HYDROGEOLOGICAL ASSESSMENT REPORT (REVISION 1)

Plant Arkwright
Ash Pond 1 (AP1)
Macon, Georgia

August 15, 2025

Prepared for:

Georgia Power

Prepared by:
Stantec Consulting Services Inc.
10745 Westside Way, Suite 250
Alpharetta, Georgia 30009-7640

CERTIFICATION STATEMENT

This Hydrogeologic Assessment Report (Revision 1 – Plant Arkwright Ash Pond 1 (AP1) has been prepared by a qualified groundwater scientist or engineer with Stantec Consulting Services, Inc. References to the appropriate sections of Chapter 391-3- 4-.10 of the Georgia Environmental Protection Division Rules of Georgia, Solid Waste Management, Coal Combustion Residuals (i.e., State CCR Rule) are incorporated throughout this document.

I hereby certify that this Hydrogeologic Assessment Report (Revision 1) was prepared by, or under the direct supervision of, a "Qualified Groundwater Scientist," in accordance with the State of Georgia Rules of Solid Waste Management. According to Chapter 391- 3-4-.01, a Qualified Groundwater Scientist is "a professional engineer or geologist registered to practice in Georgia who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields that enable individuals to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action."

Vaughan, Matt
Digitally signed by Vaughan, Matt
DN: CN="Vaughan, Matt", OU=Internal, OU=users, OU=stantec, DC=corp, DC=ads
Date: 2025.08.15 13:51:47-04'00'

GEORGIA REGISTERED No. PE044739 PROFESSIONAL ENGINEER MATTHEW C. VAUGHAN 8/15/25

Matt Vaughn, P.E.
Principal

08/15/2025
Date

Katie Ross

KATIE T. ROSS GEORGIA REGISTERED PROFESSIONAL GEOLOGIST No. 1776

Katie Ross, P.G.
Senior Principal

08/15/2025
Date

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Acronyms / Abbreviations

AP1	Ash Pond 1
bgs	Below ground surface
CCR	Coal Combustion Residuals
cm/s	centimeters per second
ft/ft	Feet per foot (hydraulic gradient)
feet/day	Feet per day
Georgia EPD	Georgia Environmental Protection Division
Georgia Power	Georgia Power Company
HAR	Hydrogeologic Assessment Report
k_h	Horizontal Hydraulic Conductivity
NAVD88	North American Vertical Datum 1988
PWR	Partially Weathered Rock
SCS	Southern Company Services
Site	Plant Arkwright Ash Pond 1

1 Introduction

As per the requirements of Georgia Environmental Protection Division (EPD) Solid Waste Management Rule 391-3-4-.10 for coal combustion residuals (CCR) management, Jacobs Engineering (2018a) prepared a Limited Hydrogeological Assessment Report (HAR) for the inactive Plant Arkwright Ash Pond 1 (AP1 or Site) in November 2018. The HAR was a supplementary document in the original Georgia CCR permit application package from November 2018 (Jacobs, 2018b).

This report herein will supplant the previously submitted HAR from November 2018 and provide an updated summary of the hydrogeologic data at Plant Arkwright AP1. Its purpose is to supplement the forthcoming AP1 CCR permit application submittal.

1.1 Site Location and Topographic Setting

Plant Arkwright is in Bibb County, Georgia, approximately six miles northwest of the city of Macon. The physical address of the plant is 5241 Arkwright Road, Macon, Georgia 31210. The approximately 31-acre AP1 is located south of the former plant area and is bordered by the Ocmulgee River, Beaverdam Creek, and a Norfolk Southern Railroad line (Figure 1).

Plant Arkwright is located along the southern edge of the Washington Slope District (the District) within the Piedmont Physiographic Province (Clark and Zisa, 1976). The District is characterized by a gently undulating surface, which generally slopes to the south and southeast toward the Coastal Plain Physiographic Province located approximately 3.8 miles to the southeast of the Site. Topography of the District ranges from approximately 700 feet above mean sea level in the areas of southern Atlanta and Athens to approximately 500 feet above mean sea level at its southern limit along the Georgia Fall Line. Streams follow the surface topography of the underlying crystalline rocks eastward toward the Ocmulgee River. Relief throughout the District typically ranges between 50 and 100 feet. However, the greatest relief occurs along the Ocmulgee River where the surface elevations can abruptly change 150 to 200 feet within steep-walled valleys (Clark and Zisa, 1976).

1.2 Coal Combustion Residuals

Plant Arkwright's coal-fired power plant consisted of four 40-megawatt units that began commercial operation in 1941 (SCS, 2003). In the years before retirement, the plant was used primarily to provide peaking power and operated approximately 40 to 60 days per year. No permitted waste tonnage is available in the previously approved plans for the Site; however, approximately 25,000 tons of CCR were generated annually (Jacobs, 2018b). CCR generated from coal combustion at Plant Arkwright was placed in AP1 until 1977. AP1 lay dormant from 1977 to 1990 until closure was completed in 2003. AP1 closure activities consisted of conditioned ash placement, surface grading, and capping with two feet of soil cover plus vegetation (SCS, 2003). Plant Arkwright was retired in 2002 and decommissioned in 2003.

1.3 Ash Pond 1 (AP1)

AP1 was constructed prior to 1958 and was closed with two feet of soil cover and vegetation in 1990. Regrading and stabilization of the Ocmulgee Riverbank and Beaverdam Creek bank adjacent to AP1 occurred in two phases in 2004 and 2007 (SCS, 2003). Additionally, the slopes and top of AP1 were regraded by relocating CCR and placing additional cover soil.

AP1 received a closure certificate on July 30, 2010, under Solid Waste Permit Number 011-030D(LI). A CCR unit solid waste handling permit application, dated November 2018, was submitted to the Georgia EPD pursuant to the requirements of Georgia Administrative Code Rule 391-3-4.10. CCR-specific solid waste permit approving closure by-removal at AP1 is pending to date. On September 11, 2024, the Georgia EPD approved a minor modification of the above-mentioned permit for the completion of the AP1 Southpoint Improvement project (Stantec, 2024a). The scope of work for the Southpoint project at AP1 included, but was not limited to, the removal of approximately 42,700 cubic yards of CCR from the southern tip of AP1 and subsequent stabilization of the Southpoint excavation footprint. Excavated CCR was stockpiled within the northern footprint of AP1 and overlain with a final cover comprised of 18 inches of cover soil, 6 inches of vegetation-supporting soil and sod. AP1 is currently in post-closure care.

Figure 2 illustrates the current, interim Uppermost Aquifer monitoring well and piezometer network and Table 1 provides a summary of AP1 monitoring well and piezometer construction details. Boring and well construction logs for AP1 monitoring wells and piezometers are provided in Appendix A.

2 Surface and Subsurface Investigations

Several geotechnical and geological investigations have been completed at Plant Arkwright between 2018 and 2024. Results of these investigations, in combination with published regional literature and topographic maps, were utilized to: obtain an understanding of regional and site-specific subsurface geologic conditions; support the development of a hydrogeologic conceptual site model; and identify and install a representative interim, uppermost aquifer monitoring well network for AP1. Information used to inform this HAR, as well as data collected from the interim network were used to support the final monitoring network proposed in the updated GWMP (Stantec, 2025a).

2.1 Regional Geology and Hydrogeology

Alluvial deposits ranging from clay to sand and gravel deposits are present within incised bedrock channels formed by the tributary streams and within the broader floodplains of the larger regional rivers. Reported alluvial (floodplain) deposits within the greater Ocmulgee River drainage are up to 40 feet thick and extend several thousand feet from the river axis along lower-lying river segments to the south of the Piedmont Province (LeGrand, 1962). Residual soil, developed following the complete in place chemical weathering (decomposition) of the underlying crystalline bedrock, is the predominant overburden material present in upland areas of the region (Sowers and Richardson, 1983).

Bedrock in the region is composed of moderate- to high-grade metamorphic rocks, consisting of biotite-granite gneiss, schist, and amphibolite, and igneous rocks like granite. In the southernmost Piedmont, around the Site, bedrock is composed of predominantly biotite gneiss (Figure 3). The underlying bedrock consists of quartzofeldspathic gneiss, hornblende gneiss, and schist (Jacobs, 2018a). Major geologic structures in the region include the Ocmulgee fault, located approximately seven miles northwest of the Site, which strikes mostly northeast – southwest. The top of bedrock surface is often highly weathered and, where exposed, is generally soft and friable (LeGrand, 1962).

There are no laterally extensive regional aquifers in the Piedmont Province (Miller, 1990). Groundwater is mainly supplied by infiltrating precipitation and is found in the residuum/partially weathered rock (PWR) and fractured portions of the upper bedrock in upland areas and in alluvial deposits within incised stream channels. Shallow groundwater flow direction locally mimics area topography but regionally moves southward towards the coastal plain (Miller, 1990). The competent crystalline rock underneath the unconsolidated deposits has little to no primary (intergranular) porosity. Where encountered, groundwater in the competent bedrock is found in secondary porosity features such as isolated open fractures, foliation separations, igneous/metamorphic rock contacts, and potential fault zones.

2.2 Site Geology

The general geology beneath AP1 consists of clayey or silty sands with occasional sandy clay and silt zones, underlain by a silty sand saprolite and bedrock. AP1 investigation boring logs from previous site investigations (Jacobs, 2018a; Jacobs, 2021; Wood, 2021) were used to construct two geologic cross-sections along the alignments shown in Figure 4 to characterize area geology. Cross-Sections A-A’ and B-B’ are provided as Figures 4a and 4b. The presented cross-sections are based on lithologic information from borings advanced in the area between 2018 and 2022. A brief description of each of the encountered overburden and bedrock units is provided in the following sections.

Historical borings advanced at the Site indicate bedrock and consists of weathered quartzofeldspathic gneiss, hornblende gneiss, and schist. Area boring logs (Appendix A) also indicate the presence of discontinuous zones of partially weathered rock (PWR) above more competent bedrock. A brief description of each of the encountered overburden and bedrock units is provided in the following sections.

2.2.1 OVERBURDEN

The **overburden materials** present in the subsurface at AP1 from surface grade to depth are:

- **Native soils –** The term “native soils” has been used in the cross-sections as a general term to describe developed shallow soils that were deposited/formed naturally. Encountered native soils at Plant Arkwright include alluvial deposits and saprolitic soils, or material that has developed into a soil following the complete in place chemical weathering of its parent bedrock. Alluvial deposits have not yet been identified in borings advanced to date at AP1, so the native soils depicted in the cross-sections consists of saprolitic soils. These soils are typically loose, range in color from red to light brown in color, composed of fine sand-sized particles containing varying percentages

of clay, silt, and medium sand, and occasionally contain larger, incompletely altered gravel. AP1 saprolitic soils range in thickness from 5 to 25 feet.

- **Saprolite –** Rock that has been chemically weathered and altered in place, but still retains its primary rock fabric, is referred to as saprolite. Saprolite retains the streaky banding and foliations characteristic of gneiss but readily disintegrates into varying percentages of gravel, sand, silts, and clays when mechanically disturbed. The saprolite at AP1 is typically grey to tan in color and ranges in thickness from absent to over 30 feet.

2.2.2 BEDROCK

The **bedrock** materials present beneath the overburden are*:*

- **Partially weathered rock (PWR) –** As weathering preferentially occurs along horizontal and vertical fractures present within the rock matrix, less altered, more resistant layers or blocks of rock that are bounded by weathered fractures may be preserved above the downward advancing weathering front at the bedrock contact. These less altered layers or blocks are referred to as PWR. Borings completed to date have identified a thin (1-5 feet), relatively continuous zone of PWR on the western side of AP1 (cross-section A-A', Figure 4a). PWR appears to be largely absent on the eastern side of AP1 but for an isolated, approximately 20-foot thick section of PWR identified immediately south of an east-west trending bedrock high noted in abandoned well AP1GWC-4 (see Figures 4a and 4b). Encountered PWR thicknesses range from absent to approximately 20 feet.

- **Bedrock** – The top of biotite gneiss bedrock at AP1 is at depths of approximately 34 to greater than 70 feet below existing grade. Bedrock contact elevations range from approximately 303 feet NAVD88[1] at the north end of AP1, to 250 feet NAVD88 at south end of AP1. Borings advanced into the uppermost portion of bedrock (upper bedrock) indicate that it is typically fractured. The noted degree of weathering on the fracture faces varies from highly weathered to unweathered with increasing depth below the bedrock contact. Where present, the upper bedrock fractures are predominantly horizontal to slightly inclined with occasional steeper and/or intersecting fractures. Fractures generally decrease in frequency with increasing depth below the bedrock contact and the bedrock becomes increasingly competent.

3 Site Hydrogeologic Conditions

Hydrogeologic data collected from monitoring wells installed and monitored between 2018 and 2021 were combined with the geologic data discussed in Section 2, to characterize AP1 area hydrogeologic conditions described in the following sections.

[1] Referenced to the North American Vertical Datum of 1988 (NAVD88).

3.1 Site Hydrogeology

The uppermost aquifer at AP1 consists of a saturated overburden, PWR, and upper bedrock. The overburden primarily consists of saprolitic soils and saprolite up to 36-feet thick. Where present the underlying PWR is typically thin, ranging from 1- to 5-feet thick. The PWR is underlain by upper bedrock that has little to no primary (intergranular) porosity as evident in the bedrock and little to no permeability. Accordingly, the observed ability of the upper bedrock to transmit groundwater is largely dependent on the presence and frequency of open fractures. The upper bedrock is characterized by an increased number of fractures immediately below the overburden/PWR and bedrock contact.

Comparison of recent AP1 groundwater elevation data (refer to Table 2 ground water elevations and cross-section Figures 4a and 4b) at adjacent overburden and shallow fractured bedrock piezometers show that groundwater elevations in the overburden and upper bedrock are nearly identical. This, in combination with observed weathering and discoloration in fracture zones at the bedrock contact, suggests that groundwater in the overburden and upper bedrock fractures is hydraulically connected.

The top of the uppermost aquifer is defined by the (unconfined) water table surface present at depths of approximately 30 to 55 feet below ground surface (feet bgs) within the AP1 boundary. The water table surface is typically found within the native soil or saprolite horizons underlying AP1. The bottom of the uppermost aquifer is competent bedrock below the upper bedrock zone of fractured and weathered bedrock.

A summary of horizontal hydraulic conductivity (k_h) values obtained from previous slug testing at the current AP1 monitoring wells and piezometers is provided in Table 1. The data reflect a range of hydraulic conductivities from 10^{-6} centimeters per second (cm/s) to 10^{-4} cm/s. Measured uppermost aquifer hydraulic conductivities range from 2.4 x 10^{-6} to 8.6 x 10^{-4} cm/s, with a geometric mean of 5.8 x 10^{-5} cm/s (Table 1).

Groundwater levels have been routinely measured at the AP1 monitoring wells and piezometers shown on Figure 2 since 2021 (see Section 3.2). The recent August 2024 ground water potentiometric surface at AP1 is shown on Figure 5. Groundwater flow is to the east, southeast, and northeast, in the direction of the Ocmulgee River, and to the west toward Beaverdam Creek to along the southernmost portion of AP1. Measured groundwater hydraulic gradients were 0.009 feet/foot [ft/ft]) between piezometers AP1PZ-10 and AP1PZ-5, to 0.024 ft/ft between piezometers AP1PZ-11 and AP1PZ-1 during the August 2024 monitoring event.

Estimates of the average linear groundwater flow velocities in the uppermost aquifer were calculated using a derivation of Darcy's Law. Specifically,

$$v = \frac{K_h * i}{n_e}$$

Where:

v = average linear groundwater flow velocity (*length/time*)

K_h = average horizontal hydraulic conductivity of the aquifer material (*length/time*)

i = hydraulic gradient (*length/length*)

n_e = estimated effective porosity of aquifer material (*unitless*)

Estimates of groundwater flow velocities within the Uppermost Aquifer at AP1 were calculated using the above equation and hydraulic gradients obtained from the August 2024 groundwater monitoring event (Stantec 2025b), previously measured horizontal hydraulic conductivities (Table 1) and a literature-based effective porosity of 0.20 for silty sand (US EPA, 1989). The groundwater flow velocity calculation is shown in Table 3.

August 2024 calculated groundwater flow velocities at AP1 were 1.9 and 54 feet per year. These groundwater flow velocities are generally within the range of groundwater flow velocities calculated during previous monitoring events at AP1.

3.2 Potentiometric Data

Recent AP1 groundwater level gauging data from July 2021 to August of 2024 is provided in Table 2. The groundwater elevation data show that the potentiometric surface elevations of the uppermost aquifer range from a historical maximum of approximately 323 feet NAVD88 at detection monitoring well AP1GWA-1 north of AP1 to a historical minimum elevation of approximately 290 feet NAVD88 at piezometer AP1PZ-7 at the south end of AP1. The potentiometric surface is predominantly present in overburden deposits but does appear to intersect an upper bedrock high beneath the middle portion of AP1 (see cross-section A-A', Figure 4a).

Groundwater flow in the uppermost aquifer at AP1 is predominantly to the east and southeast towards the Ocmulgee River (Figure 5), with a secondary flow component to the west towards Beaverdam Creek at the southern end of AP1. This observed flow regime is consistent with previous AP1 potentiometric maps generated in previous monitoring reports (Jacobs, 2018a; 2021; Wood, 2022; Stantec, 2024b).

3.3 Conceptual Site Model

The Uppermost Aquifer at AP1 consists of water-bearing 1) overburden and 2) weathered margins of PWR and zones of fractured biotite-gneiss bedrock immediately underlying overburden or PWR (where present). The fractured bedrock zone near the top of bedrock is referred to as upper bedrock zone. This zone is characterized by measured hydraulic conductivities similar to those of the overlying silty sand overburden except localized areas where the upper bedrock fracture density decreases (e.g., at AP1PZ-9) and the hydraulic conductivity of the rock declines. With little to no primary porosity, the relative ability of the upper bedrock to transmit groundwater is dependent on the presence, density, and interconnection of secondary porosity features (open fractures). Site boring logs show that the frequency of the fractures generally decreases with increasing depth below the bedrock contact and that the bedrock becomes increasingly competent with increasing depth. The ability of these deeper fractures to readily transmit groundwater below the upper bedrock zone is considered extremely limited.

Groundwater in the Uppermost Aquifer is unconfined, recharged via precipitation and discharges to low-lying areas or valleys. The potentiometric surface elevation ranges from approximately 324 to 290 feet NAVD88 (17 to 57 feet below ground surface, respectively) in the immediate vicinity of AP1. The top (water table) of the potentiometric surface is typically encountered in the overburden. As shown in Figure 5, groundwater flow direction is east, southeast, and northeast, in the direction of the Ocmulgee River. A more westerly component of flow toward Beaverdam Creek is present along the west side of the southernmost portion of AP1. Calculated groundwater flow velocities over the 2021 to 2024 monitoring period have ranged from less than 1 feet/year to 82 feet/year.

4 Groundwater Monitoring Network

The current interim groundwater monitoring network is shown in Figure 2. The depicted monitoring wells and piezometers were installed to monitor the Uppermost Aquifer at the Site. Georgia Power initially installed five monitoring wells (AP1GWA-1, AP1GWA-2, and AP1GWC-3 through AP1GWC-5) in 2018. AP1GWC-3, AP1GWC-4, and AP1GWC-5 shown in the cross-section layout map (Figure 4) were properly abandoned soon after the initial site characterization efforts since groundwater monitoring at AP-1 was not considered at that time and not subject to compliance monitoring per the CCR Rule. However, following discussions with EPD, Georgia Power voluntarily proposed to perform semi-annual groundwater sampling and analysis on an interim basis through the closure of AP1. Eleven piezometers (AP1PZ-1 through AP1PZ-11) were installed in 2021 for interim monitoring of AP1 area groundwater. The piezometers were installed through CCR material due to access constraints and safety concerns along the downgradient boundary of AP1. Per the interim GWMP, piezometer AP1PZ-6 was abandoned in June of 2023 to allow for unit regrading activities. The remaining piezometers shown in Figure 2 will eventually be abandoned to allow for earthmoving activities during AP1 CCR removal activities and will be reinstalled for post-closure monitoring after removal is completed per the updated GWMP (Stantec, 2025a).

Construction details and the screened intervals for the existing AP1 monitoring wells and piezometers are summarized in Table 1, and well/piezometer boring and construction logs (Jacobs; Wood, 2021; Jacobs, 2021) are provided in Appendix A.

4.1 Groundwater Monitoring Status

Groundwater monitoring activities are being performed in accordance with the AP1 Interim Groundwater Monitoring Plan (Jacobs, 2021) as a minor modification to Solid Waste Permit Number 011-030D(LI). The current groundwater monitoring program is being implemented on an interim basis at AP1 until approval of both a new CCR solid waste handling permit and the eventual installation of a permanent groundwater monitoring network. Groundwater monitoring at AP1 has been initiated in accordance with the Interim Groundwater Monitoring Plan until CCR removal activities require the piezometers to be abandoned. Piezometer AP1PZ-6 was abandoned on June 20-21. 2023, in support of initial construction. Georgia EPD approved the abandonment of AP1PZ-6 on August 27, 2024.

Groundwater levels and groundwater samples are collected semi-annually from each of the monitoring wells and piezometers in the current monitoring network shown in Figure 2. Collected groundwater samples are analyzed for the Appendix III and Appendix IV constituents listed in Title 40, Code of Federal Regulations, Part 257. Results of the AP1 groundwater monitoring program are submitted to the Georgia EPD semi-annually.

In addition, the current interim network monitoring wells and piezometers are inspected semi-annually to determine if repairs or corrective actions are necessary to meet the requirements of the Georgia Water Well Standards Act (O.C.G.A. § 12-5-134(5)(d)(vii)).

5 References

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Wood Environment & Infrastructure Solutions, Inc (Wood). 2021. Monitoring Well Installation Report – Georgia Power Company Plant Arkwright Ash Pond 1 Landfill, September 20, 2021.

Wood, 2022. 2021 Semi-Annual Groundwater Monitoring Report – Georgia Power Company Plant Arkwright AP1 Landfill, Macon, Georgia. February 28, 2022.

TABLES

TABLE 1
AP1 MONITORING WELL AND PIEZOMETER CONSTRUCTION DETAILS
Hydrogeologic Assessment Report
Ash Pond 1 (AP1)
Georgia Power Company - Plant Arkwright
Macon, Georgia

Well/Piezometer	Installation Date	Northing[1] (feet)	Easting[1] (feet)	Top of Casing Elevation[2] (feet NAVD88)	Ground Surface Elevation[2] (feet NAVD88)	Top of Screen Elevation[2][3] (feet NAVD88)	Bottom of Screen Elevation[2][3] (feet NAVD88)	Screen Length (feet)	Groundwater Zone Screened	Position	Horizontal Hydraulic Conductivity (K_h) Values [4] (cm/s)	K_h Source
Monitoring Wells												
AP1GWA-1[5]	4/20/2018	1066048.91	2439462.98	345.44	342.28	318.6	308.6	10.0	Overburden/ Bedrock	Upgradient	--	--
AP1GWA-2[5]	4/20/2018	1065095.10	2439623.37	341.42	338.55	320.9	310.9	10.0	Overburden/ Bedrock	Upgradient	--	--
Piezometers												
AP1PZ-1	5/1/2021	1062799.79	2440164.34	338.97	335.92	261.9	251.9	10.0	Overburden/ Bedrock	Downgradient	--	--
AP1PZ-2	5/2/2021	1062573.21	2440300.14	339.58	336.64	287.5	277.5	10.0	Bedrock	Downgradient	8.59E-04	Jacobs, 2021
AP1PZ-3	5/4/2021	1062286.28	2440387.36	338.57	335.50	281.7	271.7	10.0	Overburden/ Bedrock	Downgradient	--	--
AP1PZ-4	5/11/2021	1061989.86	2440520.65	338.36	334.98	281.4	271.4	10.0	Overburden	Downgradient	4.08E-05	Jacobs, 2021
AP1PZ-5	5/13/2021	1061645.61	2440599.18	339.81	336.61	283.1	273.1	10.0	Overburden	Downgradient	9.42E-05	Jacobs, 2021
AP1PZ-7	5/15/2021	1061483.62	2440573.47	340.91	337.56	273.7	263.7	10.0	Overburden	Downgradient	--	--
AP1PZ-8	5/16/2021	1061721.72	2440362.39	338.31	334.94	282.7	272.7	10.0	Overburden/PWR[6]	Downgradient	4.01E-05	Jacobs, 2021
AP1PZ-9	5/17/2021	1062083.33	2440187.59	337.62	334.14	291.4	281.4	10.0	Bedrock	Downgradient	2.37E-06	Jacobs, 2021
AP1PZ-10	5/19/2021	1062334.74	2440116.05	338.38	335.07	292.4	282.4	10.0	Bedrock	Downgradient	1.58E-05	Jacobs, 2021
AP1PZ-11	5/26/2021	1062615.94	2440044.48	338.98	335.78	276.2	266.2	10.0	Overburden	Downgradient	4.24E-04	Jacobs, 2021

Notes:

1. Horizontal locations were referenced to Georgia State Plane West, North American Datum of 1983 (NAD83). Unless otherwise noted, presented well and piezometer coordinates were obtained from a Donaldson & Garrett Associates survey certified on June 8, 2021.
2. Elevations are in feet referenced to North American Vertical Datum of 1988 (NAVD88). Unless otherwise noted, presented well and piezometer surface elevations were obtained from a Donaldson & Garrett Associatesa survey certified on June 8, 2021.
3. Piezometer screen elevations were calculated using total depth and length of bottom sump.
4. Average value of rising and falling head slug test values at each well location are reported in Table A1 of the G*roundwater Monitoring Plan - Former Plant Arkwright - AP1 Landfill, Permit No. 011-03OD(LI), Bibb County, Georgia, for Georgia Power. September 2021. Rev 1. (Jacobs, 2021)*.
5 .Presented coordinates (NAD83) and surface elevations (in feet msl NGVD 1929) for these monitoring wells were obtained from the *Groundwater Monitoring Plan for Inactive Landfill - Former Plant Arkwright - AP1 Landfill, Macon-Bibb County, Georgia, for Georgia Power, November 2018*.
6. "PWR" indicates Partially Weathered Rock.

TABLE 2
SUMMARY OF RECENT AP1 GROUNDWATER ELEVATIONS
Hydrogeologic Assessment Report
Ash Pond 1 (AP1)
Georgia Power Company - Plant Arkwright
Macon, Georgia

Measurement Date:		7/13/2021		8/16/2021		9/2/2021		10/25/2021		1/31/2022		6/7/2022		8/30/2022		12/7/2022		1/30/2023		3/6/2023		6/20/2023		10/9/2023		1/22/2024		8/19/2024	
Well/Piezometer ID	**Top of Casing Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]	**Depth to Water** (feet BTOC)[2]	**Groundwater Elevation** (feet NAVD88)[1]
AP1GWA-1	345.44	24.91	320.53	24.84	320.60	25.06	320.38	22.87	322.57	24.27	321.17	24.58	320.86	24.95	320.49	25.60	319.84	23.52	321.92	22.71	322.73	23.99	321.45	26.96	318.5	25.95	319.5	26.40	319.04
AP1GWA-2	341.42	18.66	322.76	18.49	322.93	18.60	322.82	17.35	324.07	18.39	323.03	18.67	322.75	18.65	322.77	19.11	322.31	17.90	323.52	17.98	323.44	18.52	322.90	19.67	321.8	18.19	323.2	18.57	322.85
AP1PZ-1	338.97	44.57	294.40	44.94	294.03	44.82	294.15	44.73	294.24	44.85	294.12	45.20	293.77	44.97	294.00	44.65	294.32	43.46	295.51	44.31	294.66	45.03	293.94	45.73	293.2	44.81	294.2	45.61	293.36
AP1PZ-2	339.58	41.66	297.92	41.82	297.76	41.77	297.81	40.92	298.66	41.39	298.19	41.35	298.23	42.16	297.42	42.07	297.51	42.40	297.18	41.50	298.08	41.40	298.18	43.04	296.5	43.01	296.6	43.02	296.56
AP1PZ-3	338.57	42.71	295.86	42.82	295.75	42.75	295.82	42.06	296.51	42.49	296.08	42.60	295.97	43.43	295.14	43.91	294.66	43.20	295.37	42.53	296.04	42.69	295.88	43.65	294.9	43.28	295.3	41.26	297.31
AP1PZ-4	338.36	46.51	291.85	46.92	291.44	46.74	291.62	46.68	291.68	46.69	291.67	47.14	291.22	47.17	291.19	46.96	291.40	45.33	293.03	46.43	291.93	47.15	291.21	48.02	290.3	46.52	291.8	47.81	290.55
AP1PZ-5	339.81	48.41	291.40	48.81	291.00	48.63	291.18	48.56	291.25	48.48	291.33	48.88	290.93	49.05	290.76	48.79	291.02	47.21	292.60	48.32	291.49	48.96	290.85	49.55	290.3	48.35	291.5	49.44	290.37
AP1PZ-6	347.56	56.72	290.84	57.21	290.35	56.98	290.58	56.94	290.62	56.86	290.70	57.31	290.25	57.30	290.26	56.97	290.59	55.19	292.37	56.54	291.02	57.26	290.30	--	Abandoned	--	Abandoned	--	Abandoned
AP1PZ-7	340.91	49.88	291.03	50.30	290.61	50.18	290.73	50.25	290.66	50.15	290.76	50.49	290.42	50.51	290.40	50.09	290.82	48.55	292.36	49.66	291.25	50.50	290.41	50.93	290.0	50.08	290.8	50.92	289.99
AP1PZ-8	338.31	46.35	291.96	46.62	291.69	46.51	291.80	46.15	292.16	46.23	292.08	47.65	290.66	46.94	291.37	46.94	291.37	45.26	293.05	46.31	292.00	46.73	291.58	47.34	291.0	46.23	292.1	47.34	290.97
AP1PZ-9	337.62	40.90	296.72	40.79	296.83	40.83	296.79	39.76	297.86	40.62	297.00	40.50	297.12	41.40	296.22	42.25	295.37	40.98	296.64	40.33	297.29	40.66	296.96	42.14	295.5	42.12	295.5	42.29	295.33
AP1PZ-10	338.38	38.20	300.18	37.94	300.44	38.20	300.18	36.80	301.58	37.84	300.54	37.56	300.82	34.95	303.43	40.33	298.05	37.51	300.87	37.84	300.54	37.79	300.59	39.96	298.4	40.78	297.6	40.19	298.19
AP1PZ-11	338.98	37.90	301.08	38.48	300.50	38.79	300.19	36.38	302.60	38.29	300.69	38.65	300.33	34.95	304.03	39.80	299.18	37.96	301.02	37.95	301.03	38.46	300.52	41.23	297.8	40.42	298.6	40.19	298.79

Notes:
1. Groundwater elevations are reported in feet referenced to the North American Vertical Datum of 1988 (NAVD88).
2. Groundwater elevations are based on measured depth to water in feet below the surveyed top of casing (BTOC).

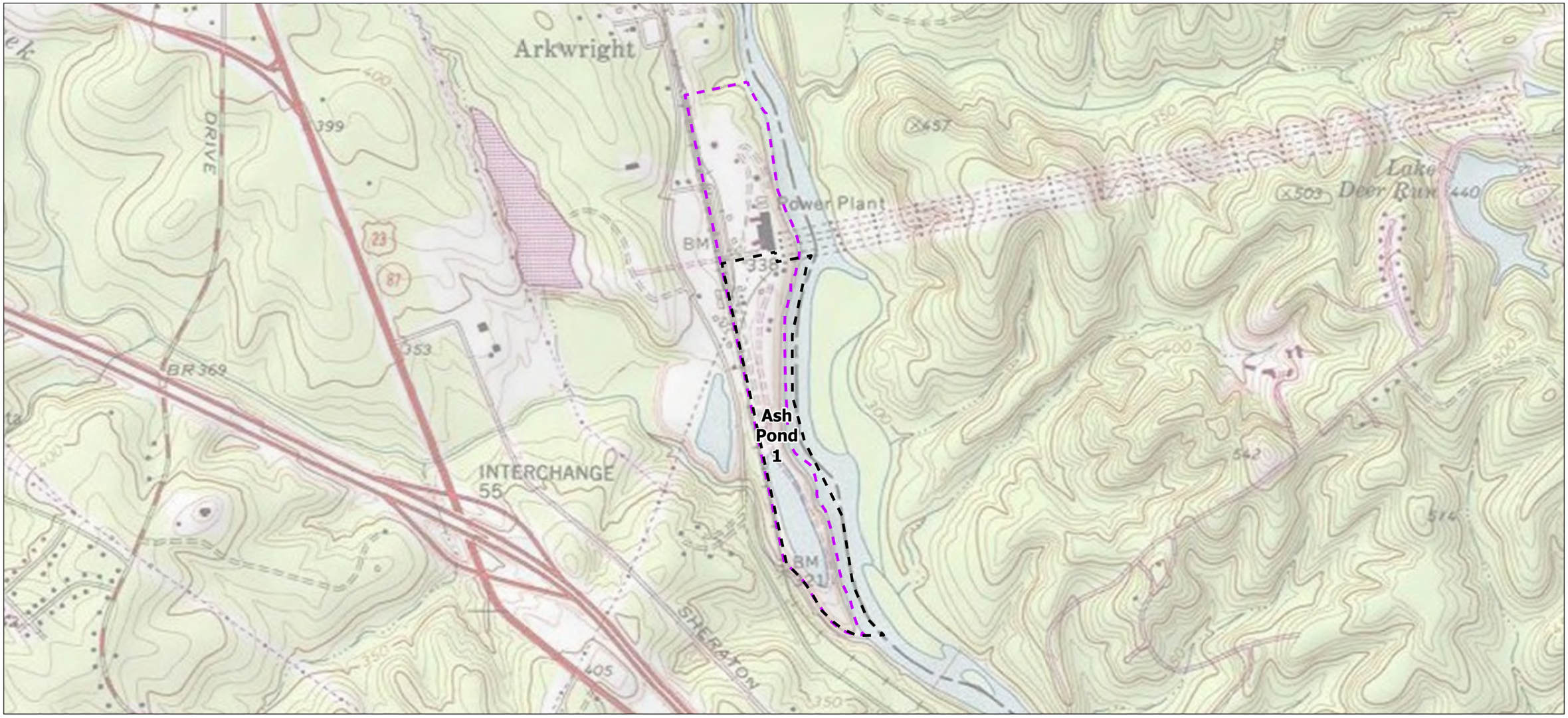
TABLE 3
GROUNDWATER FLOW VELOCITY CALCULATIONS
Hydrogeologic Assessment Report
Ash Pond 1 (AP1)
Georgia Power Company - Plant Arkwright
Macon, Georgia

Measurement Date	Location	Groundwater Elevations in Well Pairs (h_1, h_2)		Change in Elevation (dh)	Distance Measured (dl)	Hydraulic Gradient (i)	Average Horizontal Hydraulic Conductivity (K_h)		Estimated Effective Porosity (n_e)	Calculated Groundwater Flow Velocity (V)	
		h_1 (feet NAVD88)	h_2 (feet NAVD88)	(feet)	(feet)	(feet/foot)	(cm/sec)	(feet/day)	--	(feet/day)	(feet/year)
August 19, 2024	AP1PZ-10 to AP1PZ-5	298.19	290.37	7.82	842	0.009	3.86E-05	0.11	0.20	0.0051	1.9
	AP1PZ-11 to AP1PZ-1	298.79	293.36	5.43	222	0.024	4.24E-04	1.20	0.20	0.15	54

Notes:
1. The geometric mean of the in-situ horizontal hydraulic conductivity (K) slug test values measured at AP1PZ-10 (bedrock) and AP1PZ-5 (overburden) were used for the AP1PZ-10 to AP1PZ-5 average linear flow velocity calculation. The slug test K value measured at AP1PZ-11 (overburden) was used for the AP1PZ-11 to AP1PZ-1 average linear flow velocity calculation.

2.An estimated effective porosity of 0.20 was selected for the silty sand to sandy silt gradation of the overburden based on a review of several sources, including Driscoll, 1986; Freeze and Cherry, 1979; and; US EPA, 1989.

FIGURES



Notes

1. Coordinate System: NAD 1983 StatePlane Georgia West FIPS 1002 Feet
2. Data Sources: Tax Parcel and AP-1 Boundary provided by Southern Company Services and Wood Environment & Infrastructure Solutions
3. Background: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Copyright:© 2013 National Geographic Society, i-cubed

Legend

- Ash Pond 1 Permit Boundary
- Ash Pond 1 Tax Parcel

0 1,000 2,000 Feet

(At original document size of 11x17)
1:12,000

N

Stantec

Georgia Power

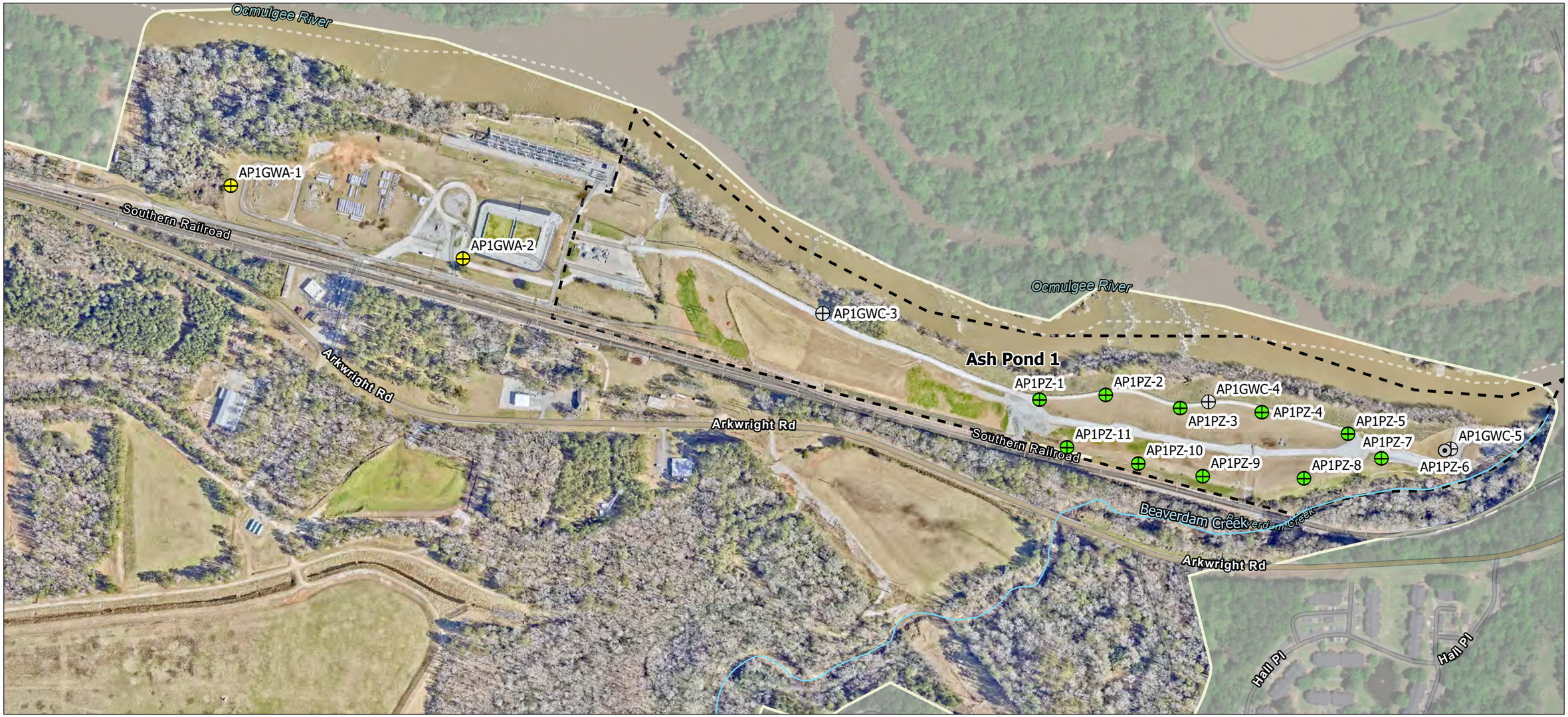
Project Location
Macon, Georgia

Prepared by DMB on 5/12/2025
TR by PD on 5/12/2025
IR by AW on 5/12/2025

Client/Project 175518252
Georgia Power
Hydrogeologic Assessment Report
Plant Arkwright Ash Pond 1

Figure No.
1

Title
Site Location Map



Notes

1. Coordinate System: NAD 1983 StatePlane Georgia West FIPS 1002 Feet
2. Data Sources: AP-1 Boundary, Piezometers, Wells, Borings and Beaverdam Creek provided by Southern Company Services, Wood Environment & Infrastructure Solutions, and Stantec.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community. Plant imagery provided by client and is dated 1/2/2025.

Legend

- Monitoring Well
- Abandoned Monitoring Well
- Piezometer
- Abandoned Piezometer
- Beaverdam Creek
- Ash Pond 1 Permit Boundary
- Limit of Client Imagery (dated 1/2/2025)

1. Monitoring Wells AP1GWC-3, AP1GWC-4, and AP1GWC-5 were abandoned in January of 2019 due to planned regrading activities in the vicinity of the monitoring wells.
2. Piezometer AP1PZ-6 was abandoned in June of 2023 due to planned regrading activities in the vicinity of the piezometer.

0 300 600 Feet
(At original document size of 11x17)
1:4,800

N

Stantec

Georgia Power

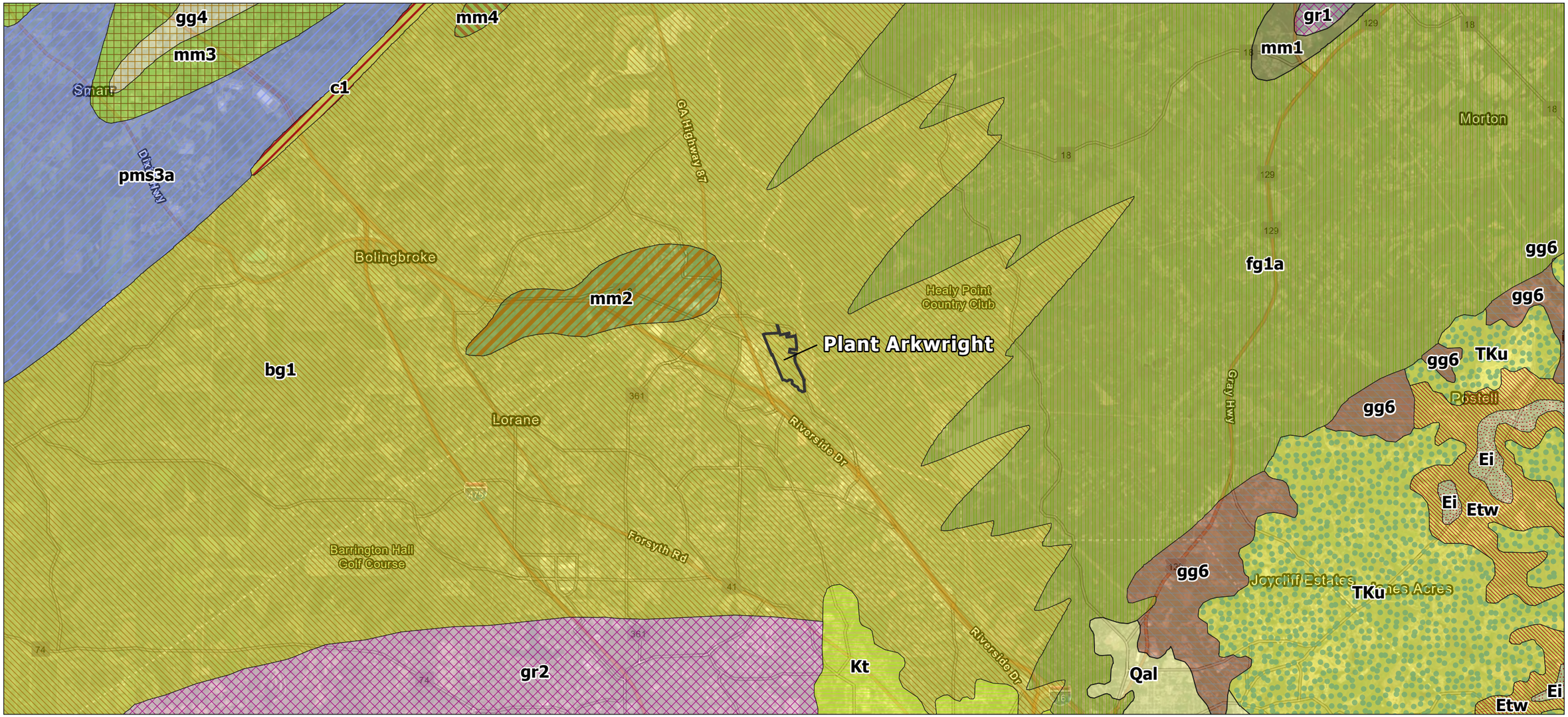
Project Location
Macon, Georgia

Prepared by DMB on 5/12/2025
TR by PD on 5/12/2025
IR by AW on 5/12/2025

Client/Project 175518252
Georgia Power
Hydrogeologic Assessment Report
Plant Arkwright Ash Pond 1

Figure No.
2

Title
Piezometer and Well Location Map



Legend

- Approximate Property Boundary

Geology

- bg1 - Biotite Gneiss
- c1 - Mylonite & Ultramylonite
- Ei - Irwinton Sand
- Etw - Twiggs Glay
- fg1a - Biotite Granite Gneiss/Feldspathic Biotite Gneiss/Amphibolite-Hornblende Gneiss
- gg4 - Granite Gneiss/Amphibolite
- gg6 - Granite Gneiss/Granite
- gr1 - Granite Undifferentiated
- gr2 - Granite/Granite Gneiss
- Kt - Tuscaloosa Formation
- mm1 - Amphibolite
- mm2 - Hornblende Gneiss
- mm3 - Hornblende Gneiss/Amphibolite
- mm4 - Hornblende Gneiss/Amphibolite/Granite Gneiss
- pms3a - Mica Schist/Gneiss/Amphibolite
- Qal - Stream Alluvium
- TKu - Lower Teriary-Cretaceous Undifferentiated

0 1.5 3 Miles

(At original document size of 11x17)
1:95,040

N

Notes

1. Coordinate System: NAD 1983 StatePlane Georgia West FIPS 1002 Feet
2. Data Sources: Site Boundary provided by Southern Company Services and Wood Environment & Infrastructure, Geologic Information obtain from https://mrdata.usgs.gov/geology/state/state.php?state=GA
3. Background: Earthstar Geographics, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Stantec

Georgia Power

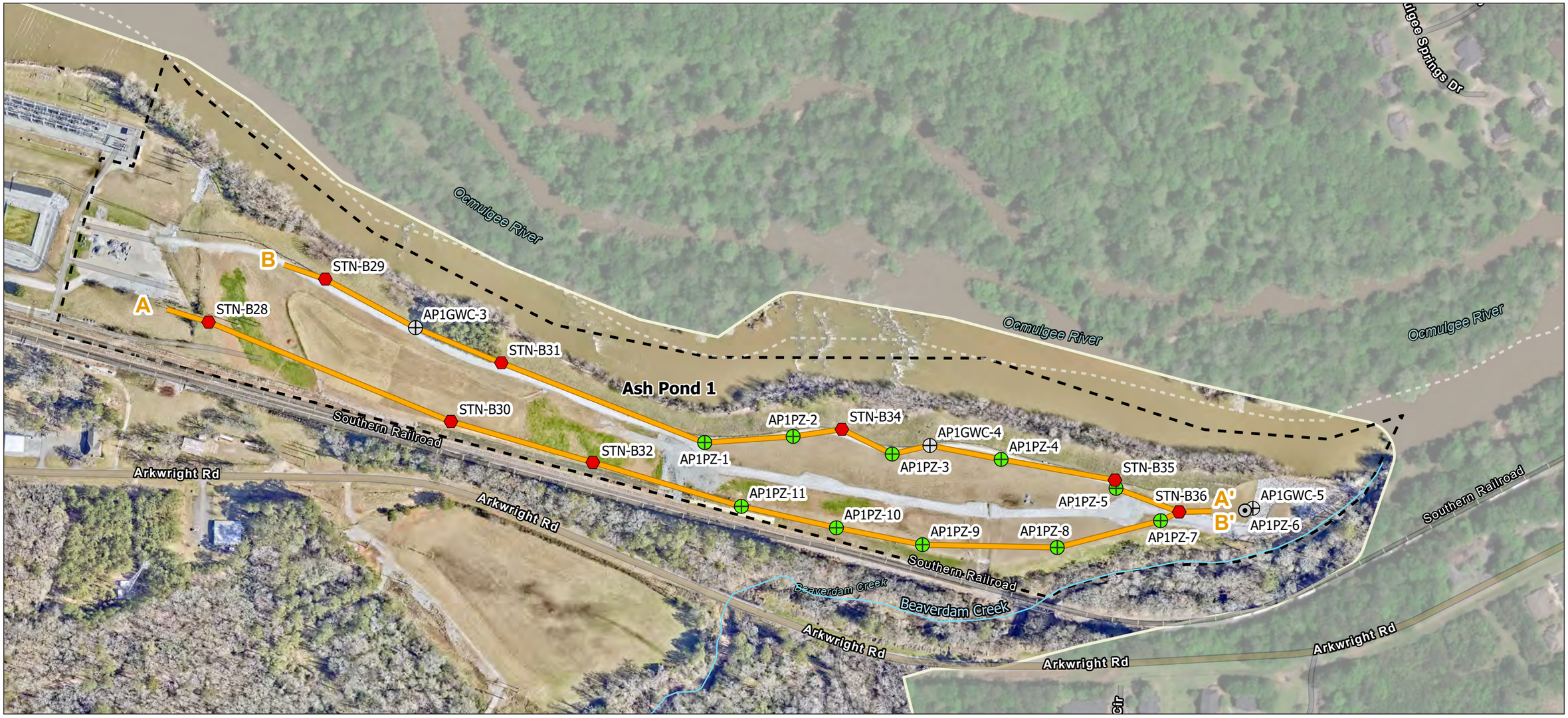
Project Location
Macon, Georgia

Prepared by DMB on 3/25/2025
TR by PD on 3/25/2025
IR by JK on 3/25/2025

Client/Project 175518252
Georgia Power
Hydrogeologic Assessment Report
Plant Arkwright Ash Pond 1

Figure No.
3

Title
Geologic Map of General Area



Notes

1. Coordinate System: NAD 1983 StatePlane Georgia West FIPS 1002 Feet
2. Data Sources: AP-1 Boundary, Piezometers, Wells, Borings and Beaverdam Creek provided by Southern Company Services, Wood Environment & Infrastructure Solutions, and Stantec.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community. Plant imagery provided by client and is dated 1/2/2025.

Legend

- Abandoned Monitoring Well
- Piezometer
- Abandoned Piezometer
- SPT Boring
- Beaverdam Creek
- Cross Section Alignment
- Ash Pond 1 Permit Boundary
- Limit of Client Imagery (dated 1/2/2025)

0 300 600 Feet

(At original document size of 11x17)
1:3,600

N

Stantec

Georgia Power

Project Location
Macon, Georgia

Prepared by DMB on 5/12/2025
TR by PD on 5/12/2025
IR by AW on 5/12/2025

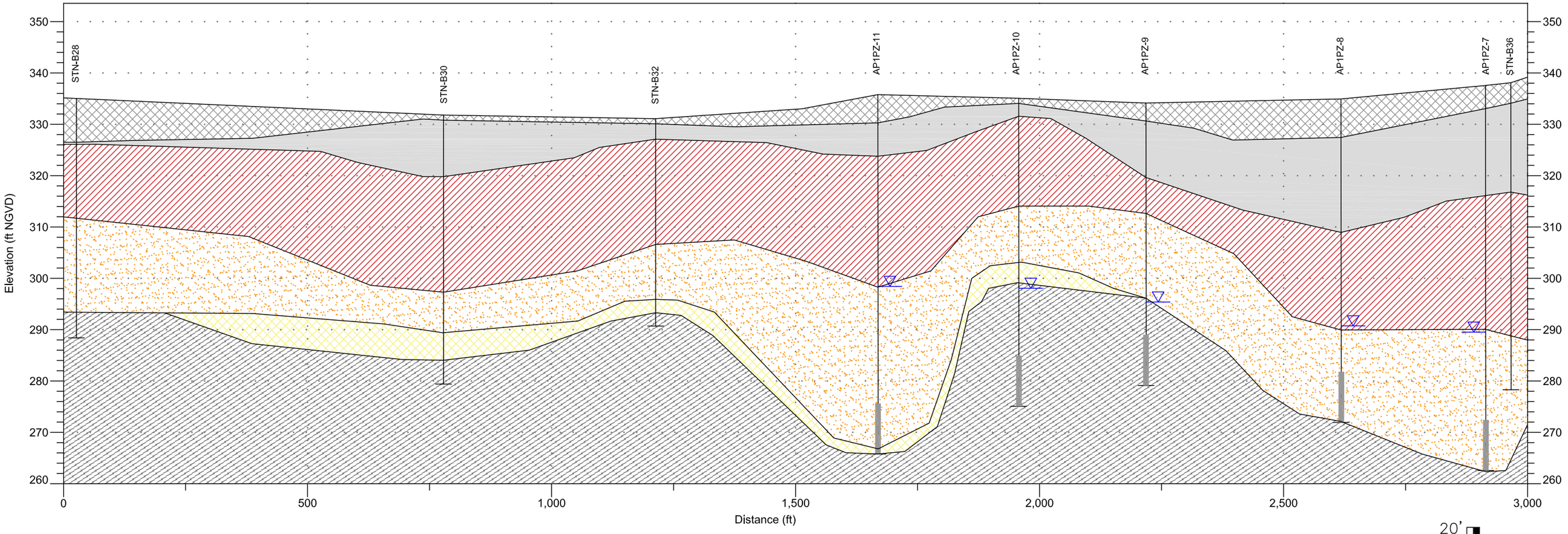
Client/Project 175518252
Georgia Power
Hydrogeologic Assessment Report
Plant Arkwright Ash Pond 1

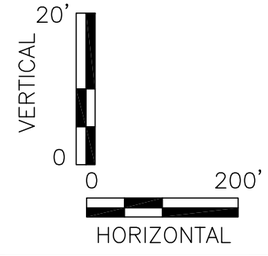
Figure No.
4

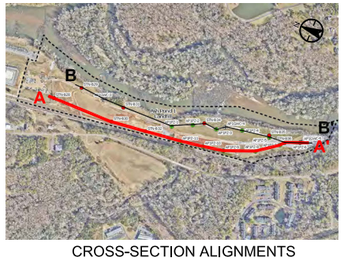
Title
Cross Section Layout Map

A
(N)

A'
(S)







CROSS-SECTION ALIGNMENTS

LEGEND

- FILL/CLAY COVER
- COAL COMBUSTION RESIDUALS
- NATIVE SOILS
- SAPROLITE
- PARTIALLY WEATHERED ROCK
- BIOTITE-GNEISS BEDROCK

- MONITORING WELL/PIEZOMETER SCREEN INTERVAL
- MEASURED GROUNDWATER ELEVATION (AUGUST 19, 2024)

Stantec

Georgia Power

Project Location
Macon, Georgia

Prepared by DMB on ???????
TR by PD on ?????
IR by ES on ?????

Client/Project
Georgia Power
Hydrogeologic Assessment Report
Plant Arkwright Ash Pond 1

175518252

Figure No.
4a

Title
CROSS-SECTION A-A'

B
(N)

B'
(S)

STN-B29
AP1GWC-3 (ABANDONED)
STN-B31
AP1PZ-1
AP1PZ-2
STN-B34
AP1PZ-3
AP1GWC-4 (ABANDONED)
AP1PZ-4
STN-B35
AP1PZ-5
STN-B36

Elevation (ft NGVD)

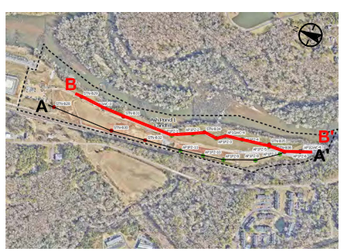
350
340
330
320
310
300
290
280
270
260
250
240

0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000

Distance (ft)

VERTICAL
20'
0

HORIZONTAL
0
200'



CROSS-SECTION ALIGNMENTS

LEGEND

- FILL/CLAY COVER
- COAL COMBUSTION RESIDUALS
- NATIVE SOILS
- SAPROLITE
- PARTIALLY WEATHERED ROCK
- BIOTITE-GNEISS BEDROCK

- MONITORING WELL/PIEZOMETER SCREEN INTERVAL
- MEASURED GROUNDWATER ELEVATION (AUGUST 19, 2024)

Stantec

Georgia Power

Project Location
Macon, Georgia

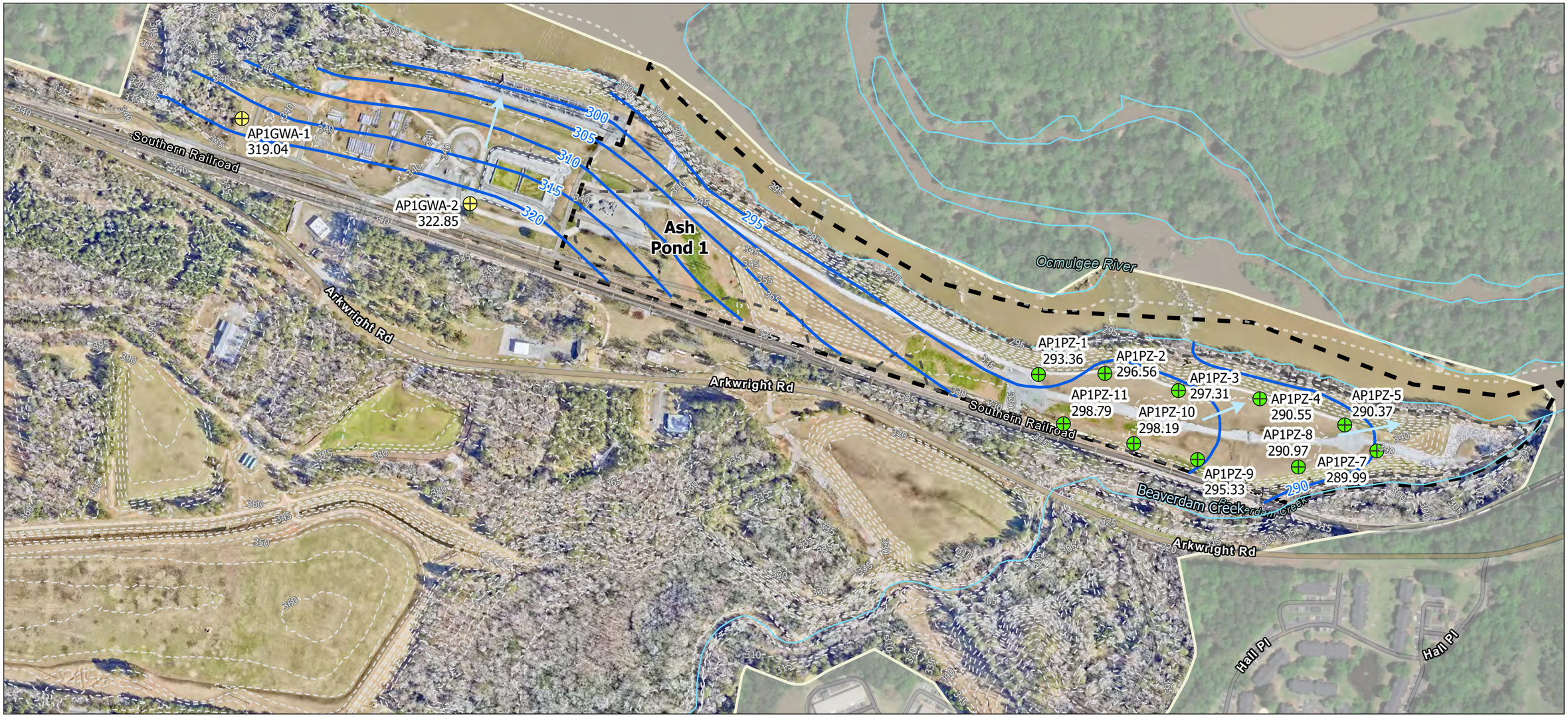
Prepared by DMB on ???????
TR by PD on ?????
IR by ES on ?????

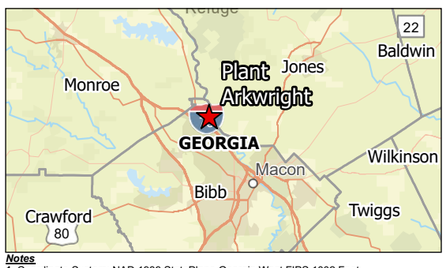
Client/Project
Georgia Power
Hydrogeologic Assessment Report
Plant Arkwright Ash Pond 1

175518252

Figure No.
4b

Title
CROSS-SECTION B-B'





Notes

1. Coordinate System: NAD 1983 StatePlane Georgia West FIPS 1002 Feet
2. Data Sources: AP-1 Boundary, Piezometers, Topography, and Beaverdam Creek provided by Southern Company Services and Wood Environment & Infrastructure Solutions; Groundwater Contours, Flow Arrow, and Ocmulgee River provided by Stantec
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community. Plant imagery provided by client and is dated 1/2/2025.

Legend

- Monitoring Well
- Piezometer
- Interpreted Groundwater Flow Direction
- Potentiometric Surface Contour (feet (ft) NAVD88)
- Beaverdam Creek/Ocmulgee River (Approximate)
- Topographic Contour Dec. 2024 (5 ft interval)
- Approximate Limits of Ash Pond 1
- Ash Pond 1 Permit Boundary
- Limit of Client Imagery (dated 1/2/2025)

293.36 Groundwater Elevation (ft NAVD88)
AP1GWA-1 and AP1GWA-2 not included in contouring
NAVD88 - North American Vertical Datum of 1988

KATIE T. ROSS
GEORGIA REGISTERED PROFESSIONAL GEOLOGIST
No. 1776

0 400 800 Feet
(At original document size of 11x17)
1:4,800

N

Stantec

Georgia Power

Project Location
Macon, Georgia

Prepared by DMB on 5/12/2025
TR by PD on 5/12/2025
IR by AW on 5/12/2025

Client/Project 175518252
Georgia Power
Hydrogeologic Assessment Report
Plant Arkwright Ash Pond 1

Figure No.
5

Title
Potentiometric Surface Contour Map
Ash Pond 1 - August 19, 2024

APPENDIX A

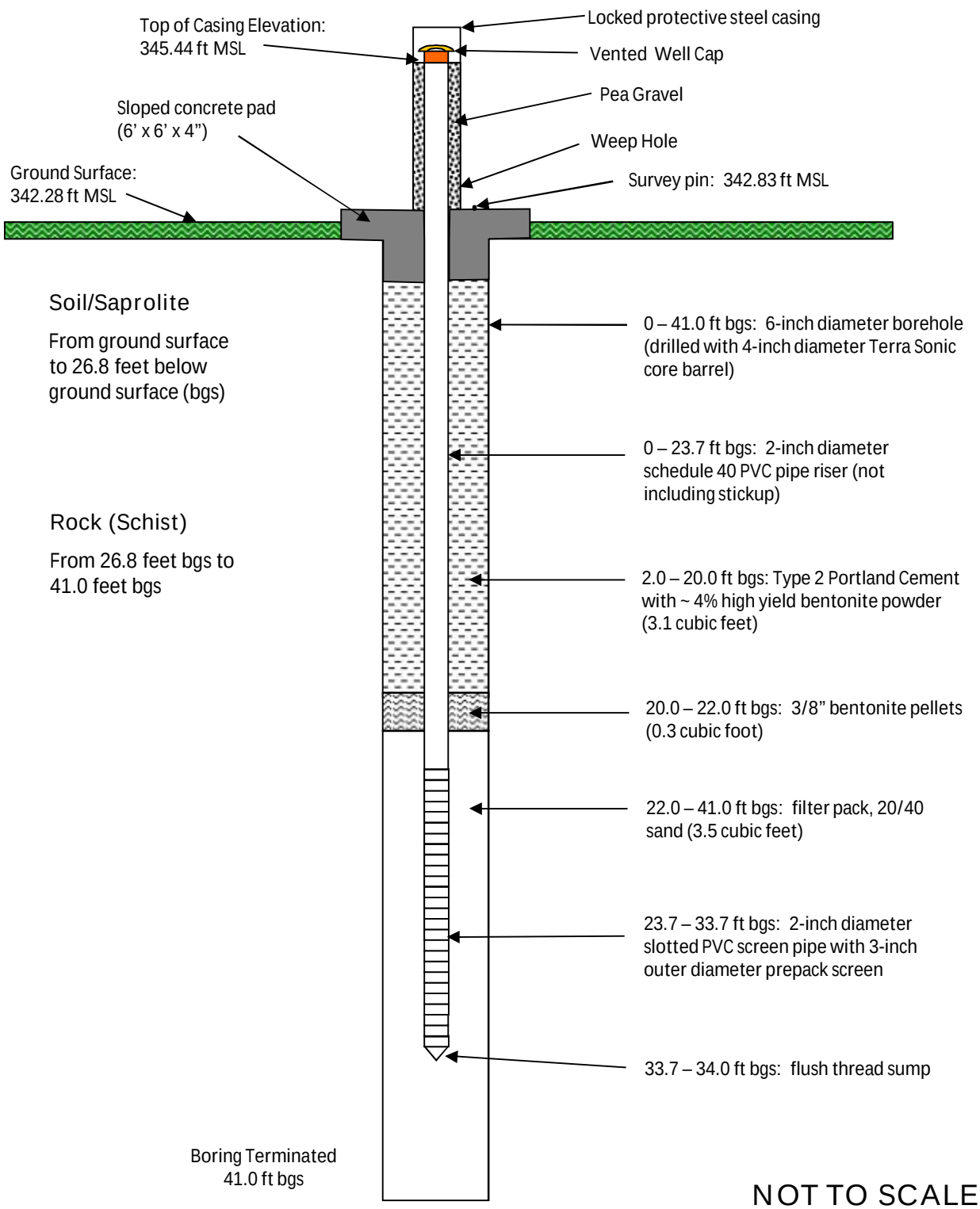
AP1 BORING LOGS, WELL CONSTRUCTION DIAGRAMS, SURVEY CERTIFICATIONS, AND DRILLER BONDS

GEORGIA POWER
PLANT ARKWRIGHT
MONITORING WELL SURVEY DATA
June 8, 2021
DGA JOB # 6620-002-D1, C1335

WELL ID	NORTHING	EASTING	ELEVATIONS			
			GROUND	NAIL	TOP OF	TOP OF
			ELEVATION	IN CONCRETE	WELL PAD	CASING
AP1-PZ1	1062799.79	2440164.34	335.92	336.09		338.97
AP1-PZ2	1062573.21	2440300.14	336.64	336.86		339.58
AP1-PZ3	1062286.28	2440387.36	335.50	335.65		338.57
AP1-PZ4	1061989.86	2440520.65	334.98	335.17		338.36
AP1-PZ5	1061645.61	2440599.18	336.61	336.77		339.81
AP1-PZ6	1061273.40	2440714.78	344.25	344.42		347.56
AP1-PZ7	1061483.62	2440573.47	337.56	337.92		340.91
AP1-PZ8	1061721.72	2440362.39	334.94	335.25		338.31
AP1-PZ9	1062083.33	2440187.59	334.14	334.49		337.62
AP1-PZ10	1062334.74	2440116.05	335.07	335.37		338.38
AP1-PZ11	1062615.94	2440044.48	335.78	336.13		338.98

COORDINATES ARE GA STATE PLANE, WEST ZONE, NAD 83.
ELEVATIONS ARE BASED ON MEAN SEA LEVEL, NAVD 88.

Survey data shown below has a horizontal positional tolerance of +/-0.5 feet and a vertical positional tolerance of +/- 0.01 feet at the 95% level of confidence.
Equipment used to obtain horizontal and vertical coordinates was a LEICA SYSTEM 1200 GPS RECEIVER WITH A LEICA RX1200 DATA COLLECTOR.
Benchmark used to establish horizontal and vertical positions was established from LEICA SMARTNET REAL TIME NETWORK.



JACOBS	Georgia Power Former Plant Arkwright Bibb County, Georgia	DATE April 20, 2018 SCALE NA JOB NO.: 35DK9205
	AP1GWA-1 Construction Diagram	AS - BUILT

JACOBS Jacobs Engineering

BORING NUMBER AP1GWA-1

CLIENT Georgia Power Company
PROJECT NAME Former Plant Arkwright Permitting
PROJECT NUMBER 35DK9205
PROJECT LOCATION Macon, Georgia
DATE STARTED 4/19/18 **COMPLETED** 4/20/18
GROUND ELEVATION 342.28 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - TerraSonic TSCi 150T
AT TIME OF DRILLING DRILLING 22.00 ft / Elev 320.28 ft
LOGGED BY A. Hardesty **CHECKED BY** C. Hickman
AFTER DRILLING DRILLING 22.50 ft / Elev 319.78 ft on 5/3/18
NOTES
NORTHINGS 1066048.91 **EASTINGS** 2439462.98

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
0		(CL) Medium to dark brown clay with sand and gravel, organic material, stiff, medium plasticity, wet.	Sonic		NA
			Sonic		NA
		(CL) Dark brown to reddish brown with black stones, clayey sandy gravel with black coal slag (fill material), firm, moist to dry.			
5		(CL) Medium to dark brown clay, stiff, low plasticity, moist.	Sonic		NA
10					
		(CL) Reddish brown clay, firm, medium plasticity, moist.	Sonic		NA
15		(SP) Reddish tan sand and gravel (10%), poorly sorted, loose, moist.	Sonic		NA
			Sonic		NA
		(SP) Tan to medium brown sand and gravel, poory sorted, loose, wet.			
20					
25		(CL) Gray to tan clay with sand and gravel, firm, wet.	Sonic		NA
			Sonic		NA
		(Bedrock) Light gray to tan and white, bedrock weathered shist, micaceous in areas, moist to dry, last 5' is dry.			
30					
35					

▲ SPT N VALUE ▲
20 40 60 80
● Moisture Content ●
20 40 60 80

(Continued Next Page)

JACOBS Jacobs Engineering

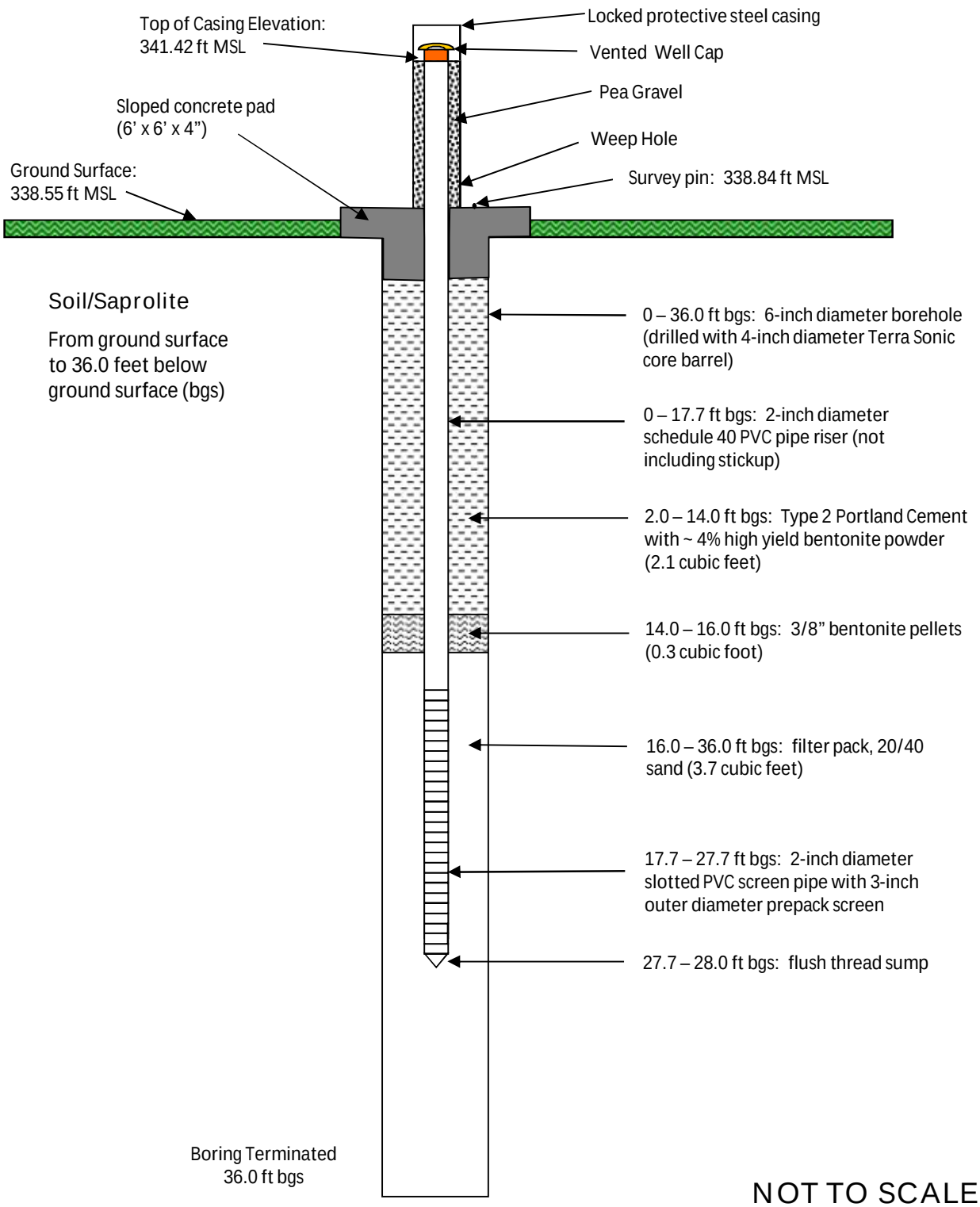
BORING NUMBER AP1GWA-1

CLIENT Georgia Power Company **PROJECT NAME** Former Plant Arkwright Permitting

PROJECT NUMBER 35DK9205 **PROJECT LOCATION** Macon, Georgia

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	▲ SPT N VALUE ▲ 20 40 60 80 ● Moisture Content ● 20 40 60 80
35		(Bedrock) Light gray to tan and white, bedrock weathered shist, micaceous in areas, moist to dry, last 5' is dry. *(continued)*				
40						

Bottom of borehole at 41.0 feet.



JACOBS	Georgia Power Former Plant Arkwright Bibb County, Georgia	DATE April 20, 2018 SCALE NA JOB NO.: 35DK9205
	AP1GWA-2 Construction Diagram	AS - BUILT

JACOBS Jacobs Engineering

BORING NUMBER AP1GWA-2

CLIENT Georgia Power Company
PROJECT NAME Former Plant Arkwright Permitting
PROJECT NUMBER 35DK9205
PROJECT LOCATION Macon, Georgia
DATE STARTED 4/20/18 **COMPLETED** 4/20/18
GROUND ELEVATION 338.55 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - TerraSonic TSCi 150T
▽ **AT TIME OF DRILLING DRILLING** 14.50 ft / Elev 324.05 ft
LOGGED BY A. Hardesty **CHECKED BY** C. Hickman
▼ **AFTER DRILLING DRILLING** 15.41 ft / Elev 323.14 ft on 5/3/18
NOTES
NORTHINGS 1065095.1 **EASTINGS** 2439623.37

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
0		(ML) Tan to medium brown silt, loose, moist.	Sonic		NA
		(CL) Dark bown to black clay with gravel, loose to soft, moist.	Sonic		NA
		(CL) Reddish brown sandy clay, firm to soft, and wet to moist.	Sonic		NA
5					
10					
		No recovery.	Sonic		NA
15		▽ ▼			
20					
25					
		(GM) Weathered bedrock, loose, clayey to sandy, wet.	Sonic		NA
30					
35					

▲ SPT N VALUE ▲
20 40 60 80
● Moisture Content ●
20 40 60 80

(Continued Next Page)

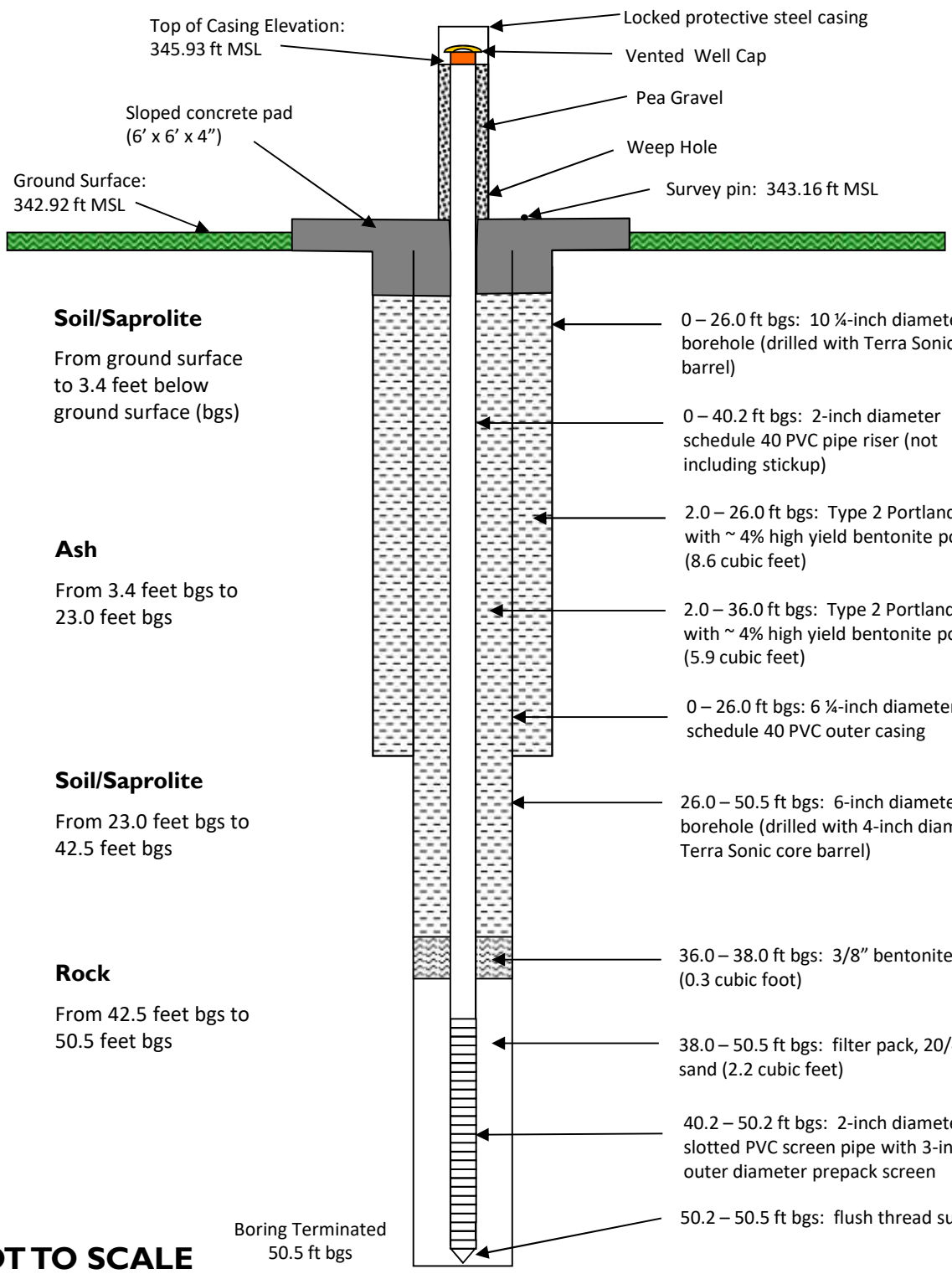
JACOBS Jacobs Engineering

BORING NUMBER AP1GWA-2

CLIENT Georgia Power Company **PROJECT NAME** Former Plant Arkwright Permitting

PROJECT NUMBER 35DK9205 **PROJECT LOCATION** Macon, Georgia

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	▲ SPT N VALUE ▲ 20 40 60 80 / ● Moisture Content ● 20 40 60 80
35		(GM) Weathered bedrock, loose, clayey to sandy, wet. *(continued)*				
		Bottom of borehole at 36.0 feet.				



JACOBS

Georgia Power Former Plant Arkwright
Bibb County, Georgia

AP1GWC-3
Construction Diagram

DATE April 24, 2018
SCALE NA
JOB NO.: 35DK9205

AS - BUILT

Abandoned 01/10/2019

JACOBS Jacobs Engineering

BORING NUMBER AP1GWC-3

CLIENT Georgia Power Company
PROJECT NAME Former Plant Arkwright
PROJECT NUMBER 35DK9205
PROJECT LOCATION Macon, Georgia
DATE STARTED 4/18/18 **COMPLETED** 4/23/18
GROUND ELEVATION 342.92 ft **HOLE SIZE** 6/10.25 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - TerraSonic TSCi 150T
▽ **AT TIME OF DRILLING** 38.00 ft / Elev 304.92 ft
LOGGED BY A. Hardesty **CHECKED BY** C. Hickman
▼ **AFTER DRILLING** 47.66 ft / Elev 295.26 ft on 5/3/18
NOTES
NORTHINGS 1063722.97 **EASTINGS** 2440078.06

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
0		(SC) Medium reddish brown, sandy clay, soft to firm, wet.	Sonic		NA
		(SM) Medium brown to gray sandy silt with some clay, loose, moist.	Sonic		NA
		(Ash) Dark gray ash, loose, dry.	Sonic		NA
5		(Ash) Dark gray ash, loose, dry.	Sonic		NA
10					
15					
20					
		(SP) Reddish brown sand, gravel, silt, some clay, loose, poorly sorted, moist.	Sonic		NA
25					
		(SC) Reddish brown sand with gravel and clay, loose, moist to wet.	Sonic		NA
30					
35					

▲ SPT N VALUE ▲
20 40 60 80
● Moisture Content ●
20 40 60 80

(Continued Next Page)

Abandoned 01/10/2019

JACOBS Jacobs Engineering

BORING NUMBER AP1GWC-3

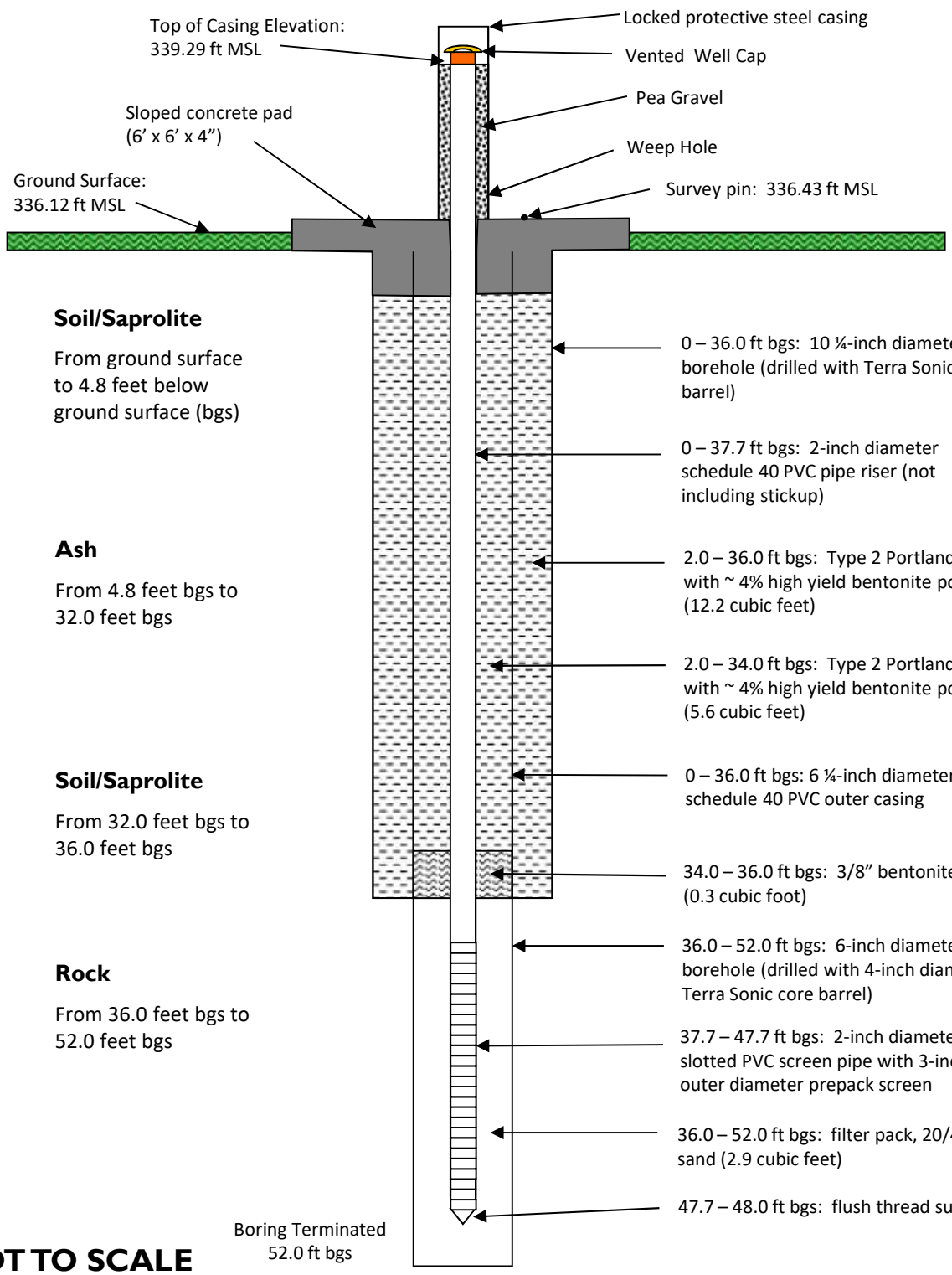
CLIENT Georgia Power Company **PROJECT NAME** Former Plant Arkwright

PROJECT NUMBER 35DK9205 **PROJECT LOCATION** Macon, Georgia

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	▲ SPT N VALUE ▲ 20 40 60 80 / ● Moisture Content ● 20 40 60 80
35		(SC) Reddish brown sand, medium gravel, with clay, sand, well sorted, loose, wet.	Sonic		NA	
40		(CL) Medium brown clay, soft to firm, wet.	Sonic		NA	
		(Bedrock) Tan to gray weathered bedrock, loose, silty, dry at 45'.	Sonic		NA	
45		(Bedrock) No samples taken.				
50		Bottom of borehole at 50.5 feet.				

GEOTECH BH PLOTS - GINT STD US LAB.GDT - 12/18/18 17:10 - \\OAKFIL01\PROJECTS\SOUTHERNCOMPANYMESA\35DK9205\600DISC\FIELD DATA\BORING LOGS\BOREHOLE DATABASE\BOREHOLE-LOGS.GPJ

Abandoned 01/14/2019



JACOBS	Georgia Power Former Plant Arkwright Bibb County, Georgia	DATE April 24, 2018 SCALE NA JOB NO.: 35DK9205
	AP1GWC-4 **Construction Diagram**	AS - BUILT

Abandoned 01/14/2019

JACOBS Jacobs Engineering

BORING NUMBER AP1GWC-4

CLIENT Georgia Power Company
PROJECT NAME Former Plant Arkwright
PROJECT NUMBER 35DK9205
PROJECT LOCATION Macon, Georgia
DATE STARTED 4/18/18 **COMPLETED** 4/24/18
GROUND ELEVATION 336.12 ft **HOLE SIZE** 6/10.25 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - TerraSonic TSCi 150T
AT TIME OF DRILLING 36.00 ft / Elev 300.12 ft
LOGGED BY A. Hardesty **CHECKED BY** C. Hickman
AFTER DRILLING 43.51 ft / Elev 292.61 ft on 5/3/18
NOTES
NORTHINGS 1062197.79 **EASTINGS** 2440461.01

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
0		(SC) Medium reddish brown, sandy clay, soft, wet.	Sonic		NA
		(CL) Medium brown clay, firm to stiff, moist to dry.	Sonic		NA
5		(Ash) Dark gray ash, loose, dry.	Sonic		NA
10					
15					
20					
		(Ash) Ash with some clay content, loose but firm in areas of clay content, dry.	Sonic		NA
25					
30					
		(CL) Medium brown to yellowish brown to reddish brown clay, firm, wet to moist.	Sonic		NA
		(SP) Light yellowish brown fine grained sand, well sorted, loose, moist.	Sonic		NA
35					

▲ SPT N VALUE ▲
20 40 60 80
● Moisture Content ●
20 40 60 80

(Continued Next Page)

Abandoned 01/14/2019

JACOBS Jacobs Engineering

BORING NUMBER AP1GWC-4

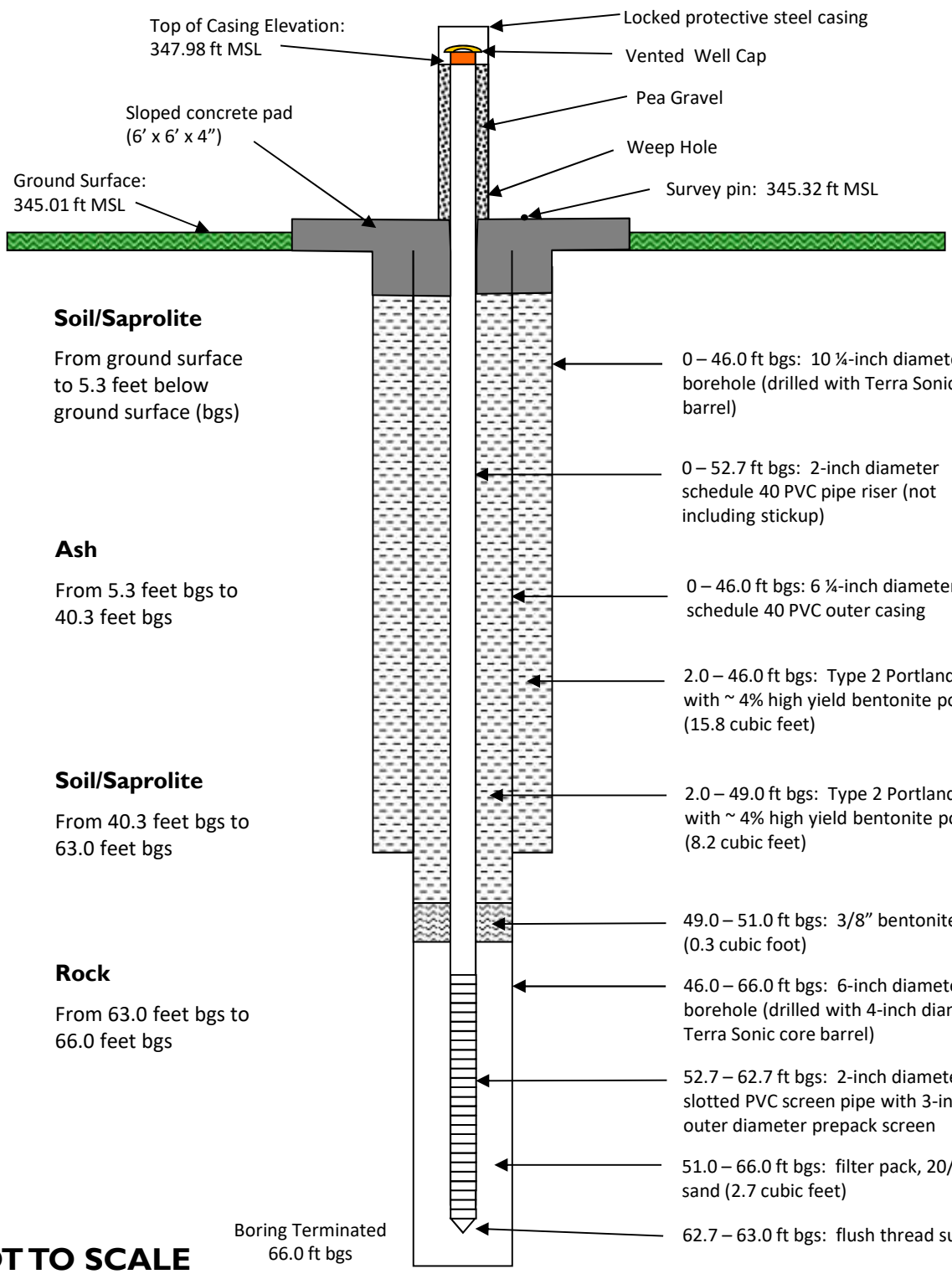
CLIENT Georgia Power Company **PROJECT NAME** Former Plant Arkwright

PROJECT NUMBER 35DK9205 **PROJECT LOCATION** Macon, Georgia

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	▲ SPT N VALUE ▲ 20 40 60 80 ● Moisture Content ● 20 40 60 80
35		(Bedrock) Reddish brown weathered bedrock.	Sonic		NA	
40						
45		(Bedrock) Tan and gray weathered bedrock.	Sonic		NA	
50						

Bottom of borehole at 52.0 feet.

GEOTECH BH PLOTS - GINT STD US LAB.GDT - 12/18/18 17:10 - \\OAKFIL01\PROJECTS\SOUTHERNCOMPANYMESA\35DK9205\600DISC\FIELD DATA\BORING LOGS\BOREHOLE DATABASE\BOREHOLE-LOGS.GPJ



JACOBS

Georgia Power Former Plant Arkwright
Bibb County, Georgia

DATE April 25, 2018
SCALE NA
JOB NO.: 35DK9205

AP1GWC-5
Construction Diagram

AS - BUILT

Abandoned 01/15/2019

JACOBS Jacobs Engineering

BORING NUMBER AP1GWC-5

CLIENT Georgia Power Company
PROJECT NAME Former Plant Arkwright
PROJECT NUMBER 35DK9205
PROJECT LOCATION Macon, Georgia
DATE STARTED 4/17/18 **COMPLETED** 4/25/18
GROUND ELEVATION 345.01 ft **HOLE SIZE** 6/10.25 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - TerraSonic TSCi 150T
AT TIME OF DRILLING ---
LOGGED BY A. Hardesty **CHECKED BY** C. Hickman
AFTER DRILLING 53.90 ft / Elev 291.11 ft on 5/3/18
NOTES
NORTHINGS 1061255.6 **EASTINGS** 2440731.17

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
0		(SC) Medium brown sandy clay with silt, organic material, soft, wet.	Sonic		NA
		(SC) Medium to dark brown sandy clay, soft to firm, moist.	Sonic		NA
		(SC) Medium brown to reddish brown sandy clay, firm to stiff, moist.	Sonic		NA
5		(Ash) Medium to dark gray ash, loose, moist to dry.	Sonic		NA
		(Ash) Medium to dark gray sandy clay with intermittent sections of ash, loose, moist, dry.	Sonic		NA
10					
15		(Ash) Medium to dark gray ash, loose, moist to dry.	Sonic		NA
		(Ash) Medium to dark gray ash, loose, moist to dry.	Sonic		NA
20					
25		(Ash) Medium to dark gray ash, loose, moist to dry.	Sonic		NA
30					
35					

▲ SPT N VALUE ▲
20 40 60 80
● Moisture Content ●
20 40 60 80

(Continued Next Page)

Abandoned 01/15/2019

JACOBS Jacobs Engineering

BORING NUMBER AP1GWC-5

CLIENT Georgia Power Company **PROJECT NAME** Former Plant Arkwright

PROJECT NUMBER 35DK9205 **PROJECT LOCATION** Macon, Georgia

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
35		(Ash) Medium to dark gray ash, loose, moist to dry. *(continued)*	Sonic		NA
		(Ash) Medium to dark gray ash, loose, moist to dry.			
40		(SC) Light gray to brown silty clay, firm, moist.	Sonic		NA
		(SM) Medium gray sandy silt with clay, loose, and moist.	Sonic		NA
		(CL) Light gray to medium reddish brown clay, stiff, moist.	Sonic		NA
45		(SP) Medium gray fine grained sand, well sorted, loose, moist.	Sonic		NA
		(SC) Reddish gray to brown clayey sand, firm to soft, moist to wet. Increase in clay content from 54.5' to 55.5'	Sonic		NA
50					
		▼			
55		(SC) Medium gray sand with some clay, loose, wet/saturated.	Sonic		NA
60					
		(SC) Medium gray clay with some sand, stiff to firm, wet.	Sonic		NA
		(Bedrock) Weathered bedrock dry.	Sonic		NA
65					

Bottom of borehole at 66.0 feet.

▲ SPT N VALUE ▲

20 40 60 80

● Moisture Content ●

20 40 60 80

GEOTECH BH PLOTS - GINT STD US LAB.GDT - 12/18/18 17:10 - \\OAKFIL01\PROJECTS\SOUTHERNCOMPANYMESA\35DK9205\600DISC\FIELD DATA\BORING LOGS\BOREHOLE DATABASE\BOREHOLE-LOGS.GPJ

AP1PZ-1 BORING LOG

PROJECT NUMBER 6123211714
PROJECT NAME Plant Arkwright
CLIENT Georgia Power
ADDRESS 5001 Arkwright Road Macon, GA
LOCATION Ash Pond 1

DRILLING COMPANY Cascade Drilling
DRILLER J. Smith
RIG TYPE/ METHOD TSI CC150/ SONIC
CASING DIA. 2-in I.D. PVC
BORING DEPTH 86.0 ft

COORDINATES N 1062799.79, E 2440164.34
COORD SYS Ga State Plane West (NAD 83)
COMPLETION Stick-up w/ protective casing
SURFACE ELEVATION 335.92 ft NAVD 88
WELL TOC 338.97 ft NAVD 88

COMMENTS Start drilling 4/29/2021 and drilling completed 5/1/2021. Well construction completed on 5/14/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
0	0-11		#1 (100%)		Silty SAND, red/ brown, loose, dry, micaceous, trace clay	SM		336
2					Gravelly Silty SAND, dark grey to black, loose, dry, angular fine to coarse gravel, co-mingled ash	SW		334
4					Cobble seam 2.5-3.0 ft, angular fine to coarse gravel			332
6		5-6			Silty SAND, brown/ red, loose, dry, micaceous, trace clay	SM		330
8		7-8			Ash, black to dark grey, fine grained, very loose, dry to moist	ML		328
10		10-11						326
12	11-21		#2 (100%)		Split spoon from 11-12.5 ft using 1.5 ft spoon; Blow-counts: 6/13/16			324
14								322
16		15-16						320
18								318
20		20-21			Silty SAND with clay, light brown/green brown, loose	SM-SC		316
22	21-30		#3 (100%)		Ash, dark grey, loose, dry, with inter-mixed clays	ML-CL		314
24							Bentonite grout mix	312
26		24.5-25.5						310
28								308
30		28.8-30			SAND, tan/light brown/ dark grey/green, fine grained, very loose, poorly graded	SP		306
32	30-40		#4 (60%)					304
34								302
36		35-36						300
38								298
40								296
42	40-50	41-42	#5 (100%)		Clayey silty SAND, brown/grey, loose, moist, variable clay content with medium plasticity	SC-SM		294
44					Silty micaceous SAND, red/white/grey/green, loose, dry to moist, little clay decreasing with depth	SM-SC		292
46					46-50 ft saprolite texture			290
48		48-49						288

Disclaimer This bore log is intended for environmental not geotechnical purposes.

produced by ESlog.ESdat.net on 14 Sep 2021

AP1PZ-1 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
50								286
52	50-60		#6 (100%)		50-60 ft silty sand with relic weathered metamorphic rock texture, medium dense, dry	SM		284
54		54-55						282
56								280
58								278
60		59-60					Bentonite grout mix	276
62	60-67		#7 (100%)		Clayey micaceous silty SAND, green/grey, (soft, medium plasticity), moist	SC-SM		274
64					Silty micaceous SAND, light grey/brown, fine grained, loose, dry 64.5-65.6 ft CLAY seam, high plasticity	SM-CH		272
66		65-66			Saprolite, grey/white/black, dense, dry, weathered black micaeous rock	SM		270
68	67-70		#8 (100%)		Clayey silty micaceous SAND, dark grey/red/brown, medium dense, moist	SC-SM		268
70		69-70						266
72	70-80		#9 (100%)		Silty micaceous SAND, coarse grained, grey/green/red, dense, wet, saprolite, trace laminated cobble	SM-SW	Bentonite seal	264
74		74-75						262
76								260
78							Sand filter pack and pre-pack screen	258
80		79-80			CLAY, green/light brown/grey, low plasticity, moist	CL		256
82	80-86		#10 (100%)		Weathered Rock with micaceous silty SAND, black/grey, medium dense, moist	SM		254
84		84-85			Bedrock (mica schist), black/grey, dry Heavily weathered micaceous rock, mica schist breakable by hand, variable color grading to grey	SM		252
86					Bedrock (mica schist), black/grey, dry	-		250
					Boring terminated at 86 feet at top of bedrock			
88								248
90								246
92								244
94								242
96								240
98								238
100								236
102								234
104								232
106								230
108								228

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AP1PZ-2 BORING LOG

PROJECT NUMBER 6123211714
PROJECT NAME Plant Arkwright
CLIENT Georgia Power
ADDRESS 5001 Arkwright Road Macon, GA
LOCATION Ash Pond 1

DRILLING COMPANY Cascade Drilling
DRILLER J. Smith
RIG TYPE/ METHOD TSI CC150/ SONIC
CASING DIA. 2-in I.D. PVC
BORING DEPTH 59.5 ft

COORDINATES N 1062573.21, E 2440300.14
COORD SYS Ga State Plane West (NAD 83)
COMPLETION Stick-up w/ protective casing
SURFACE ELEVATION 336.64 ft NAVD 88
WELL TOC 339.58 ft NAVD 88

COMMENTS Start drilling 5/2/2021 and drilling completed 5/2/2021. Well construction completed on 5/14/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS	Elevation (ft)
0	0-10		#1 (100%)	Clayey silty SAND (fill), orange/brown, medium dense, moist	SM-SC	336
2					SW-SM	
				Gravelly SAND (fill), black, loose, dry, co-mingled ash, angular cobbles	SM	334
4				Silty micaceous SAND, brown/green/grey, loose, moist		
		4.5-5.5		Silty clayey SAND (fill), red/black, dense, dry, ash mixed in	SM-CL	332
6				Silty SAND with clay, tan/light brown, dense, high plasticity clay seams 6.6-6.7 ft & 7.9-8.0 ft	SM-SC	
		7-8				330
8				Ash, black, fine grained, very loose, moist to dry	ML	
		9-10				328
10				Clayey silty gravelly SAND, green 10-11 ft ash mixed in	SW-SC	
	10-18		#2 (100%)			326
		11-12		Gravelly silty SAND with clay, red/white specks, very loose, moist, coarse sub-rounded quartz gravel, (angular asphalt pieces) 16.8-17.4 ft sand seam, loose, no clays		
12						324
14						322
16						320
18						
	18-28		#3 (62%)			318
20						
						316
22						
24						314
		24-25				
26				Silty SAND, coarse grained, white/tan/light brown, loose, dry, angular quartz gravel, weathered gneiss appearance 27.2-27.3 white clay seam	SW-SM	312
		27-28				
28						310
	28-38		#4 (72%)			
30						308
						306
32				Silty micaceous SAND, variable color, loose, moist, saprolitic, varied clay content	SM-SC	
34						304
		35-36				
36						302
38						300
	38-48		#5 (100%)			
40		40-41				298
42						296
				Quartz vein, white, dry, powdered by drilling vibrations	-	294
44						
		44.6-45.6		Gravelly micaceous SAND, brown/orange/black, loose, dry, saprolite with relic structure	SW	292
46				Quartz vein, white with brown staining, moist 47.2-48 ft quartzite schist	-	290

Well Diagram: Bentonite grout mix; Bentonite seal; Sand filter pack and pre-pack screen

Disclaimer This bore log is intended for environmental not geotechnical purposes.

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AP1PZ-2 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
48	48-58		#6 (44%)		Fractured Bedrock (quartz mica schist), black/white, wet, brown staining of quartzite veins	-	Sand filter pack and pre-pack screen	288
50								286
52								284
54								282
56								280
58								278
60					Boring terminated at 59.5 feet approximately 15 feet into weathered bedrock			276
62								274
64								272
66								270
68								268
70								266
72								264
74								262
76								260
78								258
80								256
82								254
84								252
86								250
88								248
90								246
92								244
94								242
96								240
98								238
100								236
102								234
104								

produced by ESlog.ESdat.net on 14 Sep 2021

AP1PZ-3 BORING LOG

PROJECT NUMBER 6123211714
PROJECT NAME Plant Arkwright
CLIENT Georgia Power
ADDRESS 5001 Arkwright Road Macon, GA
LOCATION Ash Pond 1

DRILLING COMPANY Cascade Drilling
DRILLER J. Smith
RIG TYPE/ METHOD TSI CC150/ SONIC
CASING DIA. 2-in I.D. PVC
BORING DEPTH 64.0 ft

COORDINATES N 1062286.28, E 2440387.36
COORD SYS Ga State Plane West (NAD 83)
COMPLETION Stick-up w/ protective casing
SURFACE ELEVATION 335.50 ft NAVD 88
WELL TOC 338.57 ft NAVD 88

COMMENTS Start drilling 5/3/2021 and drilling completed 5/4/2021. Well construction completed on 5/14/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS	Elevation (ft)
0	0-9		#1 (100%)	Clayey silty micaceous SAND (fill), brown/red, medium dense, moist, some clays	SM-SC	335
4		4-5		Gravelly silty SAND with co-mingled ash, black/dark brown/white, loose, moist, white and black fine gravel, trace clays	SM-SW	332
6				Ash, dark grey/black, very loose, moist, fine black gravel	ML	330
8		7-8		Clayey silty SAND (fill), light red/ yellow, loose, moist, some clays	SM-SC	328
10	9-19	9-10	#2 (100%)	Gravelly silty SAND with co-mingled ash, green/grey/brown, loose, moist, coarse sub-rounded to angular gravel	SM-SW	326
12				Ash, black/green grey, loose, moist	ML	324
16		16.3-17.3		Clayey silty micaceous SAND, red/yellow, medium dense, moist, some fat clays	SM-SC	320
18						318
20	19-29		#3 (75%)	Gravelly silty SAND, fine grained, brown/yellow/white/tan, very loose, dry, powdery sand, trace clay, micaceous, saprolitic	SW-SC	316
22		22-23				314
24						312
26						310
28						308
30	29-39	30-31	#4 (100%)			306
32				CLAY, green/tan/light brown, soft, medium to high plasticity, moist	CL	304
34				Silty micaceous SAND, dark brown/tan/grey/white, loose, moist, saprolite/ relic structure	SM-SW	302
36		36-37		Rock lenses 37.8-38.3 ft (dry) and 50.9-51.0 ft		300
38						298
40	39-49		#5 (100%)			296
42		42-43				294
44						292
46						290
48		48-49				288

Well Diagram: Bentonite grout mix; Bentonite seal

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AP1PZ-3 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
50	49-59		#6 (100%)				Bentonite seal	286
52								284
54		54-55						282
56								280
58							Sand filter pack and pre-pack screen	278
60	59-64		#7 (60%)		Fractured Bedrock (quartz mica gneiss), black/white banded, wet, brown staining of fracture surfaces, large quartz crystals	-		276
62								274
64								272
66					Boring terminated at 64 feet at bedrock-overburden interface			270
68								268
70								266
72								264
74								262
76								260
78								258
80								256
82								254
84								252
86								250
88								248
90								246
92								244
94								242
96								240
98								238
100								236
102								234
104								232
106								230

produced by ESlog.ESdat.net on 14 Sep 2021

AP1PZ-4 BORING LOG

PROJECT NUMBER 6123211714
PROJECT NAME Plant Arkwright
CLIENT Georgia Power
ADDRESS 5001 Arkwright Road Macon, GA
LOCATION Ash Pond 1

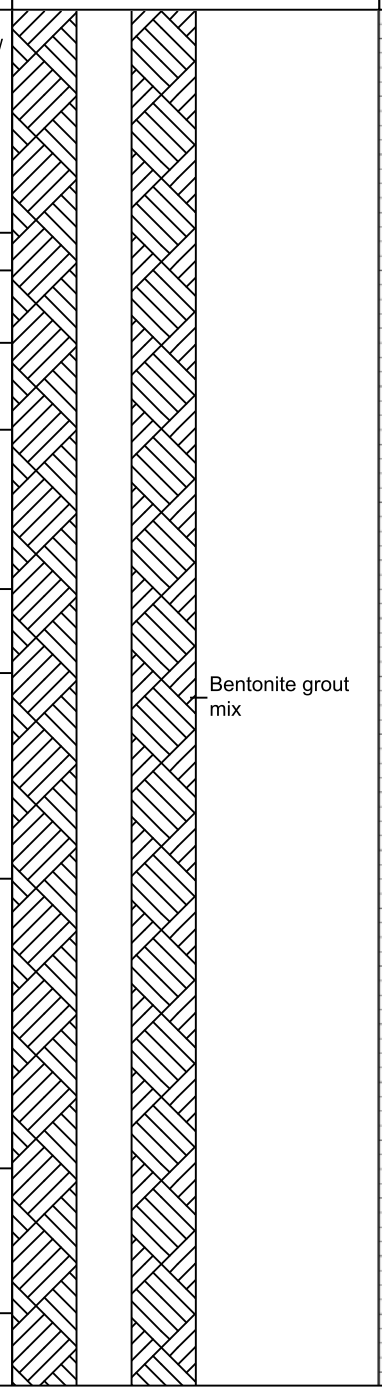
DRILLING COMPANY Cascade Drilling
DRILLER J. Reinolds
RIG TYPE/ METHOD TSI CC150/ SONIC
CASING DIA. 2-in I.D. PVC
BORING DEPTH 65.0 ft

COORDINATES N 1061989.86, E 2440520.65
COORD SYS Ga State Plane West (NAD 83)
COMPLETION Stick-up w/ protective casing
SURFACE ELEVATION 334.98 ft NAVD 88
WELL TOC 338.36 ft NAVD 88

COMMENTS Start drilling 5/10/2021 and drilling completed 5/11/2021. Well construction completed on 5/16/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS
0	0-10		#1 (70%)	Hand auger refusal at 2.5-3 ft (gravel) Silty SAND with clays (fill), brown/red, loose, dry to moist	SM-SC SM-SW
4		4-5		4.9-5.2 ft coarse gravel seam, angular grained 5.2-7.7 ft co-mingled ash	
8		8-9		Ash, fine grained, black, very loose, moist	ML
10	10-20		#2 (90%)	Silty SAND with clays and co-mingled ash, dark grey/green brown, loose, dry	SM-SC
12				Fine SAND with fine gravel, dark brown/grey, very loose, dry	SP-SM
14		13-14		13.5-13.8 ft clayey ash lens, moist	
16				Ash, black/dark grey, very loose, dry	ML
20	20-30		#3 (50%)	Fine SAND with fine gravel, dark brown/grey, loose, dry	SM-SP
22		21.5-22.5			
24				Ash, black/dark grey, very loose, dry	ML
30	30-40		#4 (0%)	No recovery Soils are soft and loose	(ML)
40	40-50	40-41	#5 (100%)	CLAY, red, stiff, medium plasticity, moist	CL
46		46-47		CLAY, brown/red/grey, medium stiff, high plasticity, moist, micaceous, relic structure/ texture	CH



Elevation (ft)
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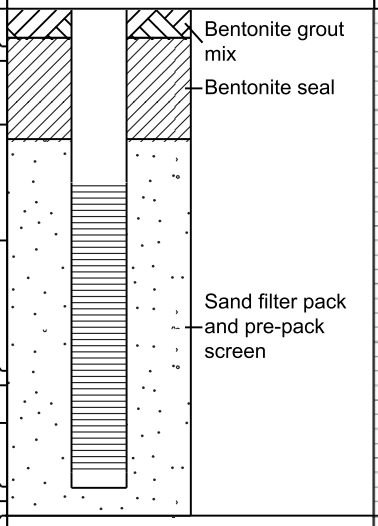
AP1PZ-4 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS	Elevation (ft)
48				Gravelly fine SAND, light brown/grey, loose, moist, light brown/grey, moist, sub-angular small gravel	SW-SM	286
50	50-60	50-51	#6 (100%)	Gravelly SAND, medium grained, yellow/grey, loose, moist, sub-rounded to sub-angular small gravel	SW	284
52				50-51.5 ft black micaceous, coarse sub-rounded quartz gravel base	SM-CL	282
54				Silty SAND with clays, brown/orange, medium dense, moist		280
56		56-57		Gravelly fine SAND, white/tan/brown/grey, very loose, dry, large gravel, saprolite texture	SW-SM	278
58				59-59.9 ft Rock lens		276
60	60-65		#7 (100%)	Fine SAND, light brown/grey, medium dense, moist	SP	274
62		61-62		Clayey silty SAND, dark brown/red, medium dense, moist	SM-SC	272
64				Gravelly fine SAND, brown/white/grey, loose, moist, small angular quartz gravel, saprolite texture, clasts breakable by hand	SW-SM	270
66				Clayey silty SAND, dark brown/white/red, medium dense, moist, saprolite texture	SC-SM	268
68				Weathered fine crystalline rock with red staining, light grey/black/red, friable, saprolitic silts mixed in	ML	266
70				Boring terminated at 65 feet at a depth based on distance below groundwater level		264
72						262
74						260
76						258
78						256
80						254
82						252
84						250
86						248
88						246
90						244
92						242
94						240
96						238
98						236
100						234
102						232
104						



AP1PZ-5 BORING LOG

PROJECT NUMBER 6123211714
PROJECT NAME Plant Arkwright
CLIENT Georgia Power
ADDRESS 5001 Arkwright Road Macon, GA
LOCATION Ash Pond 1

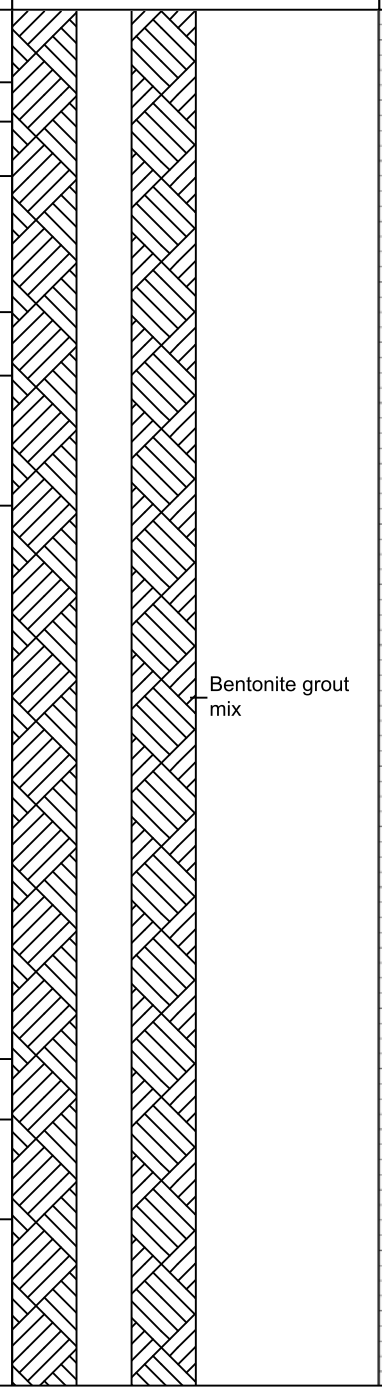
DRILLING COMPANY Cascade Drilling
DRILLER J. Reinolds
RIG TYPE/ METHOD TSI CC150/ SONIC
CASING DIA. 2-in I.D. PVC
BORING DEPTH 64.0 ft

COORDINATES N 1061645.61, E 2440599.18
COORD SYS Ga State Plane West (NAD 83)
COMPLETION Stick-up w/ protective casing
SURFACE ELEVATION 336.61 ft NAVD 88
WELL TOC 339.81 ft NAVD 88

COMMENTS Start and complete drilling on 5/12/2021. Well construction completed on 5/16/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS
0	0-10		#1 (100%)	Hand auger Clayey Silty SAND (fill), red, medium dense, moist	SM-SC
2				Ash with fine gravel, dark grey/brown, loose, dry	ML-SM
4		4-5		Silty SAND with clays and ash seams, dark brown/red, very dense, dry, small gravel	SM-SC
6				Ash, dark grey/brown, loose, dry, small sub-rounded gravel inclusions, fine gravels mixed in and coarse sand	ML-SM
8				9.9-10 ft fine grained powder ash	
10		9-10			
10	10-20		#2 (100%)	Ash, fine grained, silver grey, very loose, dry	ML
12				Ash and co-mingled gravel, black/dark grey, very loose, moist, sub-rounded gravel	ML-SM
14		14-15		16.3-16.4 ft wood chip seam	
16				Ash, fine grained, silver grey, very loose, dry	ML
18					
20		19-20			
20	20-30		#3 (100%)		
22					
24		24-25			
26					
28					
30		29-30			
30	30-40		#4 (78%)		
32					
34					
36		35-36		Fine SAND, green/light brown, loose, moist	SP
38				Ash, fine grained, silver grey/brown, loose, moist	ML
40					
40	40-50	40-41	#5 (100%)	CLAY with micaceous silt, tan/light brown, soft, medium plasticity, moist	CH-ML
42					
44					



Elevation (ft)
336
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AP1PZ-5 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
46		46-47			Clayey silty micaceous SAND, tan/brown/orange, medium dense, moist	SM-SC	Bentonite grout mix	290
48					Fine SAND, tan, loose, moist	SP		288
50	50-60		#6 (70%)		Gravelly fine SAND, orange/light brown, loose, moist, small gravel	SW	Bentonite seal	286
52		51-52			Clayey silty SAND, fine grained, tan/light brown, medium dense, moist	SW-SC		284
54					Silty SAND, brown/white/tan/red, dense, dry, saprolite, compact brittle relic weathered rock texture with red staining	SM		282
56		56-57					Sand filter pack and pre-pack screen	280
58								278
60	60-64		#7 (75%)					276
62		61-62						274
64					Boring terminated at 64 feet at a depth based on distance below groundwater level			272
66								270
68								268
70								266
72								264
74								262
76								260
78								258
80								256
82								254
84								252
86								250
88								248
90								246
92								244
94								242
96								240
98								238

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Abandoned 6/21/2023

AP1PZ-6 BORING LOG

PROJECT NUMBER 6123211714
PROJECT NAME Plant Arkwright
CLIENT Georgia Power
ADDRESS 5001 Arkwright Road Macon, GA
LOCATION Ash Pond 1

DRILLING COMPANY Cascade Drilling
DRILLER J. Reinolds
RIG TYPE/ METHOD TSI CC150/ SONIC
CASING DIA. 2-in I.D. PVC
BORING DEPTH 70.0 ft

COORDINATES N 1061273.40, E 2440714.78
COORD SYS Ga State Plane West (NAD 83)
COMPLETION Stick-up w/ protective casing
SURFACE ELEVATION 344.25 ft NAVD 88
WELL TOC 347.56 ft NAVD 88

COMMENTS Start drilling and complete drilling on 5/13/2021. Well construction completed on 5/26/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS	Elevation (ft)
0	0-10		#1 (100%)	Hand auger	SM	
2				Silty micaceous SAND with some clays (fill), dark brown/red, medium dense, dry	SM-SC	342
4		3-4		Clayey silty micaceous SAND, red/ light brown/grey, medium dense, dry	ML	340
6				Gravelly ash grading to fine ash, black/brown/yellow, loose, moist, with sub-rounded gravel		338
8		8-9		6-6.2 ft silty sand seam		336
10				Silty SAND co-mingled with ash, green/black, loose, dry, sub-rounded coarse gravel	SM-ML	334
12	10-20		#2 (100%)	Ash, fine grained, black, very loose, dry, red/brown fine sand and slag-like inclusions from 10 to 20 ft	ML	332
14		13-14		12.2-12.4 coarse gravel seam, sub-angular to sub-rounded		330
16						328
18						326
20		19-20				324
22	20-30		#3 (100%)			322
24		24-25			ML	320
26						318
28						316
30		29-30		SAND with co-mingled ash, medium grained, brown/black, loose, moist	SP-ML	314
32	30-40		#4 (100%)	Ash, fined grained, black/brown (color variable), very loose, dry, trace coal inclusions	ML	312
34		34-35				310
36						308
38						306
40		39-40				304
42	40-50		#5 (64%)	SAND with co-mingled ash, medium grained grading to fine grained, dark brown/black, loose, wet	SP	302
44		43-44		Gravelly silty SAND with co-mingled ash, silver grey/dark brown, medium dense, moist	SW	300
46				CLAY, dark brown, stiff, low plasticity, moist, rootlets throughout	CL	298
				Fine SAND, dark brown, very loose, moist	SP	

Well Diagram: Bentonite grout mix

Abandoned 6/21/2023

AP1PZ-6 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
48								296
50	50-60	50-51	#6 (95%)		CLAY with sand, dark brown/red, stiff, high plasticity, moist	CH	Bentonite grout mix	294
52								292
54					Clayey SAND, grey/light brown, loose, moist	SC	Bentonite seal	290
56								288
58		58-59			Medium SAND, grey/yellow/light brown, loose, moist, with clays to 58.6 ft 58.6-58.8 ft coarse sub-rounded gravel seam 58.8-60 ft silver grey sand, moist 60-61.2 ft white quartz grains	SP-SW		286
60	60-65		#7 (100%)					284
62		62-63			CLAY with coarse gravels and cobbles, silver grey, soft, high plasticity, moist Fractured and weathered metamorphic rock present	CH	Sand filter pack and pre-pack screen	282
64					Weathered rock with silty sand, dark grey/white, saprolitic relic structure	SM		280
66	65-70		#8 (100%)					278
68		67-68						276
70					Boring terminated at 70 feet in weathered rock			274
72								272
74								270
76								268
78								266
80								264
82								262
84								260
86								258
88								256
90								254
92								252
94								250
96								248
98								246
100								244
102								242
104								240

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AP1PZ-7 BORING LOG

PROJECT NUMBER 6123211714
PROJECT NAME Plant Arkwright
CLIENT Georgia Power
ADDRESS 5001 Arkwright Road Macon, GA
LOCATION Ash Pond 1

DRILLING COMPANY Cascade Drilling
DRILLER J. Reinolds
RIG TYPE/ METHOD TSI CC150/ SONIC
CASING DIA. 2-in I.D. PVC
BORING DEPTH 75.0 ft

COORDINATES N 1061483.62, E 2440573.47
COORD SYS Ga State Plane West (NAD 83)
COMPLETION Stick-up w/ protective casing
SURFACE ELEVATION 337.56 ft NAVD 88
WELL TOC 340.91 ft NAVD 88

COMMENTS Start drilling and complete drilling on 5/15/2021. Well construction completed on 5/26/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
0	0-10		#1 (70%)		Hand auger to 3 ft Clayey silty SAND (fill), red/brown, medium dense, moist, coarse grained angular gravel, rootlets present	SM-SC		
2								336
4		3-4			Ash, fine grained, black, very loose, dry	ML		334
6					Gravelly silty SAND with co-mingled ash, dark grey/black/dark brown, loose, dry, coarse sub-angular gravel	SW-SM		332
8					6.1-6.2 ft cobble	ML		330
10		9-10			Ash, fine grained, black, very loose, dry			328
12	10-20		#2 (90%)					326
14		14-15			Fine gravelly SAND with co-mingled ash, black/light brown, loose, dry, small gravel	SW-SM		324
16					Ash, fine grained, black, very loose, dry	ML		322
18		18-19			Clayey silty SAND, red/brown, medium dense, moist	SM-SC		320
20	20-30		#3 (100%)		CLAY, red/brown, soft, high plasticity, moist, micaceous 27-27.5 & 29.5-30 ft gravelly silty sand seams	CH-SC		318
22								316
24		24-25					Bentonite grout mix	314
26								312
28								310
30		29-30						308
32	30-40		#4 (100%)		Gravelly clayey silty SAND, red/brown/grey, medium dense, moist	SM-SC		306
34		34-35			Medium SAND, light brown, loose, wet 32.5-35 ft fine grained SAND	SP		304
36					Clayey silty SAND, green/grey, dense, moist, increasing clay content with depth	SM-SC		302
38								300
40		39-40			CLAY, red/ brown, very stiff, high plasticity, moist	CH		298
42	40-50		#5 (100%)					296
44		44-45			CLAY, soft, low plasticity, moist, micaceous	CL		294
46								292

Disclaimer This bore log is intended for environmental not geotechnical purposes.

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AP1PZ-7 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
48		48-49			Clayey micaceous silty SAND, red/brown/black, dense, moist, saprolitic texture	SM-SC		290
50	50-60		#6 (100%)		CLAY with silt, silver grey, soft, low plasticity, moist	CL		288
52					Gravelly SAND, medium grained, brown/red, loose, moist to wet, fine gravel	SW	Bentonite grout mix	286
54		53-54			Silty SAND with clay, brown/grey/white/tan/yellow/black, medium dense, moist, micaceous, saprolitic texture 56.5-57.7 ft saprolite with no clays	SM-SC		284
56								282
58		59-60						280
60	60-70		#7 (100%)				Bentonite seal	278
62								276
64		64-65						274
66								272
68		69-70					Sand filter pack and pre-pack screen	270
70	70-75		#8 (100%)		Fine SAND, light brown, very loose, moist	SP		268
72					Silty SAND. variable color, dense, moist, saprolite, seams of gravelly silty sands	SM-SW		266
74		74-75						264
76					Boring terminated at 75 feet			262
78								260
80								258
82								256
84								254
86								252
88								250
90								248
92								246
94								244
96								242
98								240
100								238
102								236

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AP1PZ-8 BORING LOG

PROJECT NUMBER 6123211714
PROJECT NAME Plant Arkwright
CLIENT Georgia Power
ADDRESS 5001 Arkwright Road Macon, GA
LOCATION Ash Pond 1

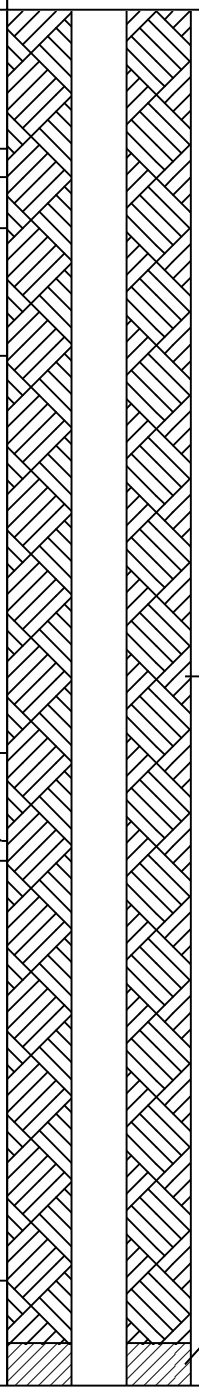
DRILLING COMPANY Cascade Drilling
DRILLER J. Reinolds
RIG TYPE/ METHOD TSI CC150/ SONIC
CASING DIA. 2-in I.D. PVC
BORING DEPTH 63.0 ft

COORDINATES N 1061721.72, E 2440362.39
COORD SYS Ga State Plane West (NAD 83)
COMPLETION Stick-up w/ protective casing
SURFACE ELEVATION 334.94 ft NAVD 88
WELL TOC 338.31 ft NAVD 88

COMMENTS Start drilling and complete drilling on 5/16/2021. Well construction completed on 5/26/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS
0	0-10		#1 (60%)	Hand auger to 4 ft Silty SAND with clays (fill), red/orange, medium dense, dry, coarse grained gravel	SM-SC
4		4-5		Gravelly silty SAND with co-mingled ash, black, medium dense, dry, coarse sub-angular gravel	SW-SM
6				Gravelly silty SAND with clays, dark brown/red/grey, loose, dry, coarse sub-angular gravel (cobble @ 6.3 ft)	SM-SC
8				Ash, fine grained, silver grey/black/red/green, loose to very loose, dry to moist	ML
10		9-10			
10	10-20		#2 (88%)		ML-SW
12					
14		13-14		12.2-20 ft co-mingled with coarse gravel and medium sand	
16				25.8-26.2 ft coarse angular gravel seam	
18		17-18			
20	20-30		#3 (50%)		
22					
24					
26				CLAY, yellow/red/brown, soft, high plasticity, moist micaceous medium sands and fine gravels present from 18.2-19.3 ft	CH
28		27-28			
30				CLAY, red/brown, very stiff, medium plasticity, moist	CL
30	30-40		#4 (100%)	CLAY, red/tan/yellow, stiff, high plasticity, moist	CH
32					
34		33-34			
36					
38		38-39			
40	40-50		#5 (100%)		
42				CLAY, tan/yellow/tan/brown, soft, high plasticity, moist, medium micaceous sands from 43.8-44.8 ft	
44		43-44			
46				Silty micaceous SAND. dark brown/dark grey/tan/light brown/white, loose, moist, little clay, saprolite	SM-SW
48				48.7-50 ft parent rock texture	



Elevation (ft)
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AP1PZ-8 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
50		49-50					Bentonite seal	286
	50-60		#6		Clayey silty SAND, dark brown, medium dense, moist, fine clayey sand at bottom	SM-SC		284
52			(100%)					
		53-54			Silty micaceous SAND. dark brown/light brown/tan/grey/white, medium dense, moist, saprolite, friable parent rock texture	SM-SW		282
54								
					SAND with silt, fine to medium grained, tan, loose, moist	SP	Sand filter pack and pre-pack screen	280
56		56-57						
								278
58					Silty SAND. grey/red/brown, dense to loose, dry to moist, saprolite	SM		
								276
60	60-63		#7		58.2-60 ft fractured rock with red/brown staining			
		61-62						274
62			(100%)		Weathered bedrock (mica schist), black/white, red staining on rock surfaces			
								272
64					Boring terminated at 63 feet			
								270
66								
								268
68								
								266
70								
								264
72								
								262
74								
								260
76								
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102								
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104								
								230
106								

produced by ESlog.ESdat.net on 14 Sep 2021

AP1PZ-9 BORING LOG

PROJECT NUMBER 6123211714
PROJECT NAME Plant Arkwright
CLIENT Georgia Power
ADDRESS 5001 Arkwright Road Macon, GA
LOCATION Ash Pond 1

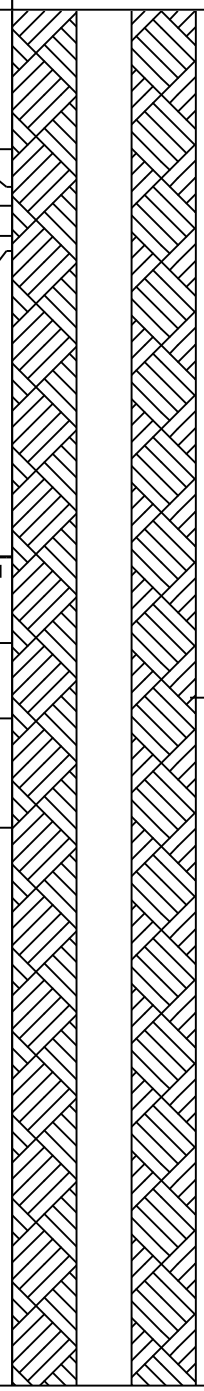
DRILLING COMPANY Cascade Drilling
DRILLER J. Reinolds
RIG TYPE/ METHOD TSI CC150/ SONIC
CASING DIA. 2-in I.D. PVC
BORING DEPTH 55.0 ft

COORDINATES N 1062083.33, E 2440187.59
COORD SYS Ga State Plane West (NAD 83)
COMPLETION Stick-up w/ protective casing
SURFACE ELEVATION 334.14 ft NAVD 88
WELL TOC 337.62 ft NAVD 88

COMMENTS Start drilling and complete drilling on 5/17/2021. Well construction completed on 5/25/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS
0	0-10		#1 (70%)	Hand auger to 2 ft Silty micaceous SAND with some clays (fill), orange/yellow, loose, moist	SM-SC
2		2.5-3.5			
4				Ash with medium grained sand, black, loose, moist	ML
				Silty SAND with some clays (fill), red/black, medium dense, dry	SM-SC
6					ML
				Ash with medium grained sand, black, loose, dry to moist	CL
				CLAY, red, very stiff, medium plasticity, dry, micaceous	ML
8		8-9		Ash with medium grained sand, black/grey, loose to very loose, dry, coarse sub-angular gravel present 10-14.5 ft pieces of coal	
10	10-20		#2 (90%)		
12					
		13-14			
14					
				Gravelly SAND co-mingled with ash, medium to coarse grained, green/dark brown, very loose, dry	SW-SM
16					
		17-18		CLAY, bright red, very stiff, high plasticity, moist	CH
18					
				Clayey micaceous silty SAND, bright red/silver grey, medium dense, moist	SM-SC
20	20-30		#3 (77%)		
22		22-23		Silty SAND. tan/light brown/orange, loose, dry to moist, saprolite, friable clasts	SM
24				30-33 ft fractured rock (schist) with red staining	
				37.8-38 ft competent rock with some red staining	
26		26-27			
28					
30	30-33		#4 (100%)		
32		32-33			
34	33-38		#5 (100%)		
36					



Elevation (ft)
332
330
328
326
324
322
320
318
316
314
312
310
308
306
304
302
300
298

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AP1PZ-9 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
38							Bentonite grout mix	296
40	38-40		#6 (75%)		Banded gneiss, black/white/red/pink, dry, 20 degree foliation, no oxidation, no natural fractures, large 1-in quartz phenocrysts	-	Bentonite seal	294
42	40-50		#7 (80%)		40-40.3 ft visible natural vertical and horizontal fractures with staining			292
44								290
46								288
48							Sand filter pack and pre-pack screen	286
50	50-55		#8 (90%)					284
52								282
54								280
56					Boring terminated at 55 feet in bedrock			278
58								276
60								274
62								272
64								270
66								268
68								266
70								264
72								262
74								260
76								258
78								256
80								254

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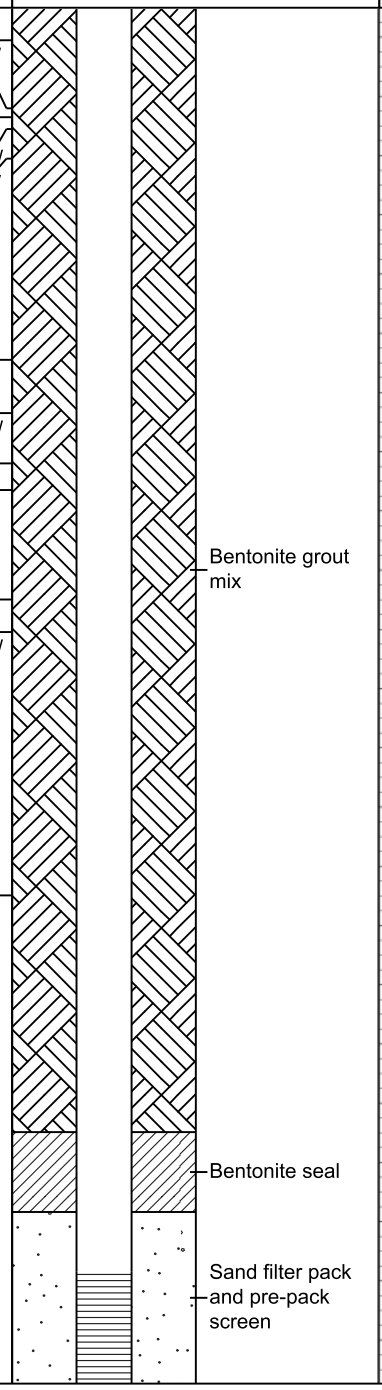
AP1PZ-10 BORING LOG

PROJECT NUMBER 6123211714	**DRILLING COMPANY** Cascade Drilling	**COORDINATES** N 1062334.74, E 2440116.05
PROJECT NAME Plant Arkwright	**DRILLER** J. Reinolds	**COORD SYS** Ga State Plane West (NAD 83)
CLIENT Georgia Power	**RIG TYPE/ METHOD** TSI CC150/ SONIC	**COMPLETION** Stick-up w/ protective casing
ADDRESS 5001 Arkwright Road Macon, GA	**CASING DIA.** 2-in I.D. PVC	**SURFACE ELEVATION** 335.07 ft NAVD 88
LOCATION Ash Pond 1	**BORING DEPTH** 60.0 ft	**WELL TOC** 338.38 ft NAVD 88

COMMENTS Start drilling 5/18/2021 and drilling completed 5/19/2021. Well construction completed on 5/27/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS
0	0-10		#1 (93%)	Hand auger to 5 ft	CL
2		2-3		CLAY with fine sand and silt, light brown/red, soft, medium plasticity, moist	ML-SW
				Ash co-mingled with coarse gravel, black, loose, dry	SM
4				Silty SAND with clay and co-mingled ash, red/brown, loose, moist	SW
				Gravelly SAND, yellow/white, loose, dry, sub-rounded cobbles	SM-SW
6				Gravelly silty SAND and co-mingled ash, black/white/brown, loose, dry, fine sub-angular gravel	SC-SW
		7-8		Clayey silty SAND with gravel, bright red, loose, moist	
8				8.4-8.8 ft stiff clay seam	
10	10-20		#2 (82%)	9.2-9.3 ft loose fine gravel	
		12-13		Silty SAND with some clays, red/orange, medium dense, dry	SM-SC
12				Silty SAND, fine to coarse grained, tan/light brown, very loose, dry	SM-SW
14				Gravelly SAND, fine grained sand with fine to coarse gravels, light grey/beige, very loose, dry, sub-angular cobbles present (fill)	SW
				Silty SAND, fine grained, tan/light brown, very loose, dry	SM-SP
16		17-18			
18					
20	20-30		#3 (100%)	Clayey silty micaceous SAND, light brown, medium dense, moist	SM-SC
				Silty SAND, fine to coarse grained, tan/brown/white, loose, dry, saprolite, little fine gravel	SM-SW
22				23.5 ft, 25.6 ft, and 28.5 ft quartz lenses	
24		24.5-25.5			
26					
28					
30	30-38		#4 (100%)	Fractured metamorphic rock with red staining, black/red/white/tan, very dense, dry to moist	-
32					
34					
36					
38	38-40		#5 (100%)	Banded gneiss, 20 degree foliation	
40	40-50		#6 (100%)	Multiple large quartz veins, some staining of fractures 41.4-41.8 ft, 45.7 ft & 46.8 ft, no visible rock decomposition	
42					
44					
46					



Elevation (ft)
334
332
330
328
326
324
322
320
318
316
314
312
310
308
306
304
302
300
298
296
294
292
290

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AP1PZ-10 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Graphic Log	Material Description	USCS	Well Diagram	Elevation (ft)
48								288
50	50-55		#7 (94%)		Stained fractures 54-54.3 ft with slight decomposition Pyrite crystals visible, single fracture ~ 55.4 ft		Sand filter pack and pre-pack screen	286
52								284
54								282
56	55-60		#8 (80%)					280
58								278
60					Boring terminated at 60 feet in bedrock			276
62								274
64								272
66								270
68								268
70								266
72								264
74								262
76								260
78								258
80								256
82								254
84								252
86								250
88								248
90								246
92								244
94								242
96								240
98								238
100								236
102								234

AP1PZ-11 BORING LOG

PROJECT NUMBER 6123211714
PROJECT NAME Plant Arkwright
CLIENT Georgia Power
ADDRESS 5001 Arkwright Road Macon, GA
LOCATION Ash Pond 1

DRILLING COMPANY Cascade Drilling
DRILLER J. Reinolds
RIG TYPE/ METHOD TSI CC150/ SONIC
CASING DIA. 2-in I.D. PVC
BORING DEPTH 70.0 ft

COORDINATES N 1062615.94, E 2440044.48
COORD SYS Ga State Plane West (NAD 83)
COMPLETION Stick-up w/ protective casing
SURFACE ELEVATION 335.78 ft NAVD 88
WELL TOC 338.98 ft NAVD 88

COMMENTS Start drilling 5/24/2021 and drilling completed 5/25/2021. Well construction completed on 5/27/2021 with installation of well cover and concrete pad.

LOGGED BY A. Shoredits
CHECKED BY J. Quinn

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS	Elevation (ft)
0	0-10		#1 (60%)	Hand auger to 3 ft Silty SAND with clays, coarse grained to fine gravel, brown/red, medium dense, moist	SM-SC	
2						334
4						332
6		6-7		Ash co-mingled with gravel, coarse sand to coarse gravel, black/red, very loose, dry, pieces of coal and evidence of rootlets 6.3 ft cobble, angular	ML	330
8		8-9		Silty SAND, medium grained, bright red, very dense, dry	SM	328
10	10-20		#2 (75%)	SAND, red, loose, dry, few fine to coarse angular gravel Clayey silty SAND co-mingled with trace ash, brown/black/red, loose, moist, rootlets	SW SM-SC	326
12				SAND, fine to medium grained, tan/light brown, very loose, dry	SP	324
14		12.5-13.5		SAND, medium to coarse grained, red/light brown, very loose, dry		322
16		16-17		Gravelly silty SAND with clays, red/black/white, loose, moist 16-17' angular quartzite gravel	SW-SC	320
18				Clayey silty SAND, brown/red, medium dense, moist	SM-SC	318
20	20-30		#3 (80%)	CLAY, brown/red, very soft, slight plasticity, wet	CL	316
22		22-23				314
24				Silty micaceous SAND, light brown/grey, medium dense, moist 33.6-34.1 ft clayey silty sand	SM	312
26						310
28		29-30				308
30	30-40		#4 (100%)		SM-SC	306
32						304
34		34-35				302
36						300
38				CLAY, red/brown/yellow/orange/grey, very stiff, low plasticity, moist, micaceous, saprolitic texture with silts	CL	298
40	40-50	39-40	#5 (100%)	Clayey silty SAND, red brown/light brown/grey/white, medium dense, moist	SM-SC	296
42				SAND, fine grained, red/brown, loose, moist CLAY with medium to coarse sands, tan/white, stiff, medium plasticity, moist	SP CL	294
44		44-45		42.4-42.9 ft coarse gravel seam, wet Silty SAND, fine to medium grained, black/white/red, medium dense, moist, saprolite texture (relic parent rock), heavily weathered rock, crumbles in hand 49-50 ft no rock fragments noted	SM	292
46						290

Well Diagram: Bentonite grout mix

Disclaimer This bore log is intended for environmental not geotechnical purposes.

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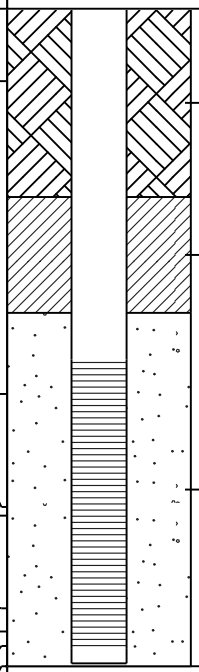
AP1PZ-11 BORING LOG

Depth (ft)	Samples	Geotech Sample	Sample Run (Recovery)	Material Description	USCS
48					
		49-50			
50	50-60		#6 (100%)	CLAY with coarse sand, brown, very stiff, low plasticity, moist, saprolitic	CL
52					
54		54-55			
56					
58					
		59-60			
60	60-65		#7 (100%)	CLAY, grey/white, very soft, medium plasticity, moist, fine to coarse white gravel	
62				CLAY and gravel, dark brown/white, stiff, high plasticity, moist, coarse sub-rounded gravel	CH
		63-64			
64				Gravelly SAND, coarse to fine grained, tan/brown/grey, very loose, wet	SW
66	65-70		#8 (100%)	Gravelly SAND, coarse to fine grained, little clays and silts, tan/brown, very loose, wet 65.9-66.4 ft very stiff sandy clay	SW-SC
		67-68			
68				Clayey silty SAND, brown, medium dense, stiff clay, moist	SM-SC
				Weathered rock lens, metamorphic rock texture	-
70				CLAY with sand and silt, green, very stiff, slight plasticity	CL-SC
				Boring terminated at 70 feet	



Elevation (ft)
288
286
284
282
280
278
276
274
272
270
268
266
264
262
260
258
256
254
252
250
248
246
244
242
240
238
236
234
232

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SUBSURFACE LOG (DRAFT)

Client Borehole ID: N/A
Stantec Boring No.: **STN-B28**
Client: Southern Company Services
Boring Location: N 1064279.88, E 2439812.94
Project Number: 175518230
Surface Elevation: 335.0 ft
Elevation Datum: NADV88
Project Name: Plant Arkwright - Pre-Design Investigation
Date Started: 8/1/22
Completed: 8/2/22
Project Location: Macon, Georgia
Depth to Water: N/A
Date/Time: N/A
Inspector: K Nye
Logger: K Nye
Depth to Water: N/A
Date/Time: N/A
Drilling Contractor: Stantec Consulting Services Inc.
Drill Rig: CME 55T#1, #709
Driller: D. Clements
Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes
Rock Drilling and Sampling Tools (Type and Size): NQ-3 Wireline, Split Barrel, Impregnated Bit
Sampler Hammer Type: Automatic
Weight: 140 lb
Drop: 30"
Efficiency: ~80
Borehole Azimuth: N/A (Vertical)
Borehole Inclination (from Vertical): Vertical

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
0.0	335.0	Top of Hole						
		CLAYEY SILTY SAND, SM, reddish brown to dark brown, medium dense, moist		SS01	1.0 - 2.5	1.4	6-8-8	
3.5	331.5	SANDY LEAN CLAY SOME SILT, CL, reddish brown, non to low plasticity, medium stiff, moist, Sand decreases and clay increases with depth		SS02	3.5 - 5.0	1.5	5-3-4	
				SS03	6.0 - 7.5	1.5	2-3-4	
8.5	326.5							
8.9	326.1	GRAVELLY WELL GRADED SAND LITTLE SILT, SW, dark gray to black, fine to coarse, medium dense, moist, CCR		SS04	8.5 - 10.0	1.5	4-13-10	
		SAND SOME CLAY, SM, reddish brown, fine to coarse, medium dense, moist, trace silt		SS05	11.0 - 12.5	1.5	4-5-6	
13.5	321.5	SAND SOME SILT AND CLAY, SM, light brown to brown, fine, very loose to loose, moist, sand content decreases with depth		SS06	13.5 - 15.0	1.5	1-2-2	
				SS07	16.0 - 17.5	1.5	2-3-4	
				ST01	18.5 - 20.5	2.0	300	
23.5	311.5							
				SS08	23.5 - 25.0	1.4	4-4-6	

SUBSURFACE LOG (DRAFT)

Client Borehole ID: N/A
Client: Southern Company Services
Project Number: 175518230

Stantec Boring No.: **STN-B28**
Boring Location: N 1064279.88, E 2439812.94
Surface Elevation: 335.0 ft
Elevation Datum: NADV88

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1]	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
25		SILTY SAND TRACE GRAVEL, SM, light brown to brown, fine to medium, medium dense, moist, some coarse grains, saprolitoc *(Continued)*						
28	306.5							
28.5		SAND SOME SILT AND CLAY, SM, brown with black, medium dense to very dense, wet, saprolite		SS09	28.5 - 30.0	0.9	15-15-16	
31				ST02	31.0 - 33.0	0.9	800	
35				SS10	34.5 - 36.0	1.3	23-22-30	
38				SS11	38.5 - 38.8	0.3	50/4"	
41	293.4						Began Core	
41.6		Biotite-Gneiss, dark gray black and light gray white, very finely crystalline to medium crystalline, very hard, no staining		77	41.6 - 46.6	4.3	86	
46	288.4							
46.6		Bottom of Hole at 46.6 Ft.						

Top of Rock = 39.2 Ft.
Top of Rock Elevation = 295.8 Ft.
Begin Core = 41.6 Ft.

SUBSURFACE LOG (DRAFT)

Client Borehole ID	N/A	Stantec Boring No.	**STN-B29**
Client	Southern Company Services	Boring Location	N 1064028.30, E 2440084.99
Project Number	175518230	Surface Elevation	345.3 ft
Project Name	Plant Arkwright - Pre-Design Investigation	Date Started	8/15/22
Project Location	Macon, Georgia	Depth to Water	N/A
Inspector	A. Shoredits	Logger	A. Shoredits
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig	CME 55T#1, #709

Elevation Datum: NADV88 | Completed: 8/15/22 | Date/Time: N/A | Depth to Water: N/A | Date/Time: N/A | Driller: D. Clements

Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes

Rock Drilling and Sampling Tools (Type and Size): NQ-2 Wireline, Solid Barrel, Impregnated Bit

Sampler Hammer Type: Automatic | Weight: 140 lb | Drop: 30" | Efficiency: ~80

Borehole Azimuth: N/A (Vertical) | Borehole Inclination (from Vertical): Vertical

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
0.0	345.3	Top of Hole						
0.3	345.0	Topsoil						
		LEAN CLAY WITH SILT, CL, dark red orange and pale yellow, very fine to fine, low plasticity, very soft, dry		SS01	1.0 - 2.5	1.3	2-1-2	
4.3	341.0			SS02	3.5 - 5.0	1.2	2-2-7	(4.2'-4.3') Coarse-grained gravel lense
		SILT WITH CLAY, ML, dark gray olive and dark red orange, non-plastic, stiff, dry, Fill		SS03	6.0 - 7.5	1.5	4-8-14	Mostly clay 6-7 feet, brick piece evident at 6.1 feet
7.2	338.1							
		SILT SOME SAND AND CLAY, ML, dark gray, non-plastic, medium stiff to hard, dry, coarse sand to fine gravel size coal and slag inclusions, trace gravel, CCR		SS04	8.5 - 10.0	1.2	14-19-20	
				SS05	11.0 - 12.5	1.5	4-6-8	
				SS06	13.5 - 15.0	1.5	5-5-6	
				SS07	16.0 - 17.5	1.5	4-6-7	(16.9'-17.1') Medium plasticity clay lense
				SS08	18.5 - 20.0	1.5	5-8-8	
				SS09	23.5 - 25.0	1.0	6-4-3	(23.0'-24.0') Medium plasticity clay lense

SUBSURFACE LOG (DRAFT)

Client Borehole ID N/A
Client Southern Company Services
Project Number 175518230

Stantec Boring No. **STN-B29**
Boring Location N 1064028.30, E 2440084.99
Surface Elevation 345.3 ft Elevation Datum NADV88

Lithology			Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
Depth Ft[2]	Elevation								
25			SILT SOME SAND AND CLAY, ML, dark gray, non-plastic, medium stiff to hard, dry, coarse sand to fine gravel size coal and slag inclusions, trace gravel, CCR *(Continued)*						
26									
27									
28									
	28.6	316.7							
29			POORLY GRADED SAND WITH CLAY, SP-SC, pale brown to dark red brown, very fine to fine, non-plastic, very loose, moist		SS10	28.5 - 30.0	1.5	1-1-1	
30									
	31.0	314.3			ST01	30.0 - 32.0	2.0	200	
31			SANDY CLAYEY SILT, MH, dark red brown and pale yellow, medium plasticity, medium stiff, moist, rootlets, fine to medium yellow/white angular grains						
32									
33									
34					SS11	33.5 - 35.0	1.5	3-4-7	
35									
36									
37									
38									
	39.0	306.3			ST02	38.0 - 40.0	2.0	550	
39			SILTY SAND, SM, light brown to pale white, very fine to fine, non-plastic, loose, moist, laminated, Saprolite						
40									
41									
	42.0	303.3							
42			Refusal / Bottom of Hole at 42.0 Ft.						

Top of Rock = 42.0 Ft.
Top of Rock Elevation = 303.3 Ft.

STANTEC 1755 STD 175518230_GEO BORINGS_LOGS.GPJ BC 1755 STD DATAT R0.GDT 5/30/23

SUBSURFACE LOG (DRAFT)

Client Borehole ID: N/A
Stantec Boring No.: **STN-B30**
Client: Southern Company Services
Boring Location: N 1063502.22, E 2439876.88
Project Number: 175518230
Surface Elevation: 330.8 ft
Elevation Datum: NADV88
Project Name: Plant Arkwright - Pre-Design Investigation
Date Started: 8/2/22
Completed: 8/9/22
Project Location: Macon, Georgia
Depth to Water: N/A
Date/Time: N/A
Inspector: K Nye
Logger: K Nye
Depth to Water: N/A
Date/Time: N/A
Drilling Contractor: Stantec Consulting Services Inc.
Drill Rig: CME 55T#1, #709
Driller: D. Clements
Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes
Rock Drilling and Sampling Tools (Type and Size): NQ-3 Wireline, Split Barrel, Impregnated Bit
Sampler Hammer Type: Automatic
Weight: 140 lb
Drop: 30"
Efficiency: ~80
Borehole Azimuth: N/A (Vertical)
Borehole Inclination (from Vertical): Vertical

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
0.0	330.8	Top of Hole						
0.2	330.6	Topsoil						
		SANDY SILT SOME CLAY, ML, reddish yellow to dark gray, non to low plasticity, soft to stiff, moist, trace gravel, intermixed with CCR		SS01	1.0 - 2.5	1.4	6-6-7	
				SS02	3.5 - 5.0	1.5	3-3-4	
				SS03	6.0 - 7.5	1.3	2-1-3	
				ST01	8.5 - 10.3	1.7	800	
11.0	319.8	GRAVELLY WELL GRADED SAND LITTLE CLAY, SW, dark reddish brown, fine to coarse, medium dense to loose, moist		SS04	11.0 - 12.5	1.5	5-7-8	
14.1	316.7	CLAYEY SILT LITTLE SAND, ML, reddish yellow to dark reddish brown, non to low plasticity, soft to medium stiff, moist		SS05	13.5 - 15.0	1.5	4-1-1	
				ST02	16.0 - 18.0	1.8	800	
18.0	312.8	POORLY GRADED SAND TRACE SILT, SP, light brown, fine to medium, loose, slightly micaceous		SS06	18.5 - 20.0	1.4	3-3-2	
19.4	311.4	CLAYEY SILT, ML, reddish yellow, non-plastic, medium stiff, moist						
23.0	307.8	POORLY GRADED SAND SOME SILT, SP, reddish yellow to dark reddish brown, very fine to medium, loose, wet		SS07	23.5 - 25.0	1.5	3-4-3	

SUBSURFACE LOG (DRAFT)

Client Borehole ID N/A
Client Southern Company Services
Project Number 175518230

Stantec Boring No. **STN-B30**
Boring Location N 1063502.22, E 2439876.88
Surface Elevation 330.8 ft Elevation Datum NADV88

Lithology			Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
Depth Ft[2]	Elevation								
25–33			POORLY GRADED SAND SOME SILT, SP, reddish yellow to dark reddish brown, very fine to medium, loose, wet *(Continued)*		SS08	28.5 - 30.0	1.5	2-2-4	Sand with silt/clay 28.8-29.2'; micaceous clayey silt layer 29.2-29.5'
33.5	297.3		SILTY SAND, SM, reddish brown to light white, dense, saprolite		SS09	33.5 - 35.0	1.3	10-17-17	
					SS10	38.5 - 40.0	1.1	9-14-28	
41.4	289.4		Biotite-Gneiss, dark brown and light gray white, very finely crystalline to medium crystalline, very hard, highly weathered, no staining		0	41.5 - 46.4	1.5	Began Core 31	
46.4	284.4		Biotite-Gneiss, dark gray black and light gray white, very finely crystalline to medium crystalline, very hard, no staining		88	46.4 - 51.4	4.7	94	
51.4	279.4								

Bottom of Hole at 51.4 Ft.

Top of Rock = 41.4 Ft.
Top of Rock Elevation = 289.4 Ft.
Begin Core = 41.5 Ft.

STANTEC 1755 STD 175518230_GEO BORINGS_LOGS.GPJ BC 1755 STD DATAT R0.GDT 5/30/23

SUBSURFACE LOG (DRAFT)

Client Borehole ID: N/A
Stantec Boring No.: **STN-B31**
Client: Southern Company Services
Boring Location: N 1063447.68, E 2440100.95
Project Number: 175518230
Surface Elevation: 341.3 ft
Elevation Datum: NADV88
Project Name: Plant Arkwright - Pre-Design Investigation
Date Started: 8/14/22
Completed: 8/14/22
Project Location: Macon, Georgia
Depth to Water: 46.0 ft
Date/Time: 8/14/22 13:11
Inspector: A. Shoredits
Logger: A. Shoredits
Depth to Water: N/A
Date/Time: N/A
Drilling Contractor: Stantec Consulting Services Inc.
Drill Rig: CME 55T#1, #709
Driller: D. Clements
Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes
Rock Drilling and Sampling Tools (Type and Size): N/A
Sampler Hammer Type: Automatic
Weight: 140 lb
Drop: 30"
Efficiency: ~80
Borehole Azimuth: N/A (Vertical)
Borehole Inclination (from Vertical): Vertical

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
0.0	341.3	Top of Hole						
0.5	340.8	Topsoil						
		CLAYEY SANDY SILT, MH, dark purple and pale yellow, low to medium plasticity, medium stiff, dry, trace organics		SS01	1.0 - 2.5	1.0	3-4-3	
3.9	337.4							
4.4	336.9	SILT, ML, light brown yellow, non-plastic, stiff, dry		SS02	3.5 - 5.0	1.4	3-6-7	
		SAND SOME CLAY AND SILT, SC, dark gray olive and dark red brown, very fine to coarse, non-plastic, soft to hard, dry, Fine gravel slag inclusions, trace gravel, CCR		SS03	6.0 - 7.5	1.3	1-2-2	
				SS04	8.5 - 10.0	0.9	3-2-2	
				SS05	11.0 - 12.5	1.4	2-4-7	
				SS06	13.5 - 15.0	0.6	6-6-4	Coarse gravel at around 14 feet
				SS07	16.0 - 17.5	0.0	25-50-27	
18.0	323.3	SILT, ML, dark gray, very fine, non-plastic, stiff to very stiff, dry, CCR		SS08	18.5 - 20.0	1.5	5-10-9	
				SS09	21.0 - 22.5	1.5	3-5-8	Medium gravel slag at 22 ft
23.8	317.5							
				SS10	23.5 - 25.0	1.5	5-7-8	

SUBSURFACE LOG (DRAFT)

Client Borehole ID: N/A
Client: Southern Company Services
Project Number: 175518230

Stantec Boring No.: **STN-B31**
Boring Location: N 1063447.68, E 2440100.95
Surface Elevation: 341.3 ft
Elevation Datum: NADV88

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
26.0	315.3	GRAVELLY LEAN CLAY WITH SILT, CL, dark red brown and dark black, low plasticity, stiff to very stiff, dry, CCR inclusions *(Continued)*						
				ST01	26.0 - 28.0	2.0	200	
		WELL GRADED SAND WITH SILT, SW, dark red brown, very fine to medium, non-plastic, loose, moist, coarse gravel well-rounded quartz pebble		SS11	28.5 - 30.0	1.5	2-2-3	
				ST02	33.5 - 35.5	1.9	800	
38.5	302.8							
38.9	302.4	LEAN CLAY, CL, light brown tan and pale pink, low to medium plasticity, stiff, moist		SS12	38.5 - 40.0	1.2	4-5-4	
		SILTY SAND WITH GRAVEL, SM, light gray to dark orange brown, non-plastic to low plasticity, medium dense, moist						
				SS13	43.5 - 45.0	1.5	4-6-6	Medium to coarse gravel seams at 43.7 feet and 44.2 feet
46.8	294.5	Refusal / Bottom of Hole at 46.8 Ft.						

Top of Rock = 46.8 Ft.
Top of Rock Elevation = 294.5 Ft.

SUBSURFACE LOG (DRAFT)

Client Borehole ID: N/A
Stantec Boring No.: **STN-B32**
Client: Southern Company Services
Boring Location: N 1063069.93, E 2439960.21
Project Number: 175518230
Surface Elevation: 330.1 ft
Elevation Datum: NADV88
Project Name: Plant Arkwright - Pre-Design Investigation
Date Started: 8/9/22
Completed: 8/10/22
Project Location: Macon, Georgia
Depth to Water: N/A
Date/Time: N/A
Inspector: K Nye
Logger: K Nye
Depth to Water: N/A
Date/Time: N/A
Drilling Contractor: Stantec Consulting Services Inc.
Drill Rig: CME 55T#1, #709
Driller: D. Clements
Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes
Rock Drilling and Sampling Tools (Type and Size): NQ-3 Wireline, Split Barrel, Impregnated Bit
Sampler Hammer Type: Automatic
Weight: 140 lb
Drop: 30"
Efficiency: ~80
Borehole Azimuth: N/A (Vertical)
Borehole Inclination (from Vertical): Vertical

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
0.0	330.1	Top of Hole						
0.2	329.9	Topsoil						
		SILT, ML, dark gray, non-plastic to low plasticity, stiff, moist, CCR		SS01	1.0 - 2.5	1.1	5-7-7	
3.0	327.1							
		LEAN CLAY LITTLE SAND, CL, reddish yellow to reddish brown, low to medium plasticity, stiff, moist		ST01	3.5 - 5.3	1.8	700	
6.0	324.1							
		POORLY GRADED SAND WITH CLAY TRACE GRAVEL, SP, light brown to reddish brown, non-plastic, loose to medium dense, moist		SS02	6.0 - 7.5	1.5	4-8-7	
				SS03	8.5 - 10.0	0.8	3-9-8	
				SS04	11.0 - 12.5	1.5	4-5-4	
				SS05	13.5 - 15.0	1.2	4-6-6	
16.0	314.1							
		FAT CLAY, CH, tan to reddish brown, medium plasticity, medium stiff to stiff, moist, mottled, trace gravel		SS06	16.0 - 17.5	1.4	3-6-7	Some sand and silt from 16.6'-16.9'
				ST02	18.5 - 20.5	1.8	300	
23.5	306.6							
				SS07	23.5 - 25.0	1.5	2-2-3	

SUBSURFACE LOG (DRAFT)

Client Borehole ID: N/A
Client: Southern Company Services
Project Number: 175518230

Stantec Boring No.: **STN-B32**
Boring Location: N 1063069.93, E 2439960.21
Surface Elevation: 330.1 ft
Elevation Datum: NADV88

Lithology			Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
Depth Ft[2]	Elevation								
25–33			SILTY SAND SOME CLAY, SM, dark greenish gray to dark red, non-plastic to low plasticity, loose, moist, saprolitic *(Continued)*		SS08	28.5 - 30.0	1.5	2-2-3	
34	34.2	295.9			SS09	33.5 - 34.1	0.6	18-50/1" Began Core	
35–36	36.8	293.3	Biotite-Gneiss, dark gray black and light gray white, very finely crystalline to medium crystalline, very hard, moderately weathered		40	34.2 - 39.4	4.7	90	
37–39	39.4	290.7	Biotite-Gneiss, dark gray black and light gray white, very finely crystalline to medium crystalline, very hard, no staining						

Bottom of Hole at 39.4 Ft.

Top of Rock = 34.2 Ft.
Top of Rock Elevation = 295.9 Ft.
Begin Core = 34.2 Ft.

SUBSURFACE LOG (DRAFT)

Client Borehole ID: N/A
Stantec Boring No.: **STN-B34**
Client: Southern Company Services
Boring Location: N 1062453.47, E 2440385.01
Project Number: 175518230
Surface Elevation: 336.1 ft
Elevation Datum: NADV88
Project Name: Plant Arkwright - Pre-Design Investigation
Date Started: 8/10/22
Completed: 8/10/22
Project Location: Macon, Georgia
Depth to Water: N/A
Date/Time: N/A
Inspector: K Nye
Logger: K Nye
Depth to Water: N/A
Date/Time: N/A
Drilling Contractor: Stantec Consulting Services Inc.
Drill Rig: CME 55T#1, #709
Driller: D. Clements
Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes
Rock Drilling and Sampling Tools (Type and Size): N/A
Sampler Hammer Type: Automatic
Weight: 140 lb
Drop: 30"
Efficiency: ~80
Borehole Azimuth: N/A (Vertical)
Borehole Inclination (from Vertical): Vertical

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
0.0	336.1	Top of Hole						
0.3	335.8	Topsoil						
		SANDY LEAN CLAY TRACE GRAVEL, CL, reddish brown to brown, low to medium plasticity, stiff, moist		SS01	1.0 - 2.5	1.3	3-5-5	
				SS02	3.5 - 5.0	0.8	1-3-8	(4.5'-6.0') Gravel and sand content increased
6.0	330.1							
		SILTY SAND SOME CLAY, SM, reddish brown to orangish brown, non-plastic, medium dense, moist		SS03	6.0 - 7.5	1.3	3-4-10	
7.3	328.8							
		SILT, ML, dark gray to black, non-plastic, stiff to very stiff, CCR		ST01	8.5 - 10.3		800	
				SS04	11.0 - 12.5	1.5	5-7-8	
14.1	322.0							
		SILTY SAND, SM, reddish brown to dark brown, non-plastic, loose, moist		SS05	13.5 - 15.0	0.8	3-3-4	
16.0	320.1							
		POORLY GRADED SAND SOOME CLAY AND SILT, SP, reddish brown, non-plastic, loose, moist, trace gravel		SS06	16.0 - 17.5	1.3	4-4-3	CCR slag fragments from 16.5-17.0
				SS07	18.5 - 20.0	1.3	5-5-4	
23.0	313.1							
		SILT SOME SAND, ML, grayish tan, non-plastic to low plasticity, medium stiff to soft, moist		ST02	23.5 - 25.5	2.0	400	

SUBSURFACE LOG (DRAFT)

Client Borehole ID N/A
Client Southern Company Services
Project Number 175518230

Stantec Boring No. **STN-B34**
Boring Location N 1062453.47, E 2440385.01
Surface Elevation 336.1 ft Elevation Datum NADV88

Lithology			Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
Depth Ft[2]	Elevation								
25–33			SILT SOME SAND, ML, grayish tan, non-plastic to low plasticity, medium stiff to soft, moist *(Continued)*		SS08	28.5 - 30.0	1.4	2-2-4	
33.5	302.6								
34–43			SILTY SAND, SM, grayish black with light gray, non-plastic, dense to very dense, moist, Saprolitic		SS09	33.5 - 35.0	1.3	8-12-23	
					SS10	38.5 - 40.0	1.4	28-43-30	
43.8	292.3		Refusal / Bottom of Hole at 43.8 Ft.		SS11	43.5 - 43.8	0.3	50/4"	

SUBSURFACE LOG (DRAFT)

Client Borehole ID: N/A
Stantec Boring No.: **STN-B35**
Client: Southern Company Services
Boring Location: N 1061659.75, E 2440619.47
Project Number: 175518230
Surface Elevation: 336.6 ft
Elevation Datum: NADV88
Project Name: Plant Arkwright - Pre-Design Investigation
Date Started: 8/10/22
Completed: 8/11/22
Project Location: Macon, Georgia
Depth to Water: N/A
Date/Time: N/A
Inspector: K Nye
Logger: K Nye
Depth to Water: N/A
Date/Time: N/A
Drilling Contractor: Stantec Consulting Services Inc.
Drill Rig: CME 55T#1, #709
Driller: D. Clements
Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes
Rock Drilling and Sampling Tools (Type and Size): N/A
Sampler Hammer Type: Automatic
Weight: 140 lb
Drop: 30"
Efficiency: ~80
Borehole Azimuth: N/A (Vertical)
Borehole Inclination (from Vertical): Vertical

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
0.0	336.6	Top of Hole						
0.2	336.4	Topsoil						
		SANDY LEAN CLAY TRACE GRAVEL, CL, reddish brown, low to medium plasticity, medium stiff to stiff		SS01	1.0 - 2.5	1.4	2-3-3	
				SS02	3.5 - 5.0	1.2	3-3-6	Trace coal fragments at approximately 4.5 ft
6.0	330.6							
6.5	330.1	SILTY SAND WITH CLAY, SM, dark brown, non-plastic to low plasticity, medium dense, intermixed with CCR		SS03	6.0 - 7.5	1.2	9-13-13	
		SAND SOME SILT AND CLAY, SM, dark brown to black, non-plastic, medium dense, trace gravel, CCR		SS04	8.5 - 10.0	1.5	3-8-8	
				ST01	11.0 - 12.4	1.3	800	
13.5	323.1							
		GRAVELLY WELL GRADED SAND WITH SILT, SW, dark gray to black, non-plastic, medium dense, coal and slag fragments, CCR		SS05	13.5 - 15.0	1.5	17-16-13	
16.0	320.6							
		SILT SOME SAND AND CLAY, ML, dark gray to black, non-plastic, soft to very stiff, moist, CCR		SS06	16.0 - 17.5	1.5	1-1-1	
				SS07	18.5 - 20.0	1.0	1-2-2	
				ST02	21.0 - 23.0	1.9	400	
				SS08	23.5 - 25.0	1.5	8-9-12	
26.0	310.6							
26.9	309.7	SILTY SAND LITTLE CLAY, SM, tan, fine, non-plastic, medium dense, moist		SS09	26.0 - 27.5	1.3	4-8-9	
		POORLY GRADED SAND SOME SILT, SP, tan to brown, very fine to fine, non-plastic, loose to medium dense, moist, slightly micaceous		ST03	28.5 - 30.5	1.8	400	

SUBSURFACE LOG (DRAFT)

Client Borehole ID N/A
Client Southern Company Services
Project Number 175518230

Stantec Boring No. **STN-B35**
Boring Location N 1061659.75, E 2440619.47
Surface Elevation 336.6 ft Elevation Datum NADV88

Lithology			Description	Overburden: / Rock Core:	Sample[1]	Depth Ft[2]	Rec. Ft	Blows/PSI	Remarks
Depth Ft[2]	Elevation				RQD %	Run Ft	Rec. Ft	Rec. %	
30			POORLY GRADED SAND SOME SILT, SP, tan to brown, very fine to fine, non-plastic, loose to medium dense, moist, slightly micaceous *(Continued)*						
31									
32									
33									
34					SS10	33.5 - 35.0	1.5	4-4-6	
35									
36									
37									
38	38.5	298.1							
39			SILTY SAND LITTLE CLAY, SM, reddish brown, non-plastic to low plasticity, loose		SS11	38.5 - 40.0	1.5	2-3-3	
40									
41									
42									
43	43.5	293.1							
44			CLAYEY SILT, ML, reddish brown, non-plastic to low plasticity, medium stiff, moist, slightly micaceous		SS12	43.5 - 45.0	1.5	1-2-3	
45									
46									
47									
48									
49	49.4	287.2			SS13	48.5 - 50.0	1.5	4-5-12	
50			SILTY SAND, SM, bluish gray to brownish gray, saprolitic						
51									
52									
53									
54					SS14	53.5 - 54.8	1.3	22-24-50/4"	
55	55.5	281.1							

Refusal /
Bottom of Hole at 55.5 Ft.

SUBSURFACE LOG (DRAFT)

Client Borehole ID: N/A
Stantec Boring No.: **STN-B36**
Client: Southern Company Services
Boring Location: N 1061446.07, E 2440621.98
Project Number: 175518230
Surface Elevation: 338.1 ft
Elevation Datum: NADV88
Project Name: Plant Arkwright - Pre-Design Investigation
Date Started: 8/11/22
Completed: 8/12/22
Project Location: Macon, Georgia
Depth to Water: 48.0 ft
Date/Time: 8/12/22 15:30
Inspector: A. Shoredits
Logger: A. Shoredits
Depth to Water: 47.4 ft
Date/Time: 8/13/22 08:08
Drilling Contractor: Stantec Consulting Services Inc.
Drill Rig: CME 55T#1, #709
Driller: D. Clements
Overburden Drilling and Sampling Tools (Type and Size): 4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes
Rock Drilling and Sampling Tools (Type and Size): NQ-2 Wireline, Solid Barrel, Impregnated Bit
Sampler Hammer Type: Automatic
Weight: 140 lb
Drop: 30"
Efficiency: ~80
Borehole Azimuth: N/A (Vertical)
Borehole Inclination (from Vertical): Vertical

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
0.0	338.1	Top of Hole						
0.2	337.9	Topsoil						
		CLAYEY WELL GRADED SAND SOME GRAVEL, SC, fine to coarse, non-plastic, medium dense, moist, slightly micaceous		SS01	1.0 - 2.5	1.3	7-6-6	
3.5	334.6							
4.6	333.5	SANDY LEAN CLAY TRACE GRAVEL, CL, low plasticity, very stiff, moist, thin layer of CCR at 4.0 ft		SS02	3.5 - 5.0	1.5	5-7-14	
				SS03	6.0 - 7.5	1.0	4-5-3	
		SILTY SAND LITTLE GRAVEL, SM, fine to medium, non-plastic, loose, moist, intermixed with CCR		SS04	8.5 - 10.0	0.9	8-5-2	
11.0	327.1							
		SANDY SILT TRACE GRAVEL, ML, fine, non-plastic, very stiff, moist		SS05	11.0 - 12.5		5-9-10	
13.5	324.6							(13.0'-18.0') Bulk-01
		SILT SOME SAND, ML, dark gray and very dark black, non-plastic, very stiff to hard, dry to moist, no odor, fine gravel inclusions, coal and slag fragments, CCR		SS06	13.5 - 15.0	1.5	4-10-12	
				SS07	16.0 - 17.5	1.5	18-27-29	
				SS08	18.5 - 20.0	1.5	25-48-46	
21.3	316.8							
		LEAN CLAY, CH, dark gray and dark brown, very fine, medium to high plasticity, stiff, moist, laminated		SS09	21.0 - 22.5		9-7-5	
				ST01	23.5 - 25.5	2.0	200	
28.7	309.4							
29.2	308.9	CLAYEY SILTY SAND, SM, dark orange and light brown, very fine to medium, loose, moist, slightly micaceous		SS10	28.5 - 30.0	1.3	5-5-5	
33.5	304.6	SILTY LEAN CLAY TRACE SAND, CL, pale gray, low plasticity, loose, moist, trace organic and roots		SS11	33.5 - 35.0	1.5	6-8-7	

SUBSURFACE LOG (DRAFT)

Client Borehole ID N/A
Client Southern Company Services
Project Number 175518230

Stantec Boring No. **STN-B36**
Boring Location N 1061446.07, E 2440621.98
Surface Elevation 338.1 ft Elevation Datum NADV88

Lithology Depth Ft[2]	Lithology Elevation	Description	Overburden: / Rock Core:	Sample[1] / RQD %	Depth Ft[2] / Run Ft	Rec. Ft / Rec. Ft	Blows/PSI / Rec. %	Remarks
36.0	302.1	POORLY GRADED SAND, SP, light brown to dark gray, fine to medium, non-plastic, medium dense, moist *(Continued)*		ST02	35.0 - 37.0	2.0	250	
		SILTY LEAN CLAY, CL, pale orange brown and dark red gray, very fine, low plasticity, soft to medium stiff, moist		SS12	38.5 - 40.0	1.5	4-4-6	
				SS13	43.5 - 45.0	1.5	1-2-2	
48.6	289.5							
		SILTY SAND, SM, dark red brown and light gray white, fine to medium, non-plastic, loose to medium dense, moist to wet, saprolite		SS14	48.5 - 50.0	1.5	3-3-3	Medium grained sand seam from 49.2-49.4 ft
				SS15	53.5 - 55.0	1.3	9-11-16	Coarse white sand seam from 53.5-53.8 ft
59.8	278.3			SS16	58.5 - 59.8	1.5	15-28-50/4"	

Refusal /
Bottom of Hole at 59.8 Ft.

CONTINUATION CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. 800033976

Issued on 9/27/2017
Expires on 6/30/2019
Renewed on 3/4/2019
Expires on 6/30/2021

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

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

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

does hereby continue said bond in force for the further period

beginning on 06/30/2019
(MONTH-DAY-YEAR)

and ending on 06/30/2021
(MONTH-DAY-YEAR)

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

Description of bond Performance Bond for Water Well Contractors

Premium: $1200.00

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

Signed and dated on March 4th, 2019
(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

By Andrew P. Larsen
Attorney-in-Fact Andrew P. Larsen

Parker, Smith & Feek, Inc.
Agent

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

425-709-3600
Telephone Number of Agent

S-0157/GE 8/08

XDP

SURETY RIDER

To be attached to and form a part of

Bond No. 800031223

Type of Bond: Performance Bond for Water Well Contractors

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

executed by Michael C. Rice/Cascade Drilling, L.P. , as Principal,
(PRINCIPAL)

and by Atlantic Specialty Insurance Company , as Surety,

in favor of State of Georgia
(OBLIGEE)

in consideration of the mutual agreements herein contained the Principal and the Surety hereby consent to changing

Coverage under the bond to include:
Michael Coleman

Nothing herein contained shall vary, alter or extend any provision or condition of this bond except as herein expressly stated.

This rider is effective December 21, 2017
(MONTH-DAY-YEAR)

Signed and Sealed December 21, 2017
(MONTH-DAY-YEAR)

Michael C. Rice/Cascade Drilling, L.P.
(PRINCIPAL)

By: _____
(PRINCIPAL)

Atlantic Specialty Insurance Company

By: _____
Elizabeth R. Hahn, Attorney-in-Fact

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 986 NEW YORK

S-0443/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, Jill A. Wallace, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **sixty million dollars ($60,000,000)** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

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

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

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

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

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this eighth day of December, 2014.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

On this eighth day of December, 2014, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

TARA JANELLE STAFFORD
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2020

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Notary Public

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

Signed and sealed. Dated 21 day of December, 2017

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
October 1, 2019

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James G. Jordan, Assistant Secretary