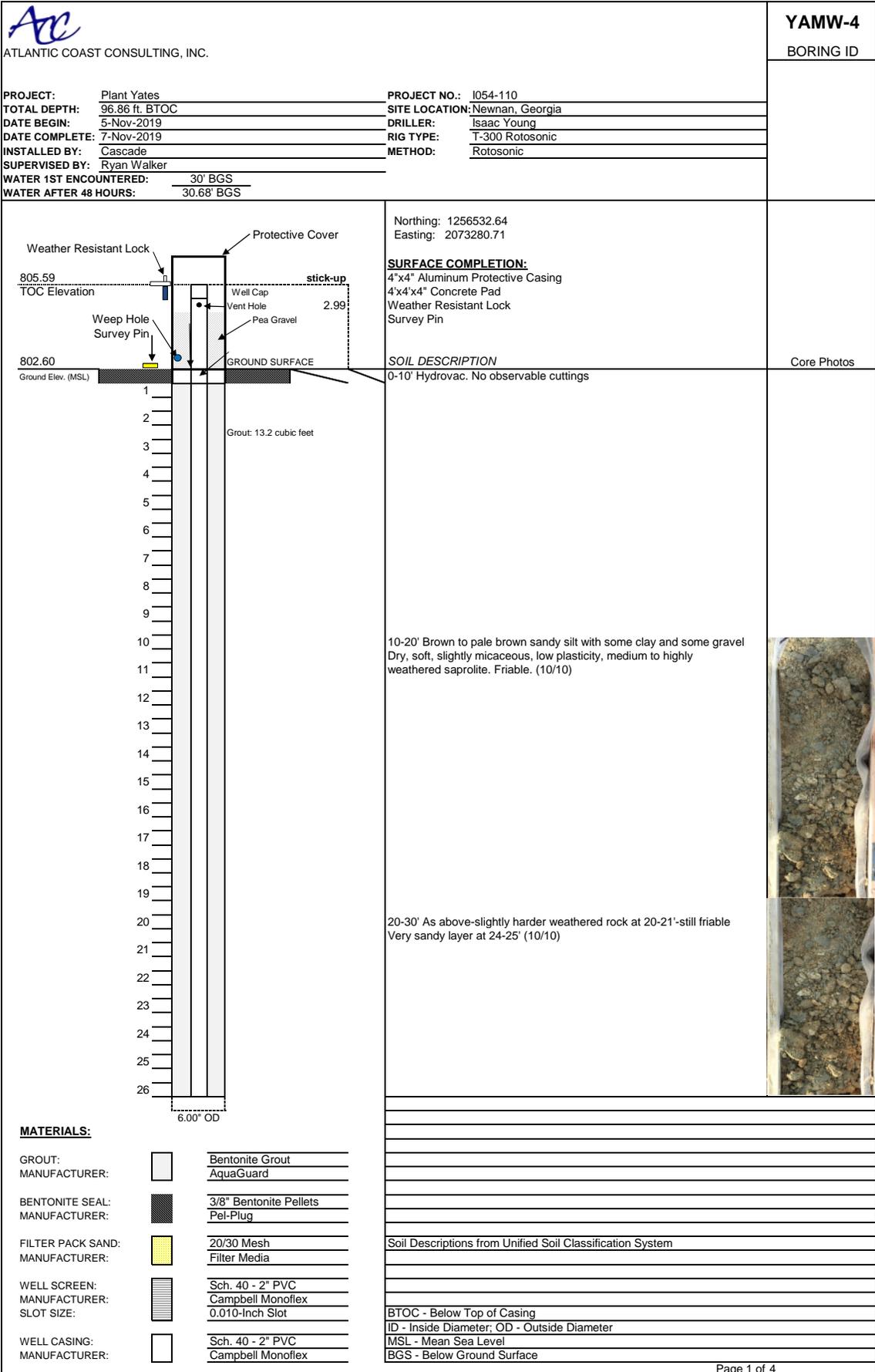


MATERIALS:

- | | | |
|-------------------|--|------------------------|
| GROUT: | | Bentonite Grout |
| MANUFACTURER: | | AquaGuard |
| BENTONITE SEAL: | | 3/8" Bentonite Pellets |
| MANUFACTURER: | | Pei-Plug |
| FILTER PACK SAND: | | 20/30 Mesh |
| MANUFACTURER: | | Filter Media |
| WELL SCREEN: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line |

TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
MSL - Mean Sea Level
BGS - Below Ground Surface

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).





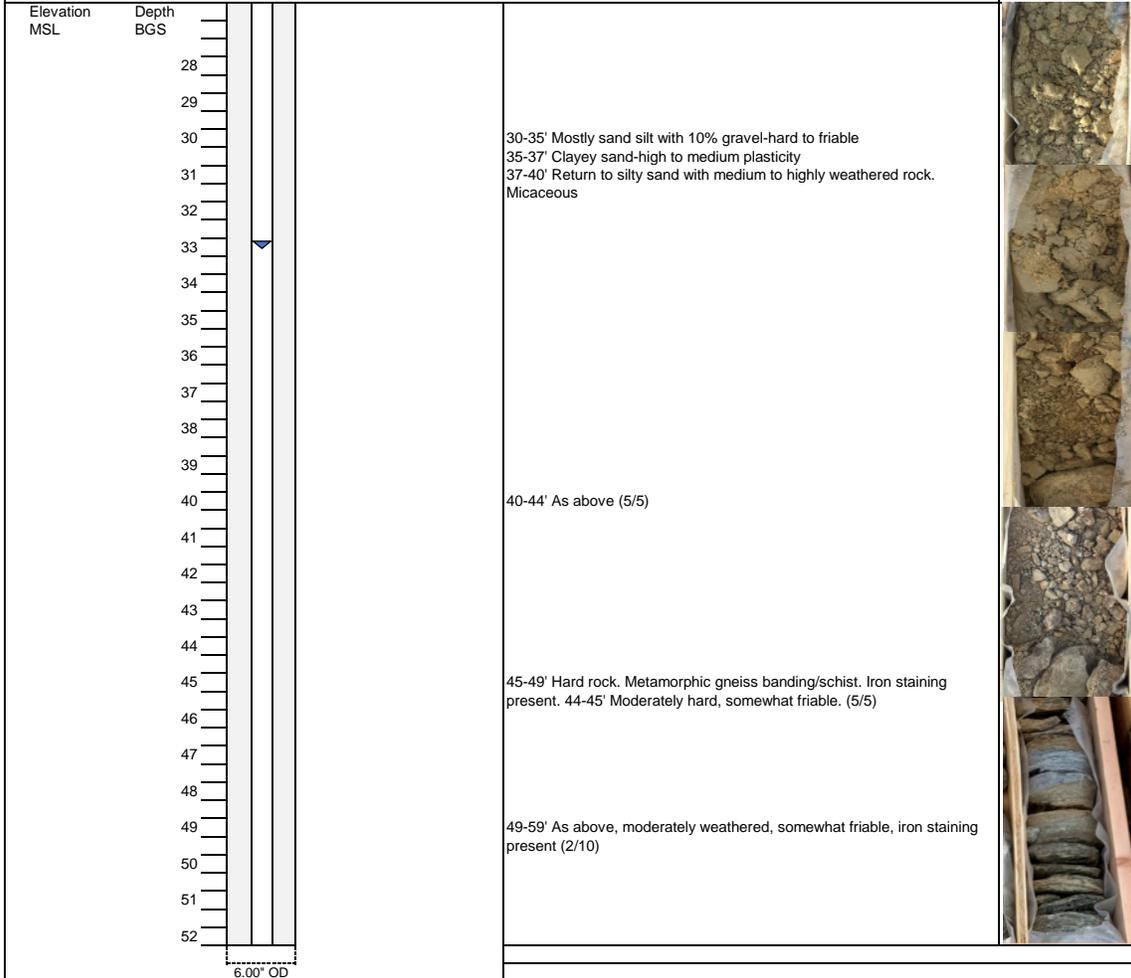
ATLANTIC COAST CONSULTING, INC.

YAMW-4

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	96.86 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	7-Nov-2019	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	30.68' BGS		

Core Photos

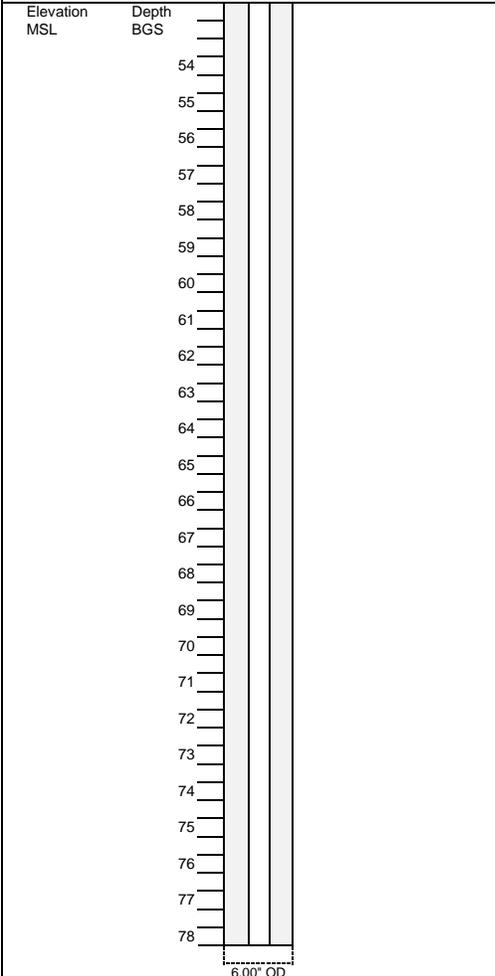


MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
 MSL - Mean Sea Level
 BGS - Below Ground Surface

PROJECT: Plant Yates	PROJECT NO.: 1054-110
TOTAL DEPTH: 96.86 ft. BTOC	SITE LOCATION: Newnan, Georgia
DATE BEGIN: 5-Nov-2019	DRILLER: Isaac Young
DATE COMPLETE: 7-Nov-2019	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Ryan Walker	
WATER 1ST ENCOUNTERED: 30' BGS	
WATER AFTER 48 HOURS: 30.68' BGS	



59-69' As above except less weathered rock, non friable. Still some iron staining present (8/10)

69-79' As above except rock is more weathered. Section of quartzite at 73-74'. Iron staining ends at 77'. (7/10)



MATERIALS:

- | | | |
|---|--|--|
| GROUT:
MANUFACTURER: | | Bentonite Grout
AquaGuard |
| BENTONITE SEAL:
MANUFACTURER: | | 3/8" Bentonite Pellets
Pel-Plug |
| FILTER PACK SAND:
MANUFACTURER: | | 20/30 Mesh
Filter Media |
| WELL SCREEN:
MANUFACTURER:
SLOT SIZE: | | Sch. 40 - 2" PVC
Silver-Line
0.010-Inch Slot |
| WELL CASING:
MANUFACTURER: | | Sch. 40 - 2" PVC
Silver-Line |

TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
MSL - Mean Sea Level
BGS - Below Ground Surface



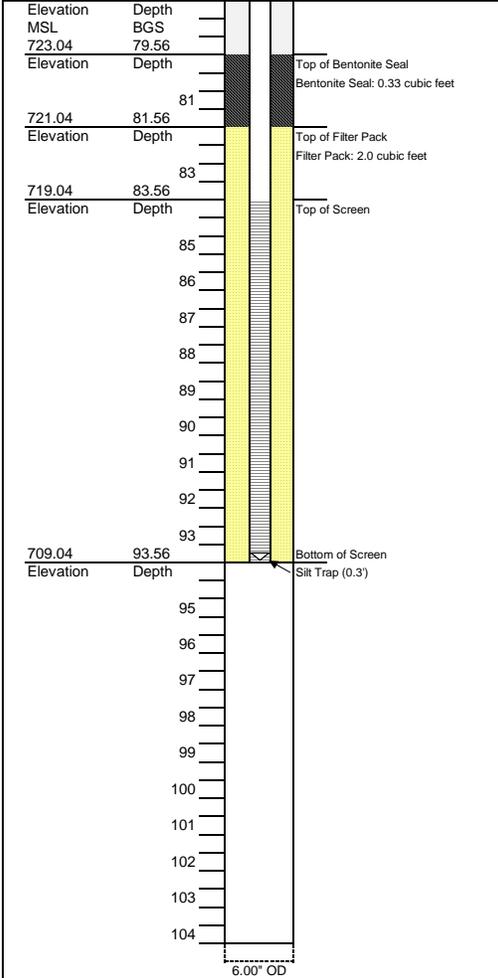
ATLANTIC COAST CONSULTING, INC.

YAMW-4

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	96.86 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	7-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	30.68' BGS		

Core Photos



79-89' Very competent rock with some fracturing at 84-85' and 88-89'. Iron staining at 88-89'

89-94' Fractures and iron staining from 89-90' and 93-94'. Some slight iron staining from 90-93' but mostly solid core.

Total well depth 93.86' BGS



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

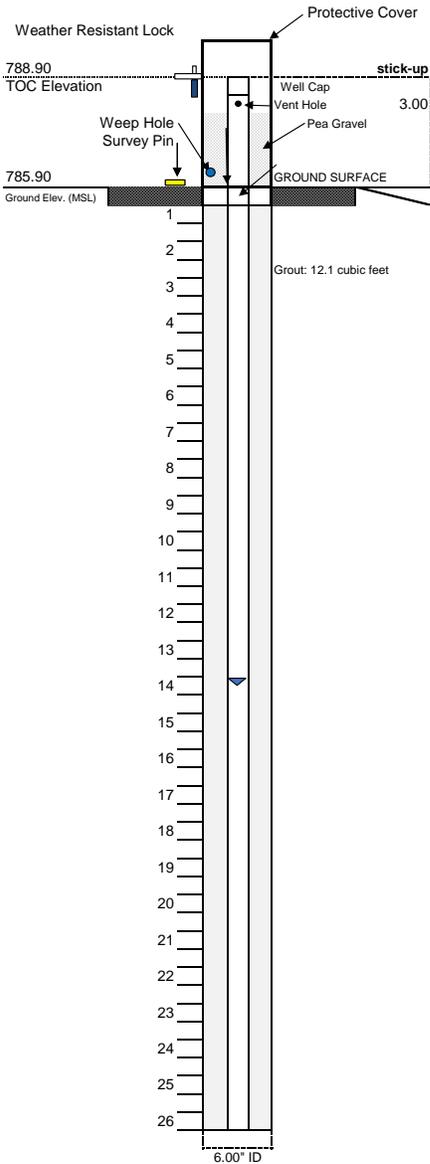
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The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

ACC
ATLANTIC COAST CONSULTING, INC.

YAMW-5
BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	1054-110
TOTAL DEPTH:	90.66 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	12-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	13-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	35' BGS		
WATER AFTER 48 HOURS:	11.21' BGS		



Northing: 1256140.21
Easting: 2074486.69

SURFACE COMPLETION:
4"x4" Aluminum Protective Casing
4"x4"x4" Concrete Pad
Weather Resistant Lock
Survey Pin

SOIL DESCRIPTION
0-10' Hydrovac. No observable cuttings

Core Photos

9-19' tan to pale brown. Silty sand (SC) with some silt and clays, moist to dry, soft, some saprolite. (10/10)

19-29' As above (9/10).



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex

Soil Descriptions from Unified Soil Classification System

BTOC - Below Top of Casing
ID - Inside Diameter; OD - Outside Diameter
MSL - Mean Sea Level
BGS - Below Ground Surface

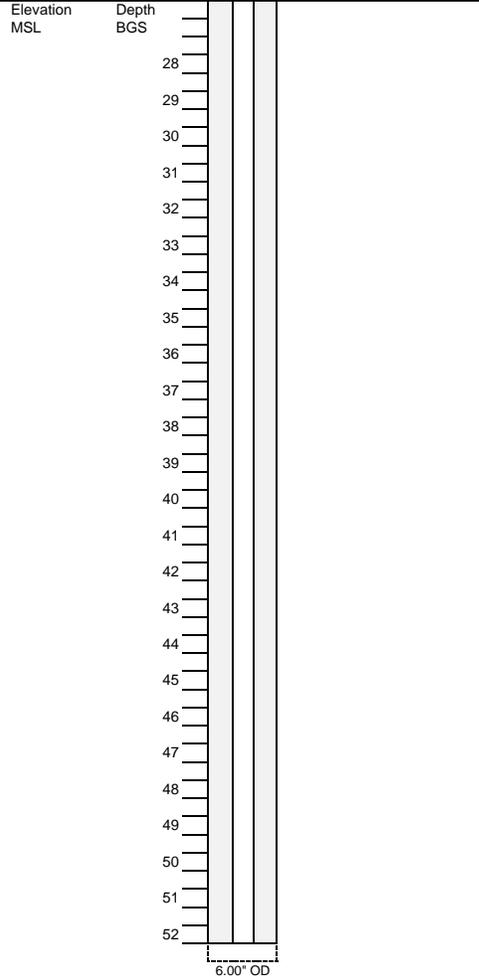


ATLANTIC COAST CONSULTING, INC.

YAMW-5
BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	1054-110
TOTAL DEPTH:	90.66 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	12-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	13-Nov-2019	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	35' BGS		
WATER AFTER 48 HOURS:	11.21' BGS		

Core Photos



29-39' Harder drilling. Gneissic banding with schist. Iron and manganese staining. Some fractures present.

39-49' As above except no iron staining (7/10)

49-59' As above (8/10)



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pei-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
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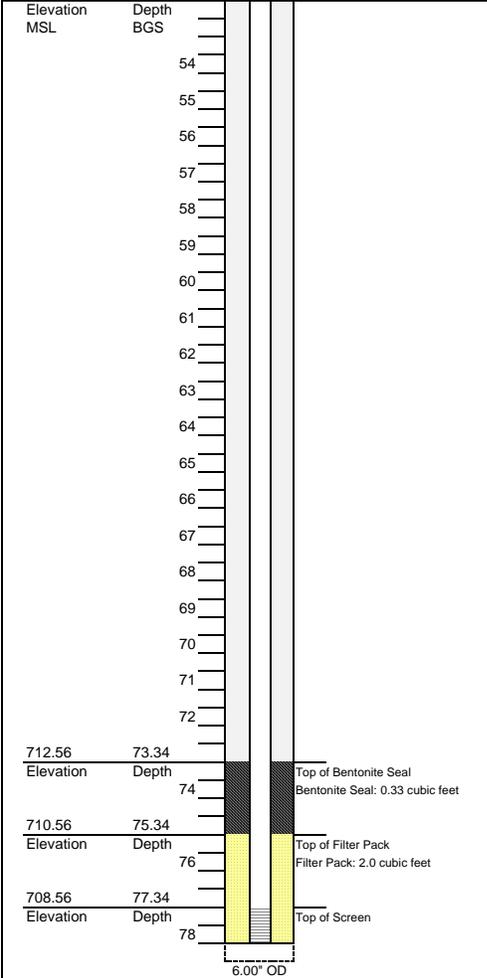
ATLANTIC COAST CONSULTING, INC.

YAMW-5

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	90.66 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	12-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	13-Nov-2019	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	35' BGS		
WATER AFTER 48 HOURS:	11.21' BGS		

Core Photos



59-69' As above except more competent rock. Iron staining and fractures present (6/10)

69-79' As above except no iron staining (9/10)



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pei-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

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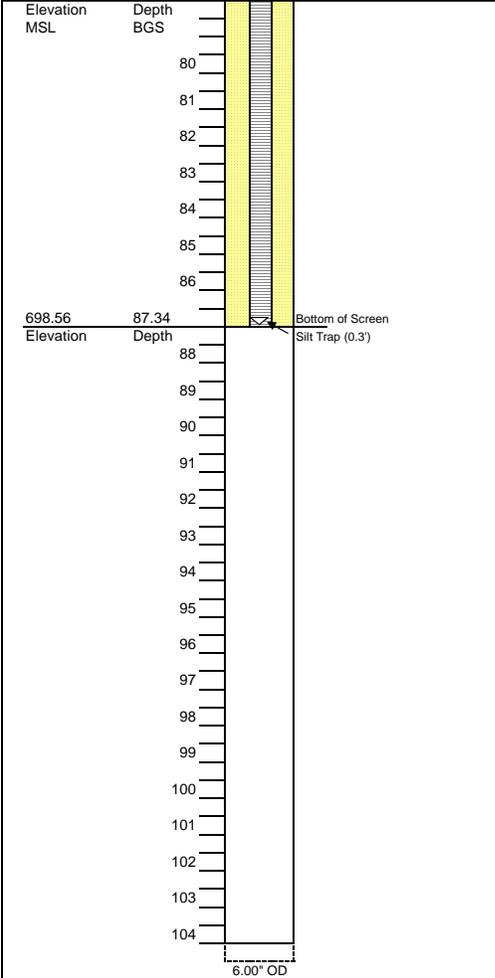
ATLANTIC COAST CONSULTING, INC.

YAMW-5

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	90.66 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	12-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	13-Nov-2019	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	35' BGS		
WATER AFTER 48 HOURS:	11.21' BGS		

Core Photos



79-87' As above except rock slightly weathered. Iron staining and some fractures present (6/10)

Total well depth 87.64' BGS



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pei-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
 MSL - Mean Sea Level
 BGS - Below Ground Surface

COPY

Bond Number K08315607

Performance Bond For Water Well Contractors And Drillers

Name of Water Well Contractor or Driller Michael C. Rice/Cascade Drilling, L.P.

Know All Men By These Present

That we Michael C. Rice/Cascade Drilling, L.P. AND ANY AND ALL EMPLOYEES, OFFICERS AND PARTNERS, as Principal, and Westchester Fire Insurance Company as Surety, are held and firmly bound unto the Director of the Environmental Protection Division (Director), Department of Natural Resources, State of Georgia and his or her Successor or Successors in office, as Obligee, in the full sum of **TWENTY THOUSAND AND NO/00 DOLLARS (\$20,000.00)** for the payment of which will and truly to be made, we bind ourselves, our heir, administrators, successors and assigns, jointly and severally, by the present.

WHEREAS, the WATER WELL STANDARDS ACT OF 1985 (Ga. Laws 1985, p. 1192) (the "ACT") requires that water well contractors and drillers file performance bonds with the director to ensure compliance with the ACT; and WHEREAS the above bound PRINCIPAL is subject to the terms and provisions of said ACT. NOW, THEREFORE, the conditions of this obligation are such that if the above bound PRINCIPAL shall fully and faithfully perform the duties and in all things comply with the procedures and standards set forth in the ACT as now and hereafter amended, and the rules and regulations promulgated pursuant thereto, including but not limited to the correction of any violation of such procedures and standards upon discovery, irrespective of whether such discovery is made before completion of any well subject to this bond, then this obligation shall be void; otherwise of full force and effect.

And Surety, for value received, agrees that no amendment to existing laws, rules or regulations, or adoption of new laws, rules or regulations shall in anyway discharge its obligation on this bond, and does hereby waive notice of any such amendment, adoption or modification.

This bond shall be effective from date of issuance and shall continue in effect until terminated by expiration, mutual agreement or cancellation upon sixty (60) days written notice to Principal and Obligee; provided that the rights of the obligee and beneficiaries under this bond which arose prior to such termination shall continue.

The bond is effective 9/20/13 and unless sooner terminated, this bond shall terminate June 30, 2015. In Witness Thereof the Principal and Surety have caused these present to be duly signed and sealed, this 20th day of September 2013.

Michael C. Rice/Cascade Drilling, L.P.

PRINCIPAL, BY _____ (L.S.) TITLE: _____
Westchester Fire Insurance Company

SURETY BY: Roxana Palacios
Roxana Palacios, Attorney-in-Fact

GEORGIA REGISTERED AGENT N/A SEAL:

Revised December 2012

CLIENT'S COPY

SURETY BOND CONTINUATION CERTIFICATE

TO: State of Georgia
Division of Environmental Protection
2 Martin Luther King Jr. Drive SE
Suite 1252
Atlanta, GA 30334

To be attached to and form a part of: Performance Bond for Well Contractors and Drillers

Principal on the Bond: Michael C. Rice/Cascade Drilling, L.P.

Surety Bond Number: K08315607

Bond Amount: Twenty Thousand and 00/100 Dollars (\$20,000.00)

In consideration of the agreed premium charged for this bond, it is understood and agreed that the following change shall be made to this obligation:

[x] CONTINUATION CERTIFICATE

This certificate extends the life of the bond to June 30, 2017. It is executed upon the express condition that the surety's liability under said bond, together with this and all previous continuation certificates, shall not be cumulative and shall in no event exceed the amount specifically set forth in said bond or any existing certificate changing the amount of said bond.

Signed, sealed and dated this 26th day of May , 2015 .

Westchester Fire Insurance Company

By: Katie S

Katie Snider, Attorney-in-Fact

Surety of Record: Westchester Fire Insurance Company
436 Walnut Street
Philadelphia, PA 19106
Phone: (415) 547-4513

Agent of Record: Kibble & Prentice, a USI Company
601 Union Street, Suite 1000
Seattle, WA 98101
Phone: (206) 441-6300

Power of Attorney

WESTCHESTER FIRE INSURANCE COMPANY

Know all men by these presents: That WESTCHESTER FIRE INSURANCE COMPANY, a corporation of the Commonwealth of Pennsylvania pursuant to the following Resolution, adopted by the Board of Directors of the said Company on December 11, 2006, to wit:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into the ordinary course of business (each a "Written Commitment"):

- (1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.
- (2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such persons written appointment as such attorney-in-fact.
- (3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (4) Each of the Chairman, the President and Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

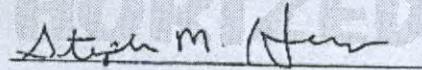
FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested.

Does hereby nominate, constitute and appoint Heather Allen, Holly E Ulfers, Katie Snider, Nancy N Hill, Roxana Palacios, Steven W Palmer, all of the City of SEATTLE, Washington, each individually if there be more than one named, its true and lawful attorney-in-fact, to make, execute, seal and deliver on its behalf, and as its act and deed any and all bonds, undertakings, recognizances, contracts and other writings in the nature thereof in penalties not exceeding Fifteen million dollars & zero cents (\$15,000,000.00) and the execution of such writings in pursuance of these presents shall be as binding upon said Company, as fully and amply as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office,

IN WITNESS WHEREOF, the said Stephen M. Haney, Vice-President, has hereunto subscribed his name and affixed the Corporate seal of the said WESTCHESTER FIRE INSURANCE COMPANY this 22 day of December 2014.

WESTCHESTER FIRE INSURANCE COMPANY




Stephen M. Haney, Vice President

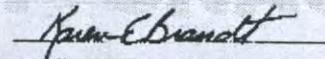
COMMONWEALTH OF PENNSYLVANIA
COUNTY OF PHILADELPHIA ss.

On this 22 day of December, AD. 2014 before me, a Notary Public of the Commonwealth of Pennsylvania in and for the County of Philadelphia came Stephen M. Haney, Vice-President of the WESTCHESTER FIRE INSURANCE COMPANY to me personally known to be the individual and officer who executed the preceding instrument, and he acknowledged that he executed the same, and that the seal affixed to the preceding instrument is the corporate seal of said Company; that the said corporate seal and his signature were duly affixed by the authority and direction of the said corporation, and that Resolution, adopted by the Board of Directors of said Company, referred to in the preceding instrument, is now in force.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at the City of Philadelphia the day and year first above written.



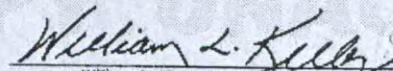
COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
KAREN E. BRANDT, Notary Public
City of Philadelphia, Phila. County
My Commission Expires Sept. 26, 2018


Notary Public

I, the undersigned Assistant Secretary of the WESTCHESTER FIRE INSURANCE COMPANY, do hereby certify that the original POWER OF ATTORNEY, of which the foregoing is a substantially true and correct copy, is in full force and effect.

In witness whereof, I have hereunto subscribed my name as Assistant Secretary, and affixed the corporate seal of the Corporation, this 26th day of May, 2015.




William L. Kelly, Assistant Secretary

THIS POWER OF ATTORNEY MAY NOT BE USED TO EXECUTE ANY BOND WITH AN INCEPTION DATE AFTER December 22, 2016.



COPY

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company

, Surety upon

a certain Bond No. **800031223**

dated effective June 30, 2017
(MONTH-DAY-YEAR)

on behalf of Michael C. Rice and Cascade Drilling, L.P., any and all employees, officers and partners
(PRINCIPAL)

and in favor of State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2019
(MONTH-DAY-YEAR)

and ending on June 30, 2021
(MONTH-DAY-YEAR)

Amount of bond Thirty Thousand and Zero/100 (\$30,000.00)

Description of bond Water Well Contractor Performance Bond

Premium: \$1,200.00

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on May 9, 2019
(MONTH-DAY-YEAR)
Atlantic Specialty Insurance Company

By _____
Attorney-in-Fact Elizabeth R. Hahn

Parker, Smith & Feek, Inc.
Agent

2233 112th Ave NE Bellevue, WA 98004
Address of Agent

(425) 709-3600
Telephone Number of Agent

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher, Andrew P. Larsen, Nicholas Fredrickson**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **sixty million dollars (\$60,000,000)** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

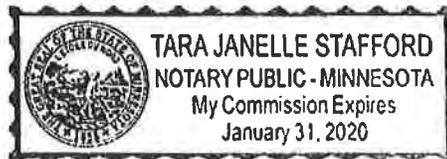
IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-sixth day of October, 2017.



By 
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

On this twenty-sixth day of October, 2017, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.



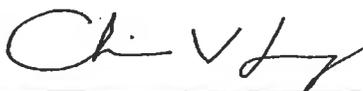

Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 9 day of May, 2019

This Power of Attorney expires
October 1, 2019




Christopher V. Jerry, Secretary

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company

, Surety upon

a certain Bond No. 800033976

dated effective 09/27/2017
(MONTH-DAY-YEAR)

on behalf of Ricky Davis / Cascade Drilling, L.P.
(PRINCIPAL)

and in favor of Department of Natural Resources, State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on 06/30/2021
(MONTH-DAY-YEAR)

and ending on 06/30/2023
(MONTH-DAY-YEAR)

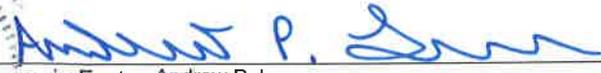
Amount of bond Thirty Thousand and 00/100 Dollars (\$30,000.00)

Description of bond Performance Bond for Water Well Contractors

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on April 12th, 2021
(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

By 
Attorney-in-Fact Andrew P. Larsen

Parker, Smith & Feek, Inc.

Agent
2233 112th Ave NE Bellevue, WA 98004

Address of Agent

425-709-3600

Telephone Number of Agent



Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher, Andrew P. Larsen, Nicholas Fredrickson, William M. Smith, Derek Sabo, Charla M. Boadle**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **unlimited** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

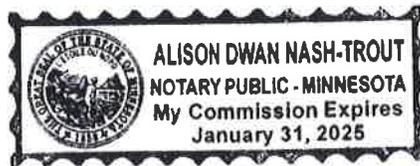
IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-seventh day of April, 2020.



By *Paul J. Brehm*
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

On this twenty-seventh day of April, 2020, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

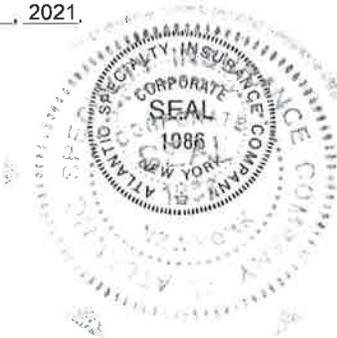


Alison Nash-Trout
Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 12 day of April, 2021.

This Power of Attorney expires
January 31, 2025



Kara Barrow
Kara Barrow, Secretary

CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America

, Surety upon

a certain Bond No. **4993104**

dated effective June 30, 1987
(MONTH-DAY-YEAR)

on behalf of Southern Company Services, Inc.
(PRINCIPAL)

and in favor of Georgia Department of Natural Resources, Environmental Protection Division
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2021
(MONTH-DAY-YEAR)

and ending on June 30, 2022
(MONTH-DAY-YEAR)

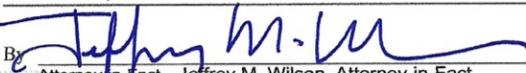
Amount of bond Fifteen Thousand Dollars and 00/100 (\$15,000.00)

Description of bond Water Well Contractors & Drillers

Premium: \$100.00

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on 05/06/2021
(MONTH-DAY-YEAR)
SAFECO Insurance Company of America
175 Berkeley Street, Boston, MA 02116

By 
Attorney-in-Fact Jeffrey M. Wilson, Attorney-in-Fact

McGriff Insurance Services, Inc.
Agent

2211 7th Avenue South, Birmingham, AL 35233
Address of Agent

(205) 252-9871
Telephone Number of Agent



This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

American States Insurance Company
First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

Certificate No: 8205019-016032

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American States Insurance Company is a corporation duly organized under the laws of the State of Indiana, that First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Alisa B. Ferris; Anna Childress; Jeffrey M. Wilson; Mark W. Edwards II, Richard H. Mitchell, Robert R. Frecl; Sam Audia; William M. Smith

all of the city of Birmingham state of AL each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 11th day of March, 2021.

American States Insurance Company
First National Insurance Company of America
General Insurance Company of America
Safeco Insurance Company of America

By: David M. Carey, Assistant Secretary



State of PENNSYLVANIA ss
County of MONTGOMERY

On this 11th day of March, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-law and Authorizations of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS: Section 12. Power of Attorney.

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 6th day of May, 2021.



By: Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

Bond Number: 106717740

Performance Bond For Water Well Contractors

Name of Water Well Contractor TONY BETTS db/a - DBA BETTS ENVIRONMENTAL RECOVERY, AND BLAKE CABIT, MALCOM SANDERS, /

Know All Men By These Presents

That we **TONY BETTS** _____ and _____

DBA BETTS ENVIRONMENTAL RECOVERY, AND BLAKE CABIT, MALCOM SANDERS, AND RYAN MCCORMACK any and all employees, officers and partners (collectively

hereinafter, **Principal**), and we **Travelers Casualty and Surety Company of America**, duly organized under the laws of the State of **CONNECTICUT** (hereinafter, **Surety**), are held and firmly bound unto the Director of the Environmental Protection Division, Department of Natural Resources, State of Georgia (**Director**) and his or her successor or successors in office, as **Obligee**, in the full sum of **THIRTY THOUSAND DOLLARS (\$30,000.00)** for the payment of which will and truly to be made, the Principal and Surety bind ourselves, our heirs, administrators, successors and assigns, jointly and severally, by these presents.

WHEREAS, the Water Well Standards Act of 1985 (O.C.G.A. §§ 12-5-120 *et seq.*) (the Act) requires that a Water Well Contractor, as that term is defined by the Act, have a performance bond with the Director to ensure compliance with the Act; and WHEREAS the above bound Principal is subject to the terms and provisions of said Act.

NOW, THEREFORE, the conditions of this obligation are such that if the above bound Principal shall fully and faithfully perform the duties and in all things comply with the procedures and standards set forth in the Act as now and hereafter amended, and the rules and regulations promulgated pursuant thereto, including but not limited to the correction of any violation of such procedures and standards upon discovery, irrespective of whether such discovery is made before completion of any well subject to this bond, then this obligation shall be void; otherwise it shall remain in full force and effect.

And Surety, for value received, agrees that no amendment to existing laws, rules or regulations, or adoption of new laws, rules or regulations shall in anyway discharge its obligation on this bond, and does hereby waive notice of any such amendment, adoption or modification.

This bond shall be effective from the 30 day of June, 2023 and shall continue in effect until June 30, 2025, unless sooner terminated by mutual agreement of Principal and Surety, provided that no such termination may be made unless sixty (60) days' prior written notice is made to the Director. In the event of such termination, the rights of the Director as Obligee and beneficiaries under this bond which arose prior to such termination shall continue.

IN WITNESS THEREOF the Principal and Surety have caused these present to be duly signed and sealed, this the 01 day of April, 2023.

Principal
TONY BETTS

Surety
Travelers Casualty and Surety Company of America





Print name: **Tony Betts**
Title: **CEO**

Print name: **Russell E. Vance**
Title: **Attorney-in-Fact**





**Travelers Casualty and Surety Company of America
Travelers Casualty and Surety Company
St. Paul Fire and Marine Insurance Company
Farmington Casualty Company**

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, St. Paul Fire and Marine Insurance Company, and Farmington Casualty Company are corporations duly organized under the laws of the State of Connecticut (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint **Russell E. Vance**, of **Hartford, CT**, their true and lawful Attorney(s)-in-Fact, to sign, execute, seal and acknowledge the following bond:

Surety Bond No.: 106717740

**Principal: TONY BETTS d/b/a - DBA BETTS ENVIRONMENTAL RECOVERY, AND
BLAKE CABIT, MALCOM SANDERS, AND RYAN MCCORMACK**

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this **21st** day of **April, 2021**.



State of Connecticut

City of Hartford ss.

By: 
Robert L. Raney, Senior Vice President

On this the **21st** day of **April, 2021**, before me personally appeared **Robert L. Raney**, who acknowledged himself to be the Senior Vice President of each of the Companies, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of said Companies by himself as a duly authorized officer.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission expires the **30th** day of **June, 2026**




Anna P. Nowik, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of each of the Companies, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, **Kevin E. Hughes**, the undersigned, Assistant Secretary of each of the Companies, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which remains in full force and effect.

Dated this 01 day of April, 2023.




Kevin E. Hughes, Assistant Secretary

**To verify the authenticity of this Power of Attorney, please call us at 1-800-421-3880.
Please refer to the above-named Attorney(s)-in-Fact and the details of the bond to which this Power of Attorney is attached.**

Mr. Joju Abraham
Southern Company
Environmental Solutions
241 Ralph McGill Blvd, NE
Atlanta, Georgia 30308

Arcadis U.S., Inc.
1210 Premier Drive
Suite 200
Chattanooga
Tennessee 37421
Tel 423 756 7193
Fax 423 756 7197
www.arcadis-us.com

Subject:
Monitoring Well and Piezometer Surveys
Plant Yates, 708 Dyer Road, Newnan, Georgia

Date:
June 29, 2020

Dear Mr. Abraham:

Contact:
Cory Williams, PLS

Attached is a copy of the reports for the Monitoring Well and Piezometer Surveys for the Phase I and Phase II Sites at Plant Yates. The Phase I and Phase II sites surveyed include the following specific areas:

Phone:
919.415.2348

- AMA, Ash Management Area
- AP-1, Former Ash Pond 1
- AP-2, Ash Pond 2
- Gypsum Landfill

Email:
cory.williams@arcadis.com

We appreciate the opportunity to work with Georgia Power and look forward to working with you in the future. If you need additional information, please feel free to contact me.

Our ref:
30054533

Sincerely,

Arcadis U.S., Inc.



A. Cory Williams, PLS
Survey Department Manager

Attachments

Copies:
Geoffrey Gay, PE
Rick Helmadollar, PE
A. Lee Robertson IV, PLS

DESCRIPTION AND SCOPE

The task included performing horizontal and vertical field survey locations of the existing well networks (including all monitoring wells and piezometers). The Arcadis field survey team obtained horizontal and vertical locations for the top of the well casing (TOC) and surveyed the nail located on the concrete pad around the well. Where no nail was present, the field crew surveyed the top of the concrete well pad. The Arcadis field team utilized a combination of Leica GS16 Global Positioning System (GPS) with traditional Leica MS60 Robotic Total Station field survey equipment and methods to obtain horizontal locations of the TOC and/or nail or top of the concrete well pad. All horizontal field survey locations are relative to the Georgia State Plane Coordinate System, West Zone, NAD1983, US Survey Feet. All horizontal locations meet or exceed an accuracy level of 0.50 foot. All vertical field survey locations were obtained from a level loop, performed with the Leica DNA03 digital level. Next, we began from a benchmark set, by utilizing GPS Static Session with an OPUS solution and subsequently verified via the eGPS RTN Network and ran through all well and piezometer locations to close on the beginning benchmark to confirm accuracy. All vertical elevations are referenced to NAVD1988, US Survey Feet and meet an accuracy standard of 0.01 foot.

See the attached exhibits detailing the Monitoring Well and Piezometer surveyed locations for each Phase I and Phase II site.

SUMMARY

The field survey crew performed the survey in June 2020 with the findings or observations summarized below:

- The ground elevation survey location was taken adjacent to the concrete base point (PK, Disk or Chiseled X). Note that at some locations, the concrete base was buried under soil; consequently, the ground elevation is higher than the concrete base point location.
- The horizontal location for monitoring well GWC-6R at the Gypsum Landfill is approximately +/-51 feet southeasterly of the provided coordinate location as detailed in “Georgia Power Company Plant Yates, Private Industrial Landfill, Permit No. 038-014D (I), Replacement Monitoring Well GWC-6R Certification, ES1703”, dated July 2010. See attached Photograph Log.

Monitoring Well Summary

Site	Monitoring Wells	Piezometers
AMA = Ash Management Area	25	8
AP-1 = Former Ash Pond 1	5	5
AP-2 = Ash Pond 2	14	8
Gypsum Landfill	7	0

CERTIFICATION

I, A. Lee Robertson IV, being a Georgia Licensed Professional Land Surveyor, in accordance with the Georgia Board of Professional Engineers and Land Surveyors do hereby certify that the information contained herein is true and correct and has been prepared in accordance with generally accepted good land survey practices under my supervision, and the data is reliable to a horizontal accuracy of 0.5 foot and an elevational accuracy of 0.01 foot for each surveyed point.

FINAL REVIEW:

A. Lee Robertson IV

DATE: June 29, 2020



Digitally signed by A Lee
Robertson IV
Reason: Revised Yates
Date: 2020.08.06 09:22:42
-04'00'

A. Lee Robertson IV, ARM, PLS, PSM
1301 Riverplace Blvd., Suite 700
Jacksonville, FL 32207
904.493.8589



EXHIBIT 1



Plant Yates – AMA Monitoring Well and Piezometer Surveys

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
YGWA-4I	Casing	784.21	1254436.68	2075455.62	33° 26' 47.432" N	84° 53' 29.831" W
	Disk	782.00	1254436.75	2075456.65		
	Ground	781.9				
YGWA-5I	Casing	784.54	1254399.95	2076218.86	33° 26' 47.122" N	84° 53' 20.821" W
	Disk	782.21	1254400.71	2076219.39		
	Ground	782.1				
YGWA-5D	Casing	784.53	1254396.67	2076223.63	33° 26' 47.089" N	84° 53' 20.764" W
	Disk	782.16	1254397.45	2076224.30		
	Ground	781.9				
YGWA-17S	Casing	783.05	1257602.79	2076758.31	33° 27' 18.846" N	84° 53' 14.717" W
	PK Nail	780.14	1257603.70	2076758.38		
	Ground	780.2				
YGWA-18S	Casing	790.57	1257116.05	2077015.25	33° 27' 14.048" N	84° 53' 11.644" W
	PK Nail	787.69	1257116.98	2077015.60		
	Ground	787.6				
YGWA-18I	Casing	790.57	1257090.05	2077015.82	33° 27' 13.791" N	84° 53' 11.635" W
	PK Nail	787.90	1257094.38	2077023.55		
	Ground	787.9				
YGWA-20S	Casing	767.12	1255531.55	2077410.37	33° 26' 58.399" N	84° 53' 06.851" W
	PK Nail	764.41	1255531.12	2077409.22		
	Ground	764.6				
YGWA-21I	Casing	783.70	1255538.27	2076768.14	33° 26' 58.421" N	84° 53' 14.432" W
	PK Nail	780.62	1255537.44	2076768.81		
	Ground	780.8				
YGWC-23S	Casing	764.91	1256366.93	2074734.07	33° 27' 06.479" N	84° 53' 38.506" W
	PK Nail	761.74	1256367.40	2074734.44		
	Ground	762.0				
YGWC-24SA	Casing	765.00	1258907.98	2073924.81	33° 27' 31.563" N	84° 53' 48.268" W
	PK Nail	762.08	1258909.02	2073924.05		
	Ground	762.0				
YGWC-36	Casing	739.61	1258514.02	2073770.14	33° 27' 27.654" N	84° 53' 50.061" W
	PK Nail	737.04	1258513.74	2073771.01		
	Ground	736.9				
YGWC-49	Casing	782.73	1259375.23	2074337.51	33° 27' 36.214" N	84° 53' 43.435" W
	PK Nail	780.11	1259375.91	2074337.14		
	Ground	780.1				

EXHIBIT 1



Plant Yates – AMA Monitoring Well and Piezometer Surveys

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
YGWA-6S	Casing	782.47	1260484.87	2074786.49	33° 27' 47.223" N	84° 53' 38.227" W
	Disk	780.06	1260485.50	2074785.70		
	Ground	779.8				
YGWA-6I	Casing	782.73	1260490.02	2074790.49	33° 27' 47.275" N	84° 53' 38.181" W
	Disk	780.36	1260490.74	2074789.66		
	Ground	780.2				
YAMW-1	Casing	743.83	1258602.12	2073814.55	33° 27' 28.529" N	84° 53' 49.543" W
	PK Nail	741.11	1258602.93	2073815.29		
	Ground	740.9				
PZ-04S	Casing	784.25	1254442.86	2075454.20	33° 26' 47.493" N	84° 53' 29.848" W
	Disk	781.94	1254443.16	2075455.15		
	Ground	781.8				
PZ-05S	Casing	784.64	1254404.42	2076211.43	33° 26' 47.165" N	84° 53' 20.909" W
	Disk	782.31	1254405.12	2076212.12		
	Ground	782.2				
PZ-06D	Casing	782.02	1260480.15	2074782.68	33° 27' 47.176" N	84° 53' 38.272" W
	Disk	779.65	1260480.84	2074782.04		
	Ground	779.5				
PZ-24IA	Casing	764.65	1258910.76	2073930.07	33° 27' 31.591" N	84° 53' 48.206" W
	PK Nail	761.89	1258911.68	2073929.64		
	Ground	761.8				
PZ-35	Casing	743.81	1258593.16	2073805.60	33° 27' 28.440" N	84° 53' 49.649" W
	PK Nail	741.09	1258593.85	2073806.06		
	Ground	740.9				
PZ-48	Casing	779.83	1259868.04	2074528.00	33° 27' 41.103" N	84° 53' 41.228" W
	PK Nail	777.29	1259868.75	2074527.27		
	Ground	777.2				
YGWA-39	Casing	818.19	1255717.13	2073865.58	33° 26' 59.990" N	84° 53' 48.702" W
	PK Nail	815.58	1255717.96	2073865.39		
	Ground	815.6				
YGWA-40	Casing	815.73	1255791.95	2073431.34	33° 27' 00.700" N	84° 53' 53.833" W
	PK Nail	813.45	1255792.83	2073431.58		
	Ground	813.5				

EXHIBIT 1



Plant Yates – AMA Monitoring Well and Piezometer Surveys

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
YGWC-38	Casing	799.69	1256108.38	2074446.80	33° 27' 03.901" N	84° 53' 41.875" W
	PK Nail	797.24	1256108.41	2074446.02		
	Ground	797.1				
YGWC-41	Casing	803.92	1256510.62	2073274.41	33° 27' 07.799" N	84° 53' 55.745" W
	PK Nail	801.23	1256509.74	2073274.29		
	Ground	801.1				
YGWC-42	Casing	797.86	1256882.87	2073326.52	33° 27' 11.486" N	84° 53' 55.161" W
	PK Nail	795.34	1256881.68	2073326.58		
	Ground	795.1				
YGWC-43	Casing	744.96	1257547.41	2073199.65	33° 27' 18.052" N	84° 53' 56.714" W
	PK Nail	742.50	1257546.78	2073200.55		
	Ground	742.3				
PZ-37	Casing	760.78	1256471.14	2074699.59	33° 27' 07.508" N	84° 53' 38.922" W
	PK Nail	758.10	1256471.89	2074700.06		
	Ground	758.0				
PZ-51	Casing	744.30	1257595.80	2073182.55	33° 27' 18.529" N	84° 53' 56.920" W
	PK Nail	741.23	1257595.53	2073181.53		
	Ground	741.3				
YAMW-2	Casing	781.04	1256780.59	2072924.89	33° 27' 10.446" N	84° 53' 59.893" W
	PK Nail	777.81	1256781.38	2072926.79		
	Ground	777.9				
YAMW-3	Casing	796.05	1256915.25	2073345.21	33° 27' 11.808" N	84° 53' 54.943" W
	PK Nail	792.98	1256914.96	2073344.24		
	Ground	793.2				
YAMW-4	Casing	805.59	1256532.64	2073280.71	33° 27' 08.018" N	84° 53' 55.673" W
	PK Nail	802.60	1256532.72	2073281.78		
	Ground	802.6				
YAMW-5	Casing	788.90	1256140.21	2074486.69	33° 27' 04.219" N	84° 53' 41.407" W
	PK Nail	785.87	1256139.54	2074487.44		
	Ground	785.9				

Notes:

NAD83(2011) coordinates established by utilizing eGPS VRS & OPUS Solutions

Elevations derived from Arcadis BM#1 (El. 758.24)

Elevations & coordinates are U.S. Survey feet

EXHIBIT 2



Plant Yates – AP-1 Monitoring Well and Piezometer Surveys

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
YGWA-47	Casing	758.22	1262411.84	2071818.05	33° 28' 06.081" N	84° 54' 13.428" W
	PK Nail	755.73	1262410.74	2071817.99		
	Ground	755.6				
YGWC-44	Casing	758.35	1261874.34	2071219.39	33° 28' 00.721" N	84° 54' 20.449" W
	PK Nail	755.7	1261874.44	2071218.47		
	Ground	755.5				
YGWC-45	Casing	719.36	1261668.95	2070912.60	33° 27' 58.667" N	84° 54' 24.053" W
	PK Nail	716.72	1261668.87	2070911.87		
	Ground	716.5				
YGWC-52	Casing	755.86	1262145.22	2071464.36	33° 28' 03.418" N	84° 54' 17.580" W
	PK Nail	752.99	1262144.65	2071465.21		
	Ground	752.9				
YGWC-46A	Casing	733.04	1260994.59	2070970.30	33° 27' 52.000" N	84° 54' 23.316" W
	PK Nail	730.16	1260994.40	2070971.40		
	Ground	730.1				
PZ-09S	Casing	712.08	1262003.49	2070720.43	33° 28' 01.963" N	84° 54' 26.350" W
	Disk	709.90	1262003.23	2070721.54		
	Ground	709.8				
PZ-09I	Casing	712.13	1261995.81	2070720.09	33° 28' 01.887" N	84° 54' 26.353" W
	Disk	709.92	1261995.51	2070721.11		
	Ground	709.8				
PZ-10S	Casing	700.43	1260802.29	2070552.32	33° 27' 50.068" N	84° 54' 28.233" W
	Disk	698.02	1260802.21	2070553.31		
	Ground	698.1				
PZ-10I	Casing	700.25	1260809.64	2070551.98	33° 27' 50.068" N	84° 54' 28.233" W
	Disk	697.96	1260809.55	2070552.97		
	Ground	697.8				
PZ-53	Casing	732.90	1260964.50	2070920.38	33° 27' 51.698" N	84° 54' 23.902" W
	PK Nail	729.99	1260964.35	2070921.22		
	Ground	729.9				

Notes:

NAD83(2011) coordinates established by utilizing eGPS VRS & OPUS Solutions

Elevations derived from Arcadis BM#1 (El. 758.24)

Elevations & coordinates are U.S. Survey feet

EXHIBIT 3



Plant Yates – AP-2 Monitoring Well and Piezometer Surveys

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
YGWA-1I	Casing	836.60	1256876.13	2070097.91	33° 27' 11.193" N	84° 54' 33.266" W
	Disk	834.33	1256876.76	2070098.84		
	Ground	834.3				
YGWA-1D	Casing	837.25	1256867.34	2070104.61	33° 27' 11.106" N	84° 54' 33.186" W
	Disk	835.04	1256868.01	2070105.52		
	Ground	834.9				
YGWA-2I	Casing	866.25	1256144.08	2070790.49	33° 27' 03.999" N	84° 54' 25.030" W
	Disk	864.2	1256144.35	2070791.29		
	Ground	864.0				
YGWA-3I	Casing	796.55	1256405.20	2072024.20	33° 27' 06.669" N	84° 54' 10.492" W
	Disk	794.34	1256405.65	2072025.23		
	Ground	794.0				
YGWA-3D	Casing	796.78	1256399.94	2072026.21	33° 27' 06.617" N	84° 54' 10.468" W
	Disk	794.39	1256400.26	2072027.12		
	Ground	794.1				
YGWA-14S	Casing	748.76	1257828.64	2072537.24	33° 27' 20.788" N	84° 54' 04.555" W
	Disk	746.58	1257829.68	2072537.61		
	Ground	746.8				
YGWA-30I	Casing	762.58	1258421.86	2071107.11	33° 27' 26.556" N	84° 54' 21.485" W
	PK Nail	759.95	1258421.69	2071106.13		
	Ground	760.1				
YGWC-26S	Casing	716.28	1259734.66	2070615.87	33° 27' 39.510" N	84° 54' 27.393" W
	PK Nail	713.17	1259734.57	2070614.87		
	Ground	713.1				
YGWC-26I	Casing	715.91	1259725.79	2070613.56	33° 27' 39.422" N	84° 54' 27.420" W
	PK Nail	713.21	1259725.80	2070612.71		
	Ground	713.1				
YGWC-27S	Casing	716.52	1259417.12	2070454.17	33° 27' 36.357" N	84° 54' 29.275" W
	PK Nail	713.27	1259416.33	2070454.96		
	Ground	713.0				
YGWC-27I	Casing	716.19	1259423.73	2070460.89	33° 27' 36.423" N	84° 54' 29.196" W
	PK Nail	713.35	1259423.32	2070461.64		
	Ground	713.2				
YGWC-28S	Casing	717.95	1259218.37	2070322.23	33° 27' 34.381" N	84° 54' 30.816" W
	PK Nail	715.09	1259217.72	2070323.07		
	Ground	715.0				

EXHIBIT 3



Plant Yates – AP-2 Monitoring Well and Piezometer Surveys

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
YGWC-28I	Casing	717.93	1259226.47	2070328.27	33° 27' 34.462" N	84° 54' 30.745" W
	PK Nail	715.06	1259225.93	2070329.06		
	Ground	715.0				
YGWC-29I	Casing	717.39	1258974.06	2070203.26	33° 27' 31.956" N	84° 54' 32.199" W
	PK Nail	714.94	1258973.51	2070203.93		
	Ground	714.8				
PZ-01S	Casing	836.84	1256871.97	2070101.24	33° 27' 11.152" N	84° 54' 33.226" W
	Disk	834.73	1256874.29	2070101.35		
	Ground	834.5				
PZ-03S	Casing	796.39	1256410.86	2072021.63	33° 27' 06.725" N	84° 54' 10.523" W
	Disk	794.31	1256411.38	2072022.63		
	Ground	794.0				
PZ-13S	Casing	807.79	1257849.98	2069810.25	33° 27' 20.807" N	84° 54' 36.743" W
	Disk	805.59	1257848.97	2069810.38		
	Ground	805.5				
PZ-13I	Casing	807.62	1257850.30	2069817.10	33° 27' 20.811" N	84° 54' 36.662" W
	Disk	805.42	1257849.17	2069817.19		
	Ground	805.4				
PZ-14I	Casing	749.06	1257826.16	2072542.59	33° 27' 20.764" N	84° 54' 04.492" W
	Disk	746.84	1257827.25	2072543.09		
	Ground	747.2				
PZ-25S	Casing	766.60	1258856.99	2073497.99	33° 27' 31.029" N	84° 53' 53.301" W
	PK Nail	763.77	1258857.85	2073498.45		
	Ground	763.8				
PZ-25I	Casing	766.38	1258860.75	2073491.10	33° 27' 31.065" N	84° 53' 53.383" W
	PK Nail	763.69	1258861.69	2073491.62		
	Ground	763.8				
PZ-31S	Casing	738.62	1258313.70	2072820.25	33° 27' 25.606" N	84° 54' 01.256" W
	PK Nail	736.04	1258312.79	2072820.01		
	Ground	735.9				

Notes:

NAD83(2011) coordinates established by utilizing eGPS VRS & OPUS Solutions

Elevations derived from Arcadis BM#1 (El. 758.24)

Elevations & coordinates are U.S. Survey feet

EXHIBIT 4



Plant Yates – Gypsum Landfill Monitoring Well and Piezometer Surveys

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
GWA-2	Casing	805.62	1261383.11	2073509.98	33° 27' 56.021" N	84° 53' 53.370" W
	Bolt	803.25	1261383.21	2073507.93		
	Ground	803.1				
GWC-1R	Casing	773.27	1261869.77	2073279.85	33° 28' 00.820" N	84° 53' 56.127" W
	Bolt	770.69	1261868.10	2073281.57		
	Ground	770.5				
GWC-2R	Casing	769.76	1261942.15	2072755.92	33° 28' 01.499" N	84° 54' 02.317" W
	Bolt	767.13	1261944.58	2072756.60		
	Ground	766.8				
GWC-3R	Casing	775.25	1261647.10	2072841.28	33° 27' 58.586" N	84° 54' 01.285" W
	Bolt	772.32	1261646.62	2072843.63		
	Ground	772.2				
GWC-4R	Casing	757.48	1262046.56	2072953.68	33° 28' 02.546" N	84° 53' 59.992" W
	Bolt	754.88	1262044.70	2072955.00		
	Ground	754.6				
GWC-5R	Casing	782.45	1261439.91	2073027.56	33° 27' 56.550" N	84° 53' 59.069" W
	Bolt	779.69	1261441.13	2073029.78		
	Ground	780.0				
GWC-6R	Casing	788.98	1261732.91	2073479.40	33° 27' 59.480" N	84° 53' 53.760" W
	Bolt	785.95	1261730.98	2073478.53		
	Ground	785.6				

Notes:

NAD83(2011) coordinates established by utilizing eGPS VRS & OPUS Solutions
 Elevations derived from Arcadis BM#1 (El. 758.24)
 Elevations & coordinates are U.S. Survey feet

Ms. Lauren Coker
Southern Company
Environmental Solutions
241 Ralph McGill Blvd, NE
Atlanta, GA 30308

Arcadis U.S., Inc.
1210 Premier Drive
Suite 200
Chattanooga
Tennessee 37421
Tel 423 756 7193
Fax 423 756 7197
www.arcadis-us.com

Subject:
Piezometer Survey – PZ-37D
Plant Yates, 708 Dyer Road, Newnan, Georgia

Date:
May 11, 2021

Dear Ms. Coker:

Contact:
Cory Williams, RLS

Attached is a copy of the survey report for Piezometer PZ-37D at Plant Yates.

Phone:
919.415.2348

We appreciate the opportunity to work with Georgia Power and look forward to working with you in the future. If you need additional information, please feel free to contact me.

Email:
cory.williams@arcadis.com

Sincerely,
Arcadis U.S., Inc.

Our ref:
30086734



A. Cory Williams, RLS
Survey Department Manager

Attachments

Copies:
Geoffrey Gay, PE

DESCRIPTION AND SCOPE

Arcadis performed horizontal and vertical field survey locations of the existing well networks, including all monitoring wells and piezometers. The Arcadis field survey team obtained horizontal and vertical locations for the top of the well casing (TOC) and surveyed the nail located on the concrete pad around the well. Where no nail was present, the field crew surveyed the top of the concrete well pad.

The Arcadis field team utilized a combination of Leica GS16 Global Positioning System (GPS) with traditional Leica MS60 Robotic Total Station field survey equipment and methods to obtain horizontal locations of the TOC and/or nail or top of the concrete well pad. All horizontal field survey locations are relative to the Georgia State Plane Coordinate System, West Zone, NAD1983, US Survey Feet. All horizontal locations meet or exceed an accuracy level of 0.50 foot. All vertical field survey locations were obtained from a level loop, performed with the Leica DNA03 digital level.

Next, we began from a benchmark set by utilizing GPS Static Session with an OPUS solution and subsequently verified via the eGPS RTN Network and ran through all well and piezometer locations to close on the beginning benchmark to confirm accuracy. All vertical elevations are referenced to NAVD1988, US Survey Feet and meet an accuracy standard of 0.01 foot.

See the attached exhibit detailing the surveyed location for Piezometer PZ-37D.

CERTIFICATION

I, A. Cory Williams, being a Georgia Licensed Professional Land Surveyor, in accordance with the Georgia Board of Professional Engineers and Land Surveyors do hereby certify that the information contained herein is true and correct and has been prepared in accordance with generally accepted good land survey practices under my supervision, and the data is reliable to a horizontal accuracy of 0.5 foot and an elevational accuracy of 0.01 foot for each surveyed point.

FINAL REVIEW:

A. Cory Williams, RLS

DATE: May 11, 2021



A. Cory Williams, RLS
1210 Premier Drive, Suite 200
Chattanooga, TN 37421
919.415.2348

EXHIBIT 1

Plant Yates – AMA Monitoring Well and Piezometer Surveys

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
PZ-37D (added May 2021)	Casing	761.12	1256478.32	2074688.08	33° 27' 07.578" N	84° 53' 39.058" W
	Disk	758.87	1256479.07	2074688.90		
	Ground	758.8				

Notes:

NAD83(2011) coordinates established by utilizing eGPS VRS & OPUS Solutions
 Elevations derived from Arcadis BM#1 (El. 758.24)
 Elevations & coordinates are U.S. Survey feet

Ms. Lauren Coker
Southern Company
Environmental Solutions
241 Ralph McGill Blvd, NE
Atlanta, GA 30308

Arcadis U.S., Inc.
1210 Premier Drive
Suite 200
Chattanooga
Tennessee 37421
Tel 423 756 7193
Fax 423 756 7197
www.arcadis-us.com

Subject:
Piezometer Survey – PZ-52D, PZ-53D & YGWC-23S
Plant Yates, 708 Dyer Road, Newnan, Georgia

Date:
November 15, 2021

Dear Ms. Coker:

Contact:
Cory Williams, RLS

Attached is a copy of the survey report for Piezometers PZ-52D, PZ-53D and YGWC-23S at Plant Yates.

Phone:
919.415.2348

We appreciate the opportunity to work with Georgia Power and look forward to working with you in the future. If you need additional information, please feel free to contact me.

Email:
cory.williams@arcadis.com

Sincerely,

Arcadis U.S., Inc.

Our ref:
30086734



A. Cory Williams, RLS
Survey Department Manager

Attachments

Copies:
Geoffrey Gay, PE

DESCRIPTION AND SCOPE

Arcadis performed horizontal and vertical field survey locations of the existing well networks, including all monitoring wells and piezometers. The Arcadis field survey team obtained horizontal and vertical locations for the top of the well casing (TOC) and surveyed the nail located on the concrete pad around the well. Where no nail was present, the field crew surveyed the top of the concrete well pad.

The Arcadis field team utilized a combination of Leica GS16 Global Positioning System (GPS) with traditional Leica MS60 Robotic Total Station field survey equipment and methods to obtain horizontal locations of the TOC and/or nail or top of the concrete well pad. All horizontal field survey locations are relative to the Georgia State Plane Coordinate System, West Zone, NAD1983, US Survey Feet. All horizontal locations meet or exceed an accuracy level of 0.50 foot. All vertical field survey locations were obtained from a level loop, performed with the Leica DNA03 digital level.

Next, we began from a benchmark set by utilizing GPS Static Session with an OPUS solution and subsequently verified via the eGPS RTN Network and ran through all well and piezometer locations to close on the beginning benchmark to confirm accuracy. All vertical elevations are referenced to NAVD1988, US Survey Feet and meet an accuracy standard of 0.01 foot.

See the attached exhibit detailing the surveyed location for Piezometers PZ-52D, PZ-53D and YGWC-23S.

CERTIFICATION

I, A. Cory Williams, being a Georgia Licensed Professional Land Surveyor, in accordance with the Georgia Board of Professional Engineers and Land Surveyors do hereby certify that the information contained herein is true and correct and has been prepared in accordance with generally accepted good land survey practices under my supervision, and the data is reliable to a horizontal accuracy of 0.5 foot and an elevational accuracy of 0.01 foot for each surveyed point.

FINAL REVIEW:

A. Cory Williams, RLS

DATE: November 15, 2021



A. Cory Williams, RLS
1210 Premier Drive, Suite 200
Chattanooga, TN 37421
919.415.2348

EXHIBIT 1

Plant Yates – AMA Monitoring Well and Piezometer Surveys

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
PZ-52D (added 10/20/21)	Casing	762.79	1256463.09	2074676.14	33° 27' 07.427" N	84° 53' 39.198" W
	PK Nail	760.04	1256463.75	2074675.04		
	Ground	759.90				
PZ-53D (added 10/20/21)	Casing	762.80	1256463.09	2074676.14	33° 27' 07.427" N	84° 53' 39.198" W
	PK Nail	760.04	1256463.75	2074675.04		
	Ground	759.90				
YGWC-23S (added 10/20/21)	Casing	764.95	1256366.93	2074734.07	33° 27' 06.479" N	84° 53' 38.506" W
	PK Nail	761.74	1256367.40	2074734.44		
	Ground	762.00				

Notes:

NAD83(2011) coordinates established by utilizing eGPS VRS & OPUS Solutions
 Elevations derived from Arcadis BM#1 (El. 758.24)
 Elevations & coordinates are U.S. Survey feet

Ms. Lauren Hartley
Southern Company
Environmental Solutions
241 Ralph McGill Blvd, NE
Atlanta, GA 30308

Subject:
YGWC-24SB, YGWC-50 & PZ-24IB
Plant Yates, 708 Dyer Road, Newnan, Georgia

Dear Ms. Hartley:

Attached is a copy of the survey report for YGWC-24SB, YGWC-50 & PZ-24IB at Plant Yates.

We appreciate the opportunity to work with Georgia Power and look forward to working with you in the future. If you need additional information, please feel free to contact me.

Sincerely,
Arcadis U.S., Inc.

Mike Peppers, PLS
Survey Department Manager

Attachments

Copies:
Geoffrey Gay, PE

Arcadis U.S., Inc.
2839 Paces Ferry
Road SE
Suite 900 Atlanta
Georgia 30339
Tel 770.431-8666
Fax 770.435.2666
www.arcadis.com

Date:
December 07, 2022

Contact:
Mike Peppers, PLS

Phone:
770.384.6638

Email:
mike.peppers@arcadis.com

Our ref:
30143626

DESCRIPTION AND SCOPE

Arcadis performed horizontal and vertical field survey locations at YGWC-24SB, YGWC-50 & PZ-24IB. The Arcadis field survey team obtained horizontal and vertical locations for the top of the well casing (TOC) and surveyed the nail located on the concrete pad around the well. Where no nail was present, the field crew surveyed the top of the concrete well pad. The team completed the field survey on these 3 locations on 11/22/2022.

The Arcadis field team utilized a of Leica GS16 Global Positioning System (GPS) to obtain horizontal locations of the TOC and/or nail or top of the concrete well pad. All horizontal field survey locations are relative to the Georgia State Plane Coordinate System, West Zone, NAD1983, US Survey Feet. All horizontal locations meet or exceed an accuracy level of 0.50 foot. All vertical field survey locations were obtained from a level loop, performed with the Leica DNA03 digital level.

See the attached exhibit detailing the surveyed location for YGWC-24SB, YGWC-50 & PZ-24IB.

CERTIFICATION

I, Mike Peppers, being a Georgia Licensed Professional Land Surveyor, in accordance with the Georgia Board of Professional Engineers and Land Surveyors do hereby certify that the information contained herein is true and correct and has been prepared in accordance with generally accepted good land survey practices under my supervision, and the data is reliable to a horizontal accuracy of 0.5 foot and an elevational accuracy of 0.01 foot for each surveyed point.

FINAL REVIEW:

Mike Peppers, PLS

DATE: December 07, 2022



Mike Peppers, PLS
2839 Paces Ferry Road SE
Suite 900
Atlanta, GA 30339
770.431-8666

EXHIBIT 1

Plant Yates – AMA Monitoring Well and Piezometer Surveys

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
YGWC-24SB	Casing	764.89	1258938.45	2073965.94	33° 27' 31.867" N	84° 53' 47.785" W
	Disk	761.75	1258938.85	2073965.27		
	Ground	761.6				
YGWC-50	Casing	729.78	1258123.39	2073321.00	33° 27' 23.758" N	84° 53' 55.329" W
	Disk	726.73	1258134.10	2073320.06		
	Ground	726.5				
PZ-24IB	Casing	764.92	1258927.49	2073952.22	33° 27' 31.758" N	84° 53' 47.946" W
	Disk	762.08	1258928.06	2073951.37		
	Ground	761.9				

Notes:
 NAD83(2011) coordinates system on site established by utilizing eGPS VRS & OPUS Solutions Elevations derived from Arcadis BM#1 (El. 758.24)
 Elevations & coordinates are U.S. Survey feet

Ms. Lauren Hartley
Southern Company
Environmental Solutions
241 Ralph McGill Blvd, NE
Atlanta, GA 30308

Arcadis U.S., Inc.
2839 Paces Ferry Road
Suite 900
Atlanta, GA 30339
United States
Phone: 770 431 8666
Fax: 770 435 2666
www.arcadis.com

Date: February 2, 2024
Subject: Survey of YGWC-29IB, PZ-54D, PZ-55, and PZ-56D

Dear Ms. Hartley,

Attached is a copy of the survey report for YGWC-29IB, PZ-54D, PZ-55, PZ-56D at Plant Yates.

We appreciate the opportunity to work with Georgia Power and look forward to working with you in the future. If you need additional information, please feel free to contact me.

Sincerely,
Arcadis U.S., Inc.



Mark Lupton, PLS
Survey Department Manager

Email: Mark.Lupton@arcadis.com
Direct Line: 770 384 6578

CC. Geoff Gay, PE

Enclosures:
Well Survey Report

DESCRIPTION AND SCOPE

Arcadis performed horizontal and vertical field survey locations at YGWC-29IB, PZ-54D, PZ-55, PZ-56D.

The Arcadis field survey team obtained horizontal and vertical locations for the top of the casings (TOC) and surveyed the nails located on the concrete pads around the well/piezometers. The team completed the field survey on these locations on 01/29/2024.

The Arcadis field team utilized a of Leica GS16 Global Positioning System (GPS) to obtain horizontal locations of the TOC and/or nail or top of the concrete well pad. All horizontal field survey locations are relative to the Georgia State Plane Coordinate System, West Zone, NAD1983, US Survey Feet. All horizontal locations meet or exceed an accuracy level of 0.50 foot. All vertical field survey locations were obtained from a level loop, performed with the Leica DNA03 digital level.

See the attached exhibit detailing the surveyed locations for YGWC-29IB, PZ-54D, PZ-55, and PZ-56D.

CERTIFICATION

I, Mark Lupton, being a Georgia Licensed Professional Land Surveyor, in accordance with the Georgia Board of Professional Engineers and Land Surveyors do hereby certify that the information contained herein is true and correct and has been prepared in accordance with generally accepted good land survey practices under my supervision, and the data is reliable to a horizontal accuracy of 0.5 foot and an elevational accuracy of 0.01 foot for each surveyed point.

FINAL REVIEW:

Mark Lupton, PLS

DATE: February 02, 2024



Mark Lupton, PLS
2839 Paces Ferry Road SE Suite 900
Atlanta, GA 30339
770.431-8666

EXHIBIT 1

Plant Yates – AP-2 Monitoring Well and Piezometer Survey

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
YGWC-29IB	Casing	712.88	1259036.39	2070237.53	33° 27' 32.574" N	84° 54' 31.800" W
	PK Nail	710.07	1259036.07	2070238.50		
	Ground	710.0				

Notes:
 NAD83(2011) coordinates system on site established by utilizing eGPS VRS & OPUS Solutions
 Elevations derived from Arcadis BM#1 (El. 758.24) tied to well YGWC-27i being at El. 713.35'
 Elevations & coordinates are U.S. Survey feet

Plant Yates – AMA Monitoring Well and Piezometer Surveys (Note PZ-54D and PZ-56D are in the same casing)

Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
PZ-54D	Casing	795.56	1256904.08	2073369.06	33° 27' 11.699" N	84° 53' 54.661" W
	PK Nail	792.50	1256904.11	2073367.83		
	Ground	792.5				

Notes:
 NAD83(2011) coordinates system on site established by utilizing eGPS VRS & OPUS Solutions
 Elevations derived from Arcadis BM#1 (El. 758.24) tied to well YGWC-41 being at El. 801.23'
 Elevations & coordinates are U.S. Survey feet

PLANT YATES – MONITORING WELL AND PIEZOMETER SURVERY – January 2024

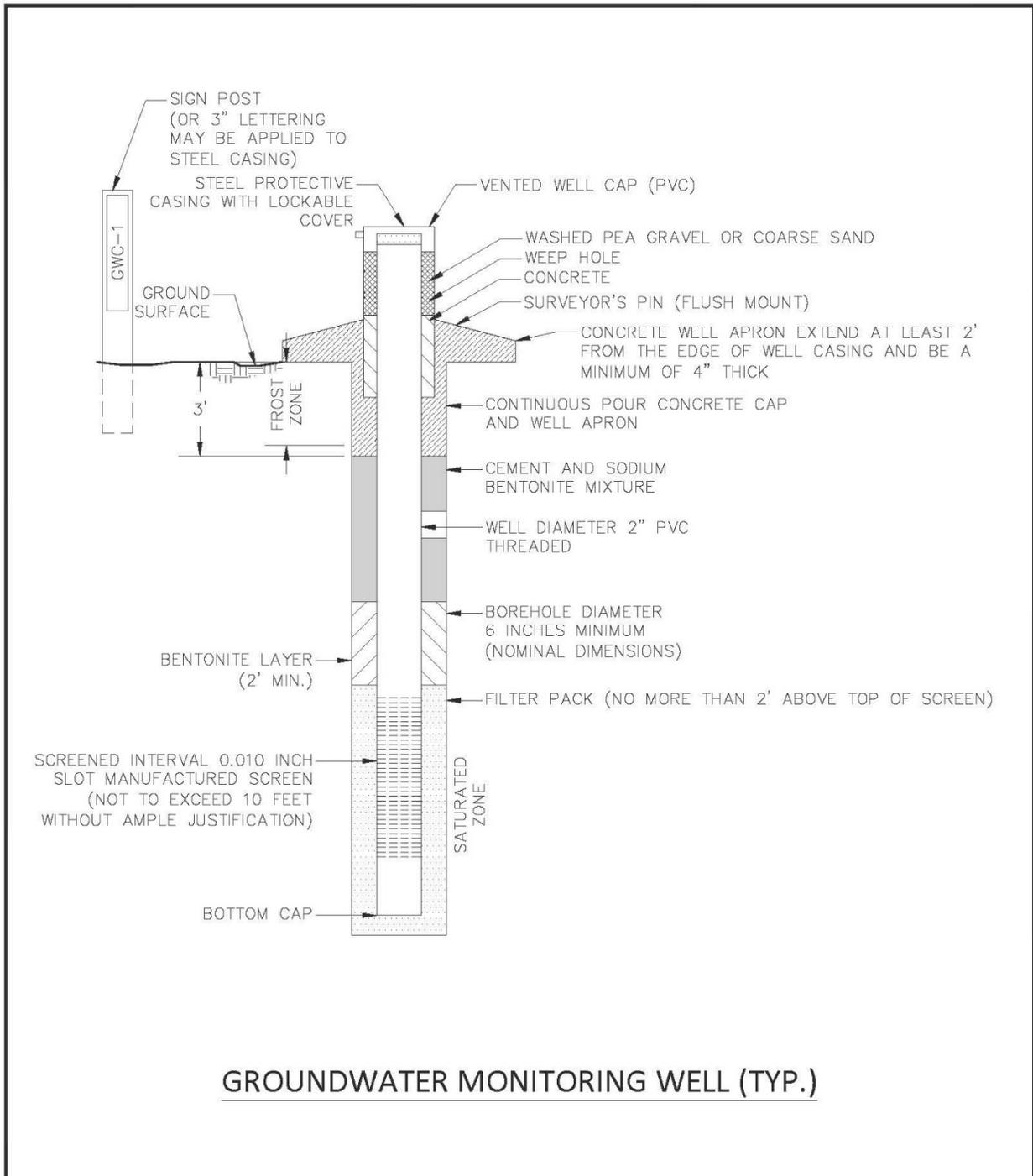
Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
PZ-56D	Casing	795.56	1256904.08	2073369.06	33° 27' 11.699" N	84° 53' 54.661" W
	PK Nail	792.50	1256904.11	2073367.83		
	Ground	792.5				

Notes:
 NAD83(2011) coordinates system on site established by utilizing eGPS VRS & OPUS Solutions
 Elevations derived from Arcadis BM#1 (El. 758.24) tied to well YGWC-41 being at El. 801.23'
 Elevations & coordinates are U.S. Survey feet

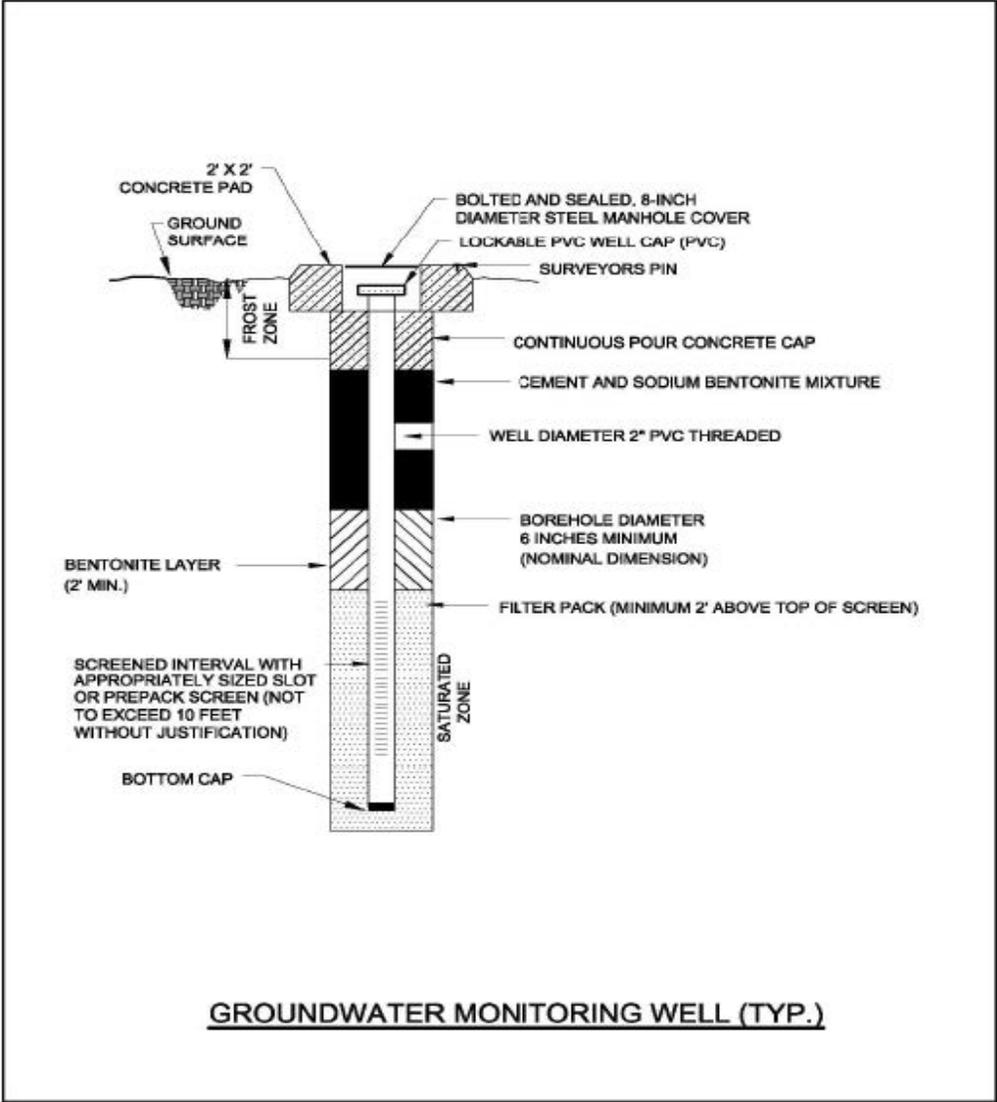
Monument	Concrete Base Point	NAVD88 Elevation	Georgia State Plane Grid (NAD83), West Zone		WGS84 Latitude	Longitude
			Northing	Easting		
PZ-55	Casing	774.02	1257131.73	2073193.74	33° 27' 13.939" N	84° 53' 56.749" W
	PK Nail	771.32	1257130.72	2073193.55		
	Ground	771.3				

Notes:
 NAD83(2011) coordinates system on site established by utilizing eGPS VRS & OPUS Solutions
 Elevations derived from Arcadis BM#1 (El. 758.24) tied to well YGWC-41 being at El. 801.23'
 Elevations & coordinates are U.S. Survey feet

APPENDIX D1. GROUNDWATER MONITORING WELL DETAIL



**APPENDIX D2. GROUNDWATER MONITORING WELL DETAIL
FLUSH-MOUNT SURFACE COMPLETION**



APPENDIX E. GROUNDWATER SAMPLING PROCEDURES

Groundwater sampling will be conducted using **the most current** USEPA Region 4 Field Quality and Technical Procedures as a guide. The following procedures describe the general methods associated with groundwater sampling at the site. Prior to sampling, the well must be evacuated (purged) to ensure that representative groundwater is obtained. Any item coming in contact with the inside of the well casing or the well water will be kept in a clean container and handled only with gloved hands.

Sample personnel will follow the procedures below at each well to ensure that a representative sample is collected:

1. Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations and notify **Georgia Power** if it appears that the well has been compromised.
2. Measure and record the depth to water in all wells to be sampled prior to **purging using a water measuring device consisting of probe and measuring tape capable of measuring water levels with accuracy to 0.01 foot**. Static water levels will be measured from each well, within a 24-hour period. The water level measuring device will be decontaminated prior to lowering in each well **using the procedures described in the latest version of the Region 4 USEPA LSASD, Operating Procedure for Field Equipment Cleaning and Decontamination (LSASDPROC-205-R#) as a guide**.
3. Install Pump: If a dedicated pump is not present, slowly lower the pump into the well to the midpoint of the well screen or a depth otherwise approved by the hydrogeologist or project scientist. The pump intake must be kept at least two (2) feet above the bottom of the well to prevent disturbance and suspension of any sediment present in the bottom of the well. Record the depth to which the pump is lowered. All non-dedicated pumps and wiring will be decontaminated before use and between well locations **using the procedures described in the latest version of the Region 4 USEPA LSASD, Operating Procedure for Field Equipment Cleaning and Decontamination (LSASDPROC-205-R#) as a guide**.
4. Measure Water Level: Immediately prior to purging, measure the water level again with the pump in the well. Leave the water level measuring device in the well.
5. Purge Well: Begin pumping the well at approximately 100 to 500 milliliters per minute (**mL**/min). Monitor the water level continually. Maintain a steady flow rate that results in a stabilized water level with 0.3 **foot** or less of variability. Avoid entraining air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment.
6. Monitor Indicator Parameters: Monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, **oxidation reduction potential (ORP), and dissolved oxygen [DO]**) approximately every three to five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings at a minimum:

±0.1 for pH

±5% for specific conductance (conductivity)

±10% for DO where DO > 0.5 mg/L (milligrams per liter). If DO < 0.5 mg/L, no stabilization criteria applies

≤5 NTU for turbidity

Temperature – Record only, not used for stabilization criteria

ORP – Record only, not used for stabilization criteria.

7. Collect samples at a low-flow rate in accordance with the most current version of USEPA Region 4 SESD guidance document, Operating Procedure – Groundwater Sampling (EPA, SESDPROC-301-R#), and such that drawdown of the water level within the well is stable. Flow rate must be reduced if excessive drawdown is observed during sampling. All sample containers should be filled with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container.
8. Compliance samples will be unfiltered; however, to determine if turbidity is affecting sample results (i.e., >10 NTU), duplicate samples may be filtered in the field prior to being placed in a sample container, clearly marked as filtered and preserved. Filtering will be accomplished by the use of 0.45-micron filters on the sampling line. At least two filter volumes of sample will pass through before filling sample containers. A new filter must be used for each well and each sampling event. Filtered samples are not considered compliance samples and are only used to evaluate the effects of turbidity. Additional details related to managing for elevated turbidity is discussed below.
9. All sample bottles will be filled, capped, and placed in an ice containing cooler immediately after sampling where temperature control is required. Samples that do not require temperature control will be placed in a clean and secure container.
10. Sample containers and preservative will be appropriate for the analytical method being used.
11. Information contained on sample container labels will include:
 - a. Name of facility
 - b. Date and time of sampling
 - c. Sample description (well number)
 - d. Sampler's initials
 - e. Preservatives
 - f. Analytical method(s)

12. After samples are collected, samplers will remove all non-dedicated equipment. Upon completion of all activity the well will be closed and locked.
13. Samples will be delivered to the laboratory following appropriate chain-of-custody (COC) and temperature control requirements. The goal for sample delivery will be within 48 hours of collection; however, at no time will samples be analyzed after the method-prescribed hold time.

Throughout the sampling process, new latex or nitrile gloves will be worn by the sampling personnel. A clean pair of new, disposable gloves will be worn each time a different location is sampled, and new gloves will be donned prior to filling sample bottles. Gloves will be discarded after sampling each well and before sampling the next well.

The goal when sampling is to attain a turbidity of less than 5 NTU; however, samples may be collected where turbidity is less than 10 NTU and the stabilization criteria described above are met.

If sample turbidity is greater than 10 NTU and all other stabilization criteria have been met, samplers will continue purging for up to 3 additional hours in order to reduce the turbidity to less than 10 NTU, as follows:

- If turbidity remains above 5 NTU but is less than 10 NTU, and all other parameters are stabilized, the well can be sampled.
- Where turbidity remains above 10 NTU, an unfiltered sample will be collected followed by a filtered sample that has passed through an in-line 0.45-micron filter attached to the discharge (sample collection) tube. Data from filtered samples will only be used to quantify the effects of turbidity on sample results.

Samplers will identify the sample bottle as containing a filtered sample on the sample bottle label and on COC form.



**ATLANTIC COAST
CONSULTING, INC.**

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11545 Wills Road,
Suite 100
Alpharetta, GA 30009
Phone: 770.594.5998

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Drive, Suite 2B
Savannah, GA 31406
Phone: 912.236.3471

Knoxville, TN
8848 Cedar Springs
Lane, Suite 202
Knoxville, TN 37923
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