PLANT McDONOUGH-ATKINSON
CCR SURFACE IMPOUNDMENT
(CCR UNIT AP-1)
COBB COUNTY, GEORGIA
PART A SECTION 6
GROUNDWATER MONITORING PLAN

FOR

Georgia Power

June 2025

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Approved
Solid Waste Management Program
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Certification

This *Groundwater Monitoring Plan* for Georgia Power Company's (Georgia Power) Ash Pond 1 (AP-1) located at Plant McDonough-Atkinson (Plant McDonough) has been prepared by a qualified groundwater scientist with WSP USA Inc. (WSP) to meet the requirements contained in Chapter 391-3-4-.10 of Georgia Environmental Protection Division Rules of Georgia, Solid Waste Management, Coal Combustion Residuals (i.e., State Rule). References to the appropriate 391-3-4 Rules are incorporated throughout this document.

I certify that I am a qualified groundwater scientist as defined in 391-3-4-.01 who 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 me to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action. I further certify that this Groundwater Monitoring Plan was prepared by myself or by a subordinate working under my direction. The design of the groundwater monitoring system was developed in compliance with Georgia Environmental Protection Division (EPD) Rules of Solid Waste Management, Chapter 391-3-4-.10(6)

WSP USA Inc.



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1.0 INTRODUCTION

Groundwater monitoring is required by the Georgia Environmental Protection Division (EPD) to detect and quantify potential changes in groundwater chemistry. This *Groundwater Monitoring Plan* (plan) describes the groundwater monitoring program for CCR impoundments at Plant McDonough-Atkinson (Plant McDonough, the Site). This plan meets the requirements of EPD rules and uses EPD's *Manual for Groundwater Monitoring* dated September 1991 (GA EPD 1991) as a guide. Monitoring well and piezometer locations are presented on Figure 1 for Ash Pond Unit 1 (AP-1) at Plant McDonough. Ash Ponds 2 and 3/4 (AP-2 and 3/4) are located east of AP-1 and are referenced here as they relate to site conditions. Information included specific to AP-2 and AP 3/4 should not be considered for permitting.

Monitoring will occur in accordance with 391-3-4-.10 of the Georgia Solid Waste Management Rules. If the monitoring requirements specified in this plan conflict with EPD rules (391-3-4), the EPD rules will take precedence. Plant McDonough AP-1 entered into assessment monitoring on November 15, 2019. An assessment of corrective measures (ACM) was initiated on July 9, 2020, within 90 days of identifying statistically significant levels above groundwater protection standards (SSLs). A 60-day extension until December 4, 2020 for completion of the ACM was documented on October 7, 2020. Based on the results of the ACM, a final long-term corrective action plan will be developed and implemented pursuant to 40 CFR 257.97-98 and 391-3-4-.10(6).

In accordance with the United States Environmental Protection Agency (US EPA) Coal Combustion Rule (§ 257.90), a detection monitoring well network for AP-1 has been installed and certified by a qualified professional engineer. This certification has been 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 the EPD prior to the unscheduled installation or abandonment of monitoring wells. Well installation and/or abandonment must be directed by a qualified groundwater scientist.

CURRENT SITE CONDITIONS AND POND CLOSURE

The following sections describe the current site conditions as well as geologic and hydrogeologic information for Ash Pond 1 at Plant McDonough.

The selected Advanced Engineering Management (AEM) for AP-1 includes a subsurface vertical barrier wall that surrounds AP-1 in its entirety. At AP-2, closure by removal of ash was completed in September 2016. Closure procedures included excavating all visible ash, over excavating into the subgrade soils, and placement of topsoil and seeding for vegetative cover. AP-3 and adjacent AP-4 are currently being consolidated and closed in place as combined unit AP-3/4 in accordance with § 257.102(d). CCR in the eastern portion of AP-4 has been relocated to the western portion of AP-4 as well as dry stacked on AP-3. During closure, AP-3 and AP-4 are being dewatered as required to facilitate consolidation and closure in place.

The Closure Plan (WSP 2023) for AP-1 was prepared in accordance with 40 CFR 257, Subpart D and meets the requirements of 40 CFR 257.102(b).

The surface impoundment referred to as AP-1 at Plant McDonough has been closed in place. The closure process included placement of a permanent cover system designed to minimize infiltration and erosion and to meet or exceed the requirements of 257.102(d)(3)(ii). Maintenance will be provided on the final cover system for

the required post-closure care period so that the integrity and effectiveness of the final cover system is maintained. Maintenance activities will include, as needed, repairs to the final cover to correct any effects related to settlement, subsidence, erosion or other events, and will be performed to prevent run-on or run-off from eroding or otherwise damaging the final cover.

2.0 GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

Geologic conditions for this site are described in detail in the *Hydrogeological Assessment Report* (HAR) prepared by WSP USA Inc. (WSP 2025). Key elements of the HAR are summarized below. Monitoring wells and piezometers installed at the Site are summarized on Table 1.

2.1 Site Geology

The Piedmont/Blue Ridge geologic province contains some of the oldest rock formations in the southeastern United States. These late Precambrian to late Paleozoic rocks have undergone repeated cycles of igneous intrusions and extrusions, metamorphism, folding, faulting, shearing, and silicification. The latest regional metamorphism and associated deformation has been attributed to the collision of the North America plate with the Eurasian plate approximately 200 to 230 Ma. More recent deformation and emplacement of mafic dikes is associated with the rifting of the North American craton during the Mesozoic and Cenozoic Eras. The Site lies in a regional zone of deformation, referred to as the Brevard Zone, which extends from Alabama to Virginia. The Brevard Fault Zone is inactive with no displacement since the Holocene. Several regionally extensive faults have been mapped near and within the Site associated with the inactive Brevard Fault Zone. Rock outcrops near the Site consist of biotite gneiss, porphyritic gneiss, mica schist, and quartzite.

Based on review of site data, residual soils, primarily clayey/sandy silt, sandy silt with clay, and silty sand, occur as a variably thick blanket overlying bedrock across most of the Site. Saprolitic or residual soils and/or saprolitic rock range in thickness across the Site but are generally encountered at or near ground surface. Saprolitic rock is also considered to be transitionally weathered rock (TWR) or partially weathered rock (PWR). PWR is defined by Standard Penetration Test (SPT) blow counts that exceed 50 blows per six inches. Material overlying the top of bedrock surface, including residual soils, saprolite, and TWR or PWR, is collectively referred to as overburden.

Bedrock beneath the overburden north of the faulted intrusive contact is primarily characterized by Ordovician-age felsic sphene-epidote-biotite-quartz-feldspar gneiss (Long Island Creek Gneiss - Oli) with well-developed foliation and an augen texture reflecting historical movement/deformation near fault and shear zones of the inactive Brevard fault zone. Bedrock beneath the overburden south of the faulted intrusive contact is primarily characterized by interlayered Ordovician age phyllonite, button schist with well-developed shear foliation, fine-grained mylonite with poorly developed foliation, and very fine-grained mylonitic biotite gneiss with well-developed shear foliation (Phyllonite, Button Schist, Mylonite, and Mylonitic Biotite Gneiss - OZbs). The contact has had substantial movement as indicated by porphyroclastic-feldspars with sigmoidal-tails. An updated geologic map of the Site area was published in the HAR (WSP 2025). The update shows the Site is located outside of the area of most intense shearing that is associated with the Brevard Zone. The zone with the greatest number of fractures is to the south of the Site and beyond the Chattahoochee River, which is considered to be a hydraulic divide in the vicinity of the Site as evidenced during drilling of deeper bedrock monitoring wells.

2.2 Site Hydrogeology

A regional, unconfined aquifer system is present at the Site, consisting of residual soils, saprolite, TWR/PWR (i.e., overburden), and upper bedrock. Based on drilling at the Site, borings completed deeper in the bedrock aquifer (i.e., greater than 30 feet into the bedrock unit) exhibit minimal and likely isolated fractures, and minimal connectivity between the overburden and deeper bedrock hydrogeologic unit. The overburden is variably comprised of porous and permeable alluvial, residual, and colluvial soils and saprolite, grading downward into a variably weathered, less permeable zone that overlies a less weathered and more permeable transitional weathering zone (Heath 1984). This unconfined, surficial aquifer system (referred to as uppermost aquifer) is recharged primarily through precipitation and subsequent infiltration, and flow is generally controlled by topography and surface water drainage and occurs mainly through intergranular pore spaces. Porosity generally ranges from about 20 to 30%. Hydraulic conductivity in the Site uppermost aquifer comprised of the overburden and upper bedrock has an estimated average of 0.69 feet/day ($2.4x10^{-4}$ centimeters per second). Groundwater is stored in pore spaces in the overburden and then percolates downward to the weathered zone between soil and bedrock and into interconnected bedrock discontinuities. The saturated soils in the overburden function as the principal storage reservoir for groundwater in the bedrock.

Groundwater in the bedrock occurs in a fracture network that is largely dependent on rock type, degree of differential weathering, topography, and area of catchment. Groundwater flow in the underlying bedrock occurs primarily along discontinuities such as compositional layering, zones with variable mineralogy that are more susceptible to weathering, foliation, joints, and fractures. Fracture porosity is minimum compared to the overburden, and thus, groundwater flow is determined by how well the fractures are interconnected. Further, fractures within the deeper bedrock at the Site are not well connected and the predominant groundwater flow at the Site occurs in the overburden and upper bedrock. Based on site-specific examples and supporting data, as presented in the HAR (WSP 2025), fractures within the bedrock are limited and decrease in number and groundwater production with depth. Borings B-103D, B-122D and B-123D were installed to vertically delineate constituents in areas where bedrock was approximately 70 feet below ground surface (bgs) and therefore, were installed to capture groundwater flow from bedrock fractures. Groundwater monitoring wells were screened across available fractures and did not produce sufficient water for proper development or sampling. Site geophysical logs and groundwater monitoring data at B-123D confirm that the deeper fractures produce less than 0.025 milliliters per minute using a heat pulse flow meter. This flow rate does not constitute “groundwater in an aquifer” but rather “limited” groundwater movement within the deeper bedrock unit.

Several references to published work within the HAR were reviewed and confirm that these observations made at the Site are consistent with Piedmont geology.

At the Site, the overburden upper bedrock aquifer constitutes an unconfined system. Available groundwater level data indicate a high of 837 feet referenced to North American Vertical Datum (NAVD) near the northern area and about 742 feet NAVD near the Chattahoochee River. Groundwater flows toward the on-site streams and the Chattahoochee River. Figure 2 presents the potentiometric surface contours depicting groundwater flow across the Site based on water levels from January 29, 2024.

2.3 Uppermost Groundwater Aquifer

The uppermost aquifer occurs within the overburden and upper bedrock, the upper 30 feet of fractured bedrock, at the Site. Although the degree of connection between the overburden and upper bedrock and underlying deeper

bedrock (i.e., greater than 30 feet) aquifer systems is not well known, the deeper bedrock is generally massive with few joints available to receive groundwater from the overlying overburden and upper bedrock. Consequently, groundwater flow within the uppermost aquifer occurs within the residual soil, saprolite, and TWR/PWR (overburden) and upper bedrock.

Groundwater in the uppermost aquifer appears to be supporting base flow of creeks on site (many groundwater contours cross topographic contours of similar elevation at headwaters of creek). Generally, across the Site vertical gradients are assumed to be downward in topographically higher areas and upwards near topographic lows. Recharge to the uppermost aquifer is primarily through precipitation. Groundwater discharge appears to occur within tributary creeks on site, the ponds, and ultimately into the Chattahoochee River. The potentiometric surface for the uppermost aquifer indicates groundwater flow across AP-1 is generally west-southwest toward the unnamed tributary and south towards the Chattahoochee River.

2.4 Groundwater Gradient and Flow Velocity

Hydraulic gradient is calculated as the difference in groundwater elevation (in feet) divided by the distance between two piezometers or wells (in feet). Groundwater elevation data recorded in January 2024 from three piezometer and/or well pairings; B-29/DGWC-68A, B-28/DWGC-37, and B-50/DGWC-39, located along the groundwater flow path and perpendicular to the potentiometric contours were used to calculate hydraulic gradients for AP-1.

Average groundwater flow velocities at the Site were calculated using hydraulic gradient data, hydraulic conductivity data generated from slug testing results, and an estimated effective porosity of the screened portion of the uppermost aquifer. The Site hydraulic conductivity was re-evaluated in October 2024 in the monitoring network wells to incorporate additional hydraulic conductivity data recorded from additional monitoring wells. The field hydraulic conductivity data was re-analyzed as part of the update of the groundwater flow model. As a result of the additional data made available for the Site, the updated hydraulic conductivity values are somewhat lower than previously used to calculate site groundwater flow velocities. Based on slug test data, the geometric mean of the hydraulic conductivity for the overburden is 3.3 x 10^{-4} centimeters/second (cm/sec) (0.94 feet/day) and 1.5 x 10^{-4} cm/sec (0.44 feet/day) in the upper bedrock. Using the overburden and upper bedrock hydraulic conductivity values, an estimated average hydraulic conductivity for the Site uppermost aquifer (overburden and upper bedrock) was calculated as 2.4 x 10^{-4} (cm/sec) (0.69 feet/day). This value is within the range of values expected for silty sand and weathered/fractured metamorphic rocks (Freeze and Cherry 1979). An effective porosity of 0.20 was used based on the default values for effective porosity recommended by US EPA for a silty sand-type soil (US EPA 1996). The hydraulic gradient calculated between well pairs B-29/DGWC-68A, B-28/DGWC-37, and B-50/DGWC-39 for January 2024 were 0.019 to 0.035 feet per feet, respectively (see Table 2).

The horizontal flow velocities were calculated using the commonly used derivative of Darcy's Law:

$$V = \frac{K * i}{n_e}$$

Where:

V = Groundwater flow velocity $\left(\frac{feet}{day}\right)$

K = Average hydraulic conductivity of the aquifer $\left(\frac{feet}{day}\right)$

i = Horizontal hydraulic gradient $\left(\frac{feet}{feet}\right)$

n_e = Effective porosity

Using this equation, groundwater flow velocities were calculated for AP-1 using January 2024 groundwater elevation data as shown on Table 2.

Calculated (horizontal) flow velocities range from approximately 24 feet per year (ft/yr) to 44 ft/yr during the January 2024 event. These estimated flow velocities are generally consistent with other published velocities for regolith-upper bedrock aquifers of the Piedmont (Heath 1984).

3.0 SELECTION OF WELL LOCATION

Groundwater monitoring wells are installed to monitor the uppermost aquifer beneath the Site. Georgia Power follows the recommendations as stated in Chapter 2 of the Manual for Groundwater Monitoring (GA EPD 1991) to establish well spacings based on site-specific conditions. Locations are selected based on final ash pond closure footprint and site geologic and hydrogeologic considerations. Locations are chosen to serve as upgradient, lateral, or downgradient based on groundwater flow direction determined by potentiometric evaluation. As flow conditions change after pumping ceases, well designations will continue to be evaluated during each semi-annual event.

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

The Site has a comprehensive well network, including detection and assessment monitoring wells located around AP-1 targeted to monitor groundwater flowing in the uppermost aquifer across AP-1. Groundwater flow in the underlying bedrock occurs primarily along discontinuities. Subsurface discontinuities can sometimes be expressed on the land surface as linear topographic features referred to as lineaments. Several detection and assessment wells were located as either straddling or adjacent to these lineament features to capture the potential flow from the overburden toward the potential bedrock discontinuities and monitor for impacts from AP-1. Table 1 presents a tabulated list of individual monitoring wells, assessment wells and piezometers; with well construction details such as location coordinates, top-of-casing elevation, well depths and screened intervals. A map depicting monitoring well locations for monitoring is included as Figure 1. Any modification that involves the addition of or a change to the detection monitoring network will be made by a minor modification to the permit pursuant to 391-3-4-.02(3)(b)(6).

4.0 MONITORING WELL DRILLING, CONSTRUCTION, ABANDONMENT & REPORTING

The existing AP-1 monitoring wells were installed following the Region 4 U.S. Environmental Protection Agency (US EPA) Science and Ecosystem Support Division (SESD) *Operating Procedure for Design and Installation of Monitoring Wells* (SESDGUID-101-R2 and updates) (US EPA 2018) as a general guide for best practices. Well boring and construction logs for the existing monitoring well network are included in Appendix A. The following sections describe the applicable methods for well drilling, construction, abandonment, and reporting for modifications to the well network at the Site. Any additional well installation at the Site will be directed by a qualified groundwater scientist.

4.1 Drilling

A variety of well drilling methods are available for installing groundwater wells. Drilling methodology may include, but not be limited to hollow stem augers, direct push, air rotary, mud rotary, or rotosonic 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 Region 4 U.S. Environmental Protection Agency (US EPA) Science and Ecosystem Support Division (SESD) Operating Procedure SESDGUID-101-R2 and updates as a general guide for best practices. Drilling equipment shall be decontaminated before use and between borehole locations using the procedures described in the latest version of the Region 4 U.S. EPA Laboratory Services and Applied Science Division (LSASD*) Operating Procedure for Field Equipment Cleaning and Decontamination* (US EPA 2020) as a guide.

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

Drilling and well installation activities will be completed under the direction of a qualified groundwater scientist. 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. Copies of the bonds for the existing wells are included in Appendix A.

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.

4.2.1 Well Casings and Screens

American Society for Testing and Materials (ASTM), National Sanitation 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 appropriate materials may be used for construction with prior written approval from the EPD.

4.2.2 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 techniques 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, if warranted.

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. EPA SESD *Operating Procedure for Design and Installation of Monitoring Wells* (SESDGUID-101-R2 and updates) as a general guide.

4.2.3 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 borehole 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 at least two feet above the top of the well screen.

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

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

4.2.4 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 completion. The use of flush-mount wells will generally be limited to paved surfaces unless site operations warrant otherwise. The surface completion will extend from the top of the cement grout to ground surface, where it will become a concrete apron extending outward with a radius of at least 3 feet from the edge of the well casing and sloped to drain water away from the well. The apron for a flush-mount well will be tied into the surrounding pavement.

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

Protective bollards may 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 detail attached in Appendix B, Groundwater Monitoring Well Detail, illustrates the general design and construction details for a monitoring well.

4.2.5 Well Development

Well development will be conducted under direction of a qualified groundwater scientist. After well construction is completed, wells will be developed by alternately purging and surging until relatively clear discharge water with little turbidity is observed. The goal will be to achieve a turbidity of less than 5 nephelometric turbidity units (NTUs); however, formation-specific conditions may not allow this target to be accomplished, and development may be discontinued at a measured turbidity of less than 10 NTUs. Additionally, the stabilization criteria contained in Appendix C, Groundwater Sampling Procedures, should be met. A variety of techniques may be used to develop site groundwater monitoring wells. The method used must create reversals or surges in flow to eliminate bridging of 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. Development equipment will be decontaminated prior to first use and between wells.

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 well 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. 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 included in the well installation report.

4.2.6 Surveying

The monitoring wells and piezometers were surveyed by Metro Engineering & Surveying Co., Inc., with a horizontal accuracy of 0.5 foot and a vertical accuracy of 0.01 foot referenced to Georgia State Plane Coordinate System (Georgia State Plane, West Zone, NAD83) and vertical datum to the North American Vertical Datum 1988 (NAVD88). The certified surveyor’s report is included in Appendix A.

4.3 Well Abandonment

Monitoring wells will be abandoned using industry-accepted practices and using the *Manual for Groundwater Monitoring* (GA EPD 1991) and Georgia Water Well Standards Act of 1985 [Official Code of Georgia Annotated (O.C.G.A.) 12-5-120, 1985] as guides. Neat Portland cement or bentonite will be used as appropriate to complete abandonment and seal the well borehole.

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

4.4 Documentation

The following information documenting the construction and development of each well is provided on the boring logs for the existing monitoring system (Appendix A). Within 60 days of the construction and development or

abandonment of each groundwater monitoring well, a well installation/abandonment report will be submitted to the EPD by a qualified groundwater scientist. For installed wells, the following information will be provided:

- Well Identification
- Name of drilling contractor and type of drill rig
- Documentation that the driller, at the time the monitoring wells were installed, had a bond on file with the Water Well Standards Advisory Council
- 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
- Filter pack material/size and volume (placement narrative)
- Seal emplacement method and type/volume of sealant
- Borehole diameter and well casing diameter
- Type of protective well cap and sump dimensions for each well
- Surface seal and volumes/mix of annular seal material
- Screen length and slot size
- Screen materials and design (i.e., interval in feet below ground surface and elevation)
- Well location data given to within an accuracy of 0.5 feet based on survey data recorded from a known datum
- Well elevation data at concrete pad nail given to within an accuracy of 0.01 feet based on survey data recorded from a known datum
- Documentation of ground surface elevation at well location (±0.01 ft.). Based on survey data recorded from a known datum
- Documentation of top of casing elevation (±0.01 ft.). Based on survey data recorded from a known datum
- Well depth (±0.1 ft.)
- Dates of drilling and initial well emplacement
- Drilling method and drilling fluid, if used
- Schematic of well with dimensions
- Lithologic logs
- Well casing materials
- Well development date
- Well turbidity following development

- Documentation that water quality field parameters meet well development criteria
- Narrative of well development method - specific well development procedure
- Documentation stating that a Georgia-registered professional surveyor has certified that the horizontal accuracy for the installed monitoring wells is 0.5 foot, and vertical accuracy for elevations to 0.01 foot using a known datum.

In accordance with the Georgia Water Well Standards Act (O.C.G.A. § 12-5-120), 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 care plan, the cost estimate based upon current year cost for the well inspections will be provided for as part of the cost calculations for the groundwater monitoring period. Additionally, as part of the closure and 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.

5.0 GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

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

Table 3 presents the groundwater monitoring parameters and sampling frequency. A minimum of eight independent samples from each groundwater well will be collected and analyzed for 40 CFR 257, Subpart D, Appendix III and Appendix IV test parameters to establish a background statistical dataset. Subsequently, in accordance with 391-3-4-.10(6), the monitoring frequency for the Appendix III parameters will be at least semi-annual during the active life of the facility and the post-closure care period. If required, Georgia Power will conduct assessment monitoring in accordance with the Georgia Rules for Solid Waste Management Chapter 391-3-4-.10(6) to also include 40 CFR 257, Subpart D, Appendix IV test parameters. Assessment monitoring was initiated on November 15, 2019, per GA Chapter 391-3-4-.10(6) Rules for Solid Waste Management.

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

As shown in Table 4, the groundwater samples will be analyzed using methods specified in US EPA Manual SW-846, EPA 600/4-79-020, Standard Methods for the Examination of Water and Wastewater (SM18-20), US EPA Methods for the Chemical Analysis of Water and Wastes (MCAWW), ASTM, or other suitable analytical methods approved by 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 Program (NELAP). Field instruments used to measure pH must be accurate and reproducible to within 0.1 Standard Units (S.U.).

6.0 SAMPLE COLLECTION

During each sampling event, samples will be collected and handled in accordance with the procedures specified in Appendix C, Groundwater Sampling Procedures and Appendix D, Surface Water Sampling Procedures.

Sampling procedures were developed using standard industry practice and US EPA Region 4 Field Branches Quality System and Technical Procedures as a guide. Low-flow sampling methodology will be utilized for groundwater sample collection. Alternative industry accepted sampling techniques may be used when appropriate with prior EPD approval. The applied groundwater purging, and sampling methodologies will be discussed in the semi-annual monitoring reports submitted to EPD.

For groundwater sampling, positive gas displacement 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. Non-dedicated equipment will be decontaminated in accordance with the US EPA LSASDPROC-205-R4 (US EPA 2020).

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 in accordance with Rule 391-3-4-.02(3)(b) prior to the installation or decommissioning of monitoring wells.

7.0 SURFACE WATER MONITORING PLAN

Following final closure certification of AP-1, surface water is directed through a series of settling ponds one located at the northwest corner of AP-1 and a second pond located at the south end of AP-1. Sample locations SWC-4, SWC-5 and SWC-6 will be added to the monitoring program following final construction certification. During each semi-annual sampling event, if flowing water is present, surface water samples will be collected from each location (see Figure 3). This surface water monitoring is for the Solid Waste Management Program and is not associated with any existing industrial stormwater, and/or construction stormwater discharge permitting regulated by the National Pollutant Discharge Elimination System (NPDES) requirements of Section 402 of the Clean Water Act. In the event that no flowing water is present at the sampling locations at the time of sampling, it will be noted in the field sampling documents associated with that event and no sample will be collected for that event.

During each sampling event, samples will be collected and handled in accordance with the procedures specified in Appendix D. Surface water samples will be collected and handled in accordance with standard industry practice and US EPA Region 4 LSASD *Surface Water Sampling Procedures* LSASDPROC-201-R6 as a guide (US EPA 2023a). When possible, the sample should be collected directly into the appropriate sample container provided by the analytical laboratory. If the sample location cannot be physically reached, an intermediate collection device may be used (e.g., a “swing sampler” with a 12-foot handle and a single use container) as presented in the current US EPA field guidance document. When non-dedicated equipment is used, it will be decontaminated prior to first use and between surface water sampling locations.

Surface water samples will be analyzed for field parameters, pH, temperature, specific conductance, dissolved oxygen, oxidation reduction potential (ORP), and turbidity and Appendix IV constituents as listed in Table 5 and using the methods listed in Table 4.

Monitoring results from surface water sampling will be incorporated into semi-annual groundwater monitoring reports. Constituent concentrations from the current monitoring event, as well as each of the historical monitoring events will be provided on a data summary table to assess potential impacts of the facility to adjacent surface waters.

8.0 CHAIN-OF-CUSTODY

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 must relinquish possession, and the samples must be received by the new owner.

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

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

9.0 FIELD AND LABORATORY QUALITY ASSURANCE/QUALITY CONTROL

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 (pre-cleaned) or dedicated, an equipment rinsate blank will be collected at a rate of one blank per 20 samples collected using such non-dedicated equipment. Rinsate blanks will be collected following decontamination of, and prior to collection of a field sample with the 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.

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 groundwater monitoring reports. Instruments will be recalibrated as necessary (e.g., when calibration checks indicate significant variability), and any 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 as part of each groundwater report's quality control documentation.

The groundwater samples will be analyzed by licensed and accredited laboratories through NELAP.

10.0 REPORTING RESULTS

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

1) A narrative describing sampling activities and findings including a summary of the number of samples collected, the dates the samples were collected and whether the samples were required by the detection or assessment monitoring programs.

2) A record of field sampling conditions including, well signage, well access, sampling and purging equipment condition, and site conditions that may affect sampling will be recorded on a Well Inspection Form. These forms will be included as an appendix to the semi-annual groundwater monitoring reports.

3) A brief overview of purging/sampling methodologies

4) Discussion of results

5) Recommendations for the future monitoring consistent with the Rules

6) Potentiometric surface contour map for the aquifer(s) being monitored, signed, and sealed by a Georgia-registered PG or PE

7) 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

8) Groundwater flow rate and direction calculations

9) Identification of any groundwater wells that were installed or decommissioned during the preceding year, along with a narrative description of why these actions were taken

10) 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)

11) Table of current analytical results for each well, highlighting statistically significant increases and concentrations above maximum contaminant level (MCL)

12) Tabular summary of surface water monitoring results including the current monitoring event as well as each of the historical monitoring events. This will be added after the final closure certification is submitted.

13) If applicable, semi-annual assessment monitoring results

14) Any alternate source demonstration completed during the previous monitoring period, if applicable

15) Laboratory reports

16) COC documentation

17) Field sampling logs including field instrument calibration, indicator parameters and parameter stabilization data

18) Documentation of non-functioning wells or dry surface water sampling locations

19) Statistical analyses of Appendix III statistically significant increases (SSI) and Appendix IV statistically significant limits (SSL), including trend analyses of Appendix IV constituents if the unit is currently undergoing assessment of corrective measures.

20) Plume delineation (if applicable)

21) Updated potable water well survey (annually, if applicable)

22) Certification by a qualified groundwater scientist.

11.0 STATISTICAL ANALYSIS

Groundwater quality data from each sampling event will be statistically evaluated to determine if there has been a statistically significant change in groundwater chemistry. Historical background data will be used to determine statistical limits. These statistical analyses methods are consistent with the *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance) (US EPA 2009).

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

1) A prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper prediction limit (§257.93(f)(3)).

2) A control chart approach that gives control limits for each constituent ((§257.93(f)(4)).

3) Another statistical test method (such as prediction limits or control charts) that meets the performance standards of §257.93(g). 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) (§257.93(f)(5)).

Interwell statistical methods 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 has been placed in the Site's operating record pursuant to 391-3-4-.10(6) (EPD 2014). Figure 4 includes a flowchart that depicts the process that will be followed to develop the site-specific plan. Figure 5 presents the logic that will be used to calculate site-specific statistical limits and test compliance results against those limits.

12.0 REFERENCES

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Tables

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
Georgia Power Company - Plant McDonough-Atkinson
CCR Unit AP-1
Cobb County, Georgia

Well-ID	Hydraulic Location	Screened Lithology	NAD 83 Northing [1]	NAD 83 Easting [1]	Top of Casing Elevation (feet NAVD 88)	Ground Surface Elevation (feet NAVD 88)	Total Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD 88)	Bottom of Screen Elevation (feet NAVD 88)	Screen Length (feet)	Date of Installation	Hydraulic Conductivity Geometric Mean (cm/sec) [10]
ASH POND 1 (AP-1) DETECTION MONITORING WELL NETWORK												
DGWA-53	Upgradient	Upper Bedrock	1393472.8	2201668.8	844.26	841.37	28.9	823.8	813.8	10	9/24/2016	6.1E-06
DGWA-70A	Upgradient	Saprolite/PWR	1390481.4	2200591.6	808.52	805.67	59.3	756.8	746.8	10	5/10/2017	2.0E-04
DGWA-71	Upgradient	Saprolite/PWR	1393963.3	2201714.8	863.84	861.22	43.8	827.8	817.8	10	2/28/2017	3.9E-04
DGWC-37	Downgradient	Saprolite/PWR	1390482.2	2200919.8	766.21	763.64	39.7	734.3	724.3	10	11/28/2012	--
DGWC-38	Downgradient	Residual Soils	1390362.7	2201148.6	757.43	754.67	25.0	740.0	730.0	10	11/29/2012	--
DGWC-39	Downgradient	Residual Soils/Saprolite	1390303.6	2201540.1	759.89	756.93	21.2	746.1	736.1	10	11/6/2012	--
DGWC-40	Downgradient	Saprolite	1390625.7	2201825.9	779.06	776.12	34.9	751.6	741.6	10	11/5/2012	3.1E-03
DGWC-41[9]	Downgradient	Saprolite	1390920.8	2201751.9	795.20	792.40	60.0	743.0	733.0	10	11/14/2012	6.2E-04
DGWC-67	Downgradient	Saprolite/PWR	1390953.8	2200830.7	766.70	766.80	56.3	720.5	710.5	10	3/14/2017	2.5E-04
DGWC-68A	Downgradient	Saprolite	1391301.2	2200734.9	765.33	765.06	29.8	745.7	735.7	10	4/20/2017	4.3E-04
DGWC-69	Downgradient	Saprolite/PWR	1391585.0	2200657.1	763.75	763.99	24.3	749.7	739.7	10	3/16/2017	1.4E-04
DGWC-121	Downgradient	PWR/Upper Bedrock	1390739.7	2200849.4	764.16	764.52	50.0	724.8	714.8	10	3/22/2022	4.7E-05
DGWC-134	Downgradient	Residual Soils	TBD	TBD	TBD	TBD	TBD	745 [12]	735 [12]	10	TBD	
DGWC-135	Downgradient	Residual Soils	TBD	TBD	TBD	TBD	TBD	759 [12]	749 [12]	10	TBD	
ASH POND 1 (AP-1) ASSESSMENT MONITORING WELL NETWORK												
B-62	Downgradient	Upper Bedrock	1389828.1	2201811.2	760.08	760.40	39.9	730.7	720.7	10	10/4/2016	5.5E-04
B-100	Downgradient	Saprolite	1390254.8	2202242.1	777.95	775.32	44.8	740.5	730.5	10	7/8/2020	1.5E-03
B-105D	Downgradient	Upper Bedrock	1390634.5	2201831.9	779.01	776.03	70.0	716.0	706.0	10	10/19/2020	1.2E-04
B-112D	Downgradient	Upper Bedrock	1391564.2	2200664.1	765.58	765.98	55.0	721.3	711.3	10	3/22/2021	1.2E-03

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ASH POND 2 and ASH PONDS 3/4 (AP-2 and AP-3/4) DETECTION MONITORING WELL NETWORK												
DGWA-53	Upgradient	Upper Bedrock	1393472.8	2201668.8	844.26	841.37	28.9	823.8	813.8	10	9/24/2016	6.1E-06
DGWA-70A	Upgradient	Saprolite/PWR	1390481.4	2200591.6	808.52	805.67	59.3	756.8	746.8	10	5/10/2017	2.0E-04
DGWA-71	Upgradient	Saprolite/PWR	1393963.3	2201714.8	863.84	861.22	43.8	827.8	817.8	10	2/28/2017	3.9E-04
DGWC-2	Downgradient	PWR/Upper Bedrock	1393958.0	2202119.5	850.88	848.17	49.0	809.5	799.5	10	10/2/2012	--
DGWC-4	Downgradient	Saprolite	1394171.5	2202662.4	814.85	812.06	45.0	777.4	767.4	10	10/3/2012	--
DGWC-5	Downgradient	Saprolite/PWR/Upper Bedrock	1394306.3	2202965.1	791.75	788.64	30.0	768.9	758.9	10	10/4/2012	1.1E-03
DGWC-8	Downgradient	Saprolite/PWR	1394322.2	2203882.1	826.38	824.02	49.1	785.3	775.3	10	10/10/2012	--
DGWC-9 [6]	Downgradient	Saprolite/PWR	1394055.9	2204170.0	824.35	821.86	30.0	802.3	792.3	10	10/10/2012	5.0E-04
DGWC-9A [7]	Downgradient	PWR/Upper Bedrock	1394080.2	2204167.1	823.98	821.35	44.9	786.7	776.8	10	11/20/2024	--
DGWC-10	Downgradient	Saprolite	1393818.3	2204201.1	823.55	820.82	45.4	785.8	775.8	10	10/11/2012	7.2E-04
DGWC-11	Downgradient	Saprolite/PWR	1393547.1	2204166.2	800.57	797.99	49.1	759.2	749.2	10	10/15/2012	--
DGWC-12	Downgradient	Residual Soils/Saprolite	1393149.4	2204128.3	773.86	771.10	25.1	756.4	746.4	10	10/15/2012	--
DGWC-13	Downgradient	Saprolite/PWR	1392881.1	2204084.6	794.10	791.20	43.8	757.8	747.8	10	11/29/2012	7.3E-04
DGWC-14	Downgradient	PWR/Upper Bedrock	1392574.2	2204013.3	792.40	789.69	34.3	765.8	755.8	10	12/18/2012	1.3E-03
DGWC-15	Downgradient	PWR	1392544.1	2203679.0	824.50	821.43	67.1	764.7	754.7	10	11/29/2012	1.2E-04
DGWC-16 [8]	Downgradient	Saprolite	1392595.1	2203315.4	826.47	823.54	43.7	790.1	780.1	10	12/19/2012	--
DGWC-17	Downgradient	Saprolite	1392645.6	2203051.0	837.05	834.14	44.5	799.9	789.9	10	1/9/2013	--
DGWC-18 [8]	Downgradient	Residual Soils/Saprolite	1392521.0	2202875.5	826.56	823.89	32.6	801.5	791.5	10	1/10/2013	--
DGWC-19	Downgradient	Saprolite	1392342.6	2202601.0	825.46	822.87	39.8	793.5	783.5	10	3/12/2013	7.9E-04
DGWC-20	Downgradient	Saprolite	1392164.5	2202315.6	822.14	819.66	39.7	790.6	780.6	10	3/5/2013	--
DGWC-21	Downgradient	PWR/Upper Bedrock	1392067.5	2202063.5	816.28	813.47	69.0	754.9	744.9	10	10/31/2012	6.3E-04
DGWC-22	Downgradient	Upper Bedrock	1392126.3	2201791.9	816.59	813.69	60.0	764.0	754.0	10	10/25/2012	1.2E-03
DGWC-23	Downgradient	Upper Bedrock	1392239.7	2201582.0	818.37	815.63	60.1	765.8	755.8	10	10/25/2012	5.4E-05

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ASH POND 2 and ASH PONDS 3/4 (AP-2 and AP-3/4) DETECTION MONITORING WELL NETWORK												
DGWC-42	Downgradient	Saprolite	1391327.8	2201870.2	804.68	801.98	50.4	762.1	752.1	10	11/12/2012	--
DGWC-47	Downgradient	PWR/Upper Bedrock	1391553.8	2202610.5	797.45	794.35	28.8	776.0	766.0	10	6/23/2016	6.4E-05
DGWC-48	Downgradient	Saprolite/PWR/Upper Bedrock	1391314.6	2202290.2	788.33	785.21	30.0	765.6	755.6	10	6/22/2016	8.6E-05
DGWC-126	Downgradient	Saprolite	1392143.7	2201651.2	815.15	812.65	46.3	776.7	766.7	10	1/7/2025	--
DGWC-127	Downgradient	Saprolite	1392478.7	2203439.4	815.58	816.19	53.5	772.9	763.0	10	1/9/2025	--
DGWC-128	Downgradient	Saprolite/Upper Bedrock	1394261.2	2202857.8	799.30	796.51	35.3	771.5	761.6	10	11/23/2024	--
ASH POND 2 and ASH PONDS 3/4 (AP-2 and AP-3/4) ASSESSMENT MONITORING WELL NETWORK												
B-56	Downgradient	Saprolite	1393957.9	2204187.8	823.59	820.95	45.0	786.4	776.4	10	10/3/2016	2.2E-04
B-62	Downgradient	Upper Bedrock	1389828.1	2201811.2	760.08	760.40	39.9	730.7	720.7	10	10/4/2016	5.5E-04
B-63	Downgradient	Saprolite/PWR	1390999.1	2202978.1	777.10	777.37	46.0	741.9	731.9	10	10/6/2016	2.0E-04
B-66	Downgradient	Saprolite	1393858.2	2204277.5	815.90	813.33	55.3	768.3	758.3	10	11/16/2016	3.2E-05
B-77	Downgradient	Residual Soils	1390948.7	2202942.0	776.86	777.12	42.0	745.1	735.1	10	9/17/2019	5.3E-05
B-82	Downgradient	Saprolite	1393750.0	2204258.1	810.07	807.55	45.0	773.1	763.1	10	9/21/2019	8.0E-05
B-83	Downgradient	Residual Soils/Saprolite	1390735.5	2202695.6	776.98	777.17	48.6	738.6	728.6	10	9/30/2019	1.4E-03
B-88	Downgradient	Saprolite/PWR	1394401.1	2203738.3	820.07	816.80	72.0	754.8	744.8	10	11/15/2019	1.1E-03
B-92	Downgradient	Residual Soils/Saprolite	1394392.7	2203026.7	785.08	785.30	25.0	770.7	760.7	10	12/11/2019	9.2E-04
B-93	Downgradient	Residual Soils/Saprolite	1394348.7	2202946.7	789.07	789.19	29.2	770.3	760.3	10	12/12/2019	1.8E-04
B-97	Downgradient	Upper Bedrock	1394430.0	2203008.3	786.29	786.50	31.7	765.2	755.2	10	2/11/2020	--
B-98	Downgradient	Saprolite/Upper Bedrock	1394392.5	2202934.0	789.67	789.81	19.4	780.8	770.8	10	2/10/2020	--
B-100	Downgradient	Saprolite	1390254.8	2202242.1	777.95	775.32	44.8	740.5	730.5	10	7/8/2020	1.5E-03
B-101D	Downgradient	PWR/Upper Bedrock	1394063.6	2204168.2	824.29	821.24	75.0	756.3	746.3	10	11/12/2020	2.1E-05
B-102D	Downgradient	Upper Bedrock	1393828.4	2204200.4	823.42	820.64	85.0	746.2	736.2	10	11/10/2020	1.0E-04
B-104D	Downgradient	Upper Bedrock	1391318.3	2202298.5	787.90	785.31	60.0	735.3	725.3	10	10/20/2020	2.8E-05

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
Georgia Power Company - Plant McDonough-Atkinson
CCR Unit AP-1
Cobb County, Georgia

Well-ID	Hydraulic Location	Screened Lithology	NAD 83 Northing [1]	NAD 83 Easting [1]	Top of Casing Elevation (feet NAVD 88)	Ground Surface Elevation (feet NAVD 88)	Total Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD 88)	Bottom of Screen Elevation (feet NAVD 88)	Screen Length (feet)	Date of Installation	Hydraulic Conductivity Geometric Mean (cm/sec) [10]
ASH POND 2 and ASH PONDS 3/4 (AP-2 and AP-3/4) ASSESSMENT MONITORING WELL NETWORK												
B-106D	Downgradient	Upper Bedrock	1394327.1	2203869.2	826.21	823.39	80.0	754.0	744.0	10	11/13/2020	1.4E-04
B-107D	Downgradient	Upper Bedrock	1392334.5	2202596.4	823.38	820.44	85.8	745.3	735.3	10	10/28/2020	3.2E-04
B-108D	Downgradient	Upper Bedrock	1392156.1	2202312.5	821.13	818.33	80.0	749.3	739.3	10	10/27/2020	1.2E-04
B-111D	Downgradient	Upper Bedrock	1394303.6	2202956.4	791.84	788.99	85.0	714.8	704.8	10	11/3/2020	1.5E-04
B-120D	Downgradient	Upper Bedrock	1394047.2	2202436.4	836.42	834.03	69.3	775.0	765.0	10	3/6/2021	8.2E-03
B-122D	Downgradient	Lower Bedrock	1390992.8	2202975.4	777.03	777.32	79.8	707.5	697.5	10	3/24/2022	4.3E-05
B-125D	Downgradient	Lower Bedrock	1394111.6	2202580.7	821.70	819.15	145.4	684.1	674.1	10	3/31/2023	6.6E-07
B-129S	Downgradient	Upper Bedrock	1391725.4	2203139.9	791.56	791.78	34.4	767.6	757.7	10	1/17/2025	--
PIEZOMETERS												
B-3	Downgradient	Saprolite/Upper Bedrock	1394045.1	2202411.5	837.78	834.86	37.0	808.2	798.2	10	10/3/2012	--
B-6	Downgradient	Saprolite/PWR	1394419.5	2203266.5	789.47	786.45	35.4	761.5	751.5	10	10/9/2012	--
B-7	Downgradient	Residual Soils	1394374.6	2203596.1	809.16	806.04	25.2	791.2	781.2	10	10/9/2012	--
B-24	Downgradient	Upper Bedrock	1392479.9	2201450.0	822.11	819.19	79.1	750.9	740.9	10	10/24/2012	--
B-25	Downgradient	Upper Bedrock	1392813.3	2201502.7	836.54	833.41	54.8	789.0	779.0	10	10/24/2012	3.7E-04
B-26	Downgradient	Upper Bedrock	1393105.6	2201550.4	853.60	850.61	49.3	811.7	801.7	10	10/23/2012	7.1E-06
B-28	Downgradient	PWR/Upper Bedrock	1391967.4	2201679.2	816.08	813.28	69.4	754.3	744.3	10	10/31/2012	--
B-29	Downgradient	Saprolite/PWR	1391890.0	2201422.0	816.43	813.47	54.4	769.4	759.4	10	1/11/2013	--
B-50	Downgradient	Saprolite	1391657.1	2201841.0	809.67	809.20	35.2	784.4	774.4	10	6/24/2016	8.5E-04
B-51	Downgradient	Saprolite/PWR	1390501.2	2200906.5	765.92	763.29	65.0	708.3	698.3	10	6/27/2016	6.7E-04
B-52	Downgradient	PWR	1392308.3	2201314.8	822.89	820.18	50.0	781.3	771.3	10	9/28/2016	1.2E-04
B-54	Downgradient	Saprolite/PWR/Upper Bedrock	1394423.5	2203140.7	785.46	782.54	34.2	758.7	748.7	10	9/26/2016	--
B-55	Downgradient	Saprolite	1394142.6	2204147.9	825.12	822.86	52.0	781.9	771.9	10	9/22/2016	--
B-57	Downgradient	Upper Bedrock	1391396.3	2202736.9	789.04	786.03	50.5	746.0	736.0	10	9/24/2016	1.1E-04

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
Georgia Power Company - Plant McDonough-Atkinson
CCR Unit AP-1
Cobb County, Georgia

Well-ID	Hydraulic Location	Screened Lithology	NAD 83 Northing [1]	NAD 83 Easting [1]	Top of Casing Elevation (feet NAVD 88)	Ground Surface Elevation (feet NAVD 88)	Total Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD 88)	Bottom of Screen Elevation (feet NAVD 88)	Screen Length (feet)	Date of Installation	Hydraulic Conductivity Geometric Mean (cm/sec) [10]
PIEZOMETERS												
B-58	Downgradient	Saprolite	1391125.7	2202426.5	788.17	785.20	45.0	750.7	740.7	10	9/23/2016	--
B-59	Downgradient	Saprolite/PWR/Upper Bedrock	1394349.1	2203001.1	788.00	785.41	30.3	765.2	755.2	10	9/23/2016	--
B-60	Downgradient	Saprolite/PWR	1391100.7	2202881.6	782.13	779.25	49.8	740.0	730.0	10	9/29/2016	1.2E-03
B-61	Downgradient	Saprolite/PWR	1390957.8	2202505.8	782.09	778.95	51.9	737.5	727.5	10	9/29/2016	--
B-64	Downgradient	Saprolite	1394381.9	2203031.3	785.83	785.98	30.4	766.0	756.0	10	11/2/2016	--
B-65	Downgradient	Saprolite/PWR/Upper Bedrock	1394381.2	2204050.8	821.95	822.30	45.4	787.9	777.9	10	11/15/2016	--
B-68	Downgradient	Saprolite/PWR	1391298.2	2200714.2	758.68	759.05	18.0	751.1	741.1	10	3/16/2017	--
B-72	Downgradient	Saprolite	1391241.4	2200725.9	758.46	758.45	21.9	747.0	737.0	10	4/19/2017	--
B-73	Downgradient	Saprolite	1391351.8	2200699.4	759.21	759.16	15.8	753.8	743.8	10	4/19/2017	--
B-76	Downgradient	Saprolite	1390717.4	2202756.9	760.53	760.87	38.5	732.4	722.4	10	9/18/2019	3.4E-04
B-78	Downgradient	Saprolite/Upper Bedrock	1394328.2	2202958.2	790.75	787.79	30.0	767.8	758.3	10	9/22/2019	8.3E-04
B-79	Downgradient	Saprolite/PWR	1394458.6	2203223.0	788.66	785.84	34.9	760.9	751.4	10	9/21/2019	2.8E-04
B-80	Downgradient	Saprolite/PWR	1394372.6	2203533.9	804.47	801.73	30.0	781.9	772.4	10	9/20/2019	1.8E-04
B-81	Downgradient	Saprolite/PWR	1394364.9	2203741.1	820.56	817.64	50.0	778.5	768.5	10	9/22/2019	5.1E-05
B-85	Downgradient	Saprolite/PWR/Upper Bedrock	1394433.4	2203134.5	782.54	782.71	34.5	758.5	748.5	10	11/18/2019	2.5E-04
B-86	Downgradient	Saprolite/Upper Bedrock	1394480.0	2203206.6	784.29	784.52	34.1	760.4	750.4	10	11/18/2019	4.4E-04
B-87	Downgradient	Saprolite/PWR	1394401.9	2203531.3	803.37	800.32	42.0	768.6	758.6	10	11/17/2019	8.7E-05
B-89	Downgradient	Upper Bedrock	1394398.4	2204049.4	822.36	822.53	49.5	783.0	773.0	10	11/19/2019	7.1E-04
B-90	Downgradient	Residual Soils/Saprolite	1394501.0	2203212.6	784.00	784.16	33.4	760.8	750.8	10	12/10/2019	1.9E-04
B-91	Downgradient	Residual Soils/Saprolite	1394447.1	2203123.9	782.98	783.10	35.0	758.5	748.5	10	12/11/2019	4.9E-04
B-94	Downgradient	Saprolite/PWR	1394402.0	2203513.7	801.74	799.12	45.2	764.5	754.5	10	1/23/2020	--
B-95	Downgradient	Saprolite	1394518.6	2203167.7	784.00	784.18	33.3	761.2	751.2	10	2/11/2020	--

TABLE 1
SUMMARY OF MONITORING WELL, ASSESSMENT WELL AND PIEZOMETER CONSTRUCTION DATA
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CCR Unit AP-1
Cobb County, Georgia

Well-ID	Hydraulic Location	Screened Lithology	NAD 83 Northing (1)	NAD 83 Easting (1)	Top of Casing Elevation (feet NAVD 88)	Ground Surface Elevation (feet NAVD 88)	Total Well Depth (feet bgs)	Top of Screen Elevation (feet NAVD 88)	Bottom of Screen Elevation (feet NAVD 88)	Screen Length (feet)	Date of Installation	Hydraulic Conductivity Geometric Mean (cm/sec) (10)
PIEZOMETERS												
B-96	Downgradient	Saprolite/PWR	1394478.7	2203099.3	784.92	785.19	33.1	762.1	752.1	10	2/10/2020	--
B-99	Downgradient	Fill	1394524.2	2203084.5	782.39	782.57	12.3	775.3	770.3	5	7/7/2020	--
B-103D	Downgradient	Lower Bedrock	1391543.5	2202614.4	795.96	793.77	70.0	733.8	723.8	10	10/15/2020	1.9E-06
B-109D	Downgradient	Upper Bedrock	1393957.5	2202127.0	850.73	847.78	100.0	758.4	748.4	10	10/31/2020	2.1E-05
B-110D	Downgradient	Upper Bedrock	1391294.4	2200736.0	764.61	764.55	65.0	711.6	701.6	10	11/17/2020	7.8E-06
B-113D	Downgradient	Lower Bedrock	1391264.6	2200719.2	758.22	758.87	84.7	684.5	674.5	10	3/30/2021	1.6E-04
B-115D	Downgradient	Lower Bedrock	1391265.3	2202580.7	789.17	786.43	79.5	717.2	707.2	10	3/20/2021	5.4E-05
B-116D	Upgradient	Upper Bedrock	1390483.7	2200611.0	807.82	805.31	89.5	726.1	716.1	10	3/8/2021	2.9E-04
B-117D	Upgradient	Upper Bedrock	1393963.8	2201727.3	863.82	861.23	75.0	796.5	786.5	10	3/17/2021	6.4E-05
B-118	Upgradient	Upper Bedrock	1391219.3	2200449.7	807.70	804.99	75.2	740.1	730.1	10	3/9/2021	8.0E-04
B-119D	Upgradient	Lower Bedrock	1391236.4	2200446.6	807.15	804.53	105.0	709.8	699.8	10	3/16/2021	2.7E-05
B-123D	Downgradient	Lower Bedrock	1391234.4	2202608.4	781.80	778.85	160.0	668.9	618.9	50	4/4/2022	4.3E-06
B-130S	Downgradient	Upper Bedrock	1391843.9	2203271.7	791.72	792.01	27.7	774.6	764.7	10	1/17/2025	--
B-131S	Downgradient	Upper Bedrock	1391655.0	2203047.4	792.52	792.80	31.0	772.2	762.2	10	1/28/2025	--
B-132S	Downgradient	Upper Bedrock	1392096.5	2203571.2	792.48	792.70	31.1	771.9	762.0	10	1/27/2025	--
B-133S	Downgradient	Saprolite	1391799.5	2202460.3	811.67	808.71	45.5	773.2	763.2	10	5/9/2025	--

Notes:

(1) Coordinate System: NAD 1983 State Plane Georgia West (U.S. feet)

(2) bgs - Below Ground Surface; NAD 83 - North American Datum of 1983; NAVD 88 - North American Vertical Datum of 1988; PWR - Partially Weathered Rock

(3) The 2020 and later Certified Well Surveys have been incorporated into this construction summary. Copies of the Certified Well Survey Reports are included in the GWMP Appendix A.

(4) Ground surface elevations shown are the elevation of the survey nail. Well DGWC-126 ground surface elevation is at the base of the pad.

(5) Data presented for CCR Unit AP-2 and AP-3/4 are included for reference only. This data should not be considered for permitting of CCR Unit AP-1.

(6) Well DGWC-9 was decommissioned and abandoned on 11/19/2024.

(7) Detection well DGWC-9A is a replacement well for DGWC-9.

(8) Piezometers B-16 and B-18 were converted to detection monitoring wells (DGWC-16 and DGWC-18) for AP-2 and AP-3/4 in December 2024.

(9) Piezometer B-41 was converted to detection monitoring well DGWC-41 for AP-1 in June 2025.

(10) The geometric mean of hydraulic conductivity data available for each well is presented in centimeters/second (cm/sec). For individual test data refer to Table GW-3 of the Hydrogeologic Assessment Report (WSP 2025).

(11) -- Indicates test was not conducted in well or data was not available.

(12) The proposed screen elevations of proposed wells DGWC-134 (shallow well for DGWC-121) and DGWC-135 (shallow well for DGWC-41) are approximately 10 feet below the February 2025 groundwater elevation.

(13) Well B-98 screened lithology based on adjacent boring B-97.

(14) B-129S to B-133S were re-surveyed June 16, 2025 after converting the piezometers from stickup protective covers to flush mount protective covers.

(15) TBD - To be determined upon actual installation

TABLE 2
GROUNDWATER VELOCITY CALCULATIONS - JANUARY 2024
Georgia Power Company - Plant McDonough-Atkinson
CCR Unit AP-1
Cobb County, Georgia

Flow Paths	Groundwater Elevation (feet)	Δ h (feet)[1]	Δ l (feet)[2]	Hydraulic Gradient (Δ h/Δ l)[3]	Estimated Hydraulic Conductivity for Uppermost Aquifer (feet per day)[5]	Assumed Effective Porosity (n_e)[6]	Average Linear Groundwater Velocity	
							(feet per day)[4]	(feet per year)[4]
ASH POND 1 (AP-1)								
B-29/DGWC-68A	787.07 755.44	31.63	900	0.035	0.69	0.2	0.12	44
B-28/DGWC-37	784.98 752.79	32.19	1700	0.019	0.69	0.2	0.07	24
B-50/DGWC-39	786.08 752.77	33.31	1400	0.024	0.69	0.2	0.08	30
ASH POND 2 AND ASH PONDS 3/4 (AP-2 and AP- 3/4)								
DGWA-53/DGWC-13	829.91 759.56	70.35	2550	0.028	0.69	0.2	0.10	35
B-26/DGWC-48	825.75 772.83	52.92	2000	0.026	0.69	0.2	0.09	33

Notes:
1. Δ h = Change in groundwater elevation
2. Δ l =Distance along flow path
3. Hydraulic Gradient I = Δ h / Δ l
4. Velocity = $(I * K)/n_e$
5. Hydraulic conductivity based on historic aquifer performance tests (updated October 2024)
6. Assumed effective porosities for overburden was based on the default values recommended by USEPA for a silty sand-type soil (1996). Assumed effective porosity for bedrock was derived from Daniel and Dahlen (2002) and Dowd and Marshall (1995).

TABLE 3
GROUNDWATER MONITORING PARAMETERS AND FREQUENCY
Georgia Power Company - Plant McDonough-Atkinson
CCR Unit AP-1
Cobb County, Georgia

MONITORING PARAMETERS		GROUNDWATER MONITORING	
		BACKGROUND	SEMI-ANNUAL EVENTS
Field Parameters	Temperature	x	x
	pH	x	x
	Turbidity	x	x
	Specific Conductance	x	x
	Oxidation Reduction Potential	x	x
	Dissolved Oxygen	x	x
Appendix III (Detection Monitoring)	Boron	x	x
	Calcium	x	x
	Chloride	x	x
	Fluoride	x	x
	pH (field)	x	x
	Sulfate	x	x
	Total Dissolved Solids	x	x
Appendix IV (Assesment Monitoring)	Antimony	x	x
	Arsenic	x	x
	Barium	x	x
	Beryllium	x	x
	Cadmium	x	x
	Chromium	x	x
	Cobalt	x	x
	Fluoride	x	x
	Lead	x	x
	Lithium	x	x
	Mercury	x	x
	Molybdenum	x	x
	Selenium	x	x
	Thallium	x	x
	Radium 226 and 228 Combined	x	x

Notes:

1. The water samples will be tested for total metals following the SW-846 EPA Methods or the most current approved EPA Methods.
2. Assessment sampling frequency and parameter list determined in accordance with Georgia Chapter 391-3-4-.10(6)

TABLE 4
ANALYTICAL METHODS
Georgia Power Company - Plant McDonough-Atkinson
CCR Unit AP-1
Cobb County, Georgia

PARAMETERS	EPA METHOD NUMBER
APPENDIX III	
Boron	EPA 6010D/6020B
Calcium	EPA 6010D/6020B
Chloride	EPA 300.0/300.1/9250/9251/9253/9056A
Fluoride	EPA 300.0/300.1/9214/9056A
pH	150.1 field
Sulfate	EPA 9035/9036/9038/300.0/300.1/9056A
Total Dissolved Solids (TDS)	EPA 160.1/Standard Method 2540C
APPENDIX IV	
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	EPA 300.0/300.1/9214/9056A
Lead	EPA 7420/7421/6010D/6020B
Lithium	EPA 6010D/6020B
Mercury	EPA 7470A
Molybdenum	EPA 6010D/6020B
Selenium	EPA 7740/7741A/6010D/6020B
Thallium	EPA 7840/7841/6010D/6020B
Radium 226	EPA 9315
Radium 228	EPA 9320

Notes:

The water Samples will be tested for total metals by following the SW-846, EPA Methods or the most current approved EPA methods.

TABLE 5
SURFACE WATER MONITORING PARAMETERS AND FREQUENCY
Georgia Power Company - Plant McDonough-Atkinson
CCR Unit AP-1
Cobb County, Georgia

ANALYTE	SURFACE WATER SAMPLING LOCATIONS		
	SWC-4	SWC-5	SWC-6
FIELD MONITORING PARAMETERS			
pH	X	X	X
Oxidation Reduction Potential	X	X	X
Specific Conductance	X	X	X
Dissolved Oxygen	X	X	X
Temperature	X	X	X
Turbidity	X	X	X
APPENDIX IV			
Antimony, Total	X	X	X
Arsenic, Total	X	X	X
Barium, Total	X	X	X
Beryllium, Total	X	X	X
Cadmium, Total	X	X	X
Chromium, Total	X	X	X
Cobalt, Total	X	X	X
Fluoride, Total	X	X	X
Lead, Total	X	X	X
Lithium, Total	X	X	X
Mercury, Total	X	X	X
Molybdenum, Total	X	X	X
Radium 226 and 228 Combined	X	X	X
Selenium, Total	X	X	X
Thallium, Total	X	X	X

Notes:

1. Surface water sampling will commence following certification of closure construction.
2. Surface water is collected Semi-Annually concurrent with the groundwater sampling event.
3. Any location that is dry at the time of the sampling event will be identified as such.

Figures



LEGEND

- PROPOSED AP-1 DETECTION MONITORING WELL
- AP-1 DETECTION MONITORING WELL
- UPGRADIENT WELL
- ASSESSMENT WELLS
- PIEZOMETER
- FUTURE BARRIER WALL
- PERMIT BOUNDARY
- PROPERTY BOUNDARY
- UNNAMED TRIBUTARY
- PROPOSED SURFACE WATER POINTS

NOTES

1. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.

2. SURFACE WATER LOCATIONS SHOWN WILL NOT BE SAMPLED UNTIL CLOSURE OF AP-1 IS COMPLETE.

3. THE FUTURE BARRIER WALL ALIGNMENT SHOWN IS PROPOSED. FOR ACTUAL BARRIER WALL ALIGNMENT REFER TO THE AS-BUILT DOCUMENTS FOLLOWING CONSTRUCTION.

REFERENCE

1. AERIAL IMAGERY DATE FOR AP-1, AP-2, AND AP-3/4 PROVIDED BY GEORGIA POWER, JUNE 2024; AND SURROUNDING AREAS SOURCED BY PLEXEARTH, DATED SEPTEMBER 28, 2023.

2. COORDINATE SYSTEM: NAD 1983 STATE PLANE GEORGIA WEST (U.S. FEET).

3. MONITORING WELL/PIEZOMETER LOCATIONS AND ELEVATIONS SURVEYED BY METRO ENGINEERING AND SURVEYING COMPANY IN AUGUST 2020 WITH ADDITIONAL SURVEY PROVIDED IN JANUARY 2021, APRIL 2021, MAY 2022, AND MAY 2023.

0 450 900

1 IN= 450 FT

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
2	2025/06/16	UPDATED AERIAL & DETECTION WELLS	YCS	YCS	RNQ	DEP
1	2023/03/15	UPDATED LEGEND & AERIAL	SEB	YCS	DEP	GLH
0	2022/01/06		SEB	SEB	BAS	RNQ

Date: 6/18/2025

CLIENT
GEORGIA POWER COMPANY
PLANT MCDONOUGH-ATKINSON

Georgia Power

PROJECT
GROUNDWATER MONITORING PLAN
PLANT MCDONOUGH-ATKINSON CCR UNIT AP-1

TITLE
SITE PLAN AND DETECTION MONITORING WELL LOCATION MAP

CONSULTANT
wsp

YYYY-MM-DD	2025-06-18
PREPARED	YCS
DESIGN	SEB
REVIEW	BAS
APPROVED	RNQ

PROJECT No.
166849618

Rev.
1

FIGURE
1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANSI B



LEGEND

- AP-1 MONITORING WELL
- AP-2,3/4 MONITORING WELL
- UPGRADIENT WELL
- ASSESSMENT MONITORING WELL
- PIEZOMETER
- DEWATERING WELL
- PROPOSED DETECTION MONITORING WELL
- PROPOSED DETECTION MONITORING WELL REPLACEMENT
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- GROUNDWATER SURFACE CONTOUR (FT-NAVD88)
- SURFACE WATER STREAM
- PERMIT BOUNDARY
- PROPERTY BOUNDARY
- EXISTING TOPOGRAPHY 10-FOOT CONTOUR
- EXISTING TOPOGRAPHY 2-FOOT CONTOUR

NOTES

1. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.

2. GROUNDWATER ELEVATION MEAUSREMENTS OBTAINED JANUARY 29, 2024 BY WSP.

3. GROUNDWATER ELEVATIONS DISPLAYED IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM (FT NAVD88).

REFERENCE

1. AERIAL IMAGERY DATE FOR AP-1, AP-2, AND AP-3/4 PROVIDED BY GEORGIA POWER, JUNE 2024; AND SURROUNDING AREAS SOURCED BY PLEXEARTH, DATED SEPTEMBER 28, 2023.

2. COORDINATE SYSTEM: NAD 1983 STATE PLANE GEORGIA WEST (U.S. FEET).

3. MONITORING WELL/PIEZOMETER LOCATIONS AND ELEVATIONS SURVEYED BY METRO ENGINEERING AND SURVEYING COMPANY IN AUGUST 2020 WITH ADDITIONAL SURVEY PROVIDED IN JANUARY 2021, APRIL 2021, MAY 2022, AND MAY 2023.

0 600 1,200

1 IN= 600 FT

CLIENT
GEORGIA POWER COMPANY
PLANT MCDONOUGH-ATKINSON

Georgia Power

PROJECT
GROUNDWATER MONITORING PLAN
PLANT MCDONOUGH-ATKINSON CCR UNIT AP-1

TITLE
SITE POTENTIOMETRIC MAP – JANUARY 29, 2024

CONSULTANT
wsp

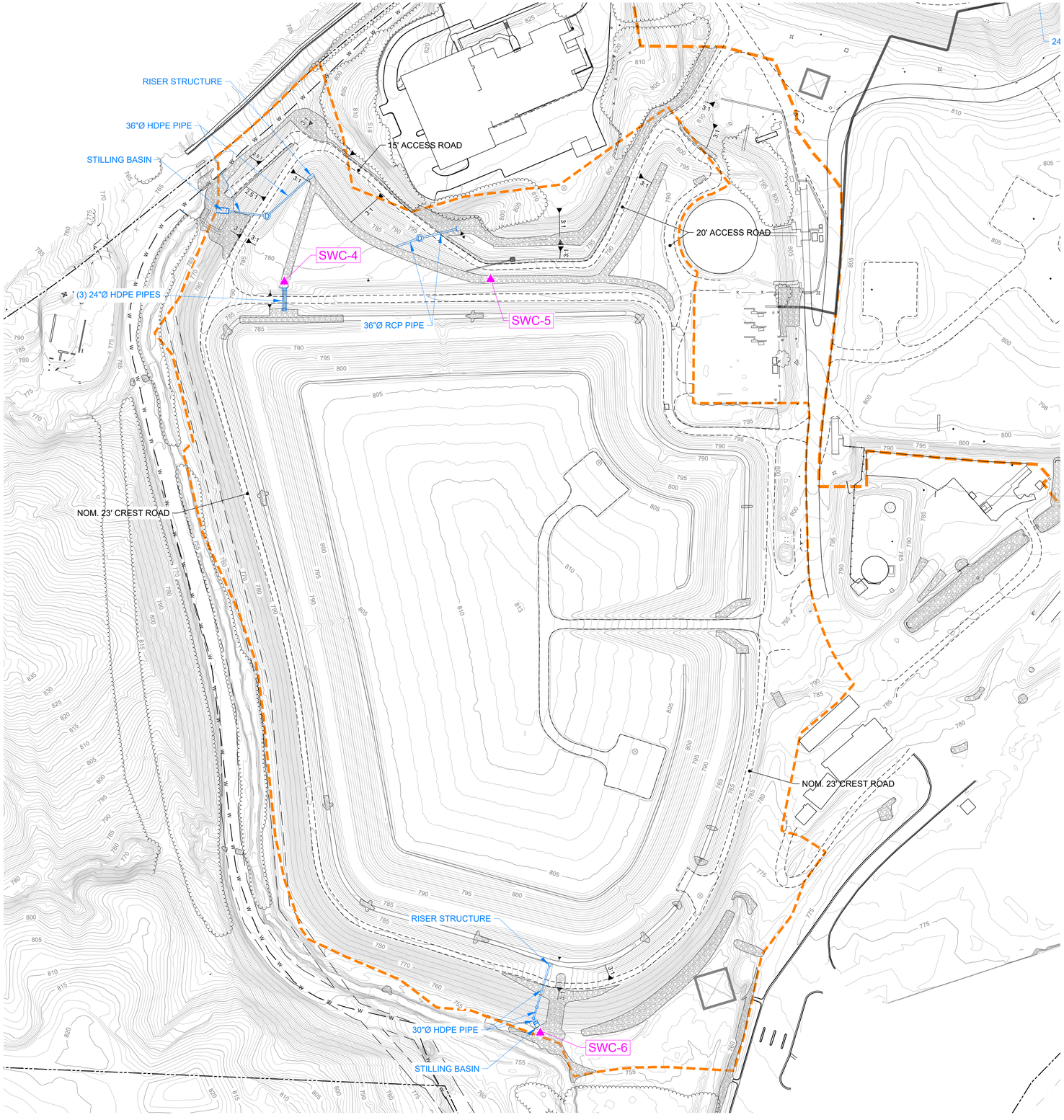
YYYY-MM-DD	2025-05-02
PREPARED	YCS
DESIGN	SEB
CHECKED	DLP
REVIEWED/APPROVED	RNQ

PROJECT No. US0037149.3190 (GL1777449)

Rev. 0

FIGURE **2**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANSI B



LEGEND

- EXISTING CONTOURS (SEE REFERENCE 2)
- PROPERTY BOUNDARY LIMITS
- FINAL CONTOURS
- PERMIT BOUNDARY
- SURFACE WATER SAMPLE LOCATION

REFERENCES

1. APPROXIMATE PROPERTY BOUNDARY PROVIDED BY SOUTHERN COMPANY SERVICES (2017).
2. THE EXISTING TOPOGRAPHY, AND CONTOUR ELEVATIONS FOR ASH PONDS 1 THROUGH 4 AND ADJACENT AREAS ARE BASED ON LIDAR DATA AND SUPPLEMENTAL GROUND RUN TOPOGRAPHY BY METRO ENGINEERING AND SURVEYING CO, INC. THE DATE OF THE SURVEY PROVIDED AND SHOWN ON THIS SET OF PLANS IS 03/21/2024.

   THE EXISTING TOPOGRAPHY AND CONTOUR ELEVATIONS FOR AREAS OUTSIDE OF THE ABOVE SURVEY LIMITS WERE PROVIDED BY GEORGIA LAND DEPARTMENT AND METRO ENGINEERING AND SURVEYING CO, INC. DATED 03/18/2018.

NOTES

1. EXISTING TOPOGRAPHIC CONTOUR INTERVAL = 1 FOOT.

0 100 200
1" = 100' FEET

CLIENT
GEORGIA POWER COMPANY
PLANT McDONOUGH-ATKINSON

PROJECT
AP-1
GROUNDWATER MONITORING PLAN
PLANT MCDONOUGH-ATKINSON CCR UNIT AP-1

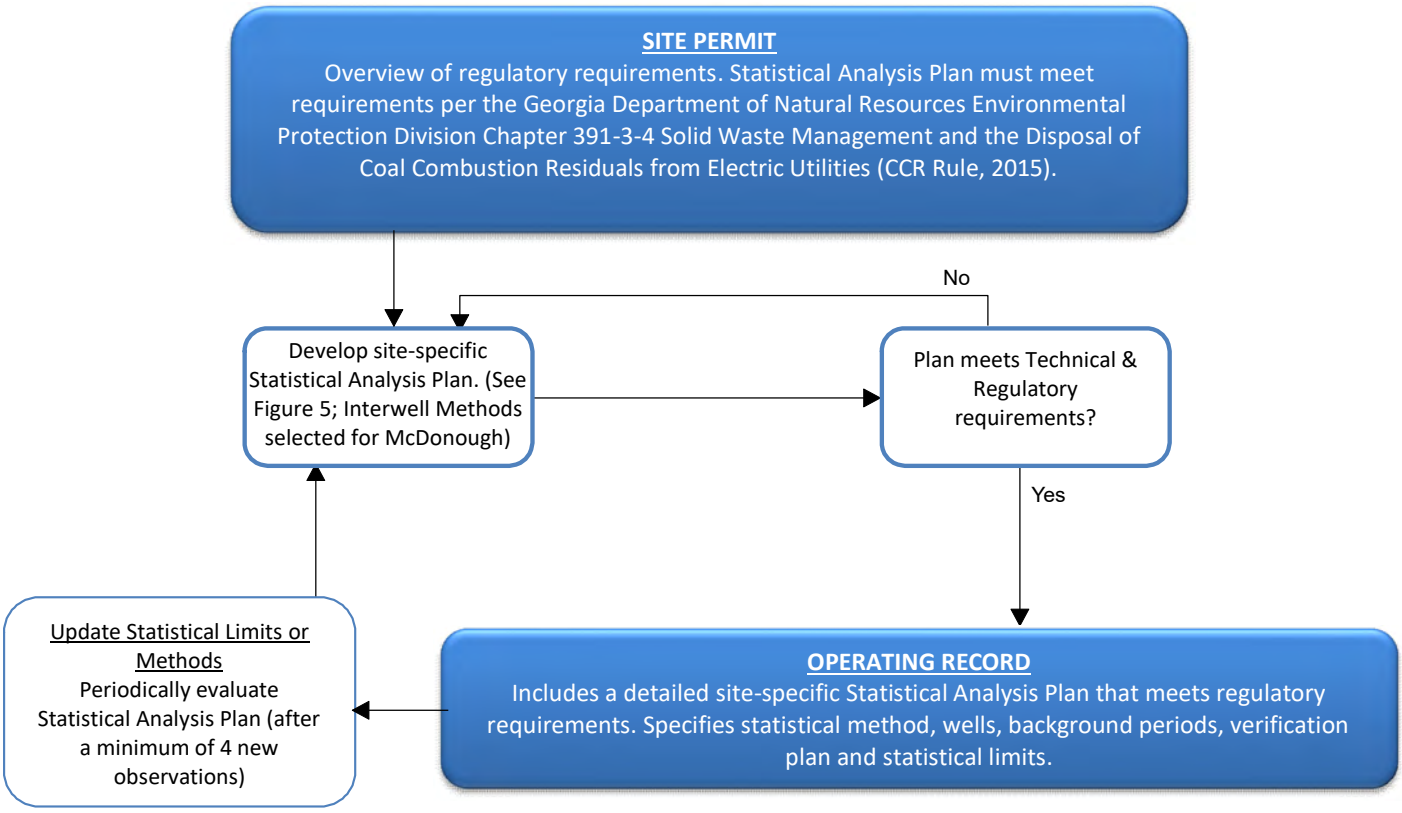
TITLE
SURFACE WATER SAMPLING LOCATION MAP

CONSULTANT

YYYY-MM-DD	2025-06-20
DESIGNED	RNQ
PREPARED	CRP
CHECKED	DLP
REVIEWED / APPROVED	GLH

PROJECT NO. US0037149.3190
REV. 0
FIGURE 3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D
0 1 in



CLIENT
GEORGIA POWER COMPANY
PLANT MCDONOUGH-ATKINSON

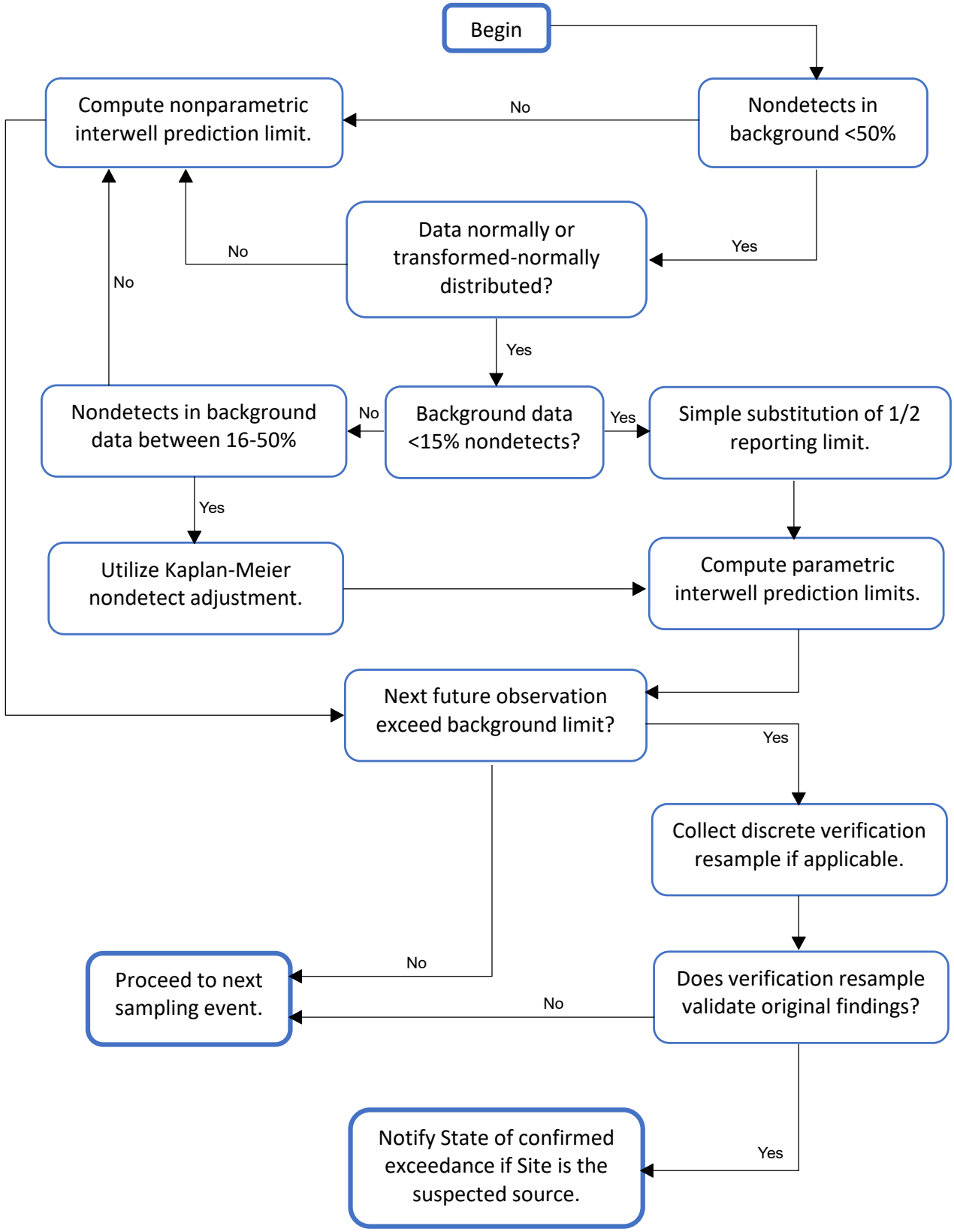
CONSULTANT
wsp

YYYY-MM-DD	2024-11-18
DESIGNED	DLP
PREPARED	DJC
REVIEWED	DLP
APPROVED	RNQ

PROJECT
GROUNDWATER MONITORING PLAN
PLANT MCDONOUGH-ATKINSON CCR UNIT AP-1

TITLE
STATISTICAL ANALYSIS PLAN OVERVIEW

PROJECT NO.	CONTROL	REV.	FIGURE
US0037149.3190 (GL1777449)	GL166449622B001.mxd	0	4



CLIENT
GEORGIA POWER COMPANY
PLANT MCDONOUGH-ATKINSON

PROJECT
GROUNDWATER MONITORING PLAN
PLANT MCDONOUGH-ATKINSON CCR UNIT AP-1

CONSULTANT

YYYY-MM-DD	2024-11-18
DESIGNED	DLP
PREPARED	DJC
REVIEWED	DLP
APPROVED	RNQ

TITLE
DECISION LOGIC FOR COMPUTING INTERWELL PREDICTION LIMITS

PROJECT NO.	CONTROL	REV.	FIGURE
US0037149.3190 (GL1777449)	GL166849622B002.mxd	0	5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
1 in
0

APPENDIX A

Monitoring System Details

Monitoring Well and Piezometer Construction Logs

RECORD OF BOREHOLE DGWA-53/B-53

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 28.90 ft
LOCATION: in the middle of the pond of the construction area of AP3

DRILL RIG: CME 55
DATE STARTED: 9/24/16
DATE COMPLETED: 9/24/16

NORTHING: 1,393,472.80
EASTING: 2,201,668.80
GS ELEVATION: 841.37
TOC ELEVATION: 844.26 ft

DEPTH W.L.: 10.08
ELEVATION W.L.: 831.22
DATE W.L.: 10/6/2016
TIME W.L.: 1233

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	840	0.00 - 3.50 SM, silt SAND, fine to medium grained, non-plastic, tan, non-cohesive, dry to moist, compact	SM		837.9	1	DO	2-4-6	10	1.50
5	835	3.50 - 12.20 SM, silt SAND, fine to medium grained, non-plastic, tan, non-cohesive, dry to moist, compact to dense (saprolite). Auger Refusal at 12.2	SM		3.50	2	DO	4-6-6	12	1.50
10	830					3	DO	5-13-35	48	1.50
15	825	12.20 - 29.50 Bedrock; GNEISS; competent, thinly foliated.	BR		829.2 12.20					
20	820									
25	815									
30	810	Boring completed at 28.90 ft			812.5 28.9					
35	805									
40	800									
45										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0-17.6'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 17.6'-27.6'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 12'-28.9'
Type: FilterSil

FILTER PACK SEAL
Interval: 8'-12'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-8'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad:
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Nortey Yeboah
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE DGWA-70A/B-70A

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 60.00 ft
LOCATION: ~400' west of the SW corner of AP-1

DRILL RIG: CME 550
DATE STARTED: 5/10/17
DATE COMPLETED: 5/10/17

NORTHING: 1,390,481.40
EASTING: 2,200,591.60
GS ELEVATION: 805.67
TOC ELEVATION: 808.52 ft

DEPTH W.L.: 42.9
ELEVATION W.L.: 762.9
DATE W.L.: 5/10/2017
TIME W.L.: 10:45

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
0	805	0.00 - 5.00 CL-CH, low to high plasticity CLAY with trace fine sand; red orange; cohesive, moist	CL-CH		800.7 / 5.00						
5	800	5.00 - 13.50 ML, SILT, trace fine sand, low plasticity; yellowish brown, contians mica; cohesive, moist, w<PL, soft.	ML		792.2 / 13.50	S1	DO	6-7-7	14	0.83 / 1.50	
10	795										
15	790					S2	DO	5-9-13	22	1.50 / 1.50	Pure Gold Grout – Mixture
20	785					S3	DO	5-9-10	19	1.50 / 1.50	
25	780	13.50 - 28.50 ML, SILT, trace fine to coarse sand, non to low plasticity; yellowish brown to orange brown, iron staining weathered, relict structure (gneissic); cohesive, moist, w<PL, soft.			777.2 / 28.50	S4	DO	5-8-11	19	1.50 / 1.50	
30	775	28.50 - 38.50 ML, SILT, trace sand, low plasticity; medium to dark gray, highly micaceous; cohesive, moist to wet (increase with depth), w<PL, soft.	ML		767.2 / 38.50	S5	DO	5-11-15	26	1.50 / 1.50	
35	770					S6	DO	4-8-10	18	1.50 / 1.50	
40	765	38.50 - 53.50 ML, SILT, trace sand, low plasticity; medium to dark gray, saprolite, highly micaceous; cohesive, moist to wet (increase with depth), w<PL, soft.	ML			S7	DO	20-50/4	50/4	0.75 / 1.50	Pel-Plug 3/8" Bentonite – Pellets
45		Log continued on next page									

WELL CASING
Interval: 0' - 59.3'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 48.9' - 58.9'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 58.9' - 59.3'

FILTER PACK
Interval: 46.9' - 59.3'
Type: FilterSil Gravel Pack

FILTER PACK SEAL
Interval: 43.4' -46.9'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0' - 43.4'
Type: Pure Gold Grout Mixture

WELL COMPLETION
Pad: 4' x 4' concrete
Protective Casing: 4" x 4" x 5' Aluminum

DRILLING METHODS
Soil Drill: 8.25 Hollow-Stem Auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 1/16/18

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE DGWA-70A/B-70A

SHEET 2 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 60.00 ft
LOCATION: ~400' west of the SW corner of AP-1

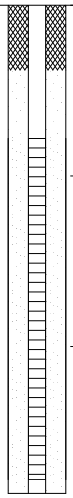
DRILL RIG: CME 550
DATE STARTED: 5/10/17
DATE COMPLETED: 5/10/17

NORTHING: 1,390,481.40
EASTING: 2,200,591.60
GS ELEVATION: 805.67
TOC ELEVATION: 808.52 ft

DEPTH W.L.: 42.9
ELEVATION W.L.: 762.9
DATE W.L.: 5/10/2017
TIME W.L.: 10:45

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
45	760	38.50 - 53.50 ML, SILT, trace sand, low plasticity; medium to dark gray, saprolite, highly micaceous; cohesive, moist to wet (increase with depth), w<PL, soft. *(Continued)*	ML							
						S8	DO	50/4	50/4	0.00 / 1.50
50	755				752.2					
		53.50 - 60.00 SM, Silty SAND, fine grained, low plasticity; dark gray, contians mica; non-cohesive, moist, w<PL, dense.	PWR		53.50	S9	DO	50/3	50/3	0.25 / 1.50
55	750									
						S10	DO	50/2	50/2	0.17 / 1.50
60	745	Boring completed at 60.00 ft			745.7					
65	740									
70	735									
75	730									
80	725									
85	720									
90										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0' - 59.3'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 48.9' - 58.9'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 58.9' - 59.3'

FILTER PACK
Interval: 46.9' - 59.3'
Type: FilterSil Gravel Pack

FILTER PACK SEAL
Interval: 43.4' -46.9'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0' - 43.4'
Type: Pure Gold Grout Mixture

WELL COMPLETION
Pad: 4' x 4' concrete
Protective Casing: 4" x 4" x 5' Aluminum

DRILLING METHODS
Soil Drill: 8.25 Hollow-Stem Auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 1/16/18

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE DGWA-71/B-71

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 43.80 ft
LOCATION: NW corner of site, inside cell tower gate.

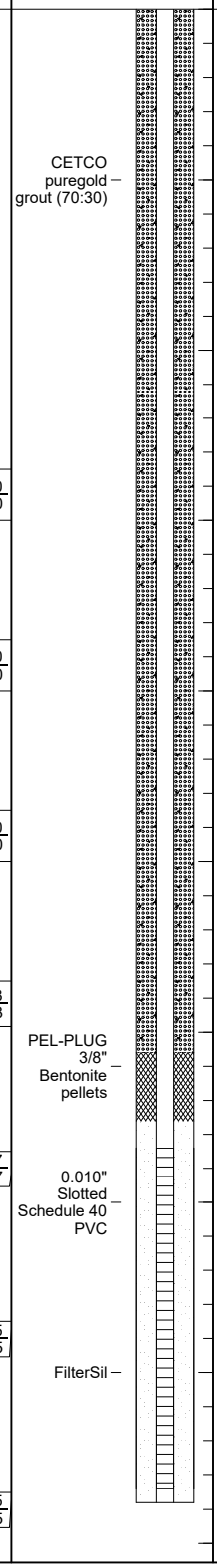
DRILL RIG: CME 550
DATE STARTED: 2/28/17
DATE COMPLETED: 2/28/17

NORTHING: 1,393,963.30
EASTING: 2,201,714.80
GS ELEVATION: 861.22
TOC ELEVATION: 863.84 ft

DEPTH W.L.: 27.1
ELEVATION W.L.: 834.1
DATE W.L.: 2/28/17
TIME W.L.: 1245

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	860	0.00 - 10.50 Hydrovac								
10	850	10.50 - 20.00 Sand with some silt, sands fine, white/black/grey weathered granite/granite gneiss, non plastic, moist, compact.	SP-SM		850.7 10.50	S1	SPT	4-8-10	18	1.50 1.50
						S2	SPT	2-5-7	12	1.50 1.50
20	840	20.00 - 30.00 Silty Sand, sands fine, white/black/grey weathered granite/granite gneiss, non plastic, moist, dense.	SM		841.2 20.00	S3	SPT	4-7-11	18	1.50 1.50
						S4	SPT	8-21-50/4	71/10	1.33 1.33
30	830	30.00 - 35.00 Sand with trace to some silt, sands fine to medium, white/black/grey, non plastic, moist, very dense.	SP-SM		831.2 30.00	S5	SPT	43-50/2	50/2	0.67 0.67
40	820	35.00 - 43.80 Sand with trace silt and gravel (rock fragments), sands fine to medium, white/black/grey, non plastic, wet, very dense, and some iron staining in samples.	PWR		826.2 35.00	S6	SPT	50/3	50/3	0.25 0.25
		Boring completed at 43.80 ft			817.4	S7	SPT	50/3	50/3	0.25 0.25
45										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-33.4'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 33.4'-43.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 32.6'-43.8'
Type: FilterSil

FILTER PACK SEAL
Interval: 30.6'-32.6'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 1'-30.6'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 4'x4' Concrete
Protective Casing: 4" x 4" x 5' Aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 1/16/18

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/28/2012 **COMPLETED** 11/28/2012 **GROUND ELEVATION** 763.7 ft **COORDINATES** N 1390482.2 E 2200919.8

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 41 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation fro 0 ft to 9.0 ft						
			754.7					
10		**Silt (ML)** - tan to mottled tan, brown and red, damp, soft, SILT with clay (about 5% clay); micaceous; trace schistose texture (highly weathered)		SS -1	9.5	1-1-3 (4)		residual soil.
15		- yellow tan, medium stiff, SAA		SS -2	14.5	2-2-3 (5)		residual soil.
20		- tan, yellow and green banding, soft, SAA; softer; less clay		SS -3	19.5	1-1-2 (3)		residual soil.
25				SS	24.5	2-2-4		

(Continued Next Page)

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

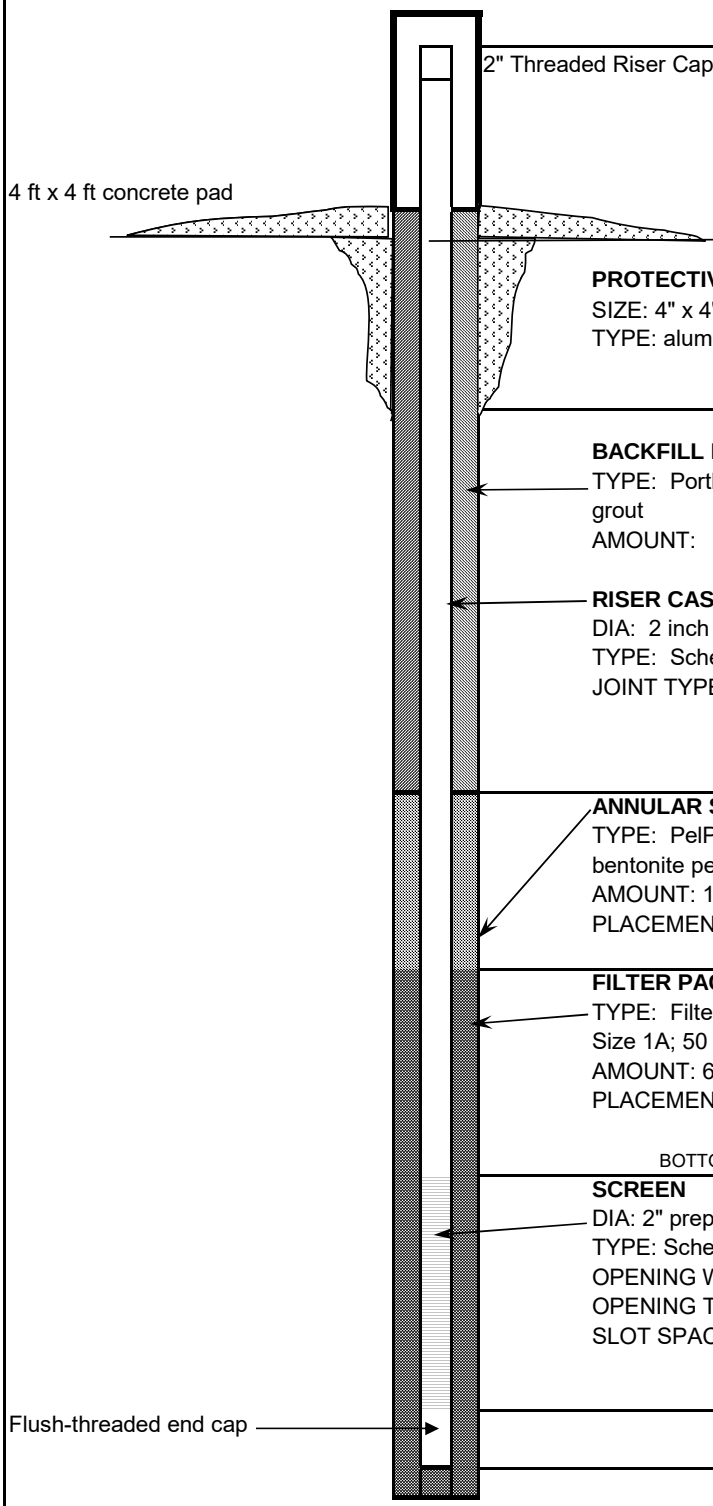
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - green-gray, moist, medium stiff, SILT; micaceous; lacks structure		-4		(6)		
30		- mottled tan, green, and white-gray, very damp, stiff, sandy SILT		SS -5	29.5	4-5-7 (12)		upper saprolite.
35		- brown, very hard, SILT with gravel; saprolite; highly weathered schist fragments		SS -6	34.5	50 (0)		lower saprolite.
40		- brown, very moist, very hard, sandy SILT, weathered schist fragments	722.7	SS -7	39.5	22-32-23 (55)		lower saprolite.
		Bottom of borehole at 41.0 feet.						
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-37/B-37
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/28/2012	N: 1390482.2 E:2200919.8	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.5	766.21
GROUND SURFACE	0.0	763.64
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 20 bags cement 10 lbs bentonite **RISER CASING** DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded TOP OF SEAL	24.6	739.0
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1.5 buckets PLACEMENT: Poured TOP OF FILTER PACK	27.0	736.6
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 6.75 Bags PLACEMENT: Poured w/water BOTTOM OF RISER / TOP OF SCREEN	29.3	734.3
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch BOTTOM OF SCREEN	39.3	724.3
BOTTOM OF CASING	39.7	723.9

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/28/2012 **COMPLETED** 11/28/2012 **GROUND ELEVATION** 754.7 ft **COORDINATES** N 1390362.7 E 2201148.6

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 24.7 ft.

GROUND WATER DEPTH: DURING 13 ft. **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

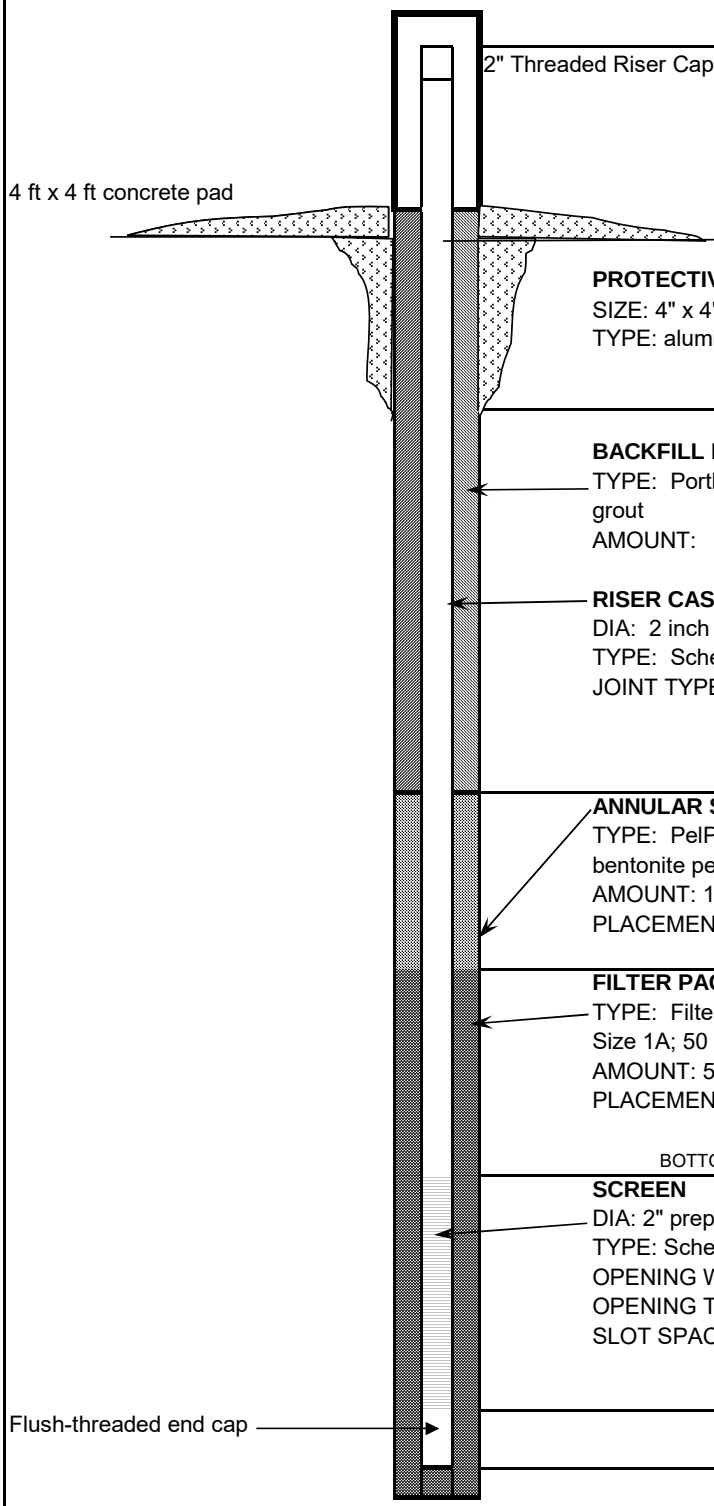
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.0 ft						
			745.7					
10		**Silt (ML)** - olive-gray to tan, moist, medium stiff, SILT; micaceous; trace schist gravel; <5% clay		SS -1	9.5	2-3-4 (7)		residual soil.
15		- more tan, wet, very soft, SAA		SS -2	14.5	WH-WH-1 (1)		
20		- tan-brown-gray, very moist, stiff, SILT; micaceous; more prevalent schistose gravel		SS -3	19.5	2-4-5 (9)		residual soil.
		- SAA with very fine-grained sand	730.0					
25								

Bottom of borehole at 24.7 feet.

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	DGWC-38/B-38
DATE CONSTRUCTED: 11/29/2012	N: 1390362.7 E:2201148.6	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.7	757.43
2" Threaded Riser Cap		
GROUND SURFACE	0.0	754.67
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 4 bags cement 6 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	10.4	744.3
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1.25 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	13.4	741.3
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 5.25 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	14.7	740.0
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	24.7	730.0
BOTTOM OF CASING	25.0	729.7

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/6/2012 **COMPLETED** 10/6/2012 **GROUND ELEVATION** 757 ft **COORDINATES** N 1390303.6 E 2201540.1

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** **BORING DEPTH** 26 ft.

GROUND WATER DEPTH: DURING 20 ft. **COMP.** **DELAYED**

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.5 ft						
5								water table in hydrovac hole at about 2 ft bgs.
			747.5	UD -1	9.5			
10		**Elastic Silt (MH)** - tan, wet, medium stiff, medium plasticity, clayey SILT with fine sand						
				SS -1	14.5	1-2-6 (8)		
15			741.8					residual soil.
		Silt (ML) - tan-brown, wet, medium stiff, sandy SILT; contains schist gravel at base						
				SS -2	19.5	2-2-5 (7)		
20		▽ - mottled tan, orange and brown, wet, medium stiff, clayey SILT; micaceous						residual soil/upper saprolite transition.
			732.5	SS	24.5	3-2-4		
25		**Lean Clay (CL)**						

(Continued Next Page)

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

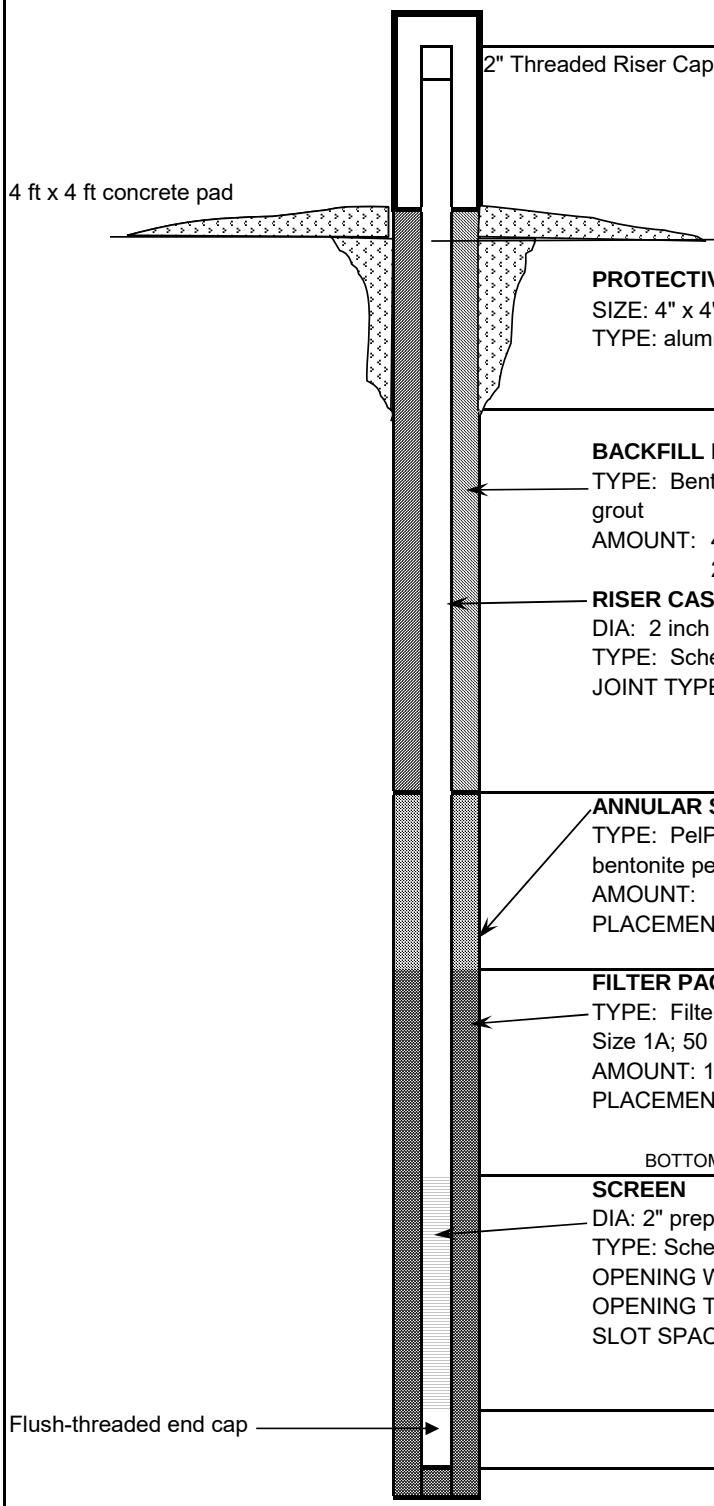
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- mottled tan, brown and black, damp, medium stiff, low plasticity, silty CLAY; relict structures observed; highly weathered **Lean Clay (CL)***(con't)*	731.0	-3		(6)		upper saprolite.
		Bottom of borehole at 26.0 feet.						

30
35
40
45
50

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-39/B-39
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/6/2012	N: 1390303.6 E:2201540.1	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.9	759.89
2" Threaded Riser Cap		
GROUND SURFACE	0.0	756.93
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Bentonite Plug grout AMOUNT: 4 buckets 200 lbs bentonite **RISER CASING** DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	4.9	752.0
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 3.5 buckets PLACEMENT: Poured		
TOP OF FILTER PACK	8.0	748.9
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 11 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	10.8	746.1
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	20.8	736.1
BOTTOM OF CASING	21.2	735.7

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/5/2012 **COMPLETED** 11/5/2012 **GROUND ELEVATION** 776.2 ft **COORDINATES** N 1390625.7 E 2201825.9

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 36 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.5 ft						
10		**Silt (ML)** - brown-tan, stiff, clayey, sandy SILT; damp to moist; contains micaceous fragments; manganese staining and nodules	766.7	SS -1	9.5	2-4-5 (9)		residual soil.
15		- tan to tan-brown, damp, stiff, sandy SILT; contains highly weathered schist; manganese staining		SS -2	14.5	4-5-6 (11)		upper saprolite.
20		- mottled tan, brown, and black, very moist, clayey SILT with sand; highly weathered schist fragments; 10% micaceous sand		SS -3	19.5	4-3-4 (7)		upper saprolite; increased water content.
25				SS	24.5	7-11-12		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

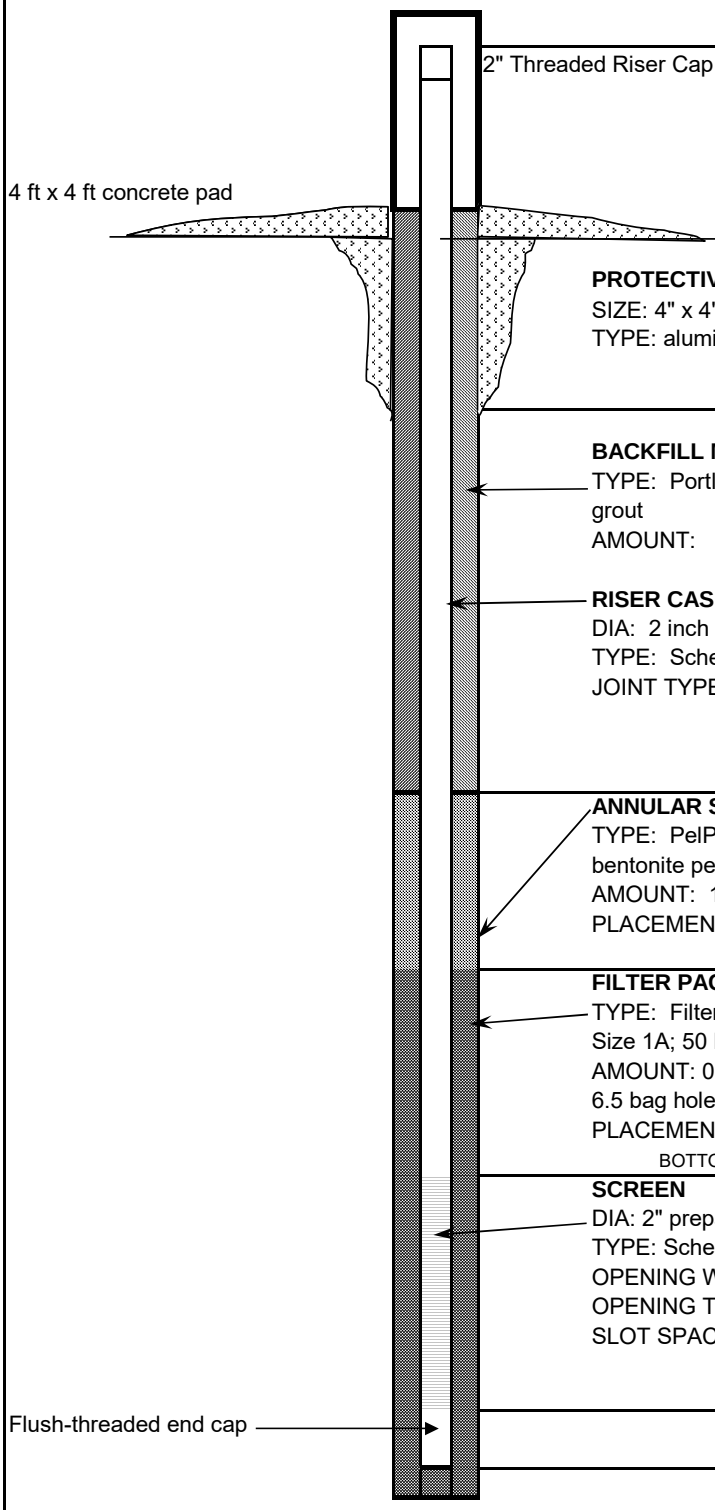
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - white-gray, very moist, very stiff, SILT wtih clay; trace quartz sand; micaceous in parts; leached zone		-4		(23)		weathered quartz vein or feldspar rich zone.
30		- brown, very moist, very stiff, SILT with clay and trace gravel; trace quartz/feldspar gravel		SS -5	29.5	6-9-10 (19)		upper saprolite.
35		- white-gray brown, very moist, medium stiff, SILT with clay and trace gravel; clay is more plastic	740.2	SS -6	34.5	1-1-4 (5)		
		Bottom of borehole at 36.0 feet.						
40								
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-40/B-40
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/5/2012	N: 1390625.7 E:2201825.9	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.9	779.06
2" Threaded Riser Cap		
GROUND SURFACE	0.0	776.12
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 6 bags cement 6 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	19.0	757.1
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	21.4	754.7
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 0.5 Bag filter pac 6.5 bag hole PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	24.5	751.6
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	34.5	741.6
BOTTOM OF CASING	34.9	741.2

BORING B-41

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/13/2012 **COMPLETED** 11/14/2012 **GROUND ELEVATION** 792.4 ft **COORDINATES** N 1390920.8 E 2201751.9

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** C. Sellers **CHECKED BY** _____ **BORING DEPTH** 61 ft.

GROUND WATER DEPTH: DURING 35 ft. **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.5 ft						
10		**Lean Clay (CL)** - light tan/orange, very soft, silty CLAY (fill for parking lot)	782.9	SS -1	9.5	WH-WH-1 (1)		
15		**Silt (ML)** - no recovery - medium stiff	777.9	SS -2	14.5	3-2-4 (6)		
20		- brownish orange, dry, stiff, clayey SILT with mica		SS -3	19.5	4-4-5 (9)		
25				SS	24.5			

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

BORING B-41

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-4				
		- light tan, SILT; micaceous						
30				SS -5	29.5	2-4-9 (13)		
		- stiff, SAA; with very fine-grained sand						
35		▽ - wet, medium stiff, SAA		SS -6	34.5	2-2-3 (5)		
40		- brown, wet, stiff, SILT with fine to very fine sand		SS -7	39.5	2-3-6 (9)		
45		- stiff, SAA		SS -8	44.5	2-5-7 (12)		
50		- light tan, damp, hard, sandy SILT (saprolite); fine to very fine-grained sand		SS -9	49.5	11-18-23 (41)		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

BORING B-41

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

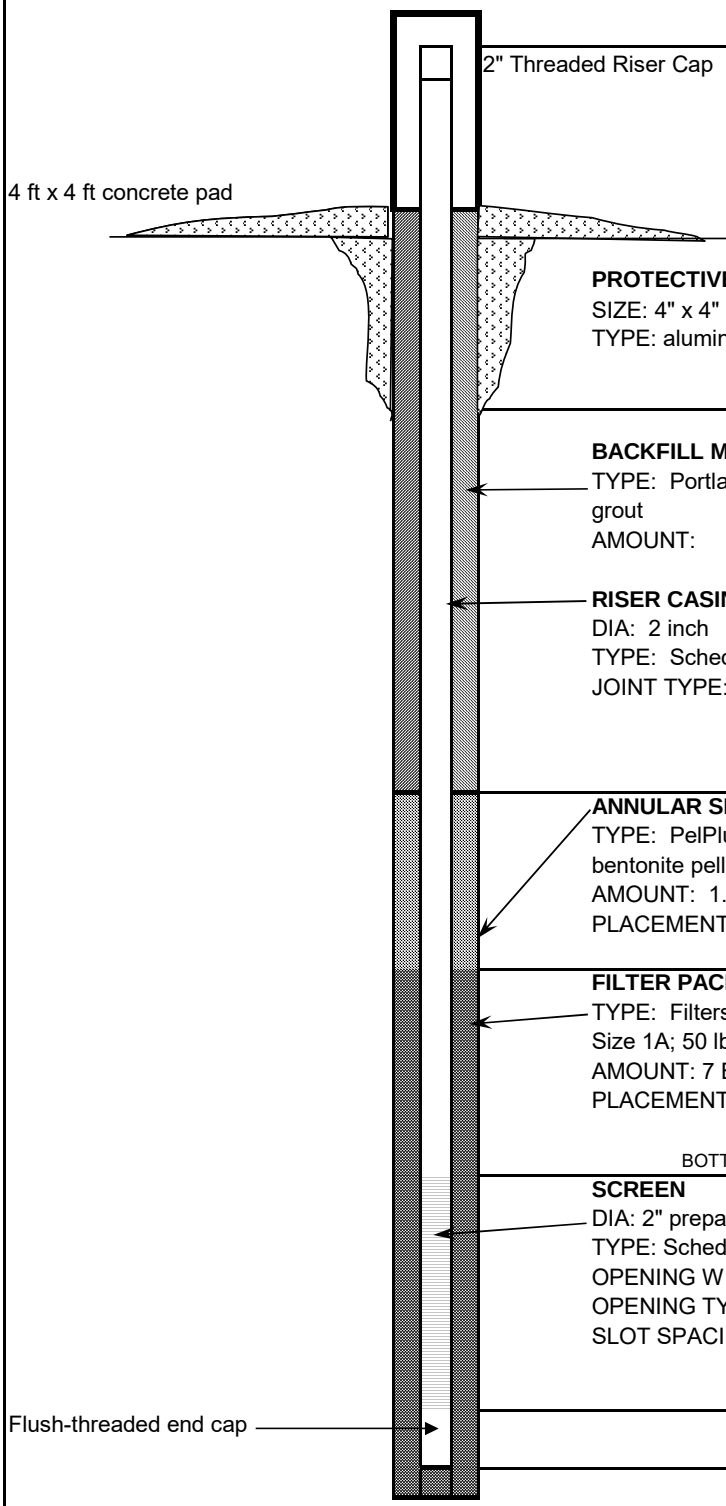
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		**Silt (ML)***(con't)*		SS -10	54.5	10-17-26 (43)		
		- light tan, damp, hard, SILT; contains fine to very fine-grained sand and angular quartz gravel						
60		- light tan, damp, saprolite; contains fine to medium-grained sand		SS -11	59.5	11-24-50 (74)		
			731.4					
		Bottom of borehole at 61.0 feet.						
65								
70								
75								
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-41/ B-41
LOGGER: Cale Sellers	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/14/2012	N: 1390920.8 E:2201751.9	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.8	795.20
GROUND SURFACE	0.0	792.40
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 7 bags cement 10 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	45.2	747.2
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1.25 buckets PLACEMENT: Tremie		
TOP OF FILTER PACK	47.3	745.1
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 7 Bags PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	49.4	743.0
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	59.4	733.0
BOTTOM OF CASING	60.0	732.4

RECORD OF BOREHOLE DGWC-67/B-67

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 56.00 ft
LOCATION: West Toe of AP-1

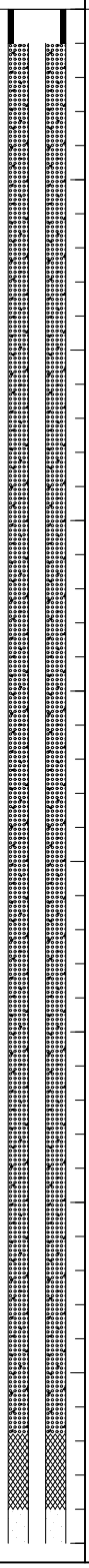
DRILL RIG: Geoprobe
DATE STARTED: 3/8/17
DATE COMPLETED: 3/14/17

NORTHING: 1,390,953.80
EASTING: 2,200,830.70
GS ELEVATION: 766.80
TOC ELEVATION: 766.70 ft

DEPTH W.L.: 9.1
ELEVATION W.L.: 757.9
DATE W.L.: 3/14/17
TIME W.L.: 0850

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	765	0.00 - 10.00 Silt and Clay with some sand and pebbles, brown, highly weathered mica schist, low plastic, cohesive, dry.	ML			S1	GRAB			0.50
5	760									
10	755	10.00 - 15.00 Sandy Silt, sands fine, brown, highly weathered, micaceous, low plastic, cohesive, dry.	ML		756.8 10.00	S2	GRAB			0.50
15	750	15.00 - 20.00 Sandy Silt, sands fine, brown, highly weathered, micaceous, low plastic, cohesive, moist.	ML		751.8 15.00	S3	SPT	6-7-12	19	1.50 1.50
20	745	20.00 - 25.00 Sandy silt, sand f-m, brown to tan, highly weathered, micaceous, low-medium plasticity, cohesive, moist, sample spoon wet.	ML		746.8 20.00	S4	SPT	9-25-25	50	1.50 1.50
25	740	25.00 - 30.00 Saprolite, Sandy silt, sands fine to coarse, brown to tan, highly weathered, micaceous, low plastic, cohesive, moist, sample spoon wet.	ML		741.8 25.00	S5	SPT	6-10-14	24	1.16 1.50
30	735	30.00 - 35.00 Saprolite, Sandy silt, sands fine to coarse, trace pebbles, reddish brown to tan, highly weathered, micaceous, low plastic, cohesive, moist, sample spoon wet.	ML		736.8 30.00	S6	SPT	13-20-22	42	1.16 1.50
35	730	35.00 - 40.00 Saprolite, Sandy silt, sands fine to coarse, trace pebbles, reddish brown to tan, highly weathered, micaceous, low plastic, cohesive, moist, sample spoon wet.	ML		731.8 35.00	S7	SPT	7-10-13	23	1.00 1.50
40	725	40.00 - 45.00 Saprolite, Sandy silt, sands fine to medium, reddish brown to tan, highly weathered, micaceous, low plastic, cohesive, moist, sample spoon wet.	ML		726.8 40.00	S8	SPT	7-16-23	39	1.33 1.50
45		Log continued on next page			721.8	S9	SPT	12-15-18	33	1.16 1.50

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-46.3'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 46.3'-56.3'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 44.0'-56.7'
Type: FilterSil

FILTER PACK SEAL
Interval: 44.0'-41.8'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-41.8'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 4'x4' Concrete
Protective Casing: 8" Round Flush Mount

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Ben Hodges
CHECKED BY: Timothy Richards, PG
DATE: 1/16/18

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE DGWC-67/B-67

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 56.00 ft
LOCATION: West Toe of AP-1

DRILL RIG: Geoprobe
DATE STARTED: 3/8/17
DATE COMPLETED: 3/14/17

NORTHING: 1,390,953.80
EASTING: 2,200,830.70
GS ELEVATION: 766.80
TOC ELEVATION: 766.70 ft

DEPTH W.L.: 9.1
ELEVATION W.L.: 757.9
DATE W.L.: 3/14/17
TIME W.L.: 0850

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45		45.00 - 50.00 Saprolite, silt and sand, sands fine to coarse, grey to brown, highly weathered, micaceous, low plastic, cohesive, moist, sample spoon wet.	ML		45.00	S10	SPT	50/4	50/4	0.33 0.33		**WELL CASING** Interval: 0'-46.3' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw
720												
50		50.00 - 55.00 Saprolite, silt and sand, sands fine to coarse, trace pebbles, grey to dark brown, highly weathered, micaceous, non plastic, noncohesive, moist, sample spoon wet.	PWR		716.8 50.00	S11	SPT	50/2	50/2	0.16 0.16	FilterSil .010" Slotted Schedule 40 PVC	**WELL SCREEN** Interval: 46.3'-56.3' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC
715												**FILTER PACK** Interval: 44.0'-56.7' Type: FilterSil
55		55.00 - 56.00 Auger Refusal	PWR		711.8 55.00							**FILTER PACK SEAL** Interval: 44.0'-41.8' Type: PEL-PLUG 3/8" Bentonite pellets
	710	Boring completed at 56.00 ft			710.8							**ANNULUS SEAL** Interval: 0'-41.8' Type: CETCO puregold grout (70:30)
60												**WELL COMPLETION** Pad: 4'x4' Concrete Protective Casing: 8" Round Flush Mount
	705											**DRILLING METHODS** Soil Drill: Hollow-stem auger Rock Drill: N/A
65												
	700											
70												
	695											
75												
	690											
80												
	685											
85												
	680											
90												

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Ben Hodges
CHECKED BY: Timothy Richards, PG
DATE: 1/16/18

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE DGWC-68A/B-68A

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 30.00 ft
LOCATION: ~15' East of B-68

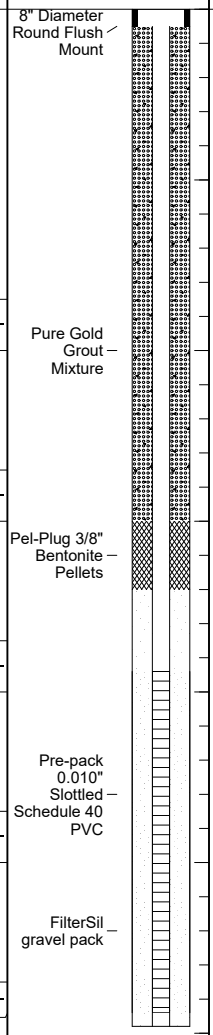
DRILL RIG: Geoprobe 7822DT
DATE STARTED: 4/19/17
DATE COMPLETED: 4/20/17

NORTHING: 1,391,301.20
EASTING: 2,200,734.90
GS ELEVATION: 765.06
TOC ELEVATION: 765.33 ft

DEPTH W.L.: 18.8
ELEVATION W.L.: 746.6
DATE W.L.: 4/20/2017
TIME W.L.: 08:48

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	765	0.00 - 8.50 SM, Silty SAND, fine to coarse, moderate plasticity; red-orange to orange-brown, fill; non-cohesive, moist, w~PL, loose.	SM							
5	760				756.6					
		8.50 - 13.50 CL, CLAY, with trace sand, moderate plasticity; red-orange brown, fill; cohesive, moist, w<PL, soft to firm.	CL		8.50	S1	DO	13-18-9	27	1.50 / 1.50
10	755				751.6					
		13.50 - 28.50 ML, SILT, low plasticity; brown to silver, relict structure; cohesive, moist to wet, w<PL, very soft.	ML		13.50	S2	DO	WOH-WOH-3	3	1.50 / 1.50
15	750					S3	DO	4-6-16	22	1.33 / 1.50
20	745					S4	DO	WOH-16-24	40	1.50 / 1.50
25	740				736.6					
		28.50 - 30.00 SM, Silty SAND, fine to coarse, non-plastic to low plasticity; gray to white to silver, weathered saprolite, gneiss; cohesive, wet, w<PL, firm.	SM		28.50	S5	DO	13-50/5	50/5	0.75 / 0.92
30	735	Boring completed at 30.00 ft			735.1					
35	730									
40	725									
45										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0' - 29.8'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 19.4' - 29.4 '
Material: Schedule 40 PVC pre-pack
Diameter: 2"
Slot Size: 0.010"
End Cap: 29.4' - 29.8'

FILTER PACK
Interval: 17.0' - 29.8'
Type: FilterSil gravel pack

FILTER PACK SEAL
Interval: 15.0' - 17.0'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0' - 15.0'
Type: Pure Gold Grout Mixture

WELL COMPLETION
Pad: 4' x 4' concrete
Protective Casing: 8" Diameter Round Flush Mount

DRILLING METHODS
Soil Drill: 4.25-inch ID HSA
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 1/16/18

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE DGWC-69/B-69

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 44.30 ft
LOCATION: West Toe of AP-1

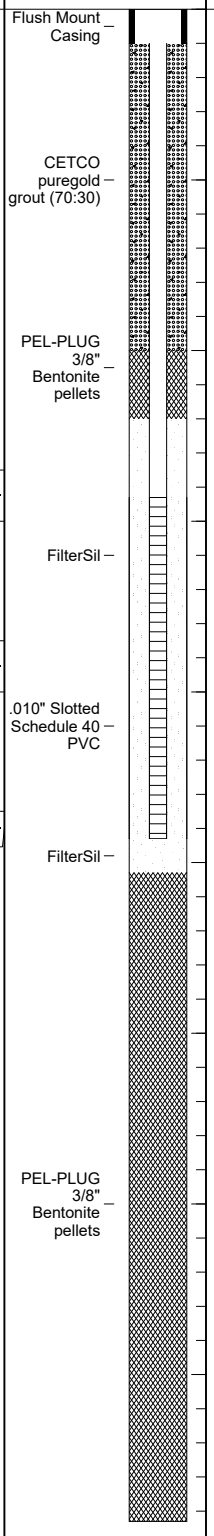
DRILL RIG: Geoprobe
DATE STARTED: 3/15/17
DATE COMPLETED: 3/16/17

NORTHING: 1,391,585.00
EASTING: 2,200,657.10
GS ELEVATION: 763.99
TOC ELEVATION: 763.75 ft

DEPTH W.L.: 6.0
ELEVATION W.L.: 758
DATE W.L.: 3/17/17
TIME W.L.: 0840

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0		0.00 - 10.00 Hydrovac								
	760									
5										
	755				754					
10		10.00 - 24.90 Silty Sand, fine to coarse, banded grey and brown, heighly weathered, noncohesive, moist, very dense, sample spoon wet			10.00					
	750					S1	SPT	26-36-48	84	1.58 1.50
15			SM							
	745					S2	SPT	3-23-17	40	1.00 1.50
20										
	740					S3	SPT	50/6	50/6	0.50 0.50
25		24.90 - 44.30 Slightly weathered to fresh, moderate to strongly foliated, light to dark gray, fine to coarse grained, medium strong to strong, Sheared Gneiss (Long Island Creek).			739.1 24.90					
	735									
30										
	730		BR							
35										
	725									
40										
	720				719.7					
45		Boring completed at 44.30 ft								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-14.3'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 14.3'-24.3'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 12.0'-24.7'
Type: FilterSil

FILTER PACK SEAL
Interval: 10.0'-12.0'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-10.0'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 4'x4' Concrete
Protective Casing: 8" Round Flush

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: Sean Denty

GA INSPECTOR: Ben Hodges
CHECKED BY: Timothy Richards, PG
DATE: 1/16/18

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE DGWC-121

SHEET 1 of 2

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849621
DRILLED DEPTH: 50.00 ft
LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
Truck-Mounted Sonic
DATE STARTED: 3/22/22
DATE COMPLETED: 3/22/22

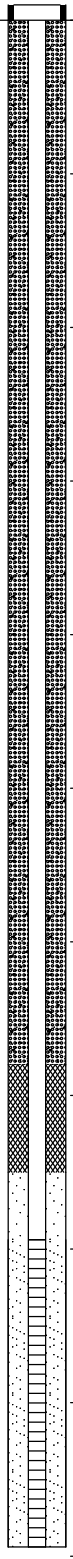
NORTHING: 1,390,739.7
EASTING: 2,200,849.4
GS ELEVATION: 764.52
TOC ELEVATION: 764.16 ft

DEPTH W.L.:9.4'
ELEVATION W.L.:755.12
DATE W.L.:3/22/22
TIME W.L.:19:25

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC
0		0.00 - 8.00 Fill material				1		6.50 10.00
	760				756.5			
5		8.00 - 10.00 MH, CLAYEY SILT; very micaceous, little fine to coarse sand, brown/red brown, saprolitic, dry	MH		8.00 754.5			
	755							
10		10.00 - 20.00 ML, fine sandy SILT; very micaceous, little clay, brown to dark brown, saprolitic, crenulated, dry			10.00	2		9.75 10.00
	750		ML					
15								
	745				744.5			
20		20.00 - 29.50 SW-ML, fine SAND and SILT; very micaceous, little clay, dark brown to brown, iron staining, saprolitic, moist			20.00	3		9.75 10.00
	740		SW-ML					
25								
	735				734.0			
30		29.50 - 30.00 TWR, Transitionally Weathered Rock; muscovite schist	TWR		30.00	4		9.75 10.00
		30.00 - 40.00 TWR; fine to coarse gravel with fine sandy silt, little clay, friable, very micaceous, brown to dark brown, orange iron staining in soils, moist						
35	730		TWR					
	725				724.5			
40		40.00 - 48.50 TWR; same as above			40.00	5		7.50 10.00
	720		TWR					
45								
	715				716.0			
50		48.50 - 50.00 muscovite SCHIST, fine to coarse grained, medium strong,			48.50 714.5			

Log continued on next page

MONITORING WELL DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-39.7'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 39.7'-49.7'
Material: 0.010" Slotted
Diameter: 2"
Slot Size: 0.010"
End Cap: 3"

FILTER PACK
Interval: 37.5'-49.7'
Type: Filter Sil - Filtration sand and gravel, industrial quartz
Quantity: 3.5 x 50 lb bag

FILTER PACK SEAL
Interval: 34'-37.5'
Type: Pel Plug Bentonite Pellets
Quantity: 1 x 50 lb bucket

ANNULUS SEAL
Interval: 0'-34'
Type: Aquaguard bentonite grout
Quantity: 2 bags Aquaguard + 40 gal water

WELL COMPLETION
Pad: 4' x 4'
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic
Sample Type: Sonic

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

GA INSPECTOR: Connor Mikilitus
CHECKED BY: Rachel Kirkman, PG
DATE: 5/10/22

WSP GOLDER

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D.GPJ PIEDMONT.GDT 5/13/22

RECORD OF BOREHOLE DGWC-121

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849621
DRILLED DEPTH: 50.00 ft
LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
Truck-Mounted Sonic
DATE STARTED: 3/22/22
DATE COMPLETED: 3/22/22

NORTHING: 1,390,739.7
EASTING: 2,200,849.4
GS ELEVATION: 764.52
TOC ELEVATION: 764.16 ft

DEPTH W.L.:9.4'
ELEVATION W.L.:755.12
DATE W.L.:3/22/22
TIME W.L.:19:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
50		slightly to moderately weathered, slightly to moderately fractured, some iron staining								
		Boring completed at 50.00 ft								
55	710									
60	705									
65	700									
70	695									
75	690									
80	685									
85	680									
90	675									
95	670									
100	665									

WELL CASING
Interval: 0'-39.7'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 39.7'-49.7'
Material: 0.010" Slotted
Diameter: 2"
Slot Size: 0.010"
End Cap: 3"

FILTER PACK
Interval: 37.5'-49.7'
Type: Filter Sil - Filtration sand and gravel, industrial quartz
Quantity: 3.5 x 50 lb bag

FILTER PACK SEAL
Interval: 34'-37.5'
Type: Pel Plug Bentonite Pellets
Quantity: 1 x 50 lb bucket

ANNULUS SEAL
Interval: 0'-34'
Type: Aquaguard bentonite grout
Quantity: 2 bags Aquaguard + 40 gal water

WELL COMPLETION
Pad: 4' x 4'
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic
Sample Type: Sonic

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

GA INSPECTOR: Connor Mikilitus
CHECKED BY: Rachel Kirkman, PG
DATE: 5/10/22

WSP GOLDER

RECORD OF BOREHOLE B-62

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 39.90 ft
LOCATION: South of the Main road.

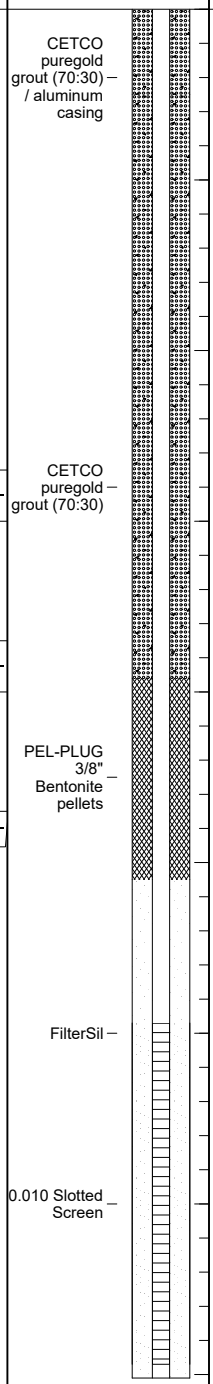
DRILL RIG: CME 55
DATE STARTED: 10/4/16
DATE COMPLETED: 10/4/16

NORTHING: 1,389,828.10
EASTING: 2,201,811.20
GS ELEVATION: 760.40
TOC ELEVATION: 760.08 ft

DEPTH W.L.: 21.57
ELEVATION W.L.: 738.83
DATE W.L.: 10/6/2016
TIME W.L.: 1000

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	760	0.00 - 13.50 Top 10' were Hydrovac for utilities.								
					746.9					
		13.50 - 18.50 SM, silty SAND, fine, low to moderate plasticity; red-brown; cohesive, wet, w~PL, very soft to soft.	SM		13.50 741.9	1	DO	3-1-3	4	1.00 1.50
		18.50 - 23.50 CL, CLAY, trace silt and fine sand, moderate plasticity; red-brown; cohesive, moist to wet, w~PL, soft to firm.	CL		18.50 736.9	2	DO	1-1-1	2	1.50 1.50
		23.50 - 24.60 SP, poorly-graded SAND, fine to coarse, non plastic; gray to black; non-cohesive, wet, w<PL, very dense, PWR. Auger Refusal at 24.2	SP		23.50 735.8	3	DO	50/4	50/4	0.16 0.33
		24.60 - 39.90 Bedrock; SCHIST fresh to slightly weathered, foliated, dark green to black, fine to medium grained.	BR		24.60 720.5					
40	720	Boring completed at 39.90 ft								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-30'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 29.7'-39.7'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 25.5'-40.1'
Type: FilterSil

FILTER PACK SEAL
Interval: 19.6'-25.5'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-19.6'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-100

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 44.80 ft
LOCATION: Smyrna, GA

DRILL RIG: CME 550X
DATE STARTED: 7/8/20
DATE COMPLETED: 7/8/20

NORTHING: 1,390,254.80
EASTING: 2,202,242.10
GS ELEVATION: 775.32
TOC ELEVATION: 777.95 ft

DEPTH W.L.: 34.78
ELEVATION W.L.: 743.17
DATE W.L.: 7/8/20
TIME W.L.: 15:50

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
0	775	0.00 - 11.00 SILT-SILTY GRAVEL; mix of topsoil, residuum, fill, rip-rap boulders, soil; clayey silt, red-brown, micaceous, moist, moderately weathered, non-cohesive, moist, (backfilled cuttings)	ML-GM		764.3	R1	AUGER			0.00 / 11.00	Bentonite Grout
10	765				11.00 761.8						
15	760	13.50 - 15.00 SILT; with sand, gravel and trace clay, red-brown, highly weathered, non-cohesive, dry to moist, loose to compact	ML		13.50 760.3	R2	SS	3-3-2		1.45 / 1.50	
					15.00 756.8						
20	755	18.50 - 20.00 SILTY SAND; heavy organic matter (wood), red-brown with black organic matter, moderately weathered, non-cohesive, dry, loose	SM		18.50 755.3	R3	SS	3-3-2		0.60 / 1.50	
					20.00 751.8						
25	750	23.50 - 25.00 CLAYEY SAND; some organic matter, brown, silightly weathered, cohesive, w<PL, soft	SC		23.50 750.3	R4	SS	2-1-2		1.60 / 1.50	
					25.00 746.8						
30	745	28.50 - 30.00 CLAYEY SAND WITH SILT; trace organic matter, brown with some red, micaceous, moderately weathered, cohesive, w>PL, firm to soft, moist to wet	SC-SM		28.50 745.3	R5	SS	1-2-1		1.50 / 1.50	Bentonite Pellets
					30.00 741.8						Sand Filter Pack
35	740	33.50 - 35.00 CLAYEY SAND; some silt, red with some brown, highly weathered trace mica, cohesive, w>PL, wet, soft to very soft, trace gravel	SC		33.50 740.3	R6	SS	WH-WH-2		1.40 / 1.50	
					35.00 736.8						
40		38.50 - 40.00 CLAYEY SAND; some gravel of gneiss (bottom 0.5'), black-brown with red, highly	SC		38.50 735.3	R7	SS	2-6-22		1.30 / 1.50	3" PVC 0.010

Log continued on next page

WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-44'8"
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam

WELL SCREEN
Interval: 34'8"-44'8"
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 32'2"-44'8"
Type: Filtersil std61

FILTER PACK SEAL
Interval: 30'-32'2"
Type: 3/8" Coated Pel-Plug

ANNULUS SEAL
Interval: 2'-30'
Type: Aquagaurd Bentonite Grout

WELL COMPLETION
Pad: 4'x4'x4"
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Auger
Rock Drill:

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: SCS CFS
DRILLER: S. Deuty

GA INSPECTOR: Chris Tidwell
CHECKED BY: Brian Steele, PG
DATE: 8/24/2020

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-100

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 44.80 ft
LOCATION: Smyrna, GA

DRILL RIG: CME 550X
DATE STARTED: 7/8/20
DATE COMPLETED: 7/8/20

NORTHING: 1,390,254.80
EASTING: 2,202,242.10
GS ELEVATION: 775.32
TOC ELEVATION: 777.95 ft

DEPTH W.L.: 34.78
ELEVATION W.L.: 743.17
DATE W.L.: 7/8/20
TIME W.L.: 15:50

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
40	735	weathered, non-cohesive, wet, loose to compact			40.00 / 732.8						Slot U-Pack Screen	
		42.50 - 45.00 CLAYEY SAND; some gravel, red with black and brown, highly weathered, cohesive, w~PL, firm to soft, micaceous schist gravel	SC		42.50 / 730.3	R8	SS	4-5-12		0.00 / 1.50		
45	730	Boring completed at 44.80 ft			45.00							
50	725											
55	720											
60	715											
65	710											
70	705											
75	700											
80												

WELL CASING
Interval: 0'-44'8"
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam

WELL SCREEN
Interval: 34'8"-44'8"
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 32'2"-44'8"
Type: Filtersil std61

FILTER PACK SEAL
Interval: 30'-32'2"
Type: 3/8" Coated Pel-Plug

ANNULUS SEAL
Interval: 2'-30'
Type: Aquagaurd Bentonite Grout

WELL COMPLETION
Pad: 4'x4'x4"
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Auger
Rock Drill:

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: SCS CFS
DRILLER: S. Deuty

GA INSPECTOR: Chris Tidwell
CHECKED BY: Brian Steele, PG
DATE: 8/24/2020

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-105D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 70.00 ft
LOCATION: East of DGWC-40

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 10/18/20
DATE COMPLETED: 10/19/20

NORTHING: 1390634.5
EASTING: 2201831.9
GS ELEVATION: 776.03 ft
TOC ELEVATION: 779.01 ft

DEPTH W.L.: 22.50
ELEVATION W.L.: 756.5
DATE W.L.: 10/19/2020
TIME W.L.: 0950

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0		0.00 - 10.00 Air knife; FILL	FILL					
10		10.00 - 15.00 (ML), SILT; red to orange brown, some clay, low plasticity, dry to moist, w<PL, soft to firm, FILL	CL-ML		10.00	1	ROTO SONIC	9.25 10.00
15		15.00 - 27.00 (ML), SILT; olive brown to silvery brown, low plasticity, moist, firm, w<PL, contains muscovite	ML		15.00	2	ROTO SONIC	6.00 7.50
25		27.00 - 27.50 (CL), CLAY; white, medium plasticity, firm, moist, w<PL, possible WT	CL		27.50	3	ROTO SONIC	8.50 10.00
30		27.50 - 32.50 (ML), SILT; gray/brown, fine grain, low to medium plasticity, moist, w~PL, soft to firm	ML					
35		32.50 - 33.80 (SM), SILTY SAND; non-plastic to low plasticity, dry to moist, fine to coarse, w<PL, loose, sand is mica (biotite/muscovite)	SM		32.50 33.80			
		33.80 - 37.50 (ML), SILT; gray/brown, fine grain, low to moderate plasticity, moist, w~PL, soft to firm	ML					
40		37.50 - 40.00 (ML), SILT; whitish gray, trace fine sand, low plasticity, moist to dry, w~PL, firm/compact, high feldspar	ML		37.50	4	ROTO SONIC	2.50 2.50
		40.00 - 45.00 (SM), SILTY SAND; brown to black, non-plastic to low plasticity, moist, w<PL, fine to coarse, compact to loose. Sand particles size is mica, not quartz.	SM		40.00	5	ROTO SONIC	5.00 5.00
45		45.00 - 50.00 (SM), SILTY SAND; rock flour, trace gravels, tan brown, non-plastic, dry, fine to coarse, w<PL, loose, sand is micaceous, transitions to TWR from 48.8'-50.0'	SM		45.00	6	ROTO SONIC	5.00 5.00
50		Log continued on next page						

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

B-105D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-70'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 60'-70'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 57.5'-60.0'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 53.75'-57.5
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-53.75
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-105D

SHEET 2 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 70.00 ft
LOCATION: East of DGWC-40

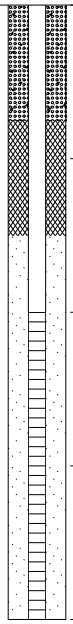
DRILL RIG: Geoprobe 8140LC
DATE STARTED: 10/18/20
DATE COMPLETED: 10/19/20

NORTHING: 1390634.5
EASTING: 2201831.9
GS ELEVATION: 776.03 ft
TOC ELEVATION: 779.01 ft

DEPTH W.L.: 22.50
ELEVATION W.L.: 756.5
DATE W.L.: 10/19/2020
TIME W.L.: 0950

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC
50		50.00 - 55.00 (SM), SILTY SAND; brown to black, low to medium plasticity, moist to dry, w<PL, loose/soft, materials is from gneiss (relief structure), TWR	SM		50.00	7	ROTO SONIC	5.00 / 5.00
55		55.00 - 70.00 (GNEISS), BEDROCK; light to dark gray, fine to medium grain, well foliated, poorly jointed, fresh to slightly weathered, strong to medium strong	BR		55.00	8	ROTO SONIC	2.75 / 3.50
60						9	ROTO SONIC	4.80 / 6.50
65						10	ROTO SONIC	4.25 / 5.00
70		Boring completed at 70.00 ft						
75								
80								
85								
90								
95								
100								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

B-105D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-70'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 60'-70'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 57.5'-60.0'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 53.75'-57.5
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-53.75
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ PIEDMONT.GDT 2/3/21

RECORD OF BOREHOLE B-112D

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 55.00 ft
LOCATION: Offset of DGWC-69

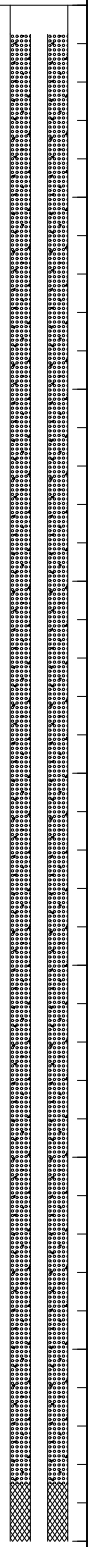
DRILL RIG: TSi 150CC
DATE STARTED: 3/21/21
DATE COMPLETED: 3/22/21

NORTHING: 1,391,564.2
EASTING: 2,200,664.1
GS ELEVATION: 765.98
TOC ELEVATION: 765.58 ft

DEPTH W.L.:6.87
ELEVATION W.L.: 758.71
DATE W.L.:4/12/2021
TIME W.L.:12:18

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC
0	765	0.00 - 7.00 CL, Silty CLAY, low plasticity; red brown; soft, dry to moist, W<PL	CL		759.0	Hand Auger		0.00 10.00
5	760							
		7.00 - 11.50 SP, SAND with trace silt and gravels, non-plasticity fine to coarse; blue-gray; soft to firm,moist, W<PL	SP		7.00 754.5			
10	755	11.50 - 12.50 ML, Clayey SILT, low plasticity; brown to gray-brown; soft, moist, W<PL	ML		11.50 753.5			
		12.50 - 16.00 SM, SILTY SAND, non to low plasticity; tan to brown to beige; loose to compact, dry, W<PL	SM		12.50 750.0	1		9.00 10.00
15	750	16.00 - 20.00 TWR, Transitionally Weathered Rock; No recovery; Wash out; Driller noted the material was hard enough to drill with water(coring), but soft enough to wash away.	TWR		16.00 746.0			
20	745	20.00 - 30.00 Slightly to moderately weathered, well foliated, well jointed, light gray to gray, fine-medium grained, medium strong, quartz-feldspar-biotite GNEISS; locally contians vein quartz and augened potassium feldspar (K-spar)	BR		20.00 736.0	2		3.80 10.00
25	740							
30	735	30.00 - 40.00 Fresh to slightly weathered, well foliated, poorly jointed, light gray to gray, fine-medium grained, weak to medium strong, quartz-feldspar-biotite GNEISS; locally contains epidote	BR		30.00 726.0	3		7.80 10.00
35	730							
40		Log continued on next page						

PIEZOMETER DIAGRAM and NOTES



PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-44.7'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 44.7-54.7'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 54.7-55'

FILTER PACK
Interval: 42.5-55'
Type: #1 Filter Sand
Quantity: 4-50 lbs bags

FILTER PACK SEAL
Interval: 38.5-42.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-38.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 8" Flush Mount

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-112D

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 55.00 ft
LOCATION: Offset of DGWC-69

DRILL RIG: TSi 150CC
DATE STARTED: 3/21/21
DATE COMPLETED: 3/22/21

NORTHING: 1,391,564.2
EASTING: 2,200,664.1
GS ELEVATION: 765.98
TOC ELEVATION: 765.58 ft

DEPTH W.L.:6.87
ELEVATION W.L.: 758.71
DATE W.L.:4/12/2021
TIME W.L.:12:18

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC	PIEZOMETER DIAGRAM and NOTES
40	725	40.00 - 50.00 Fresh to moderately weathered, well foliated, poorly jointed, light gray to gray, fine-medium grained, weak to medium strong, quartz-feldspar-biotite GNEISS; locally contains vein quartz and water staining	BR		40.00	4		5.00 / 10.00	#1 Sand filter pack
45	720								
50	715	50.00 - 55.00 Slightly to moderately weathered, well foliated, poorly jointed, light gray to gray, fine-medium grained, medium strong to strong, potassium feldspar, plagioclase, quartz-biotite GNEISS; locally contains epidote, pegmatitic vein quartz, and augened k-spar	BR		716.0 50.00	5		5.00 / 5.00	0.010" Slotted Schedule 40 PVC
55	710	Boring completed at 55.00 ft			711.0				Sump
60	705								
65	700								
70	695								
75	690								
80									

PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-44.7'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 44.7-54.7'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 54.7-55'

FILTER PACK
Interval: 42.5-55'
Type: #1 Filter Sand
Quantity: 4-50 lbs bags

FILTER PACK SEAL
Interval: 38.5-42.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-38.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 8" Flush Mount

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/2/2012 **COMPLETED** 10/2/2012 **GROUND ELEVATION** 848.3 ft **COORDINATES** N 1393958 E 2202119.5

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** R. Tinsley **CHECKED BY** _____ **BORING DEPTH** 54.4 ft.

GROUND WATER DEPTH: DURING 42 ft. **COMP.** _____ **DELAYED** 27.8 ft. after 24 hrs.

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML) - Gravel surface with some vegetation.						
		- brown, medium stiff, SILT with mica and quartz fragments.						
5		- CL-ML: dark red, stiff, SILT/CLAY; micaceous		SS -1	4.5	4-6-9 (15)		2.5YR.
10		- reddish brown, dry, medium stiff, SILT with mica and relict bedding.		SS -2	9.5	4-4-4 (8)		saprolite (gneiss).
15		- medium stiff, SAA with mica, quartz and feldspar; distinct banding		SS -3	14.5	2-3-3 (6)		saprolite.
20		- light yellowish brown, medium stiff, fine to coarse grain, SILT with mica, quartz, and feldspar		SS -4	19.5	1-3-2 (5)		saprolite; distinct color change from red to tan with micas.
25				SS	24.5	2-3-5		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:43 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

Bottom of borehole at 54.4 feet.

SOUTHERN COMPANY

BORING LOG

BORING B-02

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - damp, medium stiff, SAA		-5		(8)		upper saprolite.
		▼						
30				SS -6	29.5	6-15-25 (40)		
		- gray and white, dry, very hard, SILT; gneiss saprolite						lower saprolite.
35				SS -7	34.5	9-27-40 (67)		
		- olive brown, very hard, SAA, more evidence of water (iron) staining; some black specks (manganese?)						2.5Y.
40				SS -8	39.5	50 (0)		
		- pale brown, dry, very hard, pulverized SILT with gneiss fragments						10YR.
		▽						
			804.2	RC -1	44.1			
45		**Gneiss** - dark gray, hard, slightly weathered, augen gneiss with iron staining along partings. - extremely weathered and broken gneiss						H2O on augers when pulled.
		- gray, hard, slightly weathered, staining along vertical fractures						
50				RC -2	49.4			
		- dark gray, weathered augen gneiss and mica schist with chlorite. Quartz layers at 50 ft, 52.8 ft and 54.1 ft.; Deformed and folded about 3 inches.						
		- Schist: hard, slightly weathered, with chlorite						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:43 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

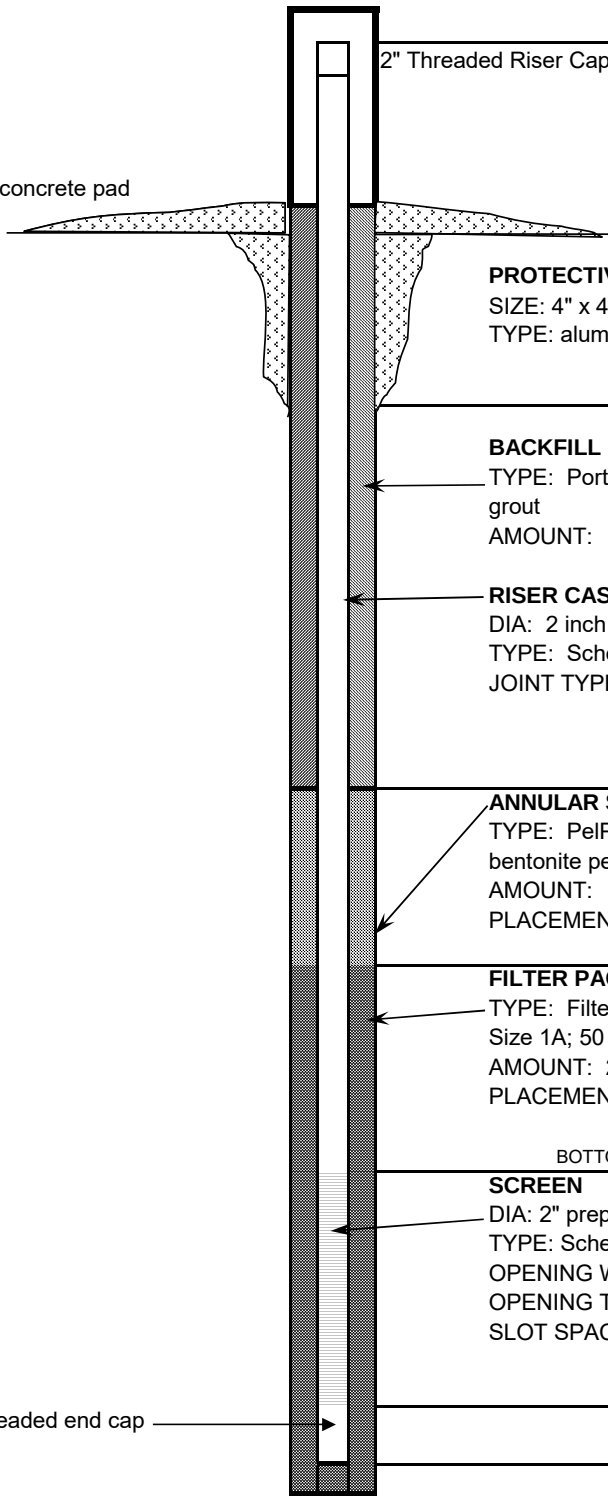
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		Bottom of borehole at 54.4 feet.	793.9					
60								
65								
70								
75								
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:43 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWA-2/B-2 DGWC-2
LOGGER: Rhonda Tinsley	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/2/2012	N: 1393958 E:2202119.5	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.6	850.88
GROUND SURFACE	0.0	848.17
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 10 bags cement 4 lbs bentonite **RISER CASING** DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	31.0	817.2
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1.75 buckets PLACEMENT: Poured		
TOP OF FILTER PACK	35.1	813.1
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 2.5 Bags PLACEMENT: Poured		
BOTTOM OF RISER / TOP OF SCREEN	38.7	809.5
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	48.7	799.5
BOTTOM OF CASING	49.0	799.2

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/3/2012 **COMPLETED** 10/3/2012 **GROUND ELEVATION** 812.1 ft **COORDINATES** N 1394171.5 E 2202662.4

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** R. Tinsley **CHECKED BY** _____ **BORING DEPTH** 46 ft.

GROUND WATER DEPTH: DURING 23 ft. **COMP.** _____ **DELAYED** 12.2 ft. after 24 hrs.

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML) - Thin topsoil with vegetation. - brown, SILT						
5		- yellowish brown, stiff, SILT saprolite, relic bedding prominent.		SS -1	4.5	3-3-6 (9)		10YR; upper saprolite.
10		- olive gray, medium stiff, SILT saprolite with fine to coarse-grained fragments.		SS -2	9.5	2-3-3 (6)		5YR; lower saprolite.
15		- damp, medium stiff, SAA		SS -3	14.5	2-2-4 (6)		
20		- wet, hard, SAA		SS -4	19.5	6-12-23 (35)		WT @ 23'.
25				SS	24.5	6-11-12		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:43 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

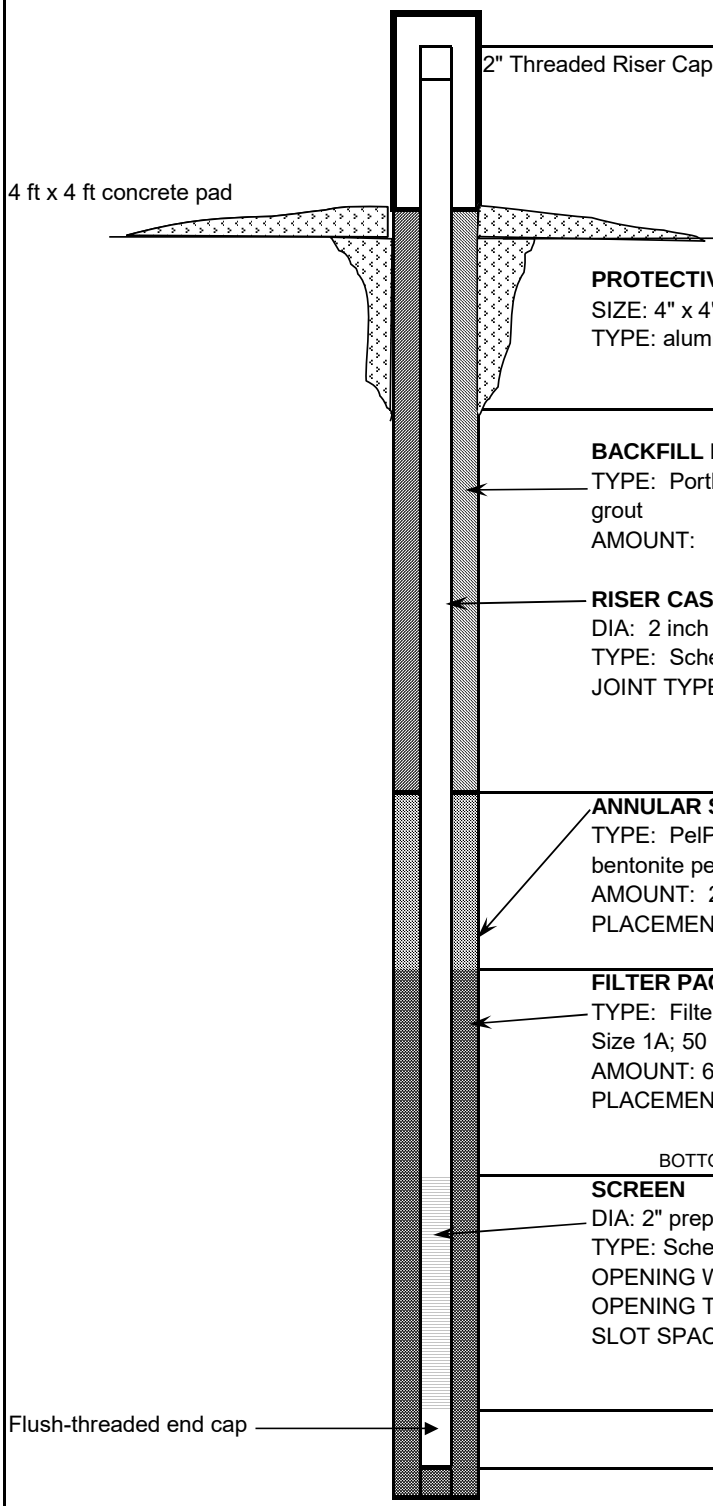
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-5		(23)		
		- very stiff, SAA						
30				SS -6	29.5	10-18-23 (41)		
		- hard, SAA						
35				SS -7	34.5	6-11-13 (24)		
		- very stiff, SAA						
40				SS -8	39.5	5-6-5 (11)		
		- stiff, SAA						
45				SS -9	44.5	25-45 (45)		
		- hard, SAA	766.1					
		Bottom of borehole at 46.0 feet.						
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:43 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-4/B-4
LOGGER: Rhonda Tinsley	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 10/3/2012	N: 1394171.5 E:2202662.4	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.8	814.85
GROUND SURFACE	0.0	812.06
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 6 bags cement 9 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	27.0	785.1
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 2.25 buckets PLACEMENT: Poured		
TOP OF FILTER PACK	31.0	781.1
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 6.5 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	34.7	777.4
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	44.7	767.4
BOTTOM OF CASING	45.0	767.1

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/3/2012 **COMPLETED** 10/4/2012 **GROUND ELEVATION** 788.7 ft **COORDINATES** N 1394306.3 E 2202965.1

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** R. Tinsley **CHECKED BY** _____ **BORING DEPTH** 30 ft.

GROUND WATER DEPTH: DURING 16 ft. **COMP.** _____ **DELAYED** 0 ft. after 100 hrs.

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML) - reddish brown, SILT						
			784.2	SS -1	4.5	WH-WH-WH (0)		
5		**Silty Sand (SM)** - olive gray, damp, very loose, silty SAND to sandy SILT						
			779.2	SS -2	9.5	WH-WH-WH (0)		
10		**Silt (ML)** - yellowish to light brown, damp, very soft, SILT with mica (gneiss)						upper saprolite.
				SS -3	14.5	2-2-4 (6)		
15		- greenish gray, wet, medium stiff, sandy SILT saprolite with relic structure (gneiss). ▽						lower saprolite.
				SS -4	19.5	1-2-3 (5)		
20		- medium stiff, SAA						lower saprolite.
				SS	24.5	50		
25		- very hard, SAA; slightly less weathered.						

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:43 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation

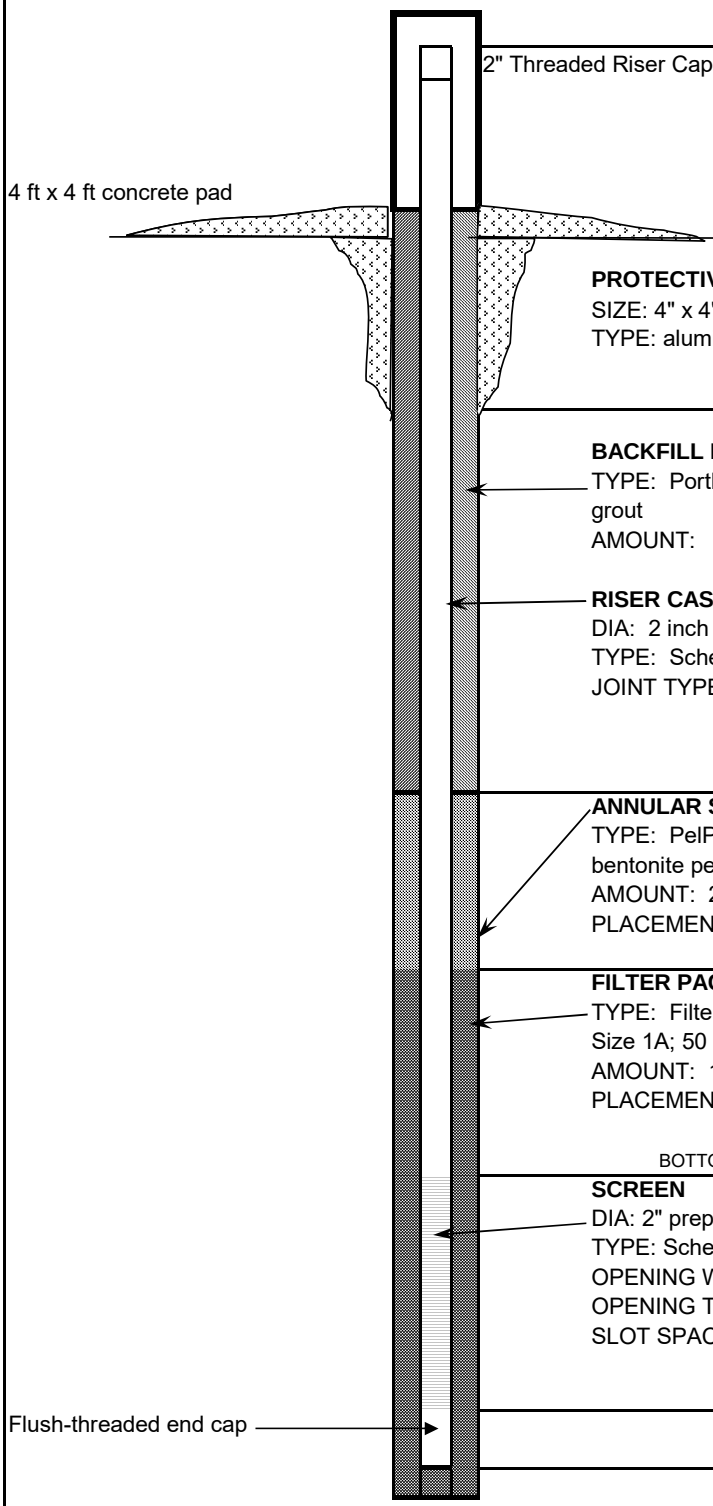
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
			763.3	-5 RC -1	24.9	(0)		lower saprolite.
		Gneiss - black (biotite) and white, hard, slightly weathered, AUGEN GNEISS with water staining along foliations (approx. 45 degrees).						
30			758.7					
		Bottom of borehole at 30.0 feet.						
35								
40								
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:43 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	
LOGGER: Rhonda Tinsley	DRILLING METHODS: HS Auger/HQ Rock Core	DGWC-5/B-5
DATE CONSTRUCTED: 10/4/2012	N: 1394306.3 E:2202965.1	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-3.0	791.75
GROUND SURFACE	0.0	788.64
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 5 bags cement 7 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	12.0	776.6
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 2 buckets PLACEMENT: Tremie		
TOP OF FILTER PACK	16.0	772.6
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 1.5 Bags PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	19.7	768.9
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	29.7	758.9
BOTTOM OF CASING	30.0	758.6

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/10/2012 **COMPLETED** 10/10/2012 **GROUND ELEVATION** 824.1 ft **COORDINATES** N 1394322.2 E 2203882.1

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 49.1 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** 17.04 ft. after 18 hrs.

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)						
5		- tan-brown, dry, very soft, clayey SILT; micaceous; contains little quartz sand, no relic structures; 85% silt, 10% clay, 5% sand		SS -1	4.5	WH-WH-WH (0)		residual soil.
10		- tan to reddish brown, dry, medium stiff, clayey SILT; contains mica flakes and trace quartz sand; higher iron content and soil bonding; no relic structures		SS -2	9.5	3-3-5 (8)		residual soil.
15		- red-brown, damp, soft, clayey SILT; micaceous; contains trace of schist-derived gravel; higher clay percent, more plastic		SS -3	14.5	WH-1-2 (3)		residual soil.
20		- olive brown with black streaks and white layer, damp, very stiff, sandy SILT with clay; very micaceous; highly weathered original structure; contains sand and gravel derived from gneiss and a white bleached quartz lense		SS -4	19.5	20-16-10 (26)		transition to upper saprolite and higher moisture content.
25				SS	24.5	5-7-6		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

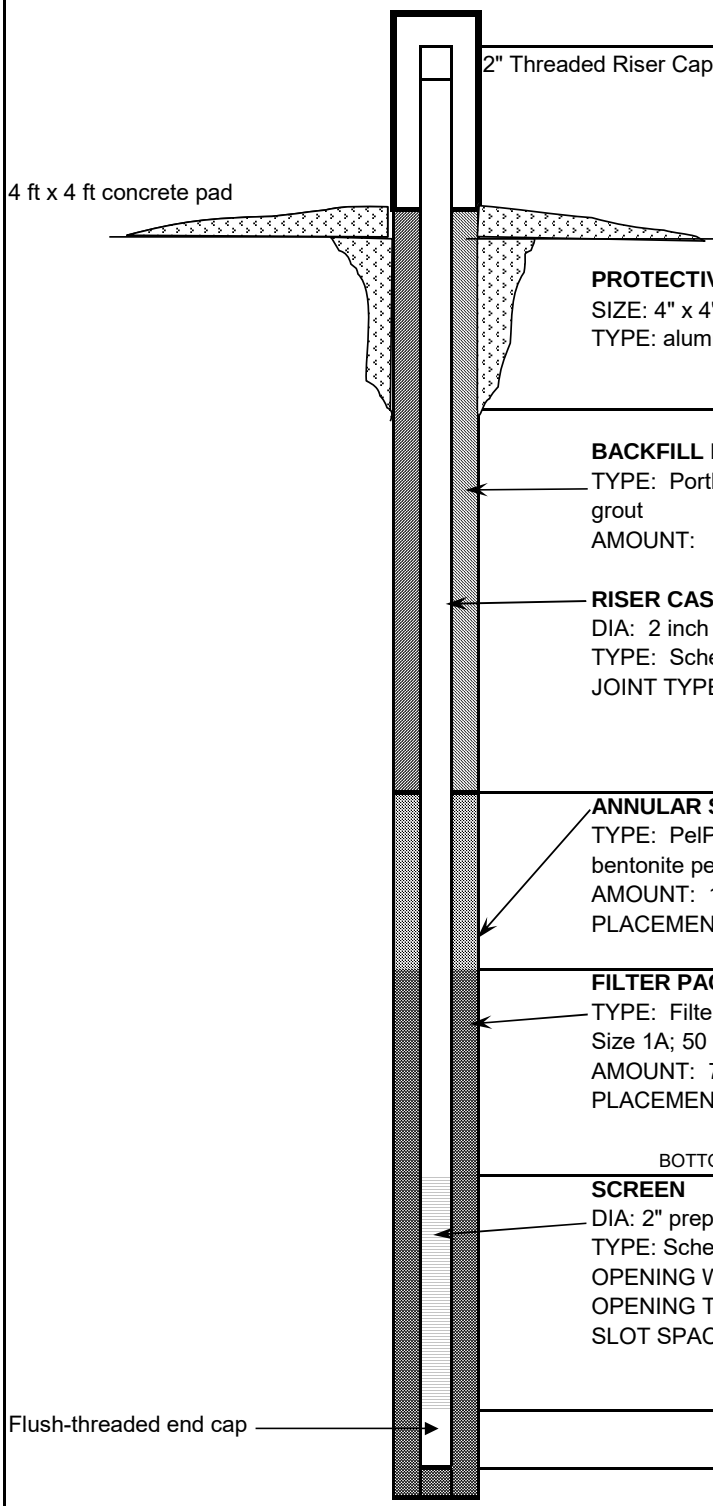
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - stiff, SAA; more coarse-grained sediment; coarse material is angular; less competent than above; some highly weathered relict structure		-5		(13)		starting to get H2O return to surface.
30		- very hard, SAA; more competent; rock fragments less weathered		SS -6	29.5	9-10-50 (60)		transition to lower saprolite.
35		- brown-black, damp, hard, gravelly SILT; contains highly to partially weathered relict gneiss fragments; micaceous; contains manganese streaks		SS -7	34.5	5-15-18 (33)		less weathered rock; again becoming partially weathered.
40		- brown black, damp, very hard, sandy SILT with gravel; contains black manganese, red iron and weathered quartz zones; less gneissic gravel than above; micaceous		SS -8	39.5	11-12-50 (62)		fewer rock fragments.
45		**Silty Gravel (GM)** - brown, tan and black, damp, very dense, silty GRAVEL; predominately weathered to partially weathered gneiss fragments	779.6 775.0	SS -9	44.5	17-50 (50)		transitioning to partially weathered rock.
50		Bottom of borehole at 49.1 feet.						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-8/B-8
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 10/10/2012	N: 1394322.2 E:2203882.1	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.3	826.38
GROUND SURFACE	0.0	824.02
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 6.25 bags cement 9 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	34.8	789.2
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Tremie w/water		
TOP OF FILTER PACK	36.8	787.2
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 7 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	38.7	785.3
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	48.7	775.3
BOTTOM OF CASING	49.1	774.9

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/10/2012 **COMPLETED** 10/10/2012 **GROUND ELEVATION** 821.8 ft **COORDINATES** N 1394055.9 E 2204170

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 30.1 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** 7.2 ft. after 15 hrs.

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)						no residual soil; low area previously excavated..
5		- red-brown, dry, stiff, fine SILT; relict schistose structures; soil is bonded and moderately competent but rubs to fine silt or clay		SS -1	4.5	4-6-9 (15)		upper saprolite.
10		- brown-tan, dry, very stiff, gravelly SILT; relic schistose or gneissic structure; rock fragments are more competent; rubs to fine silt with clay; contains manganese nodules and iron staining		SS -2	9.5	4-9-9 (18)		transition to lower saprolite.
15		- very stiff, SAA		SS -3	14.5	6-10-12 (22)		lower saprolite.
20		- very hard, SAA		SS -4	19.5	16-34-32 (66)		lower saprolite.
25		**Silty Gravel (GM)**	797.3	SS	24.5	51-15-25		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

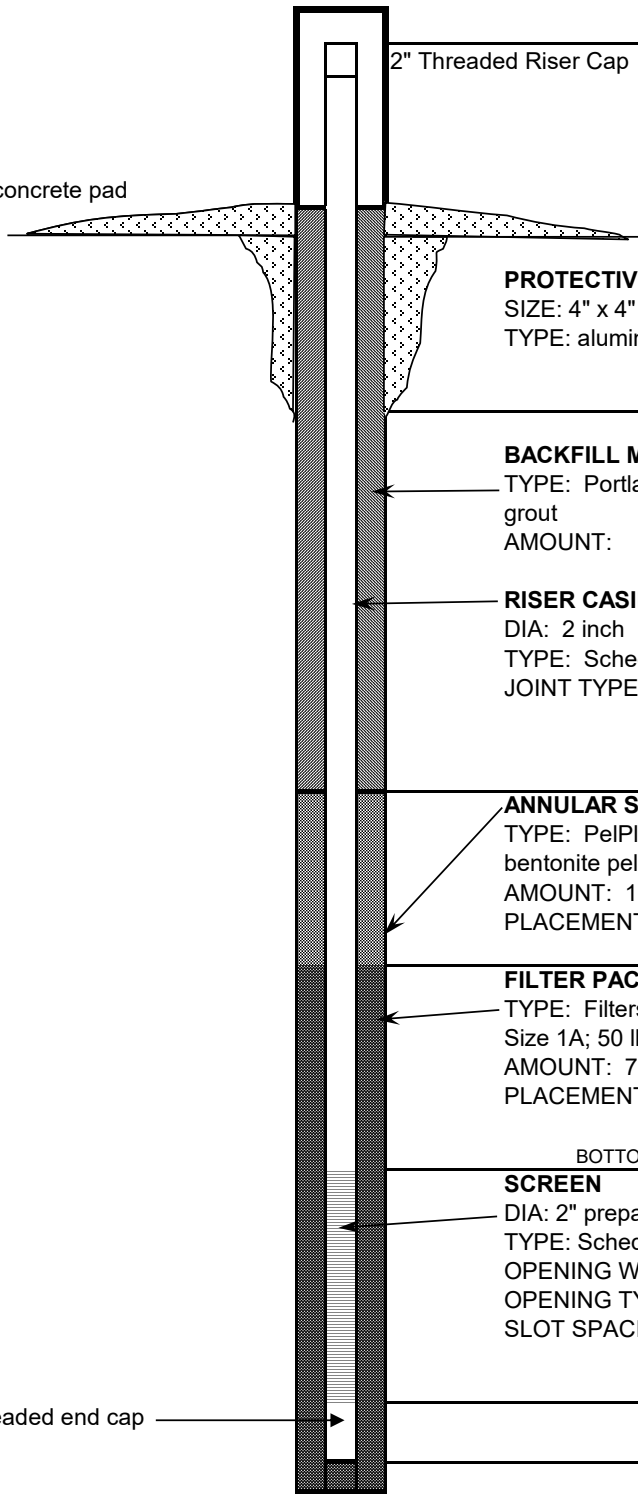
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silty Gravel (GM)*(con't)* - brown-black, damp, hard, silty GRAVEL; contains few rock fragments; crumbles to gravely silt to silty gravel; manganese staining		-5		(40)		H2O return when pulling augers.
30			791.7	SS -6	29.5	50 (0)		
		- very hard, partially weathered rock; schist fragments; crumbles to gravel with minor silt; micaceous Bottom of borehole at 30.1 feet.						
35								
40								
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

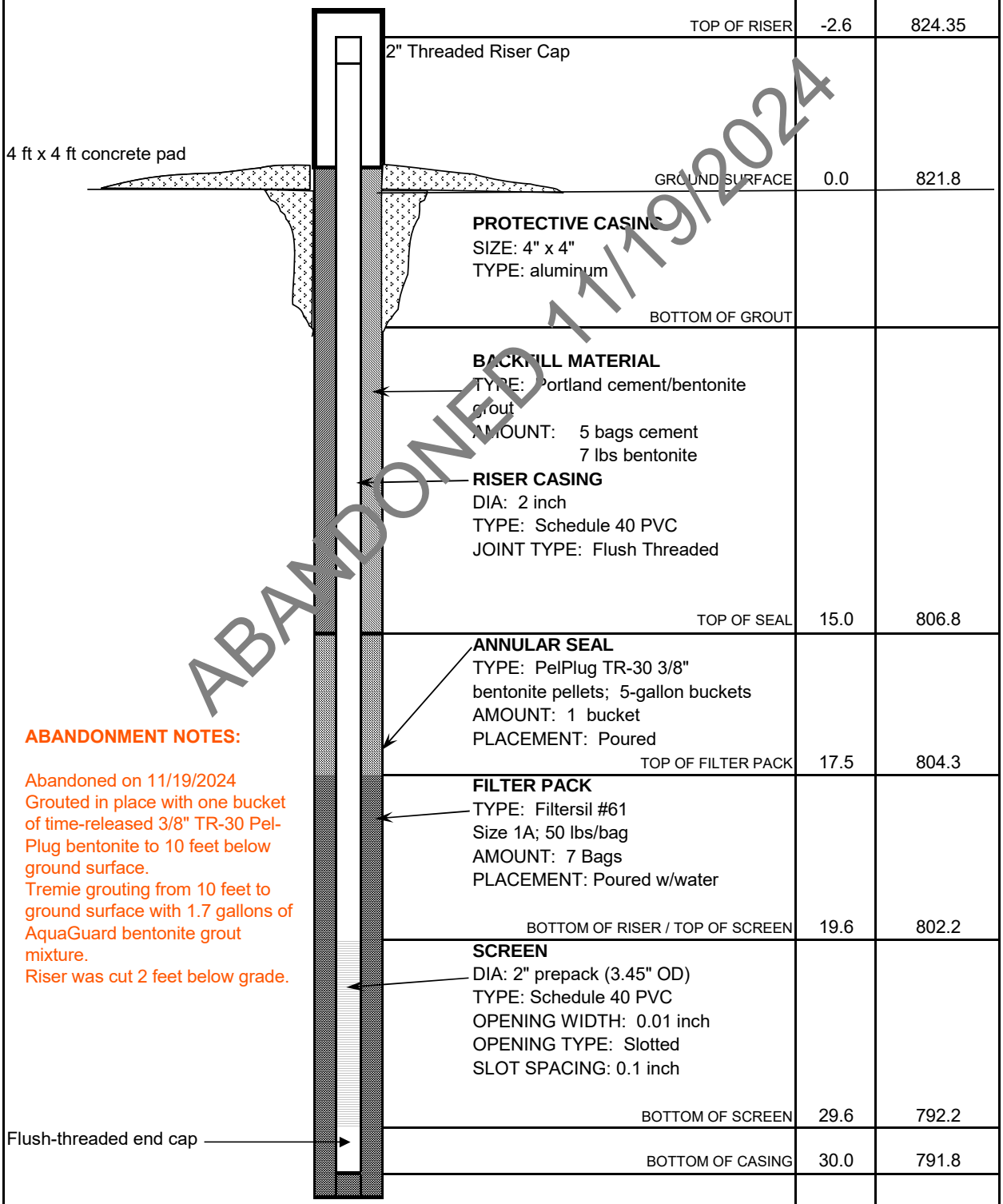
PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-9/ B-9
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 10/10/2012	N: 1394055.9 E:2204170.0	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-3.1	824.35
2" Threaded Riser Cap		
GROUND SURFACE	0.0	821.86
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 5 bags cement 7 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	15.0	806.9
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	17.5	804.4
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 7 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	19.6	802.3
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	29.6	792.3
BOTTOM OF CASING	30.0	791.9

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-9/B-9
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 10/10/2012	N: 1394055.9 E:2204170	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.6	824.35
GROUND SURFACE	0.0	821.8
BOTTOM OF GROUT		
TOP OF SEAL	15.0	806.8
TOP OF FILTER PACK	17.5	804.3
BOTTOM OF RISER / TOP OF SCREEN	19.6	802.2
BOTTOM OF SCREEN	29.6	792.2
BOTTOM OF CASING	30.0	791.8

ABANDONED 11/19/2024

ABANDONMENT NOTES:

Abandoned on 11/19/2024
Grouted in place with one bucket of time-released 3/8" TR-30 Pel-Plug bentonite to 10 feet below ground surface.
Tremie grouting from 10 feet to ground surface with 1.7 gallons of AquaGuard bentonite grout mixture.
Riser was cut 2 feet below grade.

RECORD OF BOREHOLE DGWC-9A

SHEET 1 of 1

PROJECT: SCS Plant McDonough
PROJECT NUMBER: 31406440.038
DRILLED DEPTH: 45.40 ft
LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic TSI 150
DATE STARTED: 11/20/24
DATE COMPLETED: 11/20/24

NORTHING: 1,394,080.20
EASTING: 2,204,167.10
GS ELEVATION: 821.35
TOC ELEVATION: 823.98 ft

DEPTH W.L.: 26.74 ft
ELEVATION W.L.: 797.23 ft
DATE W.L.: 11/20/24
TIME W.L.: 14:45

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	820	0.00 - 3.00 **SM - Silty SAND** micaceous, reddish brown, dry to moist, medium dense.	SM	818.35			
		3.00 - 13.00 **SM - Silty SAND** some angular gravel (partially weatherd rock), micaceous, light brown, dry to moist, medium dense.	SM	3.00	1	ROTO SONIC	10.00 / 10.00
5	815						
10	810			808.35			
		13.00 - 16.00 **SM - Silty SAND** micaceous, light brown to light reddish gray, dry to moist, medium dense, saprolitic-relict structure.	SM	13.00	2	ROTO SONIC	10.00 / 10.00
15	805			805.35			
		16.00 - 22.00 **SM - Silty SAND** few angular gravel (partially weatherd rock), micaceous, light brown, dry to moist, medium dense.	SM	16.00			
20	800			799.35			
		22.00 - 30.00 **ML/SM - Fine sandy SILT to silty fine SAND** some coarse sand to fine gravel, light brown, dry to moist, medium dense.	ML/SM	22.00	3	ROTO SONIC	NA / 10.00
25	795						
30	790			791.35			
		30.00 - 45.40 **ML/SM - Fine sandy SILT to silty fine SAND** some gravel (partially weatherd rock), trace clay, micaceous, dark yellowish brown, moist to wet, medium dense, saprolitic-relict structure.	ML/SM	30.00	4	ROTO SONIC	NA / 10.00
35	785						
40	780	40.00: Change to brownish gray, wet at 40.0 feet below ground surface.			5	ROTO SONIC	NA / 5.40
45	775			775.95			
		Boring completed at 45.40 ft					
50	770						
55							

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: +3.0' - 34.7'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 34.7' - 44.6'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010"
End Cap: 0.3'

FILTER PACK
Interval: 33.0' - 44.9'
Type: Filter sand well pack

FILTER PACK SEAL
Interval: 29.5' - 33.0'
Type: Pel-Plug 3/8" bentonite chips

ANNULUS SEAL
Interval: 0.5' - 29.5'
Type: AQUAGUARD bentonite grout

WELL COMPLETION
Pad: 4' x 4' Concrete
Protective Casing: Steel protective cover

DRILLING METHODS
Soil Drill: Rotosonic
Rock Drill: None

LOG SCALE: 1 in = 7 ft
DRILLING COMPANY: Cascade Environmental
DRILLER: C. Franklin

WSP INSPECTOR: Thomas Keller
CHECKED BY: Nicholas McMillan
DATE: 2/10/25

BOREHOLE RECORD PLANT MCDONOUGH_MW_126, 127, 128, 9A.GPJ PIEDMONT.GDT 2/24/25

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/11/2012 **COMPLETED** 10/11/2012 **GROUND ELEVATION** 820.9 ft **COORDINATES** N 1393818.3 E 2204201.1

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 46 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)						
5		- red to red-brown, soft, fine SILT with clay; sparse mica flakes; few angular to sub-angular quartz grains; soil is moderately well bonded		SS -1	4.5	2-2-2 (4)		residual soil.
10		- tan-brown with black streaks, dry, medium stiff, fine SILT with fine to medium-grained sand and gravel; contains few quartz gravels and highly weathered mica; rubs to silt and fine to medium-grained sand; manganese staining		SS -2	9.5	2-4-4 (8)		residual soil.
15		- stiff, SAA; less sand and gravel; better cemented/bonded		SS -3	14.5	3-4-5 (9)		
20		- medium stiff, SAA; softer		SS -4	19.5	1-2-4 (6)		
25				SS	24.5	2-3-4		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

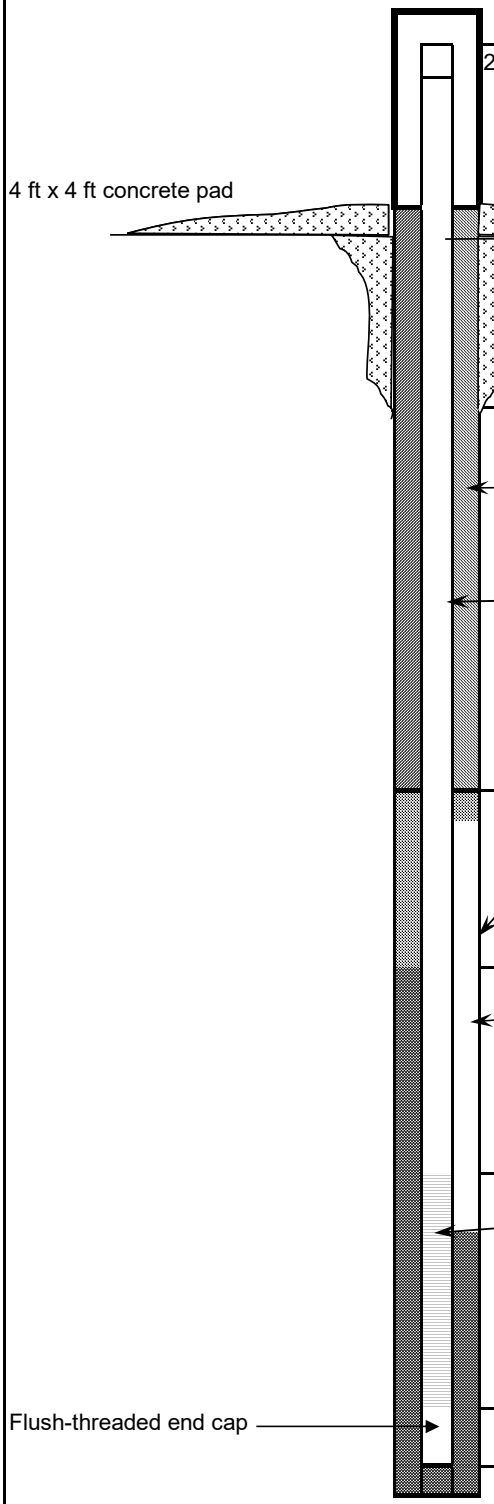
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-5		(7)		
		- very damp, medium stiff, SAA						
30				SS -6	29.5	4-5-5 (10)		
		- stiff, SAA; contains highly weathered schist fragments						upper saprolite.
35				SS -7	34.5	7-8-9 (17)		
		- brown, very damp, very stiff, gravelly SILT wtih clay; contains highly weathered schist fragments; samples crumble and rub to clayey silt.						upper saprolite.
40				SS -8	39.5	6-12-16 (28)		
		- hard, SAA; more rock fragments; less weathered						lower saprolite.
45				SS -9	44.5			
		- wet, hard, gravelly SILT; prevalent relict structures	774.9					lower saprolite.
		Bottom of borehole at 46.0 feet.						
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-10/B-10
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 10/11/2012	N: 1393818.3 E:2204201.1	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.6	823.55
2" Threaded Riser Cap		
GROUND SURFACE	0.0	820.82
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 6 bags cement 9 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	29.8	791.0
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	32.1	788.7
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 6.75 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	35.0	785.8
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	45.0	775.8
BOTTOM OF CASING	45.4	775.4

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/15/2012 **COMPLETED** 10/15/2012 **GROUND ELEVATION** 798.1 ft **COORDINATES** N 1393547.1 E 2204166.2

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** C. Sellers **CHECKED BY** _____ **BORING DEPTH** 51 ft.

GROUND WATER DEPTH: DURING 25 ft. **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)						
5		- brownish red, medium stiff, fine SILT with clay; micaceous; slightly bonded		SS -1	4.5	2-3-4 (7)		
10		- brownish red, very stiff, fine SILT with clay; very micaceous; 10% clay		SS -2	9.5	12-12-15 (27)		
15		- damp, stiff, SAA; 20% clay; contains small schist gravel		SS -3	14.5	5-6-6 (12)		
20		- tan, damp, stiff, SAA		SS -4	19.5	4-5-7 (12)		
25		▽		SS	24.5	5-8-11		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

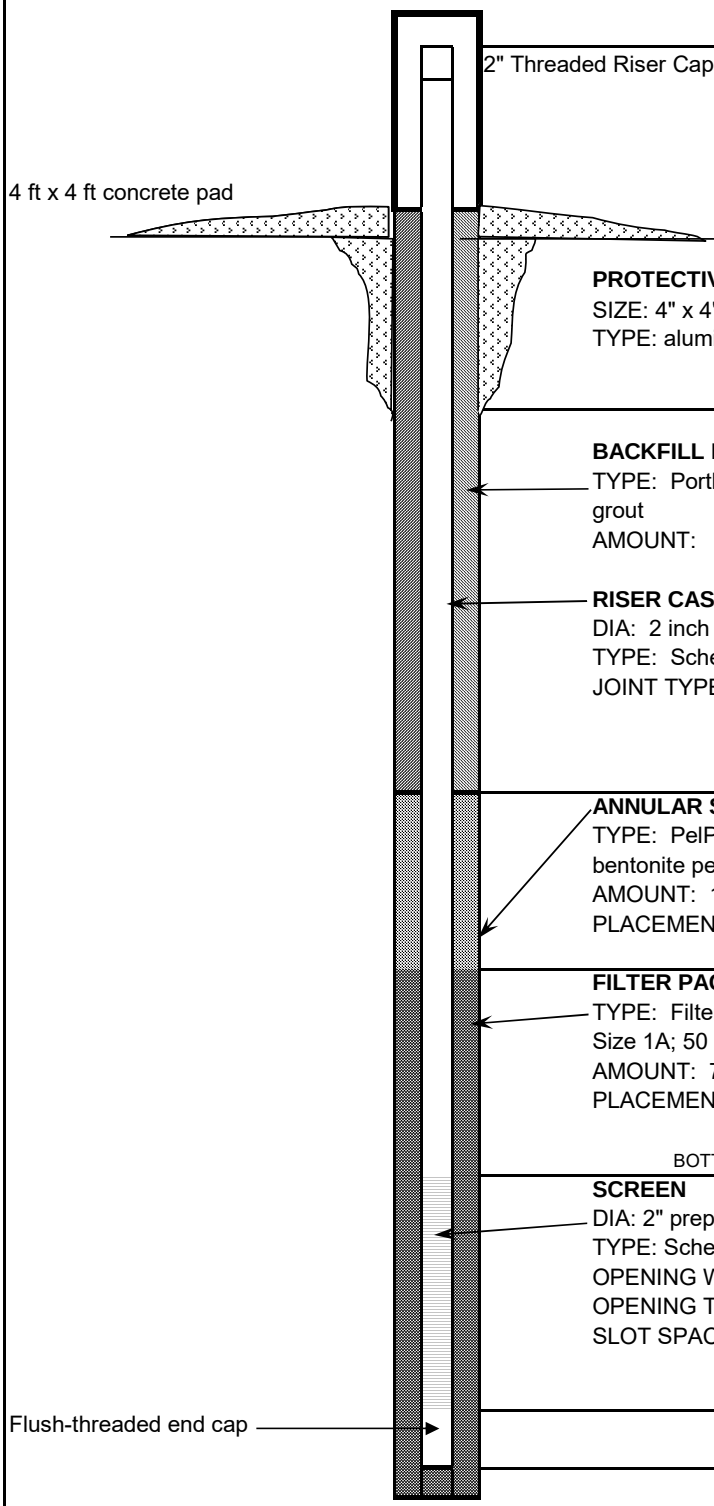
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-5		(19)		
		- light tan, wet, very stiff, SAA; contains fine sand and small schist fragments						
30				SS -6	29.5	5-6-8 (14)		
		- stiff, SAA						
35				SS -7	34.5	6-8-14 (22)		
		- very stiff, SAA						
40				SS -8	39.5	12-20-25 (45)		
		- hard, SAA						
45				SS -9	44.5	26-50 (50)		
		- gray, very hard, SAA; contains schist gravel throughout						
50				SS -10	49.5	50 (0)		
		- dark gray, very hard, SAA	747.1					
		Bottom of borehole at 51.0 feet.						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG

Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	
LOGGER: C. Sellers/K. Byrd	DRILLING METHODS: HS Auger	DGWC-11/B-11
DATE CONSTRUCTED: 10/15/2012	N: 1393547.1 E:2204166.2	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.5	800.57
GROUND SURFACE	0.0	797.99
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 7 bags cement 10.5 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	33.9	764.1
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	36.2	761.8
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 7 Bags PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	38.8	759.2
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	48.8	749.2
BOTTOM OF CASING	49.1	748.9

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/15/2012 **COMPLETED** 10/15/2012 **GROUND ELEVATION** 771.2 ft **COORDINATES** N 1393149.4 E 2204128.3

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** K. Byrd **CHECKED BY** _____ **BORING DEPTH** 26 ft.

GROUND WATER DEPTH: DURING 9 ft. **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)						
5		- brown/tan, damp, soft, SILT with some clay; micaceous		SS -1	4.5	1-2-2 (4)		
				UD -1	7.0			
		▽	761.7	SS -2	9.5	WH-WH-WH (0)		
10		**Lean Clay (CL)** - red/orange/light brown, wet, very soft, CLAY; contains sparse mica and fine sand grains						
			756.7	SS -3	14.5	WH-WH-7 (7)		
15		**Silt (ML)** - yellowish orange, wet, medium stiff, sandy SILT; very fine-grained						
20		- light to olive gray, wet, very stiff, SILT; micaceous; contains heavily weathered schist fragments		SS -4	19.5	6-11-8 (19)		
25			746.2	SS	24.5	2-2-3		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

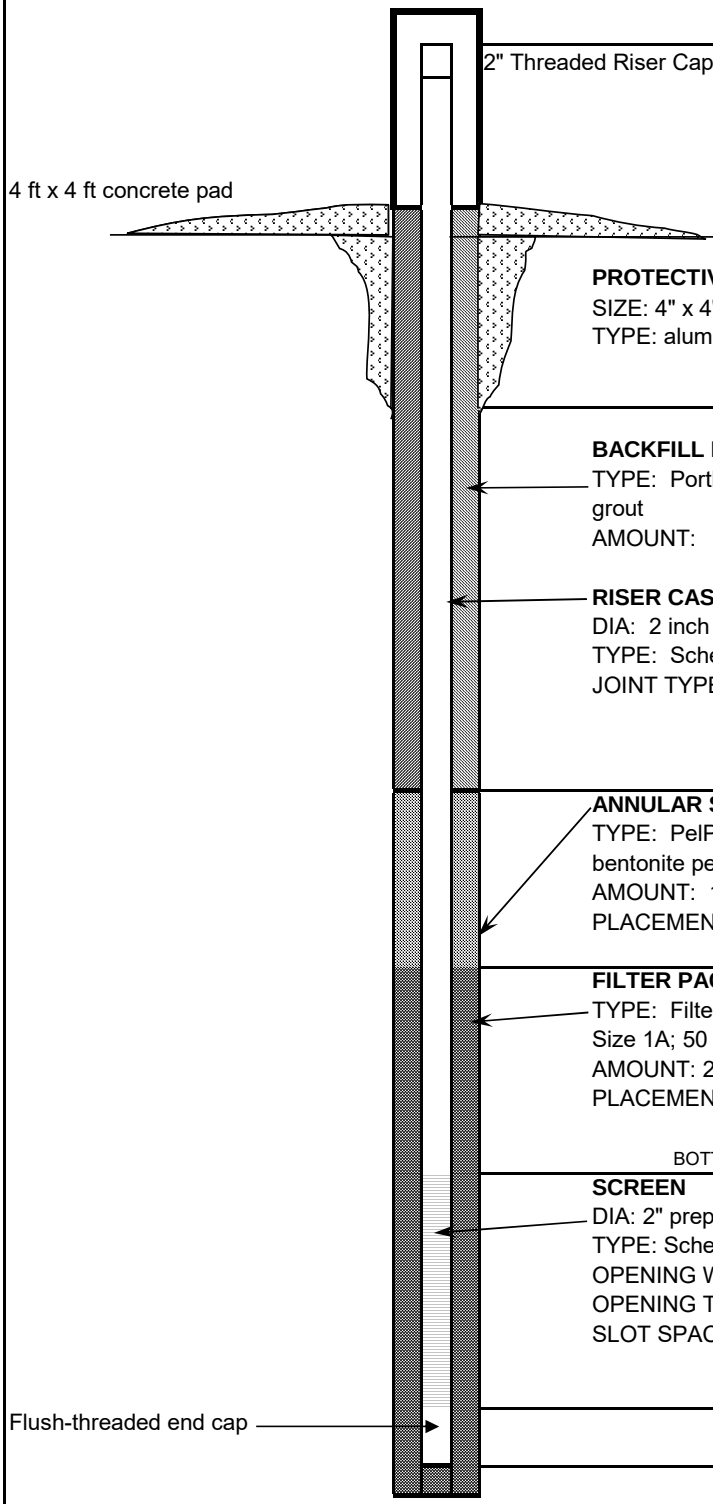
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- yellowish orange, damp, medium stiff, clayey SILT; micaceous	-5			(5)		
		Bottom of borehole at 26.0 feet.						

30
35
40
45
50

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	
LOGGER: Kinsey Byrd	DRILLING METHODS: HS Auger	DGWC-12/B-12
DATE CONSTRUCTED: 10/15/2012	N: 1393149.4 E:2204128.3	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.7	773.86
2" Threaded Riser Cap		
GROUND SURFACE	0.0	771.10
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 4 bags cement 6 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	10.2	760.9
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	12.6	758.5
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 2.5 Bags; 50 lbs/bag PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	14.7	756.4
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	24.7	746.4
BOTTOM OF CASING	25.1	746.0

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/27/2012 **COMPLETED** 11/27/2012 **GROUND ELEVATION** 791.3 ft **COORDINATES** N 1392881.1 E 2204084.6

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 46 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** 26.73 ft. after 36 hrs.

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.0 ft						
10		**Silt (ML)** - tan-brown, dry, very hard, SILT; saprolite (weathered schist); intact relict schistosity	781.8	SS -1	9.5	21-50 (50)		
15		- mottled tan, brown and red with black manganese staining, dry, very hard, clayey SILT; saprolite		SS -2	14.5	18-30-50 (80)		
20		- damp, hard, SAA		SS -3	19.5	6-14-26 (40)		
25				SS	24.5	12-22-31		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

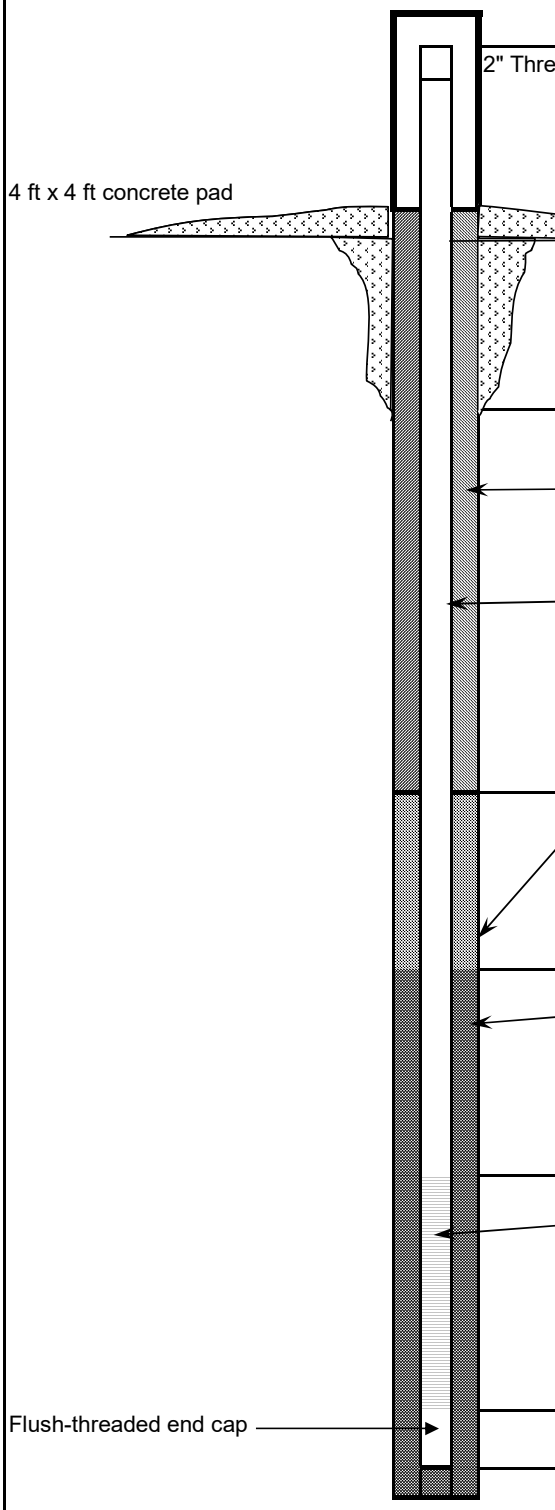
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-4		(53)		
		- SAA						
		▼						
				SS -5	29.5	14-20-28 (48)		
30		- SAA						
				SS -6	34.5	12-50 (50)		
35		- moist, very hard, SAA with more competent schist fragments						
				SS -7	39.5	18-29-50 (79)		
40		- very hard, SAA; more sandy silt and less schist fragments						
				SS -8	44.5	50 (0)		saprock/top of rock transition.
45		- gray-brown, saprock/pwr; limited recovery as top of rock was encountered	745.3					
		Bottom of borehole at 46.0 feet.						
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	DGWC-13/B-13
DATE CONSTRUCTED: 11/29/2012	N: 1392881.1 E:2204084.6	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.8	794.10
GROUND SURFACE	0.0	791.20
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 14 bags cement 14 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	29.0	762.2
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	31.2	760.0
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 7 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	33.4	757.8
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	43.4	747.8
BOTTOM OF CASING	43.8	747.4

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 12/18/2012 **COMPLETED** 12/18/2012 **GROUND ELEVATION** 789.8 ft **COORDINATES** N 1392574.2 E 2204013.3

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY T. Milam **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 34.3 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.0 ft						
5								
			780.8					
10		**Silt (ML)** - tan with green and red-orange mottling, damp, soft, SILT; trace of schistose bedding; trace schist fragments; slightly micaceous and quartzose		SS -1	9.5	1-2-2 (4)		residual soil. upper saprolite.
15		- brown and tan-red, dry, hard, SILT; consolidated and slightly hard; relict schistose bedding; trace schist fragments		SS -2	14.5	9-15-21 (36)		lower saprolite.
			770.3					
20		**Silty Gravel (GM)** - brown, tan and silver, dry, very hard, SAPROCK; predominately schist fragments; moderately weathered		SS -3	19.5	16-50 (50)		saprock/pwr.
		- SAA; softer zone from 23' to 24'						
			765.5					
25		**Schist**		SS	24.5	50		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

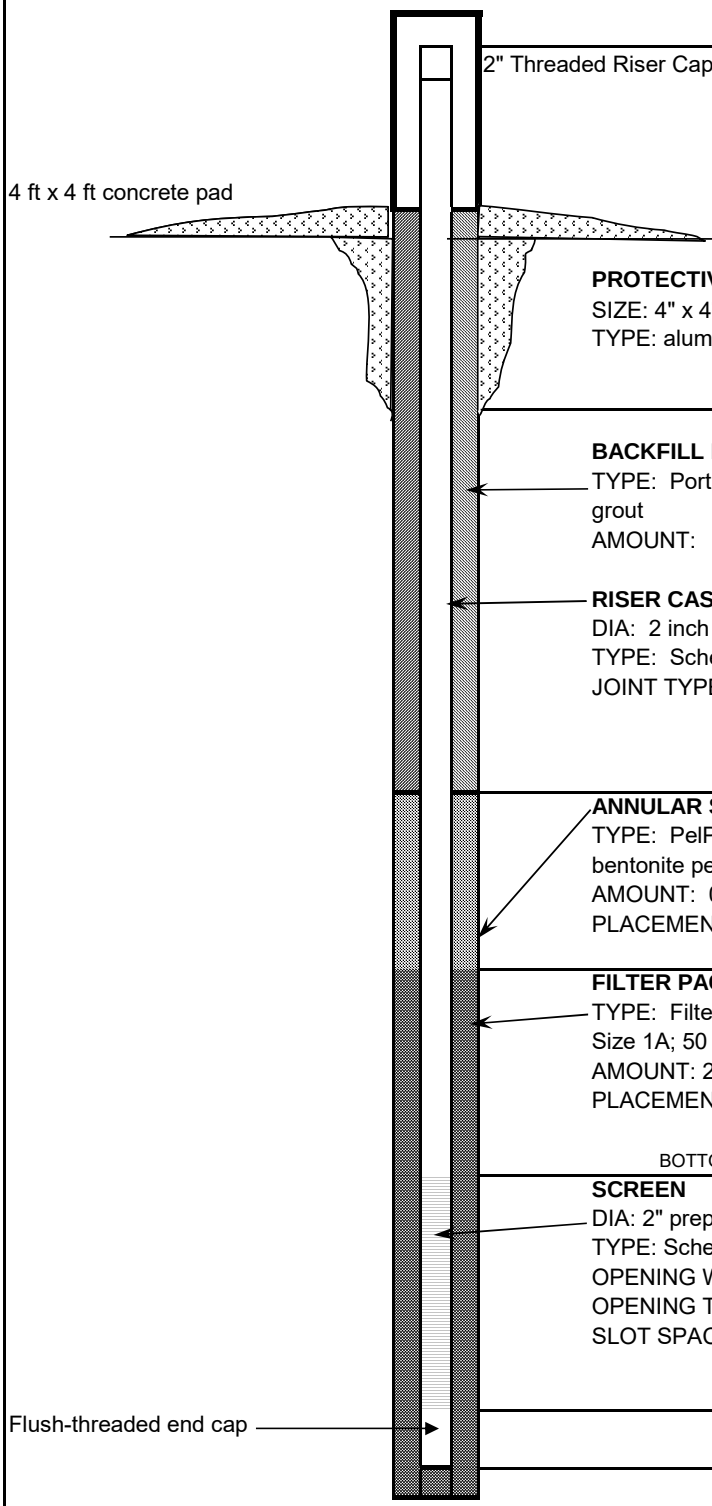
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- green, silver, black and white, BUTTON MICA SCHIST; heavily fractured; iron-staining; quartz banding; sheared foliations **Schist***(con't)* - gray, silver and black, SCHIST; fractured; iron staining; feldspar augens; shear foliation less common		-4		(0)		prevalent iron-staining and manganese oxides. black dike or mylonite cross-cuts schist @ 45 degrees at 27.5'.
30		- green, silver, black and white, BUTTON MICA SCHIST; heavily fractured; prevalent iron-staining; feldspar augens; sheared	758.9					
		- gray, MYLONITE; micaceous; slightly to moderately fractured; pyrite observed	755.5					
35		Bottom of borehole at 34.3 feet.						
40								
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: T. Milam	
LOCATION: Ash Pond	RIG TYPE: CME550	
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger/HQ Rock Core	DGWC-14/B-14
DATE CONSTRUCTED: 12/18/2012	N: 1392574.2 E:2204013.3	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.6	792.40
GROUND SURFACE	0.0	789.69
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 24 bags cement 30 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	12.5	777.2
ANNULAR SEAL TYPE: PelPlug TR-30 1/4" bentonite pellets; 5-gallon buckets AMOUNT: 0.75 bucket PLACEMENT: Poured/tremie pipe		
TOP OF FILTER PACK	15.5	774.2
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 2 Bags PLACEMENT: poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	23.9	765.8
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	33.9	755.8
BOTTOM OF CASING	34.3	755.4

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/29/2012 **COMPLETED** 11/29/2012 **GROUND ELEVATION** 821.5 ft **COORDINATES** N 1392544.1 E 2203679

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 67.2 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.0 ft						
			812.5					
10		**Silt (ML)** - tan-red, dry, soft, SILT; about 3% clay; few schistose rock fragments; slightly micaceous		SS -1	9.5	2-1-2 (3)		residual soil.
15		- light tan, dry, medium stiff, SILT; homoeneous silt (no clay or sand); slightly micaceous; trae gneiss fragments near base of sample		SS -2	14.5	2-3-4 (7)		residual soil.
20		- gray to brown, dry, very hard, crumbles to sandy SILT; saprolite; fragmented soil largely consistent of moderately to highly weathered rock		SS -3	19.5	19-35-38 (73)		
25				SS	24.5	14-24-27		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - green to dark tan, dry, very hard, crumbles to SILT with fine sand; relict schitose structure; lacks competent schist fragments; micaceous; trace quartz sand (about 5%)		-4		(51)		lower saprolite.
30		- tan to gray with black manganese, dry, hard, crumbles to sandy SILT; relict schistosity; more prevalent quartz (about 10%); slightly micaceous		SS -5	29.5	14-25-22 (47)		lower saprolite.
35		- olive green, tan and silver, dry, hard, crumbles to SILT with schist derived gravel; large mica flakes; trace fine quartz sand		SS -6	34.5	12-20-16 (36)		lower saprolite.
40		- olive green, tan and silver, moist, very hard, crumbles to SILT with clay; very micaceous; relict schitose structure; moderately weathered schist fragments		SS -7	39.5	14-36-50 (86)		lower saprolite.
45		**Silty Gravel (GM)** - olive green, tan and black, moist, very hard, crumbles to silty GRAVEL; less weathered schist fragments	777.0	SS -8	44.5	50 (0)		transition from saprolite to saprock.
50		**Silt (ML)** - olive to dark green and silver, damp, hard, crumbles to SILT with gravel and clay; relict schist structure and fragments	772.0	SS -9	49.5	14-21-26 (47)		lower saprolite.

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

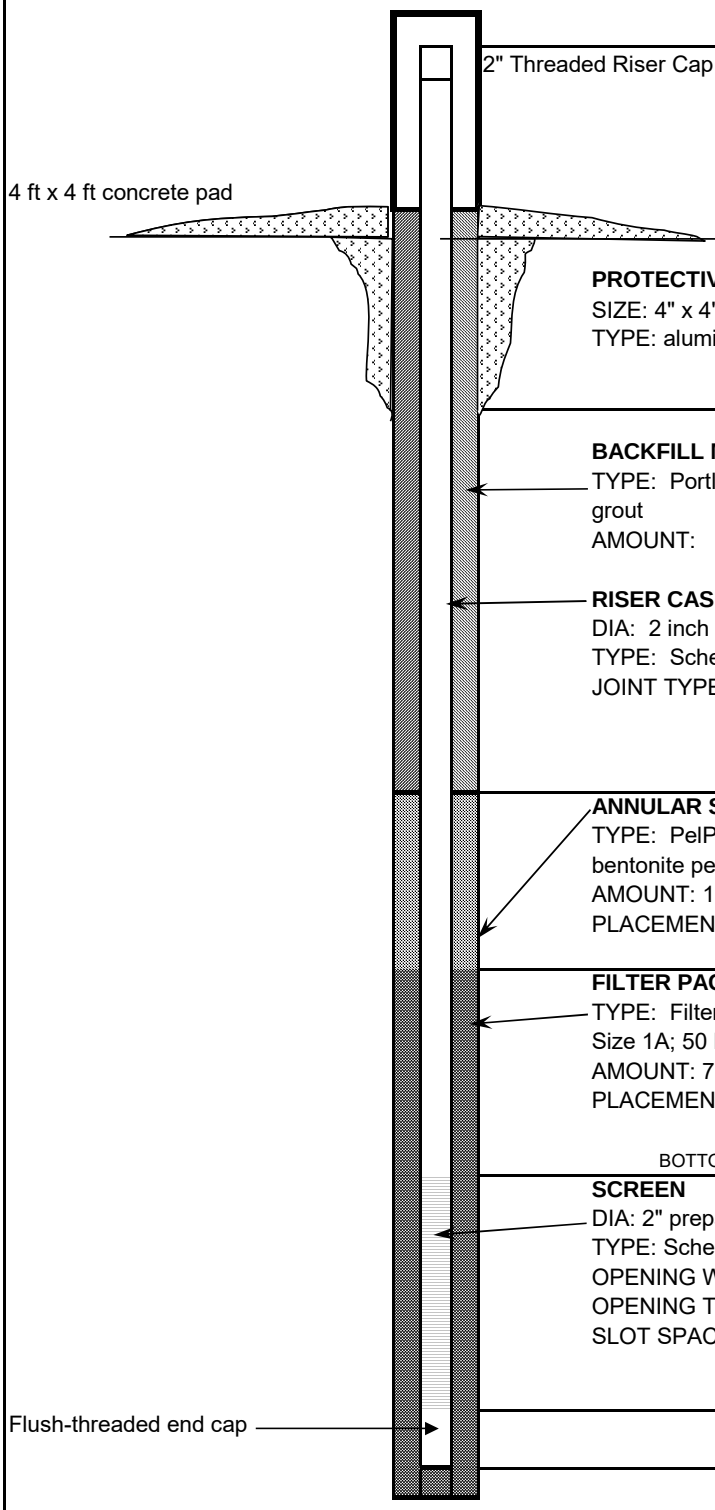
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		**Silty Gravel (GM)** - dark green and black, damp, very hard, weathered schist GRAVEL	767.0	SS -10	54.5	50 (0)		more competent saprock.
60		- very hard, SAA; damp to dry		SS -11	59.5	50 (0)		
65		- very hard, SAA		SS -12	64.5	50 (0)		
			754.3					
		Bottom of borehole at 67.2 feet.						
70								
75								
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-15/B-15
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/29/2012	N: 1392544.1 E:2203679.0	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-3.0	824.50
2" Threaded Riser Cap		
GROUND SURFACE	0.0	821.43
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 13 bags cement 17.5 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	52.4	769.0
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	54.5	766.9
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 7 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	56.7	764.7
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	66.7	754.7
BOTTOM OF CASING	67.1	754.3

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 12/19/2012 **COMPLETED** 12/19/2012 **GROUND ELEVATION** 823.6 ft **COORDINATES** N 1392595.1 E 2203315.4

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY T. Milam **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 46 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9 ft						
			814.6					
10		**Silt (ML)** - tan and brown, dry, stiff, SILT; slightly micaceous; trace manganese oxides		SS -1	9.5	3-4-5 (9)		residual soil.
15		- tan, brown and orange, dry, medium stiff, sandy SILT; sand is fine to very fine-grained; slightly micaceous; trace schistosity		SS -2	14.5	3-3-5 (8)		residual soil.
20		- light tan to brown, dry, medium stiff, SILT with clay (about 10%); clay is slightly plastic; slightly micaceous; trace schitose gravel; trace manganese oxide		SS -3	19.5	3-3-3 (6)		residual soil.
25				SS	24.5	2-3-3		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

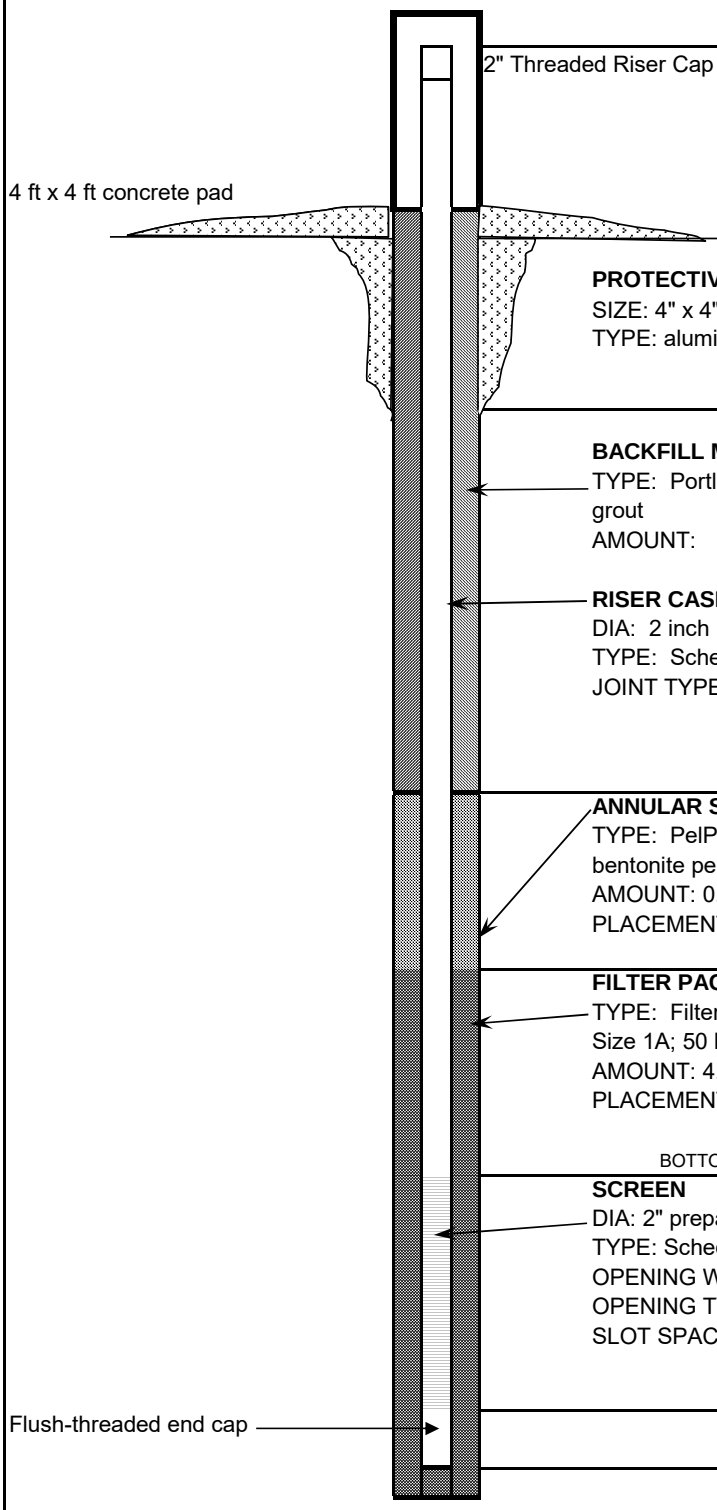
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-4		(6)		
		- medium stiff, SAA; silt more elastic						
30				SS -5	29.5	7-5-6 (11)		
		- mottled tan, brown and black, moist, stiff, SILT; saprolite like relict structures; micaceous; weathered schistose foliations; trace gravel; trace manganese oxides						upper saprolite.
35				SS -6	34.5	6-5-5 (10)		
		- wet, stiff, SAA						
40				SS -7	39.5	5-6-5 (11)		
		- wet, stiff, SAA; more schist gravel and slightly less weathered						
45				SS -8	44.5	5-9-8 (17)		
		- wet, very stiff, SAA; slightly less weathered trend	777.6					
		Bottom of borehole at 46.0 feet.						
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: T. Milam	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-16/ B-16
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 12/19/2012	N: 1392595.1 E:2203315.4	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.9	826.47
GROUND SURFACE	0.0	823.54
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 5.5 bags cement 8 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	26.5	797.0
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.75 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	29.2	794.3
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 4.5 Bag PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	33.4	790.1
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	43.4	780.1
BOTTOM OF CASING	43.7	779.8

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 1/9/2012 **COMPLETED** 1/9/2012 **GROUND ELEVATION** 834.2 ft **COORDINATES** N 1392645.6 E 2203051

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 46 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 15.0 ft						
15		**Silt (ML)** - brown to brown tan, damp, medium stiff, SILT with fine sand and clay; micaceous; contains black manganese oxides; trace quartz sand	819.2	SS -1	15.0	2-2-3 (5)		residual soil.
20		- brown, damp, stiff, SILT with clay; highly weathered relict structure; micaceous; trace manganese oxides		SS -2	19.5	4-6-9 (15)		upper saprolite.
25				SS	24.5	3-5-6		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

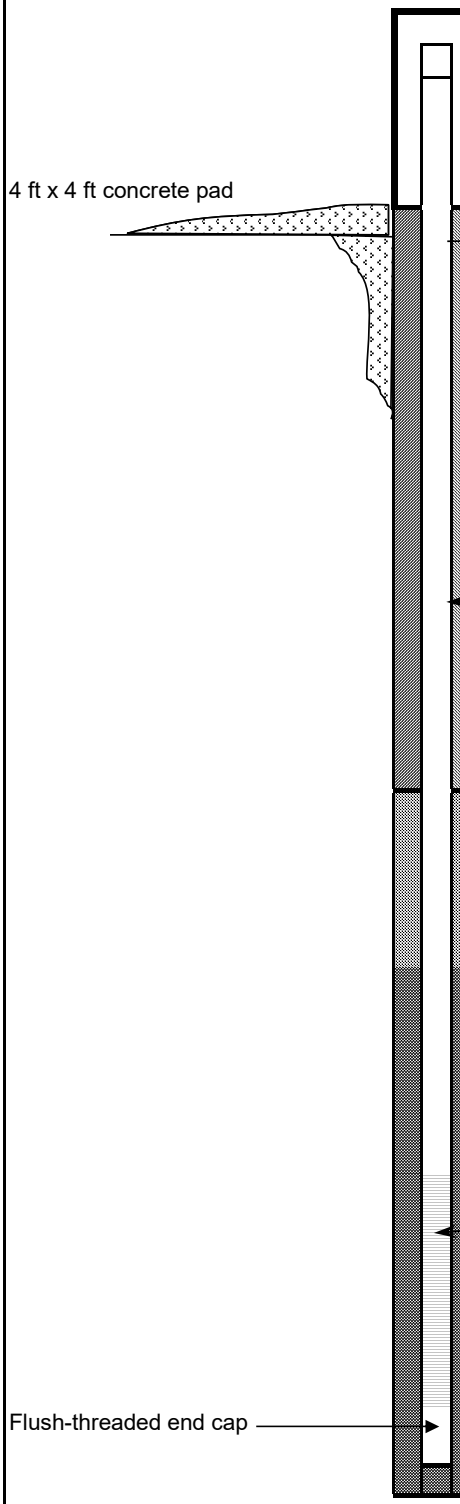
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - tand and green, damp, stiff, highly weathered relic structure; micaceous		-3		(11)		upper saprolite.
30		- green to mottled green, black, yellow and tan, wet, stiff, SILT with fine sand; trace unweathered quartz gravel within weathered relic structure; heavy manganese oxide staining; micaceous		SS -4	29.5	2-3-6 (9)		upper saprolite.
35		- wet, stiff, SAA; more cemented; trace pyrite in/around weathered zones		SS -5	34.5	4-6-9 (15)		
40		- dark green and tan, very moist, very hard, SILT with gravel; micaceous; quartz sand; relict structures intact; trace manganese oxides; highly to slightly weathered schist fragments		SS -6	39.5	19-50 (50)		lower saprolite.
45		- green-gray, very moist, hard, SILT with clay; micaceous; trace quartz sand; relict structures but highly weathered; black manganese oxides	788.2	SS -7	44.5	16-19-20 (39)		lower saprolite.
50		Bottom of borehole at 46.0 feet.						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-17/B-17
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 1/9/2013	N: 1392645.6 E:2203051.0	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.8	837.05
2" Threaded Riser Cap		
GROUND SURFACE	0.0	834.14
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 20 bags cement 30.5 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	30.0	804.1
ANNULAR SEAL TYPE: PelPlug TR-30 1/4" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	32.0	802.1
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 0.5 Bag filter pac 6.25 bag hole PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	34.2	799.9
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	44.2	789.9
BOTTOM OF CASING	44.5	789.6

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 1/9/2012 **COMPLETED** 1/9/2012 **GROUND ELEVATION** 823.9 ft **COORDINATES** N 1392521 E 2202875.5

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 31 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** 11 ft. after 24 hrs.

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
5		- Vacuum excavation from 0 ft to 18.0 ft						
10								
15								
			805.9					
20		**Silt (ML)** - tan-orange, wet, medium stiff, SILT with clay; trace quartz gravel; mica flakes; trace relict structures but highly weathered		SS -1	19.5	2-3-5 (8)		residual soil-upper saprolite transition.
25				SS	24.5	3-5-6		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

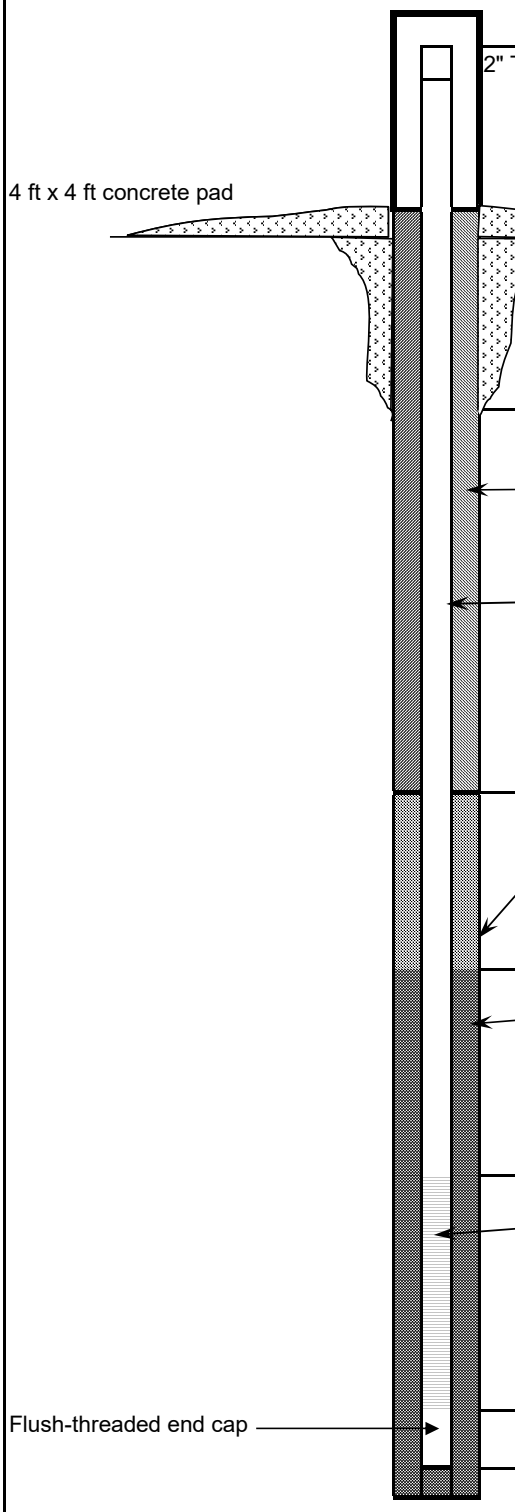
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - mottled tan, green, gray and black, very moist, stiff, SILT; highly weathered relict structures; prevalent manganese oxides; trace gravel and clay		-2		(11)		residual soil-upper saprolite transition.
30		- more tan-gray, soft, SAA	792.9	SS -3	29.5	1-2-2 (4)		
		Bottom of borehole at 31.0 feet.						
35								
40								
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-18/ B-18
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 1/9-10/2013	N: 1392521 E:2202875.5	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.7	826.56
GROUND SURFACE	0.0	823.89
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 28 bags cement 42 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	18.0	805.9
ANNULAR SEAL TYPE: PelPlug TR-30 1/4" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	19.2	804.7
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 0.5 Bag filter pac 5.5 bags hole PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	22.4	801.5
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	32.4	791.5
BOTTOM OF CASING	32.6	791.3

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 3/12/2013 **COMPLETED** 3/12/2013 **GROUND ELEVATION** 822.9 ft **COORDINATES** N 1392342.6 E 2202601

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** B. Gallagher **CHECKED BY** _____ **BORING DEPTH** 41 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** 28 ft. **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Fill (ML) - SILT						Vaccum excavation from 0 ft to 10 ft. Soil identified based on observation during vacuum excavation.
5			816.9					
		Silt (ML)						
10		- olive, tan, moist, medium stiff, SILT with fine sand and clay; micaceous; with iron oxide staining		SS -1	10.0	5-4-4 (8)		residual soil.
15		- wet, medium stiff		SS -2	14.5	2-3-3 (6)		
20		- moist, very stiff, more iron oxide staining below 19 ft		SS -3	19.5	2-4-6 (10)		
25				SS	24.5	3-3-4		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

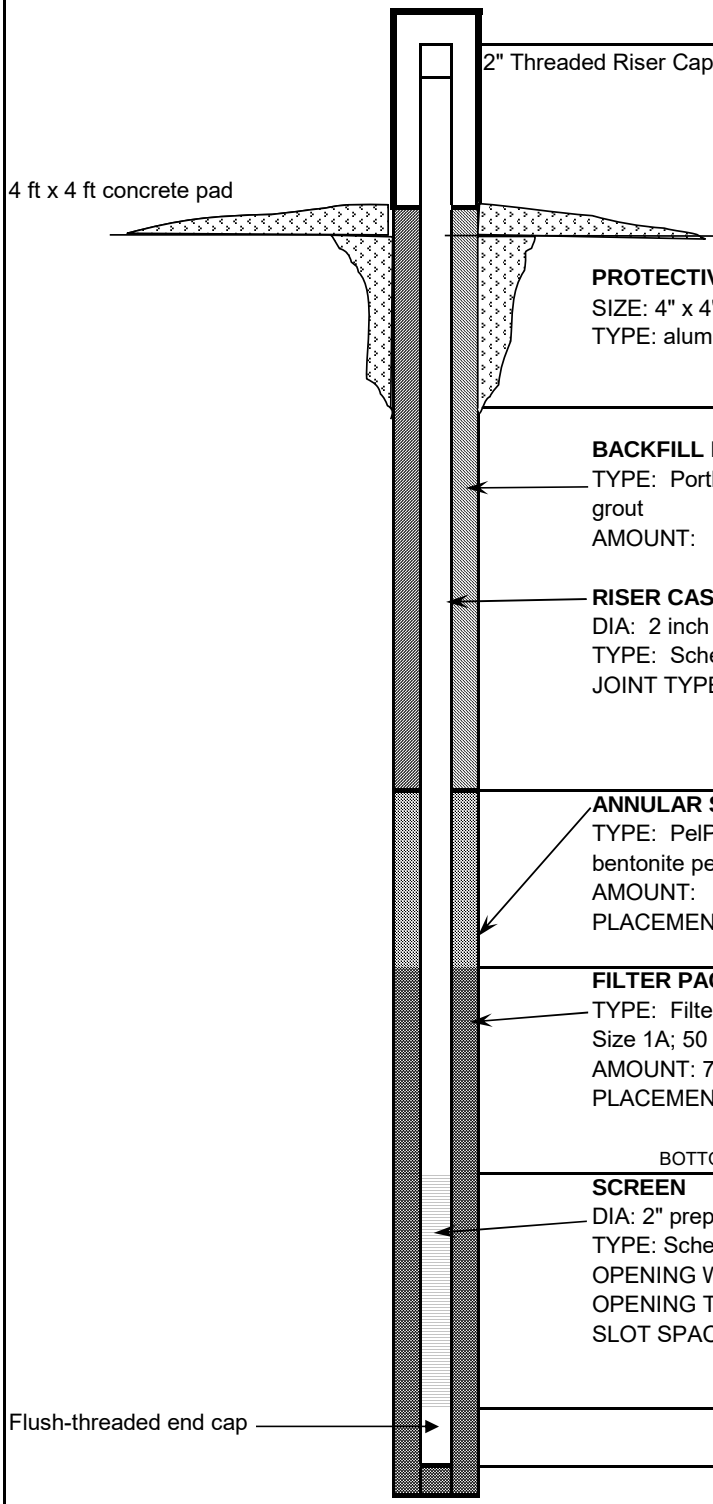
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - moist, medium stiff		-4		(7)		
		▼ - wet, soft, little mica; manganese oxide staining; very weathered; rock texture		SS -5	29.5	1-1-1 (2)		
30		- brown, wet, stiff, micaceous SILT						
35				SS -6	34.5	4-5-8 (13)		
40			781.9					
		Bottom of borehole at 41.0 feet.						
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond 3	RIG TYPE: CME550	
LOGGER: B. Gallagher	DRILLING METHODS: HS Auger	DGWC-19/B-19
DATE CONSTRUCTED: 3/12/2013	N: 1392342.6 E:2202601.0	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.6	825.46
GROUND SURFACE	0.0	822.87
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 16 bags cement 23 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	24.7	798.2
ANNULAR SEAL TYPE: PelPlug TR-30 1/4" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	27.2	795.7
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 7 Bags PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	29.4	793.5
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	39.4	783.5
BOTTOM OF CASING	39.8	783.1

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 3/4/2012 **COMPLETED** 3/4/2012 **GROUND ELEVATION** 819.8 ft **COORDINATES** N 1392164.5 E 2202315.6

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** R. Tinsley **CHECKED BY** _____ **BORING DEPTH** 41 ft.

GROUND WATER DEPTH: DURING 2 ft. **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 10 ft						
10		**Silt (ML)**	809.8	SS -1	10.0	2-2-5 (7)		
		- yellowish red, medium stiff, micaceous SILT						
15		- light olive brown, stiff, micaceous SILT (saprolite) with relict bedding		SS -2	14.5	4-4-5 (9)		
20		- mottled light olive brown and reddish brown, very stiff, micaceous SILT; interbedded schist and gneiss; saprolite		SS -3	19.5	4-7-9 (16)		
25				SS	24.5	4-6-8		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

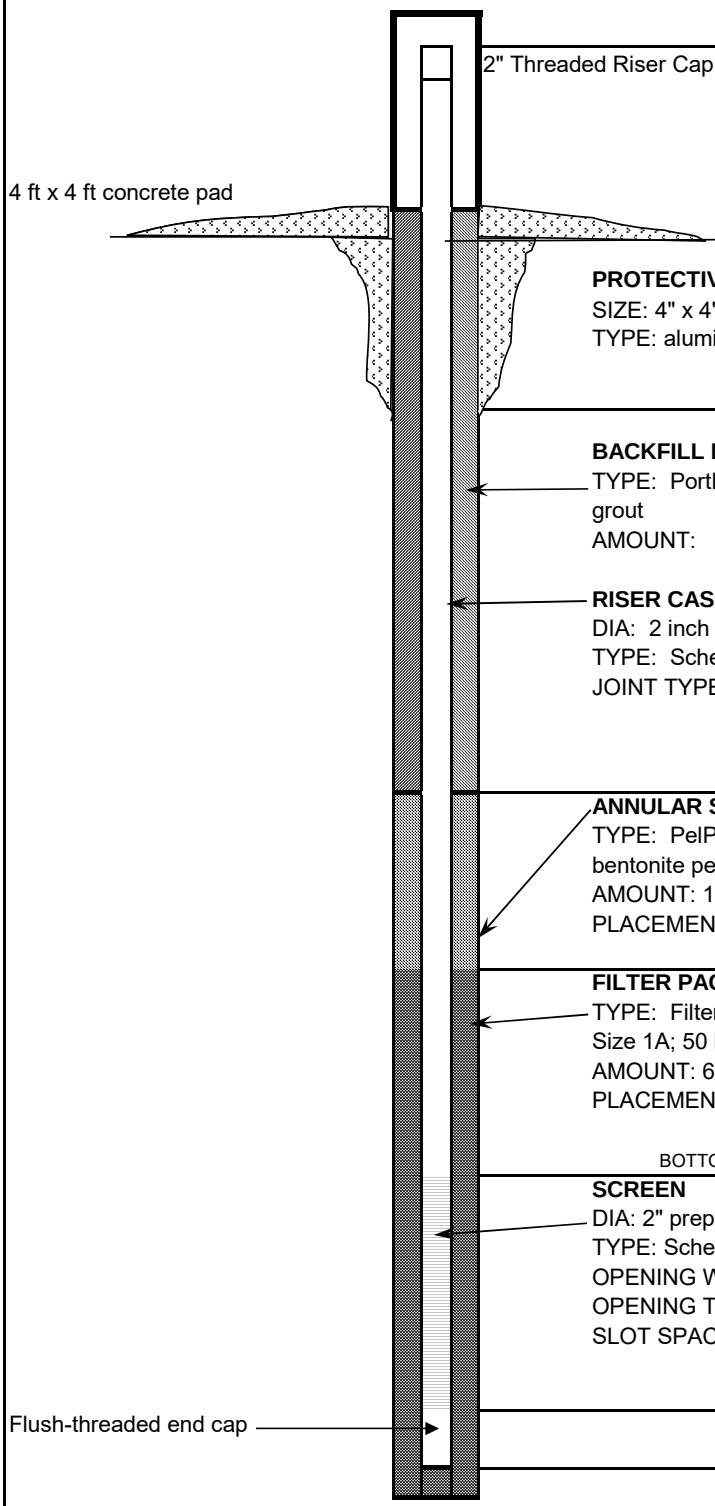
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-4		(14)		
		- olive green, stiff, SAA						
30				SS -5	29.5	6-9-10 (19)		
		- stiff, SAA						
35				SS -6	34.5	3-4-5 (9)		
		- stiff, SAA with heavy staining						
40				SS -7	39.5	5-7-7 (14)		
		- SAA	778.8					
		Bottom of borehole at 41.0 feet.						
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-20/B-20
LOGGER: Rhonda Tinsley	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 3/5/2013	N: 1392164.5 E:2202315.6	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.3	822.14
GROUND SURFACE	0.0	819.66
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 9 bags cement 12 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	24.7	795.0
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	26.7	793.0
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 6.5 Bags PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	29.1	790.6
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	39.1	780.6
BOTTOM OF CASING	39.7	780.0

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/31/2012 **COMPLETED** 10/31/2012 **GROUND ELEVATION** 813.5 ft **COORDINATES** N 1392067.5 E 2202063.5

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** D. Brooks **CHECKED BY** _____ **BORING DEPTH** 69.1 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation form 0 ft to 9.5 ft						
10		**Clayey Silty Sand (SC-SM)** - orange and tan, moist, loose, silty, clayey SAND; micaceous; fine to very fine-grained	804.0	SS -1	9.5	3-3-4 (7)		
15		**Silty Sand (SM)** - tan, orange and black, damp, loose, silty SAND; micaceous; very fine-grained	799.0	SS -2	14.5	4-3-6 (9)		
20		- tan, orange and black, damp, medium dense, silty SAND; micaceous; fine-grained		SS -3	19.5	6-10-20 (30)		upper saprolite.
25				SS	24.5	10-16-18		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silty Sand (SM)*(con't)* - hard, SAA		-4		(34)		
30		- tan and orange, damp, very stiff, silty SAND with gravel; relic structure present; fine to medium-grained		SS -5	29.5	7-10-12 (22)		saprolite.
35		- olive, orange and black, hard, SAA		SS -6	34.5	18-22-20 (42)		lower saprolite.
40		- olive and black, very hard, SAA		SS -7	39.5	18-25-45 (70)		
45		- olive and tan, damp, hard, silty SAND; relict structure; fine-grained		SS -8	44.5	9-16-21 (37)		saprolite.
50		- hard, SAA		SS -9	49.5	16-21-19 (40)		

(Continued Next Page)

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

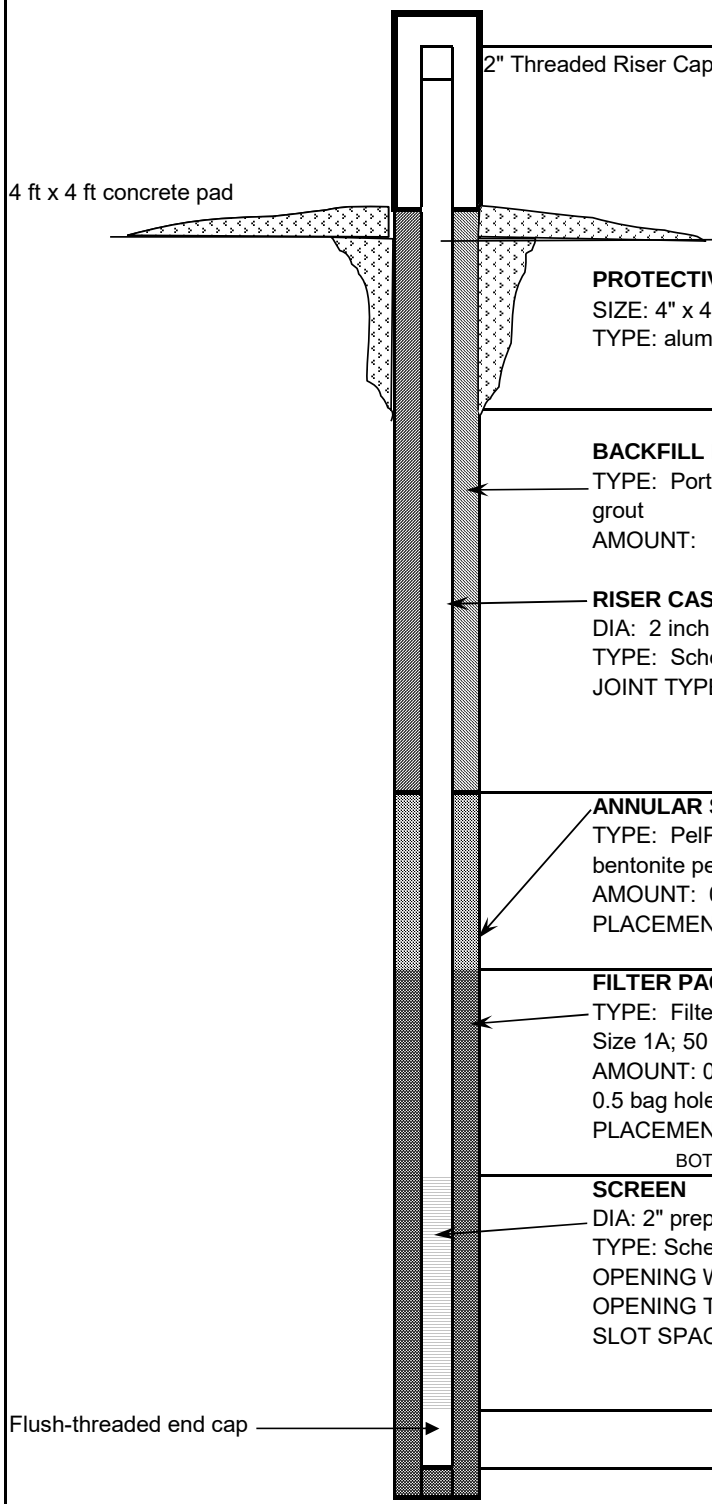
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		**Silty Sand (SM)***(con't)* - very hard, SAA		SS -10	54.5	50 (0)		
60			753.4	RC -1	60.1			
		Schist - black and gray, SCHIST SAPROCK saprock or schist like MYLONITE; weathering and iron and manganese staining along foliations						
65				RC -2	64.1			
			744.4					
70		Bottom of borehole at 69.1 feet.						
75								
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-21/B-21
LOGGER: Dustin Brooks	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/31/2012	N: 1392067.5 E:2202063.5	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.8	816.28
GROUND SURFACE	0.0	813.47
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 15 bags cement 20 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	51.2	762.3
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.5 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	56.4	757.1
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 0.5 Bag filter pac 0.5 bag hole PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	58.6	754.9
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	68.6	744.9
BOTTOM OF CASING	69.0	744.5

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/25/2012 **COMPLETED** 10/25/2012 **GROUND ELEVATION** 813.7 ft **COORDINATES** N 1392126.3 E 2201791.9

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** C. Sellers **CHECKED BY** _____ **BORING DEPTH** 59.5 ft.

GROUND WATER DEPTH: DURING 20 ft. **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.5 ft						
10		**Silt (ML)** - brown, very stiff, SILT; micaceous	804.2	SS -1	9.5	6-9-9 (18)		upper saprolite.
15		- tan, very moist, medium stiff, SILT; contains very fine sand and mica		SS -2	14.5	3-3-5 (8)		
20	▽	- wet, very stiff, SAA		SS -3	19.5	10-11-15 (26)		
25				SS	24.5	3-4-4		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-4		(8)		
		- brown, medium stiff, SILT; contains fine sand and mica						
30				SS -5	29.5	10-16-19 (35)		
		- dark brown to dark gray, wet, hard, weathered schist						lower sparolite.
35				SS -6	34.5	50 (0)		
		- very hard, SAA						
40				SS -7	39.5	10-15-50 (65)		
		- brown to orange, wet, very hard						
		- black, weathered schist	769.2	SS -8	44.5	50 (0)		
45		**Schist**		RC -1	44.8			
		- very weathered SCHIST wtih mud in fractures						
			764.2	RC -2	49.5			
50		**Gneiss**						
		- very fractured BIOTITE GNEISS with schist-like features; red staining						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

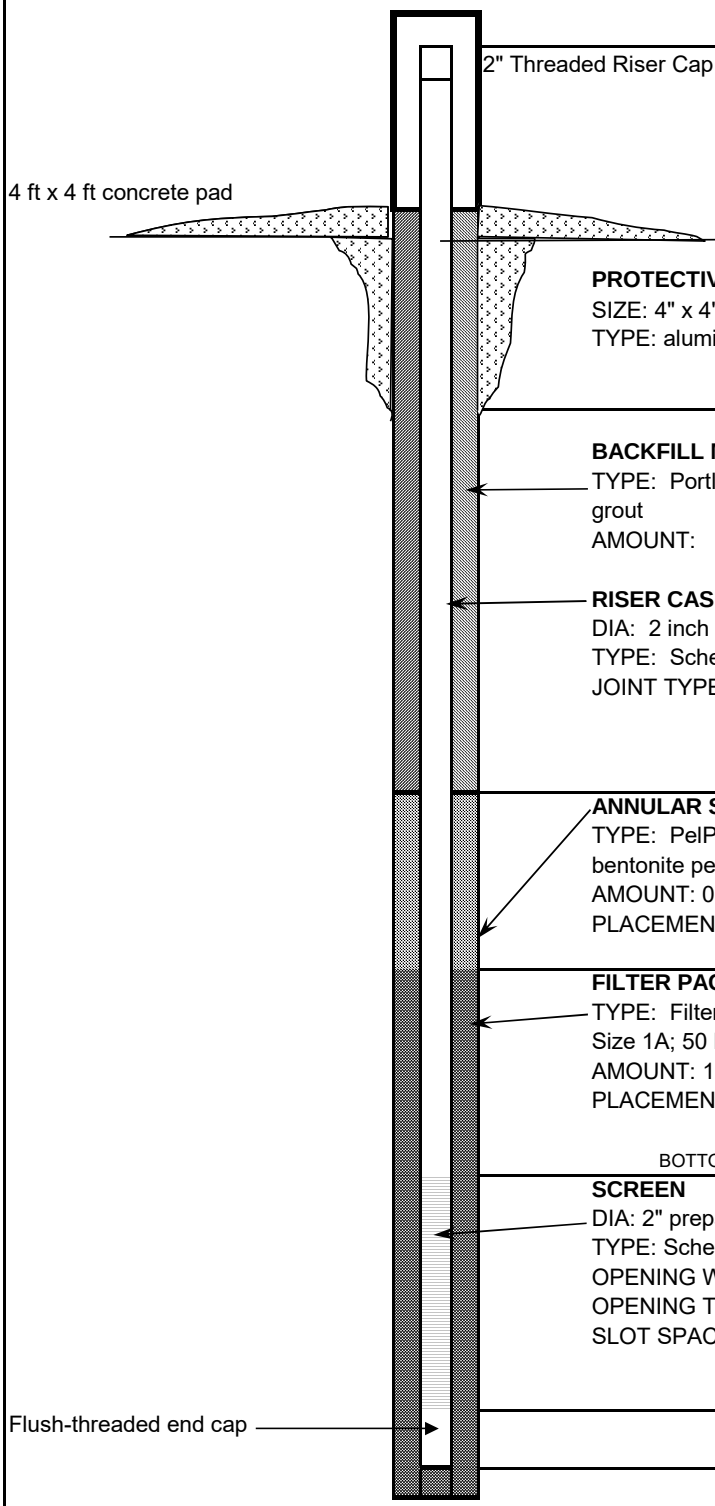
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		**Gneiss***(con't)* - GNEISS (mylonite); fractures throughout; stained	754.2	RC -3	54.5			
60		Bottom of borehole at 59.5 feet.						
65								
70								
75								
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-22/B-22
LOGGER: Cale Sellers	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/25/2012	N: 1392126.3 E:2201791.9	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.9	816.59
GROUND SURFACE	0.0	813.69
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 9 bags cement 12.5 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	44.6	769.1
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.25 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	47.7	766.0
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 1 Bag PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	49.7	764.0
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	59.7	754.0
BOTTOM OF CASING	60.0	753.7

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/24/2012 **COMPLETED** 10/25/2012 **GROUND ELEVATION** 815.7 ft **COORDINATES** N 1392239.7 E 2201582

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** C. Sellers **CHECKED BY** _____ **BORING DEPTH** 59.4 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vaccum excavation from 0 ft to 9.5 ft						
10		**Silt (ML)** - dark brown, wet, medium stiff, clayey SILT with gravel (schist)	806.2	SS -1	9.5	3-3-3 (6)		
15		- dark gray, very soft, clayey SILT; contains wood		SS -2	14.5	WH-1-1 (2)		
20		- light purple.gray, stiff, SILT; very fine-grained		SS -3	19.5	1-3-7 (10)		
25		**Silty Sand (SM)**	791.2	SS	24.5	10-14-16		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silty Sand (SM)*(con't)*		-4		(30)		
		- light tan, damp, medium dense, silty SAND; fine to very fine-grained; micaceous						
30				SS -5	29.5	7-5-2 (7)		
		- dark gray to brown, loose, angular gravel at top of sample; saprolite at bottom						
35				SS -6	34.5	13-17-50 (67)		
		- dark gray to brown, very dense, saprolite						
40				SS -7	39.5	50 (0)		
		- light tan to white, very dense, saprolite (silty); micaceous						
45				SS -8	44.5			
		- no sample obtained						
			768.6	RC -1	47.1			
		Gneiss						
50				RC -2	49.4			
		- weathered GNEISS; vertical fractures and red staining throughout						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

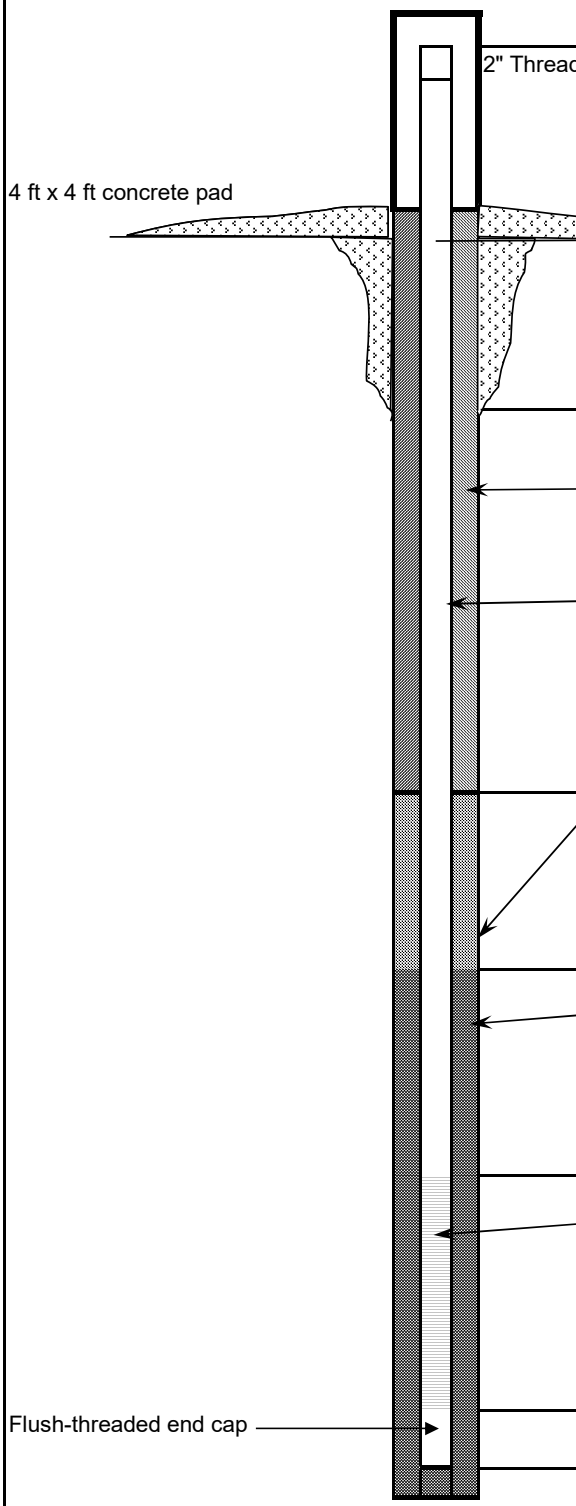
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		**Gneiss***(con't)* - light gray, GNEISS; some fractures	756.3	RC -3	54.4			
60		Bottom of borehole at 59.4 feet.						
65								
70								
75								
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-23/B-23
LOGGER: Cale Sellers	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/25/2012	N: 1392239.7 E:2201582.0	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.7	818.37
GROUND SURFACE	0.0	815.63
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 8 bags cement 11 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	42.9	772.7
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.25 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	46.8	768.8
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 1 Bag PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	49.8	765.8
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	59.8	755.8
BOTTOM OF CASING	60.1	755.5

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 11/12/2012 **COMPLETED** 11/12/2012 **GROUND ELEVATION** 802 ft **COORDINATES** N 1391327.8 E 2201870.2

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** C. Sellers **CHECKED BY** _____ **BORING DEPTH** 51 ft.

GROUND WATER DEPTH: DURING 30 ft. **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.5 ft						
10		**Lean Clay (CL)** - orange/tan, medium stiff, silty CLAY; micaceous; fine to very-fine grained	792.5	SS -1	9.5	1-2-4 (6)		
15		**Silt (ML)** - tan/orange/some white, stiff, SILT with very fine sand; very micaceous; saprolite	787.5	SS -2	14.5	3-4-6 (10)		
20		- SAA		SS -3	19.5	4-4-5 (9)		
25				SS	24.5	1-3-4		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

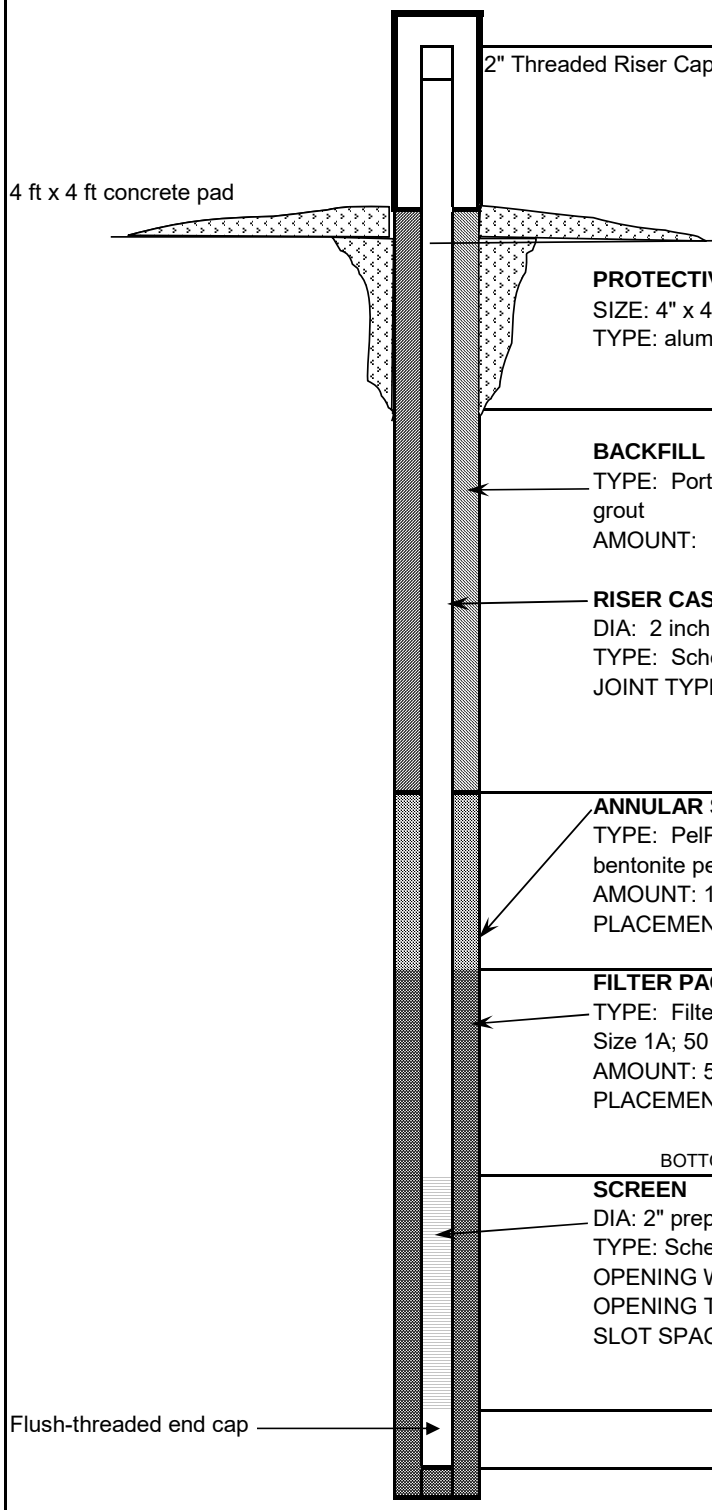
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - light tan, medium stiff, clayey SILT; very fine-grained; some mica (less than above)		-4		(7)		
30		▽ - tan with black banding, wet, soft, SILT with very fine-grained sand		SS -5	29.5	1-2-2 (4)		
35		- wet, hard, SILT with fine sand and some gravel; angular; saprolite		SS -6	34.5	7-22-26 (48)		
40		- tan, wet, very stiff, SILT with fine sand and angular gravel		SS -7	39.5	8-9-12 (21)		
45		- wet, very stiff, SAA		SS -8	44.5	5-9-14 (23)		
50		**Silty Sand (SM)** - tan, damp, silty SAND	752.5 751.0	SS -9	49.5			
		Bottom of borehole at 51.0 feet.						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	DGWC-42/B-42
LOGGER: Cale Sellers	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 11/12/2012	N: 1391327.8 E:2201870.2	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.7	804.68
GROUND SURFACE	0.0	801.98
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 8 bags cement 11 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	35.2	766.8
ANNULAR SEAL TYPE: PelPlug TR-30 1/4" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	37.2	764.8
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 5 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	39.9	762.1
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	49.9	752.1
BOTTOM OF CASING	50.4	751.6

RECORD OF BOREHOLE DGWC-47/B-47

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 28.80 ft
LOCATION: Smyrna, GA

DRILL RIG: 100C Track Mounted Rig
DATE STARTED: 6/23/16
DATE COMPLETED: 6/23/16

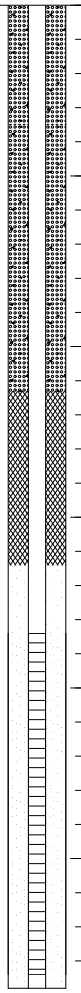
NORTHING: 1,391,553.80
EASTING: 2,202,610.50
GS ELEVATION: 794.35
TOC ELEVATION: 797.45 ft

DEPTH W.L.: 15.98
ELEVATION W.L.: 778.32
DATE W.L.: 6/23/2016
TIME W.L.: 15:56

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)
0		0.00 - 4.00 SILT; red brown, trace subrounded to subangular fine gravel, gray to white, dry (fill)	ML	790.4
5	790	4.00 - 9.00 SILT; orange brown, some medium sand with black laminations, micaceous, stiff, dry to moist (saprolite)	ML	4.00 785.4
10	785	9.00 - 10.00 SILT; gray, some white and balck laminations, dry, stiff	ML	784.4
		10.00 - 13.00 SILT and GRAVEL; fine to coarse gravel and cobbles/moderately weathered rock (biotite schist), light brown silt and black with orange staining gravel, foliated, friable	GW-GM	10.00 781.4
15	780	13.00 - 20.00 GNEISS and weathered SCHIST; gray and white, foliated biotite gneiss, some orange staining, trace pyrite and garnets (saprock)	PWR	13.00 774.4
20	775	20.00 - 28.80 Biotite GNEISS (competent rock); some orange staining at fractures; trace pyrite and garnets	BR	20.00 765.6
25	770			
30	765	Boring completed at 28.80 ft		
35	760			
40	755			
45	750			

SAMPLES: SAMPLE NO., TYPE, REC

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-28.8'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush threaded with O-ring

WELL SCREEN
Interval: 18.4'-28.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 16.35'-28.8'
Type: Filtersil std61

FILTER PACK SEAL
Interval: 11.3'-16.4'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-11.3'
Type: Portland Type I/Type II/Gel Mix

WELL COMPLETION
Pad: 4'x4'x4"
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Bill Lindsey

GA INSPECTOR: K. Jurinko, PG
CHECKED BY: Rachel P. Kirkman, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE DGWC-48/B-48

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 30.00 ft
LOCATION: Smyrna, GA

DRILL RIG: 100C Track Mounted Rig
DATE STARTED: 6/21/16
DATE COMPLETED: 6/22/16

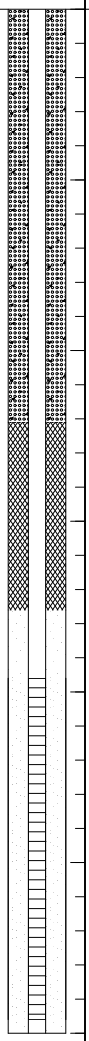
NORTHING: 1,391,314.60
EASTING: 2,202,290.20
GS ELEVATION: 785.21
TOC ELEVATION: 788.33 ft

DEPTH W.L.: 11.35
ELEVATION W.L.: 773.85
DATE W.L.: 6/23/2016
TIME W.L.: 9:55

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)
0	785	0.00 - 3.00 SILT; orange brown, micaceous, dry, very stiff (fill)	ML	782.2
		3.00 - 11.00 SILT; oragnish brown to tan, laminations, trace to some medium to coarse sand, trace fine to coarse gravel, gray, subangular, moist (saprolite)	ML	3.00
10	775			774.2
		11.00 - 24.00 SILT; gray to blackish brown, some fine to coarse sand, laminations, stiff to very stiff, dry	ML	11.00
20	765			761.2
		24.00 - 30.00 biotite GNEISS; gray and white, orange staining, partially weathered bedrock, some clay, gray, micaceous	BR	24.00
30	755	Boring completed at 30.00 ft		755.2
40	745			
45				

SAMPLES: SAMPLE NO. | TYPE | REC

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-30'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush threaded with O-ring

WELL SCREEN
Interval: 19.6'-29.6'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 17.6'-30'
Type: Filtersil std61

FILTER PACK SEAL
Interval: 12.1'-17.6'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-12.1'
Type: Portland Type I/Type II/Gel Mix

WELL COMPLETION
Pad: 4'x4'x4"
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Bill Lindsey

GA INSPECTOR: K. Jurinko, PG
CHECKED BY: Rachel P. Kirkman, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE DGWC-126

SHEET 1 of 1

PROJECT: SCS Plant McDonough
PROJECT NUMBER: 31406440.038
DRILLED DEPTH: 46.30 ft
LOCATION: Smyrna, GA

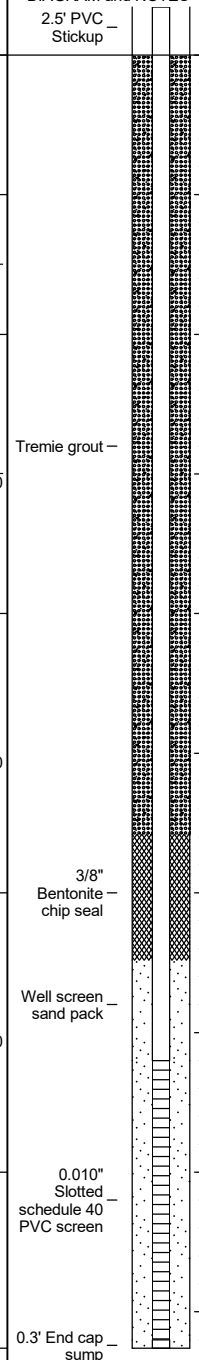
DRILL RIG: Terra Sonic TSI 150
DATE STARTED: 1/7/25
DATE COMPLETED: 1/7/25

NORTHING: 1,392,143.70
EASTING: 2,201,651.20
GS ELEVATION: 812.65
TOC ELEVATION: 815.15 ft

DEPTH W.L.: 21.84 ft
ELEVATION W.L.: 793.31 ft
DATE W.L.: 1/27/25
TIME W.L.: 11:13

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	810	0.00 - 5.00 No Recovery			807.65	1	AIR KNIFE	NA 5.00
5	805	5.00 - 12.50 **ML - Sandy SILT** micaceous, non to low plasticity, light brown, dry to moist, stiff.	ML		5.00 800.15	2	ROTO SONIC	3.50 5.00
10	800	12.50 - 13.00 **ML - Fine sandy SILT** micaceous, non to low plasticity, dark brown and dark grayish brown, moist to wet, stiff.	ML		13.00 797.65	3	ROTO SONIC	9.20 10.00
15	795	13.00 - 15.00 **ML - SILT** little to some clay, micaceous, low to medium plasticity, dark brown, moist to wet, soft to medium stiff.	ML		15.00 795.65			
		15.00 - 17.00 **ML - Sandy SILT** micaceous, low to medium plasticity, dark grayish brown, moist, soft to medium stiff, saprolitic-relict structure.	ML		17.00			
20	790	17.00 - 25.00 **ML - Fine sandy SILT** trace clay and mica, brown, moist, stiff, saprolitic-relict structure. 20.00: Change to mottled brown and dark brown at 20.0 feet below ground surface.	ML		787.65	4	ROTO SONIC	10.00
25	785	25.00 - 31.00 **ML/SM - Fine sandy SILT to silty fine SAND** micaceous, non to low plasticity, mottled light brown and dark brown, moist, stiff, saprolitic-relict structure.	ML/SM		25.00 781.65			
30	780	31.00 - 36.00 **ML - SILT** some clay and sand, trace mica, low to medium plasticity, light brown, moist to wet, soft.	ML		31.00 776.65	5	ROTO SONIC	10.00
35	775	36.00 - 42.00 **ML/SM - Fine sandy SILT to silty fine SAND** micaceous, trace clay, non to low plasticity, light brown, moist to wet, stiff, saprolitic-relict structure.	ML/SM		36.00 770.65			
40	770	42.00 - 43.00 **ML - SILT** some clay and fine sand, low plasticity, light brown, moist to wet, stiff.	ML		769.65 43.00	6	ROTO SONIC	6.30
45		43.00 - 46.30 **ML/SM - Fine sandy SILT to silty fine SAND** micaceous, non-plastic, light brown and dark brown, moist to wet, stiff.	ML/SM		766.35			
		Boring completed at 46.30 ft						
50	765							
55	760							

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: +2.5' - 36.0'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 36.0' - 46.0'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010"
End Cap: 0.3'

FILTER PACK
Interval: 32.4' - 46.3'
Type: Filter sand well pack

FILTER PACK SEAL
Interval: 27.9' - 32.4'
Type: Pel-Plug 3/8" bentonite chips

ANNULUS SEAL
Interval: 0.5' - 27.9'
Type: AQUAGUARD bentonite grout

WELL COMPLETION
Pad: 4' x 4' Concrete
Protective Casing: Steel protective cover

DRILLING METHODS
Soil Drill: Rotosonic
Rock Drill: None

LOG SCALE: 1 in = 7 ft
DRILLING COMPANY: Cascade Environmental
DRILLER: C. Franklin

WSP INSPECTOR: Thomas Keller
CHECKED BY: Nicholas McMillan
DATE: 2/10/25

BOREHOLE RECORD PLANT MCDONOUGH_MW_126, 127, 128, 9A.GPJ PIEDMONT.GDT 2/24/25

RECORD OF BOREHOLE DGWC-127

SHEET 1 of 1

PROJECT: SCS Plant McDonough
PROJECT NUMBER: 31406440.038
DRILLED DEPTH: 53.50 ft
LOCATION: Smyrna, GA

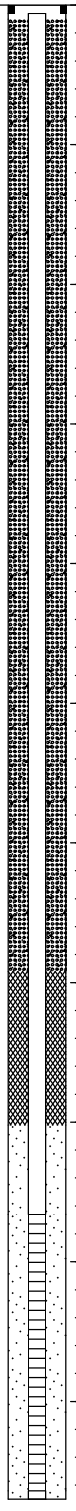
DRILL RIG: Terra Sonic TSI 150
DATE STARTED: 1/8/25
DATE COMPLETED: 1/9/25

NORTHING: 1,392,478.70
EASTING: 2,203,439.40
GS ELEVATION: 816.19
TOC ELEVATION: 815.58 ft

DEPTH W.L.: 29.87 ft
ELEVATION W.L.: 785.71 ft
DATE W.L.: 1/28/25
TIME W.L.: 15:05

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	815	0.00 - 7.00 **FILL** Silt with gravel, sand, and clay, micaceous, brown and gray.				1	AIR KNIFE	3.00 / 7.00
5	810				809.19			
		7.00 - 23.50 **FILL** Silt with gravel and clay, trace wood fragments, brown to dark grayish brown, moist, stiff.			7.00	2	ROTO SONIC	3.00 / 3.00
10	805					3	ROTO SONIC	10.00 / 10.00
15	800							
20	795	20.00: Change to wet at 20.0 feet below ground surface.			792.69	4	ROTO SONIC	9.00 / 10.00
		23.50 - 35.00 **ML/SM - Fine sandy SILT to silty fine SAND** micaceous, low to medium plasticity, mottled light brown and grayish brown, moist, stiff.	ML/SM		23.50			
25	790							
30	785							
35	780	35.00 - 36.00 **ML - Fine sandy SILT** trace schist gravel, low plasticity, brown, moist to wet, soft.	ML		781.19 780.19	5	ROTO SONIC	6.00 / 10.00
		36.00 - 40.00 No Recovery			36.00 776.19			
40	775	40.00 - 45.00 **SM - Silty fine SAND** few manganese nodules (2-3 mm diameter), trace very fine mica, yellowish brown, wet, loose to medium dense, saprolite-relict structure.	SM		40.00	6	ROTO SONIC	5.00 / 5.00
45	770				771.19			
		45.00 - 53.50 **SM - Silty fine SAND** micaceous, mottled light yellowish brown and dark yellowish brown, wet, loose to medium dense, saprolitic-relict structure.	SM		45.00	7	ROTO SONIC	8.50 / 8.50
50	765				762.69			
		Boring completed at 53.50 ft						
55								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0.7' - 46.3'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 43.3' - 53.2'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010"
End Cap: 0.3'

FILTER PACK
Interval: 40.1' - 53.5'
Type: Filter sand well pack

FILTER PACK SEAL
Interval: 34.6' - 40.1'
Type: Pel-Plug 3/8" bentonite chips

ANNULUS SEAL
Interval: 0.5' - 34.6'
Type: AQUAGUARD bentonite grout

WELL COMPLETION
Pad: 4' x 4' Concrete
Protective Casing: Flush mount protective cover

DRILLING METHODS
Soil Drill: Rotosonic
Rock Drill: None

LOG SCALE: 1 in = 7 ft
DRILLING COMPANY: Cascade Environmental
DRILLER: C. Franklin

WSP INSPECTOR: Thomas Keller
CHECKED BY: Nicholas McMillan
DATE: 2/10/25

BOREHOLE RECORD PLANT MCDONOUGH_MW_126, 127, 128, 9A.GPJ PIEDMONT.GDT 2/24/25

RECORD OF BOREHOLE DGWC-128

SHEET 1 of 1

PROJECT: SCS Plant McDonough
PROJECT NUMBER: 31406440.038
DRILLED DEPTH: 35.30 ft
LOCATION: Smyrna, GA

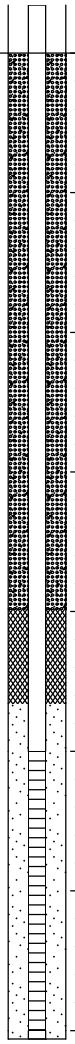
DRILL RIG: Terra Sonic TSI 150
DATE STARTED: 11/23/24
DATE COMPLETED: 11/23/24

NORTHING: 1,394,261.20
EASTING: 2,202,857.80
GS ELEVATION: 796.51
TOC ELEVATION: 799.30 ft

DEPTH W.L.: 17.24 ft
ELEVATION W.L.: 782.06 ft
DATE W.L.: 12/10/24
TIME W.L.: 10:30

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	795	0.00 - 10.00 No Recovery			786.51	1	AIR KNIFE	NA 10.00
10	785	10.00 - 16.00 **ML - Fine sandy SILT** micaceous, non to low plasticity, very dark brown, dry to moist, very stiff, saprolitic-relict structure.	ML		10.00 780.51	2	ROTO SONIC	10.00 10.00
15	780	16.00 - 20.00 **SM - Silty fine to medium SAND** some gravel (partially weathered rock), pale brown to light grayish brown, dry to moist, very dense.	SM		16.00 776.51			
20	775	20.00 - 22.50 **SM - Silty fine to medium SAND** some gravel (partially weathered rock), light grayish brown, dry to moist, dense, saprolitic-relict structure.	SM		20.00 774.01	3	ROTO SONIC	10.00 10.00
25	770	22.50 - 27.00 **SM - Silty fine to medium SAND** light brown to grayish brown, moist to wet, dense.	SM		22.50 769.51			
30	765	27.00 - 33.50 **SM - Silty fine to medium SAND** some gravel (partially weathered rock), grayish brown, moist, dense.	SM		27.00 763.01	4	ROTO SONIC	3.50 5.30
35	760	33.50 - 35.30 **BEDROCK** Gneiss, dark gray, iron staining.			33.50 761.21			
		Boring completed at 35.30 ft						
40	755							
45	750							
50	745							
55								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: +2.8' - 25.0'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 25.0' - 35.0'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010"
End Cap: 0.3'

FILTER PACK
Interval: 23.3' - 35.3'
Type: Filter sand well pack

FILTER PACK SEAL
Interval: 19.9' - 23.3'
Type: Pel-Plug 3/8" bentonite chips

ANNULUS SEAL
Interval: 0.5' - 19.9'
Type: AQUAGUARD bentonite grout

WELL COMPLETION
Pad: 4' x 4' Concrete
Protective Casing: Steel protective cover

DRILLING METHODS
Soil Drill: Rotosonic
Rock Drill: Rotosonic

LOG SCALE: 1 in = 7 ft
DRILLING COMPANY: Cascade Environmental
DRILLER: C. Franklin

WSP INSPECTOR: Thomas Keller
CHECKED BY: Nicholas McMillan
DATE: 2/10/25

BOREHOLE RECORD PLANT MCDONOUGH_MW_126, 127, 128, 9A.GPJ PIEDMONT.GDT 2/24/25

RECORD OF BOREHOLE B-56

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 45.00 ft
LOCATION: SW of the cement plant

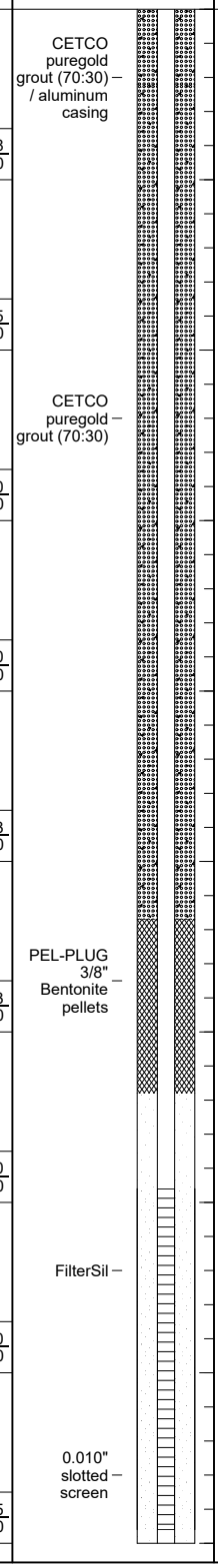
DRILL RIG: CME 55
DATE STARTED: 10/3/16
DATE COMPLETED: 10/3/16

NORTHING: 1,393,957.90
EASTING: 2,204,187.80
GS ELEVATION: 820.95
TOC ELEVATION: 823.59 ft

DEPTH W.L.: 16.39
ELEVATION W.L.: 804.61
DATE W.L.: 10/6/2016
TIME W.L.: 900

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	820	0.00 - 13.50 ML, SILT, trace fine sand, non to low plasticity; brownish red, micaceous, fill; cohesive, dry to moist, w<PL, firm.	ML							
						1	DO	2-5-5	10	1.08 / 1.50
5	815									
						2	DO	2-4-4	8	0.75 / 1.50
10	810									
					807.5					
		13.50 - 23.50 ML, SILT, trace fine to coarse sand, non to low plasticity; red to brown to black to silver, micaceous, schist/schistose gneiss saprolite; cohesive, mosit to wet, soft to stiff.	ML		13.50	3	DO	3-5-11	16	1.50 / 1.50
15	805									
						4	DO	3-5-9	16	1.50 / 1.50
20	800									
					797.5					
		23.50 - 45.00 ML, SILT, trace fine to coarse sand, non to low plasticity; brown to silvery brown, deeply weathered, micaceous, schist saprolite; cohesive, wet, w<PL, soft to firm. (locally contains pegmatite veins)	ML		23.50	5	DO	7-8-14	22	1.33 / 1.50
25	795									
						6	DO	7-6-12	18	1.33 / 1.50
30	790									
						7	DO	7-8-14	22	1.00 / 1.50
35	785									
						8	DO	14-32-50	82	1.00 / 1.50
40	780									
						9	DO	7-12-33	42	1.25 / 1.50
45		Boring completed at 45.00 ft			776					

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-34.6'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 34.6'-44.6'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 31.8' - 45'
Type: FilterSil

FILTER PACK SEAL
Interval: 26.7'-31.8'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-26.7'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-63

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 46.00 ft
LOCATION: Due south of B-61. Flush mounted in the roadway.

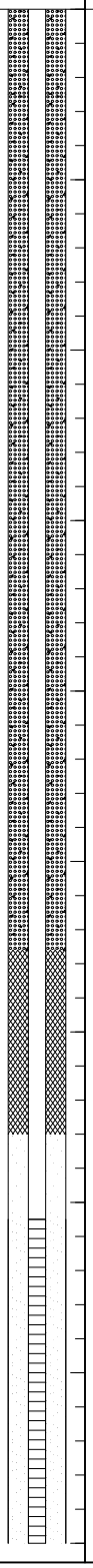
DRILL RIG: CME 55
DATE STARTED: 10/6/16
DATE COMPLETED: 10/6/16

NORTHING: 1,390,999.10
EASTING: 2,202,978.10
GS ELEVATION: 777.37
TOC ELEVATION: 777.10 ft

DEPTH W.L.: 34.2
ELEVATION W.L.: 743.1
DATE W.L.: 10/6/2016
TIME W.L.: 1745

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	775	0.00 - 13.50 Top 12' were Hydrovac for utilities.								
5	770									
10	765				763.9					
15	760	13.50 - 18.50 CL-CH, CLAY, trace to some fine to coarse sand, moderate plasticity; reddish brown, fill; cohesive, moist, w<PL, firm	CL-CH		13.50 758.9	1	DO	3-2-2	4	0.75 1.50
20	755	18.50 - 24.50 ML, SILT, trace clay and sand, low plasticity; reddish brown; cohesive, moist, w<PL, firm.	ML		18.50	2	DO	1-1-2	3	1.50 1.50
25	750	24.50 - 25.00 SM, silty SAND, fine to coarse, non-plastic, trace silt; dark gray to black; non-cohesive, moist, w<PL, loose. 25.00 - 38.50 No samples were collected, due to the hole traveling on the driller.	SM		752.9 752.4 25.00	3	DO	8-20-10	30	1.50 1.50
30	745					4	DO	0-0-0	0	0.00 1.50
35	740					5	DO	0-0-0	0	0.00 1.50
40	735	38.50 - 46.00 SM, silty SAND, fine to coarse, non-plastic, trace gravel; dark gray; non-cohesive, wet, w<PL, very loose, PWR.	SM		738.9 38.50	6	DO	8-9-16	25	0.66 1.50
45		Log continued on next page				7	DO	50/1	50/1	0.08 0.08

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0' - 35.5'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 35.5'-45.5'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 33'- 45.9'
Type: FilterSil

FILTER PACK SEAL
Interval: 27.6'-33'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0' - 27.6'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Flush Mount

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-63

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 46.00 ft
LOCATION: Due south of B-61. Flush mounted in the roadway.

DRILL RIG: CME 55
DATE STARTED: 10/6/16
DATE COMPLETED: 10/6/16

NORTHING: 1,390,999.10
EASTING: 2,202,978.10
GS ELEVATION: 777.37
TOC ELEVATION: 777.10 ft

DEPTH W.L.: 34.2
ELEVATION W.L.: 743.1
DATE W.L.: 10/6/2016
TIME W.L.: 1745

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45			SM		731.4							
		Boring completed at 46.00 ft										
	730											
50												
	725											
55												
	720											
60												
	715											
65												
	710											
70												
	705											
75												
	700											
80												
	695											
85												
	690											
90												

WELL CASING
Interval: 0' - 35.5'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 35.5'-45.5'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 33'- 45.9'
Type: FilterSil

FILTER PACK SEAL
Interval: 27.6'-33'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0' - 27.6'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Flush Mount

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

SOUTHERN COMPANY
Energy to Serve Your World™

DRILLING LOG
GEOLOGICAL SERVICES

Hole No. **B-66**
Sheet 1 of 2

SITE	**Plant McDonough**	HOLE DEPTH	**55.5'**	SURFELEV	813.30
LOCATION	North of AP-4, near propertly line concrete pile	COORDINATES	33.831427		-84.470638
ANGLE		BEARING		CONTRACTOR	SCS
DRILL NO.		DRILLING METHOD	HSA	NO. SAMPLES	
NO. U.D. SAMPLES	0	CASING SIZE	2"	LENGTH	10'
CORE SIZE		TOTAL % REC.		WATER TABLE DEPTH	14.8' BLS
ELEV.	798.50' NAVD88	TIME AFTER COMP.		DATE TAKEN	
TYPE GROUT		QUANTITY		MIX	.
DRILLING START DATE	11/16/2016	DRILLER	Milam	RECORDER	Abraham
APPROVED		DRILLING COMP. DATE	11/16/2016		

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
0	813.30								
1	812.30								
2	811.30								
3	810.30								
4	809.30								
5	808.30	**HYDRO-EXCAVATION** Hydrovac from land surface to 10-feet below land. No samples							
6	807.30								
7	806.30								
8	805.30								
9	804.30								
10	803.30								
11	802.30								
12	801.30								
13	800.30								
14	799.30	**CLAYEY SILT** Light Brown to reddish brown clayey silt; 10R/5/6; damp; FeO along fracture traces & relict foliations;	S-1	13.5-15	2-1-1	2		85	
15	798.30	organics absent.							
16	797.30								
17	796.30								
18	795.30								
19	794.30	**CLAYEY SILT** Light Brown to reddish brown clayey silt; 10R/5/6; damp; FeO along fracture traces & relict foliations;	S-2	18.5-20	2-1-5	6		90	
20	793.30								
21	792.30								
22	791.30	**CLAYEY SILT** Brownish gray with reddish streaks clayey silt grading to brownsh gray saprolite; 10YR/6/3; moist; FeO bands with minor MnO streaks along fracutre traces; distinct MnO layer at 25-ft parallel to foliation; fractures increase at 25-ft.	S-3	3-4-9	3-4-9	14		90	
23	790.30								
24	789.30								

SOUTHERN COMPANY
Energy to Serve Your World™

DRILLING LOG
GEOLOGICAL SERVICES

Hole No. **B-66**
Sheet 2 of 2

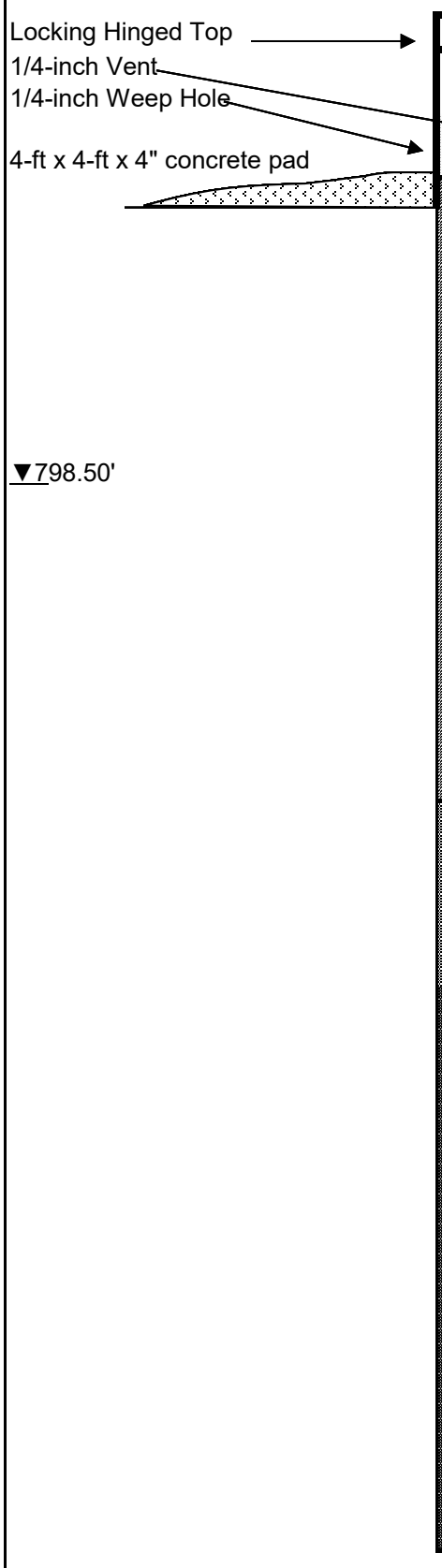
SITE **Plant McDonough** TOTAL DEPTH **55.5'** SURF.ELEV. 813.30

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
25	788.30								
26	787.30	**SILTY SAND**							
27	786.30								
28	785.30	Medium to dark gray silty sand with minor clay; 2.5Y/5/2; few brownish-black weathered	S-4	4-5-10	15	80			
29	784.30	minerals; micaceous texture;							
30	783.30	MnO bands along fracture & foliations; saprolite between 28 and 30 feet.							
31	782.30								
32	781.30	**SILTY SAND SAPROLITE**							
33	780.30	Light to dark gray SILTY SAND; 5Y/5/3;	S-5	7-9-16	25	90			
34	779.30	moist to wet saprolite; gravel-size rock frags; weathered feldspars & quartz; increasing							
35	778.30	biotite & MnO at 35-feet.							
36	777.30								
37	776.30								
38	775.30	Grayish brown - brownish-black SILTY SAND with minor clay; 5Y/3/2; fewer rock	S-6	6-8-10	18	90			
39	774.30	fragments than above; moist to wet.							
40	773.30								
41	772.30								
42	771.30								
43	770.30	**SILTY SAPROLITE** Yellowish brown silt with minor clay saprolite;	S-7	5-6-9	16	90			
44	769.30	2.5Y/6/3; lighter than above; abundant MnO streaks; wet but not saturated.							
45	768.30								
46	767.30								
47	766.30	**SILTY SAND SAPROLITE**							
48	765.30	Yellowish to blackish brown SILTY SAND saprolite; 2.5Y/6/3; minor rock fragments;	S-8	6-7-17	24	90			
49	764.30	saturated							
50	763.30								
51	762.30								
52	761.30								
53	760.30	**SILTY SAND SAPROLITE**							
54	759.30	Yellowish brown silty sand saprolite; minor clay; 2.5/Y/6/3; abundant MnO streaks	S-9	7-8-18	26	90			
55	758.30	parallel to relict foliations; saturated.							
56	757.30	END OF BORING; REGOLITH WELL							

Form GS9901 7-26-2004

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS, Inc.	WELL NAME
NE of AP-4 at Argos, nr concrete pile, ~250' NE of DGWC-10	DRILLER: Wideman	
LOCATION:33.831427 / -84.470638	RIG TYPE: CME 550	
LOGGER: Abraham	DRILLING METHODS: HSA	**B-66**
DATE CONSTRUCTED: 3/7/2016	Survey Coordinates: N: 1393858.2 E: 2204277.5	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-1.89	815.90
2" Threaded Riser Cap		
GROUND SURFACE	0.00	813.33
PROTECTIVE CASING		
BOTTOM OF PROTECTIVE CASING		
BACKFILL MATERIAL TYPE: Grout-bentonite mix AMOUNT: 4 x 50 lbs		
RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	37.6	775.7
ANNULAR SEAL TYPE: 1/4-inch coated bentonite pellets 5-gal buckets AMOUNT: 0.5 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	41.7	771.6
FILTER PACK TYPE: DSI Sand - 1A (20/40) Drillers Services, Inc. AMOUNT: 5 bags PLACEMENT: Tremie; wash with water		
BOTTOM OF RISER / TOP OF SCREEN	45.0	768.3
SCREEN DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch		
BOTTOM OF SCREEN	55.0	758.3
BOTTOM OF WELL	55.3	758.0

RECORD OF BOREHOLE B-77

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 42.00 ft
LOCATION: South by river, SW of B-63

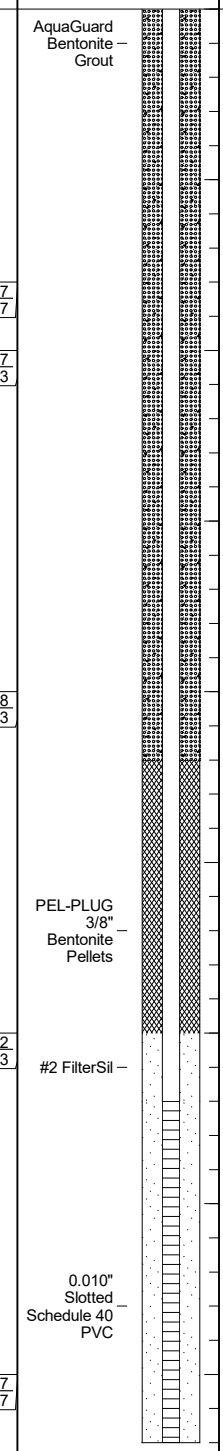
DRILL RIG: Rotosonic 1159
DATE STARTED: 9/17/19
DATE COMPLETED: 9/17/19

NORTHING: 1,390,948.70
EASTING: 2,202,942.00
GS ELEVATION: 777.12 ft
TOC ELEVATION: 776.86 ft

DEPTH W.L.: 28.50
ELEVATION W.L.: 748.6
DATE W.L.: 1/13/2020
TIME W.L.: 14:39

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0		0.00 - 8.00 Hydrovac, no soil recovery due to Hydrovac						
	775							
5								
	770				769.1			
		8.00 - 10.00 Fill			8.00	S1	ROTO SONIC	0.17 0.17
					767.1			
10		10.00 - 20.00 Sandy SILT, trace clay, some gravel, reddish brown, low plasticity, w<PL, moist, firm, cohesive			10.00	S2	ROTO SONIC	0.67 0.83
	765		MLS					
15								
	760							
					757.1			
20		20.00 - 30.00 Sandy SILT, micaceous, trace clay, some gravel, reddish brown, low plasticity, w<PL, moist, firm, cohesive			20.00	S3	ROTO SONIC	0.38 0.83
	755							
25			MLS					
	750							
					747.1			
30		30.00 - 40.00 Silty CLAY, some sand, transitioning from reddish-brown to brownish gray, w~PL, moderate plasticity, moist to wet, soft to firm, cohesive,			30.00	S4	ROTO SONIC	0.52 0.83
	745							
35			CL-ML					
	740							
					737.1			
40		40.00 - 42.00 Silty CLAY, some sand, transitioning from reddish-brown to brownish gray, w~PL, moderate plasticity, soft to firm, moist to wet,transition to PWR, cohesive	CL-ML		40.00	S5	ROTO SONIC	0.17 0.17
	735				735.1			
45		Boring completed at 42.00 ft						

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-32'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 32-42'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 30'-42'
Type: Filter Media

FILTER PACK SEAL
Interval: 22'-30'
Type: PEL-PLUG 3/8"

ANNULUS SEAL
Interval: 0'-22'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 4'x4' Concrete
Protective Casing: 4" Stainless Steel

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Jose

GA INSPECTOR: D. Thomas
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-82

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 45.00 ft
LOCATION: East of CCR Unit south of concrete plant

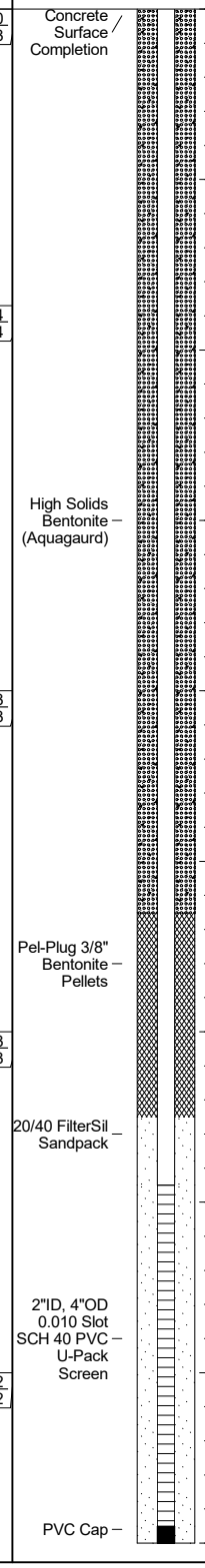
DRILL RIG: Rotosonic 1159
DATE STARTED: 9/21/19
DATE COMPLETED: 9/21/19

NORTHING: 1,393,750.00
EASTING: 2,204,258.10
GS ELEVATION: 807.55
TOC ELEVATION: 810.07 ft

DEPTH W.L.: 8.90
ELEVATION W.L.: 798.6
DATE W.L.: 1/13/2020
TIME W.L.: 15:59

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0		0.00 - 8.70 Hydrovac	NA		798.9	0		0.00 0.73
	805							
5								
	800							
		8.70 - 10.70 (ML) sandy SILT, non-plastic fines, fine sand; dark yellowish brown (10YR 4/2); non-cohesive, dry, loose	ML		8.70 796.9	1	ROTO SONIC	0.94 0.94
10		10.70 - 31.70 (SM) sandy SILT, fine to medium angular sand, non-plastic to low plasticity fines, some soft (crumble under finger pressure) fine angular gravel; dark yellowish brown (10YR 4/2) to pale yellowish brown (10YR 6/2), very micaceous, SAPROLITE; non-cohesive, dry, loose. Moist and compact starting at 20 feet bgs.			10.70			
	795							
15								
	790							
20			ML			2	ROTO SONIC	0.83 0.83
	785							
25								
	780							
30					775.9	3	ROTO SONIC	0.83 0.83
	775	31.70 - 35.50 (SP and ML) SAND and SILT, fine sub-angular sand, non-plastic to low plasticity fines; dark yellowish brown (10YR 4/2), highly micaceous, SAPROLITE; non-cohesive, wet, compact	SP & ML		31.70 772.1			
35		35.50 - 38.50 (CL) sandy SILTY CLAY, low to moderate plasticity fines, fine sand; moderate yellowish brown (10YR 4/2) to light brown (5YR 5/6), some relic foliations, highly micaceous, SAPROLITE; cohesive, w>PL, soft.	CL		35.50 769.1			
	770	38.50 - 40.00 (SC) CLAYEY SAND, fine angular sand, low to moderate plasticity fines; light brown (5YR 5/6) to moderate yellowish brown (10YR 5/4), iron oxide staining, very micaceous, some relic foliations, SAPROLITE; non-cohesive, wet, compact	SC		38.50 767.6			
40					40.00	4	ROTO SONIC	0.42 0.42
	765	40.00 - 45.00 (ML and SP) SILT and SAND, non-plastic to low plasticity fines, fine sand; dark yellowish brown (10YR 4/2) with frequent relic foliations, very micaceous, SAPROLITE; non-cohesive, wet to moist, compact	ML & SP		762.6			
45		Boring completed at 45.00 ft						

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0.0 - 34.5'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 34.5 - 44.5'
Material: Schedule 40 PVC
Schedule 40 PVC
Diameter: 2" ID 4 " OD
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 32.5 - 45.0'
Type: 20/40 FilterSil

FILTER PACK SEAL
Interval: 26.5 - 32.5'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0.4 - 26.5'
Type: High Solids Bentonite (Aquagaurd)

WELL COMPLETION
Pad: 4' x 4' x 4"
Protective Casing: 4" Stainless Steel

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

~200 gallons of water used while drilling

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Jose

GA INSPECTOR: Jeff Ingram
CHECKED BY: Timothy Richards, PG
DATE: 2/12/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-83

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 50.00 ft
LOCATION: South by river, NW of B-76

DRILL RIG: CME550X
DATE STARTED: 9/30/19
DATE COMPLETED: 9/30/09

NORTHING: 1,390,735.50
EASTING: 2,202,695.60
GS ELEVATION: 777.17
TOC ELEVATION: 776.98 ft

DEPTH W.L.: 28.75
ELEVATION W.L.: 748.35
DATE W.L.: 1/13/2020
TIME W.L.: 14:52

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
0		0.00 - 15.00 Hydrovac to 15' for utilities									AquaGuard Bentonite Grout
	775										
5											
	770										
10											
	765										
					762.2						
15		15.00 - 19.00 ML, Gravelly SILT with some sand, brown-black, cohesive, W<PL, dry, soft	ML		15.00						
	760				758.2						
		19.00 - 20.00 ML, SILT, micaceous, brown, W<PL, moist, very soft	ML		19.00 757.2	S1	SS	6-4-4	8	1.25 1.50	
20		20.00 - 33.50 ML, SILT, brown, moist, W-PL, firm to stiff			20.00						
	755					S2	SS	2-1-3	4	1.50 1.50	
25			ML								
	750					S3	SS	1-1-2	3	1.50 1.50	
30											
	745				743.7						PEL-PLUG 3/8" Bentonite Pellets
		33.50 - 38.50 CL, silty CLAY, micaceous, dark brown-tan, cohesive, moist, W>PL, very soft to soft			33.50	S4	SS	1-1-2	3	1.50 1.50	
35			CL								
	740				738.7						#2 FilterSil
		38.50 - 43.50 CL, silty CLAY, brown with black and red, W>PL, very soft to soft			38.50	S5	SS	3-3-4	7	1.50 1.50	
40			CL								
	735				733.7						
		43.50 - 49.00 CL, silty CLAY, brown with orange, moist to wet, W<PL, very soft to firm Log continued on next page	CL-ML		43.50	S6	SS	WOH-4-8	12	1.50 1.50	0.010" Slotted
45											

WELL CASING
Interval: 0'-38.6'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 38.6'-48.6'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 36.6'-50'
Type: Filter Media

FILTER PACK SEAL
Interval: 30.7'-36.6'
Type: PEL-PLUG 3/8"

ANNULUS SEAL
Interval: 0'-30.7'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow-Stem Auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: K. Minkara
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-83

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 50.00 ft
LOCATION: South by river, NW of B-76

DRILL RIG: CME550X
DATE STARTED: 9/30/19
DATE COMPLETED: 9/30/09

NORTHING: 1,390,735.50
EASTING: 2,202,695.60
GS ELEVATION: 777.17
TOC ELEVATION: 776.98 ft

DEPTH W.L.: 28.75
ELEVATION W.L.: 748.35
DATE W.L.: 1/13/2020
TIME W.L.: 14:52

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45		43.50 - 49.00 CL, silty CLAY, brown with orange, moist to wet, W<PL, very soft to firm *(Continued)*	CL-ML								Schedule 40 PVC	**WELL CASING** Interval: 0'-38.6' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw
	730											
					728.2							**WELL SCREEN** Interval: 38.6'-48.6' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC
		49.00 - 50.00 SM, silty SAND, PWR, black-brown mica schist	SM		49.00 727.2	S7	SS	8-15-18	33	1.50 1.50		
50		Boring completed at 50.00 ft										
	725											**FILTER PACK** Interval: 36.6'-50' Type: Filter Media
												FILTER PACK SEAL Interval: 30.7'-36.6' Type: PEL-PLUG 3/8"
55												**ANNULUS SEAL** Interval: 0'-30.7' Type: AquaGuard Bentonite Grout
	720											**WELL COMPLETION** Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush
60												**DRILLING METHODS** Soil Drill: 4.25-inch ID Hollow-Stem Auger Rock Drill: N/A
	715											
65												
	710											
70												
	705											
75												
	700											
80												
	695											
85												
	690											
90												

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: K. Minkara
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-88

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 72.40 ft
LOCATION: North end of site along fence

DRILL RIG: CME 550
DATE STARTED: 11/15/19
DATE COMPLETED: 11/15/19

NORTHING: 1,394,401.10
EASTING: 2,203,738.30
GS ELEVATION: 816.80
TOC ELEVATION: 820.07 ft

DEPTH W.L.: 31.47
ELEVATION W.L.: 785.53
DATE W.L.: 1/13/2020
TIME W.L.: 15:11

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	815	0.00 - 10.00 Hydrovac to 10.00' to for utilites			806.8					
10	805	10.00 - 15.00 SM, silty SAND with trace gravel, white and orange, saprolite, non-cohesive, dry, loose	SM		10.00 801.8	1	SS	6-5-2	7	1.50 1.50
15	800	15.00 - 19.00 SM, silty SAND with trace gravel, white and orange, saprolite, non-cohesive, dry, loose	SM		15.00 797.8					
20	795	19.00 - 20.00 CL-ML, silt CLAY with some sand, brown, W<PL, firm	CL-ML		19.00 796.8	2	SS	7-5-2	7	1.50 1.50
		20.00 - 25.00 SM, silty SAND with some clay, fine to medium sand, orange and tan, low to no plasticity, W<PL, firm, cohesive	SM		20.00 791.8	3	SS	2-5-3	8	1.50 1.50
25	790	25.00 - 30.00 SM, silty SAND with some clay, fine to medium sand, orange and tan with white, saprolite, low to no plasticity, W<PL, firm, cohesive	SM		25.00 786.8	4	SS	2-2-5	7	1.50 1.50
30	785	30.00 - 34.00 SM, silty SAND with some clay, fine to medium sand, orange to tan with brown, saprolite, low to no plasticity, W<PL, firm, cohesive	SM		30.00 782.8					
		34.00 - 35.00 SM, silty SAND with some clay, fine sand, white, gneissic saprolite, non-cohesive, dense, dry	SM		34.00 781.8	5	SS	5-13-20	33	1.50 1.50
35	780	35.00 - 40.00 SM, silty SAND, white and grey, fine to medium sand, saprolite, dry, dense	SM		35.00 776.8	6	SS	13-25-26	51	1.00 1.50
40	775	40.00 - 44.40 ML, clayey SILT with trace sand and gravel, grey and brown some orange, saprolite, W<PL, very dense	ML		40.00 772.4	7	SS	13-50/4	<50	0.90 0.90
45		Log continued on next page	SP		44.40					

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES

AquaGuard Bentonite – Grout

WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-72'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 62'-72'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 60'-72'
Type: Filter Media

FILTER PACK SEAL
Interval: 55'-60'
Type: PEL-PLUG 3/8"

ANNULUS SEAL
Interval: 0'-55'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-88

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 72.40 ft
LOCATION: North end of site along fence

DRILL RIG: CME 550
DATE STARTED: 11/15/19
DATE COMPLETED: 11/15/19

NORTHING: 1,394,401.10
EASTING: 2,203,738.30
GS ELEVATION: 816.80
TOC ELEVATION: 820.07 ft

DEPTH W.L.: 31.47
ELEVATION W.L.: 785.53
DATE W.L.: 1/13/2020
TIME W.L.: 15:11

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
45		44.40 - 48.80 SP, SAND with some gravel, fine to coarse sand, PWR, moist, very dense. PWR at 48.50 feet bgs. *(Continued)*	SP								
	770				768.0	8	SS	50/4	<50	0.30 0.30	
		48.80 - 54.40 SP, SAND with some gravel, fine to coarse sand, PWR, moist, very dense			48.80						
50			SP								
	765				762.4	9	SS	33-50/3	<50	0.90 0.90	
		54.40 - 59.40 SP, SAND with some silt and gravel, white and orange, fine to coarse sand, saprolite, PWR, moist to wet, very dense			54.40						
55			SP-SM								
	760				757.4	10	SS	23-50/4	<50	0.90 0.90	PEL-PLUG 3/8" Bentonite Pellets
		59.40 - 63.80 SP, SAND with some silt and gravel, white and orange, fine to coarse sand, saprolite, PWR, moist to wet, very dense			59.40						
60			SP-SM								#2 FilterSil
	755				753.0	11	SS	50/3	<50	0.30 0.30	
		63.80 - 69.00 SP, SAND with some silt and gravel, white and orange, fine to coarse sand, saprolite, PWR, wet, very dense			63.80						
65			SP-SM								
	750				747.8	12	SS	38-50/1	<50	0.50 0.50	0.010" Slotted Schedule 40 PVC
					69.00						
70											
	745	Boring completed at 72.40 ft									
75											
	740										
80											
	735										
85											
	730										
90											

WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-72'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 62'-72'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 60'-72'
Type: Filter Media

FILTER PACK SEAL
Interval: 55'-60'
Type: PEL-PLUG 3/8"

ANNULUS SEAL
Interval: 0'-55'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-92

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 25.00 ft
LOCATION: North of site along Plant Atkinson Road

DRILL RIG: CME 550
DATE STARTED: 12/11/19
DATE COMPLETED: 12/11/19

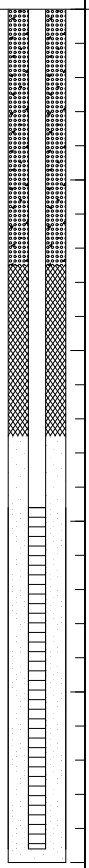
NORTHING: 1,394,392.70
EASTING: 2,203,026.70
GS ELEVATION: 785.30
TOC ELEVATION: 785.08 ft

DEPTH W.L.: 3.88
ELEVATION W.L.: 781.42
DATE W.L.: 1/14/2020
TIME W.L.: 12:36

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)
0	785	0.00 - 2.00 SP, gravelly SAND, medium to coarse; brown, non-cohesive, moist	SP		783.3 / 2.00
		2.00 - 10.00 CL-ML, silty CLAY, some sand, trace gravel; brown and gray, cohesive, w ~ PL	CL-ML		775.3 / 10.00
10	775	10.00 - 25.00 SC, clayey SAND, medium to coarse, some silt, some gravel; brown, wet	SC		760.3
25	760	Boring completed at 25.00 ft			
30	755				
35	750				
40	745				
45					

SAMPLES: SAMPLE NO. | TYPE | REC

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-25'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 14.6'-24.6'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 12.5'-25.0'
Type: #2 FilterSil

FILTER PACK SEAL
Interval: 7.5'-12.5'
Type: PEL-PLUG 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-7.5'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-93

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 29.20 ft
LOCATION: West of site on site along Plant Atkinson Road

DRILL RIG: CME 550
DATE STARTED: 12/12/19
DATE COMPLETED: 12/12/19

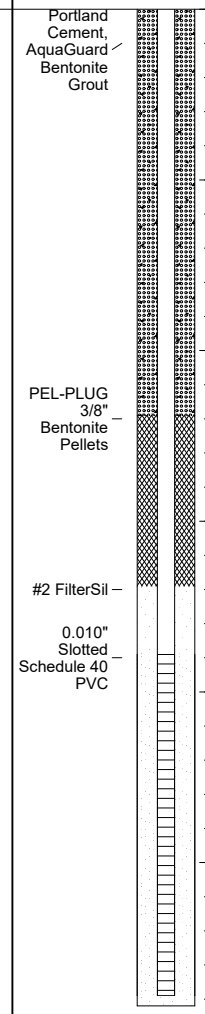
NORTHING: 1,394,348.70
EASTING: 2,202,946.70
GS ELEVATION: 789.19
TOC ELEVATION: 789.07 ft

DEPTH W.L.: 4.86
ELEVATION W.L.: 784.34
DATE W.L.: 1/14/2020
TIME W.L.: 12:38

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)
0	785	0.00 - 5.00 SC, clayey SAND, fine to coarse; brown and orange-brown, non-cohesive, moist	SC	784.2
5	780	5.00 - 10.00 ML, clayey SILT, some sand, trace gravel; brown to light brown, cohesive, w < PL	ML	5.00 779.2
10	775	10.00 - 15.00 ML, sandy SILT, coarse sand, some clay; gray-brown, cohesive, w < PL	ML	10.00 774.2
15	770	15.00 - 20.00 ML, sandy SILT, coarse sand, some clay; brown, cohesive, w ~ PL	ML	15.00 769.2
20	765	20.00 - 29.20 SM, silty SAND, fine to coarse, some clay, trace gravel; brown and gray-brown, wet	SM	20.00
25	760	Boring completed at 29.20 ft		760
30	755			
35	750			
40	745			
45				

SAMPLES: SAMPLE NO., TYPE, REC

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-29.2'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 18.9'-28.9'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 16.9'-29.2'
Type: #2 FilterSil

FILTER PACK SEAL
Interval: 11.9'-16.9'
Type: PEL-PLUG 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-11.9'
Type: Portland Cement, AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Augers
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-97

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 31.00 ft
LOCATION: East of B-98

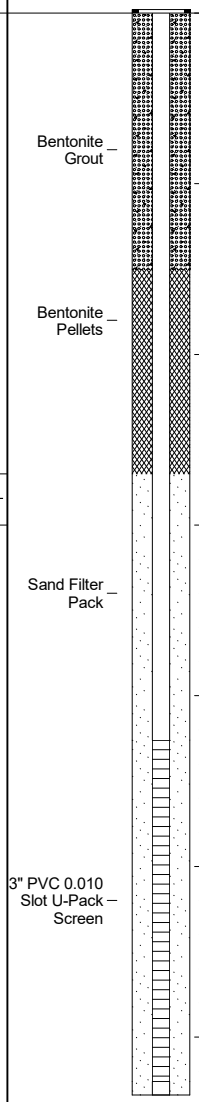
DRILL RIG: CME 550
DATE STARTED: 2/11/20
DATE COMPLETED: 2/11/20

NORTHING: 1,394,430.00
EASTING: 2,203,008.30
GS ELEVATION: 786.50
TOC ELEVATION: 786.29 ft

DEPTH W.L.: 3.24 ft bTOC
ELEVATION W.L.: 783.05
DATE W.L.: 2/27/2020
TIME W.L.: 10:54

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	786	0.00 - 10.00 Hydro Vac'd for utilities clearance								
5	780									
10	775				776.5 10.00					
					773.0					
		13.50 - 16.00 gravelly SILTY SAND, no plasticity, medium grained sand, coarse gravel; tan to dark brown; non-cohesive, moist, compact	SM		13.50 770.5	S-01	DO	15-17-15	32	0.92 1.50
15	770	16.00 - 31.70 Fresh, foliated, dark grey and white, fine to coarse grained, strong, GNEISS			16.00					
20	765									
25	760									
30	755	29.00: Slightly weathered, porous, medium strong			754.8					
		Boring completed at 31.70 ft			31.70					
35	750									
40	745									
45										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0 ft-bgs - 31.7 ft-bgs
Material: PVC
Diameter: 2"
Joint Type: Flush

WELL SCREEN
Interval: 21.3 ft-bgs - 31.3 ft-bgs
Material: Schedule 40 PVC
Diameter: 3"
Slot Size: 0.010"
End Cap: 4"

FILTER PACK
Interval: 13.5 ft-bgs - 21.3 ft-bgs
Type: FilterSil Sand

FILTER PACK SEAL
Interval: 7.5 ft-bgs - 13.5 ft-bgs
Type: PEL-PLUG 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0 ft-bgs - 7.5 ft-bgs
Type: Portland Cement, AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2'x2' Concrete Pad
Protective Casing: 8" Round Flush Mount

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Augers
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Heather Brissey
CHECKED BY: Timothy Richards, PG
DATE: 4/28/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-98

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 19.40 ft
LOCATION: West of B-97

DRILL RIG: Geoprobe 7822DT
DATE STARTED: 2/10/20
DATE COMPLETED: 2/10/20

NORTHING: 1,394,392.50
EASTING: 2,202,934.00
GS ELEVATION: 789.81
TOC ELEVATION: 789.67 ft

DEPTH W.L.: 5.33 ft bTOC
ELEVATION W.L.: 784.34
DATE W.L.: 2/27/2020
TIME W.L.: 10:36

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL / PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0		0.00 - 10.00 Hydro Vac'd for utilities clearance							Bentonite Grout	**WELL CASING** Interval: 0 ft-bgs - 19.4 ft-bgs Material: PVC Diameter: 2" Joint Type: Flush
5	785								Bentonite Pellets	**WELL SCREEN** Interval: 9 ft-bgs- 19 ft-bgs Material: Schedule 40 PVC Diameter: 3" Slot Size: 0.010" End Cap: 4"
									Sand Filter Pack	**FILTER PACK** Interval: 7 ft-bgs - 9 ft-bgs Type: FilterSil Sand
10	780	10.00 - 19.40 Augered through with Geoprobe. No Soil data collected			779.8 10.00					**FILTER PACK SEAL** Interval: 4 ft-bgs - 7 ft-bgs Type: PEL-PLUG 3/8" Bentonite Pellets
										ANNULUS SEAL Interval: 0 ft-bgs - 4 ft-bgs Type: Portland Cement, AquaGuard Bentonite Grout
15	775								3" PVC 0.010 Slot U-Pack Screen	**WELL COMPLETION** Pad: 2'x2' Concrete Pad Protective Casing: 8" Round Flush Mount
					770.4					**DRILLING METHODS** Soil Drill: 4.25-inch ID Hollow Stem Augers Rock Drill: N/A
20	770	Boring completed at 19.40 ft								
25	765									
30	760									
35	755									
40	750									
45	745									

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade
DRILLER: Eladio Gonzalaz

GA INSPECTOR: Heather Brissey
CHECKED BY: Timothy Richards, PG
DATE: 4/28/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-101D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 75.00 ft
LOCATION: Next to DGWC-9

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 11/11/20
DATE COMPLETED: 11/12/20

NORTHING: 1394063.6
EASTING: 2204168.2
GS ELEVATION: 821.24 ft
TOC ELEVATION: 824.29 ft

DEPTH W.L.: 34.0
ELEVATION W.L.: 790.3
DATE W.L.: 11/12/20
TIME W.L.: 0954

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0		0.00 - 10.00 Air knife; FILL	FILL						Stick-up	**B-101D** Borehole Diameter: 4" **WELL CASING** Interval: 0-75' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam **WELL SCREEN** Interval: 64.9'-74.9' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC **FILTER PACK** Interval: 62.5'-75.0' Type: FilterSil Quantity: 4-50 lbs bags **FILTER PACK SEAL** Interval: 59.0'-62.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket **ANNULUS SEAL** Interval: 0'-59.0' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons **NOTES**
5										
10		10.00 - 15.00 (SM), SILTY SAND; tannish brown to reddish brown, low plasticity, w<pl, dry, loose to soft	SM		10.00					
15		15.00 - 16.00 (TWR), TRANSITIONALLY WEATHERED ROCK; dark gray, deeply weathered, fine to medium, poorly jointed	TWR		15.00	1	ROTO SONIC	8.00 10.00		
		16.00 - 20.00 (CL), CLAY; some sand, reddish brown, fine to coarse, low plasticity, w<PL, soft, moist to wet	CL		16.00					
20		20.00 - 23.00 (ML), SILT; trace to some gravels, reddish brown, low plasticity, w<PL, very soft, wet	ML		20.00	2	ROTO SONIC	4.00 5.00		
		23.00 - 25.00 (SM), SILTY SAND; trace gravels, tannish brown to gray, non-plastic, w<PL, loose, dry, TWR	TWR		23.00					
25		25.00 - 35.00 NO RECOVERY; material washed out of core barrel after switching to rock coring methods based on the TWR at the 23-25' interval.	NR		25.00	3	ROTO SONIC	0.00 10.00	AquaGuard Bentonite Grout	
30										
35		35.00 - 40.00 NO RECOVERY ; The core barrel was able to be advanced to depth, but casing was not able to advance to depth. Material was lost while extracting core barrel.	NR		35.00	4	ROTO SONIC	0.00 5.00		
40		40.00 - 50.00 NO RECOVERY ; The core barrel was able to be advanced to depth, but casing was not able to advance to depth. Material was lost while extracting core barrel.	NR		40.00	5	ROTO SONIC	0.00 10.00		
45										
50		Log continued on next page								

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ PIEDMONT.GDT 2/3/21

RECORD OF BOREHOLE B-101D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 75.00 ft
LOCATION: Next to DGWC-9

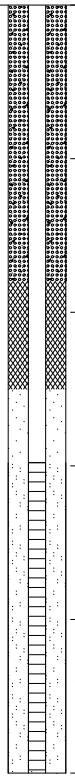
DRILL RIG: Geoprobe 8140LC
DATE STARTED: 11/11/20
DATE COMPLETED: 11/12/20

NORTHING: 1394063.6
EASTING: 2204168.2
GS ELEVATION: 821.24 ft
TOC ELEVATION: 824.29 ft

DEPTH W.L.: 34.0
ELEVATION W.L.: 790.3
DATE W.L.: 11/12/20
TIME W.L.: 0954

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC
50		50.00 - 51.00 (ML), SANDY SILT; grayish brown, low to medium plasticity, w~PL, soft to firm, moist	ML		50.00			
		51.00 - 52.00 (ML), SILT; trace gravels, schist fragments, grayish tan, non-plastic, non-cohesive, w<PL, loose, dry	ML		51.00			
		52.00 - 52.30 (TWR), TRANSITIONALLY WEATHERED ROCK; deeply weathered, R2, well foliated, fine to medium grain, iron staining,	TWR		52.30			
55		52.30 - 60.00 (ML), SANDY SILT; with gravel, grayish brown, low to medium plasticity, w~PL, soft to firm, moist	ML			6	ROTO SONIC	9.50 / 10.00
60		60.00 - 70.00 (SCHIST), BEDROCK; well foliated, highly crenulated, poorly jointed, iron staining	BR		60.00	7	ROTO SONIC	2.50 / 10.00
70		70.00 - 72.00 (ML), SANDY SILT; grayish brown, low to medium plasticity, w~PL, soft to firm, moist	ML		70.00	8	ROTO SONIC	3.55 / 5.00
		72.00 - 75.00 (SCHIST), BEDROCK; well foliated, highly crenulated, poorly jointed, iron staining	BR		72.00			
75		Boring completed at 75.00 ft						
80								
85								
90								
95								
100								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

B-101D
Borehole Diameter: 4"
WELL CASING
Interval: 0-75'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 64.9'-74.9'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 62.5'-75.0'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 59.0'-62.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-59.0'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-102D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 85.00 ft
LOCATION: Next to DGWC-10

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 11/9/20
DATE COMPLETED: 11/10/20

NORTHING: 1393828.4
EASTING: 2204200.4
GS ELEVATION: 820.64 ft
TOC ELEVATION: 823.42 ft

DEPTH W.L.: 34.0
ELEVATION W.L.: 789.4
DATE W.L.: 11/10/2020
TIME W.L.: 1444

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0		0.00 - 10.00 Air knife; FILL	FILL					
10		10.00 - 15.50 (CL), CLAY; red brown, trace to some sand, fine grain, w~PL, low plasticity, soft, moist	CL		10.00	1	ROTO SONIC	6.50 / 10.00
15		15.50 - 17.50 (ML), SILT; red brown, trace gravels, non-plastic to low plasticity, w<PL, soft, moist	ML		15.50			
		17.50 - 20.00 (ML), SILT; tanish-orange brown to silver, nonplastic to low plasticity, soft to loose	ML		17.50			
20		20.00 - 26.00 (SM), SILTY SAND; bronze, some coarse sand, nonplastic, dry to moist	SM		20.00	2	ROTO SONIC	10.00 / 10.00
25		26.00 - 30.00 (SM), SILTY SAND; gray, some coarse sand, nonplastic, non-cohesive, compact, dry to moist	SM		26.00			
30		30.00 - 40.00 (SM), SILTY SAND; gray and orange-brown, non-plastic to low plasticity, firm to compact, dry to moist, soft to firm, contains muscovite	SM		30.00	3	ROTO SONIC	9.00 / 10.00
40		40.00 - 44.00 (SM), SILTY SAND; gray and orange-brown, non-plastic to low plasticity, firm to compact, dry to moist, soft to firm	SM		40.00	4	ROTO SONIC	7.00 / 10.00
45		44.00 - 46.00 (ML), SILT; gray, non-plastic to lows plasticity, soft, moist,	ML		44.00			
		46.00 - 50.00 (SM), SILTY SAND; reddish brown, non-plastic to low plasticity, very soft, wet	SM		46.00			
50		Log continued on next page						

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

B-102D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-85'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 74.4'-84.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 72.0'-75.4'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 67'-72'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-67'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 120 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST (2) (3) (1) (2).GPJ PIEDMONT.GDT 7/19/21

RECORD OF BOREHOLE B-102D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 85.00 ft
LOCATION: Next to DGWC-10

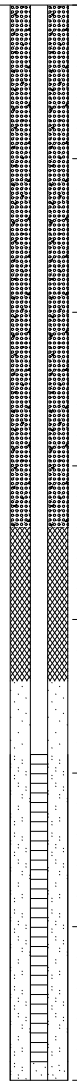
DRILL RIG: Geoprobe 8140LC
DATE STARTED: 11/9/20
DATE COMPLETED: 11/10/20

NORTHING: 1393828.4
EASTING: 2204200.4
GS ELEVATION: 820.64 ft
TOC ELEVATION: 823.42 ft

DEPTH W.L.: 34.0
ELEVATION W.L.: 789.4
DATE W.L.: 11/10/2020
TIME W.L.: 1444

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC
50		50.00 - 51.00 (SM), SILTY SAND; reddish brown, non-plastic to low plasticity, very soft, wet	SM		50.00	5	ROTO SONIC	5.00 / 5.00
		51.00 - 55.00 (SM), SILTY SAND; gray, w<PL, fine to compact, dry to moist, contains muscovite	SM		51.00			
55		55.00 - 60.00 (SM), SILTY SAND; gray to yellow orange, w<PL, fine to stiff, dry to moist, saprolitic	SM		55.00	6	ROTO SONIC	5.00 / 5.00
60		60.00 - 65.00 (ML), SILT; gray to light brown, w<PL, dense, dry	ML		60.00	7	ROTO SONIC	4.00 / 5.00
65		65.00 - 70.00 (TWR), TRANSITIONALLY WEATHERED ROCK; silty sand, gray, low plasticity, w<PL, stiff to hard, dry, saprolitic	TWR		65.00	8	ROTO SONIC	5.00 / 5.00
70		70.00 - 75.00 (SCHIST), BEDROCK, dark gray to black, fine to medium grain, moderately foliated, poorly jointed, high crenulated, weak to strong rock, slightly to moderately weathered, feldspar, muscovite, schist,	BR		70.00	9	ROTO SONIC	5.00 / 5.00
75		75.00 - 85.00 (SCHIST), BEDROCK; dark gray to black, moderately foliated, poorly jointed, high crenulated, weak to strong rock, slightly to moderately weathered, feldspar, muscovite, schist	BR		75.00	10	ROTO SONIC	7.00 / 10.00
85		Boring completed at 85.00 ft						
90								
95								
100								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

B-102D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-85'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 74.4'-84.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 72.0'-75.4'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 67'-72'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-67'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 120 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-104D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 60.00 ft
LOCATION: East of DGWC-48

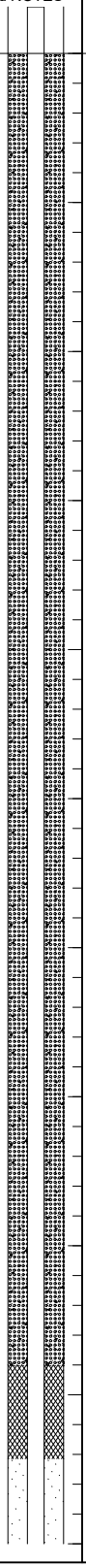
DRILL RIG: Geoprobe 8140LC
DATE STARTED: 10/20/20
DATE COMPLETED: 10/20/20

NORTHING: 1391318.3
EASTING: 2202298.5
GS ELEVATION: 785.31 ft
TOC ELEVATION: 787.90 ft

DEPTH W.L.: 12.0
ELEVATION W.L.: 775.9
DATE W.L.: 10/20/2020
TIME W.L.: 1818

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0		0.00 - 10.00 Air knife; FILL	FILL					
10		10.00 - 12.00 (CL), CLAY; red brown; moist, soft, low plasticity, w<PL, FILL	CL		10.00			
		12.00 - 22.00 (ML), SILT; dark brown to gray; non-plasitic to low plasticity, dry to moist, w<PL, soft to firm	ML		12.00	1	ROTO SONIC	8.00 / 8.00
20						2	ROTO SONIC	4.00 / 4.00
		22.00 - 30.00 (ML), SILT; dark brown; w~PL, moist to wet, soft to firm, contains gravels of biotite gneiss (trace)	ML		22.00	3	ROTO SONIC	8.00 / 8.00
30		30.00 - 35.00 (TWR), TRANSITIONALLY WEATHERED ROCK; rust brown to gray; deeply weathered biolite gneiss, poorly foliated, poorly jointed, iron staining	TWR		30.00	4	ROTO SONIC	6.55 / 10.00
40		35.00 - 55.50 (GNEISS), BEDROCK; biotite, quartz, feldspar, light to dark gray, strong to medium strong, fresh to slightly weathered, locally contains iron staining and garnets	BR		35.00	5	ROTO SONIC	2.10 / 5.00
45						6	ROTO SONIC	4.35 / 7.50
50		Log continued on next page						

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

B-104D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-60'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 50'-60'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 47.15'-60.0'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 44'-47.15
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-44'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 40 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-104D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 60.00 ft
LOCATION: East of DGWC-48

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 10/20/20
DATE COMPLETED: 10/20/20

NORTHING: 1391318.3
EASTING: 2202298.5
GS ELEVATION: 785.31 ft
TOC ELEVATION: 787.90 ft

DEPTH W.L.: 12.0
ELEVATION W.L.: 775.9
DATE W.L.: 10/20/2020
TIME W.L.: 1818

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
50		35.00 - 55.50 (GNEISS), BEDROCK; biotite, quartz, feldspar, light to dark gray, strong to medium strong, fresh to slightly weathered, locally contains iron staining and garnets *(Continued)*	BR			6		4.35 7.50	Pack
55		55.50 - 60.00 (SCHIST), BEDROCK; quartz, muscovite, gray to silver, medium grain, medium strong, fresh to moderately weathered	BR		55.50	7	ROTO SONIC	6.15 7.50	U-Pack _ Screen
60		Boring completed at 60.00 ft							
65									
70									
75									
80									
85									
90									
95									
100									

B-104D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-60'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 50'-60'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 47.15'-60.0'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 44'-47.15
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-44'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 40 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-106D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 80.00 ft
LOCATION: North of DGWC-8

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 11/12/20
DATE COMPLETED: 11/13/20

NORTHING: 1394327.1
EASTING: 2203869.2
GS ELEVATION: 823.39 ft
TOC ELEVATION: 826.21 ft

DEPTH W.L.: 37.0
ELEVATION W.L.: 789.2
DATE W.L.: 11/13/2020
TIME W.L.: 1652

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0		0.00 - 10.00 Air knife; FILL	FILL						Stick-up	**B-106D** Borehole Diameter: 4" **WELL CASING** Interval: 0'-80' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam **WELL SCREEN** Interval: 69.4'-79.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC **FILTER PACK** Interval: 66.61'-80' Type: FilterSil Quantity: 4-50 lbs bags **FILTER PACK SEAL** Interval: 62.85'-66.61' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket **ANNULUS SEAL** Interval: 0'-62.85' Type: AquaGuard Bentonite Grout Quantity: **NOTES**
10		10.00 - 16.75 (ML), SILT; some fine to medium sand, some gravel, moist, firm, w<PL, low to medium plasticity	ML		10.00	1	ROTO SONIC	8.20 / 10.00		
		16.75 - 18.10 (ML), SILT; some coarse sand, moist, stiff, w<PL	ML		16.75					
		18.10 - 20.00 (CL), CLAY; red to red-brown, some coarse sand, dry to moist, w<PL, soft, some muscovite, Fill	CL		18.10					
20		20.00 - 28.00 (ML), SILT; brown, some fines, very fine to coarse sand, wet, soft to very soft, w<PL, medium plasticity,	ML		20.00	2	ROTO SONIC	10.00 / 10.00		
		28.00 - 30.00 (SP), SAND; uniformly graded, some silt, non-cohesive, loose, moist, non-plastic	SP		28.00				AquaGuard Bentonite Grout	
30		30.00 - 32.00 (SM), SILTY SAND; brown, trace gravel, dry to moist, cohesive, firm to stiff, w<PL, low plasticity, some crenulations, saprolitc	SM		30.00	3	ROTO SONIC	5.00 / 5.00		
		32.00 - 35.00 (SM), SILTY SAND; dry to moist, cohesive, firm to stiff, w~PL, low to medium plasticity	SM		32.00					
35		35.00 - 40.00 (ML), SANDY SILT; brown, fine to coarse sand, micas, firm to stiff, w>PL, dry to wet	ML		35.00	4	ROTO SONIC	5.00 / 5.00		
40		40.00 - 45.00 (SM), SILTY SAND, brown, fine to coarse sand, some gravel, schist, quartz vein fragments, micas, firm to stiff, w<PL, moist, medium plasticity	SM		40.00	5	ROTO SONIC	5.00 / 5.00		
45		45.00 - 47.00 (SM), SILTY SAND, brown, fine to coarse sand, some gravel, schist, quartz vein fragments, micas, stiff to very stiff, w>PL, moist, medium plasticity, saprolitic	SM		45.00	6	ROTO SONIC	2.00		
		47.00 - 60.00 NO RECOVERY; material too loose and continues to fall out of core barrel	NR		47.00	7		0.00 / 13.00		
50		Log continued on next page								

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-106D

SHEET 2 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 80.00 ft
LOCATION: North of DGWC-8

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 11/12/20
DATE COMPLETED: 11/13/20

NORTHING: 1394327.1
EASTING: 2203869.2
GS ELEVATION: 823.39 ft
TOC ELEVATION: 826.21 ft

DEPTH W.L.: 37.0
ELEVATION W.L.: 789.2
DATE W.L.: 11/13/2020
TIME W.L.: 1652

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES SAMPLE NO.	SAMPLES TYPE	SAMPLES REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
50		47.00 - 60.00 NO RECOVERY; material too loose and continues to fall out of core barrel *(Continued)*	NR			7	ROTO SONIC	0.00 / 13.00		
60		60.00 - 65.00 (SCHIST), BEDROCK; silvery blue, well foliated, poorly jointed, moderate to deeply weathered, weak to medium strong rock, iron staining	BR		60.00	8	ROTO SONIC	1.60 / 5.00	3/8" Uncoated Pel-Plug	
65		65.00 - 75.00 (BIOTITE GNEISS), BEDROCK; light gray to dark gray, zones of muscovite schistocity, very fine grain, moderate to poor foliation, poorly jointed, fresh to moderately weathered, medium strong, iron staining, feldspar, quartz, muscovite	BR		65.00	9	ROTO SONIC	5.20 / 10.00	Sand Filter Pack	
75		75.00 - 80.00 (BIOTITE GNEISS), BEDROCK; light gray to dark gray, zones of muscovite schistocity, very fine grain, moderate to poor foliation, poorly jointed, fresh to moderately weathered, medium strong, iron staining, feldspar, quartz	BR		75.00	10	ROTO SONIC	3.40 / 5.00	U-Pack Screen	
80		Boring completed at 80.00 ft								
85										
90										
95										
100										

B-106D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-80'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 69.4'-79.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 66.61'-80'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 62.85'-66.61'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-62.85'
Type: AquaGuard Bentonite Grout
Quantity:

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ PIEDMONT.GDT 2/3/21

RECORD OF BOREHOLE B-107D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 85.75 ft
LOCATION: Southwest of DGWC-19

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 10/28/20
DATE COMPLETED: 10/28/20

NORTHING: 1392334.5
EASTING: 2202596.4
GS ELEVATION: 820.44 ft
TOC ELEVATION: 823.38 ft

DEPTH W.L.: 21.8
ELEVATION W.L.: 801.6
DATE W.L.: 10/28/2020
TIME W.L.: 1440

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL / PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0		0.00 - 10.00 Air knife; FILL	FILL						Stick-up	**B-107D** Borehole Diameter: 4" **WELL CASING** Interval: 0'-85.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam **WELL SCREEN** Interval: 75.1'-85.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC **FILTER PACK** Interval: 72.25'-85.5' Type: FilterSil Quantity: 4.5-50 lbs bags **FILTER PACK SEAL** Interval: 68.8'-72.25' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon **ANNULUS SEAL** Interval: 0'-68.8' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons **NOTES**
10		10.00 - 20.00 (CL-ML), SILT and CLAY; red brown to brown, trace sand, low to medium plasticity, soft to firm, moist, contains muscovite	CL-ML		10.00	1	ROTO SONIC	7.00 / 10.00		
20		20.00 - 38.00 (SM), SILTY SAND; brown to tannish brown, trace sand, w<PL, low plasticity, loose to compact, large grains of muscovite	SM		20.00	2	ROTO SONIC	4.30 / 10.00		
30						3	ROTO SONIC	10.00 / 10.00	AquaGuard Bentonite Grout	
40		38.00 - 40.00 (SM), SILTY SAND; black and silverish gray, fine to medium, non-plastic, w<PL, loose sand, moist, 40.00 - 50.00 (SM-ML), SILTY SAND to SILT; brown to silverish brown, moist to wet, w<PL, soft to stiff	SM		38.00 40.00	4	ROTO SONIC	9.00 / 10.00		
50		Log continued on next page								

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ PIEDMONT.GDT 2/3/21

RECORD OF BOREHOLE B-107D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 85.75 ft
LOCATION: Southwest of DGWC-19

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 10/28/20
DATE COMPLETED: 10/28/20

NORTHING: 1392334.5
EASTING: 2202596.4
GS ELEVATION: 820.44 ft
TOC ELEVATION: 823.38 ft

DEPTH W.L.: 21.8
ELEVATION W.L.: 801.6
DATE W.L.: 10/28/2020
TIME W.L.: 1440

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
50		50.00 - 60.00 (SM-ML), SILTY SAND to SILT; brown to silverish brown, moist to wet, w<PL, soft to stiff	SM		50.00	5	ROTO SONIC	6.00 / 10.00		
60		60.00 - 67.00 NO RECOVERY; material was washed away by coring methods. Material form 63' to 67' is inferred as TWR.	NR		60.00	6	ROTO SONIC	0.00 / 7.00		
70		67.00 - 75.00 (GNEISS), BEDROCK; dark gray to black, well foliated, poorly jointed, slightly to deeply weathered, weak to medium strong, feldspar, quartz, muscovite,	BR		67.00	7	ROTO SONIC	6.70 / 8.00	3/8" Uncoated Pel-Plug Sand Filter Pack	
75		75.00 - 85.75 (GNEISS), BEDROCK; dark gray to black, well foliated, poorly jointed, slightly to deeply weathered, weak to medium strong, feldspar, quartz, muscovite,	BR		75.00	8	ROTO SONIC	6.80 / 10.75	U-Pack Screen	
85		Boring completed at 85.75 ft			85.75					
90										
95										
100										

B-107D
Borehole Diameter: 4"

WELL CASING
Interval: 0'-85.1'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam

WELL SCREEN
Interval: 75.1'-85.1'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 72.25'-85.5'
Type: FilterSil
Quantity: 4.5-50 lbs bags

FILTER PACK SEAL
Interval: 68.8'-72.25'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon

ANNULUS SEAL
Interval: 0'-68.8'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-108D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 80.00 ft
LOCATION: Next to DGWC-20

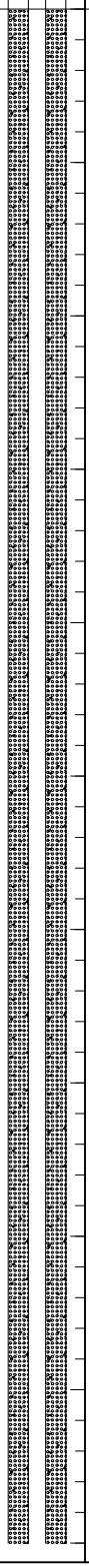
DRILL RIG: Geoprobe 8140LC
DATE STARTED: 10/26/20
DATE COMPLETED: 10/27/20

NORTHING: 1392156.1
EASTING: 2202312.5
GS ELEVATION: 818.33 ft
TOC ELEVATION: 821.13 ft

DEPTH W.L.: 17.7
ELEVATION W.L.: 803.43
DATE W.L.: 10/27/2020
TIME W.L.: 0915

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0		0.00 - 10.00 Air knife; FILL	FILL					
10		10.00 - 12.00 (CL), CLAY;w<PL, low plasticity, moist to wet, Fill	CL		10.00			
		12.00 - 20.00 (ML), SILT; tannish brown with black spots, trace fine sand, w<PL, non-plastic to low plasticity, compact to firm, moist	ML		12.00	1	ROTO SONIC	10.00 / 10.00
20		20.00 - 30.00 (ML), SILT; tannish brown with black/silver spots, trace to some fine sand, w<PL, low plasticity, dry to moist, firm, saprolite, deeply weather biotite gneiss	ML		20.00	2	ROTO SONIC	9.50 / 10.00
30		30.00 - 40.00 (ML-SM), SILT and SILTY SAND; silverish brown, trace clay, w<PL, nonplastic to low plasticity, moist, firm to stiff, contains muscovite, saprolite	SM		30.00	3	ROTO SONIC	8.00 / 10.00
40		40.00 - 50.00 (ML-SM), SILT and SILTY SAND; silverish brown, trace clay, w<PL, nonplastic to low plasticity, moist, soft to firm, contains muscovite, saprolite	SM		40.00	4	ROTO SONIC	6.75 / 10.00
50		Log continued on next page						

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

B-108D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-80.0'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 69'-79'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 65.85'-79'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 62.5'-65.85'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1- 5 gallon bucket
ANNULUS SEAL
Interval: 0'-62.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-108D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 80.00 ft
LOCATION: Next to DGWC-20

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 10/26/20
DATE COMPLETED: 10/27/20

NORTHING: 1392156.1
EASTING: 2202312.5
GS ELEVATION: 818.33 ft
TOC ELEVATION: 821.13 ft

DEPTH W.L.: 17.7
ELEVATION W.L.: 803.43
DATE W.L.: 10/27/2020
TIME W.L.: 0915

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
50		50.00 - 51.00 (SP), SAND; black to dark gray, w<PL, non-plastic, firm, loose, wet	SP		50.00				
		51.00 - 57.50 (ML), SILT; gray to brown, w<PL, low plasticity, firm to stiff, moist, saprolite	ML		51.00	5	ROTO SONIC	7.50 / 7.50	
55									
60		57.50 - 65.00 (GNEISS), BEDROCK; dark brown to gray, well foliated, poorly jointed, deeply weathered, weak rock, iron staining	BR		57.50	6	ROTO SONIC	1.25 / 7.50	3/8" Uncoated Pel-Plug
65		65.00 - 75.00 (GNEISS), BEDROCK; dark brown to gray, well foliated, poorly jointed, fresh to slightly weathered, medium strong rock, iron staining	BR		65.00	7	ROTO SONIC	6.55 / 10.00	Sand Filter Pack
70									
75		75.00 - 80.00 (GNEISS), BEDROCK; dark brown to gray, well foliated, poorly jointed, fresh to slightly weathered, medium strong rock, iron staining	BR		75.00	8	ROTO SONIC	4.80 / 5.00	U-Pack Screen
80		Boring completed at 80.00 ft							
85									
90									
95									
100									

B-108D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-80.0'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 69'-79'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 65.85'-79'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 62.5'-65.85'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1- 5 gallon bucket
ANNULUS SEAL
Interval: 0'-62.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-111D

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 85.00 ft
LOCATION: West of DGWC-5

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 11/1/20
DATE COMPLETED: 11/3/20

NORTHING: 1394303.6
EASTING: 2202956.4
GS ELEVATION: 788.99 ft
TOC ELEVATION: 791.84 ft

DEPTH W.L.: 8.9
ELEVATION W.L.: 755.30
DATE W.L.: 11/3/2020
TIME W.L.: 0815

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0		0.00 - 10.00 Air Knife; Fill	FILL						Stick-up	**B-111D** Borehole Diameter: 6" **WELL CASING** Interval: 0'-85' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam **WELL SCREEN** Interval: 74.15'-84.15' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC **FILTER PACK** Interval: 72.1'-84.15' Type: FilterSil Quantity: 3-50 lbs bags **FILTER PACK SEAL** Interval: 68.7'-72.1' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket **ANNULUS SEAL** Interval: 0'-68.7' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons **NOTES**
10		10.00 - 15.00 (ML), SILT; tan to brown, trace fine to coarse sand, moist to wet, soft, low plasticity, w<Pl, saprolite	ML		10.00	1	ROTO SONIC	10.00 / 10.00		
15		15.00 - 20.00 (ML), SILT; gray and green to brown, low plasticity, w<PL, moist, soft to firm	ML		15.00					
20		20.00 - 26.00 (ML), SILT; gray and green to brown, low plasticity, w<PL, moist, soft to firm, more saprolitic	ML		20.00	2	ROTO SONIC	8.00 / 8.00		
25		26.00 - 27.00 (TWR), TRANSITIONALLY WEATHERED ROCK; silt, gray and green to brown, low plasticity, w<PL, moist, soft to firm, saprolitic, locally contains gravels of augen biotite gneiss	TWR		26.00 27.00					
30		27.00 - 34.00 (GNEISS), BEDROCK; quartz, feldspar, biotite, white to dark gray, moderately weathered, medium strong, iron staining, locally contains augened feldspars	BR			3	ROTO SONIC	1.00 / 2.00	AquaGuard Bentonite Grout	
						4	ROTO SONIC	2.20 / 4.00		
35		34.00 - 51.50 (GNEISS), BEDROCK; biotite, quartz, feldspar,white to light gray, well foliated, poorly jointed, fresh to slightly weathered, medium strong, iron staining, locally contains K-spar augens	BR		34.00	5	ROTO SONIC	1.70 / 6.00		
40										
45						6	ROTO SONIC	10.00 / 10.00		
50		Log continued on next page								

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST (2) (3) (1).GPJ PIEDMONT.GDT 2/10/21

RECORD OF BOREHOLE B-111D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 85.00 ft
LOCATION: West of DGWC-5

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 11/1/20
DATE COMPLETED: 11/3/20

NORTHING: 1394303.6
EASTING: 2202956.4
GS ELEVATION: 788.99 ft
TOC ELEVATION: 791.84 ft

DEPTH W.L.: 8.9
ELEVATION W.L.: 755.30
DATE W.L.: 11/3/2020
TIME W.L.: 0815

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
50			BR							
		51.50 - 58.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, white to light gray, well foliated, poorly jointed, fresh to slightly weathered, medium strong, locally contains epidote			51.50					
55			BR			7	ROTO SONIC	7.00 / 10.00		
		58.00 - 85.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, white to light gray, well foliated, poorly jointed, fresh to slightly weathered, medium to strong,			58.00					
60						8	ROTO SONIC	5.00 / 5.00		
65						9	ROTO SONIC	5.00 / 5.00		
70			BR			10	ROTO SONIC	5.00 / 5.00	3/8" Uncoated Pel-Plug	
75									Sand Filter Pack	
80						11	ROTO SONIC	10.00 / 10.00	U-Pack Screen	
85		Boring completed at 85.00 ft								
90										
95										
100										

B-111D
Borehole Diameter: 6"

WELL CASING
Interval: 0'-85'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam

WELL SCREEN
Interval: 74.15'-84.15'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 72.1'-84.15'
Type: FilterSil
Quantity: 3-50 lbs bags

FILTER PACK SEAL
Interval: 68.7'-72.1'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket

ANNULUS SEAL
Interval: 0'-68.7'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-120D

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 70.00 ft
LOCATION: Offset of B-3

DRILL RIG: TSi 150CC
DATE STARTED: 3/5/21
DATE COMPLETED: 3/6/21

NORTHING: 1,394,047.2
EASTING: 2,202,436.4
GS ELEVATION: 834.03
TOC ELEVATION: 836.42 ft

DEPTH W.L.:33.76
ELEVATION W.L.: 802.66
DATE W.L.:4/9/2021
TIME W.L.:12:26

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC	PIEZOMETER DIAGRAM and NOTES
0		0.00 - 10.00 FILL- Backfilled with cuttings from air knife clearance				Air Knife		0.00 / 10.00	
5	830								
10	825				824				
		10.00 - 20.00 ML, Clayey SILT with trace medium to coarse sand, non to low plasticity; tan to brown; loose, dry to moist, W<PL	ML		10.00	1		6.80 / 10.00	
15	820								
20	815				814				
		20.00 - 27.00 SM, SILTY SAND with some gravels, non plasticity; light gray to gray; loose, dry to moist, W<PL	SM		20.00	2		10.00 / 10.00	
25	810				807				
		27.00 - 30.00 ML, Clayey SILT with trace medium to coarse sand, non to low plasticity; tan to brown; loose, dry to moist, W<PL	ML		27.00				
30	805				804				
		30.00 - 36.00 SM, SILTY SAND with trace fine to coase gravels, non plasticity; tan to brown; compact to dense, dry to moist, W<PL	SM		30.00	3		8.00 / 10.00	AquaGuard Grout
35	800				798				
		36.00 - 40.00 TWR, Transitional Weathered Rock; breaks down to a SM, SILTY SAND with trace fine to coase gravels, non plasticity; olive to tan to brown; compact to dense, dry to moist, W<PL	TWR		36.00				
40	795				794				

Log continued on next page

PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-59'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 59-69'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 69.0-69.3'

FILTER PACK
Interval: 56.0-69.3'
Type: #1 Filter Sand
Quantity: 5.5 - 50 lbs bags

FILTER PACK SEAL
Interval: 53-56'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-53'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

BOREHOLE RECORD 166849621.GPJ PIEDMONT.GDT 5/24/21

RECORD OF BOREHOLE B-120D

SHEET 2 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 70.00 ft
LOCATION: Offset of B-3

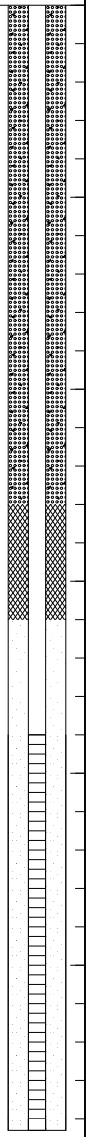
DRILL RIG: TSi 150CC
DATE STARTED: 3/5/21
DATE COMPLETED: 3/6/21

NORTHING: 1,394,047.2
EASTING: 2,202,436.4
GS ELEVATION: 834.03
TOC ELEVATION: 836.42 ft

DEPTH W.L.:33.76
ELEVATION W.L.: 802.66
DATE W.L.:4/9/2021
TIME W.L.:12:26

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC
40		40.00 - 70.00 Fresh to slightly weatherd, well foliated, poorly jointed, white to dark gray, fine to coarse grained, biotite-feldspar-quartz GNEISS; locally the felspars are augened	BR		40.00	4		7.80/10.00
45	790							
50	785					5		6.20/10.00
55	780							
60	775					6		8.50/10.00
65	770							
70	765	Boring completed at 70.00 ft			764			
75	760							
80	755							

PIEZOMETER DIAGRAM and NOTES



PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-59'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 59-69'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 69.0-69.3'

FILTER PACK
Interval: 56.0-69.3'
Type: #1 Filter Sand
Quantity: 5.5 - 50 lbs bags

FILTER PACK SEAL
Interval: 53-56'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-53'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

BOREHOLE RECORD 166849621.GPJ PIEDMONT.GDT 5/24/21

RECORD OF BOREHOLE B-122D

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849621
DRILLED DEPTH: 85.00 ft
LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
Truck-Mounted Sonic
DATE STARTED: 3/24/22
DATE COMPLETED: 3/24/22

NORTHING: 1,390,992.8
EASTING: 2,202,975.4
GS ELEVATION: 777.32
TOC ELEVATION: 777.03 ft

DEPTH W.L.:30.25
ELEVATION W.L.:747.07
DATE W.L.:3/25/22
TIME W.L.:8:15

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC
0	775	0.00 - 10.00 FILL, CL, SILTY CLAY, moist, micaceous, trace of organics; air knifed for utility clearance			767.3	1		NA 10.00
10	765	10.00 - 20.00 CL, SILTY CLAY, moist, high plasticity, little fine to coarse gravel, orange to brown, schist fragments	CH		10.00 757.3	2		8.50 10.00
20	755	20.00 - 30.00 SP-SM, SAND and SILT, dark brown, iron staining, low plasticity, weathered boulder encountered, muscovite, biotite schist boulder	SP-SM		20.00 747.3	3		6.50 10.00
30	745	30.00 - 40.00 SP-SM, SAND, moist, dark gray, fine grained, trace of organics, rounded shape	SP-SM		30.00 737.3	4		9.75 10.00
40	735	40.00 - 41.00 SP-SM, SILTY SAND, dark brown, little iron staining, fine, rounded shape 41.00 - 50.00 muscovite biotite SCHIST, strong, fresh to slightly weathered, slightly fractured, fine to coarse grains, little iron staining	SP-SM		736.3 41.00 727.3	5		9.75 10.00
50		Log continued on next page						

MONITORING WELL DIAGRAM and NOTES

Aquaguard Grout

WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-69.8'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 69.8'-79.8'
Material: 0.010" Slotted
Diameter: 2"
Slot Size: 0.010"
End Cap: 3"

FILTER PACK
Interval: 67.8'-85'
Type: Filter Sil - Filtration sand and gravel, industrial quartz
Quantity: 5 x 50 lb bag

FILTER PACK SEAL
Interval: 64.2'-67.8'
Type: Pel Plug Bentonite Pellets
Quantity: 1 x 50 lb bucket

ANNULUS SEAL
Interval: 0'-64.2'
Type: Aquaguard bentonite grout
Quantity: 3 batches of 2 bags Aquaguard + 40 gal water

WELL COMPLETION
Pad: 4' x 4'
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic
Sample Type: Sonic

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

GA INSPECTOR: Connor Mikilitus
CHECKED BY: Rachel Kirkman, PG
DATE: 5/10/22

WSP GOLDER

RECORD OF BOREHOLE B-122D

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849621
DRILLED DEPTH: 85.00 ft
LOCATION: Smyrna, GA

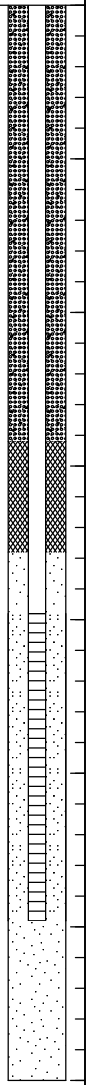
DRILL RIG: Terra Sonic 150T
Truck-Mounted Sonic
DATE STARTED: 3/24/22
DATE COMPLETED: 3/24/22

NORTHING: 1,390,992.8
EASTING: 2,202,975.4
GS ELEVATION: 777.32
TOC ELEVATION: 777.03 ft

DEPTH W.L.:30.25
ELEVATION W.L.:747.07
DATE W.L.:3/25/22
TIME W.L.:8:15

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC
50		50.00 - 60.00 Muscovite biotite SCHIST, strong, fresh, unfractured, fine to coarse grains			50.00			
	725							
55						6		6.50 10.00
	720							
60					717.3			
		60.00 - 65.00 Same as above			60.00			
	715							
65					712.3	7		9.50 10.00
		65.00 - 70.00 muscovite biotite SCHIST, strong, fresh to slightly weathered, slightly fractured, fine to coarse grained, traces of iron staining			65.00			
	710							
70					707.3			
		70.00 - 73.00 Same as above, some iron staining, slightly to moderately fractured			70.00			
	705				704.3			
		73.00 - 80.00 muscovite biotite SCHIST, strong fresh, unfractured, fine to coarse grained			73.00			
75						8		9.20 10.00
	700							
80					697.3			
		80.00 - 85.00 muscovite biotite SCHIST, strong fresh to slightly weathered, slightly fractured, fine to coarse grained, trace to little iron staining			80.00			
	695					9		5.00 5.00
85					692.3			
		Boring completed at 85.00 ft						
	690							
90								
	685							
95								
	680							
100								

MONITORING WELL DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-69.8'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 69.8'-79.8'
Material: 0.010" Slotted
Diameter: 2"
Slot Size: 0.010"
End Cap: 3"

FILTER PACK
Interval: 67.8'-85'
Type: Filter Sil - Filtration sand and gravel, industrial quartz
Quantity: 5 x 50 lb bag

FILTER PACK SEAL
Interval: 64.2'-67.8'
Type: Pel Plug Bentonite Pellets
Quantity: 1 x 50 lb bucket

ANNULUS SEAL
Interval: 0'-64.2'
Type: Aquaguard bentonite grout
Quantity: 3 batches of 2 bags Aquaguard + 40 gal water

WELL COMPLETION
Pad: 4' x 4'
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic
Sample Type: Sonic

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

GA INSPECTOR: Connor Mikilitus
CHECKED BY: Rachel Kirkman, PG
DATE: 5/10/22

WSP GOLDER

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D.GPJ PIEDMONT.GDT 5/13/22

RECORD OF BOREHOLE B-125D

SHEET 1 of 5

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849622
DRILLED DEPTH: 220.00 ft
LOCATION: Smyrna. GA

DRILL RIG: Track Rig PS150
DATE STARTED: 3/14/23
DATE COMPLETED: 3/31/23

NORTHING: 1,394,111.60
EASTING: 2,202,580.70
GS ELEVATION: 819.15 ft
TOC ELEVATION: 821.70 ft

DEPTH W.L.:15.7 ft
ELEVATION W.L.:
DATE W.L.:3/31/23
TIME W.L.:

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0		0.00 - 10.00 FILL, SC, CLAYEY SAND, some silt, red, trace mica, highly weathered, NC, moist, trending drier downhole, loose to compact; air knifed for utility clearance	SC		809.15	1		4.00 / 10.00	Aquaguard _ Grout	**WELL CASING** Interval: 0'-135.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded **WELL SCREEN** Interval: 135.1'-145.1' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3" **FILTER PACK** Interval: 132.6'-146.5' Type: No. 2 Filter Sand Quantity: 4x15-cu ft bag **FILTER PACK SEAL** Interval: 128'-132.6' Type: Pel Plug Bentonite Pellets 3/8" Quantity: 1 x 5 gal bucket **ANNULUS SEAL** Interval: 0'-128' Type: Aquaguard bentonite grout Quantity: 8 bags **WELL COMPLETION** Pad: 4'x4' Protective Casing: Aluminum **DRILLING METHODS** Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic
5	815									
10	810	10.00 - 20.00 RESIDUUM, SP, fine SAND with trace clay, tan, trace mica, moderately weathered, NC, moist, loose	SP		10.00 799.15	2		4.00 / 10.00		
15	805									
20	800	20.00 - 22.50 SW, fine to coarse SAND with gravels of schist, saprolitic schist structure observed, tan, highly weathered, NC, dry, very loose	SW		20.00 796.65	3		9.50 / 10.00		
		22.50 - 25.00 TWR, GP, angular GRAVEL with fine to coarse sand; schistic gravels, highly weathered, NC, dry, very loose	GP		22.50 794.15					
25	795	25.00 - 30.00 BEDROCK, highly weathered GNEISS, very rough surface, multiple fractures			25.00 789.15					
30	790	30.00 - 34.00 No Recovery			30.00 785.15	4		6.00 / 10.00		
35	785	34.00 - 68.00 moderately weathered GNEISS, very rough surface, multiple fractures			34.00					
40	780					5		9.50 / 10.00		
45	775									
50	770									

Log continued on next page

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

GA INSPECTOR: Chris Tidwell
CHECKED BY: Rhonda Quinn
DATE: 5/11/2023

RECORD OF BOREHOLE B-125D

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849622
DRILLED DEPTH: 220.00 ft
LOCATION: Smyrna. GA

DRILL RIG: Track Rig PS150
DATE STARTED: 3/14/23
DATE COMPLETED: 3/31/23

NORTHING: 1,394,111.60
EASTING: 2,202,580.70
GS ELEVATION: 819.15 ft
TOC ELEVATION: 821.70 ft

DEPTH W.L.:15.7 ft
ELEVATION W.L.:
DATE W.L.:3/31/23
TIME W.L.:

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	MONITORING WELL DIAGRAM and NOTES
50		34.00 - 68.00 moderately weathered GNEISS, very rough surface, multiple fractures *(Continued)*							
	765								
55						6		8.00 10.00	
	760								
60									
	755								
65						7		6.00 10.00	
					751.15 68.00				
	750	68.00 - 70.00 highly weathered GNEISS, very rough surface, multiple fractures, iron staining			749.15 70.00				
70		70.00 - 150.00 moderately to slightly weathered GNEISS; rough irregular surface, multiple fractures, intermittent quartz lenses, iron staining at 77.5', 130'-140'							
	745								
75						8		5.00 10.00	
	740								
80									
	735								
85						9		7.00 10.00	
	730								
90									
	725								
95						10		5.00 10.00	
	720								
100		Log continued on next page							

WELL CASING
Interval: 0'-135.1'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 135.1'-145.1'
Material: 0.010" Slotted
Diameter: 2"
Slot Size: 0.010"
End Cap: 3"

FILTER PACK
Interval: 132.6'-146.5'
Type: No. 2 Filter Sand
Quantity: 4x15-cu ft bag

FILTER PACK SEAL
Interval: 128'-132.6'
Type: Pel Plug Bentonite Pellets 3/8"
Quantity: 1 x 5 gal bucket

ANNULUS SEAL
Interval: 0'-128'
Type: Aquaguard bentonite grout
Quantity: 8 bags

WELL COMPLETION
Pad: 4'x4'
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic
Sample Type: Sonic

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

GA INSPECTOR: Chris Tidwell
CHECKED BY: Rhonda Quinn
DATE: 5/11/2023

RECORD OF BOREHOLE B-125D

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849622
DRILLED DEPTH: 220.00 ft
LOCATION: Smyrna. GA

DRILL RIG: Track Rig PS150
DATE STARTED: 3/14/23
DATE COMPLETED: 3/31/23

NORTHING: 1,394,111.60
EASTING: 2,202,580.70
GS ELEVATION: 819.15 ft
TOC ELEVATION: 821.70 ft

DEPTH W.L.:15.7 ft
ELEVATION W.L.:
DATE W.L.:3/31/23
TIME W.L.:

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	MONITORING WELL DIAGRAM and NOTES
100		70.00 - 150.00 moderately to slightly weathered GNEISS; rough irregular surface, multiple fractures, intermittent quartz lenses, iron staining at 77.5', 130'-140' *(Continued)*							
	715								
105						11		8.00/10.00	
	710								
110									
	705								
115						12		8.00/10.00	
	700								
120									
	695								
125						13		8.00/10.00	
	690								
130									Pel Plug Pellets
	685								
135						14		5.00/10.00	Filter Sil Filtration sand and gravel
	680								0.010" Slotted Schedule 40 PVC U-pack Screen
140									
	675								
145						15		5.00/10.00	3" bottom cap
	670								19 x 50lb bags, Haliburton Bentonite Chips 3/8"
150		Log continued on next page			669.15				

WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-135.1'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 135.1'-145.1'
Material: 0.010" Slotted
Diameter: 2"
Slot Size: 0.010"
End Cap: 3"

FILTER PACK
Interval: 132.6'-146.5'
Type: No. 2 Filter Sand
Quantity: 4x15-cu ft bag

FILTER PACK SEAL
Interval: 128'-132.6'
Type: Pel Plug Bentonite Pellets 3/8"
Quantity: 1 x 5 gal bucket

ANNULUS SEAL
Interval: 0'-128'
Type: Aquaguard bentonite grout
Quantity: 8 bags

WELL COMPLETION
Pad: 4'x4'
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic
Sample Type: Sonic

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

GA INSPECTOR: Chris Tidwell
CHECKED BY: Rhonda Quinn
DATE: 5/11/2023

RECORD OF BOREHOLE B-125D

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849622
DRILLED DEPTH: 220.00 ft
LOCATION: Smyrna. GA

DRILL RIG: Track Rig PS150
DATE STARTED: 3/14/23
DATE COMPLETED: 3/31/23

NORTHING: 1,394,111.60
EASTING: 2,202,580.70
GS ELEVATION: 819.15 ft
TOC ELEVATION: 821.70 ft

DEPTH W.L.:15.7 ft
ELEVATION W.L.:
DATE W.L.:3/31/23
TIME W.L.:

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	MONITORING WELL DIAGRAM and NOTES
150		150.00 - 220.00 moderately to highly weathered GNEISS; rough irregular surface, muliple fractures, quartz and biotite mica, iron staining at 157'-160'			150.00				
155	665					16		10.00 / 10.00	
160	660								
165	655					17		7.50 / 10.00	
170	650								
175	645					18		10.00 / 10.00	
180	640								
185	635					19		8.00 / 10.00	
190	630								
195	625					20		10.00 / 10.00	
200	620								

Log continued on next page

WELL CASING
Interval: 0'-135.1'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 135.1'-145.1'
Material: 0.010" Slotted
Diameter: 2"
Slot Size: 0.010"
End Cap: 3"

FILTER PACK
Interval: 132.6'-146.5'
Type: No. 2 Filter Sand
Quantity: 4x15-cu ft bag

FILTER PACK SEAL
Interval: 128'-132.6'
Type: Pel Plug Bentonite Pellets 3/8"
Quantity: 1 x 5 gal bucket

ANNULUS SEAL
Interval: 0'-128'
Type: Aquaguard bentonite grout
Quantity: 8 bags

WELL COMPLETION
Pad: 4'x4'
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic
Sample Type: Sonic

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

GA INSPECTOR: Chris Tidwell
CHECKED BY: Rhonda Quinn
DATE: 5/11/2023

RECORD OF BOREHOLE B-125D

SHEET 5 of 5

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849622
DRILLED DEPTH: 220.00 ft
LOCATION: Smyrna. GA

DRILL RIG: Track Rig PS150
DATE STARTED: 3/14/23
DATE COMPLETED: 3/31/23

NORTHING: 1,394,111.60
EASTING: 2,202,580.70
GS ELEVATION: 819.15 ft
TOC ELEVATION: 821.70 ft

DEPTH W.L.:15.7 ft
ELEVATION W.L.:
DATE W.L.:3/31/23
TIME W.L.:

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
200		150.00 - 220.00 moderately to highly weathered GNEISS; rough irregular surface, muliple fractures, quartz and biotite mica, iron staining at 157'-160' *(Continued)*								
205	615					21		10.00 / 10.00		
210	610									
215	605					22		7.00 / 10.00		
220	600				599.15					
		Boring completed at 220.00 ft								
225	595									
230	590									
235	585									
240	580									
245	575									
250	570									

WELL CASING
Interval: 0'-135.1'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 135.1'-145.1'
Material: 0.010" Slotted
Diameter: 2"
Slot Size: 0.010"
End Cap: 3"

FILTER PACK
Interval: 132.6'-146.5'
Type: No. 2 Filter Sand
Quantity: 4x15-cu ft bag

FILTER PACK SEAL
Interval: 128'-132.6'
Type: Pel Plug Bentonite Pellets 3/8"
Quantity: 1 x 5 gal bucket

ANNULUS SEAL
Interval: 0'-128'
Type: Aquaguard bentonite grout
Quantity: 8 bags

WELL COMPLETION
Pad: 4'x4'
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic
Sample Type: Sonic

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

GA INSPECTOR: Chris Tidwell
CHECKED BY: Rhonda Quinn
DATE: 5/11/2023

RECORD OF BOREHOLE B-129S

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 31406440.02
DRILLED DEPTH: 35.70 ft

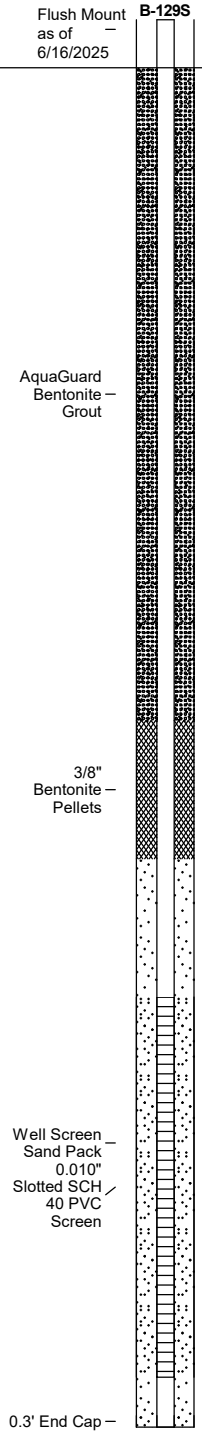
DRILL RIG: Terra Sonic 150
DATE STARTED: 1/16/25
DATE COMPLETED: 1/17/25

NORTHING: 1,391,725.4
EASTING: 2,203,139.9
GS ELEVATION: 791.78 ft
TOC ELEVATION: 791.56 ft

DEPTH W.L.: 20.40 ft
ELEVATION W.L.: 774.10 ft
DATE W.L.: 1/29/25
TIME W.L.: 8:00 am

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NUMBER	TYPE	REC / ATT
0	790	0.00 - 9.20 **No Recovery**			782.58	1	AIR KNIFE	0.00 9.20
10	780	9.20 - 18.00 **GP-GM, silty sandy GRAVEL**, sand fine, light yellowish brown, micaceous, dry.	GP-GM		9.20 773.78	2	ROTO SONIC	10.00 8.80
20	770	18.00 - 20.00 **GP, silty sandy GRAVEL**, sand fine, brown, moist, trace mica, and some iron staining at 19'; Partially Weathered Rock 19.00: Some iron staining. 20.00 - 35.70 **BEDROCK**, Biotite Schist, dark gray with some iron staining and fine grained pyrite along fractures.	GP		18.00 771.78 20.00	3 4 5	ROTO SONIC ROTO SONIC ROTO SONIC	2.00 2.00 8.00 10.00 5.70 5.70
35	755	Boring completed at 35.70 ft			756.08			
40								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: -0.22' - 24.2'
Material: SCH 40 PVC
Diameter: 2"
Joint Type: Threaded
WELL SCREEN
Interval: 24.2' - 34.1'
Material: SCH 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 0.3'
FILTER PACK
Interval: 20.6' - 35.4'
Type: Filter sand well pack
Quantity: 4 50-lb bags
FILTER PACK SEAL
Interval: 20.6' - 17.0'
Type: 3/8" bentonite pellets
Quantity:1 5-gal bucket
ANNULUS SEAL
Interval: 0.0' - 17.0'
Type: AquaGuard bentonite grout
Quantity: 2 50-lb bags bucket
WELL COMPLETION NOTES
NA

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Environmental
DRILLER: C. Franklin

GA INSPECTOR: Thomas Keller
CHECKED BY: Nicholas McMillan
DATE: 4/28/25 Re-Surveyed 6/16/2025.

Log revised 6/19/2025 for new survey data

AA BOREHOLE RECORD B-129, 130, 131,132 AND INW-01, 01A, AND 03.GPJ GOLDER NJ-PA 05-24-06.GDT 5/9/25

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/2/2012 **COMPLETED** 10/3/2012 **GROUND ELEVATION** 835 ft **COORDINATES** N 1394045.1 E 2202411.5

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** R. Tinsley **CHECKED BY** _____ **BORING DEPTH** 42 ft.

GROUND WATER DEPTH: DURING 23 ft. **COMP.** _____ **DELAYED** 22.5 ft. after 24 hrs.

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML) - Grass - brownish yellow, dry, SILT						
5		- brownish yellow, dry, medium stiff, SILT saprolite with relic bedding.		SS -1	4.5	3-2-3 (5)		upper saprolite.
10		- pale brown and white, medium stiff, mottled; SAA with occasional fragments.		SS -2	9.5	2-3-3 (6)		10YR; powdery; Upper Saprolite.
15		- SAA		SS -3	14.5	2-3-4 (7)		upper saprolite.
20		- mottled deep red and gray, damp, stiff, SILT; with coarse grains of angular quartz; gneiss saprolite.		SS -4	19.5	1-6-5 (11)		upper saprolite.
25		**Silt (ML)**	810.5	SS	24.5	6-6-8		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:43 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

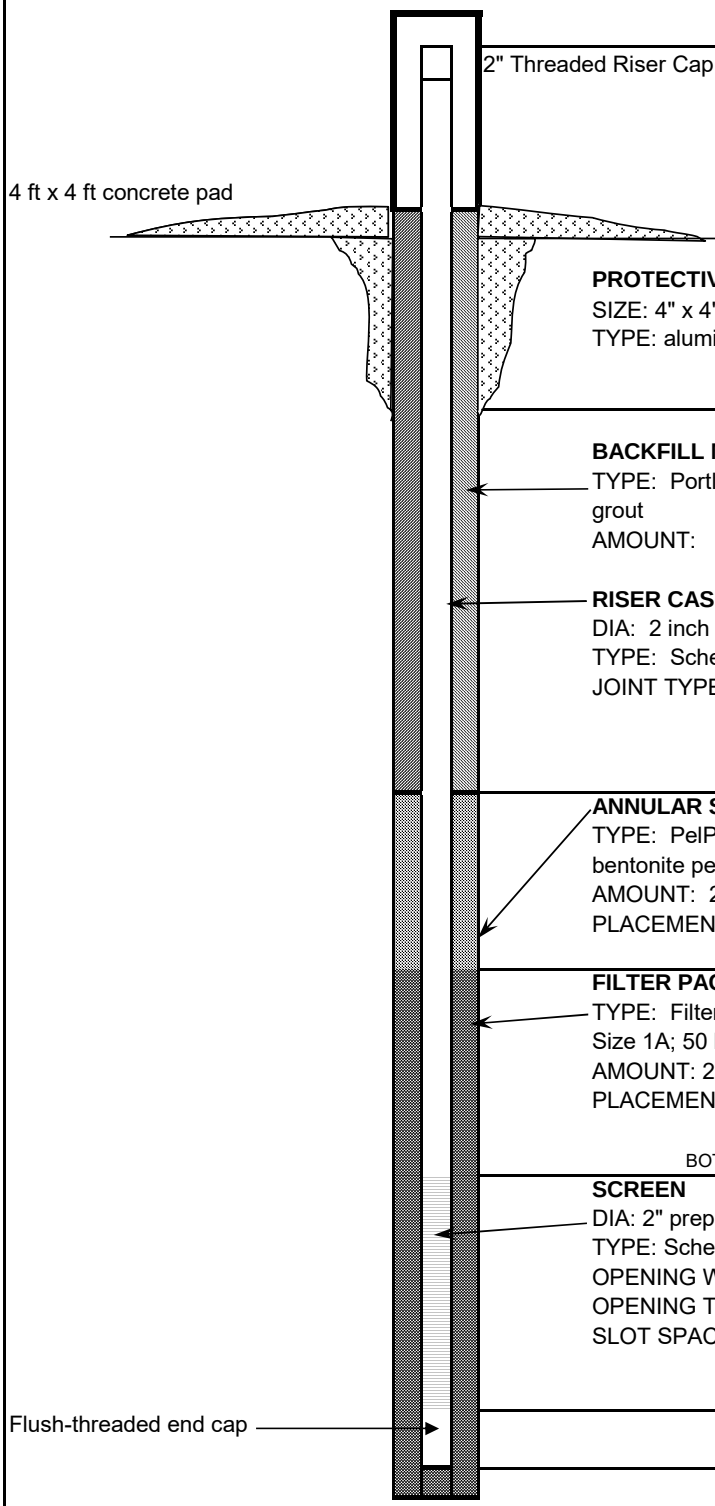
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-5		(14)		good relic banding; lower saprolite.
		- gray and white, stiff, micaceous SILT; weathered; contains fine to coarse-grained quartz and feldspar fragments						
		- SAA						
30				SS -6	29.5	9-7-7 (14)		
		- Refusal @ 32.2'. Start coring @ 32'.	802.8	RC -1	32.0			
		Gneiss						
		- gray and white, hard, slightly weathered, augen gneiss; water (iron, manganese) staining along partings.						
35								
		- Soft weathered zone at bottom of run with some decomposition.						
		- gray and white, hard, slightly weathered, augen gneiss; water (iron, manganese) staining along partings. Approx. 35 to 45 degree angle.		RC -2	37.0			
40								
			793.0					
		Bottom of borehole at 42.0 feet.						
45								
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:43 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-3
LOGGER: Rhonda Tinsley	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/3/2012	N: 1394045.1 E:2202411.5	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.78	837.78
GROUND SURFACE	0.0	834.86
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 6 bags cement 9 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	20.0	814.9
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 2.25 buckets PLACEMENT: Poured		
TOP OF FILTER PACK	24.2	810.7
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 2.5 Bags PLACEMENT: Poured		
BOTTOM OF RISER / TOP OF SCREEN	26.7	808.2
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	36.7	798.2
BOTTOM OF CASING	37.0	797.9

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/9/2012 **COMPLETED** 10/9/2012 **GROUND ELEVATION** 786.5 ft **COORDINATES** N 1394419.5 E 2203266.5

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 35.8 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** 7 ft. after 3 hrs.

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Clayey Sand (SC) - red-brown, damp, very loose, silty, clayey SAND; approximately 50% fine-grained sand, 20% clay, 20% silt, 10% organics. Organic rich horizon.	783.0					
5		**Silt (ML)** - red-tan, damp, clayey SILT with fine-grained sand		SS -1	4.5	4-4-8 (12)		A horizon of residual soil.
		- gray to brownish yellow, stiff, clayey SILT to silty CLAY; 60% silt, 30% clay; 10% sand/gravel; contains small (1 to 2 mm) quartz feldspar gravel						
10		- tan-brown w/orange and gray, very moist, very soft, clayey SILT, micaceous; 70% silt, 25% clay, 5% fine-grained sand		SS -2	9.5	1-1-1 (2)		B horizon of residual soil.
15		- tan-brown, very moist, very soft, clayey SILT to silty CLAY; 55% clay, 40% silt, approximately 5% fine-grained sand		SS -3	14.5	1-1-1 (2)		B horizon of residual soil.
20		- olive gray to tan--brown, dry, stiff, clayey SILT, weathered with some relic structure; 60% silt, 35% clay, 5% fine-grained sand		SS -4	19.5	3-5-6 (11)		Top of upper saprolite zone.
25				SS	24.5	12-32-46		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

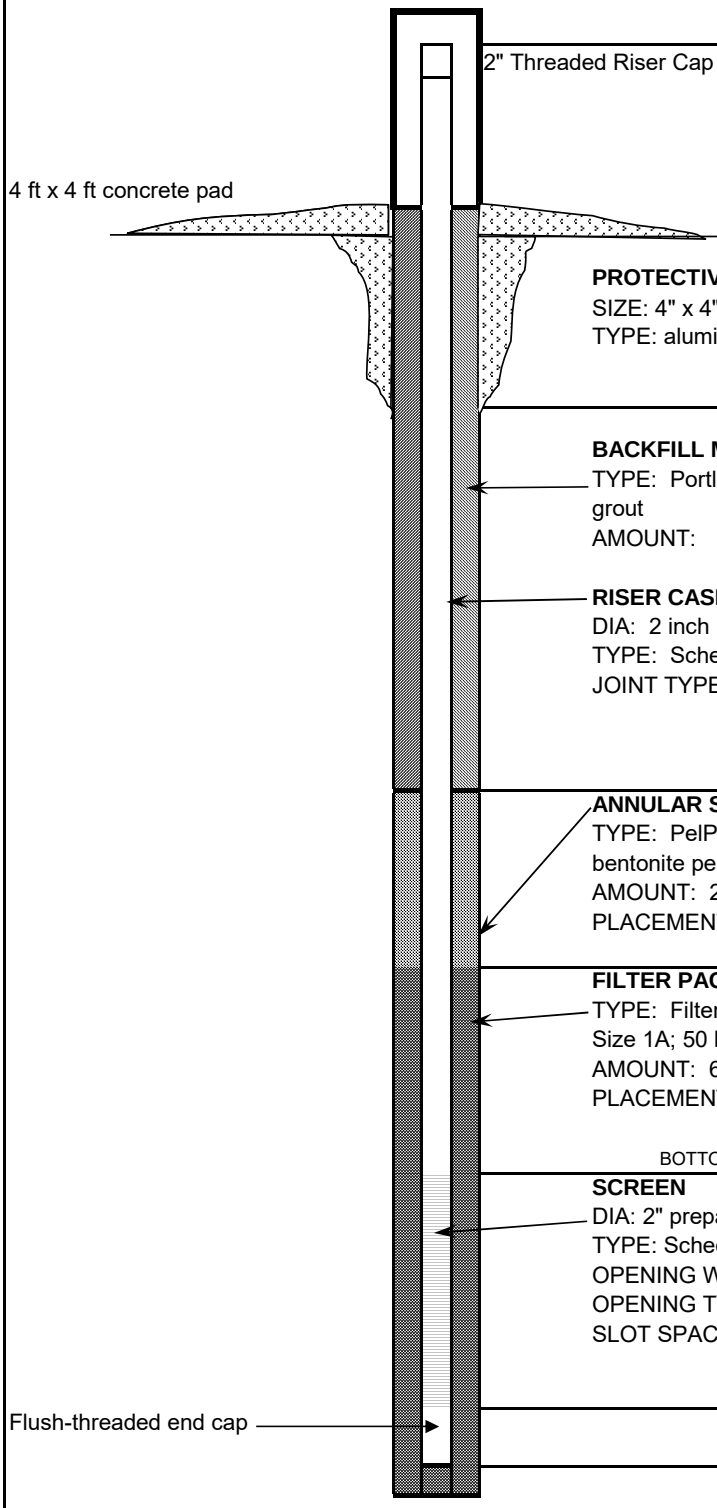
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - tan-brown, very hard, clayey SILT with sand and gravel; contains highly weathered schist fragments; micaceous; 50% silt, 30% clay, 20% sand/gravel		-5		(78)		mid-lower saprolite.
30		- tan-brown, damp, very hard, sandy, gravelly, clayey SILT; 50% clayey silt, 50% sandy gravel; gravels are 1 mm to 10 mm in size, angular and gneissic in origin; highly weathered; contains some white leached quartz		SS -6	29.5	50 (0)		lower saprolite.
35		- brown, damp, very hard, clayey SILT; 40% clay, 60% silt; micaceous, contains relic structures	750.7	SS -7	34.5	27-50 (50)		lower saprolite.
		Bottom of borehole at 35.8 feet.						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-6
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 10/9/2012	N: 1394419.5 E: 2203266.5	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-3.0	789.47
GROUND SURFACE	0.0	786.45
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 5 bags cement 7.5 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	16.8	769.7
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 2 buckets PLACEMENT: Tremie		
TOP OF FILTER PACK	21.7	764.8
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 6 Bags PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	25.0	761.5
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	35.0	751.5
BOTTOM OF CASING	35.4	751.1

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/9/2012 **COMPLETED** 10/9/2012 **GROUND ELEVATION** 806.1 ft **COORDINATES** N 1394374.6 E 2203596.1

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 26 ft.

GROUND WATER DEPTH: DURING 18.5 ft. **COMP.** _____ **DELAYED** 3.8 ft. after 18 hrs.

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML) - brown to red-brown, damp, very soft, clayey SILT with trace sand; organic rich - red to red-tan, damp, soft, clayey SILT						O Horizon.
5		**Fat Clay (CH)** - tan, brown and orange, damp, medium stiff, silty CLAY; micaceous; relic foliations; 60% clay, 40% silt	801.6	SS -1	4.5	3-3-3 (6)		A-B Horizon / residual soils.
								becomes very moist at 8.5'.
10		**Silt (ML)** - red-tan, very moist, soft, clayey SILT with trace fine sand; slightly micaceous; contains manganese	796.6	SS -2	9.5	1-1-2 (3)		residual soil.
15		- brown-red, very moist, soft, clayey SILT to silty CLAY with trace gravel; micaceous; prevalent manganese staining		SS -3	14.5	1-1-3 (4)		residual soil.
								saturated from 18.5 to 19.5'.
20		- olive gray (greenish), wet, medium stiff, clayey SILT; micaceous; contains relic schist fragments		SS -4	19.5	1-1-5 (6)		residual soil.
25		- olive gray to tan-brown, wet, stiff, clayey, gravelly SILT; contains manganese and moderately		SS	24.5	7-7-8		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

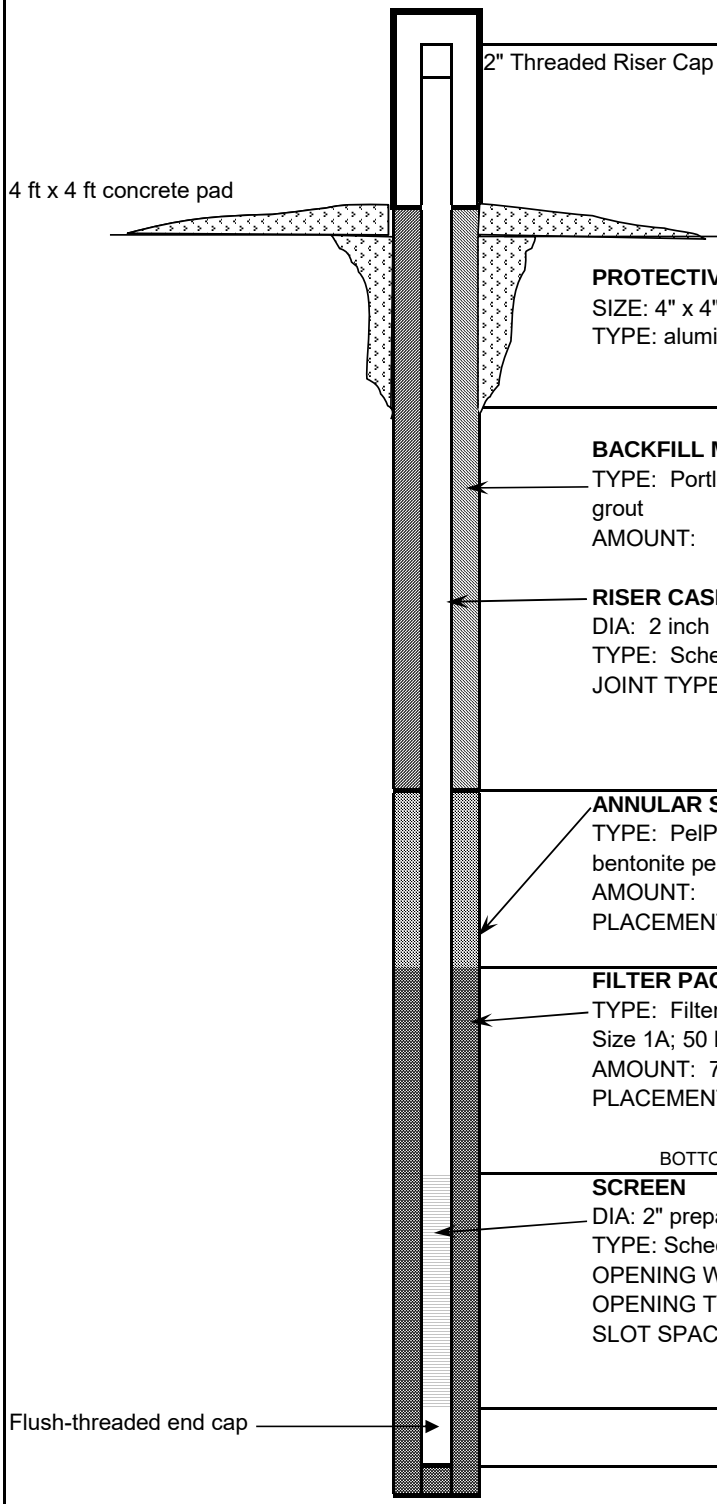
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		weathered gneissic fragments; relic structures preserved insome instances **Silt (ML)***(con't)*	780.1	-5		(15)		upper saprolite.
		Bottom of borehole at 26.0 feet.						

30
35
40
45
50

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-7
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 10/9/2012	N: 1394374.6 E:2203596.1	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-3.1	809.16
GROUND SURFACE	0.0	806.04
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 3 bags cement 1.75 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	7.6	798.4
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 1.75 buckets PLACEMENT: Poured		
TOP OF FILTER PACK	12.7	793.3
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 7 Bags PLACEMENT: Poured		
BOTTOM OF RISER / TOP OF SCREEN	14.8	791.2
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	24.8	781.2
BOTTOM OF CASING	25.2	780.8

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/24/2012 **COMPLETED** 10/24/2012 **GROUND ELEVATION** 819.3 ft **COORDINATES** N 1392479.9 E 2201450

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** C. Sellers **CHECKED BY** _____ **BORING DEPTH** 79.1 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.5 ft						
10		**Silt (ML)** - light gray, very soft, SILT with very fine to fine-grained sand	809.8	SS -1	9.5	WH-1-1 (2)		
15		- stiff, SAA; very micaceous		SS -2	14.5	3-4-6 (10)		
20		- light tan to brown, medium stiff, SILT; very fine to fine-grained; micaceous; 2" quartz		SS -3	19.5	5-4-4 (8)		
25				SS	24.5	19-37-50		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - wet, very hard, SILT; saprolite (weathered gneiss); banding		-4		(87)		
30				SS -5	29.5	50 (0)		
35		- SAA		SS -6	34.5	50 (0)		
40				SS -7	39.5	50 (0)		
45				SS -8	44.5	50 (0)		
50		- SAA; contains gneiss fragments		SS -9	49.5	50 (0)		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

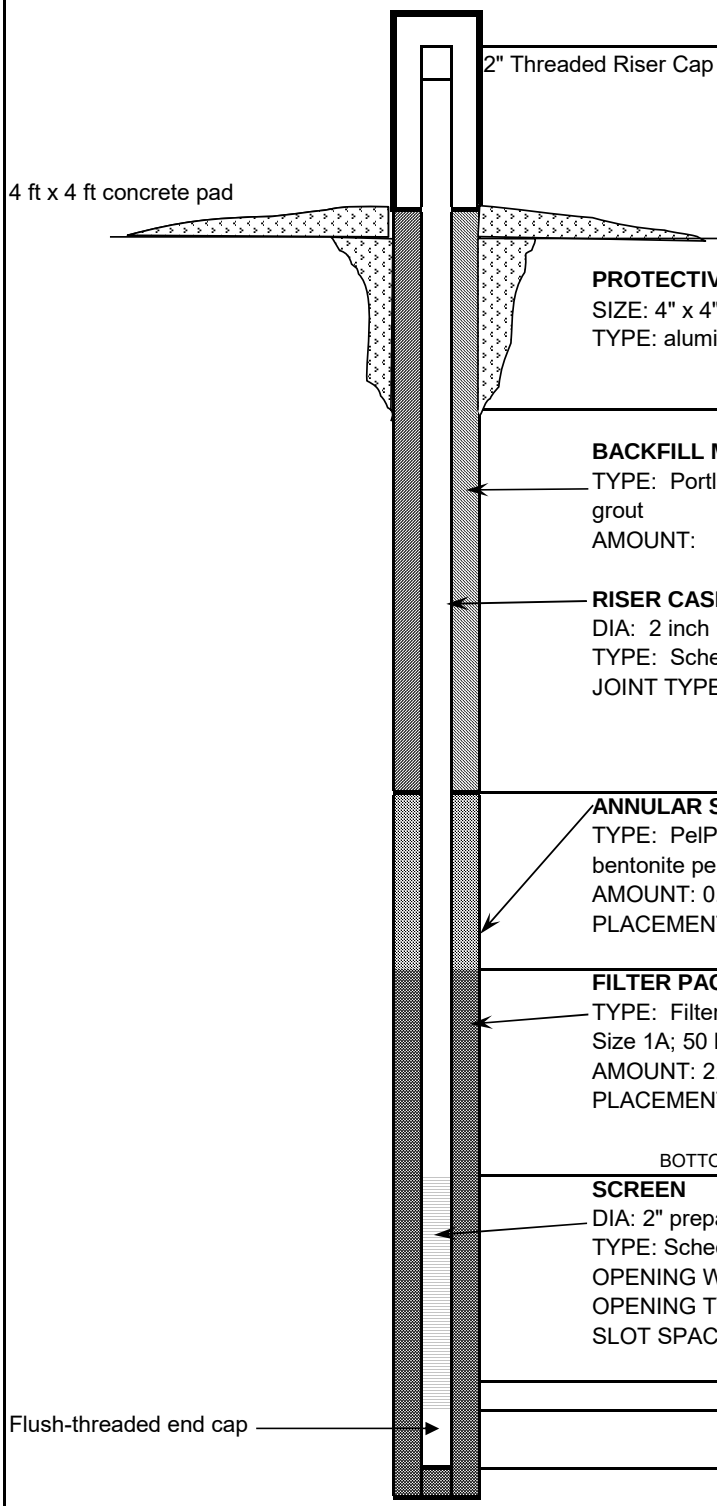
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		**Silt (ML)***(con't)*		SS -10	54.5	50 (0)		
		- SAA						
			760.2	RC -1	59.1			
60		**Gneiss**						
		- light gray to orange, highly weathered, GNEISS; highly fractured, vertical and horizontal						
				RC -2	64.1			
65		- light gray with red staining, SAA						
				RC -3	69.1			
70		- SAA						
				RC -4	74.1			
75			740.2					
		Bottom of borehole at 79.1 feet.						
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-24
LOGGER: Cale Sellers	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/24/2012	N: 1392479.9 E:2201450.0	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.8	822.11
GROUND SURFACE	0.0	819.19
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 21 bags cement 30 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	60.8	758.4
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.25 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	65.9	753.3
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 2.5 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	68.3	750.9
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	78.3	740.9
BOTTOM OF CASING	79.1	740.1

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/23/2012 **COMPLETED** 10/24/2012 **GROUND ELEVATION** 833.5 ft **COORDINATES** N 1392813.3 E 2201502.7

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** B. Gallagher **CHECKED BY** _____ **BORING DEPTH** 54.8 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.5 ft						
10		**Silt (ML)**	824.0	SS -1	9.5	1-2-2 (4)		no recovery.
15		- tan, dry, very hard, saprolite; micaceous, sandy with 1 inch lense of white feldspar at 14.8 ft.		SS -2	14.5	22-50 (50)		
20		- black and white, very hard, SAA; weathered gneiss saprolite		SS -3	19.5	18-36-50 (86)		
25				SS	24.5	25		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - black and white, dry, weathered gneiss		-4		(0)		
			806.5	RC -1	27.0			
		Gneiss - black and white, medium hard to hard, slightly weathered - two 1/2"augens and weathered joints at 28.5 ft						
30		- soft, weathered and broken from 29.1 to 30.2 ft - joint filled with secondary minerals form 30.2 to 30.7 ft - slightly weathered joints at 31.0, 31.3, and 31.6 ft - 1/4" augen with four slightly weathered joints across foliation from 32.3 to 33.0 ft		RC -2	29.8			
35		- 3 inch weathered soft zone @ 34.5 ft		RC -3	34.8			
40		- 2" quartzite at 42 ft; very little staining; vertical fractures from 40ft to 42ft		RC -4	39.8			
45		- SAA		RC -5	44.8			
50		- weathered; staining in and around fractures		RC -6	49.8			

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

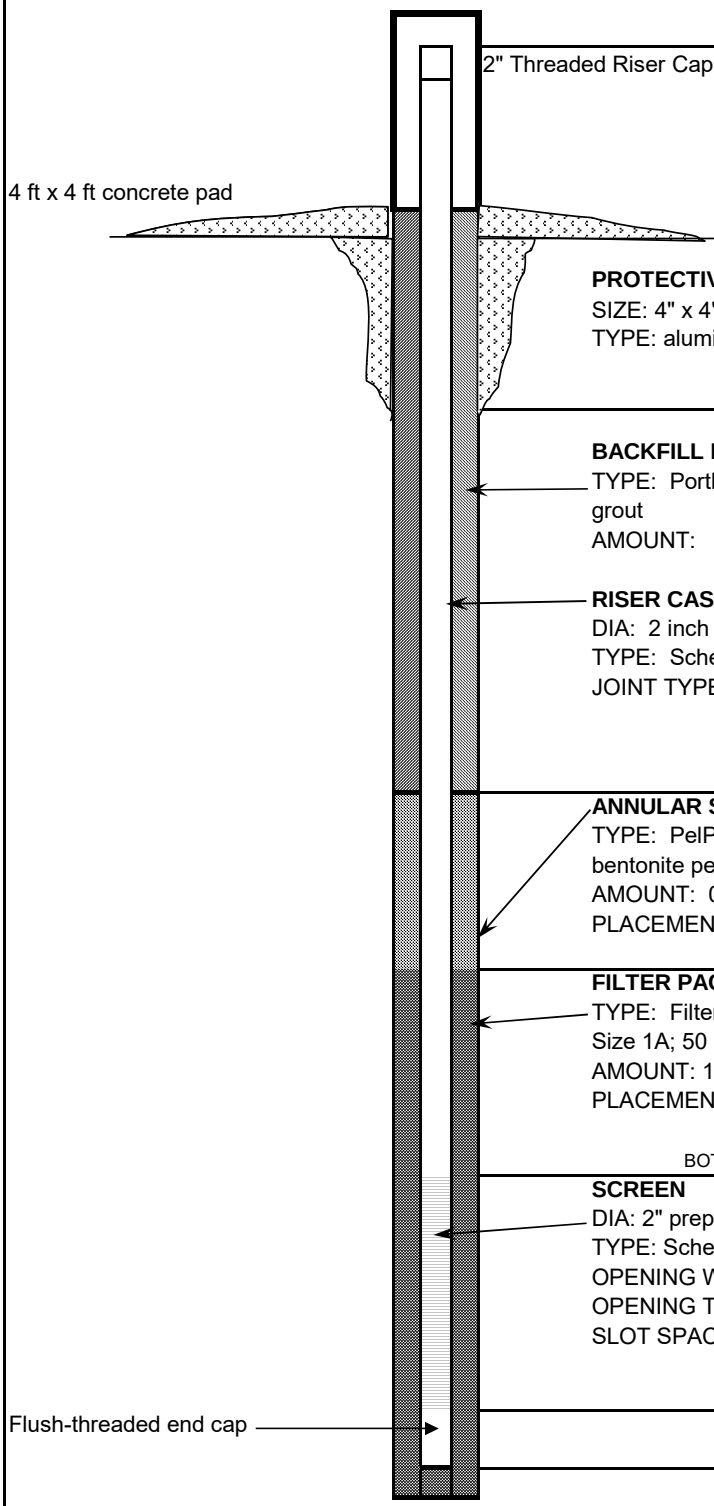
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55	/ \		778.7					
		Bottom of borehole at 54.8 feet.						
60								
65								
70								
75								
80								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-25
LOGGER: B. Gallagher	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/24/2012	N: 1392813.3 E:2201502.7	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-3.0	836.54
GROUND SURFACE	0.0	833.41
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 10 bags cement 14 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	40.1	793.3
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.25 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	42.4	791.0
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 1 Bag; 50 lbs/bag PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	44.4	789.0
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	54.4	779.0
BOTTOM OF CASING	54.8	778.6

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/16/2012 **COMPLETED** 10/23/2012 **GROUND ELEVATION** 850.6 ft **COORDINATES** N 1393105.6 E 2201550.4

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** Sellers/Byrd/Gallager **CHECKED BY** _____ **BORING DEPTH** 49.3 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.5 ft						
10		**Silt (ML)** - tan with white, pink and dark brown layering, stiff, sandy SILT; heavily weathered; micaceous; fine-grained	841.1	SS -1	9.5	4-4-6 (10)		
15		- stiff, SAA; heavily weathered gneiss		SS -2	14.5	3-5-9 (14)		
20		- dry, very hard, SAA; more compact wtih better foliation than previous samples; less sand		SS -3	19.5	17-24-27 (51)		
25				SS	24.5	50		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

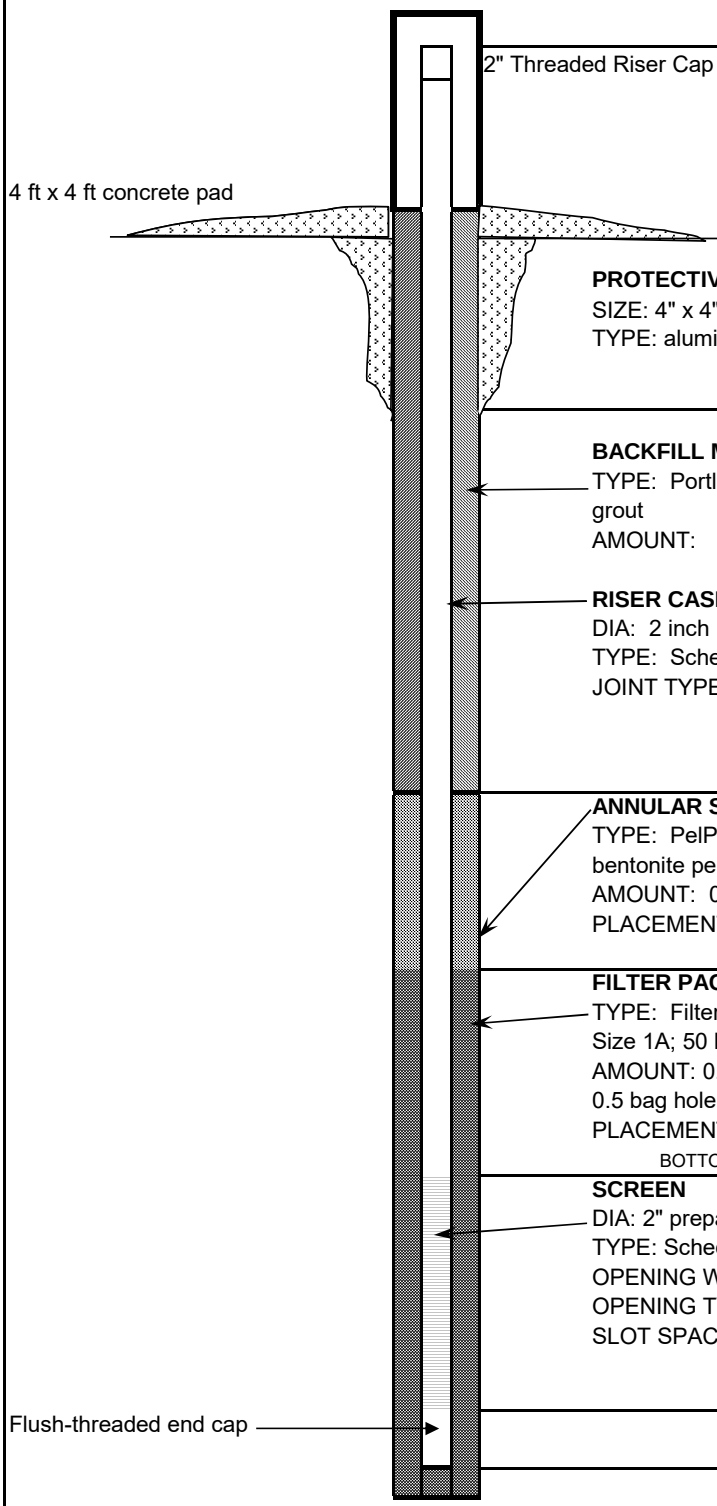
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-4		(0)		
		- dry, very hard, SAA; powdered rock	824.6	RC -1	26.0			
		Gneiss						
		- black and white, fine grain, medium hard to hard, slightly to moderately weathered, banded, GNEISS						
		- from 27.0' to 27.3 ' - soft, weathered, leached of biotite, stained below; 1.4" thick augen						
		- 1/2" thick augen with remnant, healed fractures across foliation at 28'; slight staining on joint across foliation from 28.6' to 28.7'		RC -2	28.9			
30		- stain on joints, one joint on foliation and one joint across foliation at 29.3' to 29.7'						
		- 3 stained and leached, weathered joints from 31.4' to 32.2'; augen						
		- 3 stained joints across foliation from 32.7' to 33.0', including a soil coated joint at 33'						
		- slightly stained joints on foliation at 33.1', 33.6', and 34.1' to 34.7'		RC -3	33.9			
35		- stained, leached, weathered zone with many 1/4" quartz phenocysts from 35.8' to 36.6'						
		- soft weathered zone with staining from 39.0' to 39.7'		RC -4	39.0			
40		- heavily stained, soft joints across foliation at 41.3'						
		- 1/2" augen at 42.0'						
		- weathered broken zone from 43.6' to 44.1'		RC -5	44.1			
45		- below 44.1' heavily stained with many quartz phenocycts						
		- stained joint across foliation at 45.5'						
			801.3					
50		Bottom of borehole at 49.3 feet.						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-26
LOGGER: Ben Gallagher	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/23/2012	N: 1393105.6 E:2201550.4	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-3.0	853.60
GROUND SURFACE	0.0	850.61
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 7 bags cement 10 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	30.5	820.1
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.25 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	34.8	815.8
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 0.5 Bag filter pac 0.5 bag hole PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	38.9	811.7
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	48.9	801.7
BOTTOM OF CASING	49.3	801.3

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 10/30/2012 **COMPLETED** 10/30/2012 **GROUND ELEVATION** 813.3 ft **COORDINATES** N 1391967.4 E 2201679.2

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** D. Brooks **CHECKED BY** _____ **BORING DEPTH** 94.3 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 9.5 ft						
10		**Gneiss** - no recovery; encountered boulder	803.8	SS -1	9.5			
		Silty Sand (SM)	802.3					
15		- green and black, saprolite; relict structure present		SS -2	14.5			
20		- brown and tan, damp, silty SAND; micaceous; fine-grained		SS -3	19.5			
25				SS	24.5	4-5-7		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silty Sand (SM)*(con't)* - SC-SM: tan, orange, and black, damp, medium dense, silty, clayey SAND; fine to very fine-grained		-4		(12)		
30		- medium dense, SAA; micaceous; clay content increases		SS -5	29.5	7-7-7 (14)		
			778.8					
35		**Silt (ML)** - green and black, damp, hard, sandy SILT; relict structure present		SS -6	34.5	5-16-23 (39)		
40		- tan, orange, and black, stiff, sandy SILT; micaceous; some relict structure		SS -7	39.5	5-5-6 (11)		
45		- hard, SAA		SS -8	44.5	7-16-20 (36)		
50		- very hard, SAA		SS -9	49.5	20-20 (20)		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		**Silt (ML)***(con't)* - very hard, minimal recovery; partially weathered rock		SS -10	54.5	50 (0)		
			754.1	RC -1	59.2			
60		**Gneiss** - black and gray, mylonite GNEISS (schistic zone); weathering noted along small joints and along foliations (saprock), otherwise fresh; no staining seen						
				RC -2	64.3			
65		- black and gray, hard, mylonite GNEISS; fresh						
				RC -3	69.3			
70		- SAA						
				RC -4	74.3			
75		- SAA						
				RC -5	79.3			
80		- SAA with small iron-stained joint at 83'						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

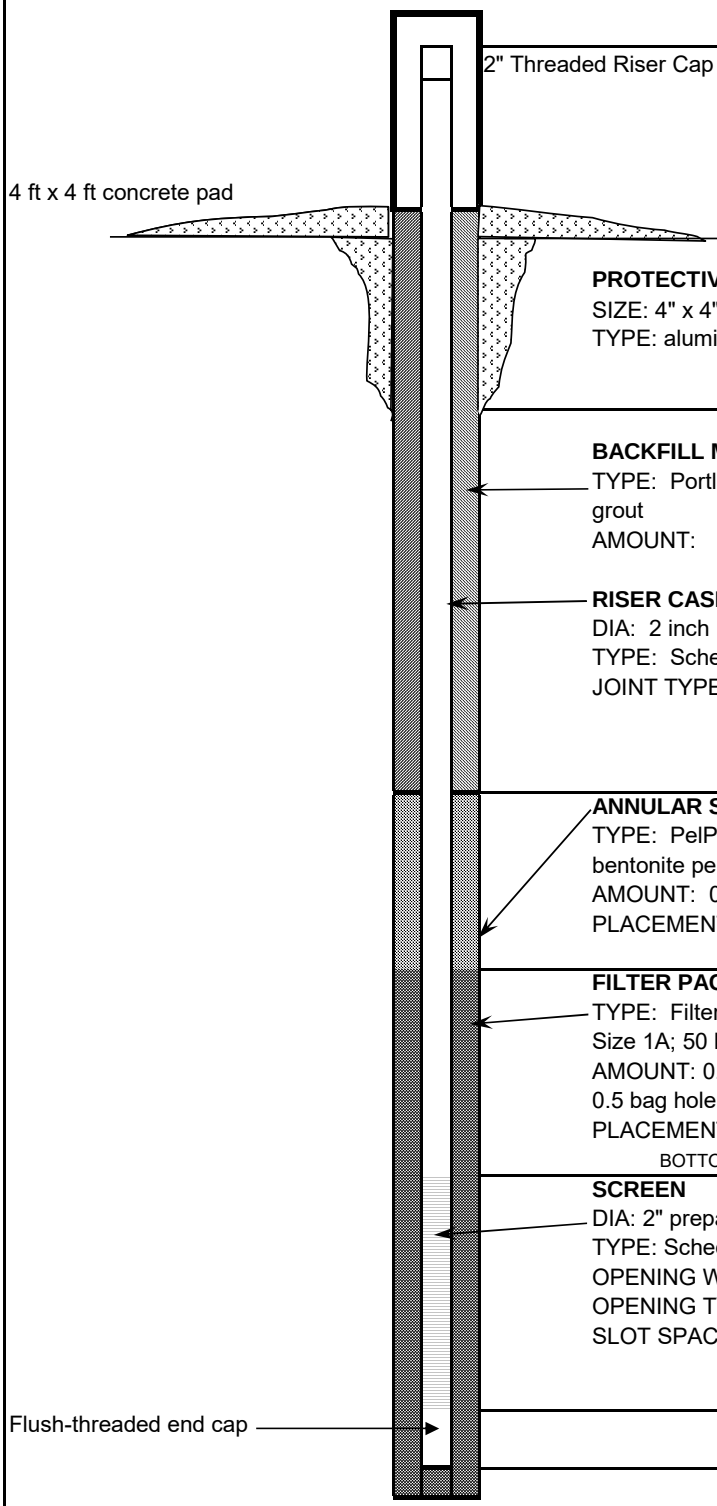
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
85		**Gneiss***(con't)*		RC -6	84.3			
90				RC -7	89.3			
		- black and gray, hard, GNEISS; fresh	719.0					
95		Bottom of borehole at 94.3 feet.						
100								
105								
110								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-28
LOGGER: Dustin Brooks	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 10/31/2012	N: 1391967.4 E: 2201679.2	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.8	816.08
2" Threaded Riser Cap		
GROUND SURFACE	0.0	813.28
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 14 bags cement 19 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	53.0	760.3
ANNULAR SEAL TYPE: PelPlug TR-30 3/8" bentonite pellets; 5-gallon buckets AMOUNT: 0.5 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	55.6	757.7
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 0.5 Bag filter pac 0.5 bag hole PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	59.0	754.3
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	69.0	744.3
BOTTOM OF CASING	69.4	743.9

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 1/10/2012 **COMPLETED** 1/11/2012 **GROUND ELEVATION** 813.5 ft **COORDINATES** N 1391890 E 2201422

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** G. Dyer **CHECKED BY** _____ **BORING DEPTH** 55.7 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		- Vacuum excavation from 0 ft to 10 ft						
10			803.5					
		Silt (ML)						
		- tan-red, damp, medium stiff, clayey SILT, no structures or staining		SS -1	12.0	2-2-4 (6)		residual soil.
15		- tan, brown, and orange-red, damp, stiff, SILT with clay; vertical manganese oxide bands; highly weathered relict structrure; slightly micaceous		SS -2	14.5	2-5-6 (11)		residual soil - upper saprolite.
20		- red, green and gray, very hard, sandy SILT; highly weathered schist fragments; relict structure intact; moderately to well cemented; trace partially weathered rock fragments		SS -3	19.5	9-28-29 (57)		lower saprolite.
25				SS	24.5	2-11-14		

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

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SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)* - green-gray and tan, dry, very stiff, sandy SILT; moderately to well cemented; structure intact; lacks rock fragments; micaceous; trace quartz sand		-4		(25)		lower saprolite.
30		- green-gray, moist, very hard, GRAVEL and SILT; moderately weathered schist fragments		SS -5	29.5	28-50 (50)		lower saprolite/transitioning to saprock.
35		- very damp, very hard, SAA		SS -6	34.5	24-50 (50)		spoon moist to wet.
40		- dry, very hard, SAA		SS -7	39.5	50 (0)		saprock transition.
50		- green-gray, wet, very hard, fine SILT with gravel; noticeably softer than previous runs; isolated schist fragments near base; little to no structure		SS -8	49.5	11-29-50 (79)		noticable sound of water flowing.

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

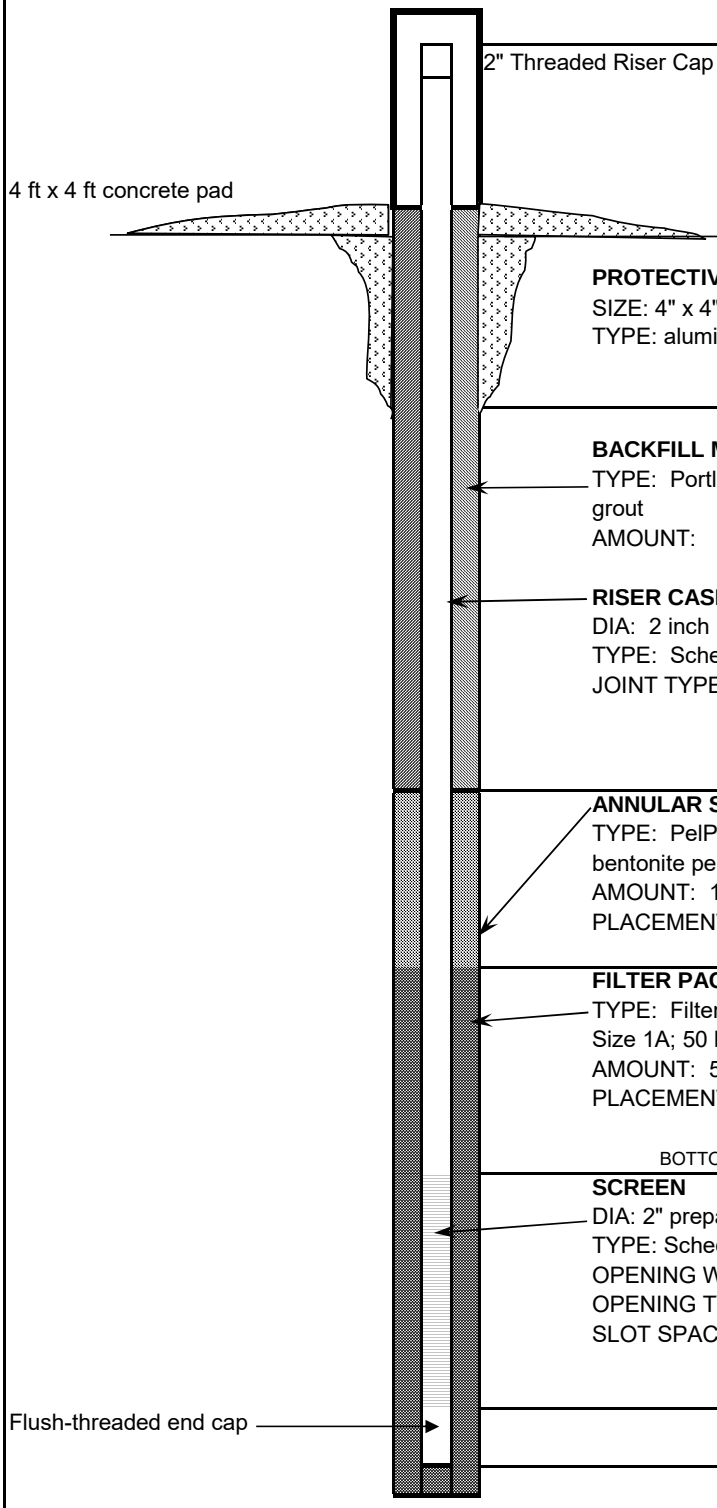
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
55		- very hard, SAPROCK; schist fragments **Silt (ML)***(con't)*	757.8	SS -9	54.5	50 (0)		
		Bottom of borehole at 55.7 feet.						

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond	RIG TYPE: CME550	B-29
LOGGER: Greg Dyer	DRILLING METHODS: HS Auger	
DATE CONSTRUCTED: 1/11/2013	N: 1391890.0 E: 2201422.0	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.9	816.43
GROUND SURFACE	0.0	813.47
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 10 bags cement 13.5 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	40.0	773.5
ANNULAR SEAL TYPE: PelPlug TR-30 1/4" bentonite pellets; 5-gallon buckets AMOUNT: 1 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	42.0	771.5
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 5.5 Bags PLACEMENT: Poured w/water		
BOTTOM OF RISER / TOP OF SCREEN	44.1	769.4
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	54.1	759.4
BOTTOM OF CASING	54.4	759.1

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DATE STARTED 1/22/2013 **COMPLETED** 1/22/2013 **GROUND ELEVATION** 794.9 ft **COORDINATES** N 1392034.3 E 2200928.5

CONTRACTOR SCS Field Services **METHOD** 4.25" Hollow Stem Auger w/pilot bit; HQ Rock Core **EQUIPMENT** CME 550

DRILLED BY S. Denty **LOGGED BY** B. Gallagher **CHECKED BY** _____ **BORING DEPTH** 45.1 ft.

GROUND WATER DEPTH: DURING _____ **COMP.** _____ **DELAYED** _____

NOTES Drilled near North Abutment of Ash Pond 1 dike Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)						Vacuum excavation from 0 ft to 10 ft.
10				SS -1	10.0	8-7-6 (13)		
		- white and tan, moist, foliated; saprolite						
15				SS -2	14.5	7-8-17 (25)		
20				SS -3	19.5	7-17-12 (29)		
		- tan, damp, stained below 20.5 ft						
25				SS	24.5	3-6-12		

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GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

SOUTHERN COMPANY

BORING LOG

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

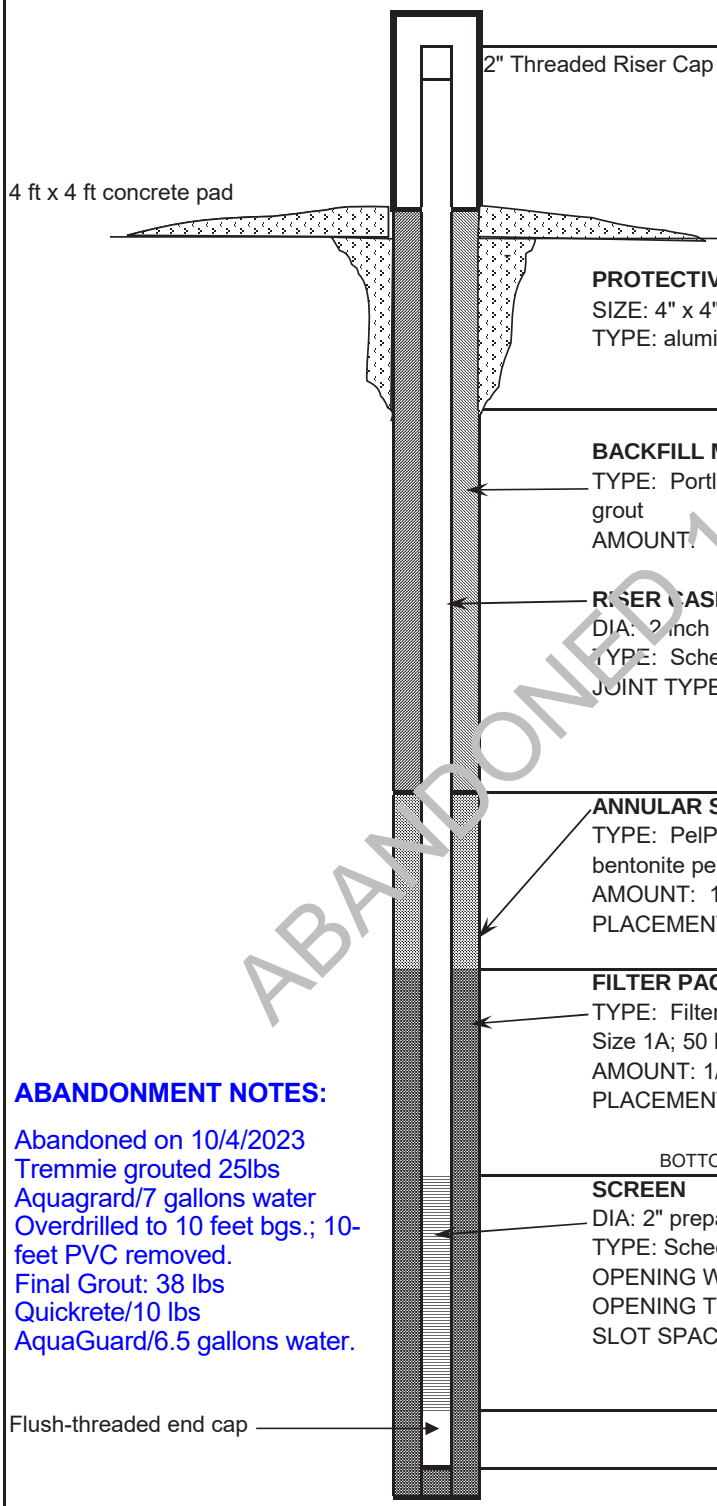
PROJECT Plant McDonough Hydrogeological Investigation
LOCATION Cobb County, GA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N VALUE)	RECOVERY % (RQD)	COMMENTS
		Silt (ML)*(con't)*		-4		(18)		
		- wet		RC -1	26.0			
			768.4					
		Gneiss						
		- black and white						
		- slightly weathred to fresh; w/????; hard ???? from 26.5 to 26.6 ft, 27.2 to 27.3 ft, 30.0 to 30.1 ft, and 31.4 to 32.4 ft		RC -2	28.7			
30								
		- soft, highly weathered with sand; stained from 32.4 to 33.5 ft						
		- 3 thick quartz intrusions/secondary fill; hard to soft; weathered; stained from 33.7 to 34.9 ft		RC -3	33.7			
35								
				RC -4	38.7			
40								
				RC -5	43.7			
45			749.8					
		Bottom of borehole at 45.1 feet.						
50								

GEOTECH ENGINEERING LOGS - ESEE DATABASE.GDT - 8/26/20 20:44 - \\ALTRCFP01\LAPARKER$\DESKTOP\GPC\MW LOGS_SURVEY UPDATED.GPJ

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS Field Services	WELL NAME
Hydrogeologic Investigation	DRILLER: S. Denty	
LOCATION: Ash Pond 1	RIG TYPE: CME550	B-31
LOGGER: B. Gallagher	DRILLING METHODS: HS Auger/HQ Rock Core	
DATE CONSTRUCTED: 1/22/2013	N: 1392034.3 E:2200928.5	



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.6	797.47
2" Threaded Riser Cap		
GROUND SURFACE	0.0	794.84
PROTECTIVE CASING SIZE: 4" x 4" TYPE: aluminum		
BOTTOM OF GROUT		
BACKFILL MATERIAL TYPE: Portland cement/bentonite grout AMOUNT: 5 bags cement 8 lbs bentonite		
RISER CASING DIA: 2 inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	25.7	769.1
ANNULAR SEAL TYPE: PelPlug TR-30 1/4" bentonite pellets; 5-gallon buckets AMOUNT: 1/4 bucket PLACEMENT: Poured		
TOP OF FILTER PACK	29.1	765.7
FILTER PACK TYPE: Filtersil #61 Size 1A; 50 lbs/bag AMOUNT: 1/2 Bags PLACEMENT: Tremie		
BOTTOM OF RISER / TOP OF SCREEN	34.7	760.1
SCREEN DIA: 2" prepack (3.45" OD) TYPE: Schedule 40 PVC OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.1 inch		
BOTTOM OF SCREEN	44.7	750.1
BOTTOM OF CASING	45.1	749.7

ABANDONED 10/4/2023

ABANDONMENT NOTES:

Abandoned on 10/4/2023
Tremmie grouted 25lbs Aquagrard/7 gallons water
Overdrilled to 10 feet bgs.; 10-feet PVC removed.
Final Grout: 38 lbs Quickrete/10 lbs AquaGuard/6.5 gallons water.

HOLE DIA: 7 inch (auger)
3.8 inch (HQ core)

RECORD OF BOREHOLE B-50

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 36.00 ft
LOCATION: Smyrna, GA

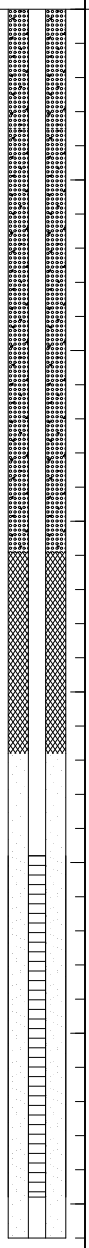
DRILL RIG: 100C Track Mounted Rig
DATE STARTED: 6/24/16
DATE COMPLETED: 6/24/16

NORTHING: 1,391,657.10
EASTING: 2,201,841.00
GS ELEVATION: 809.20
TOC ELEVATION: 809.67 ft

DEPTH W.L.: 20.8
ELEVATION W.L.: 788.4
DATE W.L.: 6/24/2016
TIME W.L.: 10:50

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	809	0.00 - 12.00 SILT; grayish brown, dry, soft (fill)	ML					
5	805							
10	800				797.2			
15	795	12.00 - 29.50 SILT; organish gray, some fine to coarse sand, micaceous, moist to wet, soft to firm (saprolite)	ML		12.00			
20	790							
25	785							
30	780				779.7			
35	775	29.50 - 36.00 SILTY SAND; brownish gray, fine sand, wet, very soft	SM		29.50			
40	770				773.2			
45	765	Boring completed at 36.00 ft						

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-35.2'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush threaded with O-ring

WELL SCREEN
Interval: 24.8'-34.8'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 21.8'-36'
Type: Filtersil std61

FILTER PACK SEAL
Interval: 15.9'-21.8'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 3'-15.9'
Type: Portland Type I/Type II/Bentonite Gel Mix

WELL COMPLETION
Pad: 4'x4'x4"
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Bill Lindsey

GA INSPECTOR: K. Jurinko, PG
CHECKED BY: Rachel P. Kirkman, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-51

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 66.00 ft
LOCATION: Smyrna, GA

DRILL RIG: 100C Track Mounted Rig
DATE STARTED: 6/27/16
DATE COMPLETED: 6/27/16

NORTHING: 1,390,501.20
EASTING: 2,200,906.50
GS ELEVATION: 763.29
TOC ELEVATION: 765.92 ft

DEPTH W.L.: 8.85
ELEVATION W.L.: 754.45
DATE W.L.: 6/28/2016
TIME W.L.: 13:22

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	760	0.00 - 3.00 SILT; brown, some fine to coarse sand, dry, soft, micaceous (topsoil)	ML		760.3				Portland Type I/ _ Alumiumum Casing	**WELL CASING** Interval: 0'-65' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush threaded with O-ring
5	755	3.00 - 15.00 SILT; red to reddish brown, some fine to coarse gravel, black, subrounded, some clayey silt, orangish white and balck, dry, soft, micaceous (saprolite)	ML		3.00					**WELL SCREEN** Interval: 55'-65' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC
10	750									**FILTER PACK** Interval: 53'-65.4' Type: Filtersil std61
15	745	15.00 - 58.00 SILT and SAND; orangish brown, brown, and grey, fine to medium sand, some laminations and black mottling, micaceous, some biotite schist gravel, fine to coarse, dry to wet, very soft to very stiff	SP-SM		748.3 15.00				Portland Type I/ Type _ II/ Bentonite Gel mix	**FILTER PACK SEAL** Interval: 47.5'-53' Type: 3/8" Bentonite Pellets
20	740									**ANNULUS SEAL** Interval: 3'-47.5' Type: Portland Type I/Type II/Gel Mix
25	735									**WELL COMPLETION** Pad: 4'x4'x4" Protective Casing: Aluminum
30	730									**DRILLING METHODS** Soil Drill: Sonic Rock Drill: Sonic
35	725									
40	720									
45		Log continued on next page								

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Scotty Vermillion

GA INSPECTOR: K. Jurinko, PG
CHECKED BY: Rachel P. Kirkman, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-51

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 66.00 ft
LOCATION: Smyrna, GA

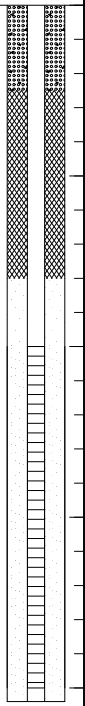
DRILL RIG: 100C Track Mounted Rig
DATE STARTED: 6/27/16
DATE COMPLETED: 6/27/16

NORTHING: 1,390,501.20
EASTING: 2,200,906.50
GS ELEVATION: 763.29
TOC ELEVATION: 765.92 ft

DEPTH W.L.: 8.85
ELEVATION W.L.: 754.45
DATE W.L.: 6/28/2016
TIME W.L.: 13:22

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
45		15.00 - 58.00 SILT and SAND; orangish brown, brown, and grey, fine to medium sand, some laminations and black mottling, micaceous, some biotite schist gravel, fine to coarse, dry to wet, very soft to very stiff *(Continued)*	SP-SM					
50	715							
55	710							
	705	58.00 - 66.00 biotite SCHIST; some clayey silt and sand to gravel, coarse-grained, gray, orange staining, micaceous, dry to wet, very stiff (saprock)	PWR		705.3 58.00			
60	700							
65		Boring completed at 66.00 ft			697.3			
	695							
70	690							
75	685							
80	680							
85	675							
90								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-65'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush threaded with O-ring

WELL SCREEN
Interval: 55'-65'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 53'-65.4'
Type: Filtersil std61

FILTER PACK SEAL
Interval: 47.5'-53'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 3'-47.5'
Type: Portland Type I/Type II/Gel Mix

WELL COMPLETION
Pad: 4'x4'x4"
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Scotty Vermillion

GA INSPECTOR: K. Jurinko, PG
CHECKED BY: Rachel P. Kirkman, PG
DATE: 12/22/17

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-52

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 50.00 ft
LOCATION: Northside of the Lab Parking lot

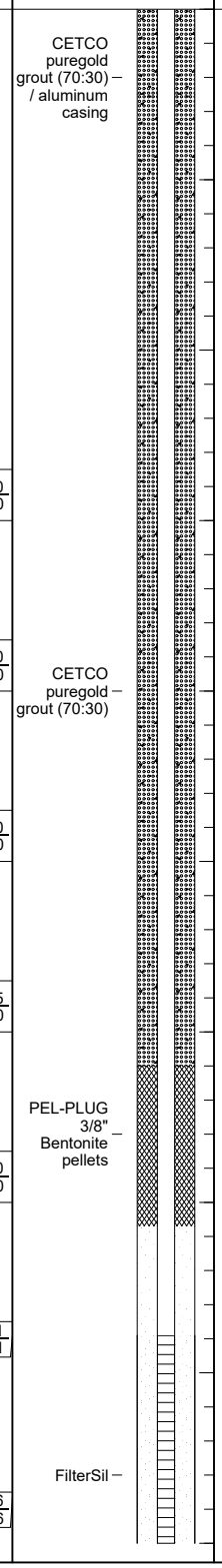
DRILL RIG: CME 55
DATE STARTED: 9/27/16
DATE COMPLETED: 9/28/16

NORTHING: 1,392,308.30
EASTING: 2,201,314.80
GS ELEVATION: 820.18
TOC ELEVATION: 822.89 ft

DEPTH W.L.: 25.72
ELEVATION W.L.: 794.58
DATE W.L.: 10/6/2016
TIME W.L.: 1330

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	820	0.00 - 10.00 Top 10' were Hydrovac for utilities.								
					810.2					
10	810	10.00 - 15.00 SM, silty SAND, fine to medium grained, non to low plasticity, tan, non-cohesive, dry, W<PL, loose	SM		10.00					
					805.2	1	DO	8-8-4	12	1.50 / 1.50
15	805	15.00 - 33.50 ML, SILT with some SAND, fine to coarse, non to moderate plasticity, orange-brown to white to silver, slightly weathered, highly micaeous, cohesive, dry to wet (increasing with detpth), W<PL, firm to stiff, PWR.	ML		15.00					
						2	DO	7-9-8	17	1.50 / 1.50
20	800									
						3	DO	7-13-11	24	1.50 / 1.50
25	795									
						4	DO	18-50/3	68/9	0.75 / 1.50
30	790									
					786.7					
		33.50 - 50.00 SM, silty SAND, fine to coarse, non to moderate plasticity, trace rock fragments, yellow-orange, non-cohesive, dry to moist, W<PL, compact to very dense, PWR			33.50	5	DO	17-20-50/4	70/10	1.50 / 1.50
35	785		SM							
						6	DO	50/5	50/5	0.41 / 0.41
40	780									
						7	DO	50/2	50/2	0.16 / 0.16
45		Log continued on next page								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-38.9
Material: Schedule 40 PVC
Diameter: 2
Joint Type: FLUSH/SCREW

WELL SCREEN
Interval: 38.9'-48.9'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 35.7-50'
Type: FilterSil

FILTER PACK SEAL
Interval: 31.0-35.7
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0-31'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: Shawn Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-52

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 50.00 ft
LOCATION: Northside of the Lab Parking lot

DRILL RIG: CME 55
DATE STARTED: 9/27/16
DATE COMPLETED: 9/28/16

NORTHING: 1,392,308.30
EASTING: 2,201,314.80
GS ELEVATION: 820.18
TOC ELEVATION: 822.89 ft

DEPTH W.L.: 25.72
ELEVATION W.L.: 794.58
DATE W.L.: 10/6/2016
TIME W.L.: 1330

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45	775	33.50 - 50.00 SM, silty SAND, fine to coarse, non to moderate plasticity, trace rock fragments, yellow-orange, non-cohesive, dry to moist, W<PL, compact to very dense, PWR *(Continued)*	SM								0.010 Slotted Screen	
						8	DO	50/3	50/3	0.25 0.25		
50	770	Boring completed at 50.00 ft			770.2							
55	765											
60	760											
65	755											
70	750											
75	745											
80	740											
85	735											
90												

WELL CASING
Interval: 0'-38.9
Material: Schedule 40 PVC
Diameter: 2
Joint Type: FLUSH/SCREW

WELL SCREEN
Interval: 38.9'-48.9'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 35.7-50'
Type: FilterSil

FILTER PACK SEAL
Interval: 31.0-35.7
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0-31'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: Shawn Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-54

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 34.20 ft
LOCATION: Eastside of the stream north of AP4

DRILL RIG: CME 55
DATE STARTED: 9/26/16
DATE COMPLETED: 9/26/16

NORTHING: 1,394,423.50
EASTING: 2,203,140.70
GS ELEVATION: 782.54
TOC ELEVATION: 785.46 ft

DEPTH W.L.: 4.56
ELEVATION W.L.: 778.04
DATE W.L.: 10/6/2016
TIME W.L.: 839

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL / PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	780	0.00 - 13.50 Top 10' were Hydrovac for utilities.									Portland Type I/Type II/Gel Mix / aluminum casing	**WELL CASING** Interval: 0'-23.8' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw
5	775											**WELL SCREEN** Interval: 23.8'-33.8' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC
10	770				769.0						Portland Type I/Type II/Gel Mix	**FILTER PACK** Interval: 21.9'-34.2' Type: FilterSil **FILTER PACK SEAL** Interval: 17.8'-21.9' Type: PEL-PLUG 3/8" Bentonite pellets **ANNULUS SEAL** Interval: 0-17.8' Type: Portland Type I/Type II/Gel Mix
15	765	13.50 - 28.50 SM, silty SAND, fine to coarse, non to low plasticity; white to gray, weathered, well foliated gneissic saprolite; cohesive, moist, w<PL, stiff.	SM		13.50	1	DO	6-7-6	13	0.83 / 1.50		**WELL COMPLETION** Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum **DRILLING METHODS** Soil Drill: Hollow-stem auger Rock Drill: HQ Core Barrell
20	760					2	DO	5-9-8	17	1.33 / 1.50	PEL-PLUG 3/8" Bentonite pellets	
25	755					3	DO	4-5-11	15	0.00 / 1.50	FilterSil	
30	750	28.50 - 29.00 GPS, poorly-graded sandy GRAVEL, fine to coarse, non plastic, some silt; white to tan to pink, K-spar and Quartz; non-cohesive, wet, w<PL, dense., PWR. Auger Refusal at 29.0 29.00 - 34.20 Bedrock; AUGEN GNEISS; fresh to slightly weathered, well foliated, gray, fine grained, medium strong to strong, (locally contains pegamitite zones). Boring completed at 34.20 ft	GP-GM / BR		754.0 753.5 29.00 748.3	4	DO	21-50/1	71/7	0.50 / 0.58	0.010 Slotted Screen	
35	745											
40	740											
45												

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Terracon
DRILLER: Shep Becker

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-55

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 52.00 ft
LOCATION: West of the cement plant

DRILL RIG: CME 55
DATE STARTED: 9/21/16
DATE COMPLETED: 9/22/16

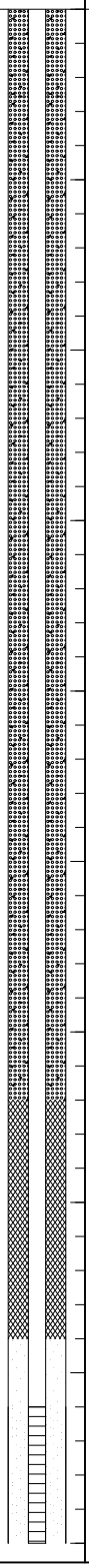
NORTHING: 1,394,142.60
EASTING: 2,204,147.90
GS ELEVATION: 822.86
TOC ELEVATION: 825.12 ft

DEPTH W.L.: 12.05'
ELEVATION W.L.: 810.85
DATE W.L.: 10/6/2016
TIME W.L.: 850

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	820	0.00 - 3.50 SM, silty SAND, non to low plasticity; red-brown; cohesive, moist, w<PL, soft.	SM		819.4	1	DO	4-8-11	19	0.75 / 1.50
5	815	3.50 - 13.50 ML, SILT, trace to some sand and clay, non to low plasticity; light brown to red-brown to silverish gray; cohesive, dry to moist, w<PL, soft to firm.	ML		809.4	2	DO	7-7-9	16	1.00 / 1.50
						3	DO	7-11-12	23	1.33 / 1.50
10	810					4	DO	5-8-11	19	1.50 / 1.50
15	805	13.50 - 23.50 ML, SILT, trace fine to coarse sand, non plastic; light brown, deeply weathered, foliated, schist saprolite; cohesive, dry to moist, w<PL, soft to firm.	ML		799.4	5	DO	8-17-24	41	1.50 / 1.50
20	800					6	DO	9-10-11	21	1.50 / 1.50
25	795	23.50 - 52.00 ML, SILT, some sand, non plastic; light brown to tan to silverish gray, schist saprolite; cohesive, moist to wet (increases with depth), w<PL, soft to firm.	ML			7	DO	5-12-12	24	1.50 / 1.50
30	790					8	DO	8-12-15	27	1.50 / 1.50
35	785					9	DO	9-14-17	31	1.50 / 1.50
40	780					10	DO	10-12-16	28	1.50 / 1.50
45						11	DO	7-12-23	35	1.50 / 1.50

Log continued on next page

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'- 41'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 41' - 51'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 39'-52'
Type: FilterSil

FILTER PACK SEAL
Interval: 32'-39'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-32'
Type: Portland Type I/Type II/Gel Mix

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Terracon
DRILLER: Shep Becker

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-55

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 52.00 ft
LOCATION: West of the cement plant

DRILL RIG: CME 55
DATE STARTED: 9/21/16
DATE COMPLETED: 9/22/16

NORTHING: 1,394,142.60
EASTING: 2,204,147.90
GS ELEVATION: 822.86 TOC
ELEVATION: 825.12 ft

DEPTH W.L.: 12.05'
ELEVATION W.L.: 810.85
DATE W.L.: 10/6/2016
TIME W.L.: 850

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45		23.50 - 52.00 ML, SILT, some sand, non plastic; light brown to tan to silverish gray, schist saprolite; cohesive, moist to wet (increases with depth), w<PL, soft to firm. *(Continued)*	ML								0.010 Slotted _ Screen	**WELL CASING** Interval: 0'- 41' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw **WELL SCREEN** Interval: 41' - 51' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC **FILTER PACK** Interval: 39'-52' Type: FilterSil **FILTER PACK SEAL** Interval: 32'-39' Type: PEL-PLUG 3/8" Bentonite pellets **ANNULUS SEAL** Interval: 0'-32' Type: Portland Type I/Type II/Gel Mix **WELL COMPLETION** Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum **DRILLING METHODS** Soil Drill: Hollow-stem auger Rock Drill: N/A
	775											
50												
					770.9							
		Boring completed at 52.00 ft										
	770											
55												
	765											
60												
	760											
65												
	755											
70												
	750											
75												
	745											
80												
	740											
85												
	735											
90												

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Terracon
DRILLER: Shep Becker

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-57

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 50.50 ft
LOCATION: North of the 4-wide construction trailer

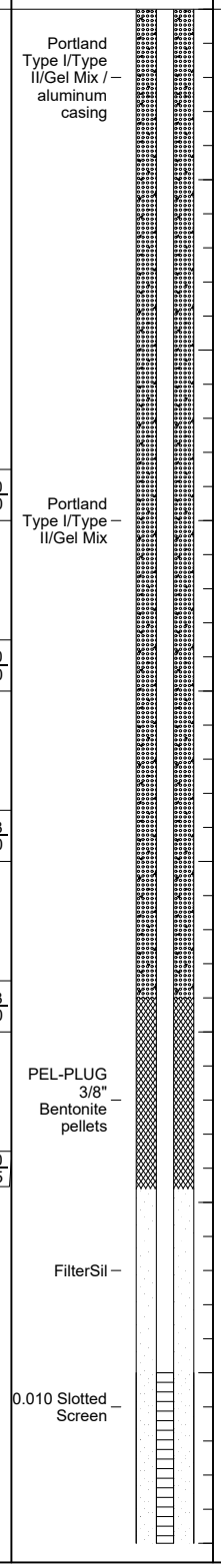
DRILL RIG: CME 55
DATE STARTED: 9/24/16
DATE COMPLETED: 9/24/16

NORTHING: 1,391,396.30
EASTING: 2,202,736.90
GS ELEVATION: 786.03
TOC ELEVATION: 789.04 ft

DEPTH W.L.: 21.49
ELEVATION W.L.: 764.51
DATE W.L.: 10/6/2016
TIME W.L.: 920

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	785	0.00 - 10.00 Boring was hydrovac'd to 10' bgs (material appears to be SM-ML)	SM-ML		776 / 10.00					
10	775	10.00 - 30.00 ML- Sandy Clayey SILT, fine to coarse sand, some fine gravel; reddish-brown to brown, dense, dry; micaceous, PWR	ML			1	DO	4-10-14	24	1.00 / 1.50
						2	DO	11-24-50/5	74/11	1.00 / 1.50
						3	DO	4-8-14	22	1.33 / 1.50
						4	DO	4-4-8	12	1.33 / 1.50
30	755	30.00 - 34.50 CL- Silty CLAY, SOME fine to medium SAND, trace gravel: brown; loose, W<PL; micaceous, PWR. Auger Refusal at 34.5	CL		756 / 30.00	5	DO	50/3	50/3	0.00 / 0.25
35	750	34.50 - 50.50 Bedrock; SCHIST; strong to very strong, light to dark gray with white and black laminations, sub-parallel; sightly weathered top with red oxidation on fractured surfaces to fresh and unfractured at the bottom.	BR		751.5 / 34.50					
40	745									
45		Log continued on next page								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-40'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 40'-50'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 34.6'-50.5'
Type: FliterSil

FILTER PACK SEAL
Interval: 29'-34.6'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-29'
Type: Portland Type I/Type II/Gel Mix

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Terracon
DRILLER: Shep Becker

GA INSPECTOR: Aubrey Ellis
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-57

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 50.50 ft
LOCATION: North of the 4-wide construction trailer

DRILL RIG: CME 55
DATE STARTED: 9/24/16
DATE COMPLETED: 9/24/16

NORTHING: 1,391,396.30
EASTING: 2,202,736.90
GS ELEVATION: 786.03
TOC ELEVATION: 789.04 ft

DEPTH W.L.: 21.49
ELEVATION W.L.: 764.51
DATE W.L.: 10/6/2016
TIME W.L.: 920

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
45	740	34.50 - 50.50 Bedrock; SCHIST; strong to very strong, light to dark gray with white and black laminations, sub-parallel; sightly weathered top with red oxidation on fractured surfaces to fresh and unfractured at the bottom. *(Continued)*	BR								
50	735				735.5						
		Boring completed at 50.50 ft									
55	730										
60	725										
65	720										
70	715										
75	710										
80	705										
85	700										
90											

WELL CASING
Interval: 0'-40'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 40'-50'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 34.6'-50.5'
Type: FliterSil

FILTER PACK SEAL
Interval: 29'-34.6'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-29'
Type: Portland Type I/Type II/Gel Mix

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Terracon
DRILLER: Shep Becker

GA INSPECTOR: Aubrey Ellis
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-58

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 45.00 ft
LOCATION: SW corner of the new overflow parking lot of the NEW admin building

DRILL RIG: CME 55
DATE STARTED: 9/22/16
DATE COMPLETED: 9/23/16

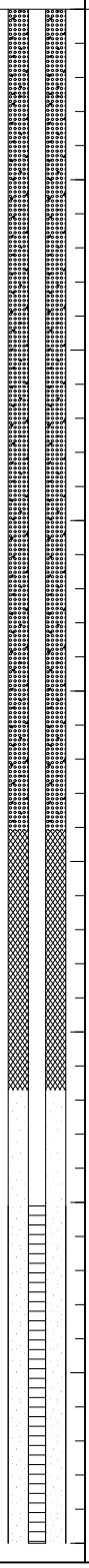
NORTHING: 1,391,125.70
EASTING: 2,202,426.50
GS ELEVATION: 785.20
TOC ELEVATION: 788.17 ft

DEPTH W.L.: 22.30
ELEVATION W.L.: 762.9
DATE W.L.: 10/6/2016
TIME W.L.: 940

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	785	0.00 - 13.50 Top 10' were Hydrovac for utilities.			771.7					
		13.50 - 18.50 SC-SM, silty SAND/ clayly SAND, fine to coarse, low plasticity; red to red orang, fill; cohesive, moist, w<PL, soft to firm.	SC-SM		13.50 766.7	1	DO	5-6-7	13	1.50 / 1.50
		18.50 - 23.50 ML, SILT, trace sand, low to moderate plasticity; red orange, micaceous, fill; cohesive, moist, w<PL, soft to firm.	ML		18.50 761.7	2	DO	2-1-2	3	1.50 / 1.50
		23.50 - 28.50 ML, SILT, some fine sand, low plasticity; tan to white; cohesive, wet, w<PL (over saturated), soft.	ML		23.50 756.7	3	DO	2-3-3	6	1.50 / 1.50
		28.50 - 33.50 ML, SILT, non plastic; brown to silver, slight to deeply weathered, schistose gneiss saprolite; cohesive, wet, w<PL, firm to stiff.	ML		28.50 751.7	4	DO	4-7-9	16	1.50 / 1.50
		33.50 - 45.00 ML, SILT, trace to some sand, low to moderate plasticity; brown to dark brown, micaceous, schistose gneiss/shcist saprolite; cohesive, moist to wet, w<PL, soft to stiff.	ML		33.50	5	DO	1-4-7	11	1.50 / 1.50
						6	DO	3-6-11	17	1.50 / 1.50
						7	DO	3-7-12	19	1.50 / 1.50
45					740.2					

Boring continued on next page

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'- 34.5'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 34.5'-44.5'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 31.7'-45.'
Type: FilterSil

FILTER PACK SEAL
Interval: 24.1'-31.7'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-24.1'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-58

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 45.00 ft
LOCATION: SW corner of the new overflow parking lot of the NEW admin building

DRILL RIG: CME 55
DATE STARTED: 9/22/16
DATE COMPLETED: 9/23/16

NORTHING: 1,391,125.70
EASTING: 2,202,426.50
GS ELEVATION: 785.20
TOC ELEVATION: 788.17 ft

DEPTH W.L.: 22.30
ELEVATION W.L.: 762.9
DATE W.L.: 10/6/2016
TIME W.L.: 940

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45	740											**WELL CASING** Interval: 0'- 34.5' Material: Schedule 40 PVC Diameter: 2 Joint Type: Flush/Screw **WELL SCREEN** Interval: 34.5'-44.5' Material: Schedule 40 PVC Diameter: 2 Slot Size: 0.010 End Cap: Schedule 40 PVC **FILTER PACK** Interval: 31.7'-45.' Type: FilterSil **FILTER PACK SEAL** Interval: 24.1'-31.7' Type: PEL-PLUG 3/8" Bentonite pellets **ANNULUS SEAL** Interval: 0'-24.1' Type: CETCO puregold grout (70:30) **WELL COMPLETION** Pad: 2' x 2' concrete Protective Casing: 4"x4"x5' aluminum **DRILLING METHODS** Soil Drill: Hollow-stem auger Rock Drill: N/A
50	735											
55	730											
60	725											
65	720											
70	715											
75	710											
80	705											
85	700											
90												

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-59

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 30.25 ft
LOCATION: westside of the stream north of AP4

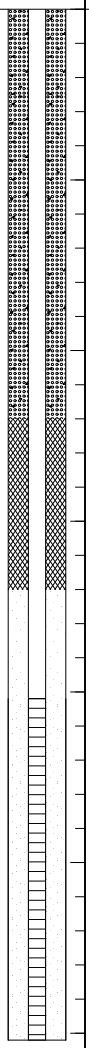
DRILL RIG: CME 55
DATE STARTED: 9/23/16
DATE COMPLETED: 9/23/16

NORTHING: 1,394,349.10
EASTING: 2,203,001.10
GS ELEVATION: 785.41
TOC ELEVATION: 788.00 ft

DEPTH W.L.: 5.56
ELEVATION W.L.: 779.94
DATE W.L.: 10/6/2016
TIME W.L.: 828

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	785	0.00 - 3.50 SC, clayly SAND, fine to coarse, non plastic; red, micaceous, fill; cohesive, dry, w<PL, stiff.	SC		781.9	1	DO	3-5-7	12	1.16 / 1.50
5	780	3.50 - 9.00 CH, CLAY, moderate to high plasticity; aark brown to red brown, fill; cohesive, moist, w>PL, soft.	CH		3.50 776.4	2	DO	2-1-1	2	0.75 / 1.50
10	775	9.00 - 14.00 SM, SAND and SILT, fine, trace organics, non to low plasticity; gray; cohesive, wet, w<PL, very soft.	SM		9.00 771.4	3	DO	WOH-1-1	2	1.50 / 1.50
15	770	14.00 - 19.00 SP-SW, moderate- graded SAND, fine to coarse, non plastic; tan to white; non-cohesive, wet, w<PL, loose.	SP-SW		14.00 766.4	4	DO	4-5-7	12	1.50 / 1.50
20	765	19.00 - 24.50 SM, silty SAND, low plasticity; gray to black, deeply weathered, gneissic saprolite; cohesive, moist to wet, w<PL, firm to very stiff, PWR. Auger Refusal at 24.3	SM		19.00 760.9	5	DO	5-4-5	9	1.00 / 1.50
25	760	24.50 - 30.25 Bedrock; AUGEN GNEISS; slighty weathered, foliated, gray to dark gray, fine to medium grained, medium strong.	BR		24.50 755.2	6	DO	50/4	50/4	0.66 / 0.33
30	755	Boring completed at 30.25 ft								
35	750									
40	745									
45										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-20.2'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 20.2'-30.2'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 17'-30.2'
Type: FilterSil

FILTER PACK SEAL
Interval: 12'-17'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-12'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-60

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 49.80 ft
LOCATION: Almost due south of B-58 ~ 300 to 400 feet

DRILL RIG: CME 55
DATE STARTED: 9/29/16
DATE COMPLETED: 9/29/16

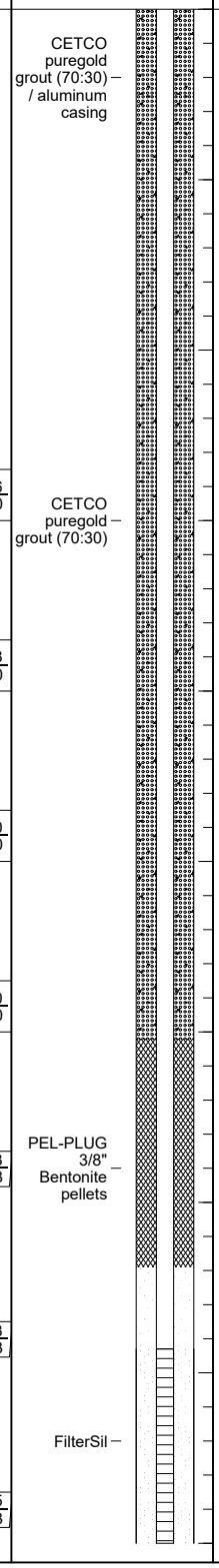
NORTHING: 1,391,100.70
EASTING: 2,202,881.60
GS ELEVATION: 779.25
TOC ELEVATION: 782.13 ft

DEPTH W.L.: 33.35
ELEVATION W.L.: 745.85
DATE W.L.: 10/6/2016
TIME W.L.: 955

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0		0.00 - 13.50 Top 10' were Hydrovac for utilities.								
5	775									
10	770									
					765.8					
15	765	13.50 - 23.50 SC-SM, clayey SAND - silty SAND; brown to red brown; non-cohesive, moist, loose.	SC-SM		13.50	1	DO	4-3-4	7	0.66 1.50
20	760					2	DO	3-2-3	5	1.33 1.50
					755.8					
25	755	23.50 - 28.50 CL, silty CLAY, low plasticity; contains mica; moist, W<PL.	CL		23.50	3	DO	1-3-5	8	1.50 1.50
					750.8					
30	750	28.50 - 33.50 SC-SM, clayey SAND - silty SAND, fine grained, low to non-plastic; brown to gray; non-cohesive, moist, compact.	SC-SM		28.50	4	DO	2-8-10	18	1.50 1.50
					745.8					
35	745	33.50 - 48.50 SM, silty SAND; brown to red brown, saprolite; non-cohesive, moist to wet (increases with depth), dense, PWR.	SM		33.50	5	DO	50/4	50/4	0.33 0.33
40	740					6	DO	50/4	50/4	0.33 0.33
45	735					7	DO	50/4	50/4	0.25 0.33

Log continued on next page

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-39.3'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 39.3' - 49.3'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 36.9'-50'
Type: FilterSil

FILTER PACK SEAL
Interval: 30.2'-36.9'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-30.2'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Nortey Yeboah
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-60

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 49.80 ft
LOCATION: Almost due south of B-58 ~ 300 to 400 feet

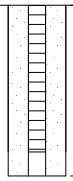
DRILL RIG: CME 55
DATE STARTED: 9/29/16
DATE COMPLETED: 9/29/16

NORTHING: 1,391,100.70
EASTING: 2,202,881.60
GS ELEVATION: 779.25
TOC ELEVATION: 782.13 ft

DEPTH W.L.: 33.35
ELEVATION W.L.: 745.85
DATE W.L.: 10/6/2016
TIME W.L.: 955

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
45		33.50 - 48.50 SM, silty SAND; brown to red brown, saprolite; non-cohesive, moist to wet (increases with depth), dense, PWR. *(Continued)*	SM		730.8					
50	730	48.50 - 49.80 SM, silty SAND; gray to brown, saprolite, contains mica; non-cohesive, moist to wet (increases with depth), dense, PWR	SM		48.50 729.5	8	DO	50/3	50/3	0.16 0.25
		Boring completed at 49.80 ft								
55	725									
60	720									
65	715									
70	710									
75	705									
80	700									
85	695									
90	690									

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-39.3'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 39.3' - 49.3'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 36.9'-50'
Type: FilterSil

FILTER PACK SEAL
Interval: 30.2'-36.9'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-30.2'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Nortey Yeboah
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-61

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 52.40 ft
LOCATION: SSW of B-57. on the NE corner of the switch yard

DRILL RIG: CME 55
DATE STARTED: 9/28/16
DATE COMPLETED: 9/29/16

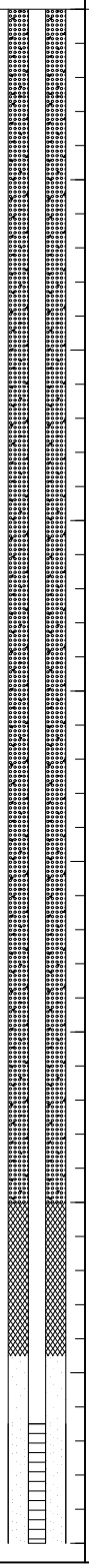
NORTHING: 1,390,957.80
EASTING: 2,202,505.80
GS ELEVATION: 778.95
TOC ELEVATION: 782.09 ft

DEPTH W.L.: 22.25
ELEVATION W.L.: 756.75
DATE W.L.: 10/6/2016
TIME W.L.: 950

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0		0.00 - 13.50 Top 10' were Hydrovac for utilities.								
5	775									
10	770				765.5					
15	765	13.50 - 18.50 CL-CH, CLAY, trace sand and silt, fine to coarse, moderate plasticity; dark red brown, fill; cohesive, moist, w~PL, soft.	CL-CH		13.50 760.5	1	DO	3-4-6	10	1.50 1.50
20	760	18.50 - 23.50 SM, siltly SAND, fine, non to low plasticity, trace organics (tree root); dark gray to black; cohesive, dry to moist, w<PL, firm	SM		18.50 755.5	2	DO	5-8-13	21	1.50 1.50
25	755	23.50 - 38.50 ML, SILT, trace fine to coarse sand, non to low plasticity; red-brown to gray to black; cohesive, dry to moist, w<PL, firm.	ML		23.50	3	DO	6-8-13	21	1.16 1.50
30	750					4	DO	3-2-5	7	1.16 1.50
35	745					5	DO	3-3-5	8	1.00 1.50
40	740	38.50 - 52.40 SM, silty SAND, fine to coarse, non to low plasticity; dark brown to gray to black, deeply weathered, schistose gneiss / schist saprolite; non-cohesive to cohesive, moist, w<PL, compact to dense / firm to stiff, PWR.	SM		740.5 38.50	6	DO	7-10-23	33	1.33 1.50
45	735					7	DO	6-19-50/3	69/9	1.25 0.75

Log continued on next page

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-41.5'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 41.5'-51.5'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 39.5'-51.9'
Type: FilterSil

FILTER PACK SEAL
Interval: 35'-39.5'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-35'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-61

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 52.40 ft
LOCATION: SSW of B-57. on the NE corner of the switch yard

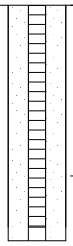
DRILL RIG: CME 55
DATE STARTED: 9/28/16
DATE COMPLETED: 9/29/16

NORTHING: 1,390,957.80
EASTING: 2,202,505.80
GS ELEVATION: 778.95
TOC ELEVATION: 782.09 ft

DEPTH W.L.: 22.25
ELEVATION W.L.: 756.75
DATE W.L.: 10/6/2016
TIME W.L.: 950

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
45		38.50 - 52.40 SM, silty SAND, fine to coarse, non to low plasticity; dark brown to gray to black, deeply weathered, schistose gneiss / schist saprolite; non-cohesive to cohesive, moist, w<PL, compact to dense / firm to stiff, PWR. *(Continued)*	SM							
50	730					8	DO	14-9-14	23	1.50 / 1.50
					726.6					
		Boring completed at 52.40 ft								
55	725									
60	720									
65	715									
70	710									
75	705									
80	700									
85	695									
90	690									

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-41.5'
Material: Schedule 40 PVC
Diameter: 2
Joint Type: Flush/Screw

WELL SCREEN
Interval: 41.5'-51.5'
Material: Schedule 40 PVC
Diameter: 2
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 39.5'-51.9'
Type: FilterSil

FILTER PACK SEAL
Interval: 35'-39.5'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-35'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 4"x4"x5' aluminum

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 12/22/17

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

SOUTHERN COMPANY
Energy to Serve Your World™

DRILLING LOG
GEOLOGICAL SERVICES

Hole No. **B-64**
Sheet 1 of 2

SITE	**Plant McDonough**	HOLE DEPTH	**31'**	SURFELEV	786.10
LOCATION	North of AP-4, near property line at Atkinson Rd	COORDINATES	33.832856		-84.474746
ANGLE		BEARING		CONTRACTOR	SCS
DRILL NO.		DRILLING METHOD	HSA	NO. SAMPLES	
NO. U.D. SAMPLES	0	CASING SIZE	2"	LENGTH	10'
CORE SIZE		TOTAL % REC.		WATER TABLE DEPTH	4.9' BLS
ELEV.	781.20' NAVD88	TIME AFTER COMP.	24 hr	DATE TAKEN	11/3/2016
TYPE GROUT	Bentonite	QUANTITY		MIX	.
DRILLING START DATE	11/2/2016	DRILLER	Milam	RECORDER	Abraham
APPROVED		DRILLING COMP. DATE	11/2/2016		

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
0	786.10								
1	785.10								
2	784.10								
3	783.10								
4	782.10								
5	781.10	**HYDRO-EXCAVATION** Hydrovac from land surface to 20-feet below land. No samples							
6	780.10								
7	779.10								
8	778.10								
9	777.10								
10	776.10								
11	775.10								
12	774.10								
13	773.10								
14	772.10								
15	771.10								
16	770.10								
17	769.10								
18	768.10								
19	767.10								
20	766.10								
21	765.10								
22	764.10	**SANDY SILT SAPROLITE**							
23	763.10	Light gray sandy silt saprolite; minor quartz & feldspar grains, micaceous; oxidation along relict foliations; Fe stains; 2.5Y/6/1; SM.	S-1	23.5 - 25	1-1-2			85	
24	762.10								

SOUTHERN COMPANY
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DRILLING LOG
GEOLOGICAL SERVICES

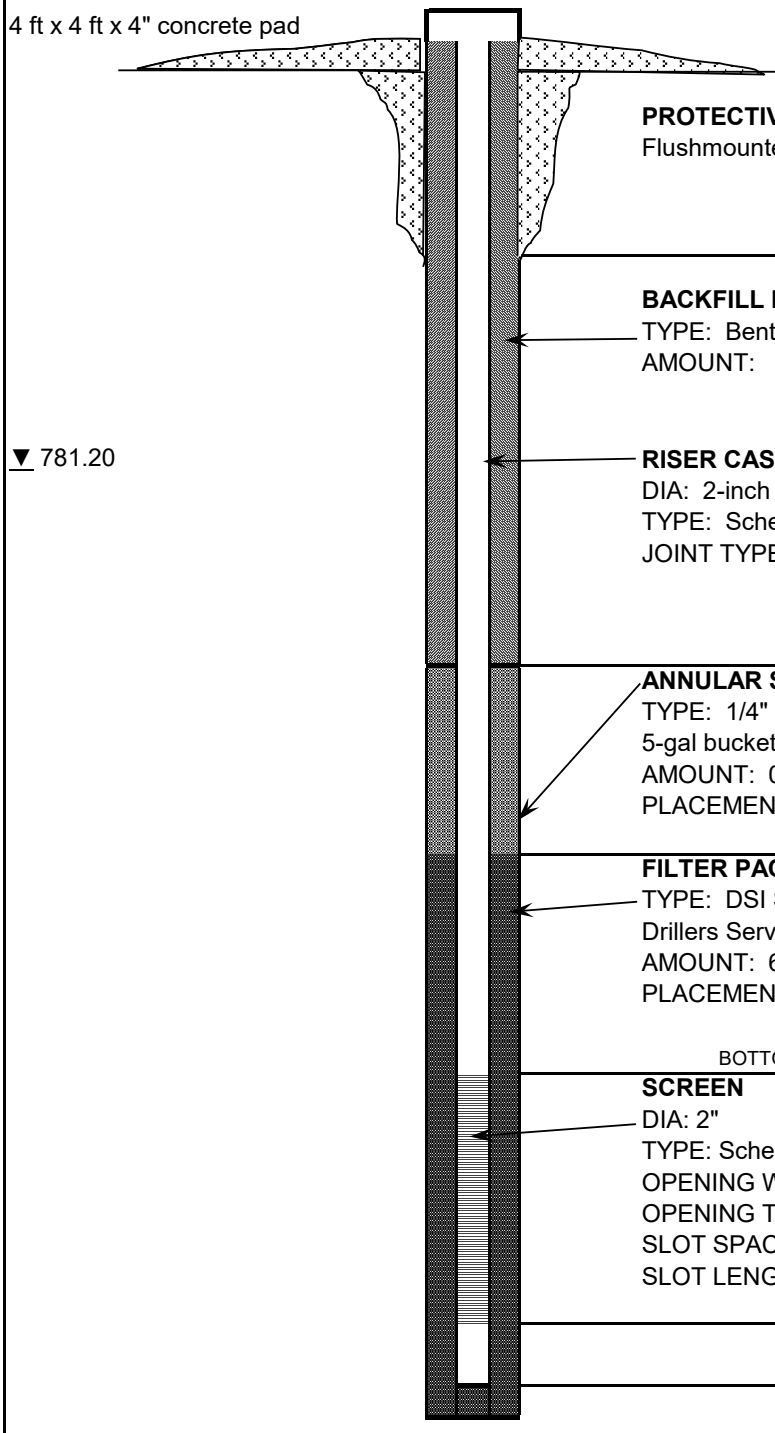
Hole No. **B-64**
Sheet 2 of 2

SITE **Plant McDonough** TOTAL DEPTH **31'** SURF.ELEV. 786.10

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
25	761.10								
26	760.10	**SANDY SILT SAPROLITE**							
27	759.10								
28	758.10	Light brown sandy silt saprolite; micaceous; highly weathered biotite gneiss; quartz, feldspar, biotite, FeO; 2.5Y/8/1; SM.	S-2	28.5 - 30	1-2-2			90	
29	757.10								
30	756.10								
31	755.10	END OF BORING AT 30.4-FT REGOLITH WELL							
53	733.10								
54	732.10								
55	731.10								
56	730.10								

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS, Inc.	WELL NAME
North of AP-4, at Atkinson Rd	DRILLER: Milam	
LOCATION: 33.832856 / -84.474746	RIG TYPE: CME550	**B-64**
LOGGER: Abraham	DRILLING METHODS: HSA	
DATE CONSTRUCTED: 11/2/2016	Survey Coordinates: N: 1394381.9 E: 2203031.3	



	DEPTH FEET	ELEVATION FT, MSL
	TOC	785.83
GROUND SURFACE	0.0	785.98
PROTECTIVE CASING Flushmounted		
BOTTOM OF GROUT	3.0	783.0
BACKFILL MATERIAL TYPE: Bentonite Grout mix AMOUNT: 1 x 50lbs		
RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	8.10	777.9
ANNULAR SEAL TYPE: 1/4" coated bentonite pellets 5-gal buckets AMOUNT: 0.5 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	16.50	769.5
FILTER PACK TYPE: DSI Sand - 1A (20/40) Drillers Services, Inc. AMOUNT: 6 Bags PLACEMENT: Tremie; wash with water		
BOTTOM OF RISER / TOP OF SCREEN	20.00	766.0
SCREEN DIA: 2" TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.25 inch SLOT LENGTH: 1.5 inch		
BOTTOM OF SCREEN	30.00	756.0
BOTTOM OF WELL	30.40	755.6

HOLE DIA: 9 inch

SOUTHERN COMPANY
Energy to Serve Your World™

DRILLING LOG
GEOLOGICAL SERVICES

Hole No. **B-65**
Sheet 1 of 2

SITE	**Plant McDonough**	HOLE DEPTH	**50'**	SURFELEV	822.30
LOCATION	North of AP-4, near property line, NW end of parking lot	COORDINATES	33.832862		-84.471389
ANGLE		BEARING		CONTRACTOR	SCS
DRILL NO.		DRILLING METHOD	HSA	NO. SAMPLES	
NO. U.D. SAMPLES	0	CASING SIZE	2"	LENGTH	10'
CORE SIZE		TOTAL % REC.		WATER TABLE DEPTH	10.5' BLS
ELEV.	811.80 NAVD88	TIME AFTER COMP.	24 HR	DATE TAKEN	11/16/2016
TYPE GROUT		QUANTITY		MIX	·
DRILLING START DATE	11/15/2016	DRILLER	Milam	RECORDER	Abraham
APPROVED		DRILLING COMP. DATE	11/15/2016		

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
0	822.30								
1	821.30								
2	820.30								
3	819.30								
4	818.30								
5	817.30	**HYDRO-EXCAVATION** Hydrovac from land surface to 10-feet below land. No samples							
6	816.30								
7	815.30								
8	814.30								
9	813.30								
10	812.30								
11	811.30								
12	810.30								
13	809.30								
14	808.30	**SILTY SAND SAPROLITE** Light brown silty sand with minor clay; weathered schist fragments; minor oxidation bands; minor quartz fragments	S-1	13.5-15	13-50/3			90	
15	807.30	10YR/3/2; SM; At 15-ft, large rock fragments brownish black color; damp.							
16	806.30								
17	805.30								
18	804.30								
19	803.30	**SILTY SAND SAPROLITE** Blackish brown silty sand saprolite; large micas with a greenish tinge; highly oxidized with FeO parallel to foliations; 10YR/3/2; SM; damp to moist.	S-2	18.5-20	24-30-31	61		90	
20	802.30								
21	801.30								
22	800.30	**CLAYEY SILT** Dark gray to reddish brown silty sand saprolite; micas abundant; softer than interval above; few gravel-size rock fragments; FeO bands with minor MnO streaks; 2.5Y/3/2; SM; moist to saturated.	S-3	23.5 - 25	2-16-50/2			90	
23	799.30								
24	798.30								

SOUTHERN COMPANY
Energy to Serve Your World™

DRILLING LOG
GEOLOGICAL SERVICES

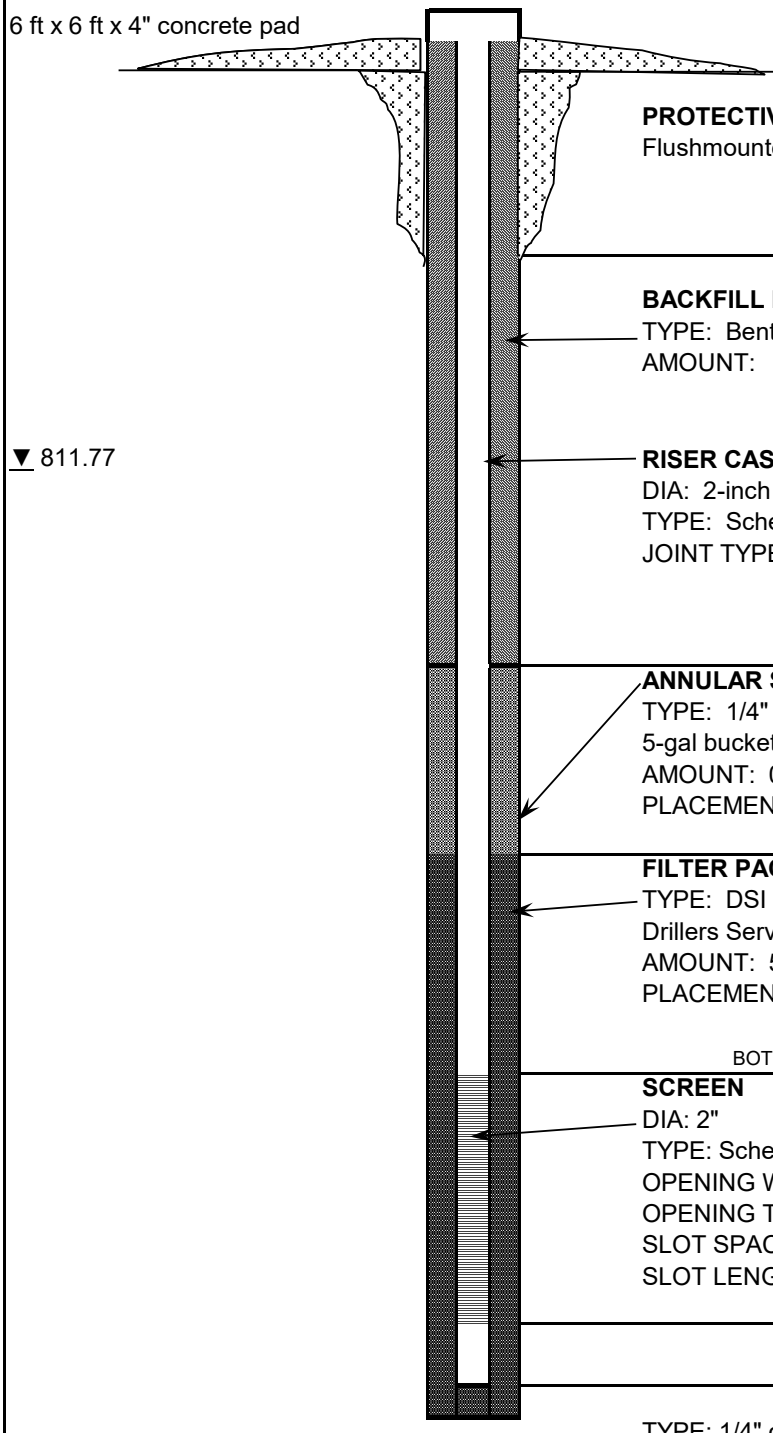
Hole No. **B-65**
Sheet 2 of 2

SITE **Plant McDonough** TOTAL DEPTH **50'** SURF.ELEV. 822.30

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
25	797.30								
26	796.30	**SILTY SAND SAPROLITE**							
27	795.30								
28	794.30	Dark gray to reddish brown silty sand with minor clay; few structures; 2.5Y/3/2; SM;	S-4	28.5-30	50/2			90	
29	793.30	saturated.							
30	792.30								
31	791.30								
32	790.30	**SILTY SAND SAPROLITE**							
33	789.30	Dark gray to reddish brown silty sand with minor gravel; damp to saturated; 2.5Y/3/2	S-5	33.5 - 35	50/2			90	
34	788.30								
35	787.30								
36	786.30								
37	785.30	**SILTY SAND SAPROLITE**							
38	784.30	Dark gray to reddish brown silty sand with minor clay; saprolite; saturated; 2.5YR/3/2	S-6	38.5 - 40	6-9-32			90	
39	783.30								
40	782.30		S-7	40 - 42	50/2			90	
41	781.30								
42	780.30	Top of Rock - 42-ft							
43	779.30	MUSCOVITE-BIOTITE SCHIST; minor chlorite;						95	
44	778.30	2 horizontal fractures, non-water bearing, 44' 1 sub-vertical fracture, water-bearing, 46' - 50'		42 - 49.9					
45	777.30	BACKFILLED & SET REGOLITH WELL							
46	776.30								
47	775.30								
48	774.30								
49	773.30								
50	772.30	END OF BORING - 49.9-FT							
51	771.30								
52	770.30								
53	769.30								
54	768.30								
55	767.30								
56	766.30								

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Plant McDonough	DRILLING CO.: SCS, Inc.	WELL NAME
NE of AP-4 at Argos, near N corner parking lot	DRILLER: Milam	
LOCATION: 33.832862 / -84.471389	RIG TYPE: CME550	**B-65**
LOGGER: Abraham	DRILLING METHODS: HSA	
DATE CONSTRUCTED: 11/15/2016	Survey Coordinates: N: 1394381.2 E: 2204050.8	



	DEPTH FEET	ELEVATION FT, MSL
TOC		821.95
GROUND SURFACE	0.00	822.30
PROTECTIVE CASING Flushmounted		
BOTTOM OF GROUT	3.00	819.3
BACKFILL MATERIAL TYPE: Bentonite Grout mix AMOUNT: 3 x 50lbs (1.5 bag bentonite; 1.5 bag grout)		
RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	26.8	795.5
ANNULAR SEAL TYPE: 1/4" coated bentonite pellets 5-gal buckets AMOUNT: 0.5 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	31.8	790.5
FILTER PACK TYPE: DSI Sand - 1A (20/40) Drillers Services, Inc. AMOUNT: 5 Bags PLACEMENT: Tremie; wash with water		
BOTTOM OF RISER / TOP OF SCREEN	34.4	787.9
SCREEN DIA: 2" TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01 inch OPENING TYPE: Slotted SLOT SPACING: 0.25 inch SLOT LENGTH: 1.5 inch		
BOTTOM OF SCREEN	44.4	777.9
BOTTOM OF WELL	45.4	776.9
TYPE: 1/4" coated bentonite pellets between 45.4' and 49.9'		
	49.9	772.4

RECORD OF BOREHOLE B-68 / DGWC-68

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 40.40 ft
LOCATION: West Toe of AP-1

DRILL RIG: Geoprobe
DATE STARTED: 3/16/17
DATE COMPLETED: 3/16/17

NORTHING: 1,391,298.20
EASTING: 2,200,714.20
GS ELEVATION: 759.05
TOC ELEVATION: 758.68 ft

DEPTH W.L.: 3.5
ELEVATION W.L.: 755.06
DATE W.L.: 3/16/17
TIME W.L.: 1700

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0		0.00 - 10.00 Hydrovac								
	755									
5										
	750				749					
10		10.00 - 15.00 Sandy Silt, fine to medium sand, dark brown, highly weathered, micaceous, cohesive, moist, firm, sample spoon wet	ML		10.00					
	745				744	S1	SPT	5-6-5	11	1.08 1.50
15		15.00 - 18.80 Silty Sand, fine to coarse, trace gravel, greenish grey, weathered, thinly bedded, noncohesive, very dense, (weathered gneiss)	PWR		15.00					
	740		PWR		740.2	S2	SPT	50/3	50/3	0.25 0.25
20		19.20 - 22.80 Slightly weathered to fresh, weakly foliated, light gray to white, fine to very fine grained, medium strong to strong, MYLONITE (White Mylonite).	BR		19.20					
					736.2					
	735	22.80 - 24.10 Slight to moderately weathered, weakly foliated, dary gray to black , fine to very fine grained, medium strong, MYLONITE (Black Mylonite).	BR		22.80 734.9					
25		24.10 - 28.90 Slightly weathered to fresh, weakly foliated, interlayered with vein quartz (~1"), light grey to white, fine to very fine grained, medium strong to strong, MYLONITE (White Mylonite).	BR		24.10					
	730				730.1					
30		28.90 - 38.00 Slightly weathered to fresh, moderate to strongly foliated, interlayered with Black Mylonite (~1") and pegmatites (~1 to 2"), light to dark gray, fine to coarse grained, medium strong to strong, Sheared Gneiss (Long Island Creek).	BR		28.90					
	725									
35										
					721					
	720	38.00 - 39.20 Slight to moderately weathered, weakly foliated, dary gray to black , fine to very fine grained, medium strong, MYLONITE (Black Mylonite).	BR		38.00 719.8					
40		39.20 - 40.40 Slightly weathered to fresh, moderate to strongly foliated, light to dark gray, fine to coarse grained, medium strong to strong, Sheared Gneiss (Long Island Creek).	BR		39.20 718.6					
	715	Boring completed at 40.40 ft								
45										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES

Flush Mounted Casing
CETCO puregold grout (70:30)
PEL-PLUG 3/8" Bentonite pellets
FilterSil
.010" Slotted Schedule 40 PVC
FilterSil
PEL-PLUG 3/8" Bentonite pellets

WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-8'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 8.0'-18.0'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 6.1'-18.4'
Type: FilterSil

FILTER PACK SEAL
Interval: 4.1'-6.1'
Type: PEL-PLUG 3/8" Bentonite pellets

ANNULUS SEAL
Interval: 0'-4.1'
Type: CETCO puregold grout (70:30)

WELL COMPLETION
Pad: 4'x4' Concrete
Protective Casing: 8" Round Flush Mount

DRILLING METHODS
Soil Drill: Hollow-stem auger
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: Sean Denty

GA INSPECTOR: Ben Hodges
CHECKED BY: Timothy Richards, PG
DATE: 1/16/18

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-72

SHEET 1 of 1

PROJECT: SCS-Plant McDonough
PROJECT NUMBER: 1779172
DRILLED DEPTH: 21.90 ft
LOCATION: ~50' SSE of B-68

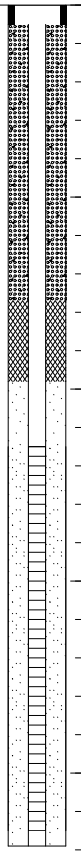
DRILL RIG: Geoprobe 7822DT
DATE STARTED: 4/19/17
DATE COMPLETED: 4/19/17

NORTHING: 1,391,241.4
EASTING: 220,0725.9
GS ELEVATION: 758.45
TOC ELEVATION: 758.46 ft

DEPTH W.L.:2.90
DATE W.L.:5/2/2017
TIME W.L.:09:00

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	755	0.00 - 5.00 ML, SILT, with trace fine sand and gravels (rock fragments), low plasticity; brown; cohesive, moist, w<PL, soft.	ML		753.5					
5	750	5.00 - 13.50 SP-SM, Poorly-graded SAND with Silt, fine, low plasticity; red-orange brown, relict structure, highly micaceous; cohesive, wet, w<PL, very soft.	SP-SM		5.00 745.0					
10	745	13.50 - 18.50 SM, Silty SAND with trace fine gravels, non-plastic to low plasticity; dark brown to dark gray, highly micaceous; non-cohesive, dry to moist, w<PL, compact.	SM		13.50 740.0	S1	DO	25-50/3	50/3	0.75 1.50
15	740									
20	735	18.50 - 21.50 ML, SILT, with trace sand and large gravels, low plasticity; brown to dark gray black, saprolitic, highly micaceous, gneiss; cohesive, wet, w<PL, soft to firm.	ML		18.50 737.0	S2	DO	17-34-8	42	1.50 1.50
25	730	Boring completed at 21.90 ft			21.50					
30	725									
35	720									
40										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0' - 21.9'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

SURFACE CASING
Interval:
Material:
Diameter:

WELL SCREEN
Interval: 11.5' - 21.5'
Material: Schedule 40 PVC Pre-Pack
Diameter: 2"
Slot Size: 0.010"
End Cap: 21.5' - 21.9'

FILTER PACK
Interval: 9.8' - 21.9'
Type: FilterSil gravel pack

FILTER PACK SEAL
Interval: 7.7' - 9.8'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0' - 7.7'
Type: Pure Gold Grout Mixture

WELL COMPLETION
Pad: 4' x 4' concrete
Protective Casing: 8" Diameter Round Flush Mount

DRILLING METHODS
Soil Drill: 4.25-inch ID HSA
Rock Drill: N/A

NOTES

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/17/17

Golder Associates

BOREHOLE RECORD 1779172.GPJ PIEDMONT.GDT 5/18/17

RECORD OF BOREHOLE B-73

SHEET 1 of 1

PROJECT: SCS-Plant McDonough
PROJECT NUMBER: 1779172
DRILLED DEPTH: 15.80 ft
LOCATION: ~50' NNW of B-68

DRILL RIG: Geoprobe 7822DT
DATE STARTED: 4/19/17
DATE COMPLETED: 4/19/17

NORTHING: 1,391,351.8
EASTING: 2,200,699.4
GS ELEVATION: 759.16
TOC ELEVATION: 759.21 ft

DEPTH W.L.:4.11
DATE W.L.:4/26/2017
TIME W.L.:12:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
0		0.00 - 8.50 SP-SM, Poorly-graded SAND with Silt, non-plastic; red-orange brown; non-chesive, dry to moist, w<PL, loose.									8" Diameter Round Flush Mount Pure Gold Grout Mixture Pel-Plug 3/8" Bentonite Pellets
	755		SP-SM								
5											
					750.7						
	750	8.50 - 9.50 CL, CLAY, with some silt, low plasticity; red brown; cohesive, moist, w<PL, soft.	CL		8.50 749.7	S1	DO	1-8-15	23	1.50 1.50	Pre-pack 0.010" Slotted Schedule PVC
10		9.50 - 15.50 SP-SM, Poorly-graded SAND with Silt, non-plastic to low plasticity; white to dark gray, Saprolitic; non-chesive, dry to moist, w<PL, compact to dense.	SP-SM		9.50						
	745					S2	DO	12-29-35	64	1.50 1.50	FilterSil gravel pack
15					743.4						
		Boring completed at 15.80 ft			15.80						
	740										
20											
	735										
25											
	730										
30											
	725										
35											
	720										
40											

WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0' - 15. 8'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

SURFACE CASING
Interval:
Material:
Diameter:

WELL SCREEN
Interval: 5.4' -15.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 15.4' -15.8'

FILTER PACK
Interval: 3.2' - 15.8'
Type: FilterSil

FILTER PACK SEAL
Interval: 0.5' - 3.2'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0 -0.5'
Type: Pure Gold Grout Mixture

WELL COMPLETION
Pad: 4' x 4' concrete
Protective Casing: 8" Diameter Round Flush Mount

DRILLING METHODS
Soil Drill: 4.25-inch ID HSA
Rock Drill: N/A

NOTES

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/17/17

Golder Associates

BOREHOLE RECORD 1779172.GPJ PIEDMONT.GDT 5/18/17

RECORD OF BOREHOLE B-74

SHEET 1 of 1

PROJECT: SCS-Plant McDonough
PROJECT NUMBER: 1779172
DRILLED DEPTH: 16.50 ft
LOCATION: ~50' West of B-68

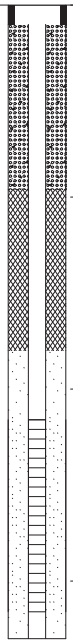
DRILL RIG: Geoprobe 7822DT
DATE STARTED: 4/24/17
DATE COMPLETED: 4/25/17

NORTHING: 1,391,279.9
EASTING: 2,200,666.1
GS ELEVATION: 759.18
TOC ELEVATION: 759.06 ft

DEPTH W.L.:3.3'
DATE W.L.:4/25/2017
TIME W.L.:09:37

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	755	0.00 - 4.00 CL, CLAY, with some silt, low plasticity; red brown, fill; cohesive, moist, w<PL, soft.	CL		755.2					
		4.00 - 13.50 SP-SM, Poorly-graded SAND with Silt and trace gravel , fine to coarse, non-plastic; white to tan, deeply weathered, granitic; non-cohesive, moist, w<PL, loose/soft.	SP-SM		4.00	S1	DO	3-18-20	38	0.75 1.50
5	750									
10	745				745.7					
		13.50 - 16.50 SM, Silty SAND, non-plastic; white to light gray; non-cohesive, dry to moist, w<PL, dense.	SM		13.50	S2	DO	50/3	50/3	0.25 1.50
15					742.7					
		Boring completed at 16.50 ft								
20	740									
25	735									
30	730									
35	725									
40	720									

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0' - 16.2
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

SURFACE CASING
Interval:
Material:
Diameter:

WELL SCREEN
Interval: 10.8' - 15.8'
Material: Pre-pack Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 15.8' - 16.2'

FILTER PACK
Interval: 9.0' - 16.5'
Type: FilterSil gravel pack

FILTER PACK SEAL
Interval: 4.8' - 9.0'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0' - 4.8'
Type: Pure Gold Grout Mixture

WELL COMPLETION
Pad: 4' x 4' concrete
Protective Casing: 8" Diameter Round Flush Mount

DRILLING METHODS
Soil Drill: 4.25-inch ID HSA
Rock Drill: N/A

NOTES
N/A

ABANDONED 10/4/2023

ABANDONMENT NOTES:

Abandoned on 10/4/2023
Tremmie grouted 17lbs Aquagrard/4 gallons water Overdrilled to 10 feet bgs.; 10-feet PVC removed.
Final Grout: 38 lbs Quickrete/10 lbs AquaGuard/6.5 gallons water.

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/17/17

Golder Associates

RECORD OF BOREHOLE B-76

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496-01
DRILLED DEPTH: 37.50 ft
LOCATION: South by river, SE of B-83

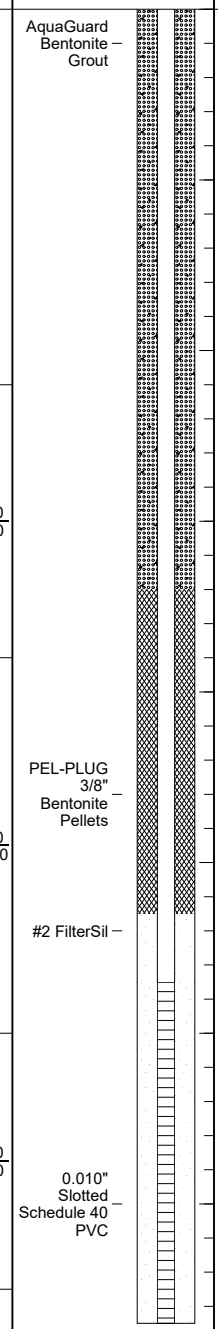
DRILL RIG: Rotosonic 1159
DATE STARTED: 9/16/19
DATE COMPLETED: 9/16/19

NORTHING: 1,390,717.4
EASTING: 2,202,756.9
GS ELEVATION: 760.87 ft
TOC ELEVATION: 760.53 ft

DEPTH W.L.:38.5
DATE W.L.:9/17/2019
TIME W.L.:1300
GW ELEVATION:

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES SAMPLE NO.	TYPE	REC
0	760	0.00 - 11.00 Hydrovac, no soil recovery due to Hydrovac			749.9			
10	750	11.00 - 19.00 Gravelly SILT, trace clay and sand, cohesive, low plasticity, moist to wet, w<PL, stiff.	ML		11.00 741.9	S1	ROTO SONIC	3.60 / 8.00
20	740	19.00 - 30.00 Gravelly CLAY, some fine sand, trace silt, cohesive, medium to high plasticity, wet, w> PL, soft, brown.	CL-CH		19.00 730.9	S2	ROTO SONIC	7.30 / 11.00
30	730	30.00 - 37.50 Silty CLAY, trace weathered rock, cohesive, moderate plasticity, w~PL, wet, soft to firm, brown. PWR from 37.5 to 38	CL-ML		30.00 723.4	S3	ROTO SONIC	7.00 / 7.50
40	720	Boring completed at 37.50 ft						

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-28.5'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 28.5'-38.5'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 26.5'-38.5'
Type: Filter Media

FILTER PACK SEAL
Interval: 17.0'-26.5'
Type: PEL-PLUG 3/8"

ANNULUS SEAL
Interval: 0'-17.0'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad:
Protective Casing: 4" Stainless Steel

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Jose

GA INSPECTOR: D. Thomas
CHECKED BY: Brian Steele, PG
DATE: 2/10/20

Golder Associates

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/12/20

RECORD OF BOREHOLE B-78

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 30.00 ft
LOCATION: South of road on north side of plant property

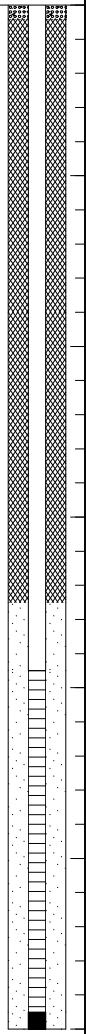
DRILL RIG: Rotosonic 1159
DATE STARTED: 9/22/19
DATE COMPLETED: 9/22/19

NORTHING: 1,394,328.20
EASTING: 2,202,958.20
GS ELEVATION: 787.79
TOC ELEVATION: 790.75 ft

DEPTH W.L.: 9.05
ELEVATION W.L.: 778.95
DATE W.L.: 1/13/2020
TIME W.L.: 13:44

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0		0.00 - 8.70 Hydrovac				0		0.00 0.73
	785							
5								
	780				779.1		ROTO SONIC	
		8.70 - 11.20 (MLS) sandy SILT, low plasticity fines, fine to medium sub-angular sand, trace organics (roots); light brown (5YR 5/6) to Pale Brown (5YR 2/2), residual soil with frequent micaceous minerals present; cohesive, w~PL, soft	MLS		8.70 776.6	1	ROTO SONIC	0.94 0.94
10		11.20 - 17.00 (MLS) sandy SILT, non to low plasticity fines, fine sub-angular sand, trace soft (crumbles with pressure from fingers) gravels with relic foliations; pale yellowish brown (10YR 6/2) with light gray (N7) and dark yellowish brown (10YR 4/2) foliations, highl	MLS		11.20 770.8			
	775							
15								
	770	17.00 - 25.10 (SM) SILTY SAND, fine sub-angular to sub-rounded sand, non-plastic fines, trace fine angular soft (crumbles with pressure from fingers) with relic foliations; pale yellowish brown (10YR 6/2) with very pale orange (10YR 8/2) and dark yellowish brown (10YR	SM		17.00 762.7	2	ROTO SONIC	0.18 0.42
20								
	765							
25		25.10 - 30.00 BEDROCK, GNIESS, slightly to moderately weathered (W2 - W3), medium dark gray (N4), with light bluish gray (5B 5/1) and light gray (N7) foliations, fine to medium grained, medium strong rock (R3)	GNIESS		25.10 757.8	3	ROTO SONIC	0.31 0.42
	760							
30		Boring completed at 30.00 ft						
	755							
35								
	750							
40								
	745							
45								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0.0 - 20.0 '
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 20.0-29.5 '
Material: Schedule 40 PVC
Schedule 40 PVC
Diameter: 2" ID 4 " OD
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 17.5 - 30.0
Type: 20/40 FilterSil

FILTER PACK SEAL
Interval: 9.0 - 17.5'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0.4 - 9.0 '
Type: Baroid 3/8" Bentonite Chips (Holeplug)

WELL COMPLETION
Pad: 4' x 4' x 4"
Protective Casing: 4" Stainless Steel

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

~250 gallons of water used while drilling

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Jose

GA INSPECTOR: Jeff Ingram
CHECKED BY: Timothy Richards, PG
DATE: 2/12/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-79

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 35.00 ft
LOCATION: South of road on north side of plant property

DRILL RIG: Rotosonic 1159
DATE STARTED: 9/20/19
DATE COMPLETED: 9/21/19

NORTHING: 1,394,458.60
EASTING: 2,203,223.00
GS ELEVATION: 785.84
TOC ELEVATION: 788.66 ft

DEPTH W.L.: 5.92
ELEVATION W.L.: 779.98
DATE W.L.: 1/13/2020
TIME W.L.: 14:26

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	785	0.00 - 9.20 Hydrovac	NA		776.6	0		0.00 0.77
10	775	9.20 - 13.70 (ML) sandy SILT, non to low plasticity fines, fine sand; layered light brown (5YR 5/6) with dark yellowish brown (10YR 4/2) and pale yellowish brown (10YR 6/2) layers, some relic curved laminated layers (relic foliations); non-cohesive, wet, loose	ML		9.20 772.1			
15	770	13.70 - 30.00 (SM) silty SAND, fine sub-angular sand, non-plastic fines, some soft (crumbles with pressure from fingers) fine to coarse sub-angular gravels; pale yellowish brown (10YR 6/2) with some light brown (5YR 5/6) iron oxide staining, PWR with frequent micaceous mineral; non-cohesive, wet, loose	SM		13.70	1	ROTO SONIC	0.77 10.80
20	765					2	ROTO SONIC	0.42 0.90
25	760					3	ROTO SONIC	0.42 0.42
30	755	30.00 - 35.00 (SM) SILTY SAND, fine sub-angular sand, non-plastic fines, trace soft (crumbles with pressure from fingers) fine gravels with some relic foliations; pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2) layers, PWB; non-cohesive, moist, compact	SM		755.8 30.00	4	ROTO SONIC	0.38 0.42
35	750	Boring completed at 35.00 ft			750.8			
40	745							
45								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0.0 - 34.9 '
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 24.93-34.43 '
Material: Schedule 40 PVC
Schedule 40 PVC
Diameter: 2" ID 4 " OD
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 22.0 - 35.0'
Type: 20/40 FilterSil

FILTER PACK SEAL
Interval: 14.0 - 22.0'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0.4 - 14.0 '
Type: Baroid 3/8" Bentonite Chips (Holeplug)

WELL COMPLETION
Pad:
Protective Casing: 4" Stainless Steel

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

~175 gallons of water used while drilling

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Jose

GA INSPECTOR: Jeff Ingram
CHECKED BY: Timothy Richards, PG
DATE: 2/12/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-80

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 30.00 ft
LOCATION: North to northeast of CCR Unit

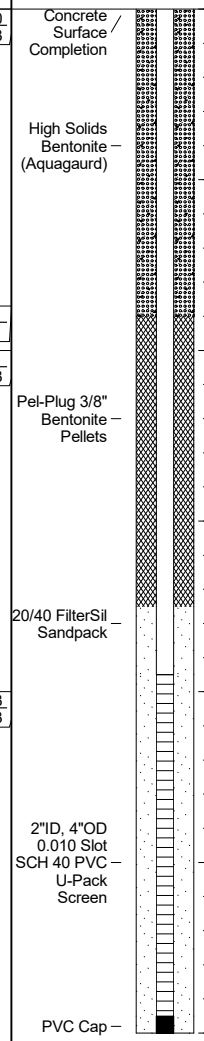
DRILL RIG: Rotosonic 1159
DATE STARTED: 9/20/19
DATE COMPLETED: 9/20/19

NORTHING: 1,394,372.60
EASTING: 2,203,533.90
GS ELEVATION: 801.73
TOC ELEVATION: 804.47 ft

DEPTH W.L.: 16.48
ELEVATION W.L.: 785.32
DATE W.L.: 1/13/2020
TIME W.L.: 14:46

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	800	0.00 - 8.70 Hydrovac	NA		793.0	0		0.00 0.73
5	795							
10	790	8.70 - 10.00 (ML) sandy SILT, non-plastic to low plasticity fines, fine to medium sub-rounded sand, trace organics (roots); moderate brown (5YR 4/4) to pale yellowish brown (10YR 6/2); non-cohesive, dry, loose	ML		8.70 791.7	1	ROTO SONIC	0.11 0.11
		10.00 - 13.20 (ML and SP) SILT and SAND, non-plastic to low plasticity fines, fine sub-angular sand; light brown (5YR 5/6) with some moderate reddish brown (10R 4/6) layers, some laminated layers (relic foliations), SAPROLITE; non-cohesive, moist, loose	ML & SP		10.00 788.5	2		0.81 0.83
15	785	13.20 - 25.90 (SM) SILTY SAND, non-plastic to low plasticity fines, fine sub-angular sand; light brown (5YR 5/6) and pale yellowish brown (10YR 6/2) with trace very pale orange (10YR 8/1) grains, SAPROLITE; non-cohesive, wet, loose	SM		13.20			
20	780	20.00: SAA, with frequent weathered micaceous minerals	SM			3	ROTO SONIC	0.83 0.83
25	775	25.90 - 30.00 (SM-SP) SAND, fine to medium sub-rounded sand, some non-plastic fines, trace angular fine to coarse soft (crumbles with pressure from fingers) gravels; very pale orange (10YR 8/2) with pale yellowish brown (10YR 6/2) mottling, PWR; non-cohesive, moist to wet, compact	SP-SM		25.90 775.8 771.7			
30	770	Boring completed at 30.00 ft						
35	765							
40	760							
45								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0.0 - 19.8'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 19.8-29.3'
Material: Schedule 40 PVC
Schedule 40 PVC
Diameter: 2" ID 4 " OD
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 17.5 - 30.0'
Type: 20/40 FilterSil

FILTER PACK SEAL
Interval: 9.0 - 17.5'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0.4 - 9.0'
Type: High Solids Bentonite (Aquagaurd)

WELL COMPLETION
Pad: 4' x 4' x 4"
Protective Casing: 4" Stainless Steel

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

~150 gallons of water used while drilling

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Jose

GA INSPECTOR: Jeff Ingram
CHECKED BY: Timothy Richards, PG
DATE: 2/12/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-81

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 50.00 ft
LOCATION: North to northeast of CCR Unit

DRILL RIG: Rotosonic 1159
DATE STARTED: 9/20/19
DATE COMPLETED: 9/22/19

NORTHING: 1,394,364.90
EASTING: 2,203,741.10
GS ELEVATION: 817.64
TOC ELEVATION: 820.56 ft

DEPTH W.L.: 31.39
ELEVATION W.L.: 786.31
DATE W.L.: 1/13/2020
TIME W.L.: 15:06

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
0		0.00 - 9.00 Hydrovac	NA		808.6	0	ROTO SONIC	0.00 0.75	Concrete Surface Completion
5	815								
10	810	9.00 - 13.10 (SM) SILTY SAND, fine to medium sub-rounded sand, non-plastic fines, trace organics (roots); light brown (5YR 5/6) and moderate reddish brown (10R 4/6), SAPROLITE; non-cohesive, dry, compact	SM		9.00 804.5	1	ROTO SONIC	0.91 0.92	High Solids Bentonite (Aquaguard)
15	805	13.10 - 17.90 (SM) SILTY SAND, fine sub-rounded sand, non-plastic fines; very pale orange (10YR 8/2) to grayish orange (10YR 7/6), PWR with frequent micaceous mineralization; non-cohesive, dry, loose	SM		13.10 799.7				Cave in prior to installing Aquagaurd due to sampling requirements
20	800	17.90 - 19.00 (ML and SP) SILT and SAND, non-plastic fine, fine to medium sub-rounded sand; light brown (5YR 5/6), PWR; non-cohesive, dry, compact.	ML & SP		17.90 798.6 19.00	2	ROTO SONIC	0.83 0.83	
	795	19.00 - 23.50 (SP-SM) SAND, fine to medium sub-rounded sand, some non-plastic fines; grayish orange (10YR 7/4) with light brown (5YR 5/6) and dark yellowish brown (10YR 2/2) grains, PWR; non-cohesive, dry, compact 20.00: SAA with some pale reddish brown (10R 5/6) coloration	SP-SM SP-SM		794.1				
25	790	23.50 - 33.60 (ML) sandy SILT, non-plastic to low plasticity fines, fine sub-angular sand; pale yellowish brown (10YR 6/2) to light brown (5YR 5/6), PWR; non-cohesive, moist, loose	ML		23.50				Pel-Plug 3/8" Bentonite Pellets
30	785	30.00: SAA wit some greenish gray (5G 6/1) layers, trace fine soft angular gravels (crumble with finger pressure).	ML		784.0	3	ROTO SONIC	0.83 0.83	
35	780	33.60 - 40.00 (SM and SP) SILT and SAND, non-plastic to low plasticity fines, fine sub-rounded sand, trace sub-angular soft (crumbles with finger pressure) gravels; yellowish gray (5YR 8/1) to pale pink (5RP 8/2) to greenish gray (5G 6/1), very micaceous, PWR; non-cohesive, moist, loose	ML & SP		33.60 777.6				Backfill 20/40 FilterSil Sandpack
40	775	40.00 - 41.30 (ML and SP) SILT and SAND, non-plastic to low plasticity fines, fine to medium sub-rounded sand; grayish orange (10YR 7/6) to light olive gray (5Y 5/2), highly weathered with some relic foliation layers, PWR; non-cohesive, moist, compact 41.30 - 45.40 (SP and ML) SAND and SILT, fine sand, non-plastic fines; yellowish gray (5Y 8/1), very micaceous, PWR; non-cohesive, moist, loose	ML & SP SP & ML		40.00 776.3 41.30	4	ROTO SONIC	0.83 0.83	2"ID, 4"OD 0.010 Slot
45		Log continued on next page							

WELL CASING
Interval: 0.0 - 39.17'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 39.17 - 49.17'
Material: 39.17 - 49.17'
Diameter: 2" ID 4 " OD
Slot Size: 0.010
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 37.0 - 50.0'
Type: 20/40 FilterSil

FILTER PACK SEAL
Interval: 17.0 - 37.0'
Type: Pel-Plug 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0.4 - 17.0'
Type: High Solids Bentonite (Aquagaurd)

WELL COMPLETION
Pad: 4' x 4' x 4"
Protective Casing: 4" Stainless Steel

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic

~150 gallons of water used while drilling

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Jose

GA INSPECTOR: Jeff Ingram
CHECKED BY: Timothy Richards, PG
DATE: 2/12/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-81

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 50.00 ft
LOCATION: North to northeast of CCR Unit

DRILL RIG: Rotosonic 1159
DATE STARTED: 9/20/19
DATE COMPLETED: 9/22/19

NORTHING: 1,394,364.90
EASTING: 2,203,741.10
GS ELEVATION: 817.64
TOC ELEVATION: 820.56 ft

DEPTH W.L.: 31.39
ELEVATION W.L.: 786.31
DATE W.L.: 1/13/2020
TIME W.L.: 15:06

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45					772.2				SCH 40 PVC U-Pack Screen	**WELL CASING** Interval: 0.0 - 39.17' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw
		45.40 - 47.50 (SM) SILTY SAND, fine sub-angular sand, non-plastic fines; yellowish gray (5Y 8/1), very micaceous, PWR; non-cohesive, moist, loose	SM		45.40 770.1					
	770	47.50 - 50.00 (SM) SILTY SAND, fine to medium sand, non-plastic fines, some weakly cemented some weakly cemented soft (crumbles with finger pressure) gravels; moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), PWR; non-cohesive, moist, loose	SM		47.50 767.6				PVC Cap	**WELL SCREEN** Interval: 39.17 - 49.17' Material: 39.17 - 49.17' Diameter: 2" ID 4 " OD Slot Size: 0.010 End Cap: Schedule 40 PVC
50		Boring completed at 50.00 ft								**FILTER PACK** Interval: 37.0 - 50.0' Type: 20/40 FilterSil
	765									**FILTER PACK SEAL** Interval: 17.0 - 37.0' Type: Pel-Plug 3/8" Bentonite Pellets
55										**ANNULUS SEAL** Interval: 0.4 - 17.0' Type: High Solids Bentonite (Aquagaurd)
	760									**WELL COMPLETION** Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel
60										**DRILLING METHODS** Soil Drill: Sonic Rock Drill: Sonic
	755									~150 gallons of water used while drilling
65										
	750									
70										
	745									
75										
	740									
80										
	735									
85										
	730									
90										

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Jose

GA INSPECTOR: Jeff Ingram
CHECKED BY: Timothy Richards, PG
DATE: 2/12/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-84

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 50.00 ft
LOCATION: NE of security gate, along road

DRILL RIG: CME550X
DATE STARTED: 10/1/19
DATE COMPLETED: 10/1/19

NORTHING: 1,390,411.90
EASTING: 2,202,241.90
GS ELEVATION: 776.52
TOC ELEVATION: 776.34 ft

DEPTH W.L.: 30.12
ELEVATION W.L.: 746.48
DATE W.L.: 1/14/2020
TIME W.L.: 12:32

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
0		0.00 - 14.50 Hydrovac to 14.5' to for utilites									AquaGuard Bentonite Grout
	775										
5											
	770										
10											
	765										
					762.0						
15		14.50 - 20.00 ML-CL, silty CLAY with some gravel, brown-black, micaceous, W-PL, moist, very soft	CL-ML		14.50						
	760					S1	SS	3-1-2	3	0.75 / 1.50	
20					756.5						
		20.00 - 25.00 ML, sandy SILT with some gravel, brown-black, dry, W<PL, very soft	ML		20.00						
	755					S2	SS	3-2-3	5	0.75 / 1.50	
25					751.5						
		25.00 - 30.00 CL, silty CLAY with some gravel, brown-black, micaceous, W-PL, moist, very soft to soft	CL		25.00						
	750					S3	SS	1-2-3	5	1.50 / 1.50	
30					746.5						
		30.00 - 35.00 CL, silty CLAY with some sand, brown-black with tan, W-PL, moist	CL		30.00						PEL-PLUG 3/8" Bentonite Pellets
	745					S4	SS	2-2-3	5	1.50 / 1.50	
35					741.5						
		35.00 - 39.00 CL, silty CLAY, brown-black, W-PL, wet to moist	CL		35.00						#2 FilterSil
	740				737.5						
		39.00 - 40.00 SM, silty SAND with gravel, black-grey, moist, compact	SM		39.00 736.5	S5	SS	15-18-11	29	1.50 / 1.50	
40		40.00 - 44.00 CL, silty CLAY, brown-black, W-PL, moist, very soft to soft	CL		40.00						
	735				732.5						
		44.00 - 45.00 ML, gravelly SILT with some sand, Log continued on next page	ML		44.00 731.5	S6	SS	7-7-8	17	1.50 / 1.50	0.010" Slotted
45											

WELL ABANDONDED ON 4/28/2022

WELL CASING
Interval: 0'-39.1'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 39.1'-49.1'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 36.0'-49.5'
Type: Filter Media

FILTER PACK SEAL
Interval: 30.6'-36.0'
Type: PEL-PLUG 3/8"

ANNULUS SEAL
Interval: 0'-30.6'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: K. Minkara
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-84

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 50.00 ft
LOCATION: NE of security gate, along road

DRILL RIG: CME550X
DATE STARTED: 10/1/19
DATE COMPLETED: 10/1/19

NORTHING: 1,390,411.90
EASTING: 2,202,241.90
GS ELEVATION: 776.52
TOC ELEVATION: 776.34 ft

DEPTH W.L.: 30.12
ELEVATION W.L.: 746.48
DATE W.L.: 1/14/2020
TIME W.L.: 12:32

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45		brown-black, micaceous, PWR, moist 45.00 - 50.00 ML, sandy SILT with gravel, brown-black, PWR, W<PL, wet to moist, PWR, very dense	ML		45.00						Schedule 40 PVC	**WELL CASING** Interval: 0'-39.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw
730												**WELL SCREEN** Interval: 39.1'-49.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC
50					726.5	S7	SS	25-33-24	57	1.50 1.50		**FILTER PACK** Interval: 36.0'-49.5' Type: Filter Media
		Boring completed at 50.00 ft										**FILTER PACK SEAL** Interval: 30.6'-36.0' Type: PEL-PLUG 3/8"
55	725											**ANNULUS SEAL** Interval: 0'-30.6' Type: AquaGuard Bentonite Grout
60	720											**WELL COMPLETION** Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush
65	715											**DRILLING METHODS** Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A
70	710											
75	705											
80	700											
85	695											
90	690											

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: K. Minkara
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-85

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 34.50 ft
LOCATION: North of site, adjacent to B-54

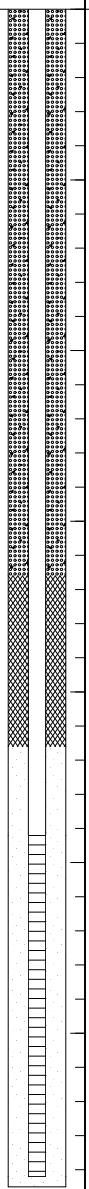
DRILL RIG: CME 550
DATE STARTED: 11/17/19
DATE COMPLETED: 11/18/19

NORTHING: 1,394,433.40
EASTING: 2,203,134.50 GS
ELEVATION: 782.71 TOC
ELEVATION: 782.54 ft

DEPTH W.L.: 2.27
ELEVATION W.L.: 780.43
DATE W.L.: 1/13/2020
TIME W.L.: 14:16

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	780	0.00 - 10.00 Hydrovac to 10.0' to for utilites			772.7					
10	770	10.00 - 15.00 SM, silty SAND with trace clay, white to grey, fine to coarse sand, well foliated, saprolite, low to no plasticity, W<PL, moist, cohesive	SM		10.00 767.7	1	SPT	4-8-9	17	1.00 1.50
15	765	15.00 - 20.00 SM, silty SAND with some clay and trace gravel, orange to brown and white to grey, fine to coarse sand, saprolite, no plasticity, W<PL, moist, cohesive, firm	SM		15.00 762.7	2	SPT	2-6-8	14	0.50 1.50
20	760	20.00 - 25.00 SW, SAND with some silt, white to grey and brown, fine to coarse sand, saprolite, non-cohesive, moist, compact	SP-SM		20.00 757.7	3	SPT	6-15-12	27	1.00 1.50
25	755	25.00 - 29.50 PWR, AUGEN GNEISS, gravelly sand, grey to white, some orange staining, fine to coarse, moist, very dense	PWR		25.00 753.2	4	SPT	27-50/1	>50	0.50 0.50
30	750	29.50 - 34.50 BEDROCK, AUGEN GNEISS, fresh to slightly weathered, white to light pink, feldspar porphyoclasts up to 1 com in diameter, well foliated, strong to medium strong	GNIESS		29.50 748.2	5	CORE			4.80 5.00
35	745	Boring completed at 34.50 ft								
40	740									
45										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-34.2'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 24.2'-34.2'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 21.6'-34.5'
Type: Filter Media

FILTER PACK SEAL
Interval: 16.6'-21.6'
Type: PEL-PLUG 3/8"

ANNULUS SEAL
Interval: 0'-16.6'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Auger
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-86

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 34.10 ft
LOCATION: North of site along fence adjacent to B-79

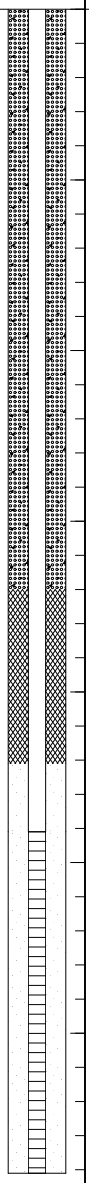
DRILL RIG: CME 550
DATE STARTED: 11/18/19
DATE COMPLETED: 11/18/20

NORTHING: 1,394,480.00
EASTING: 2,203,206.60
GS ELEVATION: 784.52
TOC ELEVATION: 784.29 ft

DEPTH W.L.: 0.91
ELEVATION W.L.: 783.69
DATE W.L.: 1/13/2020
TIME W.L.: 14:54

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0		0.00 - 7.00 Hydrovac to 7.00' to for utilites			777.5 7.00					
5	780									
		7.00 - 18.50 No Recovery			766.0					
10	775									
15	770									
20	765	18.50 - 23.50 SM, silty SAND, white to black and brown, fine to medium sand, saprolite, non-cohesive, wet, compact	SM		18.50 761.0	1	SS	5-10-14	24	1.00 / 1.50
25	760	23.50 - 28.00 SW-SM, SAND with some silt and trace gravel, brown and white to black, saprolite, non-cohesive, wet, compact	SM		23.50 756.5	2	SS	4-9-17	26	1.00 / 1.50
30	755	28.00 - 34.10 Bedrock, AUGEN GNEISS, white to black, fresh to slightly weathered, strong	GNIESS		28.00 750.4	3	CORE			4.00 / 5.00
35	750	Boring completed at 34.10 ft								
40	745									
45	740									

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-34.1'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 24.1'-34.1'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 22.1'-34.1'
Type: Filter Media

FILTER PACK SEAL
Interval: 17'-22.1'
Type: PEL-PLUG 3/8"

ANNULUS SEAL
Interval: 0.0'-17'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Auger
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-87

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 42.00 ft
LOCATION: North of site along fence, ~25 feet north of B-80

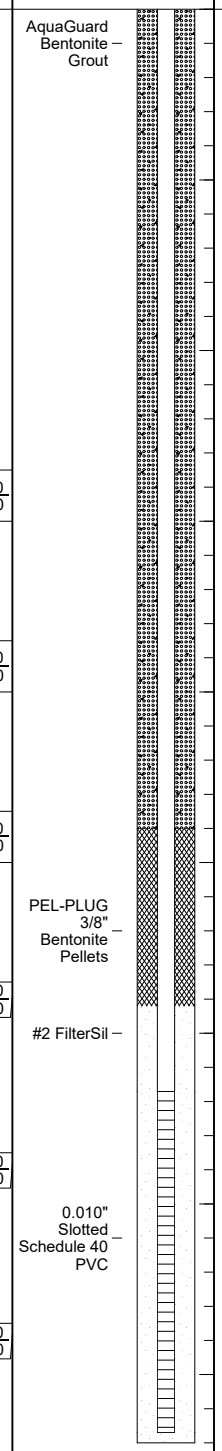
DRILL RIG: CME 550
DATE STARTED: 11/17/19
DATE COMPLETED: 11/17/19

NORTHING: 1,394,401.90
EASTING: 2,203,531.30
GS ELEVATION: 800.32
TOC ELEVATION: 803.37 ft

DEPTH W.L.: 15.56
ELEVATION W.L.: 784.84
DATE W.L.: 1/13/2020
TIME W.L.: 14:54

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	800	0.00 - 10.00 Hydrovac to 10.00' to for utilites								
10	790	10.00 - 15.00 ML, clayey SILT with trace sand, light orange brown, W<PL, firm, cohesive	ML		790.3 10.00					
					785.3	1	SS	3-4-5	9	1.50 1.50
15	785	15.00 - 20.00 ML, clayey SILT with some sand, orange brown, saprolite, W<PL, soft to firm. cohesive	ML		15.00					
					780.3	2	SS	2-2-9	11	1.50 1.50
20	780	20.00 - 25.00 MLS, sandy SILT with trace gravel, dark brown, saprolite, non-cohesive, moist, very dense	MLS		20.00					
					775.3	3	SS	9-14-44	>50	1.00 1.50
25	775	25.00 - 28.90 SM, silty SAND with some gravel, fine to coarse sand, dark grey, saprolite, moist to wet, very dense	SM		25.00					
					771.4	4	SS	50/5	>50	0.40 0.40
30	770	28.90 - 33.80 SM, silty SAND, dark grey, saprolite, moist to wet, very dense	SM		28.90					
					766.5	5	SS	50/4	>50	0.30 0.30
35	765	33.80 - 38.80 SM, silty SAND with gravel, white and grey, augen gneiss, moist to wet, very dense	SM		33.80					
					761.5	6	SS	50/4	?50	0.30 0.30
					38.80					
40	760	Boring completed at 42.00 ft								
45										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-42'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 31.7'-41.7'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 29.2'-42.1'
Type: Filter Media

FILTER PACK SEAL
Interval: 24'-29.2'
Type: PEL-PLUG 3/8"

ANNULUS SEAL
Interval: 0'-24'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-89

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 49.50 ft
LOCATION: North of site in cement plant lot, next to retaining wall

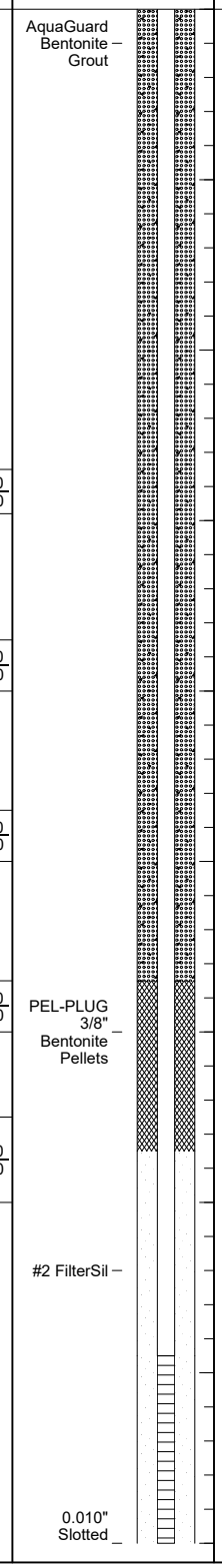
DRILL RIG: CME 550
DATE STARTED: 11/19/19
DATE COMPLETED: 11/19/19

NORTHING: 1,394,398.40
EASTING: 2,204,049.40
GS ELEVATION: 822.53
TOC ELEVATION: 822.36 ft

DEPTH W.L.: 21.78
ELEVATION W.L.: 800.82
DATE W.L.: 1/13/2020
TIME W.L.: 16:36

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	820	0.00 - 10.00 Hydrovac to 10.00' to for utilites		812.5					
10	810	10.00 - 14.80 CL, clayey SILT with some sand and trace gravel, grey brown, cohesive, low to no plasticity, W<PL, firm to stiff	ML	10.00 807.7	1	SS	9-21-50/4	>50	1.20 1.30
15	805	14.80 - 20.00 MLS, sandy SILT with some gravel, brown and dark grey, compact, dry, non cohesive	MLS	14.80 802.5	2	SS	5-10-19	29	1.30 1.50
20	800	20.00 - 25.00 CL, clayey SILT with some sand, grey and brown, saprolite, cohesive, W<PL, firm	ML	20.00 797.5	3	SS	9-17-18	35	1.30 1.50
25	795	25.00 - 29.00 CL, clayey SILT with some sand and trace gravel, grey and brown, highly weathered, saprolite, cohesive, W<PL, firm	ML	25.00 793.5	4	SS	10-19-23	42	1.50 1.50
30	790	29.00 - 32.50 SP, gravelly SAND with some silt, grey to brown, PWR, non-cohesive, dense, dry	SP	29.00 790.0					
		32.50 - 35.00 Bedrock, SCHIST, light grey to dark grey, fresh to slightly weathered, strong to very strong		32.50 787.5	5	CORE			2.50 2.50
35	785	35.00 - 40.00 Bedrock, SCHIST, light grey to dark grey, fresh to slightly weathered, strong to very strong		35.00 782.5					
40	780	40.00 - 44.00 Bedrock, SCHIST, light grey to dark grey, fresh to slightly weathered, strong to very strong		40.00 778.5					
45		Log continued on next page		44.00					

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-49.5'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 39.5'-49.5'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 33.5'-49.5'
Type: Filter Media

FILTER PACK SEAL
Interval: 28.5'-33.5'
Type: PEL-PLUG 3/8"

ANNULUS SEAL
Interval: 0'-28.5'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Auger
Rock Drill: HQ Core Barrell

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-89

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 49.50 ft
LOCATION: North of site in cement plant lot, next to retaining wall

DRILL RIG: CME 550
DATE STARTED: 11/19/19
DATE COMPLETED: 11/19/19

NORTHING: 1,394,398.40
EASTING: 2,204,049.40
GS ELEVATION: 822.53
TOC ELEVATION: 822.36 ft

DEPTH W.L.: 21.78
ELEVATION W.L.: 800.82
DATE W.L.: 1/13/2020
TIME W.L.: 16:36

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45		44.00 - 49.50 Bedrock, SCHIST, light grey to dark grey, fresh to slightly weathered, strong to very strong *(Continued)*									Schedule 40 PVC	**WELL CASING** Interval: 0'-49.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen **WELL SCREEN** Interval: 39.5'-49.5' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC **FILTER PACK** Interval: 33.5'-49.5' Type: Filter Media **FILTER PACK SEAL** Interval: 28.5'-33.5' Type: PEL-PLUG 3/8" **ANNULUS SEAL** Interval: 0'-28.5' Type: AquaGuard Bentonite Grout **WELL COMPLETION** Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush **DRILLING METHODS** Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: HQ Core Barrell
775												
					773.0							
50		Boring completed at 49.50 ft										
770												
55												
765												
60												
760												
65												
755												
70												
750												
75												
745												
80												
740												
85												
735												
90												

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-90

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 33.40 ft
LOCATION: North of site along Plant Atkinson Road

DRILL RIG: CME 550
DATE STARTED: 12/10/19
DATE COMPLETED: 12/10/19

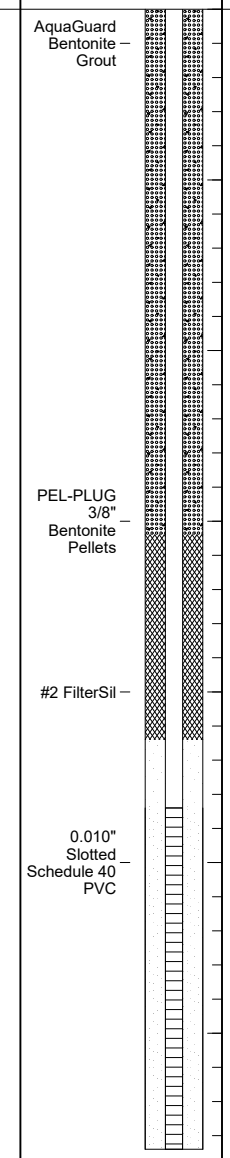
NORTHING: 1,394,501.00
EASTING: 2,203,212.60
GS ELEVATION: 784.16
TOC ELEVATION: 784.00 ft

DEPTH W.L.: 0.88
ELEVATION W.L.: 783.32
DATE W.L.: 1/14/2020
TIME W.L.: 12:32

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)
0	784	0.00 - 6.00 CL, sandy CLAY, some gravel; gray to dark gray, cohesive, w > PL, wet	CLS	778.2
5	780	6.00 - 10.00 ML, sandy SILT, medium to coarse sand, some clay, trace gravel; light brown, cohesive, w ~ PL, wet	MLS	6.00 774.2
10	775	10.00 - 15.00 CL, sandy CLAY, medium to coarse sand; light brown, w ~ PL	CLS	10.00 769.2
15	770	15.00 - 23.00 SM, silty SAND, medium to coarse, some clay; light brown, wet	SM	15.00 761.2
20	765	23.00 - 33.00 SM, silty SAND, medium to coarse, some clay, some subround to subangular gravel as feldspar and quartz; light brown to brown, wet, flowing	SM	23.00 750.8
25	760	Boring completed at 33.40 ft		33.40
30	755			
35	750			
40	745			
45	740			

SAMPLES: SAMPLE NO., TYPE, REC

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-33.4'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 23.4'-33.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 21.4'-33.4'
Type: #2 FilterSil

FILTER PACK SEAL
Interval: 15.4'-21.4'
Type: PEL-PLUG 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-15.4'
Type: AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-91

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 35.00 ft
LOCATION: North of site along Plant Atkinson Road

DRILL RIG: CME 550
DATE STARTED: 12/11/19
DATE COMPLETED: 12/11/19

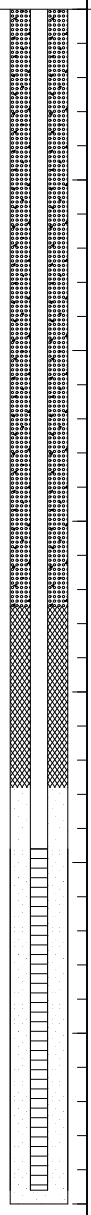
NORTHING: 1,394,447.10
EASTING: 2,203,123.90
GS ELEVATION: 783.10
TOC ELEVATION: 782.98 ft

DEPTH W.L.: 2.90
ELEVATION W.L.: 780.2
DATE W.L.: 1/14/2020
TIME W.L.: 12:34

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)
0		0.00 - 5.00 Fill, gravel		
	780			
				778.1 / 5.00
5		5.00 - 10.00 ML, SILT, some fine to medium sand, trace gravel; brown and gray, cohesive, w ~ PL	ML	
	775			
				773.1 / 10.00
10		10.00 - 25.00 SP, SAND, medium to coarse, some angular gravel, some clay; gray, noncohesive, wet	SP	
	770			
15				
	765			
20				
	760			
				758.1 / 25.00
25		25.00 - 35.00 SM, silty SAND, fine to coarse, trace gravel; light brown, wet	SM	
	755			
30				
	750			
				748.1 / 35.00
35		Boring completed at 35.00 ft		
	745			
40				
	740			
45				

SAMPLES: SAMPLE NO. | TYPE | REC

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-35'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screen

WELL SCREEN
Interval: 24.6'-34.6'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 22.8'-35'
Type: #2 FilterSil

FILTER PACK SEAL
Interval: 17.5'-22.5'
Type: PEL-PLUG 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-17.5'
Type: Portland Cement, AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2' x 2' concrete
Protective Casing: 8" Round Ground Flush

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Auger
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: W.Ballow
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-94

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 45.24 ft
LOCATION: Northeast side, on property line

DRILL RIG: CME 550
DATE STARTED: 1/21/20
DATE COMPLETED: 1/23/20

NORTHING: 1,394,402.00
EASTING: 2,203,513.70
GS ELEVATION: 799.12
TOC ELEVATION: 801.74 ft

DEPTH W.L.: 13.81 ft bTOC
ELEVATION W.L.: 770.49
DATE W.L.: 1/28/2020
TIME W.L.: 16:44

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
0		0.00 - 9.00 CL, silty CLAY, medium plasticity, some sand; reddish brown, cohesive, w > PL, soft				S-01	GRAB			0.00 0.75	
	795		CL								Bentonite Grout
5											
					790.1						
	790	9.00 - 13.50 ML, SILT, non-plastic, trace sand; orange-brown, micaceous, non-cohesive, moist, firm to stiff			9.00	S-02	DO	2-2-4	6	1.50 1.50	
10			ML								
					785.6						
	785	13.50 - 45.24 SM, silty SAND, fine; mottled tan-brown and white, micaceous, saprolitic, non-cohesive, dry to moist, very dense			13.50	S-03	DO	18-24-33	57	1.50 1.50	
15											
		18.50: Compact				S-04	DO	6-10-20	30	1.50 1.50	
20	780										
	775					S-05	DO	4-5-16	21	1.42 1.50	
25			SM								
	770	28.50: Trace quartz gravel from pegmatitic vein, dense				S-06	DO	21-24-22	46	1.08 1.50	Bentonite Pellets
30		30.00: Trace quartz gravel, very dense				S-07	DO	10-50	50/4	0.83 0.83	
						S-08	DO	50	50/3	0.25 0.25	
						S-09	DO	50	50/5	0.42 0.42	Sand Filter Pack
	765					S-10	DO	50	50/4	0.33	3" PVC 0.010 Slot U-Pack Screen
35						S-11	DO	50	50/3	0.33 0.58 0.25	
		37.50: 1.0" pegmatitic vein consisting of potassium feldspar and plagioclase feldspar				S-12	DO	50	50/4	0.83 0.83	
	760					S-13	DO	19-50	50/2	0.17 0.17	
40		Log continued on next page									

WELL CASING
Interval: 0 ft-bgs - 45 ft-bgs
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush

WELL SCREEN
Interval: 34.6 ft-bgs - 44.6 ft-bgs
Material: Schedule 40 PVC
Diameter: 3"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 32.5 ft-bgs - 44.6 ft-bgs
Type: FilterSII Sand

FILTER PACK SEAL
Interval: 28 ft-bgs - 32.5 ft-bgs
Type: PEL-PLUG 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0 ft-bgs - 28 ft-bgs
Type: Portland Cement, AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 4' x 4' Concrete Pad
Protective Casing: Aluminum Riser

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Augers
Rock Drill: N/A

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Heather Brissey & Michael Boatman PG
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-94

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 45.24 ft
LOCATION: Northeast side, on property line

DRILL RIG: CME 550
DATE STARTED: 1/21/20
DATE COMPLETED: 1/23/20

NORTHING: 1,394,402.00
EASTING: 2,203,513.70
GS ELEVATION: 799.12
TOC ELEVATION: 801.74 ft

DEPTH W.L.: 13.81 ft bTOC
ELEVATION W.L.: 770.49
DATE W.L.: 1/28/2020
TIME W.L.: 16:44

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
40		13.50 - 45.24 SM, silty SAND, fine; mottled tan-brown and white, micaceous, saprolitic, non-cohesive, dry to moist, very dense *(Continued)*				S-14	DO	50	50/2	0.17 0.17	
		42.00: Trace gravel	SM			S-15	DO	8-26-50	76/10	0.83 0.83	
	755					S-16	DO	50	50/4	0.33 0.33	
45					753.9						
		Boring completed at 45.24 ft									
	750										
50											
	745										
55											
	740										
60											
	735										
65											
	730										
70											
	725										
75											
	720										
80											

WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0 ft-bgs - 45 ft-bgs
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush

WELL SCREEN
Interval: 34.6 ft-bgs - 44.6 ft-bgs
Material: Schedule 40 PVC
Diameter: 3"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 32.5 ft-bgs - 44.6 ft-bgs
Type: FilterSII Sand

FILTER PACK SEAL
Interval: 28 ft-bgs - 32.5 ft-bgs
Type: PEL-PLUG 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0 ft-bgs - 28 ft-bgs
Type: Portland Cement, AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 4' x 4' Concrete Pad
Protective Casing: Aluminum Riser

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Augers
Rock Drill: N/A

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Heather Brissey & Michael Boatman PG
CHECKED BY: Timothy Richards, PG
DATE: 2/11/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-95

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 33.30 ft
LOCATION: East of B-96

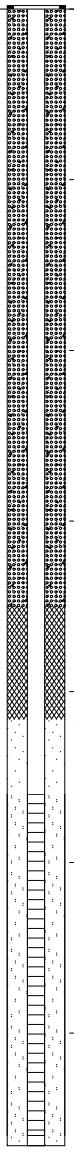
DRILL RIG: CME 550
DATE STARTED: 2/11/20
DATE COMPLETED: 2/11/20

NORTHING: 1,394,518.60
EASTING: 2,203,167.70
GS ELEVATION: 784.18
TOC ELEVATION: 784.00 ft

DEPTH W.L.: 1.7 ft bTOC
ELEVATION W.L.: 782.3
DATE W.L.: 2/26/2020
TIME W.L.: 13:49

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0		0.00 - 10.00 Hydro Vac'd for utilities clearance								
5	780									
10	775				774.2 10.00					
					770.7					
15	770	13.50 - 33.30 SANDY SILT, low plasticity, fine grained sand; brown; non-cohesive, wet, loose	ML		13.50	S-01	DO	3-3-4	7	N/A 1.50
20	765	18.50: SANDY SILT, low plasticity, fine grained sand; tan, orange, bronze, laminated, saprolite (gneiss parent rock), micaceous; non-cohesive, moist, very dense				S-02	DO	14-27-27	54	N/A 1.50
25	760	23.50: Trace fine gravel				S-03	DO	8-50	50/5	N/A 0.92
30	755	28.50: Compact				S-04	DO	3-2-8	10	N/A 1.50
					750.9					
35	750	Boring completed at 33.30 ft								
40	745									
45	740									

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0 ft-bgs - 33.3 ft-bgs
Material: PVC
Diameter: 2"
Joint Type: Flush

WELL SCREEN
Interval: 23 ft-bgs - 33 ft-bgs
Material: Schedule 40 PVC
Diameter: 3"
Slot Size: 0.010"
End Cap: 4"

FILTER PACK
Interval: 20.8 ft-bgs - 33.3 ft-bgs
Type: FilterSil Sand

FILTER PACK SEAL
Interval: 17.5 ft-bgs - 20.5 ft-bgs
Type: PEL-PLUG 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0 ft-bgs - 17.5 ft-bgs
Type: Portland Cement, AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2'x2' Concrete Pad
Protective Casing: 8" Round Flush Mount

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Augers
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Heather Brissey
CHECKED BY: Timothy Richards, PG
DATE: 4/28/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-96

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 33.10 ft
LOCATION: North side of AP4

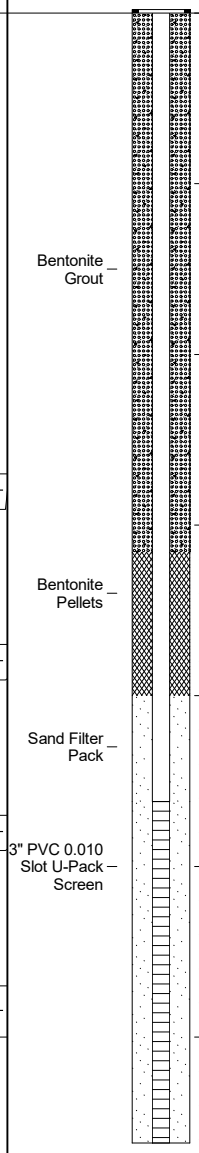
DRILL RIG: CME 550
DATE STARTED: 2/10/20
DATE COMPLETED: 2/10/20

NORTHING: 1,394,478.70
EASTING: 2,203,099.30
GS ELEVATION: 785.19
TOC ELEVATION: 784.92 ft

DEPTH W.L.: 4.31 ft bTOC
ELEVATION W.L.: 780.61
DATE W.L.: 2/26/2020
TIME W.L.: 15:14

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N-VALUE	REC
0	785	0.00 - 10.00 Hydro Vac'd for utilities clearance								
5	780									
10	775				775.2 10.00					
					771.7					
		13.50 - 33.10 SILTY SAND, low to no plasticity; light grey, saprolitic (gneiss parent rock); non-cohesive, dry to moist, very dense			13.50	S-01	DO	50	50/5	0.17 0.50
15	770									
						S-02	DO	4-50	50/3	0.50 1.00
20	765									
			SM							
		23.50: grey to tan				S-03	DO	17-50	50/5	1.00 1.00
25	760									
		28.50: Iron staining				S-04	DO	5-26-50	76/11	1.30 1.50
30	755									
					752.1					
		Boring completed at 33.10 ft								
35	750									
40	745									
45										

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0 ft-bgs - 33.1 ft-bgs
Material: PVC
Diameter: 2"
Joint Type: Flush

WELL SCREEN
Interval: 23.1 ft-bgs - 33.1 ft-bgs
Material: Schedule 40 PVC
Diameter: 3"
Slot Size: 0.010"
End Cap: 4"

FILTER PACK
Interval: 20 ft-bgs - 33.1 ft-bgs
Type: FilterSil Sand

FILTER PACK SEAL
Interval: 15.8 ft-bgs - 20 ft-bgs
Type: PEL-PLUG 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0 ft-bgs - 15.8 ft-bgs
Type: Portland Cement, AquaGuard Bentonite Grout

WELL COMPLETION
Pad: 2'x2' Concrete Pad
Protective Casing: 8" Round Flush Mount

DRILLING METHODS
Soil Drill: 4.25-inch ID Hollow Stem Augers
Rock Drill: N/A

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Southern Company Services
DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG
CHECKED BY: Timothy Richards, PG
DATE: 4/28/20

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 9/2/20

RECORD OF BOREHOLE B-99

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 12.30 ft
LOCATION: Smyrna, GA

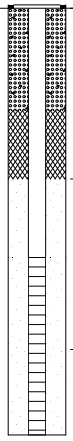
DRILL RIG: CME 550X
DATE STARTED: 7/7/20
DATE COMPLETED: 7/7/20

NORTHING: 1,394,524.20
EASTING: 2,203,084.50
GS ELEVATION: 782.57
TOC ELEVATION: 782.39 ft

DEPTH W.L.: 5.93
ELEVATION W.L.: 776.46
DATE W.L.: 7/7/20
TIME W.L.: 16:10

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	780	0.00 - 5.00 GRAVEL WITH SILT; non-native, brown to brown-tan with some red, silty, poorly graded gravel with some concrete fill, some organics, slightly weathered, non-cohesive, moist to wet, loose to compact (fill)	GW-GM		777.6			
5	775	5.00 - 9.00 GRAVEL WITH SILT; non-native, brown to brown tan with red, silty, poorly graded gravel with some comcrete fill, some organics, slightly weathered, non-cohesive, wet, loose to compact (fill)	GW-GM		5.00 773.6	R1		12.30
10	770	9.00 - 12.30 SILTY GRAVEL; brown, tan and red, non-cohesive, wet, loose to compact (mix of fill and saprolite)	GM		9.00 770.3			
15	765	Boring completed at 12.30 ft						
20	760							
25	755							
30	750							
35	745							
40	740							
45								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval: 0'-12'3"
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam

WELL SCREEN
Interval: 7'3"-12'3"
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 5"-12'3"
Type: Filtersil std61

FILTER PACK SEAL
Interval: 3'-5'
Type: 3/8" Coated Pel-Plug

ANNULUS SEAL
Interval: 0'-3'
Type: Aquagaurd Bentonite Grout

WELL COMPLETION
Pad: 4'x4'x4"
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Auger
Rock Drill:

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: SCS CFS
DRILLER: S. Deuty

GA INSPECTOR: Chris Tidwell
CHECKED BY: Brian Steele, PG
DATE: 8/24/2020

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST_BACKUP_SURVEY UPDATED (5).GPJ PIEDMONT.GDT 8/24/20

RECORD OF BOREHOLE B-103D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 70.00 ft
LOCATION: East of DGWC-47

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 10/14/20
DATE COMPLETED: 10/15/20

NORTHING: 1391543.5
EASTING: 2202614.4
GS ELEVATION: 793.77 ft
TOC ELEVATION: 795.96 ft

DEPTH W.L.: 12.0
ELEVATION W.L.: 783.9
DATE W.L.: 10/15/2020
TIME W.L.: 0740

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0		0.00 - 5.00 (SM), SILTY SAND; red brown; low plasticity, moist, w<PL, loose, contains muscovite, FILL	SM			1	ROTO SONIC	2.50 5.00
5		5.00 - 15.00 (ML), SILT; tan to gray-brown; low plasticity, moist, fine, w<PL, loose	ML		5.00	2	ROTO SONIC	6.50 10.00
15		15.00 - 18.00 (SM), SILTY SAND; dark brown, gravel; moist, non to low plasticity, w<PL	SM		15.00	3	ROTO SONIC	5.50 5.00
		18.00 - 20.00 (SCHIST), BEDROCK; feldspar, biotite, muscovite, moderate to well foliated, fresh, rock	BR		18.00			
20		20.00 - 23.00 (SCHIST), BEDROCK; well foliated, poorly jointed, feldspar, quartz, muscovite	BR		20.00	4	ROTO SONIC	10.00 12.00
25		23.00 - 40.00 (GNEISS), BEDROCK; light to dark gray; partially foliated, poorly jointed, biotite, feldspar, quartz, locally contains garnet	BR		23.00			
35						5	ROTO SONIC	5.60 8.00
40		40.00 - 70.00 (GNEISS), BEDROCK; light gray-green to dark gray; well foliated, poorly jointed, muscovite, biotite, feldspar, quartz	BR		40.00	6	ROTO SONIC	9.00 10.00
50								

Log continued on next page

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

B-103D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-70'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 60'-70'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 57.9'-70.0'
Type: FilterSil
Quantity: 3.5-50 lbs bags
FILTER PACK SEAL
Interval: 53.5'-57.9'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-53.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 40 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-103D

SHEET 2 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 70.00 ft
LOCATION: East of DGWC-47

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 10/14/20
DATE COMPLETED: 10/15/20

NORTHING: 1391543.5
EASTING: 2202614.4
GS ELEVATION: 793.77 ft
TOC ELEVATION: 795.96 ft

DEPTH W.L.: 12.0
ELEVATION W.L.: 783.9
DATE W.L.: 10/15/2020
TIME W.L.: 0740

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
50		40.00 - 70.00 (GNEISS), BEDROCK; light gray-green to dark gray; well foliated, poorly jointed, muscovite, biotite, feldspar, quartz *(Continued)*	BR			7	ROTO SONIC	7.50 10.00	3/8" Uncoated – Pel-Plug Sand Filter – Pack	**B-103D** Borehole Diameter: 4" **WELL CASING** Interval: 0'-70' Material: Schedule 40 PVC Diameter: 2" Joint Type: Screw fit with rubber seam **WELL SCREEN** Interval: 60'-70' Material: Schedule 40 PVC Diameter: 2" Slot Size: .010" End Cap: Schedule 40 PVC **FILTER PACK** Interval: 57.9'-70.0' Type: FilterSil Quantity: 3.5-50 lbs bags **FILTER PACK SEAL** Interval: 53.5'-57.9' Type: 3/8" Uncoated Pel-Plug Quantity: 1-5 gallon bucket **ANNULUS SEAL** Interval: 0'-53.5' Type: AquaGuard Bentonite Grout Quantity: Approximately 40 gallons **NOTES**
60										
65						8	ROTO SONIC	9.65 10.00	U-Pack – Screen	
70		Boring completed at 70.00 ft								
75										
80										
85										
90										
95										
100										

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ PIEDMONT.GDT 2/3/21

RECORD OF BOREHOLE B-109D

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 100.00 ft
LOCATION: Next to DGWC-2

DRILL RIG: Geoprobe 8140LS
DATE STARTED: 10/30/20
DATE COMPLETED: 10/31/20

NORTHING: 1393957.5
EASTING: 2202127
GS ELEVATION: 847.78 ft
TOC ELEVATION: 850.73 ft

DEPTH W.L.: 23.50
ELEVATION W.L.: 827.2
DATE W.L.: 10/31/2020
TIME W.L.: 1157

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0		0.00 - 10.00 Air knife; FILL	FILL					
10		10.00 - 13.50 (ML). SILT; brown, soft,	ML		10.00			
15		13.50 - 20.00 (CL), CLAY; red to red brown, trace sand, medium plasticity, w<PL, firm, moist to dry,	CL		13.50	1	ROTO SONIC	10.00 / 10.00
20		20.00 - 30.00 (SM), SILTY SAND; gray to reddish gray, fine to medium, loose to soft, dry to moist, w<PL, low plasticity, quartz, biotite, feldspar	SM		20.00	2	ROTO SONIC	3.70 / 10.00
30		30.00 - 36.00 (SM), SILTY SAND; gray to reddish gray, some clay, fine to medium, loose to soft, dry to moist, w<PL, low plasticity, quartz, biotite, feldspar	SM		30.00	3	ROTO SONIC	6.00 / 6.00
35		36.00 - 40.00 (CL), CLAY; black to dark gray, low plasticity, w<PL, very soft to hard, dry to moist, saprolite, biotite gneiss, saprolite,	CL		36.00	4	ROTO SONIC	4.00 / 4.00
40		40.00 - 45.00 (TWR), TRANSITIONALLY WEATHERED ROCK; black to dark gray, silt with some fine sand, trace gravels, low plasticity, w<PL, soft, moist to wet, biotite gneiss fragments	TWR		40.00	5	ROTO SONIC	2.20 / 5.00
45		45.00 - 46.00 (GRANITE), BEDROCK; biotite, feldspar, quartz, white to light gray, fine grain, quartz veins, weakly foliated, poorly jointed, fresh to slightly weathered, medium strong	BR		45.00	6	ROTO SONIC	4.20 / 10.00
		46.00 - 55.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, black to dark gray, well foliated, poorly jointed fresh to slightly weathered, medium strong to weak, iron staining	BR		46.00			
50		Log continued on next page						

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

B-109D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-100'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 89.4'-99.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 86.5'-99.4'
Type: FilterSil
Quantity: 4-50 lbs bags
FILTER PACK SEAL
Interval: 83.9'-86.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-83.9'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST (2) (3) (1) (2).GPJ PIEDMONT.GDT 7/19/21

RECORD OF BOREHOLE B-109D

SHEET 2 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 100.00 ft
LOCATION: Next to DGWC-2

DRILL RIG: Geoprobe 8140LS
DATE STARTED: 10/30/20
DATE COMPLETED: 10/31/20

NORTHING: 1393957.5
EASTING: 2202127
GS ELEVATION: 847.78 ft
TOC ELEVATION: 850.73 ft

DEPTH W.L.: 23.50
ELEVATION W.L.: 827.2
DATE W.L.: 10/31/2020
TIME W.L.: 1157

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES
50		46.00 - 55.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, black to dark gray, well foliated, poorly jointed fresh to slightly weathered, medium strong to weak, iron staining *(Continued)*	BR			6	ROTO SONIC	4.20 / 10.00	
55		55.00 - 65.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, black to dark gray, well foliated, poorly jointed, fresh to slightly weathered, medium strong to weak, iron staining. Pegmatitic zone 57.75' - 58.75' bgs (biotite, quartz, feldspar).	BR		55.00	7	ROTO SONIC	8.25 / 10.00	
60									
65		65.00 - 80.00 (GNEISS), BEDROCK; quatz, feldspar, biotite, black to dark gray, well foliated, poorly jointed fresh to slightly weathered, medium strong to weak, iron staining.	BR		65.00	8	ROTO SONIC	10.00 / 10.00	
70									
75						9	ROTO SONIC	5.00 / 5.00	
80		80.00 - 85.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, black to dark gray, well foliated, poorly jointed, fresh, fine to medium grain, medium strong, iron staining, locally contains chlorite	BR		80.00	10	ROTO SONIC	4.25 / 5.00	3/8" Uncoated Pel-Plug
85		85.00 - 100.00 (GNEISS), BEDROCK; feldspar, quartz, biotite, green when dry and dark gray to black when wet, well foliated, poorly jointed fresh, fine to medium grain, medium strong, iron staining, locally contains chlorite and epidote	BR		85.00	11	ROTO SONIC	5.00 / 5.00	Sand Filter Pack
90									
95						12	ROTO SONIC	8.40 / 10.00	U-Pack Screen
100		Boring completed at 100.00 ft							

B-109D
Borehole Diameter: 4"

WELL CASING
Interval: 0'-100'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam

WELL SCREEN
Interval: 89.4'-99.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 86.5'-99.4'
Type: FilterSil
Quantity: 4-50 lbs bags

FILTER PACK SEAL
Interval: 83.9'-86.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket

ANNULUS SEAL
Interval: 0'-83.9'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-110D

SHEET 1 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 65.00 ft
LOCATION: Next to DGWC-68A

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 11/14/20
DATE COMPLETED: 11/17/20

NORTHING: 1391294.4
EASTING: 2200736
GS ELEVATION: 764.55 ft
TOC ELEVATION: 764.61 ft

DEPTH W.L.: 9.35
ELEVATION W.L.: 755.3
DATE W.L.: 11/17/2020
TIME W.L.: 1110

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLES SAMPLE NO.	SAMPLES TYPE	SAMPLES REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0		0.00 - 5.00 Hand Auger 0'-10'; core loss from 0'-5',	NR						Flush mount	
5		5.00 - 8.50 (CL), CLAY; reddish brown to yellowish orange, trace to some fine to medium sand, moist, low plasticity, w<PL, soft to firm, Fill	CL		5.00	1	ROTO SONIC	7.00 12.00		
10		8.50 - 12.00 (ML), SILT; brown to dark brown, trace fine sand, moist, non-plastic, w<PL, soft	ML		8.50					
15		12.00 - 20.00 (ML), SILT; brown to dark brown, some fine sand, moist, non-plastic, w<PL, soft	ML		12.00	2	ROTO SONIC	3.00 8.00		
20		20.00 - 25.00 (ML), SILT; brown to dark brown, some fine sand, moist, non-plastic, w<PL, firm to stiff	ML		20.00	3	ROTO SONIC	3.00 5.00	AquaGuard Bentonite Grout	
25		25.00 - 35.00 NO RECOVERY; material too loose and soft to stay in core barrel	NR		25.00	4	ROTO SONIC	0.00 10.00		
30										
35		35.00 - 45.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, light gray to white, well foliated, poorly jointed, fine-to medium-grained, fresh to slightly weathered, strong rock, locally contains vein quartz and garnets	BR		35.00	5	ROTO SONIC	6.40 10.00		
40										
45		45.00 - 55.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, light gray to white, well foliated, poorly jointed, veing quartz, fine to medium-grained, fresh to slightly weathered, strong rock, zones of fine-grained biotite	BR		45.00	6	ROTO SONIC	8.70 10.00	3/8" Uncoated Pel-Plug	
50		Log continued on next page								

B-110D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-65'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 53'-63'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 50.5'-63'
Type: FilterSil
Quantity: 3.5-50 lbs bags
FILTER PACK SEAL
Interval: 46'-50.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-46'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 85 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

BOREHOLE RECORD MCDONOUGH MASTER LIST (2).GPJ PIEDMONT.GDT 2/3/21

RECORD OF BOREHOLE B-110D

PROJECT: Plant McDonough
PROJECT NUMBER: 1668496.18
DRILLED DEPTH: 65.00 ft
LOCATION: Next to DGWC-68A

DRILL RIG: Geoprobe 8140LC
DATE STARTED: 11/14/20
DATE COMPLETED: 11/17/20

NORTHING: 1391294.4
EASTING: 2200736
GS ELEVATION: 764.55 ft
TOC ELEVATION: 764.61 ft

DEPTH W.L.: 9.35
ELEVATION W.L.: 755.3
DATE W.L.: 11/17/2020
TIME W.L.: 1110

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
50		45.00 - 55.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, light gray to white, well foliated, poorly jointed, veing quartz, fine to medium-grained, fresh to slightly weathered, strong rock, zones of fine-grained biotite *(Continued)*	BR			6	ROTO SONIC	8.70 / 10.00	Sand Filter Pack	
55		55.00 - 60.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, light gray to white, well foliated, poorly jointed, veing quartz, fine to medium grain, fresh to slightly weathered, strong rock, local zones of fine-grained biotite	BR		55.00	7	ROTO SONIC	5.00 / 5.00		
60		60.00 - 65.00 (GNEISS), BEDROCK; biotite, feldspar, quartz, light gray to white, well foliated, poorly jointed, veing quartz, fine-to medium-grained, fresh to slightly weathered, strong rock, local zones of fine grained biotite	BR		60.00	8	ROTO SONIC	4.00 / 5.00	U-Pack Screen	
65		Boring completed at 65.00 ft								
70										
75										
80										
85										
90										
95										
100										

B-110D
Borehole Diameter: 4"
WELL CASING
Interval: 0'-65'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Screw fit with rubber seam
WELL SCREEN
Interval: 53'-63'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: .010"
End Cap: Schedule 40 PVC
FILTER PACK
Interval: 50.5'-63'
Type: FilterSil
Quantity: 3.5-50 lbs bags
FILTER PACK SEAL
Interval: 46'-50.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1-5 gallon bucket
ANNULUS SEAL
Interval: 0'-46'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 85 gallons

NOTES

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

GA INSPECTOR: Michael Boatman, PG
CHECKED BY: Timothy Richards, PG
DATE: 2/3/21

GOLDER

RECORD OF BOREHOLE B-113D

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 85.00 ft
LOCATION: Offset of B-72

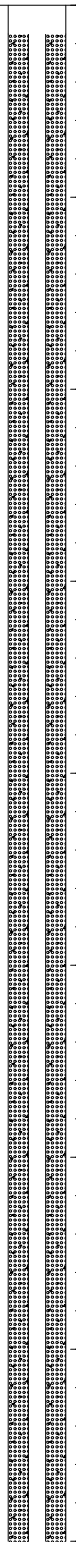
DRILL RIG: TSi 150CC
DATE STARTED: 3/22/21
DATE COMPLETED: 3/30/21

NORTHING: 1,391,264.6
EASTING: 2,200,719.2
GS ELEVATION: 758.87
TOC ELEVATION: 758.22 ft

DEPTH W.L.:1.46
ELEVATION W.L.: 756.76
DATE W.L.:4/12/2021
TIME W.L.:12:00

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC
0		0.00 - 3.00 CL, Silty CLAY, low plasticity; red-brown; soft, dry to moist, W<PL	CL		755.9			
5	755	3.00 - 10.00 ML, Clayey SILT, non to low plasticity; dark brown to brown; soft, moist to wet (with depth), W<PL	ML		3.00 748.9	Hand Auger		0.00 10.00
10	750	10.00 - 15.50 ML, Clayey SILT with some sand, low plasticity; dark brown to brown; soft to firm, dry to moist, W<PL	ML		10.00 743.4	1		7.60 10.00
15	745	15.50 - 20.00 TWR, Transitional Weathered Rock; breaks down to a ML, Clayey SILT with some sand, low plasticity; dark brown to brown; soft to firm, dry to moist, W<PL	TWR		15.50 738.9			
20	740	20.00 - 30.00 Highly weathered, poorly foliated, poorly jointed, gray to black, fine-medium grained, very weak to weak, quartz-feldspar-biotite-muscovite SCHIST; locally contians vein quartz and water staining	BR		20.00 728.9	2		3.80 10.00
25	735							
30	730	30.00 - 35.15 Highly weathered, poorly foliated, poorly jointed, gray to black, fine-medium grained, very weak to weak, quartz-feldspar-biotite-muscovite SCHIST; locally contians vein quartz, water staining, and garnets	BR		30.00 723.7	3		7.00 10.00
35	725	35.15 - 50.00 Fresh to slightly weathered, poorly foliated, white to pink and green, very fine to medium grained, medium strong to very strong, muscovite-plagioclase-k-spar-quartz GNEISS; locally contains vein quartz, epidote, and garnets	BR		35.15			
40	720	Log continued on next page						

PIEZOMETER DIAGRAM and NOTES



PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-74.4'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 74.4-84.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 84.4-84.7'

FILTER PACK
Interval: 72.4-84.7'
Type: #1 Filter Sand
Quantity: 3.5 - 50 lbs bags

FILTER PACK SEAL
Interval: 68.0-72.4'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-68.0'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 8" Flush Mount

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-113D

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 85.00 ft
LOCATION: Offset of B-72

DRILL RIG: TSi 150CC
DATE STARTED: 3/22/21
DATE COMPLETED: 3/30/21

NORTHING: 1,391,264.6
EASTING: 2,200,719.2
GS ELEVATION: 758.87
TOC ELEVATION: 758.22 ft

DEPTH W.L.:1.46
ELEVATION W.L.: 756.76
DATE W.L.:4/12/2021
TIME W.L.:12:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
40		35.15 - 50.00 Fresh to slightly weathered, poorly foliated, white to pink and green, very fine to medium grained, medium strong to very strong, muscovite-plagioclase-k-spar-quartz GNEISS; locally contains vein quartz, epidote, and garnets *(Continued)*								
45	715		BR			4		6.50 10.00		
50	710				708.9 50.00					
		50.00 - 60.00 Fresh, weakly foliated, poorly jointed, light gray to greenish white, fine to medium grained, medium strong to strong, epidote-muscovite-biotite-feldspar-quartz GNEISS; locally contains garnets and pyrite.								
55	705		BR			5		10.00 10.00		
60	700				698.9 60.00					
		60.00 - 76.00 Fresh, weakly foliated, poorly jointed, green to white to gray, fine to medium grained, medium strong to strong, GNEISS; locally contains vein quartz and garnets								
65	695					6		7.50 10.00		
70	690		BR						Bentonite Seal	
75	685					7		8.70 10.00	#1 Filter Sand	
		76.00 - 85.00 Fresh to slightly weathered, weak to moderately foliated, poorly jointed, greenish white to gray, fine to medium grained, strong, GNEISS; locally contains folds, vein quartz, and garnets; rock becomes schistose in localized areas.	BR		682.9 76.00					
80	680									

Log continued on next page

WELL CASING
Interval: 0-74.4'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 74.4-84.4'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 84.4-84.7'

FILTER PACK
Interval: 72.4-84.7'
Type: #1 Filter Sand
Quantity: 3.5 - 50 lbs bags

FILTER PACK SEAL
Interval: 68.0-72.4'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-68.0'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 8" Flush Mount

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-113D

SHEET 3 of 3

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 85.00 ft
LOCATION: Offset of B-72

DRILL RIG: TSi 150CC
DATE STARTED: 3/22/21
DATE COMPLETED: 3/30/21

NORTHING: 1,391,264.6
EASTING: 2,200,719.2
GS ELEVATION: 758.87
TOC ELEVATION: 758.22 ft

DEPTH W.L.:1.46
ELEVATION W.L.: 756.76
DATE W.L.:4/12/2021
TIME W.L.:12:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
80		76.00 - 85.00 Fresh to slightly weathered, weak to moderately foliated, poorly jointed, greenish white to gray, fine to medium grained, strong, GNEISS; locally contains folds, vein quartz, and garnets; rock becomes schistose in localized areas. *(Continued)*	BR			8		4.50 5.00	0.010" Slotted Schedule 40 PVC Sump	**WELL CASING** Interval: 0-74.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw **WELL SCREEN** Interval: 74.4-84.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 84.4-84.7' **FILTER PACK** Interval: 72.4-84.7' Type: #1 Filter Sand Quantity: 3.5 - 50 lbs bags **FILTER PACK SEAL** Interval: 68.0-72.4' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket **ANNULUS SEAL** Interval: 0-68.0' Type: AquaGuard Bentonite Grout Quantity: Approximately 80 gallons **WELL COMPLETION** Pad: 4'x4'x4" Concrete Protective Casing: 8" Flush Mount **DRILLING METHODS** Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotosonic Sample Type: Rotosonic
675					673.9					
85		Boring completed at 85.00 ft								
670										
90										
665										
95										
660										
100										
655										
105										
650										
110										
645										
115										
640										
120										

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

BOREHOLE RECORD 166849621.GPJ PIEDMONT.GDT 5/24/21

RECORD OF BOREHOLE B-115D

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 80.00 ft
LOCATION: South of overflow parking

DRILL RIG: TSi 150CC
DATE STARTED: 3/19/21
DATE COMPLETED: 3/20/21

NORTHING: 1,391,265.3
EASTING: 2,202,580.7
GS ELEVATION: 786.43
TOC ELEVATION: 789.17 ft

DEPTH W.L.:19.32
ELEVATION W.L.: 769.85
DATE W.L.:4/7/2021
TIME W.L.:14:15

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)	SAMPLE NO.	REC	PIEZOMETER DIAGRAM and NOTES
0	785	0.00 - 10.00 FILL- Backfilled with cuttings from air knife clearance			Air Knife	0.00 10.00	
10	775	10.00 - 13.00 CL, Silty CLAY with tace organics, low to moderate plasticity; dark brown; fill; soft to firm, moist, W<PL	CL	776.4 10.00 773.4			
15	770	13.00 - 18.00 SC, Clayey SAND, low plasticity, fine to coase; dark red brown to red brown; fill; soft/loose, dry to moist, W<PL	SC	13.00 768.4	1	10.00 10.00	
		18.00 - 20.00 ML, Clayey SILT, low plasticity; tan; soft, moist, W<PL	ML	18.00 766.4			
20	765	20.00 - 25.00 TWR, Transitional Weathered Rock; breaks down to a ML, Sandy SILT with trace coobles, non to low plasticity; light brown to brown; soft/loose, moist, W<PL	TWR	20.00 761.4	2	8.50 10.00	
25	760	25.00 - 30.00 Highly to moderately weathered, well foliated, well jointed, dark gray to black, fine to medium grained, very weak to weak, muscovite SCHIST; locally is water stained	BR	25.00 756.4			
30	755	30.00 - 50.00 Fresh to moderately weathered, well foliated, well jointed, green to gray to black, fine to medium grained, very weak to medium strong, muscovite SCHIST; locally interlayered with a epidote-quartz-muscovite schistose GNEISS	BR	30.00	3	7.50 10.00	AquaGuard Grout
40	750	Log continued on next page					

PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-69.2'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 69.2-79.2'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 79.2-79.5'

FILTER PACK
Interval: 66.7-79.5'
Type: #1 Fliter Sand
Quantity: 4 - 50 lbs bags

FILTER PACK SEAL
Interval: 62.5-66.7'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-62.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 100 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-115D

SHEET 2 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 80.00 ft
LOCATION: South of overflow parking

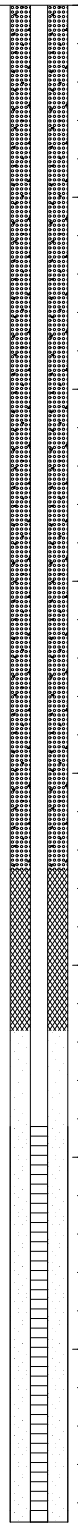
DRILL RIG: TSi 150CC
DATE STARTED: 3/19/21
DATE COMPLETED: 3/20/21

NORTHING: 1,391,265.3
EASTING: 2,202,580.7
GS ELEVATION: 786.43
TOC ELEVATION: 789.17 ft

DEPTH W.L.:19.32
ELEVATION W.L.: 769.85
DATE W.L.:4/7/2021
TIME W.L.:14:15

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC
40		30.00 - 50.00 Fresh to moderately weathered, well foliated, well jointed, green to gray to black, fine to medium grained, very weak to medium strong, muscovite SCHIST; locally interlayered with a epidote-quartz-muscovite schistose GNEISS *(Continued)*						
45	745		BR			4		6.50 10.00
50	740				736.4 50.00			
	735	50.00 - 70.00 Fresh to slightly weathered, well foliated, well jointed, light gray to green, fine to medium grained, weak to strong, chlorite-quartz-muscovite SCHIST				5		6.50 10.00
55	730							
60	725		BR					
65	720					6		8.00 10.00
70	715	70.00 - 80.00 Fresh to Slightly weathered, weak to moderately foliated, poorly jointed, gray to black, fine grained, medium strong to strong, quartz-biotite-muscovite SCHIST; locally contains pyrite and garnets			716.4 70.00			
75	710		BR			7		10.00 10.00
80		Boring completed at 80.00 ft			706.4			

PIEZOMETER DIAGRAM and NOTES



PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-69.2'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 69.2-79.2'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 79.2-79.5'

FILTER PACK
Interval: 66.7-79.5'
Type: #1 Fliter Sand
Quantity: 4 - 50 lbs bags

FILTER PACK SEAL
Interval: 62.5-66.7'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-62.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 100 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

BOREHOLE RECORD 166849621.GPJ PIEDMONT.GDT 5/24/21

RECORD OF BOREHOLE B-116D

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 90.00 ft
LOCATION: Offset DGWC-70A

DRILL RIG: TSi 150CC
DATE STARTED: 3/7/21
DATE COMPLETED: 3/8/21

NORTHING: 1,390,483.7
EASTING: 2,200,611.0
GS ELEVATION: 805.31
TOC ELEVATION: 807.82 ft

DEPTH W.L.:40.82
ELEVATION W.L.: 767.00
DATE W.L.:4/6/2021
TIME W.L.:15:11

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)	SAMPLE NO.	REC	PIEZOMETER DIAGRAM and NOTES
0	805	0.00 - 3.00 CL, Silty CLAY, low plasticity; red brown; soft to firm, moist, W<PL	CL	802.3			
		3.00 - 6.00 ML, Clayey SILT with trace to some fine to coase sand, non plasticity; brown; soft/ loose, dry to moist, W<PL	ML	3.00	Hand Auger	0.00 10.00	
5	800			799.3			
		6.00 - 10.00 SM, SILTY SAND, non to low plasticity; yellow-brown to tan; loose, dry, W<PL	SM	6.00			
10	795			795.3			
		10.00 - 11.00 CL, Silty CLAY with some silt, low plasticity; red brown to brown; soft, moist, W<PL	CL	10.00 794.3			
		11.00 - 20.00 ML, Clayey SILT, non plasticity; brown to gray-brown; soft/ loose, moist, W<PL; locally contains books of muscovite	ML	11.00	1	13.50 10.00	
15	790						
20	785	20.00 - 21.50 CL, Silty CLAY with some fine sand, low plasticity; orange brown; soft, moist, W~PL	CL	20.00 783.8			
		21.50 - 30.00 ML, Clayey SILT with trace clay and fine sand, non plasticity; brown to gray-brown; soft/ loose, moist, W<PL; locally contains books of muscovite	ML	21.50	2	15.00 10.00	
25	780						
30	775	30.00 - 40.00 ML, Clayey SILT with trace fine sand and trace to some clay, non to low plasticity; gray; soft, moist, W<PL to W~PL	ML	775.3 30.00	3	12.00 10.00	AquaGuard Grout
35	770						
40				765.3			

Log continued on next page

PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-79.2'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 79.2-89.2'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 89.2-89.5'

FILTER PACK
Interval: 75.5-89.5'
Type: #1 Filter Sand
Quantity: 4.5 - 50 lbs bag

FILTER PACK SEAL
Interval: 70.6-75.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-70.6'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 120 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-116D

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 90.00 ft
LOCATION: Offset DGWC-70A

DRILL RIG: TSi 150CC
DATE STARTED: 3/7/21
DATE COMPLETED: 3/8/21

NORTHING: 1,390,483.7
EASTING: 2,200,611.0
GS ELEVATION: 805.31
TOC ELEVATION: 807.82 ft

DEPTH W.L.:40.82
ELEVATION W.L.: 767.00
DATE W.L.:4/6/2021
TIME W.L.:15:11

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)	SAMPLE NO.	REC
40	765	40.00 - 50.00 ML, Clayey SILT with some fine to coase sand, non to low plasticity; gray to gray-brown; soft (becoming firm to stiff with depth), moist to wet, W<PL	ML	40.00	4	12.00 / 10.00
50	755	50.00 - 54.90 TWR, Transitional Weathered Rock; breaks down to a ML, Clayey SILT with some fine to coase sand, non to low plasticity; gray to gray-brown; soft (becoming firm to stiff with depth), moist to wet, W<PL	TWR	755.3 50.00	5	5.10 / 10.00
55	750	54.90 - 90.00 Fresh to slightly weathered, well foliated, well jointed, gray to black, fine to medium grained, weak to medium strong, garnet-chlorite-quartz-biotite-muscovite SCHIST	BR	750.4 54.90	6	7.00 / 10.00
60	745				7	8.00 / 10.00
65	740					
70	735					
75	730					
80		Log continued on next page				

PHOTO

PIEZOMETER DIAGRAM and NOTES

Bentonite Seal

PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-79.2'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 79.2-89.2'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 89.2-89.5'

FILTER PACK
Interval: 75.5-89.5'
Type: #1 Filter Sand
Quantity: 4.5 - 50 lbs bag

FILTER PACK SEAL
Interval: 70.6-75.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-70.6'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 120 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-116D

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 90.00 ft
LOCATION: Offset DGWC-70A

DRILL RIG: TSi 150CC
DATE STARTED: 3/7/21
DATE COMPLETED: 3/8/21

NORTHING: 1,390,483.7
EASTING: 2,200,611.0
GS ELEVATION: 805.31
TOC ELEVATION: 807.82 ft

DEPTH W.L.:40.82
ELEVATION W.L.: 767.00
DATE W.L.:4/6/2021
TIME W.L.:15:11

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
80	725	54.90 - 90.00 Fresh to slightly weathered, well foliated, well jointed, gray to black, fine to medium grained, weak to medium strong, garnet-chlorite-quartz-biotite-muscovite SCHIST *(Continued)*	BR			8		9.00 / 10.00	0.010" Slotted Schedule 40 PVC #1 Filter Sand Sump	**WELL CASING** Interval: 0-79.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw **WELL SCREEN** Interval: 79.2-89.2' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 89.2-89.5' **FILTER PACK** Interval: 75.5-89.5' Type: #1 Filter Sand Quantity: 4.5 - 50 lbs bag **FILTER PACK SEAL** Interval: 70.6-75.5' Type: 3/8" Uncoated Pel-Plug Quantity: 1 - 5 gallon bucket **ANNULUS SEAL** Interval: 0-70.6' Type: AquaGuard Bentonite Grout Quantity: Approximately 120 gallons **WELL COMPLETION** Pad: 4'x4'x4" Concrete Protective Casing: 4"x4" Aluminium **DRILLING METHODS** Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel) Rock Drill: Rotosonic Sample Type: Rotosonic
		715.3								
90	715	Boring completed at 90.00 ft								
95	710									
100	705									
105	700									
110	695									
115	690									
120										

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-117D

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 75.00 ft
LOCATION: Offset of DGWC-71

DRILL RIG: TSi 150CC
DATE STARTED: 3/17/21
DATE COMPLETED: 3/17/21

NORTHING: 1,393,963.8
EASTING: 2,201,727.3
GS ELEVATION: 861.23
TOC ELEVATION: 863.82 ft

DEPTH W.L.:27.88
ELEVATION W.L.: 835.94
DATE W.L.:4/7/2021
TIME W.L.:9:35

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC
0	860	0.00 - 10.00 FILL- Backfilled with cuttings from air knife clearance			851.2	Air Knife		0.00 / 10.00
10	850	10.00 - 16.00 SM, SILTY SAND, low plasticity; red brown; soft/loose, moist, W<PL	SM		10.00 845.2	1		7.00 / 9.00
15	845	16.00 - 19.00 ML, Clayey SILT with trace sand, low plasticity; light gray to white; soft, moist, W<PL	ML		16.00 842.2			
20	840	19.00 - 29.00 SM, SILTY SAND, low plasticity, very fine; light gray to tannish white; soft, moist, W<PL	SM		19.00 832.2	2		9.50 / 10.00
25	835							
30	830	29.00 - 39.00 SM, SILTY SAND with trace gravels, low plasticity, fine to coarse; light gray to tannish white; soft, moist (becoming dry with depth), W<PL	SM		29.00 822.2	3		10.00 / 10.00
35	825							
40		Log continued on next page	SM		39.00	4		9.00 / 10.00

PIEZOMETER DIAGRAM and NOTES: AquaGuard Grout

PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-64.7'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 64.7-74.7'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 74.7-75'

FILTER PACK
Interval: 62.5- 75'
Type: #1 Filter Sand
Quantity: 4 - 50 lbs bags

FILTER PACK SEAL
Interval: 58.5-62.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-58.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4'x4' Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-117D

SHEET 2 of 2

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 75.00 ft
LOCATION: Offset of DGWC-71

DRILL RIG: TSi 150CC
DATE STARTED: 3/17/21
DATE COMPLETED: 3/17/21

NORTHING: 1,393,963.8
EASTING: 2,201,727.3
GS ELEVATION: 861.23
TOC ELEVATION: 863.82 ft

DEPTH W.L.:27.88
ELEVATION W.L.: 835.94
DATE W.L.:4/7/2021
TIME W.L.:9:35

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC	PIEZOMETER DIAGRAM and NOTES	PIEZOMETER CONSTRUCTION DETAILS
40										
	820	39.00 - 41.00 SM, SILTY SAND with trace gravels, low plasticity, fine to coarse; light gray to tannish white; compact/dense to firm/stiff, moist (becoming dry with depth), W<PL *(Continued)*	SM		820.2 41.00					
		41.00 - 49.00 TWR, Transitional Weathered Rock; breaks down to abreaks down to aSM, SILTY SAND with trace gravels, low plasticity, fine to coarse; light gray to tannish white; compact/dense to firm/stiff, moist (becoming dry with depth), W<PL	TWR			4		9.00 10.00		
45	815				812.2					
		49.00 - 75.00 Fresh to moderately weathered, well foliated, moderately jointed, gray to dark gray, fine to medium grained, medium strong, biotite-quartz-feldspar GNEISS; locally contains pegmatite and quartz veins	BR		49.00	5		7.50 10.00		
50	810									
55	805									
60	800					6		8.50 10.00	Bentonite Seal	
65	795								#1 Filter Sand	
70	790					7		4.50 6.00	0.010" Slotted Schedule 40 PVC	
75	785	Boring completed at 75.00 ft			786.2					
80										

WELL CASING
Interval: 0-64.7'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 64.7-74.7'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 74.7-75'

FILTER PACK
Interval: 62.5- 75'
Type: #1 Filter Sand
Quantity: 4 - 50 lbs bags

FILTER PACK SEAL
Interval: 58.5-62.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-58.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4'x4' Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

BOREHOLE RECORD 166849621.GPJ PIEDMONT.GDT 5/24/21

RECORD OF BOREHOLE B-118

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 75.00 ft
LOCATION: West of gas pipline

DRILL RIG: TSi 150CC
DATE STARTED: 3/8/21
DATE COMPLETED: 3/9/21

NORTHING: 1,391,219.3
EASTING: 2,200,449.7
GS ELEVATION: 804.99
TOC ELEVATION: 807.70 ft

DEPTH W.L.:50.65
ELEVATION W.L.: 757.05
DATE W.L.:4/6/2021
TIME W.L.:9:36

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)	SAMPLE NO.	REC
0	805	0.00 - 3.00 CL, Silty CLAY with trace to some fine sand, low plasticity; dark red; soft, dry to moist, W,PL	CL	802		
		3.00 - 10.00 SP, SAND, non plasticity, uniformly graded; yellow-orange; loose, dry to moist, W<PL	SP	3.00	Hand Auger	0.00 / 10.00
5	800					
10	795	10.00 - 18.50 CL, Silty CLAY with trace to some fine sand, low plasticity; red-orange and white; soft, moist, W,PL	CL	795 10.00	1	5.00 / 10.00
15	790					
		18.50 - 20.00 ML, Clayey SILT with trace sand and fine gravels, non plasiticity; olive brown to brown; loose, dry, W<PL	ML	786.5 18.50		
20	785	20.00 - 25.00 SP, SAND, non plasticity, fine to coarse, poorly graded; tannish-orange; loose, moist, W<PL	SP	785 20.00	2	7.50 / 10.00
25	780	25.00 - 30.00 SM, SILTY SAND, low plasticity, fine to medium; orange to tan; loose/soft, moist, W<PL	SM	780 25.00		
30	775	30.00 - 32.00 ML, Sandy SILT, non plasiticity; brown to dark brown; soft, moist, W<PL	ML	775 30.00	3	2.50 / 2.00
		32.00 - 40.00 TWR, Transitional Weathered Rock; breaks down to a SW-SM, SAND AND SILT with some gravels, non to low plasticity, fine to coarse; white; loose, wet, W<PL	TWR	773 32.00	4	1.00 / 6.00
35	770					
					5	1.50 / 2.00
40	765			765		

Log continued on next page

PIEZOMETER DIAGRAM and NOTES: AquaGuard Grout

PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-64.85'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 64.85-74.85'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 74.85-75.15'

FILTER PACK
Interval: 61.8-75.15
Type: #1 Filter Sand
Quantity: 4 - 50 lbs bags

FILTER PACK SEAL
Interval: 56.6-61.8'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-56.6'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-118

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 75.00 ft
LOCATION: West of gas pipline

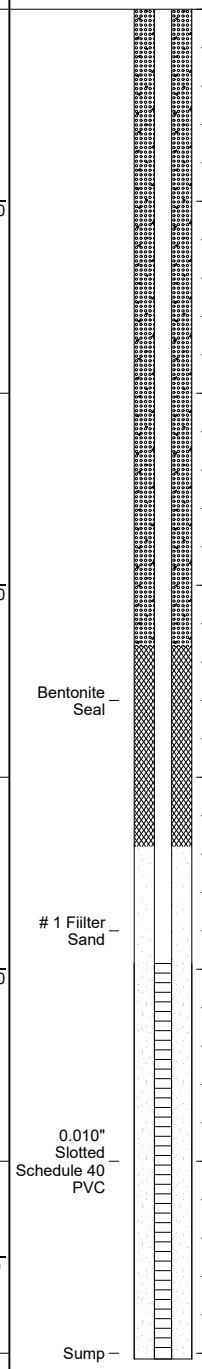
DRILL RIG: TSi 150CC
DATE STARTED: 3/8/21
DATE COMPLETED: 3/9/21

NORTHING: 1,391,219.3
EASTING: 2,200,449.7
GS ELEVATION: 804.99
TOC ELEVATION: 807.70 ft

DEPTH W.L.:50.65
ELEVATION W.L.: 757.05
DATE W.L.:4/6/2021
TIME W.L.:9:36

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC
40	765	40.00 - 50.00 Slightly to moderately weathered, well folitated, moderately jointed, tan to white to gray, fine to medium grained, medium strong, plagioclase-K-spar-biotite-quartz GNEISS	BR		40.00	6		4.80 / 10.00
45	760							
50	755	50.00 - 60.00 Moderately weathered, well folitated, well jointed, tan to white to brown, fine to medium grained, weak to medium strong, plagioclase-K-spar-biotite-quartz GNEISS			755 50.00	7		2.50 / 10.00
55	750							
60	745	60.00 - 75.00 Fresh to slightly weathered, well folitated, poorly jointed, greenish gray to gray, fine to medium grained, medium strong, epidote-biotite-fledspar-quartz GNEISS			745 60.00	8		0.00 / 10.00
65	740		BR					
70	735					9		2.50 / 5.00
75	730	Boring completed at 75.00 ft			730			
80	725							

PIEZOMETER DIAGRAM and NOTES



PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-64.85'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 64.85-74.85'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 74.85-75.15'

FILTER PACK
Interval: 61.8-75.15
Type: #1 Filter Sand
Quantity: 4 - 50 lbs bags

FILTER PACK SEAL
Interval: 56.6-61.8'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-56.6'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 80 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-119D

SHEET 1 of 3

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 105.00 ft
LOCATION: Offset of B-118

DRILL RIG: TSi 150CC
DATE STARTED: 3/10/21
DATE COMPLETED: 3/16/21

NORTHING: 1,391,236.4
EASTING: 2,200,446.6
GS ELEVATION: 804.53
TOC ELEVATION: 807.15 ft

DEPTH W.L.:49.94
ELEVATION W.L.: 757.21
DATE W.L.:4/5/2021
TIME W.L.:13:37

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)	SAMPLE NO.	REC
0	804	0.00 - 12.50 CL, Sandy CLAY, low plasticity, fine to coarse; red to red-orange; soft/loose, dry to moist, W<PL	CL		Hand Auger	0.00 10.00
5	800					
10	795			792		
		12.50 - 18.00 ML, Clayey SILT with some fine sand, low plasticity; pink-brown to tan; loose, dry to moist, W<PL	ML	12.50	1	7.50 9.00
15	790					
				786.5		
		18.00 - 19.00 SP, SAND with trace to some silt, low plasticity, uniformly graded; white to tan; loose, dry, W<PL	SP	18.00 785.5		
20	785	19.00 - 20.00 SC, CLAYEY SAND, moderate plasticity, fine to medium; dark brown; soft, moist, W~PL	SC	19.00 784.5		
		20.00 - 21.50 SP, SAND with some silt, low plasticity, fine; white to tan to gray; loose, dry to moist, W<PL	SP	20.00 783		
		21.50 - 23.50 SM, SILTY SAND, low plasticity; beige brown; soft, moist to wet, W~PL	SM	21.50 781		
25	780	23.50 - 27.50 ML, Clayey SILT with some fine sand, moderate plasticity; light to dark brown; soft/loose, dry to moist, W<PL	ML	23.50	2	9.50 10.00
				777		
		27.50 - 29.00 SP, SAND with trace to some silt, non plasticity, fine to coarse; white to beige; loose, dry, W<PL	SP	27.50 775.5		
30	775	29.00 - 39.00 ML, Sandy SILT with trace gravels, low plasticity, fine; tan to light brown; loose, dry to moist, W<PL	ML	29.00	3	9.50 10.00
35	770					
				765.5		
40	765		ML	39.00	4	4.50 6.00

Log continued on next page

PIEZOMETER DIAGRAM and NOTES

AquaGuard Grout

PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-94.7'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 94.7-104.7'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 104.7-105'

FILTER PACK
Interval: 91.5-105'
Type: #1 Filter Sand
Quantity: 4.5 - 50 lbs bags

FILTER PACK SEAL
Interval: 86.5-91.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-86.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 160 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

BOREHOLE RECORD 166849621.GPJ PIEDMONT.GDT 5/24/21

RECORD OF BOREHOLE B-119D

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 105.00 ft
LOCATION: Offset of B-118

DRILL RIG: TSi 150CC
DATE STARTED: 3/10/21
DATE COMPLETED: 3/16/21

NORTHING: 1,391,236.4
EASTING: 2,200,446.6
GS ELEVATION: 804.53
TOC ELEVATION: 807.15 ft

DEPTH W.L.:49.94
ELEVATION W.L.: 757.21
DATE W.L.:4/5/2021
TIME W.L.:13:37

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)	SAMPLE NO.	REC
40		39.00 - 45.00 ML, Sandy SILT with trace gravels and cobbles, low plasticity, fine; tan to light brown; loose, dry to wet, W<PL *(Continued)*	ML		4	4.50 / 6.00
45	760			759.5 45.00		
		45.00 - 50.00 TWR, Transitional Weathered Rock; breaks down to a SM, SILTY SAND with trace gravels(weatherd gneiss) low plasticity; light gray to tan; firm/compact, moist to wet, W<PL	TWR		5	6.00 / 5.00
50	755			754.5 50.00		
		50.00 - 53.40 Slightly to moderately weathered, well foliated, moderately jointed, gray to brown, fine grained, weak to medium strong, muscovite-quartz-feldspar-biotite GNEISS	BR			
				751.1 53.40		
55	750	53.40 - 60.00 TWR, Transitional Weathered Rock; breaks down to a SM, SILTY SAND, low plasticity; grayish brown to gray; loose, dry to moist, W<PL	TWR		6	6.20 / 10.00
60	745			744.5 60.00		
		60.00 - 67.00 Slightly to moderately weathered, well foliated, moderately jointed, gray to brown, fine grained, weak to medium strong, muscovite-quartz-feldspar-biotite GNEISS	BR		7	4.00 / 10.00
65	740			737.5 67.00		
		67.00 - 87.00 Fresh to slightly weathered, moderately foliated, poorly jointed, dark gray to black, very fine to fine grained, medium strong, feldspar-quartz-biotite GNEISS	BR			
70	735					
75	730				8	8.50 / 10.00
80	725					

Log continued on next page

PIEZOMETER DIAGRAM and NOTES

PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-94.7'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 94.7-104.7'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 104.7-105'

FILTER PACK
Interval: 91.5-105'
Type: #1 Filter Sand
Quantity: 4.5 - 50 lbs bags

FILTER PACK SEAL
Interval: 86.5-91.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-86.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 160 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

RECORD OF BOREHOLE B-119D

SHEET 3 of 3

PROJECT: Plant McDonough
PROJECT NUMBER: 166849621
DRILLED DEPTH: 105.00 ft
LOCATION: Offset of B-118

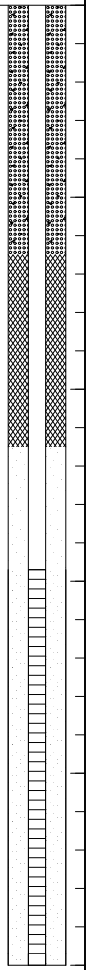
DRILL RIG: TSi 150CC
DATE STARTED: 3/10/21
DATE COMPLETED: 3/16/21

NORTHING: 1,391,236.4
EASTING: 2,200,446.6
GS ELEVATION: 804.53
TOC ELEVATION: 807.15 ft

DEPTH W.L.:49.94
ELEVATION W.L.: 757.21
DATE W.L.:4/5/2021
TIME W.L.:13:37

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	PHOTO	REC
80		67.00 - 87.00 Fresh to slightly weathered, moderately foliated, poorly jointed, dark gray to black, very fine to fine grained, medium strong, feldspar-quartz-biotite GNEISS *(Continued)*	BR			9		7.00 / 10.00
85	720				717.5 87.00			
		87.00 - 90.00 Fresh to slightly weathered, poor to moderately foliated, poorly jointed, dark gray to black, medium grained, medium strong, chlorite-epidote-quartz-feldspar-biotite GNEISS	BR					
90	715				714.5 90.00			
		90.00 - 105.00 Fresh to slightly weathered, foliated, poorly jointed, light gray to dark gray, fine to medium grained, medium strong to strong, feldspar-biotite-quartz GNEISS; locally contains garnets and k-spar augens				10		9.00 / 10.00
95	710		BR					
100	705					11		4.90 / 5.00
105	700				699.5			
		Boring completed at 105.00 ft						
110	695							
115	690							
120	685							

PIEZOMETER DIAGRAM and NOTES



PIEZOMETER CONSTRUCTION DETAILS

WELL CASING
Interval: 0-94.7'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush/Screw

WELL SCREEN
Interval: 94.7-104.7'
Material: Schedule 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 104.7-105'

FILTER PACK
Interval: 91.5-105'
Type: #1 Filter Sand
Quantity: 4.5 - 50 lbs bags

FILTER PACK SEAL
Interval: 86.5-91.5'
Type: 3/8" Uncoated Pel-Plug
Quantity: 1 - 5 gallon bucket

ANNULUS SEAL
Interval: 0-86.5'
Type: AquaGuard Bentonite Grout
Quantity: Approximately 160 gallons

WELL COMPLETION
Pad: 4'x4'x4" Concrete
Protective Casing: 4"x4" Aluminium

DRILLING METHODS
Soil Drill: Rotosonic (6 inch casing by 4 inch core barrel)
Rock Drill: Rotosonic
Sample Type: Rotosonic

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Drilling
DRILLER: Tommy Ardito

INSPECTOR: Michael Boatman, PG
CHECKED BY: Rachel Kirkman, PG
DATE: 5/24/21

GOLDER
MEMBER OF WSP

BOREHOLE RECORD 166849621.GPJ PIEDMONT.GDT 5/24/21

RECORD OF BOREHOLE B-123D

SHEET 1 of 4

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849621
DRILLED DEPTH: 160.00 ft
LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
Truck-Mounted Sonic
DATE STARTED: 3/25/22
DATE COMPLETED: 4/4/22

NORTHING: 1,391,234.4
EASTING: 2,202,608.4
GS ELEVATION: 778.85
TOC ELEVATION: 781.80 ft

DEPTH W.L.:13.2
ELEVATION W.L.:765.65
DATE W.L.:4/4/22
TIME W.L.:14:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0		0.00 - 10.00 FILL, CL, SILTY CLAY, moist, micaceous, trace of organics; Air knifed for utility clearance							Aquaguard _ Grout	**WELL CASING** Interval: 0'-110' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded
	775									**WELL SCREEN** Interval: 110'-160' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3"
5			CL			1		NA / 10.00		
	770				768.9					**FILTER PACK** Interval: 107.3'-160' Type: Filter Sil - Filtration sand and gravel, industrial quartz Quantity: 16 x 50 lb bag
10		10.00 - 20.00 ML-CH, SILT and CLAY, moist, red, orange, brown, some fine sand, trace of fine schist gravel, micaceous			10.00					
	765									**FILTER PACK SEAL** Interval: 62.5'-107.3' Type: Pel Plug Bentonite Pellets / Haliburton Bentonite Chips 3/8" Quantity: 3 x 50 lb bucket, 10 bags chips
15			ML-CH			2		9.75 / 10.00		
	760				758.9					**ANNULUS SEAL** Interval: 0'-55.5' Type: Aquaguard bentonite grout Quantity: 2.5 batches of 2 bags Aquaguard + 40 gal water
20		20.00 - 28.00 Same as above			20.00					
	755		ML-CH							**WELL COMPLETION** Pad: 4' x 4' Protective Casing: Aluminum
25						3		8.50 / 10.00		**DRILLING METHODS** Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic
	750				750.9					
		28.00 - 30.00 ML, sandy SILT, moist, gray, fine, trace of coarse gravel	ML		28.00 748.9					
30		30.00 - 31.50 Same as above	ML		30.00 747.4					
		31.50 - 40.00 muscovite biotite SCHIST, fine grained, strong, slightly to moderately weathered, slight, fractured, some iron staining			31.50					
	745									
35						4		9.75 / 10.00		
	740				738.9					
40		40.00 - 50.00 muscovite biotite garnet SCHIST, fine to coarse grained, strong, fresh to slightly weathered, slightly fractured, traces iron staining			40.00					
	735									
45						5		7.50 / 10.00		
	730				728.9					
50		Log continued on next page								

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

GA INSPECTOR: Connor Mikilitus
CHECKED BY: Rachel Kirkman, PG
DATE: 5/10/22

GOLDER

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D.GPJ PIEDMONT.GDT 5/13/22

RECORD OF BOREHOLE B-123D

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849621
DRILLED DEPTH: 160.00 ft
LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
Truck-Mounted Sonic
DATE STARTED: 3/25/22
DATE COMPLETED: 4/4/22

NORTHING: 1,391,234.4
EASTING: 2,202,608.4
GS ELEVATION: 778.85
TOC ELEVATION: 781.80 ft

DEPTH W.L.:13.2
ELEVATION W.L.:765.65
DATE W.L.:4/4/22
TIME W.L.:14:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
50		50.00 - 60.00 muscovite biotite SCHIST, fine to coarse grained, strong, fresh to slightly weathered, slightly fractured, traces of iron staining			50.00					
	725									
55						6		9.30 10.00	Pel Plug – Pellets	
	720				718.9					
60		60.00 - 70.00 muscovite biotite chlorite SCHIST, fine to coarse grained, strong, fresh, unfractured to slightly fractured, trace of iron staining			60.00					
	715								Haliburton Bentonite – Chips 3/8"	
65						7		9.50 10.00		
	710				708.9					
70		70.00 - 80.00 muscovite biotite SCHIST, fine to coarse grained, strong, fresh, unfractured to slightly weathered, slightly fractured, secondary mineralization of fractures, trace of iron staining			70.00					
	705									
75						8		9.50 10.00		
	700				698.9					
80		80.00 - 90.00 muscovite biotite SCHIST, fine to coarse grained, strong, fresh, unfractured to slightly weathered, slightly fractured, secondary mineralization of fractures, trace of iron staining			80.00					
	695									
85						9		7.50 10.00		
	690				688.9					
90		90.00 - 100.00 muscovite biotite SCHIST, fine to coarse grained, strong, fresh, fresh to slightly weathered, unfractured to slightly fractured			90.00					
	685									
95						10		8.00 10.00		
	680				678.9					
100		Log continued on next page								

WELL CASING
Interval: 0'-110'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 110'-160'
Material: 0.010" Slotted
Diameter: 2"
Slot Size: 0.010"
End Cap: 3"

FILTER PACK
Interval: 107.3'-160'
Type: Filter Sil - Filtration sand and gravel, industrial quartz
Quantity: 16 x 50 lb bag

FILTER PACK SEAL
Interval: 62.5'-107.3'
Type: Pel Plug Bentonite Pellets / Haliburton Bentonite Chips 3/8"
Quantity: 3 x 50 lb bucket, 10 bags chips

ANNULUS SEAL
Interval: 0'-55.5'
Type: Aquaguard bentonite grout
Quantity: 2.5 batches of 2 bags Aquaguard + 40 gal water

WELL COMPLETION
Pad: 4' x 4'
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic
Sample Type: Sonic

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

GA INSPECTOR: Connor Mikilitus
CHECKED BY: Rachel Kirkman, PG
DATE: 5/10/22

WSP GOLDER

RECORD OF BOREHOLE B-123D

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849621
DRILLED DEPTH: 160.00 ft
LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
Truck-Mounted Sonic
DATE STARTED: 3/25/22
DATE COMPLETED: 4/4/22

NORTHING: 1,391,234.4
EASTING: 2,202,608.4
GS ELEVATION: 778.85
TOC ELEVATION: 781.80 ft

DEPTH W.L.:13.2
ELEVATION W.L.:765.65
DATE W.L.:4/4/22
TIME W.L.:14:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
100		100.00 - 110.00 muscovite biotite SCHIST, fine to coarse grained, strong, fresh, fresh to slightly weathered, unfractured to slightly fractured			100.00				Pel Plug – Pellets	**WELL CASING** Interval: 0'-110' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded
675										
105						11		9.75/10.00		
670									Filter Sil Filtration – sand and gravel	**WELL SCREEN** Interval: 110'-160' Material: 0.010" Slotted Diameter: 2" Slot Size: 0.010" End Cap: 3"
110					668.9				0.010" Slotted Schedule 40 – PVC U-pack Screen	**FILTER PACK** Interval: 107.3'-160' Type: Filter Sil - Filtration sand and gravel, industrial quartz Quantity: 16 x 50 lb bag
		110.00 - 120.00 muscovite Biotite SCHIST, fine to coarse grained, strong, fresh to slightly weathered, slightly fractured, secondary mineralization of fractures with calcite @ 114' bgs, measured -0.018 gallons per minute (gpm) from borehole geophysics heat-pulse flow meter (HPFM), trace vein quartz			110.00					**FILTER PACK SEAL** Interval: 62.5'-107.3' Type: Pel Plug Bentonite Pellets / Haliburton Bentonite Chips 3/8" Quantity: 3 x 50 lb bucket, 10 bags chips
665										
115						12		8.25/10.00		
660										**ANNULUS SEAL** Interval: 0'-55.5' Type: Aquaguard bentonite grout Quantity: 2.5 batches of 2 bags Aquaguard + 40 gal water
120					658.9					
		120.00 - 130.00 Same as above. Water producing fracture at 129.5' identified using borehole geophysics			120.00					**WELL COMPLETION** Pad: 4' x 4' Protective Casing: Aluminum
655										
125						13		9.75/10.00		**DRILLING METHODS** Soil Drill: Sonic Rock Drill: Sonic Sample Type: Sonic
650										
130					648.9					
		130.00 - 140.00 Same as above; Trace secondary mineralization of calcite within fractures @ 131 bgs, water producing fracture at 130.5' identified using borehole geophysics, measured -0.027 gallons per minute (gpm) from HPFM			130.00					
645										
135						14	Image Not Obtained	9.00/10.00		
640										
140					638.9					
		140.00 - 150.00 muscovite biotite, garnet SCHIST, fine to coarse grained, strong, fresh to slightly weathered, slightly fractured, calcite precipitation @ 145' bgs			140.00					
635										
145						15		9.00/10.00		
630										
150					628.9					

Log continued on next page

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

GA INSPECTOR: Connor Mikilitus
CHECKED BY: Rachel Kirkman, PG
DATE: 5/10/22

WSP GOLDER

RECORD OF BOREHOLE B-123D

SHEET 4 of 4

PROJECT: SCS Plant McDonough
PROJECT NUMBER: GL166849621
DRILLED DEPTH: 160.00 ft
LOCATION: Smyrna, GA

DRILL RIG: Terra Sonic 150T
Truck-Mounted Sonic
DATE STARTED: 3/25/22
DATE COMPLETED: 4/4/22

NORTHING: 1,391,234.4
EASTING: 2,202,608.4
GS ELEVATION: 778.85
TOC ELEVATION: 781.80 ft

DEPTH W.L.:13.2
ELEVATION W.L.:765.65
DATE W.L.:4/4/22
TIME W.L.:14:55

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	PHOTO	REC	MONITORING WELL DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
150		150.00 - 160.00 Same as above; calcite @ 157.5' bgs			150.00					
155	625					16		9.75 10.00		
160	620				618.9					
		Boring completed at 160.00 ft								
165	615									
170	610									
175	605									
180	600									
185	595									
190	590									
195	585									
200	580									

WELL CASING
Interval: 0'-110'
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Threaded

WELL SCREEN
Interval: 110'-160'
Material: 0.010" Slotted
Diameter: 2"
Slot Size: 0.010"
End Cap: 3"

FILTER PACK
Interval: 107.3'-160'
Type: Filter Sil - Filtration sand and gravel, industrial quartz
Quantity: 16 x 50 lb bag

FILTER PACK SEAL
Interval: 62.5'-107.3'
Type: Pel Plug Bentonite Pellets / Haliburton Bentonite Chips 3/8"
Quantity: 3 x 50 lb bucket, 10 bags chips

ANNULUS SEAL
Interval: 0'-55.5'
Type: Aquaguard bentonite grout
Quantity: 2.5 batches of 2 bags Aquaguard + 40 gal water

WELL COMPLETION
Pad: 4' x 4'
Protective Casing: Aluminum

DRILLING METHODS
Soil Drill: Sonic
Rock Drill: Sonic
Sample Type: Sonic

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

GA INSPECTOR: Connor Mikilitus
CHECKED BY: Rachel Kirkman, PG
DATE: 5/10/22

WSP GOLDER

BOREHOLE RECORD PLANT MCDONOUGH_DGWC-121, B-122D, B-123D.GPJ PIEDMONT.GDT 5/13/22

RECORD OF BOREHOLE B-130S

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 31406440.02
DRILLED DEPTH: 30.40 ft

DRILL RIG: Terra Sonic 150
DATE STARTED: 1/17/25
DATE COMPLETED: 1/17/25

NORTHING: 1,391,843.9
EASTING: 2,203,271.7
GS ELEVATION: 792.01 ft
TOC ELEVATION: 791.72 ft

DEPTH W.L.: 15.90 ft
ELEVATION W.L.: 778.49 ft
DATE W.L.: 1/29/25
TIME W.L.: 7:45 am

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)	SAMPLE NUMBER	TYPE	REC / ATT
0	792	0.00 - 6.50 **No Recovery**			1	AIR KNIFE	0.00 6.50
				785.51 6.50			
5	790						
	785	6.50 - 10.00 **GM, Silty Sandy GRAVEL**, sand fine, light yellowish brown, non-plastic, micaceous, moist.	GM		2	ROTO SONIC	0.00 3.50
				782.01 10.00			
10	780	10.00 - 12.00 **GP, Gravel and Sand** , sand fine, yellowish brown, hard; Partially Weathered Rock.	GP		3	ROTO SONIC	2.00 2.00
				780.01 12.00			
15	775	12.00 - 16.50 **BEDROCK**, Schist, dark grayish brown, iron staining along fractures.			4	ROTO SONIC	7.50 8.00
				775.51 16.50			
20	770	16.50 - 20.00 **BEDROCK**, Gneiss, gray.					
				772.01 20.00			
25	765	20.00 - 30.40 **BEDROCK**, Schist, foliated, dark grayish brown, minor pyrite and some quartz.			5	ROTO SONIC	10.00 10.00
30	760			761.61	6	ROTO SONIC	0.40 0.40
		Boring completed at 30.40 ft					
35	755						
40							

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES

Flush Mount as of 6/16/2025 — **B-130S**

AquaGuard Bentonite – Grout

3/8" Bentonite – Pellets

Well Screen Sand Pack 0.010" Slotted SCH 40 PVC Screen

0.4' End Cap –

WELL CONSTRUCTION DETAILS

WELL CASING
Interval: -0.29' - 17.40'
Material: SCH 40 PVC
Diameter: 2"
Joint Type: Threaded
WELL SCREEN
Interval: 17.4' - 27.3'
Material: SCH 40 PVC
Diameter: 2"
Slot Size: 0.010"
End Cap: 0.4'
FILTER PACK
Interval: 14.3' - 30.4'
Type: Filter sand well pack
Quantity: 6 50-lb bags
FILTER PACK SEAL
Interval: 11.0' - 14.3'
Type: 3/8" bentonite pellets
Quantity: 1 5-gal bucket
ANNULUS SEAL
Interval: 0.0' - 11.0'
Type: AquaGuard bentonite grout
Quantity: 2 50-lb bags
WELL COMPLETION NOTES
NA

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Environmental
DRILLER: C. Franklin

GA INSPECTOR: Thomas Keller
CHECKED BY: Nicholas McMillan
DATE: 4/28/25 Re-Surveyed 6/16/2025

Log revised 6/19/2025 for new survey data

AA BOREHOLE RECORD B-129, 130, 131,132 AND INW-01, 01A, AND 03.GPJ GOLDER NJ-PA 05-24-06.GDT 5/9/25

RECORD OF BOREHOLE B-131S

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 31406440.02
DRILLED DEPTH: 31.20 ft

DRILL RIG: Terra Sonic 150
DATE STARTED: 1/28/25
DATE COMPLETED: 1/28/25

NORTHING: 1,391,655.00
EASTING: 2,203,047.4
GS ELEVATION: 792.80 ft
TOC ELEVATION: 792.52 ft

DEPTH W.L.: 16.30 ft
ELEVATION W.L.: 777.16 ft
DATE W.L.: 1/29/25
TIME W.L.: 1:35 pm

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NUMBER	TYPE	REC / ATT	MONITORING WELL / PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	792.80	0.00 - 10.00 **No Recovery**			782.80	1	AIR KNIFE	0.00 / 10.00	Flush mount as of 6/16/2025 AquaGuard Bentonite Grout	**WELL CASING** Interval: -0.28' - 20.60' Material: SCH 40 PVC Diameter: 2" Joint Type: Threaded **WELL SCREEN** Interval: 20.6' - 30.6' Material: SCH 40 PVC Diameter: 2 Slot Size: 0.010" End Cap: 0.4' **FILTER PACK** Interval: 18.8' - 31.2' Type: Filter sand well pack Quantity: 4 50-lb bags **FILTER PACK SEAL** Interval: 14.0' - 18.8' Type: Pel-Plug 3/8" bentonite chips Quantity: 1 5-gal bucket **ANNULUS SEAL** Interval: 0.0' - 14.0' Type: AquaGuard bentonite grout Quantity: 2 50-lb bags **WELL COMPLETION NOTES** NA
10	782.80	10.00 - 16.00 **GP-GM, Silty Sandy GRAVEL**, sand fine, light yellowish brown, weathered fragments of schist, moist.	GP-GM		776.80	2	ROTO SONIC	10.00 / 10.00	3/8" Bentonite chip seal	
16	776.80	16.00 - 31.20 **BEDROCK**, Schist, foliated, dark grayish brown, minor pyrite and some quartz.								
20	772.80									
25	767.80	23.50 - 25.00 Loss of water and soft drilling.				3	ROTO SONIC	8.00 / 10.00	Well screen sand pack 0.010" Slotted schedule 40 PVC screen	
30	762.80	30.00: Iron staining along fractures.			761.60	4	ROTO SONIC	1.20 / 1.20	0.4' End cap	
31.2	761.60	Boring completed at 31.20 ft								
40	752.80									

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Environmental
DRILLER: C. Franklin

GA INSPECTOR: Thomas Keller
CHECKED BY: Nicholas McMillan
DATE: 4/28/25 Re-Surveyed 6/16/2025

Log revised 6/19/2025 for new survey data

AA BOREHOLE RECORD B-129, 130, 131,132 AND INW-01, 01A, AND 03.GPJ GOLDER NJ-PA 05-24-06.GDT 5/9/25

RECORD OF BOREHOLE B-132S

SHEET 1 of 1

PROJECT: Plant McDonough
PROJECT NUMBER: 31406440.02
DRILLED DEPTH: 31.20 ft

DRILL RIG: Terra Sonic 150
DATE STARTED: 1/27/25
DATE COMPLETED: 1/27/25

NORTHING: 1,392,096.50
EASTING: 2,203,571.20
GS ELEVATION: 792.70 ft
TOC ELEVATION: 792.48 ft

DEPTH W.L.: 21.35 ft
ELEVATION W.L.: 772.12 ft
DATE W.L.: 1/29/25
TIME W.L.: 7:45 am

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NUMBER	TYPE	REC / ATT
0	790	0.00 - 10.00 **FILL - SC, Silty Clayey SAND**, sand fine to coarse, brown, non-plastic, moist.	SC		782.70	1	AIR KNIFE	0.00 10.00
10	780	10.00 - 13.00 **SM, Silty SAND**, sand fine to coarse, yellowish brown, non-plastic, moist.	SM		10.00 779.70			
15	775	13.00 - 17.00 **GP, Sandy GRAVEL**, sand fine, strong brown, micaceous, moist; Partially Weathered Rock.	GP		13.00 775.70	2	ROTO SONIC	6.00 10.00
20	770	17.00 - 31.20 **BEDROCK**, Schist, foliated, dark grayish brown, pyritic and some quartz. 20.00 - 23.00 Highly fractured, iron staining along fracture.			17.00	3	ROTO SONIC	8.50 10.00
25	765	25.00 - 27.00 Slickensides and iron staining. 27.00: Grey augen gneiss. 27.60: Schist fractured, minor quartz seam, pyritic, and iron staining. 29.00 - 31.20 Soft drilling.						
30	760				761.50	4	ROTO SONIC	1.20 1.20
35	755	Boring completed at 31.20 ft						
40								

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES

Flush mount as of 6/16/2025 — B-132S

AquaGuard Bentonite – Grout

3/8" Bentonite – chip seal

Well screen – sand pack 0.010" Slotted / schedule 40 PVC screen

0.4' End cap

WELL CONSTRUCTION DETAILS

WELL CASING
Interval: -0.22' - 20.8'
Material: SCH 40 PVC
Diameter: 2"
Joint Type: Threaded
WELL SCREEN
Interval: 20.8' - 30.7'
Material: SCH 40 PVC
Diameter: 2
Slot Size: 0.010"
End Cap: 0.4'
FILTER PACK
Interval: 19.0' - 31.2'
Type: Filter sand well pack
Quantity: 4 50-lb bags
FILTER PACK SEAL
Interval: 19.0' - 15.0'
Type: Pel-Plug 3/8" bentonite chips
Quantity: 1 5-gal bucket
ANNULUS SEAL
Interval: 0.0' - 15.0'
Type: AquaGuard bentonite grout
Quantity: 2 50-lb bags
WELL COMPLETION NOTES
NA

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Cascade Environmental
DRILLER: C. Franklin

GA INSPECTOR: Thomas Keller
CHECKED BY: Nicholas McMillan
DATE: 4/28/25 Re-surveyed on 6/16/2025

Log revised 6/19/2025 for new survey data

AA BOREHOLE RECORD B-129, 130, 131,132 AND INW-01, 01A, AND 03.GPJ GOLDER NJ-PA 05-24-06.GDT 5/9/25

RECORD OF BOREHOLE: B-133S

CLIENT: Southern Company
PROJECT: Plant McDonough AP-234 Pilot
PROJECT NO: US-WSP-31406440.02
LOCATION: Smyrna, GA

START DATE: May 07, 2025
END DATE: May 09, 2025
CONTRACTOR: Cascade Environmental, LLC

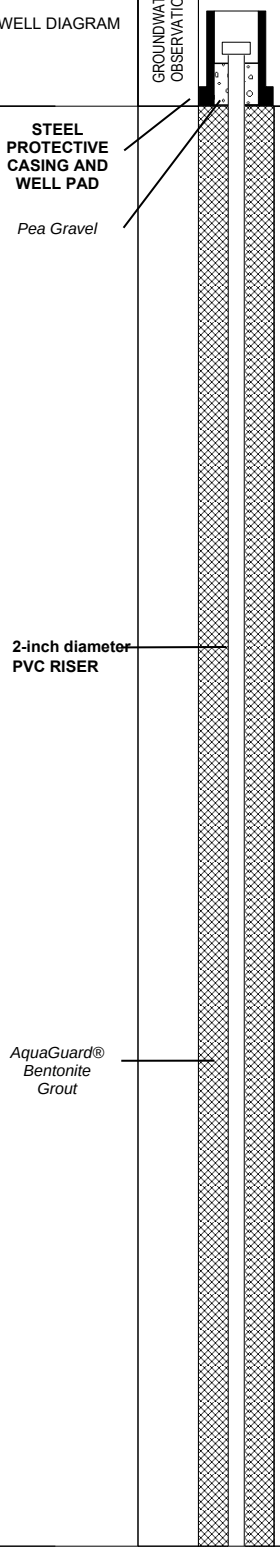
GS ELEVATION: 808.71 ft
COORDINATES: N: 1391799.5 E: 2202460.3
COORD SYS: State Plane Georgia West NAD 1983
HORZ DATUM: NAD83 (2011) / SP GA West FIPS 1002 ft

DRILL RIG: Terrasonic
DRILL METHOD: Sonic

DEPTH (ft)	DESCRIPTION	USCS	ELEV. DEPTH (ft)	CORE	CORE REC %	NUMBER
0	Hydrovac cleared		0.0		100	SC-01
10	(SM) Silty fine to medium SAND, mostly SAND, little non plastic fines; gray brown; micaceous, noncohesive, moist	SM	798.7 10.0		90	SC-02
20					70	SC-03
25			783.7 25.0			

Continued on Next Page

WELL DIAGRAM



GROUNDWATER OBSERVATIONS

CONSTRUCTION AND INSTALLATION DETAILS

Pipe Stickup: 2.96 ft
TOC Elev: 811.67 ft

WELL COMPLETION
Pad Dimensions:
4' (L) x 4' (W) x 4" (D)
Total Bollards: 4
Protective Casing Fill: Pea Gravel

WELL CASING
Interval: 0.0 - 35.5 ft bgs
Material: Schedule 40 PVC
Diameter: 2"
Joint Type: Flush-threaded

WELL SCREEN WITH END CAP
Interval: 35.5 - 45.5 ft bgs
Material: Schedule 40 PVC Diameter: 2"
Slot Width: 0.010"
Joint Type: Flush-threaded

ANNULUS SEAL
Interval: 1.0 - 28.0 ft bgs
Type: AquaGuard® Bentonite Cement Grout
Quantity: 55 gal

FILTER PACK SEAL
Interval: 28.0 - 32.0 ft bgs
Type: Pel-Plug® Coated Bentonite Chip Seal
Pellet Diameter: 3/8"
Hydration Period: 2-hr minimum
Quantity: 1 x 5-gal bucket

FILTER PACK
Interval: 32.0 - 45.5 ft bgs Type: Filter Pack Sand No. 2 Silica
Quantity: 3.5 x 0.5 ft^3 bag

REV:

LOGGED: M. Mann
CHECKED: R. Quinn

DATE: May 07, 2025
DATE: June 20, 2025

RECORD OF BOREHOLE: B-133S

CLIENT: Southern Company
PROJECT: Plant McDonough AP-234 Pilot
PROJECT NO: US-WSP-31406440.02
LOCATION: Smyrna, GA

START DATE: May 07, 2025
END DATE: May 09, 2025
CONTRACTOR: Cascade Environmental, LLC

GS ELEVATION: 808.71 ft
COORDINATES: N: 1391799.5 E: 2202460.3
COORD SYS: State Plane Georgia West NAD 1983
HORZ DATUM: NAD83 (2011) / SP GA West FIPS 1002 ft

DEPTH (ft)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (ft)	CORE	CORE REC %	NUMBER	WELL DIAGRAM	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
26–45	Terrasonic	Sonic	(ML) Sandy Clayey SILT, mostly low plasticity FINES, little sand; gray brown; micaceous, cohesive, w > PL, saprolitic	ML		778.7				AquaGuard® Bentonite Grout	07May25 15:45	Pipe Stickup: 2.96 ft TOC Elev: 811.67 ft
30–45			(SM) Silty SAND to Sandy SILT, saprolite, little non plastic fines; gray; micaceous, non-cohesive, moist	SM		30.0		90	SC-04	PVC RISER Pel-Plug® Coated Bentonite Chips Filter Pack Sand No. 2 Silica		
40–45								100	SC-05	2-inch diameter, 0.01-inch SLOTTED WELL SCREEN		
45			Boring Completed at 45.50 ft.			763.2						
46–50												

REV:

LOGGED: M. Mann
CHECKED: R. Quinn

DATE: May 07, 2025
DATE: June 20, 2025

Driller Bonds

PERFORMANCE BOND FOR WATER WELL CONTRACTORS AND DRILLERS

Bond No. 4993104

WATER WELL CONTRACTOR OR DRILLER _____

KNOW ALL MEN BY THESE PRESENTS,

That we SOUTHERN COMPANY SERVICES, INC., as Principal, and SAFECO INSURANCE COMPANY OF AMERICA, as Surety, are held and firmly bound unto the Director of the Environmental Protection Division ("Director"), Department of Natural Resources, State of Georgia and his successor or successors in office, as Obligee, in the full sum of TEN THOUSAND & No/100 Dollars ($10,000.00), for the payment of which well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

WHEREAS, the Water Well Standards Act of 1985 (Ga. Laws 1985, p. 1192) (the "Act") requires that water well contractors and drillers file performance bonds with the Director to ensure compliance with the Act; and

WHEREAS, the above bound principal is subject to the terms and provisions of said Act.

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

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

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

Unless sooner terminated, this bond shall terminate June 30, 2003

IN WITNESS WHEREOF the Principal and Surety have caused these presents to be duly signed and sealed, this 30th day of October, 2001.

Principal, By: _____ (L.S.)

Title: SAM H. DABBS, JR.
ASSISTANT SECRETARY

Approved as to sufficiency and accepted:

Environmental Protection Division,

Department of Natural Resources

SAFECO INSURANCE COMPANY OF AMERICA

Surety, By: _____ (L.S.)
Sandra J. Mathis, Attorney-In-Fact

SAFECO

POWER OF ATTORNEY

SAFECO INSURANCE COMPANY OF AMERICA
GENERAL INSURANCE COMPANY OF AMERICA
HOME OFFICE: SAFECO PLAZA
SEATTLE, WASHINGTON 98185

No. 6724

KNOW ALL BY THESE PRESENTS:

That SAFECO INSURANCE COMPANY OF AMERICA and GENERAL INSURANCE COMPANY OF AMERICA, each a Washington corporation, does each hereby appoint

*****SANDRA S. CARTER; JUDY GAY CERA; GARY D. EKLUND; JUDY S. FLEMING; VIRGINIA B. MCMANUS; BARBARA S. MACARTHUR; SANDRA J. MATHIS; EDWARD L. MITCHELL; NANCY NIX; BARBARA THOMPSON; CYNTHIA I. RODOLPH; Atlanta, Georgia**********

its true and lawful attorney(s)-in-fact, with full authority to execute on its behalf fidelity and surety bonds or undertakings and other documents of a similar character issued in the course of its business, and to bind the respective company thereby.

IN WITNESS WHEREOF, SAFECO INSURANCE COMPANY OF AMERICA and GENERAL INSURANCE COMPANY OF AMERICA have each executed and attested these presents

this 2nd day of February, 2001

R A Pierson
R.A. PIERSON, SECRETARY

Boh A Dickey
BOH A. DICKEY, PRESIDENT

CERTIFICATE

Extract from the By-Laws of SAFECO INSURANCE COMPANY OF AMERICA
and of GENERAL INSURANCE COMPANY OF AMERICA:

"Article V, Section 13. - FIDELITY AND SURETY BONDS ... the President, any Vice President, the Secretary, and any Assistant Vice President appointed for that purpose by the officer in charge of surety operations, shall each have authority to appoint individuals as attorneys-in-fact or under other appropriate titles with authority to execute on behalf of the company fidelity and surety bonds and other documents of similar character issued by the company in the course of its business... On any ...ment making or evidencing such appointment, the signatures may be affixed by facsimile. On any instrument conferring such authority or on any bond or ...aking of the company, the seal, or a facsimile thereof, may be impressed or affixed or in any other manner reproduced; provided, however, that the seal shall not be necessary to the validity of any such instrument or undertaking."

Extract from a Resolution of the Board of Directors of SAFECO INSURANCE COMPANY OF AMERICA
and of GENERAL INSURANCE COMPANY OF AMERICA adopted July 28, 1970.

"On any certificate executed by the Secretary or an assistant secretary of the Company setting out,

(i) The provisions of Article V, Section 13 of the By-Laws, and
(ii) A copy of the power-of-attorney appointment, executed pursuant thereto, and
(iii) Certifying that said power-of-attorney appointment is in full force and effect,

the signature of the certifying officer may be by facsimile, and the seal of the Company may be a facsimile thereof."

I, R.A. Pierson, Secretary of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA, do hereby certify that the foregoing extracts of the By-Laws and of a Resolution of the Board of Directors of these corporations, and of a Power of Attorney issued pursuant thereto, are true and correct, and that both the By-Laws, the Resolution and the Power of Attorney are still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the facsimile seal of said corporation

this 30th day of October, 2001

SAFECO INSURANCE COMPANY OF AMERICA CORPORATE SEAL 1953 STATE OF WASHINGTON

GENERAL INSURANCE COMPANY OF AMERICA CORPORATE SEAL 1929 State of Washington

R A Pierson
R.A. PIERSON, SECRETARY

® Registered trademark of SAFECO Corporatio
2/7/01 PC

AND DRILLERS BOND NO. 1450-17-087281

WATER WELL CONTRACTOR OR DRILLER QORE, INC.

KNOW ALL MEN BY THESE PRESENTS.

That we Qore, Inc., as Principal, and Employers Insurance of Wausau, A Mutual Company, as Surety, are held and firmly bound unto the Director of the Environmental Protection Division ("Director"), Department of Natural Resources, State of Georgia and his successor or successors in office, as Obligee, in the full sum of Ten Thousand and No/100 Dollars ($ 10,000.00) for the payment of which well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

WHEREAS, the Water Well Standards Act of 1985 (Ga. Laws 1985, p. 1192) (the "Act") requires that water well contractors and drillers file performance bonds with the Director to ensure compliance with the Act; and

WHEREAS, the above bound principal is subject to the terms and provisions of said Act.

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

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

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

Unless sooner terminated, this bond shall terminate June 30, 2003

IN WITNESS WHEREOF the Principal and Surety have caused these presents to be duly signed and sealed, this 15th day of May, 2001.

QORE, INC.
Principal, By: (L.S.)

Approved as to sufficiency and accepted:

Environmental Protection Division,

Department of Natural Resources

EMPLOYERS INSURANCE OF WAUSAU, A MUTUAL COMPANY
Surety, By: Barbara S. MacArthur (L.S.)
Barbara S. MacArthur, Attorney-in-Fact

Western Surety Company

CONTINUATION CERTIFICATE

Western Surety Company hereby continues in force Bond No. 68616636

briefly described as Water Well Contractor

for EVERETT ENVIRONMENTAL, INC.

, as Principal,

in the sum of $TEN THOUSAND AND NO/100 Dollars, for the term beginning

July 01, 2002, and ending June 30, 2003, subject to all

the covenants and conditions of the original bond referred to above.

This continuation is issued upon the express condition that the liability of Western Surety Company under said Bond and this and all continuations thereof shall not be cumulative and shall in no event exceed the total sum above written.

Dated this 07 day of March, 2002.

WESTERN SURETY COMPANY

By Stephen T. Pate
Stephen T. Pate, Executive Vice President

WESTERN SURETY COMPANY CORPORATE SEAL SOUTH DAKOTA

THIS "Continuation Certificate" MUST BE FILED WITH THE ABOVE BOND.

Form 90-A-4-2001

CNA SURETY

Transaction Report & Invoice

CNA SURETY
101 SO. PHILLIPS AVENUE
SIOUX FALLS, S.D. 57192

Principal Information: ID: 003019252
EVERETT ENVIRONMENTAL, INC.
P.O. BOX 763
ARMUCHEE, GA 30105-0763

STARR-MATHEWS AGENCY INC
P O BOX 1642
ROME GA 30162-1642

RECEIVED
JUL 18
STARR-MATHEWS AGENCY
ROME, GA 30161

Agency Code: 10-01912

Transaction Description: RENEWAL
Transaction Effective Date: 07/01/2002

Number: 68616636

SF

Written By: WESTERN SURETY COMPANY
Description: WATER WELL CONTRACTOR

Obligee: DEPT. OF NATURAL RESOURCES
205 BUTLER ST., STE. 1366
ATLANTA, GA 30334

Effective Date: 07-01-2002
Expiration Date: 06-30-2003
Current Penalty: $10,000.00
Renewal Method: CC

PREMIUM	$200.00	@ 20.000%
Gross Premium Charge:	$200.00	
Commission Amount:	$40.00	
Net Premium Due:	$160.00	

Change Detail:

Agent: You may remove stub below to use as a billing/ credit invoice

CNA Surety

INVOICE

FILE NO.	EFFECTIVE DATE	ANNIVERSARY DATE	PROCESS DATE	PENALTY
0601 68616636	07-01-02	06-30-03	03-07-02	$10,000.00

PRINCIPAL EVERETT ENVIRONMENTAL, INC.
P.O. BOX 763 ARMUCHEE, GA 30105-0763

RISK STATE GA [redacted] SF
DESCRIPTION WATER WELL CONTRACTOR

OBLIGEE STATE OF GEORGIA

AGENCY CODE 10-01912 CHARGE $200.00

Your agent is:

STARR-MATHEWS AGENCY INC
P O BOX 1642
ROME GA 30162-1642

Western Surety Company

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS:

That WESTERN SURETY COMPANY, a corporation organized and existing under the laws of the State of South Dakota, and authorized and licensed to do business in the States of Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming, and the United States of America, does hereby make, constitute and appoint

Stephen T. Pate of Sioux Falls,
State of South Dakota, its regularly elected Executive Vice President,
as Attorney-in-Fact, with full power and authority hereby conferred upon him to sign, execute, acknowledge and deliver for and on its behalf as Surety and as its act and deed, all of the following classes of documents to-wit:

Indemnity Surety and undertakings that may be desired by contract, or may be given in any action or proceeding in any court of law or equity, policies indemnifying employers against loss or damage caused by the misconduct of their employees; official, bail, and surety and fidelity bonds. Indemnity in all cases where indemnity may be lawfully given; and with full power and authority to execute consents and waivers to modify or change or extend any bond or document executed for this Company, and to compromise and settle any and all claims or demands made or existing against said Company.

Western Surety Company further certifies that the following is a true and exact copy of Section 7 of the by-laws of Western Surety Company duly adopted and now in force, to-wit:

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys-in-Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

In Witness Whereof, the said WESTERN SURETY COMPANY has caused these presents to be executed by its Executive Vice President with the corporate seal affixed this 07 day of March 2002

ATTEST
L. Nelson
Assistant Secretary

WESTERN SURETY COMPANY
By Stephen T. Pate
Stephen T. Pate, Executive Vice President

STATE OF SOUTH DAKOTA }
COUNTY OF MINNEHAHA } ss

On this 07 day of March, 2002, before me, a Notary Public, personally appeared Stephen T. Pate and L. Nelson who, being by me duly sworn, acknowledged that they signed the above Power of Attorney as Executive Vice President and Assistant Secretary, respectively, of the said WESTERN SURETY COMPANY, and acknowledged said instrument to be the voluntary act and deed of said Corporation.

D. KRELL
NOTARY PUBLIC
SEAL SOUTH DAKOTA SEAL

My Commission Expires November 30, 2006

D. Krell
Notary Public

Form F1875-4-2001

Cells 1 & 2

COPY

Bond Number K08315607

Performance Bond For Water Well Contractors And Drillers

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

Know All Men By These Present

That we Michael C. Rice/Cascade Drilling, L.P. AND ANY AND ALL EMPLOYEES, OFFICERS AND PARTNERS, as Principal, and Westchester Fire Insurance Company as Surety, are held and firmly bound unto the Director of the Environmental Protection Division (Director), Department of Natural Resources, State of Georgia and his or her Successor or Successors in office, as Obligee, in the full sum of **TWENTY THOUSAND AND NO/00 DOLLARS ($20.000.00)** for the payment of which will and truly to be made, we bind ourselves, our heir, administrators, successors and assigns, jointly and severally, by the present.

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

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

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

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

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

PRINCIPAL, BY _____ (L.S.) TITLE: _____

Westchester Fire Insurance Company

SURETY BY: Roxana Palacios

Roxana Palacios, Attorney-in-Fact

GEORGIA REGISTERED AGENT N/A SEAL:

Revised December 2012

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

and in favor of **Georgia - Dept. of Natural Resources**

(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on **June 30, 2014**
(MONTH-DAY-YEAR)

and ending on **June 30, 2015**
(MONTH-DAY-YEAR)

Amount of bond **$10,000.00**

Description of bond **Water Well Contractors & Drillers**

Premium: **$100.00**

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

Signed and dated on **April 09, 2014**
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By _____
D-Ann Kleidosty, Attorney-In-Fact

S-0157/GEEF 11/99

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. 6125754

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 First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Chaun M. Wilson; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; Tracey D. Watson; William G. Moody

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 15th day of May, 2013.

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

By: _____
Gregory W. Davenport, Assistant Secretary

STATE OF WASHINGTON ss
COUNTY OF KING

On this 15th day of May, 2013, before me personally appeared Gregory W. Davenport, who acknowledged himself to be the Assistant Secretary of 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 Seattle, Washington, on the day and year first above written.

K.D RILEY COMM. EXP. NOTARY PUBLIC 12 - 09 - 2013 STATE OF WASHINGTON

By: KDRiley
KD Riley, Notary Public

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

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such 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 Gregory W. Davenport, 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 biding upon the Company with the same force and effect as though manually affixed.

I, David M. Carey, the undersigned, Assistant Secretary, of 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 9th day of April, 2014.

By: _____
David M. Carey, Assistant Secretary

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

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

CONTINUATION CERTIFICATE

Cells 9 & 10

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

and in favor of **Georgia - Dept. of Natural Resources**

(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on **June 30, 2014**
(MONTH-DAY-YEAR)

and ending on **June 30, 2015**
(MONTH-DAY-YEAR)

Amount of bond **$10,000.00**

Description of bond **Water Well Contractors & Drillers**

Premium: **$100.00**

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

Signed and dated on **April 09, 2014**
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By D-a Kleidosty
D-Ann Kleidosty, Attorney-In-Fact

S-0157/GEEF 11/99

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. 6125754

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 First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Chaun M. Wilson; D-Ann Kieldosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; Tracey D. Watson; William G. Moody

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 15th day of May, 2013.

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

By: _____
Gregory W. Davenport, Assistant Secretary

STATE OF WASHINGTON ss
COUNTY OF KING

On this 15th day of May, 2013, before me personally appeared Gregory W. Davenport, who acknowledged himself to be the Assistant Secretary of 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 Seattle, Washington, on the day and year first above written.

K D RILEY COMM. EXP. NOTARY PUBLIC 12-08-2013 STATE OF WASHINGTON

By: _____
KD Riley, Notary Public

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

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such 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 Gregory W. Davenport, 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 biding upon the Company with the same force and effect as though manually affixed.

I, David M. Carey, the undersigned, Assistant Secretary, of 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 9th day of April, 20 14.

By: _____
David M. Carey, Assistant Secretary

Not valid for mortgage, note, l[illegible] currency rate, interest rate or resi[illegible] value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

Southern Company Services, Inc.
30 Ivan Allen Jr. Boulevard NW
Atlanta, Georgia 30308

SOUTHERN COMPANY
Energy to Serve Your World®

May 2, 2011

Mr. Tony McCook
Georgia Geologic Survey
19 Martin Luther King Jr. Dr. SW
Room 400
Atlanta, GA 30334

Re: Performance Bond for Water Well Contractors and Drillers
Safeco Bond #4993104

Attached is the original signed Continuation Certificate for the above referenced bond on behalf of Southern Company Services, Inc. This certificate keeps this bond in force until June 30, 2012.

Please let us know if you need additional information.

Sincerely,

Clementine Broaders

Clementine Broaders
Southern Company Services, Inc.
Risk Management Department

/cb

Enclosure

cc: Stacy Sprayberry, SCS

Liberty Mutual.

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

dated effective **June 30, 2005**
(MONTH-DAY-YEAR)

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

and in favor of **State of Georgia - Dept. of Natural Resources**

(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on **June 30, 2011**
(MONTH-DAY-YEAR)

and ending on **June 30, 2012**
(MONTH-DAY-YEAR)

Amount of bond **$10,000.00**

Description of bond **License Bond - Water Well Contractors & Drillers**

Premium: **$100.00**

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

Signed and dated on **April 21, 2011**
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By Barbara S. MacArthur

Barbara S. MacArthur, Attorney-In-Fact

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND. 4178633

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.

SAFECO INSURANCE COMPANY OF AMERICA
SEATTLE, WASHINGTON
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS: That Safeco Insurance Company of America (the "Company"), a Washington stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint VIRGINIA B. MCMANUS, GARY D. EKLUND, BARBARA S. MACARTHUR, CHAUN M. WILSON, MICHAEL F. YADACH, ALL OF THE CITY OF ATLANTA, STATE OF GEORGIA

, 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 the penal sum not exceeding ONE HUNDRED MILLION AND 00/100***** ****** DOLLARS ($ 100,000,000.00********** ******), each, and the execution of such undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company in their own proper persons.

That this power is made and executed pursuant to and by authority of the following By-law and Authorization:

ARTICLE IV - Execution of Contracts: Section 12. Surety Bonds and Undertakings.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitations 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 by the secretary.

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact:

Pursuant to Article IV, Section 12 of the By-laws, Garnet W. Elliott, Assistant Secretary of Safeco Insurance Company of America, is authorized to 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.

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Safeco Insurance Company of America has been affixed thereto in Plymouth Meeting, Pennsylvania this 14th day of October 2010.

SAFECO INSURANCE COMPANY OF AMERICA

By _____
Garnet W. Elliott, Assistant Secretary

COMMONWEALTH OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 14th day of October, 2010, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of Safeco Insurance Company of America, that he knows the seal of said corporation, and that he executed the above Power of Attorney and affixed the corporate seal of Safeco Insurance Company of America thereto with the authority and at the direction of said corporation.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires Mar. 28, 2012
Member, Pennsylvania Association of Notaries

By _____
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of 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, is in full force and effect on the date of this certificate; and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article IV, Section 12 of the By-laws of Safeco Insurance Company of America.

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Safeco Insurance Company of America at a meeting duly called and held on the 18th day of September, 2002:

VOTED that the 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.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 21st day of April, 2011.

_____
David M. Carey, Assistant Secretary

Not valid for mortgage, note, line of credit, bank deposit, currency rate, interest rate or value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

MARSH

Barbara S. MacArthur
Assistant Vice President

Marsh USA Inc.
3560 Lenox Road, NE, Ste. 2400
Atlanta, GA 30326
404 995 2776 FAX: 404 760 5673
Barbara.Macarthur@marsh.com
www.marsh.com

April 21, 2011

RECEIVED
APR 2 6 2011
Risk Management Department

Ms. Clementine B. Broaders
Southern Company Services
30 Ivan Allen Jr. Blvd. NW
Bin SC1404
Atlanta, GA 30308

Subject: **Renewal Continuation Certificate**
Principal: **Southern Company Services, Inc.**
Obligee: **State of Georgia - Dept. of Natural Resources**
Bond Description: **License Bond - Water Well Contractors & Drillers**
Bond Amount: **$ 10,000.00**
Bond Number: **4993104**
Indemnity: **The Southern Company (Parental)**

Dear C.B.:

I am enclosing your continuation certificate for the above-referenced bond. I ask that you recheck the continuation certificate for accuracy before you file it with the obligee.

We will be sending you our invoice for the renewal premium due for this transaction in the amount of $100.00. Marsh will receive 27.50 % of this amount from the surety company. Your payment of this invoice constitutes your agreement to our compensation for this bond.

In the event that your organization no longer requires this bond, please return the enclosed documents to Marsh so that we may advise the surety company that this bond is no longer required and obtain a clean flat cancellation on this bond on your behalf.

If you have any questions, please feel free to contact me. Thank you for allowing Marsh to service your surety needs.

Best regards,

Barbara S. MacArthur
Assistant Vice President

Enclosure

/bsm

MARSH

BMA

Marsh USA Inc.
Atlanta, GA - 242
(404) 995-3000

Invoice No.
382424

Date: 4/21/11

Southern Company Services, Inc
RM Dept - BIN SC1404
30 Ivan Allen Jr. Blvd NW
Atlanta, GA 30308

Effective Date	Expiration Date	Client No.
6/30/11	6/30/12	J21970

Policyholder: Southern Compa

ORIGINAL Billing Effective Date: 6/30/11

Insurer	Policy No.	Type of Coverage / Item	Amount
SAFECO	4993104	MISC SURETY PREMIUM	100.00
		REMIT IN: UNITED STATES DOLLARS	
		RENEWAL Principal(s): Southern Company Services, Inc. Obligee(s): Georgia - Dept. of Natural Resources Bond Amount: $10,000.00 Bond Type - Water Well Contractors & Drillers Requester: Clementine B. Broaders Thank you! MacArthur/Atlanta/Surety	
Please indicate Invoice # 382424 on your remittance to: Marsh USA Inc. P.O. Box 100357 Atlanta, GA 30384-0357		TOTAL:	100.00

Invoice Is Payable In Full Upon Receipt

Marsh earns and retains interest income on premium payments held by Marsh on behalf of insurers during the period between receipt of such payments from clients and the time such payments are remitted to the applicable insurer, where permitted by law.

Liberty Mutual.

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

dated effective **June 30, 2005**
(MONTH-DAY-YEAR)

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

and in favor of **State of Georgia - Dept. of Natural Resources**

(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on **June 30, 2011**
(MONTH-DAY-YEAR)

and ending on **June 30, 2012**
(MONTH-DAY-YEAR)

Amount of bond **$10,000.00**

Description of bond **License Bond - Water Well Contractors & Drillers**

Premium: **$100.00**

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

Signed and dated on **April 21, 2011**
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By Barbara S. MacArthur

Barbara S. MacArthur, Attorney-In-Fact

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND. 4178633

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.

SAFECO INSURANCE COMPANY OF AMERICA
SEATTLE, WASHINGTON
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS: That Safeco Insurance Company of America (the "Company"), a Washington stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint **VIRGINIA B. MCMANUS, GARY D. EKLUND, BARBARA S. MACARTHUR, CHAUN M. WILSON, MICHAEL F. YADACH, ALL OF THE CITY OF ATLANTA, STATE OF GEORGIA**

, 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 the penal sum not exceeding ONE HUNDRED MILLION AND 00/100**** ****** DOLLARS ($ 100,000,000.00**********) each, and the execution of such undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company in their own proper persons.

That this power is made and executed pursuant to and by authority of the following By-law and Authorization:

ARTICLE IV - Execution of Contracts: Section 12. Surety Bonds and Undertakings.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitations 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 by the secretary.

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact:

Pursuant to Article IV, Section 12 of the By-laws, Garnet W. Elliott, Assistant Secretary of Safeco Insurance Company of America, is authorized to 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.

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Safeco Insurance Company of America has been affixed thereto in Plymouth Meeting, Pennsylvania this 14th day of October, 2010.

SAFECO INSURANCE COMPANY OF AMERICA

By Garnet W. Elliott
Garnet W. Elliott, Assistant Secretary

COMMONWEALTH OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 14th day of October, 2010, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of Safeco Insurance Company of America; that he knows the seal of said corporation; and that he executed the above Power of Attorney and affixed the corporate seal of Safeco Insurance Company of America thereto with the authority and at the direction of said corporation.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires Mar. 29, 2013
Member, Pennsylvania Association of Notaries

By Teresa Pastella
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of 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, is in full force and effect on the date of this certificate; and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article IV, Section 12 of the By-laws of Safeco Insurance Company of America.

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Safeco Insurance Company of America at a meeting duly called and held on the 18th day of September, 2009.

VOTED that the 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.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 21st day of April, 2011.

David M. Carey, Assistant Secretary

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

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

Bond Number KO8418809

Performance Bond For Water Well Contractors And Drillers

Name of Water Well Contractor or Driller Michael C. Rice dba Boart Longyear Company

Know All Men By These Present.
That we Michael C. Rice dba Boart Longyear Company and any and all Employees, Officers and Partners, as Principal, and Westchester Fire Insurance Company as Surety, are held and firmly bound unto the Director of the Environmental Protection Division (Director), Department of Natural Resources, State of Georgia and his or her Successor or Successors in office, as Obligee, in the full sum of **TWENTY THOUSAND AND NO/OO DOLLARS ($20.000.00)** for the payment of which will and truly to be made, we bind ourselves, our heir, administrators, successors and assigns, jointly and severally, by the present.

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

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

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

The bond is effective July 1, 2010 and unless sooner terminated, this bond shall terminate June 30, 2011. In Witness Thereof the Principal and Surety have caused these present to be duly signed and sealed, this 6th day of, July 20 10 .

Michael C. Rice dba Boart Longyear Company

PRINCIPAL, BY _____ (L.S.)

TITLE: Franchise Manager

Westchester Fire Insurance Company

SURETY BY: Cynthia L. Choren

Cynthia L. Choren, Attorney-In-Fact Non-Resident License No. 747470

GEORGIA REGISTERED AGENT N/A SEAL:

ACKNOWLEDGMENT BY SURETY

STATE OF Missouri }
County of St. Charles } ss.

On this 6th day of July, 2010, before me personally appeared Cynthia L. Choren, known to me to be the Attorney-in-Fact of Westchester Fire Insurance Company, the corporation that executed the within instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid County, the day and year in this certificate first above written.

Debra C. Schneider
Notary Public in the State of Missouri
County of St. Charles

My Commission Expires: November 5, 2011

(Seal)

DEBRA C. SCHNEIDER
Notary Public/Notary Seal
State of Missouri
St. Charles County
COMMISSION #07419088
My Commission Expires: 11/05/2011

Power of Attorney

WESTCHESTER FIRE INSURANCE COMPANY

Know all men by these presents: That WESTCHESTER FIRE INSURANCE COMPANY, a corporation of the State of New York, having its principal office in the City of Atlanta, Georgia pursuant to the following Resolution, adopted by the Board of Directors of the said Company on December 11, 2006, to wit:

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

(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.

(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(4) Each of the Chairman, the President and Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

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

FURTHER RESOLVED, that the Resolution of the Board of Directors of the Company adopted at the meeting held on November 8, 1999 relating to the authorization of certain persons to execute, for and on behalf of the Company, Written Commitments and appointments and delegations, is hereby rescinded.

Does hereby nominate, constitute and appoint Cynthia L Choren, Debra C Schneider, Heidi A Notheisen, JoAnn R Frank, Karen L Roider, Pamela A Beckman, Sandra L Ham, all of the City of SAINT LOUIS, Missouri, each individually if there be more than one named, its true and lawful attorney-in-fact, to make, execute, seal and deliver on its behalf, and as its act and deed any and all bonds, undertakings, recognizances, contracts and other writings in the nature thereof in penalties not exceeding Twenty million dollars & zero cents ($20,000,000.00) and the execution of such writings in pursuance of these presents shall be as binding upon said Company, as fully and amply as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office.

IN WITNESS WHEREOF, the said Stephen M. Haney, Vice-President, has hereunto subscribed his name and affixed the Corporate seal of the said WESTCHESTER FIRE INSURANCE COMPANY this 1 day of December 2009.

WESTCHESTER FIRE INSURANCE COMPANY

Stephen M. Haney, Vice President

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF PHILADELPHIA ss.

On this 1 day of December, A.D. 2009 before me, a Notary Public of the Commonwealth of Pennsylvania in and for the County of Philadelphia came Stephen M. Haney, Vice-President of the WESTCHESTER FIRE INSURANCE COMPANY to me personally known to be the individual and officer who executed the preceding instrument, and he acknowledged that he executed the same, and that the seal affixed to the preceding instrument is the corporate seal of said Company; that the said corporate seal and his signature were duly affixed by the authority and direction of the said corporation, and that Resolution, adopted by the Board of Directors of said Company, referred to in the preceding instrument, is now in force.

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

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
KAREN E. BRANDT, Notary Public
City of Philadelphia, Phila. County
My Commission Expires September 28, 2010

Notary Public

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

In witness whereof, I have hereunto subscribed my name as Assistant Secretary, and affixed the corporate seal of the Corporation, this 6th day of July, 2010.

William L. Kelly, Assistant Secretary

THIS POWER OF ATTORNEY MAY NOT BE USED TO EXECUTE ANY BOND WITH AN INCEPTION DATE AFTER December 01, 2011.

CLIENT'S COPY

SURETY BOND CONTINUATION CERTIFICATE

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

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

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

Surety Bond Number: K08315607

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

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

[x] **CONTINUATION CERTIFICATE**

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

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

Westchester Fire Insurance Company

By: Katie J

Katie Snider, Attorney-in-Fact

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

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

Power of Attorney

WESTCHESTER FIRE INSURANCE COMPANY

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

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

(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such persons written appointment as such attorney-in-fact.

(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(4) Each of the Chairman, the President and Vice Presidents of the Company in hereby authorized, for and on behalf of the Company, to delegate in writing any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

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

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

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

WESTCHESTER FIRE INSURANCE COMPANY

Stephen M. Haney, Vice President

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF PHILADELPHIA ss.

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

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

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

Notary Public

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

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

William L. Kelly, Assistant Secretary

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

DocuGard #04546 contains a security pantograph, blue background, heat-sensitive ink, coin-reactive watermark, and microtext printing on border.

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. 4993104

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

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

and in favor of Georgia - Dept. of Natural Resources
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2016
(MONTH-DAY-YEAR)

and ending on June 30, 2017
(MONTH-DAY-YEAR)

Amount of bond $10,000.00

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.

Signed and dated on April 07, 2016
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By D-Ann Kleidosty

D-Ann Kleidosty, Attorney-in-Fact

S-0157/GEEF 11/99

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. 7310252

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 First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; William G. Moody

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 1st day of April, 2016.

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

By: _____
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 1st day of April, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of 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 Plymouth Meeting, Pennsylvania, on the day and year first above written.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

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

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such 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, Gregory W. Davenport, the undersigned, Assistant Secretary, of 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 7th day of April, 2016.

By: _____
Gregory W. Davenport, Assistant Secretary

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

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. 4993104

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

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

and in favor of Georgia - Dept. of Natural Resources
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2016
(MONTH-DAY-YEAR)

and ending on June 30, 2017
(MONTH-DAY-YEAR)

Amount of bond $10,000.00

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.

Signed and dated on April 07, 2016
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By D-Ann Kleidosty

D-Ann Kleidosty, Attorney-in-Fact

S-0157/GEEF 11/99

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. 7310252

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 First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; William G. Moody

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 1st day of April, 2016.

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

By: _____
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 1st day of April, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of 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 Plymouth Meeting, Pennsylvania, on the day and year first above written.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

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

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such 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, Gregory W. Davenport, the undersigned, Assistant Secretary, of 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 7th day of April, 2016.

By: _____
Gregory W. Davenport, Assistant Secretary

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

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

GENERAL PURPOSE RIDER

To be attached to and form part of Bond Number 09157828 effective June 30, 2015 issued by the Fidelity and Deposit Company of Maryland in the amount of Twenty Thousand and No/100 ($20,000.00), on behalf of Craig Penton dba Terracon Consultants, Inc. as Principal, and in favor of Director of the Environmental Protection Division, Department of Natural Resources, State of Georgia as Obligee:

NOW Therefore, it is agreed that:

The expiration date of the bond is hereby amended to:

June 30, 2017

It is further understood and agreed that all other terms and conditions of this bond shall remain unchanged.

This rider is to be effective the 30th day of June , 2015 .

Signed, sealed and dated this 4th day of November , 2015 .

Craig Penton dba Terracon Consultants, Inc.
Principal

_____

Fidelity and Deposit Company of Maryland
Surety

_____

Christy M. Braile, Attorney-in-Fact

6/4/14 sent to Craig Penton (Stacy Adams)

FOR YOUR RECORDS

Bond Number 09157828

Performance Bond For Water Well Contractors And Drillers

Name of Water Well Contractor or Driller Craig Penton dba Terracon Consultants, Inc.

Know All Men By These Present

That we Craig Penton dba Terracon Consultants, Inc. AND ANY AND ALL EMPLOYEES, OFFICERS AND PARTNERS, as Principal, and Fidelity and Deposit Company of Maryland as Surety, are held and firmly bound unto the Director of the Environmental Protection Division (Director), Department of Natural Resources, State of Georgia and his or her Successor or Successors in office, as Obligee, in the full sum of **TWENTY THOUSAND AND NO/00 DOLLARS ($20.000.00)** for the payment of which will and truly to be made, we bind ourselves, our heir, administrators, successors and assigns, jointly and severally, by the present.

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

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

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

The bond is effective June 4, 2014 and unless sooner terminated, this bond shall terminate June 30, 2015. In Witness Thereof the Principal and Surety have caused these present to be duly signed and sealed, this 4th day of, June 2014.

PRINCIPAL, BY_____(L.S.) TITLE: _____

SURETY BY: _____
Christy M. McCart, Attorney-in-Fact

GEORGIA REGISTERED AGENT N/A SEAL:

Revised December 2012

COPY

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. **800031223**

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

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

and in favor of State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

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

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

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

Description of bond Water Well Contractor Performance Bond

Premium: $1,200.00

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

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

By _____
Attorney-in-Fact Elizabeth R. Hahn

Parker, Smith & Feek, Inc.
Agent

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

(425) 709-3600
Telephone Number of Agent

S-0157/GE 8/08

XDP

OneBeacon
INSURANCE GROUP

Power of Attorney

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

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

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

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

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

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

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

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

TARA JANELLE STAFFORD
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2020

_____
Notary Public

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

Signed and sealed. Dated 9 day of May 2019

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
October 1, 2019

_____
Christopher V. Jerry, Secretary

CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

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

does hereby continue said bond in force for the further period

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

and ending on June 30, 2020
(MONTH-DAY-YEAR)

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

Description of bond Water Well Contractors & Drillers

Premium: $100.00

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

Signed and dated on 11/10/2020
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

175 Berkeley Street, Boston, MA 02116

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

McGriff, Seibels & Williams, Inc.
Agent

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

(205) 252-9871
Telephone Number of Agent

S-0157/GE 8/08

XDP

Liberty Mutual SURETY

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

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

Certificate No: 8201221-016032

POWER OF ATTORNEY

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

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

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 8th day of May, 2019.

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 ss

On this 8th day of May, 2019 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-law and Authorizations of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

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

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

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

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 10th day of November, 2020.

By: _____
Renee C. Llewellyn, Assistant Secretary

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

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

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

does hereby continue said bond in force for the further period

beginning on June 30, 2020
(MONTH-DAY-YEAR)

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

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

Description of bond Water Well Contractors & Drillers

Premium: $100.00

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

Signed and dated on 11/10/2020
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

175 Berkeley Street, Boston, MA 02116

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

McGriff, Seibels & Williams, Inc.
Agent

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

(205) 252-9871
Telephone Number of Agent

S-0157/GE 8/08

XDP

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.

Liberty Mutual. SURETY

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

Certificate No: **8201221-016032**

POWER OF ATTORNEY

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

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

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 8th day of May, 2019.

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 ss

On this 8th day of May, 2019 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-law and Authorizations of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

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

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

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

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 10th day of November, 2020.

By: _____
Renee C. Llewellyn, Assistant Secretary

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

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. 4993104

dated effective 6/30/1987
(MONTH-DAY-YEAR)

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

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

does hereby continue said bond in force for the further period

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

and ending on June 30, 2020
(MONTH-DAY-YEAR)

Amount of bond $15,000.00

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.

Signed and dated on June 05, 2019
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By Loretta M. Jones

Loretta M. Jones, Attorney-in-Fact

S-0157/GEEF 11/99

Liberty Mutual. SURETY

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

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

Certificate No. 8200528-969358

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American States Insurance Company is a corporation duly organized under the laws of the State of Indiana, that First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Julie Karnes, Andrea Allman, Rachel A. Chaveriat, Jessica Frederick, Rebecca J. Hobbs, Loretta M. Jones, Sandra King, Thelma M. Lett, Michelle Lute-Heatherly, Sandy McElhaney, Vicki Nobinger, Bonnie Rice, Mariah Smith, Mary Y. Volmar, Carolyn E. Wheeler, Joy M. Williams

all of the city of Knoxville state of TN 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 15th day of February, 2019.

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 ss

On this 15th day of February, 2019 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-law and Authorizations of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

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

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

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

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 5th day of June, 2019.

By: _____
Renee C. Llewellyn, Assistant Secretary

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

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

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

does hereby continue said bond in force for the further period

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

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

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

Description of bond Water Well Contractors & Drillers

Premium: $100.00

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

Signed and dated on 05/06/2021
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

175 Berkeley Street, Boston, MA 02116

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

McGriff Insurance Services, Inc.
Agent

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

(205) 252-9871
Telephone Number of Agent

S-0157/GE 8/08

XDP

Liberty Mutual. SURETY

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

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

Certificate No: **8205019-016032**

POWER OF ATTORNEY

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

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

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

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

By: _____
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

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

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

TERESA PASTELLA COMMONWEALTH OF PENNSYLVANIA NOTARY PUBLIC

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

By: _____
Teresa Pastella, Notary Public

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

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

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

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

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

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

By: _____
Renee C. Llewellyn, Assistant Secretary

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

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

CONTINUATION
CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

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

does hereby continue said bond in force for the further period

beginning on June 30, 2022
(MONTH-DAY-YEAR)

and ending on June 30, 2023
(MONTH-DAY-YEAR)

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

Description of bond Water Well Contractors & Drillers

Premium: $100.00

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

Signed and dated on 05/06/2021
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

175 Berkeley Street, Boston, MA 02116

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

McGriff Insurance Services, Inc.
Agent

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

(205) 252-9871
Telephone Number of Agent

S-0157/GE 8/08

XDP

Liberty Mutual. SURETY

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

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

Certificate No: **8205019-016032**

POWER OF ATTORNEY

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

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

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

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

By: _____
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

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

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

TERESA PASTELLA COMMONWEALTH OF PENNSYLVANIA NOTARY PUBLIC

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

By: _____
Teresa Pastella, Notary Public

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

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

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

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

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

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

By: _____
Renee C. Llewellyn, Assistant Secretary

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

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

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

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

does hereby continue said bond in force for the further period

beginning on June 30, 2023
(MONTH-DAY-YEAR)

and ending on June 30, 2024
(MONTH-DAY-YEAR)

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

Description of bond Water Well Contractors & Drillers

Premium: $100.00

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

Signed and dated on 05/22/2023
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

175 Berkeley Street, Boston, MA 02116

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

McGriff Insurance Services, LLC
Agent

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

(205) 252-9871
Telephone Number of Agent

S-0157/GE 8/08

XDP

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.

Liberty Mutual. SURETY

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

Certificate No **8205019-016032**

POWER OF ATTORNEY

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

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

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

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

By: _____
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

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

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

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

By: _____
Teresa Pastella, Notary Public

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

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorney-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

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

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

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

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 22nd day of May, 2023

By: _____
Renee C. Llewellyn, Assistant Secretary

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

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

McGriff
SURETY DIVISION
2211 7TH AVENUE SOUTH, BIRMINGHAM, AL 35233
MEAGAN CARTER

LETTER OF TRANSMITTAL

To: Clementine Broaders
Southern Power Company

Date: 5/22/2023

We are sending you:

☐	Duplicate Original	☐	Consent of Surety	☐	Certificate of Insurance
☒	CC / VC	☐	Change Order	☐	Motor Fuel Bonds
☐	Invoice	☐	Financial/ Indemnity	☐	Bond

No. of Copies:	Description:
(1)	CC
	Bond No. 4993104
	**Please review and notify if you should have any questions, or if changes or amendments are needed. **

These are transmitted as checked below:

☐	Info and/or necessary action in remarks	☐	For your file	☒	As requested
☒	For your use	☐	Returned for corrections	☐	Please sign as indicated and return

REMARKS: UPS

If enclosures are not as noted, kindly notify at once.

Signed: Meagan Carter, *Senior Client Service Specialist – Surety*

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. **4993104**

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

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

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

does hereby continue said bond in force for the further period

beginning on June 30, 2024
(MONTH-DAY-YEAR)

and ending on June 30, 2025
(MONTH-DAY-YEAR)

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

Description of bond Water Well Contractors & Drillers

Premium: $100.00

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

Signed and dated on 05/31/2023
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

175 Berkeley Street, Boston, MA 02116

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

McGriff Insurance Services, LLC
Agent

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

(205) 252-9871
Telephone Number of Agent

S-0157/GE 8/08

XDF

TRAVELERS

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

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company are corporations duly organized under the laws of the State of Connecticut (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint **Jeffrey M Wilson** of **BIRMINGHAM**, **Alabama**, their true and lawful Attorney(s)-in-Fact to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

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

State of Connecticut

City of Hartford ss.

By: _____
Robert L. Raney, Senior Vice President

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

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

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

_____
Anna P. Nowik, Notary Public

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

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

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

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

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

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

Dated this **31st** day of **May**, **2023**.

_____
Kevin E. Hughes, Assistant Secretary

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

CONTINUATION CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. 800033976

dated effective September 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 June 30, 2023
(MONTH-DAY-YEAR)

and ending on June 30, 2025
(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:

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 13, 2023
(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

By _____
ATTORNEY-IN-FACT Carlos A. Albelo

intact INSURANCE

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: **Megan Sivley, Melissa Haddick, Sandra Parker, Orlando Aguirre, Stacy Killebrew, Carlos A. Albelo**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **unlimited** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

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

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

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

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

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this first day of January, 2023.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Sarah A. Kolar, General Counsel

STATE OF MINNESOTA
HENNEPIN COUNTY

On this first day of January, 2023, before me personally came Sarah A. Kolar, General Counsel of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and she acknowledged the execution of the same, and being by me duly sworn, that she is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

ALISON DWAN NASH-TROUT
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2026

_____
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 13th day of April, 2023.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
January 31, 2025

_____
Kara Barrow, Secretary

Please direct bond verifications to surety@intactinsurance.com

Certified Well Survey Report

METRO ENGINEERING & SURVEYING CO., INC.
SURVEYORS - ENGINEERS - PHOTOGRAMMETRISTS
PROVIDING PROFESSIONAL SERVICE SINCE 1967

1469 HIGHWAY 20 WEST • MCDONOUGH, GA 30253
phone: 770-707-0777 fax: 770.707-0755
WWW.METRO-ENGINEERING.COM

SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

Horizontal and vertical datum was derived from RTK GPS observations with corrections from the eGPS network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Trimble R8 Dual Frequency GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Trimble R8 Dual Frequency RTK (survey-grade) global positioning system receiver referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.

James R. Green R.L.S. No. 2543

Date: 8/10/20



Plant McDonough
Monitoring Well Locations
August 7, 2020

Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEV	PVC NORTHING	PVC EASTING	TOP PVC ELEV	ELEV AT BASE
B-100	N33.821507	W84.477304	1390255.7	2202241.1	775.32	1390254.8	2202242.1	777.95	775.3
B-16	N33.827948	W84.473793	1392595.3	2203314.4	823.54	1392595.1	2203315.4	826.47	823.6
B-18	N33.827740	W84.475241	1392520.2	2202876.1	823.89	1392521.0	2202875.5	826.56	823.9
B-24	N33.827616	W84.479935	1392479.7	2201451.1	819.19	1392479.9	2201450.0	822.11	819.3
B-25	N33.828532	W84.479765	1392813.0	2201503.9	833.41	1392813.3	2201502.7	836.54	833.5
B-26	N33.829336	W84.479610	1393105.5	2201551.4	850.61	1393105.6	2201550.4	853.60	850.6
B-28	N33.826209	W84.479175	1391968.5	2201678.9	813.28	1391967.4	2201679.2	816.08	813.3
B-29	N33.825994	W84.480021	1391891.0	2201421.4	813.47	1391890.0	2201422.0	816.43	813.5
B-3	N33.831925	W84.476784	1394044.3	2202412.0	834.86	1394045.1	2202411.5	837.78	835.0
B-31	N33.826387	W84.481648	1392034.9	2200928.0	794.84	1392034.3	2200928.5	797.47	794.9
B-41	N33.823333	W84.478925	1390921.5	2201751.1	792.40	1390920.8	2201751.9	795.20	792.4
B-50	N33.825358	W84.478639	1391656.0	2201840.9	806.49	1391657.1	2201841.0	809.67	809.2
B-51	N33.822173	W84.481705	1390500.7	2200905.6	763.29	1390501.2	2200906.5	765.92	763.3
B-52	N33.827143	W84.480378	1392307.3	2201314.3	820.18	1392308.3	2201314.8	822.89	820.3
B-54	N33.832971	W84.474387	1394422.3	2203141.2	782.54	1394423.5	2203140.7	785.46	782.6
B-55	N33.832207	W84.471067	1394142.2	2204146.8	822.86	1394142.6	2204147.9	825.12	822.9
B-56	N33.831700	W84.470934	1393957.6	2204186.8	820.95	1393957.9	2204187.8	823.59	821.0
B-57	N33.824649	W84.475687	1391397.5	2202736.1	786.03	1391396.3	2202736.9	789.04	786.0
B-58	N33.823902	W84.476706	1391126.5	2202426.0	785.20	1391125.7	2202426.5	788.17	785.2
B-59	N33.832766	W84.474846	1394348.1	2203001.5	785.41	1394349.1	2203001.1	788.00	785.5
B-6	N33.832961	W84.473972	1394420.5	2203266.5	786.45	1394419.5	2203266.5	789.47	786.5
B-60	N33.823839	W84.475205	1391101.4	2202882.2	779.25	1391100.7	2202881.6	782.13	779.2
B-61	N33.823442	W84.476443	1390958.4	2202506.9	778.95	1390957.8	2202505.8	782.09	779.0
B-62	N33.820331	W84.478719	N.A.	N.A.	N.A.	1389828.1	2201811.2	760.08	760.4
B-63	N33.823559	W84.474888	1390998.7	2202977.5	777.37	1390999.1	2202978.1	777.10	777.3
B-64	N33.832856	W84.474746	1394382.3	2203030.6	785.98	1394381.9	2203031.3	785.83	786.1
B-65	N33.832862	W84.471389	N.A.	N.A.	N.A.	1394381.2	2204050.8	821.95	822.3
B-66	N33.831427	W84.470638	1393859.2	2204277.7	813.33	1393858.2	2204277.5	815.90	813.3

Plant McDonough
Monitoring Well Locations
August 7, 2020

B-68	N33.824362	W84.482346	1391298.8	2200715.2	759.05	1391298.2	2200714.2	758.68	759.0
B-7	N33.832841	W84.472887	1394375.6	2203596.0	806.04	1394374.6	2203596.1	809.16	806.1
B-76	N33.822783	W84.475614	1390716.5	2202756.0	760.87	1390717.4	2202756.9	760.53	766.5
B-77	N33.823420	W84.475007	1390949.4	2202941.4	777.12	1390948.7	2202942.0	776.86	777.1
B-78	N33.832708	W84.474987	1394327.3	2202958.7	787.79	1394328.2	2202958.2	790.75	788.0
B-79	N33.833068	W84.474116	1394457.8	2203223.6	785.84	1394458.6	2203223.0	788.66	785.9
B-80	N33.832834	W84.473091	1394373.5	2203533.9	801.73	1394372.6	2203533.9	804.47	801.8
B-81	N33.832815	W84.472409	1394365.8	2203741.3	817.64	1394364.9	2203741.1	820.56	817.7
B-82	N33.831129	W84.470701	1393750.1	2204256.8	807.55	1393750.0	2204258.1	810.07	807.5
B-83	N33.822832	W84.475816	1390735.9	2202695.1	777.17	1390735.5	2202695.6	776.98	777.1
B-84	N33.821939	W84.477307	1390411.2	2202242.5	776.52	1390411.9	2202241.9	776.34	776.6
B-85	N33.832998	W84.474407	1394432.8	2203134.8	782.71	1394433.4	2203134.5	782.54	782.7
B-86	N33.833127	W84.474170	1394479.5	2203207.0	784.52	1394480.0	2203206.6	784.29	784.6
B-87	N33.832915	W84.473100	1394400.8	2203531.3	800.32	1394401.9	2203531.3	803.37	800.4
B-88	N33.832914	W84.472419	1394399.9	2203738.1	816.80	1394401.1	2203738.3	820.07	817.0
B-89	N33.832910	W84.471394	1394398.7	2204048.6	822.53	1394398.4	2204049.4	822.36	822.6
B-90	N33.833185	W84.474151	1394500.4	2203212.8	784.16	1394501.0	2203212.6	784.00	784.2
B-91	N33.833036	W84.474442	N.A.	N.A.	N.A.	1394447.1	2203123.9	782.98	783.1
B-92	N33.832887	W84.474761	1394393.2	2203026.4	785.30	1394392.7	2203026.7	785.08	785.3
B-93	N33.832763	W84.475024	1394348.1	2202947.0	789.19	1394348.7	2202946.7	789.07	789.2
B-94	N33.832915	W84.473158	1394400.9	2203513.8	799.12	1394402.0	2203513.7	801.74	799.2
B-95	N33.833233	W84.474299	1394519.5	2203167.2	784.18	1394518.6	2203167.7	784.00	784.3
B-96	N33.833122	W84.474524	1394479.4	2203098.8	785.19	1394478.7	2203099.3	784.92	785.3
B-97	N33.832988	W84.474823	1394430.6	2203008.0	786.50	1394430.0	2203008.3	786.29	786.6
B-98	N33.832883	W84.475066	1394392.7	2202934.6	789.81	1394392.5	2202934.0	789.67	789.8
B-99	N33.833247	W84.474573	1394524.7	2203084.9	782.57	1394524.2	2203084.5	782.39	782.6
DGWA-53	N33.830346	W84.479224	1393473.5	2201667.7	841.37	1393472.8	2201668.8	844.26	841.3
DGWA-70A	N33.822116	W84.482741	1390480.2	2200591.7	805.67	1390481.4	2200591.6	808.52	805.8
DGWA-71	N33.831695	W84.479078	1393964.3	2201714.7	861.22	1393963.3	2201714.8	863.84	861.2
DGWC-8	N33.832699	W84.471944	1394323.0	2203882.3	824.02	1394322.2	2203882.1	826.38	824.1

Plant McDonough
Monitoring Well Locations
August 7, 2020

DGWC-37	N33.822121	W84.481661	1390483.0	2200920.7	763.64	1390482.2	2200919.8	766.21	763.7
DGWC-10	N33.831317	W84.470889	1393818.1	2204200.0	820.82	1393818.3	2204201.1	823.55	820.9
DGWC-11	N33.830571	W84.471001	1393546.9	2204167.3	797.99	1393547.1	2204166.2	800.57	798.1
DGWC-12	N33.829478	W84.471122	1393149.8	2204127.3	771.10	1393149.4	2204128.3	773.86	771.2
DGWC-13	N33.828740	W84.471263	1392880.8	2204085.7	791.20	1392881.1	2204084.6	794.10	791.3
DGWC-14	N33.827896	W84.471495	1392574.5	2204014.4	789.69	1392574.2	2204013.3	792.40	789.8
DGWC-15	N33.827810	W84.472595	1392544.2	2203677.9	821.43	1392544.1	2203679.0	824.50	821.5
DGWC-17	N33.828084	W84.474664	1392645.0	2203050.2	834.14	1392645.6	2203051.0	837.05	834.2
DGWC-19	N33.827248	W84.476143	1392341.8	2202601.5	822.87	1392342.6	2202601.0	825.46	822.9
DGWC-2	N33.831683	W84.477745	1393957.1	2202119.4	848.17	1393958.0	2202119.5	850.88	848.3
DGWC-20	N33.826754	W84.477079	1392163.7	2202316.3	819.66	1392164.5	2202315.6	822.14	819.8
DGWC-21	N33.826487	W84.477911	1392066.4	2202063.3	813.47	1392067.5	2202063.5	816.28	813.5
DGWC-22	N33.826647	W84.478805	1392125.2	2201791.7	813.69	1392126.3	2201791.9	816.59	813.7
DGWC-23	N33.826957	W84.479498	1392240.4	2201582.8	815.63	1392239.7	2201582.0	818.37	815.7
DGWC-38	N33.821795	W84.480906	1390363.6	2201149.0	754.67	1390362.7	2201148.6	757.43	754.7
DGWC-39	N33.821635	W84.479616	1390302.5	2201539.8	756.93	1390303.6	2201540.1	759.89	757.0
DGWC-4	N33.832275	W84.475959	1394170.6	2202662.7	812.06	1394171.5	2202662.4	814.85	812.1
DGWC-40	N33.822523	W84.478678	1390625.1	2201826.7	776.12	1390625.7	2201825.9	779.06	776.2
DGWC-42	N33.824453	W84.478540	1391327.4	2201869.1	801.98	1391327.8	2201870.2	804.68	802.0
DGWC-47	N33.825080	W84.476104	1391553.1	2202611.3	794.35	1391553.8	2202610.5	797.45	794.3
DGWC-48	N33.824420	W84.477157	1391314.2	2202289.2	785.21	1391314.6	2202290.2	788.33	785.2
DGWC-5	N33.832647	W84.474964	1394305.3	2202965.3	788.64	1394306.3	2202965.1	791.75	788.7
DGWC-67	N33.823417	W84.481959	1390953.6	2200830.0	766.80	1390953.8	2200830.7	766.70	767.0
DGWC-68A	N33.824370	W84.482278	1391300.9	2200733.4	765.06	1391301.2	2200734.9	765.33	765.4
DGWC-69	N33.825150	W84.482537	1391583.9	2200657.2	763.99	1391585.0	2200657.1	763.75	764.0
DGWC-9	N33.831969	W84.470993	1394055.6	2204168.9	821.86	1394055.9	2204170.0	824.35	821.8

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SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

Horizontal and vertical datum was derived from RTK GPS observations with corrections from the eGPS network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Trimble R8 Dual Frequency GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Trimble R8 Dual Frequency RTK (survey-grade) global positioning system receiver referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.

James R. Green R.L.S. No. 2543

GEORGIA REGISTERED NO. LS002543 PROFESSIONAL LAND SURVEYOR JAMES RANDOLPH GREEN

Date: 1/6/21

Plant McDonough
Monitoring Well Locations
January 6, 2021

Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEV	PVC NORTHING	PVC EASTING	TOP PVC ELEV	ELEV AT BASE
B-101D	N33.831990	W84.470999	1394063.3	2204167.1	821.24	1394063.6	2204168.2	824.29	821.2
B-102D	N33.831344	W84.470891	1393828.2	2204199.0	820.64	1393828.4	2204200.4	823.42	820.6
B-103D	N33.825052	W84.476091	1391542.8	2202615.0	793.77	1391543.5	2202614.4	795.96	793.8
B-104D	N33.824431	W84.477129	1391317.9	2202297.4	785.31	1391318.3	2202298.5	787.90	785.3
B-105D	N33.822547	W84.478659	1390633.9	2201832.7	776.03	1390634.5	2201831.9	779.01	776.0
B-106D	N33.832712	W84.471987	1394328.3	2203869.6	823.39	1394327.1	2203869.2	826.21	823.5
B-107D	N33.827226	W84.476158	1392333.6	2202597.0	820.44	1392334.5	2202596.4	823.38	820.6
B-108D	N33.826733	W84.477091	1392155.6	2202313.1	818.33	1392156.1	2202312.5	821.13	818.4
B-109D	N33.831682	W84.477720	1393956.4	2202127.0	847.78	1393957.5	2202127.0	850.73	847.8
B-110D	N33.824352	W84.482274	1391294.0	2200734.6	764.55	1391294.4	2200736.0	764.61	764.7
B-111D	N33.832640	W84.474992	1394302.6	2202956.5	789.04	1394303.4	2202956.4	791.87	789.1
B-72	N33.824206	W84.482307	1391241.2	2200724.9	758.45	1391241.4	2200725.9	758.46	758.5
B-73	N33.824509	W84.482395	1391351.5	2200698.5	759.16	1391351.8	2200699.4	759.21	759.2
B-74	N33.824311	W84.482504	1391278.9	2200666.3	759.18	1391279.9	2200666.1	759.06	759.2
DW-D1	N33.832657	W84.474840	NA	NA	NA	1394309.5	2203002.8	786.78	786.2
DW-D2	N33.832842	W84.473838	NA	NA	NA	1394375.8	2203307.1	788.53	788.3
DW-D3	N33.832812	W84.472368	NA	NA	NA	1394363.7	2203753.5	817.50	817.2
DW-D4	N33.831941	W84.470988	NA	NA	NA	1394045.5	2204171.7	820.68	820.4

STAFF GAGE	LATITUDE	LONGITUDE	T/POST NORTHING	T/POST EASTING	TOP T/POST ELEV	TOP GAGE ELEV @ 8'	ELEV AT GRD
WT-1	N33.825586	W84.482522	1391743.6	2200662.1	759.85	759.32	755.3
WT-3	N33.824028	W84.482353	1391176.9	2200711.8	757.80	756.92	752.6
WT-4	N33.822014	W84.481690	1390443.3	2200910.8	754.13	753.21	749.2
WT-5	N33.821283	W84.480144	1390175.9	2201379.5	749.01	749.07	744.9
ET-1	N33.832761	W84.474439	1394347.0	2203124.5	NA	779.94	775.9

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SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

Horizontal and vertical datum was derived from RTK GPS observations with corrections from the eGPS network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Trimble R8 Dual Frequency GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Trimble R8 Dual Frequency RTK (survey-grade) global positioning system receiver referencing the Georgia State Plane, west zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.

James R. Green R.L.S. No. 2543

Date: 5/11/21



Plant McDonough
Monitoring Well Locations
April 11, 2021

Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEV	PVC NORTHING	PVC EASTING	TOP PVC ELEV	ELEV AT BASE
B-111D	N33.832640	W84.474992	1394302.7	2202956.6	788.99	1394303.6	2202956.4	791.84	789.0
B-112D	N33.825093	W84.482513	1391564.0	2200663.1	765.98	1391564.2	2200664.1	765.58	766.1
B-113D	N33.824270	W84.482329	1391264.7	2200720.2	758.87	1391264.6	2200719.2	758.22	758.8
B-115D	N33.824287	W84.476200	1391266.0	2202580.1	786.43	1391265.3	2202580.7	789.17	786.4
B-116D	N33.822123	W84.482677	1390483.0	2200611.0	805.31	1390483.7	2200611.0	807.82	805.3
B-117D	N33.831696	W84.479036	1393964.7	2201727.1	861.23	1393963.8	2201727.3	863.82	861.2
B-118	N33.824143	W84.483216	1391220.2	2200449.5	804.99	1391219.3	2200449.7	807.70	805.0
B-119D	N33.824190	W84.483226	1391237.5	2200446.4	804.53	1391236.4	2200446.6	807.15	804.5
B-120D	N33.831931	W84.476702	1394046.4	2202436.8	834.03	1394047.2	2202436.4	836.42	834.0

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SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

Horizontal and vertical datum was derived from RTK GPS observations with corrections received via a cellular modem utilizing the Leica "Smartnet" RTK Network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Leica GS18T GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Leica GS18T GPS (survey-grade) global positioning system receiver referencing the Georgia State Plane, West Zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.

James R. Green R.L.S. No. 2543

Date: 5/10/22



Plant McDonough
Monitoring Well Locations
May 9, 2022

Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEV	PVC NORTHING	PVC EASTING	TOP PVC ELEV	ELEV AT BASE
B-122D	N33.823541	W84.474897	1390992.06	2202975.35	777.32	1390992.8	2202975.4	777.03	777.3
B-123D	N33.824203	W84.476108	1391233.80	2202608.91	778.85	1391234.4	2202608.4	781.80	779.0
DWGC121	N33.822829	W84.481895	1390739.51	2200848.27	764.52	1390739.7	2200849.4	764.16	764.6

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SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

Horizontal and vertical datum was derived from RTK GPS observations with corrections received via a cellular modem utilizing the Leica "Smartnet" RTK Network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Leica GS18T GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Leica GS18T GPS (survey-grade) global positioning system receiver referencing the Georgia State Plane, West Zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.

James R. Green R.L.S. No. 2543



Date: 5/8/23

Plant McDonough
Monitoring Well Locations
May 4, 2023

Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEV	PVC NORTHING	PVC EASTING	TOP PVC ELEV	ELEV AT BASE
B-125D	N33.832109	W84.476228	1394111.1	2202580.9	819.15	1394111.6	2202580.7	821.70	819.1

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SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing monitoring wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

Horizontal and vertical datum was derived from RTK GPS observations with corrections received via a cellular modem utilizing the Leica "Smartnet" RTK Network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Leica GS18T GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Leica GS18T GPS (survey-grade) global positioning system receiver referencing the Georgia State Plane, West Zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse kilometer.

James R. Green R.L.S. No. 2543

GEORGIA REGISTERED NO. LS002543 PROFESSIONAL LAND SURVEYOR JAMES RANDOLPH GREEN

Date: 1/28/25

Plant McDonough
Monitoring Well Locations
January 24, 2025

Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEV	PVC NORTHING	PVC EASTING	TOP PVC ELEV	ELEV AT BASE (REBAR)
DGWC-9A	N33.832036	W84.471003	1394080.1	2204165.7	821.35	1394080.2	2204167.1	823.98	820.95
DGWC-126	N33.826693	W84.479269	N.A	N.A.	N.A.	1392143.7	2201651.2	815.15	812.65
DGWC-127	N33.827629	W84.473384	1392478.8	2203440.5	816.19	1392478.7	2203439.4	815.58	816.28
DGWC-128	N33.832523	W84.475317	1394260.3	2202858.3	796.51	1394261.2	2202857.8	799.30	796.48

METRO ENGINEERING & SURVEYING CO., INC.
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SURVEYOR'S REPORT

SCOPE OF WORK:

Field survey of existing Temporary Wells at Georgia Power Company, Plant McDonough in Smyrna, GA.

Horizontal and vertical datum was derived from RTK GPS observations with corrections received via a cellular modem utilizing the Leica "Smartnet" RTK Network and conventional surveying equipment. Horizontal datum is Georgia State Plane, West Zone, NAD83(2011) and vertical datum is NAVD88.

EQUIPMENT USED TO ESTABLISH THE MONITORING WELL LOCATIONS:

Leica GS18T GPS Receiver
Leica TS16 Total Station
Leica DNA10 Digital Level

CERTIFICATION:

I hereby certify that the center of well casing (PVC) has a horizontal accuracy of 0.5+/- feet or better using a Leica GS18T GPS (survey-grade) global positioning system receiver referencing the Georgia State Plane, West Zone, NAD83(2011) coordinate system in US survey feet. The top of well casing (PVC) elevation data was determined in feet above mean sea level based on the NAVD88 vertical datum. Vertical data was confirmed to be accurate within 0.01 foot through establishment of a closed level check loop with a Leica DNA10 digital level having a published accuracy of 0.9mm per dual-traverse Kilometer.

Field survey was completed on June 16, 2025.

Christopher G. Lea, GA. RLS #3427

GEORGIA REGISTERED No. 3427 LAND SURVEYOR CHRISTOPHER G. LEA

Date: June 18, 2025

Plant McDonough
Temporary Well Locations
June 16, 2025

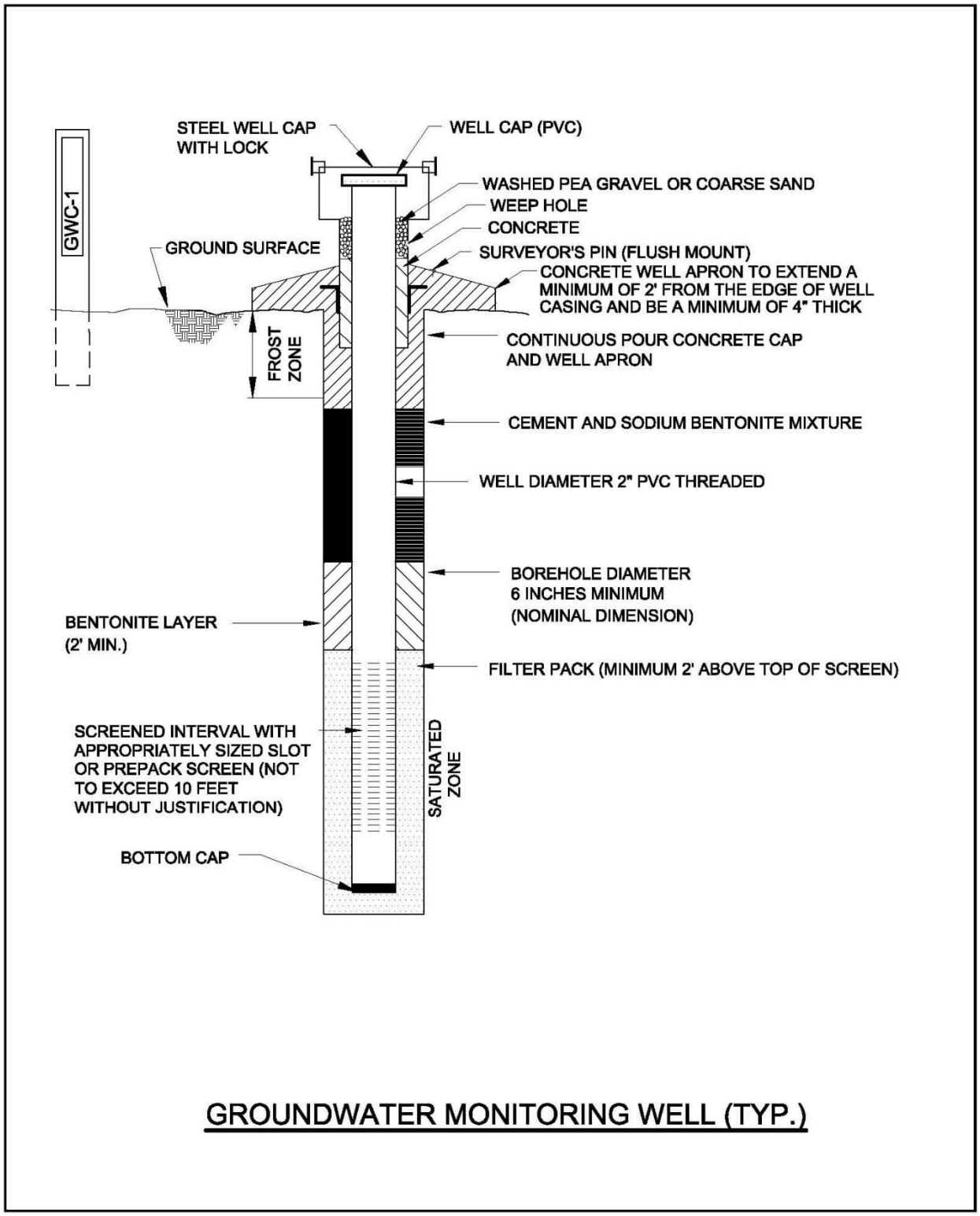
Well ID	LATITUDE	LONGITUDE	NAIL NORTHING	NAIL EASTING	NAIL ELEV	PVC NORTHING	PVC EASTING	TOP PVC ELEV	ELEV AT BASE (REBAR)
B-129S	N33.825556	W84.474363	1391724.5	2203140.5	791.78	1391725.4	2203139.9	791.56	791.97
B-130S	N33.825883	W84.473930	1391842.9	2203272.5	792.01	1391843.9	2203271.7	791.72	791.82
B-131S	N33.825362	W84.474667	1391654.3	2203048.1	792.80	1391655.0	2203047.4	792.52	792.72
B-132S	N33.826580	W84.472946	1392095.7	2203572.0	792.70	1392096.5	2203571.2	792.48	792.47
B-133S	N33.825754	W84.476601	1391800.8	2202459.7	808.71	1391799.5	2202460.3	811.67	808.55



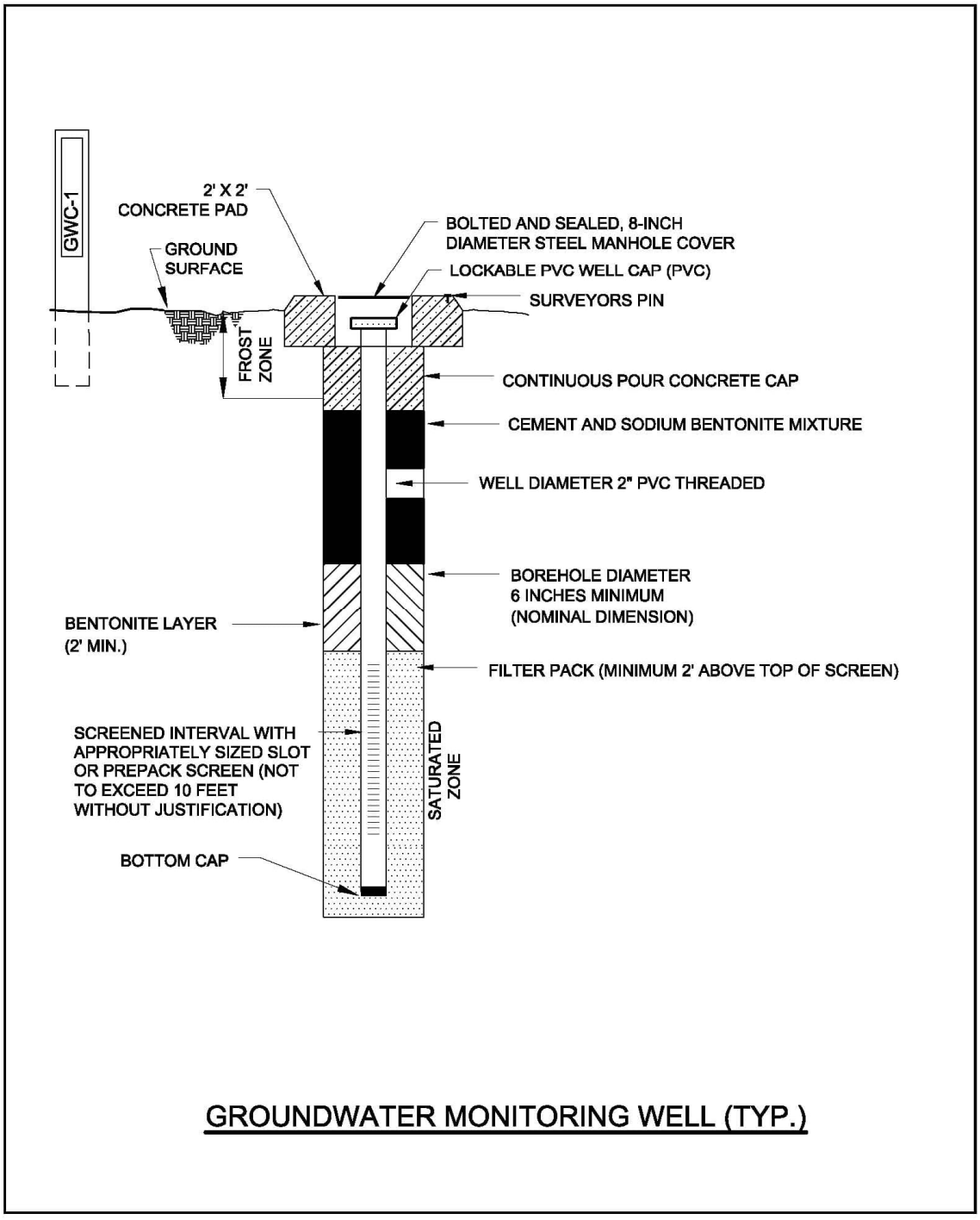
APPENDIX B

Groundwater Monitoring Well Details

APPENDIX B. GROUNDWATER MONITORING WELL DETAIL



APPENDIX B. GROUNDWATER MONITORING WELL DETAIL-FLUSH MOUNT WELL



APPENDIX C

Groundwater Sample Procedures

APPENDIX C. GROUNDWATER SAMPLING PROCEDURES

Groundwater sampling will be conducted using the most current United States Environmental Protection Agency (US EPA) Region 4 Field Quality and Technical Procedures as a guide. The following procedures describe the general methods associated with groundwater sampling at the Site. Prior to sampling, the well must be evacuated (purged) to ensure that representative groundwater is obtained. To accomplish this objective, low-flow purging from the screened interval is recommended until target parameters listed below are stabilized and then, representative groundwater flowing from the geologic formation is collected. 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. Field logbooks and forms shall be kept for each sampling event, and should include, but not be limited to, the following: well signage, well access, sampling and purging equipment condition, and any site conditions that may affect sampling.

The sampling team will follow the procedures below at each well to ensure that a representative sample is collected:

1) Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations and notify Georgia Power if it appears that the well has been compromised.

2) Measure and record the depth to water in all wells to be sampled prior to purging. Static water levels will be measured from each well, within a 24-hour period. The water level measuring device will consist of a probe and measuring tape capable of measuring water levels with accuracy to 0.01 feet.

3) Install Pump: If a dedicated pump is not present, slowly lower the pump into the well to the midpoint of the well screen or a depth otherwise approved by the hydrogeologist or project scientist. The pump intake must be kept at least two (2) feet above the bottom of the well to prevent disturbance and suspension of any sediment present at the bottom of the well. Record the depth to which the pump is lowered. Non-dedicated pumps and wiring will be decontaminated before use and between well locations using procedures described in the latest version of the Region 4 U.S. Environmental Protection Agency Laboratory Services and Applied Science Division *Operating Procedure for Field Equipment Cleaning and Decontamination* 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 ft. 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 S.U. for pH
   - ± 5% for specific conductance (conductivity)

- ± 10% or 0.2 milligrams per liter (mg/L) for DO where DO>0.5 mg/L. If DO<0.5 mg/L no stabilization criteria apply
- ≤ 5 nephelometric turbidity units (NTUs) 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 US EPA Region 4 Laboratory Services and Applied Science Division (LSASD) guidance document, *Operating Procedure: Groundwater Sampling* (US EPA, LSASDPROC-301-R6 and updates) 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. Sample containers should be filled with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container. Sample collection should be performed according to the most current version of US EPA Region 4 LSASD, *Operating Procedure: Groundwater Sampling* (US EPA LSASDPROC-301-R6) (US EPA 2023b).

8) Compliance samples will be unfiltered; however, to determine if turbidity is affecting sample results, 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. Filtered samples are not considered compliance samples and are only used to evaluate the effects of turbidity. A new filter must be used for each well and each sampling event.

9) 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 the samples are collected, samplers will remove non-dedicated equipment. Upon completion of field activity, the well will be closed and locked.

13) Non-dedicated equipment will be decontaminated between wells in general accordance with US EPA LSASDPROC-205-R4 (US EPA, 2020).

14) Samples will be delivered to the laboratory following appropriate chain-of-custody (COC) and temperature control requirements. The goal for sample delivery will be within 48 hours of collection.

Throughout the sampling process new 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 NTUs; however, samples may be collected where turbidity is less than 10 NTUs and the stabilization criteria described above are met.

If sample turbidity is greater than 5 NTUs and other stabilization criteria have been met, samplers will continue purging for 3 additional hours in order to reduce the turbidity to 5 NTUs or less.

- If turbidity remains above 5 NTUs but is less than 10 NTUs, and other parameters are stabilized, the well can be sampled.
- Where turbidity remains above 10 NTUs, an unfiltered sample will be collected followed by a filtered sample that has passed through an in-line 0.45-micron filter attached to the discharge (sample collection) tube. Data from filtered samples will only be used to quantify the effects of turbidity on sample results.

Samplers will identify the sample bottle as containing a filtered sample on the sample bottle label and on COC form.

A brief overview of purging and sampling methodologies, including the type of sampling equipment used will be provided in routine monitoring reports.

APPENDIX D

Surface Water Sampling Procedures

APPENDIX D SURFACE WATER SAMPLING PROCEDURES

Surface water samples will be collected in accordance with the general procedures outlined below if flowing water is observed at each sampling location. These procedures were developed using field sampling guidelines described in the *US EPA Region 4 Field Branches Quality System and Technical Procedures* (https://www.epa.gov/quality/quality-system-and-technical-procedures-sesd-field-branches) and U.S. Environmental Protection Agency, Laboratory Services and Applied Science Division*, Surface Water Sampling, (LSASDPROC-201-R6)*, (US EPA, 2023a). Surface water samples will be analyzed for the field parameters and Appendix IV constituents contained in Table 5.

If a dipper or other transfer vessel other than the sample container is used, it must be composed of a non-porous inert material such as glass, PVC, polyethylene, or stainless steel. The following procedures will be used to collect surface water samples:

- Hold the bottle near the base with one hand, and with the other, remove the cap.
- Rinse the sample container with the water to be sampled prior to filling the container, unless the sample containers are pre-preserved. Pre-preserved sample containers should not be rinsed prior to sampling.
- Hold the container underneath the water surface and allow the container to be filled with water. Remove the container from underneath the surface and place the cap back on the container.
- Label the sample container, at a minimum, include Sample Number, Name of Collector, Date and Time of Collection, and Place/Point of Collection.
- Place the samples in a cooler containing water-ice, if required, for courier or hand delivery to the laboratory within the sample hold times.
- Follow COC and temperature protocols.

The minimum sampling frequency for surface water will be semi-annual, provided water is present and flowing in the surface water feature.



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