## **GROUNDWATER MONITORING PLAN**

# PLANT WANSLEY – ASH POND 1 (AP-1) HEARD AND CARROLL COUNTIES, GEORGIA

**FOR** 



**MARCH 2023** 



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#### I. CERTIFICATION

This *Groundwater Monitoring Plan for Georgia Power Company - Plant Wansley Ash Pond 1 (AP-1)* has been prepared by a qualified groundwater scientist or engineer with Geosyntec Consultants, Inc. (Geosyntec) to meet the requirements contained in Chapter 391-3-4-.10 of the Georgia Environmental Protection Division (GA EPD) Rules of Georgia, Solid Waste Management, Coal Combustion Residuals (i.e., State CCR Rule). References to the appropriate sections of the State CCR Rule are incorporated throughout this document.

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 State of Georgia 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 GA EPD Rules of Solid Waste Management, Chapter 391-3-4.10(6).

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#### 1. INTRODUCTION

Groundwater monitoring is required by the Georgia Environmental Protection Division (GA EPD) to detect and quantify potential changes in groundwater chemistry. This *Groundwater Monitoring Plan* (Plan) describes the groundwater monitoring program for Ash Pond 1 (AP-1) at Georgia Power Company's (GPC's) Plant Wansley. This plan meets the requirements of GA EPD regulations referenced on the certification page and uses GA EPD's *Manual for Ground Water Monitoring* dated September 1991 as a guide. Groundwater at the Site is monitored using a comprehensive well network that meets federal and state monitoring requirements. Groundwater monitoring well and piezometer locations are presented on **Figure A-1** and monitoring well and piezometer construction details on **Tables A-1** and **A-2**, respectively. Routine sampling and reporting began after the background groundwater conditions were established between May 2016 to September 2017. Based on groundwater conditions at the Site, an assessment monitoring program and assessment of corrective measures (ACM) program were established in January 2018 and October 2022, respectively. During the most recent annual reporting period, the Site remained in assessment monitoring.

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

In accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Residual (CCR) Rule (§257.90), which is incorporated by Georgia State CCR Rule by reference, a detection monitoring well network for AP-1 has been installed and certified by a qualified professional engineer. This certification was placed in the facility's operating record. 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 GA EPD prior to the unscheduled installation or abandonment of monitoring wells. Well installation and/or abandonment must be directed by a qualified groundwater scientist.

#### 2. GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

The following section presents a summary of the geologic and hydrogeologic conditions for the Site as described in the *Hydrogeologic Assessment Report* (Revision 03) (HAR Rev. 03). The summary below presents only relevant information related to the groundwater monitoring network. The HAR Rev. 03 contains more detailed information regarding lithology, hydraulic conductivity, and the conceptual site model for groundwater flow.

#### 2.1 SITE GEOLOGY

AP-1 is located in the Piedmont Physiographic Province of western Georgia, which is characterized by gently rolling hills and narrow valleys with locally pronounced linear ridges. Geologic mapping performed by Golder (2015) and revised by Geosyntec (2018) indicates that the Site is underlain by schist, amphibolite, gneiss, and quartzite. AP-1 is underlain primarily by four lithologic units; (i) alluvial deposits (ii) residual soils and saprolite, (iii) partially weathered rock (PWR), and (iv) metamorphic crystalline bedrock. Historically, AP-1 received sluiced CCR until April 2019, and CCR material is present across the bottom of AP-1 at variable thickness.

Based on subsurface investigations, the CCR material consists of fly ash, generally described as dark to medium gray, soft, and loose to very loose fine sand and silts with some clay. Discontinuous lenses of coarser bottom ash are present throughout the unit, generally described as dark gray, well-graded, fine to coarse sand and fine gravel. Alluvial deposits related to stream and drainage processes are present but not laterally continuous across the Site and likely correspond with former stream channels buried during the construction of the surface impoundment. Alluvium consists of organic silt and fine sand over-bank deposits and fine to coarse sand channel deposits. Residual and saprolitic soils (residual soil/saprolite) resulting from the in-situ weathering of the parent bedrock material make up a large portion of the Site subsurface and is generally encountered across the Site. Residual soils and saprolite are described primarily as sandy silt, silty sand, sandy clay, and silty clay. As the saprolite transitions to more rock-like material approaching the bedrock surface, a zone referred to as PWR is encountered. The PWR unit is the hard, semi-consolidated, weathered to intensely fractured rock interface. PWR may include hard, but friable, decomposed rock, as well as gravel to cobble-size rock fragments bound by clay and silt saprolite matrix. The bedrock at the Site is composed primarily of graphitic schist, muscovite schist, biotite schist, schist with interlayered mafic units, amphibolite/hornblende gneiss, granitic gneiss (Long Island Creek Gneiss), and feldspathic quartzite. The ridges to the northwest and southeast of the surface impoundment are underlain by muscovite schist and Long Island Creek Gneiss, respectively, both of which are relatively resistant to weathering. AP-1 and the Storage Water Pond, however, are underlain by schist with interlayered mafic units and feldspathic quartzite, which are more susceptible to weathering, and, thus, the layer of saprolite and PWR is thicker.

#### 2.2 SITE HYDROGEOLOGY

While the aquifer characteristics of each lithologic unit may vary, the groundwater is interconnected between these units, and they effectively act as one, unconfined aquifer. According to previous site investigations, the potentiometric surface is a subdued reflection of the topography. The top of rock surface also generally follows topography and likely controls groundwater flow direction in the uppermost aquifer, which occurs within the saprolite and PWR and is hydraulically connected to the bedrock via

fractures and deeply weathered areas of the rock. Recharge is by precipitation infiltrating through the saprolite to the bedrock. Groundwater flow in the bedrock is restricted entirely to flow through fractures. As described in the text of the SAR (SCS, 2007) and demonstrated by associated geotechnical data and boring logs, the top of rock is slightly to strongly weathered but becomes less weathered with depth. In general, core recovery increases significantly with depth as the rock becomes less weathered. Rock Quality Designation (RQD) increases significantly with depth. These site-specific data support and additional published data on bedrock hydrogeology describe a general decrease in size and occurrence of fractures with depth. Therefore, we infer that groundwater within the bedrock is primarily present in fractures that decrease in size and density with depth.

Aquifer testing was conducted by Southern Company Services (SCS) and contracted consulting firms in 2016, 2017, 2020, and 2022 to evaluate hydraulic conditions in the vicinity of AP-1. Results of these field events are discussed in detail in the HAR Rev. 03. Estimated horizontal hydraulic conductivity ( $K_h$ ) values based on the aquifer testing activities at wells and piezometers (Tables 3-1 and 3-2 from HAR Rev. 03) indicate that the bedrock has a lower geometric mean  $K_h$  (6.24 x  $10^{-5}$  centimeters per sec; cm/sec) than the residual soil/saprolite and the PWR ( $1.21 \times 10^{-4}$  cm/sec and  $1.13 \times 10^{-4}$  cm/sec, respectively), however, it should be noted that localized variation in thickness of the residual soil/saprolite and PWR, variable bedrock fracture density, and fractured bedrock zones may result in areas in which the fractured bedrock exhibits higher  $K_h$  values than in the overlying units. Groundwater flow in the PWR and upper fractured surface of the bedrock, often referred to as the "transition zone", is expected to be greater than the overlying saprolite and the underlying competent bedrock.

Vertical hydraulic conductivity ( $K_v$ ) values were measured in laboratory permeability tests on sonic drilling cores and Shelby Tubes collected from borings in CCR, alluvium, saprolite, and PWR in March 2017. The  $K_v$  obtained from the alluvium (fine-grained, over-bank deposits) was  $4.6 \times 10^{-7}$  cm/sec. The saprolite samples ranged an order of magnitude from  $5.1 \times 10^{-6}$  cm/sec to  $5.5 \times 10^{-5}$  cm/sec, and the PWR core yielded a  $K_v$  of  $7.6 \times 10^{-6}$  cm/sec.

A potentiometric surface map depicting groundwater flow in the vicinity of AP-1 is provided in **Figure A-2** in **Appendix A**. The potentiometric surface map represents data recorded in August 2022. Groundwater in the area generally flows to the south and east toward the Chattahoochee River, however, groundwater in the near vicinity of AP-1 flows from the topographic ridges around the pond inward into the impoundment, with the exception of a component of flow away from AP-1 in a generally southeastern direction near the southeastern corner of the impoundment. In general, steeper potentiometric contours in areas of higher topographic relief give way to lower gradients as the land surface flattens toward the river.

Groundwater hydraulic gradients at AP-1 in August 2022 along groundwater flow path lines from PZ-01 to WGWC-17, and from PZ-10 to WGWC-19, are estimated to be 0.088 feet per foot (ft/ft), and 0.088 ft/ft, respectively. Groundwater flow velocity in the vicinity of AP-1 is estimated to be approximately 0.095 ft/day, or 34.7 ft/year. The supporting hydraulic gradient calculations and groundwater flow velocity calculations are presented in **Table A-3**.

Additional details regarding the hydrogeologic conditions in the vicinity of AP-1 are provided in the HAR Rev. 03.

#### 3. SELECTION OF WELL LOCATIONS

Groundwater monitoring wells were installed to monitor the uppermost occurrence of groundwater beneath the Site (i.e., the saprolite/PWR/bedrock aquifer). Locations were selected based on the AP-1 footprint and geologic and hydrogeologic considerations. Georgia Power follows the recommendation as stated in Chapter 2 of the *Manual for Groundwater Monitoring* (GA EPD, 1991) to establish well spacing based on site-specific conditions. A map depicting the detection monitoring well network screened within the saprolite/PWR/bedrock aquifer for AP-1 is included as **Figure A-1** in **Appendix A**. A more detailed discussion of the hydrogeological investigations conducted in support of monitoring well placement is provided in the HAR Rev. 03.

Locations are chosen to serve as upgradient (GWA), or downgradient (GWC) 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). Wells are positioned to provide adequate coverage to detect potential impacts from the CCR impoundment. Both background and downgradient wells are screened in the uppermost aquifer. Additionally, two wells (WGWC-26D and WGWC-27,) are designated as assessment wells in the vicinity of WGWC-20. Groundwater levels are currently monitored in all monitoring well and piezometer locations to establish potentiometric conditions at the Site.

Monitoring wells are generally 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 GA EPD rules. In addition to the potentiometric surface map, **Appendix A** also includes a tabulated list (**Tables A-1** and **A-2**) of location coordinates for the individual detection monitoring wells, assessment wells, and piezometers used for water level monitoring. Additional well construction details (i.e., top-of-casing elevation, well depths, and screened intervals) are also provided on these tables. 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).

## 4. MONITORING WELL DRILLING, CONSTRUCTION, ABANDONMENT AND REPORTING

The AP-1 monitoring well network described in this plan is already in place. Existing monitoring wells were installed following USEPA Region 4 Science and Ecosystem Support Division (SESD) guidance document, *Design and Installation of Monitoring Wells* (USEPA, SESDGUID-101-R1; USEPA, SESDGUID-101-R2) as a general guide for best practices. Boring and well construction logs for detection monitoring wells are included in **Appendix A**. Additional monitoring wells, if necessary, will be installed in accordance with the following procedures.

#### 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 rotasonic 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 site-specific geology. Monitoring wells will be installed using the most current version of the USEPA Region 4 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 most current version of the USEPA Region 4 SESD Operating Procedure for Field Equipment Cleaning and Decontamination (USEPA, SESDGUID-205-R#) as a guide. Drilling and well installation activities will be directed by a qualified groundwater scientist.

Sampling and/or coring may be used to help determine the stratigraphy and geology. Samples will be logged by a qualified groundwater scientist. Screen depths will be chosen based on the depth of the uppermost aquifer.

All drilling for any subsurface hydrologic investigation, installation or abandonment of groundwater monitoring wells will be performed by a driller that has, at the time of installation, a performance bond on file with the Water Well Standards Advisory Council. Proof of bonding for wells installed at the unit is included as Attachment A-2 in Appendix A. For future installations, proof of bonding will be included in the well installation reports.

As required by 391-3-4.10(6)(g), a minor modification will be submitted to GA EPD prior to the installation or decommissioning of monitoring wells. Well installation must be directed by a qualified groundwater scientist.

#### 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 (ASTM), National Science Foundation (NSF) rated, Schedule 40, 2-inch 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 USEPA approved and appropriate materials may be used for construction.

#### 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 U.S. Environmental Protection Agency Science and Ecosystem Support Division Operating Procedure for Design and Installation of Monitoring Wells as a general guide. If the dual-wall pre-packed-screened wells do not yield sufficient water or are excessively turbid after development, 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.

#### 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 hole 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 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 cement/bentonite 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 B1**, Groundwater Monitoring Well Detail and **Appendix B2**, Groundwater Monitoring Well Detail Flush-Mount Surface Completion, illustrate the general design and construction details for a monitoring well.

#### WELL DEVELOPMENT

Well development will be conducted under supervision of a certified groundwater professional. 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 C** 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. 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. Well development data will be provided as part of the well installation report.

The certified surveyor's reports are included as **Attachment A-3** in **Appendix A**. Monitoring well logs for the existing monitoring well network are also included in **Appendix A**, as **Attachment A-1**.

#### 4.3 ABANDONMENT

Per Georgia Rule 391-3-4.10(6)(g), monitoring wells require replacement after two consecutive dry sampling events, unless an alternate schedule has been approved by GA EPD Monitoring wells will be abandoned using industry-accepted practices and using the Manual for Groundwater Monitoring (1991) and (O.C.G.A) 12-5-120, 1985 as guides. The wells will be abandoned under the supervision of a qualified groundwater scientist registered to practice in the State of Georgia. A well abandonment report will be submitted to EPD within 60 days of completion of well abandonment. The wells will be abandoned under the direction of a professional geologist (P.G.) or engineer (P.E.) registered in Georgia. Neat Portland cement or bentonite will be used as appropriate to complete abandonment and seal the well borehole.

#### 4.4 DOCUMENTATION

Within 60 days of the construction, survey, and development 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 GA EPD. The following information will be documented in this report.

- 1. Well identification
- 2. Name of drilling contractor and type of drill rig
- 3. Documentation that the driller, at the time the monitoring wells were installed, had a bond on file with the Water Well Standards Advisory Council
- 4. Narrative of drilling technique applied, well construction details, and well development procedures, including dates, drilling fluids used (if applicable), well casing and screen materials, screen slot size, and joint type
- 5. Details of filter pack material/size, emplacement method (narrative), and volume
- 6. Seal emplacement method and type/volume of sealant
- 7. Borehole diameter and well casing diameter
- 8. Well Depth (±0.1 ft.)
- 9. Type of protective well cap
- 10. Surface seal and volumes/mix of annular seal material
- 11. Screen length and interval reported in feet below ground surface and elevation

- 12. Well location data given to within an accuracy of 0.5 feet based on survey data recorded from an acceptable survey point datum by a Georgia-registered professional surveyor
- 13. Well elevation data given to within an accuracy of 0.01 feet based on survey data recorded from an acceptable survey point datum by a Georgia-registered professional surveyor
- 14. Lithologic logs
- 15. Documentation that water quality field parameters meet well development criteria (Section 4.2)
- 16. Documentation of ground surface elevation (±0.01 feet)
- 17. Documentation of top of casing elevation (±0.01 feet)
- 18. Schematic of the well with dimensions for all components (e.g., casing, screen, sump, well pad)

In accordance with the Georgia Water Well Standards Act (O.C.G.A. § 12-5-134(5)(d(vii), at least once every five years, the owner of the property on which a monitoring well is constructed shall have the monitoring well(s) inspected by a professional engineer or professional geologist, who shall direct appropriate remedial corrective work to be performed if the well does not conform to standards. Well inspection records and records of remedial corrective work are subject to review by EPD. Additionally, as part of the post closure plan, the cost estimate based upon current year cost for the well inspections must be provided for as part of the cost calculations for the groundwater monitoring period.

### 5. GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

The following describes AP-1 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 were collected from each groundwater detection well of the AP-1 network between May 2016 and September 2017 and analyzed for 40 CFR 257, Subpart D, Appendix III and Appendix IV test parameters to establish a background statistical dataset, with the exception of WGWC-20, WGWC-21, WGWC-22, WGWC-23, WGWC-24, and WGWC-25, which were installed in 2020 and were sampled four times to establish a background statistical dataset. 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 the post-closure care period. Pursuant to 391-3-4-.10(6), an assessment monitoring program was established for AP-1 based on statistically significant increases documented in the *2017 Annual Groundwater Monitoring and Corrective Action Report* (Environmental Resources Management, 2018). Georgia Power initiated an assessment of corrective measures (ACM) program on October 27, 2022. An ACM Report for AP-1 will be submitted to GA EPD by March 2023. Georgia Power will continue to complete assessment monitoring activities as required in Chapter 391-3-4-.10(6).

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, USEPA 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 GA 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 Conference (NELAC). 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

	GROUNDWATER MONITO	GROUNDWATER MONITORING					
MONIT	ORING PARAMETER	Background	Semi-Annual Events				
	Temperature	х	Х				
	рН	Х	Х				
Field Parameters	Oxidation Reduction Potential (ORP)	Х	х				
	Turbidity	Х	X				
	Specific Conductance	Х	X				
	Dissolved Oxygen (DO)	Х	X				
	Boron	Х	Х				
	Calcium	Х	X				
Appendix III (Detection test	Chloride	Х	X				
parameters	Fluoride	Х	X				
from 40 CFR 257, Subpart D)	рН	Х	X				
	Sulfate	Х	X				
	Total Dissolved Solids	Х	X				
	Antimony	Х					
	Arsenic	Х					
	Barium	Х					
	Beryllium	Х					
	Cadmium	Х					
	Chromium	Х					
Appendix IV (Assessment	Cobalt	Х	Assessment sampling frequency				
test parameters	Fluoride	Х	and parameter list determined in accordance with Georgia Chapter				
from 40 CFR 257, Subpart D)	Lead	Х	391-3-4.10(6).				
	Lithium	Х					
	Mercury	х	_				
	Molybdenum	х	_				
	Selenium	Х					
	Thallium	х	_				
	Radium 226 & 228	Х					

## TABLE 2 ANALYTICAL METHODS

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

#### 6. GROUNDWATER SAMPLE COLLECTION

During each sampling event, groundwater samples will be collected and handled in accordance with the procedures specified in **Appendix C**, 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. EPA approved alternative industry accepted sampling methodology may be used when appropriate. The applied groundwater purging and sampling methodologies will be discussed in the groundwater semi-annual monitoring reports submitted to GA EPD.

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 in general accordance with USEPA LSASDPROC-205-R#.

Per Georgia Rule 391-3-4-.10(6)(g) monitoring wells require replacement after two consecutive dry sampling events. Well installation must be directed by a qualified groundwater scientist. A minor modification shall be submitted to GA EPD in accordance with Rule 391-3-4-.02 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
- Signature of person(s) involved in the chain of possession
- Dates and times of possession by each individual
- Notated date(s) and time(s) of sample transfer between individuals

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 will relinquish possession and the samples must be received by the new owner. The transfer times and dates during transfer of samples between individuals will be documented on the COC included with the laboratory reports.

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

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

## 8. FIELD 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 are 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 are collected in the field using the same water source that is used for decontamination. The water is 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.

The groundwater samples will be analyzed by licensed and accredited laboratories through the National Environmental Laboratory Accreditation Program (NELAP).

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 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.

#### 9. REPORTING RESULTS

A semi-annual groundwater report that documents the results of sampling and analysis will be submitted to GA EPD. Semi-annual groundwater monitoring reports will be submitted to GA EPD within 90 days of receipt of the groundwater analytical data from the laboratory, and signed and sealed by a Georgia-registered P.G. or P.E. 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 abandoned 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 for each sampling event to include, but not 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.
- 19. Certification by a qualified groundwater scientist.
- 20. Plume delineation (if applicable based on exceedances of groundwater protection standards).
- 21. Trend analyses (if applicable based on exceedances of groundwater protection standards).
- 22. Annual updated potable water well survey (if applicable based on exceedances of groundwater protection standards).

#### 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 establish statistical limits. Statistical analysis techniques will be consistent with the USEPA document *Statistical Analysis of Groundwater Data at RCRA Facilities, Unified Guidance* (USEPA, 2009).

According to GA EPD rules (391-3-4-.10(6)(a)), the Site must specify in the operating record the statistical methods to be used in evaluating groundwater monitoring data for each constituent. The statistical test chosen will 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 tolerance or 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 interwell 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 for AP-1 groundwater data was placed in the Site's operating record pursuant to Chapter 391-3-4-.10(6). **Figure 1**, Statistical Analysis Plan Overview, presents a flowchart that depicts the process followed to develop the site-specific plan. **Figure 2**, Decision Logic for Computing Prediction Limits, presents the logic used to calculate site-specific statistical limits and test groundwater results from detection monitoring wells against those limits.

#### FIGURE 1. STATISTICAL ANALYSIS PLAN OVERVIEW

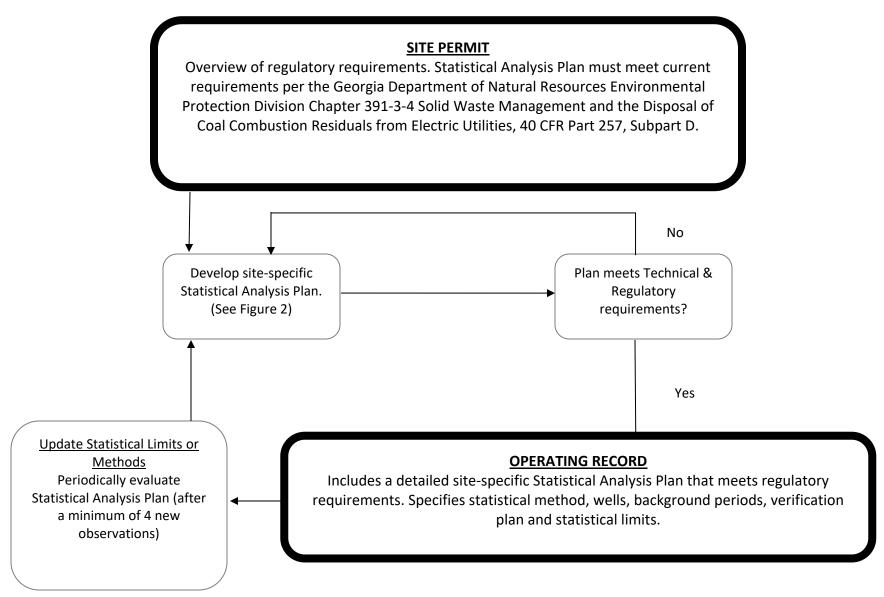
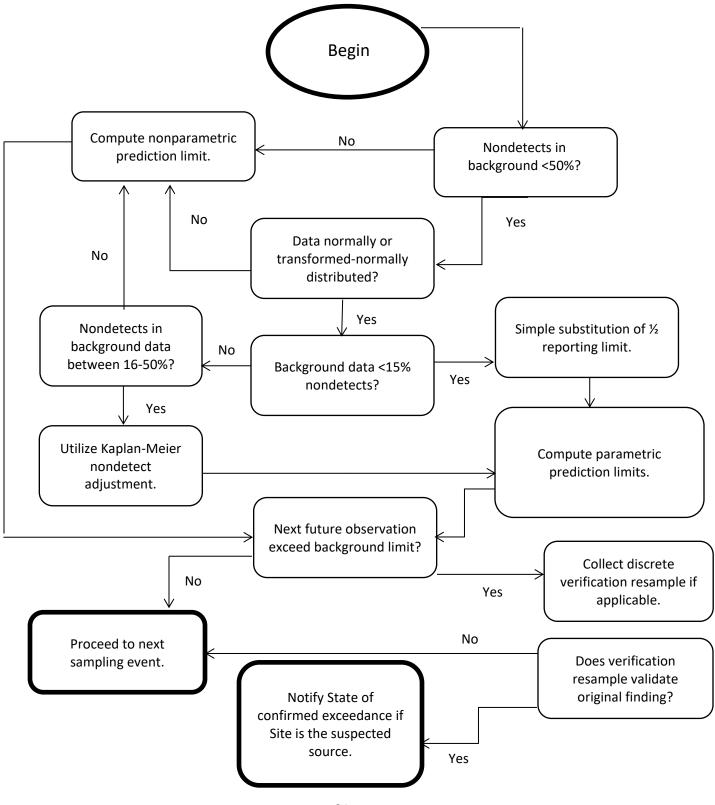


FIGURE 2. DECISION LOGIC FOR COMPUTING PREDICTION LIMITS



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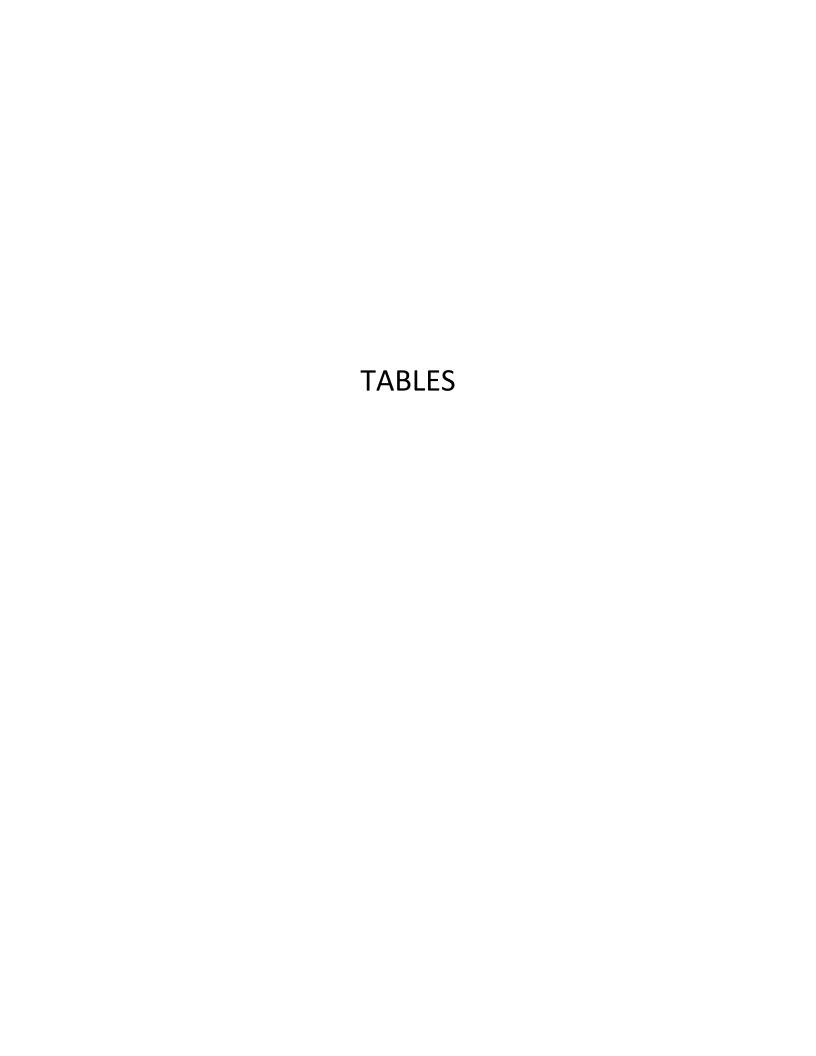
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### **APPENDICES**

- A. MONITORING SYSTEM DETAILS
- B. GROUNDWATER MONITORING WELL DETAIL
- C. GROUNDWATER SAMPLING PROCEDURE

## A. MONITORING SYSTEM DETAILS

TABLE A-1	AP-1 MONITORING NETWORK WELL DETAILS
TABLE A-2	AP-1 WATER LEVEL MONITORING NETWORK PIEZOMETER DETAILS
TABLE A-3	HORIZONTAL GROUNDWATER GRADIENT AND FLOW VELOCITY CALCULATIONS
FIGURE A-1	COMPLIANCE MONITORING NETWORK
FIGURE A-2	POTENTIOMETRIC SURFACE CONTOUR MAP – AUGUST 2022
ATTACHMENT A	1 AP-1 BORING AND WELL CONSTRUCTION LOGS
ATTACHMENT A	2 WELL DRILLERS' PERFORMANCE BONDS
ATTACHMENT A	3 CERTIFIED WELL NETWORK SURVEY DATA



## Table A-1 AP-1 Monitoring Network Well Details Plant Wansley, Heard and Carroll Counties, Georgia

Well ID	Previous Well / Piezometer ID	Purpose	Northing (1,3)	Easting (1,3)	Ground Surface Elevation (2,3) (ft NAVD88)	Top of Casing Elevation <sup>(2,3)</sup> (ft NAVD88)	Well Depth <sup>(4)</sup> (ft BTOC)	Top of Screen Elevation <sup>(2,3)</sup> (ft NAVD88)	Bottom of Screen Elevation (2,3) (ft NAVD88)	Screened Media	K <sub>h</sub> (5) (cm/sec)
Upgradient Detecti	on Monitoring Wells										
WGWA-1	APA-1	Monitoring, background	1250656.10	2035580.71	780.37	782.93	129.56	663.37	653.37	PWR	2.0E-03
WGWA-2	APA-2D	Monitoring, background	1251556.40	2035590.11	755.77	758.23	102.46	665.77	655.77	PWR/Bedrock	2.7E-04
WGWA-3	PZ-02	Monitoring, background	1240848.21	2022350.10	826.63	828.91	18.68	820.23	810.23	Saprolite/Bedrock	
WGWA-4	PZ-02D	Monitoring, background	1240879.58	2022339.66	831.33	834.34	74.31	780.43	760.43	Bedrock	4.1E-04
WGWA-5	PZ-03S	Monitoring, background	1241997.94	2022368.85	899.28	902.15	23.66	888.88	878.88	Saprolite/PWR/ Bedrock	1.2E-03
WGWA-6	PZ-03D	Monitoring, background	1241932.02	2022360.58	894.62	897.13	104.91	822.62	792.62	Bedrock	1.1E-03
WGWA-7	PZ-05	Monitoring, background	1243338.63	2023843.81	894.49	897.33	40.04	867.69	857.69	Bedrock	3.7E-03
WGWA-18	PZ-07	Monitoring, background	1244592.56	2025580.71	875.47	878.02	39.95	848.47	838.47	Saprolite/Bedrock	1.4E-04
Downgradient Dete	ction Monitoring Wel										
WGWC-8	APC-1	Monitoring, downgradient	1242929.40	2029644.58	777.70	780.08	59.38	730.70	720.70	Bedrock	2.2E-05
WGWC-9	PZ-09	Monitoring, downgradient	1242801.12	2029115.75	809.33	812.03	61.50	760.93	750.93	PWR	6.0E-05
WGWC-10	APC-3D	Monitoring, downgradient	1240971.96	2026725.61	809.61	812.38	148.77	673.61	663.61	Saprolite/PWR	1.7E-05
WGWC-11	PZ-14	Monitoring, downgradient	1240860.18	2025773.39	821.44	823.96	51.22	783.14	773.14	Saprolite	1.5E-04
WGWC-12	APC-4D	Monitoring, downgradient	1240827.68	2025755.99	820.57	823.04	76.47	756.57	746.57	Bedrock	6.9E-04
WGWC-13	APC-5D	Monitoring, downgradient	1240610.93	2024585.91	807.32	809.78	95.46	734.32	714.32	Bedrock	9.5E-06
WGWC-14A		Monitoring, downgradient	1240604.54	2024599.63	808.20	810.94	42.74	778.20	768.20	Saprolite/PWR	1.2E-04
WGWC-15	APC-6D	Monitoring, downgradient	1240483.16	2023912.92	802.03	804.69	56.16	758.53	748.53	Bedrock	1.6E-06
WGWC-16	APC-56S	Monitoring, downgradient	1240480.46	2023903.77	801.72	804.21	34.50	779.72	769.72	Saprolite/PWR	7.1E-05
WGWC-17	APC-7	Monitoring, downgradient	1240052.06	2022623.82	813.36	816.00	95.94	730.36	720.36	Bedrock	1.1E-04
WGWC-19	APC-2	Monitoring, downgradient	1241851.51	2028949.19	780.60	783.42	94.82	698.60	688.60	Bedrock	1.3E-04
WGWC-20	PZ-22	Monitoring, downgradient	1243350.76	2029769.43	804.88	807.95	43.17	775.18	765.18	Bedrock	1.5E-04
WGWC-21	PZ-23S	Monitoring, downgradient	1242139.33	2028512.65	831.79	834.41	71.70	773.11	763.11	Bedrock	8.4E-08
WGWC-22	PZ-24	Monitoring, downgradient	1241695.25	2028116.05	807.00	810.37	43.85	776.92	766.92	PWR/Bedrock	1.3E-05
WGWC-23	PZ-25S	Monitoring, downgradient	1240769.79	2027414.58	820.50	823.80	53.80	780.40	770.40	PWR	1.2E-04
WGWC-24	PZ-26S	Monitoring, downgradient	1239916.68	2024139.82	802.22	804.80	40.77	774.43	764.43	PWR	2.2E-04
WGWC-25	PZ-27S	Monitoring, downgradient	1240184.18	2023616.69	805.98	808.98	39.87	779.51	769.51	Saprolite/PWR	2.9E-04
Assessment Monito	ring Wells	-									
WGWC-26D		Assessment	1243343.66	2029758.85	805.06	808.23	69.27	749.31	739.31	Bedrock	7.1E-05
WGWC-27		Assessment	1243215.51	2029878.92	778.05	780.54	41.69	749.15	739.15	Bedrock	9.2E-06

Notes:

ft = feet

BTOC = below top of casingPWR = Partially Weathered Rock

 $K_h$  = horizontal hydraulic conductivity

cm/sec = centimeter per second

--- = Location not tested

(1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.

(2) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88). Ground surface elevation defined at the survey nail installed within the well pad.

(3) Survey of WGWA-1 through WGWC-25 was completed by GEL Solutions and certified June 16, 2020. Survey of WGWC-25 was completed by GEL Solutions and certified on November 17, 2020.

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(4) Total well depth accounts for sump if data provided on well construction logs.

(5)  $K_h$  as determined by slug testing (in piezometers and wells) or iso-flow packer testing (in open bedrock boreholes). Horizontal hydraulic conductivity in bedrock is from targeted tests of fracture zones and not likely representative of bulk permeability of the rock units.

February 2023

Table A-2
AP-1 Water Level Monitoring Network Piezometer Details
Plant Wansley, Heard and Carroll Counties, Georgia

Piezometer ID (1)	Purpose	Northing (2,4)	Easting (2,4)	Ground Surface Elevation (3,4) (ft NAVD88)	Top of Casing Elevation <sup>(3,4)</sup> (ft NAVD88)	Well Depth (5) (ft BTOC)	Top of Screen Elevation <sup>(3,4)</sup> (ft NAVD88)	Bottom of Screen Elevation (3,4) (ft NAVD88)	Screened Media	K <sub>h</sub> <sup>(6)</sup> (cm/sec)
PZ-01	Water level	1240249.86	2022319.93	853.91	856.72	49.31	817.81	807.81	Bedrock	3.2E-04
PZ-04	Water level	1242592.03	2023595.91	886.13	889.01	20.48	878.93	868.93	Saprolite/Bedrock	
PZ-06	Water level	1244382.89	2024661.39	912.30	915.15	26.95	898.60	888.60	Bedrock	3.9E-03
PZ-08	Water level	1245514.59	2026807.30	864.65	867.29	40.84	836.85	826.85	Saprolite/Bedrock	2.4E-03
PZ-10	Water level	1242058.41	2028554.29	829.26	832.02	31.96	810.46	800.46	Bedrock	1.1E-06
PZ-11	Water level	1240578.87	2026933.09	820.21	823.09	33.78	799.71	789.71	Saprolite/Bedrock	1.7E-04
PZ-12	Water level	1240837.96	2026731.01	816.17	818.74	49.77	779.37	769.37	Saprolite	5.4E-05
PZ-15	Water level	1240457.61	2025105.38	824.59	826.86	41.47	795.79	785.79	Saprolite	3.9E-05
PZ-16	Water level	1239419.77	2023662.22	798.05	800.70	26.15	785.05	775.05	Saprolite	3.6E-04
PZ-17	Water level	1239270.02	2023086.50	828.54	831.01	51.57	789.84	779.84	Saprolite	6.6E-04
PZ-18	Water level	1239569.52	2022299.20	812.10	814.51	36.71	788.20	778.20	Saprolite	2.8E-04
PZ-20	Water level	1243496.86	2030132.73	784.45	787.30	37.85	759.45	749.45	Saprolite	
PZ-23D	Water level	1242139.53	2028520.87	831.89	834.32	94.80	749.92	739.92	Bedrock	4.5E-04
PZ-26D	Water level	1239919.45	2024146.35	802.31	804.93	80.10	735.23	725.23	Bedrock	1.9E-05
PZ-27D	Water level	1240190.93	2023620.36	806.22	809.28	81.72	737.96	727.96	Bedrock	7.8E-04
PZ-28	Water level	1240066.02	2022624.73	813.57	816.18	72.90	753.68	743.68	Saprolite/PWR	1.2E-04
PZ-29S	Water level	1244317.13	2028839.68	805.80	805.30	45.42	770.28	760.28	Dike Material	
PZ-29D	Water level	1244304.90	2028853.29	805.77	805.24	126.95	688.69	678.69	Saprolite/PWR/Bedrock	8.3E-06
WAMW-1	Water level	1241843.66	2028944.63	780.05	782.66	124.60	668.40	658.40	Bedrock	
WAMW-2	Water level	1241547.56	2028806.27	768.39	770.82	86.91	694.19	684.19	Bedrock	

Notes:

ft = feet

BTOC = below top of casing

PWR = Partially Weathered Rock

 $K_h$  = horizontal hydraulic conductivity

cm/sec = centimeter per second

- --- = Location not tested
- (1) Piezometers used only to gauge water levels in vicinity of AP-1 and refine the AP-1 potentiometric map.
- (2) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.
- (3) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88). Ground surface elevation defined at the survey nail installed within the well pad.
- (4) Survey of PZ-01 through PZ-20 was completed by GEL Solutions and certified June 16, 2020. Survey of PZ-23D through PZ-29D was completed by GEL Solutions and certified on November 17, 2020.
- (5) Total well depth accounts for sump if data provided on piezometer construction logs.
- (6) K<sub>h</sub> as determined by slug testing (in piezometers and wells) or iso-flow packer testing (in open bedrock boreholes). Horizontal hydraulic conductivity in bedrock is from targeted tests of fracture zones and not likely representative of bulk permeability of the rock units.

1 of 1 February 2023

Table A-3
Horizontal Groundwater Gradient and Flow Velocity Calculations
Plant Wansley AP-1, Heard and Carroll Counties, Georgia

		February	y 28, 2022			August	8, 2022	
Flow Path Direction	h <sub>1</sub> (ft)	h <sub>1</sub> (ft) h <sub>2</sub> (ft) L (ft) i (ft/ft)				h <sub>2</sub> (ft)	L (ft)	i (ft/ft)
PZ-01 to WGWC-17	817.95	786.32	373	0.085	818.30	785.61	373	0.088
PZ-10 to WGWC-19	804.69	763.77	446	0.092	801.66	762.26	446	0.088

				Averaged	l for 2022	
Flow Path Direction	K <sub>h</sub> (ft/day)	n <sub>e</sub>	i (ft/ft)	V (ft/day) <sup>(1)</sup>	V (ft/day) <sup>(2)</sup>	V (ft/yr) <sup>(2)</sup>
PZ-01 to WGWC-17	0.27	0.25	0.086	0.093	0.095	34.7
PZ-10 to WGWC-19	0.27	0.25	0.090	0.097	0.093	34.7

Notes:

ft = feet

ft/ft = feet per foot

ft/day = feet per day

ft/yr = feet per year

 $h_1, h_2$  = groundwater elevation at location 1 and location 2

L = distance between location 1 and 2

 $i = h_1 - h_2 / L = horizontal hydraulic gradient$ 

 $K_h$  = horizontal hydraulic conductivity

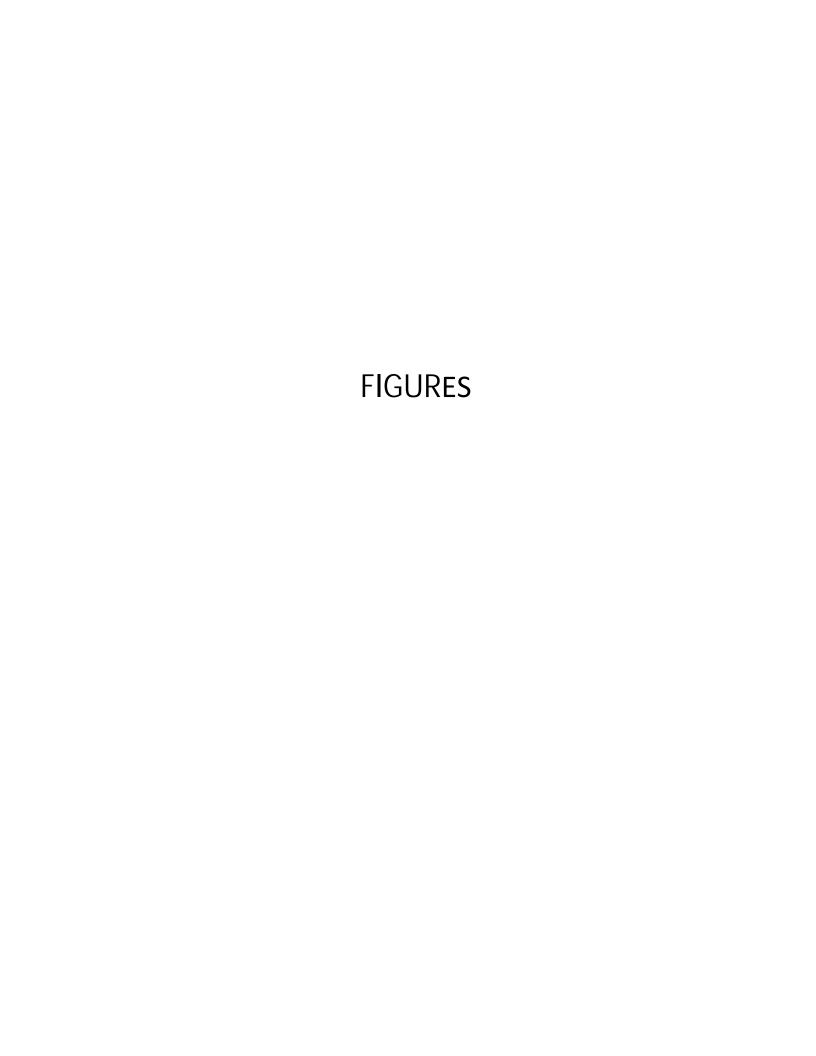
 $n_e$  = effective porosity

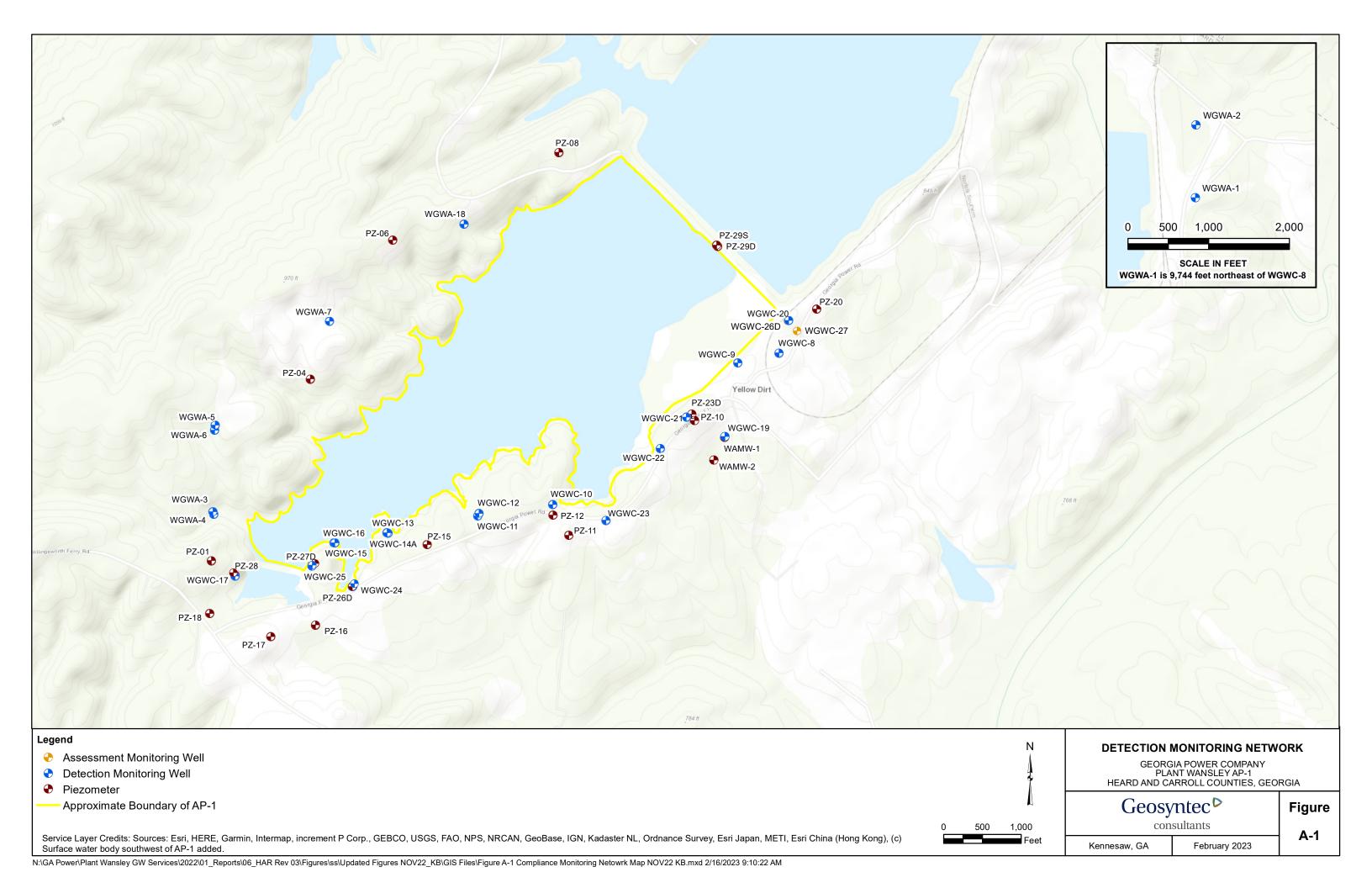
V = groundwater flow velocity

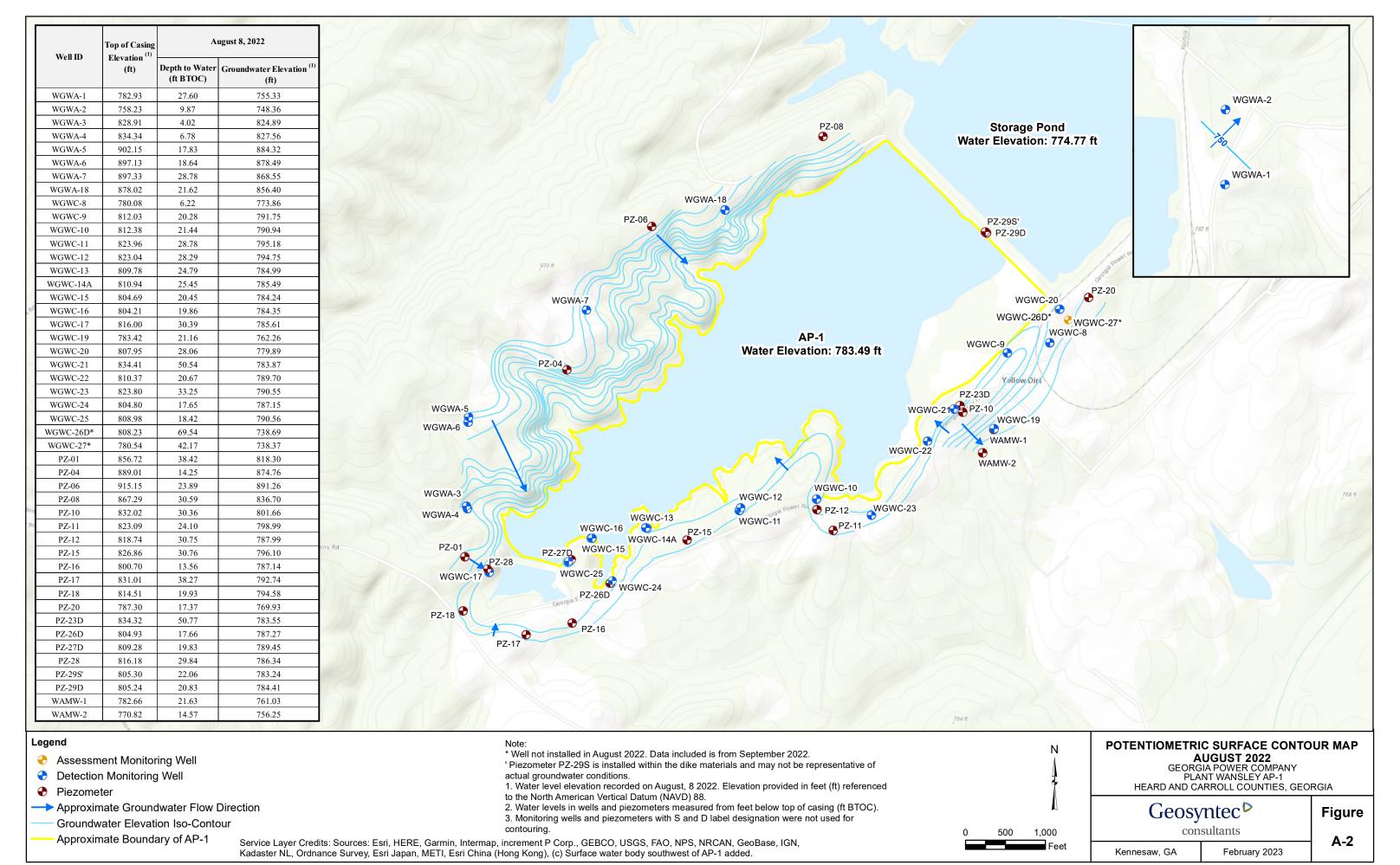
(1) Groundwater flow velocity equation:  $V = [K_h * i] / n_e$ 

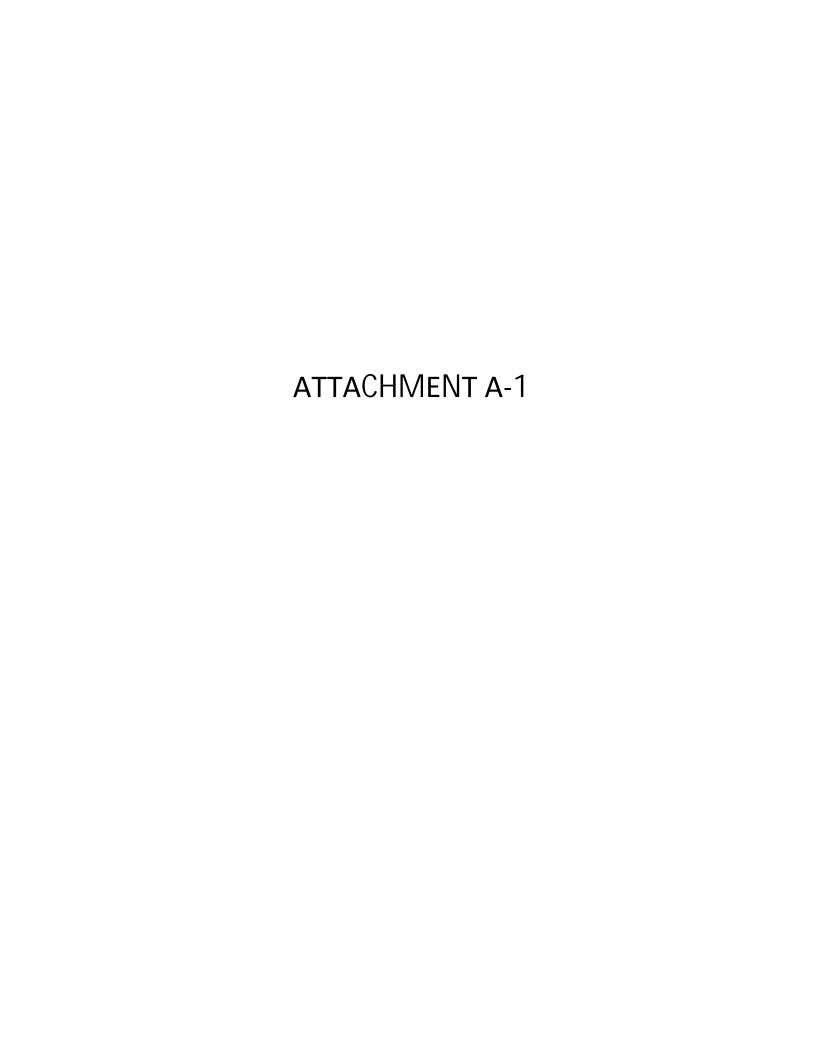
(2) Average groundwater flow velocity for unit.

1 of 1 February 2023









PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 127.00 ft

LOCATION: Carrollton, GA

RECORD OF BOREHOLE WGWA1/APA-1

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/19/15 DATE COMPLETED: 10/21/15

NORTHING: 1250656.10 EASTING: 2035580.71 GS ELEVATION: 780.37 TOC ELEVATION: 782.93 SHEET 1 of 3
DEPTH W.L.: 27.6' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/21/15
TIME W.L.: 07:50

SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION 9 ELEV. GRAPHIC LOG nscs TYPE SAMPLE REC DESCRIPTION **DETAILS** DEPTH (ft) 780 0.00 - 4.00 WELL CASING SILT; orange, dry (fill) Interval: -2.5'-118' Material: Schedule 40 PVC Diameter: 2"
Joint Type: Threaded ML WELL SCREEN 776.37 Interval: 117'-127 4.00 - 26.00 CLAYEY SILT; sample mostly broken down into SILT-sized Material: Schedule 40 PVC 5 775 Diameter: 2' fragments; light brown to light orange brown, dry. Clasts in sample are very fine grained muscovite-plagioclase schist. (ML) Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 116-127'
Type: #1 Sand/ Pre-packed FILTER PACK SEAL 10 - 770 Interval: 114'-116' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-114'
Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized 15 765 ML Aluminum DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic 20 760 25 - 755 754.37 26.00 - 37.00 26.00 grayish-red to grey and red. top 1' is dry, 27' and deeper is moist. Greater abundance of rock fragments in sample 1-2" in diameter. Muscovite-plagioclase schist with <5% quartz. Visible, very fine foliated texture, weathered (saprolite) 30 -- 750 ML PIEDMONT.GDT - 745 743.37 BORING LOGS.GPJ 37.00 37:00 - 42:00 SAPROLITE ROCK; moist, grey and brown quartzose schist with about 5% muscovite, <5% garnet <1mm-3mm. Broken into fragments up to 3" in diameter **PWR** <del>- 740</del> 738.37 WANSLEY 42.00 - 47.00 42.00 moist, grey and light red, weathered muscovite schist interlayered with quartz-rich lenses up to 2" thick (scarce) - 735 Log continued on next page

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G. CHECKED BY: Rachel P. Kirkman, P.G.

DATE: 9/29/17



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 127.00 ft LOCATION: Carrollton, GA

# RECORD OF BOREHOLE WGWA1/APA-1 DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/19/15 DATE COMPLETED: 10/21/15 NORTHING: 1250656.41 EASTING: 2035580.13 GS ELEVATION: 780.37

NORTHING: 1250656.41 EASTING: 2035580.13 GS ELEVATION: 780.37 TOC ELEVATION: 782.93

SHEET 2 of 3 DEPTH W.L.: 27.6' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 10/21/15 TIME W.L.: 07:50

		SOIL PROFILE				s	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45 —	—735— -	42.00 - 47.00 moist, grey and light red, weathered muscovite schist interlayered with quartz-rich lenses up to 2" thick (scarce) (Continued)		A A A A A A A A A A A A A A A A A A A	DEPTH (ft)	SAN				WELL CASING Interval: -2.5'-118' Material: Schedule 40 PV
50 -	- - - - 730 - -	47.00 - 57.00 CLAYEY SILT; moist, white, 90% plagioclase, 5% muscovite, <5% quartz, with a 2" lense of muscovite schist and weathered pegmatite	ML		47.00				Portland _ Type 1 =	Diameter: 2" Joint Type: Threaded  WELL SCREEN Interval: 117'-127' Material: Schedule 40 PV Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PV  FILTER PACK Interval: 116-127' Type: #1 Sand/ Pre-pack Filter
55	- 725									FILTER PACK SEAL Interval: 114'-116' Type: 3/8" Bentonite Pelle
60 -	- - - - - 720 -	57.00 - 64.00 SAPROLITE ROCK; moist, orange-brown muscovite plagioclase schist. <5% quartz. metamorphic texture present. Quartzite/quartz rich lenses at 64-66',80-80.1', and 87-88'		2	∆1				Portland	ANNULUS SEAL Interval: 0'-114' Type: Portland Type 1  WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodiz Aluminum  DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
65 -	- - - 715 - - -	64.00 - 77.00 POOR RECOVERY; broken quartzose schist, white to grey, wet		DV 4 P V V V V V V V V V V V V V V V V V	716.37					
-	- 710 - - - - - - 705		TWR	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7					
80 -	- - - 700 - -	77.00 - 87.00 SAPROLITE ROCK; weathered muscovite schist, metamorphic foliation, lenses of quartz-rich weather resistant material, moist		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	77.00					
85 —	- 695 - - -	87.00 - 88.00 brown, wet, foliated quartzite 88.00 - 91.00 moist, orange/brown, garnet muscovite schist, oxidized feldspar, weathered quartz	TWR	ΔΔ V ΔΔ V ΔΔ V	693.37 87.00 692.37 88.00					
90 —	<del>-</del> 690	Log continued on next page		D^ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	2					
DRIL	LING	LE: 1 in = 5.5 ft COMPANY: Cascade Drilling Tom Ardito	(	CHEC		r: Ra			George, P.G. rkman, P.G.	Golder



#### RECORD OF BOREHOLE WGWA1/APA-1

PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 127.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/19/15 DATE COMPLETED: 10/21/15 NORTHING: 1250656.41 EASTING: 2035580.13 GS ELEVATION: 780.37 TOC ELEVATION: 782.93 SHEET 3 of 3
DEPTH W.L.: 27.6' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/21/15
TIME W.L.: 07:50

	z	SOIL PROFILE				S	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
90 —	690 	91.00 - 107.00 SAPROLITE; moist, white/orange/brown, weathered garnet mica schist		2	689.37				3/8" Bentonite — Pellets	WELL CASING Interval: -2.5'-118' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN
95 — –	685 									Interval: 117'-127' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC
-	-		TWR	00000000000000000000000000000000000000						FILTER PACK Interval: 116-127' Type: #1 Sand/ Pre-packed Filter FILTER PACK SEAL
100 —	680  			Paded Paded DVaded Paded						Interval: 114'-116' Type: 3/8" Bentonite Pellets  ANNULUS SEAL Interval: 0'-114' Type: Portland Type 1
105 —	- - - 675			4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4						WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum
-	_	107.00 - 113.00 wet, broken rock fragments		204	673.37 107.00					DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
110 —	— 670 —			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						
- 115 —	_ _ _ 665	113.00 - 117.00 moist, weathered orange soil with faint fabric	TWR	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	667.37 113.00				3/8" - Bentonite	
- - -	-	117.00 - 126.50 TRANSITIONALLY WEATHERED ROCK; wet, brown rock fragments up to 3" in diameter		D 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	663.37				Pellets -	
120 — —	— 660 - -			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					#1 Sand	
125 —	- 655 			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	653.37 127.00				0.010" Slot	
-	- -	126.50 - 127.00 SAPROLITE; light brown wix of clay, silt, fine to coarse sand and angular gravel  Boring completed at 127.00 ft	TWR	~ A A A	127.00				<u>- [최표회</u> - -	
130 — — —	650  								- - -	
135 —	- - - 645								- - -	

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G. CHECKED BY: Rachel P. Kirkman, P.G.



#### RECORD OF BOREHOLE WGWA2/APA-2D

PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 107.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/15/15 DATE COMPLETED: 10/16/15

NORTHING: 1251556.40 EASTING: 2035590.11 GS ELEVATION: 755.77 TOC ELEVATION: 758.23

SHEET 1 of 3 DEPTH W.L.: 11.55' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 10/20/15 TIME W.L.: 10:30

		SOIL PROFILE			ELEVA	_	AMPLE			
<sub>=</sub>	NOIL			U	ELEV.	ġ.			MONITORING WELL/	WELL
DEPTH (#)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC	DEPTH (ft)	SAMPLE NO.	TYPE	REC	PIEZOMETER DIAGRAM and NOTES	CONSTRUCTION DETAILS
0 -	— 755 —	0.00 - 5.00 SILTY CLAY; reddish-brown, firm, moist. No fabric. <5% mica flakes. Fill/overburden soil	CL						-	WELL CASING Interval: -2.5'-90' Material: Schedule 40 PV Diameter: 2" Joint Type: Threaded WELL SCREEN
5 —	- 750 -	5.00 - 7.00 SILTY CLAY; orange-red to orange-brown, moist. Oxidized and mottled black stringers (Mn Oxide) and white veins of plagioclase, weathered (saprolite)	CL		750.77 5.00 748.77 7.00	-				Interval: 90'-100' Material: Schedule 40 P\ Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 P
10 —	- - - 745 - -	7.00 - 25.00 SILTY CLAY; saprolite			7.50					Interval: 87'-100' Type: #1 Sand/Pre-pack Filter PACK SEAL Interval: 84'-87' Type: 3/8" Bentonite Pell ANNULUS SEAL Interval: 0'-84' Type: Portland Type 1 WELL COMPLETION
15 —	- 740  		CL							Pad: 4'x4'x4' Protective Casing: Anodi Aluminum  DRILLING METHODS  Soil Drill: 4-inch Sonic  Rock Drill: 4-inch Sonic
20 -	735   				730.77					
-	730  	25.00 - 30.00 CLAYEY SILT; moist, pale brown, some red clay, plagioclase stringers	ML		25.00					
30 —	- 725 - - -	30.00 - 60.00 SANDY SILT; dry to moist, pale yellow to brown. Fabric not evident			725.77					
35 —	- 720 - - -		ML						Portland	
40 —	 715  								Portland _ ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	
LOG	LLING	LE: 1 in = 5.5 ft COMPANY: Cascade Drilling Tom Ardito		CHE	NSPECT CKED B' E: 9/29/	Y: Ra			l ichards rkman, P.G.	Golder



#### RECORD OF BOREHOLE WGWA2/APA-2D

PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 107.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/15/15 DATE COMPLETED: 10/16/15 NORTHING: 1251556.40 EASTING: 2035590.11 GS ELEVATION: 755.77 TOC ELEVATION: 758.23 SHEET 2 of 3
DEPTH W.L.: 11.55' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/20/15
TIME W.L.: 10:30

	_	SOIL PROFILE					S	AMPLE	S		
(ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC	507	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45 —	— 710 —	30.00 - 60.00 SANDY SILT; dry to moist, pale yellow to brown. Fabric not evident (Continued)								-	WELL CASING Interval: -2.5'-90' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded
50 —	- - - 705										WELL SCREEN Interval: 90'-100' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC
-	-		ML								FILTER PACK Interval: 87'-100' Type: #1 Sand/Pre-packed Filter
55 —	- 700 -										FILTER PACK SEAL Interval: 84'-87' Type: 3/8" Bentonite Pellet ANNULUS SEAL Interval: 0'-84'
50 —	- - -	00.00 70.00				695.77					Type: Portland Type 1  WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum
-	695 	60.00 - 70.00 SANDY SILT; Quartzite rock hard cobble rock fragments				60.00					DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
5 —	- - 690 -		ML								
0 —	- - - - 685	70.00 - 77.00 dry, pale yellow to brown, gravelly				685.77					
-	- - -	73.00 - 77.00 NO RECOVERY	ML								
75 —	680 	77.00 - 81.00 SILTY CLAY; sandy; green, moist, weathered rock with chlorite				678.77 77.00				00001 00001	
0 -	- - - 675		CL			674.77					
-	- - -	81.00 - 83.00 GRAVELLY SILT; transitionally weathered rock, dry, pale brown 83.00 - 90.00 TRANSITIONALLY WEATHERED BOOK: brown >2" rock	ML	000000		81.00 672.77 83.00					
5 —	- 670 	TRANSITIONALLY WEATHERED ROCK; brown, >3" rock fragments, moist	TWR							3/8" Bentonite — Pellets	
-	-			0444 0400	DD00	665.77					

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Timothy Richards CHECKED BY: Rachel P. Kirkman, P.G.

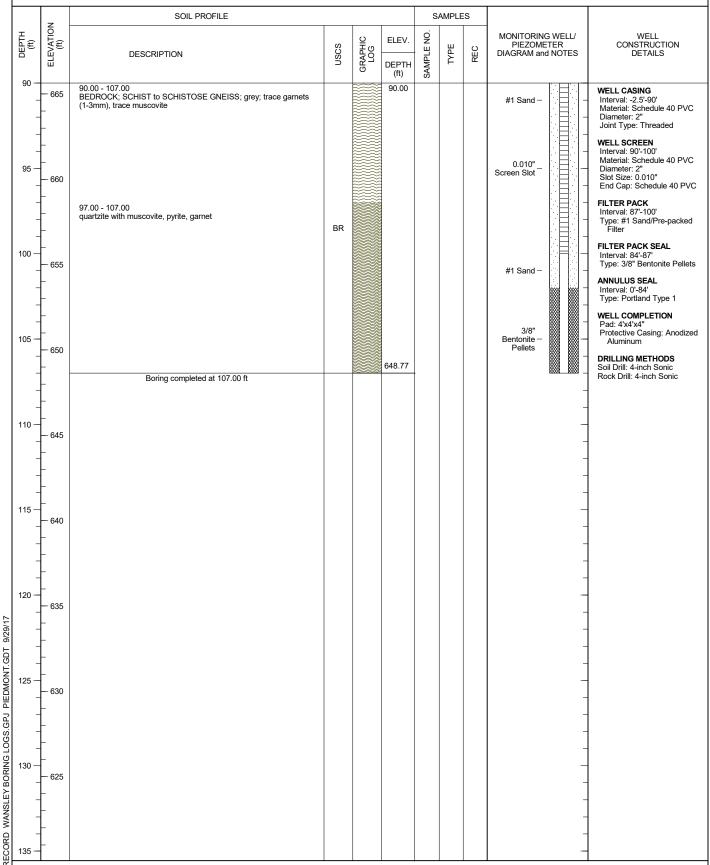


#### RECORD OF BOREHOLE WGWA2/APA-2D

PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 107.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/15/15 DATE COMPLETED: 10/16/15 NORTHING: 1251556.40 EASTING: 2035590.11 GS ELEVATION: 755.77 TOC ELEVATION: 758.23 DEPTH W.L.: 11.55' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 10/20/15 TIME W.L.: 10:30

SHEET 3 of 3



LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Timothy Richards CHECKED BY: Rachel P. Kirkman, P.G.



SOUTHERN

WANSLEY ASH POND 1 (2).GPJ

2013 GEOTECH LOG WITH WELL - ESEE 2012DATABASE, GDT - 2/26/15 15:57 - S.WORKGROUPS/APC GENERL SERVICE COMPLEXIONI, TECH SUPPORT DRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINT/PLANT

### LOG OF TEST BORING

WGWA-3 (PZ-02)

PAGE 1 OF 1 ECS38198 AND WELL INSTALLATION **PROJECT** Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley **DATE STARTED** 12/15/2014 **COMPLETED** 12/15/2014 **SURF. ELEV.** 826.63 COORDINATES: N:1240848.21 E:2022350.10 CONTRACTOR CASCADE EQUIPMENT SONIC METHOD Rotosonic **DRILLED BY** T.Ardito LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE **BEARING** BORING DEPTH 18 ft. GROUND WATER DEPTH: DURING COMP. 3.5 ft. DELAYED 9.6 ft. after 24 hrs. STRATA DESCRIPTION **WELL DATA** Œ GRAPHIC LOG DEPTH Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 828.91 **ELEV** FI F\ (DEPTH Silty Gravel (GM) - brown, moist, fine to medium grain, angular, mottled yellow Surface Seal: concrete ·B 824.63 (2.0)- brown, moist, fine to medium grain, angular, mottled orange Annular Fill: Cement-Bentonite Grout - 1 [4 (1) bag, 46 lbs, Portland Type I/II, 5.5 gal 823.03 (3.6)Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips 821.03 (5.6)Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media 820.23 (6.4)819.63 **Gneiss** - brown, fine grain, hard to medium hard, moderately weathered, nonfoliated Well: 2" OD PVC (SCH 40) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 810.23 Sump:0.40 ft. 808.63 Bottom of borehole at 18.0 feet.

Log updated with revised survey data certified 6/16/2020. Original boring ID in parentheses. Fasting and Northing in NAD 83. Flevation in NAVD 88.

	asung a	and Northing in NAD 65. Elevation in NAVD 66.						
0 0 1 0 1 0 1	so	LOG OF TE AND WELL IN					BORING WG (PZ-02D) PAGE 1	
5	SOI IT		OJECT Ash F	ond Pi	iezor	neters		
[			CATION Plan	t Wans	sley			
4		TARTED 1/6/2015 COMPLETED 1/13/2015 SURF. EL						6
] [		ACTOR SCS Field Services EQUIPMENT CME55	<u> </u>					
ŧI.		D BY _T. MilamLOGGED BY _S. Baxter CHEC C DEPTH _70 ft GROUND WATER DEPTH: DURING						
j		GROUND WATER DEPTH. DURING		·		DELATED	4.00 II. alter 1000 IIIS.	
	0.20							
	OHC OHC	STRATA DESCRIPTION					L DATA	
DEPTH (ft)	GRAPHIC LOG				ī	Protective alumir 2-foot square cor Top of casing Ele	num cover with bollards ncrete pad ev. = 834.34	ELEV
			ELEV	• 53 A	· [] ^			(DEPTH
					7	←Surface Seal: c	concrete	829.33
								(2.0)
7.		$\Delta$						
		Gneiss with interlayered schist	822.93					
10		<ul> <li>light blue-gray, red staining, fine to medium grain, medium har hard, moderately to highly weathered, inclined, banded, quartz,</li> </ul>	rd to					
		biotite, muscovite - brown with red stained fractures, fine to medium grain, mediur	m hard					
		to hard, moderately to highly weathered, inclined, banded, low t moderate angle fractures, fracture healing by quartz+feldspar	0					
75								
i ) ) 		- brown with red stained fractures, fine to medium grain, mediur						
		to hard, moderately to highly weathered, inclined, banded, low t moderate angle fractures, fracture healing by quartz+feldspar	0					
2	]							
						Annular Fill: Ce	ement-Bentonite Grout - 6	
		<ul> <li>light blue-gray with red to dark brown stining, very fine to medigrain, medium hard to hard, moderately weathered, inclined, ba</li> </ul>				bags, 46 lbs, P	ortland Type I/II, 33 gal	
25		low to high angle fractures, quartz, biotite, muscovite	,					
	1/	- blue-gray with red staining, very fine to medium grain, hard, no	ot to					
		moderately weathered, inclined, banded, low angle fractures wit partial to complete healing, open fractures along foliation planes	th					
2		quartz, feldspar, biotite, pyrite	<b>.</b> ,					

light blue-gray, very fine to medium grain, hard, not to slightly weathered, inclined, banded, low angle fractures, open to completely healed, felspar, muscovite, biotite, trace chorite

- light blue-gray, very fine to medium grain, hard, not to slightly weathered, inclined, banded, low angle fractures, open to completely

healed, felspar, muscovite, biotite, trace chorite

2012 GEOTECH LOG WITH WELL - ESEE2012DATAE



2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE, GDT - 226/15 15:58 - S:WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINT/PLANT WANSLEY ASH POND 1 (2), GPJ

9

65

DEPTH (ft)

### LOG OF TEST BORING AND WELL INSTALLATION

BORING WGWA-4 (PZ-02D) PAGE 2 OF 2

PAGE 2 OF 2 ECS38198

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers

**LOCATION** Plant Wansley

GRAPHIC LOG STRATA DESCRIPTION **WELL DATA** Protective aluminum cover with bollards 2-foot square concrete pad Top of casing Elev. = 834.34 ELEV (DEPTH ELEV. Gneiss with interlayered schist(Con't) 789.23 - gray with light gray banding, fine to medium grain, hard, not (42.1)weathered, inclined, banded, low- and high-angle fractures, biotite, Annular Seal: bentonite pellets - 1/2 quartz, feldspar, trace pyrite bucket, 3/8" pellets, 5 gal bucket 785.83 (45.5)- gray with light gray banding, fine to medium grain, hard, not Filter: silica filter sand - 3 bags, 50 lbs, weathered, inclined, banded, low- and high-angle fractures, biotite, #1A filter media quartz, feldspar, trace pyrite 780.43 (50.9)gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, low- and high-angle fractures, biotite, quartz, feldspar, trace pyrite Well: 2" OD PVC (SCH 40)

 gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, low- and high-angle fractures, biotite, quartz, feldspar, trace pyrite

- gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, numerous low- and high-angle fractures, biotite, quartz, feldspar, trace pyrite

- gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, numerous low- and high-angle fractures, biotite, quartz, feldspar, trace pyrite

Bottom of borehole at 70.0 feet.

761.33

Well: 2" OD PVC (SCH 40) Screen: 20 ft. pre-pack

Sump:0.40 ft.

760

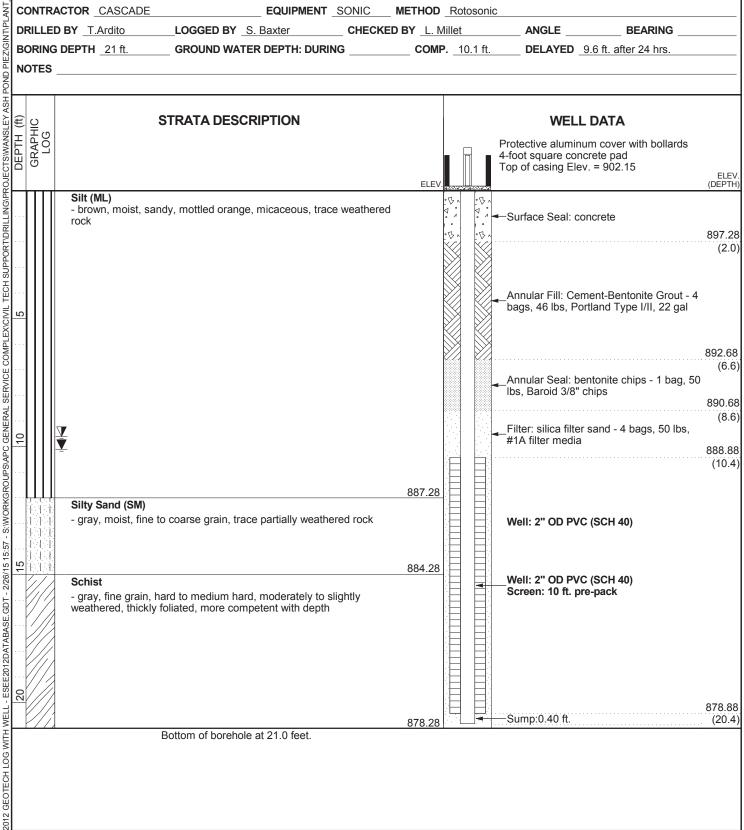
Bottom of borehole at 21.0 feet.

SOUTHERN A
COMPANY

WANSLEY ASH POND 1 (2).GPJ

PAGE 1 OF 1

WGWA-5 (PZ-03S) LOG OF TEST BORING ECS38198 AND WELL INSTALLATION **PROJECT** Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley DATE STARTED 12/23/2014 COMPLETED 12/23/2014 SURF. ELEV. 899.28 COORDINATES: N:1241997.94 E:2022368.85 CONTRACTOR CASCADE EQUIPMENT SONIC METHOD Rotosonic DRILLED BY T.Ardito LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE BEARING BORING DEPTH 21 ft. GROUND WATER DEPTH: DURING COMP. 10.1 ft. DELAYED 9.6 ft. after 24 hrs. STRATA DESCRIPTION **WELL DATA** GRAPHIC Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 902.15 FLEV



Log updated with revised survey data certified 6/16/2020. Original boring ID in parentheses. Easting and Northing in NAD 83. Elevation in NAVD 88.



**BORING WGWA-6** 

WANSLEY ASH POND 1 (2).GP. LOG OF TEST BORING (PZ-03D) PAGE 1 OF 3 AND WELL INSTALLATION ECS38198 **PROJECT** Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley **DATE STARTED** 12/16/2014 **COMPLETED** 1/13/2015 **SURF. ELEV.** 894.62 COORDINATES: N:1241932.02 E:2022360.58 SERVICE COMPLEX/CIVIL TECH SUPPORT/DRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINT/PLANT **EQUIPMENT** CME550 **METHOD** Hollow Stem Auger; HQ Rock Core CONTRACTOR SCS Field Services DRILLED BY T. Milam LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE BEARING BORING DEPTH 100.5 ft. GROUND WATER DEPTH: DURING COMP. 13.2 ft. DELAYED 15 ft. after 24 hrs. NOTES GRAPHIC LOG STRATA DESCRIPTION Œ **WELL DATA** DEPTH Protective aluminum cover with bollards 2-foot square concrete pad Top of casing Elev. = 897.13 **ELEV** FI F\ (DEPTH Silt (ML) Surface Seal: concrete 892.62 (2.0)Partially Weathered Rock (PWR) 9 881.62 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 2/26/15 15:58 - S:\WORKGROUPS\APC GENERAL 877.62 **Gneiss with interlayered schist** - gray and light gray, gray-brown, fine to medium grain, medium hard, moderately to slightly weathered, inclined, low angle fractures on foliation planes, biotite, quartz, feldspar - gray and dark gray-brown, fine to coarse grain, soft to hard, moderately to not weathered, inclined, banded, inclined fractures on foliation planes, biotite, quartz, feldspar 25 - gray and light gray, fine to medium grain, soft to hard, slightly to not weathered, inclined, banded, very light gray quartz banding, coarse grained schist, foliation plane fractures, biotite, quartz, feldspar Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal - gray and light gray, fine to medium grain, soft to hard, slightly to not weathered, inclined, banded, very light gray quartz banding, coarse grained schist, foliation plane fractures, biotite, quartz, feldspar gray and light gray, fine to medium grain, hard, not weathered, inclined, banded, few low angle fractures, biotite, quartz, feldspar



### **LOG OF TEST BORING** AND WELL INSTALLATION

		HERN COMPANY SERVICES, INC. I SCIENCE AND ENVIRONMENTAL ENGINEERING  LOCATION PIE	sh Pond Piezometers Plant Wansley
טברוח (ווי)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA  Protective aluminum cover with bollards 2-foot square concrete pad Top of casing Elev. = 897.13
		Gneiss with interlayered schist(Con't)	LEV (CONTINUED) (DEP
42		- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding	
00		- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, trace pyrite on foliation planes	
CC		- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes	
000		- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes	834. (60
င္သဝ		- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes	Annular Seal: bentonite pellets - 1/2 bucket, 3/8" pellets, 5 gal bucket
0,1		- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, garnet up to 4mm	Filter: silica filter sand - 3 bags, 50 lbs, #1A filter media
		- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, garnet up to 4mm	822.6 (72
00		- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds	Well: 2" OD PVC (SCH 40)
00		- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, finer grained downward	



## **LOG OF TEST BORING**

**BORING WGWA-6** (PZ-03D) PAGE 3 OF 3

105.GPJ	JTHERN AS COMPANY	LOG OF AND WELI					(PZ-03D) PA	_
od ± sout	HERN COMPANY SERVICES, INC.		PROJECT			meters		
EART	H SCIENCE AND ENVIRONMENTAL	ENGINEERING	LOCATION	Plant	Wansley			
CIGINTIPLANT_WANSL DEPTH (ft) GRAPHIC LOG	STRATA DESC	RIPTION		El EV			L DATA num cover with bollar ncrete pad ev. = 897.13	ELEV
2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE GDT - 226/15 15:58 - S:WORKGROUPS\APC GENERAL SERVICE COMPLEXIONIL TECH SUPPORTUDRILLING\PROJECTS\WANSLEY ASH POND PIEZGINT\PLANT WANSLEY ASH POND 1 (2), GPJ   100	Gneiss with interlayered schist(Configray and light gray, fine to coarse grinclined, banded, coarse grained schi common on foliation planes, micro-fol-gray and light gray, fine to coarse grinclined, banded, coarse grained schi common on foliation planes, micro-fol-gray and light gray, fine to coarse grinclined, banded, coarse grained schi common on foliation planes, micro-fol-Bottom of borehole	ain, hard, not weather st, quartz-felsic bandids, massive quartz versic bandids, massive quartz versic bandids, massive quartz versic bandids, massive quartz versic, quartz-felsic bandids, massive quartz versic bandid	ng, pyrite ein red, ng, pyrite ein red, ng, pyrite ein	94.12	(CONTINUED)	Sump:0.40 ft.		792.62

A Vincentino	
SOUTHERN 4	
COMPAI	YV

WGWA-7 (PZ-05) PAGE 1 OF 1

WANSLEY ASH POND 1 (2).GPJ LOG OF TEST BORING ECS38198 AND WELL INSTALLATION **PROJECT** Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley DATE STARTED 12/22/2014 COMPLETED 12/22/2014 SURF. ELEV. 894.49 COORDINATES: N:1243338.63 E:2023843.81 2013 GEOTECH LOG WITH WELL - ESEE 2012DATABASE, GDT - 2/26/15 15:57 - S.WORKGROUPS/APC GENERL SERVICE COMPLEXIONI, TECH SUPPORT DRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINT/PLANT CONTRACTOR CASCADE EQUIPMENT SONIC METHOD Rotosonic DRILLED BY T.Ardito LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE BEARING BORING DEPTH 38.1 ft. GROUND WATER DEPTH: DURING COMP. 9.7 ft. DELAYED 10.1 ft. after 24 hrs. GRAPHIC LOG STRATA DESCRIPTION Œ **WELL DATA** DEPTH Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 897.33 ELEV FLEV (DEPTH Silt (ML) Surface Seal: concrete - red, wet, sandy, mottled brown and orange, trace clay, mica, 892.49 weathered rock (2.0)Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal gray, moist, sandy, mottled orange and brown, trace mica and weathered rock 870.79 - gray, fine grain, hard, not to slightly weathered, massive to thickly Annular Seal: bentonite chips - 1 bag, 50 (23.7) lbs, Baroid 3/8" chips 868.79 Filter: silica filter sand - 4 bags, 50 lbs, (25.7)#1A filter media .867.69 (26.8)Well: 2" OD PVC (SCH 40) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 857.69 Sump: 0.40 ft. (36.8)856.49 Bottom of borehole at 38.1 feet.

SOUTHERN #2
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WGWA-18 (PZ-07)

1 (z).Gr	SOUTHERN	LOG OF TES			N		1 OF 1 38198
יטר הטל	SOUTHERN COMPANY SERVICES, INC					neters	
7	EARTH SCIENCE AND ENVIRONMENT	TAL ENGINEERING LOCA	TION Plant	Wans	ley		
	DATE STARTED 12/16/2014 COMPLET	ED <u>12/16/2014</u> SURF. ELEV	875.47	C	OOF	RDINATES: N: 1244592.56 E:2025580.71	
-1	CONTRACTOR CASCADE						
£Ι	DRILLED BY _T.ArditoLOGGED B BORING DEPTH _37.1 ft. GROUND W						
1	NOTES						
- - - - - - - - - - - - - - - - - - -	€ © STRATA DE	SCRIPTION				WELL DATA	
SECT SWANS	GRAPHIC CRAPHIC LOG				ı	Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 878.02	ELE
	Silt (ML) - brown, moist, sandy, mottled ora angular fine gravel	ange and red, trace mica and	ELEV.	₽,	· \$ ^	Surface Seal: concrete	873.4 (2.0
SKOOPS/APC GENERAL SERVICE COMPLEX/CIVIL LECH SO	- brown, moist, mottled brown and	I red, trace fine gravel				Annular Fill: Cement-Bentonite Grout - 4 bags, 46 lbs, Portland Type I/II, 22 gal	852.9
H WELL - ESEEZUIZDATABASE.GDT -	Schist - gray, fine grain, medium hard, m massive to thickly foliated	noderately to highly weathered,	848.47			Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips  Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media  Well: 2" OD PVC (SCH 40)  Well: 2" OD PVC (SCH 40)  Screen: 10 ft. pre-pack	850.9 (24. 848.4 (27.
							020 4
2 -	Bottom of hore	ehole at 37.1 feet.	838.47		4	Sump:0.40 ft.	838.4

PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 57.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/29/15 DATE COMPLETED: 10/29/15 NORTHING: 1242929.40 EASTING: 2029644.58 GS ELEVATION: 777.70 TOC ELEVATION: 780.08 SHEET 1 of 2
DEPTH W.L.: 36' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/02/2015
TIME W.L.: 12:00

	z	SOIL PROFILE						AMPLE	S		
(#)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC	507	ELEV.	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0 -	- -	0.00 - 2.00 SAPROLITE; overburden, dry to moist, brown to reddish orange	ML			(ft) 775.70	8			W	VELL CASING nterval: -2.5'-47' Material: Schedule 40 PV
-	<b>–</b> 775	2.00 - 4.00 CLAYEY SILT; dry to moist, brown overburden (saprolite)				2.00					Diameter: 2" Joint Type: Threaded
- 5 - -	_	4.00 - 8.00 red orange overburden (saprolite)	ML			773.70 4.00					VELL SCREEN nterval: 47'-57' Material: Schedule 40 PV Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 P\
-	— 770 —	8.00 - 24.00				769.70 8.00				F F	ILTER PACK nterval: 45'-57' Гуре: #1 Sand/Prepacke Filter
-  -  -	-	dry to moist, brown to reddish orange								- F - F - 1 I	ILTER PACK SEAL nterval: 41.5'-45' Гуре: 3/8" Bentonite Pelle
	- 765									A A	NNULUS SEAL nterval: 0'-41.5' Type: Portland Type 1
- - 5 -	- -									<b>v</b> F	VELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodi Aluminum
-	- - - 760									D S	PRILLING METHODS oil Drill: Hydrovac/4-inch Sonic
	-										tock Drill: 4-inch Sonic
) <del>-</del>   -	-									Portland	
	— 755 –					753.70					
5 – <del>[</del> -	-	24.00 - 28.00 GRAVELLY CLAY; wet, yellow-orange, trace black and white stringers, manganese oxide and weathered feldspar, lean clay	GC			24.00					
-	— 750 –	28.00 - 29.00	TWR			749.70 28.00 748.70					
- - - -	-	CLAYEY SAND/TRANSITIONALLY WEATHERED ROCK; wet, brown, clayey silt, some fine to coarse sand, some fine gravel size rock fragments  29.00 - 57.00				29.00					
	- 745	Mylonitic QUARTZITE ROCK; white to light brown, rock is less coherent and likely fractured around 54-56' interval									
- - 5-	-										
-	- - 740		BR							3/8" Bentonite — Pellets	
-	-   -										
( 	-										
	<del></del> 735 									3/8" Bentonite – Pellets	
1	-										

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko CHECKED BY: Rachel P. Kirkman, P.G.



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 57.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/29/15 DATE COMPLETED: 10/29/15

NORTHING: 1242929.40 EASTING: 2029644.58 GS ELEVATION: 777.70 TOC ELEVATION: 780.08

SHEET 2 of 2 DEPTH W.L.: 36' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 11/02/2015 TIME W.L.: 12:00

		SOIL PROFILE				S	AMPLE			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45 — — — — — — — — — — — — — — — — — — —	- - - - - - - - -725	29.00 - 57.00 Mylonitic QUARTZITE ROCK; white to light brown, rock is less coherent and likely fractured around 54-56' interval (Continued)	BR			8			#1 Sand	WELL CASING Interval: -2.5'-47' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded  WELL SCREEN Interval: 47'-57' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC  FILTER PACK Interval: 45'-57' Type: #1 Sand/Prepacked Fillter  FILTER PACK SEAL Interval: 41.5'-45' Type: 3/8" Bentonite Pellets
00	- 720   - 715   - 715   - 710   - 705   - 700	Boring completed at 57.00 ft			720.70					ANULUS SEAL Interval: 0'-41.5' Type: Portland Type 1  WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum  DRILLING METHODS Soil Drill: Hydrovac/4-inch Sonic Rock Drill: 4-inch Sonic
LOG DRII DRII	LLING	LE: 1 in = 5.5 ft COMPANY: Cascade Drilling Tom Ardito	(	CHEC	SPECTO KED BY 9/29/1	/: Ra			rinko rkman, P.G.	Golder Associates



	4
<b>SOUTHERN</b>	7
COMPA	NY

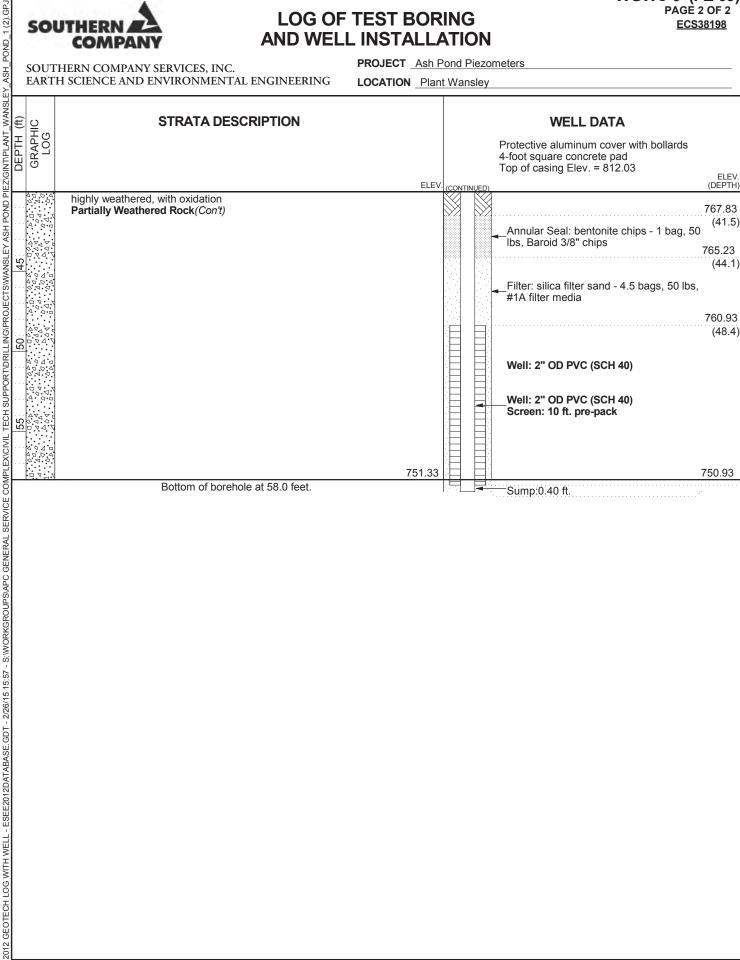
WGWC-9			
PAG	E 1	OF	2
FC	:53	819	R

]	EARTI	HERN COMPANY SERVICES, INC. H SCIENCE AND ENVIRONMENTAL ENGINEERING  CARTED 12/4/2014 COMPLETED 12/4/2014 SURF. ELEV. 28	N Plan	t War	nsley		
		CTOR CASCADE EQUIPMENT SONIC IN					
		BY T.Ardito LOGGED BY S. Baxter CHECKED					
		DEPTH 58 ft. GROUND WATER DEPTH: DURING	_ COM	P. <u>1</u>	/ ft.	DELAYED 12.78 ft. after 24 hrs	-
(ft)	0	STRATA DESCRIPTION				WELL DATA	
DEPTH (	GRAPHIC LOG		ELEV			Protective aluminum cover with bollar 4-foot square concrete pad Top of casing Elev. = 812.03	ds (
		Utility Clearance (HYDROEXCAVATION)		· 5.	₽.	Surface Seal: concrete	8
15 10 5		Well-graded Sandy Gravel (GM) - tan, dry, fine to coarse grain, mottled brown and orange  ▼	799.33 789.33				
		Silt (ML) - orange, wet, clayey, mottled yellow, with coarse gravel	700.00			Annular Fill: Cement-Bentonite Groubags, 46 lbs, Portland Type I/II, 33 g	t - 6 al
35 30 25	30 (20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Silty Gravel (GM) - white, dry, fine to coarse grain, light brown mottling, some oxidation	786.33				



#### **LOG OF TEST BORING** AND WELL INSTALLATION

WGWC-9 (PZ-09) PAGÈ 2 OF 2 ECS38198



PROJECT: SCS Wansley
PROJECT NUMBER: 154117
DRILLED DEPTH: 146.00 ft
LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 10/27/15
DATE COMPLETED: 10/27/15

NORTHING: 1240971.96 EASTING: 2026725.61 GS ELEVATION: 809.61 TOC ELEVATION: 812.38

SHEET 1 of 4 DEPTH W.L.: 7.73' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 10/27/15 TIME W.L.: 14:41

	_	SOIL PROFILE				s	AMPLE	s		
	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
5	- 805	0.00 - 11.00 SILT; dry to moist, yellow to orange-red, some clay, some very fine sand, trace muscovite								WELL CASING Interval: -2.5'-136' Material: Schedule 40 PVI Diameter: 2" Joint Type: Threaded  WELL SCREEN Interval: 136'-146' Material: Schedule 40 PVI Diameter: 2'
		6.00: Shelby Tube Collected: 6'-8'	ML							Slot Size: 0.010" End Cap: Schedule 40 PV FILTER PACK Interval: 134'-136 Type: #1 Sand Prepacked Filter
0	- 800	11.00 - 23.00 CLAYEY SILT; dry to moist, orange to red, 5-10% muscovite, trace black MnO, trace garnet, trace quartz, saprolite			798.61 11.00					FILTER PACK SEAL Interval: 131.5'-134' Type: 3/8" Bentonite Pelle ANNULUS SEAL Interval: 0'-131.5' Type: Portland Type 1
5	- 795		ML							WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodiz Aluminum  DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
0	- 790				786.61					
5 —	- 785	23.00 - 37.00 SILT; moist, yellow brown, some clay, come very fine sand, layers of white CLAYEY SILT, 3" thick lense of weathered pegmatite material at 25', 39', and 42'			23.00					
0	- 780		ML							
5 -	- 775	36.00: Shelby Tube Collected: 36'-38'			772.61					
0	- 770	37.00 - 40.00 CLAYEY SILT; some weathered pegmatite material, white/pink weathered potassium feldspar and plagioclase  40.00 - 47.00 SILT; moist, yellow brown, some clay, come very fine sand, layers of white CLAYEY SILT, 3" thick lense of weathered pegmatitic material at 42'	ML		772.61 37.00 769.61 40.00					
上			ML						0000 00000 00000 00000 00000 00000 00000	

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G. CHECKED BY: Rachel P. Kirkman, P.G.



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 146.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/27/15 DATE COMPLETED: 10/27/15

NORTHING: 1240971.96 EASTING: 2026725.61 GS ELEVATION: 809.61 TOC ELEVATION: 812.38

SHEET 2 of 4 DEPTH W.L.: 7.73' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 10/27/15 TIME W.L.: 14:41

		SOIL PROFILE					AMPLE		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES  WELL CONSTRUCTION DETAILS
45 — — —	- - -	47.00 - 58.00 SAPROLITE; moist, grayish brown with some orange mineral oxidation, weathered muscovite schist, predominately weathered	ML		762.61 47.00				WELL CASING Interval: -2.5'-136' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded
50 —	- - 760 - - - - - 755 -	feldspars, 10-15%muscovite, <10% quartz	ML		751.61				WELL CASING Interval: -2.5'-136' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded  WELL SCREEN Interval: 136'-146' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 134'-136 Type: #1 Sand Prepacked Filter FILTER PACK SEAL Interval: 131.5'-134' Type: 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0'-131.5' Type: Portland Type 1  WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum  DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
60 —	- 750 - - -	58.00 - 58.10  1" black layer with gravel size quarts grains, silt sized black particles 58.10 - 88.00 moist, grayish brown with some orange mineral oxidation, weathered muscovite schist, predominately weathered feldspars			58.10				WELL COMPLETION Pad: 4'X4'X4" Protective Casing: Anodized Aluminum  DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
65 —	745    740								Portland — Fig. 1 — Fig. 1 — Fig. 2 — F
70 — — — — 75 —									
80 —	- 730 - - -								
85 — - -	725   	88.00 - 92.00 SANDY SILT; moist to wet, orange brown, sandy silt, very fine to fine sand, trace fine gravel, micaceous	ML		721.61 88.00				
90 —	<del> 720</del>	Log continued on next page							
DRII	LLING	LE: 1 in = 5.5 ft COMPANY: Cascade Drilling Tom Ardito	(	CHEC		/: Ra			George, P.G. rkman, P.G.  Golder Associates



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 146.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/27/15 DATE COMPLETED: 10/27/15

NORTHING: 1240971.96 EASTING: 2026725.61 GS ELEVATION: 809.61 TOC ELEVATION: 812.38

SHEET 3 of 4 DEPTH W.L.: 7.73' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 10/27/15 TIME W.L.: 14:41

		SOIL PROFILE			C ELEVA		AMPLE			
_	NO.	SOIL FROI ILL					AIVII LL		MONITODING WELL	\\/FI
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
90 –	-	88.00 - 92.00 SANDY SILT; moist to wet, orange brown, sandy silt, very fine to fine sand, trace fine gravel, micaceous <i>(Continued)</i>	ML		717.61					WELL CASING Interval: -2.5'-136' Material: Schedule 40 PV
95 —	- - - 715	92.00 - 96.00 SAPROLITE; moist, grayish brown with some orange mineral oxidation, weathered muscovite schist, predominantly feldspar, trace quartz, trace biotite, trace garnet	ML		92.00					Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 136'-146' Material: Schedule 40 PV Diameter: 2' Slot Size: 0.010"
-	-	96.00 - 97.00 SANDY SILT; moist to wet, orange brown, sandy silt, very fine to fine sand, trace fine gravel, micaceous 97.00 - 106.00 SAPROLITE; moist, grayish brown with some orange mineral	ML		713.61 96.00 712.61 97.00					End Cap: Schedule 40 Pt FILTER PACK Interval: 134'-136 Type: #1 Sand Prepacker
00 -	- 710 -	SAFROLITE, most, grayish brown with some orange filmeral oxidation, weathered muscovite schist, predominantly feldspar, trace quartz, trace biotite, trace garnet								Filter FILTER PACK SEAL Interval: 131.5'-134' Type: 3/8" Bentonite Pello
-	- - -		ML							ANNULUS SEAL Interval: 0'-131.5' Type: Portland Type 1  WELL COMPLETION Pad: 4'x4'x4"
105 –	705 	106.00 - 116.00			703.61 106.00					Protective Casing: Anodi Aluminum  DRILLING METHODS
-	- -	NO RECOVERY			100.00					Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
10 -	- 700 -									
	- - -									
  15 —  -	695 -	116.00 - 119.00		$\nabla^{D} \Delta^{D} \nabla^{D} \nabla^{D$	693.61 116.00					
-	-	SAPROLITE ROCK; garnetiferous, muscovite meta quartzite rock fragments up to 2.5" interbedded with weathered muscovite schist	TWR	4	690.61					
20 -	690 	119.00 - 139.00 moist to wet, silty clay and silt, weathered garnet, muscovite, plagioclase, schist, trace quartz		D 4 D 4 D 4 D 4 D 5 D 5 D 5 D 5 D 5 D 5						
-	- - - 685									
25 —	- - -			DQ Q D Q D Q D Q Q Q Q Q Q Q Q Q Q Q Q						
30 —	- 680 				V V V					
- - - -	- - -			2					3/8" Bentonite – Pellets	
135 —	- 675	Log continued on next page		DO O						
		LE: 1 in = 5.5 ft COMPANY: Cascade Drilling							George, P.G. rkman, P.G.	Golder



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 146.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/27/15 DATE COMPLETED: 10/27/15 NORTHING: 1240971.96 EASTING: 2026725.61 GS ELEVATION: 809.61 TOC ELEVATION: 812.38 SHEET 4 of 4
DEPTH W.L.: 7.73' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/27/15
TIME W.L.: 14:41

		CON DEOCH C			ELEVA		AMPLE			
_	Z O	SOIL PROFILE					AWPLE	:5		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
135 <del></del> -	-	119.00 - 139.00 moist to wet, silty clay and silt, weathered garnet, muscovite, plagioclase, schist, trace quartz (Continued)		2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4					#1 Sand >	WELL CASING Interval: -2.5'-136' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded
- 140 — -	- 670 	139.00 - 142.00 SILTY SAND; wet, very fine to fine sand, mottled texture	SM		139.00				0.010" Slot	WELL SCREEN Interval: 136'-146' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC
-	-	142.00 - 145.00 SAPROLITE-ROCK/TRANSITIONALLY WEATHERED ROCK; wet, transitionally weathered garnet quartz muscovite plagioclase schist	TWR		667.61 142.00					FILTER PACK Interval: 134'-136 Type: #1 Sand Prepacked Filter
145 — –	665 - -	145.00 - 146.00 wet, wilty sand, some mineral oxidation, 15-20% quartz Boring completed at 146.00 ft			664.61					FILTER PACK SEAL Interval: 131.5'-134' Type: 3/8" Bentonite Pellets  ANNULUS SEAL Interval: 01.431.5'
	-								_ 	Interval: 0'-131.5' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4"
150 <del>-</del> -	660  								 	Protective Casing: Anodize Aluminum  DRILLING METHODS  Soil Drill: 4-inch Sonic
	_								- -	Rock Drill: 4-inch Sonic
155 — –	655 									
	-								_ _ _	
160 — - -	650 								 	
-	- - - 645								<u>-</u>	
65 —	- 645 - -								_ _ _	
-	- - - 640								<u>-</u>	
70 — _ _	- U4U 								- - -	
-									- -	
75 — - -	635 								_ _ _	
-	- -								_	
	<del>-</del> 630									

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G. CHECKED BY: Rachel P. Kirkman, P.G.



WGWC-11 (PZ-14

EA	UTHERN COMPANY SERVICES, INC. RTH SCIENCE AND ENVIRONMENTAL ENGINEERING LOCA  E STARTED 12/8/2014 COMPLETED 12/9/2014 SURF. ELEV	
DRIL	TRACTOR     CASCADE     EQUIPMENT     SONIC       LED BY     T.Ardito     LOGGED BY     S. Baxter     CHECK	ED BY _L. Millet ANGLE BEARING
1	NG DEPTH _47 ft GROUND WATER DEPTH: DURING	
	STRATA DESCRIPTION	WELL DATA  Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 823.96
S S S S S S S S S S S S S S S S S S S	Silt (ML) - red, moist, sandy, mottled yellow, trace mica  - mottled yellow, trace gravel	Surface Seal: concrete
15	- mottled brown	Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal
30:	- gray, moist, mottled orange, black, and white, micaceous  ▼	
40:		Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chipsFilter: silica filter sand - 3.5 bags, 50 lbs,



### **LOG OF TEST BORING**

WGWC-11 (PZ-14) PAGE 2 OF 2 ECS38198

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE, GDT - 2/26/15 15:58 - S:WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINTIPLANT WANSLEY ASH POND 1 (2). GPJ AND WELL INSTALLATION PROJECT Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley DEPTH (ft) GRAPHIC LOG STRATA DESCRIPTION **WELL DATA** Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 823.96 ELEV (DEPTH ELEV. Silt (ML)(Con't) Well: 2" OD PVC (SCH 40) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 774.44 Bottom of borehole at 47.0 feet. 773.14 Sump:0.40 ft.

PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 77.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/22/15 DATE COMPLETED: 10/22/15

NORTHING: 1240827.68 EASTING: 2025755.99 GS ELEVATION: 820.57 TOC ELEVATION: 823.04

SHEET 1 of 2 DEPTH W.L.: 20.1' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 10/22/15 TIME W.L.: 08:05

SAMPLES	_	
SAMPLE NO.  TYPE  REC	PIEZOMETER CONS <sup>-</sup>	WELL TRUCTION ETAILS
Ø	WELL CASII Interval: -2.9 Material: Sc Diameter: 2 Joint Type:	5'-64' chedule 40 P\ "
	WELL SCRE Interval: 64' Material: Sc Diameter: 2 Slot Size: 0 End Cap: S	-74' chedule 40 P\ '
	FILTER PAC Interval: 61. Type: #1 Se FILTER PAC Interval: 59' Type: 3/8" E  ANNULUS S Interval: 0'-5 Type: Portla	.5'-77' and/ Prepack CK SEAL -61.5' Bentonite Pel SEAL 59'
	WELL CASII Interval: -2.1 Material: Sc. Diameter: 2 Joint Type: WELL SCRE Interval: 64! Material: Sc. Diameter: 2 Sit Size: 0 End Cap: S FILTER PAC Interval: 61. Type: 41-Se FILTER PAC Interval: 0-5 Type: 3/8" E ANNULUS S Interval: 0-5 Type: 3/8" E WELL COM Pad: 4'x4'x4 Protective C Aluminum  DRILLING N Soil Drill: 4-I Rock Drill: 4	t" Casing: Anod n METHODS nch Sonic
	Portland	
OR: Shannon		
	Rachel P. I	R: Shannon George, P.G. Rachel P. Kirkman, P.G.



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 77.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/22/15 DATE COMPLETED: 10/22/15 NORTHING: 1240827.68 EASTING: 2025755.99 GS ELEVATION: 820.57 TOC ELEVATION: 823.04 SHEET 2 of 2
DEPTH W.L.: 20.1' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/22/15
TIME W.L.: 08:05

		SOIL PROFILE			ELEVA		AMPLE			
I	NO NO	33.21 NOTIEE							MONITORING WELL/	WELL
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	DEPTH	SAMPLE NO.	TYPE	REC	PIEZOMETER DIAGRAM and NOTES	CONSTRUCTION DETAILS
45 — -	775 	37.00 - 56.00 transitionally weathered rock, moist to wet at 49 feet (Continued)			(ft)	Ø				WELL CASING Interval: -2.5'-64' Material: Schedule 40 PVC Diameter: 2"
50 —	- - - - - - - - - - - -			00000000000000000000000000000000000000					3/8" Bentonite — Pellets —	Joint Type: Threaded  WELL SCREEN Interval: 64'-74' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC  FILTER PACK Interval: 61.5'-77'
- 55 — - -	- - - - 765 -	56.00 - 57.00 SAPROLITE-ROCK; moist to wet, green and dark grey, very fine grained metamorphic rock interlayered with light greenish-grey clay. transition zone			764.57 56.00 763.57 57.00					Type: #1 Sand/ Prepack Filte  FILTER PACK SEAL Interval: 59'-61.5' Type: 3/8" Bentonite Pellets  ANNULUS SEAL Interval: 0'-59' Type: Portland Type 1  WELL COMPLETION
60 <del>-</del>	_ _ _ 760	57.00 - 77.00 ROCK; unweathered competent grey to dark grey quartzite, predominantly quartz, 5-10% muscovite, <5% garnet, <5% pyrite. rock is difficult to break with several hammer strikes, but is broken into discs along mica foliations from drilling action. rock broken into smaller fragments from 71-72' interval.							3/8" Bentonite – Pellets –	Pad: 4'x4'x4' Protective Casing: Anodized Aluminum  DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
- 65 — - -	 - - - - - 755		BR						#1 Sand	
- 70 — - -	- - - - 750 - -								0.010" Slot	
75 <del>-</del> -	- 745 	Boring completed at 77.00 ft			743.57					
- 80 — -									- - - -	
- - 85 — -	- - - - - - - 735								- - - - -	
90 —	-  -  -								- - -	

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G. CHECKED BY: Rachel P. Kirkman, P.G.



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 96.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 11/2/15 DATE COMPLETED: 11/4/15

NORTHING: 1240610.93 EASTING: 2024585.91 GS ELEVATION: 807.32 TOC ELEVATION: 809.78

SHEET 1 of 3 DEPTH W.L.: 20.25' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 11/4/15 TIME W.L.: 10:08

		SOIL PROFILE			_	CELEVA		AMPLE			
ᇎᅵ	NOI	· · · · · ·				ELEV.				MONITORING WELL/	WELL
(#)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC	FOG	DEPTH (ft)	SAMPLE NO.	TYPE	REC	PIEZOMETER DIAGRAM and NOTES	CONSTRUCTION DETAILS
0 -	-	0.00 - 2.00 SILT; moist, orange overburden	ML			805.32					WELL CASING Interval: -2.5'-73' Material: Schedule 40 P\
5	805 	2.00 - 7.00 CLAYEY SILT; moist, brown, micaceous, trace garnets up to 1cm, materials are loose/soft	ML			2.00					Diameter: 2" Joint Type: Threaded  WELL SCREEN Interval: 73'-93' 3" Material: Schedule 40 P\ Diameter: 2'
-	- - 800	7.00 - 22.00 SILTY SAND; moist to wet (18 - 26 feet), orange, brown and white (saprolite)				800.32					Slot Size: 0.010" End Cap: Schedule 40 P FILTER PACK Interval: 69.5'-96' Type: #1 Sand/ Prepack
10 —	- - -										FILTER PACK SEAL Interval: 66.5'-69.5' Type: 3/8" Bentonite Pell ANNULUS SEAL Interval: 0'-66.5' Type: Portland Type 1
15 —	— 795 - - -		SM								WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anod Aluminum  DRILLING METHODS
- - - - -	- 790 -	16.00: Shelby Tube Collected: 16'-17'									DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
20 —	- - - - 785	22.00 - 26.00 20.00 - 27.00				785.32 22.00					
- - 25 —	- - -	SAPROLITE; weathered pegmatite	ML			781.32					
-	- 780 -	26.00 - 28.00 trace quartz, wet  28.00 - 35.00 SILTY CLAY; moist, very light brown. metamorphic foliation present.				26.00 779.32 28.00					
30 —	- - -	trace gravel size quartzite rock fragments (saprolite)	CL								
35 —	775 - -	35.00 - 36.00		0		772.32				Portland Type 1	
-	- - 770 -	36.00 - 46.00  ROCK; light brown quartzite with light orange oxidation, micaceous meta quartzite	TWR	P 4	\$ \frac{1}{2} \fra	35.00 771.32 36.00					
40	- - - - 765		BR							Portland	
45 —	-	Log continued on next page									
DRIL	LING	LE: 1 in = 5.5 ft COMPANY: Cascade Drilling Tom Ardito		CHE	ΞC		′: Ra			George, P.G. rkman, P.G.	Golder



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 96.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 11/2/15 DATE COMPLETED: 11/4/15 NORTHING: 1240610.93 EASTING: 2024585.91 GS ELEVATION: 807.32 TOC ELEVATION: 809.78 SHEET 2 of 3
DEPTH W.L.: 20.25' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/4/15
TIME W.L.: 10:08

		SOIL PROFILE			J ELEVA		AMPLE				
_	NO NO	OOIL I NOTILE		0	ELEV.		AIVII EE		MONITORING WELL/	WELL CONSTRUCTION	
(#)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	CONSTRUCTION DETAILS	
45 -	- - - 760	46.00 - 56.00 more competent rock	BR		761.32 46.00	8				WELL CASING Interval: -2.5'-73' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN	
50 — - - -	- - - - 755									WELL SCREEN Interval: 73-93'3" Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PV  FILTER PACK Interval: 69.5'-96'	
5 —	-				751.32				- - -	Type: #1 Sand/ Prepack F FILTER PACK SEAL Interval: 66.5'-69.5' Type: 3/8" Bentonite Pelle	
-	- 750 	56.00 - 87.00 light brown quartzite with light orange oxidation, micaceous meta quartzite			56.00				3/8" Bentonite — Pellets	ANNULUS SEAL Interval: 0'-66.5' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodiz Aluminum	
0 -	- - 745 -									DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic	
5 —	- - -								- - - -		
0 —	740 - - -								3/8" Bentonite – Pellets –		
-	- 735 - -		BR								
5 —	- - - 730										
- 0 - - -	- - -										
5 —	725  								0.010" Slot		
-	- 720	87.00 - 96.00 grey and pink quartzite			720.32 87.00				#1 Sand		
-[											

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G. CHECKED BY: Rachel P. Kirkman, P.G.

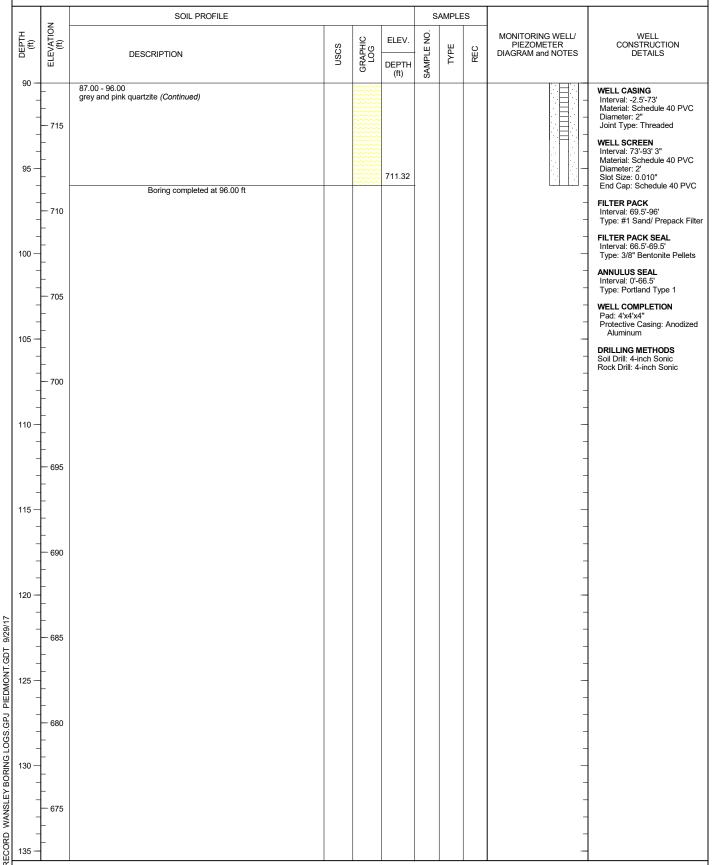


PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 96.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 11/2/15 DATE COMPLETED: 11/4/15

NORTHING: 1240610.93 EASTING: 2024585.91 GS ELEVATION: 807.32 TOC ELEVATION: 809.78 DEPTH W.L.: 20.25' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 11/4/15 TIME W.L.: 10:08

SHEET 3 of 3



LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G. CHECKED BY: Rachel P. Kirkman, P.G.



Log updated with revised survey data certified 6/16/2020. Easting and Northing in NAD 83. Elevation in NAVD 88.

			Atla	0 Win nta, G	A 303	I Rd Ste 1500W 339 8-486-2700	WELL NUMBI  COORDINATES: N:1240604.54 E:2024599.63		PAGE 1 OF 1
CLIEN	IT 9	South		•		rvices, Inc.	PROJECT NAME Plant Wansley		
PROJ						TVICCS, IIIC.	PROJECT LOCATION AP-1		
						<b>COMPLETED</b> _1/31/17	GROUND ELEVATION 808.20 HOLE S	SIZE 4 25	inches
						thern Comparny Services, Inc	GROUND WATER LEVELS:		
						em Auger 2"	AT TIME OF DRILLING		
						CHECKED BY GEJ			
NOTE	s _						AFTER DRILLING		
O DEPTH (ft)	SAMPLE TYPE	NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG		ΓERIAL DESCRIPTION		L DIAGRAM  Casing Type: PVC
 		ss	100	ML SM		(ML) Orange SILT, non-plastic, 2.0 806.20 (SM) Brownish orange Silty SA			
5 		SS	100	SM		(SM) SAA, with white feldspar	veins		
_ 10   		SS	100	SM		(SM) SAA, medium dense, der	nser with depth, well graded, fine - coarse grained		₹70/30 Portland Cement / bentonite mix
 		SS	90	SM		(SM) SAA, reddish orange, mo 18.5 789.70 (CL) Orange Silty CLAY, stiff, I			Sentenile IIIIX
_ 20 _		SS	70	CL		(CL) Reddish orange Silty CLA	Y, medium stiff, low plasticity, wet		
 25				CL		24.0 (CL) Orange Silty CLAY, stiff, I 784.20 (CL) SAA, very stiff	ow plasticity, saprolitic, wet		▼PEL plug 3/8"
 	$\left  \right $	ss	60	CL		28.0 780.20			. 0
30 		SS	60			PWR, foliated  33.0  775.20			<b>■</b> 20/40
35 	/\_					113.20			industrial quartz (ANSI std 61) 4" UPACK
- 40									
.,							Refusal at 40.0 feet. m of borehole at 40.0 feet.		

PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 53.50 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 11/11/15 DATE COMPLETED: 11/11/15

NORTHING: 1240483.16 EASTING: 2023912.92 GS ELEVATION: 802.03 TOC ELEVATION: 804.69

SHEET 1 of 2 DEPTH W.L.: 5.85' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 11/13/15 TIME W.L.:

I	z	SOIL PROFILE				S	AMPLE	S	
(#)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC	ELEV.	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES  WELL CONSTRUCTIO DETAILS
		SESSIAI TION	ns	GRA	DEPTH (ft)	SAMPI	}	Z.	DE MEO
0 -		0.00 - 3.00 CLAYEY SILT; homogenous overburden, orange brown, dry to							WELL CASING Interval: -2.5'-43'
_	- 800	moist	ML						Material: Schedule 40 — Diameter: 2"
4	-	3.00 - 5.00		$\mathbb{H}$	799.03				Joint Type: Threaded  WELL SCREEN
+	-	CLAYEY SILT; homogenous overburden some coarse gravel, some subrounded weathered cobbles of quartzite, trace white and black			797.03				Interval: 43.5'-53.5' Material: Schedule 40
5 —	-	staining, orange brown, dry to moist 5.00 - 7.00			5.00				Diameter: 2' Slot Size: 0.010"
]	705	CLAYEY SILT; homogenous overburden, orange brown, black foliations, moist, soft		Щ	795.03				End Cap: Schedule 4
-	— 795 -	7.00 - 9.00 SILTY SAND; grey/brown, silty sand to clayey sand, moist Shelby Tube Collected: 7*-9'	SM		7.00				WELL CASING Interval: -2.5'-43' Material: Schedule 40 Diameter: 2" Joint Type: Threaded  WELL SCREEN Interval: 43.5'-53.5' Material: Schedule 40 Diameter: 2' Slot Size: 0.010" End Cap: Schedule 4 FILTER PACK Interval: 41'-53.5' Type: #1 Sand/Prepa FILTER PACK SEAL Interval: 0'-38.8' Type: Portland Type ' WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Ar Aluminum DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
4	-	9.00 - 11.00			9.00				FILTER PACK SEAL Interval: 38.8'-41'
10	-	SILTY SAND; with some gravel, subangular, slightly weathered quartzite; greyish brown, moist			791.03				Type: 3/8" Bentonite I
]		11.00 - 14.00 GRAVELY CLAYEY SILT; fine to coarse quartzite gravel, some		19	11.00				ANNULUS SEAL Interval: 0'-38.8'
	790 	medium coarse sand, trace black, brown and white micaceous foliations; greyish brown	MLG	9 0					Type: Portland Type 2  WELL COMPLETION
4	-	14.00 - 16.00		. q	788.03				Pad: 4'x4'x4" Protective Casing: Ar
15 —	-	SILTY CLAY; micaceous, grey, trace brown and black foliations, dry. soft to firm	CL		786.03				Aluminum  DRILLING METHODS
+	-	16.00 - 22.00 CLAYEY GRAVEL; fine to coarse gravel and cobbles, some white			16.00	†			Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
]	<del> 785</del>	quartzite, red, orange and black staining, brown silty clay, moist Shelby Tube Collected: 17.1'-17.5'							
_	_		GC		3				
20 —	-								Portland Type 1 K
-	-				780.03				
]	<del>- 780</del>	22.00 - 24.50 TRANSITIONALLY WEATHERED ROCK/SAPROLITE; cobble and		D A A	22.00				
	_	pulverized quartzite	TWR		777.53				
25 —	-	24.50 - 27.00 weathered quartzose schist, trace fine pyrite, drill pulverized rock		D 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	√ 24.50				
+	-	into grey powder, some 3-4" cobbles			Δ				
†	<del>- 775</del>	27.00 - 29.00 weathered, quartzose gravel, some grey clay		D 4 4 4					PC
]	_			$\triangle \triangle \triangle$	773.03				
30 —	_	29.00 - 30.00 weathered, pulverized schist, wet 30.00 - 33.00			7/2.03				
+	-	weathered, quartzose gravel, some grey clay, wet		^	\$ 55.55 \$\d_1'				
+	<del>- 770</del>				769.03				
]	-	33.00 - 37.00 BEDROCK; quartzose schist/gneiss, large garnets, green			33.00				Viii
35 —	_	amphibole, mica, black hornblende/biotite, white feldspar	BR						
4	-				765.03				Post Post Post Post Post Post Post Post
+	<del>-</del> 765	37.00 - 43.00			37.00				
1	-	various sizes of mafic gneiss and quartzose schist, weathered							
40	-								3/8" — — — — — — — — — — — — — — — — — — —
-	-								Pellets
+	<del></del> 760				759.03				
+	-	43.00 - 53.50 mafic gneiss, fine to coarse grey gravel, small weathered cobbles,			43.00	†			
45 —	-	bedrock			$\geqslant$				
	SCAI	Leg continued on next page  LE: 1 in = 5.5 ft		GA IN	_ ISPECT	OR:	Krieta	en du	rinko
		COMPANY: Cascade Drilling							rkman, P.G.



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 53.50 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 11/11/15 DATE COMPLETED: 11/11/15 NORTHING: 1240483.16 EASTING: 2023912.92 GS ELEVATION: 802.03 TOC ELEVATION: 804.69 SHEET 2 of 2
DEPTH W.L.: 5.85' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/13/15
TIME W.L.:

Z		SOIL PROFILE	S.	AMPLE	S					
Œ (#)	ELEVATION (ft)	DESCRIPTION	SOSU	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45 <del>-</del>	<u> </u>	43.00 - 53.50	<u> </u>	8,	DEPTH (ft)	SAME	_			WELL CASING
}	- 755	mafic gneiss, fine to coarse grey gravel, small weathered cobbles, bedrock (Continued)							#1 Sand –	WELL CASING Interval: -2.5'-43' Material: Schedule 40 PV0 Diameter: 2"
-	-								0.010" slot _ screen	Joint Type: Threaded WELL SCREEN
50 -	-									Interval: 43.5'-53.5' Material: Schedule 40 PV Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PV
-	750 				748.53					FILTER PACK Interval: 41'-53.5' Type: #1 Sand/Prepack fil
5	-	Boring completed at 53.50 ft								FILTER PACK SEAL Interval: 38.8'-41' Type: 3/8" Bentonite Pelle
-	- 745								_	ANNULUS SEAL Interval: 0'-38.8' Type: Portland Type 1
-	-								-	WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodiz Aluminum
0 -	-								_ _	DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
1	740 								<u>-</u>	
5 -	-								_	
]	- 735								_	
0	-								_	
1	- 720								_	
-	730 								_	
5 —	-								_	
-	725 								_	
0-	-								_	
-	- 720								_	
	-								<u> </u>	
5 –	-								_	
-	715 								_	
1	_								_	

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: David Wilcox

GA INSPECTOR: Kristen Jurinko CHECKED BY: Rachel P. Kirkman, P.G.



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 32.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 11/11/15 DATE COMPLETED: 11/11/15

NORTHING: 1240480.46 EASTING: 2023903.77 GS ELEVATION: 801.72 TOC ELEVATION: 804.21

SHEET 1 of 1 DEPTH W.L.: 5.99' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 11/13/15 TIME W.L.:

	_	SOIL PROFILE				S	AMPLE	S		
(f)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		2200 1011	NS	GRA	DEPTH (ft)	SAMP		₩.		
0 -	-	0.00 - 3.00 CLAYEY SILT (ML); Trace mica flakes, orange brown, homogenous, moist (wet from previous drilling), firm							2001 2001 2000 2001 2001 2001 2001 2001 2001 2001 2001 2001	WELL CASING Interval: -2.5'-23'
+	— 800	nomogenous, moist (wet from previous drilling), lifti	ML		798.72					Material: Schedule 40 P\ Diameter: 2" Joint Type: Threaded
1	_	3.00 - 5.00 trace coarse gravel, trace mica flakes, light and trace foliations, firm			3.00					WELL SCREEN
5	-	gravel-subrounded quartzite 5.00 - 7.00			796.72 5.00				0.0004 0.0004	Interval: 22'-32' Material: Schedule 40 P\ Diameter: 2'
-	- 705	SILTY CLAY (ML); trace coarse sand (black, subrounded, firm), orange brown, some light brown and black foliation, moist	ML		794.72				5000 F0000 F	Slot Size: 0.010" End Cap: Schedule 40 F
	— 795 –	7.00 - 9.00 SILTY SAND (SM); poorly graded, fine to coarse, angular, white	SM		7.00					FILTER PACK Interval: 20'-32'
-	-	quartzite, some clay, orange brown, wet Shelby Tube Collected: 7'-9' 9.00 - 11.00	OW		792.72				Portland	Type: #1 Sand/Prepack
10 —	-	CLAYEY SILT (ML); saprolite, trace coarse sand, trace fine gravel, stained black and white quartzite, black, dark brown and light brown			790.72				7	Interval: 17.5'-20' Type: 3/8" Bentonite Pel
	<b>-</b> 790	foliations, some mica flakes, dry to moist 11.00 - 15.00 CLAYEY SILT with GRAVEL; fine to coarse brown gravel, trace		Ш	11.00				PRODUCTION OF THE PRODUCTION O	ANNULUS SEAL Interval: 0'-17.5' Type: Type 1 Portland
-	-	rounded cobbles, trace medium coarse sand, quartzite stained black and red, some black foliations, moist	ML							WELL COMPLETION
45	-				786.72				95504 955040	Pad: 4'x4'x4" Protective Casing: Anod Aluminum
15 —	-	15.00 - 17.00 SILTY SAND; trace fine gravel (quartzite, quartz and schist), orange brown, dry to moist	SM		15.00					DRILLING METHODS Soil Drill: 4-inch Sonic
-	— 785 —	17.00 - 20.00			784.72 17.00				Portland	Rock Drill: 4-inch Sonic
	-	SILTY CLAY (ML); gravelly, fine to coarse gravel, cobbles of white quartzite, trace mica flakes, red, orange and black stringers, moist	ML						3/8" - Bentonite -	
20 —	-	20.00 - 22.00			781.72				Pellets -	
+	- 780	SiLT (ML); micaceous, trace to large cobbles of quartzite, angular, white/black/orange weathered schist	MLG		779.72					
	- 700	22.00 - 26.00 SAPROLITE (ML); pulverized quartzose schist, some cobbles of			22.00					
-	-	quartzose schist with coarse sand, orange staining, dry								
25 —	-				775.72				#1 Sand –	
	<b>–</b> 775	26.00 - 26.30 GRAVELLY SILT (MLG); brown, weathered micaceous schist, small fracture with fine gravel, dark brown, red brow, orange foliations,			774.72				0.010" slot	
+	-	moist 26.30 - 27.00	ML	DD 0 0 2	773.72					
30 —	_	SILT (ML); micaceous, grey silt, moist 27.00 - 28.00 SAPROLITE			29.00 771.72					
-	-	28.00 - 29.00 TRANSITIONALLY WEATHERED ROCK; saprolite and gravel,		<sup>2</sup> <sub>0</sub> ′ <sub>0</sub> ′ <sup>4</sup> 0 1 <sup>4</sup> 0 1	770.72					
-	— 770 –	quartzose schist, some cobbles, dry 29.00 - 30.00		40 1	31.00 769.72					
	-	sand and gravel, coarse, weathered quartzose schist, small to large cobbles, dry 30.00 - 31.00							- -	
35 —	-	sand and gravel, some grey quartzose schist, some silt, fine to coarse sand, fine to coarse gravel, trace cobbles, angular 31.00 - 32.00							_	
+	- 765	sand and gravel, saprolite and coarse, weathered quartzose schist, small to large cobbles, some sand, dry							_	
-	-	Boring completed at 32.00 ft							_	
	-								_	
40 —	-								<del>-</del>	
-	<del> 760</del>								_	
-	- -								-	
45 —	-								_	
LOG	SCA	LE: 1 in = 5.5 ft	(	GA IN	SPECT	OR:	Kriste	en Ju	rinko	
DRII		COMPANY: Cascade Drilling David Wilcox	( ]	CHEC	KED BY	/: Ra	achel	P. Ki	rkman, P.G.	Golder Associa



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 97.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 11/6/15 DATE COMPLETED: 11/6/15 NORTHING: 1240052.06 EASTING: 2022623.82 GS ELEVATION: 813.36 TOC ELEVATION: 816.00 SHEET 1 of 3
DEPTH W.L.: 23' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/6/15
TIME W.L.: 08:00

_   <u>v</u>		SOIL PROFILE						AMPLE	S		
(#)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC	2	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0 -	-	0.00 - 13.00 CLAYEY SILT; moist, orange red and orange brown, mottled, homogenous, soft.								- - - - -	WELL CASING Interval: -2.5'-83' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded
5 —	— 810 - - -		ML								WELL SCREEN Interval: 83'-93' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PV
-	805 	7.00: Shelby Tube Collected: 7'-9'									FILTER PACK Interval: 81'-94' Type: #1 sand/ Prepack Fi
10 —	-										Interval: 78.5'-81' Type: 3/8" Bentonits Pellet ANNULUS SEAL Interval: 0'-78.5'
15 —	- 800 	13.00 - 17.00 CLAYEY SILT; dry to moist, light brown to orange, mottled, relict metamorphic texture, fine to medium sand, light brown	ML			13.00					Type: Portland Type 1  WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodize Aluminum
-		17.00 - 27.00 SILTY SAND; Fine to medium, light brown			$\perp$	796.36					DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
0 -	— 795 - -	Shelby Tube Collected: 17'-19'									
-	- - 790 -		SM								
5 —	- - -	27.00 - 37.00			100	786.36 27.00					
0 —	785 	CLAYEY SILT; dry to moist, light brown to orange, mottled, relict metamorphic texture, fine to medium sand, light brown									
-	- - - 780		ML								
5 —	- - -				1	776.36					
0-	- 775 - -	37.00 - 42.00 CLAYEY SILT and SILT; dry to moist, brown and grey, metamorphic texture observed, predominantly feldspar, varying amounts of quartz (<5-15%), biotite and muscovite (5-15%), saprolite				37.00				Portland Tpe _ 1	
	_	42.00 - 47.00 NO RECOVERY; not competent (soil washout)				771.36 42.00					

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko CHECKED BY: Rachel P. Kirkman, P.G.



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 97.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 11/6/15 DATE COMPLETED: 11/6/15 NORTHING: 1240052.06 EASTING: 2022623.82 GS ELEVATION: 813.36 TOC ELEVATION: 816.00 SHEET 2 of 3
DEPTH W.L.: 23' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/6/15
TIME W.L.: 08:00

NO O		SOIL PROFILE					AMPLE	S		
Œ	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
5 —	—	42.00 - 47.00		A.B.	DEPTH (ft)	SAM			200 E00 14	VELL CASING
	-	NO RECOVERY; not competent (soil washout) (Continued)			766.36 47.00					nterval: -2.5'-83' Material: Schedule 40 PVC Diameter: 6"
	— 765 —	47.00 - 53.00 CLAYEY SILT and SILT; dry to moist, brown and grey, metamorphic texture observed, predominantly feldspar, varying amounts of quartz (<5-15%), biotite and muscovite (5-15%),			47.00					Joint Type: Threaded  VELL SCREEN  nterval: 83'-93'
0 -	-	saprolite	ML							Material: Schedule 40 PV0 Diameter: 2' Blot Size: 0.010" End Cap: Schedule 40 PV
	_ 760				760.36				## F	ILTER PACK nterval: 81'-94' [ype: #1 sand/ Prepack F
5	<del></del> 760 -	53.00 - 54.00 SILT; grey silt, weathered quartzite and gneiss, trace black laminations, chunks of silt, speckled greywacke 54.00 - 57.00	ML		53.00 759.36 54.00				- F	ILTER PACK SEAL nterval: 78.5'-81'
	-	SILT; saprolitic texture more predominant			756.36				- A	Гуре: 3/8" Bentonits Pelle INNULUS SEAL nterval: 0'-78.5'
-	- 755	57.00 - 59.00 SILT; dry, dark brown silt, some fine coarse sand, white quartz/feldspar, some thin laminations of quartzite			57.00 754.36				### ### P	Γype: Portland Type 1  VELL COMPLETION  Pad: 4'x4'x4"
)  - 	-	59.00 - 67.00 TRANSITIONALLY WEATHERED ROCK; clayey silt, weathered quartzite, trace black minerals			59.00				0.000   0.000	Protective Casing: Anodiz Aluminum PRILLING METHODS
-	-			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 7 2 2 2				R R	oil Drill: 4-inch Sonic lock Drill: 4-inch Sonic
-	— 750 –		TWR	DD	7					
5 —	-			A A A A A A A A A A A A A A A A A A A	2					
-	- 745	67.00 - 71.00 CLAYEY SAND/SILTY SAND; large cobbles of gneiss and quartzite			67.00					
0 -	-		SC-SM		742.36					
-	-	71.00 - 76.00 CLAYEY SAND; moist, brown, some orange silty sand, muscovite, weathered quartzite			71.00					
-	— 740 –	·								
5 –	-	75.00: 75'-76' large cobbles present 76.00 - 82.00			737.36				00001 00001	
	- 735	BEDROCK; grey and white, fractured quartzite, some light orange from mineral oxidation, staining present			70.00				3/8" Bentonite — Pellets	
0 -	-		BR						3/8" Bentonite —	
	-				731.36				Pellets	
	730 	82.00 - 93.00 quartzite			82.00					
5 –	-								#1 sand -	
	-								0.010" slot	
1	725 								screen	
∘⊢		Log continued on next page			¥					

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

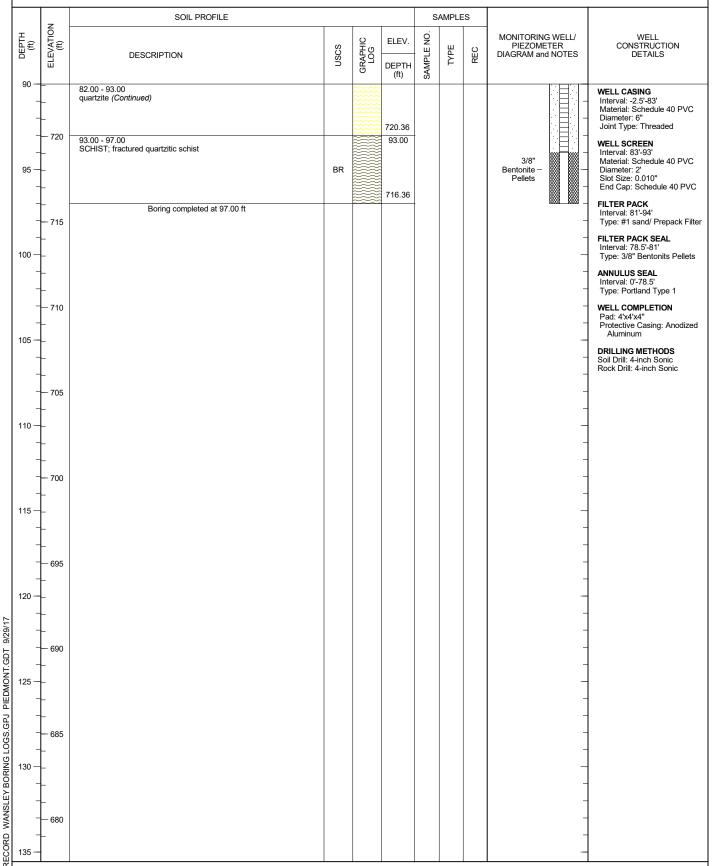
DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko CHECKED BY: Rachel P. Kirkman, P.G.



PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 97.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 11/6/15 DATE COMPLETED: 11/6/15 NORTHING: 1240052.06 EASTING: 2022623.82 GS ELEVATION: 813.36 TOC ELEVATION: 816.00 SHEET 3 of 3
DEPTH W.L.: 23' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 11/6/15
TIME W.L.: 08:00



LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko CHECKED BY: Rachel P. Kirkman, P.G.



### RECORD OF BOREHOLE WGWC19/APC-2

PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 92.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/28/15 DATE COMPLETED: 10/28/15 NORTHING: 1241851.51 EASTING: 2028949.19 GS ELEVATION: 780.60 TOC ELEVATION: 783.42 SHEET 1 of 3
DEPTH W.L.: 20.5' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/28/15
TIME W.L.: 13:10

		SOIL PROFILE			DC ELEV		AMPLE			
<u>.</u>	NOI								MONITORING WELL/	WELL
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	DEPTH (ft)	SAMPLE NO.	TYPE	REC	PIEZOMETER DIAGRAM and NOTES	CONSTRUCTION DETAILS
0 -	— 780 —	0.00 - 27.00 SILTY SAND; reddish orange overburden				<u> </u>				WELL CASING Interval: -2.5'-82' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded
5 —	- - 775 -									WELL SCREEN Interval: 82'-92' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC
-	-									FILTER PACK Interval: 79.1'-92' Type: #1 Sand/Prepacked Filter FILTER PACK SEAL
10 —	— 770 –									Interval: 77'-79.1' Type: 3/8" Bentonite Pellets  ANNULUS SEAL Interval: 0'-77'
- 15 —	- - - 765		SM							Type: Portland Type 1  WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodized Aluminum
-	- -									DRILLING METHODS Soil Drill: Hydrovac/4-inch Sonic Rock Drill: 4-inch Sonic
20 —	- - - 760									
-	- - -	22.00: Shelby Tube Collected: 22'-24'								
25 — - -	— 755 –	27.00 - 30.00			753.60 27.00					
-	-	SILT; dry to moist, light brown, brown, orange brown and grey.  Trace white feldspar and black MnO laminations, trace fine gravel, quartz-rich lense from 30-33' (35% quartz). some weathered schist (saprolite)	ML		750.60					
30 —	— 750 –	30.00 - 33.00 some severely weathered gneiss			30.00					
35 —	- - 745 -	33.00 - 60.00 dry to moist, light brown, brown, orange brown and grey. Trace white feldspar and black MnO laminations, trace fine gravel, quartz-rich lense from 30-33' (35% quartz). some weathered schist (saprolite)			747.60 33.00				Portland	
40 —	- - 740 -									
45 —	-	Log continued on next page								

LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko CHECKED BY: Rachel P. Kirkman, P.G.

DATE: 9/29/17



### RECORD OF BOREHOLE WGWC19/APC-2

PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 92.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/28/15 DATE COMPLETED: 10/28/15

NORTHING: 1241851.51 EASTING: 2028949.19 GS ELEVATION: 780.60 TOC ELEVATION: 783.42

SHEET 2 of 3 DEPTH W.L.: 20.5' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 10/28/15 TIME W.L.: 13:10

		SOIL PROFILE			TOC ELE	1	AMPLE			
_	N O	55.2.7.6.7.22							MONITORING WELL/	WELL
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC	ELEV.	SAMPLE NO.	TYPE	REC	PIEZOMETER DIAGRAM and NOTES	CONSTRUCTION DETAILS
	□		Š	GR/	DEPTH (ft)	SAME	F	<u> </u>		
45 —	<b>- 735</b>	33.00 - 60.00				, , , , , , , , , , , , , , , , , , ,			0000 10000 0000 10000 0000 10000 0000 10000	WELL CASING
7	-	dry to moist, light brown, brown, orange brown and grey. Trace white feldspar and black MnO laminations, trace fine gravel, quartz-rich lense from 30-33' (35% quartz), some weathered schist								Interval: -2.5'-82' Material: Schedule 40 PVC
1	-	(saprolite) (Continued)								Diameter: 2" Joint Type: Threaded
]	-								9000 9000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	WELL SCREEN Interval: 82'-92'
50 -	-									Material: Schedule 40 PVC Diameter: 2'
_	<del> 730</del>								0000   00000 0000   00000 0000   00000 0000   00000 0000   00000	Slot Size: 0.010" End Cap: Schedule 40 PV
-	_								0000 00000 0000 00000 0000 0000 0000 0000 0000 0000 0000 0000	FILTER PACK
-{	_									Interval: 79.1'-92' Type: #1 Sand/Prepacked
-	_								No.001   N	Filter FILTER PACK SEAL
55 —	<b>-</b> 725								0000 00000 0000 00000 0000 0000 0000 0000 0000 0000 0000 0000	Interval: 77'-79.1' Type: 3/8" Bentonite Pellet
1	-									ANNULUS SEAL
1	-								0000 0000 0000 0000 0000 0000 0000 0000 0000	Interval: 0'-77' Type: Portland Type 1
]	-								9000 9000 0000 0000 0000 0000 0000 000	WELL COMPLETION Pad: 4'x4'x4"
60 —	-	00.00.00.00			720.60					Protective Casing: Anodize Aluminum
4	— 720	60.00 - 63.00 stiffer with trace gravel			60.00				0000 0000 0000 0000 0000 0000 0000 0000 0000	DRILLING METHODS
-	_				717.60					Soil Drill: Hydrovac/4-inch Sonic
+	_	63.00 - 70.00		DD 40;	00.00					Rock Drill: 4-inch Sonic
+	_	TRANSITIONALLY WEATHERED ROCK; brown micaceous schist and garnetiferous greywacke, dry		2000 00 00 00 00 00 00 00 00 00 00 00 00	<u>^</u>				0-00 - 0-	
55 —	<del></del> 715			DD 00'	7				0000   00000	
]	-		PWR	Δ Δ Δ Δ Δ Δ Δ Δ Δ					0.00   0.00	
	-			1 D D 1	7					
	-				710.60				0,000 10,	
70 –	- 710	70.00 - 87.00		Δ <sub>0</sub> 4,	710.60				0.000   0.00	
-	_ / 10	ROCK; garnetiferous greywacke with white plagioclase laminations							0000 00000 00000 00000 00000 00000 00000	
+	_								0.000	
+	-									
,,   ,,	-								Darbot   D	
75 —	— 705								02001 02001	
	-									
4	-								Bentonite – W –	
-	_		BR		3				Pellets	
30 –	<b>-</b> 700									
+	_									
-	-									
1	-									
35 —	-								#1 Sand –	
-	— 695									
-		87.00 - 92.00			693.60 87.00				0.010" Slot	
-		ROCK; wet, dark grey micaceous schist	BR		37.00					
-	_		BK		3					
90 —		Log continued on next page		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\						
		LE: 1 in = 5.5 ft			SPECT					
		COMPANY: Cascade Drilling					achel	P. Ki	rkman, P.G.	Golder Associate
וואכ	LLEK:	Tom Ardito		DAIL	: 9/29/1	1				ASSUCIATION



## RECORD OF BOREHOLE WGWC19/APC-2

PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 92.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 10/28/15 DATE COMPLETED: 10/28/15 NORTHING: 1241851.51 EASTING: 2028949.19 GS ELEVATION: 780.60 TOC ELEVATION: 783.42 SHEET 3 of 3
DEPTH W.L.: 20.5' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 10/28/15
TIME W.L.: 13:10

		SOIL PROFILE			OO LLL		AMPLE			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
90 —	— 690 –	87.00 - 92.00 ROCK; wet, dark grey micaceous schist (Continued)  Boring completed at 92.00 ft	BR		688.60					WELL CASING Interval: -2.5'-82' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded
95 —	- - 685								- - -	WELL SCREEN Interval: 82'-92' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC
-	_								- - -	FILTER PACK Interval: 79.1'-92' Type: #1 Sand/Prepacked Filter
100 — –	680 								_	FILTER PACK SEAL Interval: 77'-79.1' Type: 3/8" Bentonite Pellets
_	-								<u> </u>	ANNULUS SEAL Interval: 0'-77' Type: Portland Type 1 WELL COMPLETION
105 —	- 675								- - -	Pad: 4'x4'x4" Protective Casing: Anodized Aluminum  DRILLING METHODS
-	- -								-	Soil Drill: Hydrovac/4-inch Sonic Rock Drill: 4-inch Sonic
- 110 —	- 670								- -	
-	_								- - -	
- 115 —	- - - 665								- -	
_	-								<u> </u>	
120 —									-	
-	660  								_ _	
- - 125 —	-								- - -	
-	— 655 – –								- -	
125 —  130 —  135 —	- -								- -	
130 — - -	— 650 –								- - -	
- -	- -								- -	
135 —		E: 1 in = 5.5 ft		24 INS					<u> </u>	

LOG SCALE: 1 in = 5.5 ft

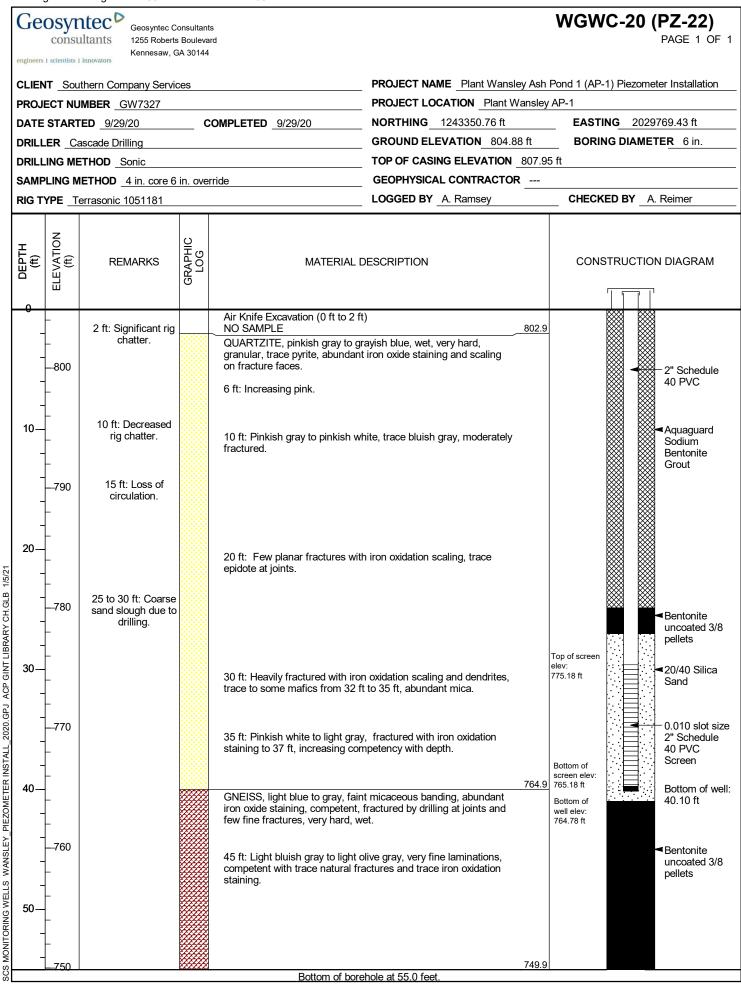
DRILLING COMPANY: Cascade Drilling

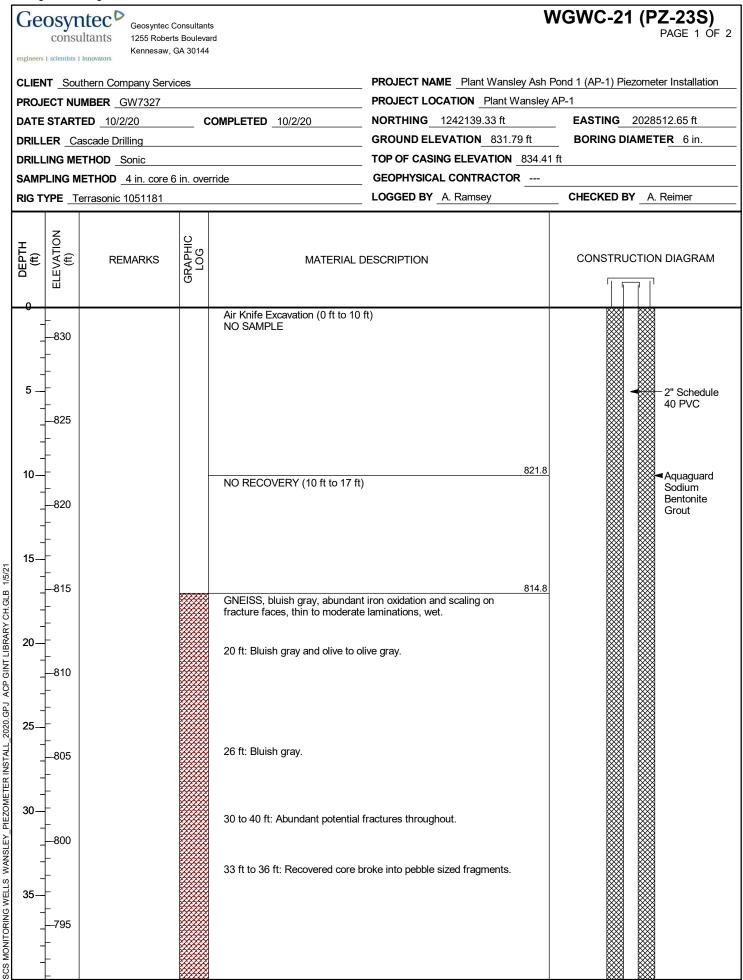
DRILLER: Tom Ardito

GA INSPECTOR: Kristen Jurinko CHECKED BY: Rachel P. Kirkman, P.G.

DATE: 9/29/17







PAGE 2 OF 2

Aquaguard Sodium

Bentonite

Bentonite

uncoated 3/8 pellets

20/40 Silica Sand

0.010 slot size 2" Schedule 40 PVC

Bottom of well: 69.09 ft

20/40 Silica Sand

Screen

screen elev: 763.11 ft

Bottom of well elev: 762.71 ft

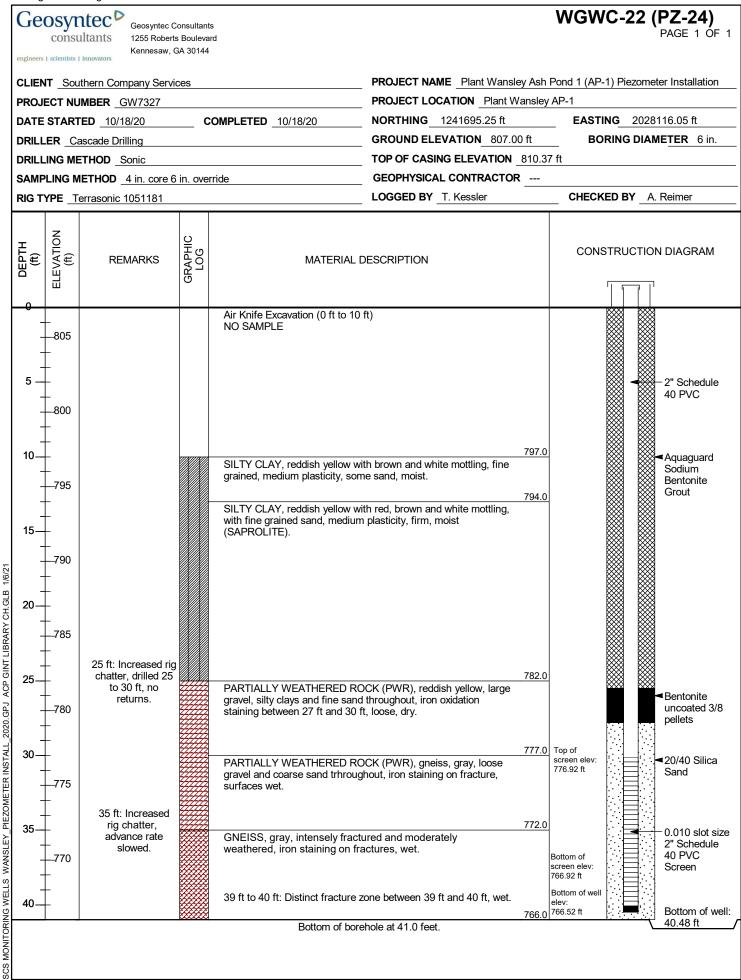
756.8

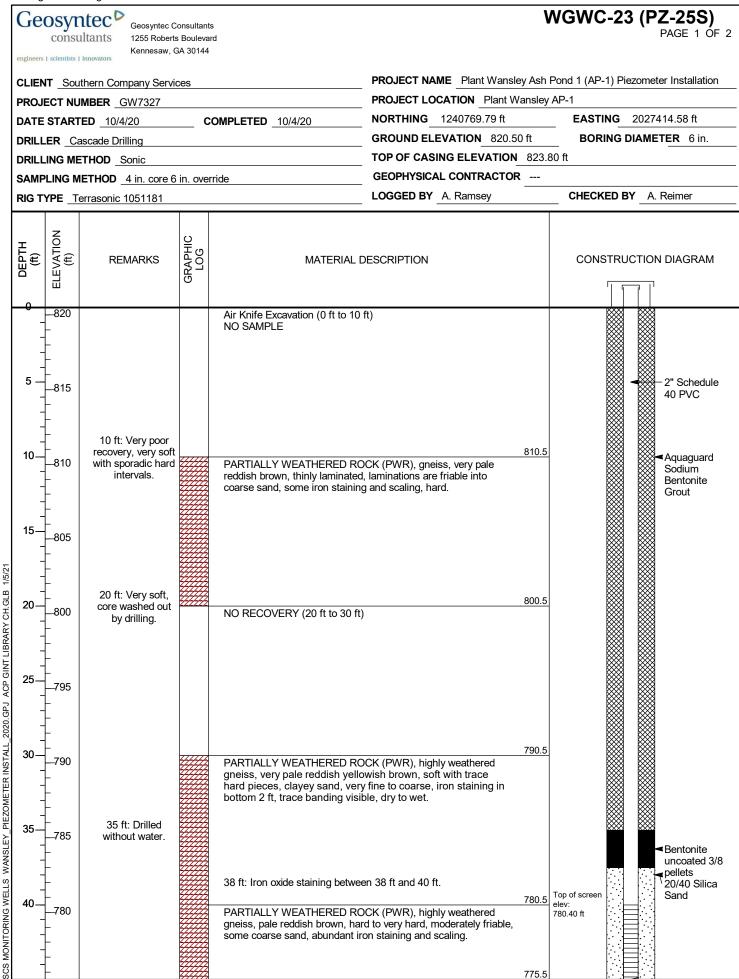
Grout

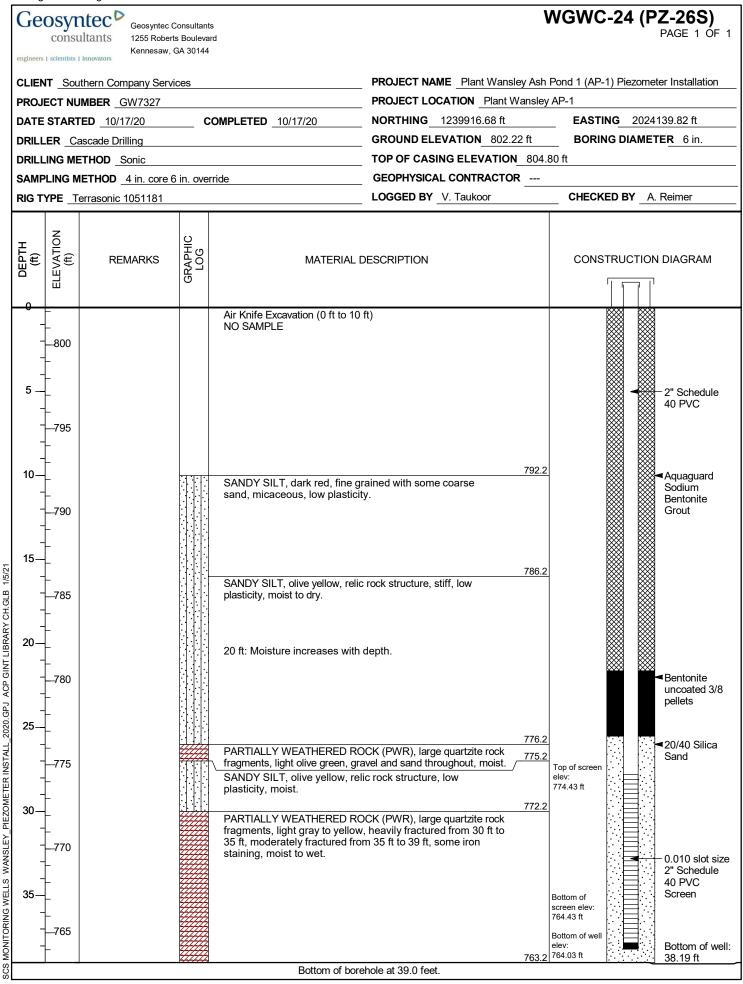
Bottom of borehole at 75.0 feet.

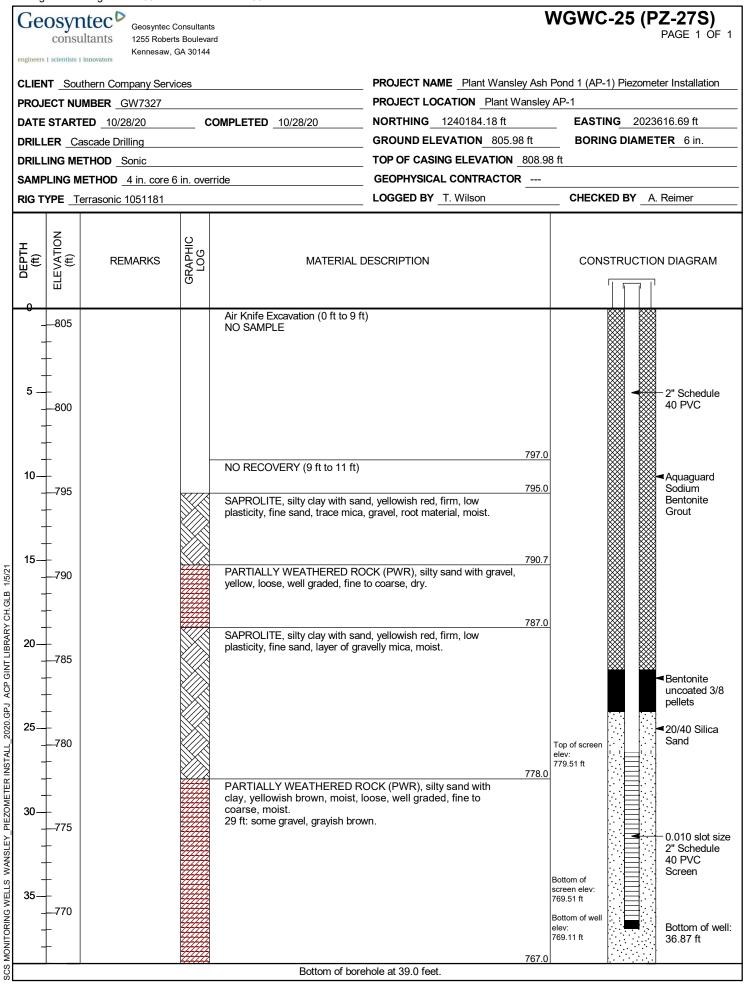
70

760









Geosyntec consultants

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Client: Southern Company Services
Project: Plant Wansley Well Installation

Address: 1371 Liberty Church Rd, Carrollton, GA

WELL LOG

Well No. WGWC-26D

Page: 1 of 2

Drilling Start Date: 09/26/2022 Boring Depth (ft): 70 Well Depth (ft TOC): 69.57 Drilling End Date: 09/26/2022 Boring Diameter (in): 6 Well Diameter (in): Drilling Company: **Cascade Drilling** Sampling Method(s): **Core Barrel** Screen Slot (in): 0.010 Drilling Method: DTW During Drilling (ft): Riser Material: Sch 40 PVC Sonic 4x6 27.0 Drilling Equipment: Terrasonic Sch 40 PVC Slotted Ground Surface Elev. (ft): 805.06 NAV88 Screen Material: Driller: Cory Franklin Top of Casing Elev. (ft): Seal Material(s): **Grout/Bentonite** 808.23 NAV88 Logged By: T. Kessler Location (N,E): 1243343.658, 2029758.846 Filter Pack: 20/40 Sand

WELL COMPLETION **NATER LEVEL** ELEVATION (ft NAV88) Sample Type LITHOLOGY DEPTH (ft) SOIL/ROCK VISUAL DESCRIPTION **REMARKS** 0 805 Hand augered to 10 feet bgs. (0') Hand augered material. Not logged. Hard drilling. (1.5') QUARTZITE; pinkish gray, hard, heavily fractured and broken into gravel at joints, trace bluish gray quartzite gravel, trace pyrite, abundant iron staining. 5-800 СВ 10-795 Pumping test performed (10') Gray to grayish blue, heavily fractured at 10 and 20 feet bgs, (recharge=0.066 gpm). abundant iron oxide staining in fractures, trace epidote at joints. CB 790 15 20 785 Pumping test performed (20') Heavy iron staining throughout. (recharge=0.058 gpm). 25 CB 780 (25') Heavily fractured from 25-26.5 and 29-30 feet bgs, unfractured  $\nabla$ rock is bluish gray. 30 775 Pumping test performed (30') Grayish blue, fractures at 30-32 feet bgs, iron staining in fracture (recharge=0.066 gpm). zone (32') Sand-filled fracture zone from 32-26 feet bgs consisting of Poorly Graded SAND (SP); damp, medium to coarse and subangular. 35 770 (36') Grayish blue, fractures at 36-40 feet bgs, iron staining and fracture zone. 40 765 Pumping test performed (40') Pinkish gray, fracture at 44 feet bgs, trace iron staining. (recharge=0.036 gpm). CB 45

NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Well completed with aboveground (+3.17 ft) PVC stickup. Well depth measured from top of casing (TOC).



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Client: Southern Company Services
Project: Plant Wansley Well Installation

Address: 1371 Liberty Church Rd, Carrollton, GA

**WELL LOG** 

Well No. WGWC-26D

Page: 2 of 2

Drilling Start Date: 09/26/2022 Boring Depth (ft): 70 Well Depth (ft TOC): 69.57 Drilling End Date: 09/26/2022 Boring Diameter (in): 6 Well Diameter (in): Screen Slot (in): Drilling Company: **Cascade Drilling** Sampling Method(s): **Core Barrel** 0.010 Drilling Method: DTW During Drilling (ft): Riser Material: Sch 40 PVC Sonic 4x6 27.0

Drilling Equipment: Terrasonic Ground Surface Elev. (ft): 805.06 NAV88 Screen Material: Sch 40 PVC Slotted

Driller: Cory Franklin Top of Casing Elev. (ft): 808.23 NAV88 Seal Material(s): Grout/Bentonite

Logged By: T. Kessler Location (N,E): 1243343.658, 2029758.846 Filter Pack: 20/40 Sand

WELL COMPLETION **NATER LEVEL** ELEVATION (ft NAV88) Sample Type LITHOLOGY DEPTH (ft) SOIL/ROCK VISUAL DESCRIPTION **REMARKS** 45 760 (46') GNEISS; light blue to gray, hard, trace micaceous banding, trace fractures but largely competent. Driller reports soft conditions at (49') Fine laminations, fines from 49-50 feet bgs from drilling. 50 755 49 feet bgs. (50') QUARTZITE; pinkish gray, hard, largely competent with minor Hard drilling. Pumping test fractures, iron oxide staining from 50-52 feet bgs. performed (recharge=0.044 gpm). (54') GNEISS; light bluish gray to dark gray, hard, fine to medium 55 750 laminations, competent. (58') Fines/silty sand intermixed from 58-60 feet bgs with trace dark gray quartzite. 60 745 Pumping test performed (60') Light bluish gray, fine to medium laminations. (recharge=0.014 gpm). 65 CB 740 (69') Medium grained sand at 69 feet bgs. 70

(70') Boring terminated.

Geosyntec<sup>▶</sup> consultants

Client: **Southern Company Services** 

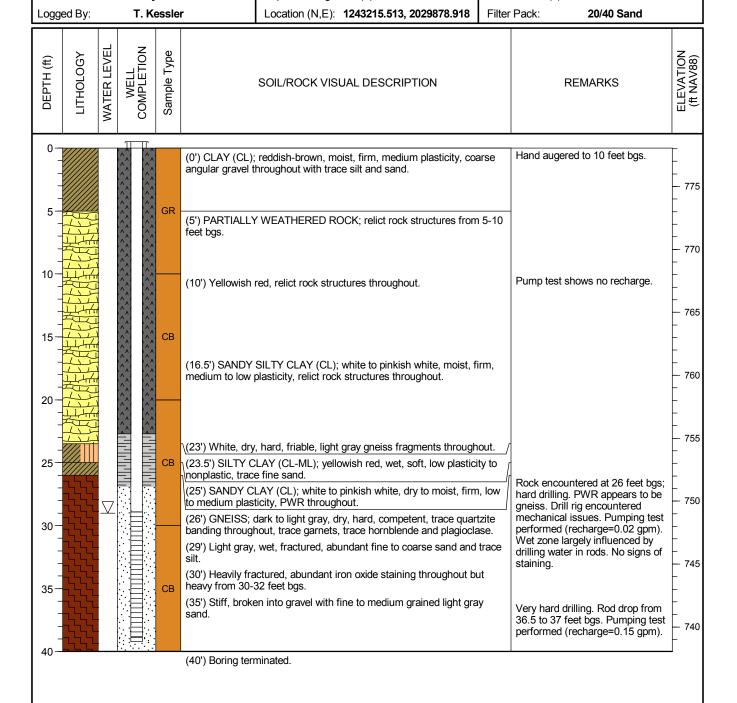
Project:

**Plant Wansley Well Installation** Address: 1371 Liberty Church Rd, Carrollton, GA **WELL LOG** 

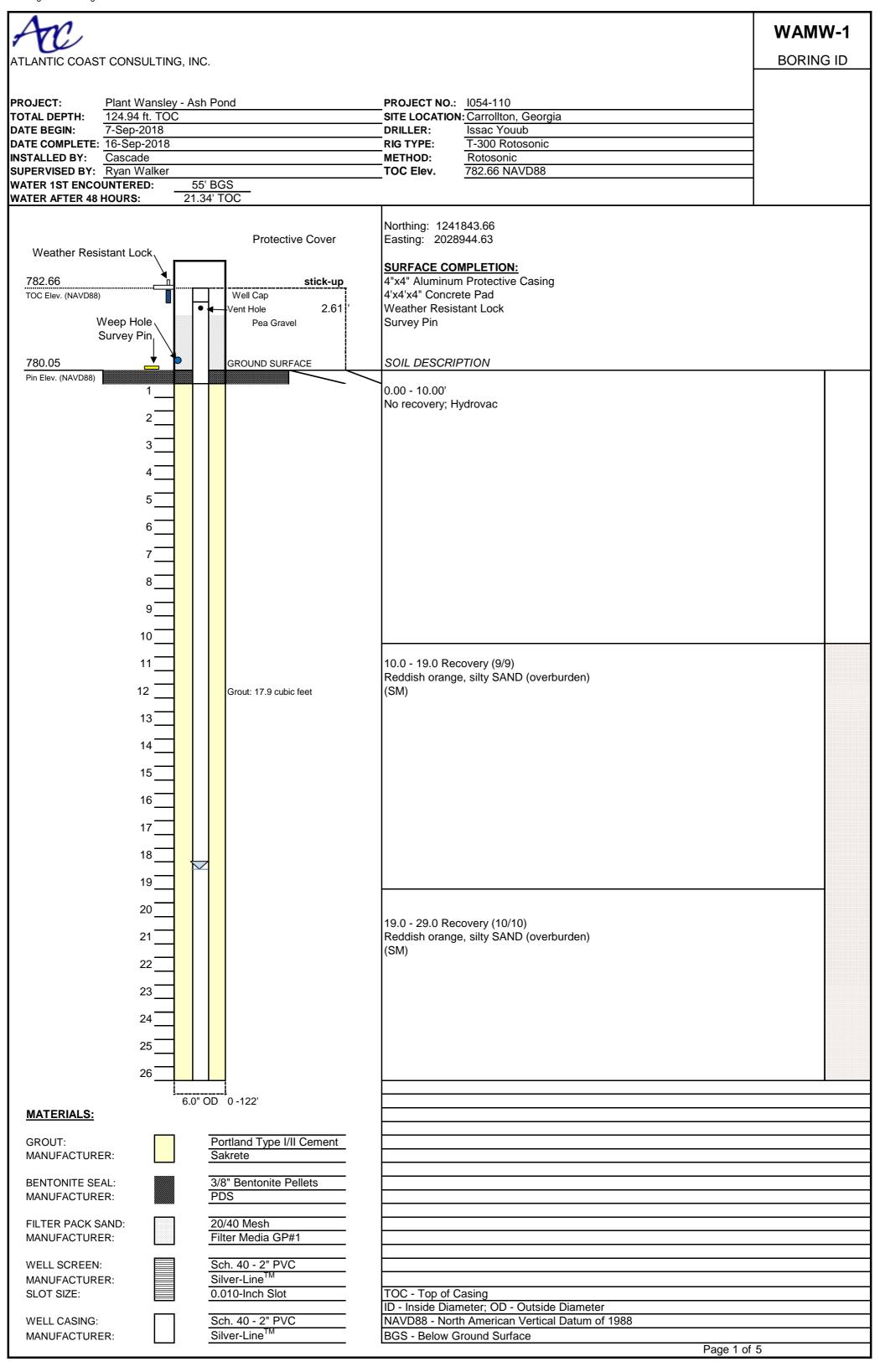
Well No. **WGWC-27** 

Page: 1 of 1

Drilling Start Date: 09/26/2022 Boring Depth (ft): 40 Well Depth (ft TOC): 42.18 Drilling End Date: 09/27/2022 Boring Diameter (in): 6 Well Diameter (in): Drilling Company: **Cascade Drilling** Sampling Method(s): **Core Barrel** Screen Slot (in): 0.010 Drilling Method: DTW During Drilling (ft): Riser Material: Sch 40 PVC Sonic 4x6 29.0 Drilling Equipment: Terrasonic Sch 40 PVC Slotted Ground Surface Elev. (ft): 778.05 NAV88 Screen Material: Driller: Cory Franklin Top of Casing Elev. (ft): Seal Material(s): **Grout/Bentonite** 780.54 NAV88



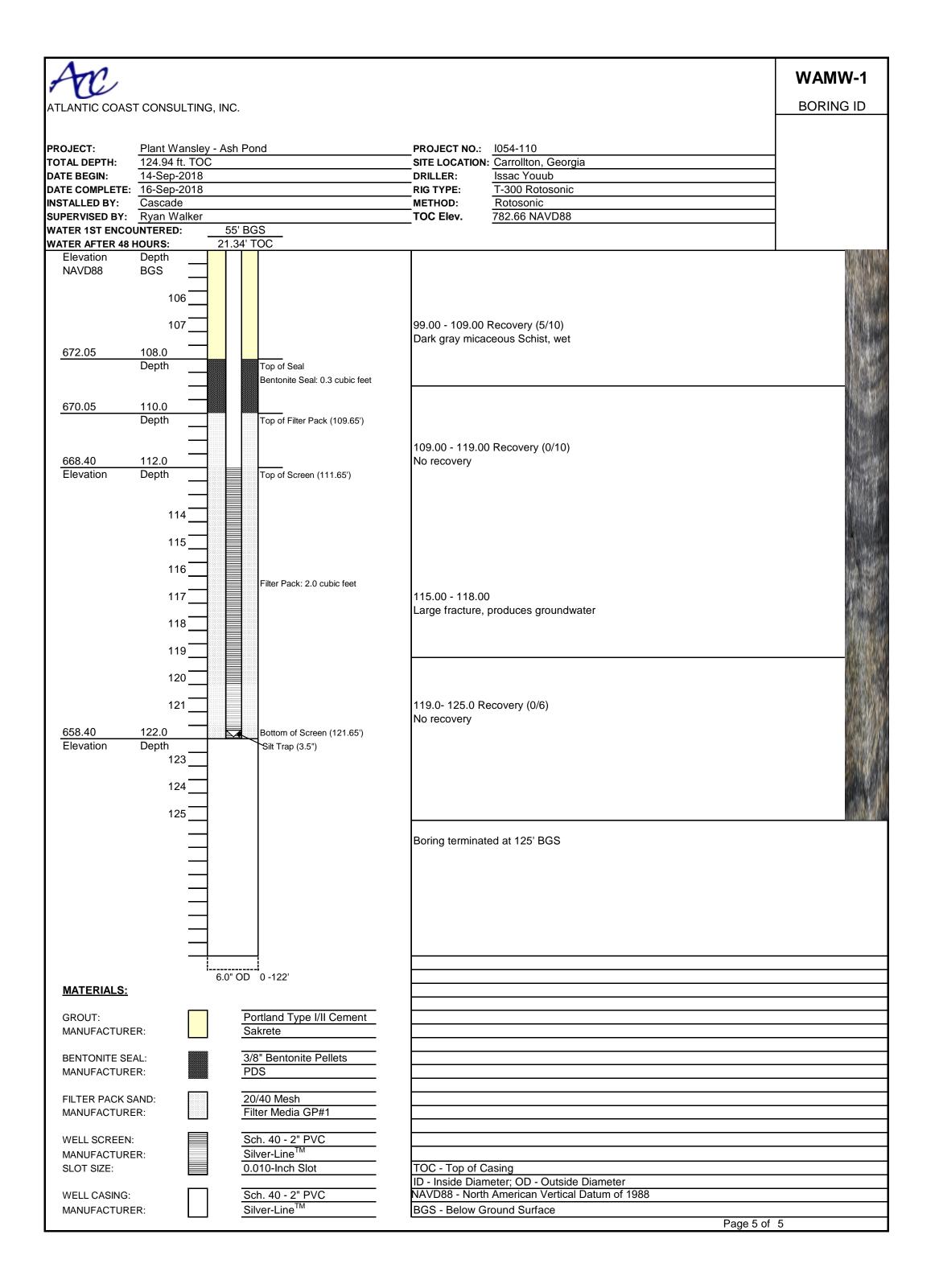
NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Well completed with aboveground (+2.49 feet) PVC stickup. Well depth measured from top of casing (TOC).

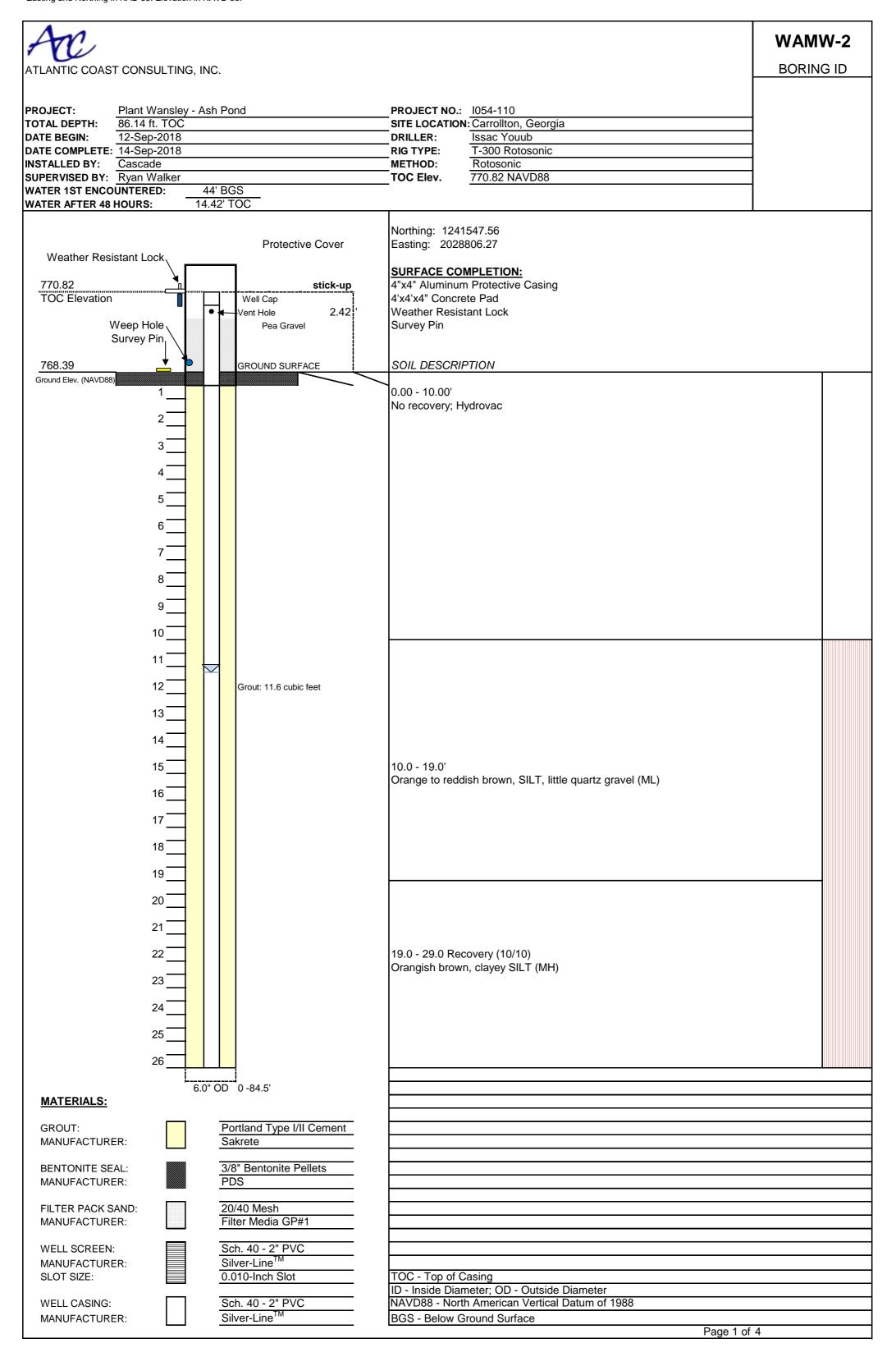


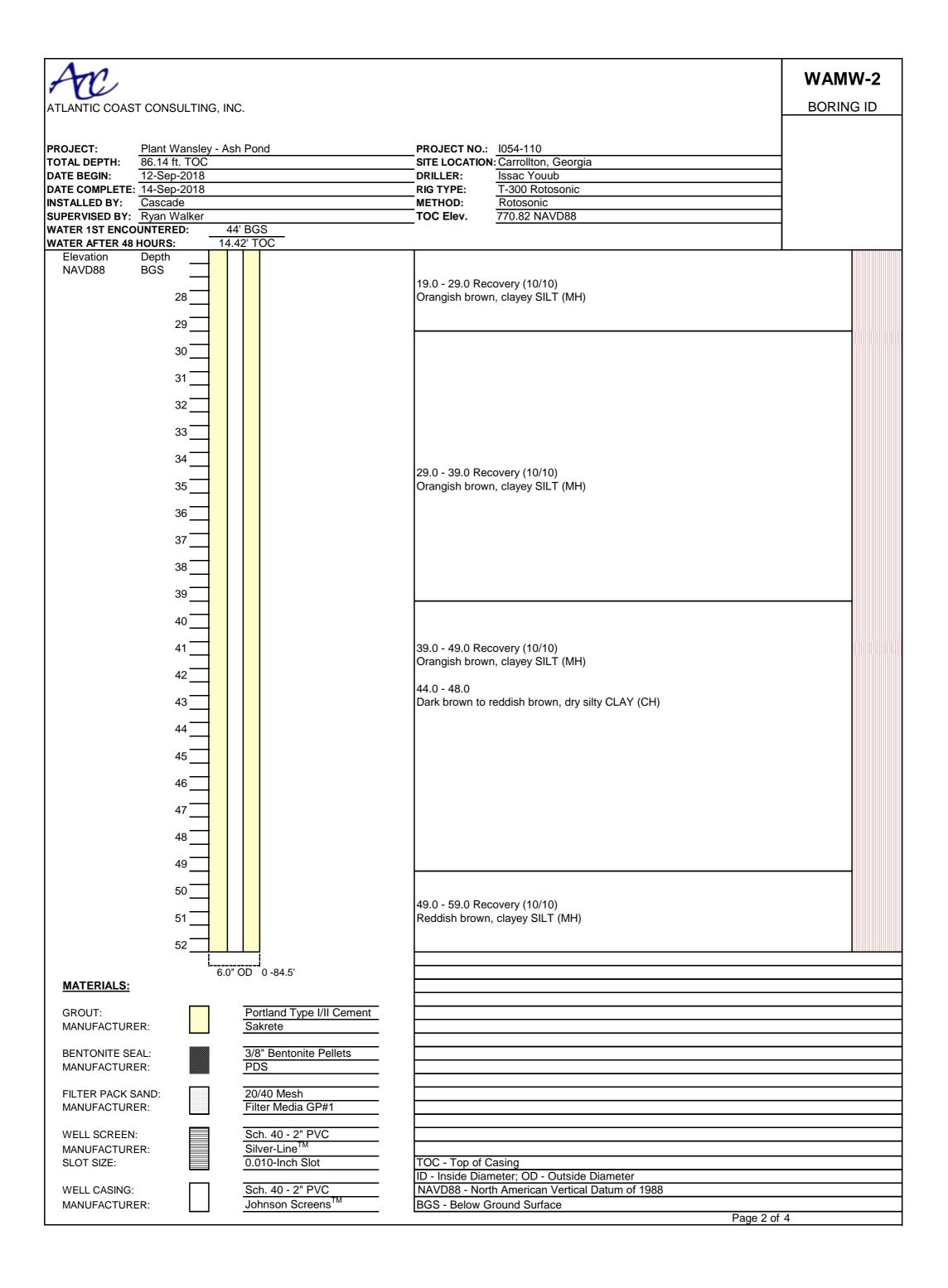
ACC STANTIC COAS		NO INC			WAMW-1
ATLANTIC COAS' PROJECT: TOTAL DEPTH: DATE BEGIN: DATE COMPLETE:	Plant Wansle 124.94 ft. TO 14-Sep-2018 16-Sep-2018	ey - Ash DC 3		PROJECT NO.:         1054-110           SITE LOCATION:         Carrollton, Georgia           DRILLER:         Issac Youub           RIG TYPE:         T-300 Rotosonic	BORING ID
INSTALLED BY: SUPERVISED BY:	Cascade Ryan Walker	r		METHOD: Rotosonic TOC Elev. 782.66 NAVD88	
WATER 1ST ENCO	UNTERED:	55	S' BGS	10C Elev. 102.00 NAVDOO	
WATER AFTER 48 I Elevation	HOURS: Depth	21.3	34' TOC	T	
NAVD88	28			Reddish orange, silty SAND (overburden) (SM)	
	30 31 32 33 34			29.0 - 39.0 Recovery (10/10) Reddish orange to light brown, sandy SILT, trace gravel, MnO lamin	ations (ML)
	35 36 37 38				
	39 40 41 42			39.0 - 49.0 Recovery (10/10) Reddish orange to light brown, sandy SILT, trace gravel, MnO lamin	ations (ML)
	43 44 45 46 47 48			Reduisir ordings to light brown, sarray S.E., tass g.E.s.,	ations (wie)
	49 50 51 52			49.0 - 59.0 Recovery (10/10) Reddish orange to light brown, sandy SILT, trace gravel, MnO lamin	ations (ML)
MATERIALS:		6.0"	OD 0-122'		
GROUT: MANUFACTURE	ER:		Portland Type I/II Cement Sakrete		
BENTONITE SE. MANUFACTURE			3/8" Bentonite Pellets PDS		
FILTER PACK S MANUFACTURE	0.00000		20/40 Mesh Filter Media GP#1		
WELL SCREEN: MANUFACTURE SLOT SIZE:			Sch. 40 - 2" PVC Silver-Line <sup>TM</sup> 0.010-lnch Slot	TOC - Top of Casing ID - Inside Diameter; OD - Outside Diameter	
WELL CASING:			Sch. 40 - 2" PVC	NAVD88 - North American Vertical Datum of 1988	
MANUFACTURE	ER:		Silver-Line <sup>TM</sup>	BGS - Below Ground Surface	ge 2 of 5

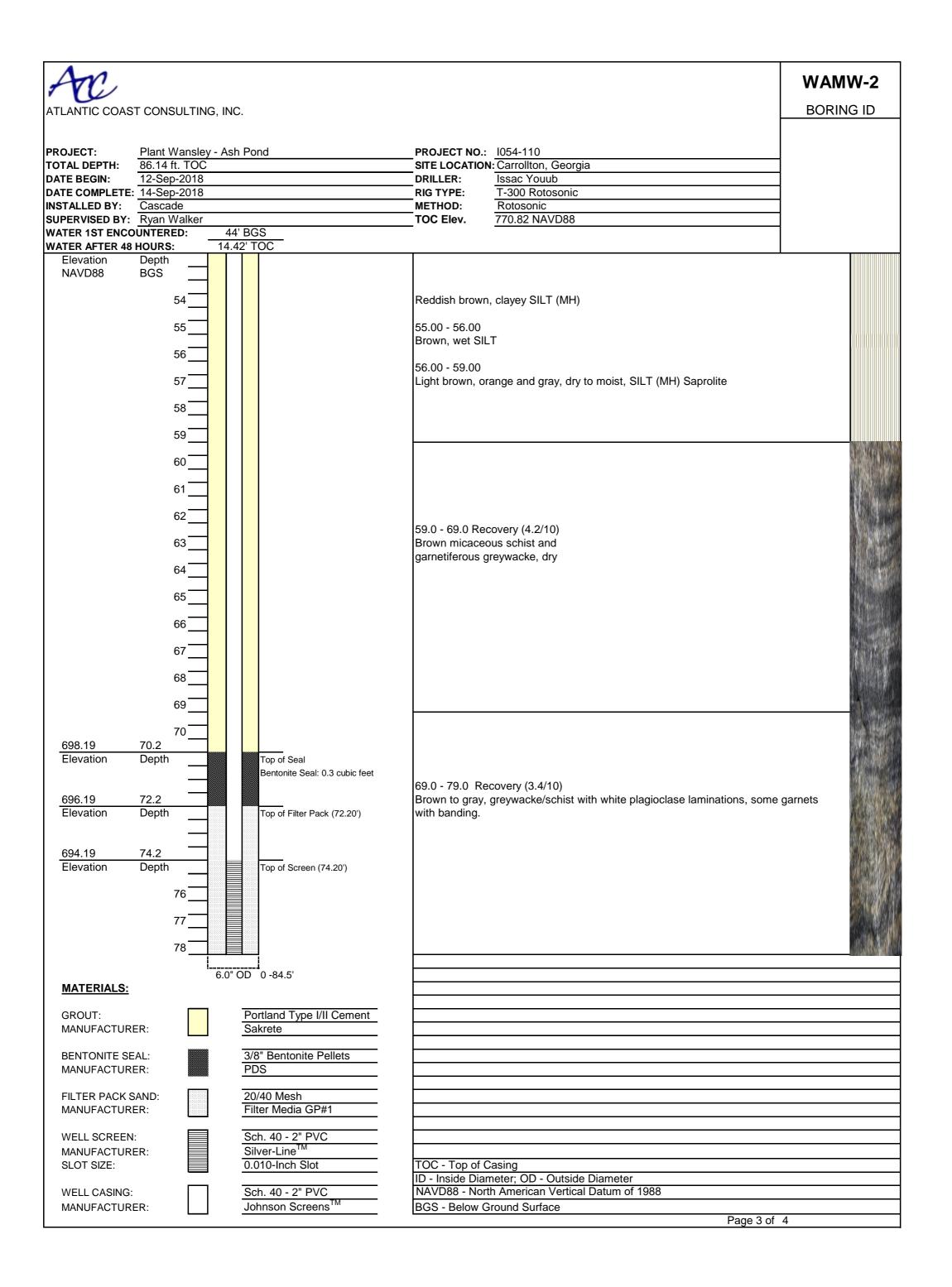
An						WAMW-1
ATLANTIC COAS	T CONSULTIN	G, INC				BORING ID
PROJECT: TOTAL DEPTH:	Plant Wansle 124.94 ft. TO		n Pond	PROJECT NO.: SITE LOCATION	: Carrollton, Georgia	<u> </u>
DATE BEGIN:	14-Sep-2018			DRILLER:	Issac Youub	1
DATE COMPLETE: INSTALLED BY:	16-Sep-2018 Cascade			RIG TYPE: METHOD:	T-300 Rotosonic Rotosonic	-
SUPERVISED BY:	Ryan Walker			TOC Elev.	782.66 NAVD88	1
WATER 1ST ENCO WATER AFTER 48			' BGS 34' TOC			
Elevation NAVD88	Depth BGS			59.0 - 69.0 Red Brown to tan, w	e to light brown, sandy SILT, trace gravel, MnO laminations covery (10/10) white and gray, silty Sand, trace gravel. Saprolite (SM)	
MATERIALS:	78	6.0" (	OD 0 -122'			
GROUT: MANUFACTURE	ER:		Portland Type I/II Cement Sakrete			
BENTONITE SE MANUFACTURE			3/8" Bentonite Pellets PDS			
FILTER PACK S MANUFACTURE	95555555		20/40 Mesh Filter Media GP#1			
WELL SCREEN: MANUFACTURE SLOT SIZE:			Sch. 40 - 2" PVC Silver-Line <sup>TM</sup> 0.010-Inch Slot	TOC - Top of C		
WELL CASING: MANUFACTURE			Sch. 40 - 2" PVC Silver-Line <sup>TM</sup>		neter; OD - Outside Diameter h American Vertical Datum of 1988 round Surface Page 3 of	5

ACC								WAMW-1
ATLANTIC COAS	T CONSUI	LTING, IN	C.				_	BORING ID
	Dlant Ma	analau A	.h D.a	d	DDO ISOT NO	1054 440		
PROJECT: TOTAL DEPTH:	Plant Wa 124.94 ft	TOC	SIIFC	ona		Carrollton, Georgia		
DATE BEGIN: DATE COMPLETE:	14-Sep-2				DRILLER: RIG TYPE:	Issac Youub T-300 Rotosonic		
INSTALLED BY:	Cascade				METHOD:	Rotosonic		
SUPERVISED BY: WATER 1ST ENCO			55' B0	GS	TOC Elev.	782.66 NAVD88		
WATER AFTER 48 I Elevation	HOURS: Depth			TOC				
NAVD88	BGS							.VANUURAN
	80							
	8′	1 -						
	82	2						1
	83	3						
	84	4			79.0 - 89.0 Reco	very (4/10) ous Schist, wet - broken pieces		N. A. C.
	85	_						
								William /
	86							
	87	7—						( to
	88	3						
	89	9						
	90							
	9′	1——			89.0 - 92.0 Reco	very (0/3)		( ) [ ]
	92							
	93							124 1977
	94	4						
	95	5						
	96				00.00.00.00			
	97	7			92.00 - 99.00 No recovery			
	98	3						
	99	, <del></del>						
	100							44M/W//000
	101	1—			99.00 - 109.00 F Dark gray micac			(A) (FS) (A) (FS)
	102	2						2844444
	103	3						
	104	4						
MATERIALS:		6.0	" OD	0 -122'				
GROUT:			D.	ortland Type I/II Cement				
MANUFACTURE	ER:			akrete				
BENTONITE SE MANUFACTURE				8" Bentonite Pellets DS				
FILTER PACK S. MANUFACTURE				0/40 Mesh Iter Media GP#1				
WELL SCREEN:	:		So	ch. 40 - 2" PVC				
MANUFACTURE SLOT SIZE:	ER:		Si	ilver-Line <sup>TM</sup> 010-Inch Slot	TOC - Top of Ca	sina		
					ID - Inside Diamo	eter; OD - Outside Diameter		
WELL CASING: MANUFACTURE			Si Si	ch. 40 - 2" PVC ilver-Line <sup>TM</sup>	NAVD88 - North A	American Vertical Datum of 1988 bund Surface		
							Page 4 of 5	)









ACC						WAMW-2
ATLANTIC COAS	T CONSULTIN	IG, INC.				BORING ID
PROJECT:	Plant Wansle	v - Ash Po	ond	PROJECT NO.:	1054-110	
TOTAL DEPTH:	86.14 ft. TOC			SITE LOCATION	N: Carrollton, Georgia	
DATE BEGIN: DATE COMPLETE:	12-Sep-2018 14-Sep-2018			DRILLER: RIG TYPE:	Issac Youub T-300 Rotosonic	-
NSTALLED BY:	Cascade			METHOD:	Rotosonic	
SUPERVISED BY: WATER 1ST ENCO		44' BC	20	TOC Elev.	770.82 NAVD88	_
WATER AFTER 48		14.42'				
Elevation NAVD88	Depth BGS			69.0 - 79.0 Re	covery (3.4/10)	
	80		Filter Pack: 2.0 cubic feet			
	81			79.0 - 84.0 Re	covery (1.0/5.0)	
	82			Dark brown to	gray, wet micaceous, Schist/Greywacke with banding	
684.19	84 <u>84.2</u>		Bottom of Screen (84.20')			
Elevation	Depth		Silt Trap (3.5")	Boring termina	ited at 84.5' BGS	
	_	]				
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		6.0" OD	0 -84.5'	-		
MATERIALS:		0.0 00				
GROUT: MANUFACTUR	ER:		ortland Type I/II Cement			
BENTONITE SE	AL:	3/	8" Bentonite Pellets			
MANUFACTUR FILTER PACK S	SAND:	20	DS D/40 Mesh			
MANUFACTUR	ER:	<u>Fil</u>	Iter Media GP#1			
WELL SCREEN MANUFACTUR		Si Si	ch. 40 - 2" PVC liver-Line <sup>TM</sup>			
SLOT SIZE:			010-Inch Slot	TOC - Top of (		
WELLOADING			ch 40 - 2" D\/C		meter; OD - Outside Diameter th American Vertical Datum of 1988	
WELL CASING: MANUFACTUR		<u>S0</u>	ch. 40 - 2" PVC ohnson Screens <sup>TM</sup>		Ground Surface	
					Page 4	of 4

<b>SOUTHERN</b>	
COMP	ANY

BORING PZ-01 PAGE 1 OF 2

]	EARTH SCI		ENTAL ENGINEERING	LOCATION Pla	nt Wan	sley	meters  RDINATES: N:1240249.86 E:2022319.93
DF BC	RILLED BY DEPT	T.Ardito LOGGE TH 47.6 ft. GROUN	D BY S. Baxter	CHECKED BY _L CON	Millet		ANGLE BEARING DELAYED _16.7 ft. after 24 hrs.
DF BC NC (#) HIGH	GRAPHIC LOG	STRATA	DESCRIPTION	ELE			WELL DATA  Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 856.72
15   10   5   C   C   C   C   C   C   C   C   C	- re	ayey Gravel (GC) ed, moist, fine grain, trace s  t (ML) ray, moist, sandy, yellow m gments	ottling, trace mica and angula	848.9 ar rock	1		Surface Seal: concrete 8
20		nottled brown, larger angula hist ray, fine to aphanitic grain, derately weathered	hard to medium hard, slightly	838.9 <sup>2</sup>			Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal
30	- v	ery hard, becomes non-folia	ated				8
40 35							Annular Seal: bentonite chips - 1 bag, 5 lbs, Baroid 3/8" chips 0 8  Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media



# **LOG OF TEST BORING**

BORING PZ-01 PAGE 2 OF 2 ECS38198

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE, GDT - 2/26/15 15:57 - S.;WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORT/DRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINT/PLANT WANSLEY ASH POND 1 (2). GPJ AND WELL INSTALLATION PROJECT Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley DEPTH (ft) GRAPHIC LOG STRATA DESCRIPTION **WELL DATA** Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 856.72 ELEV (DEPTH ELEV. Schist(Con't) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 807.81 Sump:0.40 ft. (46.1) 806.3

Bottom of borehole at 47.6 feet.

<b>SOUTHERN</b>	
COMP	ANY

**BORING PZ-04** PAGE 1 OF 1

WANSLEY ASH POND 1 (2).GPJ LOG OF TEST BORING ECS38198 AND WELL INSTALLATION **PROJECT** Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley **DATE STARTED** 12/22/2014 **COMPLETED** 12/22/2014 **SURF. ELEV.** 886.13 COORDINATES: N:1242592.03 E:2023595.91 2013 GEOTECH LOG WITH WELL - ESEE 2012DATABASE, GDT - 2/26/15 15:57 - S.;WORKGROUPS/APC GENERL SERVICE COMPLEXIONI, TECH SUPPORT DRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINTPLANT EQUIPMENT SONIC METHOD Rotosonic CONTRACTOR CASCADE **DRILLED BY** T.Ardito LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE BEARING BORING DEPTH 17 ft. GROUND WATER DEPTH: DURING COMP. 4.5 ft. DELAYED 6 ft. after 24 hrs. STRATA DESCRIPTION Œ GRAPHIC **WELL DATA** DEPTH Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 889.01 ELEV (DEPTH Silt (ML) - orange, moist, sandy, mottled red, trace mica -Surface Seal: concrete B 883.53 (2.6)Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips - brown, moist, sandy, mottled orange, trace mica and weathered rock 881.53 (4.6)Filter: silica filter sand - 4.5 bags, 50 lbs, #1A filter media 878.93 (7.2)878.13 - gray, fine grain, soft to medium hard, slightly to moderately weathered, thinly foliated, oxide staining Well: 2" OD PVC (SCH 40) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 869.13 Bottom of borehole at 17.0 feet. —Sump:0.40 ft.

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SOUTHERN
COMPANY

**BORING PZ-06** PAGE 1 OF 1

ASH POND 1 (2).GPJ LOG OF TEST BORING ECS38198 AND WELL INSTALLATION **PROJECT** Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley WANSLEY **DATE STARTED** 12/16/2014 **COMPLETED** 12/17/2014 **SURF. ELEV.** 912.30 **COORDINATES:** N:1244382.89 E:2024661.39 2013 GEOTECH LOG WITH WELL - ESEE 2012DATABASE, GDT - 2/26/15 15:57 - S.;WORKGROUPS/APC GENERL SERVICE COMPLEXIONI, TECH SUPPORT DRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINTPLANT EQUIPMENT SONIC METHOD Rotosonic CONTRACTOR CASCADE **DRILLED BY** T.Ardito LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE BEARING BORING DEPTH 23 ft. GROUND WATER DEPTH: DURING COMP. 7.8 ft. DELAYED 8.3 ft. after 24 hrs. GRAPHIC LOG STRATA DESCRIPTION Œ **WELL DATA** DEPTH Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 915.15 ELEV FLEV (DEPTH Silt (ML) - orange, moist, clayey, mottled dark orange, trace mica and -Surface Seal: concrete weathered rock 910.30 - brown, moist, sandy, mottled orange and red, trace mica and (2.0)weathered rock Annular Fill: Cement-Bentonite Grout - 2 bags, 46 lbs, Portland Type I/II, 11 gal 904.30 904.30 Schist (8.0)gray, fine grain, medium hard to hard, moderately to highly weathered, foliated, oxide staining Annular Seal: bentonite chips - 1 bag, 50 9 lbs, Baroid 3/8" chips 900.70 (11.6)Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media 898.60 (13.7)Well: 2" OD PVC (SCH 40) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 20 889.30 Bottom of borehole at 23.0 feet. 888.60 -Sump:0.40 ft.

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<b>SOUTHERN</b>	
COMPA	NY

**BORING PZ-08** PAGE 1 OF 1

ASH POND 1 (2).GPJ LOG OF TEST BORING ECS38198 AND WELL INSTALLATION **PROJECT** Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley WANSLEY **DATE STARTED** 12/15/2014 **COMPLETED** 12/15/2014 **SURF. ELEV.** 864.65 **COORDINATES:** N:1245514.59 E:2026807.30 2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE, GDT - 2/26/15 15:57 - S:WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY ASH POND PIEZIGINT/PLANT EQUIPMENT SONIC METHOD Rotosonic CONTRACTOR CASCADE **DRILLED BY** T.Ardito LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE BEARING BORING DEPTH 37.5 ft. GROUND WATER DEPTH: DURING \_\_\_\_\_ COMP. 9.5 ft. DELAYED 13.6 ft. after 24 hrs. STRATA DESCRIPTION Œ **WELL DATA** GRAPHIC DEPTH Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 867.29 **ELEV** (DEPTH Silt (ML) Surface Seal: concrete - orange, dry, sandy, mottled light brown and red, trace mica and 862.65 (2.0)857.65 Silty Sand (SM) - brown, dry, fine to medium grain, mottled orange, trace mica and 9 Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal 2 842.55 (22.1)Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips 840.15 (24.5)- gray, dry, fine to medium grain, mottled orange and light brown, Filter: silica filter sand - 4 bags, 50 lbs, trace mica and gravel #1A filter media 836.85 (27.8)Well: 2" OD PVC (SCH 40) - gray, fine grain, hard, slightly weathered, massive, some oxidation Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 826.85 Bottom of borehole at 37.5 feet. Sump:0.40 ft.

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<b>SOUTHERN</b>	
COMP	ANY

BORING PZ-10 PAGE 1 OF 1

SLEY_ASH_POND_1 (2).GPJ	SOUTHERN COMPANY SOUTHERN COMPANY EARTH SCIENCE AND E	AND WELL SERVICES, INC.	PROJECT Ash P	ATIC ond F	ON Piezor		1 OF 1 338198
POND PIEZ\GINT\PLANT_WAN	CONTRACTOR CASCADE DRILLED BY T.Ardito BORING DEPTH 30 ft.	COMPLETED 12/5/2014 SURF  EQUIPMENT SO  LOGGED BY S. Baxter C  GROUND WATER DEPTH: DURING	NIC METHOD CHECKED BY L. M COMF	_Roto	osonio	ANGLE BEARING	
DIECTS/WANSLEY ASH	DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	ELEV			WELL DATA  Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 832.02	ELEV (DEPTH
2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 2/26/15 15:57 - S.:WORKGROUPS/APC GENERAL SERVICE COMPLEXIC/NIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINT/PLANT_WANSLEY ASH_POND_1 (2).GPJ	Gneiss - gray, fine to me	dium grain, hard to medium hard, slightly thered, massive, banded, with oxidation	819.26			Annular Fill: Cement-Bentonite Grout - bags, 46 lbs, Portland Type I/II, 16.5 ga  Annular Seal: bentonite chips - 1 bag, 5 lbs, Baroid 3/8" chips  Filter: silica filter sand - 3.5 bags, 50 lbs #1A filter media  Well: 2" OD PVC (SCH 40)  Well: 2" OD PVC (SCH 40)  Screen: 10 ft. pre-pack	814.96 60 (14.3 812.96 (16.3
GEOTECH LOG WITH WELL		Bottom of borehole at 30.0 feet.	799.26			Sump:0.40 ft.	800.46 (28.8

	•
<b>SOUTHERN</b>	
COMP	ANY

# LOG OF TEST BORING

**BORING PZ-11** PAGE 1 OF 1

ASH POND 1 (2).GPJ AND WELL INSTALLATION **PROJECT** Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley WANSLEY **DATE STARTED** 12/4/2014 **COMPLETED** 12/5/2014 **SURF. ELEV.** 820.21 COORDINATES: N:1240578.87 E:2026933.09 2013 GEOTECH LOG WITH WELL - ESEE 2012DATABASE, GDT - 2/26/15 15:58 - S.;WORKGROUPS/APC GENERL SERVICE COMPLEXIONI, TECH SUPPORT DRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINTPLANT EQUIPMENT SONIC METHOD Rotosonic CONTRACTOR CASCADE **DRILLED BY** T.Ardito LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE BEARING BORING DEPTH 30 ft. GROUND WATER DEPTH: DURING COMP. 16.1 ft. DELAYED 20.98 ft. after 24 hrs. STRATA DESCRIPTION Œ **WELL DATA** GRAPHIC LOG DEPTH Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 823.09 **ELEV** (DEPTH **Utility Clearance (HYDROEXCAVATION)** Surface Seal: concrete 818.21 (2.0)2 Annular Fill: Cement-Bentonite Grout - 2 811.91 bags, 46 lbs, Portland Type I/II, 11 gal Silt (ML) - orange, moist, gravelly, mottled light brown 805.71 white, dry, sandy, mottled orange, trace gravel Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips 803.71 803.11 Silty Gravel (GM) (17.1)- orange, wet, fine to medium grain, sandy, mottled brown Filter: silica filter sand - 4.5 bags, 50 lbs, #1A filter media 20 799.71 799.21 (20.5)Schist - tan and pink, fine grain, soft to medium hard, moderately to highly weathered, massive, banded Well: 2" OD PVC (SCH 40) Well: 2" OD PVC (SCH 40) 794.71 Screen: 10 ft. pre-pack Silt (ML) - tan, wet, mottled pink, trace gravel 793.21 - pink, fine to medium grain, medium hard to hard, moderately weathered, banded Bottom of borehole at 30.0 feet. Sump:0.40 ft.

BORING PZ-12 PAGE 1 OF 2

EART	THERN COMPANY SERVICES, INC. TH SCIENCE AND ENVIRONMENTAL ENGINEERING  COMPLETED 12/8/2014 COMPLETED 12/8/2014 SURF. ELEV. 816.17	
CONTR DRILLE BORING	EACTOR CASCADE EQUIPMENT SONIC METHER BY T.Ardito LOGGED BY S. Baxter CHECKED BY GROUND WATER DEPTH: DURING COMMETHER BY CHECKED BY COMMETHER BY CHECKED BY COMMETHER BY COMME	L. Millet         ANGLE         BEARING           COMP. 22 ft.         DELAYED         24.28 ft. after 24 hrs.
DEPTH (ft) GRAPHIC LOG		WELL DATA  Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 818.74
20   15   10   5	- red, moist, mottled yellow with black spots, micaceous, trace gravel	Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal
36: 36: 25:		Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips 7  Filter: silica filter sand - 3.5 bags, 50 lbs, #1A filter media 7



BORING PZ-12 PAGE 2 OF 2 ECS38198

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE, GDT - 226/15 15:58 - S.;WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINTIPLANT WANSLEY ASH POND 1 (2). GPJ **LOG OF TEST BORING** SOUTHERN COMPANY AND WELL INSTALLATION PROJECT Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley DEPTH (ft) GRAPHIC LOG STRATA DESCRIPTION **WELL DATA** Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 818.74 ELEV. ELEV. Silt (ML)(Con't) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 769.37 769.17 Sump:0.40 ft. Bottom of borehole at 47.0 feet.

## Abandoned in 2019 during construction activities

BORING PZ-13 PAGE 1 OF 2

	COMPANY	AND WELL	TEST BORII INSTALLA	TION	BORING   PAG PAG Ed	E 1 CS:
EAR'		VIRONMENTAL ENGINEERING  COMPLETED 12/9/2014 SURF.	LOCATION Plant V	Vansley COOR		
BORIN	IG DEPTH _ 56.9 ft.	LOGGED BY S. Baxter CI GROUND WATER DEPTH: DURING	COMP.			
DEPTH (ft) GRAPHIC LOG	S	TRATA DESCRIPTION	ELEV	⊢ -	WELL DATA  Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 850.04	3
	Silt (ML) - red, moist, sandy, - wet, trace gravel - mottled yellow-ora	mottled yellow and black, micaceous  nge dy, mottled orange with black streaks, mi	837.5		Annular Fill: Cement-Bentonite Grout bags, 46 lbs, Portland Type I/II, 33 gal	- 6 I

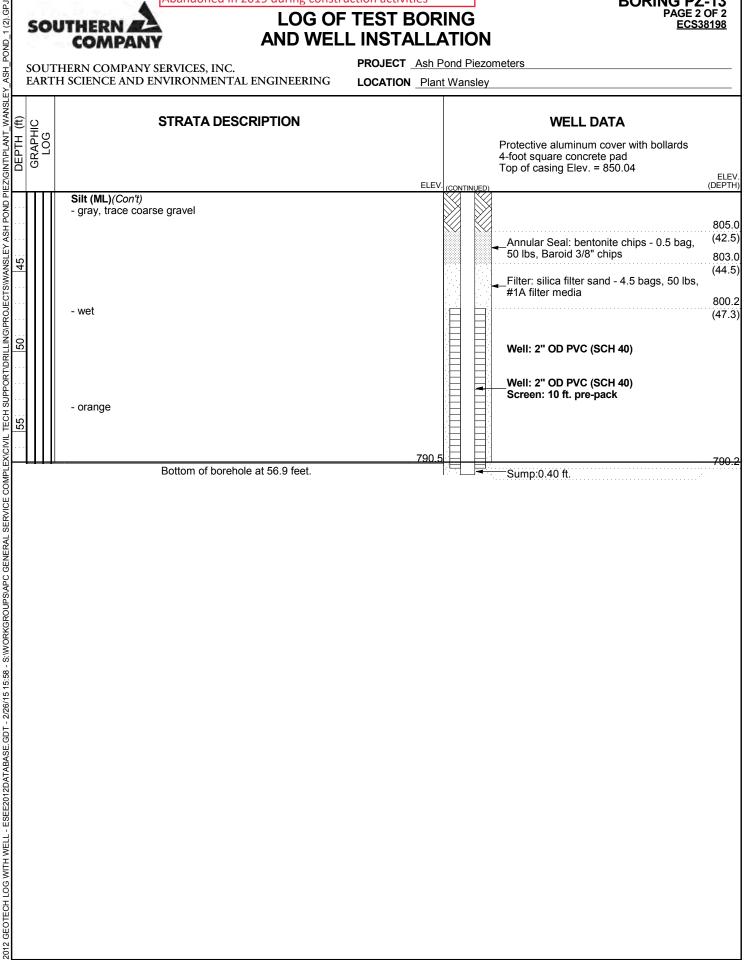
Abandoned in 2019 during construction activities

## LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-13 PAGE 2 OF 2 ECS38198

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING PROJECT Ash Pond Piezometers

**LOCATION** Plant Wansley



<b>SOUTHERN</b>	
COMP	ANY

# LOG OF TEST BORING

**BORING PZ-15** PAGE 1 OF 1

WANSLEY ASH POND 1 (2).GPJ ECS38198 AND WELL INSTALLATION **PROJECT** Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley **DATE STARTED** 12/10/2014 **COMPLETED** <u>12/10/2014</u> **SURF. ELEV.**824.59 COORDINATES: N:1240457.61 E:2025105.38 2013 GEOTECH LOG WITH WELL - ESEE 2012DATABASE, GDT - 2/26/15 15:58 - S.;WORKGROUPS/APC GENERL SERVICE COMPLEXIONI, TECH SUPPORT DRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINTPLANT CONTRACTOR CASCADE EQUIPMENT SONIC METHOD Rotosonic **DRILLED BY** T.Ardito LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE BEARING BORING DEPTH 37 ft. GROUND WATER DEPTH: DURING COMP. 22.5 ft. DELAYED 30.5 ft. after 24 hrs. STRATA DESCRIPTION Œ **WELL DATA** GRAPHIC LOG DEPTH Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 826.86 **ELEV** (DEPTH **Utility Clearance (HYDROEXCAVATION)** Surface Seal: concrete 822.59 (2.0)2 817.59 Silt (ML) - red, moist, sandy, mottled brown and yellow with black streaking, micaceous, trace gravel Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal 20 - wet 802.29 (22.3)Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips 797.99 Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media 795.79 (28.8)30 Well: 2" OD PVC (SCH 40) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 787.59 Bottom of borehole at 37.0 feet. 785.79 Sump:0.40 ft.

	4
<b>SOUTHERN</b>	
COMP	ANY

**BORING PZ-16** PAGE 1 OF 1

ASH POND\_1 (2).GPJ LOG OF TEST BORING ECS38198 AND WELL INSTALLATION **PROJECT** Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley WANSLEY **DATE STARTED** 12/10/2014 **COMPLETED** 12/11/2014 **SURF. ELEV.** 798.05 **COORDINATES:** N:1239419.77 E:2023662.22 2013 GEOTECH LOG WITH WELL - ESEE 2012DATABASE, GDT - 2/26/15 15:58 - S.;WORKGROUPS/APC GENERL SERVICE COMPLEXIONI, TECH SUPPORT DRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINTPLANT EQUIPMENT SONIC METHOD Rotosonic CONTRACTOR CASCADE DRILLED BY T.Ardito LOGGED BY S. Baxter CHECKED BY L. Millet ANGLE BEARING BORING DEPTH \_24.5 ft. \_\_\_\_ GROUND WATER DEPTH: DURING \_\_\_\_\_ COMP. \_11.4 ft. \_\_\_ DELAYED \_10.5 ft. after 24 hrs. STRATA DESCRIPTION Œ **WELL DATA** GRAPHIC DEPTH Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 800.70 ELEV FI F\ (DEPTH Silt (ML) - brown, moist, clayey, mottled orange -Surface Seal: concrete 796.05 (2.0)- gray, moist, sandy, mottled orange, trace gravel Annular Fill: Cement-Bentonite Grout - 2 bags, 46 lbs, Portland Type I/II, 11 gal 787.95 - wet (10.1)Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips 785.95 Filter: silica filter sand - 4.5 bags, 50 lbs, (12.1) 1A filter media 785.05 #1A filter media (13.0)Well: 2" OD PVC (SCH 40) Silty Sand (SM) - gray, wet, fine to coarse grain, trace mica Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 20 775.05 Sump:0.50 ft. 773.55 Bottom of borehole at 24.5 feet.



BORING PZ-17

DATE	THERN COMPANY SERVICES, INC.  RTH SCIENCE AND ENVIRONMENTAL ENGINEERING  STARTED 12/11/2014 COMPLETED 12/11/2014 SURF. ELEV. 828.  RACTOR CASCADE EQUIPMENT SONIC MET  LED BY T.Ardito LOGGED BY S. Baxter CHECKED BY	.54 COORDINATES: N:1239270.02 E:2023086.  THOD Rotosonic
BORI	NG DEPTH 48 ft. GROUND WATER DEPTH: DURING S	<b>COMP.</b> 23.1 ft. <b>DELAYED</b> 23.6 ft. after 24 hrs.
DEPTH (ft) GRAPHIC	STRATA DESCRIPTION	WELL DATA  Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 831.01
	Silt (ML) - orange, moist, clayey, mottled yellow, trace mica and angular rock	Surface Seal: concrete
15:   10:	- orange, moist, sandy, mottled light brown and yellow, trace mica	
500	- mottled red	Annular Fill: Cement-Bentonite Grout - bags, 46 lbs, Portland Type I/II, 33 gal
30	- tan, very moist	
	- dark brown, dry, sandy, micaceous, with gravel	Annular Seal: bentonite chips - 1 bag,



## **LOG OF TEST BORING**

BORING PZ-17 PAGE 2 OF 2 ECS38198

779.84

Sump:0.40 ft.

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE, GDT - 226/15 15:58 - S.;WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY ASH POND PIEZ/GINTIPLANT WANSLEY ASH POND 1 (2). GPJ AND WELL INSTALLATION PROJECT Ash Pond Piezometers SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley DEPTH (ft) GRAPHIC LOG STRATA DESCRIPTION **WELL DATA** Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 831.01 ELEV (DEPTH ELEV. Silt (ML)(Con't) Well: 2" OD PVC (SCH 40) Well: 2" OD PVC (SCH 40) Screen: 10 ft. pre-pack 780.54

Bottom of borehole at 48.0 feet.

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<b>SOUTHERN</b>	
COMP	ANY

BORING PZ-18
PAGE 1 OF 1

SOU EAR DATE CONTI DRILL BORIN	THERE COMPANY SERVICES, INC.	ALLAT  Ash Pond  Plant Wi  2.10  ETHOD Ro  BY L. Mille	d Piezometers ansley  COORDINATES: N:1239569.52 E:2022299.20 otosonic tt ANGLE BEARING
DEPTH (ft) GRAPHIC	STRATA DESCRIPTION	ELEV.	WELL DATA  Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 814.51
35   30   25   20   20   20   20   20   20   2	Silt (ML) - red, moist, sandy, mottled yellow with black streaks, trace mica and weathered rock   - mottled orange and white	802.10	Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal  Annular Seal: bentonite chips - 1 bag, 50 (22.1 bs, Baroid 3/8" chips
35 30 25	- light brown, wet, mottled orange with black specks		Filter: silica filter sand - 4 bags, 50 lbs, (23.) #1A filter media Well: 2" OD PVC (SCH 40)  Well: 2" OD PVC (SCH 40)  Screen: 10 ft. pre-pack  778.2  Sump:0.40 ft. (33.)
	Bottom of borehole at 37.0 feet.	775.10	

ERM 3200 Windy Hill Rd Ste 1500W Atlanta, GA 30339 Telephone: 678-486-2700						39	WELL NUMBER PZ-20 PAGE 1 OF 1  COORDINATES: N:1243496.86 E:2030132.73			
CLIEN	T Sc	outh	ern C	ompa	ny Serv	vices, Inc.	PROJECT NAME Plant Wansley			
PROJE					-		PROJECT LOCATION AP			
						<b>COMPLETED</b> 1/31/17	GROUND ELEVATION 784.45 HO	<b>DLE SIZE</b> 4.25	inches	
DRILLING CONTRACTOR Southern Comparny Services, Inc GROUND WATER LEVELS:										
						n Auger 2"	AT TIME OF DRILLING 14.50 ft			
LOGG	ED B	Y _N	ИR			CHECKED BY GEJ				
NOTES	s									
о ОЕРТН (ft)	SAMPLE TYPE		U.S.C.S.	GRAPHIC LOG		MATER	RIAL DESCRIPTION		L DIAGRAM  Casing Type: PVC	
5 10	s	S	SM		10.0	Hydrovac. No sample collected  (SM) white, brown, & red Silty SAND	, loose, moist		▼70/30 Portland Cement / bentonite mix	
15	s	S	SM			(SM) red silty SAND, very dense, mo (SM) reddish pink Silty SAND with le			765.45	
  - 25	s	s	SP- SM		25.0	(SP-SM) reddish orange SAPROLITI moist	E, poorly graded, granitic remnant rock fabric,		▼PEL plug 3/8" 761.95 759.45	
  30	S	S	SP			(SP) red, brown, & orange coarse SA	ND, loose, quartz, wet		<b>⋖</b> 20/40 industrial	
  35	s	S	SP		35.0	(SP) SAA			quartz (ANSI std 61) 4" UPACK	
<u> </u>				<u>1. + 1.1. + 1</u>	, 50.0		fusal at 35.0 feet. If borehole at 35.0 feet.		-	

Abandoned in 2019 **WELL NUMBER PZ-21 ERM** 3200 Windy Hill Rd Ste 1500W Atlanta, GA 30339 Telephone: 678-486-2700 CLIENT Southern Company Services, Inc. PROJECT NAME Plant Wansley PROJECT NUMBER 0372406 PROJECT LOCATION AP GROUND ELEVATION \_\_\_\_\_ HOLE SIZE \_4.25 inches **DATE STARTED** 1/25/17 **COMPLETED** 1/25/17 DRILLING CONTRACTOR Southern Comparny Services, Inc **GROUND WATER LEVELS:** AT TIME OF DRILLING \_--\_ DRILLING METHOD Hollow Stem Auger 2" CHECKED BY GEJ LOGGED BY AS AT END OF DRILLING ---**▼ AFTER DRILLING** 16.90 ft NOTES SAMPLE TYPE NUMBER GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. MATERIAL DESCRIPTION WELL DIAGRAM 0 Casing Type: PVC Hydro-Vac cleared. No sample collected 70/30 Portland Cement / bentonite mix 10 (SM) Brown, black, orange Silty SAND, loose, well graded, micaceeous, dry SM 12.0 12.5 (CL-ML) Orange and black mottled Silty CLAY, medium stiff, low plasticity, dry CL-SS 90 ML (SM) Brown, black, orange Silty SAND, loose, well graded, micaceeous, dry SMCL-(CL-ML) Orange and black mottled Silty CLAY, medium stiff, low plasticity, dry 14.5 15 ML(SM) Brown, black, orange Silty SAND, loose, well graded, trace mixed clays and → PEL plug 3/8" gravels, micaceeous, moist - wet SM  $\mathbf{I}$ SS 93 18.0 (CL-ML) Orange Silty CLAY, soft, low plasticity, wet CL-ML 20 (SM) Brown, black, orange Silty SAND, loose, well graded, micaceeous, wet SM SS 100 24.0 ■20/40 (SW) Grey brown Gravelly Silty SAND, loose, course grained, micaceous, wet industrial SW quartz (ANSI (SW) SAA, foiliated texture std 61) 4" UPÁCK SW SS 100 Grey Partially Weather Rock (PWR), very dense, foliated, micaceous, with coarse quartzite gravel 30 Refusal at 30.5 feet. Bottom of borehole at 30.5 feet.

### PIEZOMETER PZ-23D

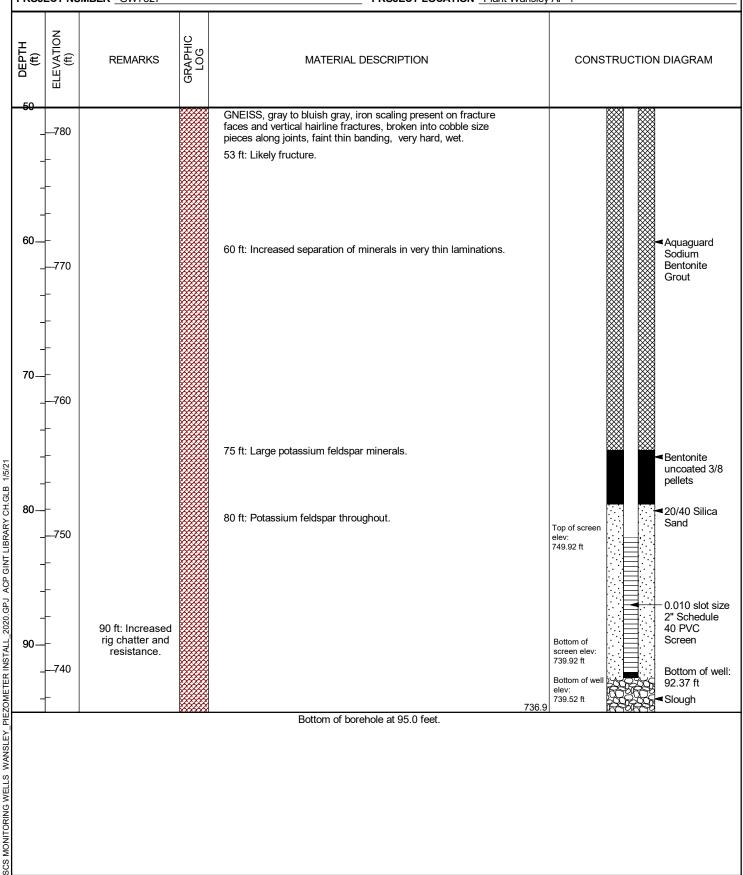
PAGE 2 OF 2

**CLIENT** Southern Company Services

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PROJECT NAME Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation

PROJECT NUMBER GW7327 PROJECT LOCATION Plant Wansley AP-1



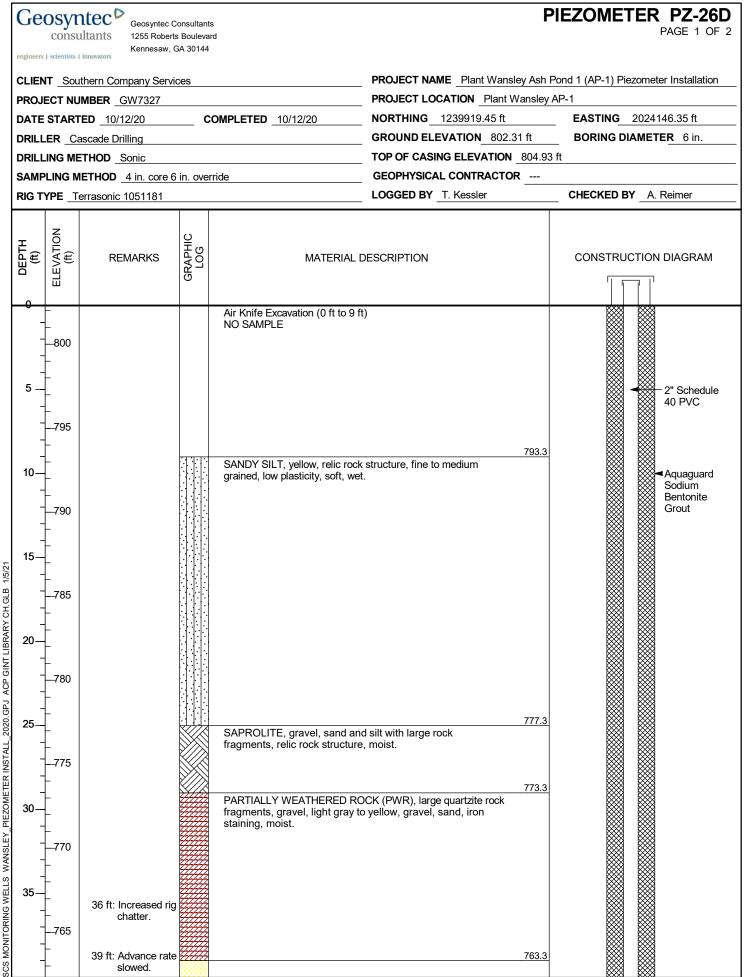
# Geosyntec consultants

Geosyntec Consultants 1255 Roberts Boulevard

## Borehole abandoned with sodium

BORING PZ-25 (Abandoned)
PAGE 1 OF 1

engineers	s   scientists	Kennesaw, G	A 30144	bentonite grout			
CLIEN	NT Sou	thern Company Service	ces		PROJECT NAME Plant W	/ansley Ash Pond 1 (/	AP-1) Piezometer Installation
PROJ	ECT NU	MBER <u>GW7327</u>			PROJECT LOCATION Plant Wansley AP-1		
DATE	START	<b>ED</b> 10/20/20	co	MPLETED 10/20/20	NORTHING Unknown	EA:	STING Unknown
DRILI	DRILLER Cascade Drilling DRILLING METHOD Sonic				GROUND ELEVATION BORING DIAMETER 6 in.		
DRILI					TOP OF CASING ELEVAT	ION	
SAMF	PLING M	ETHOD 4 in. core 6	in. overri	de	GEOPHYSICAL CONTRAC	CTOR	
		errasonic 1051181			LOGGED BY T. Wilson	CHE	CKED BY A. Reimer
DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG		MATERIAL DESC	CRIPTION	
-		Boring abandoned		Air Knife Everyation (0 ft to 1)	) #\		
- 10— - 10—		Boring abandoned due to jammed rods.		relic rock structure throughout PARTIALLY WEATHERED R	soft, silts and fine sands, medi	oft, silts and fine sand	-
SCS MONITORING WELLS WANSLEY_PIEZOMETER INSTALL_2020.GPJ ACP GINT LIBRARY CH.GLB 1/5/22  80  90  1				medium plasticity, with large 30 ft: Strong brown.  PARTIALLY WEATHERED If fine to coarse grained, large	ROCK (PWR), muscovite schi rock fragments, minimal iron s	st, brown to grayish l	
ORING WELLS W.	-			MUSCOVITE SCHIST, black GNEISS, pink, pale brown, ma	k, thin laminations, hard.	ome hard, weak foliati	ons.
SCS MONIT	_				Bottom of borehole	at 60.0 foot	



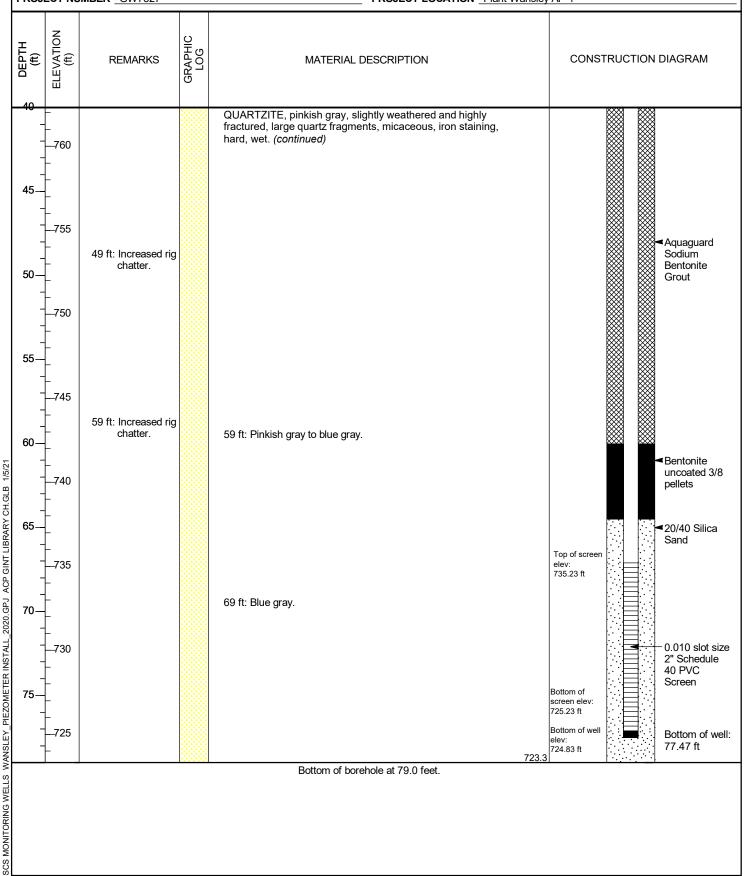
### PIEZOMETER PZ-26D

PAGE 2 OF 2

**CLIENT** Southern Company Services

PROJECT NAME Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation

PROJECT NUMBER GW7327 PROJECT LOCATION Plant Wansley AP-1



	consu	Geosyntec Co lltants 1255 Roberts Kennesaw, G	Bouleva	ırd		PIEZOMETER PZ-27D PAGE 1 OF 2
CLIENT Southern Company Services PROJECT NAME						ey Ash Pond 1 (AP-1) Piezometer Installation
PRO.	IECT NU	MBER <u>GW7327</u>			PROJECT LOCATION Plant Wa	ansley AP-1
		ED 10/15/20	С	<b>COMPLETED</b> _10/15/20	<b>NORTHING</b> 1240190.93 ft	<b>EASTING</b> 2023620.36 ft
		ascade Drilling			GROUND ELEVATION 806.22	2 ft BORING DIAMETER 6 in.
		THOD Sonic			TOP OF CASING ELEVATION	<del></del>
					GEOPHYSICAL CONTRACTOR	
		4 in. core 6	III. Ove	rride	=	CHECKED BY A. Reimer
RIG	YPE 16	errasonic 1051181			LOGGED BY T. Kessler	CHECKED BY _A. Reimei
DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL I	DESCRIPTION	CONSTRUCTION DIAGRAM
SCS MONITORING WELLS WANSLEY PIEZOMETER INSTALL 2020 GPJ ACP GINT LIBRARY CH.GLB 175/21  2 0		13 ft: Increased rig chatter.  19 ft: Advance rate slowed.  30 ft: Advance rate slowed.		PARTIALLY WEATHERED RO fragments, clayey sandy silts, it sapents, clayey sandy silts, it plasticity, dense, moist.  PARTIALLY WEATHERED R rock fragments, clayey sandy moist.  SCHIST, gray, micaceous, san 37 and 38 ft.	ty, dense, low plasticity, relic rock  OCK (PWR), brown, large rock hard, low plasticity, dry.  ty with fine sand, medium  OCK (PWR), brown, large silts, low plasticity, hard,	797.2  793.2  778.2  770.2

### PIEZOMETER PZ-27D

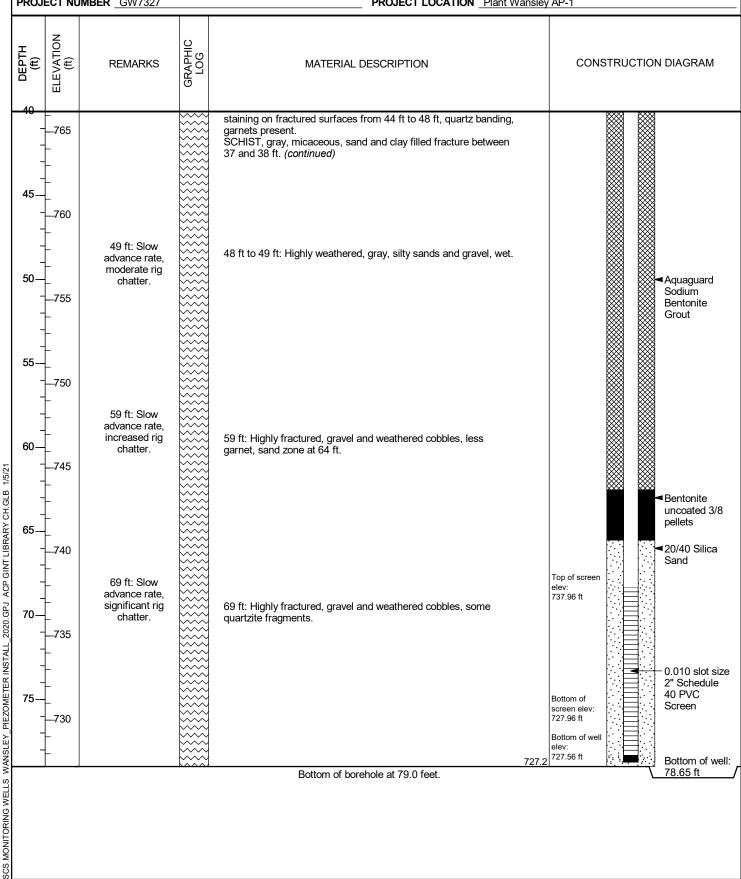
PAGE 2 OF 2

CLIENT Southern Company Services

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PROJECT NAME Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation

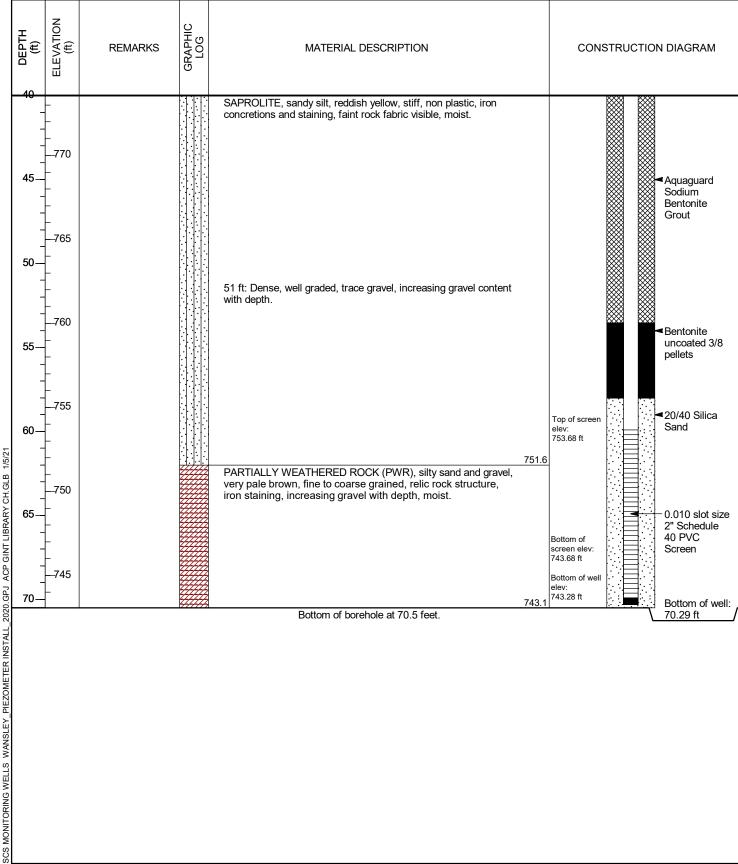
PROJECT NUMBER GW7327 **PROJECT LOCATION** Plant Wansley AP-1

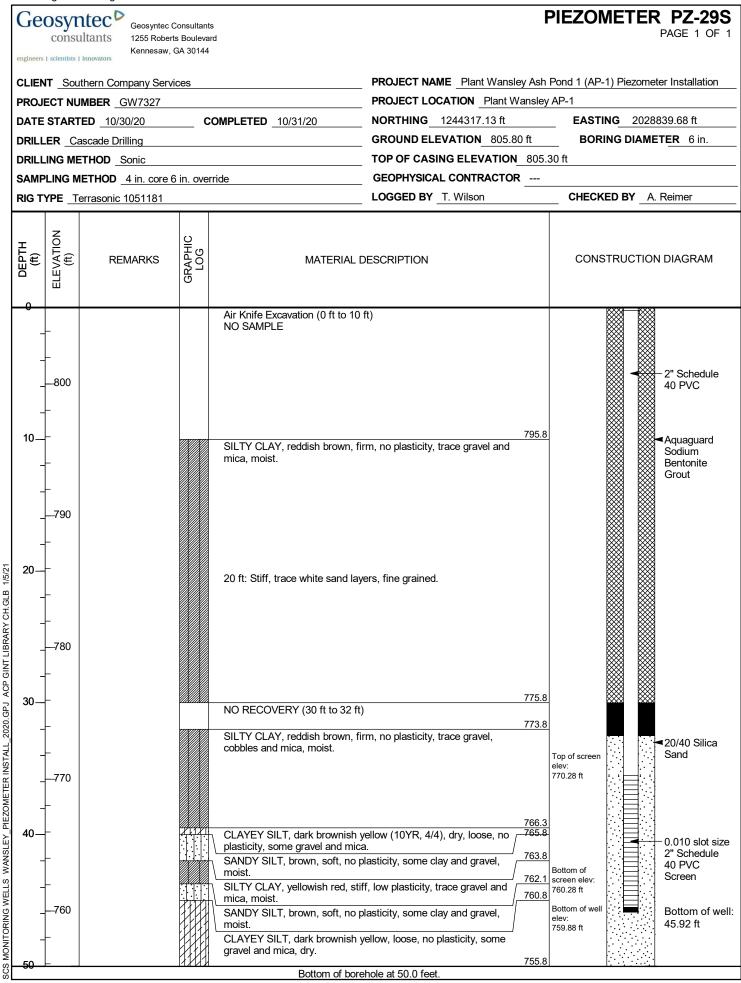


### **PIEZOMETER PZ-28**

PAGE 2 OF 2

PROJECT NAME Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
PROJECT NUMBER GW7327
PROJECT LOCATION Plant Wansley AP-1





	yntec Geosyntec C 1255 Robert Kennesaw, (	ts Boulevard			PIEZOMETER PZ-29D PAGE 1 OF 3
CLIENT S	Southern Company Servi	ices		PROJECT NAME Plant Wansley A	sh Pond 1 (AP-1) Piezometer Installation
	NUMBER GW7327	1003		PROJECT LOCATION Plant War	
			MDI ETED 11/1/20	NORTHING 1244304.90 ft	<b>EASTING</b> 2028853.29 ft
	ARTED 10/31/20	0	MPLETED <u>11/1/20</u>	<del>-</del>	<u> </u>
1	Cascade Drilling			GROUND ELEVATION 805.77 ft	<del></del>
1	METHOD Sonic			TOP OF CASING ELEVATION 805	
SAMPLING	G METHOD 4 in. core 6	in. overri	de	GEOPHYSICAL CONTRACTOR	
RIG TYPE	Terrasonic 1051181			LOGGED BY T. Wilson	CHECKED BY A. Reimer
DEPTH (ft) ELEVATION	€ REMARKS	GRAPHIC LOG	MATERIAL	DESCRIPTION	CONSTRUCTION DIAGRAM
0 			Air Knife Excavation (0 ft to 10 NO SAMPLE  NO RECOVERY (10 ft to 11 ft SILT, dark yellowish brown to gravel, some clay, non plastic,  20 ft: Stiff.  NO RECOVERY (30 ft to 31 ft SILT, reddish brown, soft, few plastic, moist.  CLAYEY SILT, dark yellowish mica present, dry.	t) 79: reddish brown, soft, few coarse moist.  77: t) 77: coarse gravel, some clay, non	7.3

### PIEZOMETER PZ-29D

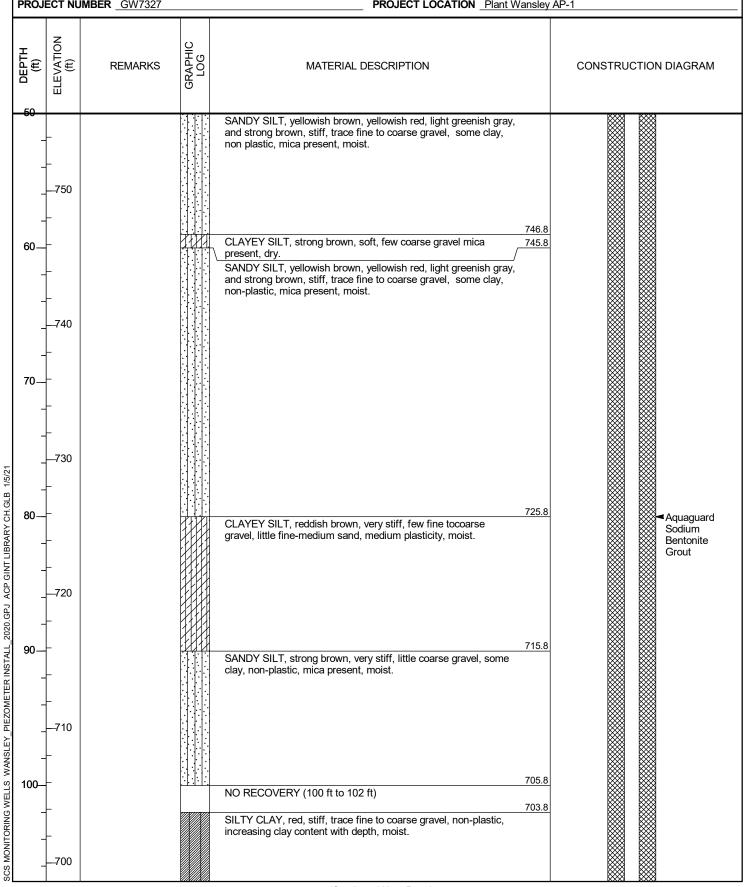
PAGE 2 OF 3

CLIENT Southern Company Services

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PROJECT NAME Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation

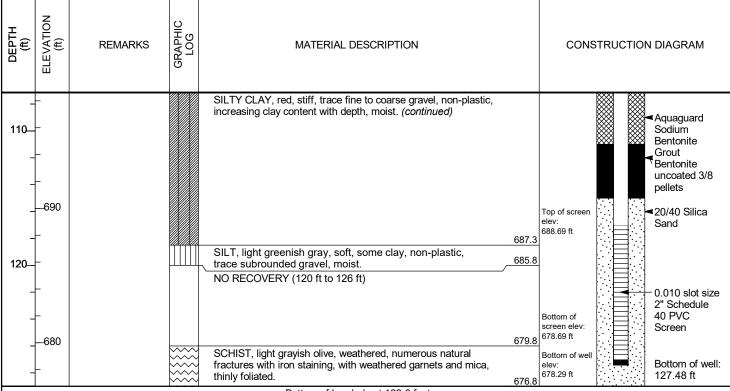
PROJECT NUMBER GW7327 **PROJECT LOCATION** Plant Wansley AP-1



### PIEZOMETER PZ-29D

PAGE 3 OF 3

CLIENT Southern Company Services PROJECT NAME Plant Wansley Ash Pond 1 (AP-1) Piezometer Installation
PROJECT NUMBER GW7327 PROJECT LOCATION Plant Wansley AP-1



Bottom of borehole at 129.0 feet.

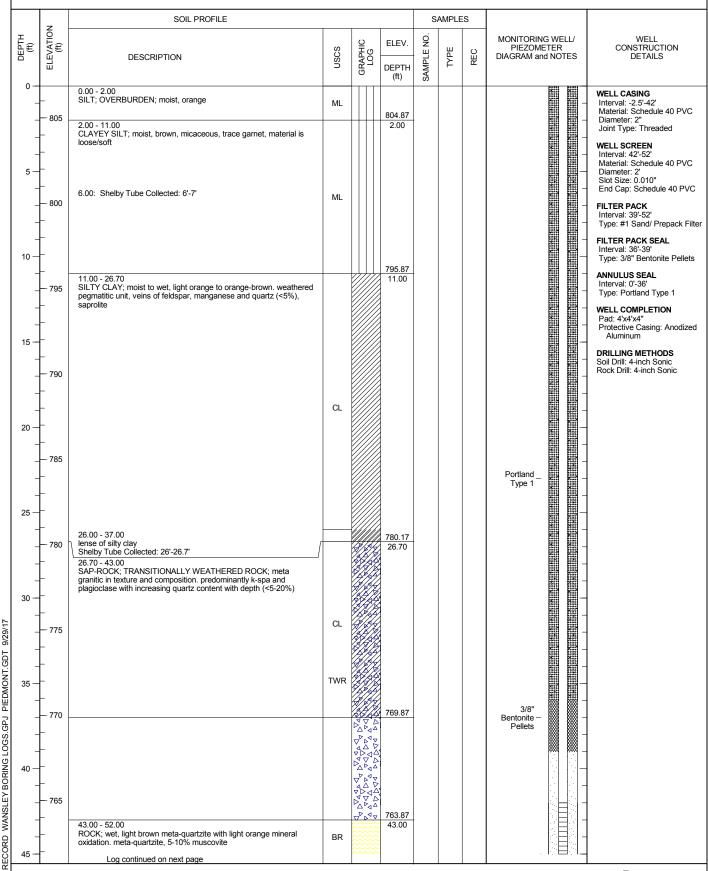
PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 52.00 ft LOCATION: Carrollton, GA

DRILL RIG: PS-150 Track Mounted Rig DATE STARTED: 11/4/15 DATE COMPLETED: 11/5/15

#### RECORD OF BOREHOLE WGWC-14/APC-5S

NORTHING: 1,240,621.86 EASTING: 2,024,584.92 GS ELEVATION: 806.87 TOC ELEVATION: 809.50 ft SHEET 1 of 2

DEPTH W.L.: 33' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 11/4/15 TIME W.L.: 14:00



LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G. CHECKED BY: Rachel P. Kirkman, P.G.

DATE: 9/29/17



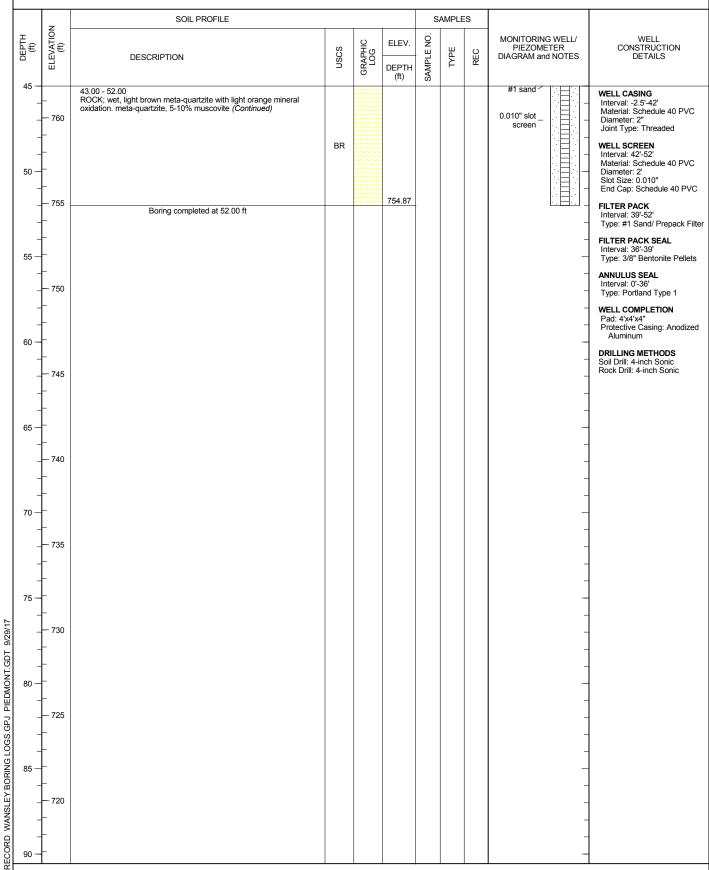
PROJECT: SCS Wansley PROJECT NUMBER: 154117 DRILLED DEPTH: 52.00 ft LOCATION: Carrollton, GA

RECORD OF BOREHOLE
DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/4/15

ROWC-14/APC-5S
NORTHING: 1,240,621.86
EASTING: 2,024,584.92 DATE COMPLETED: 11/5/15

NORTHING: 1,240,621.86 EASTING: 2,024,584.92 GS ELEVATION: 806.87 TOC ELEVATION: 809.50 ft SHEET 2 of 2

DEPTH W.L.: 33' (bgs) ELEVATION W.L.: (amsl) DATE W.L.: 11/4/15 TIME W.L.: 14:00



LOG SCALE: 1 in = 5.5 ft

DRILLING COMPANY: Cascade Drilling

DRILLER: Tom Ardito

GA INSPECTOR: Shannon George, P.G. CHECKED BY: Rachel P. Kirkman, P.G.

DATE: 9/29/17





Project: **Plant Wansley Ash Pond Closure** Address: 1371 Liberty Church Rd., Carrollton, GA PIEZOMETER LOG

**Boring No. PZA1** Page: 1 of 7

Drilling Start Date: 03/25/2016 Drilling End Date: 04/11/2016

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: **Water Rotary** Drilling Equipment: Foremost B-59 Driller: **Russell Enfinger** 

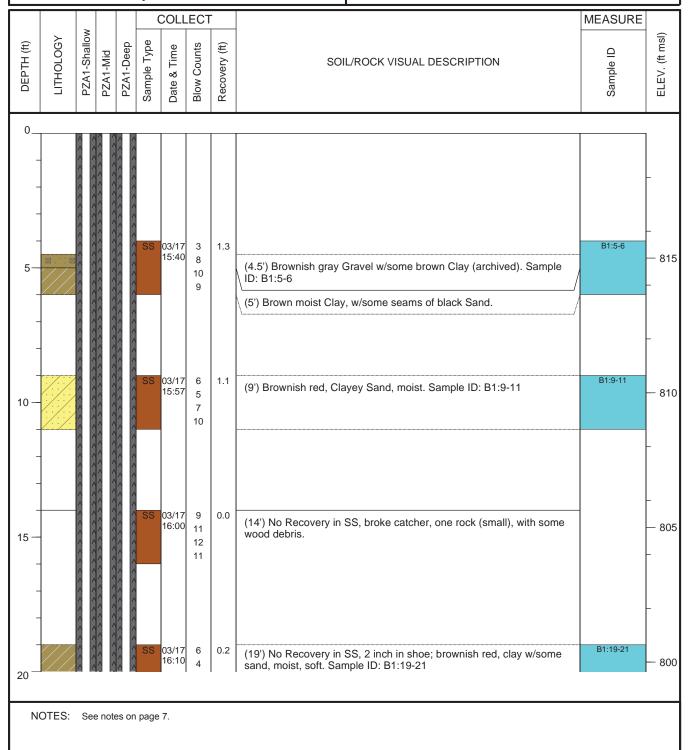
Logged By: Jeremy Gasser Boring Diameter (in): 4.25

Boring Depth (ft):

Sampling Method(s): DTW During Drilling (ft): DTW After Drilling (ft): 25.10

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2027872.516, 1243351.278 (State Plane, GA West)





Address: 1371 Liberty Church Rd., Carrollton, GA **PIEZOMETER LOG** 

**Boring No. PZA1** Page:

Drilling Start Date: 03/25/2016 Drilling End Date: 04/11/2016

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: **Water Rotary** Drilling Equipment: Foremost B-59 Driller: **Russell Enfinger** 

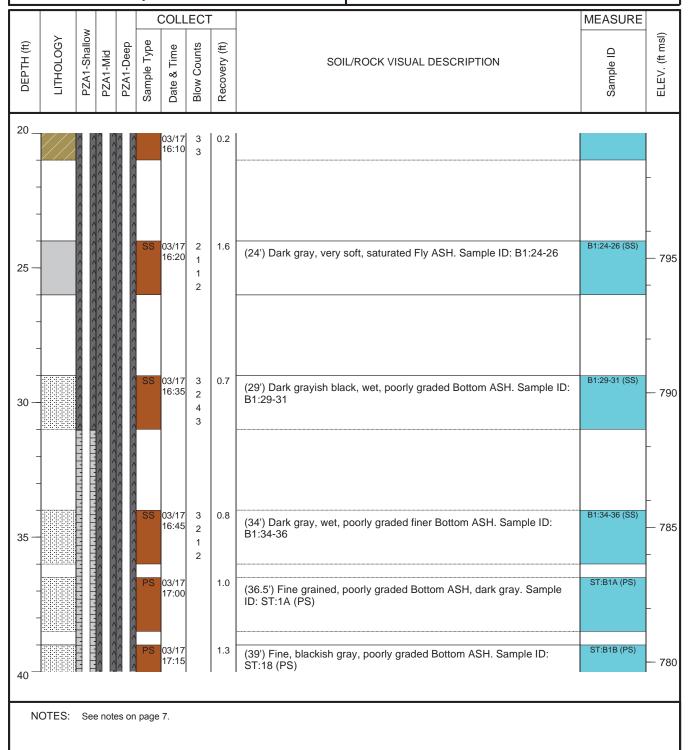
Logged By: Jeremy Gasser Boring Diameter (in): 4.25 Sampling Method(s):

Boring Depth (ft):

DTW During Drilling (ft): DTW After Drilling (ft): 25.10

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2027872.516, 1243351.278 (State Plane, GA West)





Address: 1371 Liberty Church Rd., Carrollton, GA **PIEZOMETER LOG** 

**Boring No. PZA1** Page: 3 of 7

Drilling Start Date: 03/25/2016 Drilling End Date: 04/11/2016

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: **Water Rotary** Drilling Equipment: Foremost B-59 Driller: **Russell Enfinger** 

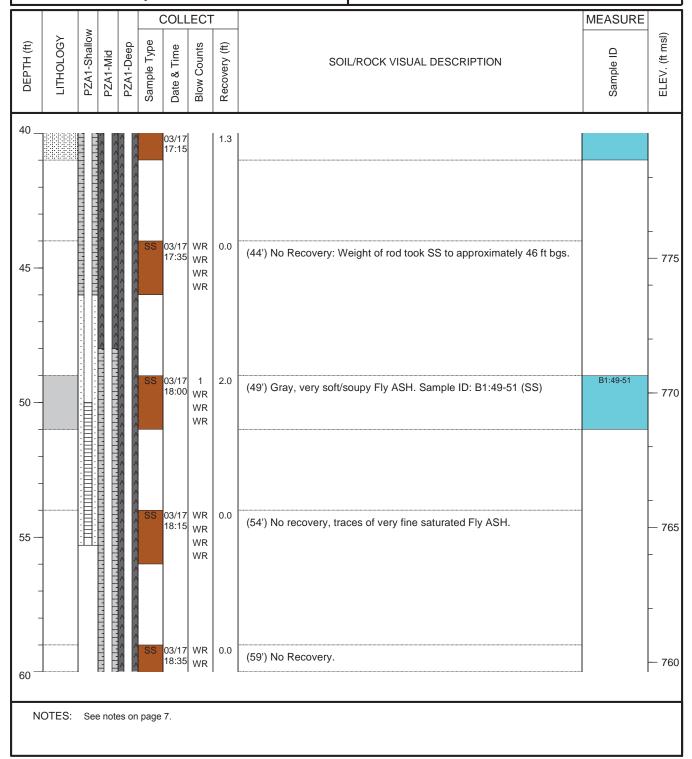
Logged By: Jeremy Gasser Boring Diameter (in): 4.25

Boring Depth (ft):

Sampling Method(s): DTW During Drilling (ft): DTW After Drilling (ft): 25.10

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2027872.516, 1243351.278 (State Plane, GA West)





Address: 1371 Liberty Church Rd., Carrollton, GA **PIEZOMETER LOG** 

**Boring No. PZA1** Page: 4 of 7

Drilling Start Date: 03/25/2016 Drilling End Date: 04/11/2016

Drilling Company: Walker-Hill Environmental (WHE)

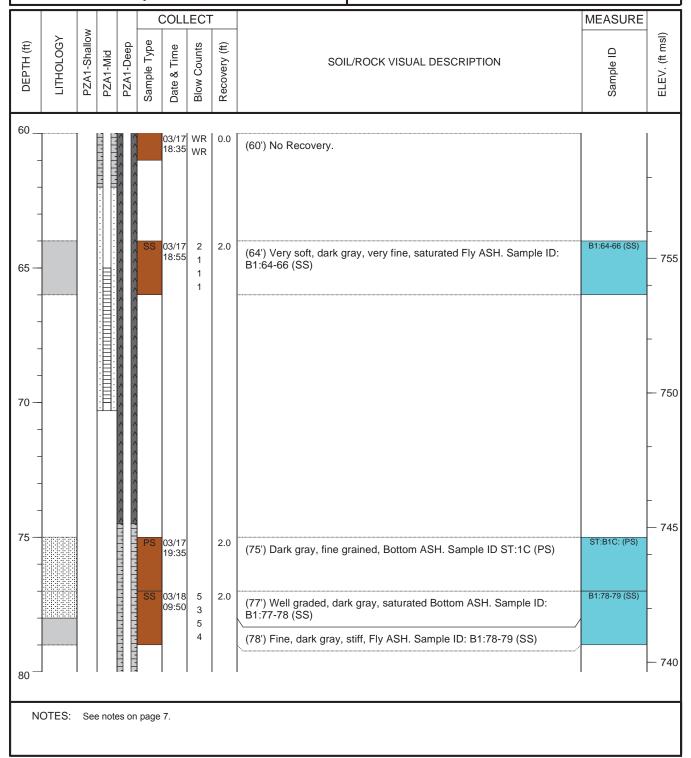
Drilling Method: **Water Rotary** Drilling Equipment: Foremost B-59 Driller: **Russell Enfinger** 

Logged By: Jeremy Gasser Boring Depth (ft): Boring Diameter (in): 4.25

Sampling Method(s): DTW During Drilling (ft): DTW After Drilling (ft): 25.10

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2027872.516, 1243351.278 (State Plane, GA West)





Address: 1371 Liberty Church Rd., Carrollton, GA

PIEZOMETER LOG Boring No. PZA1

Page: 5 of 7

Drilling Start Date: **03/25/2016**Drilling End Date: **04/11/2016** 

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: Water Rotary
Drilling Equipment: Foremost B-59
Driller: Russell Enfinger

Russen Eminger

Logged By: Jeremy Gasser

Boring Diameter (in): 4.25
Sampling Method(s): N/A

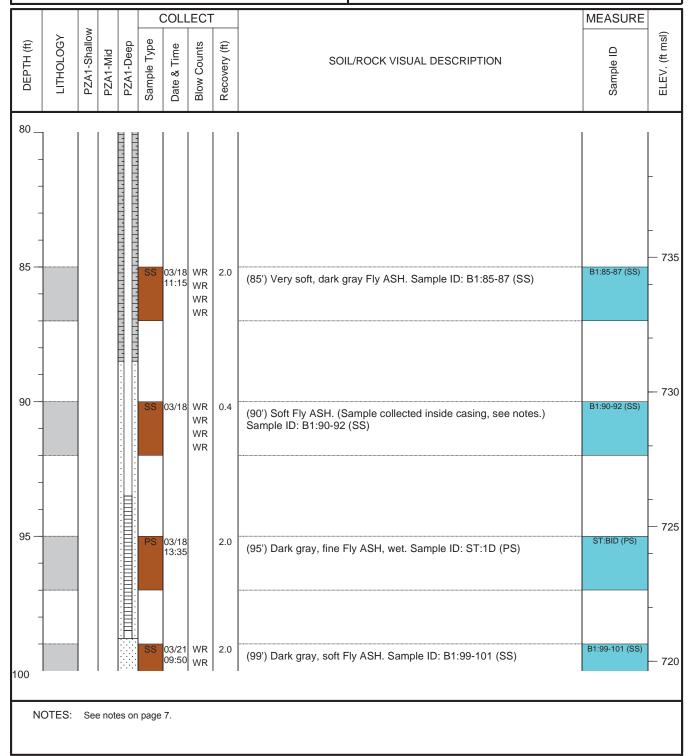
Boring Depth (ft):

Sampling Method(s): N/A

DTW During Drilling (ft): 
DTW After Drilling (ft): 25.10

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2027872.516, 1243351.278 (State Plane, GA West)





Project: Plant Wansley Ash Pond Closure
Address: 1371 Liberty Church Rd., Carrollton, GA

PIEZOMETER LOG

Boring No. PZA1 Page: 6 of 7

Drilling Start Date: **03/25/2016**Drilling End Date: **04/11/2016** 

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: Water Rotary

Drilling Equipment: Foremost B-59

Driller: Russell Enfinger

Diller. Russell Ellilliger

Logged By: Jeremy Gasser

Boring Diameter (in): 4.25

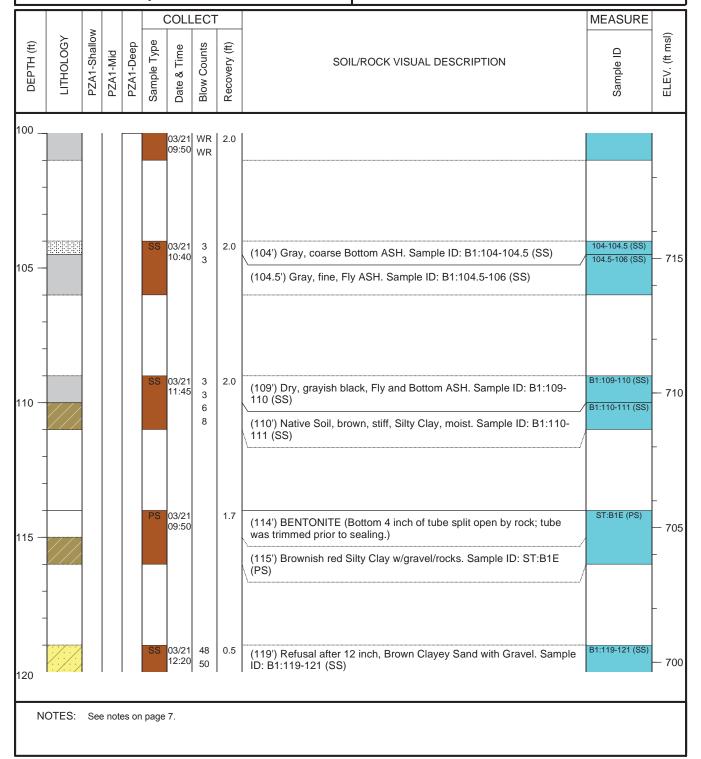
Sampling Method(s): N/A
DTW During Drilling (ft): -

Boring Depth (ft):

DTW After Drilling (ft): 25.10

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2027872.516, 1243351.278 (State Plane, GA West)





Project: Plant Wansley Ash Pond Closure
Address: 1371 Liberty Church Rd., Carrollton, GA

PIEZOMETER LOG

Boring No. PZA1 Page: 7 of 7

Drilling Start Date: 03/25/2016

Drilling End Date: 04/11/2016

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: Water Rotary

Drilling Equipment: Foremost B-59

Driller: Russell Enfinger

Nussen Eminger

Logged By: Jeremy Gasser

Boring Diameter (in): 4.25

Boring Depth (ft):

Sampling Method(s): N/A

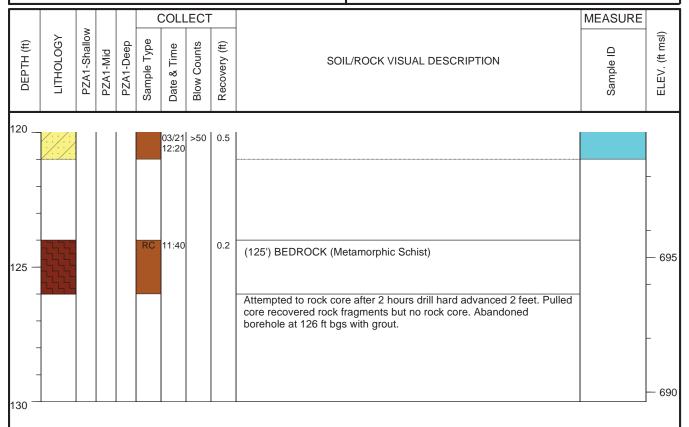
DTW During Drilling (ft): -

DTW After Drilling (ft): 25.10

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2027872.516, 1243351.278 (State Plane, GA West)

126



NOTES: A 4 inch borehole was drilled using only water to set the piezometers.

All three wells were fully developed by J. Gasser. At least 10 well volumes were removed and turbidity was reduced to less than 10 NTU. Piezometer wells are 2 inch ID, Schedule 40 PVC, with a 5 foot High Yield PrePack, 0.010 inch Slot, Non metals, Fine (#0 Sand). Boring above the top of the well was filled with approximately 2 feet of sand, 10 feet of bentonite, and cement grout.

All PVC wells were cut 3.5 feet above ground surface and covered with an aluminum protective casing.

Aluminum protective casing was filled with pea gravel and concreted in place

A 1/4 inch Vent hole was drilled in the well, just under the cap, and a 1/4 inch Weep hole was drilled in the bottom of the aluminum casing. Four bollards were installed in front of the wells.

Screened elevations are: PZA1-Shallow (50-55 ft bgs), PZA1-Mid (65-70 ft bgs), and PZA1-Deep (93.5-98.5 ft bgs).

Depth measured during installation and as shown in this log refers to depth below ground surface.

Depth below ground surface is from the top of ground at the location, not the top of the aluminum protective casing or PVC pipe.

Elevation was measured by SCS prior to drilling.

NOTES: See notes on page 7.



Address: 1371 Liberty Church Rd., Carrollton, GA **PIEZOMETER LOG** 

**Boring No. PZA2** Page: 1 of 8

Drilling Start Date: 04/05/2016 Drilling End Date: 04/12/2016

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: **Water Rotary** Drilling Equipment: Foremost B-59

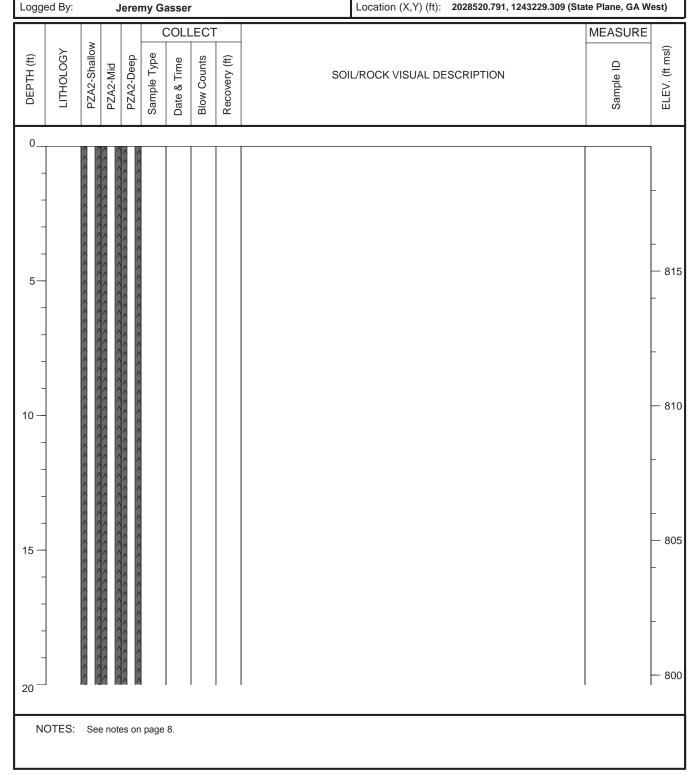
Driller: **Terry Orso** 

Boring Depth (ft): 144 Boring Diameter (in): 4.25 Sampling Method(s):

DTW During Drilling (ft): DTW After Drilling (ft): 24.35

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2028520.791, 1243229.309 (State Plane, GA West)





Project: Plant Wansley Ash Pond Closure
Address: 1371 Liberty Church Rd., Carrollton, GA

PIEZOMETER LOG

Boring No. PZA2 Page: 2 of 8

Drilling Start Date: **04/05/2016**Drilling End Date: **04/12/2016** 

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: Water Rotary

Drilling Equipment: Foremost B-59

Driller: Terry Orso

Logged By: Jeremy Gasser

Boring Depth (ft): 144

Boring Diameter (in): 4.25

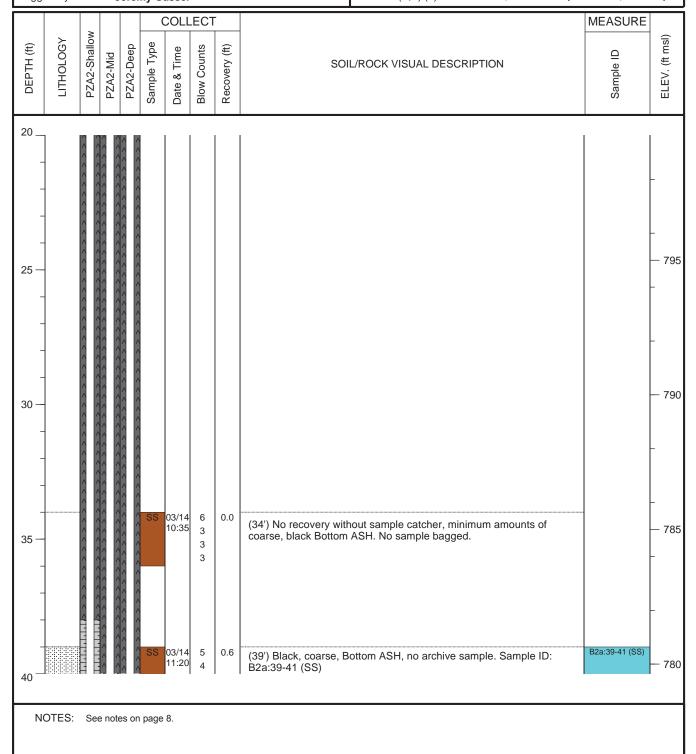
Sampling Method(s): N/A

Sampling Method(s): N/A

DTW During Drilling (ft): 
DTW After Drilling (ft): 24.35

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2028520.791, 1243229.309 (State Plane, GA West)





Project: **Plant Wansley Ash Pond Closure** Address: 1371 Liberty Church Rd., Carrollton, GA **PIEZOMETER LOG** 

**Boring No. PZA2** Page: 3 of 8

Drilling Start Date: 04/05/2016 Drilling End Date: 04/12/2016

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: **Water Rotary** Drilling Equipment: Foremost B-59

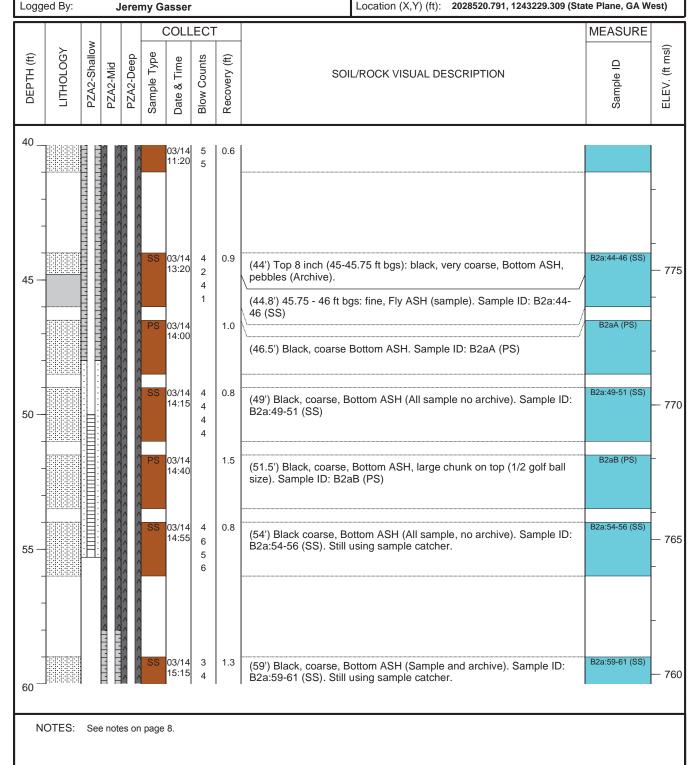
Driller: **Terry Orso** 

Boring Depth (ft): 144 Boring Diameter (in): 4.25 Sampling Method(s):

DTW During Drilling (ft):

DTW After Drilling (ft): 24.35 Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2028520.791, 1243229.309 (State Plane, GA West)





Project: Plant Wansley Ash Pond Closure
Address: 1371 Liberty Church Rd., Carrollton, GA

PIEZOMETER LOG

Boring No. PZA2 Page: 4 of 8

Drilling Start Date: 04/05/2016

Drilling End Date: 04/12/2016

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: Water Rotary
Drilling Equipment: Foremost B-59

Driller: Terry Orso

Logged By: Jeremy Gasser

Boring Diameter (in): 4.25

Sampling Method(s): N/A

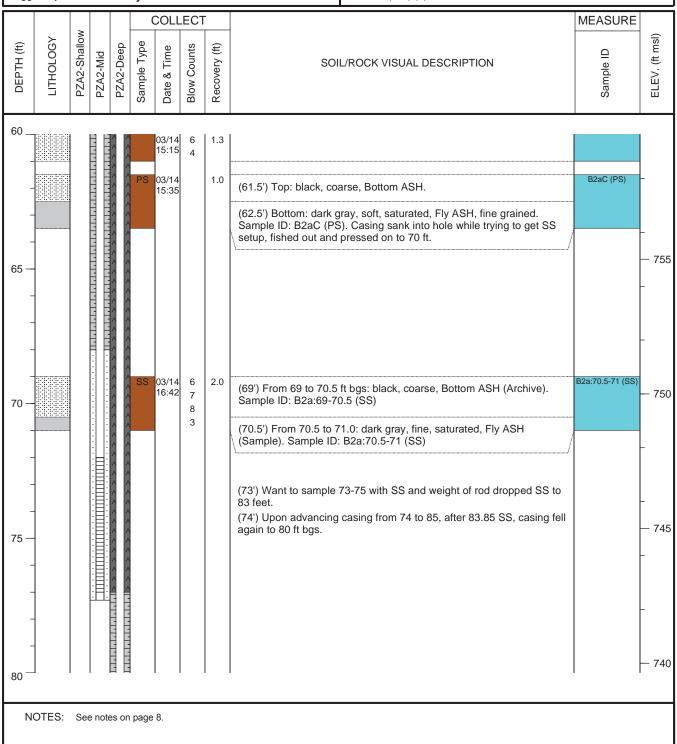
DTW During Drilling (ft): -

Boring Depth (ft):

DTW After Drilling (ft): 24.35

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2028520.791, 1243229.309 (State Plane, GA West)





Address: 1371 Liberty Church Rd., Carrollton, GA

PIEZOMETER LOG

Boring No. PZA2 Page: 5 of 8

144

4.25

Drilling Start Date: 04/05/2016 Boring Depth (ft):
Drilling End Date: 04/12/2016 Boring Diameter (in):

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: Mud Rotary

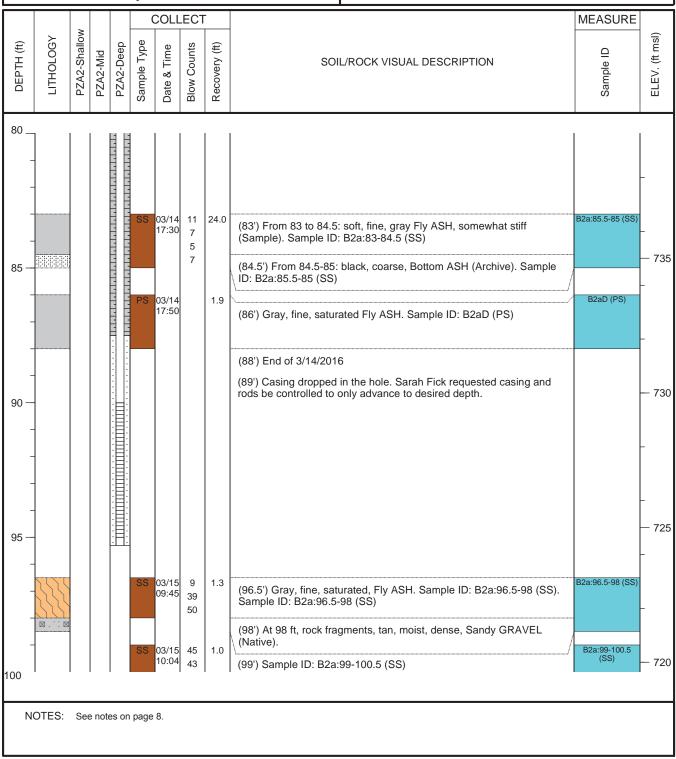
Drilling Equipment: Foremost B-59

Sampling Method(s): N/A

DTW During Drilling (ft): 
DTW After Drilling (ft): 24.35

Driller: Terry Orso Ground Surface Elevation (ft msl): 819.64

Logged By: Jeremy Gasser Location (X,Y) (ft): 2028520.791, 1243229.309 (State Plane, GA West)





Project: Plant Wansley Ash Pond Closure
Address: 1371 Liberty Church Rd., Carrollton, GA

PIEZOMETER LOG

Boring No. PZA2 Page: 6 of 8

Drilling Start Date: **04/05/2016**Drilling End Date: **04/12/2016** 

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: WaterRotary
Drilling Equipment: Foremost B-59

Driller: Terry Orso

Logged By: Jeremy Gasser

Boring Diameter (in): 4.25

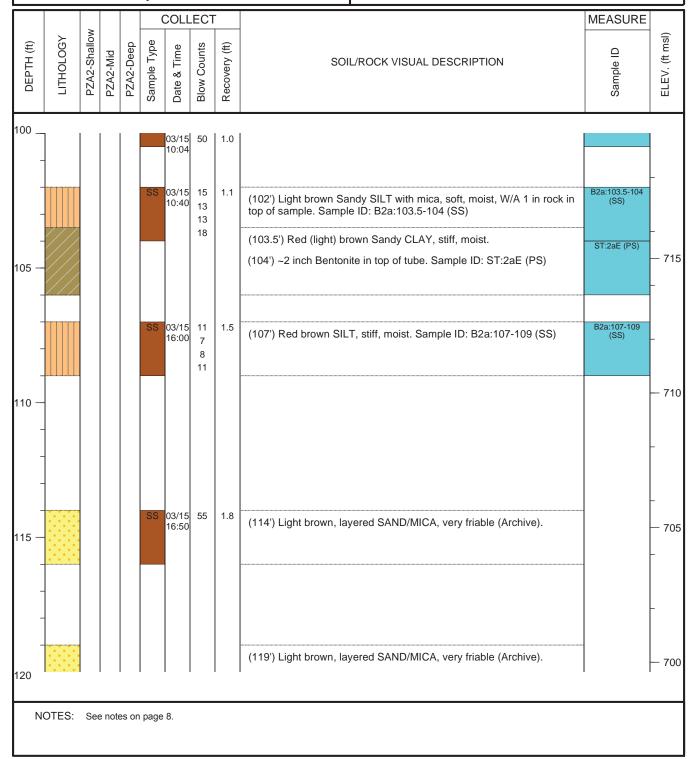
Boring Depth (ft):

Sampling Method(s): N/A

DTW During Drilling (ft): 
DTW After Drilling (ft): 24.35

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2028520.791, 1243229.309 (State Plane, GA West)





Project: Plant Wansley Ash Pond Closure
Address: 1371 Liberty Church Rd., Carrollton, GA

PIEZOMETER LOG

Boring No. PZA2 Page: 7 of 8

Drilling Start Date: **04/05/2016**Drilling End Date: **04/12/2016** 

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: Water Rotary

Drilling Equipment: Foremost B-59

Driller: Terry Orso

Logged By: Jeremy Gasser

Boring Diameter (in): 4.25

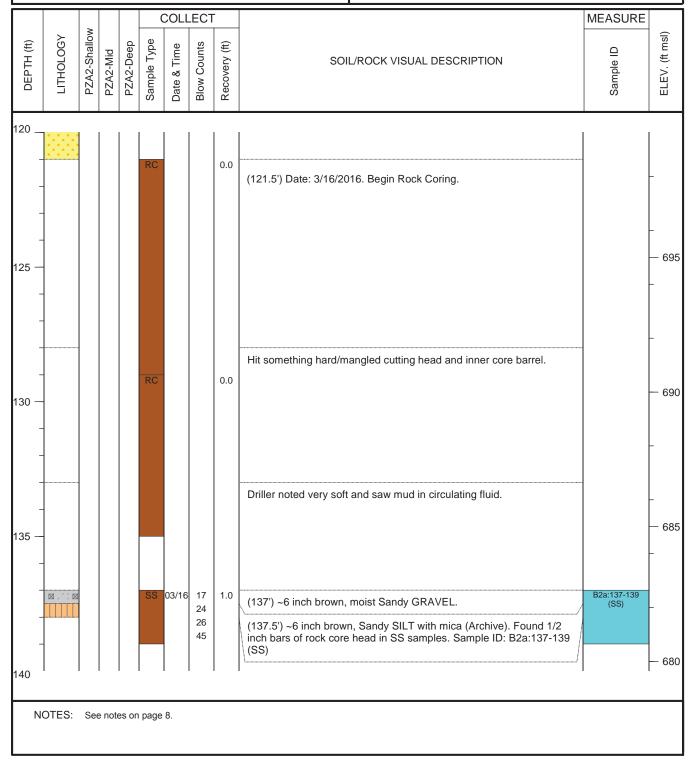
Boring Depth (ft):

Sampling Method(s): N/A

DTW During Drilling (ft): 
DTW After Drilling (ft): 24.35

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2028520.791, 1243229.309 (State Plane, GA West)





Project: Plant Wansley Ash Pond Closure

Address: 1371 Liberty Church Rd., Carrollton, GA

PIEZOMTER LOG

Boring No. PZA2 Page: 8 of 8

Drilling Start Date: 04/05/2016

Drilling End Date: 04/12/2016

Drilling Company: Walker-Hill Environmental (WHE)

Drilling Method: Water Rotary
Drilling Equipment: Foremost B-59

Driller: Terry Orso

Logged By: Jeremy Gasser

Boring Diameter (in): 4.25

Sampling Method(s): N/A
DTW During Drilling (ft): -

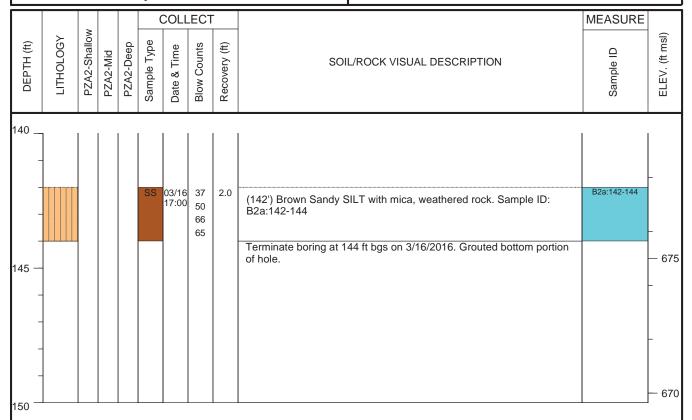
Boring Depth (ft):

DTW After Drilling (ft): 24.35

Ground Surface Elevation (ft msl): 819.64

Location (X,Y) (ft): 2028520.791, 1243229.309 (State Plane, GA West)

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NOTES: A 4 inch borehole was drilled using only water to set the piezometers.

All three wells were fully developed by J. Gasser. At least 10 well volumes were removed and turbidity was reduced to less than 10 NTU. Piezometer wells are 2 inch ID, Schedule 40 PVC, with a 5 foot High Yield PrePack, 0.010 inch Slot, Non metals, Fine (#0 Sand). Boring above the top of the well was filled with approximately 2 feet of sand, 10 feet of bentonite, and cement grout.

All PVC wells were cut 3.5 feet above ground surface and covered with an aluminum protective casing.

Aluminum protective casing was filled with pea gravel and concreted in place.

A 1/4 inch Vent hole was drilled in the well, just under the cap, and a 1/4 inch Weep hole was drilled in the bottom of the aluminum casing. Four bollards were installed in front of the wells.

Screened elevations are: PZA2-Shallow (50-55 ft bgs), PZA2-Mid (72-77 ft bgs), and PZA1-Deep (90-95 ft bgs).

Depth below ground surface is from the top of ground at the location, not the top of the aluminum protective casing or PVC pipe. Elevation at B-2 was not measured in the field. As built elevation is reported. Dikes are relatively flat and location B-2 was comparable to location B-1, which matched the as built elevation.

NOTES: See notes on page 8.

Geosyntec<sup>▶</sup> consultants

Client: **Southern Company Services** Project: **Plant Wansley Well Installation** 

Address: 1371 Liberty Church Rd, Carrollton, GA

**BORING LOG** Boring No. CSB-2022-01

Page: 1 of 2

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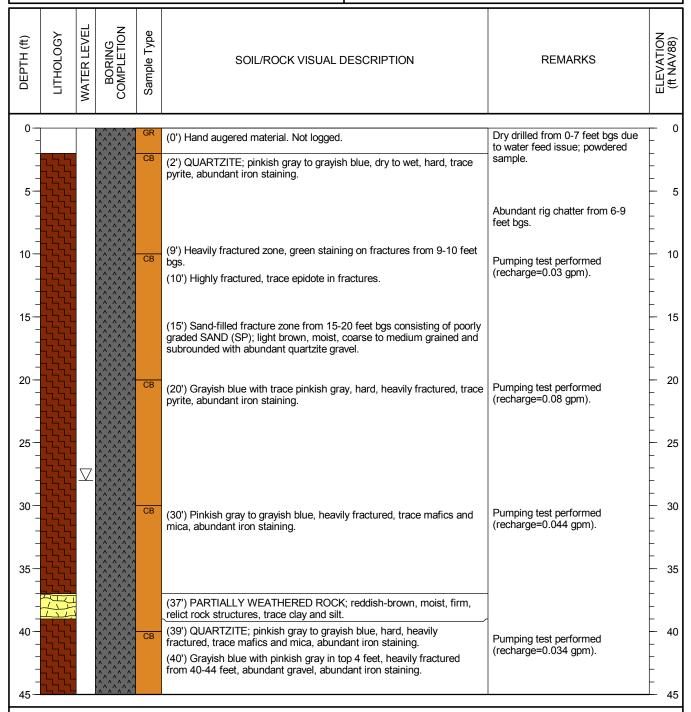
**Drilling Start Date:** 09/24/2022 Boring Depth (ft): 70 Drilling End Date: 09/24/2022 Boring Diameter (in):

**Cascade Drilling** Sampling Method(s): **Core Barrel** Drilling Company:

Drilling Method: Sonic 4x6 DTW During Drilling (ft): 28.0 DTW After Drilling (ft): Drilling Equipment: Terrasonic

Driller: Cory Franklin Ground Surface Elev. (ft): 804.93 NAV88

Logged By: T. Kessler Location (N,E): 1243334.918, 2029756.286



NOTES: Boring backfilled with cement bentonite grout. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988.



Client: Southern Company Services
Project: Plant Wansley Well Installation

Address: 1371 Liberty Church Rd, Carrollton, GA

BORING LOG Boring No. CSB-2022-01

Page: 2 of 2

Drilling Start Date: 09/24/2022 Boring Depth (ft): 70

Drilling End Date: 09/24/2022 Boring Diameter (in): 6

Drilling Company: Cascade Drilling Sampling Method(s): Core Barrel

Drilling Method: Sonic 4x6

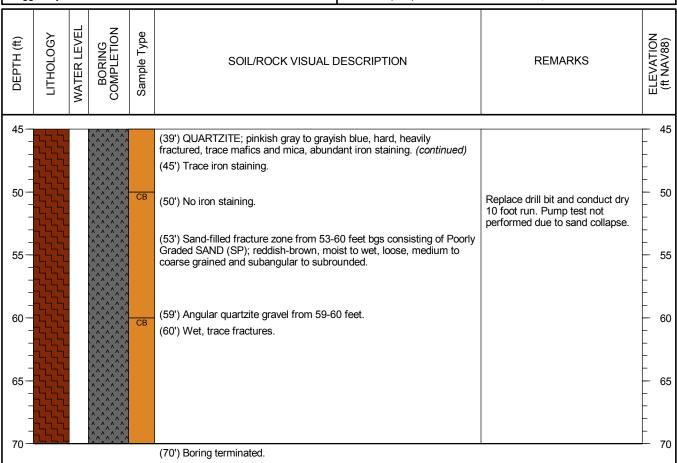
DrW During Drilling (ft): 28.0

Drilling Equipment: Terrasonic

DrW After Drilling (ft): --

Driller: Cory Franklin Ground Surface Elev. (ft): 804.93 NAV88

Logged By: T. Kessler Location (N,E): 1243334.918, 2029756.286



Geosyntec consultants

engineers | scientists | innovator

Client: Southern Company Services
Project: Plant Wansley Well Installation

Address: 1371 Liberty Church Rd, Carrollton, GA

BORING LOG Boring No. CSB-2022-02

Page: 1 of 1

**Core Barrel** 

Drilling Start Date: 09/26/2022 Boring Depth (ft): 40
Drilling End Date: 09/26/2022 Boring Diameter (in): 6

Drilling End Date: 09/26/2022 Boring Diameter (in):

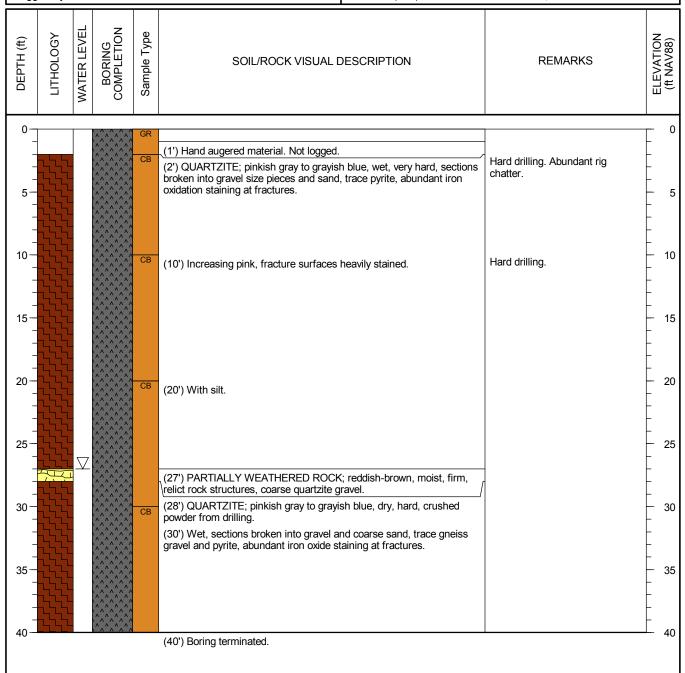
Drilling Company: Cascade Drilling Sampling Method(s):

Drilling Method: Sonic 4x6 DTW During Drilling (ft): 27.0

Drilling Equipment: Terrasonic DTW After Drilling (ft): --

Driller: Cory Franklin Ground Surface Elev. (ft): 804.86 NAV88

Logged By: T. Kessler Location (N,E): 1243337.255, 2029761.15



Geosyntec<sup>▶</sup> consultants

Client: **Southern Company Services** Project: **Plant Wansley Well Installation** 

Address: 1371 Liberty Church Rd, Carrollton, GA

**BORING LOG** Boring No. CSB-2022-03

1 of 1 Page:

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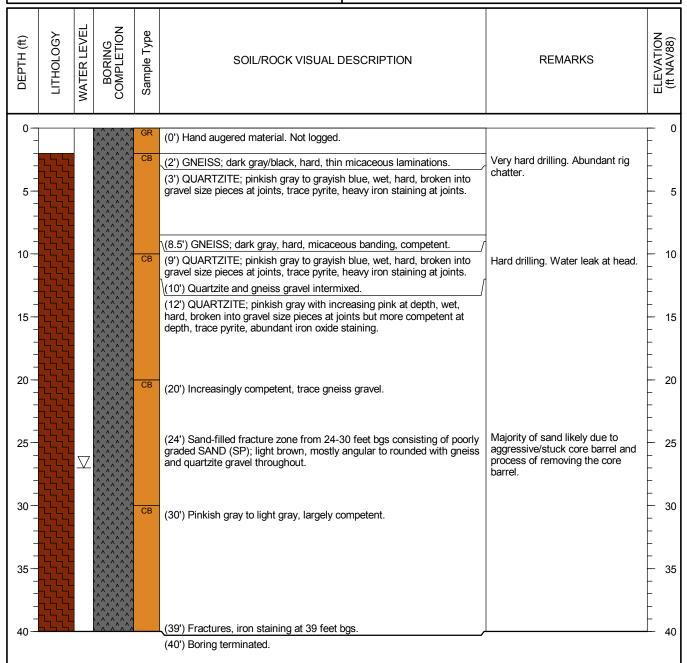
**Drilling Start Date:** 09/26/2022 Boring Depth (ft): 40 Drilling End Date: 09/26/2022

Boring Diameter (in): **Core Barrel** Drilling Company: **Cascade Drilling** Sampling Method(s):

Drilling Method: Sonic 4x6 DTW During Drilling (ft): 27.0 Drilling Equipment: Terrasonic DTW After Drilling (ft):

Driller: Cory Franklin Ground Surface Elev. (ft): 804.81 NAV88

Logged By: T. Kessler Location (N,E): 1243341.239, 2029768.805





Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-1 Page: 1 of 10

Drilling Start Date: 2/27/2017
Drilling End Date: 3/2/2017
Drilling Company: Cascade

Drilling Company: Cascade
Drilling Method: Cascade

Drilling Equipment: Full size truck
Driller Name: V. Scott
Logged By: J. Griffin

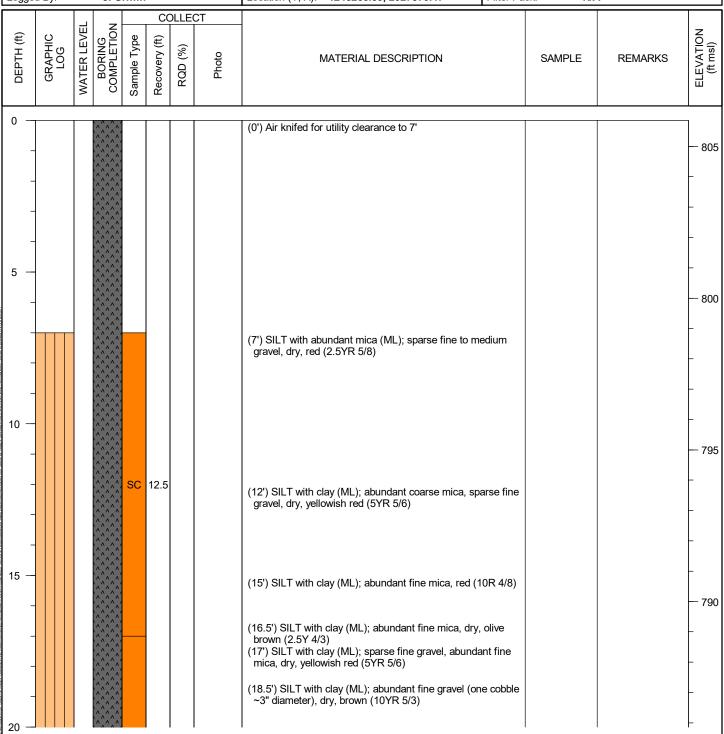
Boring Depth (ft): 196
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ
DTW During Drilling (ft): --

DTW After Drilling (ft): -Top of Casing Elev. (ft): 805.86

Location (Y, X): 1245266.59, 2027870.47

Well Depth (ft): N/A
Well Diameter (in): N/A
Screen Slot (in): N/A
Riser Material: N/A
Screen Material: N/A
Seal Material(s): N/A

Filter Pack: N/A



J. Griffin



engineers | scientists | innovator

Logged By:

Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

Location (Y, X): 1245266.59, 2027870.47

BORING LOG Boring No.PB-1

Boring No.**PB-1**Page: **2 of 10** 

N/A

Filter Pack:

2/27/2017 Drilling Start Date: Boring Depth (ft): Well Depth (ft): N/A Drilling End Date: 3/2/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): N/A Drilling Company: Cascade Sampling Method(s): ST, SC, HQ Screen Slot (in): N/A Sonic/HQ Rock Coring Riser Material: N/A Drilling Method: DTW During Drilling (ft): Drilling Equipment: Full size truck DTW After Drilling (ft): Screen Material: N/A V. Scott 805.86 N/A Driller Name: Top of Casing Elev. (ft): Seal Material(s):

COLLECT BORING COMPLETION **WATER LEVEL** ELEVATION (ft msl) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) RQD (%) Photo **REMARKS** MATERIAL DESCRIPTION **SAMPLE** 20 (20') SILT with clay (ML); abundant fine to medium mica, Photo 2 sparse fine and coarse gravel with cobbles up to 4", dry, 785 SC 9 of photo light yellowish brown (2.5Y 6/3) log 25 Shelby Tube 780 ST 0 PB-1 (25-27) collection attempt; crushed 30 775 SC 12.5 (33') SILT with clay (ML); abundant fine to medium mica, with fine and coarse gravel, dry, yellowish red (5YR 5/6) 35 - 770 PB-1 (36-37) Shelby Tube ST 2 PB-1 (37-39) collected 40



Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-1

Page: **3 of 10** 

2/27/2017 Boring Depth (ft): 196 Well Depth (ft): N/A Drilling Start Date: 6" x 4" Drilling End Date: 3/2/2017 Boring Diameter (in): Well Diameter (in): N/A Drilling Company: Cascade Sampling Method(s): ST, SC, HQ Screen Slot (in): N/A Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): Riser Material: N/A Drilling Equipment: Full size truck DTW After Drilling (ft): N/A Screen Material: Driller Name: V. Scott Top of Casing Elev. (ft): 805.86 Seal Material(s): N/A Logged By: J. Griffin Location (Y, X): 1245266.59, 2027870.47 Filter Pack: N/A

		Ι,			CC	DLLE	СТ				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
40 —											
-					1			(33') SILT with clay (ML); abundant fine to medium mica, with fine and coarse gravel, dry, yellowish red (5YR 5/6) (continued)	PB-1 (41-42)		— 765 -
-				SC	9						-
45 —								(46') SILT with clay (ML); with fine to medium mica, sparce			_ — 760
-								(46') SILT with clay (ML); with fine to medium mica, sparce fine gravel, dry, red (2.5YR 4/6), feldspathic zone at 55' to 56.5' with feldspar gravel up to 2" diameter			-
DOWNER DISCUSSIONED COSCIONATION OF THE COSCIN				ST	2		Photo 5 of photo log		PB-1 (47-49)	Shelby Tube collected	-
50 —									PB-1 (50-51)		- 755
WITH ANY WANTE EVICITION THE CHIESTER THEFT CHIESTER				SC	12						-
55 —											- - - 750
I'DY CONTROL DE PRANTIA - CONTRA DE ACTREL DE PARTITATION DE DETENDO NOTARION.				SC	3			(56.5') SILT with clay (ML); sparse fine gravel, abundant fine to medium mica, dry, red (2.5YR 5/8)			-
60 —			(^,^^,								F



Client: Southern Company Services
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BORING LOG Boring No.PB-1

Page: 4 of 10

2/27/2017 Boring Depth (ft): 196 Well Depth (ft): N/A Drilling Start Date: 6" x 4" Drilling End Date: 3/2/2017 Boring Diameter (in): Well Diameter (in): N/A Drilling Company: Cascade Sampling Method(s): ST, SC, HQ Screen Slot (in): N/A Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): Riser Material: N/A Drilling Equipment: Full size truck DTW After Drilling (ft): N/A Screen Material: Driller Name: V. Scott Top of Casing Elev. (ft): 805.86 Seal Material(s): N/A

Logged By: J. Griffin Location (Y, X): 1245266.59, 2027870.47 Filter Pack: N/A

599	ви Бу.		<u> </u>	11111111				Location (1, A). 1243266.53, 2027670.47 Filter Pa	ack. N/	•	
					CC	OLLE	СТ				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
									<u> </u>		
60 -	-			ST	2			(56.5') SILT with clay (ML); sparse fine gravel, abundant fine to medium mica, dry, red (2.5YR 5/8) (continued)	PB-1 (60-62)	Shelby Tube collected as a distubed sample; tube bent	— 745 -
				ST	2			(63') SILT with clay (ML); abundant fine mica with visible rock fabric (banding of mafic minerals), trace fine gravel, red (2.5YR 5/8), SAPROLITE	PB-1 (62-64)	Shelby Tube collected	-
65 -				SC	3				PB-1 (65-66)		- 740
75 — 80 —				SC	12		Photo 7 of photo log		PB-1 (72-73)		- - - - - - - - -



Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

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**BORING LOG** Boring No.PB-1 Page: 5 of 10

2/27/2017 Drilling Start Date: Drilling End Date: 3/2/2017 Drilling Company: Cascade

Sonic/HQ Rock Coring Drilling Method:

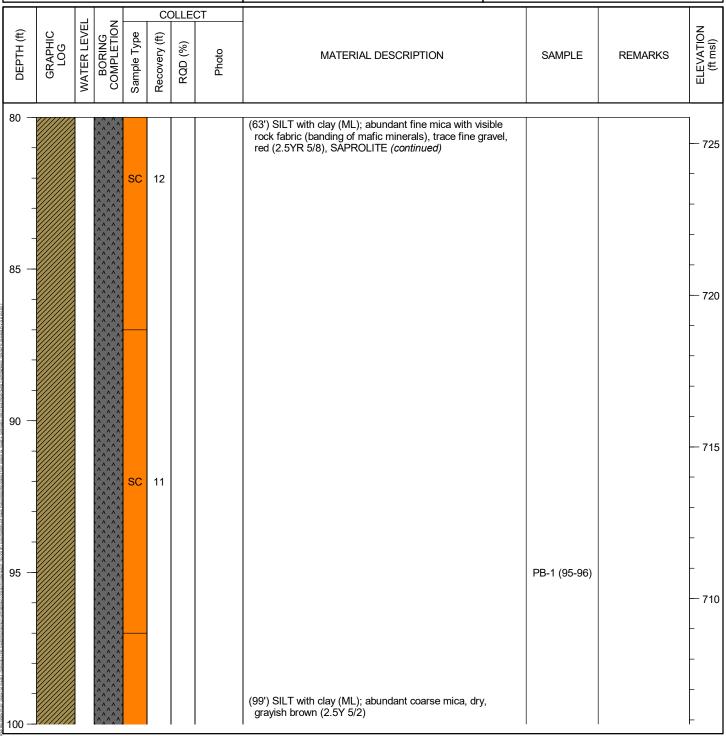
Drilling Equipment: Full size truck V. Scott Driller Name: J. Griffin Logged By:

Boring Depth (ft): Boring Diameter (in): 6" x 4" Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): DTW After Drilling (ft): 805.86 Top of Casing Elev. (ft):

Location (Y, X): 1245266.59, 2027870.47

Well Depth (ft): N/A Well Diameter (in): N/A Screen Slot (in): N/A Riser Material: N/A Screen Material: N/A Seal Material(s): N/A Filter Pack: N/A





Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG
Boring No.PB-1
Page: 6 of 10

2/27/2017 Boring Depth (ft): 196 Well Depth (ft): N/A Drilling Start Date: 6" x 4" Drilling End Date: 3/2/2017 Boring Diameter (in): Well Diameter (in): N/A Drilling Company: Cascade Sampling Method(s): ST, SC, HQ Screen Slot (in): N/A Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): Riser Material: N/A Drilling Equipment: Full size truck DTW After Drilling (ft): N/A Screen Material: Driller Name: V. Scott Top of Casing Elev. (ft): 805.86 Seal Material(s): N/A Logged By: J. Griffin Location (Y, X): 1245266.59, 2027870.47 Filter Pack: N/A

					CC	DLLE	СТ				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
100 —											$\Box$
105 —				SC	11			(99') SILT with clay (ML); abundant coarse mica, dry, grayish brown (2.5Y 5/2) (continued)	PB-1 (103-104)		705 - - -
_											<del>- 700</del>
GB 616 501 T											
								(107') SILT with clay (ML); trace fine and medium gravel, soft, slightly moist, light olive brown (2.5Y 5/3)			
- 110 —								soft, slightly moist, light olive brown (2.5Y 5/3)			-
- PAGEA											<b>—</b> 695
DONE THEY CAND				00	40		Photo 11				
WHIT AND WASS EVASHITY OF THE DES				SC	12		of photo log		PB-1 (113-114)		-
- A 100 000			\^^^^								
115 —											-
											- 690 -
COLUM PROSEA.			\^^^\ \^^^\								
120 —									PB-1		

2/27/2017

3/2/2017

Cascade



engineers | scientists | innovator

Drilling Start Date:

Drilling End Date:

Drilling Company:

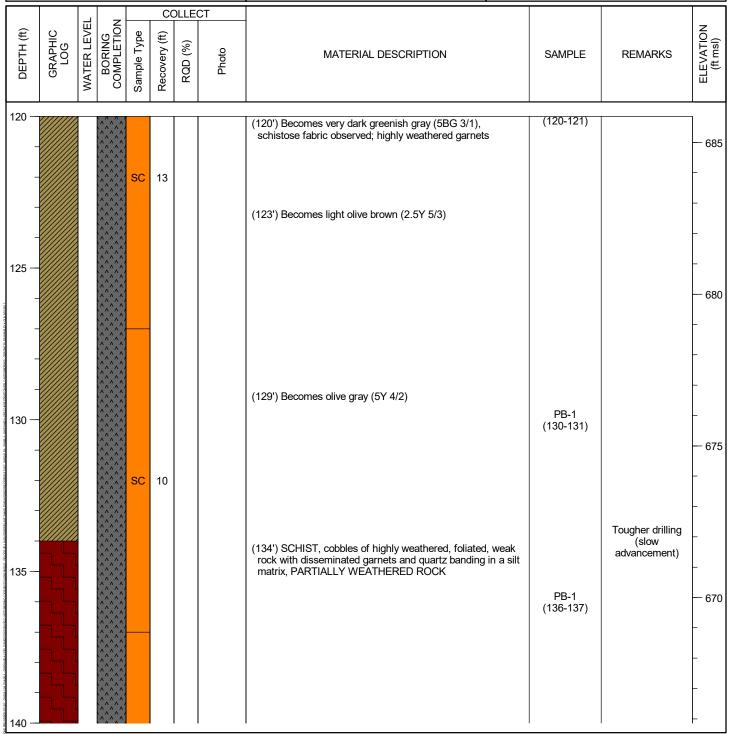
Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG Boring No.PB-1 Page: 7 of 10

Boring Depth (ft): 196 Well Depth (ft): N/A
Boring Diameter (in): 6" x 4" Well Diameter (in): N/A
Sampling Method(s): ST, SC, HQ Screen Slot (in): N/A

Sonic/HQ Rock Coring N/A Drilling Method: DTW During Drilling (ft): Riser Material: Drilling Equipment: Full size truck DTW After Drilling (ft): Screen Material: N/A V. Scott 805.86 N/A Driller Name: Top of Casing Elev. (ft): Seal Material(s): Logged By: J. Griffin Location (Y, X): 1245266.59, 2027870.47 Filter Pack: N/A





Client: Southern Company Services
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BORING LOG Boring No.PB-1

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2/27/2017 Boring Depth (ft): 196 Well Depth (ft): N/A Drilling Start Date: 6" x 4" Drilling End Date: 3/2/2017 Boring Diameter (in): Well Diameter (in): N/A Drilling Company: Cascade Sampling Method(s): ST, SC, HQ Screen Slot (in): N/A Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): Riser Material: N/A Drilling Equipment: Full size truck DTW After Drilling (ft): N/A Screen Material: Driller Name: V. Scott Top of Casing Elev. (ft): 805.86 Seal Material(s): N/A Logged By: J. Griffin Location (Y, X): 1245266.59, 2027870.47 Filter Pack: N/A

					CC	DLLE	СТ				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
140 —						ı				1	1
-		-					Photo 14	(134') SCHIST, cobbles of highly weathered, foliated, weak rock with disseminated garnets and quartz banding in a silt matrix, PARTIALLY WEATHERED ROCK (continued)	PB-1 (141-142)		— 665 _
-		-		SC	7		of photo log	(142') SCHIST, slightly weathered, blueish black (5PB 2.5/1), intensely fractured (high angle) along foliation, iron oxide staining on fracture faces, disseminated garnets; strong			_
145 —											_
4.0.8 mt6001.7									PB-1 (146-147)		— 660 _
Dicertin Diace represent content in the week in		-		HQ	2.5	73	Photo 15 of photo log	(147') Fine and coarse gravel with cobbles up to 4", moderately fractured, iron oxide staining on fracture faces at 147'-150' and 157'-158'		Switch to HQ Coring (3.75") 6" casing stopped	-
150 —											- 655
HICKO MEDIESCH STADY OWEN DA		-	· · · · · · · · · · · · · · · · · · ·					(151.5') As above; slightly fractured, no iron oxide staining on fracutre faces, unweathered			-
SI OLA INICA IOMORRA ANT AMAGE COM		-		HQ	5.4	61				Difficulty drilling and extracting core from barrel	-
155 —		-									- 650
OTHER A CONTRACTOR DE PORTO DE											-
160 —											- -



Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

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**BORING LOG** Boring No.PB-1 Page: 9 of 10

2/27/2017 Drilling Start Date: Drilling End Date: 3/2/2017 Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Full size truck V. Scott Driller Name: Logged By: J. Griffin

196 Boring Depth (ft): Boring Diameter (in): 6" x 4" Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): DTW After Drilling (ft): 805.86 Top of Casing Elev. (ft):

Location (Y, X): 1245266.59, 2027870.47

N/A Well Depth (ft): Well Diameter (in): N/A Screen Slot (in): N/A Riser Material: N/A N/A Screen Material: Seal Material(s): N/A

N/A

Filter Pack:

COLLECT BORING COMPLETION **WATER LEVEL** ELEVATION (ft msl) GRAPHIC LOG DEPTH (ft) Recovery (ft) Sample Type **RQD** (%) Photo **REMARKS** MATERIAL DESCRIPTION **SAMPLE** 160 645 HQ 10.3 87 165 -640 (169') As above; slightly fractured 170 635 HQ 10 100 175 (175') Quartz band with pyrite mineralization 630

J. Griffin



engineers | scientists | innovator

Logged By:

Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

Location (Y, X): 1245266.59, 2027870.47

BORING LOG Boring No.PB-1

Page: **10 of 10** 

N/A

Filter Pack:

2/27/2017 Boring Depth (ft): 196 Well Depth (ft): N/A Drilling Start Date: 6" x 4" Drilling End Date: 3/2/2017 Boring Diameter (in): Well Diameter (in): N/A Drilling Company: Cascade Sampling Method(s): ST, SC, HQ Screen Slot (in): N/A Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): Riser Material: N/A Drilling Equipment: Full size truck DTW After Drilling (ft): N/A Screen Material: Driller Name: V. Scott Top of Casing Elev. (ft): 805.86 Seal Material(s): N/A

		١,			CC	OLLE	CT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
180 —											$\Box$
-				HQ	7	58	Photo 19 of photo log	(179') As above; moderately fractured, less quartz banding than above, iron oxide staining on fracture faces at 179.5', 183'-184', 185'-186.5' (continued)			625  -
185 —								(186') As above; moderately fractured zones of intense weathering at 187', 191',192',193',195'; 189'-190' intense dissolution along quartz band (with vugs) and heavy oxidation of mafic minerals			- 620 -
- 190 —				HQ	10	81		(189') Higher density of garnet and large in size, up to 0.4" diameter			_ 615 _
- 195 —								(196.0') Boring Terminated			- - - 610



**Southern Company Services** Client: **Plant Wansley Pre-Design Investigation** Project:

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**BORING LOG** Boring No.PB-2 Page: 1 of 10

Drilling Start Date: 3/8/2017 Drilling End Date: 3/10/2017 Drilling Company: Cascade Drilling Method:

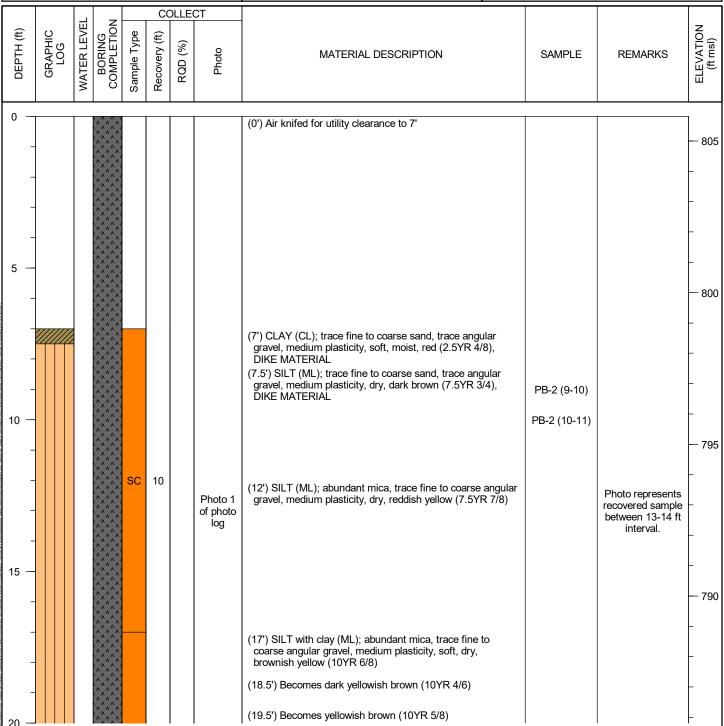
Sonic/HQ Rock Coring

Full size truck Drilling Equipment: V. Scott Driller Name: N. Tilahun Logged By:

Boring Depth (ft): Boring Diameter (in): 6" x 4" ST, SC, HQ Sampling Method(s): DTW During Drilling (ft):

DTW After Drilling (ft): Top of Casing Elev. (ft): 805.81 Location (Y, X): 1244620.03, 2028513.2 Well Depth (ft): N/A Well Diameter (in): N/A Screen Slot (in): N/A Riser Material: N/A Screen Material: N/A N/A Seal Material(s):

Filter Pack: N/A





Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG Boring No.PB-2 Page: 2 of 10

N/A

Drilling Start Date: 3/8/2017
Drilling End Date: 3/10/2017
Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring
Drilling Equipment: Full size truck

Driller Name: V. Scott
Logged By: N. Tilahun

Boring Depth (ft): 189
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft):

DTW After Drilling (ft): -Top of Casing Elev. (ft): 805.81
Location (Y, X): 1244620.03, 2028513.2

Well Diameter (in): N/A
Screen Slot (in): N/A
Riser Material: N/A
Screen Material: N/A
Seal Material(s): N/A
Filter Pack: N/A

Well Depth (ft):

COLLECT BORING COMPLETION **WATER LEVEL** ELEVATION (ft msl) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) RQD (%) Photo MATERIAL DESCRIPTION **SAMPLE** REMARKS 20 (19.5') Becomes yellowish brown (10YR 5/8) (continued) PB-2 (20-21) 785 (21') SILT with clay (ML); abundant mica, trace fine to coarse angular gravel, medium plasticity, soft, dry, red SC 10 (2.5YR 4/8) (22') Becomes brown (7.5YR 5/4) (24') Becomes yellowish brown (10YR 5/8) 25 780 (27') SILT with clay (ML); abundant mica, little fine to coarse angular gravel, medium plasticity, soft, moist, reddish brown (2.5YR 4/3) (28') Becomes red (2.5YR 4/8) (29.5') Becomes trace rock fragments of slate (angular), 30 PB-2 (30-31) reddish brown (2.5YR 4/3) 775 SC 10 (32') SILT with clay (ML); abundant mica, little fine to coarse angular gravel, medium plasticity, soft, moist, red (2.5YR 5/8) 35 - 770 40



**Southern Company Services** Client: Project: **Plant Wansley Pre-Design Investigation** 

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**BORING LOG** Boring No.PB-2

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Drilling Start Date: 3/8/2017 Drilling End Date: 3/10/2017 Drilling Company: Cascade Drilling Method:

Sonic/HQ Rock Coring

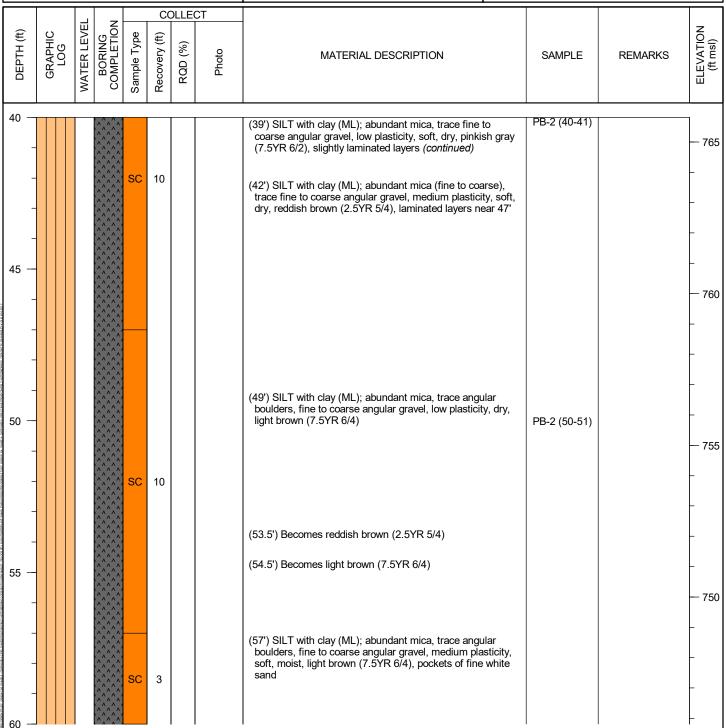
Full size truck Drilling Equipment: V. Scott Driller Name: N. Tilahun Logged By:

Boring Depth (ft): 189 Boring Diameter (in): 6" x 4" ST, SC, HQ Sampling Method(s): DTW During Drilling (ft):

DTW After Drilling (ft): Top of Casing Elev. (ft): 805.81 Location (Y, X): 1244620.03, 2028513.2 Well Depth (ft): N/A Well Diameter (in): N/A Screen Slot (in): N/A Riser Material: N/A Screen Material: N/A

Page:

N/A Seal Material(s): Filter Pack: N/A





Client: Southern Company Services
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BORING LOG Boring No.PB-2 Page: 4 of 10

Drilling Start Date: 3/8/2017
Drilling End Date: 3/10/2017
Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring
Drilling Equipment: Full size truck

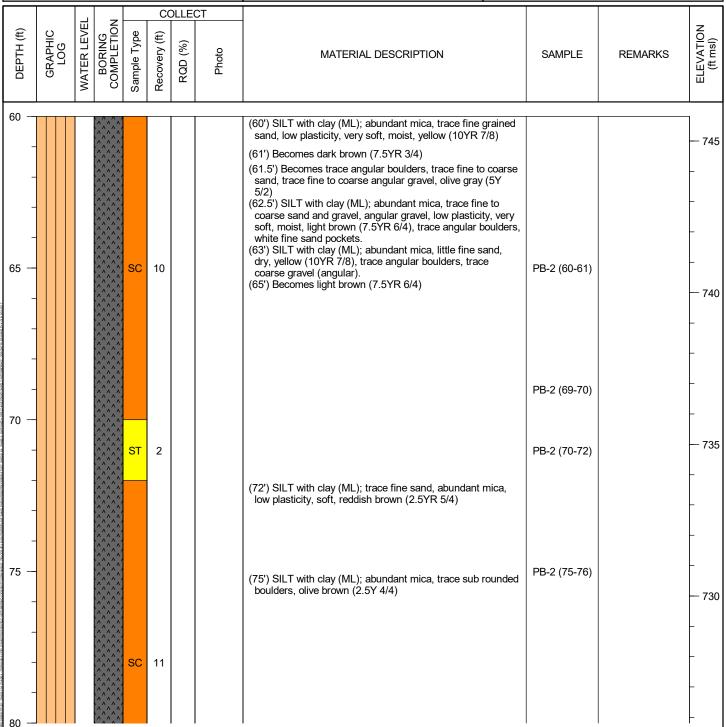
Driller Name: V. Scott
Logged By: N. Tilahun

Boring Depth (ft): 189
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ
DTW During Drilling (ft): --

DTW After Drilling (ft): -Top of Casing Elev. (ft): 805.81
Location (Y, X): 1244620.03, 2028513.2

Well Depth (ft): N/A
Well Diameter (in): N/A
Screen Slot (in): N/A
Riser Material: N/A
Screen Material: N/A

Seal Material(s): N/A
Filter Pack: N/A





**Southern Company Services** Client: **Plant Wansley Pre-Design Investigation** Project:

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**BORING LOG** Boring No.PB-2 Page: 5 of 10

3/8/2017 Drilling Start Date: Drilling End Date: 3/10/2017 Drilling Company: Cascade Drilling Method:

Sonic/HQ Rock Coring

Drilling Equipment: Full size truck Driller Name: V. Scott Logged By: N. Tilahun

Boring Depth (ft): 189 6" x 4" Boring Diameter (in): Sampling Method(s): ST, SC, HQ DTW During Drilling (ft):

DTW After Drilling (ft): Top of Casing Elev. (ft): 805.81 Location (Y, X): 1244620.03, 2028513.2 Well Depth (ft): N/A Well Diameter (in): N/A Screen Slot (in): N/A Riser Material: N/A N/A Screen Material:

Seal Material(s): N/A Filter Pack: N/A

					CC	)LLE	CT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
80 —								(75') SILT with clay (ML); abundant mica, trace sub rounded boulders, olive brown (2.5Y 4/4) (continued)			725 
_									PB-2 (83-84)		-
85 —		-		ST	0			(86') No Recovery	PB-2 (84-86)	Sample was lost	- 720
RATIN D INCTRINCINSOL COSTORIT I EN IMAGES DY 4.0.0.				ST	2				PB-2 (87-89)		- - -
900 —								(89') SILT with clay (ML); trace fine sand, abundant mica, low plasticity, soft, reddish brown (2.5Y 5/4), trace sub rounded boulders			- 715
— — — — — — — — — — — — — — — — — — —				SC	11		Photo 9 of photo log	(05') Troe branch	PB-2 (89-90)	Photo represents recovered sample between 94-95 ft interval.	-
NA SELA ZETEL D ROGER TRANSPORTER D LOTTE SERVICIO COSE DATOS.								(95') Tree branch	PB-2 (97-98)		710 - -
— 100 —				ST	2				PB-2 (98-100)		- -

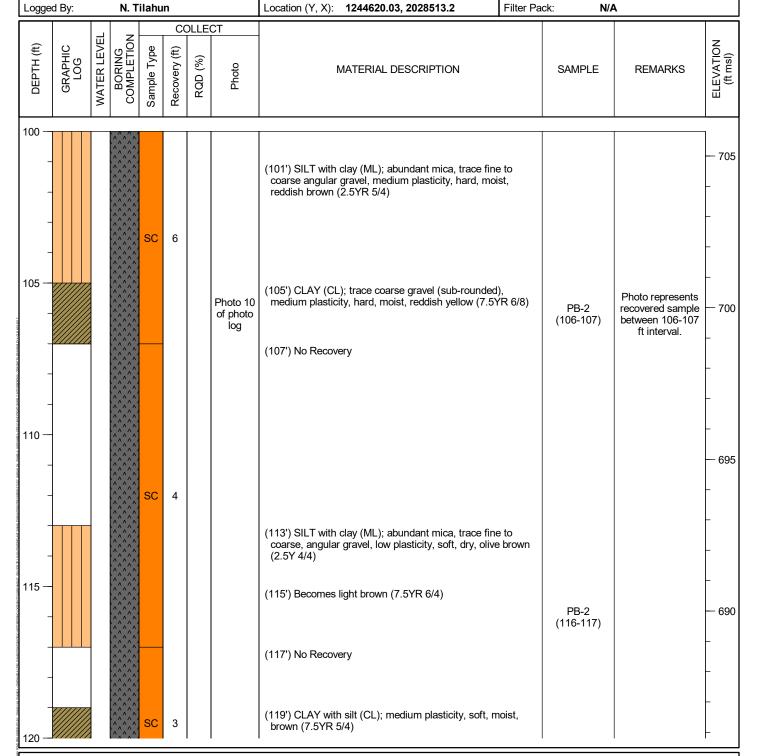


Client: Southern Company Services
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BORING LOG Boring No.PB-2 Page: 6 of 10

Drilling Start Date: 3/8/2017 Boring Depth (ft): 189 Well Depth (ft): N/A Drilling End Date: 3/10/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): N/A Drilling Company: Sampling Method(s): ST, SC, HQ Screen Slot (in): Cascade N/A Sonic/HQ Rock Coring N/A Drilling Method: DTW During Drilling (ft): Riser Material: Drilling Equipment: Full size truck DTW After Drilling (ft): Screen Material: N/A V. Scott 805.81 N/A Driller Name: Top of Casing Elev. (ft): Seal Material(s): N. Tilahun Filter Pack: N/A





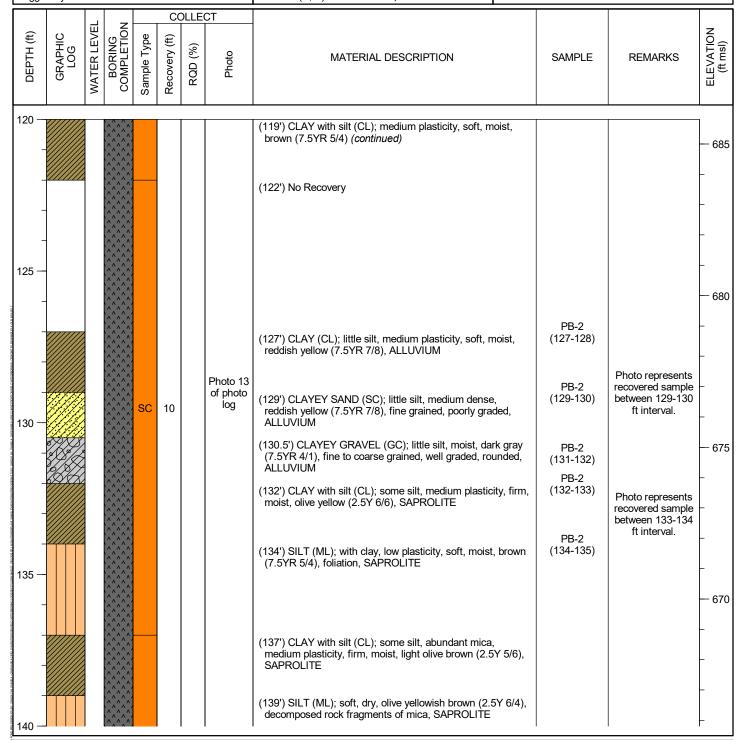
Client: Southern Company Services
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BORING LOG Boring No.PB-2

Boring No.**PB-2**Page: **7 of 10** 

Drilling Start Date: 3/8/2017 Boring Depth (ft): 189 Well Depth (ft): N/A Drilling End Date: 3/10/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): N/A Drilling Company: ST, SC, HQ Screen Slot (in): Cascade Sampling Method(s): N/A Sonic/HQ Rock Coring Drilling Method: DTW During Drilling (ft): Riser Material: N/A DTW After Drilling (ft): Full size truck Screen Material: N/A Drilling Equipment: V. Scott Seal Material(s): N/A Driller Name: Top of Casing Elev. (ft): 805.81 N. Tilahun Location (Y, X): 1244620.03, 2028513.2 Filter Pack: N/A Logged By:





Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG Boring No.PB-2 Page: 8 of 10

N/A

N/A

Drilling Start Date: 3/8/2017
Drilling End Date: 3/10/2017
Drilling Company: Cascade

Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Full size truck
Driller Name: V. Scott
Logged By: N. Tilahun

Boring Depth (ft): 189
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

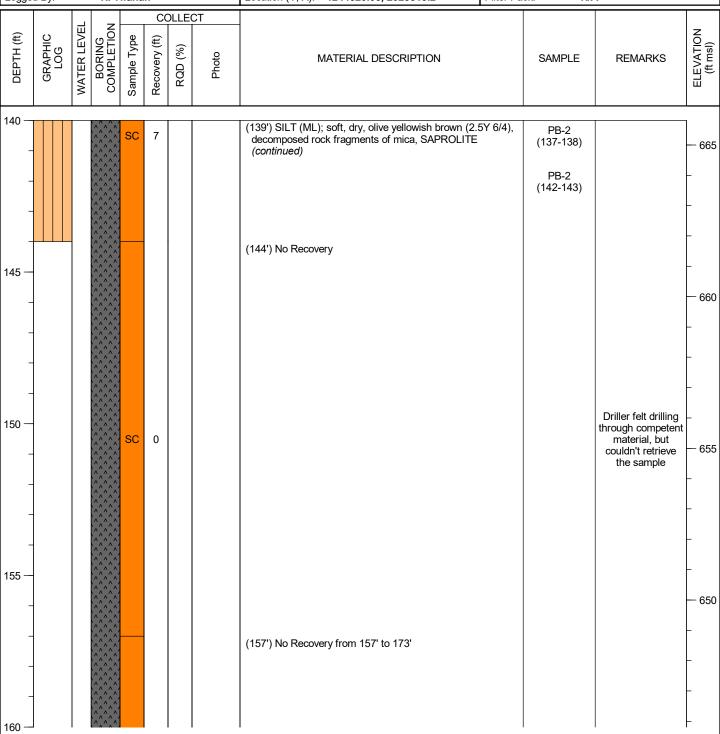
DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Casing Elev. (ft): 805.81
Location (Y, X): 1244620.03, 2028513.2

Screen Slot (in): N/A
Riser Material: N/A
Screen Material: N/A
Seal Material(s): N/A

Well Diameter (in):

Well Depth (ft):

Filter Pack: N/A





**Southern Company Services** Client: **Plant Wansley Pre-Design Investigation** Project:

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**BORING LOG** Boring No.PB-2 Page: 9 of 10

3/8/2017 Drilling Start Date: Drilling End Date: 3/10/2017 Drilling Company: Cascade Drilling Method:

Sonic/HQ Rock Coring

Drilling Equipment: Full size truck Driller Name: V. Scott Logged By: N. Tilahun

Boring Depth (ft): 189 6" x 4" Boring Diameter (in): Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): DTW After Drilling (ft): Top of Casing Elev. (ft): 805.81

Location (Y, X): 1244620.03, 2028513.2

Well Depth (ft): N/A Well Diameter (in): N/A Screen Slot (in): N/A Riser Material: N/A N/A Screen Material:

Seal Material(s): N/A Filter Pack: N/A

20990				IIIIII				2000 1011 (1,74). 1277020100, 20200 1012   1 1101 1 0	5K. 147	<u> </u>	=
		یا			CC	DLLE	CT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
160 —											
-								(157') No Recovery from 157' to 173' (continued)			— 645 -
-											-
165	_									Driller felt	- 640
DIXT RIPORDOL COSIDERT IN URI WARE TO A SEL				SC	4					competent material but couldn't retrieve sample	-
170 —											- - 635
											-
-								(173') SCHIST, highly weathered, high angle fractures, gray (4.5YR 5/1), fine to coarse, iron oxide staining on fracture surfaces, thin to very thick bedding, some grains of garnet, TOP OF ROCK			-
175 —											— 630 -
UDY CHRONI LIST FIRST A CONTRACTOR DESCRIPTOR		-		SC	2		Photo 16 of photo log	(177') SCHIST, intensely weathered, intensely fractured, gray (4.5YR 5/1), iron oxide staining on fracture surfaces		End of day 3/8/2017 Photo represents recovered sample between 178-179	_
180 —										ft interval.	F



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Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-2

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3/8/2017 Boring Depth (ft): 189 Well Depth (ft): N/A Drilling Start Date: 6" x 4" Drilling End Date: 3/10/2017 Boring Diameter (in): Well Diameter (in): N/A Drilling Company: Cascade Sampling Method(s): ST, SC, HQ Screen Slot (in): N/A Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): Riser Material: N/A Drilling Equipment: Full size truck DTW After Drilling (ft): N/A Screen Material: Driller Name: V. Scott Top of Casing Elev. (ft): 805.81 Seal Material(s): N/A Filter Pack: Logged By: N. Tilahun Location (Y, X): 1244620.03, 2028513.2 N/A

					CC	OLLE	СТ				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
180 -										Fred of dec	,
160		l L		HQ	2	0		<ul><li>(177') SCHIST, intensely weathered, intensely fractured, gray (4.5YR 5/1), iron oxide staining on fracture surfaces (continued)</li><li>(182') Same as above, intensely weathered and fractured</li></ul>		End of day 3/9/2017, start of day 3/10/2017, HQ Coring begins Photo represents recovered sample between 184-185 ft interval.	625 - -
185 –				HQ	5	35	Photo 17 of photo log	(184') SCHIST, moderately weathered, thinly to thickly bedded, gray (7.5YR 5/1), very hard, fine to coarse crystal size, moderately fractured, high angle fractures, iron oxide staining on fracture surfaces, some fine to coarse garnet grains, fractures are planar and not healed (top 3.8'), bottom 12' is mechanical break			- - 620 -
SATIONITE DING			\^^^					(189.0') Boring Terminated			}

(189.0') Boring Terminated



Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.PB-3D/3S

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Drilling Start Date: 2/23/2017 Boring Depth (ft):

Drilling End Date: 2/24/2017 Drilling Company: Cascade

Sonic/HQ Rock Coring Drilling Method: Full size truck Drilling Equipment:

V. Scott Driller Name: Logged By: J. Ivanowski

NOTE:

Boring Diameter (in): 6" x 4" Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): DTW After Drilling (ft): Ground Surface Elev. (ft):

Location (Y, X): 1243273.69, 2029686.62

(28-38) & (52-62) Well Depth (ft):

Well Diameter (in): Screen Slot (in): 0.01 **PVC** Riser Material: **PVC** Screen Material:

**Bentonite** Seal Material(s): 20/40 silica sand

Filter Pack: COLLECT WELL COMPLETION **WATER LEVEL** ELEVATION (ft NAVD 88) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) RQD (%) Photo MATERIAL DESCRIPTION **SAMPLE** REMARKS 0 (0') SILTY CLAY with gravel, with railroad ballast, fill Air-knifed to top of rock Photo 1 Good water return of photo (2') METAQUARTZITE, intensely fractured, pale yellow to  $(\sim 50\%)$ İog white, granular, very hard, iron oxide staining, cataclasite, iron oxide scale 800 Hard drilling, (7') METAQUARTZITE, intensely fractured, white to pale ~50% return brown, granular, iron oxide staining, cataclasite, iron oxide scaling, increasing competency with depth 795 10 790 15 Softer drilling, slightly less water (17') Same as above, more fractured return 785 20



Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG Boring No.-PB-3D/3S

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Drilling Start Date: 2/23/2017 Boring Depth (ft): 63 Well Depth (ft): (28-38) & (52-62)

Drilling End Date: 2/24/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): 1

Drilling Company: Cascade Sampling Method(s): ST, SC, HQ Screen Slot (in): 0.01 Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): --Riser Material: **PVC** Drilling Equipment: Full size truck DTW After Drilling (ft): **PVC** Screen Material: Ground Surface Elev. (ft): 804.57 V. Scott Seal Material(s):

Driller Name: V. Scott Ground Surface Elev. (ft): 804.57 Seal Material(s): Bentonite
Logged By: J. Ivanowski Location (Y, X): 1243273.69, 2029686.62 Filter Pack: 20/40 silica sand

Logged E	Ву:		J. Iv	anov	/ski			Location (Y, X): 1	243273.69, 2029686.62	Filter Pac	k: <b>20</b>	/40 silica sand	
(ft)	೦	EVEL	NOI	e c		OLLE	СТ						ON 88)
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MA	TERIAL DESCRIPTION		SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
20 —		-				I		(20) METAOLIADT	ZITE, intensely fractured, pale y	rollow to			1
									zi i E, intensely fractured, pale y taining, felsic cataclasite, iron ox				-
25 —													- 780 
LIBORAL DOLGATIN TRAVAS DE 4 DE ROTON I		⊻										Moderately hard drilling, water recovery ~30%	-
30 —							Photo 8 of photo log	(30') GNEISS, inten foliated, staining of	sely fractured, pale blue to pink f fracture surfaces	, weakly			— 775 -
OOD OF 1 NEAR DOWNSTEAN WAND PORSITIONS OF SECURIOR OF								(32') METAQUARTZ tan, cataclasite, gra	ZITE, intensely fractured, pale b avelly, highly oxidized	prown to			-
							Photo 11 of photo log	(36') Same rock as a fractures	above, more competent, fewer r	natural		Harder drilling, water return ~60%	770 - - -
40													- 765

NOTE:



NOTE:

Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-3D/3S

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0.01

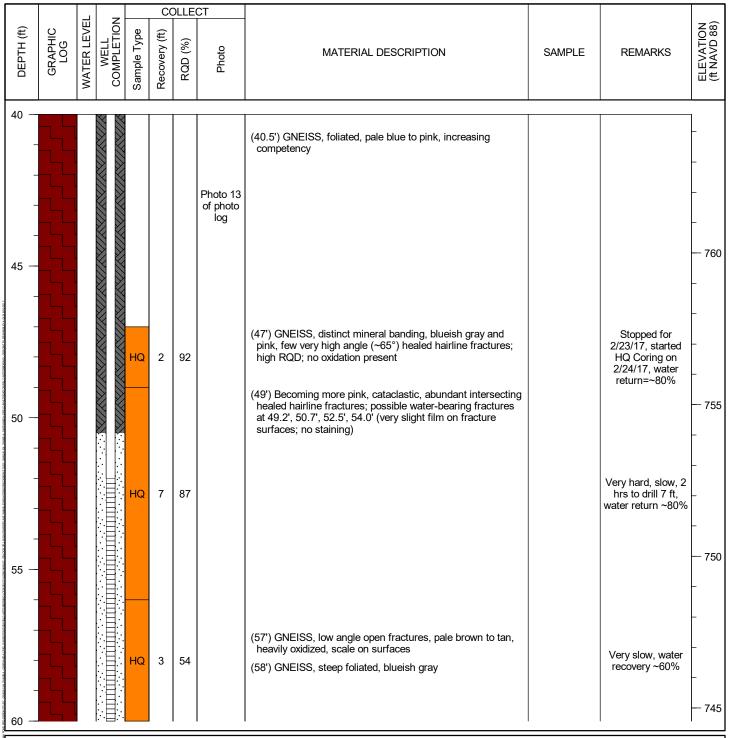
**PVC** 

 Drilling Start Date:
 2/23/2017
 Boring Depth (ft):
 63
 Well Depth (ft):
 (28-38) & (52-62)

 Drilling End Date:
 2/24/2017
 Boring Diameter (in):
 6" x 4"
 Well Diameter (in):
 1

Drilling Company: Cascade Sampling Method(s): ST, SC, HQ
Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): -- Riser Material:

**PVC** Drilling Equipment: Full size truck DTW After Drilling (ft): Screen Material: V. Scott Ground Surface Elev. (ft): 804.57 **Bentonite** Driller Name: Seal Material(s): Location (Y, X): 1243273.69, 2029686.62 Logged By: J. Ivanowski Filter Pack: 20/40 silica sand



2/23/2017



Drilling Start Date:

**Southern Company Services** Client:

**Plant Wansley Pre-Design Investigation** Project: Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.PB-3D/3S

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(28-38) & (52-62) Boring Depth (ft): Well Depth (ft):

6" x 4" Drilling End Date: 2/24/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): ST, SC, HQ

Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): --Drilling Equipment: Full size truck DTW After Drilling (ft): Ground Surface Elev. (ft): 804.57 Driller Name: V. Scott

Location (Y, X): 1243273.69, 2029686.62

Well Diameter (in):

Screen Slot (in): 0.01 Riser Material: **PVC PVC** Screen Material: Seal Material(s): **Bentonite** 20/40 silica sand Filter Pack:

Logged By: J. Ivanowski	Location (Y, X): 1243273.69, 2029686.62 Fil	ilter Pack: 20/40 silica sand
GRAPHIC LOG WATER LEVEL COMPLETION Sample Type Recovery (ft) RQD (%) Photo	MATERIAL DESCRIPTION	SAMPLE REMARKS (# NAVD 88)
60	(58') GNEISS, steep foliated, blueish gray(continued)  (63.0') Boring Terminated	-

(63.0') Boring Terminated

NOTE:



NOTE:

Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-4D/4S

Page: 1 of 4

0.01

**PVC** 

Drilling Start Date: 2/21/2017 Boring Depth (ft): 80 Well Depth (ft): (25-35) & (63-73)

Drilling End Date: 2/22/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): 1

Drilling Company: Cascade Sampling Method(s): ST, SC, HQ
Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): -- Riser Material:

Drilling Equipment: Full size truck
Driller Name: V. Scott

Logged By: J. Ivanowski

DTW After Drilling (ft): -Ground Surface Elev. (ft): 809.43
Location (Y, X): 1242790.61, 2029126.42

Screen Material: PVC
Seal Material(s): Bentonite
Filter Pack: 20/40 silica sand

			_		C	OLLE	СТ				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
0 -			H H H				ı	(O) CANDY OH Turith paleties (ML)		0.40' removed by	1
5 —								(0') SANDY SILT with cobbles (ML)  (8') Becomes very hard		0-10' removed by air knife	_ - - 805 - -
10 —				SC	8		Photo 2 of photo log Photo 4 of photo log	(10') SILT with angular gravel (ML); very dense, wet, pale yellow to white, relict rock fabric, SAPROLITE  (14') PARTIALLY WEATHERED ROCK, hard, dry, fragments of gneiss (15') SILT with angular gravel (ML); very dense, wet, pale yellow to white, relict rock fabric, SAPROLITE	PB-4 (11-12)	~75% water recovery  Driller reporterd very hard drilling ~50% water recover	- 800 - - - - 795
— — 20 —								(16.5') METAQUARTZITE, banded, pale gray to white  (17.5') METAQUARTZITE, granular, intensely fractured rock, felsic gneiss to quartzite, abundant oxidation along fractures			- - - 790



NOTE:

Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-4D/4S

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0.01

**PVC** 

Screen Slot (in):

Riser Material:

Drilling Start Date: 2/21/2017 Boring Depth (ft): 80 Well Depth (ft): (25-35) & (63-73)
Drilling End Date: 2/22/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): 1

Drilling End Date: 2/22/2017 Boring Diameter (in): 6" x 4"

Drilling Company: Cascade Sampling Method(s): ST, SC, HQ

Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): --

Drilling Equipment: Full size truck
Driller Name: V. Scott

Logged By: J. Ivanowski

DTW After Drilling (ft): -Ground Surface Elev. (ft): 809.43
Location (Y, X): 1242790.61, 2029126.42

Screen Material: PVC
Seal Material(s): Bentonite
Filter Pack: 20/40 silica sand

					CC	OLLE	СТ				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COMPLETION WELL	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
20 —			ммм							Drillor vor	
-		∑		SC	6		Photo 5 of photo log	(20') As above; metaquartzite, intensely fractured, iron oxide staining along fracture surfaces, rock is broken into large gravel and small cobble size fragments		Driller reports 50% water return during run	-
-	L <sub>1</sub>								PB-4 (24-25)		
25 —											— 785 -
WEPT-4.CIB R015-001.7											-
COS CAST ILLISONAN											-
E DNCT ESECRING.							Photo 10				-
LD INVESTIGATION I							of photo log				— 780
30 —											-
27 GWGALDA 1948											_
- AD 1996 DESCRIPTION OF THE DES				SC	6.5						_
M was property											
P. Price Properties —											_
35 —											<del> 775</del>
PROLOGOS DATRILES											-
ONERS D NOTESBO											-
A2 PELD MASS TOAT								(37') As above; intensley fractured, sand and mud filled fracture at 38.1'		Switched to HQ coring, pulled 2'	-
PHRSEA - CONTRACT				HQ	1.8					core due to blockage ~40%	-
MOTION OWNERS ON										water return	— 770
40 —						<u> </u>				~40% water	



Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG Boring No.PB-4D/4S

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0.01

Screen Slot (in):

Drilling Start Date: 2/21/2017 Boring Depth (ft): 80 Well Depth (ft): (25-35) & (63-73)
Drilling End Date: 2/22/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): 1

Drilling End Date: 2/22/2017 Boring Diameter (in): 6" x 4"

Drilling Company: Cascade Sampling Method(s): ST, SC, HQ

Drilling Method: Sonic/HQ Rock Coring DTW During Drilling (ft): --Riser Material: **PVC** Drilling Equipment: Full size truck DTW After Drilling (ft): **PVC** Screen Material: Ground Surface Elev. (ft): 809.43 Driller Name: V. Scott Seal Material(s): **Bentonite** Location (Y, X): 1242790.61, 2029126.42 20/40 silica sand Logged By: J. Ivanowski Filter Pack:

Logged By. J. Ivanowski							Education (1, A). 1242130.01, 2023120.42 Filter P.	aoit. <b>20</b>	k. 20/40 SIIICa Saliu		
	Τ,			CC	OLLE	CT					
DEPTH (ft) GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)	
40								•			
-11			HQ	5	27	Photo 13 of photo log	(40') METAQUARTZITE, iron oxide staining, high angle fractures with oxide stained surfaces, surfaces are smooth-undulating		recovery	_	
							(43') Increasing competency with depth			-	
45 —				-	40		(44') Intensely fractured zone, heavily oxidized (44.4') Sand filled fracture		~50% water recovery, used ~200 gallons per 5' run	— 765 -	
of months in constraint in the				5	43		(47') More competent, few high angle fractures, oxidized surfaces (47.9') Mud-filled fracture			_	
50							(49') GNEISS, banded, dark gray to blue, more competent few fractures, fracture zone at 49.5		Used ~250 gal for this 7' run, return ~60%	— 760 -	
Continue area inclined constitution of the con				7	60	Photo 16 of photo log	(52') Pale yellow to orange, open fracture (52.5') GNEISS, blue to gray, mechanical breaks (53') Pale brown, intensely fractured, oxidized fracture zone at 54.5'		End for 2/21/17	_ _ _	
55 —							(54.5') GNEISS, blue to gray, mylonitized with white augen, oxidized fractures at 56.4', 59.5', 61.0', 61.5', 61.7', and 62.1'			— 755 -	
CEA - CONTRACTOR IN CASA IN CA	l l								~100 gal water used, ~70% recovery	-	
60	1									— 750	

NOTE:



## Client: Southern Company Services Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-4D/4S

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0.01

**PVC** 

Screen Slot (in):

Riser Material:

Drilling Start Date: 2/21/2017 Boring Depth (ft): 80 Well Depth (ft): (25-35) & (63-73)

Drilling End Date: 2/22/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): 1

Drilling Company: Cascade Sampling Method(s): ST, SC, HQ
Drilling Method: Sonic/HQ Rock Coring
Drilling Equipment: Full size truck Sampling Method(s): ST, SC, HQ
DTW During Drilling (ft): -DTW After Drilling (ft): --

Drilling Equipment: Full size truck

Driller Name: V. Scott

Logged By: J. Ivanowski

DTW After Drilling (ft): -
Ground Surface Elev. (ft): 809.43

Location (Y, X): 1242790.61, 2029126.42

Screen Material: PVC

Seal Material(s): Bentonite

Filter Pack: 20/40 silica sand

MATERIAL DESCRIPTION  SAMPLE REMARKS  HQ 8 64 Photo 20 of photo log  (64') GNEISS, blue to gray, mylonitized with white augen, oxidized fractures at 56.4', 59.5', 61.0', 61.5', 61.7', and 62.1'(continued)  (64') GNEISS, dark blue to gray, no staining, high angle fractures; open fractures at 64.5', 65.2', 65.4', 65.5', and 66.0'  (66.5') Intensely fractured from 66.5' to 67.0', filled with sand and gravel, stained with iron-oxide	ck: 20/40 silica sand		
MATERIAL DESCRIPTION  SAMPLE  REMARKS  HQ  B  Continued  Financial Security of the second of the sec	$\Box$		
Photo 20 of photo log  (64') GNEISS, blue to gray, mylonitized with white augen, oxidized fractures at 56.4', 59.5', 61.0', 61.5', 61.7', and 62.1'(continued)  (64') GNEISS, dark blue to gray, no staining, high angle fractures; open fractures at 64.5', 65.2', 65.4', 65.5', and 66.0'  -20% water recovery  (66.5') Intensely fractured from 66.5' to 67.0', filled with	ELEVATION (ft NAVD 88)		
Photo 20 of photo log  (64.5) GNEISS, blue to gray, mylonitized with white augen, oxidized fractures at 56.4', 59.5', 61.0', 61.5', 61.7', and 62.1'(continued)  (64') GNEISS, dark blue to gray, no staining, high angle fractures; open fractures at 64.5', 65.2', 65.4', 65.5', and 66.0'  All Q 4 21  (66.5') Intensely fractured from 66.5' to 67.0', filled with			
fractures; open fractures at 64.5', 65.2', 65.4', 65.5', and 66.0'  HQ 4 21  fractures; open fractures at 64.5', 65.2', 65.4', 65.5', and 66.0'  ~20% water recovery  (66.5') Intensely fractured from 66.5' to 67.0', filled with	-		
recovery (66.5') Intensely fractured from 66.5' to 67.0', filled with	- 745 -		
	-		
Photo 27 of photo log	_ — 740		
Very hard, slow drilling, good water return >70%	er _ _		
(74') As above; pink potassium feldspar pegmatites, nearly unfractured	_ — 735 _		
Photo 31 of photo log  Very hard, slow drilling, water return ~70%	,		
80 (80,0') Boring Terminated	<u> </u>		

NOTE:



Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG Boring No.PB-5D/5S

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Drilling Start Date: 3/15/2017
Drilling End Date: 3/21/2017
Drilling Company: Cascade

Drilling Company: Cascade
Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Terra Sonic
Driller Name: J. Chellberg
Logged By: N. Tilahun

NOTE:

Boring Depth (ft): 71
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Casing Elev. (ft): 807.04
Location (Y, X): 1241689.23, 2028113.72

Well Depth (ft): (37-47) & (55-65)
Well Diameter (in): 1

Screen Slot (in):

Riser Material:

Screen Material:

PVC

Seal Material(s):

Bentonite

Filter Pack:

Sand Pack

COLLECT WELL COMPLETION **WATER LEVEL** ELEVATION (ft msl) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) RQD (%) Photo MATERIAL DESCRIPTION SAMPLE **REMARKS** 0 (0') Air Knifed for Utility Clearance 805 5 800 (7') No Recovery SC 0 10 (10') Shelby Tube ST 2 PB-5 (10-12) PB-5 (12-13) 795 (12') CLAY (CL); few silt, medium plasticity, soft, moist, reddish yellow (7.5YR 7/8), SAPROLITE  $\nabla$ (14.5') SILTY SAND (SM); few clay, medium dense, light 15 brown (7.5YR 6/4), fine grained, poorly graded, SAPRÒLITE Photo 1 of photo log SC 9 PB-5 (17-18) 790 (17') Becomes pink (7.5YR 8/4), laminated (undulating), dark layers 20



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BORING LOG Boring No.PB-5D/5S

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(37-47) & (55-65)

Drilling Start Date: 3/15/2017
Drilling End Date: 3/21/2017
Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Terra Sonic
Driller Name: J. Chellberg
Logged By: N. Tilahun

NOTE:

Boring Depth (ft): 71
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Casing Elev. (ft): 807.04
Location (Y, X): 1241689.23, 2028113.72

Well Diameter (in): 1
Screen Slot (in): 0.01

Riser Material: PVC
Screen Material: PVC
Seal Material(s): Bentonite
Filter Pack: Sand Pack

Well Depth (ft):

		COLLECT		СТ							
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
20 -	////////	4	N I N I N				T				_
-	-						Photo 2 of photo log	(20') CLAY (CL); few silt, medium plasticity, soft, moist, reddish yellow (7.5YR 6/8), non-uniform lamination, SAPROLITE			- 785
-	-							(22.5') SAND (SP); few clay, medium dense, moist, pink (7.5YR 8/4), poorly graded, laminated, SAPROLITE	PB-5 (23-24)		-
25 —				SC	12			(25') INTENSELY WEATHERED ROCK, pink (7.5YR 8/4), fine, dry, loose, intensely weathered rock fragments (fragile), laminated rock fragments	PB-5 (20-21) PB-5 (26-27)		_
B. Draff depotency one oper in the waves life 4.6											— 780 -
30 -									PB-5 (31-32)		-
POWER COMMERCED AND CONTRACT OF THE PERSON O				sc	4			(32') Becomes brown (7.5YR 5/4)	PB-5 (32-33)		<del> 775</del>
- 355 —								(33') GNEISS (LONG ISLAND CREEK GNEISS), moderately weathered, massive, pinkish gray (7.5YR 6/2), very hard, fine to medium crystal size, weakly foliated, slightly fractured, with quartz, TOP OF ROCK			_
O TOMBORIS DEDICA DESCRIPTION OF THE OFFICE OF THE OFFICE OF THE OFFICE OF THE OFFICE O				SC	7	0	Photo 3 of photo log				_ 770 -
40 —											



NOTE:

Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

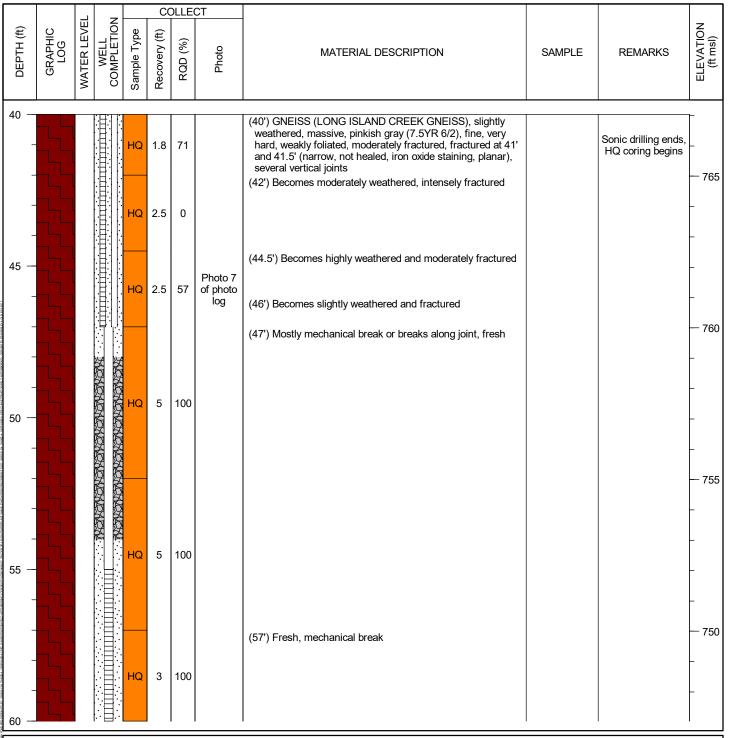
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-5D/5S

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(37-47) & (55-65) Drilling Start Date: 3/15/2017 Boring Depth (ft): Well Depth (ft): Drilling End Date: 3/21/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): Drilling Company: Cascade Sampling Method(s): ST, SC, HQ Screen Slot (in): 0.01 Sonic/HQ Rock Coring Riser Material: **PVC** Drilling Method: DTW During Drilling (ft): **PVC** Drilling Equipment: **Terra Sonic** DTW After Drilling (ft): Screen Material:

Drilling Equipment:Terra SonicDTW After Drilling (ft):--Screen Material:PVCDriller Name:J. ChellbergTop of Casing Elev. (ft):807.04Seal Material(s):BentoniteLogged By:N. TilahunLocation (Y, X):1241689.23, 2028113.72Filter Pack:Sand Pack





Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-5D/5S

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Drilling Start Date: 3/15/2017
Drilling End Date: 3/21/2017
Drilling Company: Cascade

Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Terra Sonic
Driller Name: J. Chellberg
Logged By: N. Tilahun

Boring Depth (ft): 71
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Casing Elev. (ft): 807.04
Location (Y, X): 1241689.23, 2028113.72

Well Depth (ft): (37-47) & (55-65) Well Diameter (in): 1

Screen Slot (in):

Riser Material:

Screen Material:

PVC

Screen Material:

PVC

Seal Material(s):

Bentonite

Filter Pack:

Sand Pack

COLLECT WELL COMPLETION **WATER LEVEL** ELEVATION (ft msl) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) RQD (%) Photo MATERIAL DESCRIPTION **SAMPLE** REMARKS 60 (60') Becomes slightly weathered (weathering is near Photo 11 fracture), fracture zone from ~60.5' to 61' (narrow, not 2 71 of photo healed, iron oxide staining, planar, horizontal to high dip log angle) 745 (62') Becomes fresh, tight fractures along joints (healed, clay staining, planar, horizontal to high angled), mostly mechanical breaks 100 5 65 (65') Reddish yellow (7.5YR 7/8), Becomes redding yellow (7.5YR 7/8) 740 (67') Reddish yellow (7.5YR 7/8), Becomes redding yellow (7.5YR 7/8), fresh, mechanical breaks along joints 100 70 (71.0') Boring Terminated

NOTE:			



Client: Southern Company Services

Project: Plant Wansley Pre-Design Investigation
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-6D/6S

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Drilling Start Date: 3/22/2017
Drilling End Date: 4/6/2017
Drilling Company: Cascade

Drilling Company: Cascade
Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Terra Sonic
Driller Name: A. Blackwood
Logged By: N. Tilahun

Boring Depth (ft): 93
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Casing Floy, PR 6D (

Top of Casing Elev. PB-6D (ft): 811.90 Location PB-6D (Y, X):1240830.30, 2027196.10 Well Depth (ft): (29-39) & (70-80) Well Diameter (in): 1

Screen Slot (in):

Riser Material:

Screen Material:

PVC

Screen Material:

PVC

Seal Material(s):

Bentonite

Sand Pack

COLLECT Top of Casing Elev. PB-6S (ft): 812.07 WELL COMPLETION **WATER LEVEL** ELEVATION (ft msl) Location PB-6S (Y, X):1240830.36, 2027190.85 GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) RQD (%) Photo MATERIAL DESCRIPTION **SAMPLE REMARKS** 0 (0') Air knifed for utility clearance 810 5 805 (7') INTENSELY WEATHERED ROCK, pink (7.5YR 8/3), fine, dry, loose, intensely weathered rock fragments (fragile), laminated rock fragments PB-6 (8-9) 3 Photo 1 of photo log 10 (10') Brown (7.5YR 5/4), moist, same as above (10.5') Reddish yellow (7.5YR 8/6), moist 800 SC 8 (12.5') Brown (7.5YR 5/4) PB-6 (13-14) (13') Reddish yellow (7.5YR 8/6), bigger and stonger rock 795 Shelby Tube SC 5 attempt, no recovery PB-6 (18-19) 20

NOTE:



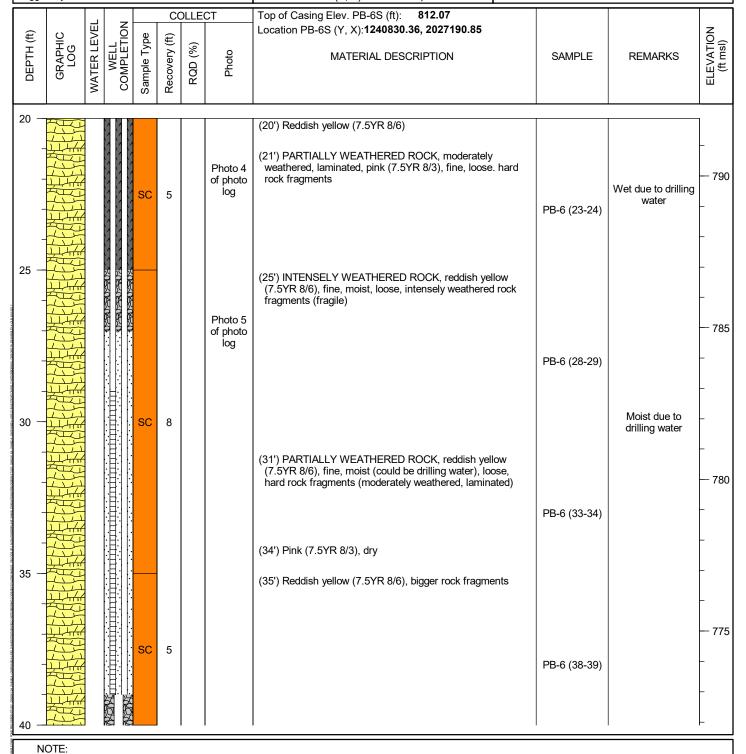
Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-6D/6S

Page: 2 of 5

(29-39) & (70-80) Drilling Start Date: 3/22/2017 Boring Depth (ft): Well Depth (ft): Drilling End Date: 4/6/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): Drilling Company: Sampling Method(s): ST, SC, HQ Screen Slot (in): Cascade 0.01 Sonic/HQ Rock Coring **PVC** Drilling Method: DTW During Drilling (ft): Riser Material: **PVC** Drilling Equipment: **Terra Sonic** DTW After Drilling (ft): Screen Material: A. Blackwood **Bentonite** Driller Name: Top of Casing Elev. PB-6D (ft): 811.90 Seal Material(s): Logged By: N. Tilahun Filter Pack: Sand Pack Location PB-6D (Y, X):1240830.30, 2027196.10





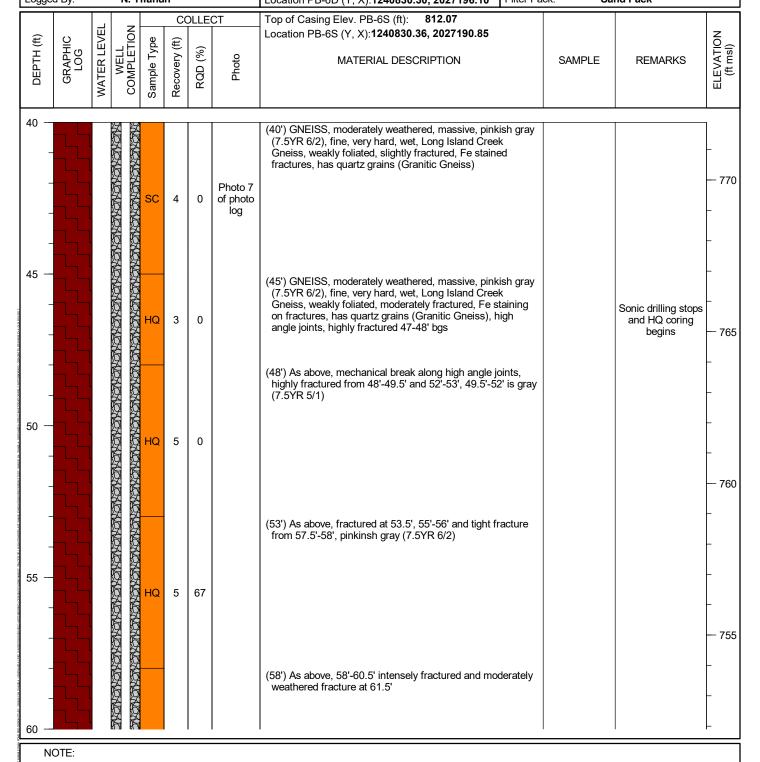
Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-6D/6S

Page: 3 of 5

(29-39) & (70-80) Drilling Start Date: 3/22/2017 Boring Depth (ft): Well Depth (ft): Drilling End Date: 4/6/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): Drilling Company: Sampling Method(s): ST, SC, HQ Screen Slot (in): Cascade 0.01 Sonic/HQ Rock Coring **PVC** Drilling Method: DTW During Drilling (ft): Riser Material: DTW After Drilling (ft): **PVC** Drilling Equipment: **Terra Sonic** Screen Material: A. Blackwood **Bentonite** Driller Name: Top of Casing Elev. PB-6D (ft): 811.90 Seal Material(s): Logged By: N. Tilahun Filter Pack: Sand Pack Location PB-6D (Y, X):1240830.30, 2027196.10





NOTE:

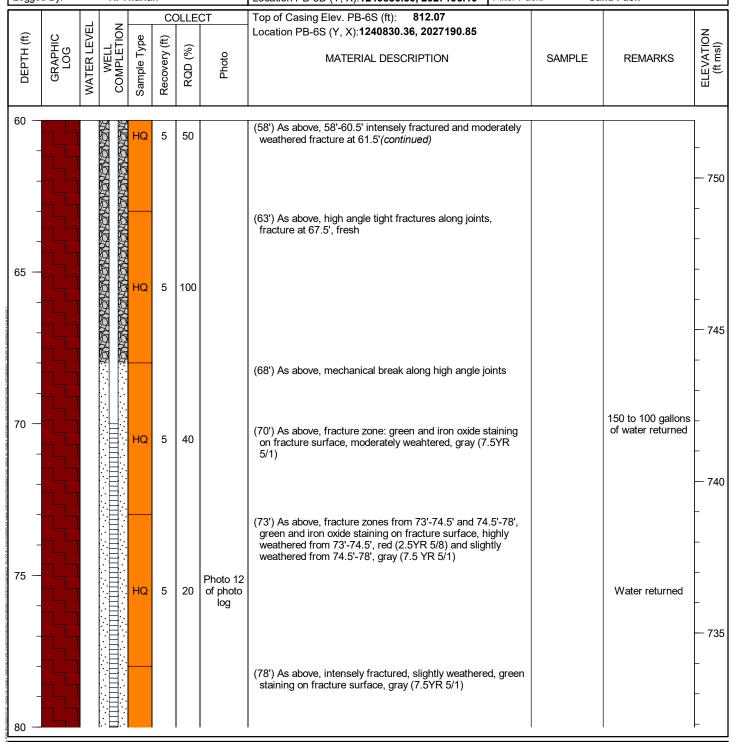
Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-6D/6S

Page: 4 of 5

(29-39) & (70-80) Drilling Start Date: 3/22/2017 Boring Depth (ft): Well Depth (ft): Drilling End Date: 4/6/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): Drilling Company: Sampling Method(s): ST, SC, HQ Screen Slot (in): Cascade 0.01 Sonic/HQ Rock Coring **PVC** Drilling Method: DTW During Drilling (ft): Riser Material: **PVC** Drilling Equipment: **Terra Sonic** DTW After Drilling (ft): Screen Material: A. Blackwood **Bentonite** Driller Name: Top of Casing Elev. PB-6D (ft): 811.90 Seal Material(s): Logged By: N. Tilahun Filter Pack: Sand Pack Location PB-6D (Y, X):1240830.30, 2027196.10





3/22/2017

4/6/2017

engineers | scientists | innovator

Drilling Start Date:

Drilling End Date:

Drilling Company:

Drilling Method:

Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-6D/6S

Page: **5 of 5** 

Boring Depth (ft): 93 Well Depth (ft): (29-39) & (70-80)
Boring Diameter (in): 6" x 4" Well Diameter (in): 1

 Cascade
 Sampling Method(s):
 ST, SC, HQ
 Screen Slot (in):
 0.01

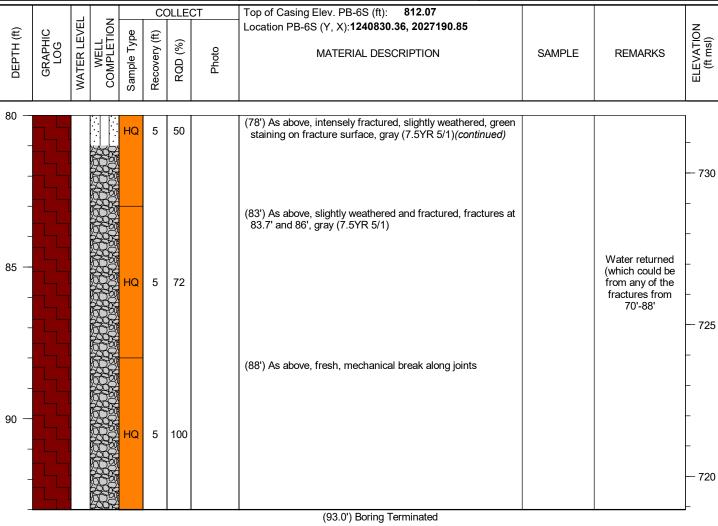
 Sonic/HQ Rock Coring
 DTW During Drilling (ft):
 - Riser Material:
 PVC

 Terra Sonic
 DTW After Drilling (ft):
 - Screen Material:
 PVC

Drilling Equipment: Terra Sonic DTW After Drilling (ft): -- Screen Material: PVC

Driller Name: A. Blackwood Top of Casing Elev. PB-6D (ft): 811.90 Seal Material(s): Bentonite

Logged By: N. Tilahun Location PB-6D (Y, X):1240830.30, 2027196.10 Filter Pack: Sand Pack





Client: Southern Company Services
Project: Plant Wansley Pre-Design Inv

Project: Plant Wansley Pre-Design Investigation
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-7 Page: 1 of 9

Drilling Start Date: 3/23/2017
Drilling End Date: 3/31/2017
Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring
Drilling Equipment: Terra Sonic

Driller Name: A. Blackwood
Logged By: N. Tilahun and J. Griffin

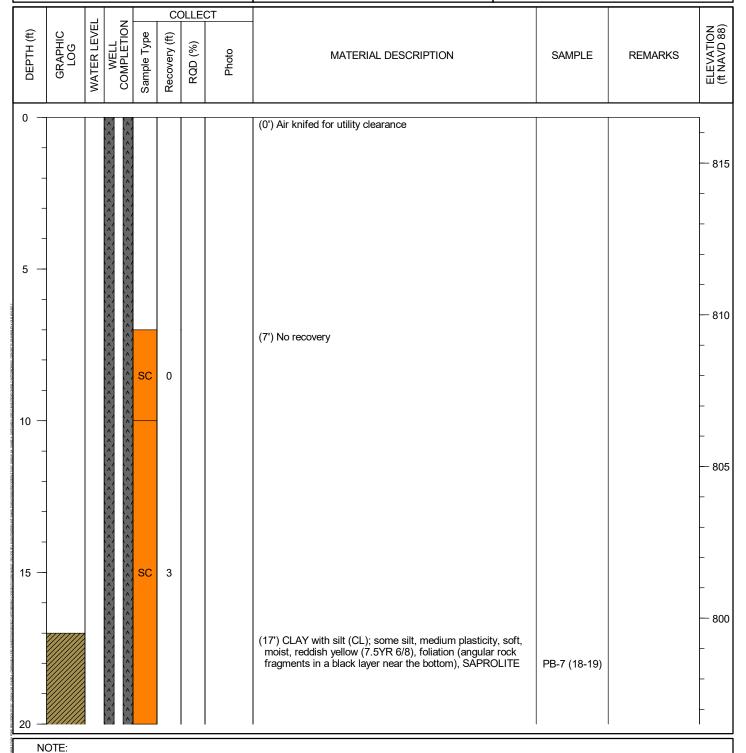
Boring Depth (ft): 167
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

DTW After Drilling (ft): -Ground Surface Elev. (ft): 816.51

DTW During Drilling (ft):

Location (Y, X): 1240837.08, 2026768.14

Well Depth (ft): (65-75)
Well Diameter (in): 2
Screen Slot (in): 0.01
Riser Material: PVC
Screen Material: PVC
Seal Material(s): Bentonite
Filter Pack: Sand Pack





Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG

Boring No.**PB-7**Page: **2 of 9** 

Drilling Start Date: 3/23/2017
Drilling End Date: 3/31/2017
Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring
Drilling Equipment: Terra Sonic

Driller Name: A. Blackwood
Logged By: N. Tilahun and J. Griffin

Boring Depth (ft): 167
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): -DTW After Drilling (ft): -Ground Surface Elev. (ft): 816.51

Location (Y, X): 1240837.08, 2026768.14

Well Depth (ft): (65-75)
Well Diameter (in): 2
Screen Slot (in): 0.01
Riser Material: PVC
Screen Material: PVC
Seal Material(s): Bentonite
Filter Pack: Sand Pack

COLLECT WELL COMPLETION **WATER LEVEL** ELEVATION (ft NAVD 88) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) RQD (%) Photo **REMARKS** MATERIAL DESCRIPTION **SAMPLE** 20 (17') CLAY with silt (CL); some silt, medium plasticity, soft, Photo 2 moist, reddish yellow (7.5YR 6/8), foliation (angular rock fragments in a black layer near the bottom), of photo SAPROLITE(continued) log 795 PB-7 (24-25) 25 SC 6.5  $\nabla$ 790 PB-7 (29-30) 30 (30') Becomes red (2.5YR 5/8) 785 SC 7 PB-7 (34-35) 35 (35') Angular fine gravel (quartz) in black layer at 49' ST 2 PB-7 (35-37) 780 SC 3 40



Client: **Southern Company Services** Plant Wansley Pre-Design Investigation Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116 **BORING LOG** 

Boring No.PB-7 Page: 3 of 9

3/23/2017 Drilling Start Date: Drilling End Date: 3/31/2017 Drilling Company: Cascade Drilling Method:

Sonic/HQ Rock Coring Drilling Equipment: Terra Sonic

A. Blackwood Driller Name: Logged By: N. Tilahun and J. Griffin Boring Depth (ft): 167 Boring Diameter (in): 6" x 4" Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): DTW After Drilling (ft): Ground Surface Elev. (ft): 816.51

Location (Y, X): 1240837.08, 2026768.14

Well Depth (ft): (65-75)Well Diameter (in): Screen Slot (in): 0.01 Riser Material: **PVC PVC** Screen Material: **Bentonite** Seal Material(s): Filter Pack: Sand Pack

COLLECT WELL COMPLETION **WATER LEVEL** ELEVATION (ft NAVD 88) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) **RQD** (%) Photo SAMPLE **REMARKS** MATERIAL DESCRIPTION 40 (35') Angular fine gravel (quartz) in black layer at 49'(continued) 775 PB-7 (44-45) 45 SC 10 770 50 (51') As above, abundant white banding 765 PB-7 (54-55) SC 12 760 60



**Southern Company Services** Client: **Plant Wansley Pre-Design Investigation** Project:

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**BORING LOG** Boring No.PB-7

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3/23/2017 Drilling Start Date: Drilling End Date: 3/31/2017 Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Terra Sonic Driller Name: A. Blackwood Logged By: N. Tilahun and J. Griffin

NOTE:

Boring Depth (ft): 167 Boring Diameter (in): 6" x 4" Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): DTW After Drilling (ft): Ground Surface Elev. (ft): 816.51

Location (Y, X): 1240837.08, 2026768.14

Well Depth (ft): (65-75)Well Diameter (in): Screen Slot (in): 0.01 Riser Material: **PVC PVC** Screen Material: Seal Material(s): **Bentonite** Filter Pack: Sand Pack

					CC	OLLE	СТ				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
60 -	///////	1	1.1 1.7		I	I		(541) As above abundant white handing (continued)			,
- - - 65 —					11			(51') As above, abundant white banding(continued)	PB-7 (64-65)		- - 755 - -
								(65') Coarse angular cobbles (quartz?)			- 750 - -
To the state of th				SC	10				PB-7 (74-75)		745 - -
- 08								(75') Becomes light olive brown (2.5Y 5/3)			- 740 - - -



**Southern Company Services** Client: **Plant Wansley Pre-Design Investigation** Project:

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**BORING LOG** Boring No.PB-7

(65-75)

Page: 5 of 9 Well Depth (ft):

3/23/2017 Drilling Start Date: Drilling End Date: 3/31/2017 Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring Drilling Equipment: Terra Sonic

Driller Name: A. Blackwood Logged By: N. Tilahun and J. Griffin Boring Depth (ft): 167 6" x 4" Boring Diameter (in): Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): DTW After Drilling (ft): Ground Surface Elev. (ft): 816.51 Location (Y, X): 1240837.08, 2026768.14 Well Diameter (in): Screen Slot (in): 0.01 Riser Material: **PVC PVC** Screen Material: Seal Material(s): **Bentonite** Filter Pack: Sand Pack

							O.T.		Ī		
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
80 -								(80') Becomes brownish yellow (10YR 6/8)	PB-7 (83-84) PB-7 (84-85)		- - 735 -
85 —				SC	13.5		Photo 9 of photo log	(86') Fine and coarse gravel (quartz?) layer, angular, up to 2" diameter	PB-7 (86-87)		- - 730 -
90 —								(90') CLAY with intact rock fragment (CL); olive (5Y 4/2), easily broken by hand, some fragments cannot be broken by hand, INTENSELY WEATHERED ROCK	PB-7 (90-91)		- 725 -
95 —							Photo 10 of photo log			Hard drilling, core barrel is advancing very slowly	- - 720 -



Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.PB-7

6 of 9

3/23/2017 Drilling Start Date: Drilling End Date: 3/31/2017 Drilling Company: Cascade

Sonic/HQ Rock Coring Drilling Method:

Drilling Equipment: **Terra Sonic** A. Blackwood Driller Name:

167 Boring Depth (ft): Boring Diameter (in): 6" x 4" Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): DTW After Drilling (ft): Ground Surface Elev. (ft): 816.51

Location (Y, X): 1240837.08, 2026768.14

(65-75)Well Depth (ft): Well Diameter (in): Screen Slot (in): 0.01 Riser Material: **PVC PVC** Screen Material: Seal Material(s): **Bentonite** 

Page:

Logged By: N. Tilahun and J. Griffin Filter Pack: Sand Pack COLLECT WELL COMPLETION **WATER LEVEL** ELEVATION (ft NAVD 88) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) RQD (%) Photo MATERIAL DESCRIPTION SAMPLE REMARKS 100 (100') PARTIALLY WEATHERED ROCK, slightly weathered, gray (7.5YR 5/1), fine to coarse, moist, thinly to thickly bedded, loose, hard rock fragments (abundant mica, some grains of garnet and quartz) 715 PB-7 (104') Becomes reddish yellow (7.5YR 6/8) (104-105)Photo 11 105 11.5 of photo Hard drilling log 710 PB-7 (108-109)110 705 Hard drilling PB-7 (114-115)(115') Becomes gray (7.5YR 5/1) 700 PB (117-119) 6 Hard drilling (118') Becomes pinkish gray (7.5YR 6/2), dry 120

NOTE:			



Client: Southern Company Services

Project: Plant Wansley Pre-Design Investigation
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BORING LOG Boring No.PB-7 Page: 7 of 9

Drilling Start Date: 3/23/2017
Drilling End Date: 3/31/2017

Drilling Company: Cascade
Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Terra Sonic

Driller Name: A. Blackwood

Logged By: N. Tilahun and J. Griffin

NOTE:

Boring Depth (ft): 167
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): -DTW After Drilling (ft): -Ground Surface Elev. (ft): 816.51

Location (Y, X): 1240837.08, 2026768.14

Well Depth (ft): (65-75)
Well Diameter (in): 2
Screen Slot (in): 0.01
Riser Material: PVC
Screen Material: PVC
Seal Material(s): Bentonite

Seal Material(s): Bentonite
Filter Pack: Sand Pack

Logged by.		14. 1	Hand	iii aik	<i>1</i> 0. C	71111111	Location (1, X). 1240007:00, 2020700:14	ei Fack.	Saliu Pack	
	Т.			CC	DLLE	СТ				
DEPTH (ft) GRAPHIC LOG	WATER LEVEL	WELL	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
120										_
							(118') Becomes pinkish gray (7.5YR 6/2), dry(continued) (121') No Recovery (122') Becomes gray (7.5YR 5/1), moist			- 695 -
125			SC	9				PB-7 (124-125	Hard drilling	-
	17.4.17.4.17.4						(128.5') Becomes pinkish gray (7.5YR 6/2), dry	PB-7 (127-128 PB-7 (129-130		- 690 - -
130	<u>-   下/                                  </u>						(130') Becomes pinkish gray (7.5YR 5/1), moist, abundar platy rock fragments (schist), some rock fragments cont large grains of quartz and have irregular shape (non-plate)	nt tain sty)		- 685
135	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		SC	6				PB-7 (137-138	Hard drilling	- - - 680
140										-



Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG Boring No.PB-7 Page: 8 of 9

Sand Pack

Drilling Start Date: 3/23/2017
Drilling End Date: 3/31/2017
Drilling Company: Cascade

Drilling Company: Cascade
Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Terra Sonic
Driller Name: A. Blackwoo

Logged By:

A. Blackwood N. Tilahun and J. Griffin Boring Depth (ft): 167
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): -DTW After Drilling (ft): -Ground Surface Elev. (ft):

Ground Surface Elev. (ft): **816.51**Location (Y, X): **1240837.08**, **2026768.14** 

Well Depth (ft): (65-75)
Well Diameter (in): 2
Screen Slot (in): 0.01
Riser Material: PVC
Screen Material: PVC
Seal Material(s): Bentonite

Filter Pack:

COLLECT WELL COMPLETION **WATER LEVEL** ELEVATION (ft NAVD 88) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) RQD (%) Photo MATERIAL DESCRIPTION **SAMPLE** REMARKS 140 (140') SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to coarse, very hard, fresh, weak bedding planes and high angle joints, some quartz banding, TOP OF ROCK Photo 16 3 of photo Hard drilling 675 log (143') SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to coarse, very hard, fresh, unfractured, mechanical breaks along high angled joints, few quartz banding, some Sonic drilling ends coarse quartz grains, abundant mica at 143 (3/29/2017), HQ 100 145 rock coring begins at 143' (3/30/2017)670 5.5 100 150 665 155 100 660 Photo 20 160



**Southern Company Services** Client:

**Plant Wansley Pre-Design Investigation** Project: Address:

1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.PB-7

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3/23/2017 Drilling Start Date: Drilling End Date: 3/31/2017 Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Terra Sonic Driller Name: A. Blackwood N. Tilahun and J. Griffin Logged By:

Boring Depth (ft): 167 6" x 4" Boring Diameter (in): Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): DTW After Drilling (ft): Ground Surface Elev. (ft): 816.51

Location (Y, X): 1240837.08, 2026768.14

Well Depth (ft): (65-75)Well Diameter (in): Screen Slot (in): 0.01 Riser Material: **PVC PVC** Screen Material: Seal Material(s): **Bentonite** Filter Pack: Sand Pack

-						CC	DLLE	CT				
	DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
Ì	160 —					_						
RP74.CB electron 7	- - - 165 —				HQ	4.5	100	of photo log	(143') SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to coarse, very hard, fresh, unfractured, mechanical breaks along high angled joints, few quartz banding, some coarse quartz grains, abundant mica(continued)			- 655 650
989									(167 0') Boring Terminated			

(167.0') Boring Terminated

NOTE:			



Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-8D/I/S

Page: 1 of 8

Drilling Start Date: 4/12/2017
Drilling End Date: 4/20/2017

Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring
Drilling Equipment: Terra Sonic

Driller Name: M. Hanson and J. Triepke
Logged By: N. Tilahun

NOTE:

Boring Diameter (in): 6" x 4"

Sampling Method(s): ST, SC, HQ

Boring Depth (ft):

DTW During Drilling (ft): -DTW After Drilling (ft): --

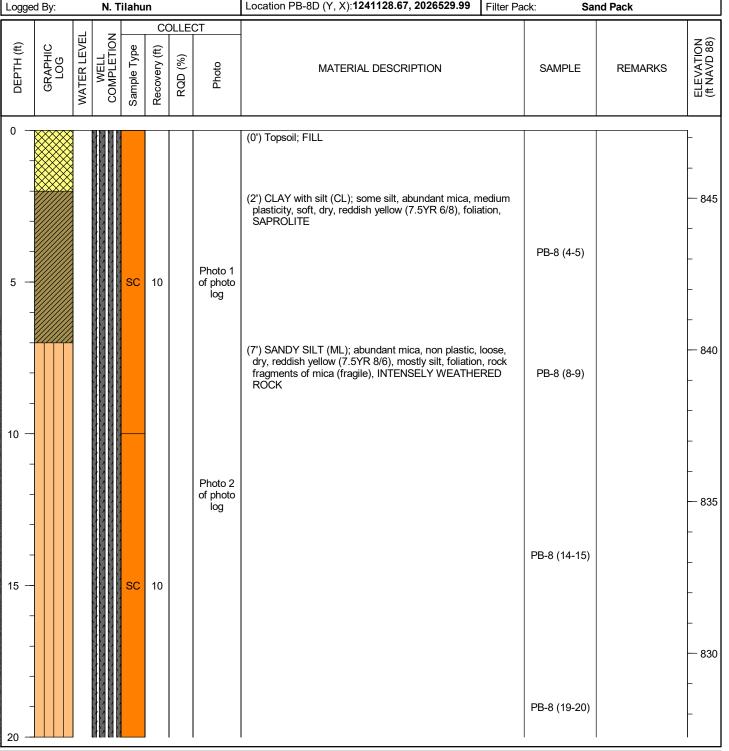
Ground Surface Elev. PB-8D (ft): **847.24** Location PB-8D (Y, X):**1241128.67**, **2026529.99** 

147

Well Depth (ft): (45-55) (75-85) (121-131)

Well Diameter (in): N/A
Screen Slot (in): 0.01
Riser Material: PVC

Screen Material: PVC
Seal Material(s): Bentonite
Filter Pack: Sand Pack





Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.PB-8D/I/S

Page: 2 of 8

4/12/2017 Drilling Start Date: Drilling End Date: 4/20/2017 Drilling Company: Cascade

NOTE:

Sonic/HQ Rock Coring Drilling Method: Drilling Equipment: **Terra Sonic** 

M. Hanson and J. Triepke Driller Name: Logged By: N. Tilahun

Boring Depth (ft): 147 Boring Diameter (in): 6" x 4" Sampling Method(s): ST, SC, HQ

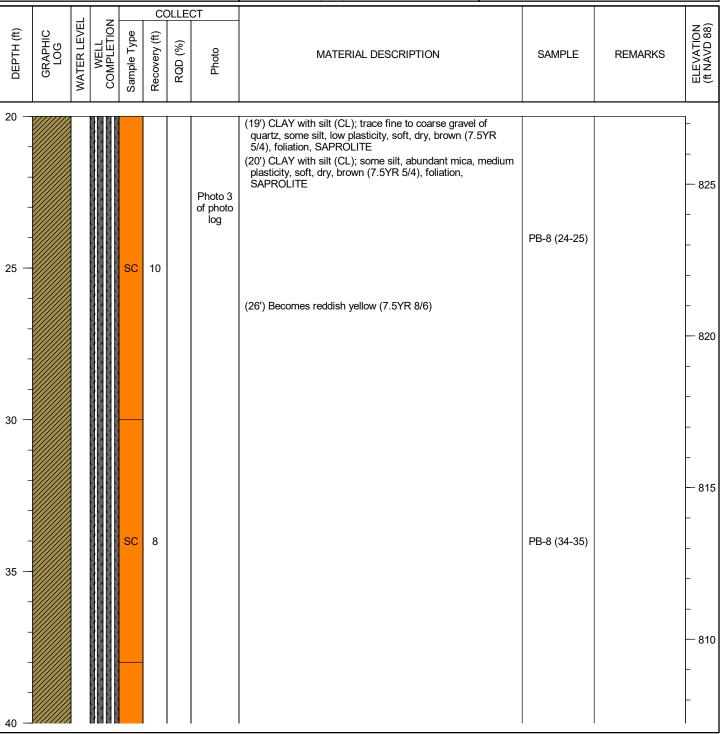
DTW During Drilling (ft): DTW After Drilling (ft):

Ground Surface Elev. PB-8D (ft): 847.24 Location PB-8D (Y, X):1241128.67, 2026529.99

(45-55) (75-85) (121-131) Well Depth (ft):

Well Diameter (in): N/A Screen Slot (in): 0.01 **PVC** Riser Material: **PVC** Screen Material:

**Bentonite** Seal Material(s): Filter Pack: Sand Pack





Driller Name:

NOTE:

Logged By:

**Southern Company Services** Client: Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.PB-8D/I/S

Page: 3 of 8

**PVC** 

**PVC** 

Riser Material:

Screen Material:

(45-55) (75-85) (121-131) Drilling Start Date: 4/12/2017 Boring Depth (ft): 147 Well Depth (ft): Drilling End Date: 4/20/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): N/A Drilling Company: Sampling Method(s): ST, SC, HQ Screen Slot (in): Cascade 0.01

Sonic/HQ Rock Coring Drilling Method: DTW During Drilling (ft): **Terra Sonic** DTW After Drilling (ft): Drilling Equipment:

> M. Hanson and J. Triepke Ground Surface Elev. PB-8D (ft): 847.24 N. Tilahun

**Bentonite** Seal Material(s): Filter Pack: Sand Pack Location PB-8D (Y, X):1241128.67, 2026529.99

COLLECT WELL COMPLETION **WATER LEVEL** ELEVATION (ft NAVD 88) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) RQD (%) Photo MATERIAL DESCRIPTION **SAMPLE** REMARKS 40 (40') CLAY (CL); some fine to coarse gravel, some mica, medium plasticity, soft, dry, brown (7.5YR 5/4) 12 (42') Hard, gray (7.5YR 5/1), angular 805 PB-8 (44-45) 45 (45') CLAY with silt (CL); some silt, abundant mica, low plasticity, soft, dry, gray (7.5YR 6/1), foliation 800 SC 8 PB-8 (49-50) 50 Photo 6 of photo 795 log SC 10 790 (58') CLAY with silt (CL); some silt, abundant mica, low plasticity, soft, dry, gray (7.5YR 6/1), fragile, mica rock fragments, INTENSELY WEATHERED ROCK Photo 7 PB-8 (59-60) of photo (58.9') Becomes trace fine to coarse sand, moist log 60



Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG Boring No.PB-8D/I/S

Page: 4 of 8

Drilling Start Date: 4/12/2017
Drilling End Date: 4/20/2017

Drilling Company: Cascade
Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: Terra Sonic

Driller Name: M. Hanson and J. Triepke
Logged By: N. Tilahun

NOTE:

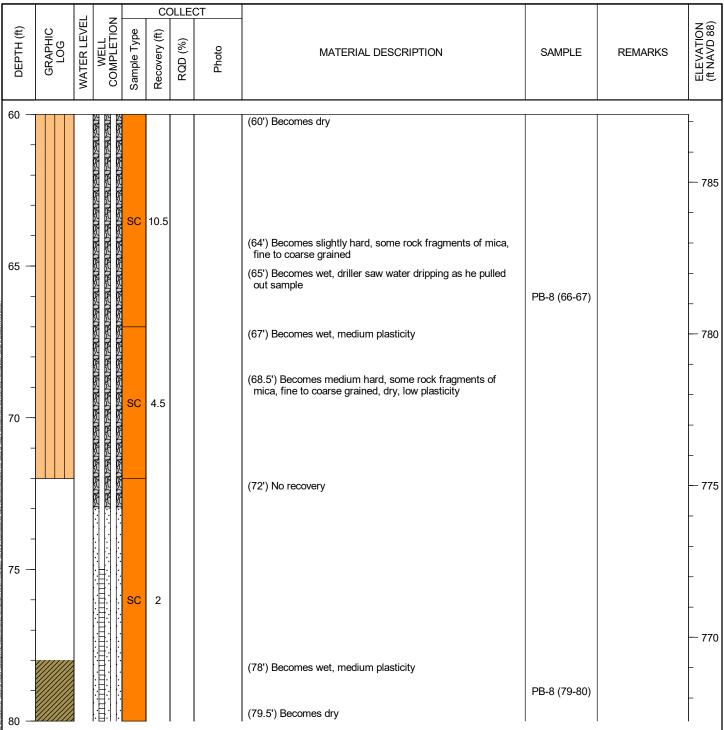
Boring Depth (ft): 147
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): -DTW After Drilling (ft): --

Ground Surface Elev. PB-8D (ft): **847.24** Location PB-8D (Y, X):**1241128.67**, **2026529.99**  Well Depth (ft): (45-55) (75-85) (121-131)

Well Diameter (in): N/A
Screen Slot (in): 0.01
Riser Material: PVC

Screen Material: PVC
Seal Material(s): Bentonite
Filter Pack: Sand Pack





Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

147

6" x 4"

ST, SC, HQ

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

Boring Depth (ft):

Boring Diameter (in):

Sampling Method(s):

DTW During Drilling (ft):

BORING LOG Boring No.PB-8D/I/S

Page: **5 of 8** 

Drilling Start Date: 4/12/2017
Drilling End Date: 4/20/2017

Drilling Company: Cascade
Drilling Method: Sonic/HQ Rock Coring

Drilling Equipment: **Terra Sonic**Driller Name: **M. Hanson and .** 

NOTE:

Logged By: N. Tilahun

Terra Sonic DTW After Drilling (ft):

M. Hanson and J. Triepke Ground Surface Elev.

Ground Surface Elev. PB-8D (ft): **847.24**Location PB-8D (Y, X):**1241128.67**, **2026529.99** 

Well Depth (ft): (45-55) (75-85) (121-131)

Well Diameter (in): N/A
Screen Slot (in): 0.01
Riser Material: PVC

Screen Material: PVC
Seal Material(s): Bentonite
Filter Pack: Sand Pack

Logge	а Бу.		14. 1	Hanu				Location PB-8D (Y, X):1241128.67, 2026529.99   Filter Pa	OK. OUI	IU Pack	
			_		CC	DLLE	СТ				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
80 —											
			計:				Photo 11	(80') No recovery			-
-	////////		<u> </u>				of photo	(81') Becomes dry			
			掛  :				log	(6.) 2000			
-			<u> </u>								<del> 765</del>
-											
			[計]								
-											-
85 —				SC	9						
1100011											-
								(87') Becomes dry, reddish yellow (7.5YR 8/6), low plasticity			— 760
anu La control								(0.0) 2000 21,,			'00
D0490080 E00											-
—	.								PB-8 (89-90)		
00 -											
90 —											-
- Page 1948											
SON STUDY OW											
adantoron —								(92') Becomes moist, light brown (7.5YR 6/4), medium			<del> 755</del>
T WANG EVANS								plasticity			
a rowers an											
											-
95 —				SC	8						
SLOOSGARTAL											
NOTE SECRET		1						(96') Becomes moist, gray (7.5YR 5/1), low plasticity			_
S DOWN OWNER											_ 750
EA2 FELD WA											<del> 750</del>
SEA COMPAS											-
HI TO INDIME								(00!) Recomes dry	PB-8 (99-100)		
S ADD S S S S S S S S S S S S S S S S S								(99') Becomes dry			
100 —			KU KC		ı	l ———	I		J		1

Screen Slot (in):

Riser Material:



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Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.PB-8D/I/S

Page: 6 of 8

0.01

**PVC** 

 Drilling Start Date:
 4/12/2017
 Boring Depth (ft):
 147
 Well Depth (ft):
 (45-55) (75-85) (121-131)

 Drilling End Date:
 4/20/2017
 Boring Diameter (in):
 6" x 4"
 Well Diameter (in):
 N/A

Drilling Company: Cascade Sampling Method(s): ST, SC, HQ
Drilling Method: Sonic/HQ Rock Coring
Drilling Equipment: Terra Sonic Sampling Method(s): ST, SC, HQ
DTW During Drilling (ft): -DTW After Drilling (ft): --

Drilling Equipment: Terra Sonic DTW After Drilling (ft): -- Screen Material: PVC
Driller Name: M. Hanson and J. Triepke
Logged By: N. Tilahun DTW After Drilling (ft): -- Screen Material: PVC
Seal Material(s): Bentonite
Location PB-8D (Y, X):1241128.67, 2026529.99 Filter Pack: Sand Pack

$\overline{}$					CC	DLLE	CT	` ,			
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
100 —								(100') No recovery			. I
-			Kakakakakakakaka					(102') Mica SCHIST, gray (7.5YR 5/1), highly fractured rock, rounded, fine to coarse grain, TOP OF ROCK		Broken due to drilling	- 745 -
105 —			KARINANANANANANANANANANANANANANANANANANAN	SC	8		Photo 13 of photo log	(108') Bigger rock fragments		Too hard to push Shelby Tube from 108' to 110'	- - - 740 -
110 —			arakarakarakarar arakarakarararar				Š	(111.5') Mica SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to medium, medium hard, fresh, platy rock fragments, slightly fractured (pyrite staining on fracture surfaces), some quartz grains			- - 735 -
115 —					8.5			(115') Irregular shaped (not platty) rock fragments  (117') As above, GNEISS, massive bedding, banded, foliation, hard			- - - 730 -
120 —	<u> </u>										



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BORING LOG Boring No.PB-8D/I/S

Page: **7 of 8** 

PVC PVC

Drilling Start Date: 4/12/2017 Boring Depth (ft): 147 Well Depth (ft): (45-55) (75-85) (121-131)
Drilling End Date: 4/20/2017 Boring Diameter (in): 6" x 4" Well Diameter (in): N/A
Drilling Company: Cascade Sampling Method(s): ST, SC, HQ
Screen Slot (in): 0.01

Drilling Company: Cascade Sampling Method(s): ST, SC, HQ
Drilling Method: Sonic/HQ Rock Coring
Drilling Equipment: Terra Sonic Sampling Method(s): ST, SC, HQ
DTW During Drilling (ft): -- Riser Material:
DTW After Drilling (ft): -- Screen Material:

Driller Name: M. Hanson and J. Triepke
Logged By: N. Tilahun Ground Surface Elev. PB-8D (ft): 847.24 Seal Material(s): Bentonite
Location PB-8D (Y, X):1241128.67, 2026529.99 Filter Pack: Sand Pack

Logged By:	N. '	Tilahu	ın			Location PB-8D (Y, X): <b>1241128.67</b> , <b>2026529.99</b> Filter Pac	ck: Sa	nd Pack	
			CC	OLLE	CT				
DEPTH (ft) GRAPHIC LOG	WATER LEVEL WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
120									
120		HQ	1.5	75	Dhoto 15	(120') No recovery (120.5') GNEISS, massive, gray (7.5YR 5/1), medium to coarse, very hard, fresh, black and white (mafic and felsic) banding, abundant mica, pyrite fillings in tight/healed fractures (122') Mica SCHIST, thinly to thickly bedded, gray (7.5YR		Sonic drilling ends at 120' (4/13/2017), HQ coring begins at 120' (4/20/2017)	_ - 725
		HQ	5	87	Photo 15 of photo log	5/1), fine to medium, hard, fresh, platy rock fragments, abundant mica, fracture zone from 122'-124', return water is clayey which indicated clay filled fractures  (124') Massive mechanical breaks along tight fractures, slight banding			<del>-</del>
125 —						(127') As above, slight banding, fracture at 128'			- - 720
130 —		HQ	5	90					_
135 —		A BA BA BA BA	5	100		(132') As above, fracture at 133' and 134', thin white banding, ~4" quartz layer near bottom (137')			- 715 - -
						(137') As above, fracture at 138.5' and 140', thin white banding, ~4" thich quartz layer near top (137')			- 710 -
140		HQ	5	100					



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Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.PB-8D/I/S

Page: 8 of 8

4/12/2017 Drilling Start Date: Drilling End Date: 4/20/2017 Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring Terra Sonic

Drilling Equipment: Driller Name: M. Hanson and J. Triepke Logged By: N. Tilahun

Boring Depth (ft): 147 Boring Diameter (in): 6" x 4" Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft): DTW After Drilling (ft):

Ground Surface Elev. PB-8D (ft): 847.24 Location PB-8D (Y, X):1241128.67, 2026529.99

(45-55) (75-85) (121-131) Well Depth (ft):

Well Diameter (in): N/A Screen Slot (in): 0.01 Riser Material: **PVC** 

**PVC** Screen Material: **Bentonite** Seal Material(s): Filter Pack: Sand Pack

					CC	OLLE	CT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	RQD (%)	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
140 —									_		,
								(137') As above, fracture at 138.5' and 140', thin white banding, ~4" thich quartz layer near top (137')(continued)			-
-								banding, 4 this inqual 2 layer float top (101 )(commuca)			
_								(142') As above, tight fractures at 143.5' and 144', thin white			<del>- 705</del>
_								banding			
											_
-											_
445				HQ	5	100					
145 —											-
] -											
100 918 6001											
- I						<u> </u>		(147.0') Boring Terminated			J

NOTE:		



Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.PB-9

Page: 1 of 4

Drilling Start Date: 4/13/2017 Drilling End Date: 4/19/2017 Drilling Company: Cascade

Sonic/HQ Rock Coring Drilling Method: Drilling Equipment: **Terra Sonic** 

Driller Name: Logged By:

NOTE:

M. Hanson and J. Triepke

N. Tilahun

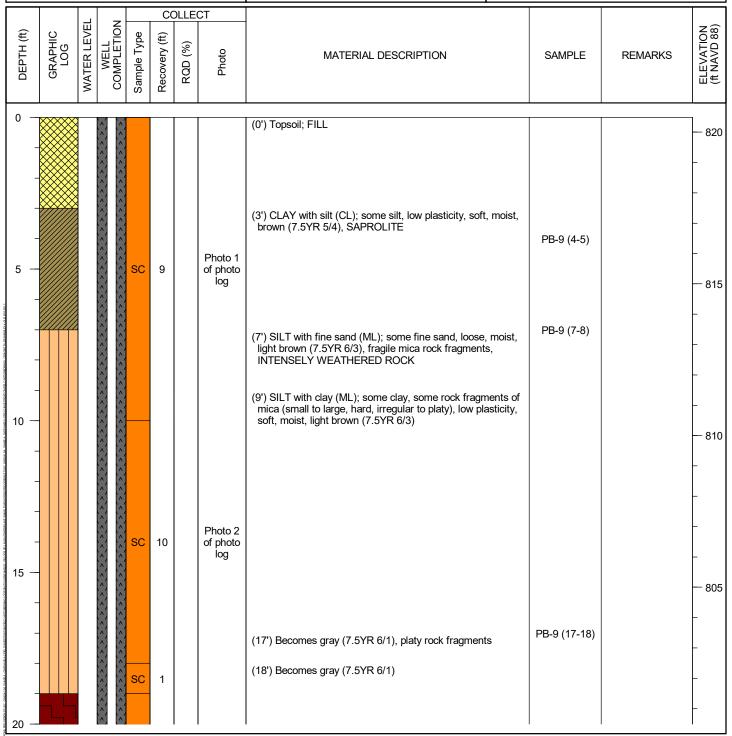
Boring Depth (ft): Boring Diameter (in): 6" x 4" Sampling Method(s): ST, SC, HQ

DTW During Drilling (ft):

DTW After Drilling (ft): Ground Surface Elev. (ft): 820.49

Location (Y, X): 1241490.28, 2026504.40

(60-70)Well Depth (ft): Well Diameter (in): Screen Slot (in): 0.01 **PVC** Riser Material: **PVC** Screen Material: **Bentonite** Seal Material(s): Filter Pack: Sand Pack



4/13/2017

4/19/2017

Cascade



Drilling Start Date:

Drilling End Date:

Drilling Company:

Drilling Method:

NOTE:

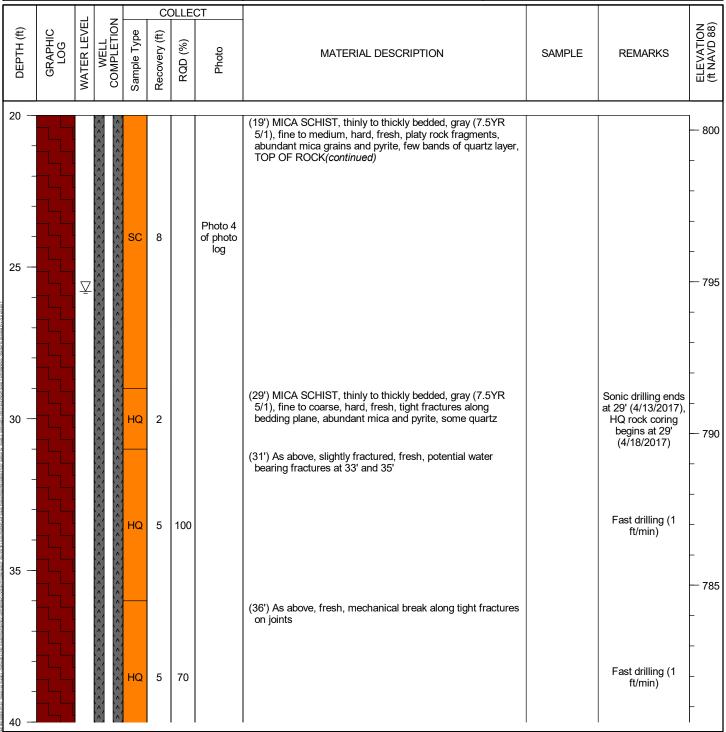
Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.PB-9 Page: 2 of 4

Boring Depth (ft): Well Depth (ft): (60-70)Boring Diameter (in): 6" x 4" Well Diameter (in): Sampling Method(s): ST, SC, HQ Screen Slot (in): 0.01 Sonic/HQ Rock Coring **PVC** DTW During Drilling (ft): Riser Material:

**PVC** Drilling Equipment: **Terra Sonic** DTW After Drilling (ft): Screen Material: M. Hanson and J. Triepke Ground Surface Elev. (ft): 820.49 **Bentonite** Driller Name: Seal Material(s): Location (Y, X): 1241490.28, 2026504.40 Logged By: N. Tilahun Filter Pack: Sand Pack





Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

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BORING LOG Boring No.PB-9 Page: 3 of 4

Drilling Start Date: 4/13/2017
Drilling End Date: 4/19/2017
Drilling Company: Cascade

Drilling Method: Sonic/HQ Rock Coring
Drilling Equipment: Terra Sonic

Drilling Equipment: **Terra Sonic**Driller Name: **M. Hanson an** 

Logged By: N. Tilahun

NOTE:

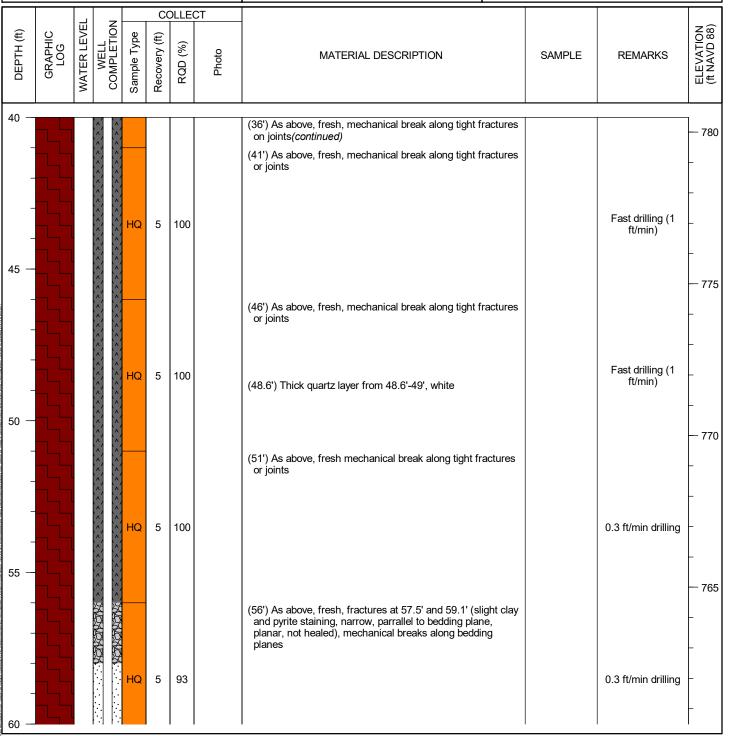
M. Hanson and J. Triepke

Boring Depth (ft): 75
Boring Diameter (in): 6" x 4"
Sampling Method(s): ST, SC, HQ
DTW During Drilling (ft): --

DTW After Drilling (ft): -Ground Surface Elev. (ft): 820.49
Location (Y, X): 1241490.28, 2026504.40

Well Depth (ft): (60-70)
Well Diameter (in): 2
Screen Slot (in): 0.01
Riser Material: PVC
Screen Material: PVC
Seal Material(s): Bentonite

Filter Pack: Sand Pack





Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.PB-9

Page: 4 of 4

4/13/2017 Drilling Start Date: Drilling End Date: 4/19/2017 Drilling Company: Cascade Drilling Method: DTW During Drilling (ft):

Sonic/HQ Rock Coring Drilling Equipment: **Terra Sonic** 

Driller Name: Logged By: N. Tilahun

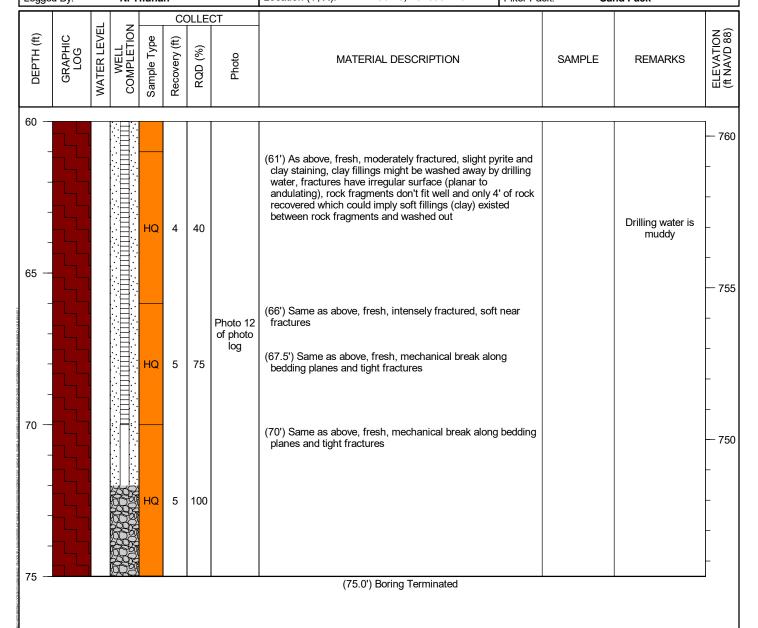
M. Hanson and J. Triepke

Boring Depth (ft): Boring Diameter (in): 6" x 4" Sampling Method(s): ST, SC, HQ

DTW After Drilling (ft): Ground Surface Elev. (ft): 820.49

Location (Y, X): 1241490.28, 2026504.40

(60-70)Well Depth (ft): Well Diameter (in): Screen Slot (in): 0.01 Riser Material: **PVC PVC** Screen Material: **Bentonite** Seal Material(s): Filter Pack: Sand Pack





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**BORING LOG** 

Boring No.**S-1**Page: 1 of 6

Drilling Start Date: 4/27/2017

Drilling End Date: 4/27/2017

Drilling Company: Cascade

Drilling Method: Sonic

Drilling Equipment: Mini Sonic

Driller Name:

Mini Sonic 100C B. Lindsey J. Griffin Boring Depth (ft): 110
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Deck Elev. (ft): 799.8
Location (Y, X): 1242218, 2026683.9

Logged By: COLLECT **WATER LEVEL** ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type **Blow Counts** Recovery (ft) Photo MATERIAL DESCRIPTION SAMPLE **REMARKS** 0 (0') Barge Deck  $\blacksquare$ (3.3') Water (ash pond) 795 790 10 785 15 - 780 20

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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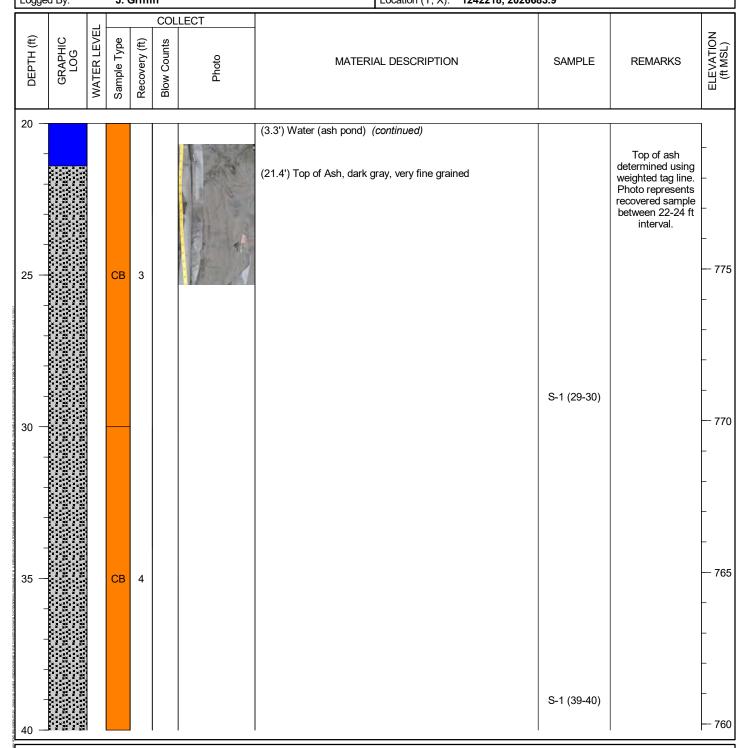
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-1**Page: **2 of 6** 

4/27/2017 110 Drilling Start Date: Boring Depth (ft): 4 x 6 Drilling End Date: 4/27/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.8 Top of Deck Elev. (ft): Logged By: J. Griffin Location (Y, X): 1242218, 2026683.9



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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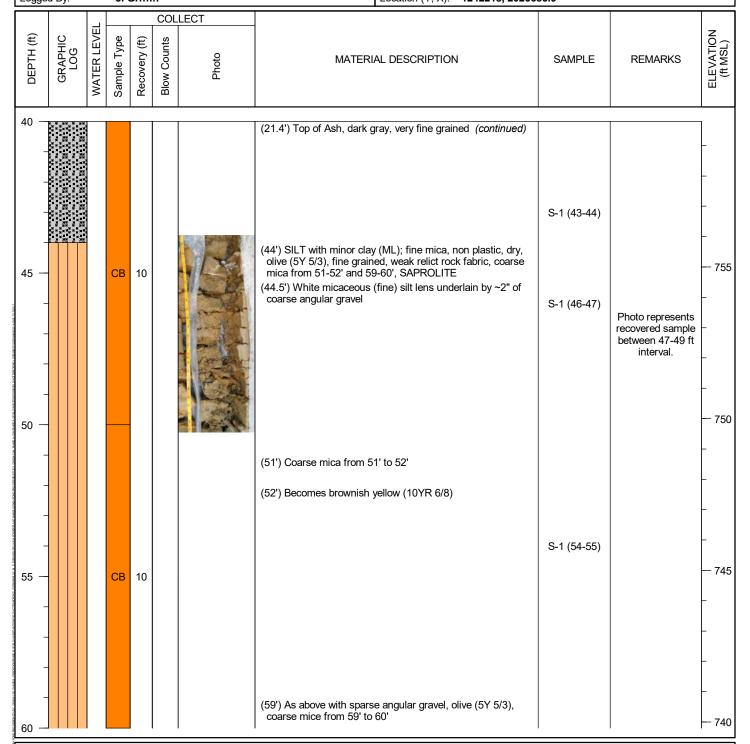
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-1**Page: **3 of 6** 

4/27/2017 110 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/27/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.8 Driller Name: Top of Deck Elev. (ft): J. Griffin Logged By: Location (Y, X): 1242218, 2026683.9



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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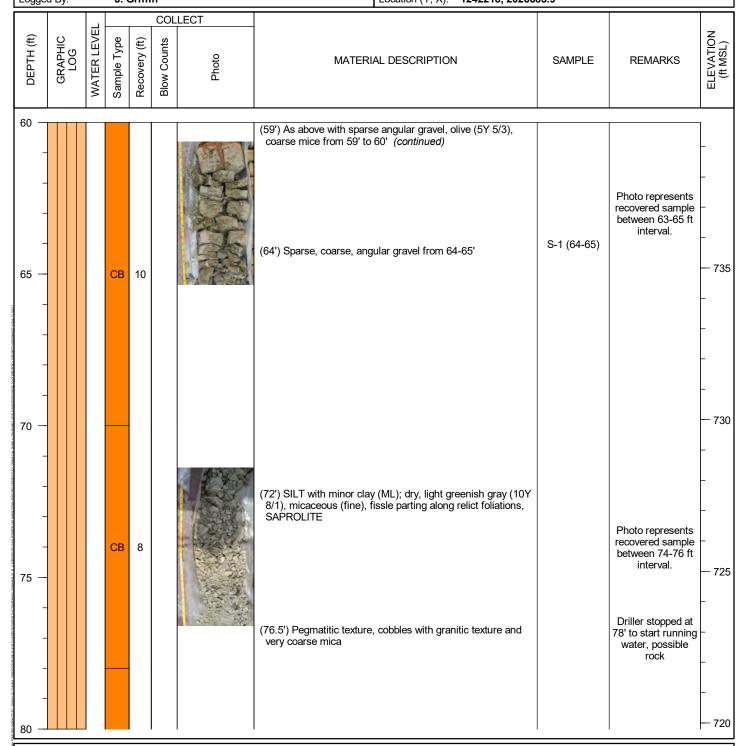
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-1**Page: **4 of 6** 

4/27/2017 110 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/27/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.8 Driller Name: Top of Deck Elev. (ft): Location (Y, X): 1242218, 2026683.9 Logged By: J. Griffin



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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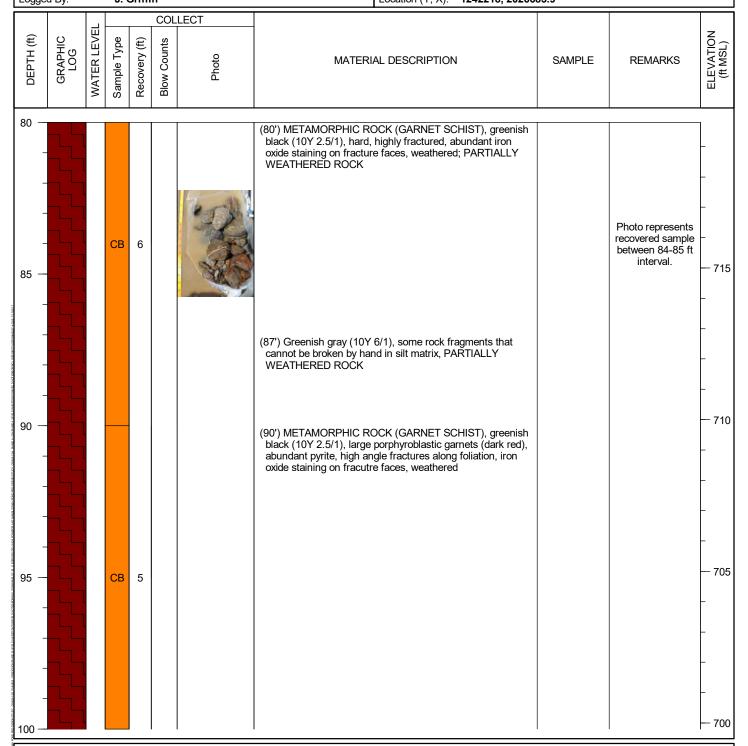
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-1**Page: **5 of 6** 

4/27/2017 110 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/27/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.8 Driller Name: Top of Deck Elev. (ft): Logged By: J. Griffin Location (Y, X): 1242218, 2026683.9



- 1. Drilling was completed in the ash pond from the deck of a barge.
- Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: Southern Company Services

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**BORING LOG** 

Boring No.**S-1**Page: **6 of 6** 

4/27/2017 Boring Depth (ft): 110 Drilling Start Date: 4 x 6 Drilling End Date: 4/27/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.8 Logged By: J. Griffin Location (Y, X): 1242218, 2026683.9

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100 -						1				,
105 —			СВ	5			(90') METAMORPHIC ROCK (GARNET SCHIST), greenish black (10Y 2.5/1), large porphyroblastic garnets (dark red), abundant pyrite, high angle fractures along foliation, iron oxide staining on fracutre faces, weathered (continued)		Photo represents recovered sample between 108-110 ft interval.	- - - - - - - - -
4							(110.0) boiling reminated			- 1

NOTE:

1. Drilling was completed in the ash pond from the deck of a barge.

Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.

3. Borings were backfilled with grout using tremie method.

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Driller Name:

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Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

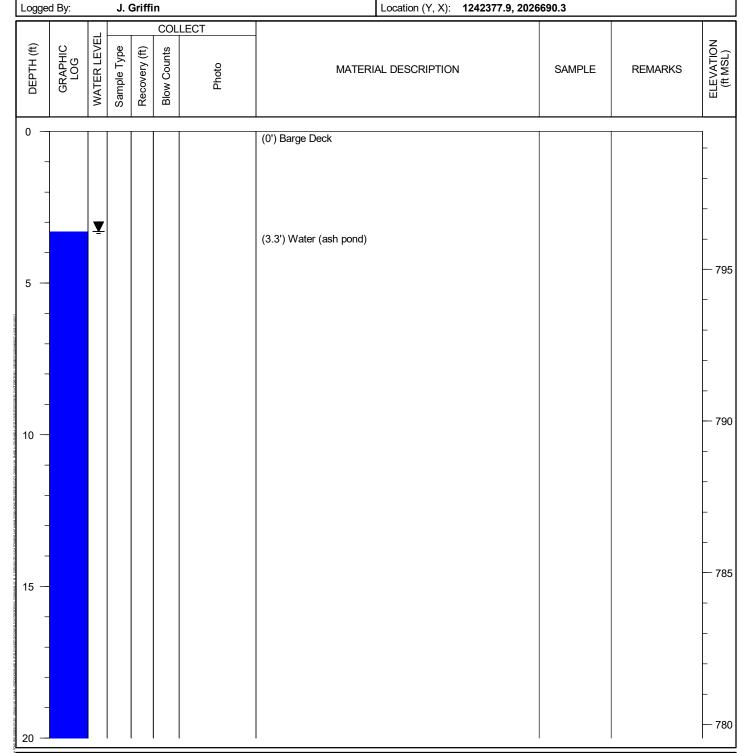
**BORING LOG** 

Boring No.**S-2**Page: 1 of 5

Drilling Start Date: 4/24/2017
Drilling End Date: 4/25/2017
Drilling Company: Cascade
Drilling Equipment: Mini Sonic 100C

B. Lindsey

Boring Depth (ft): 85
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -DTW After Drilling (ft): 799.55
Location (Y, X): 1242377.9, 2026690.3



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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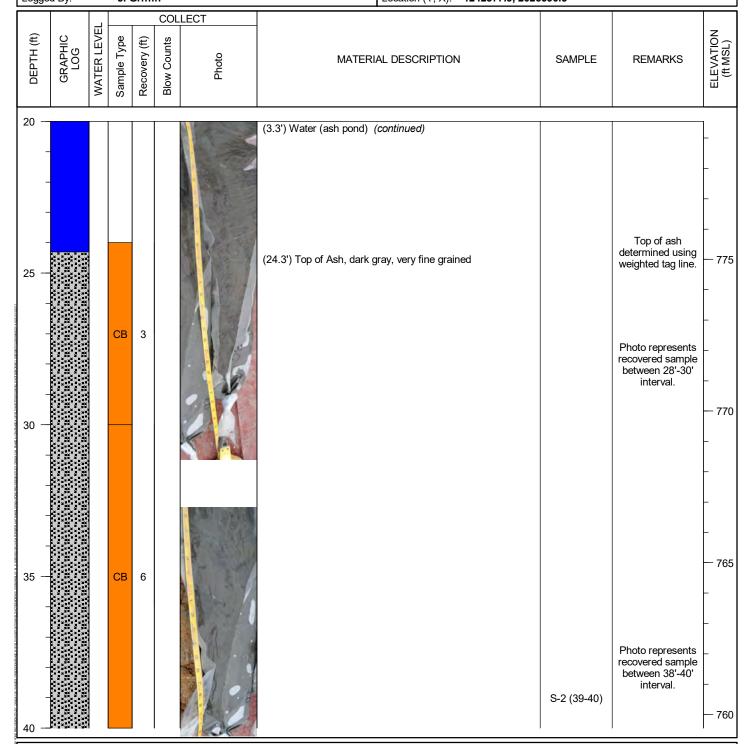
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-2**Page: **2 of 5** 

4/24/2017 85 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/25/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.55 Top of Deck Elev. (ft): Logged By: J. Griffin Location (Y, X): 1242377.9, 2026690.3



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-2**Page: **3 of 5** 

4/24/2017 Boring Depth (ft): 85 Drilling Start Date: 4 x 6 Drilling End Date: 4/25/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: **B.** Lindsey Top of Deck Elev. (ft): 799.55 Logged By: J. Griffin Location (Y, X): 1242377.9, 2026690.3

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL			COL	LLECT	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
			Sample Type	Recovery (ft)	Blow Counts	Photo				
40 -	K M MK M MK				I	T	(24.21) Top of Ash dark grow you fine grained (continued)		T	1
45 —			СВ	8			(24.3') Top of Ash, dark gray, very fine grained (continued)	S-2 (46-47)	Photo represents recovered sample between 47'-49' interval.	- - - 755 -
							(49') SILT with minor clay (ML); and fine rounded gravel (some garnets), non plastic, soft, moist, brownish yellow (10YR 6/6), micaceous (fine), homogeneous texture, SAPROLITE	S-2 (49-50)	Photo represents recovered sample between 51'-53' interval.	750 - - -
	-		СВ	10			(54') SILT with minor clay (ML); and fine to medium mica, dark gray (10YR 4/1), relict rock fabric (schistose texture), large (up to 1") garnets (rounded and dark red) (55') Large sub-angular cobble	S-2 (54-55)		745 
- 00 — — — — — — — — — — — — — — — — — —							(58') SILT with minor clay (ML); greenish gray (10G 5/1), homogeneous texture, non-micaceous, large sub-angular gravel (quartz) at 58'	S-2 (59-60)		- - - 740

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: Southern Company Services

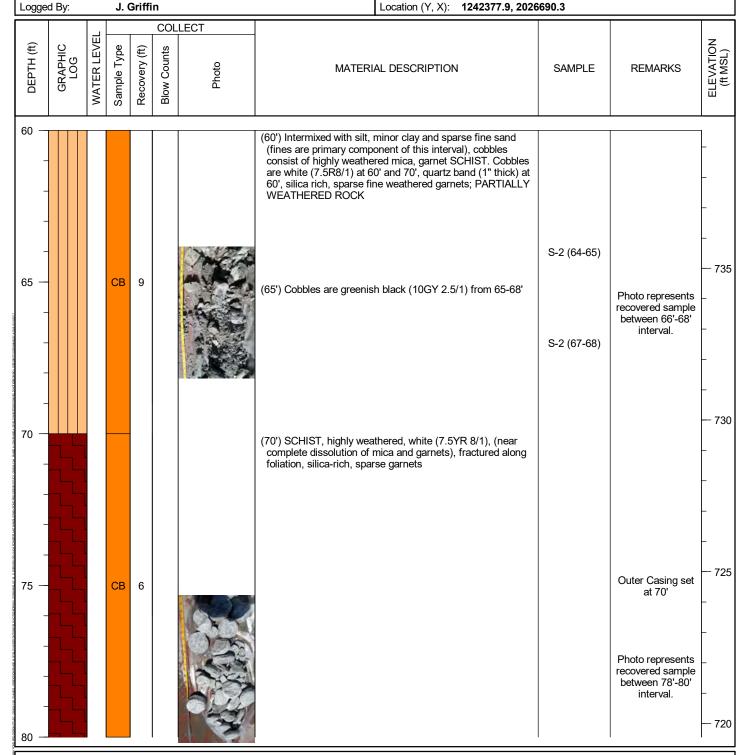
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-2**Page: **4 of 5** 

4/24/2017 Drilling Start Date: Boring Depth (ft): 85 Drilling End Date: 4/25/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.55 Driller Name: Top of Deck Elev. (ft): J. Griffin Location (Y, X): 1242377.9, 2026690.3



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

J. Griffin



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Logged By:

Client: Southern Company Services

Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-2**Page: **5 of 5** 

Drilling Start Date: 4/24/2017
Drilling End Date: 4/25/2017
Drilling Company: Cascade
Drilling Method: Sonic
Drilling Equipment: Mini Sonic 100C
Driller Name: B. Lindsey

Boring Depth (ft): 85
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -DTW After Drilling (ft): 799.55
Location (Y, X): 1242377.9, 2026690.3

HEAD OF THE PROOF THE PROO				COLLECT							
CB 2  CB 2  -715	DEPTH (ft)	GRAPHIC LOG	WATER LEVEI	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
CB 2  CB 2  -715	00										
				СВ	2			(80') As above, iron oxide staining along fracture faces  (85.0') Boring Terminated			- - - - 715

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Client: Southern Company Services

Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-3**Page: 1 of 7

Drilling Start Date: 4/21/2017
Drilling End Date: 4/24/2017
Drilling Company: Cascade
Drilling Method: Sonic
Drilling Equipment: Mini Sonic

Driller Name:

Logged By:

Sonic Mini Sonic 100C B. Lindsey

J. Ivanowski and J. Griffin

Boring Depth (ft): 140
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -DTW After Drilling (ft): 799.55
Location (Y, X): 1242720.3, 2026787.5

COLLECT **WATER LEVEL** ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type **Blow Counts** Recovery (ft) Photo SAMPLE **REMARKS** MATERIAL DESCRIPTION 0 (0') Barge Deck  $\blacksquare$ (3.3') Water (ash pond) 795 790 10 785 15 780 20

- 1. Drilling was completed in the ash pond from the deck of a barge.
- Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: Southern Company Services

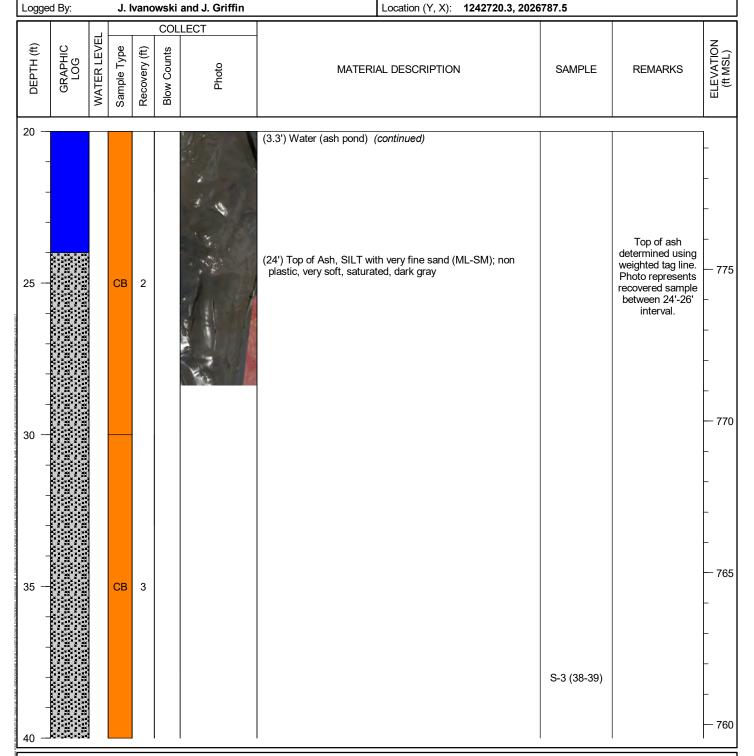
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-3**Page: **2 of 7** 

4/21/2017 140 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/24/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST DTW During Drilling (ft): Drilling Method: Sonic Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.55 Top of Deck Elev. (ft):



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: Southern Company Services

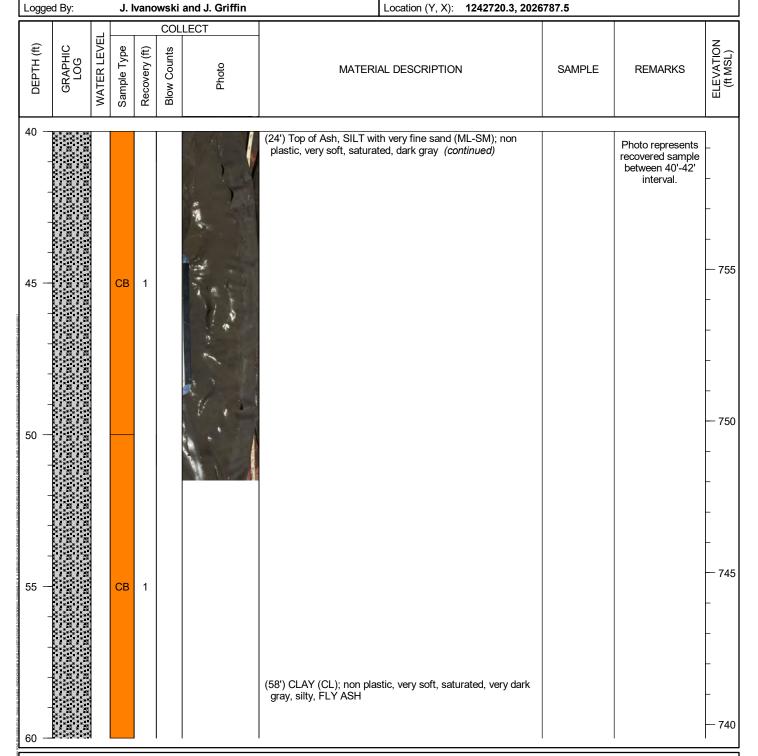
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-3 Page: 3 of 7

4/21/2017 140 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/24/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.55 Top of Deck Elev. (ft):



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-3 Page: 4 of 7

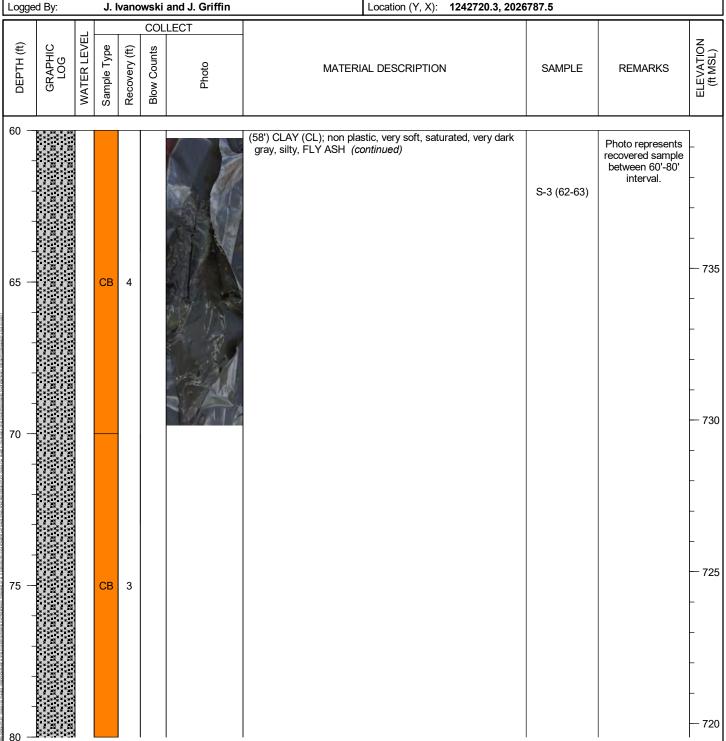
4/21/2017 Drilling Start Date: Drilling End Date: 4/24/2017 Drilling Company: Cascade Drilling Method: Sonic Drilling Equipment:

Driller Name:

Mini Sonic 100C B. Lindsey J. Ivanowski and J. Griffin

140 Boring Depth (ft): 4 x 6 Boring Diameter (in): Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): 799.55 Top of Deck Elev. (ft):

Location (Y, X): 1242720.3, 2026787.5



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-3 Page: 5 of 7

4/21/2017 Boring Depth (ft): 140 Drilling Start Date: 4 x 6 Drilling End Date: 4/24/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.55 Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1242720.3, 2026787.5

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 -	K ' N ' N K ' N ' N K						(20)		I	
			СВ	5			(80') Becomes very loose, with silt, very fine grained, saturated, FLY ASH  (85') Soft soupy mix of FLY ASH (above) and native soil (below)			- - - - 715
to anno tred strantours, contrastours, contracting swares in Acid, so a contraction to the contraction of th							(87') CLAYEY SAND (SC); soft, strong brown, fine grained, organic rich, roots, ALLUVIUM  (89') CLAYEY SAND (SC); mottled very dark gray and pale greenish gray, fine grained, ALLUVIUM	S-3 (87-88) S-3 (89-90)		- - - 710
90 —			СВ	5			(90.5') Pale gray, hard, dry, decomposed rock (quartzite), PARTIALLY WEATHERED ROCK	S-3 (92-93)	Photo represents recovered sample between 92'-94' interval. Driller reports hard drilling, "feels like rock"	-
95 —							(93.5') CLAYEY SAND with roots (SC); with rounded gravel, soft, wet, very dark brown, ALLUVIUM (94.5') SANDY SILT (ML); moderately stiff, dry, red brown, ALLUVIUM (95') SAND with angular schist gravel (SW); loose, wet, light brown, fine to medium grained, ALLUVIUM	S-3 (95-96)		- 705 -
Company of the second company of the second company of the second of the			СВ	5			(96.5') SANDY SILT (ML); stiff, dry, light olive brown, relict rock fabric, SAPROLITE  (98') PARTIALLY WEATHERED ROCK, pale yellow to gray, very hard, dry, foliation visible, decomposed rock; SCHIST	S-3 (97-98)	Photo represents recovered sample between 95'-97' interval. Very hard drilling	- - - 700

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: **Southern Company Services** 

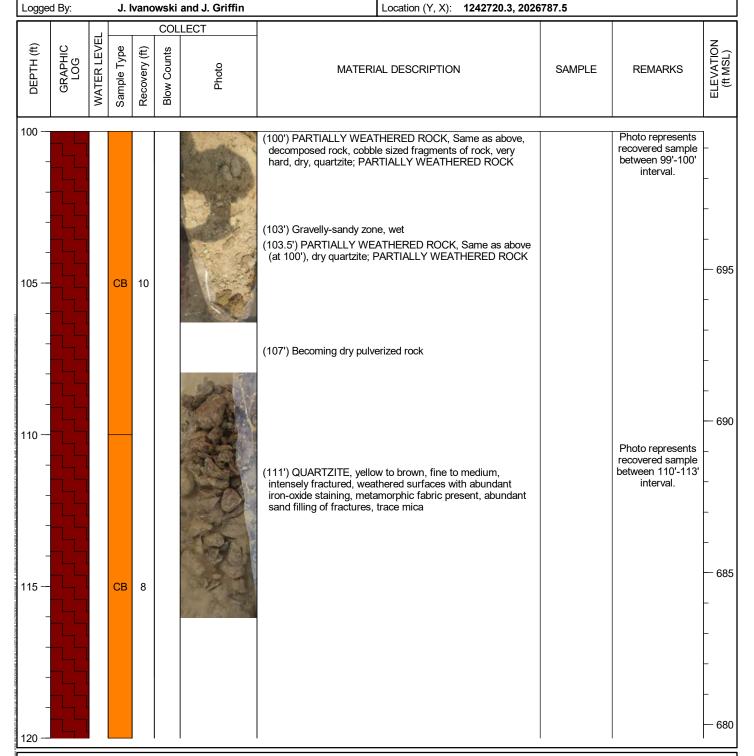
Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-3 Page: 6 of 7

4/21/2017 140 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/24/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.55 Driller Name: Top of Deck Elev. (ft): J. Ivanowski and J. Griffin



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: Southern Company Services

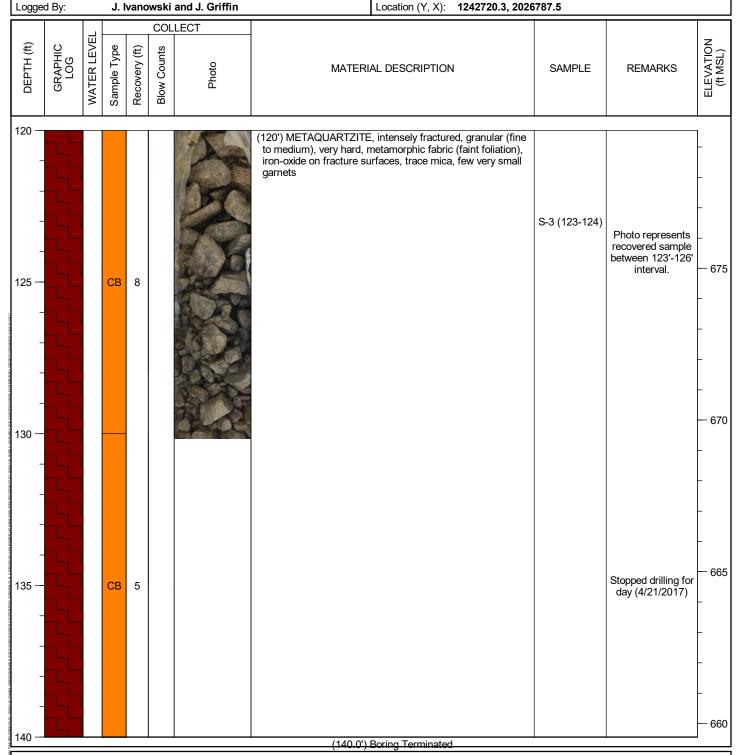
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-3**Page: **7 of 7** 

4/21/2017 140 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/24/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.55 Top of Deck Elev. (ft): J. Ivanowski and J. Griffin Location (Y, X): 1242720.3, 2026787.5



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-4** Page: 1 of 8

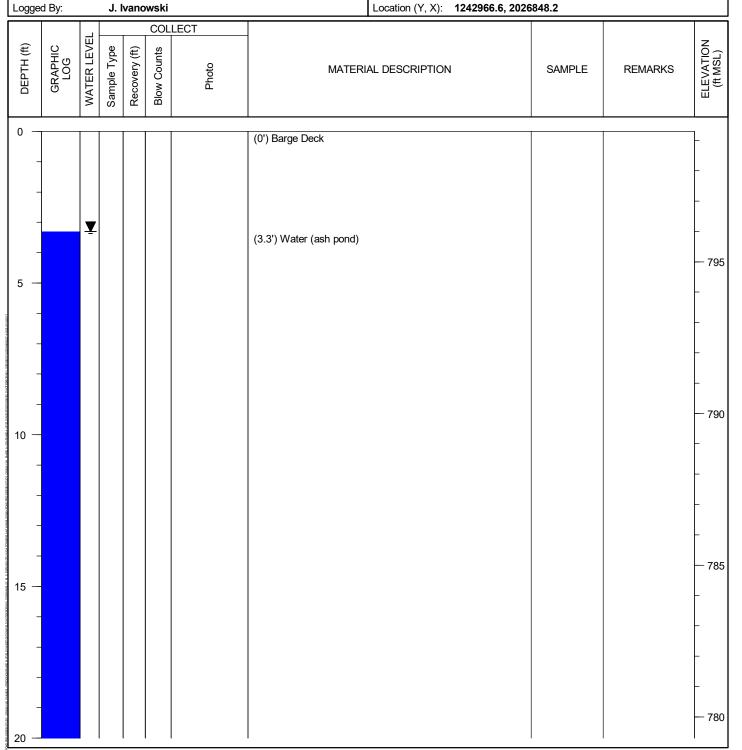
4/19/2017 Drilling Start Date: Drilling End Date: 4/20/2017 Drilling Company: Cascade Drilling Method: Sonic Drilling Equipment:

Driller Name:

Mini Sonic 100C **B.** Lindsey J. Ivanowski

160 Boring Depth (ft): 4 x 6 Boring Diameter (in): Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): 799.3 Top of Deck Elev. (ft):

Location (Y, X): 1242966.6, 2026848.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

B. Lindsey

Geosyntec consultants

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Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG
Boring No.S-4
Page: 2 of 8

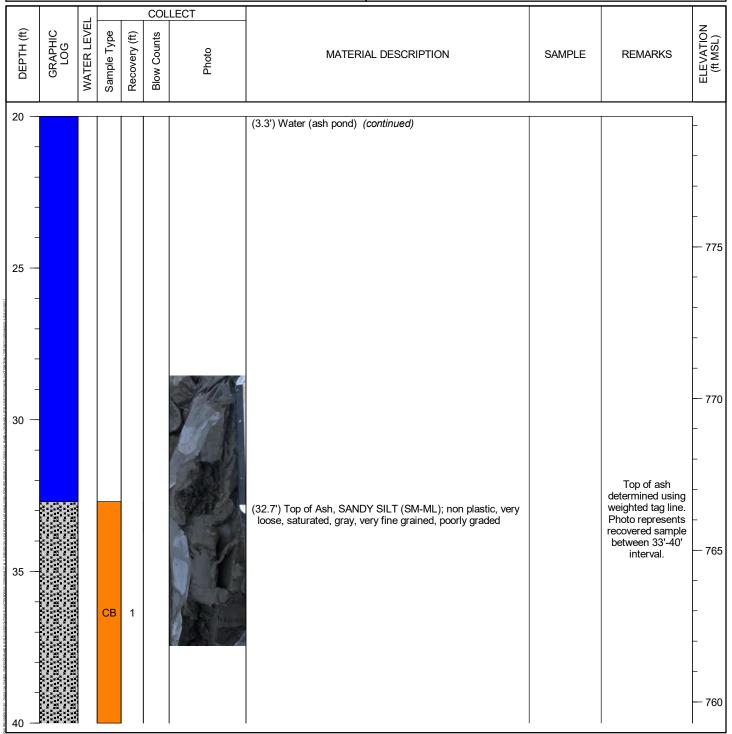
Drilling Start Date: 4/19/2017
Drilling End Date: 4/20/2017
Drilling Company: Cascade
Drilling Method: Sonic
Drilling Equipment: Mini Sonic 100C

Driller Name:

Logged By:

Boring Depth (ft): 160
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Deck Elev. (ft): 799.3

J. Ivanowski Location (Y, X): 1242966.6, 2026848.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG
Boring No.S-4
Page: 3 of 8

4/19/2017 Boring Depth (ft): 160 Drilling Start Date: 4 x 6 Drilling End Date: 4/20/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.3 Logged By: J. Ivanowski Location (Y, X): 1242966.6, 2026848.2

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
45 —			CB	5			(32.7') Top of Ash, SANDY SILT (SM-ML); non plastic, very loose, saturated, gray, very fine grained, poorly graded (continued)  (49.5') SILTY SAND (SM); very loose, saturated, dark gray to red, well graded, BOTTOM ASH	S-4 (42-43)	Photo represents recovered sample between 40'-50' interval.	- - - 755 - - - - 750
			СВ	4			(51') SILT (ML); trace clay, non plastic, very soft, gray, FLY ASH		Photo represents recovered sample between 50'-60' interval.	- - 745 - - - - 740

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: Southern Company Services

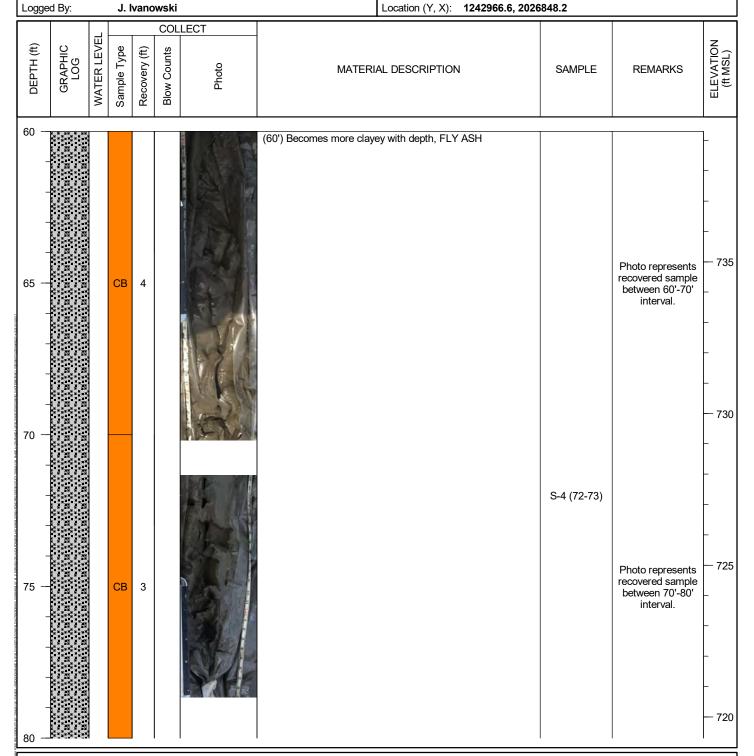
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-4**Page: **4 of 8** 

4/19/2017 160 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/20/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: **B.** Lindsey 799.3 Top of Deck Elev. (ft):



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-4**Page: **5 of 8** 

4/19/2017 Boring Depth (ft): 160 Drilling Start Date: 4 x 6 Drilling End Date: 4/20/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.3 Logged By: J. Ivanowski Location (Y, X): 1242966.6, 2026848.2

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 —	K"a"ar"a"ax				ı	CAP SHIPS TO A SHIP	(COL) D		T	,
- - - 85 —			СВ	6.5			(60') Becomes more clayey with depth, FLY ASH (continued)  (84') ORGANIC CLAY (CL); non plastic, very soft, wet, black (84.5') VERY CLAYEY SAND (SC); soft, olive brown, fine grained, poorly graded, organic material, roots throughout, ALLUVIUM	S-4 (86-87)	Photo represents recovered sample between 90'-92' interval.	- - - - 715
- - 90 — -							(91') CLAYEY SAND (SC); stiff, wet, pale blue gray, ALLUVIUM	S-4 (92-93)	Photo represents recovered sample between 94'-97' interval.	- - 710 -
- - 95 —			СВ	10			(93') SANDY SILT (ML-SM); stiff, moist, mottled yellow brown to gray	S-4 (94-95)		- 705
- - - 100 —							(96.5') SILTY GRAVEL (GP-GM); wet, gray to brown, BLASTED ROCK (97.5') SILTY SAND (SM); stiff, dry, brown to gray, fine grained, relict gneissic structure, SAPROLITE	S-4 (97-97.5)	Photo represents recovered sample between 97'-100' interval.	- - - - 700

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Client: Southern Company Services

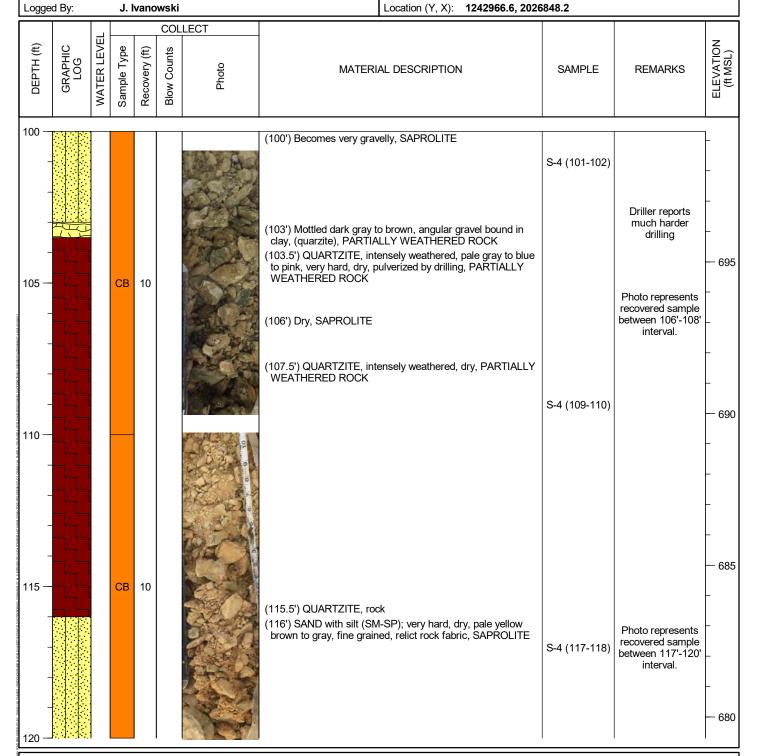
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-4**Page: **6 of 8** 

4/19/2017 160 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/20/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.3 Driller Name: Top of Deck Elev. (ft): J. Ivanowski



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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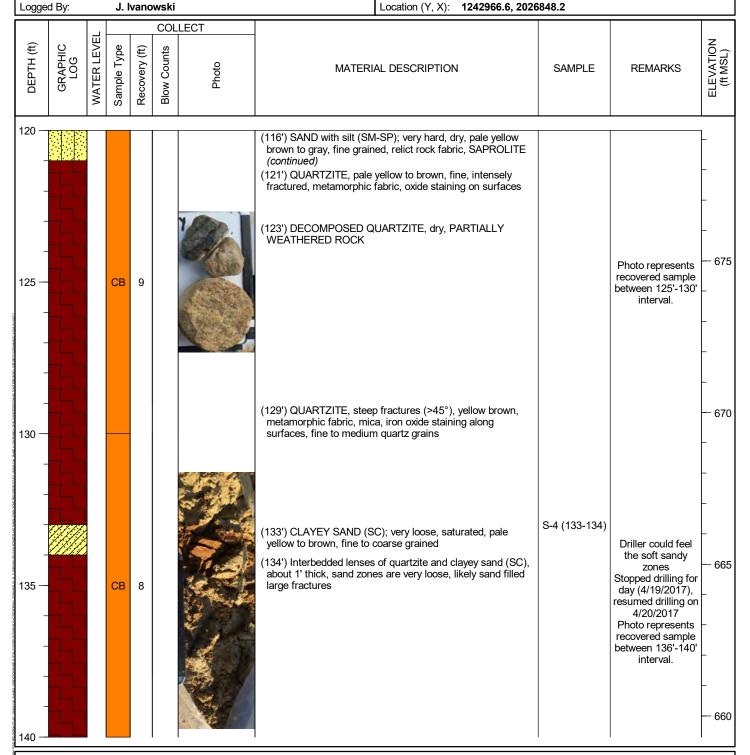
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-4**Page: **7 of 8** 

Drilling Start Date: 4/19/2017 Boring Depth (ft): 160 Drilling End Date: 4/20/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.3 Driller Name: Top of Deck Elev. (ft): J. Ivanowski Location (Y, X): 1242966.6, 2026848.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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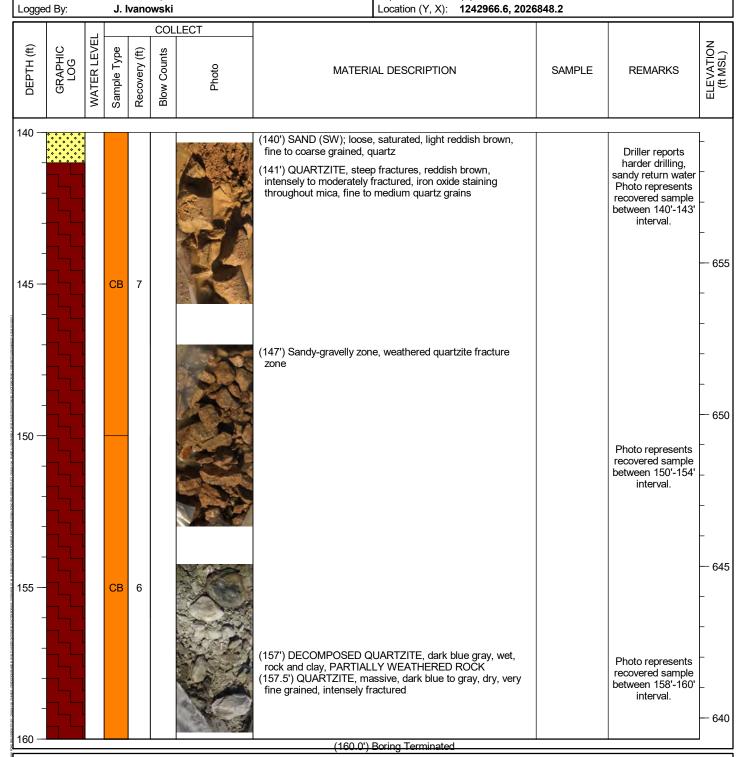
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-4**Page: **8 of 8** 

4/19/2017 160 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/20/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST DTW During Drilling (ft): Drilling Method: Sonic Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.3 Driller Name: Top of Deck Elev. (ft): J. Ivanowski



- 1. Drilling was completed in the ash pond from the deck of a barge
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

Geosyntec<sup>D</sup> consultants

Driller Name:

Logged By:

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Boring Depth (ft):

150

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-5 Page: 1 of 8

4/13/2017 Drilling Start Date: Drilling End Date: 4/18/2017 Drilling Company: Cascade Drilling Method: Sonic Drilling Equipment:

4 x 6 Boring Diameter (in): Sampling Method(s): CB, ST DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): B. Lindsey Top of Deck Elev. (ft): 799.8 J. Ivanowski Location (Y, X): 1243209.6, 2026961.3

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0 -					1		(O') Parga Dook			$\neg \neg$
							(0') Barge Deck			
-										
-										
_		J								-
		Ī					(3.3') Water (ash pond)			
-										
5 —										<del>- 795</del>
- B										-
0.77										-
_	-									
	-									-
10 —										<del>- 790</del>
10										
_	-									
_	-									
-	-									- 1
_	-									
15 —	-									<del>- 785</del>
_	-									-
_										
-										
20 —										<b>- 780</b>
1 20										

- 1. Drilling was completed in the ash pond from the deck of a barge.
  2. Depths are in feet below deck stirrage. Deck strate of drilling was 149 of
- 3. Borings were backfilled with grout using tremie method.

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Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

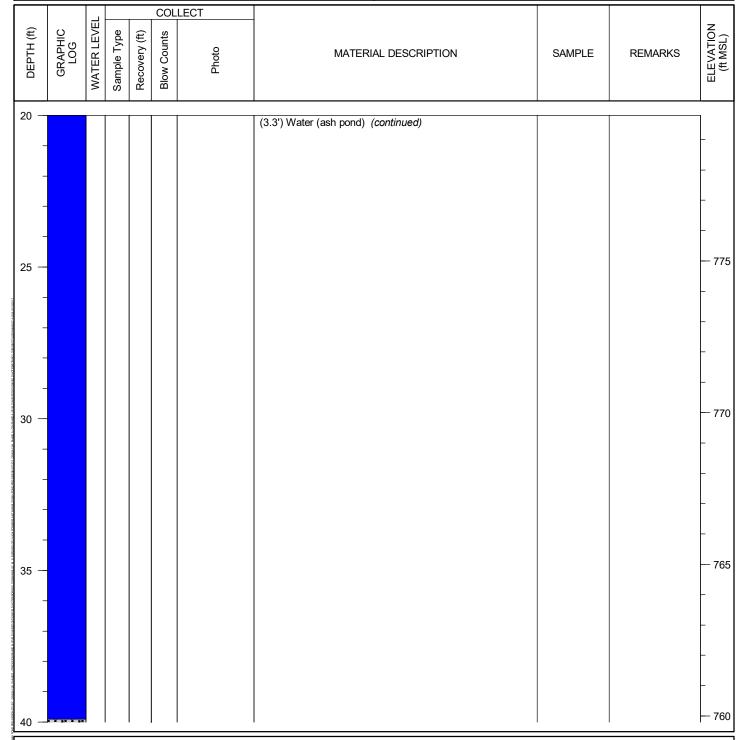
Boring No.S-5
Page: 2 of 8

Drilling Start Date: 4/13/2017
Drilling End Date: 4/18/2017
Drilling Company: Cascade
Drilling Method: Sonic

Drilling Company:
Drilling Method:
Cascade
Sonic
Drilling Equipment:
Driller Name:
Logged By:
Cascade
Sonic
Mini Sonic 100C
B. Lindsey
J. Ivanowski

Boring Depth (ft): 150
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -DTW After Drilling (ft): 799.8

Location (Y, X): 1243209.6, 2026961.3



- 1. Drilling was completed in the ash pond from the deck of a barge.
- Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-5**Page: **3 of 8** 

Drilling Start Date: 4/13/2017

Drilling End Date: 4/18/2017

Drilling Company: Cascade

Drilling Method: Sonic

Drilling Equipment: Mini Sonic 10

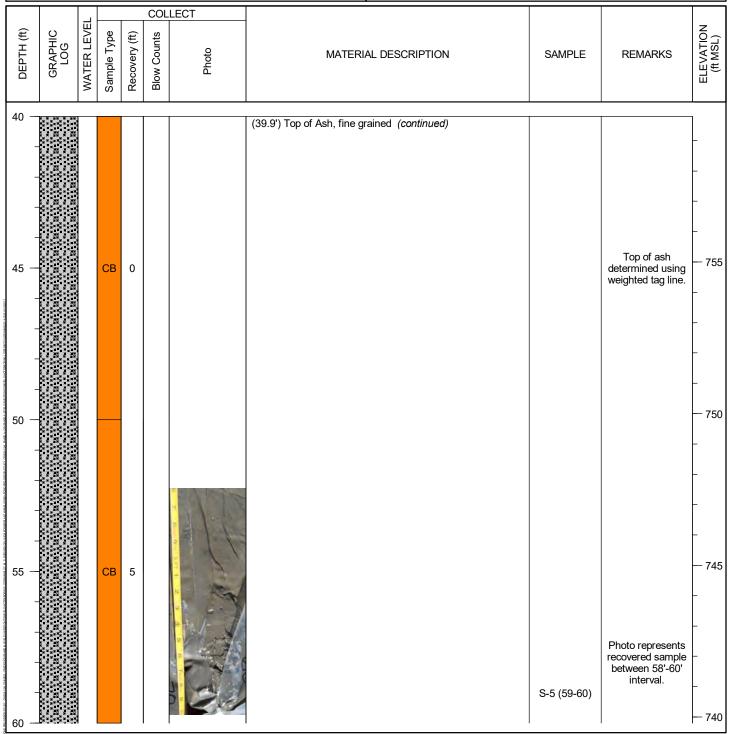
Driller Name:

Logged By:

Sonic
Mini Sonic 100C
B. Lindsey
J. Ivanowski

Boring Depth (ft): 150
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -TOP of Deck Elev. (ft): 799.8

Location (Y, X): 1243209.6, 2026961.3



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Client: Southern Company Services

Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-5**Page: 4 of 8

4/13/2017 150 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/18/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: **B.** Lindsey 799.8 Top of Deck Elev. (ft): Logged By: J. Ivanowski Location (Y, X): 1243209.6, 2026961.3

COLLECT WATER LEVEL ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type **Blow Counts** Recovery (ft) Photo **REMARKS** MATERIAL DESCRIPTION SAMPLE 60 (39.9') Top of Ash, fine grained (continued) 735 65 CB 6 Photo represents recovered sample between 68'-70' interval. S-5 (69-70) 730 70 725 CB 7 S-5 (79-80) Photo represents recovered sample between 79'-80' interval. - 720

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: Southern Company Services

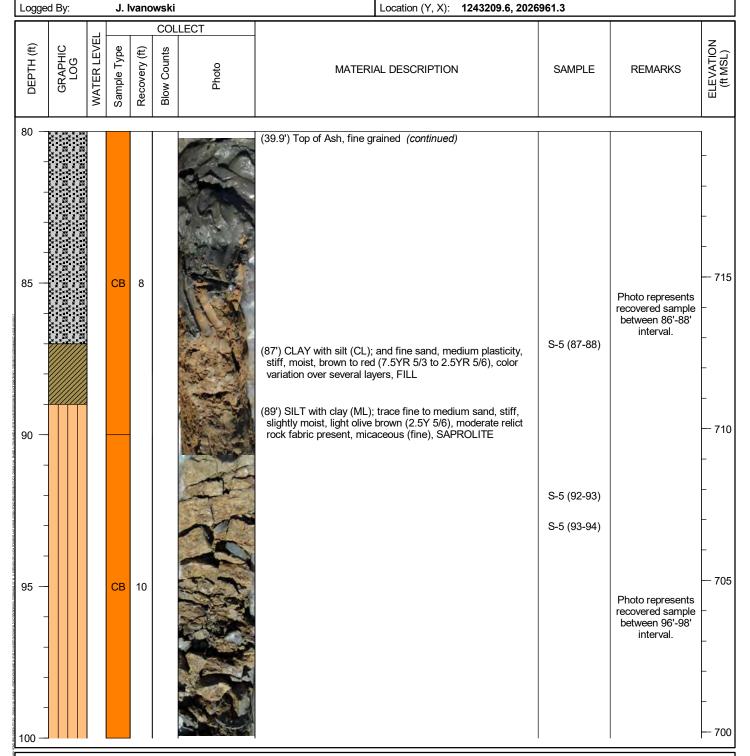
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-5**Page: **5 of 8** 

4/13/2017 150 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/18/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.8 Top of Deck Elev. (ft):



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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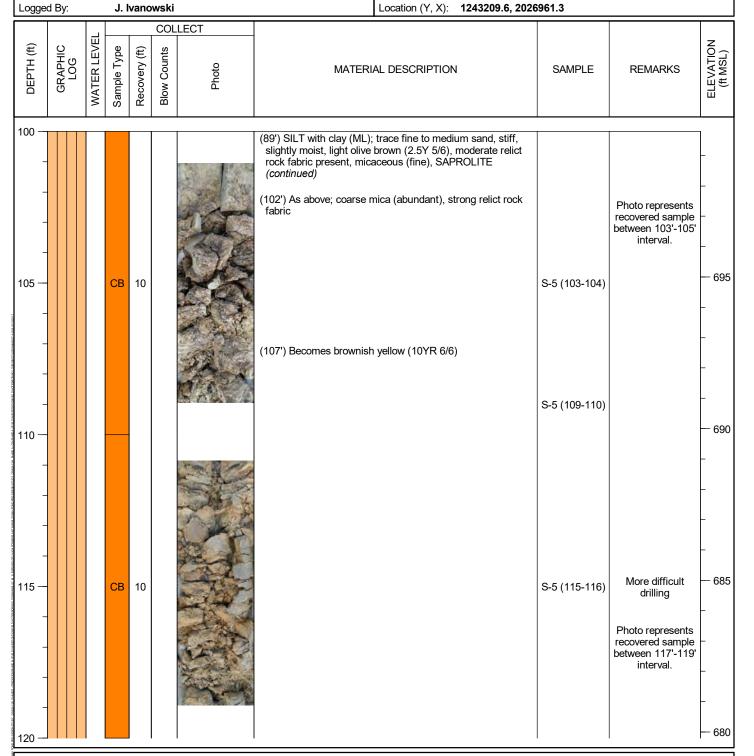
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-5**Page: **6 of 8** 

4/13/2017 150 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/18/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST DTW During Drilling (ft): Drilling Method: Sonic Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.8 Driller Name: Top of Deck Elev. (ft):



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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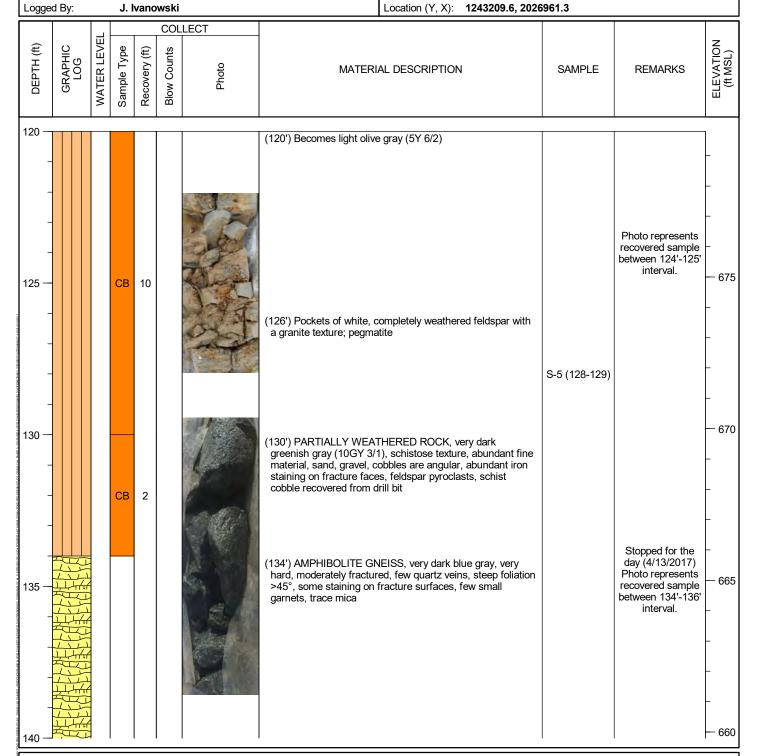
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-5**Page: **7 of 8** 

4/13/2017 150 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/18/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST DTW During Drilling (ft): Drilling Method: Sonic Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.8 Driller Name: Top of Deck Elev. (ft): J. Ivanowski



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-5 Page: 8 of 8

4/13/2017 Drilling Start Date: Drilling End Date: 4/18/2017 Drilling Company: Cascade Drilling Method: Sonic

Mini Sonic 100C Drilling Equipment: Driller Name: B. Lindsey Logged By: J. Ivanowski

Boring Diameter (in): 4 x 6 Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799.8

Boring Depth (ft):

Location (Y, X): 1243209.6, 2026961.3

150

Photo represents recovered sample between 140'-142' interval.  (144') As above, distorted mineral-filled near vertical fractures, more abundant garnet, trace pyrite, green mineral (chlorite) along fractures  (147') Vertical fracture with iron oxide staining from 147-150' bds.	DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts O	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
150 (150.0') Boring Terminated	145			СВ	8.5			fractures, more abundant garnet, trace pyrite, green mineral (chlorite) along fractures  (147') Vertical fracture with iron oxide staining from 147-150' bds.		recovered sample between 140'-142' interval.  Driller reports hard drilling, 90% water	- - - 655 - - -

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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**BORING LOG** 

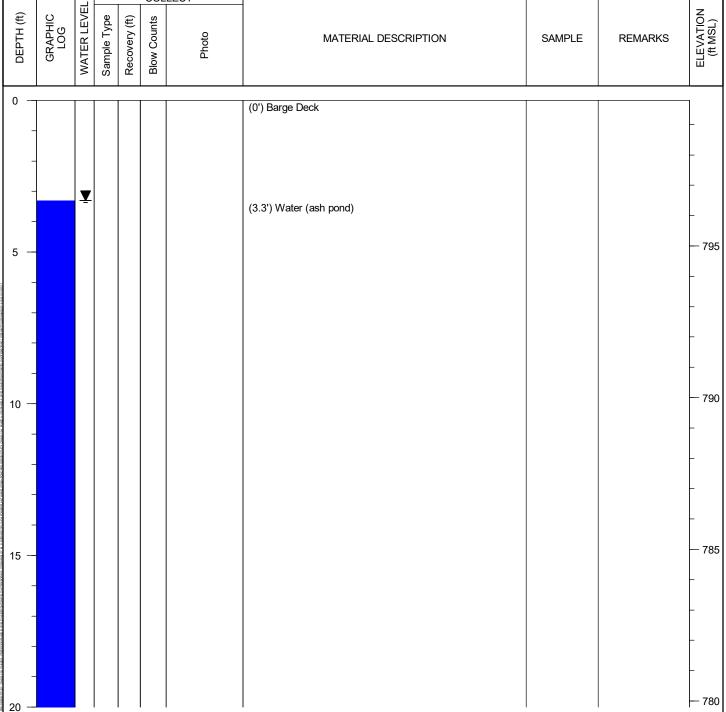
Boring No.**S-6**Page: 1 of 8

Drilling Start Date: 4/11/2017
Drilling End Date: 4/12/2017
Drilling Company: Cascade
Drilling Method: Sonic
Drilling Equipment: Mini Sonic

Sonic Mini Sonic 100C B. Lindsey Boring Depth (ft): 150
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Deck Elev. (ft): 799.8

 Driller Name:
 B. Lindsey
 Top of Deck Elev. (ft):
 799.8

 Logged By:
 J. Griffin
 Location (Y, X):
 1243480.8, 2027022.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG

Boring No.**S-6**Page: **2 of 8** 

4/11/2017 Boring Depth (ft): 150 Drilling Start Date: 4 x 6 Drilling End Date: 4/12/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.8 Logged By: J. Griffin Location (Y, X): 1243480.8, 2027022.2

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20 —						Г		Т	Г	,
20 — 25 — 25 — 30 — 30 — 30 — 30 — 30 — 30 — 30 — 3							(3.3') Water (ash pond) (continued)			- 775 - 776 - 7765
							(37') Top of Ash, dark gray, very fine grained		Top of ash determined using weighted tag line.	- - - 760

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
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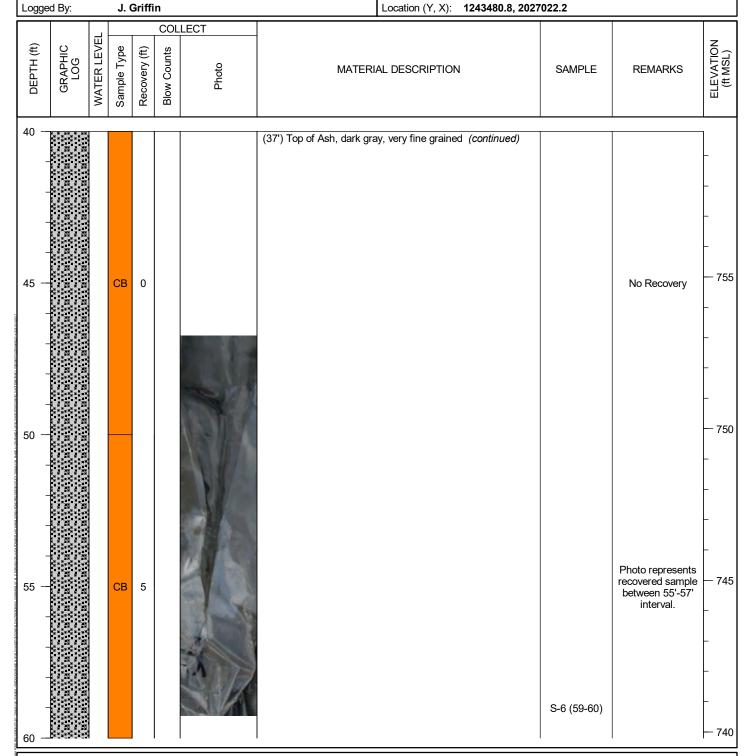
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-6**Page: **3 of 8** 

4/11/2017 150 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/12/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST DTW During Drilling (ft): Drilling Method: Sonic Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.8 Top of Deck Elev. (ft):



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
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**BORING LOG** 

Boring No.**S-6**Page: 4 of 8

4/11/2017 Boring Depth (ft): 150 Drilling Start Date: 4 x 6 Drilling End Date: 4/12/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.8 Logged By: J. Griffin Location (Y, X): 1243480.8, 2027022.2

					COL	LECT	·			
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
							<u> </u>		<u> </u>	
60 -						S. Company	(37') Top of Ash, dark gray, very fine grained (continued)			- -
65 —			СВ	7					Photo represents recovered sample	— 735 -
						S 6 7 6 6	(70') CLAY with silt (CL); with fine sand, medium plasticity,	S-6 (69-70)	between 69'-70' interval.	- - - 730
THE ANY GARRET BY ANY HETCH THE CHIEF THE TOTAL COURSE LTS. TRANSFER.			ST	2			stiff, moist, pale yellow and red and brown (2.5Y 7/4 and 2.5YR 4/6 and 10YR 5/3), color variation over several layers, coarse angular quartz gravel at 72', root material throughout, large schistose cobble at 74'	S-6 (70-72)	Photo represents	_
BOOL POINT TO STATUTE OF THE STATUTE			СВ	10			(76') SILT with clay (ML); with fine sand, non plastic,	S-6 (72-73)	recovered sample between 73'-75' interval.	- 725 -
O S							medium stiff, moist, yellow (10YR 7/6), weak relict rock fabric present, coarse angular gravel at 78', SAPROLITE	S-6 (79-80)		- - - 720

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
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Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-6**Page: **5 of 8** 

4/11/2017 Boring Depth (ft): 150 Drilling Start Date: 4 x 6 Drilling End Date: 4/12/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.8 Logged By: J. Griffin Location (Y, X): 1243480.8, 2027022.2

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 —	-						(76') SILT with clay (ML); with fine sand, non plastic, medium stiff, moist, yellow (10YR 7/6), weak relict rock fabric present, coarse angular gravel at 78', SAPROLITE (continued)		Photo represents recovered sample between 80'-81' interval.	- -
85 —			СВ	10			(84') CLAY with minor silt (CL); dry, grayish brown (2.5Y 5/2), strong relic rock fabric present, fissile fracturing, SAPROLITE	S-6 (85-86)		- 715 -
							(87.5') SILT with clay (ML); trace fine sand, dark gray (5Y 4/2), Micaceous (fine), iron staining throughout interval, SAPROLITE	S-6 (88-89)	Photo represents recovered sample between 86'-87' interval.	- - - 710
EXMENTALARY WAND EXMELLENCE DISCRESS CICLIFICAT CORRECT LES TRANSS AL COM-							(93') PARTIALLY WEATHERED ROCK, dark gray (5Y 4/2), dry, schistose texture, abundant iron staining on fracture			-
95 —			СВ	10			faces, micaceous, matrix composed of silt with clay and fine sand (mostly silt), rock fragments from gravel to cobble size	S-6 (97-98)	Photo represents recovered sample between 97'-99'	705 
— — — — — — — — — — — — — — — — — — —									interval.	- - - 700

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: Southern Company Services

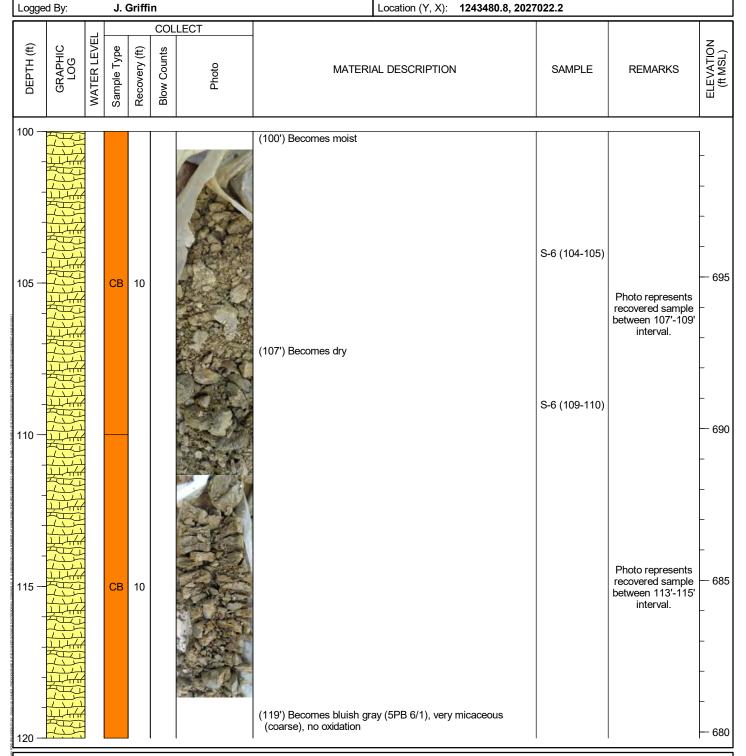
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-6**Page: **6 of 8** 

4/11/2017 150 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/12/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.8 Top of Deck Elev. (ft):



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

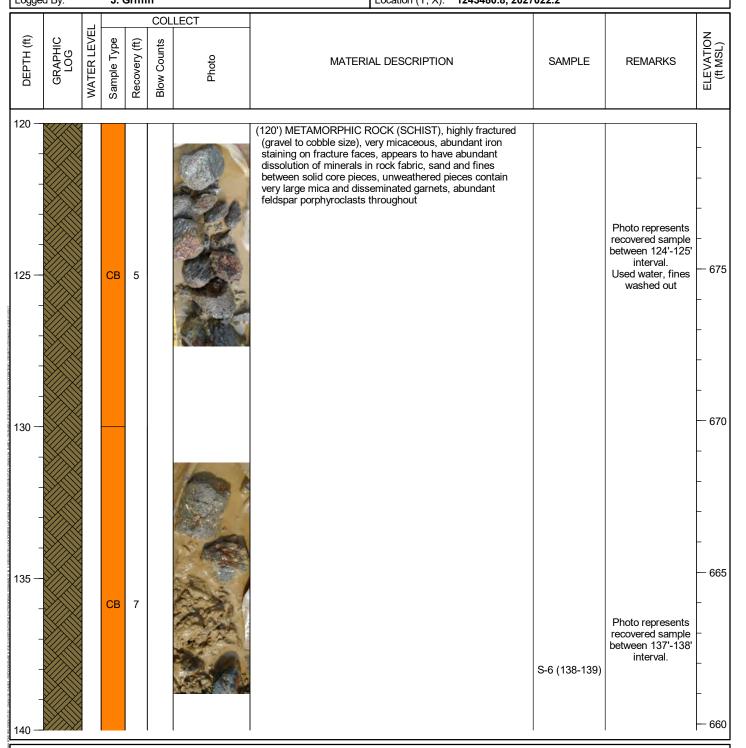
Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.S-6

Page: 7 of 8

4/11/2017 150 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/12/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.8 Top of Deck Elev. (ft): Logged By: J. Griffin Location (Y, X): 1243480.8, 2027022.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: Southern Company Services

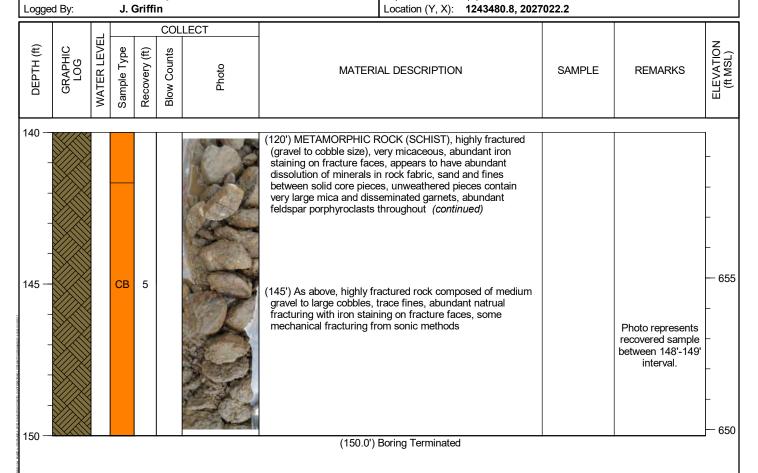
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-6**Page: **8 of 8** 

4/11/2017 150 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/12/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.8 Driller Name: Top of Deck Elev. (ft):



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-7**Page: 1 of 9

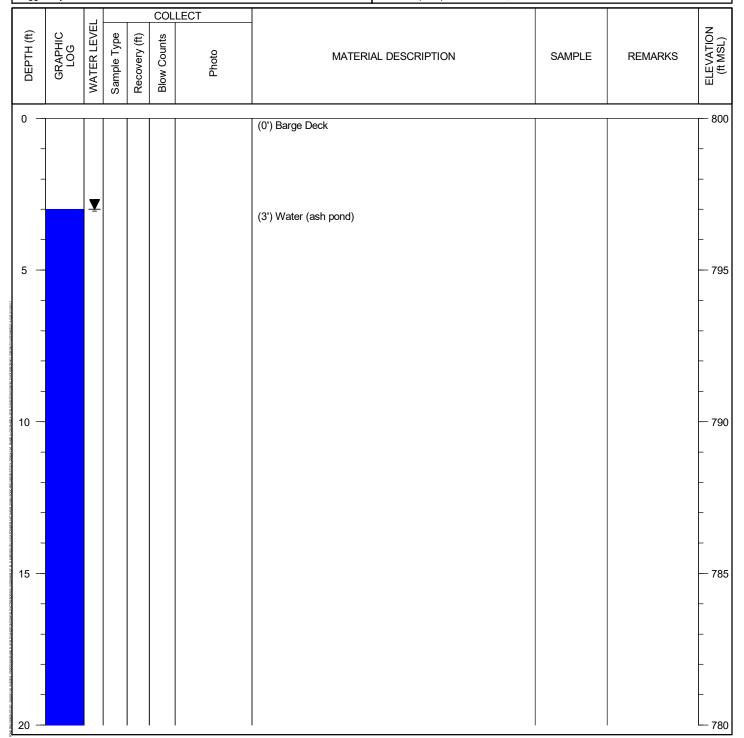
Drilling Start Date: 4/7/2017
Drilling End Date: 4/10/2017
Drilling Company: Cascade
Drilling Method: Sonic

Drilling Equipment: Mini Sonic 100C
Driller Name: B. Lindsey

Logged By: J. Ivanowski and J. Griffin

Boring Depth (ft): 170
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Deck Elev. (ft): 800

Location (Y, X): 1243715.9, 2027092.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-7 Page: 2 of 9

4/7/2017 Drilling Start Date: Drilling End Date: 4/10/2017 Drilling Company: Cascade Drilling Method: Sonic

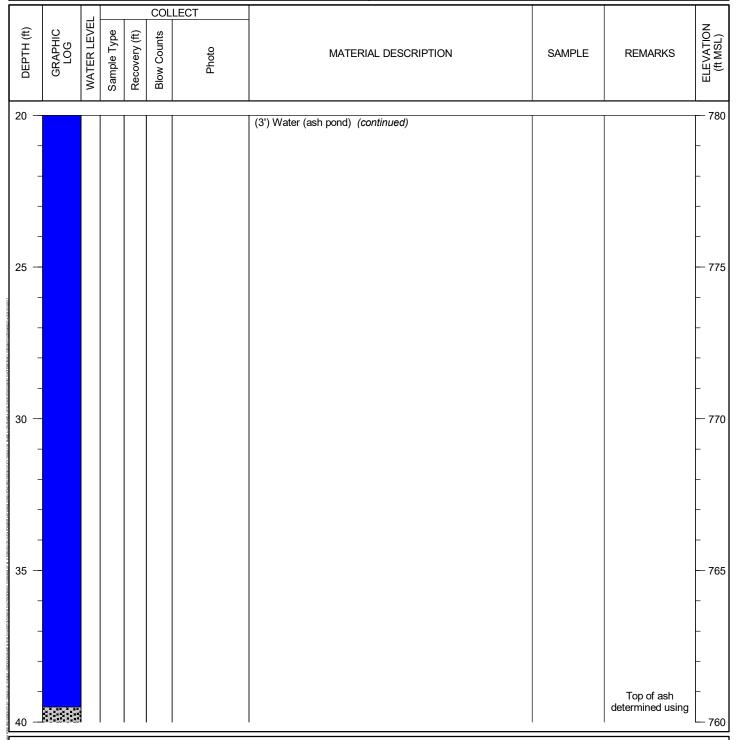
Driller Name:

Mini Sonic 100C Drilling Equipment: **B.** Lindsey

Logged By: J. Ivanowski and J. Griffin

170 Boring Depth (ft): Boring Diameter (in): 4 x 6 Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): 800 Top of Deck Elev. (ft):

Location (Y, X): 1243715.9, 2027092.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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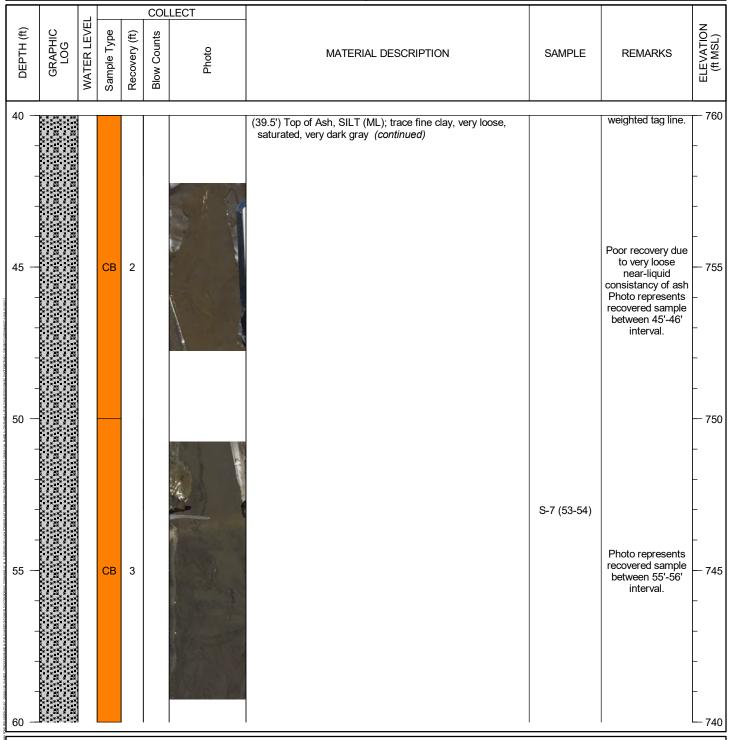
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-7**Page: **3 of 9** 

4/7/2017 170 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/10/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST DTW During Drilling (ft): Drilling Method: Sonic Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 800 Top of Deck Elev. (ft):

Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1243715.9, 2027092.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-7**Page: **4 of 9** 

4/7/2017 Boring Depth (ft): 170 Drilling Start Date: 4 x 6 Drilling End Date: 4/10/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 800

Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1243715.9, 2027092.2

=										=
		_			COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60 —					•					<del> 740</del>
-							(39.5') Top of Ash, SILT (ML); trace fine clay, very loose, saturated, very dark gray <i>(continued)</i>		Photo represents recovered sample between 60'-65' interval.	-
65 —			СВ	5						735 - -
70 —						KAN.	(69') SILTY CLAY (CL); non plastic, very soft, saturated, black, gelatinous, FLY ASH  (71') SILT (ML); non plastic, moderately stiff to medium stiff, moist, brown, micaceous flakes, RESIDUUM	S-7 (72-73)	Photo represents recovered sample between 70'-72' interval.	- - 730 -
- 75 — - -			СВ	8.5			(76') SILTY SAND (SM); medium stiff, dry, mottled yellowish brown and light gray, fine grained, relict weak rock fabric, SAPROLITE	S-7 (77-78)		- 725 - -
80 —										<u> </u>

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

Client: **Southern Company Services Plant Wansley Pre-Design Investigation** Project:

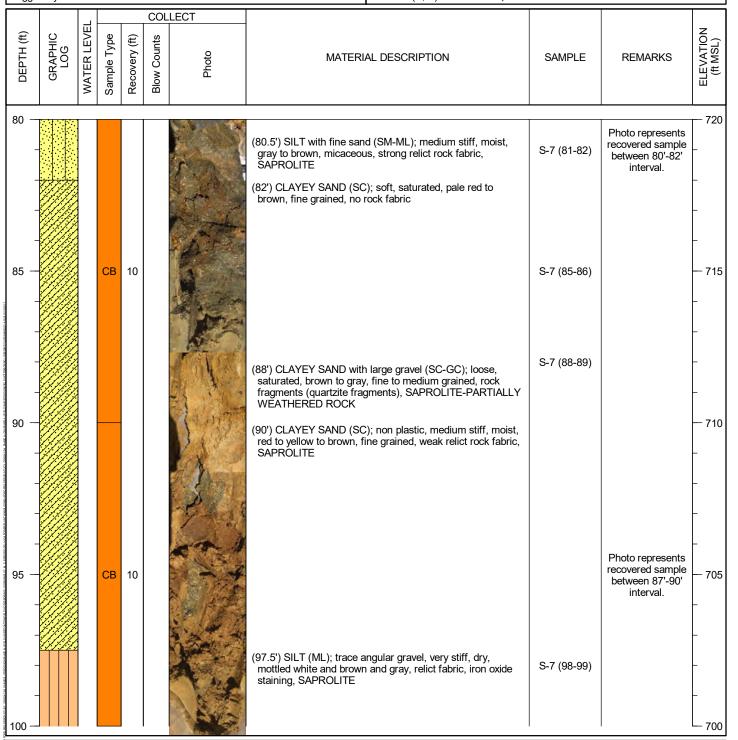
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-7 Page: 5 of 9

170 Drilling Start Date: 4/7/2017 Boring Depth (ft): Drilling End Date: 4/10/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 800 Driller Name: Top of Deck Elev. (ft):

Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1243715.9, 2027092.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



Client: **Southern Company Services** 

**Plant Wansley Pre-Design Investigation** Project:

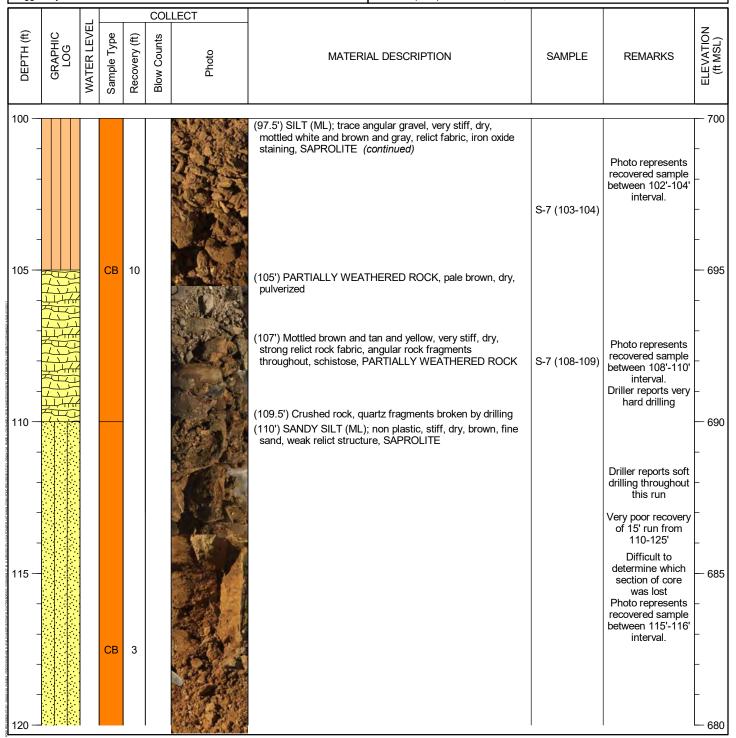
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-7 Page: 6 of 9

170 Drilling Start Date: 4/7/2017 Boring Depth (ft): Drilling End Date: 4/10/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 800 Driller Name: Top of Deck Elev. (ft):

Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1243715.9, 2027092.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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Project: Plant Wansley Pre-Design Investigation

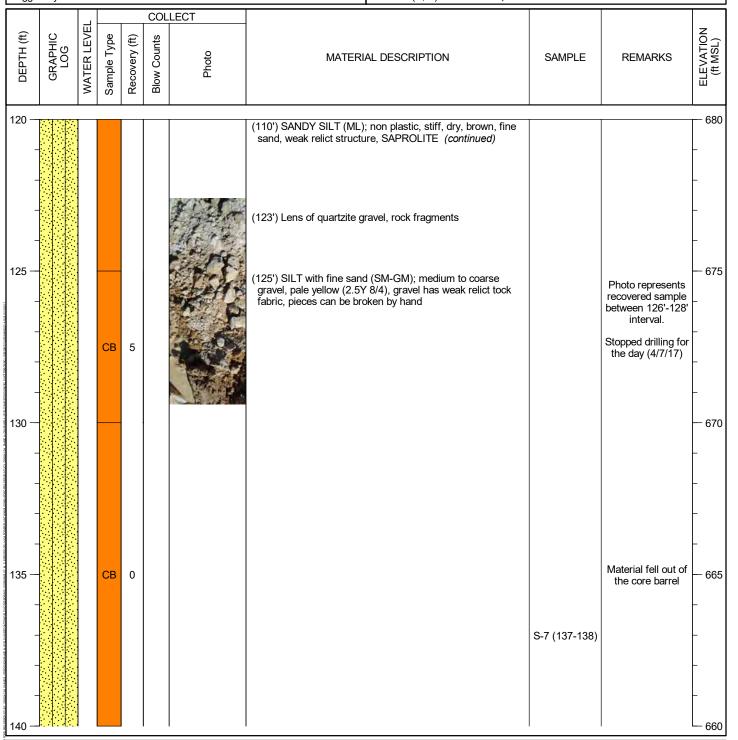
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-7**Page: **7 of 9** 

170 Drilling Start Date: 4/7/2017 Boring Depth (ft): Drilling End Date: 4/10/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 800 Driller Name: Top of Deck Elev. (ft):

Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1243715.9, 2027092.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

B. Lindsey

Geosyntec consultants

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Driller Name:

Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-7**Page: **8 of 9** 

170

4 x 6

800

Top of Deck Elev. (ft):

CB, ST

 Drilling Start Date:
 4/7/2017
 Boring Depth (ft):

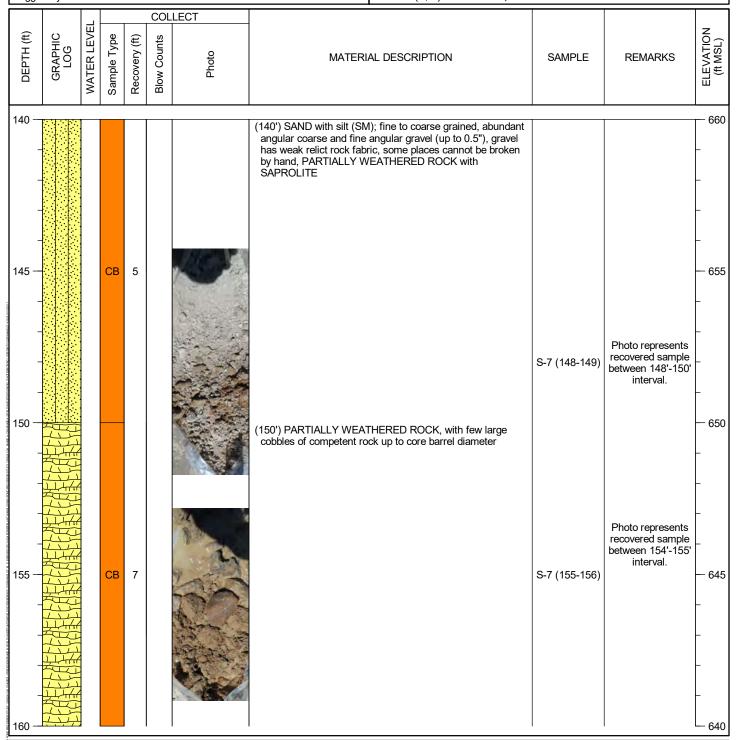
 Drilling End Date:
 4/10/2017
 Boring Diameter (in):

 Drilling Company:
 Cascade
 Sampling Method(s):

 Drilling Method:
 Sonic
 DTW During Drilling (ft):

 Drilling Equipment:
 Mini Sonic 100C
 DTW After Drilling (ft):

Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1243715.9, 2027092.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-7**Page: **9 of 9** 

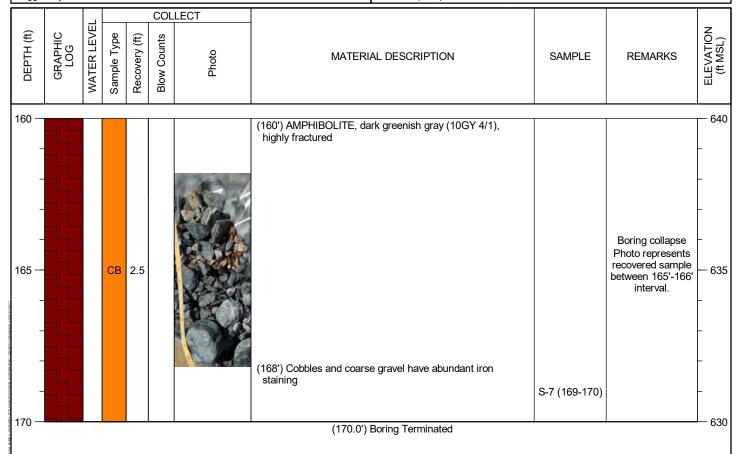
Drilling Start Date: 4/7/2017
Drilling End Date: 4/10/2017
Drilling Company: Cascade
Drilling Method: Sonic

Drilling Method: Sonic
Drilling Equipment: Mini Sonic 100C
Driller Name: B. Lindsey

Logged By: J. Ivanowski and J. Griffin

Boring Depth (ft): 170
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Deck Elev. (ft): 800

Location (Y, X): 1243715.9, 2027092.2



- 1. Drilling was completed in the ash pond from the deck of a barge.
- Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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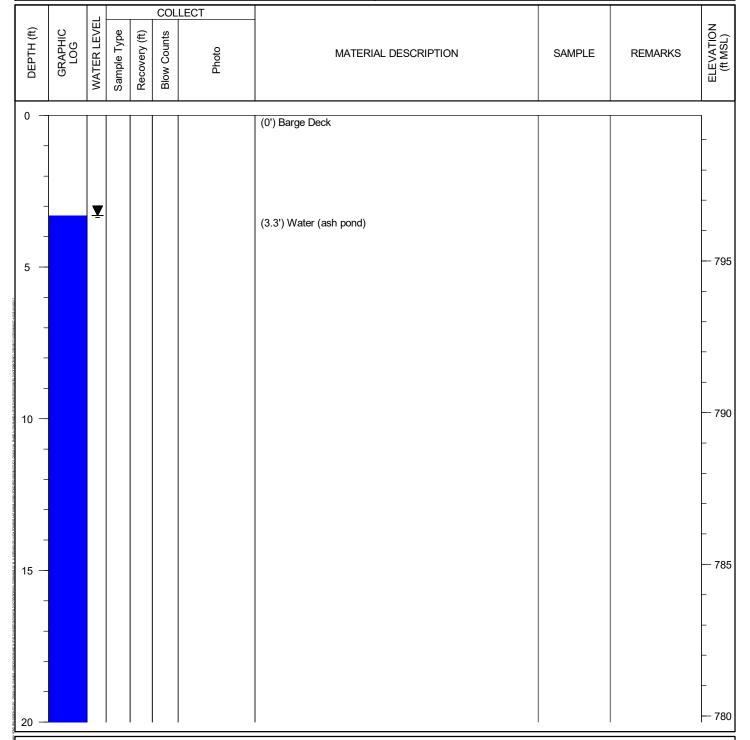
Project: Plant Wansley Pre-Design Investigation

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**BORING LOG** 

Boring No.**S-8**Page: **1 of 9** 

4/4/2017 170 Drilling Start Date: Boring Depth (ft): 4 x 6 Drilling End Date: 4/6/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.8 Top of Deck Elev. (ft): Logged By: J. Ivanowski Location (Y, X): 1243963.6, 2027141.5



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Project: **Plant Wansley Pre-Design Investigation** 

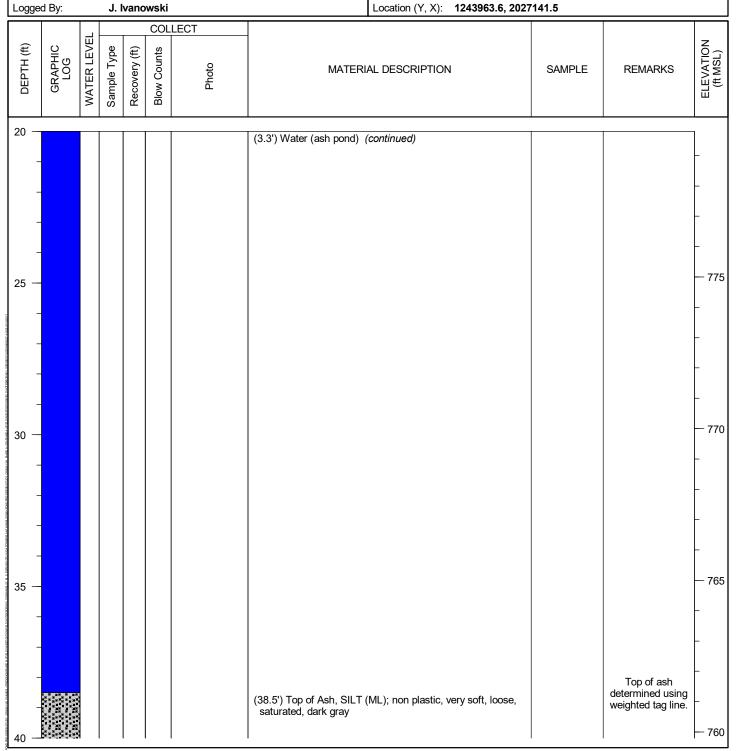
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-8 Page: 2 of 9

4/4/2017 170 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/6/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.8 Top of Deck Elev. (ft):

Location (Y, X): 1243963.6, 2027141.5



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
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BORING LOG
Boring No.S-8
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170 4/4/2017 Boring Depth (ft): Drilling Start Date: 4/6/2017 4 x 6 Drilling End Date: Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Drilling Equipment: Mini Sonic 100C DTW After Drilling (ft): Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.8 Logged By: J. Ivanowski Location (Y, X): 1243963.6, 2027141.5

Logge	ей Бу.		J. I	vario	WSKI		Location (1, A). 1243963.6, 2027	141.5		
					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40 — 45 — 550 — 555 — 65			СВ				(38.5') Top of Ash, SILT (ML); non plastic, very soft, loose, saturated, dark gray (continued)  (55') SAND (SW-SM); trace fine gravel, loose, wet, dark gray, fine to medium grained, BOTTOM ASH	S-8 (48-49) S-8 (56-57)	Photo represents recovered sample between 40'-50' interval.  Photo represents recovered sample between 57'-60' interval.	- 755 750 745
00 —										- 740

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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4/4/2017 Boring Depth (ft): 170 Drilling Start Date: 4 x 6 Drilling End Date: 4/6/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.8 Logged By: J. Ivanowski Location (Y, X): 1243963.6, 2027141.5

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60 —	F R NE R NE									
65 —			СВ	9			(70') SILTY SAND (SM); loose, saturated, red to brown, fine grained, ALLUVIUM  (71') SANDY CLAY (SC); soft, wet, yellow to red to brown, laminated, ALLUVIUM	S-8 (74-75) S-8 (70-71)	Sample lost, based on soft drilling, suspected ash  Photo represents recovered sample between 70'-72' interval.	- 735 - 730 - 725 725
80 —							(79') Becomes yellow brown, more sandy			_ 720

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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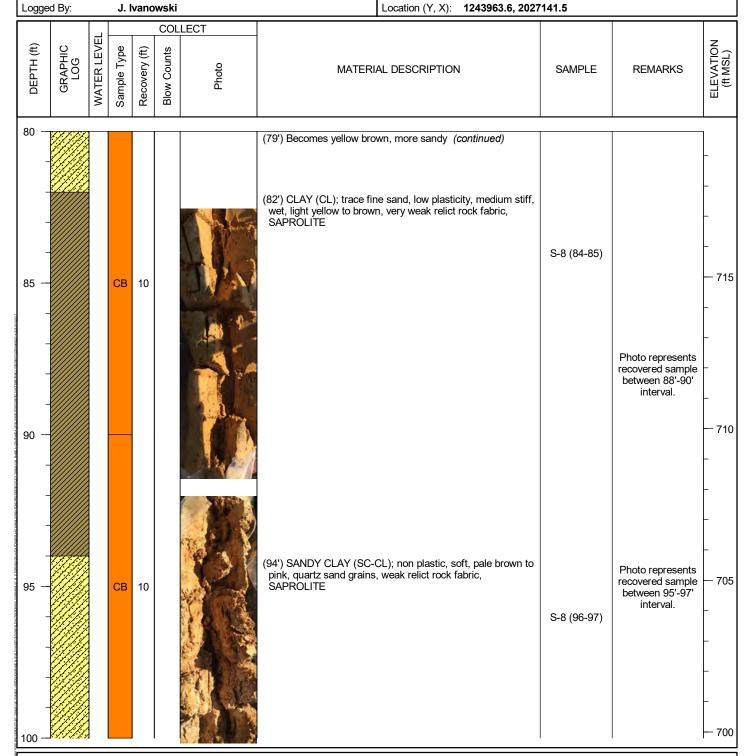
Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-8**Page: **5 of 9** 

4/4/2017 170 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/6/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.8 Driller Name: Top of Deck Elev. (ft): J. Ivanowski



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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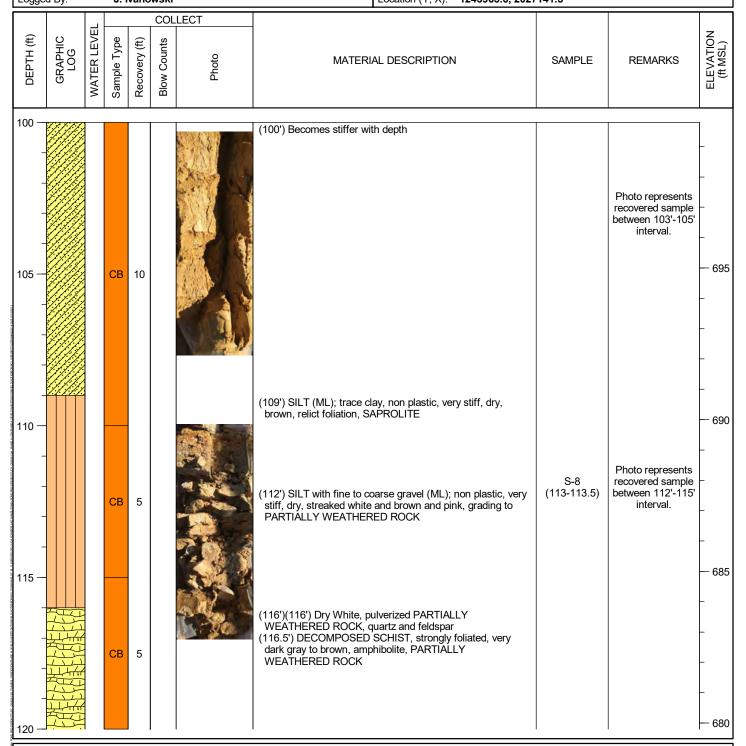
Project: Plant Wansley Pre-Design Investigation

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**BORING LOG** 

Boring No.**S-8**Page: **6 of 9** 

170 Drilling Start Date: 4/4/2017 Boring Depth (ft): Drilling End Date: 4/6/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799.8 Driller Name: Top of Deck Elev. (ft): Logged By: J. Ivanowski Location (Y, X): 1243963.6, 2027141.5



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
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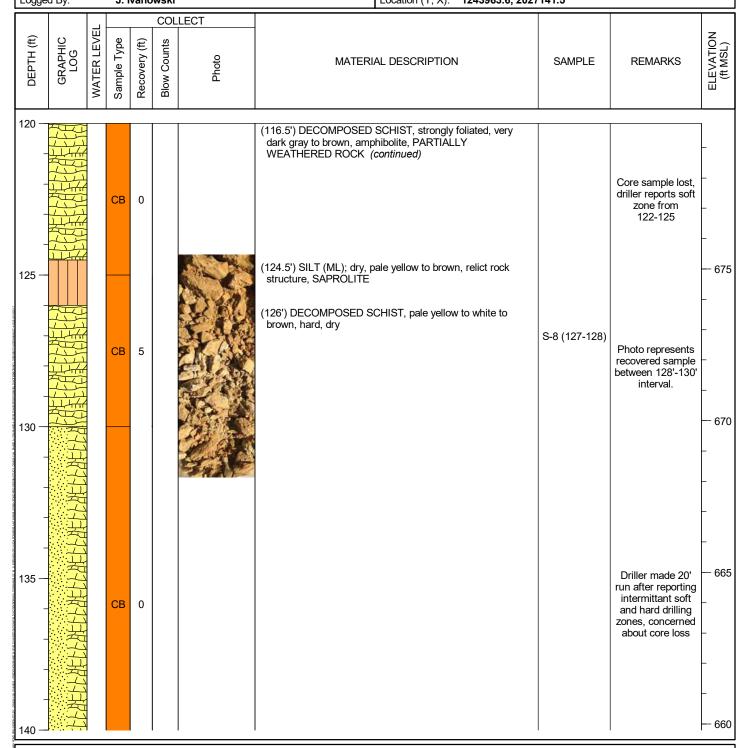
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**BORING LOG** 

Boring No.**S-8**Page: **7 of 9** 

4/4/2017 170 Drilling Start Date: Boring Depth (ft): Drilling End Date: 4/6/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799.8 Top of Deck Elev. (ft): Logged By: J. Ivanowski Location (Y, X): 1243963.6, 2027141.5



- 1. Drilling was completed in the ash pond from the deck of a barge.
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**BORING LOG** 

Boring No.**S-8**Page: **8 of 9** 

4/4/2017 Boring Depth (ft): 170 Drilling Start Date: 4 x 6 Drilling End Date: 4/6/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.8 Logged By: J. Ivanowski Location (Y, X): 1243963.6, 2027141.5

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
140 —					1					$\Box$
145 —			СВ	2.5			(140') Soft sand-filled zones, loose pink quartz and feldspar gravel, fine to coarse sand		Lost most of core, driller reported interlayered hard (rock) and soft zones	- - - 655
			СВ	2			(147.5') Quartz-feldspar pegmatite fragments (148') DECOMPOSED SCHIST, very stiff to hard, moist, amphibolite, PARTIALLY WEATHERED ROCK		Driller could not advance deeper without using mud, very hard, open hole from 130-152', core barrel contained 10' of fine to	- - 650 - -
			СВ	2.5			(155') Pink quartz and potassium feldspar rock fragments, PARTIALLY WEATHERED ROCK		Photo represents recovered sample between 152'-160' interval.	- - 645 - -
160 —	1, 1, 1,1,1									<del></del> 640

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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**BORING LOG** 

Boring No.**S-8**Page: **9 of 9** 

4/4/2017 Boring Depth (ft): 170 Drilling Start Date: 4 x 6 Drilling End Date: 4/6/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 799.8 Logged By: J. Ivanowski Location (Y, X): 1243963.6, 2027141.5

						COL	LECT				
	DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
16	30 —										$\Box$
Total direction control contro				СВ	6.5			<ul> <li>(160') QUARTZITE, massive, hard, intensely fractured, iron oxide staining on fracture surfaces, possible pegmatite</li> <li>(162') SAND with gravel, quartz fragments, loose, saturated, yellow to reddish brown</li> <li>(162.5') DECOMPOSED GNEISS, banded, dark gray, dry, strong relict rock fabric, friable, PARTIALLY WEATHERED ROCK</li> <li>(168') SAND, loose, saturated, reddish brown, fine to coarse grained, well graded, angular, quartz, potassium feldspar</li> <li>(169') Dry, as at 162.5, PARTIALLY WEATHERED ROCK</li> </ul>	S-8 (164-165)	Photo represents recovered sample between 160'-162' interval.  Photo represents recovered sample between 164'-166' interval.  Using water to drill, likely flushed out the softer partially weathered rock zone, driller reports interlayered hard and soft zones	- - - 635 - - - -
A . C.W.								(170.0') Boring Terminated			

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

Driller Name:

**Southern Company Services** Client:

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**BORING LOG** 

Boring No.S-9 Page: 1 of 9

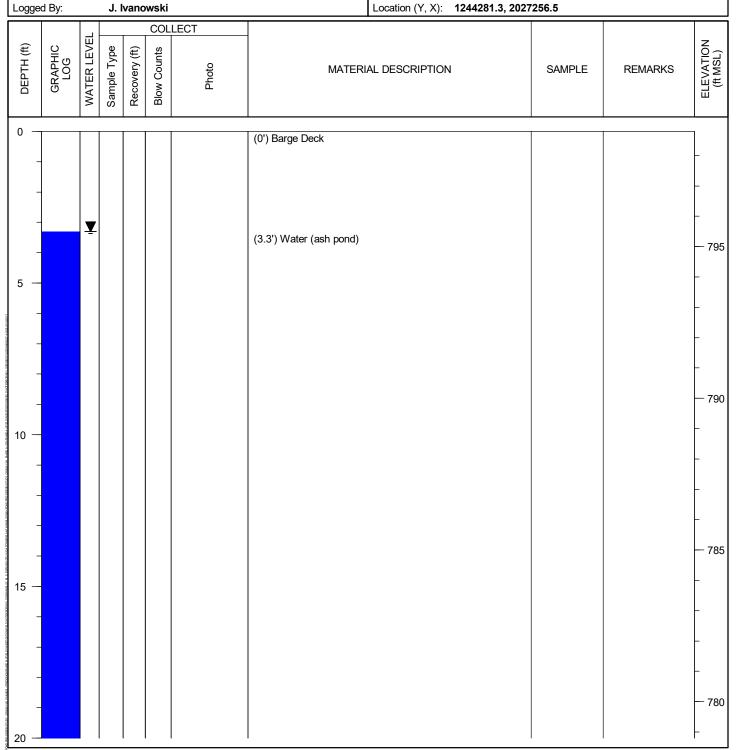
3/22/2017 Drilling Start Date: Drilling End Date: 3/23/2017 Drilling Company: Cascade Drilling Method: Sonic Mini Sonic 100C Drilling Equipment:

B. Lindsey

J. Ivanowski

170 Boring Depth (ft): 4 x 6 Boring Diameter (in): Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): 798.8 Top of Deck Elev. (ft):

Location (Y, X): 1244281.3, 2027256.5



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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**BORING LOG** 

Boring No.**S-9**Page: **2 of 9** 

3/22/2017 170 Drilling Start Date: Boring Depth (ft): 4 x 6 Drilling End Date: 3/23/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 798.8 Top of Deck Elev. (ft): Logged By: J. Ivanowski Location (Y, X): 1244281.3, 2027256.5

COLLECT WATER LEVEL ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type **Blow Counts** Recovery (ft) Photo **REMARKS** MATERIAL DESCRIPTION SAMPLE 20 (3.3') Water (ash pond) (continued) - 775 25 770 30 (31.5') Top of Ash, no recovery - 765 Photo represents recovered sample between 35'-37' interval. 0 CB Top of ash determined using weighted tag line. 760

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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**BORING LOG** 

Boring No.**S-9**Page: **3 of 9** 

3/22/2017 Boring Depth (ft): 170 Drilling Start Date: 4 x 6 Drilling End Date: 3/23/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 798.8 Logged By: J. Ivanowski Location (Y, X): 1244281.3, 2027256.5

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40 — 45 — 45 — 5 — 5 — 5 — 5 — 5 — 5 — 5 —			СВ	4			(40') SILT (ML); very loose, wet, very dark gray, FLY ASH  (48') Silty medium sand (SW-SM); very loose, wet, very dark gray, BOTTOM ASH  (49') CLAY (CL); non plastic, very soft, wet, black, FLY ASH		Photo represents recovered sample between 50'-53' interval.	- - - 755 - - - - 750
55 —			СВ	8			<ul> <li>(53') SILT (ML); non plastic, very soft, black, FLY ASH</li> <li>(54') SILT (ML); very soft to loose, wet, black to gray, FLY ASH</li> <li>(56') SANDY SILT (SM-ML); stiff, dry, mottled yellow and red and brown, relict banding and rock fabric, oxide staining along fracture surfaces, SAPROLITE</li> </ul>	S-9 (52-53) S-9 (54-55)	Photo represents recovered sample between 57.5'-60' interval.	- - 745 - - - - - 740

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
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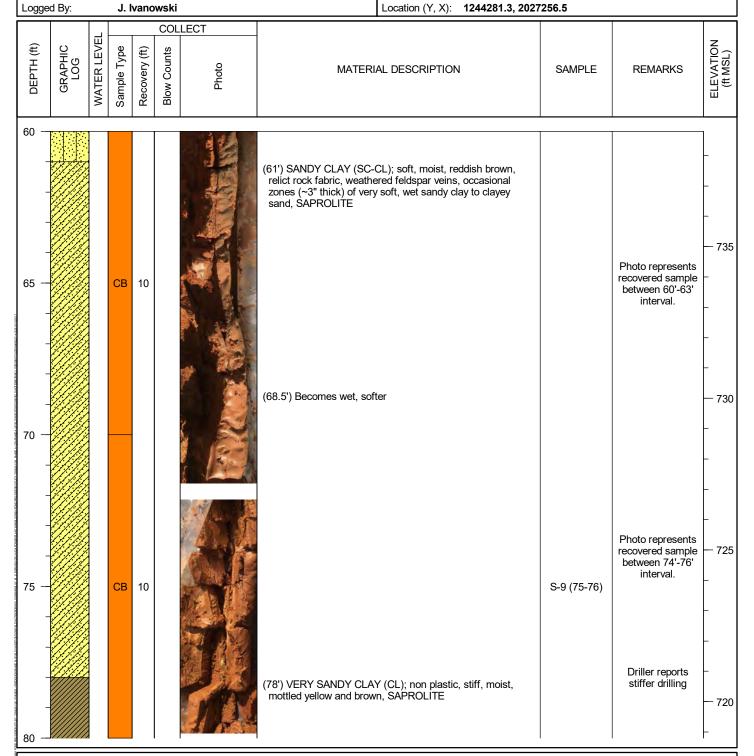
Project: **Plant Wansley Pre-Design Investigation** 

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**BORING LOG** 

Boring No.S-9 Page: 4 of 9

3/22/2017 170 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/23/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 798.8 Top of Deck Elev. (ft): J. Ivanowski



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
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Geosyntec<sup>▶</sup> consultants

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**BORING LOG** 

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3/22/2017 Boring Depth (ft): 170 Drilling Start Date: 4 x 6 Drilling End Date: 3/23/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 798.8 Logged By: J. Ivanowski Location (Y, X): 1244281.3, 2027256.5

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 -	(///////	1					(78') VERY SANDY CLAY (CL); non plastic, stiff, moist,			.
-							mottled yellow and brown, SAPROLITE (continued)  (82') CLAYEY SAND (SC); soft, wet, yellow to red, fine grained, no rock fabric evident			-  -
85 —			СВ	11			(85') SANDY CLAY (SC-CL); non plastic, soft, moist, red, rock fabric present, SAPROLITE		Photo represents recovered sample between 84'-86' interval.	715 
A ANTHE DEPARTMENT OF THE WASHINGTON ON CONTRACT ON LINEAR OF A LOS ON THE							(88.6') Thin (~1") vein of quartz rock			- - 710
90 -										<del>-</del>
95 -			СВ	9.5					Photo represents recovered sample between 96'-98' interval.	- 705 - -
- 100 —							(97') Becomes stiff, more dry, more pronounced rock fabric	S-9 (98-99)		- 700

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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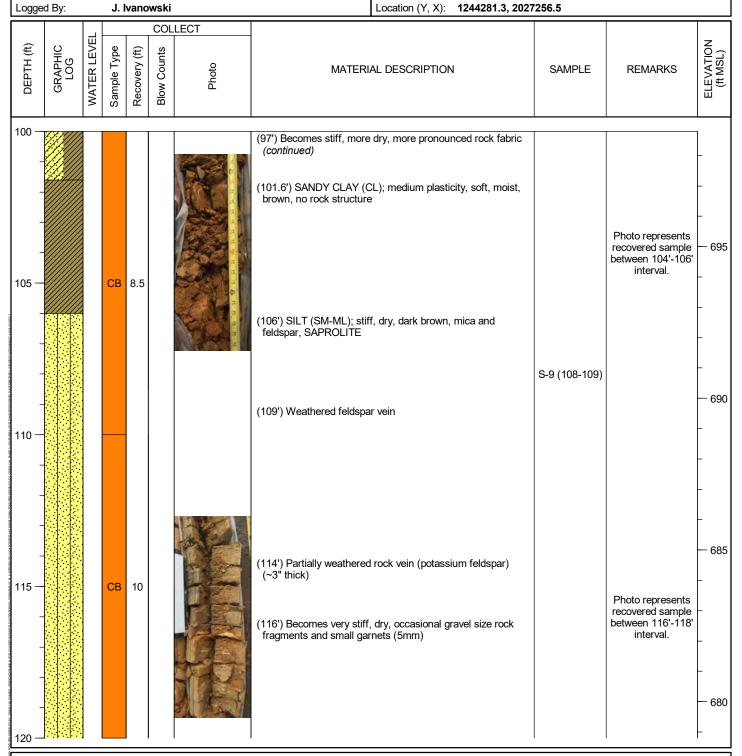
Project: Plant Wansley Pre-Design Investigation

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3/22/2017 170 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/23/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 798.8 Driller Name: Top of Deck Elev. (ft):



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

Geosyntec<sup>▶</sup> consultants

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

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**BORING LOG** 

Boring No.S-9 Page: 7 of 9

3/22/2017 Boring Depth (ft): 170 Drilling Start Date: 4 x 6 Drilling End Date: 3/23/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 798.8 Logged By: J. Ivanowski Location (Y, X): 1244281.3, 2027256.5

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120 —										
- - 125 —			ST	2			(116') Becomes very stiff, dry, occasional gravel size rock fragments and small garnets (5mm) (continued)  (125') SILTY SAND with gravel (SM); medium stiff, wet, white, quartz and potassium feldspar, rock fragments, PARTIALLY WEATHERED ROCK	S-9 (120-121.5) S-9 (125-127)	Photo represents recovered sample between 124'-126' interval.  Driller reports harder drilling	- - - 675 -
STICHER DISC EMICHICAL CONCRETE IN MINES OF J.C.B.						bell.	(127') SILT (SM-ML); stiff, dry, brown, relict banding, SAPROLITE			- - - 670
TRID INVESTIG							(129') PARTIALLY WEATHERED ROCK lens			
130 —							(130.5') Becomes very stiff, rock structures becoming more pronounced			_ _ _
135 —									Photo represents recovered sample between 136'-138' interval.	- 665 
— — — — — — — — — — — — — — — — — — —							(137.5') PARTIALLY WEATHERED ROCK lens  (138.5') PARTIALLY WEATHERED ROCK, hard, dry, schistose, mica lenses			- 660 -

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
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Boring No.**S-9**Page: **8 of 9** 

3/22/2017 Boring Depth (ft): 170 Drilling Start Date: 4 x 6 Drilling End Date: 3/23/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 798.8 Logged By: J. Ivanowski Location (Y, X): 1244281.3, 2027256.5

$\overline{}$	1	_							1	$\overline{}$
		_			COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
440										
140 —							(138.5') PARTIALLY WEATHERED ROCK, hard, dry, schistose, mica lenses <i>(continued)</i>		6' run from 140'-146' due to	- -
- 145 —			СВ	6			(143') WEATHERED QUARTZ-MICA SCHIST, dry pulverized rock, PARTIALLY WEATHERED ROCK		hard drilling and rig chatter, photo represents recovered sample between 140'-142' interval.	- 655 -
7 100017							(146') QUARTZ-MICA SCHIST			
D NOT 1898 ON UNITED COOLORS IT IN USB WANNESS IT IN CLOSE.			СВ	2.7			(147') DECOMPOSED SCHIST, intensely fractured bordering on PARTIALLY WEATHERED ROCK		Driller began using water while advancing the core barrel	-
1500 —							(150') QUARTZ-MICA SCHIST, thinly foliated, oxide staining, sandy, intensely fractured, quartz-potassium feldspar pegmatite present at ~153'		Photo represents recovered sample between 152-154' interval.	- 650 - - -
155 —			СВ	3			(155') Very stiff to hard, dry, schist parent material, PARTIALLY WEATHERED ROCK		Low recovery due to wash out	645 - - -
160 —							(158.75') MICA SCHIST, foliated, sandy, intensely fractured, weathered			— 640 -

- 1. Drilling was completed in the ash pond from the deck of a barge.
- Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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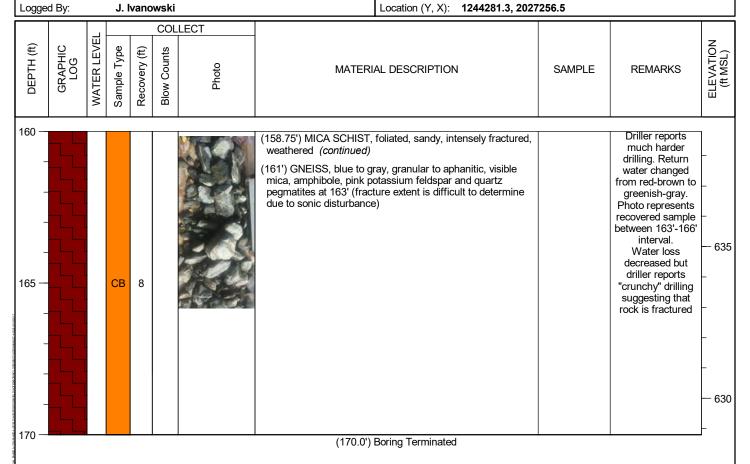
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.**S-9**Page: **9 of 9** 

3/22/2017 170 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/23/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 798.8 Driller Name: Top of Deck Elev. (ft): J. Ivanowski



- 1. Drilling was completed in the ash pond from the deck of a barge.
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- 3. Borings were backfilled with grout using tremie method.

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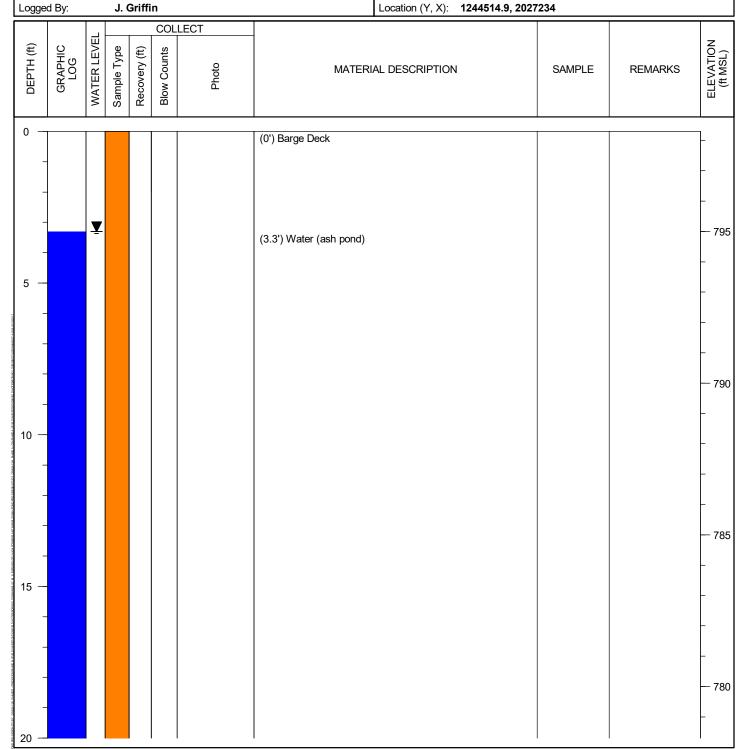
BORING LOG Boring No.**S-10** 

Page: 1 of 9

Drilling Start Date: 3/13/2017
Drilling End Date: 3/17/2017
Drilling Company: Cascade
Drilling Method: Sonic
Drilling Equipment: Mini Sonic 10

Driller Name:

Mini Sonic 100C B. Lindsey J. Griffin Boring Depth (ft): 168
Boring Diameter (in): 4 x 6
Sampling Method(s): CB, ST
DTW During Drilling (ft): -DTW After Drilling (ft): -Top of Deck Elev. (ft): 798.3
Location (Y, X): 1244514.9, 2027234



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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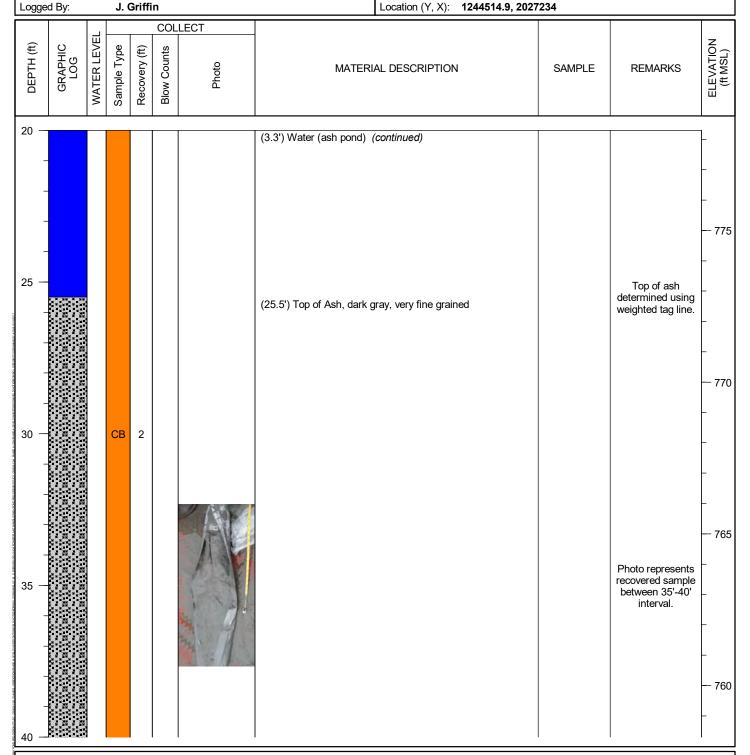
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.**S-10** 

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Page:

3/13/2017 168 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/17/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 798.3 Top of Deck Elev. (ft): J. Griffin Location (Y, X): 1244514.9, 2027234



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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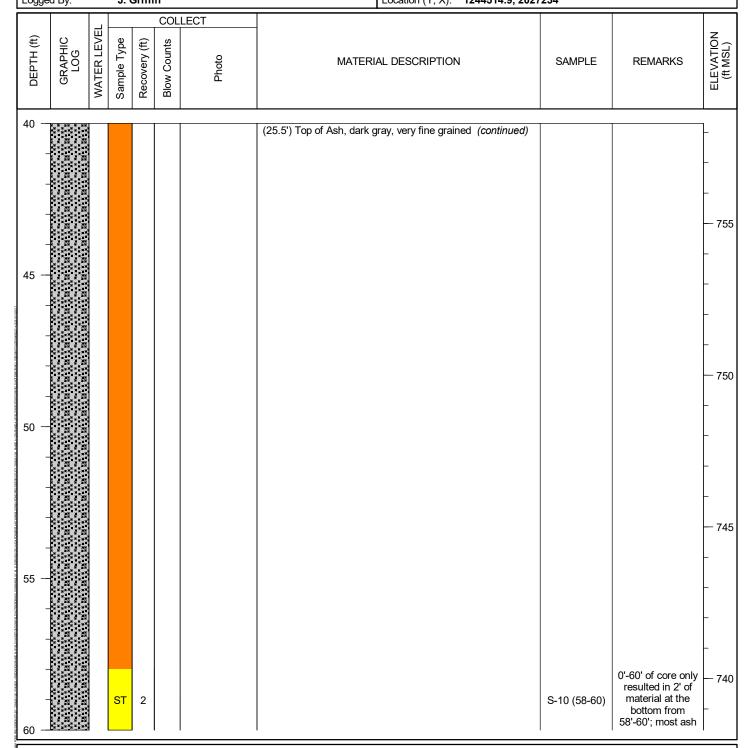
Project: Plant Wansley Pre-Design Investigation

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BORING LOG

Boring No.**S-10**Page: **3 of 9** 

3/13/2017 168 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/17/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 798.3 Top of Deck Elev. (ft): Logged By: J. Griffin Location (Y, X): 1244514.9, 2027234



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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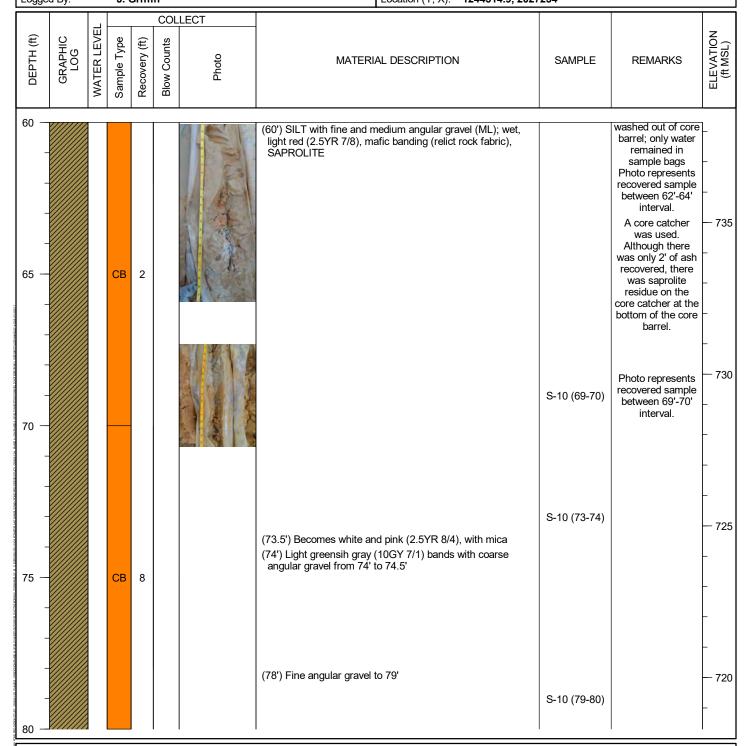
Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.S-10

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3/13/2017 168 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/17/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 798.3 Driller Name: Top of Deck Elev. (ft): Logged By: J. Griffin Location (Y, X): 1244514.9, 2027234



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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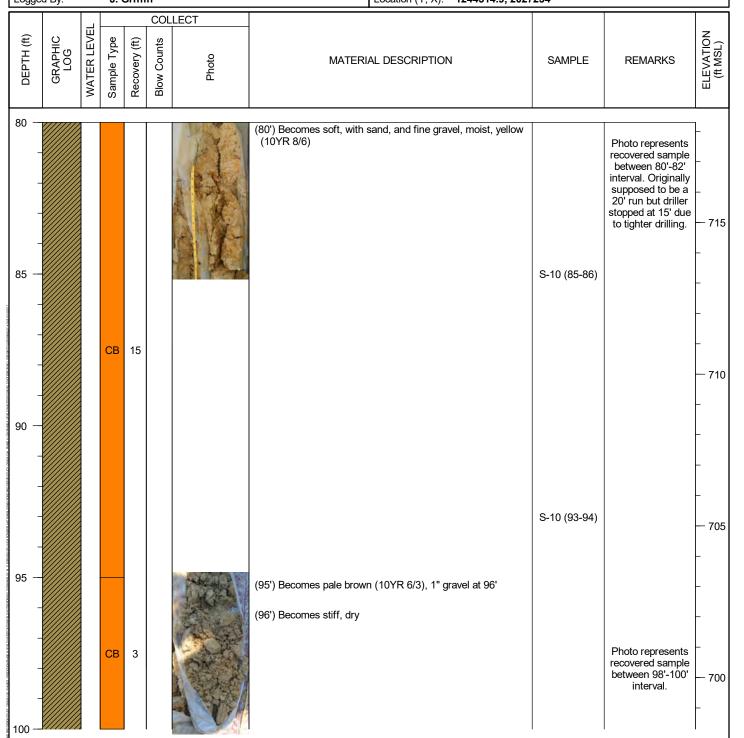
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG

Boring No.**S-10**Page: **5 of 9** 

3/13/2017 168 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/17/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 798.3 Top of Deck Elev. (ft): Logged By: J. Griffin Location (Y, X): 1244514.9, 2027234



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

3/13/2017

3/17/2017

Cascade

B. Lindsey

J. Griffin

Mini Sonic 100C

Sonic



Drilling Start Date:

Drilling End Date:

Drilling Company:

Drilling Equipment:

Drilling Method:

Driller Name:

Logged By:

Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.S-10

6 of 9

680

Page:

168 Boring Depth (ft): Boring Diameter (in): 4 x 6 Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): 798.3 Top of Deck Elev. (ft):

Location (Y, X): 1244514.9, 2027234

COLLECT **WATER LEVEL** ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) **Blow Counts** Photo **REMARKS** MATERIAL DESCRIPTION **SAMPLE** 100 (100') Becomes wet, pale brown (10YR 6/3), sparse fine and coarse gravel (up to 2" in diameter) CB 3 695 S-10 (104-105)105 (105') METAMORPHIC ROCK (GNEISS/AMPHIBOLITE), felspathic, micaceous with visible jointing, cobbles up to 4" in diameter (same diameter of the core barrel), some sand present, but primarily angular gravel that is fractured into shards (given the fissile nature of the rock) with sand and clay, PARTIALLY WEATHERED ROCK Photo represents recovered sample between 108'-110' 690 interval. СВ 5 110 685 S-10 Photo represents (114-115)recovered sample between 115'-117' 115 interval. (115') METAMORPHIC ROCK (GNEISS/AMPHIBOLITE), reddish yellow (5YR 6/6), highly fractured, abundant iron S-10 staining on fracture faces, mineral dissolution along (116-117)fractures, HIGHLY FRACTURED ROCK CB 5

NOTE:

120

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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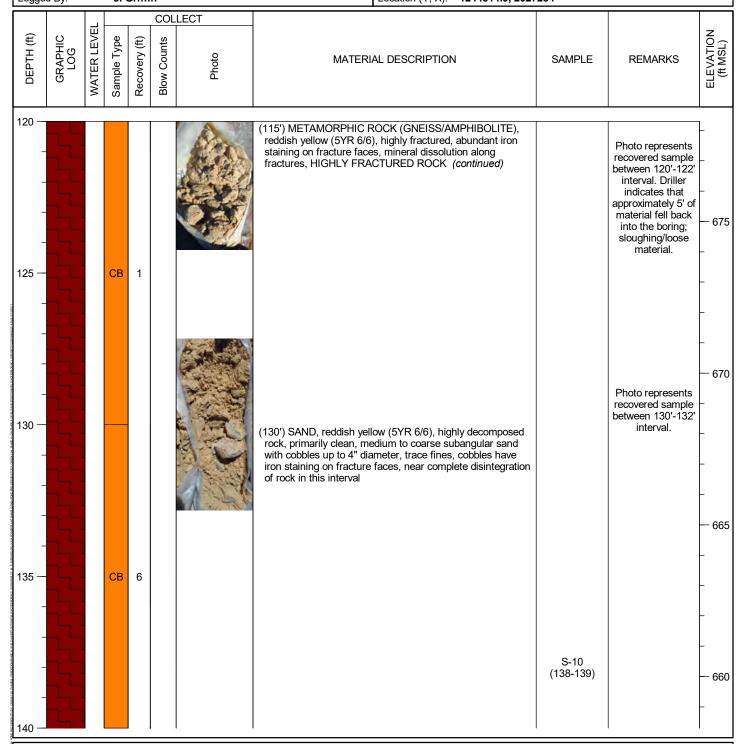
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG

Boring No.**S-10**Page: **7 of 9** 

3/13/2017 168 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/17/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST DTW During Drilling (ft): Drilling Method: Sonic Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 798.3 Driller Name: Top of Deck Elev. (ft): Logged By: J. Griffin Location (Y, X): 1244514.9, 2027234



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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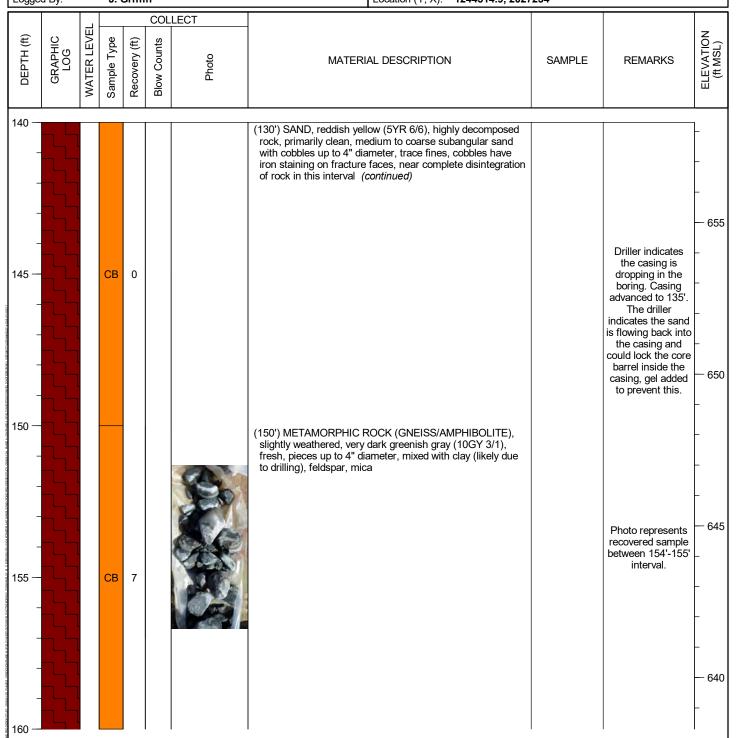
Project: Plant Wansley Pre-Design Investigation

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BORING LOG

Boring No.**S-10**Page: **8 of 9** 

3/13/2017 168 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/17/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 798.3 Driller Name: Top of Deck Elev. (ft): Logged By: J. Griffin Location (Y, X): 1244514.9, 2027234



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.S-10 Page: 9 of 9

3/13/2017 168 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/17/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 798.3 Logged By: J. Griffin Location (Y, X): 1244514.9, 2027234

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
160 —										
-			СВ	2			(150') METAMORPHIC ROCK (GNEISS/AMPHIBOLITE), slightly weathered, very dark greenish gray (10GY 3/1), fresh, pieces up to 4" diameter, mixed with clay (likely due to drilling), feldspar, mica (continued)  (163') Some pyrite along fractured surfaces			_ _ _ 635
165 —			СВ	4			(168.0') Boring Terminated			-

(168.0') Boring Terminated

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

J. Ivanowski and J. Griffin

Geosyntec consultants

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Logged By:

Client: Southern Company Services

Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG Boring No.**S-11** 

Page: 1 of 7

130

4 x 6

CB, ST

798.5

Location (Y, X): 1244858.6, 2027430.6

3/23/2017 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/28/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): DTW During Drilling (ft): Drilling Method: Sonic Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey Top of Deck Elev. (ft):

COLLECT WATER LEVEL ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type **Blow Counts** Recovery (ft) Photo **REMARKS** MATERIAL DESCRIPTION SAMPLE 0 (0') Barge Deck Ţ (3') Water (ash pond) 795 790 10 785 15 Top of ash determined using (18') Top of Ash, SILT, very loose to soft, saturated, dark weighted tag line. 780 gray

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

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Project: Plant Wansley Pre-Design Investigation

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**BORING LOG** 

Boring No.**S-11**Page: **2 of 7** 

3/23/2017 Boring Depth (ft): 130 Drilling Start Date: 4 x 6 Drilling End Date: 3/28/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 798.5 Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1244858.6, 2027430.6

1					COL	LECT				
DЕРТН (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20 -	F R R R R R					Г				$\Box$
25 —							(18') Top of Ash, SILT, very loose to soft, saturated, dark gray (continued)  (28') With trace fine sand	S-11 (22-23)		- - 775 - - - - 770
35 —										- - - 765 - - - - 760

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

Geosyntec<sup>▶</sup> consultants

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.S-11

3 of 7

Page:

3/23/2017 Boring Depth (ft): 130 Drilling Start Date: 4 x 6 Drilling End Date: 3/28/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 798.5 Logged By:

J. Ivanowski and J. Griffin Location (Y, X): 1244858.6, 2027430.6

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40 —	* * ** * * **						(40') Becomes very fine sand to silt		40'-45'	1
- - - 45 —							(42') SILTY SAND (SM); very loose, saturated, black, medium to coarse grained, BOTTOM ASH (43') SILT, dark gray, FLY ASH	S-11 (42-43)	Photo represents recovered sample between 40'-45' interval.	- - - 755 -
- 1001 - 1007 - 1000 -						WANSLEY	(48') SILT with clay (ML); non plastic, very soft, black, FLY ASH		50'-52' Photo represents	- - 750 -
SCA POWER ANT WASH. EVANITIONS TRECKED OR SILVEY. COWS. LIS. THANK		1 1 1 1					(51.5') SILT (ML); non plastic, soft, moist, red to brown, relict rock fabric, micaceous, SAPROLITE	S-11 (52-54)	recovered sample between 50'-52' interval.	- - 745
						PLANT WARREY	(57') SANDY SILT (ML); soft, moist, red, SAPROLITE		Photo represents recovered sample between 56'-58' interval. 56'-58'	-
- 60 —	-							S-11 (59-60)		— 740 -

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

3/23/2017

3/28/2017

Cascade

Mini Sonic 100C

Sonic



Drilling Start Date:

Drilling End Date:

Drilling Company:

Drilling Equipment:

Drilling Method:

Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

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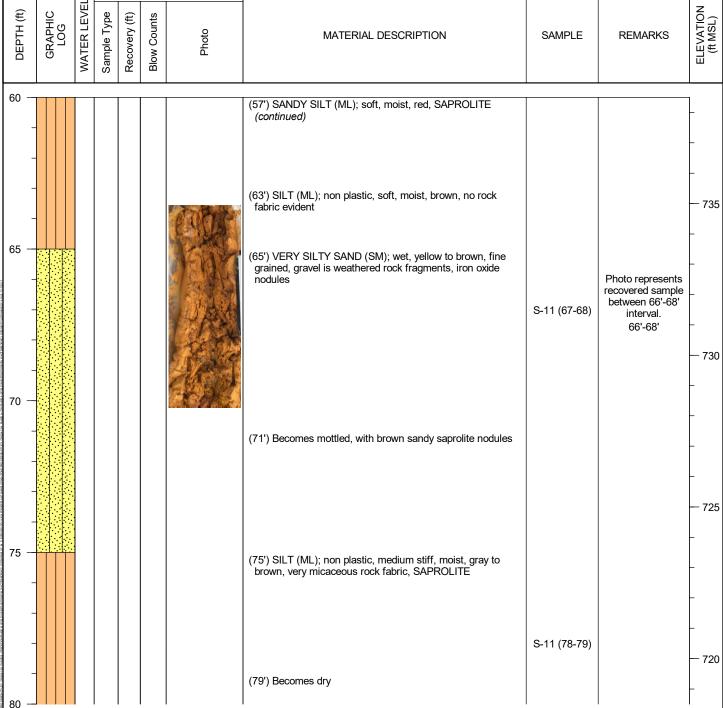
**BORING LOG** Boring No.S-11

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Page:

Boring Depth (ft): 130 Boring Diameter (in): 4 x 6 Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): 798.5 Top of Deck Elev. (ft):

B. Lindsey Driller Name: Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1244858.6, 2027430.6 COLLECT **WATER LEVEL** GRAPHIC LOG DEPTH (ft) Counts Photo MATERIAL DESCRIPTION



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

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**BORING LOG** Boring No.S-11 Page: 5 of 7

3/23/2017 Drilling Start Date: Drilling End Date: 3/28/2017 Drilling Company: Cascade Sonic Drilling Method:

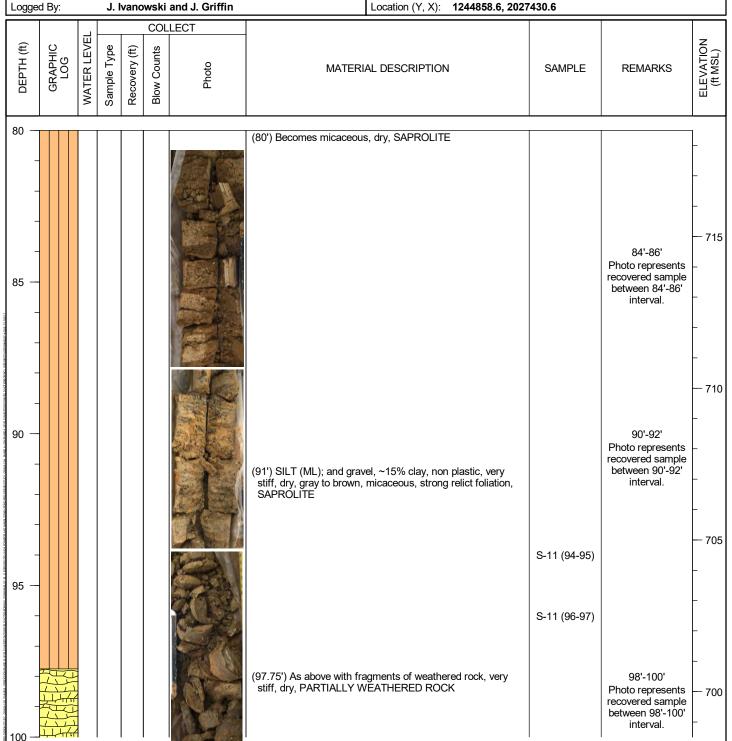
Driller Name:

Mini Sonic 100C Drilling Equipment: B. Lindsey

J. Ivanowski and J. Griffin

130 Boring Depth (ft): Boring Diameter (in): 4 x 6 Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): 798.5 Top of Deck Elev. (ft):

Location (Y, X): 1244858.6, 2027430.6



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

3/23/2017

3/28/2017

Cascade

B. Lindsey

Mini Sonic 100C

Sonic



Drilling Start Date:

Drilling End Date:

Drilling Company:

Drilling Equipment: Driller Name:

Drilling Method:

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.S-11

6 of 7

Page:

Boring Depth (ft): 130 4 x 6 Boring Diameter (in): Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 798.5

Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1244858.6, 2027430.6

					COL	LECT				$\Box$
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100 -		_								$\Box$
100 —			СВ	3			(97.75') As above with fragments of weathered rock, very stiff, dry, PARTIALLY WEATHERED ROCK (continued)  (106') METAMORPHIC ROCK (SCHIST) (CL); with medium to coarse gravel (schist), olive (5Y 5/2), one piece of gravel is the same diameter as the inner core barrel (3.75"), PARTIALLY WEATHERED ROCK  (110') METAMORPHIC ROCK (SCHIST), greenish black (5GY 2.5/1), highly fractured, very micaceous, small weathered garnets, abundant iron staining on fracture faces (MUSCOVITE SCHIST)	S-11 (109-110)	Stop drilling for the day (3/23/2017)  Drilling very slow, 108'-110' Photo represents recovered sample between 108'-110' interval.	- 695 - - - - -
- 1115 —			СВ	3			(115') As above, competent rock, larger dissimenated garnets with very strong banding			- - 685 - - - - - - 680

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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BORING LOG

Boring No.**S-11**Page: **7 of 7** 

3/23/2017 Boring Depth (ft): 130 Drilling Start Date: 4 x 6 Drilling End Date: 3/28/2017 Boring Diameter (in): Drilling Company: Cascade Sampling Method(s): CB, ST Drilling Method: Sonic DTW During Drilling (ft): Mini Sonic 100C DTW After Drilling (ft): Drilling Equipment: Driller Name: B. Lindsey Top of Deck Elev. (ft): 798.5 Logged By: J. Ivanowski and J. Griffin Location (Y, X): 1244858.6, 2027430.6

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120 —	•									
125 —			СВ	6			(115') As above, competent rock, larger dissimenated garnets with very strong banding (continued)		122'-124' Photo represents recovered sample between 122'-124' interval.  Material left in hole	- - - - - - - - - - - -
W							(130.0') Boring Terminated			

NOTE:

1. Drilling was completed in the ash pond from the deck of a barge.

Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.

3. Borings were backfilled with grout using tremie method.



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Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.S-12 Page: 1 of 6

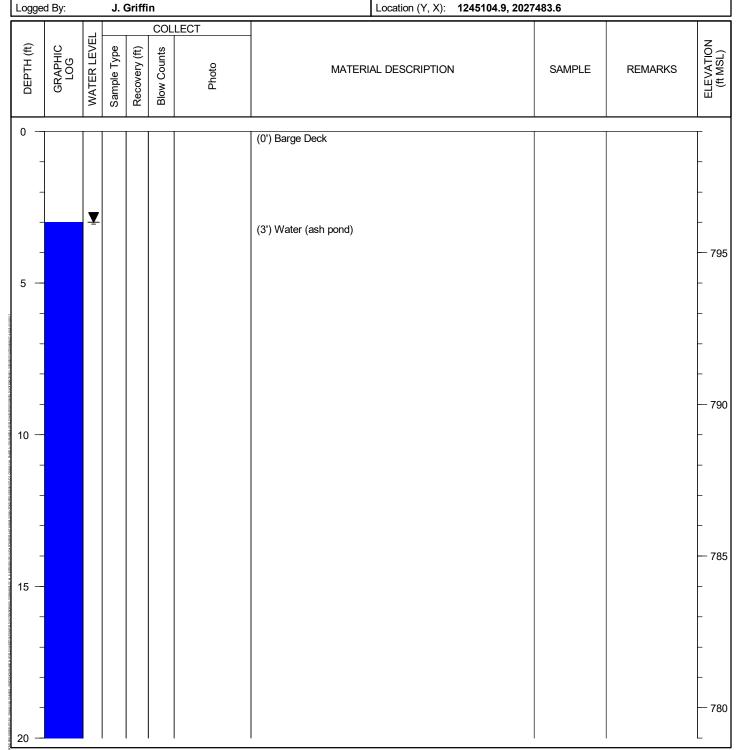
3/28/2017 Drilling Start Date: Drilling End Date: 3/31/2017 Drilling Company: Cascade Drilling Method: Sonic Mini Sonic 100C Drilling Equipment:

Driller Name:

B. Lindsey J. Griffin

110 Boring Depth (ft): 4 x 6 Boring Diameter (in): Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): 799 Top of Deck Elev. (ft):

Location (Y, X): 1245104.9, 2027483.6



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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Project: **Plant Wansley Pre-Design Investigation** Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.S-12 Page: 2 of 6

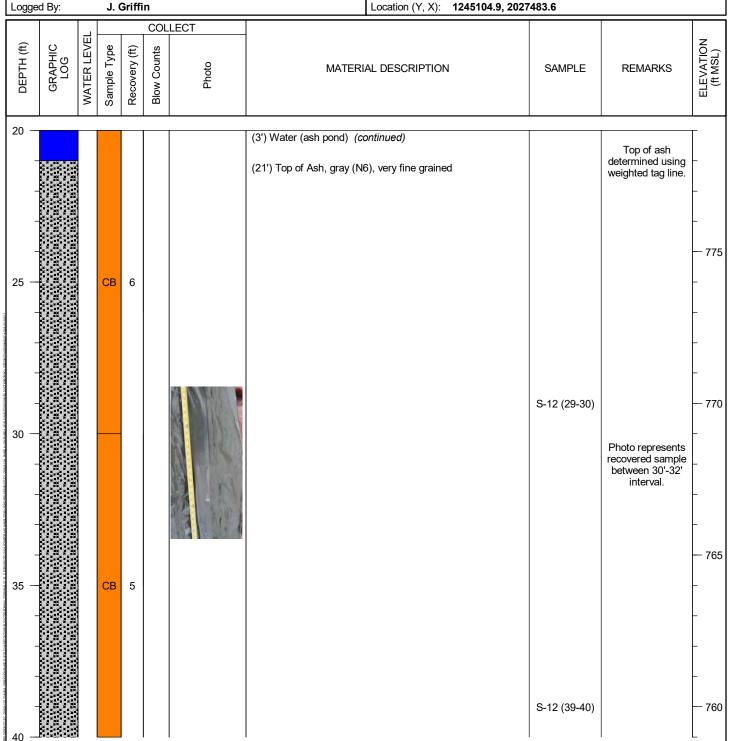
3/28/2017 Drilling Start Date: Drilling End Date: 3/31/2017 Drilling Company: Cascade Drilling Method: Sonic Drilling Equipment:

Driller Name:

Mini Sonic 100C B. Lindsey J. Griffin

110 Boring Depth (ft): 4 x 6 Boring Diameter (in): Sampling Method(s): CB, ST DTW During Drilling (ft): DTW After Drilling (ft): 799 Top of Deck Elev. (ft):

Location (Y, X): 1245104.9, 2027483.6



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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Project: Plant Wansley Pre-Design Investigation

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Boring Depth (ft):

110

4 x 6

799

CB, ST

BORING LOG
Boring No.S-12
Page: 3 of 6

Drilling Start Date: 3/28/2017
Drilling End Date: 3/31/2017
Drilling Company: Cascade
Drilling Method: Sonic
Drilling Equipment: Mini Sonic

Driller Name:

3/31/2017Boring Diameter (in):CascadeSampling Method(s):SonicDTW During Drilling (ft):Mini Sonic 100CDTW After Drilling (ft):B. LindseyTop of Deck Elev. (ft):

Logged By: J. Griffin Location (Y, X): 1245104.9, 2027483.6

=							<u>'</u>			
					COL	LECT				
DEPTH (ft)	GRAPHIC	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40										_
45			СВ	8.5			(21') Top of Ash, gray (N6), very fine grained <i>(continued)</i> (45') CLAY (CL); dry, red (2.5YR 4/8), SAPROLITE  (46') SILT with clay (ML); wet, light yellowish brown (2.5Y 6/3), homogenous texture (i.e. no rock fabric evident), micaceous (fine)	S-12 (45-46)	Photo represents recovered sample between 44'-46' interval.	- - - 755 - -
ATIONATE DE										— 750
50	_									-
25. — Таков посторожно в типоничений проделений предоставлений проделений предоставлений предос			СВ	9				S-12 (59-60)	Photo represents recovered sample between 55'-57' interval.	- - 745 - - - - 740
55 60	-		СВ	9				S-12 (59-60)	recovered sample between 55'-57'	

- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

Geosyntec consultants

Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

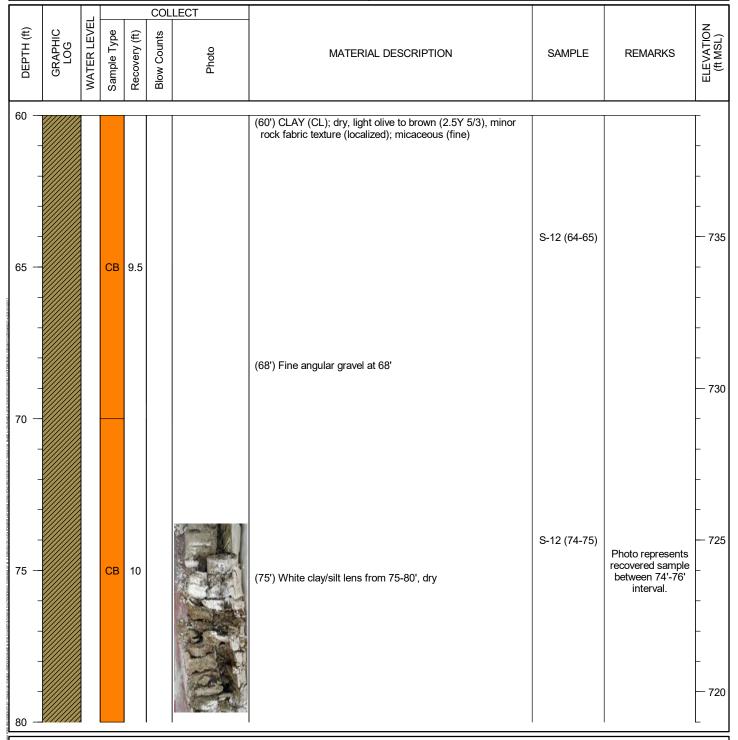
**BORING LOG** Boring No.S-12

4 of 6

Page:

3/28/2017 110 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/31/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST DTW During Drilling (ft): Drilling Method: Sonic Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): Driller Name: B. Lindsey 799 Top of Deck Elev. (ft):

Logged By: J. Griffin Location (Y, X): 1245104.9, 2027483.6



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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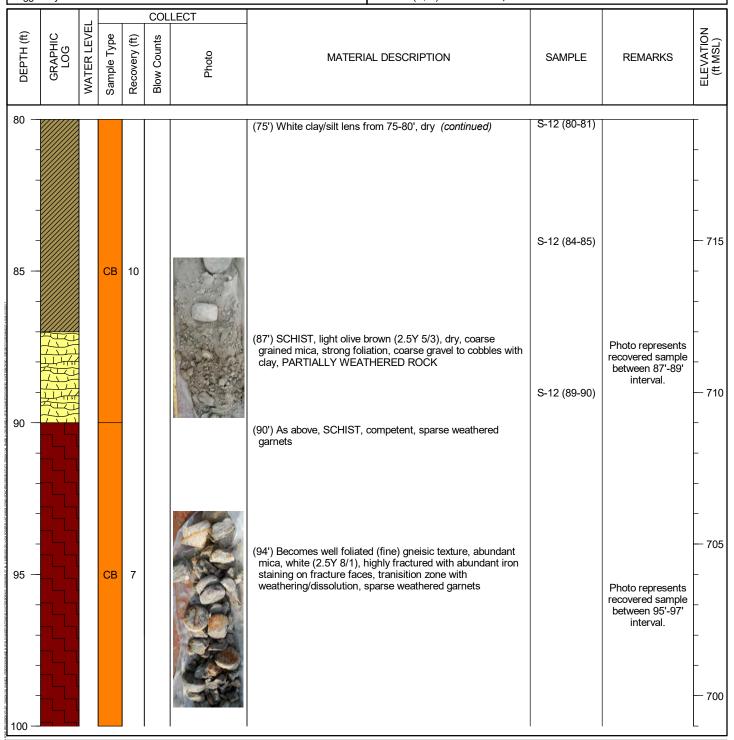
Client: Southern Company Services
Project: Plant Wansley Pre-Design Investigation

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG
Boring No.S-12
Page: 5 of 6

3/28/2017 110 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/31/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST DTW During Drilling (ft): Sonic Drilling Method: Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799 Driller Name: Top of Deck Elev. (ft):

Logged By: J. Griffin Location (Y, X): 1245104.9, 2027483.6



- 1. Drilling was completed in the ash pond from the deck of a barge.
- 2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Borings were backfilled with grout using tremie method.



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Client: Southern Company Services

Project: Plant Wansley Pre-Design Investigation

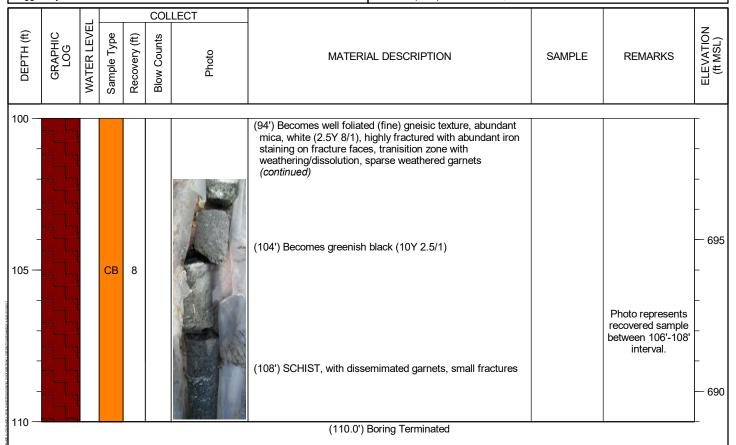
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

BORING LOG

Boring No.**S-12**Page: **6 of 6** 

3/28/2017 110 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/31/2017 Boring Diameter (in): 4 x 6 Drilling Company: Cascade Sampling Method(s): CB, ST Sonic Drilling Method: DTW During Drilling (ft): Mini Sonic 100C Drilling Equipment: DTW After Drilling (ft): B. Lindsey 799 Driller Name: Top of Deck Elev. (ft):

Logged By: J. Griffin Location (Y, X): 1245104.9, 2027483.6



- 1. Drilling was completed in the ash pond from the deck of a barge.
- Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Borings were backfilled with grout using tremie method.

Geosyntec consultants

Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-1

1 of 5

Page:

3/21/2017 Drilling Start Date: Drilling End Date: 3/23/2017

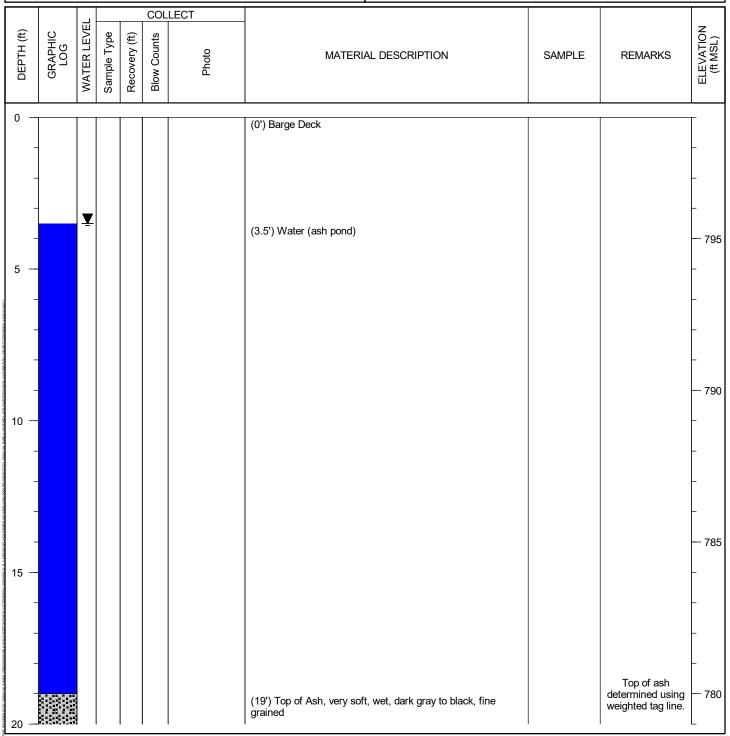
Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: J. Gasser Boring Depth (ft): 84 Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): 799 Top of Deck Elev. (ft):

Location (Y, X): 1242292.9, 2026700.5



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>▶</sup> consultants

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-1 Page: 2 of 5

3/21/2017 Drilling Start Date: Drilling End Date: 3/23/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: J. Gasser Boring Depth (ft): 84 Boring Diameter (in): Sampling Method(s): SPT, ST

DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1242292.9, 2026700.5

					COL	LECT	•			
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20 -							(19') Top of Ash, very soft, wet, dark gray to black, fine grained (continued)			
25 —			SPT		WOR WOR WOR				Sample poured out of split spoon N=0	- - 775 -
There is a contract c			SPT	0	WOH WOH WOH				Sample poured out of split spoon N=0	- - - 770
			SPT	1.7	WOR WOR WOR		(32') FLY ASH, non plastic, very soft, wet, black, fine grained, non cohesive		N=0	- - 765
			SPT	1.8	WOR WOR WOH 3		(38.7') SILT with mica (ML); non plastic, moist, light brown, cohesive (39') As above; non plastic, moist, cohesive		N=0 Top of Native Soil 38.7' Drilled to 39' and set bentonite plug	- - - 760

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

S. White and R. Odom



Driller Name:

**Southern Company Services** Client: Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

Top of Deck Elev. (ft):

799

**BORING LOG** Boring No.M-1

Page: 3 of 5

3/21/2017 Boring Depth (ft): 84 Drilling Start Date: Drilling End Date: 3/23/2017 Boring Diameter (in): Drilling Company: **Thompson Engineering** Sampling Method(s): SPT, ST Drilling Method: **Mud Rotary** DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft):

Logged By: J. Gasser Location (Y, X): 1242292.9, 2026700.5

=		1					•			==
					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40	•					•				
40 —							(39') As above; non plastic, moist, cohesive <i>(continued)</i>		from 39-41'	
45 —			SPT ST	1	8 9 12 15		(42') SILT with mica (ML); non plastic, very stiff, moist, light brown with layering of dark brown, fine grained, non cohesive  (46') SILT with medium grain mica (ML); very stiff, moist, light brown, fine grained (46.9') SILT (ML); with medium grained mica, non plastic, very stiff, moist, brown, non cohesive  (48') SILT (ML); and medium grained mica, non plastic, very stiff, moist, brownish red to brownish gray, non cohesive	ST-M1-1	Top 2" of spoon were bentonite plug, N=21  Could only push 13", pushing barge up  N=21 Photo represents recovered sample between 46'-48' interval.	- - 755 - -
- Espanon	-		SPT	1	9				N=18	<del> 750</del>
50 —			SPT	1.5	13 26 33 50		(50') SILT with increasing amounts of mica (ML); and schist (medium grained with trace coarse grain), non plastic, hard, moist, gray, non cohesive  (52') SILT (ML); low plasticity, moist, brown, cohesive		N=59	_ _ _
DANCH HOMOS					7	0	(32) SILT (ML), low plasticity, moist, brown, corresive			
STAN TOMERS AND WARN			SPT	1.3	9 13 49	9110	(53') SILT with feldspar and trace quartz grains (ML); non plastic, very stiff, white, non cohesive		N=22	-
55 —			SPT	0.3	2 50/4.5	1 0 1 2 3 14	(54') SILT with feldspars (ML); non plastic, hard, white, non cohesive		Hard layer at 54.5'	745 - -
			SPT	2	2 2 2 4	8 C 7 R 9 TO 10	(57') LEAN CLAY with silt (CL); medium plasticity, very soft, moist, brown (57.7') SILT (ML); non plastic, very soft, moist, white (58') SILT (ML); low plasticity, soft, moist, brownish orange		N=4 Photo represents recovered sample between 57'-59' interval.	- - 740

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-1 Page: 4 of 5

3/21/2017 Drilling Start Date: Drilling End Date: 3/23/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: J. Gasser

Boring Depth (ft): 84 Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1242292.9, 2026700.5

		١.			COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60 —			ST	1.6			(58') SILT (ML); low plasticity, soft, moist, brownish orange (continued)	ST-M1-2		
-			SPT	1.4	5 11 16 20		(62') SILT with increasing amounts of medium grained mica (ML); non plastic, very stiff, moist, brown with gray streaks, non cohesive  (64') SANDY SILT with mica (SM); non plastic, very stiff,		N=27	- - - 735
65 —			SPT	1.6	6 13 16 23		moist, brown to gray, non cohesive			_
COST CIRCLE IN THE PRINTED FOR ALCO IN BUT SCOOL			SPT	1.8	11 12 18 23		(66') SANDY SILT with medium grain mica (SM); non plastic, hard, moist, gray with brown, non cohesive		N=30, Photo represents recovered sample between 66'-68' interval.	_
OF IN DIRECTION OF THE DIRECTION OF THE OWN			SPT	1.7	9 13 18 28		(68') SANDY SILT with medium grain mica (SM); non plastic, hard, moist, gray with brownish white, non cohesive			- 730
70 —			SPT	1.6	11 23 38 50/5.5		(70') SANDY SILT with mica (SM); non plastic, hard, moist, gray with brown, non cohesive, increased mica and garnets (most medium grain, some coarse)		N=61	-
CONTROL OF MOUNTAINING CORPUS DE MICHAEL CONTROL OF CON			SPT	1.8	20 30 30 31	2 R 3 4			N=60, Photo represents recovered sample between 72'-74'	- - 725
75 —							(77) COLUCT - W		interval.	- -
— 80 —			SPT	0.7	25 50/2	9	(77') SCHIST, with mica sheeting and feldspars, black, crumbles easily, some brown silt, PARTIALLY WEATHERED ROCK		Partially Weathered Rock contact at 78.5'	- 720 

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-1 Page: 5 of 5

3/21/2017 Drilling Start Date: Drilling End Date: 3/23/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: S. White and R. Odom

Logged By: J. Gasser

Driller Name:

84 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): 799 Top of Deck Elev. (ft):

Location (Y, X): 1242292.9, 2026700.5

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 -	7					ı				1
-							(77') SCHIST, with mica sheeting and feldspars, black, crumbles easily, some brown silt, PARTIALLY WEATHERED ROCK (continued)  (82') SCHIST, with mica, felspars, black, very hard, quartz			_
-	111111		SPT		50/1.5		placed in layers, PARTIALLY WEATHERED ROCK  (84 0') Boring Terminated			715

(84.0') Boring Terminated

Drilling was completed in the ash pond from the deck of a barge.
 Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
 Drillers used split spoons for sampling and a tricone bit for rotary drilling.

<sup>4.</sup> Borings were backfilled with grout using tremie method.



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-2 Page: 1 of 4

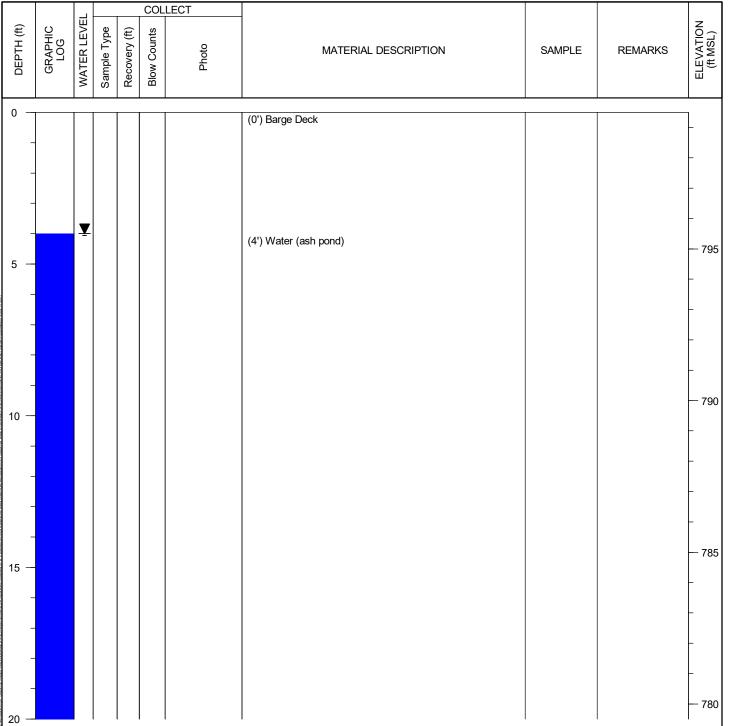
3/23/2017 Drilling Start Date: Drilling End Date: 3/23/2017 Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: J. Gasser

76.2 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): 799.5 Top of Deck Elev. (ft):

Location (Y, X): 1242560.2, 2026755.1



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.5 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>▶</sup> consultants

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-2 Page: 2 of 4

3/23/2017 Drilling Start Date: Drilling End Date: 3/23/2017

Drilling Company: **Thompson Engineering** Drilling Method: **Mud Rotary** 

CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: J. Gasser

76.2 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799.5

Location (Y, X): 1242560.2, 2026755.1

Logge	) -			<b>J</b> u33	-		EGGGRIGH (1, 74). 12420012, 2020			
					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20 —									T	$\overline{}$
							(4') Water (ash pond) (continued)			_
_										_
										_
-									Top of ash	-
-							(24') Top of Ash		Top of ash determined using weighted tag line.	— 775
25 —										_
T17001.7										
TILESWANS E7.40										
TESS COLUMN TO					ļ 		(28') FLY ASH, very soft, dark gray, fine			
SDSATICMEN DAG			SPT	0	WOR WOR WOR WOR				N=0	_
30 —					WOR					<del> 770</del>
CALIDA PARE ALOR										_
EDERGONS TREY, COM										-
WELL FORSH (FORD PR										-
SCA FOMFIEL ANT IS			ОРТ		WOR WOR		(33') FLY ASH, non plastic, very soft, wet, dark gray to black, fine grained, non cohesive			-
CM 8 BORNOS GP.			SPT	1	WOR WOR WOR WOR				N=0	— 765
35 —										_
ADDRESS DANCES										
E B-ITRED INVESTIG	[ ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ]									
E D. FREDES COMPAN					WOR		(38') FLY ASH, non plastic, very soft, wet, dark gray, fine			
Or common to the			SPT	1.3	WOR WOR		grained, non cohesive		N=0	
40 —	12 1 2 1 2 1 2 1 2 2 2 2 2 2 2 2 2 2 2				WOR					<del>- 760</del>

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.5 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>▶</sup> consultants

## **Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-2 Page: 3 of 4

76.2 3/23/2017 Boring Depth (ft): Drilling Start Date: Drilling End Date: 3/23/2017 Boring Diameter (in): Drilling Company: **Thompson Engineering** Sampling Method(s): SPT, ST Drilling Method: **Mud Rotary** DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft): Driller Name: S. White and R. Odom Top of Deck Elev. (ft): 799.5 Logged By: J. Gasser Location (Y, X): 1242560.2, 2026755.1

	_									$\overline{}$
1		┙			COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40 -	-									
40							(38') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, non cohesive <i>(continued)</i>			-
45 -			SPT	1.3	WOR WOR WOR WOR		(43') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, non cohesive		N=0 Photo represents recovered sample	- 755
ditoring conditional conditional relations by data and a state of the data and			ST	0			(48') FLY ASH, very soft, wet, dark gray, fine grained	M2 (48-50)	between 43'-45' interval.  Attempted Shelby	-
50 -								(10 00)	Tube, no recovery.	— 750 - -
255 – 550 – 1			SPT	1.2	WOR WOR WOR WOR		(53') FLY ASH, non plastic, very soft, wet, dark gray with black, fine grained, non cohesive		N=0	- 745 -
PROCESSOR II IZV. GORGEL OR LINEAL INTEGRICATION OF A LITE DIMENTING TOWN IN COURSE OF			SPT	1.9	WOR WOR WOR WOR		(58') FLY ASH, non plastic, very soft, wet, dark gray with black, fine grained, non cohesive		N=0	- - - 740

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.5 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



## Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation**

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-2

Page: 4 of 4

Drilling Start Date: 3/23/2017 Drilling End Date: 3/23/2017 Drilling Company: **Thompson Engineering** 

**Mud Rotary** Drilling Method: CME-45C Drilling Equipment:

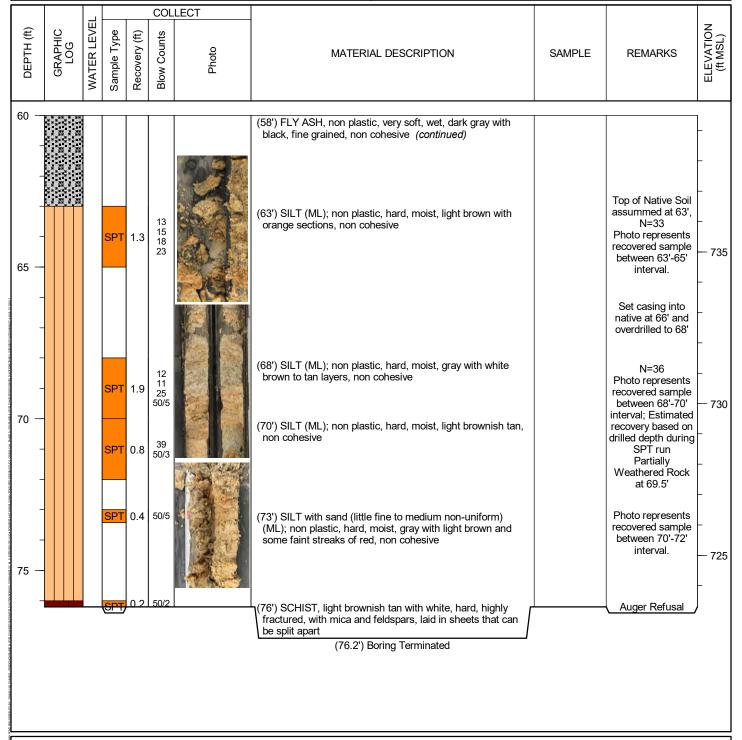
Logged By:

S. White and R. Odom Driller Name:

J. Gasser

76.2 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799.5

Location (Y, X): 1242560.2, 2026755.1



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.5 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-3 Page: 1 of 5

3/27/2017 Drilling Start Date: Drilling End Date: 3/28/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White

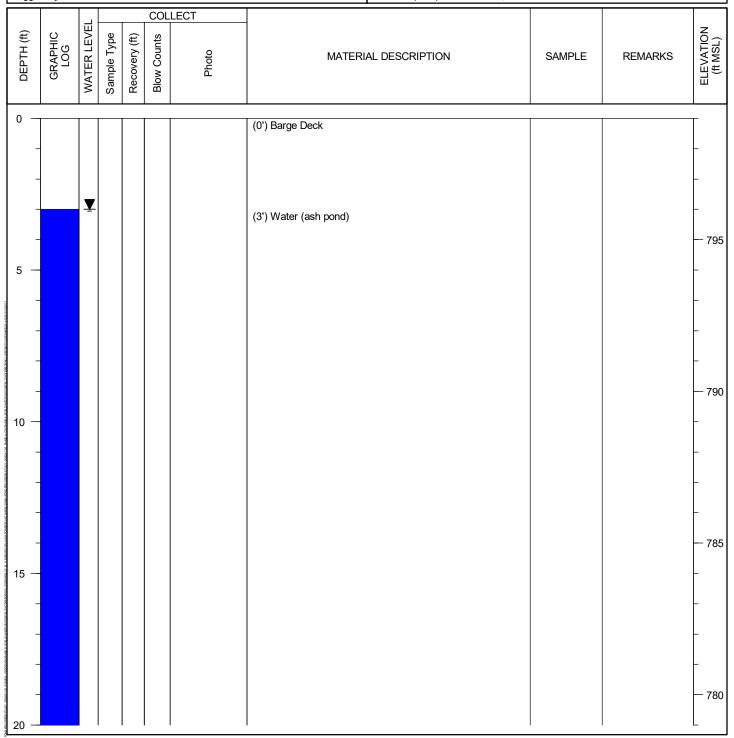
Logged By: J. Ivanowski and H. Lutz

94.6 Boring Depth (ft): Boring Diameter (in): SPT, ST Sampling Method(s): DTW During Drilling (ft): DTW After Drilling (ft):

Top of Deck Elev. (ft):

Location (Y, X): 1242893.1, 2026855.5

799



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

S. White

Geosyntec<sup>D</sup>

Driller Name:

Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Top of Deck Elev. (ft):

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

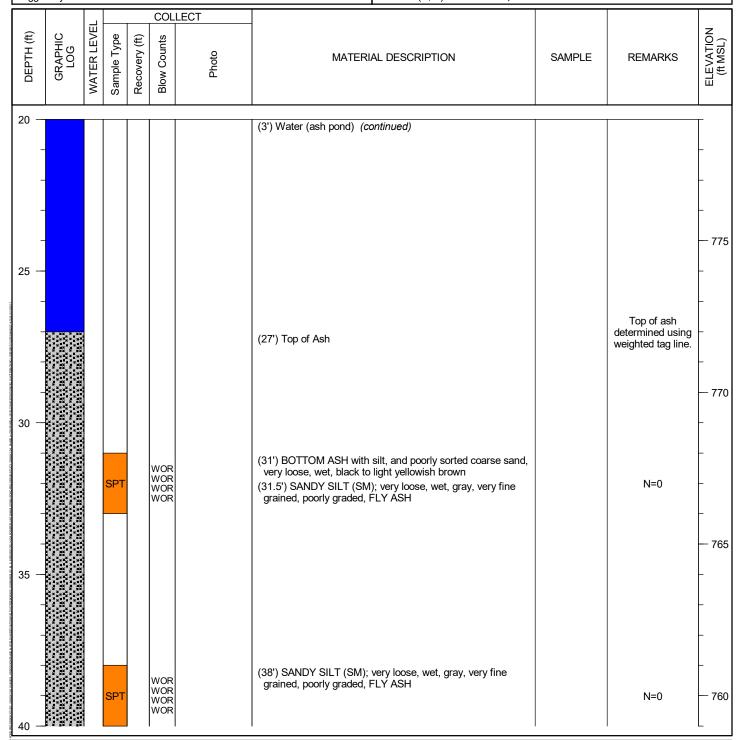
**BORING LOG** 

Boring No.M-3 Page: 2 of 5

799

3/27/2017 94.6 Drilling Start Date: Boring Depth (ft): Drilling End Date: 3/28/2017 Boring Diameter (in): Drilling Company: **Thompson Engineering** Sampling Method(s): SPT, ST **Mud Rotary** Drilling Method: DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft):

Logged By: J. Ivanowski and H. Lutz Location (Y, X): 1242893.1, 2026855.5



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-3

Page: 3 of 5

3/27/2017 Boring Depth (ft): 94.6 Drilling Start Date: Drilling End Date: 3/28/2017 Boring Diameter (in): Drilling Company: **Thompson Engineering** Sampling Method(s): SPT, ST Drilling Method: **Mud Rotary** DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft): Driller Name: S. White Top of Deck Elev. (ft): 799

Logged By: J. Ivanowski and H. Lutz Location (Y, X): 1242893.1, 2026855.5

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40 -	* 3 3 4 3 3 3 4 4 5 5 5 5 5 5 5 5 5 5 5 5						(38') SANDY SILT (SM); very loose, wet, gray, very fine			_
							grained, poorly graded, FLY ASH (continued)			-
					WOR		(43') SILT (ML); non plastic, very soft, wet, very dark gray, FLY ASH			
45 -	## ## ## ## ## ## ## ## ## ## ## ## ##		SPT		WOR WOR WOR		(44.5') SILTY CLAY (CL); low plasticity, very soft, wet, dark gray, cohesive, FLY ASH		N=0	— 755 -
1 modern of the control of the contr			SPT		WOR WOR WOR WOR		(48') CLAYEY SILT (ML); trace very fine grained sand, low plasticity, very soft, wet, dark gray, cohesive, FLY ASH		N=0	- - - 750 -
portion common of the 1-4 pointing on two recommendations from recommendation in con-			SPT		WOR WOR WOR		(53') SANDY SILT (ML); little fine sand, non plastic, very soft, wet, dark gray, FLY ASH		N=0	- - 745 -
			SPT		WOR WOR WOR		(58') SANDY SILT (ML); little fine sand, non plastic, very soft, wet, dark gray, FLY ASH		Rods and sampler slipped and pushed to ~75' the driller recovered the rods N=0	- - - 740

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-3 Page: 4 of 5

3/27/2017 Boring Depth (ft): 94.6 Drilling Start Date: Drilling End Date: 3/28/2017 Boring Diameter (in): SPT, ST Drilling Company: **Thompson Engineering** Sampling Method(s): Drilling Method: **Mud Rotary** DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft): Driller Name: S. White Top of Deck Elev. (ft): 799

Logged By: J. Ivanowski and H. Lutz Location (Y, X): 1242893.1, 2026855.5

					COL	LECT	·			
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60 -	* # # # # # # # # # # # # # # # # # # #			1			(58') SANDY SILT (ML); little fine sand, non plastic, very			$_{T}$
-					WOR		soft, wet, dark gray, FĹY ASH (continued)  (63') SILT (ML); trace fine sand, non plastic, very soft, wet, very dark gray, uniform, FLY ASH			-
65 —			SPT		WOR WOR		(64.5') SILTY SAND (ML); trace clay, very loose, wet, dark gray, fine to medium grained, well graded, FLY ASH		N=0	- 735 - - -
7 70 — Tracellori incorpose rice in trace - reconstructive reconst			ST	0.9		7-8-9-106771 - 1-1	(68') FLY ASH	M-3 (68-70)	Collected Shelby Tube with Piston Sampler	- - 730 - -
- 75 —			SPT		WOR WOR WOR	G S S S S	(73') SILT, trace clay, non plastic, very soft, wet, dark gray (2.5Y 3/1), uniform, FLY ASH		N=0, Photo represents recovered sample between 73'-75' interval.	- 725 -
- 80 —			SPT		WOR WOR WOR	N.	(78') SILT, trace clay, non plastic, very soft, wet, dark gray (2.5Y 3/1), uniform, FLY ASH		N=0	_ _ 720

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: Project:

**Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-3 Page: 5 of 5

3/27/2017 Drilling Start Date: Drilling End Date: 3/28/2017

Drilling Company: Drilling Method: **Mud Rotary** CME-45C Drilling Equipment:

Driller Name: S. White Logged By: J. Ivanowski and H. Lutz

Boring Diameter (in): **Thompson Engineering** Sampling Method(s): DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Boring Depth (ft):

Location (Y, X): 1242893.1, 2026855.5

94.6

SPT, ST

							*			
		١.			COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
00										
80 -	_				WOR		(78') SILT, trace clay, non plastic, very soft, wet, dark gray (2.5Y 3/1), uniform, FLY ASH (continued)  (83') SILT (ML); trace fine sand, non plastic, very soft, wet, dark gray, FLY ASH		Mud rotary to 83'  N=0, Photo represents	-
85 -			SPT		WOR WOR WOR		(84.1') SAND (SW-SM); low plasticity, loose, wet, light olive brown (2.5Y 5/3), fine to coarse grained (84.6') SAND with silt (SP-SC); with roots and woody debris, non plastic, soft, wet, very dark grayish brown, very fine		recovered sample between 83'-85' interval. Ash-Native soil contact at 84.1'	— 715 -
1 (59) WARNS EY 4.CG B ET 5001 7			ST	1.4			grained (85') SAND with silt (SP-SC); and clay, medium dense, wet, dark grayish brown (2.5Y 4/2), very fine grained, uniform		Sampler dropped	-
MONTH DINCESSORING COSTINUE			SPT		1 WOH WOH WOH				full length of SPT and 6-8" with one blow of hammer, N=0	_ 710
THOS. CONTRACT IN THASE A. CONTRACT DE DESCRIPTOR DE CONTRACT DE DESCRIPTOR DE CONTRACT DE			SPT		12		(90.3') SCHIST, very light gray, weathered bedrock, friable sandy, mica component of parent rock obvious, while no garnet obvious, possible garnet schist parent rock		Contact defined for top of partially weathered rock at 90.3' Photo represents	-
NATWANS PASHTOND INC. DES DES DES			SPT		50/4		(92.5') SCHIST, micaceous weathered schist rock as above, has large angular gravels of quartzite within schist		recovered sample between 91'-92' interval.	- -
Y M. S. ROWNES OPE NEED FORWARD			SPT		50/1		(94.6') Boring Terminated			<del> 705</del>
2							(37.0) Donnig Terminated			

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec consultants

Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-4 Page: 1 of 6

3/28/2017 Drilling Start Date: Drilling End Date: 3/29/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: P. Pitts and R. Odom

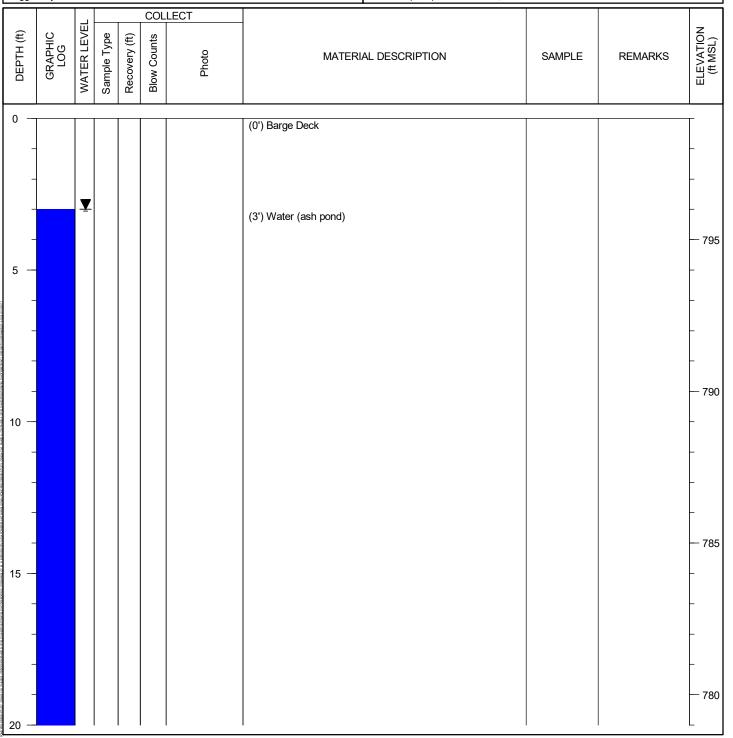
Logged By: J. Gasser and H. Lutz

107.3 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft):

Top of Deck Elev. (ft):

Location (Y, X): 1243097.5, 2026930.5

799



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-4 Page: 2 of 6

3/28/2017 Drilling Start Date: Drilling End Date: 3/29/2017

Drilling Company: **Thompson Engineering** 

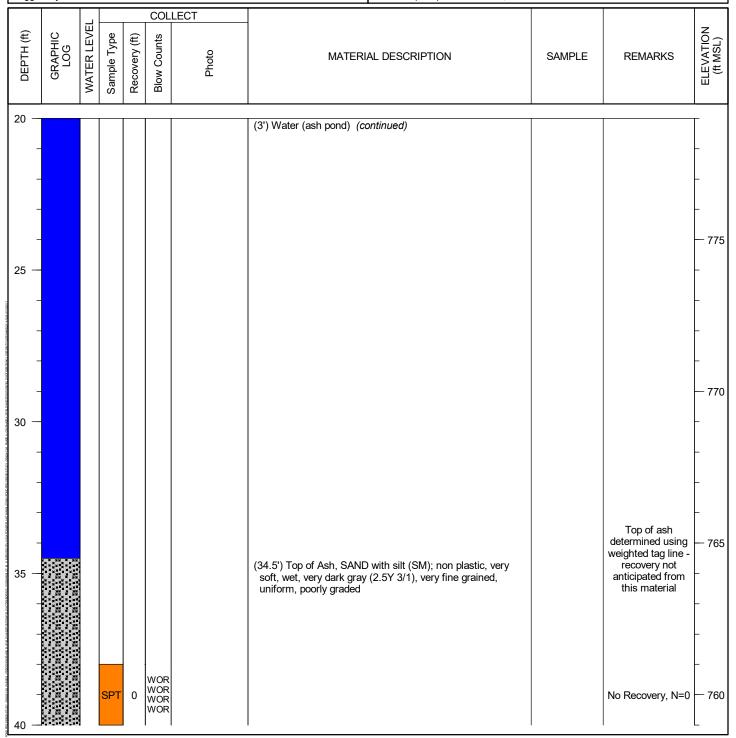
**Mud Rotary** Drilling Method: CME-45C Drilling Equipment: P. Pitts and R. Odom Driller Name:

Logged By: J. Gasser and H. Lutz

107.3 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): 799 Top of Deck Elev. (ft):

Location (Y, X): 1243097.5, 2026930.5



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-4 Page: 3 of 6

3/28/2017 Drilling Start Date: Drilling End Date: 3/29/2017

Drilling Company: **Thompson Engineering** Drilling Method: **Mud Rotary** 

CME-45C Drilling Equipment: Driller Name: P. Pitts and R. Odom

Logged By: J. Gasser and H. Lutz

107.3 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft):

Top of Deck Elev. (ft): Location (Y, X): 1243097.5, 2026930.5

799

		CC		COL	LECT					
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40 -	6						(34.5') Top of Ash, SAND with silt (SM); non plastic, very			
-	######################################						soft, wet, very dark gray (2.5Y 3/1), very fine grained, uniform, poorly graded (continued)			_
-	**************************************									-
-					WOR					-
-	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		SPT	1	WOR WOR WOR WOR				N=0	— 755
45 —										-
71038 81 80017										_
CONTRACTOL DOWNERS OF										=
ENDERGENE DNG STREET	**************************************				WOR WOR					
			SPT	0	WOR WOR WOR WOR				No Recovery, N=0	— <i>7</i> 50
50 —										
EDES ON S TUDY. CANCEL										_
MORE DARKED PARKET										_
de sea contre an			SPT	0	WOR WOR WOR				No Recovery, N=0	— 745
55 —					WOR					-
La Nortes Britang Losses										-
amenta produce posterio										-
I'd secures addu.										-
DY CANCEL DE PINCE	2 1 2 2 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2		SPT	0.4	WOR WOR WOR				N=0	— 740
60 —	2 (4/22 (4/2) (4/2) 4/2 (4/2) 4/2 (4				WOR					L

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-4 Page: 4 of 6

107.3 3/28/2017 Boring Depth (ft): Drilling Start Date: Drilling End Date: 3/29/2017 Boring Diameter (in): Drilling Company: **Thompson Engineering** Sampling Method(s): SPT, ST Drilling Method: **Mud Rotary** DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft): Driller Name: P. Pitts and R. Odom Top of Deck Elev. (ft): 799

Logged By: J. Gasser and H. Lutz Location (Y, X): 1243097.5, 2026930.5

					001	LECT				$\overline{}$
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Poot Poot	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
65 -			SPT	1.4	WOR WOR WOR	50 6 7 8 8 7 1 5 2	(63') SAND with silt (SC); and increasing clay content, low to medium plasticity, soft, wet, dark gray, fine grained, ASH		N=0, Photo represents recovered sample between 63'-65' interval.	- - 735 -
70 — 70 —			ST	1.1				M-4 (68-70)		- 730 -
			SPT	2	WOR WOR WOR WOR		(73') FLY ASH (SC); low plasticity, very soft, saturated to wet, dark gray, fine grained		N=0	- - - 725 -
One consistency co			SPT	2	WOR WOR WOR WOR		(78') FLY ASH (SC); low plasticity, very loose, dark gray, fine grained		N=0	- - - 720

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-4

5 of 6

Page:

3/28/2017 Drilling Start Date: Drilling End Date: 3/29/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: P. Pitts and R. Odom

Logged By: J. Gasser and H. Lutz

107.3 Boring Depth (ft):

Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1243097.5, 2026930.5

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 -	* * * * * * * * * * * * * * * * * * *						(78') FLY ASH (SC); low plasticity, very loose, dark gray,			_
			SPT	2	WOR WOR WOR		fine grained (continued)  (83') FLY ASH, very soft, dark gray, fine grained		N=0	- - - 715
2.000 100 100 100 100 100 100 100 100 100					WOR		(88') LEAN CLAY (CL); few organics, medium plasticity,			-
100 money in these a continue and articles are articles and articles and articles and articles are are articles are articl	-		SPT	1.1	WOR WOR 1		very soft, moist, brown, cohesive (88.92') LEAN CLAY (CL); very soft, gray		Native at 88'	710 
O DES PACES EXPONENTE ANT VANCES ENABLERINGS FOR LEGIS OF SEC.			SPT	0.4	28 31 14 8		(91.5') LEAN CLAY (CL); with sand, medium plasticity, very stiff, moist, brown to gray, cohesive, PARTIALLY WEATHERED ROCK		N=45	- - 705
			SPT	0.9	2 7 27 50/5		(94') SILTY SAND with gravel (SM); non plastic, very dense, moist, light brown to brown, quartzite, non cohesive, PARTIALLY WEATHERED ROCK		Partially Weathered Rock at 95.5'	-
100 –			SPT	1.2	11 28 46 48		(98') SILTY SAND with gravel (SM); non plastic, very dense, moist, brown with layers of light brown, non cohesive		N=74	<del>- 7</del> 00

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-4 Page: 6 of 6

3/28/2017 Drilling Start Date: Drilling End Date: 3/29/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: P. Pitts and R. Odom Driller Name:

Logged By: J. Gasser and H. Lutz

107.3 Boring Depth (ft):

Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): 799 Top of Deck Elev. (ft):

Location (Y, X): 1243097.5, 2026930.5

					COL	LECT				
DEРТН (ft)	DEPTH (ft) GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100 —		1								$_{\perp}$
_							(98') SILTY SAND with gravel (SM); non plastic, very dense, moist, brown with layers of light brown, non cohesive (continued)			
_										_
_			SPT	0.8	25 31		(103') SILTY SAND with gravel (5m) (SM); non plastic, moist, brown, non cohesive			— 695
105 —			5	0.0	50/4					
103										
B PY 4 CL B 81 5001 T										
TUTESWAR			SPT		50/3		ر(107') SCHIST, gray to brown, highly fractured			Γ
1900 T 19							(107.3') Boring Terminated			

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-5 Page: 1 of 7

3/30/2017 Drilling Start Date: Drilling End Date: 4/4/2017

Drilling Company: **Thompson Engineering** 

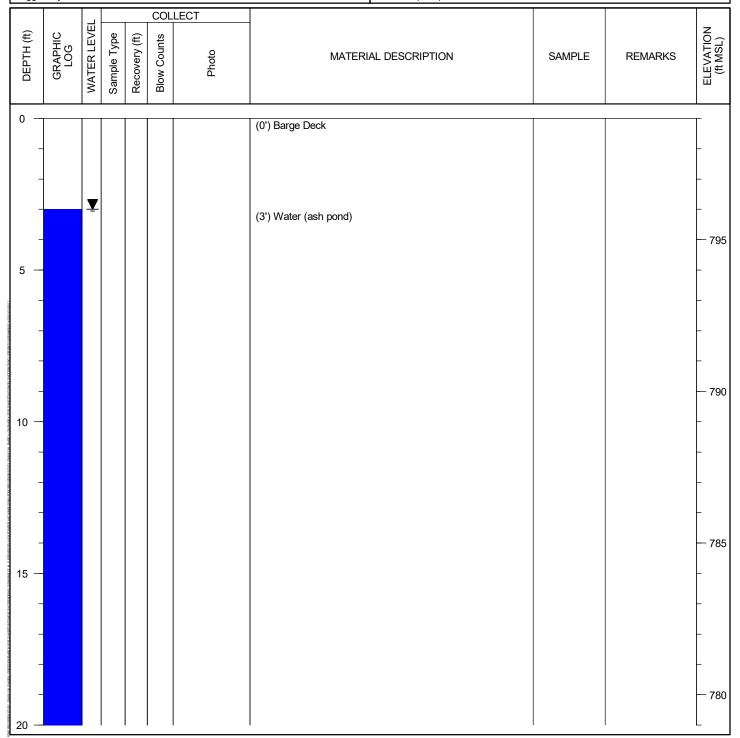
Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: P. Pitts and R. Odom

Logged By: J. Gasser and H. Lutz

128.2 Boring Depth (ft): Boring Diameter (in): SPT, ST Sampling Method(s): DTW During Drilling (ft):

DTW After Drilling (ft): 799 Top of Deck Elev. (ft):

Location (Y, X): 1243387.8, 2027006.3



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-5 Page: 2 of 7

3/30/2017 Drilling Start Date: Drilling End Date: 4/4/2017

Drilling Company: **Thompson Engineering** 

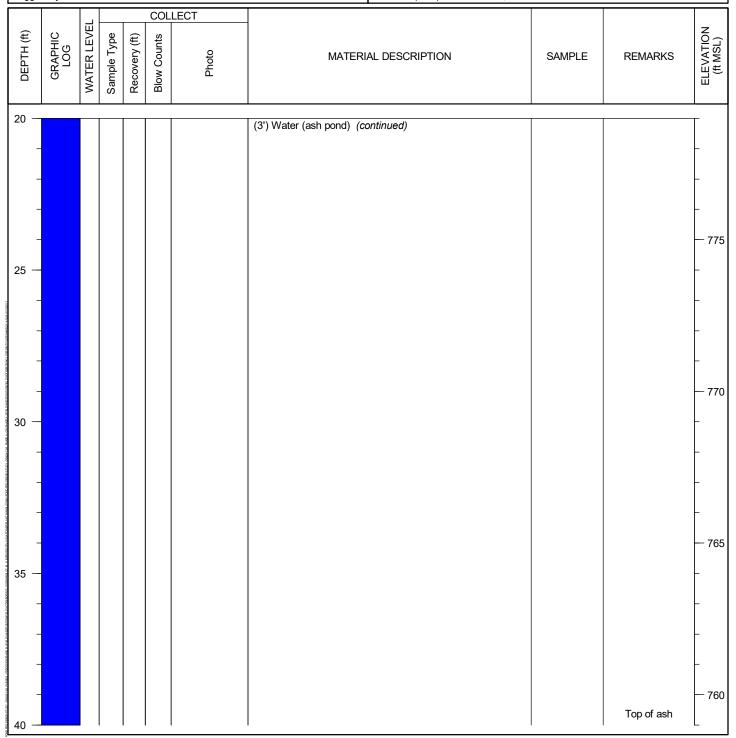
Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: P. Pitts and R. Odom

Logged By: J. Gasser and H. Lutz

128.2 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): 799 Top of Deck Elev. (ft):

Location (Y, X): 1243387.8, 2027006.3



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling. 4. Borings were backfilled with grout using tremie method



**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-5 Page: 3 of 7

3/30/2017 Drilling Start Date: Drilling End Date: 4/4/2017

Drilling Company: **Thompson Engineering** Drilling Method: **Mud Rotary** 

CME-45C Drilling Equipment: Driller Name: P. Pitts and R. Odom

Logged By: J. Gasser and H. Lutz

128.2 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1243387.8, 2027006.3

					COL	LECT	·			
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40 -	**************************************						(40') Top of Ash		determined using	Т
45 -			SPT	0	WOR WOR WOR WOR		(43') FLY ASH, dark gray		weighted tag line.  No recovery, N=0	- - 755
To their a contract of the con			SPT	1.3	WOR WOR WOR WOR		(48') FLY ASH, non plastic, wet, dark gray, fine grained, non cohesive		N=0	- - - 750
			SPT	1.3	WOR WOR WOR		(53') FLY ASH, low plasticity, wet, dark gray, fine grained, cohesive (from 53' 9" to 53' 10" coarse grained botton ash)		N=0	- - 745 -
Populario de la companio del la companio de la comp			SPT	2	WOR WOR WOR WOR		(58') FLY ASH, low plasticity, wet, dark gray, fine grained, cohesive		N=0	- - - 740

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-5 Page: 4 of 7

3/30/2017 Drilling Start Date: Drilling End Date: 4/4/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: P. Pitts and R. Odom

Logged By: J. Gasser and H. Lutz

128.2 Boring Depth (ft):

Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1243387.8, 2027006.3

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60 -	# # # # # # # # # # # # # # # # # # #						(58') FLY ASH, low plasticity, wet, dark gray, fine grained,			T
. GE			ST	0			cohesive (continued)  (63') As above; FLY ASH	M-5 (63-65)	Attempted Shelby Tube with Piston Sampler, no recovery	- - 735
65 —			ST	0			(68') As above; FLY ASH	M-5 (68-70)	Attempted Shelby Tube, no recovery	- - - - 730
			SPT	1.1	WOR WOR WOR WOR		(73') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, cohesive		N=0	- - - 725 -
PO			SPT	2	WOR WOR WOR WOR		(78') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, non cohesive		N=0	- - - 720

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-5

Page: 5 of 7

3/30/2017 Drilling Start Date: Drilling End Date: 4/4/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: P. Pitts and R. Odom

Logged By: J. Gasser and H. Lutz

128.2 Boring Depth (ft):

Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft):

Top of Deck Elev. (ft): 799

Location (Y, X): 1243387.8, 2027006.3

$\overline{}$					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 -	K" A "BA" A "BA"						(701) FLV ACIL non plantin variant to the dark way find		Ī	Т
							(78') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, non cohesive <i>(continued)</i>			
-							(82') CLAYEY SAND with gravel (SC); medium plasticity, moist, light gray, cohesive		Driller encountered native soil at 82'	- -
-			ST	1.5				M-5 (83-85)		— 715
0.5										
85	-		SPT	1	3 5 7 12		(85.17') SILT with sand (ML); little uniform fine to medium sand, non plastic, stiff, moist, brown, cohesive, 1 large rock		N=12	-
actili di swamis.	-				4		(87') SILT (ML); non plastic, very stiff, moist, brown with some red and brown mixed, non cohesive			
	-		SPT	1.6	8 15		some red and brown mixed, non conesive		N=23	-
- 90 merenanoum or	-		SPT	1.8	5 10 14 30		(89') SILT with fine to medium sand (ML); non plastic, very stiff, moist, brown, non cohesive, sand increases with depth, one large rock		N=24	— 710 -
SLEWSHTOND TRISLOSS OF STLOY CONSULTO.	-		SPT	1.8	12 26 33 44		(91') SANDY SILT (ML); non plastic, hard, moist, brown, non cohesive, PARTIALLY WEATHERED ROCK		N=59	-
TY M. S. BOTHAGS ON NICLA POWORTH ANT WAS			SPT	1.3	15 25 33 50/4		(93') SILTY SAND (SM); non plastic, very dense, moist, brown with red, non cohesive, sand is non-uniform medium to coarse, PARTIALLY WEATHERED ROCK		N=58	- 705
95 —			SPT	1.9	6 9 13 19		(98') SILT with sand, trace clay, low plasticity, very stiff, moist, dark brown, cohesive		N=22	- - - - 700
100 —										L

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-5 Page: 6 of 7

Drilling Start Date: 3/30/2017 Drilling End Date: 4/4/2017

**Drilling Company: Thompson Engineering** 

**Mud Rotary** Drilling Method: CME-45C Drilling Equipment: P. Pitts and R. Odom Driller Name:

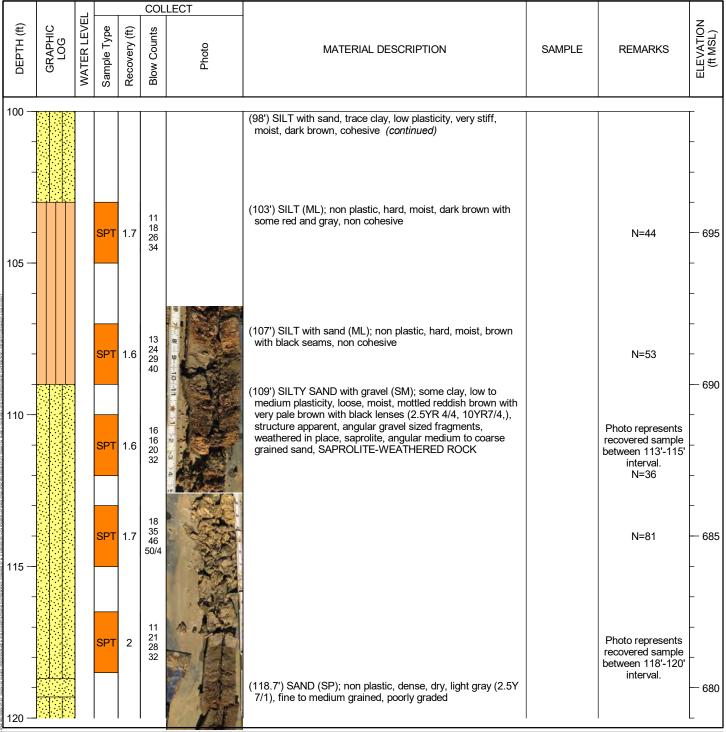
Logged By: J. Gasser and H. Lutz

128.2 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft):

Top of Deck Elev. (ft): 799

Location (Y, X): 1243387.8, 2027006.3



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

P. Pitts and R. Odom



Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-5 Page: 7 of 7

3/30/2017 Drilling Start Date: Drilling End Date: 4/4/2017

**Thompson Engineering** Drilling Company:

**Mud Rotary** Drilling Method: Drilling Equipment: CME-45C

Driller Name:

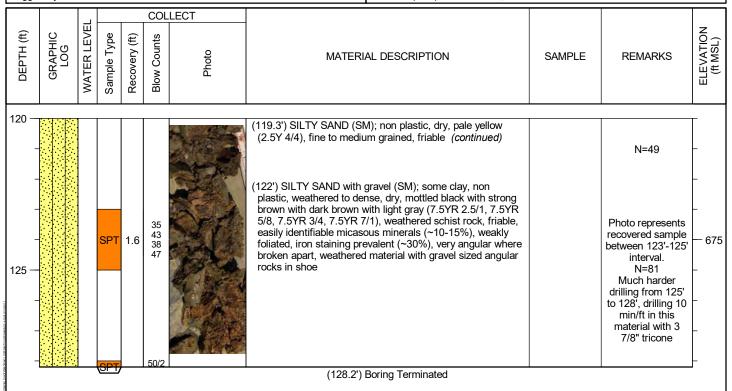
Logged By: J. Gasser and H. Lutz

128.2 Boring Depth (ft):

Boring Diameter (in): Sampling Method(s): SPT, ST

DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1243387.8, 2027006.3



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-6 Page: 1 of 7

5/2/2017 Drilling Start Date: Drilling End Date: 5/3/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: R. Odom and H. Lewis

Logged By: H. Lutz

123.1 Boring Depth (ft):

Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft):

Top of Deck Elev. (ft): Location (Y, X): 1243653.5, 2027079.7

800

		С		COL		LECT				
DEPTH (ft)	GRAPHIC	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0 -	- 						(Ol) Pares Paul			<del></del> 800
							(0') Barge Deck			
-	1									-
_										L
		_								
-		Ţ					(3') Water (ash pond)			-
_	_									
5 —	-									<del> 795</del>
_										
0000 East 10000										
	_									- 1
DARI (200 ) 200   200										_
DNCC ESSE CHI										
espeanowie –	-									-
10 —	_									— 790
10										7 90
_										-
oes over now										L
MAH INCODING										
-	_									- 1
NICON ILLOWED										
B BOUNES OF										
15 —	-									<del> 785</del>
00 mm m m m m m m m m m m m m m m m m m										
TOWALIED MOD										
										-
CAMPANE B.19										
A SE B. FREDCO										[
										-
20 —		•	)		'	1	ı		!	L 780

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>▶</sup> consultants

**Southern Company Services** Client:

**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-6

Page: 2 of 7

5/2/2017 Drilling Start Date: Drilling End Date: 5/3/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: R. Odom and H. Lewis

Logged By: H. Lutz

123.1 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 800

Location (Y, X): 1243653.5, 2027079.7

					COL	LECT	· 			
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20 —										<del> 780</del>
-							(3') Water (ash pond) (continued)			-
25 —										775 
The contract of the contract o										- - 770 -
										- 765 -
The control of the co							(39') Top of Ash, very soft, saturated		Top of ash determined using weighted tag line.	_ _ _ _ 760

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

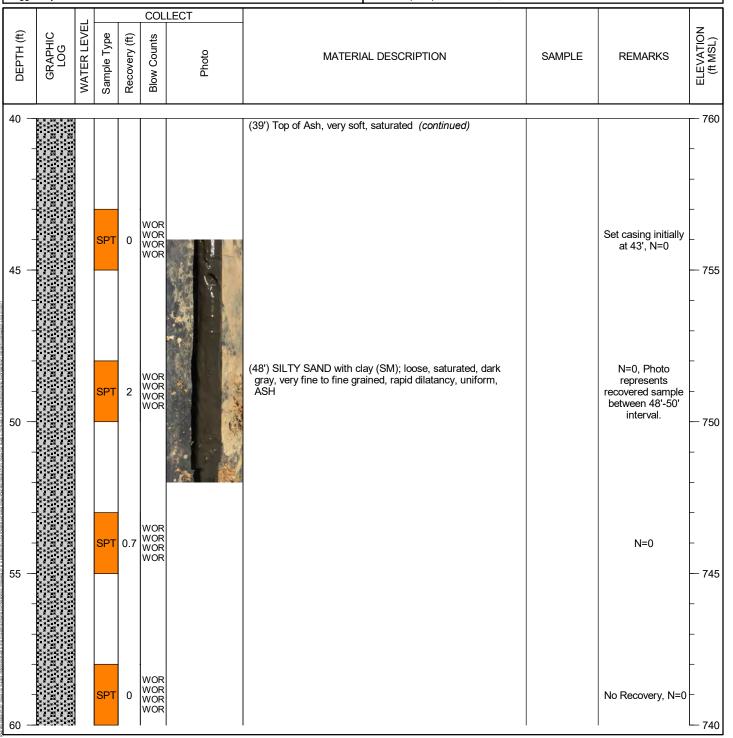
Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-6 Page: 3 of 7

123.1 Drilling Start Date: 5/2/2017 Boring Depth (ft): Drilling End Date: 5/3/2017 Boring Diameter (in): Drilling Company: **Thompson Engineering** Sampling Method(s): SPT, ST **Mud Rotary** Drilling Method: DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft): R. Odom and H. Lewis 800 Driller Name: Top of Deck Elev. (ft):

Logged By: H. Lutz Location (Y, X): 1243653.5, 2027079.7



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: Project:

**Plant Wansley Pre-Design Investigation** 

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**BORING LOG** 

Boring No.M-6 Page: 4 of 7

5/2/2017 Drilling Start Date: Drilling End Date: 5/3/2017 Drilling Company:

**Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: R. Odom and H. Lewis

Logged By: H. Lutz

123.1 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 800

Location (Y, X): 1243653.5, 2027079.7

					COL	LECT	·			一
DEРТН (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60 -							(48') SILTY SAND with clay (SM); loose, saturated, dark gray, very fine to fine grained, rapid dilatancy, uniform, ASH (continued)			740
- 65 —			SPT	1.3	WOR WOR WOR WOR		(63') SILT with sand (SM); very soft, saturated, dark gray, very fine to fine grained, rapid dilatancy, uniform, ASH		N=0	- - - 735
and rail of the content in a more in the an and a more in the content in in the cont							(67') SILTY SAND with clay (SM); loose, saturated, dark gray, very fine to medium grained, rapid dilatancy, uniform, clay becomes a part of the ash unit, ASH		During sample movement bottom	-
70 —			ST	1				M-6 (68-70)	12" slid/fell out, only 12" remain in tube, other samble material in grab bags	
75 —			SPT	2	3 6 9 13		(73') SILT with sand and clay (ML); non plastic, medium dense, moist, reddish yellow with black and strong brown mottling (7.5YR 6/6, 7.5YR 4/6), very fine to fine grained sand, friable, relic rock structure, NATIVE		Top of Native Soil at 73', N=15, Photo represents recovered sample between 73'-75' interval.	- - - 725
80 —			SPT	1.1	6 17 13 15		(77') SILTY SAND with gravel (SM); non plastic, medium dense, very coarse grained, friable, 0.5' lens of angular feldspar gravels/pebbles, very coarse grained sand and silt from 78.3' to 78.7'		N=30	- - - - 720

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-6 Page: 5 of 7

5/2/2017 Drilling Start Date: Drilling End Date: 5/3/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: R. Odom and H. Lewis

Logged By: H. Lutz

123.1 Boring Depth (ft):

Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 800

Location (Y, X): 1243653.5, 2027079.7

		_			COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 -	restender					1	[	Γ	ı	<sub> 720</sub>
-							(77') SILTY SAND with gravel (SM); non plastic, medium dense, very coarse grained, friable, 0.5' lens of angular feldspar gravels/pebbles, very coarse grained sand and silt from 78.3' to 78.7' (continued)			-
85 —			SPT	1.8	7 4 7 11		(83.5') SILTY SAND (SM); soft, moist, light brown and reddish yellow (7.5YR 6/4, 7.5YR 4/4), fine to medium grained sand, friable, uniform		N=11	_ _ 715
-										_
ORVERTILIS WASSIEGA CA B. BT.			ST	1.5				M-6 (86-88)	Left sample overnight 5/2/2017	-
Massametris o sectionous									Hard drill from 88'-89'; R.O.P.=3.5 min/ft.	-
90 —			SPT	1.7	8 8 12 15		(90') SILTY SAND (SM); moist to dry, dark yellowish brown with brownish yellow (10YR 4/4, 10YR 6/6), fine to medium grained sand (~5% mica grains), friable, lens of angular very coarse grained sand (plagioclase feldspar)		N=20	— 710 -
TRANT WANT CARRESTON DESCRIPTION									92'-94'; R.O.P.=3.5 to 4 min/ft.	-
95 —			SPT	1.5	10 12 12 22		(94') SILTY SAND with silt (SM); non plastic, medium dense, moist to dry, fine to medium grained, friable, >5% micaceous grains, relic foliation of micaceous grains, veining etc., COMPLETELY WEATHERED SCHISTOSE ROCK		N=24	- 705 -
			SPT	1.4	12 15 25 31		(98') As above, becomes brown (10YR 4/3)		N=43	_ _ _ _ 700

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

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**BORING LOG** 

Boring No.M-6 Page: 6 of 7

Drilling Start Date: 5/2/2017 Drilling End Date: 5/3/2017 Drilling Company:

**Thompson Engineering** 

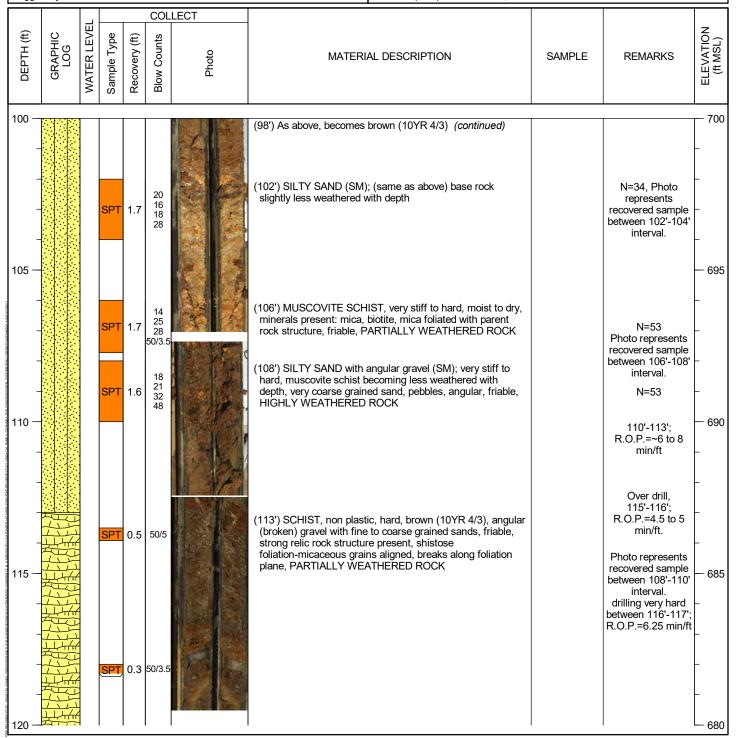
**Mud Rotary** Drilling Method: CME-45C Drilling Equipment: Driller Name:

Logged By: H. Lutz

R. Odom and H. Lewis

123.1 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): 800 Top of Deck Elev. (ft):

Location (Y, X): 1243653.5, 2027079.7



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-6

Page: 7 of 7

5/2/2017 Drilling Start Date: Drilling End Date: 5/3/2017

Drilling Company: **Thompson Engineering** Drilling Method: **Mud Rotary** 

CME-45C Drilling Equipment: R. Odom and H. Lewis Driller Name:

Logged By: H. Lutz

123.1 Boring Depth (ft):

Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): 800 Top of Deck Elev. (ft):

Location (Y, X): 1243653.5, 2027079.7

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120 —										<del></del> 680
120	1						(113') SCHIST, non plastic, hard, brown (10YR 4/3), angular (broken) gravel with fine to coarse grained sands, friable,			000
-	1,1,1,1						strong relic rock structure present, shistose			_
							foliation-micaceous grains aligned, breaks along foliation plane, PARTIALLY WEATHERED ROCK <i>(continued)</i>			
-	1,144						plane, PARTIALLE WEATHERED ROCK (COntinued)			_
					50/1					
-		1	SPT		JU/ I	l	(123.1') Boring Terminated		<u> </u>	_

(123.1') Boring Terminated

NOTE:

Drilling was completed in the ash pond from the deck of a barge.
 Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.

3. Drillers used split spoons for sampling and a tricone bit for rotary drilling. 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

780

Boring No.M-7 Page: 1 of 8

4/26/2017 Drilling Start Date: Drilling End Date: 5/2/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: H. Lutz

153.1 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): 799.25 Top of Deck Elev. (ft): Location (Y, X): 1243915.6, 2027155.3

COLLECT **WATER LEVEL** ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type **Blow Counts** Recovery (ft) Photo **REMARKS** MATERIAL DESCRIPTION **SAMPLE** 0 (0') Barge Deck (3') Water (ash pond) 795 790 10 785 15

NOTE:

20

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>D</sup> consultants

**Southern Company Services** Client:

**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-7 Page: 2 of 8

4/26/2017 Drilling Start Date: Drilling End Date: 5/2/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

H. Lutz Logged By:

153.1 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799.25 Location (Y, X): 1243915.6, 2027155.3

		_			COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20 —							(O) Webs (ed. a.m.d) (es. flower)		T	,
25 —							(3') Water (ash pond) (continued)			- - - 775 -
										- 770 765
35 —							(39') Top of Ash		Top of ash determined using weighted tag line.	- 765 - - - - 760

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-7 Page: 3 of 8

4/26/2017 Drilling Start Date: Drilling End Date: 5/2/2017

Drilling Company: **Thompson Engineering** Drilling Method: **Mud Rotary** 

CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

H. Lutz Logged By:

153.1 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST

DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799.25 Location (Y, X): 1243915.6, 2027155.3

							-			
					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40 —	K"a"ax"a"ax						(201) Tay of Asia (continued)			
- - - - 45 —			SPT	0.2	WOR WOR WOR WOR		(39') Top of Ash <i>(continued)</i> (43') SILTY SAND with clay (SM); loose, ASH		N=0	- - - 755
			SPT	2	WOR WOR WOR WOR		(48') SILTY SAND with clay (SM); non plastic, loose, saturated, dark gray, very fine to coarse grained, rapid dilatancy, uniform, lower portion of run increasing grain size with increasing clay, ASH		Photo represents recovered sample between 48'-50' interval. N=0	- - - 750
55 —			SPT	1.9	WOR WOR WOR		(53') CLAYEY SAND with silt (SC); very soft, saturated, dark gray, very fine to coarse grained, rapid dilatancy, ASH		N=0	- 745 -
			ST	1.8				M-7 (58-60)		- - 740

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: Project:

**Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-7 Page: 4 of 8

4/26/2017 Drilling Start Date: Drilling End Date: 5/2/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: H. Lutz

153.1 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST

DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799.25 Location (Y, X): 1243915.6, 2027155.3

							<u> </u>			=
					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60 —										, 1
-							(53') CLAYEY SAND with silt (SC); very soft, saturated, dark gray, very fine to coarse grained, rapid dilatancy, ASH (continued)			- -
65 —			SPT	1.4	WOR WOR WOR WOR		(64') As above, angular gravel <5% in bottom 0.5' appears to be reddish black slag, ASH		N=0	- 735 -
70 —			SPT	1.8	1 1 1 2		(68') SILTY SAND with silt and clay (SM); non plastic, loose, dry, olive brown to greenish gray, friable, color variation throughout run (68.6') Becomes brown (69') Becomes white red mottled (69.6') Becomes red		Top of native soil at 68', N=2, Photo represents recovered sample between 68'-70' interval.	- - 730 -
- - 75 —			SPT	1.6	4 3 3 2		(72') SILTY SAND (SM); non plastic, dry to moist, very fine to very coarse grained, large pink and white plagioclase rocks ~2mm+ accross, HIGHLY WEATHERED ROCk (73') SILTY SAND with clay (SM-SC); low plasticity, soft, moist, brown (10YR 5/6), fine to medium grained, friable. some relic foliation of mica grains, black veins/interbeds cross cutting brown unit, COMPLETELY WEATHERED ROCK		N=6	- - - 725
			SPT	2	1 1 1 3		(76') Becomes red with strong brown and specs of black (2.5YR 5/8, 7.5YR 5/6)		N=2	-
- 80 —										— 720

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



## Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation**

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-7 Page: 5 of 8

Drilling Start Date: 4/26/2017 Drilling End Date: 5/2/2017

**Thompson Engineering** Drilling Company:

**Mud Rotary** Drilling Method: CME-45C Drilling Equipment: S. White and R. Odom Driller Name:

Logged By: H. Lutz

153.1 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): 799.25 Top of Deck Elev. (ft): Location (Y, X): 1243915.6, 2027155.3

COLLECT **WATER LEVEL** ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) Counts Photo MATERIAL DESCRIPTION **SAMPLE** REMARKS Blow 80 (80.3') White sand loose (80.3'-80.5') 2 1.6 N=53 No recovery below, (81.6') As above; very angular, blocky, very coarse grained loose (1-3mm diameter) sand lens, non plastic - 715 M-7 (84-86) 85 ST (88') As above; low plasticity, soft, moist, red with strong brown and specs of black (2.5YR 5/8, 7.5YR 5/6), lenses 3 7 of white/pink angular plagioclase feldspar (2-3mm accross) 1.8 N=10 710 with quartz 90 (91') CLAYEY SAND with silt (SC); low plasticity, soft, moist, strong brown (7.5YR 5/6), fine to medium grained 9 13 **SPT** 1.6 N=22 19 705 95 (96') LEAN CLAY (CL); very high plasticity, soft, moist N=25, Photo (96.2') SILTY SAND (SM); non plastic, soft, dry, dark represents 14 11 2 recovered sample yellowish brown (10YR 4/4), medium to fine grained, friable between 96'-98' 14 (96.8') Pink/white blocky rock fragments, loose plagioclase, interval. very coarse grained sand to gravel size (97') SILTY SĂND with clay (ŠM); yellowish brown (97.2') Very pale brown to green to black, fine to medium grained, mm scale interbeds 700 (97.7') SILTY SAND with clay (SM); yellowish brown 100

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-7 Page: 6 of 8

Drilling Start Date: 4/26/2017 Drilling End Date: 5/2/2017

Drilling Company: **Thompson Engineering** 

**Mud Rotary** Drilling Method: CME-45C Drilling Equipment: S. White and R. Odom Driller Name:

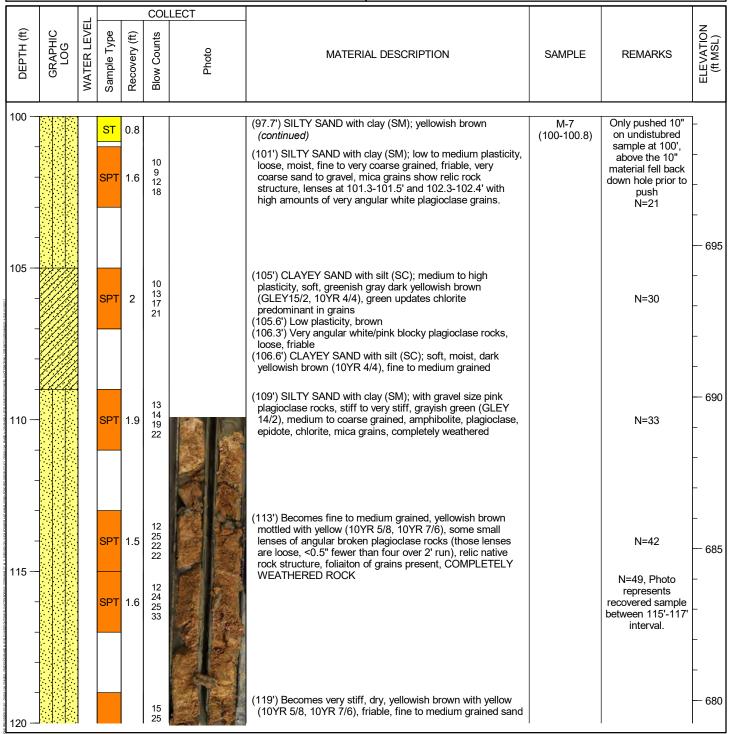
Logged By: H. Lutz

153.1 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft):

Top of Deck Elev. (ft):

799.25

Location (Y, X): 1243915.6, 2027155.3



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>c</sup> consultants

Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-7 Page: 7 of 8

4/26/2017 153.1 Drilling Start Date: Boring Depth (ft): Drilling End Date: 5/2/2017 Boring Diameter (in): **Thompson Engineering** Drilling Company: Sampling Method(s): SPT, ST **Mud Rotary** Drilling Method: DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft): S. White and R. Odom Top of Deck Elev. (ft): 799.25 Driller Name:

Logged By: H. Lutz Location (Y, X): 1243915.6, 2027155.3 COLLECT **WATER LEVEL** ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) Counts Photo MATERIAL DESCRIPTION **SAMPLE** REMARKS Blow 120 (119') Becomes very stiff, dry, yellowish brown with yellow N=51 34 (10YR 5/8, 10YR 7/6), friable, fine to medium grained sand (continued) (123') Same as above (SM) Silty Sand with clay, low 25 21 21 22 plasticity, ~10% mica grains - shows signs of foliation (relic 1.5 rock structure), COMPLETELY WEATHERED ROCK N=42 675 125 Photo represents recovered sample between 127'-129' interval. 25 50/5.5 1.1 (127.5') Becomes very stiff to hard 670 130 (131') SILTY SAND (SM); non plastic, hard, dry, yellowish brown with yellow (10YR 5/8, 10YR 7/6), fine to medium 50/5 0.4 grained, friable, amphibolite, mica, schistose foliation 665 135 (135') SILTY SAND with clay (SM); with angular/blocky very Photo represents recovered sample coarse grained gravel plag. rocks, low to non plasticity 32 SP 1.3 between 135'-137' plasticity, stiff to hard, moist to dry, medium to coarse 50/6 interval grained, friable, increase in black material in this run, up to 30-35% (biotite/amphibolite), COMPLETELY WEATHÈRED ROCK 27 SP 0.9 50/5 660 140

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

COLLECT

Geosyntec<sup>D</sup> consultants

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-7 Page: 8 of 8

4/26/2017 Drilling Start Date: Drilling End Date: 5/2/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: H. Lutz

153.1 Boring Depth (ft):

Boring Diameter (in): Sampling Method(s): SPT, ST

DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799.25 Location (Y, X): 1243915.6, 2027155.3

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
145 —			SPT		50/4		(135') SILTY SAND with clay (SM); with angular/blocky very coarse grained gravel plag. rocks, low to non plasticity plasticity, stiff to hard, moist to dry, medium to coarse grained, friable, increase in black material in this run, up to 30-35% (biotite/amphibolite), COMPLETELY WEATHERED ROCK (continued)  (143') Becomes fine to coarse grained, dark brown mottled with black and reddish brown (7.5YR 3/3), angular, 2-3mm diameter blocky pink plagioclase feldspar  (148') (SM) Same as above, amphibolite schist rock, weathered with brown interbeds (~2" thick) strong defined foliation relic rock structure		145'-148'; R.O.P.=7 min/ft	- - - - - - - - - - - - -
as provenes and we	<u> </u>		<del>SPT</del> ,		JU/ I		(153.1') Boring Terminated			'
TARK H. HICKSTOCKNAR B. LITTLE LINGSTOCKNAR DE VORTING CONTRACTOR										

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

S. White and R. Odom



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-8

Page: 1 of 8

4/21/2017 Drilling Start Date: Drilling End Date: 4/25/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment:

Logged By: H. Lutz

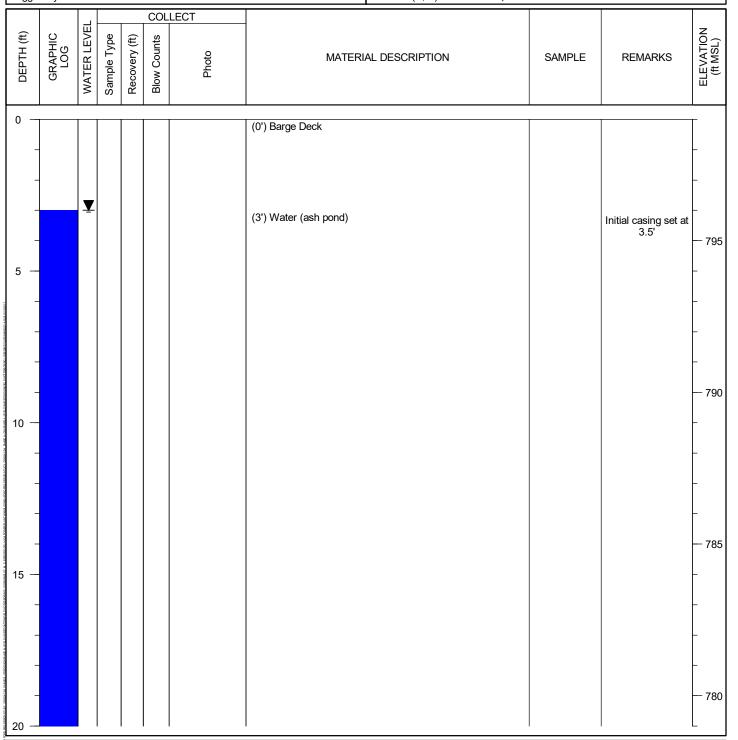
Driller Name:

153.2 Boring Depth (ft): Boring Diameter (in): SPT, ST Sampling Method(s): DTW During Drilling (ft): DTW After Drilling (ft):

Top of Deck Elev. (ft):

Location (Y, X): 1244190.4, 2027213.3

799



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling. 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-8

2 of 8

Page:

4/21/2017 Drilling Start Date: Drilling End Date: 4/25/2017

Drilling Company: **Thompson Engineering** 

**Mud Rotary** Drilling Method: CME-45C Drilling Equipment: S. White and R. Odom Driller Name:

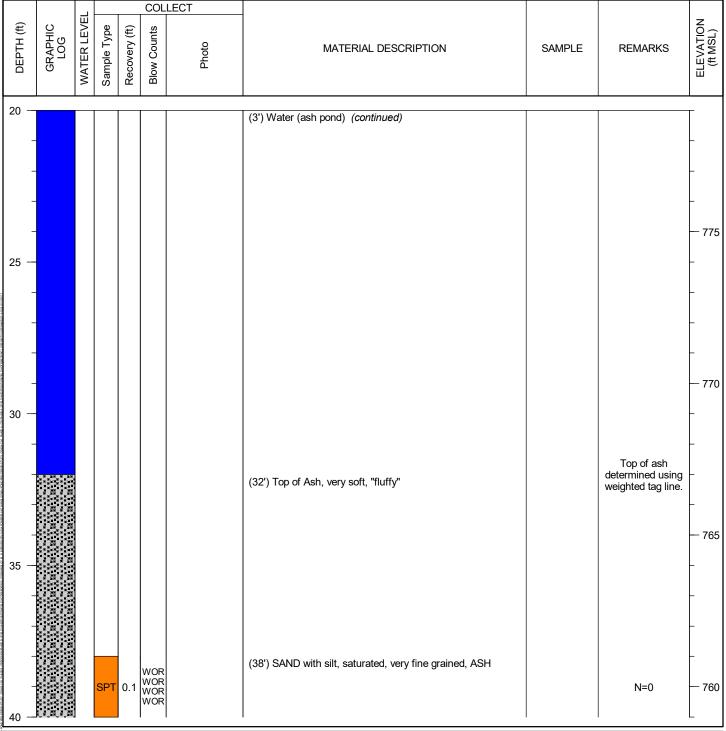
Logged By: H. Lutz

153.2 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft):

799 Top of Deck Elev. (ft):

Location (Y, X): 1244190.4, 2027213.3



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>▶</sup> consultants

**Southern Company Services** Client:

**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-8 Page: 3 of 8

4/21/2017 Drilling Start Date: Drilling End Date: 4/25/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: H. Lutz

153.2 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1244190.4, 2027213.3

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					COL	LECT				i I
DЕРТН (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
10										
40 -							(38') SAND with silt, saturated, very fine grained, ASH (continued)			_
	7 3 2 4 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5				WOR		(42') SAND with silt (SM); very soft, saturated, dark gray, very fine grained, ASH			- -
45 -			SPT	1	WOR WOR WOR WOR				N=0	— 755 -
TRIEBWWeil EY 4 CLB of 6001 7										- -
IR D MAISTRANT CANTER DANCE RISINGUAL CORRES			SPT	1.6	WOR WOR WOR WOR		(48') SILTY SAND with clay, soft, saturated, dark gray, very fine to coarse grained sand, low plasticity where higher clay content/coarser grained ash found at bottom of run (coarseness and clay content increase with depth), ASH		N=0, Photo represents recovered sample between 48'-50'	- 750
50 —									interval.	-
PANTER ANT WAS ENGINEERS	2				WOR					-
55 -	### ### ### ### ### ### ### ### ### ##		SPT	2	WOR WOR WOR WOR				N=0	— 745 -
PATITIO DIMUSTICA DOSCINSIA DA MOTES AND										-
I SAME STATEMENT OF STATEMENT O	A A A A A A A A A A A A A A A A A A A								Run GUS Piston	_
60 -	# # # # # # # # # # # # # # # # # # #		UD	2				M-8 (58-60)	Sampler, full 24" recovery	<del> 740</del>

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-8 Page: 4 of 8

4/21/2017 Drilling Start Date: Drilling End Date: 4/25/2017

**Thompson Engineering** Drilling Company:

**Mud Rotary** Drilling Method: CME-45C Drilling Equipment:

S. White and R. Odom Driller Name:

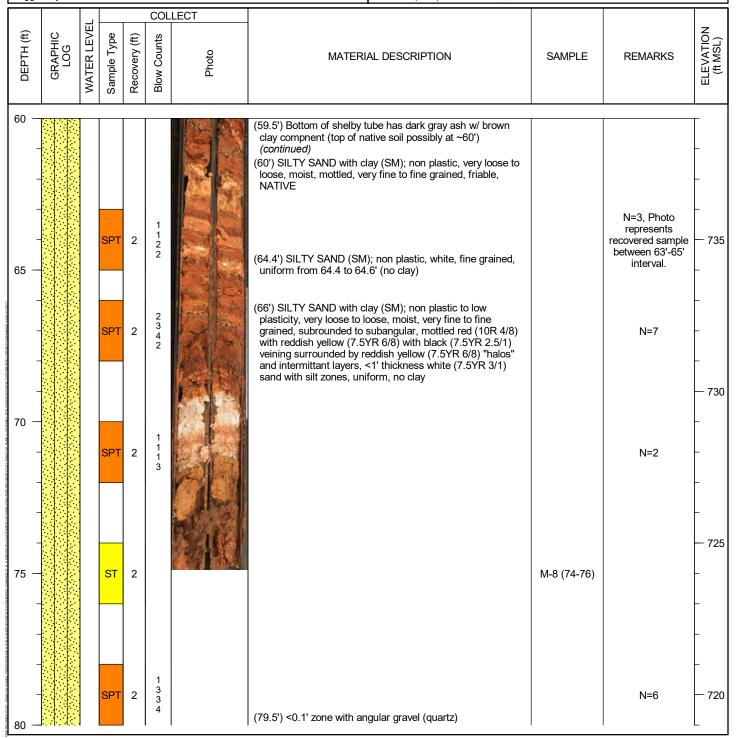
Logged By: H. Lutz

153.2 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft):

Location (Y, X): 1244190.4, 2027213.3



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-8 Page: 5 of 8

4/21/2017 Drilling Start Date: Drilling End Date: 4/25/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: H. Lutz

Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Boring Depth (ft):

Location (Y, X): 1244190.4, 2027213.3

153.2

Logge	и Бу.		- ' ' '	Luiz			Location (1, A). 1244190.4, 2027	213.3		
					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 —	respectate	1			1	- I Second I House			Γ	_ ]
- - - - 85 —			SPT	2	2 3 3 5		(79.5') <0.1' zone with angular gravel (quartz) (continued)  (82') Angular quartz gravel zone to 82.3' (82.3') SILTY SAND with clay (SM); slight coarsening of sand to very fine to medium grainind sands with silt, moist non plastic		N=6, Photo represents recovered sample between 82'-84' interval.	- - - 715
Facility to be demonstrated and the second consistent improved by Lock of the section 1.			ST	2			(86') SILTY SAND with clay (SM); non plastic, loose, moist, fine to medium grained, yellowish red (5YR 4/6) with reddish yellow (5YR 6/6) with black (5YR 2.5/1) interbedded/veins, PARTIALLY WEATHERED ROCK	M-8 (86-88)	Photo represents recovered sample between 92'-94' interval.	- - - 710
90 —			SPT	2	2 16 16 10		(91.3') SILTY SAND (SM); dense, very coarse grained angular sands (2 mm diameter), gray (5YR 6/1) mica/white (5YR 8/1) quartz/pink (5YR 8/4) plagioclase, friable, COMPLETELY WEATHERED ROCK		N=32  N=7, Photo represents recovered sample between 94'-96' interval.	_
					,		(94') SILTY SAND (SM); non plastic, loose, moist		interval.	<del> 705</del>
95 —			SPT	2	2 3 4 7		(94.6') SAND with silt, white, fine to medium grained, lens from 94.6' to 94.7' (95.1') SAND with silt, white, fine to medium grained, lens from 95.1' to 95.2' (95.9') GRAVEL, angular (mm scale), mica/plagioclase lens from 95.9' to 96'			-
100 —			SPT	2	2 5 7 11	4	(98') SILTY SAND with clay (SM); non plastic, loose, moist, yellowish red with reddish yellow mottling and black interbeds, fine to medium grained		N=12	_ 700

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-8

Page: 6 of 8

4/21/2017 Drilling Start Date: Drilling End Date: 4/25/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: H. Lutz

153.2 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1244190.4, 2027213.3

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					COL	LECT				
DEРТН (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
400										
100 -							(98') SILTY SAND with clay (SM); non plastic, loose, moist, yellowish red with reddish yellow mottling and black interbeds, fine to medium grained (continued)			_
						Was East				
-			ST	2		13年1		M-8 (102-104)		
105 —										— 695 -
T DOOL OF THE PARKET HAVE TOO THE BEAUTY OF			SPT	1.7	9 8 7 10		(106') SILTY SAND with clay (SM); non plastic, medium dense, moist, strong brown with black veining (7.5YR 5/6) (106.7') Angular gravel pink plagiocase/grey to white mica/quartz zone (very little silt/clay) (107.5') SILTY SAND with clay (SM); medium dense, as above		N=15, Photo represents recovered sample between 106'-108' interval.	- - 690
LD INVESTIGATI						To the state of				- 690
			SPT	2	4 5 8 15		(110') SILTY SAND with clay (SM); non plastic, dense to soft, moist, strong brown (7.5YR 5/6), fine to medium grained sand		N=13	_
										-
- 1115 —			SPT	2	6 9 12 18	10 W	(115') Becomes light olive brown (2.5Y 5/3)		N=21, Photo represents recovered sample between 114'-116' interval.	685 - -
			SPT	2	6 9 16 21		(118') Becomes medium grained, dry to moist, friable, relic rock structure, foliation of grains, mica sands and cross beds, VERY WEATHERED ROCK		N=25	- - 680

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: **Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-8 Page: 7 of 8

4/21/2017 Drilling Start Date: Drilling End Date: 4/25/2017 Drilling Company:

**Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: S. White and R. Odom

Driller Name:

Logged By: H. Lutz

153.2 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1244190.4, 2027213.3

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DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120 -							(440)\ December modium arginal day to maint frieble relia		T	
			SPT	1.9	10 20 30 32		(118') Becomes medium grained, dry to moist, friable, relic rock structure, foliation of grains, mica sands and cross beds, VERY WEATHERED ROCK (continued)  (122') SILTY SAND (SM); non plastic, very hard, dry, yellowish brown to brownish yellow (10YR 5/4 to 10YR 6/6), friable, predminatly coarse grained material (5-10% mica grains), foliated		N=50, Photo represents recovered sample between 122'-124' interval.	- - - - 675
125 —	-		SPT	1.4	5 13 20 26				N=33	-
CMFB DNCT 698										070
130 —			SPT	1.7	7 15 15 25		(130') SILTY SAND (SM); very stiff, dry to moist, yellowish brown (10YR 5/8), medium to coarse grained sand with some very coarse grained sands, friable, strong foliation seen in mica grains, HIGHLY WEATHERED ROCK		N=30	- 670 - -
The state of the			SPT	1.9	12 26 49 50/6		(134') Same as above with less weathered rock fragments at 134.9-135' and 135.4-135.5', angular pink feldspar (K-feldspar) ~2-3mm diameter		N=75	— 665 - -
140 —			SPT	0.9	44 50/6		(138') Hard, medium to coarse grained sand, coarse grains of plag. (white/pink) mica, biotite, relic structure, mica foliation, lenses of angular pink/white plag with mica (dry, friable, hard) at 138-138.1, COMPLETELY WEATHERED ROCK			_ 660

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-8 Page: 8 of 8

4/21/2017 Drilling Start Date: Drilling End Date: 4/25/2017

Drilling Company: **Thompson Engineering** 

**Mud Rotary** Drilling Method: CME-45C Drilling Equipment:

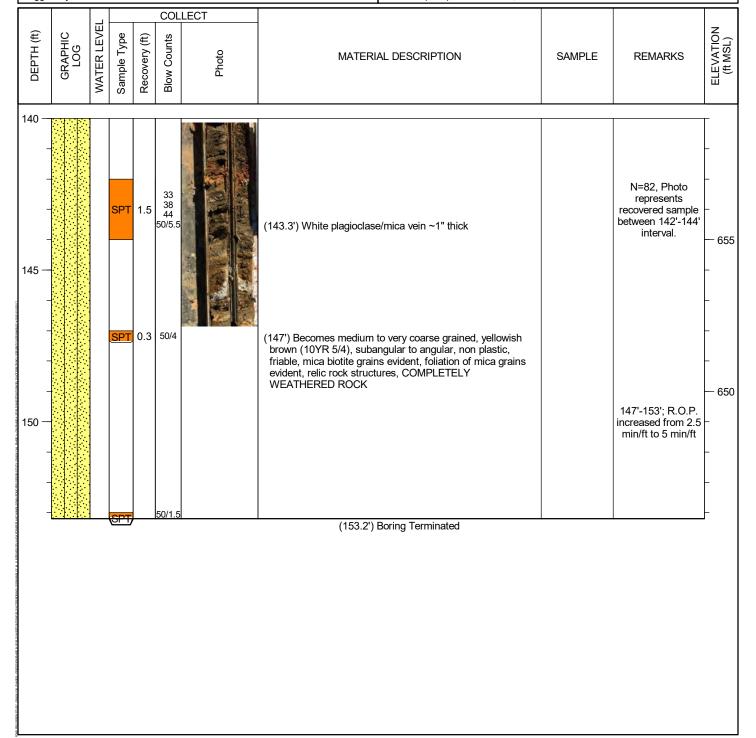
S. White and R. Odom Driller Name:

Logged By: H. Lutz

153.2 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST

DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft):

Location (Y, X): 1244190.4, 2027213.3



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling. 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>D</sup> consultants

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-9 Page: 1 of 7

4/12/2017 Drilling Start Date: Drilling End Date: 4/18/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom Logged By: J. Gasser and H. Lutz

132.1 Boring Depth (ft): Boring Diameter (in): 3 7/8

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799.25 Location (Y, X): 1244471, 2027280.3

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		ا یے ا			COL	LECT				l_
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0 -										
-							(0') Barge Deck			-
_		₹					(3') Water (ash pond)			-
5 —										— 795 -
28 P/ 4/0 B 73 7001 7										-
DNOT ERRORING LOCKWART RUES WAR										-
										— 790 _
SIGNESTICAT CARGA LOS TRAGES A.C.	-									-
CORRES ANT WARRES EVANS HITCHEO SPEED										-
- 15 —										— 785
ION TOCKWISE DE NOTTES BOSENOS LOCIONOS										-
TOTAL CONTROL BATTLE CONTROL C										-
CONSTRUCT OWNERS OF PRINCIPLE										— 780
20 -		. '			•	•		•		

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

J. Gasser and H. Lutz



Logged By:

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Location (Y, X): 1244471, 2027280.3

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-9 Page: 2 of 7

132.1 Drilling Start Date: 4/12/2017 Boring Depth (ft): Drilling End Date: 4/18/2017 Boring Diameter (in): 3 7/8 Drilling Company: **Thompson Engineering** Sampling Method(s): SPT, ST **Mud Rotary** Drilling Method: DTW During Drilling (ft): CME-45C DTW After Drilling (ft): Drilling Equipment: S. White and R. Odom Driller Name: 799.25 Top of Deck Elev. (ft):

COLLECT **WATER LEVEL** ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) Counts Photo MATERIAL DESCRIPTION **SAMPLE** REMARKS Blow 20 (3') Water (ash pond) (continued) 775 Top of ash determined using 25 (25') Top of Ash weighted tag line. (28') SAND with silt, non plastic, very loose, saturated, dark N=0, Photo gray (2.5Y 5/1), very fine to fine grained, bottom of run represents WOR 2 shows hightened clay content-"sticky sand" composition, SPT recovered sample 770 FLY ASH between 28'-30' WOR interval. 30 (33') Becomes very fine to fine grained, grading to medium to coarse grained ash with depth, ASH WOR WOR 2 N=0 (34') SAND with silt and clay, non plastic, very loose, saturated, dark gray (2.5Y 5/1), medium to coarse grained, 765 WOR clay content higher in coarser grained material, low plasiticity, some coarse grained ash particles are light gray (2.5Y 7/1), ASH (38') SAND with clay, low plasticity, very loose, wet to saturated, dark gray (2.5Y 3/1), medium to coarse grained, WOR unifrom, ASH N=0 2 WOR 760 WOR

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>D</sup> consultants

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-9 Page: 3 of 7

4/12/2017 Drilling Start Date: Drilling End Date: 4/18/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom Logged By: J. Gasser and H. Lutz

132.1 Boring Depth (ft): Boring Diameter (in): 3 7/8

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799.25 Location (Y, X): 1244471, 2027280.3

					COL	LECT				一
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(38') SAND with clay, low plasticity, very loose, wet to saturated, dark gray (2.5Y 3/1), medium to coarse grained, unifrom, ASH (continued)			-
45 —			UD	1.7				M-9 (43-45)	Push GUS Piston Sampler, when piston sampler seal was released the sample fell out of tube. The sample was	- 755 -
			UD	2				M-9 (48-50)	recovered as distrubed sample. Run GUS Piston Sampler, full 24"	- - - 750
50 —									recovery	-
E LA S ACRINCA COP INCOMPANY ANT WANSE			ST	2			(53') SILT with clay (ML); trace fine sand, non plastic, moist, orange, noncohesive	M-9 (53-55)	Set Shelby Tube overnight from 53' to 55'	_ — 745
55 —			SPT	1.9	1 2 3 5		(55') LEAN CLAY (CL); medium plasticity, firm, moist, red orange, cohesive		N=5	-
CHILD I PASSI ATTICOLOGISTA			SPT	1.5	2 4 4 7		(57') LEAN CLAY with few uniform medium sand (CL); few silt, medium plasticity, firm, moist, red orange, cohesive		N=8	-
60 —										<del>- 740</del>

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-9 Page: 4 of 7

4/12/2017 Drilling Start Date:

Drilling End Date: 4/18/2017 Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment:

Driller Name: S. White and R. Odom Logged By: J. Gasser and H. Lutz

132.1 Boring Depth (ft):

Boring Diameter (in): 3 7/8 Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799.25 Location (Y, X): 1244471, 2027280.3

					COL	LECT	<u> </u>			一一
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60 —							(57') LEAN CLAY with few uniform medium sand (CL); few			<del>-</del>
-					1		silf, medium plasticity, firm, moist, red orange, cohesive (continued)  (61') LEAN CLAY (CL); little silt, medium plasticity, moist,			-
-			SPT		1 3 3		orange to red with some white and black		N=4	
_										-
65 —							(65') LEAN CLAY (CL); little silt, medium plasticity, moist,			- 735 -
100 t 17 100 t 7			SPT	1.8	1 1 2 5		orange to red with some white and black		N=3	-
I OO KRATTILESIMANS I'V.										-
DANIONIES DAG ESSICES			ST	2.2				M-9 (68-70)		- - 730
70 —										- 730
N STUDY CONSOL IN THANS										-
WAST DOWN HILD ON THE COST			SPT	2	1 3 3		(72') LEAN CLAY (CL); trace fine sand, medium plasticity, firm, moist, orange to red with streaks of black, cohesive		N=6	-
S OUR PECA POWERS AND			SPI	2	3				14-0	- 725
75 —										- 123
					2		(76') LEAN CLAY (CL); and silt, medium plasticity, firm, moist, orange with streaks of black and white, cohesive, 1"			-
SENTENCE DIVISION DE LES CONTROLLES DE L'ALTER DE L'ALTER CONTROLLES DE L'ALTER CONTROLLES DE L'ALTER CONTROLL			SPT	1.8	3 6 6		seam of white clay and gravel		N=9	-
- 12564 G 50 T 75500										-
80 —										720

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

J. Gasser and H. Lutz

Geosyntec<sup>▶</sup> consultants

Logged By:

**Southern Company Services** Client:

**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-9 Page: 5 of 7

132.1 4/12/2017 Boring Depth (ft): Drilling Start Date: Drilling End Date: 4/18/2017 Boring Diameter (in): 3 7/8 Drilling Company: **Thompson Engineering** Sampling Method(s): SPT, ST Drilling Method: **Mud Rotary** DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft): Driller Name: S. White and R. Odom

Top of Deck Elev. (ft): 799.25 Location (Y, X): 1244471, 2027280.3

		_					·			
					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 —										
-			SPT	2	4 3 5 8		(80') LEAN CLAY (CL); medium plasticity, firm, moist, orange with black streaks, cohesive, 1-2" seam white silty sand		N=8	-
- 85 —			SPT	1.8	3 5 5 7		(84') LEAN CLAY with sand (CL); little silt, medium plasticity, firm, moist, orange to red marbled with black, cohesive		N=10	- 715 -
I'NS DACT THE CONTON CONTON THE BURNESS BY LACK IN THE TOTAL I'N THE CONTON THE BURNESS BY LACK IN THE STATE I'N THE CONTON THE BURNESS BY LACK IN THE STATE I'N THE CONTON THE BURNESS BY LACK IN THE STATE I'N THE STATE I					5 8 7		(88') CLAYEY SAND (SC); low plasticity, stiff, moist, orange to red marbled with black, cohesive, sand non-uniform			_
90 —			SPT	1.9	8 7 10				N=15	- 710 -
HODINGS ON NOAT POWERT ANT WAREA GROBIT POR DESCRIPTION DESCRIPTIO			ST	2.3				M-9 (92-94)		- - - 705
95 —			SPT		5 7 11 12		(96') SILTY SAND (SM); non plastic, very stiff, moist, orange with red black, white streaks, non cohesive		N=18	- - - - 700

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: **Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-9 Page: 6 of 7

4/12/2017 Drilling Start Date: Drilling End Date: 4/18/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment:

Driller Name: S. White and R. Odom Logged By: J. Gasser and H. Lutz

132.1 Boring Depth (ft): Boring Diameter (in): 3 7/8

Sampling Method(s): SPT, ST

DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799.25 Location (Y, X): 1244471, 2027280.3

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100 -	respectate					11.10/04/19/20			I	,
-			SPT	2	5 10 11 14	No neur	(100.5') SILTY SAND with clay (SM); non plastic, medium dense, dry to moist, strong brown (7.5YR 5/8), medium grained, friable, relic rock structure black veining, two light gray (7.5YR 7/1) 0.5" layers at 101.5' and 102.4' (still part of overall composition-layer medium to coarse grains), zone from 101.1 to 101.3' increase in large grained mica flakes 1.3 mm diameter		N=21  Photo represents recovered sample between 100.5'-102.5'	_
105 —			SPT	2	8 11 14 20		(105.5') Becomes medium dense, very strong relic structure, white veins, black grains		interval. N=25	- 695 - -
			SPT	2	7 10 18 20		(108.5') Becomes predominantly reddish brown (5YR 6/4), sandy grains, medium to coarse grained angular micaceous flat grains (completely weathered rock), predominanty strong veining and native structure evident		Photo represents recovered sample between 108.5'-110.5' interval. N=28	- - 690 -
1155 — 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			SPT	2	8 9 12 17				N=21 Photo represents recovered sample between 112.5'-114.5' interval.	- 685 -
			SPT	1.8	14 23 26 32		(117') Hard, medium dense, angular, moderately cemented, predominately biotite/hornblende grains (mm scale) ~5% mica grains, relic foliation structure evident, black veining, white layers ~2-3" thinkness (very coarse grained sand), completely weathered relic quartzite		N=49	- - - 680

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** 

Boring No.M-9 Page: 7 of 7

4/12/2017 Drilling Start Date: Drilling End Date: 4/18/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment:

Driller Name: S. White and R. Odom Logged By: J. Gasser and H. Lutz

132.1 Boring Depth (ft): Boring Diameter (in): 3 7/8 Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft):

Top of Deck Elev. (ft): 799.25 Location (Y, X): 1244471, 2027280.3

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120 -										$\Box$
-			SPT	1.5	12 25 35 34		(117') Hard, medium dense, angular, moderately cemented, predominately biotite/hornblende grains (mm scale) ~5% mica grains, relic foliation structure evident, black veining, white layers ~2-3" thinkness (very coarse grained sand), completely weathered relic quartzite (continued) (120') SILTY SAND with gravel (SM); very hard, light brown to gray (7.5YR 6/4), gravel to very coarse grained sands angular/blocky 2-3 mm diameter scale, pink feldspars, white quartz, minerals evident, friable, HIGHLY TO		N=60	-
125 —			SPT	1.4	21 35 28 23		MODERATELY WEATHERED ROCK		N=63, Photo represents recovered sample between 124.5'-126.6' interval.	675 
			SPT		50/4		(128.5') SILTY SAND (SM); stiff, dry, fine grained, friable (PARTIALLY WEATHERED ROCK)			- 670 -
NELDER ON B THOY CONSIST TOLL THAN	17-17-17		SPT		50/1		(131') Estimated top of rock			-
S EMBHITCHD II			<del>o T</del>				(132.1') Boring Terminated			

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

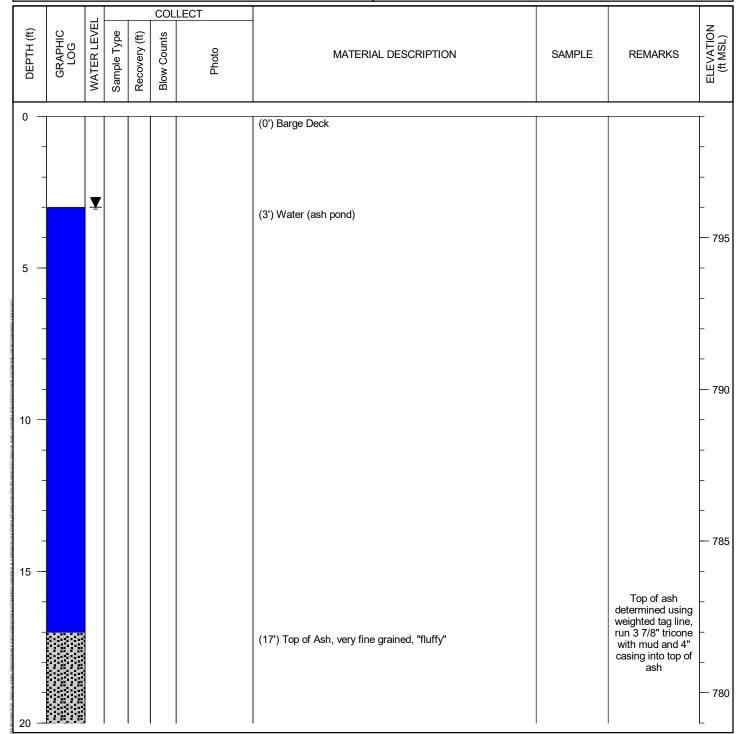
**BORING LOG** Boring No.M-10

1 of 6

Page:

106.6 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

4/19/2017 Drilling Start Date: Drilling End Date: 4/21/2017 Drilling Company: **Thompson Engineering** Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: DTW After Drilling (ft): S. White and R. Odom 799 Driller Name: Top of Deck Elev. (ft): Logged By: H. Lutz Location (Y, X): 1244699.9, 2027366.8



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Boring Depth (ft):

Boring Diameter (in):

Sampling Method(s):

DTW During Drilling (ft):

DTW After Drilling (ft):

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-10

2 of 6

Page:

4/19/2017 Drilling Start Date: Drilling End Date: 4/21/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name:

Logged By:

S. White and R. Odom

H. Lutz

Top of Deck Elev. (ft): 799 Location (Y, X): 1244699.9, 2027366.8

106.6

SPT, ST

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₽	0	VEL	Ø)	· ·		LECT				Z
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
	Ö	WAT	Samp	Reco	Blow	<u>C</u>				ELE (f
20 -	[n ] = 2] n ] = 2] n						(17') Top of Ash, very fine grained, "fluffy" (continued)			<u> </u>
25 -			SPT	0.1	WOR WOR WOR WOR		(23') SILTY SAND (SM); non plastic, very loose, saturated, very dark gray (2.5Y 3/1), very fine to fine grained, rapid dilatancy, ASH		N=0	- - - 775
			SPT	1.6	WOR WOR WOR		(28') As above, slight increase in clay content slightly more cohesive with depth, ASH		N=0, Photo represents recovered sample between 28'-30' interval.	- - - 770 -
			SPT	1.7	WOR WOR WOR WOR		(33') Increasing clay content with depth, still less than 5-10%, saturated material "sticky" to touch, ASH		N=0	- - 765 -
AO —			ST	2			(38') SILTY SAND with clay (SM); non plastic to low plasticity plasticity, very loose, saturated, very dark gray, fine grained, uniform, ASH	M-10 (38-40)		_ _ _ 760

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

4/19/2017

4/21/2017

**Mud Rotary** 

CME-45C

H. Lutz

**Thompson Engineering** 

S. White and R. Odom



Drilling Start Date: Drilling End Date:

Drilling Company:

Drilling Equipment: Driller Name:

Drilling Method:

Logged By:

**Southern Company Services** Client: Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-10 Page: 3 of 6

106.6 Boring Depth (ft): Boring Diameter (in): SPT, ST Sampling Method(s):

DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1244699.9, 2027366.8

Logge							Lecation (1,74). 1244000.0, 2021			
					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40 -	. 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4 . 4						(38') SILTY SAND with clay (SM); non plastic to low plasticity plasticity, very loose, saturated, very dark gray,			
- 45 —			SPT	1.5	WOR WOR WOR		fine grained, uniform, ASH (continued)  (43') CLAYEY SAND with silt (SC); very loose, fine to coarse grained, slow dilatancy, increasing grain size, increasing clay with depth, ASH		N=0, Photo represents recovered sample between 43'-45' interval.	- - - 755
			SPT	2	WOR WOR WOR WOR		(48') Becomes high plasticity, coarseness of sand component is increasing with clay content-increasing with depth		N=0	- - - 750 -
a post-post preparation and a						8				_
Union of the New York was			UD	1		9 /10 /10		M-10 (53-55)		- 745
55 —						F E Z. [.	(54.5') Presumed top of NATIVE		Native at 54.5'	_
			SPT	2	1 2 3 2	11 - 01 - 6 - 8 - 12 - m - 0	(58') SILTY/CLAYEY SAND (SM-SC); wet, fine grained, black white and yellow veins cross cutting red (2.5YR 5/8) mottled with light red (2.5YR 7/8) sandy matrix material, NATIVE		N=5, Photo represents recovered sample between 58'-60' interval.	- - 740

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>▶</sup> consultants

**Southern Company Services** Client: Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-10 Page: 4 of 6

4/19/2017 Drilling Start Date: Drilling End Date: 4/21/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: H. Lutz

106.6 Boring Depth (ft):

Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1244699.9, 2027366.8

<u> </u>							<u> </u>			=
1					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60 —										
-			UD	2			(58') SILTY/CLAYEY SAND (SM-SC); wet, fine grained, black white and yellow veins cross cutting red (2.5YR 5/8) mottled with light red (2.5YR 7/8) sandy matrix material, NATIVE (continued)	M-10 (60-62)		-
-					1		(64') CLAYEY SAND with silt (SC); very loose, wet to moist,		N=4, Photo	- 735
65 —			SPT	2	1 2 2 2		light red (2.5YR 6/8), fine to very fine grained, white black and yellowish veins, apparent leaf on bit when came out of hole, NATIVE		represents recovered sample between 64'-66' interval.	-
ura onor esponent conventinus unassi					1 1					_
70 —			SPT	1.8	3				N=3	- 730 - -
LANT WINS EVANHENDOMS DESIGN STUDY ON			SPT	2	2 2 3		(72') Becomes moist, low to medium plasticity, with black specs		N=5	-
- 75 —					5					— 725 -
итеензичные в итп. Оничето, темня в распеленны			SPT	2	2 2 3 4	anu k	(77') Same as above with slight increase in sand size form		N=5, Photo represents recovered sample between 76'-78' interval.	-
80 —										— 720 _

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client: **Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-10 Page: 5 of 6

4/19/2017 Drilling Start Date:

Drilling End Date: 4/21/2017 Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment:

Driller Name: S. White and R. Odom

Logged By: H. Lutz

106.6 Boring Depth (ft): Boring Diameter (in):

Sampling Method(s): SPT, ST

DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Location (Y, X): 1244699.9, 2027366.8

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 -	17777	1			ı	I	(771) O		Γ	
-			UD	2			(77') Same as above with slight increase in sand size form (continued)	M-10 (80-82)		-
-							(84') CLAYEY SAND with silt (SC); medium plasticity, very			- 715
85 —			SPT	2	2 2 2 5		loose, reddish yellow (7.5YR 6/6), very fine to fine grained, with black veining and black medium grained sands (<2%) (0.15' quartz gravel clast angular from 85.6'-85.75')		N=4	-
			SPT	2	1 1 2 5		(88') Same as above with slight increase in sand, decrease with percent of silt and clay		Gradual decrease in clay content, N=3, Photo represents recovered sample between 88'-90' interval.	- 710 - -
			SPT	1.8	5 8 11 16		(92') CLAYEY SAND with silt and gravel (SC); firm, moist, reddish yellow (7.5YR 6/6), sand grains increasing with depth from fine to medium grain size, gravels present <2%, increasing hardness with depth, friable, NATIVE		N=19	- 705
- 100 —			SPT	1.7	7 12 18 29				N=30, Photo represents recovered sample between 96'-98' interval.	- - - - 700

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-10

Page: 6 of 6

4/19/2017 Drilling Start Date: Drilling End Date: 4/21/2017

Drilling Company:

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: H. Lutz

**Thompson Engineering** Sampling Method(s):

DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799

Boring Depth (ft):

Boring Diameter (in):

Location (Y, X): 1244699.9, 2027366.8

106.6

SPT, ST

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	op o	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100 —			SPT		25 31 32 50/6 5 26 50/4		(100') SAND with silt (SM); trace clay, non plastic, very hard, fine to medium grained, angular, friable, increasing component of quartz sands (>50%), relic laminated/foliated structure evident		N=63  Photo represents recovered sample between 104'-106' interval.	- - - 695 -
TI DOWNOOTH			النت				(106.6') Boring Terminated			

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



**Southern Company Services** Client:

**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-11

Page: 1 of 5

4/10/2017 Drilling Start Date: Drilling End Date: 4/11/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: H. Lutz Boring Depth (ft): 93.2 Boring Diameter (in): 3 7/8

Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): Top of Deck Elev. (ft): 799.75

Location (Y, X): 1244961, 2027441.4

		_					•			=
		١, ١			COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
										'
0 -							(0') Barge Deck			1
										- 1
_										
										- 1
_		Ţ								-
		_					(3') Water (ash pond)			
-										- I
5 —										<del>- 795</del>
-										
C408 815										
- Washington										
OS CANTO										_
— ESBORNO										
DNO BEEN										- 1
MAC STOOMIN										
10 —										<del> 790</del>
10 -										
-										- I
DOY OWE										
-										- I
TONOTHER TON										
VIDENO CONTRACTOR OF THE PROPERTY OF THE PROPE										L
-										
N S BOOM										<del>- 785</del>
15 —										'00
DOGRADIO										-
TONO DE										
vising no										-
B-1818D										
-										-
- 100 mm										
HI 00 1700 -										
Marinov con										
20 —						l				<del>- 780</del>
d										

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.75 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>▶</sup> consultants

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-11

Page: 2 of 5

4/10/2017 Drilling Start Date: Drilling End Date: 4/11/2017

Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: S. White and R. Odom

Logged By: H. Lutz Boring Depth (ft): 93.2 Boring Diameter (in): 3 7/8

Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): 799.75 Top of Deck Elev. (ft): Location (Y, X): 1244961, 2027441.4

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20 -							(O) Makes (orbinson) (confirmed)		Г	,
							<ul><li>(3') Water (ash pond) (continued)</li><li>(21') Top of Ash, SAND with silt (SM); non plastic, very loose, saturated, very dark gray, very fine grained sand, uniform, non cohesive</li></ul>		Top of ash determined using weighted tag line. "fluff" in to 3-4 feet	- -
			SPT	1	WOR WOR				N=0	-
	6,3,35,3,35,3 6,3,35,3,35,3				WOR					— 775
25 -	1,3,3,1,3,3,3,3, 1,3,1,1,3,1,3,1,3,1									
ANTIOUR DISCUSSIONING CONCETT IN IN WASHINGTON DISCUSS.			UD	0					Piston Sample Run GUS Piston	- -
ATHE DIVINESTI									Sampler, no recovery	<del> 770</del>
										-
Manage Downson			SDT	1 1	WOR WOR WOR				N=0	-
2 BOUNDS 00	**		<b>3</b> F 1	1.1	WOR WOR		(34') As above; becomes slight clay increase to <5% at 34'		N-0	— 765
35 -										703
The contract of the contract			UD	0					Piston Sample Run GUS Piston Sampler, no recovery	- - - - 760

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.75 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-11

Page: 3 of 5

93.2 Drilling Start Date: 4/10/2017 Boring Depth (ft): Drilling End Date: 4/11/2017 Boring Diameter (in): 3 7/8 Drilling Company: **Thompson Engineering** Sampling Method(s): SPT, ST **Mud Rotary** Drilling Method: DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft): S. White and R. Odom 799.75 Driller Name: Top of Deck Elev. (ft):

Logged By: H. Lutz Location (Y, X): 1244961, 2027441.4 COLLECT **WATER LEVEL** ELEVATION (ft MSL) GRAPHIC LOG DEPTH (ft) Sample Type Recovery (ft) Counts Photo MATERIAL DESCRIPTION **SAMPLE** REMARKS Blow 40 (34') As above; becomes slight clay increase to <5% at 34' (continued) (43') ASH with silt, with clay, non plastic, very soft, N=0, Photo WOR saturated, dark gray (5YR 3/1), fine grained, increasing represents WOR WOR SPT 1.6 clay content still only ~3-7% in fines recovered sample between 43'-45' WOF 755 interval 45 (47.7') Presumed top of NATIVE Run GUS Piston Sampler, Pushed full 24", no UD recovery, damaged - 750 shelby tube on end 50 (50') INORGANIC SILT with micaceous fine sand (MH); soft, moist, yellowish red mottled with yellowish brown 2 brown increasing with depth (5YR 4/6, 10YR 5/8), fine to 1.9 N=6 coarse grained, mica pieces <2mm, angular, mica/schist 5 structure foliation, some black veining evident (completely weathered muscovite schist) N=7, Photo represents 3 SPT 2 recovered sample (53') SILTY SAND (SM); low plasticity, medium dense, between 52'-54' moist, yellowish brown mottled with brown (10YR 5/4, interval. 10YR 4/3), fine to coarse grained, subrounded to angular, ~10% mica platey minerals (white), friable (~30-40% Run GUS Piston medium grained sand), obvious foliation/relic structure) 745 55 ST 2 M-11 (54-56) Sampler, full 24" recovery 6 7 9 1.9 N=13 740 60

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.75 ft MSL
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Logged By:

**Southern Company Services** Client: **Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-11

4 of 5

Page:

4/10/2017 Boring Depth (ft): 93.2 Drilling Start Date: Drilling End Date: 4/11/2017 Boring Diameter (in): 3 7/8 Drilling Company: **Thompson Engineering** Sampling Method(s): SPT, ST Drilling Method: **Mud Rotary** DTW During Drilling (ft): CME-45C Drilling Equipment: DTW After Drilling (ft): Driller Name: S. White and R. Odom 799.75 Top of Deck Elev. (ft):

H. Lutz Location (Y, X): 1244961, 2027441.4

=	1						·		ı	$\overline{}$
		_			COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60 -			SPT	1.7	3 7 12 15	1 2 3	(53') SILTY SAND (SM); low plasticity, medium dense, moist, yellowish brown mottled with brown (10YR 5/4, 10YR 4/3), fine to coarse grained, subrounded to angular, ~10% mica platey minerals (white), friable (~30-40% medium grained sand), obvious foliation/relic structure) (continued)		N=19	_
-			SPT	1.5	6 7 6 6				N=13	-
65 -			SPT	2	2 2 4 7	1 2	(64') Becomes more dense with depth, 3-5% mica (>1mm grain size)		N=6	— 735
CONTESTILIBRINGS PLACE 61 5001 T			SPT	2	1 1 3 4		(65.5') SILTY SAND (SM); loose, moist, fine to coarse grained, color changes to uniform yellowish red (5YR 4/6) with 3-4 mm scale vein of 5YR 8/1 white sandy material		N=4, Photo represents recovered sample between 66'-68' interval.	_ _ _
C ISSE CUMO.							(68') ~10% mica			
nn owestean ourn our			SPT	2	1 2 4 6				N=6	720
70 —			SPT	1.8	2 5 6 13		(70') Increase of mica grains to 15-20%, relic native rock structure and veining, foliated mica grains, hornblende and completely weathered micaceous schist		N=11	— 730 - -
DEA POLICITA ANT WIRES PRISE HOND HOND THE			SPT	1.8	10 12 13 15				N=25	-
- 75 —			SPT	1.9	7 12 18 25		(74') COMPLETELY WEATHERED ROCK, same as above, parent rock is muscovite schist (75') SILTY SAND (SM); stiff to medium dense, moist, fine to coarse grained, angular to subrounded, friable, ~15% micaceous grains (biotite <2%), folliation evident, sand		N=30, Photo represents recovered sample between 74'-76' interval.	— 725 -
INVERSIFIED OF THE OFFICE OF THE OFFICE OF THE OFFICE OF THE OFFICE OFFI			SPT	1.5	10 11 15 17		grains increasing size with depth		N=26	_
- 80			SPT	1.8	10 24 50 34	Z A	(78') Becomes mottled very dark grayish brown with dark yellowish brown (10YR 3/2, 10YR 3/6), with large min. biotite extras, color variation from 78-84' BTOC (79.1') Becomes very pale brown (10YR 8/3) (79.3') Becomes very dark grayish brown (10YR 3/2)		N=74	- 720

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.75 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling. 4. Borings were backfilled with grout using tremie method

4/10/2017

4/11/2017

**Mud Rotary** 

CME-45C



Drilling Start Date: Drilling End Date:

Drilling Company:

Drilling Equipment:

Drilling Method:

**Southern Company Services** Client:

Project: **Plant Wansley Pre-Design Investigation** Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-11 Page: 5 of 5

Boring Depth (ft): 93.2 Boring Diameter (in): 3 7/8 **Thompson Engineering** Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft):

Driller Name: S. White and R. Odom 799.75 Top of Deck Elev. (ft): Logged By: H. Lutz Location (Y, X): 1244961, 2027441.4

					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80 -		,								$\Box$
-			SPT	1.5	2 8 15 17		(79.3') Becomes very dark grayish brown (10YR 3/2) (continued) (80.5') Becomes clay zone in middle of stiff silty SAND		N=23	_
-			SPT	2	2 3 4 5		(82') From 82'-84' color variation mm scale bedding (angular 45°) 5YR 7/2 pinkish gray, 5YR 5/8 yellowish red, 5YR 3/2 dark reddish brown, firm (stiff), moist		N=7, Photo represents recovered sample between 82'-84' interval.	-
85 -			ST	0				M-11 (84-86)	Attempted Shelby Tube 84'-86', pushed ~2" refusal, no recovery	— 715 -
GI CORCHET RI INNAMES PY 4.0.B. BI 6001	-		SPT	1.1	26 50/5		(86') Non plastic, very hard, red (2.5YR 4/6), fine to coarse grained, same as above-less sand with depth, becomes uniform, friable, less sand with depth			-
JOHN DEWESTRANTONIES DIAC ESSIGNI			SPT	0.2	50/2		(88') Angular 1-2" gravels (Schist)		Refusal in first 6", 88'-90'; R.O.P.=~2 ft/min. Photo represents recovered sample	- 710
			SPT	0.9	36 50/5		(90.5') SILT with fine to very fine sand (ML); hard, dry, yellowish red (5YR 5/8), friable, evident former rock structure including hornblende grains, biotite grains, foliation schistose structure		between 90'-92' interval.	-
DOMESTIC AND			SPT		1 30/2		(93.2') Boring Terminated	l		'
100 GD MOD										
EY M S BOUD										
SWW SSS										

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 799.75 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec consultants

Client: **Southern Company Services** 

Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-12

Page: 1 of 4

4/6/2017 Drilling Start Date: Drilling End Date: 4/6/2017

Drilling Company: **Thompson Engineering** 

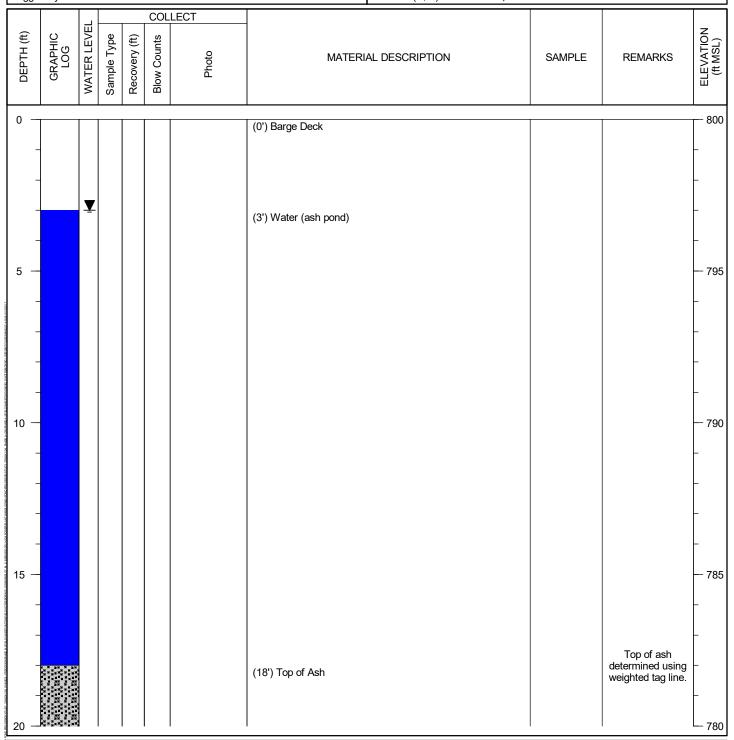
Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: P. Pitts and R. Odom

Logged By: H. Lutz

73 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): 800 Top of Deck Elev. (ft):

Location (Y, X): 1245236.4, 2027531.9



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method

Geosyntec<sup>▶</sup> consultants

**Southern Company Services** Client:

**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-12

Page: 2 of 4

4/6/2017 Drilling Start Date: Drilling End Date: 4/6/2017 Drilling Company: **Thompson Engineering** 

Drilling Method: **Mud Rotary** CME-45C Drilling Equipment: Driller Name: P. Pitts and R. Odom

Logged By: H. Lutz Boring Depth (ft): 73 Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft):

DTW After Drilling (ft): Top of Deck Elev. (ft): 800

Location (Y, X): 1245236.4, 2027531.9

		_								=
					COL	LECT				
DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20 -	L V V									<del></del> 780
25 —			SPT	1.2	WOR WOR WOR WOR		(18') Top of Ash <i>(continued)</i> (23') FLY ASH, non plastic, saturated, very dark gray (2.5Y 3/1), fine to very fine grained, rapid dilatancy, non cohesive, exibits liquifaction		N=0, Photo represents recovered sample between 23'-25' interval.	- - - 775
			SPT	0.6	WOR WOR WOR WOR				N=0	- - 770 -
THE PROPERTY OF THE CHARGES A POPULAR AND			ST	0			(36') NATIVE-Identified from drilling only (drilling change), no sample	M-12 (33-35)	Shelby Tube (Piston Sampler) pushed 33'-35', no recovery	- - 765 - -
40 -			ST	2				M-12 (38-40)		- - 760

- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** Project: **Plant Wansley Pre-Design Investigation** 

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-12

Page: 3 of 4

Drilling Start Date: 4/6/2017 Drilling End Date: 4/6/2017

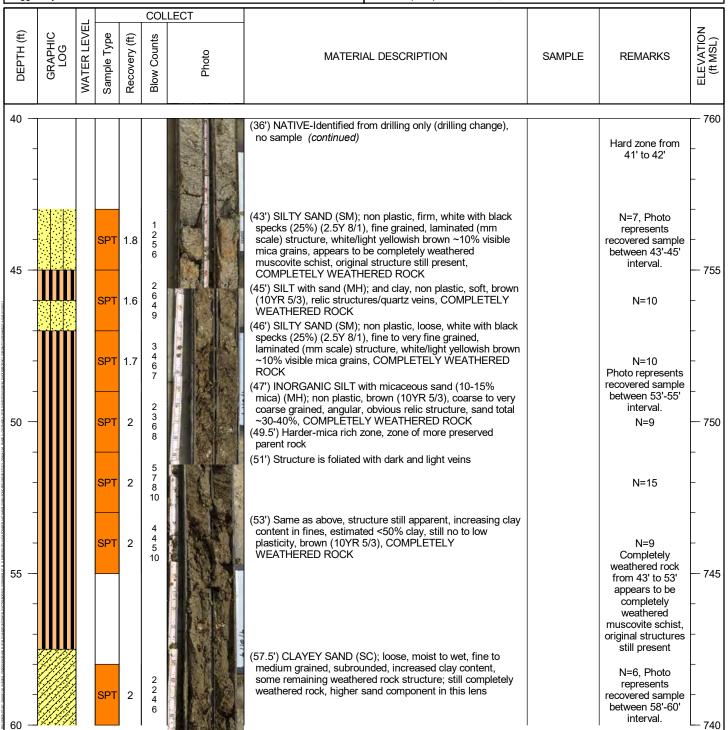
Drilling Company: **Thompson Engineering** 

**Mud Rotary** Drilling Method: Drilling Equipment: CME-45C P. Pitts and R. Odom Driller Name:

Logged By: H. Lutz

73 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST DTW During Drilling (ft): DTW After Drilling (ft): 800 Top of Deck Elev. (ft):

Location (Y, X): 1245236.4, 2027531.9



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
- 4. Borings were backfilled with grout using tremie method



Client: **Southern Company Services** 

**Plant Wansley Pre-Design Investigation** Project:

Address: 1371 Liberty Church Rd. Carrollton, GA 30116

**BORING LOG** Boring No.M-12

Page: 4 of 4

Drilling Start Date: 4/6/2017 Drilling End Date: 4/6/2017 Drilling Company:

**Thompson Engineering** 

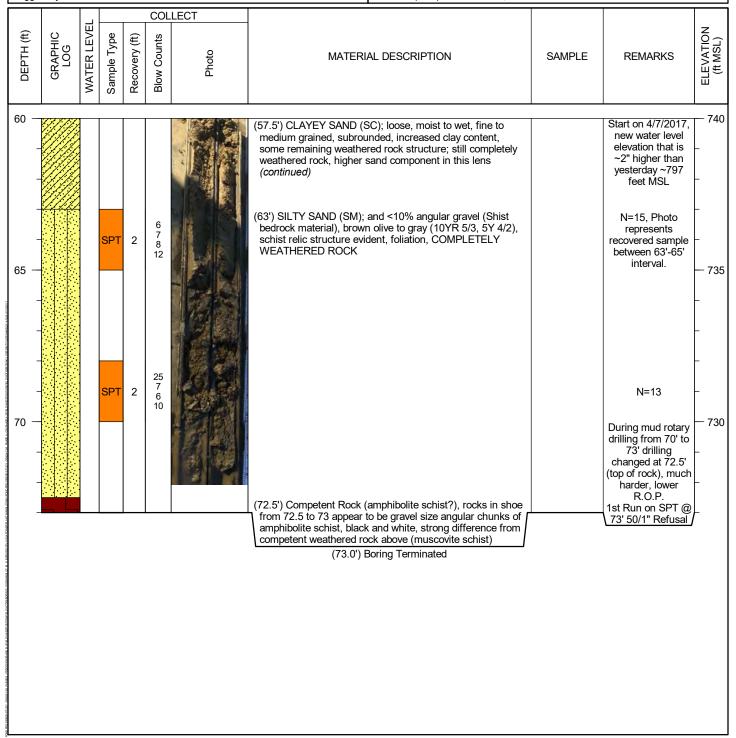
**Mud Rotary** Drilling Method: CME-45C Drilling Equipment: P. Pitts and R. Odom Driller Name:

Logged By: H. Lutz

73 Boring Depth (ft): Boring Diameter (in): Sampling Method(s): SPT, ST

DTW During Drilling (ft): DTW After Drilling (ft): 800 Top of Deck Elev. (ft):

Location (Y, X): 1245236.4, 2027531.9



- Drilling was completed in the ash pond from the deck of a barge.
   Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
- 3. Drillers used split spoons for sampling and a tricone bit for rotary drilling. 4. Borings were backfilled with grout using tremie method

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COMPANY

BORING SPT-01 PAGE 1 OF 2

GEOTECH.GPJ	S	0	UTHERN LOG OF TE	ST B	ORIN	G	PAGE 1 OF 2 ECS37440
EY GEC			THERN COMPANY SERVICES, INC. PRO	-		ical Investigation	1
VANSL	EA	RT	TH SCIENCE AND ENVIRONMENTAL ENGINEERING LOC	ATION _	Plant Wa	nsley	
D OGS	ATE	E S	STARTED 1/6/2015 COMPLETED 1/12/2015 SURF. ELE	<b>V.</b> 915.	1	COORDINATES	<b>S:</b> N:33.418589 E:85.061826
SNS C			ACTOR Ranger Consulting EQUIPMENT CME 550			-	
14/BOF			D BY B. Ozment LOGGED BY W. Shaughnessy CHEC				
N S			G DEPTH 63 ft. GROUND WATER DEPTH: DURING 19 ft.	`	OIVIP	7 IL. DE	ELATED 17.5 II. alter 46 fils.
NSLEY GEOTE H (ft)	HC	อ	STRATA DESCRIPTION	E TYPE BER	.)	BLOW COUNTS (N-VALUE)	COMMENTS
ROJECTS/WANSLEY DEPTH (ft)	GRAPHIC	9	ELEV	SAMPLE TYP NUMBER	SAMPLE I	PERCENT RECOVERY (RQD)	
DRILLING/P			Lean Clay (CL) - red-brown and gray-brown, damp, very stiff, with mica 912.	SS -1	1.0-2.5	10-8-10 ( <b>18</b> )	
H SUPPORT	11.1		Silty Sand (SM) - brown with black mottling, damp, dense, with mica and residual quartz rock	SS -2	3.5-5.0	15-21-22 ( <b>43</b> )	
CIVIL TEC			- no recovery, sampler blocked by rock	SS -3	6.0-7.5	10-11-13 ( <b>24</b> )	
CE COMPLEX			Silt (ML) - gray-brown with white mottling, damp, very stiff, with sand	SS -4	8.5- 10.0	9-9-9 ( <b>18</b> )	
SAAPC GENERAL SERVIC	-		- gray-brown with white mottling, damp, very stiff, with sand	SS -5	13.5- 15.0	5-9-11 ( <b>20</b> )	
50 - S:\WORKGROUP			▼ - dark brown with black mottling, wet, very stiff, saprolite schist	SS -6	18.5- 20.0	5-9-13 ( <b>22</b> )	
/15 11:			892. Silty Sand (SM)	1			
SE.GDT - 3/11 25			- gray-brown with black mottling, dry, very dense, saprolite schist, fine grained	SS -7	23.5- 25.0	15-30-39 ( <b>69</b> )	
TABA!		I I I I I I	887.	1			
30 30			Silt (ML) - gray-brown with black mottling, wet, very stiff, saprolite schist	SS -8	28.5- 30.0	6-7-14 ( <b>21</b> )	
2012 GEOTECH ENGINEERING LOGS - ESEEZOTZDA JABASE GDT 371/15 11:50 - S.WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTUBILLING/PROJECT SWANISLEY GEOTECH 2014/BORING LOGS/WANISLEY 40 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -			- gray-brown with black mottling, wet, very stiff, saprolite schist	SS -9	33.5- 35.0	5-8-12 ( <b>20</b> )	
2012 GEOTE 40			- gray-brown with black mottling, damp, hard, with sand	SS -10	38.5- 40.0	6-14-29 ( <b>43</b> )	



# **LOG OF TEST BORING**

BORING SPT-01 PAGE 2 OF 2 ECS37440

Gneiss  - dark gray to brown, fine to coarse grain, soft to hard, not to highly weathered, inclined, interlayered schist, intensely fractured  - dark gray with light gray banding, fine grain, hard, not to slightly weathered, inclined, few fractures, interlayered biotite schist, moderately to slightly fractured  - dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured  - dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured			HERN COMPANY SERVICES, INC. I SCIENCE AND ENVIRONMENTAL ENGINEERING		ECT G		ical Investigation	
Silt (ML)(Con't)  - gray-brown with black mottling, damp, very hard, with sand  - gray-brown with black mottling, damp, very hard, with sand  - gray-brown with black mottling, damp, very hard, with sand  - dark gray to brown, fine to coarse grain, soft to hard, not to highly weathered, inclined, interlayered schist, intensely fractured  - dark gray with light gray banding, fine grain, hard, not to slightly weathered, inclined, few fractures, interlayered biotite schist, moderately to slightly fractured  - dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured	E H	DHIC OG	STRATA DESCRIPTION		E TYPE IBER	E DEPTH t.)	COUNTS	COMMENTS
Silt (ML)(Con?)  - gray-brown with black mottling, damp, very hard, with sand  - gray-brown with black mottling, damp, very hard, with sand  - dark gray to brown, fine to coarse grain, soft to hard, not to highly weathered, inclined, interlayered schist, intensely fractured  - dark gray with light gray banding, fine grain, hard, not to slightly weathered, inclined, few fractures, interlayered biotite schist, moderately to slightly fractured  - dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured  - RC 53.0 - 100 - 13 56.0 (87)	DEP	GRA		ELEV	SAMPL	SAMPLE (f	RECOVERY	
Gneiss  - dark gray to brown, fine to coarse grain, soft to hard, not to highly weathered, inclined, interlayered schist, intensely fractured  - dark gray with light gray banding, fine grain, hard, not to slightly weathered, inclined, few fractures, interlayered biotite schist, moderately to slightly fractured  - dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured  - dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured			Silt (ML)(Con't)	LLLV.				
Gneiss  - dark gray to brown, fine to coarse grain, soft to hard, not to highly weathered, inclined, interlayered schist, intensely fractured  - dark gray with light gray banding, fine grain, hard, not to slightly weathered, inclined, few fractures, interlayered biotite schist, moderately to slightly fractured  - dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured  - dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured	45					43.5- 43.8		
not to highly weathered, inclined, interlayered schist, intensely fractured  - dark gray with light gray banding, fine grain, hard, not to slightly weathered, inclined, few fractures, interlayered biotite schist, moderately to slightly fractured  - dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured  - 12 53.0 (30)  RC 53.0- 100 (87)  RC 56.0- (87)  RC 56.0- (97)			Gneiss	868.1				
- dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured  - to slightly weathered, inclined, few fractures, interlayered biotite schist, slightly fractured  - 13 56.0 (87)  - 13 56.0 (87)  - 13 56.0 (87)	20		not to highly weathered, inclined, interlayered schist.					
very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured (97)	25		interlayered biotite schist, moderately to slightly					
1// /   852 1 ■	00		garnets (1-2 mm), interlayered biotite schist, slightly			56.0- 63.0		
Bottom of borehole at 63.0 feet.		///	Bottom of borehole at 63.0 feet.	852.1				

2012 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE.GDT - 3/11/15 11:50 - S.WORKGROUPS/APC GENERAL SERVICE COMPLEX/C/IIL TECH SUPPORT/DRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTECH.

BORING SPT-02 PAGE 1 OF 2

	sou	JTHERN  LOG O	F TES	ST BO	DRIN	G	ECS37440
	SOUT EARTH	HERN COMPANY SERVICES, INC. H SCIENCE AND ENVIRONMENTAL ENGINEERING				_	n
DF B(	ONTRA RILLED ORING	COMPLETED 1/13/2015 COMPLETED 1/14/2015 SU  COMPLETED 1/14/2015 SU  COMPLETED 1/14/2015 SU  EQUIPMENT	CME 550 _ CHECI G _Dry	METH	IOD <u>Mu</u> L. Millet	ud Rotary; Casi	ng Advance; NQ Diamond Core  NGLE BEARING
	GRAPHIC LOG	STRATA DESCRIPTION	ELEV	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) PERCENT RECOVERY (RQD)	COMMENTS
		- boulders and partially weathered rock					Soil stripped in borrow area.
2		Silt (ML) - gray-brown, dry, very stiff, with coarse-grained mica	885.3	SS -1	6.0-7.5	7-10-15 ( <b>25</b> )	
10		- gray-brown to gray, dry, hard, with fine to coarse- grained mica		SS -2	8.5- 10.0	11-15-17 ( <b>32</b> )	
15		- gray and brown-gray, dry, very hard, saprolite, with fine-grained mica		SS -3	13.5- 14.4	42-50/5" ( <b>100+</b> )	
		Gneiss	871.8				
20		- gray to dark gray with interbedded light brown felsic- quartz veins, fine to medium grain, soft to hard, slightly to highly weathered, inclined, banded, biotite, quartz, feldspar, intensely fractured, iron stained fractures		RC -4	19.0- 23.0	<b>38</b> (0)	
25		- dark gray to black, white seams, medium to coarse grain, soft to hard, moderately weathered, inclined, banded, biotite, feldspathic-quartz seams 1-2 inches thick, moderately to intensely fractured		RC -5	23.0- 28.0	<b>78</b> (28)	
30		- dark gray to black, white seams, medium to coarse grain, soft to hard, moderately to highly weathered, inclined, banded, biotite, feldspathic-quartz seams 1-2 inches thick, iron staining, intensely fractured		RC -6	28.0- 33.0	<b>62</b> (0)	
32		- dark gray to black, white seams, medium to coarse grain, soft to medium hard, highly to completely weathered, inclined, banded, biotite, feldspathic-quartz seams 1-2 inches thick intensely fractured		RC -7	33.0- 38.0	<b>8</b> (0)	

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# **LOG OF TEST BORING**

BORING SPT-02 PAGE 2 OF 2 ECS37440

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING PROJECT \_Geotechnical Investigation

**LOCATION** Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) PERCENT RECOVERY (RQD)	COMMENTS
ECISIWANSLET GEOLEC		Gneiss - gray and dark gray with white seams, fine to coarse grain, medium hard to hard, not to moderately weathered, inclined, banded, interlayered schist, biotite, garnet (1-2 mm), feldspathic-quartz seams 1-2 inches thick, intensely fractured		RC -8	38.0- 43.0	<b>56</b> (8)	
PORTUBILLING/PROJECT		- gray and dark gray, fine to coarse grain, hard, not to slightly weathered, inclined, banded, interlayered with coarse-grained schist, biotite, numerous garnets last 2 ft., not to slightly fractured		RC -9	43.0- 48.0	<b>102</b> (102)	
MPLEXICIVIL 1ECH SUP		- gray and dark gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, interlayered schist, biotite, feldspar, quartz, not to slightly fractured  Bottom of borehole at 53.0 feet.	337.8	RC -10	48.0- 53.0	<b>100</b> (100)	

BORING SPT-03 PAGE 1 OF 2

OTECH.GPJ	so	UTHERN LOG OF T	ES	ST BC	ORIN	G	PAGE 1 OF 2 ECS37440
NSLEY GE		THERN COMPANT SERVICES, INC.		JECT <u>G</u> ATION <u>F</u>		ical Investigatio ansley	on
MBORING LC	ONTR	COMPLETED 12/16/2015 SURF. E RACTOR Ranger Consulting EQUIPMENT CME  ED BY B. Ozment LOGGED BY W. Shaughnessy CHI G DEPTH 57 ft. GROUND WATER DEPTH: DURING 24	550 ECK	METH	IOD Mu	ıd Rotary; Casir	ng Advance; NQ Diamond Core  NGLE BEARING
IECH SUPPORTUBRILLING\PROJECTSWANSLEY GEO	GRAPHIC LOG			SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) PERCENT RECOVERY (RQD)	COMMENTS
NG/PRC	.///	Lean Clay (CL)	LEV.			` ,	
DRILLI 		- red-brown, dry, stiff, <i>residuum</i>	20.8	SS -1	1.0-2.5	4-6-6 ( <b>12</b> )	
CH SUPPORT		Silt (ML) - pale red-brown with black and yellow mottling, dry, very stiff, saprolite, with clay		SS -2	3.5-5.0	6-11-13 ( <b>24</b> )	
-XICIVIL IEC		- pale yellow- and red-brown, dry, very stiff, schist, with clay		SS -3	6.0-7.5	12-13-15 ( <b>28</b> )	
SERVICE COMPLEXICIVIL	 2 -	- pale red-brown, damp, very stiff, with mica and clay		SS -4	8.5- 10.0	7-14-16 ( <b>30</b> )	
VEKAL SEK		91 Clayey Sand (SC)	10.8				
SKOUPS/APC GE		- pale red-brown with black mottles, wet, medium dense, fine to coarse grain, <i>saprolite</i> , laminated, with mica and silt		SS -5	13.5- 15.0	10-12-13 ( <b>25</b> )	
5 11:50 - S:WURK		- pale red-brown and pale brown, wet, medium dense, with residual quartz rock		SS -6	18.5- 20.0	5-7-11 ( <b>18</b> )	
25   25   27   27   27   27   27   27			98.8	SS -7	23.5- 23.8	50/4" ( <b>100+</b> )	
GEOTIECH ENGINEERRING LOGS - ESEEZUTZDA ABASE.GDT - 3/11/15 11:30 - S/WORKGROUPS/AP/C GENERAL.  [36]		- gray and gray-brown, medium to coarse grain, medium hard, moderately to highly weathered, interlayered schist, intensely fractured		RC -1	25.0- 32.0	<b>93</b> (7)	
SINEEKING		- massive quartzite					
2012 GEOTECH ENG		- gray and gray-brown, medium grain, medium hard, not to moderately weathered, interlayered biotite schist, intensely to moderately fractured	36.8	RC -2	32.0- 37.0	<b>36</b> (16)	



# **LOG OF TEST BORING**

BORING SPT-03 PAGE 2 OF 2 ECS37440

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING PROJECT Geotechnical Investigation

**LOCATION** Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	SAMPLE TYPE	NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) PERCENT RECOVERY (RQD)	COMMENTS
40		- gray with brown-yellow stained fractures, medium to coarse grain, medium hard to hard, not to moderately weathered, interlayered biotite schist, intensely fractured, near vertical fractures		RC -3	37.0- 42.0	<b>92</b> (14)	
45		- gray to dark gray, with dark gray-brown staining, medium to coarse grain, medium hard to hard, not to moderately weathered, interlayered biotite schist, moderately fractured		RC -4	42.0- 47.0	<b>78</b> (52)	
50		- gray to dark gray, medium grain, hard to very hard, not to moderately weathered, inclined, banded, interlayered biotite schist, slightly fractured		RC -5	47.0- 52.0	<b>100</b> (90)	
		- gray to dark gray, fine to coarse grain, very hard, not to slightly weathered, inclined, banded, interlayered schist, biotite, slightly fractured  866.8  Bottom of borehole at 57.0 feet.		RC -6	52.0- 57.0	<b>90</b> (82)	

2012 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE.GDT - 3/11/15 11:50 - S.WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORT/DRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTECH.

BORING SPT-04 PAGE 1 OF 2

<b>GEOTECH.GPJ</b>		so	LOG OF COMPANY	TES	ST BC	DRIN	G	PAGE 1 OF 2 ECS37440
SLEY GE(			HERN COMPAINT SERVICES, INC.		JECT <u>G</u> Ation i		ical Investigatio	on
2014/BORING LOGS/WANSLEY	DΑ	ATE S	TARTED _1/12/2015 COMPLETED _1/13/2015 SURF.		_		•	ES: N:33.418438 E:85.057485
			ACTOR Ranger Consulting EQUIPMENT CM					
BORII	DF	RILLEI	D BY B. Ozment LOGGED BY W. Shaughnessy C	HECK	KED BY	L. Millet	AI	NGLE BEARING
2014	ВС	ORING	DEPTH 48 ft. GROUND WATER DEPTH: DURING _	Dry	c	OMP2	25 ft. <b>D</b> I	ELAYED 25.5 ft. after 72 hrs.
GEOTECH	NC	OTES						
	חברוח (וו)	GRAPHIC LOG	STRATA DESCRIPTION		SAMPLE TYPE NUMBER	E DEPTH ft.)	BLOW COUNTS (N-VALUE)	COMMENTS
ROJECTS/W	חחח	GRA L		ELEV.	SAMPI	SAMPLE (ft.)	PERCENT RECOVERY (RQD)	
ING/PI			Silt (ML)		00		4.0.0	
DRILL		$\ \ \ $	- red, dry, stiff		SS -1	1.0-2.5	4-6-8 ( <b>14</b> )	
TECH SUPPORT\DRILLING\PROJECTS\WANSLEY	Ç		- brown-gray with light red laminations, dry, very hard	040.0	SS -2	3.5-5.0	6-10-46 ( <b>56</b> )	
INIL TEC			- no sample (fall-in material only)	910.2	SS -3	6.0-7.5	4-3-2 ( <b>5</b> )	
SERVICE COMPLEXICIVIL	10		- no recovery		SS -4	8.5-8.6	50/1" ( <b>100+</b> )	
ERVICE		- /	Gneiss	905.2				
ENERAL	15		<ul> <li>dark brown-gray, fine to coarse grain, soft to medium hard, moderately to highly weathered, inclined, quartz veins, feldspar, interbedded biotite schist, intensely fractured</li> </ul>		RC -5	11.0- 18.0	<b>63</b> (14)	
- 3/11/15 11:50 - S:\WOR	70		- dark brown-gray, fine to coarse grain, soft to medium hard, highly weathered, inclined, quartz veins, feldspar, interbedded biotite schist, intensely fractured		RC -6	18.0- 23.0	<b>38</b> (0)	
E2012DATABASE.GDT	<b>CZ</b>		- gray to dark gray, fine to coarse grain, soft to hard, slightly to highly weathered, inclined, banded, quartz veins, feldspar, interlayered biotite schist, moderately to intensely fractured		RC -7	23.0- 28.0	<b>80</b> (28)	
IEERING LOGS - ESEL	30		- dark brown-gray, fine to coarse grain, medium hard, moderately to highly weathered, inclined		RC -8	28.0- 33.0	<b>66</b> (12)	
2012 GEOTECH ENGIN	32		<ul> <li>dark gray to black, medium to coarse grain, soft to hard, not to highly weathered, inclined, micro-folds, thin quartz veins, garnets up to 3 mm, slightly to moderately fractured</li> </ul>	878.2	RC -9	33.0- 38.0	<b>42</b> (42)	

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# **LOG OF TEST BORING**

BORING SPT-04 PAGE 2 OF 2 ECS37440

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation

**LOCATION** Plant Wansley

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NG LOGS/W/	GRAPHIC LOG	STRATA DESCRIPTION		SAMPLE TYPE NUMBER	: DEPTH t.)	BLOW COUNTS (N-VALUE)	COMMENTS
GEOTECH 2014/BORING LOGS/WAN	GRA	ELE	īV.	SAMPL	SAMPLE I	PERCENT RECOVERY (RQD)	
IS/WANSLEY GEOTEC	\\\_\\_\\	- gray to dark gray with light gray banding, medium to coarse grain, hard, not weathered, inclined, with microfolds, interlayered schist, not to slightly fractured		RC -10	38.0- 43.0	<b>106</b> (106)	
DR I IDRILLING PROJECT SIWANSLEY		- gray to dark gray with light gray banding, medium to coarse grain, hard, not weathered, inclined, with microfolds, interlayered schist, not fractured	.2	RC -11	43.0- 48.0	<b>84</b> (84)	

Bottom of borehole at 48.0 feet.

BORING SPT-05 PAGE 1 OF 2

GEOTECH 2014/BORING LOGS/WANSLEY GEOTECH.GPJ		so	LOG OF TI	ES	ТВС	PRIN	G	PAGE 1 OF 2 ECS37440			
Y GE	9	SOUT	THERN COMPANY SERVICES, INC.	PROJECT _Geotechnical Investigation							
NSLE				CA	TION _	Plant Wa	insley				
IG LOGS\WA			TARTED12/17/2015 COMPLETED12/18/2015 SURF. El           ACTORRanger Consulting EQUIPMENTCME_5								
SE			D BY B. Ozment LOGGED BY W. Shaughnessy CHE				-				
FCH 2014/E	ВС		G DEPTH _78 ft GROUND WATER DEPTH: DURING _Dr								
ANSLEY GEOT	(#) H	GRAPHIC LOG	STRATA DESCRIPTION		E TYPE IBER	: DEPTH t.)	BLOW COUNTS (N-VALUE)	COMMENTS			
ROJECTS/W/	DEPT	GRA	EL	EV.	SAMPLE TYPE NUMBER	SAMPLE (ft.)	PERCENT RECOVERY (RQD)				
16/PF		$\prod$	Silt (ML)								
RTVDRILLIN			- brown, damp, very stiff, with residual quartz rock		SS -1	1.0-2.5	4-8-9 ( <b>17</b> )				
CH SUPPO	2		- yellow-brown with black mottles, damp, stiff, with clay		SS -2	3.5-5.0	3-5-5 ( <b>10</b> )				
KICIVIL TE			<ul> <li>brown with black and white banding, damp, very stiff, saprolite, with clay</li> </ul>		SS -3	6.0-7.5	6-8-10 ( <b>18</b> )				
ICE COMPLE)	10		- gray-brown, very damp, very hard, saprolite, with sand		SS -4	8.5-9.5	40-50 ( <b>100+</b> )				
RAL SERVI		10:0:4	87	9.1							
UPS\APC GENE	15	70 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Partially Weathered Rock (PWR) - gray-brown, dry, very hard, with silt and clay, mica		SS -5	13.5- 15.0	7-15-37 ( <b>52</b> )				
0 - S:\WORKGRO	20		- gray-brown, dry, very hard, with silt and clay, mica	2	SS -6	18.5- 18.8	50/4" ( <b>100+</b> )				
5 11:5	!	7 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	87	n 1							
2012 GEOTECH ENGINEERING LOGS - ESEEZ012DATABASE GDT - 3/11/15 11:50 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY	25		Gneiss  - gray and gray-brown, fine to coarse grain, soft to medium hard, moderately to highly weathered, inclined, interbedded with feldspathic quartz veins, intensely fractured	J. 1	RC -1	22.0- 28.0	<b>92</b> (17)				
NEERING LOGS - ESEE2	30		<ul> <li>gray and gray-brown, fine to medium grain, soft to medium hard, not to highly weathered, inclined, interlayered schist, coarse-grained feldspathic quartz seams, moderately fractured</li> </ul>		RC -2	28.0- 33.0	<b>92</b> (40)				
2012 GEOTECH ENGIL	35		- gray to dark gray, brown-yellow where weathered, fine to medium grain, medium hard to hard, slightly to moderately weathered, inclined, interlayered schist, intensely fractured  85	4.1	RC -3	33.0- 38.0	<b>64</b> (0)				

# **LOG OF TEST BORING**

BORING SPT-05 PAGE 2 OF 2 ECS37440

		HERN COMPANY SERVICES, INC. I SCIENCE AND ENVIRONMENTAL ENGINEERING	PROJECT Geotechnical Investigation  LOCATION Plant Wansley						
DEPIH (II)	GRAPHIC LOG	STRATA DESCRIPTION		SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) PERCENT RECOVERY (RQD)	COMMENTS		
2		- gray to dark gray, brown-yellow where weathered, fine to medium grain, medium hard to hard, slightly to moderately weathered, inclined, coarse grained feldspathic quartz seams, biotite, slightly to moderately fractured	ELEV.	RC -4	38.0- 43.0	<b>98</b> (56)			
		- gray and dark brown-gray, coarse grain, soft to hard, not to moderately weathered, inclined, massive quartz vein, interlayered biotite schist, moderately to slightly fractured		RC -5	43.0- 48.0	<b>98</b> (62)			
		- dark brown-gray, soft, highly to completely weathered, mica schist, coarse-grained, feldspathic quartz seams		RC -6	48.0- 53.0	<b>4</b> (0)			
2		- brown, medium to coarse grain, soft to medium hard, highly weathered, silty clay and mica schist, intensely fractured		RC -7	53.0- 58.0	<b>38</b> (0)			
2		- dark brown-gray, medium to coarse grain, soft to medium hard, moderately to highly weathered, numerous fractures, feldspathic quartz seams, iron staining, moderately to intensely fractured		RC -8	58.0- 63.0	<b>108</b> (32)			
		- dark brown-gray, coarse grain, medium hard, moderately to highly weathered, numerous fractures, feldspathic quartz seams, iron staining, moderately fractured		RC -9	63.0- 68.0	<b>112</b> (28)			
		- dark gray with light gray felsic-quartz viens, fine to medium grain, hard, not to slightly weathered, not to slightly fractured		RC -10	68.0- 73.0	<b>100</b> (100)			
		- dark gray with light gray felsic-quartz viens, fine to medium grain, hard, not to slightly weathered, not to slightly fractured	814.1	RC -11	73.0- 78.0	<b>100</b> (100)			
		Bottom of borehole at 78.0 feet.							

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BORING SPT-06

		CTILITY COMMENT DERVICES, ITVE.					
-11	11,	ANTI GOLENOE MAD ENVIRONMENTAL ENGINEELANG	LUCA	ATION _	iaiii vva	risiey	
		<b>E STARTED</b> <u>12/16/2015</u> <b>COMPLETED</b> <u>12/17/2015</u> <b>SURF</b> .					
		TRACTOR Ranger Consulting EQUIPMENT CME				_	
		LED BY B. Ozment LOGGED BY W. Shaughnessy CI ING DEPTH 37 ft. GROUND WATER DEPTH: DURING					
		ES			OWII . <u></u>	1.0 It. DEL	
	GRAPHIC			SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) PERCENT RECOVERY	COMMENTS
	//	Lean Clay (CL)	ELEV.		Ŋ	(RQD)	
		- pale red-brown and gray, dry, stiff, <i>residuum</i> , with mica		SS -1	1.0-2.5	5-6-4 ( <b>10</b> )	
			356.5	SS -2	3.5-5.0	6-10-15 ( <b>25</b> )	
		Silt (ML) - pale gray-brown, dry, hard		SS -3	6.0-7.5	13-25-46 ( <b>71</b> )	
		- pale brown with black mottles, wet, very stiff, mica seams throughout		SS -4	8.5- 10.0	6-8-12 ( <b>20</b> )	
		- pale brown, wet, very stiff, with mica ∑		SS -5	13.5- 15.0	6-9-12 ( <b>21</b> )	
44		Partially Weathered Rock (PWR)  one recovery- partially weathered rock	343. <u>5</u> 341.0	SS -6	18.5- 18.5	50/0" ( <b>100+</b> )	
		- gray to dark gray, medium to coarse grain, not to highly weathered, interlayered schist, quartz veins, fine grained garnets, moderately to intensely fractured - dark brown, highly weathered, iron staining 24.5-25 ft.  - fracture zone 26-27 ft.		RC -1	21.0- 28.0	<b>93</b> (46)	
		- gray to dark gray, medium to coarse grain, not to moderately weathered, inclined, few quartz veins, iron stained, interlayered biotite schist, slightly to intensely fractured		RC -2	28.0- 33.0	<b>104</b> (100)	
		- gray to dark gray, fine to medium grain, not weathered, few thin quartz veins, fine to medium-grained garnets, interlayered biotite schist, slightly fractured	325.0	RC -3	33.0- 37.0	<b>100</b> (100)	

SOUTHERN COMPANY

2013 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE, GDT - 3/11/15 11:50 - S.;WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTEC

### LOG OF TEST BORING

BORING SPT-07 PAGE 1 OF 2 ECS37440

PROJECT Geotechnical Investigation SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley **DATE STARTED** 1/22/2015 **COMPLETED** <u>1/28/2015</u> **SURF. ELEV.** <u>864.4</u> COORDINATES: N:33.431086 E:85.048013 EQUIPMENT CME 550 METHOD Mud Rotary; Casing Advance; NQ Diamond Core **CONTRACTOR** Ranger Consulting DRILLED BY B. Ozment CHECKED BY L. Millet **ANGLE BEARING** LOGGED BY W. Shaughnessy **GROUND WATER DEPTH: DURING** 25 ft. **BORING DEPTH** 88 ft. COMP. 29.5 ft. DELAYED 28.5 ft. after 100 hrs. **NOTES** SAMPLE DEPTH (ft.) **BLOW** SAMPLE TYPE NUMBER COUNTS Œ GRAPHIC (N-VALUE) STRATA DESCRIPTION **COMMENTS** DEPTH **PERCENT RECOVERY** (RQD) Lean Clay (CL) SS 2-3-5 - red, damp, medium stiff, with sand and silt 1.0 - 2.5(8) 861 Silt (ML) 8-9-15 red-brown and gray-brown, damp, very stiff, with 3.5-5.0 (24)coarse mica and clay - brown with black mottles, damp, very stiff, with clay 10-14-13 6.0-7.5 (27)Silty Sand (SM) 9-13-20 SS 8.5 - yellow-brown with black mottles, damp, dense, fine 9 10.0 (33)grained 851.4 Silt (ML) SS -5 13.5-8-13-17 - brown with black mottles, damp, very stiff, with sand 15.0 (30)SS 18.5-9-13-19 - gray-brown and black, damp, hard, coarse saprolite 20.0 -6 (32) schist, with clay 23.5-9-14-21 yellow-brown and brown with black mottles, wet, hard, SS 25.0 (35)abla with sand 28.5-6-11-16 yellow-brown and brown with black mottles, wet, very SS 30 stiff, with sand -8 30.0 (27)SS 33.5-7-10-16 - light brown with black and pale yellow laminations, wet, -9 35.0 (26)very stiff, with clay 38.5-9-27-29 gray and dark gray with white mottling, wet, very hard, 40.0 (56)with sand and residual quartz rock



**BORING SPT-07** PAGE 2 OF 2 ECS37440

2012 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE.GDT - 3/11/15 11:50 - S.;WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTECH 2014 LOG OF TEST BORING PROJECT Geotechnical Investigation SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley DEPTH **BLOW** SAMPLE TYPE NUMBER GRAPHIC LOG COUNTS DEPTH (ft) (N-VALUE) STRATA DESCRIPTION COMMENTS E □ □ SAMPLE **PERCENT** RECOVERY (RQD) ELEV Silt (ML)(Con't) SS 43.5-15-21-36 - gray-brown with black mottles, damp, very hard, (57) 45.0 saprolite schist, with sand 48.5-- brown-gray with red mottles, damp, very hard, 43-50 50 49.5 (100+)saprolite, coarse mica SS 53.5-17-21-25 gray-brown, damp, hard, saprolite, fine to medium 55 55.0 grained mica, with clay (46)- gray-brown with white laminations, damp, very hard, 58.5-18-26-40 SS 9 60.0 (66)saprolite, garnets, with clay - brown-gray, wet, very hard, with sand and weathered SS 63.5-50/3" -15 63.8 (100+)schist 796.4 **Gneiss** 2 68.0-90 - brown and gray, fine to coarse grain, medium hard, (10)-16 73.0 slightly to highly weathered, intensely fractured RC 73.0-100 - gray and dark gray with light gray banding, fine to 78.0 (36)coarse grain, medium hard, slightly to moderately weathered, interlayered schist, moderately to intensely fractured, iron stained fractures 80 RC 78.0-102 - gray and dark gray with light gray banding, fine to -18 83.0 (98)coarse grain, medium hard, slightly to moderately weathered, interlayered schist, slightly fractured, iron stained fractures 82 RC 83.0-100 - dark gray to black, fine to coarse grain, hard to very 88.0 -19 (76)hard, not weathered, micro-folds, garnets, pyrite on foliation planes, interlayered schist, moderately fractured 776. Bottom of borehole at 88.0 feet.

SOUTHERN

2013 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE, GDT - 3/11/15 11:50 - S.;WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTEC

## LOG OF TEST BORING

**BORING SPT-08** PAGE 1 OF 2 ECS37440

PROJECT Geotechnical Investigation SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley **DATE STARTED** 1/16/2015 **COMPLETED** <u>1/16/2015</u> **SURF. ELEV.** <u>930.8</u> COORDINATES: N:33.432606 E:85.044206 EQUIPMENT CME 550 METHOD Mud Rotary; Casing Advance; NQ Diamond Core **CONTRACTOR** Ranger Consulting DRILLED BY B. Ozment CHECKED BY L. Millet **ANGLE BEARING** LOGGED BY W. Shaughnessy BORING DEPTH 63 ft. GROUND WATER DEPTH: DURING 25 ft. **COMP.** 48 ft. DELAYED 48 ft. after 100 hrs. **NOTES** SAMPLE DEPTH (ft.) **BLOW** SAMPLE TYPE NUMBER DEPTH (ft) GRAPHIC COUNTS (N-VALUE) STRATA DESCRIPTION **COMMENTS** DEPTH **PERCENT RECOVERY** (RQD) - brown-gray with white mottles, damp, very stiff, SS 6-12-17 1.0-2.5 (29)saprolite schist, with clay - brown-gray with white mottles, damp, very hard, 17-23-29 SS 3.5-5.0 saprolite schist, with clay (52) - brown-gray and red-brown, dry, very hard, saprolite 19-37-46 6.0 - 7.5schist, with clay (83) 10-15-18 brown-gray and red-brown, dry, hard, saprolite schist, SS 8.5with clay 10.0 (33)- pink-gray, dry, very hard, saprolite, with clay and sand 13.5-12-23-40 15.0 (63)- dark brown-gray and yellow-red, dry, very hard, SS 18.5-21-35-44 20 20.0 saprolite schist, with clay (79)23.5-27-50 SS - gray-brown and red-brown with black mottles, wet, very 24.5 (100+)28.5-16-20-30 - gray-brown and red-brown with black mottles, wet, very SS 30 hard, saprolite schist, with clay -8 30.0 (50) 33.5-17-15-20 - red-brown and black, wet, hard, saprolite schist, with SS 35.0 (35)clay - gray-brown with black laminations, wet, very hard, with 38.5-10-22-39 40.0 sand and mica (61)



# **LOG OF TEST BORING**

BORING SPT-08 PAGE 2 OF 2 ECS37440

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING PROJECT Geotechnical Investigation

**LOCATION** Plant Wansley

			TI GOLE (CE III (B' EI ( ) IKOI (INEI ( ) IE EI ( GII ( EE KII ( G	Figure Wansiey							
DEPTH (ft)	GRAPHIC	LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) PERCENT RECOVERY (RQD)	COMMENTS			
- GEO E GEO	40	0.0	Silt (ML)(Con't)	887.8							
3.WANSLET	0	0 4 . 0 Q	Partially Weathered Rock (PWR) - very hard, no recovery	885.8	<b>X</b> SS -11	43.5- 44.1	45-50/1" ( <b>100+</b> )				
NIELING/PROJECTS	1//	( -// -	Gneiss - dark gray and white, medium grain, soft to medium hard, highly weathered, interlayered schist, intensely fractured		RC -12	45.0- 48.0	<b>53</b> (0)				
ECH SOFFOR DRIED			<ul> <li>dark gray to black with light gray banding, fine to medium grain, medium hard to hard, not to highly weathered, inclined, banded, interlayered schist, slightly to intensely fractured, fresh last 2 feet</li> </ul>		RC -13	48.0- 53.0	<b>68</b> (40)				
GENERAL SERVICE COMPLESSIVILIE	1//		- gray with light gray banding, fine to coarse grain, hard, not weathered, inclined, banded, interlayered schist, slightly fractured	007.0	RC -14	53.0- 63.0	<b>98</b> (98)				
<u> </u>	11	. /	Bottom of borehole at 63.0 feet.	867.8	Ц						

2012 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE.GDT - 3/11/15 11:50 - S.WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORT/DRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTECH.

EOTECH ENGINEERING LOGS - ESEE2012DATABASE.GDT - 3/11/15 11:50 - S.WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORT/DRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTECH.

# **LOG OF TEST BORING**

BORING SPT-09 PAGE 1 OF 2 ECS37440

PROJECT Geotechnical Investigation

	HERN COMPANY SERVICES, INC.  H SCIENCE AND ENVIRONMENTAL ENGINEERING LOC	CATION	Plant Wa	nsley	
CONTRA	CARTED         1/14/2015         COMPLETED         1/15/2015         SURF. ELE           ACTOR         Ranger Consulting         EQUIPMENT         CME 55           OBY         B. Ozment         LOGGED BY         W. Shaughnessy         CHEC	0 METI	HOD Mu	d Rotary; Casir	ng Advance; NQ Diamond Core
	DEPTH 75 ft. GROUND WATER DEPTH: DURING 45 ft				
	GROUND WATER DEPTH. DURING 45 II		OIVIP.	ı	ELATED
			<b> </b>		
GRAPHIC LOG	STRATA DESCRIPTION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) PERCENT RECOVERY (RQD)	COMMENTS
	Lean Clay (CL)	v.			
	- red, dry, stiff, <i>residuum</i> , with silt and mica 910.	SS -1	1.0-2.5	3-4-5 ( <b>9</b> )	
<u>n</u>	Silt (ML) - red with black and red-yellow mottles, dry, very stiff, saprolite schist, with clay	SS -2	3.5-5.0	9-13-15 ( <b>28</b> )	
	<ul> <li>red, red-brown and black, dry, very hard, saprolite schist, with clay</li> </ul>	SS -3	6.0-7.5	14-27-33 ( <b>60</b> )	
10	- red, red-brown and black, dry, hard, saprolite schist, with clay	SS -4	8.5- 10.0	8-15-22 ( <b>37</b> )	
	- red, red-yellow, gray-brown with black mottling, damp, very stiff, with mica and clay	SS -5	13.5- 15.0	7-12-16 ( <b>28</b> )	
	- red-yellow and gray-brown with black mottling, damp, hard, with mica and clay	SS -6	18.5- 20.0	7-15-21 ( <b>36</b> )	
  	- red-yellow and gray-brown with black mottling, damp, hard, with mica and clay	SS -7	23.5- 25.0	9-17-26 ( <b>43</b> )	
30.	- gray-brown with black mottles, dry, hard, with clay and sand	SS -8	28.5- 30.0	9-16-28 ( <b>44</b> )	
	- gray-brown and red-yellow layers, black mottling, damp, very hard, with clay, residual quartz rock and mica	<b>X</b> SS -9	33.5- 33.9	50/5" ( <b>100+</b> )	24 hr and 48 hr: caved at 32 feet.

SS -10

38.5-

39.4

38-50/5"

(100+)

- gray-brown and dark brown, damp, very hard, saprolite

schist, with clay

# **LOG OF TEST BORING**

BORING SPT-09 PAGE 2 OF 2 ECS37440

		HERN COMPANY SERVICES, INC. H SCIENCE AND ENVIRONMENTAL ENGINEERING		ATION _	Plant Wa	nical Investigation ansley	
DEPIH (#)	GRAPHIC LOG	STRATA DESCRIPTION		SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE)	COMMENTS
DEP	GRA			SAMPL	SAMPLE (1	PERCENT RECOVERY (RQD)	
	Ш	Silt (ML)(Con't)	ELEV.		0)		
45	<u> </u>	- gray-brown with dark red mottles, wet, very hard, with $\!$		SS -11	43.5- 44.9	21-45-50/5" ( <b>100+</b> )	
20:		- gray-brown with black mottling, damp, very hard, with sand, mica and residual rock	,	SS -12	48.5- 50.0	20-31-44 ( <b>75</b> )	
55		- gray and brown-gray, damp, very hard, coarse grained saprolite schist		<b>▼</b> SS -13	53.5- 54.0	50 ( <b>100+</b> )	
		Gneiss	855.0				
09		- brown-gray, fine to medium grain, moderately weathered, inclined, interlayered biotite schist, massive quartzite vein, intensely fractured		RC -14	58.0- 63.0	<b>60</b> (8)	
65		<ul> <li>dark gray with light gray quartz veins, fine to medium grain, not weathered, inclined, quartz, garnets, interlayered biotite schist, slightly to moderately fractured</li> </ul>		RC -15	63.0- 68.0	<b>94</b> (70)	
20		- dark gray with light gray quartz veins, fine to medium grain, not weathered, inclined, quartz, garnets, fractures on foliation planes, interlayered biotite schist, slightly to moderately fractured		RC -16	68.0- 73.0	<b>100</b> (100)	
75		- dark gray with light gray quartz veins, fine to coarse □grain, not weathered, inclined, quartz, garnets,	838.0	RC -17	73.0- 75.0	<b>100</b> (100)	
		interlayered biotite schist, fractures on foliation planes, not to slightly fractured  Bottom of borehole at 75.0 feet.					

BORING SPT-10 PAGE 1 OF 2

O IECH.GPJ	so	UTHERN LOG OF	TES	ST BO	ORIN	G	PAGE 1 OF 2 ECS37440
SLEY GE		THERN COMPANY SERVICES, INC. FH SCIENCE AND ENVIRONMENTAL ENGINEERING		JECT G		ical Investigatio	n
D D	ATE C	STARTED 1/21/2015 COMPLETED 1/22/2015 SURF					S. N.33 429050 E.95 045360
3 C		COMPLETED 1/22/2019 SURFICE SU					
S D		ED BY B. Ozment LOGGED BY W. Shaughnessy				-	
B B		G DEPTH _78 ft. GROUND WATER DEPTH: DURING	25 ft.	с	OMP5	6 ft. DI	ELAYED 56 ft. after 100 hrs.
N D	OTES	·					
TH (ft)	GRAPHIC LOG	STRATA DESCRIPTION		SAMPLE TYPE NUMBER	E DEPTH ft.)	BLOW COUNTS (N-VALUE)	COMMENTS
DEPTH	GR/ L		ELEV.	SAMPI	SAMPLE (ft.)	PERCENT RECOVERY (RQD)	
5		Lean Clay (CL) - red with red-yellow mottles, damp, medium stiff, with		▼ ss		2-3-4	
] 		silt	881.2	-1	1.0-2.5	(7)	
1 SOFFOR		Silt (ML) - red and gray-brown, damp, very stiff, saprolite schist	878.7	SS -2	3.5-5.0	5-7-13 ( <b>20</b> )	
		Silty Sand (SM) - brown and gray-brown with red-yellow mottling, wet, medium dense	876.2	SS -3	6.0-7.5	7-8-11 ( <b>19</b> )	
10	-	Silt (ML) - red-brown with black mottles, damp, very stiff, saprolite schist		SS -4	8.5- 10.0	7-12-16 ( <b>28</b> )	
NET VER			871.2				
15		Lean Clay (CL) - red, damp, stiff, with silt and sand		SS -5	13.5- 15.0	4-5-9 ( <b>14</b> )	
400F3/AF			866.2				
20	-	Silt (ML) - brown-gray with black mottles, damp, hard, with clay		SS -6	18.5- 20.0	12-23-22 ( <b>45</b> )	
 2			861.2				
25		Silty Sand (SM) - dark gray, wet, very hard, with coarse sand		SS -7	23.5- 25.0	20-28-39 ( <b>67</b> )	
TATABASE		Silt (ML)	856.2				
30		- brown with black mottles, wet, very hard, with clay		SS -8	28.5- 30.0	18-25-43 ( <b>68</b> )	
ENING LOC		- gray-brown, wet, very hard, with sand and mica		<b>▼</b> ss	33.5-	50	
40: 135: 137: 138: 139: 139: 139: 139: 139: 139: 139: 139				9	34.0	(100+)	
40		- brown with yellow and white mottling, damp, hard, saprolite, with clay and mica		SS -10	38.5- 40.0	10-17-25 ( <b>42</b> )	

## **LOG OF TEST BORING**

BORING SPT-10 PAGE 2 OF 2 ECS37440

]		HERN COMPANY SERVICES, INC. I SCIENCE AND ENVIRONMENTAL ENGINEERING		JECT <u>G</u> ATION <u>F</u>		nical Investigation ansley	
н (щ	GRAPHIC LOG	STRATA DESCRIPTION		SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE)	COMMENTS
DEPI	GRA			SAMPL	SAMPLE (f	PERCENT RECOVERY (RQD)	
		Silt (ML)(Con't)	ELEV.		0)	(1123)	
45		- brown with black and red-yellow mottles, wet, very hard, with clay and sand		SS -11	43.5- 44.4	23-50/5" ( <b>100+</b> )	
		- brown-gray with red-yellow mottles, wet, very hard,		<b>X</b> SS	48.5-	28-50/5"	
00		saprolite, with sand and mica	831.2	-12	49.4	(100+)	
60 55 50 45 DEPIH (#)	0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	Partially Weathered Rock (PWR) - gray-brown with black and red-brown mottling, damp, very dense, clayey sand, fine grained	631.2	SS -13	53.5- 55.0	10-28-38 ( <b>66</b> )	
09		- very dense, no recovery		SS -14	58.5- 58.7	50/2" ( <b>100+</b> )	
	7 A A C	Gneiss	822.2	П			
92		- gray to dark gray, medium to coarse grain, soft to hard, slightly to highly weathered, biotite, quartz, moderately fractured		RC -15	62.0- 68.0	<b>22</b> (17)	
120		- gray to dark gray with light gray banding, medium to coarse grain, soft to hard, not to slightly weathered, biotite, quartz, moderately fractured		RC -16	68.0- 73.0	<b>100</b> (70)	
75		- gray to dark gray with light gray banding, medium to coarse grain, soft to hard, not to slightly weathered, biotite, quartz, moderately fractured	222	RC -17	73.0- 78.0	<b>100</b> (80)	
	///	Bottom of borehole at 78.0 feet.	806.2				

### I OG OF TEST ROPING

BORING SPT-11 PAGE 1 OF 2 ECS37440

D. C. D. B. N.	S	ou	THERN LOG OF	TES	ST BO	ORIN	G	PAGE 1 OF 2 ECS37440
			HERN COMPANY SERVICES, INC.				ical Investigation	1
	EAI	(1F	I SCIENCE AND ENVIRONMENTAL ENGINEERING	LOC	ation _	Plant Wa	insiey	
D			ARTED 1/21/2015 COMPLETED 1/21/2015 SUF					
			CTOR Ranger Consulting EQUIPMENT C  BY B. Ozment LOGGED BY W. Shaughnessy				·	
В			DEPTH 63 ft. GROUND WATER DEPTH: DURING					
N	ОТЕ							
	GRAPHIC	96	STRATA DESCRIPTION		SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE)	COMMENTS
DEPT	GRA	ے ا		ELEV.	SAMPL	SAMPLE (f	PERCENT RECOVERY (RQD)	
			Lean Clay (CL) - red, dry, stiff, with silt		▼ ss		5-6-6	
			rou, dry, our, with our	900.5	_1	1.0-2.5	( 12)	
2	-		Silt (ML) - red, damp, stiff, with clay	898.0	SS -2	3.5-5.0	5-5-10 ( <b>15</b> )	
		. 21	Silty Sand (SM) - red-brown with black mottles, dry, medium dense	895.5	SS -3	6.0-7.5	6-10-13 ( <b>23</b> )	
10			Silt (ML) - brown, damp, very stiff, with clay and mica	090.0	SS -4	8.5- 10.0	5-6-13 ( <b>19</b> )	
15   10   5   DEPTH (ft)			- brown-gray, dry, hard		SS -5	13.5- 15.0	7-15-25 ( <b>40</b> )	
20			- brown with dark brown mottles, dry, very hard, fine grained mica		SS -6	18.5- 20.0	16-20-34 ( <b>54</b> )	
25			Silty Sand (SM)  - dark gray with white laminations, wet, very dense,  Z saprolite	880.5	SS -7	23.5- 25.0	8-38-44 ( <b>82</b> )	
40			- dark gray with white laminations, wet, very dense, residual schist rock		X SS -8	28.5- 29.4	27-50/5" ( <b>100+</b> )	
	40.0	1	Partially Weathered Rock (PWR)	870.5				
35	00	7.7	- very dense, no recovery	868.5	SS -9	33.5- 33.5	50/0" ( <b>100+</b> )	
	1		Gneiss - gray to dark brown-gray, medium to coarse grain, soft to medium hard, moderately to highly weathered,		RC -10	35.0- 38.0	<b>83</b> (47)	
40			interlayered biotite schist, moderately fractured		RC -11	38.0- 43.0		

SOUTHERN COMPANY

2012 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE.GDT - 3/11/15 11:50 - S.WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORT/DRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTECH.

## **LOG OF TEST BORING**

BORING SPT-11 PAGE 2 OF 2 ECS37440

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation

LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) PERCENT RECOVERY	COMMENTS
	1-/	Gneiss(Con't) - dark brown and gray, dark gray, medium to coarse grain, medium hard to hard, slightly to highly weathered, interlayered biotite schist, slightly to moderately	RC -11	38.0- 43.0	(RQD) <b>64</b> (26)	
45		<ul> <li>fractured</li> <li>✓ - dark brown-gray, coarse grain, soft, highly to completely weathered, intensely fractured</li> </ul>	RC -12	43.0- 48.0	<b>22</b> (0)	
50		- gray and dark gray with light gray banding, fine to coarse grain, soft to hard, not to highly weathered, interlayered coarse schist, 1-foot weathered zone (51-52 ft.), slightly to intensely fractured	RC -13	48.0- 53.0	<b>82</b> (56)	
55		- gray to dark gray with light gray banding, fine to coarse grain, hard, not weathered, interlayered schist, not to slightly fractured	RC -14	53.0- 58.0	<b>112</b> (112)	
09		- gray to dark gray with light gray banding, fine to coarse grain, hard, not weathered, interlayered schist, not to slightly fractured	RC -15	58.0- 63.0	<b>100</b> (100)	

Bottom of borehole at 63.0 feet.

SOUTHERN

### LOG OF TEST BORING

BORING SPT-12 PAGE 1 OF 1 ECS37440

5	S	OU	THERN A	LOG OF	F TES	ST B	ORIN	G			E 1 OF 1 CS37440
4			IERN COMPANY SERVICE SCIENCE AND ENVIRON			_		ical Investigati	ion		
SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING  DATE STARTED 1/20/2015 COMPLETED 1/20/2015 SURF. ELEV. 833.9 COORDINATE: CONTRACTOR Ranger Consulting EQUIPMENT CME 550 METHOD Mud Rotary; Casin DRILLED BY B. Ozment LOGGED BY W. Shaughnessy CHECKED BY L. Millet AN BORING DEPTH 36 ft. GROUND WATER DEPTH: DURING 15 ft. COMP. 12 ft. DE NOTES  STRATA DESCRIPTION  Silt (ML) - red with red-yellow mottles, damp, medium stiff, with sand - gray-brown, red and red-brown, damp, very stiff, with clay and mica  Silty Sand (SM) - brown with pink and weak red mottles, damp, very dense, fine to coarse grain, with residual quartz rock and silt  ORDER SS 13.5- 25.50 - 5 14.5 (100+)  - gray-brown with light gray mottles, wet, very dense fine to coarse grain, with residual quartz rock and silt  ORDER SS 13.5- 25.50 - 5 14.5 (100+)  - gray-brown with light gray mottles, wet, very dense  ORDER SS 13.5- 25.50 - 5 14.5 (100+)  - gray-brown with light gray mottles, wet, very dense  ORDER SS 13.5- 25.50 - 5 14.5 (100+)											
			<u></u>	<del></del>							
								•			
B											
N	IOT	ES _									
H (ft)	PHIC	96	STRATA DE	SCRIPTION		E TYPE IBER	E DEPTH t.)	COUNTS		COMMENTS	
DEPT	GRA	J 			ELEV	SAMPL	SAMPLE (f	PERCENT RECOVERY (RQD)			
	П		Silt (ML)	dense and discount of the				0.0.0			
			- red with red-yellow mottles sand	s, uaiπp, medium stiπ, with		SS -1	1.0-2.5	3-3-3 ( <b>6</b> )			
2			- gray-brown, red and red-b clay and mica	rown, damp, very stiff, with	828.4	SS -2	3.5-5.0	4-10-14 ( <b>24</b> )			
			silty Sand (SM) - brown with pink and weak dense, fine grain, with silt	red mottles, damp, very		SS -3	6.0-6.8	32-50/4" ( <b>100+</b> )			
10	2		- gray-brown, red with white fine to coarse grain, with res			SS -4	8.5- 10.0	23-30-31 ( <b>61</b> )			
15		11 Ā 11 Ā 11 Ā 11 Ā	- - gray-brown with light gray - - -	mottles, wet, very dense		SS -5	13.5- 14.5	25-50 (100+)			
2   5					815.9	)					
20	27		Clayey Sand (SC) - brown, wet, very dense, w	th residual quartz rock		SS -6	18.5- 18.5	50/0" ( <b>100+</b> )			
			Gneiss		811.9						
25			- gray to dark gray with light coarse grain, soft to hard, n banded, interlayered biotite quartz, slightly to moderate	of to moderately weathered, schist, garnets up to 2 mm,		RC -1	22.0- 28.0	<b>73</b> (65)			
06 56 58				gray banding, fine to coarse banded, interlayered biotite slightly fractured		RC -1	28.0- 36.0	<b>116</b> (116)			
35	5//				797.9						
i -	r ı		Bottom of bore	nole at 36.0 feet.			1				-
3											

BORING SPT-13 PAGE 1 OF 2

SC	LOG OF TE	ST BO	ORIN	G	PAGE 1 OF 2 ECS37440
SOU	THERN COMPANT SERVICES, INC.	OJECT _G		ical Investigation	
	LOCALITY DESCRIPTION OF THE ENGINEERING LOCALITY DESCRIPTION OF THE PROPERTY O	-A110N _	i iaiil VVä	шысу	
DATE	STARTED <u>2/17/2015</u> COMPLETED <u>2/17/2015</u> SURF. ELE	·			
CONT	RACTOR Ranger Consulting EQUIPMENT CME 55				
DRILL	ED BY B. Ozment LOGGED BY W. Shaughnessy CHEC				
NOTE	IG DEPTH 60 ft. GROUND WATER DEPTH: DURING 25 ft  S 0-25 ft. drilled with hollow stem auger	<u>.                                    </u>	ОМР	DE	LAYED 20 ft. after 24 nrs.
H (ft)	STRATA DESCRIPTION	E TYPE BER	DEPTH (.)	BLOW COUNTS (N-VALUE)	COMMENTS
GRAPHIC 1 OF	ELEY	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	PERCENT RECOVERY (RQD)	
	Lean Clay (CL) - red, damp, stiff, fill, with silt and mica	▼ ss		3-6-6	
	816.	<b> </b> ▲  -1	1.0-2.5	(12)	
2	Silt (ML) - brown, dry, very stiff, with silt and mica  813.	9 SS -2	3.5-5.0	8-9-9 ( <b>18</b> )	
	Silty Sand (SM) - brown and gray, dry, dense, some weathered schist rock 811.	SS -3	6.0-7.5	15-18-18 ( <b>36</b> )	
10	Lean Clay (CL) - brown, damp, stiff, with sand and mica	SS -4	8.5- 10.0	4-5-8 ( <b>13</b> )	
40 SEAR STATE OF THE STATE OF T	- red-brown and red, damp, stiff, with sand and mica	SS -5	13.5- 15.0	7-6-8 ( <b>14</b> )	
20	- red-brown and brown, damp, medium stiff, with sand ▼ and mica	SS -6	18.5- 20.0	3-2-3 ( <b>5</b> )	
25	Coal Combustion Byproduct (ASH)  - very dark gray, wet, soft, with silt and sand	SS -7	23.5- 25.0	2-1-2 ( <b>3</b> )	
30:	- black, wet, soft, fine to coarse grain, with sand	SS -8	28.5- 30.0	3-2-2 ( <b>4</b> )	
32	- very dark gray, wet, very soft, very fine grained	SS -9	33.5- 35.0	WH-1-1 ( 2)	
40	- dark gray, wet, very soft, with clay and silt	SS -10	38.5- 40.0	1-0-0 ( <b>0</b> )	



# **LOG OF TEST BORING**

BORING SPT-13 PAGE 2 OF 2 ECS37440

		A					PAGE 2 OF 2						
1011	SO	UTHERN (A) LOG OF COMPANY	TES	ST BC	DRIN	G	ECS37440						
	SOUT	THERN COMPANY SERVICES, INC.	1										
	EART	H SCIENCE AND ENVIRONMENTAL ENGINEERING	PROJECT Geotechnical Investigation  LOCATION Plant Wansley						LOCATION Plant Wansley				
H (ft)	GRAPHIC LOG	STRATA DESCRIPTION		SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE)	COMMENTS						
DEPT	GRA		ELEV.	SAMPL	SAMPLE (f	PERCENT RECOVERY (RQD)							
		Coal Combustion Byproduct (ASH)(Con't)											
60   55   50   50   45   DEPTH (#)		- very soft, no recovery		SS -11	43.5- 45.0	WR-WR-WR (0)							
50		- very dark gray, wet, soft, very fine grained, with sand		SS -12	48.5- 50.0	3-2-1 ( 3)							
55		- dark gray, wet, very soft, with clay and silt		SS -13	53.5- 55.0	1-0-0 ( <b>0</b> )							
09		- very dark gray, wet, medium stiff, very fine grained, with sand  Bottom of borehole at 60.0 feet.	759.4	SS -14	58.5- 60.0	5-3-2 ( <b>5</b> )							

2012 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE.GDT - 3/11/15 11:50 - S:\WORKGROUPS\APC GENERAL

BORING SPT-15 PAGE 1 OF 4

GEOTECH 2014 BOXING LOGS/WANSLEY GEOTECH: GFO	so	PAGE 1 OF 4 ECS37440					
	דיו זיי	COMPANY THERN COMPANY SERVICES, INC. PRO	OJEC.	T G	<u>eot</u> echn	ical Investigatio	n
NOLE		HERN COMPANT SERVICES, INC.			Plant Wa	<del>-</del>	
D		TARTED 2/5/2015 COMPLETED 2/11/2015 SURF. ELE					
		ACTOR Ranger Consulting EQUIPMENT CME 55					
		D BY B. Ozment LOGGED BY W. Shaughnessy CHEC					
N P		G DEPTH 183 ft. GROUND WATER DEPTH: DURING 23 ft	l.	_ (	DIVIP.	<u>12 π.</u> <b>υ</b> ε	ELAYED 9 it. after 100 firs.
	UIE3						
H (ft)	OHIC G	STRATA DESCRIPTION	TYPE	BER	: DEPTH t.)	BLOW COUNTS (N-VALUE)	COMMENTS
5 DEPTH (ft)	GRAPHIC LOG		SAMPLE	NUMBER	SAMPLE I (ft.)	PERCENT RECOVERY (RQD)	
<u>:</u>  -		Utility Clearance (HYDROEXCAVATION)	V.		<u> </u>	, ,	
<u>:</u>							
<u></u>							
5							
3	$=$						
	Т	811. √ <b>y Silt (ML)</b>	6				
		- red-brown, damp, very stiff, with clay	X	SS -1	8.5- 10.0	22-13-9 ( <b>22</b> )	
	1111			-1	10.0	( 44)	
2012 GEOTECH ENGINEERING LOGGS - ESEEZULZBALABASE.GU 1 - 3/11/31 11.30 - 3/10/07/2012 GEOTECH SENVICE COMPLEXIONE [26]		▼ 807.	6				
Ž		Lean Clay (CL)					
ري ا		- red-brown, damp, stiff, with mica	Y	SS -2	13.5-	4-6-8	
				-2	15.0	( 14)	
5	¥///						
5	\ <i>///</i>						
		- red, damp, very stiff, silty	Y	SS	18.5-	6-9-11	
	¥///			-3	20.0	( 20)	
	.[///	<u>796.</u>	6				
25		Coal Combustion Byproduct (ASH) - black, wet, very soft, very fine grained	Y	SS	23.5-	1-1-1	
1	1			-4	25.0	(2)	
2							
30		- soft, no recovery	Y	SS -5	28.5-	1-1-2	
<u> </u>				-5	30.0	( 3)	
7107							
35		- very dark gray, wet, medium stiff, very fine grained	Y	SS -6	33.5-	2-2-3	
3 6				-6	35.0	( 5)	
40	5	- very dark gray, wet, very soft, very fine grained	Y	SS -7	38.5-	1-1-1	
14				-/	40.0	(2)	
<u> </u>							

# **LOG OF TEST BORING**

BORING SPT-15 PAGE 2 OF 4 ECS37440

SOUT EART	THERN COMPANY SERVICES, INC. 'H SCIENCE AND ENVIRONMENTAL ENGINEERING	PROJECT G		ical Investigation	
GRAPHIC LOG	STRATA DESCRIPTION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) PERCENT RECOVERY (RQD)	COMMENTS
 	Coal Combustion Byproduct (ASH)(Con't) - very dark gray, wet, very loose, fine to coarse grain, bottom ash	SS -8	43.5- 45.0	1-1-2	
000	- dark gray, wet, very loose, fine to medium grain, bottom ash	SS -9	48.5- 50.0	WH-WH-WH (0)	
  	- dark gray, wet, very loose, fine to medium grain, bottom ash	SS -10	53.5- 55.0	2-2-1	
	- dark gray, wet, very loose, fine to medium grain, bottom ash	SS -11	58.5- 60.0	WR-WR-WR (0)	
   	- dark gray, wet, very soft, very fine grained, with silt	SS -12	63.5- 65.0	WH-WH-WH ( <b>0</b> )	
 2 	- dark gray, wet, very soft, very fine grained, with silt	SS -13	68.5- 70.0	WR-WR-WR (0)	
  	- dark gray, wet, very soft, very fine grained, with silt	SS -14	73.5- 75.0	WR-WR-WR	
	- dark gray, wet, very soft, very fine grained, with silt	SS -15	78.5- 80.0	WR-WR-WR	
   	- dark gray, wet, very soft, very fine grained, with silt	SS -16	83.5- 85.0	WR-WR-WR	
  	- no recovery	SS -17	88.5- 90.0	WR-WR-WR	



**BORING SPT-15** PAGE 3 OF 4

2012 GEOTECH ENGINEERING LOGS - ESEE 2012DATABASE. GDT - 3/11/15 11:50 - S.;WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTECH GP. LOG OF TEST BORING ECS37440 PROJECT Geotechnical Investigation SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley DEPTH **BLOW** SAMPLE TYPE NUMBER COUNTS DEPTH (ft) GRAPHIC (N-VALUE) STRATA DESCRIPTION LOG COMMENTS SAMPLE D (ft.) **PERCENT** RECOVERY (RQD) Coal Combustion Byproduct (ASH)(Con't) WR-WR-WR SS 93.5-95 - dark gray, wet, very soft, very fine grained, with silt and 95.0 (0) 98.5-WR-WR-WR 100 - very dark gray, wet, very soft, with coarse sand -19 100.0 **(0)** 103.5-WR-WR-WR - dark gray, wet, very soft, very fine grained, with silt 105.0 **(0)** SS -21 108.5-WR-WR-WR - dark gray, wet, very soft, very fine grained, with silt 110.0 (0)SS -22 113.5-WR-WR-WR - very dark gray to black, wet, very loose, coarse grained bottom ash 115.0 (0)- unable to advance casing, no sample 120 698.6 Fat Clay (CH) SS 123.5-50/5" - light gray, wet, very hard, residuum, silty -23 123.9 (100+)128.5-38-40-50/5" - pale yellow-brown with light yellow mottles, damp, very SS -24 129.9 (100+)hard 686.6 Feldspathic quartzite RC 133.0-108 - pink-gray with light gray banding, medium to coarse -25 138.0 (54)grain, medium hard to hard, not to slightly weathered, micro-folds, moderately to intensely fractured, iron staining in fractures, thinly foliated 140 RC 138.0-94 - pale gray-yellow to light gray, fine to medium grain, medium hard to hard, not to slightly weathered, foliated, 143.0 (38)-26 intensely fractured, black mineralization in fractures

# **LOG OF TEST BORING**

BORING SPT-15 PAGE 4 OF 4 ECS37440

COMMENTS	BLOW COUNTS (N-VALUE)	OLE DEPTH (ft.)			STRATA DESCRIPTION	STF	<u></u> 5	(11)
	PERCENT RECOVERY (RQD)	SAMPLE (ft.	SAMPLE TYPE NUMBER	EI EV			500 F00	מבו ווו
				ELEV.	quartzite(Con't)	Feldspathic qua	: :	3
	(24)	143.0- 148.0	RC -26		ellow, medium to coarse grain, medium , not to slightly weathered, foliated, ldspar crystals (2-3 mm), intensely	hard to hard, not		
	<b>90</b> (18)	148.0- 153.0	RC -28		ellow, medium to coarse grain, medium , slightly weathered, foliated, intensely	- pale gray-yello hard to hard, sliç fractured		3
	114	153.0-	RC		ellow, medium to coarse grain, medium	- pale gray-yello		3
	(32)	158.0	-29		, slightly weathered, foliated, moderately to	hard to hard, slig intensely fracture		
	<b>88</b> (54)	158.0- 163.0	RC -30		nd pale yellow, medium to coarse grain, d to hard, slightly to moderately weathered, , moderately to intensely fractured	medium hard to		201
	<b>78</b> (20)	163.0- 168.0	RC -31	651.6	rellow, medium to coarse grain, medium , slightly to moderately weathered, o intensely fractured, interbedded with 2 feet	hard to hard, slid		COL
	<b>96</b> (8)	168.0- 173.0	RC -32		d gray and gray-brown, fine to medium m hard to hard, slightly to moderately near horizontal, iron staining on foliation ractures, interbedded with coarse-grained ns, intensely fractured	grain, medium h weathered, near planes and fract		
	<b>100</b> (0)	173.0- 178.0	RC -33		ark gray, fine grain, medium hard to hard, hered, near horizontal, fractures on foliation staining on fractures, intensely fractured	slightly weathere		
	<b>98</b> (26)	178.0- 183.0	RC -34	636.6	ark gray, fine grain, medium hard to hard, hered, near horizontal, fractures on foliation staining on fractures, moderately to ctured	slightly weathere		201
	100 (0)	173.0 173.0- 178.0	-32 RC -33	636.6	m hard to hard, slightly to moderately near horizontal, iron staining on foliation ractures, interbedded with coarse-grained ns, intensely fractured  ark gray, fine grain, medium hard to hard, hered, near horizontal, fractures on foliation staining on fractures, intensely fractured  ark gray, fine grain, medium hard to hard, hered, near horizontal, fractures on foliation staining on fractures, moderately to	- interlayered gragrain, medium h weathered, near planes and fract quartzite veins, i - gray and dark slightly weathere planes, iron stain - gray and dark slightly weathere planes, iron stain intensely fracture.		

SOUTHERN COMPANY

2013 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE, GDT - 3/11/15 11:50 - S.;WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTEC

### LOG OF TEST BORING

BORING SPT-16 PAGE 1 OF 3 ECS37440

PROJECT Geotechnical Investigation SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley DATE STARTED 2/3/2015 **COMPLETED** <u>2/5/2015</u> **SURF. ELEV.** <u>813.9</u> COORDINATES: N:33.415144 E:85.043837 EQUIPMENT CME 550 METHOD Mud Rotary; Casing Advance; NQ Diamond Core **CONTRACTOR** Ranger Consulting DRILLED BY B. Ozment LOGGED BY W. Shaughnessy CHECKED BY L. Millet **ANGLE BEARING** BORING DEPTH 133 ft. **GROUND WATER DEPTH: DURING** 15 ft. COMP. 12 ft. DELAYED 2 ft. after 100 hrs **NOTES** SAMPLE DEPTH (ft.) **BLOW** SAMPLE TYPE NUMBER COUNTS £ GRAPHIC (N-VALUE) LOG STRATA DESCRIPTION **COMMENTS** DEPTH **PERCENT RECOVERY** (RQD) Coal Combustion Byproduct (Gypsum) (GYPSUM FILL) SS 4-5-10 ▼ - pale yellow-brown, damp, stiff, clayey silt 1.0-2.5 (15)7-11-16 - pale yellow-brown, damp, very stiff, clayey silt SS 3.5-5.0 (27)- pale yellow-brown, wet, very stiff, clayey silt 10-10-14 6.0 - 7.5(24)10-18-27 - pale yellow-brown, wet, hard, clayey silt SS 8.5-9 10.0 (45)V 800.9 Coal Combustion Byproduct (ASH) SS 13.5-1-3-3 - dark gray to black, wet, loose, fine to coarse grain, with -5 15.0 (6) abla sand and silt, bottom ash SS 18.5-1-10-14 - dark gray, wet, very stiff, with clay, silt and sand 20 -6 20.0 (24)23.5-25.0 SS -7 1-1-2 - dark gray, wet, soft, with clay, silt and sand (3)28.5-- soft, no recovery SS 1-1-2 30 -8 30.0 (3) 33.5-1-1-1 SS - very soft, no recovery 35.0 (2)

38.5-

40.0

2-2-1

(3)

- dark gray, wet, soft, with clay and silt

## **LOG OF TEST BORING**

BORING SPT-16 PAGE 2 OF 3 ECS37440

SOUT	THERN COMPANY SERVICES, INC.	PROJECT Geotechnical Investigation					
EART	TH SCIENCE AND ENVIRONMENTAL ENGINEERING	LOCATI	ION _F	Plant Wa	ansley		
GRAPHIC LOG	STRATA DESCRIPTION	i i	SAMPLE IYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE)	COMMENTS	
GRA		ELEV.	SAMPL	SAMPLE (f	PERCENT RECOVERY (RQD)		
	Coal Combustion Byproduct (ASH)(Con't)	LLL V.					
	- dark gray, wet, soft, with clay, silt and some coarse	_	ss	43.5-	WR-2-2		
	grained sand	À	-11	45.0	(4)		
8	<ul> <li>dark gray, wet, medium dense, fine to coarse grain, bottom ash, with sand</li> </ul>	X	SS -12	48.5- 50.0	3-6-6 ( <b>12</b> )		
3	- dark gray, wet, very soft, with clay and silt	X	SS -13	53.5- 55.0	WH-WH-1 ( <b>1</b> )		
3	- dark gray, wet, very soft, with clay and silt	X	SS -14	58.5- 60.0	WH-WH-WH		
	- soft, no recovery	X	SS -15	63.5- 65.0	2-2-1 ( <b>3</b> )		
	- very soft, no recovery	X	SS -16	68.5- 70.0	WH-1-1 ( <b>2</b> )		
			•				
	- dark gray, wet, very soft, with clay and silt	Y	SS -17	73.5-	1-1-1		
			1 /	75.0	(2)		
	- dark gray, wet, very soft, with clay and silt		SS -18	78.5-	WR-WR-WR		
			-18	80.0	(0)		
	dark gray, wat you coft with aloy and silt		90	83.5	1-0-0		
3	- dark gray, wet, very soft, with clay and silt	X	SS -19	83.5- 85.0	( <b>0</b> )		

SOUTHERN

2013 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE, GDT - 3/11/15 11:50 - S.;WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTEC

**BORING SPT-16** PAGE 3 OF 3

LOG OF TEST BORING ECS37440 PROJECT Geotechnical Investigation SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley DEPTH **BLOW** SAMPLE TYPE NUMBER GRAPHIC LOG COUNTS DEPTH (ft) (N-VALUE) STRATA DESCRIPTION COMMENTS SAMPLE D (ft.) **PERCENT** RECOVERY (RQD) ELEV Coal Combustion Byproduct (ASH)(Con't) 725.9 Elastic Silt (MH) 88.5-6-11-13 green-gray with pale yellow mottles, wet, very stiff, 90 -20 90.0 (24)medium plasticity, with clay yellow-red, yellow, light gray, and green-gray, wet, 93.5-28-17-24 95 95.0 hard, medium to low plasticity, with sand (41)715.9 Silt (ML) 5-20-50/4" 98.5- yellow-brown with pale yellow mottling, wet, very hard, 100 99.8 (100+)low plasticity, with sand 103.5green-brown with black mottling, wet, very hard, low SS 22-14-42 plasticity, with sand and residual quartz rock 105.0 (56)705.9 Clayey Silty Sand (SC-SM) 108.5-50/3" - gray with white mottling, wet, very dense, fine to (100+)-24 108.8 coarse grain, with clay 700.9 75 - dark gray, fine to medium grain, soft to medium hard, highly to completely weathered, interlayered biotite RC 113.0-20 schist, feldspar, iron staining, intensely fractured -25 118.0 (0)- gray-brown and gray with white speckles, fine to coarse grain, soft to hard, moderately to highly weathered, inclined, interlayered biotite schist, feldspar, RC. 118 0-46 intensely fractured -26 123.0 (0)- gray with light gray quartz banding, fine to medium 125 grain, soft to hard, not to slightly weathered, inclined, banded, interlayered biotite schist, pyrite on foliation RC 100 123.0planes, near vertical fractures, moderately fractured 128.0 (26)- gray with light gray quartz banding, fine to medium grain, soft to hard, not weathered, inclined, banded, 130 interlayered biotite schist, moderately fractured 128.0-100 -28 133.0 (68)

680.9

Bottom of borehole at 133.0 feet

BORING SPT-17 PAGE 1 OF 2

отесн. GPJ	so	LOG OF	TES	ST BO	ORIN	G	PAGE 1 OF 2 ECS37440
LEY GE		THERN COMPANY SERVICES, INC. TH SCIENCE AND ENVIRONMENTAL ENGINEERING		JECT G		cal Investigatio	n
WANS	LAK	THI SCIENCE AND ENVIRONMENTAL ENGINEERING	LUCA	ATION _	rani wa	risiey	
LOGS	DATE S	STARTED <u>1/5/2015</u> <b>COMPLETED</b> <u>1/6/2015</u> <b>SURF</b>	. ELEV	<b>/.</b> 913.4		COORDINATE	S: N:33.419783 E:85.059606
SING.		RACTOR Ranger Consulting EQUIPMENT CM				-	
14/BC		ED BY B. Ozment LOGGED BY W. Shaughnessy C G DEPTH 83 ft. GROUND WATER DEPTH: DURING					
ECH 20		6	10 11.		<u> </u>	<u> </u>	12 1t. ditci 40 1110.
SERVICE COMPLEXICIVIL TECH SUPPORTIDIRILLING/PROJECTS/WANSLEY GEOTECH. 2014/BORING LOGS/WANSLEY GEOTECH.GPJ	GRAPHIC LOG	STRATA DESCRIPTION		SAMPLE TYPE NUMBER	E DEPTH ft.)	BLOW COUNTS (N-VALUE)	COMMENTS
ROJECTSW	GRV L		ELEV.	SAMPI	SAMPLE DE (ft.)	PERCENT RECOVERY (RQD)	
-ING/P		Lean Clay (CL) - red-brown and gray-brown, damp, stiff, saprolite, with		▼ SS	1005	3-4-5	
rdrill 		mica		-1	1.0-2.5	(9)	
SUPPOR	2	- gray-brown, damp, very stiff, saprolite schist		SS -2	3.5-5.0	5-8-12 ( <b>20</b> )	
L TECH		- gray-brown, damp, very stiff, saprolite schist		SS -3	6.0-7.5	12-14-17 ( <b>31</b> )	
LEX/CIV	2	- gray-brown, damp, very stiff, saprolite schist		SS -4	8.5- 10.0	11-13-12 ( <b>25</b> )	
CE COM		▼ Ÿ					
SERVI		Silt (ML)	900.4		10.5	0.40.47	
ROUPS/APC GENERAL	2	gray-brown, wet, very stiff, with some residual quartz rock, clay and mica		SS -5	13.5- 15.0	8-12-17 ( <b>29</b> )	
UPS\APC		- gray-brown, damp, very stiff, with some clay and mica		▼ ss	18.5-	8-9-10	
WORKGRO	02	gray brown, damp, vory dam, mar dome dray and midd		-6	20.0	( 19)	
2012 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE.GDT - 3/11/15 11:50 - S:\WORKG    10.		- gray-brown, damp, hard, with mica		SS -7	23.5-	18-30-50	
3/11/15 1	<u> </u>			7	25.0	(100+)	
- GDT			885.4				
TABASE	9 0 0 0	Partially Weathered Rock (PWR) - sampler blocked by rock		SS -8	28.5- 30.0	6-12-20 ( <b>32</b> )	
2012DA					50.0	( 02)	
ESEE	0 4 4	-	880.4				
-068-		Gneiss					
RINGL	1/-	- gray-brown and gray, medium to coarse grain, soft to					
GINEE		medium hard, slightly to highly weathered, inclined, interlayered schist, intensely fractured		RC	33.0-	31	
CH EN		III		-9	43.0	(0)	
SEOTE T							
2012 6							

## **LOG OF TEST BORING**

BORING SPT-17 PAGE 2 OF 2 ECS37440

SO	UTF	IERN COMPANY SERVICES, INC.	PRO	JECT _	Seotechn	nical Investigation	
		SCIENCE AND ENVIRONMENTAL ENGINEERING	LOCA	ATION _	Plant Wa	ansley	
GRAPHIC LOG		STRATA DESCRIPTION		SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE)	COMMENTS
GRAPH	2			AMPL	AMPLE (f	PERCENT RECOVERY	
_		Gneiss(Con't)	ELEV.	σ Π	8	(RQD)	
1							
		- gray and dark gray, fine to coarse grain, medium hard to hard, not to moderately weathered, inclined,		RC	43.0-	93	
//		interlayered biotite schist, moderately fractured		-10	53.0	(40)	
/							
-							
		- gray to dark gray, light gray banding, fine to coarse grain, hard to very hard, not to slightly weathered,		RC	53.0-	84	
		inclined, coarse feldspar grains throughout, quartz veins, near vertical fractures, interlayered biotite schist, slightly to moderately fractured		-11	63.0	(54)	
		to moustace, masterior					
1							
-   		- gray to dark gray, light gray banding, fine to coarse grain, hard to very hard, not to slightly weathered,					
		inclined, coarse feldspar grains throughout, quartz veins, near vertical fractures, interlayered biotite schist, slightly		RC -12	63.0- 73.0	<b>91</b> (60)	
		to moderately fractured					
		- gray to dark gray, light gray banding, fine to medium grain, hard to very hard, not to slightly weathered,					
1		inclined, interlayered coarse-grained biotite schist, feldspar, not to slightly fractured		RC -13	73.0- 83.0	<b>99</b> (87)	
1							
			830.4				
		Bottom of borehole at 83.0 feet.					

SOUTHERN

2013 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE, GDT - 3/11/15 11:50 - S.;WORKGROUPS/APC GENERAL SERVICE COMPLEXICIVIL TECH SUPPORTIDRILLING/PROJECTS/WANSLEY GEOTECH 2014/BORING LOGS/WANSLEY GEOTEC

## LOG OF TEST BORING

**BORING SPT-18** PAGE 1 OF 2 ECS37440

PROJECT Geotechnical Investigation SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **LOCATION** Plant Wansley **DATE STARTED** 1/28/2015 **COMPLETED** <u>1/29/2015</u> **SURF. ELEV.** <u>915.3</u> COORDINATES: N:33.430628 E:85.046102 EQUIPMENT CME 550 METHOD Mud Rotary; Casing Advance; NQ Diamond Core **CONTRACTOR** Ranger Consulting DRILLED BY B. Ozment CHECKED BY L. Millet **ANGLE BEARING** LOGGED BY W. Shaughnessy BORING DEPTH 73 ft. **GROUND WATER DEPTH: DURING** 35 ft. **COMP.** 37 ft. DELAYED 37 ft. after 100 hrs. **NOTES** SAMPLE DEPTH (ft.) **BLOW** SAMPLE TYPE NUMBER DEPTH (ft) GRAPHIC COUNTS (N-VALUE) STRATA DESCRIPTION **COMMENTS** DEPTH **PERCENT RECOVERY** (RQD) Lean Clay (CL) - red and dark gray, damp, very stiff, with sand, residual SS 6-8-8 1.0-2.5 rock and mica (16)912.3 Silt (ML) 6-9-11 SS - pale brown, dry, very stiff, with mica and clay 3.5-5.0 (20)- brown and dark red, dry, hard, with clay 5-12-29 6.0 - 7.5(41) 17-23-42 - brown, damp, very hard, with clay and some sand SS 8.5-10.0 (65)- brown with black mottles, damp, very hard, with clay 13.5-16-28-50 -5 15.0 (100+)and some sand - brown with black mottles, damp, very hard, with clay, SS 18.5-15-31-47 20 -6 20.0 some sand and residual rock (78) SS -7 13-26-44 pale brown, damp, very hard, with clay 23.5-25.0 (70) 28.5-- brown with black mottles, damp, very stiff, with sand SS 8-11-13 30 -8 30.0 (24)33.5-15-11-13 - brown, wet, very stiff, with sand, residual rock and mica SS 35.0 (24)- brown, wet, very stiff, with sand, residual rock and mica 38.5-13-25-37 40.0 (62)

## **LOG OF TEST BORING**

BORING SPT-18 PAGE 2 OF 2 ECS37440

SOUT!	HERN COMPANY SERVICES, INC. H SCIENCE AND ENVIRONMENTAL ENGINEERING		IECT <u>G</u> ATION <u>F</u>			
SOUT EARTH CHAPTER CONTRACTOR CON	STRATA DESCRIPTION		SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE)	COMMENTS
GRA			MPL	MPLE (f	PERCENT RECOVERY	
		ELEV.	S	SAI	(RQD)	
	Silt (ML)(Con't)					
		070.0				
	Clayey Sand (SC)	872.3	00	40.5	44.44.00	
	- gray-brown, wet, dense, fine grain		SS -11	43.5- 45.0	11-14-22 ( <b>36</b> )	
	gray wet very dence fine grain		00	10.5	13-24-25	
3//	- gray, wet, very dense, fine grain		SS -12	48.5- 50.0	( <b>49</b> )	
	- gray, wet, very dense, fine grain		× ss	53.5-	36-50/2"	
3//	- gray, wet, very derise, line grain		-13	54.2	(100+)	
<b>K</b> 4	Gneiss	859.3				
	- dark brown and gray, medium grain, soft, highly		RC -14	56.0- 58.0	<b>85</b> (40)	
	weathered, inclined, white feldspathic quartz banding, moderately fractured					
	•		RC	58.0-	28	
	<ul> <li>dark brown and gray, medium grain, soft, moderately to highly weathered, inclined, white feldspathic quartz</li> </ul>		-15	63.0	(8)	
	banding, intensely fractured					
			RC	63.0-	112	
	<ul> <li>gray to dark gray with light gray banding, medium to coarse grain, hard, not to slightly weathered, inclined,</li> </ul>		-16	68.0	(112)	
	white feldspathic quartz banding, slightly to moderately fractured					
			RC	68.0-	102	
	<ul> <li>gray to dark gray with light gray banding, medium to coarse grain, hard, not to slightly weathered, banded,</li> </ul>		-17	73.0	(96)	
	garnets, slightly fractured	042.2				
[/ ]	Bottom of borehole at 73.0 feet.	842.3				



### SURETY RIDER

To be attached to and form a part of	
Bond No. 800031223	
Bolld No. 000031223	
Type of Bond: Performance Bond for Water Well Contractors	
dated	
effective June 30, 2017 (MONTH-DAY-YEAR)	
executed by Michael C. Rice/Cascade Drilling, L.P. (PRINCIPAL)	, as Principal,
and by Atlantic Specialty Insurance Company	, as Surety,
in favor of State of Georgia (OBLIGEE)	
in consideration of the mutual agreements herein contained the Principal and the	Surety hereby consent to changing
Coverage under the bond to include: Michael Coleman	
Nothing herein contained shall vary, alter or extend any provision or condition of	this bond except as herein expressly stated.
This rider is effective December 21, 2017 (MONTH-DAY-YEAR)	
Signed and Sealed December 21, 2017	
(MONTH-DAY-YEAR)	
Michael C. Rice/Cascade Drilling, L.P. (PRINCIPAL)	
By:	
(PRINCIPAL)	1111111000000000
Atlantic Specialty Insurance Company	TY INSU.
	ORPORALYZ
By: Lizabeth R. Hahn, Attorney-in-Fact	SEAL
	986
	EM AOS TO A
143/GE 8/08	The same of the sa



# 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, Jill A. Wallace, 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, 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 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 eighth day of December, 2014.

SEAL 1986 ON YORK ON THE PROPERTY OF THE PROPE

Ву

Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA HENNEPIN COUNTY

On this eighth day of December, 2014, 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, Assistant 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.

SEAL

1986

NEW YORK

Signed and sealed. Dated

\_ day of Delevises 2017.

This Power of Attorney expires October 1, 2019 SEAL James G. Jordan, Assistant Secretary

# CONTINUATION CERTIFICATE

, Surety upon SAFECO Insurance Company of America a certain Bond No. 4993104 June 30, 1987 dated effective (MONTH-DAY-YEAR) Southern Company Services, Inc. on behalf of (PRINCIPAL) Georgia Department of Natural Resources, Environmental Protection Division and in favor of (OBLIGEE) does hereby continue said bond in force for the further period June 30, 2017 beginning on (MONTH-DAY-YEAR) June 30, 2018 and ending on (MONTH-DAY-YEAR) \$10,000.00 Amount of bond Description of bond Water Well Contractors & Drillers 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. May 04, 2017 Signed and dated on (MONTH-DAY-YEAR) SAFECO Insurance Company of America

D- Ann Kleidosty, Attorney-in-Fact

#### THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

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.

Certificate No.7710213

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

#### **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 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, Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle

all of the city of Atlanta , state of GA \_\_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 4th \_\_\_\_\_ day of April \_\_\_\_\_\_\_, 2017\_\_.

THE RANCE COMPONENT OF THE CE COMPONENT OF THE CE COMPONENT OF THE CE COMPONENT OF THE CE COMPONENT OF THE CONFORMATION OF THE

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 COUNTY OF MONTGOMERY

currency rate, interest rate or residual value guarantees.

Not valid for mortgage, note, loan, letter of credit,

SS

On this 4th day of April , 2017, 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

Notarial Seal Teresa Pastella, Notary Public Upper Merion Twp., Montgomery County My Commission Expires March 28, 2021

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-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions 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 attorneys-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 \_

his day

y: \_\_\_\_\_\_ Renee C. Llewellyn, Assistant Secretary

1928 ON THE TOTAL OF THE PROPERTY OF THE PROPE







# Performance Bond For Drillers

Name of Driller Phillip Pitts and Stan White	
Know All Men By These Presents	
That we Phillip Pitts and Stan White	and
the laws of the State of <u>California</u> (hereinafter, <b>Sur</b> Environmental Protection Division, Department of Natur Successor or Successors in office, as <b>Obligee</b> , in the full states.	any and all employees, officers and partners (collectively ndemnity Company , duly organized under rety), are held and firmly bound unto the Director of the ral Resources, State of Georgia (Director) and his or her sum of FIFTEEN THOUSAND DOLLARS (\$15,000.00) le, the Principal and Surety bind ourselves, our heirs, ly, by these presents.
	G.A. §§ 12-5-120 et seq.) (the Act) requires that a Driller, and with the Director to ensure compliance with the Act; are terms and provisions of said Act.
faithfully perform the duties and in all things comply with and hereafter amended, and the rules and regulations pro- correction of any violation of such procedures and standar	are such that if the above bound Principal shall fully and the procedures and standards set forth in the Act as now mulgated pursuant thereto, including but not limited to the rds upon discovery, irrespective of whether such discovery ond, then this obligation shall be void; otherwise it shall
	t to existing laws, rules or regulations, or adoption of new ligation on this bond, and does hereby waive notice of any
2019, unless sooner terminated by mutual agreement of Probe made unless sixty (60) days' prior written notice is m	mber , 20 18 and shall continue in effect until June 30, rincipal and Surety, provided that no such termination may ade to the Director. In the event of such termination, the er this bond which arose prior to such termination shall
IN WITNESS THEREOF the Principal and Surety have of Surety have of the day of February 10, 20, 19.	caused these present to be duly signed and sealed, this the
Principal Thompson/Engineering, Inc.  Print name: Chad R. Brown Title: CLO + Secretary	American Contractors Indemnity, Company  Print name: Dewey Brashier  Title: Attorney-in-Fact
Seal:	Seal:
CHOMP	

Seal:
THOMOSON ENGINES
SEAL:
S



## POWER OF ATTORNEY

#### AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING COMPANY UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY

KNOW ALL MEN BY THESE PRESENTS: That American Contractors Indemnity Company, a California corporation, Texas Bonding Company, an assumed name of American Contractors Indemnity Company, United States Surety Company, a M aryland corporation and U.S. Specialty Insurance Company, a Texas corporation (collectively, the "Companies"), do by these presents make, constitute and appoint:

Jim E. Brashier, Troy P. Wagener, Loren Richard Howell, Jr., Dewey Brashier,

Kathleen B. Scarborough, Susan Skrmetta, John W. Nance its true and lawful Attorney(s)-in-fact, each in their separate capacity if more than one is named above, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include riders, amendments, and consents of surety, \*\*\*\*\*\*Unlimited\*\*\*\*\* providing the bond penalty does not exceed\_ \*\*\*unlimited\*\*\* ). This Power of Attorney shall expire without further action on April 23rd, 2022. This Power of Attorney is granted under and by authority of the following resolutions adopted by the Boards of Directors of the Companies: Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions: Attorney-in-Fact may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings, including any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts, and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary. Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached. IN WITNESS WHEREOF, The Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 1st day of June, 2018. AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING OMPANY UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY State of California County of Los Angeles Daniel P. Aquilar, Vice President A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document On this 1st day of June, 2018, before me, Sonia O. Carrejo, a notary public, personally appeared Daniel P. Aguilar, Vice President of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument. I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct. WITNESS my hand and official seal. SONIA O, CARREJO Notary Public - California Los Angeles County Commission # 2239479 Comm. Expires Apr 23, 2022 Signature I, Kio Lo, Assistant Secretary of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Companies, which is still in full force and effect; furthermore, the resolutions of the Boards of Directors, set out in the Power of Attorney are in full force and effect. In Witness Whereof, I have hereunto set my hand and affixed the seals of said Companies at Los Angeles, California this 2019 \_\_day of\_ February 26th Corporate Seals Bond No. Kio Lo, Assistant Secretary Agency No. 17033

#### CONTINUATION CERTIFICATE

## Atlantic Specialty Insurance Company

, Surety upon

Issued on 9/27/2017 Expires on 6/30/2019

Renewed on 3/4/2019

Expires on 6/30/2021

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

06/30/2019

(MONTH-DAY-YEAR)

and ending on

06/30/2021

(MONTH-DAY-YEAR)

Amount of bond

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

Description of bond

Performance Bond for Water Well Contractors

Premium:

\$1200.00

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

March 4th, 2019

(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

Attorney-in-Fact Andrew P. Larser

Parker, Smith & Feek, Inc.

2233 112th Ave NE Bellevue, WA 98004

Address of Agent

425-709-3600

Telephone Number of Agent

S-0157/GE 8/08



# **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: <b>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:

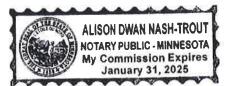
Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing 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.

STATE OF MINNESOTA HENNEPIN COUNTY Ву

Paul J. Brehm, Senior Vice President

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.



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 202

This Power of Attorney expires January 31, 2025



Kan ISBarn

Kara Barrow, Secretary

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

14000

Atterney-in-Fact Andrew P. Larser

Parker, Smith & Feek, Inc.

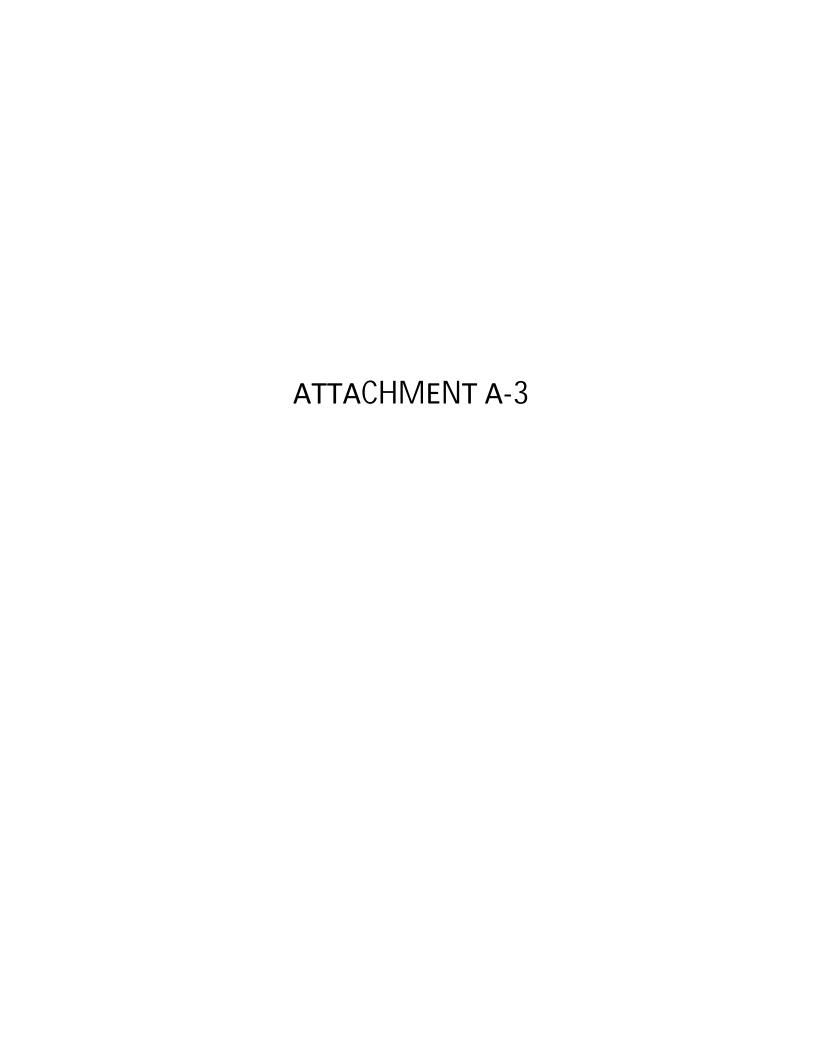
Agent

2233 112th Ave NE Bellevue, WA 98004

Address of Agent

425-709-3600

Telephone Number of Agent



Well ID	Casing Northing	Casing Easting	Top of Casing Elevation	Nail on Pad Northing	Nail on Pad Easting	Nail on Pad Elevation
PZ-1	1240249.8630	2022319.9310	856.72	1240249.9700	2022320.5080	853.91
PZ-4	1242592.0290	2023595.9140	889.01	1242592.3380	2023596.5490	886.13
PZ-6	1244382.8880	2024661.3940	915.15	1244383.1700	2024661.9960	912.30
PZ-8	1245514.5910	2026807.2980	867.29	1245514.7420	2026806.5550	864.65
PZ-10	1242058.4080	2028554.2850	832.02	1242059.0170	2028553.7330	829.26
PZ-11	1240578.8710	2026933.0880	823.09	1240579.6810	2026932.6430	820.21
PZ-12	1240837.9640	2026731.0050	818.74	1240838.5000	2026731.0470	816.17
PZ-15	1240457.6050	2025105.3770	826.86	1240456.9660	2025105.5600	824.59
PZ-16	1239419.7700	2023662.2240	800.70	1239419.1270	2023662.3410	798.05
PZ-17	1239270.0160	2023086.5000	831.01	1239269.7540	2023086.3130	828.54
PZ-18	1239569.5150	2022299.1990	814.51	1239569.7940	2022300.1040	812.10
PZ-20	1243496.8600	2030132.7300	787.30	1243495.6070	2030132.0520	784.45
WAMW-1	1241843.6600	2028944.6250	782.66	1241844.0310	2028943.9790	780.05
WAMW-2	1241547.5560	2028806.2670	770.82	1241547.1220	2028805.7030	768.39
WGWA-1	1250656.0950	2035580.7080	782.93	1250656.4090	2035580.1280	780.37
WGWA-2	1251556.3950	2035590.1080	758.23	1251556.3970	2035589.4980	755.77
WGWA-3	1240848.2140	2022350.0950	828.91	1240848.0950	2022350.8040	826.63
WGWA-4	1240879.5820	2022339.6570	834.34	1240879.8680	2022340.9730	831.33
WGWA-5	1241997.9440	2022368.8480	902.15	1241998.0000	2022369.7100	899.28
WGWA-6	1241932.0170	2022360.5840	897.13	1241931.8200	2022361.6140	894.62
WGWA-7	1243338.6270	2023843.8080	897.33	1243337.9640	2023843.4880	894.49
WGWA-18	1244592.5610	2025580.7050	878.02	1244592.1320	2025580.1320	875.47
WGWC-8	1242929.4040	2029644.5810	780.08	1242928.7100	2029644.4410	777.70
WGWC-9	1242801.1220	2029115.7520	812.03	1242800.5100	2029116.3540	809.33
WGWC-10	1240971.9590	2026725.6080	812.38	1240971.3740	2026725.3710	809.61
WGWC-11	1240860.1770	2025773.3940	823.96	1240859.5740	2025772.9470	821.44
WGWC-12	1240827.6760	2025755.9870	823.04	1240827.1900	2025755.4920	820.57
WGWC-13	1240610.9290	2024585.9120	809.78	1240610.3180	2024586.1010	807.32
WGWC-14A	1240604.5360	2024599.6310	810.94	1240603.9380	2024598.3360	808.20
WGWC-15	1240483.1620	2023912.9150	804.69	1240483.1680	2023912.2850	802.03
WGWC-16	1240480.4570	2023903.7730	804.21	1240480.3010	2023903.1200	801.72
WGWC-17	1240052.0560	2022623.8220	816.00	1240052.0140	2022623.1790	813.36
WGWC-19	1241851.5120	2028949.1850	783.42	1241851.9040	2028948.5970	780.60

Benchmark	Northing	Easting	Elevation	
BM-W1	1243475.416	2029633.083	804.08	
BM-W2	1251565.596	2035853.723	747.75	

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING, AND VERTICAL ELEVATION OF THE NAIL IN THE CONCRETE PAD & THE PVC WELL CASING. DATE OF FIELD SURVEY & INSPECTION: 06/03/2020-06/10/2020. FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD '88. EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R10 RTK GPS & TRIMBLE S5 ROBOTIC TOTAL STATION. THE VERTICAL LOCATION OF EACH SURVEYED POINT WAS ESTABLISHED BASED UPON LEVEL RUNS WITH A DIGITAL LEVEL LOOP FROM VERTICAL CONTROL ESTABLISHED BY ON-SITE BENCHMARK BM-W1 & BM-W2 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL



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06/16/2020

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Well ID	Casing Northing	Casing Easting	Top of Casing Elevation	Nail on Pad Northing	Nail on Pad Easting	Nail on Pad Elevation	
PZ-22	1243350.7570	2029769.4340	807.95	1243351.5210	2029768.3170	804.88	P.
PZ-23D	1242139.5320	2028520.8680	834.32	1242138.6260	2028521.5100	831.89	1
PZ-23S	1242139.3280	2028512.6500	834.41	1242138.3710	2028513.3390	831.79	P.
PZ-24	1241695.2460	2028116.0540	810.37	1241694.5570	2028117.2730	807.00	P
PZ-25S	1240769.7850	2027414.5750	823.80	1240770.8890	2027414.3720	820.50	P
PZ-26D	1239919.4530	2024146.3480	804.93	1239920.5460	2024145.9060	802.31	1
PZ-26S	1239916.6790	2024139.8210	804.80	1239917.8130	2024139.2740	802.22	P
PZ-27D	1240190.9250	2023620.3600	809.28	1240191.2500	2023619.0790	806.22	1
PZ-27S	1240184.1820	2023616.6900	808.98	1240184.5500	2023615.5290	805.98	P
PZ-28	1240066.0150	2022624.7330	816.18	1240066.0550	2022623.6960	813.57	1
PZ-29D	1244304.8990	2028853.2900	805.24	1244304.4270	2028852.7910	805.77	1
PZ-29S	1244317.1290	2028839.6800	805.30	1244316.6610	2028839.1970	805.80	]

PZ-22 has been renamed WGWC-20

PZ-23S has been renamed WGWC-21 PZ-24 has been renamed WGWC-22 PZ-25S has been renamed WGWC-23

PZ-26S has been renamed WGWC-24

PZ-27S has been renamed WGWC-25

Benchmark	Northing	Easting	Elevation	
BM-W1	1243475.416	2029633.083	804.08	

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING, AND VERTICAL ELEVATION OF THE NAIL IN THE CONCRETE PAD & THE PVC WELL CASING. DATE OF FIELD SURVEY & INSPECTION: 11/04/2020-11/05/2020. FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD '88. EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R10 RTK GPS & TRIMBLE S5 ROBOTIC TOTAL STATION. THE VERTICAL LOCATION OF EACH SURVEYED POINT WAS ESTABLISHED BASED UPON LEVEL RUNS WITH A DIGITAL LEVEL LOOP FROM VERTICAL CONTROL ESTABLISHED BY ON-SITE BENCHMARK BM-W1 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL

7 RIL



11/17/2020

#### **GEL ENGINEERING OF NC INC**

#### **Plant Wansley Monitoring Wells**

Field Surveys: 10/11/2022

Well ID	Casing Northing	Casing Easting	Top of Casing Elevation	Nail or Pad Northing	Nail or Pad Easting	Nail or Pad Elevation	Description
WGWC-26D	1243343.658	2029758.846	808.23	1243344.161	2029757.977	805.06	NAIL
WGWC-27	1243215.513	2029878.918	780.54	1243215.002	2029879.991	778.05	NAIL
CSB-2022-01	1243334.918	2029756.286	804.93	N/A	N/A	N/A	BORING
CSB-2022-02	1243337.255	2029761.150	804.86	N/A	N/A	N/A	BORING
CSB-2022-03	1243341.239	2029768.805	804.81	N/A	N/A	N/A	BORING
Benchmark	Northing	Easting	Elevation				
BM-W1	1243475.416	2029633.083	804.08				

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING, AND VERTICAL ELEVATION OF THE NAIL IN THE CONCRETE PAD & THE PVC WELL CASING. DATE OF FIELD SURVEY & INSPECTION: 10/11/2022. FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD '88. EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R10 & R12 RTK GPS & TRIMBLE S5 ROBOTIC TOTAL STATION. THE VERTICAL LOCATION OF EACH SURVEYED POINT WAS ESTABLISHED BASED UPON LEVEL RUNS WITH A DIGITAL LEVEL LOOP FROM VERTICAL CONTROL ESTABLISHED BY ON-SITE BENCHMARK BM-W1 SET BY GEL SOLUTIONS USING A TRIMBLE DINI LEVEL



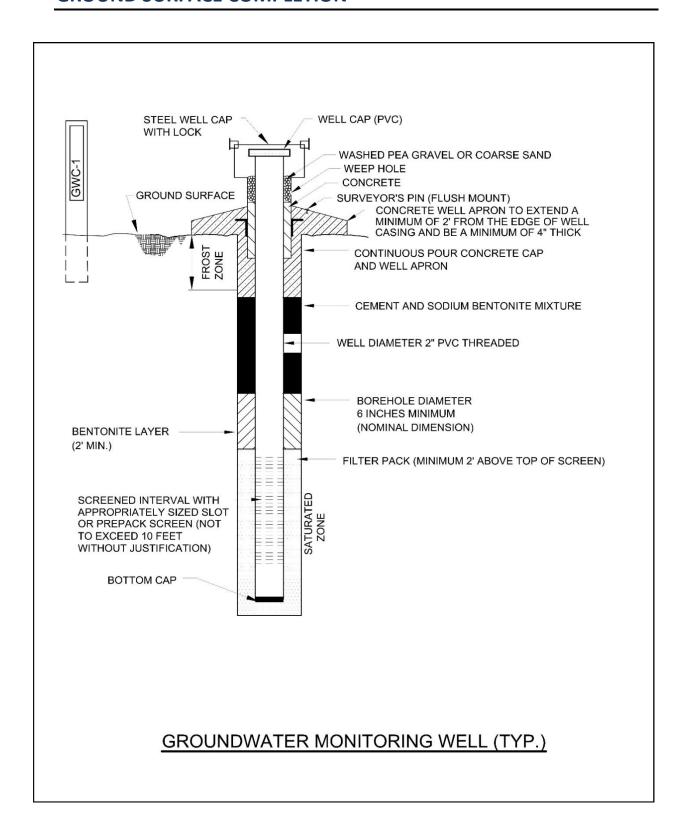
10/13/2022



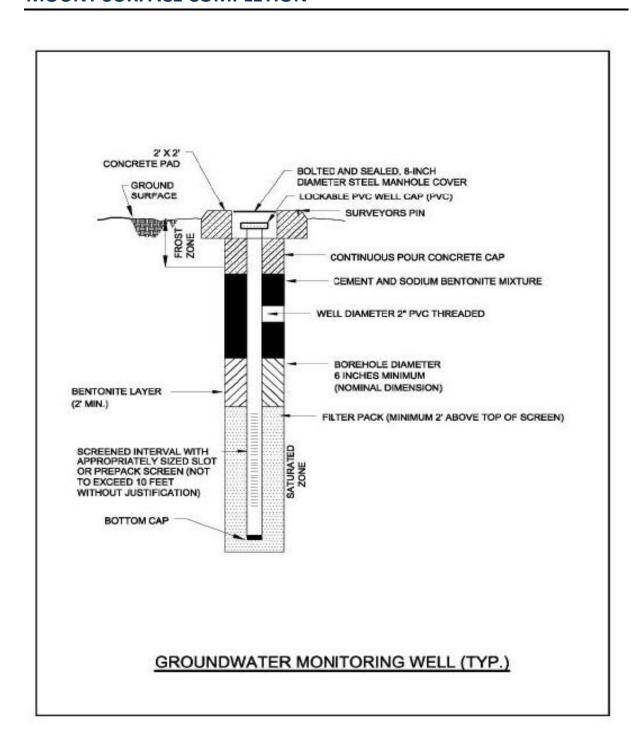


COA - LS003119 Exp. 12/31/2022

# B1. GROUNDWATER MONITORING WELL DETAIL ABOVE-GROUND SURFACE COMPLETION



# B2. GROUNDWATER MONITORING WELL DETAIL FLUSH MOUNT SURFACE COMPLETION



## C. GROUNDWATER SAMPLING PROCEDURE

Groundwater sampling will be conducted using the most current applicable USEPA Region 4 SESD Field Branches Quality System and Technical Procedures as a guide (https://www.epa.gov/quality/quality-system-and-technical-procedures-lsasd-field-branches). 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.

Georgia Power 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.
- 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.
- 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 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 equipment will be decontaminated before use and between well locations using procedures described in the latest version of the USEPA Region 4 SESD guidance document, Operating Procedure for Field Equipment Cleaning and Decontamination (USEPA, SESDGUID-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 feet 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)

 $\pm 10\%$  or  $\pm 0.2$  mg/L (whichever is greater) for DO where DO>0.5mg/L. If DO<0.5mg/L no stabilization criteria apply

<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 according to the most current version of USEPA Region 4 SESD guidance document, *Operating Procedure for Groundwater Sampling* (USEPA, 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 COC and temperature control requirements. The goal for sample delivery will be within 48 hours of collection.

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 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 5 NTU and all other stabilization criteria have been met, samplers will continue purging for 3 additional hours in order to reduce the turbidity to 5 NTU or less.

- 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 the COC form.

A brief overview of purging and sampling methodologies, including the type of sampling equipment used will be provided in routine monitoring reports.