Prepared for

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SITE ACCEPTABILITY REPORT FOR PROPOSED CCR LANDFILL

PLANT BRANCH GEORGIA POWER COMPANY Putnam County, Georgia

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LIST OF ACRONYMS

AES	Analytical Environmental Services
ASTM	American Society for Testing and Materials
bgs	Below Ground Surface
CCR	Coal Combustion Residuals
CEC	Cation Exchange Capacity
cm/s	Centimeter/Second
CPT	Cone Penetration Test
EDR	Environmental Data Resources, Inc.
EPWSA	Eatonton-Putnam Water & Sewer Authority
ft	Feet
FIRM	Flood Insurance Rate Map
g	Earth's Gravitational Pull
GA	Georgia
GAEPD	Georgia Environmental Protection Division
GPC	Georgia Power Company
HDPE	High-Density Polyethylene
kV	Kilovolt
mEq/100g	milliequivalents/100 grams
MHP	Mobile Home Park
MSL	Mean Sea Level
NWIS	National Water Information System
PCDPH	Putnam County Department of Public Health
PVC	Polyvinyl Chloride
PWR	Partially Weathered Rock
RQD	Rock Quality Designation
SCS	Southern Company Services
SD	Subdivision
SDWIS	Safe Drinking Water Information System
SPT	Standard Penetration Test
SWA	Sinclair Water Authority
USEPA	
	United States Environmental Protection Agency
USGS	United States Environmental Protection Agency United States Geological Survey

EXECUTIVE SUMMARY

Plant Branch is located in Putnam County, Georgia, on Lake Sinclair between the towns of Milledgeville and Eatonton. Georgia Power Company (GPC) proposes to develop a 221-acre portion of this property to permit, construct, and operate a fully-lined coal combustion residuals (CCR) landfill.

According to Circular 14, Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia [McLemore and Perriello, 1997], a site evaluation has been performed to assess the suitability of the proposed area for hosting a CCR landfill which is presented in this "Site Acceptability Report for Proposed CCR Landfill". In accordance with Circular 14, the evaluation was performed for a "moderate potential" industrial landfill site, with wastes including bottom ash, fly ash, ash-impacted soils, and minor quantities of other coal combustion by-products.

The following key points are discussed in the report:

- The Site is not located within:
 - o 0.5 mile of a County boundary;
 - o 5,708 yards of a National Historic Site;
 - the 100-year floodplain;
 - o a Most Significant Groundwater Recharge Area; and
 - o 200 feet of a fault that has had displacement in Holocene time.
- A minimum 200-foot buffer will be maintained between the waste disposal boundary or limit of waste, and the CCR permit boundary.
- There are no streams located within the CCR permit boundary. A site-specific survey identified two small wetlands (0.66 acres total) outside the proposed limit of waste. The proposed landfill will be designed not to impact the identified wetland areas.
- One Georgia Power water supply well is located within the proposed limit of waste and will be abandoned prior to landfill construction. Twelve (12) additional potentially active public water supply wells were identified within 2 miles of the Site, and 37 domestic supply wells were located within ½ mile of the Site. These wells are hydraulically separated from the Site.

- Based on site and soil characteristics identified during the site investigation, a composite liner system made up of a 2-foot-thick clay layer with a permeability of 1 x 10⁻⁷ centimeters per second (cm/s) or less overlain by a 60-mil high-density polyethylene (HDPE) liner, or an alternative composite liner system of equivalent performance, will be employed.
- A groundwater monitoring network will be designed to provide early detection of releases from the landfill in the unlikely event that regulated constituents be released from the facility.
- Groundwater pollution potential was evaluated using the LeGrand Method as described in Circular 14, using measured site input parameters. The LeGrand analysis produced a score of 20.1 for a lined site, indicating a minimal risk to groundwater quality.

The Site is found to be suitable to host a moderate potential industrial landfill storing CCR.

1. INTRODUCTION AND GENERAL SITE AREA

1.1 Introduction and Description of the General Site Area

Georgia Power Company's (GPC's) Plant Branch (Plant), located in Putnam County, Georgia, operated four coal-fired units that commenced power generation in the 1960s and were retired from service in 2015; the Plant is currently in the process of being decommissioned. Over the course of power generation at the Plant, five Coal Combustion Residuals (CCR) ponds, identified as Ash Ponds A, B, C, D, and E, were utilized. Ash Pond A, the first pond constructed at the facility, was taken out of service in the late 1960's and was closed in April 2016 by the removal and relocation of its stored CCR to Ash Pond E. Therefore, Ash Pond A is not subject to the State CCR Rule as the closure was completed prior to the effective date of the rule (i.e., 22 November 2016). On January 26, 2018, GPC submitted a report to the GA EPD titled "Ash Pond A – Certification of Ash Removal, Harllee Branch Power Plant, Milledgeville, Georgia" to provide documentation regarding the removal of CCR in Ash Pond A. Ash Ponds B, C, D, and E are currently inactive and will be closed by removal, specifically, by relocation of the CCR stored in those ponds to a proposed fully-lined CCR landfill located on the Plant property.

In November 2016, the Georgia Environmental Protection Division (GAEPD) adopted amendments to the State's Rules for Solid Waste Management [GAEPD 391-3-4]. The amendments to the State Solid Waste Rule require all remaining CCR units in Georgia to obtain a Solid Waste Handling Permit, including new disposal units at electric utilities. The amendments incorporate by reference the Federal CCR Rule administered by the United States Environmental Protection Agency (USEPA). Therefore, the proposed CCR landfill at Plant Branch is to be sited, designed, permitted, constructed, operated, and closed in accordance with the State CCR Rule (GAEPD 391-3-4-.10), and, by reference, applicable provisions of the Federal CCR Rule (USEPA 40 CFR §257).

This site acceptability report was prepared in accordance with relevant sections of the GAEPD guidance document "*Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia, Circular 14*" (Circular 14) [McLemore and Perriello, 1997] referenced in the State CCR Rule to assess the suitability of the proposed area for hosting a CCR landfill facility. GPC intends to permit the facility as a "moderate potential" industrial landfill as listed under Appendix A, Section 2 of Circular 14 to store bottom ash, fly ash, ash-impacted soils, and minor quantities of other coal combustion by-

products. This site acceptability report describes the site conditions at the proposed CCR landfill site as they relate to the requirements for moderate potential industrial landfills outlined in Circular 14, Appendix A, Section (2), (A) through (J), and the design requirements specified in the Solid Waste Rules, Chapter 391-3-4.

The following sections summarize information related to the suitability of the proposed site for hosting a CCR landfill facility. This information was developed by Geosyntec and supplemented by information provided in previous reports by Southern Company Services (SCS) [SCS, 2009], Golder Associates (Golder) [Golder, 2017, 2018a, and 2018b], ATC Associates (ATC) [ATC, 2000], and Kemron [Kemron, 2008], as well as from residential and public water supply surveys conducted by Geosyntec in January 2019. Further, as part of developing this Site Acceptability Report (SAR), Geosyntec conducted a field investigation from November 2018 to January 2019 which supplemented existing site data with additional subsurface borings, cone penetration tests, and temporary piezometers in the proposed landfill site. These data are described in greater detail in the following sections.

1.1.1. Location

Plant Branch is located off State Route 24 (US 441), on the northern shore of Lake Sinclair near Milledgeville and Eatonton, in Putnam County, Georgia. The physical address of the Plant is 1100 Milledgeville Road, Highway 441, Milledgeville, Georgia. The Plant property encompasses approximately 3,200 acres.

GPC proposes to develop approximately 221 acres of land located in the south-central portion of the Plant property for the CCR landfill facility. The center of the proposed CCR landfill facility (referred to herein as the "Site" within this text and its limits shown as the "CCR Permit Boundary" within the figures) is located at approximate latitude 33° 11' 47" north and longitude 83° 18' 55" west and is bound by a Norfolk Southern rail spur to the north and west, Lake Sinclair and Ash Pond D to the south, and the Georgia Transmission Company, Plant Harllee Branch, Bonaire 230 kilovolt (kV) transmission line to the east. The regional topographic map and the Plant and Site boundaries are shown on **Figure 1-1**.

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1.1.2 General Topography

The Site is located in the Piedmont physiographic province of central Georgia, which is characterized by gently rolling hills and narrow valleys, with locally pronounced linear ridges. General topography in the vicinity of the Plant consists of rolling hills dissected by streams and tributaries draining to Lake Sinclair. The Piedmont is an area of generally modest relief. The Site is centered around a ridgeline with an elevation of approximately 450 feet from Mean Sea Level (ft MSL) dropping off toward the south to the typical operational elevation of Lake Sinclair at approximately 340 ft MSL. Slope gradients from the central Site ridge to Lake Sinclair are generally on the order of 5 to 10 percent. A Site topographic map showing existing conditions, site-specific topography, and other relevant features at the Site is included in **Figure 1-2**.

1.1.3 General Geology

The Site is located within the Piedmont physiographic province, which lies between the Blue Ridge Mountains to the northwest and the Upper Coastal Plain to the south. This province is underlain by regionally metamorphosed rocks including granitic gneisses, amphibolite, and mica schists. Physical and chemical weathering of metamorphic and igneous rocks in the humid climate of the southern Piedmont results in a variably thick blanket of residual soils and saprolite above the bedrock.

1.1.4 General Hydrology

The Site is located within the Upper Oconee Watershed of the Oconee River Basin. Surface waters at the Site drain to the northeast, northwest, southwest, and south toward tributaries of Lake Sinclair. Lake Sinclair was established by building the Lake Sinclair Dam on the Oconee River and partially extends over the Little River that historically ran west to east directly south of the Site. Lake Sinclair drains southward to the Oconee River through the Sinclair Dam, which joins the Ocmulgee River from the west, forming the Altamaha River and eventually discharging into the Atlantic Ocean near Brunswick, Georgia.

1.1.5 Land Use

The Plant is surrounded on the west and north sides primarily by agricultural or forested lands. To the east along Highway 441, land use is a mixture of single-family residential, commercial, and industrial uses. A mixture of single-family site-built dwellings,



manufactured homes, travel trailers, and cabins are present in the subdivisions bordering Lake Sinclair to the south.

1.1.6 Population

The population of Putnam County, Georgia for the year of 2017 was estimated by the United States Census Bureau (www.factfinder.census.gov) at 21,730. From 2007 to 2017 the population grew approximately 7.2 percent. Most growth in the county has taken place in the Lake Oconee and Lake Sinclair areas; however, the City of Eatonton population has also grown significantly. According to the Joint Comprehensive Plan for Putnam County and City of Eatonton [2006], projections indicate that by 2030, Putnam County's total population will be approximately 31,600, an increase of 68 percent from 2000 to 2030.

1.2 Zoning

The Putnam County Board of Commissioners forwarded a letter to the GAEPD Branch Chief on September 18, 2018, stating that the proposed CCR landfill (Site) complies with local zoning and land use ordinances. A copy of this letter is included in **Appendix A**.

1.3 <u>Proximity to Floodplains</u>

No portions of the proposed landfill Site are within the 100-year floodplain. Circular 14 states that a solid waste handling facility located in the 100-year floodplain must not restrict the flow of the 100-year flood. The Flood Insurance Rate Map (FIRM) of Putnam County, Georgia (Panel No. 13237C0275C) [Georgia Flood Map Program, 2008] depicts that there are no portions of the Site that are within the 100-year floodplain. The extent of the 100-year floodplain, as mapped on the applicable FIRM, is shown on **Figure 1-2**.

1.4 **Proximity to Steams and Wetlands**

There are no streams within the Site. A site-specific survey identified two small wetlands (0.66 acres total) within the Site but outside the proposed limit of waste and land disturbing activities for the landfill. The proposed landfill will be designed not to impact the identified wetland areas.

A site-specific survey [Ecological Solutions, 2019] was conducted to delineate wetlands, open waters, streams, and threatened and endangered species habitats. The surveyed area

encompassed approximately 340 acres within the Plant Branch property, including the proposed landfill Site. Beaverdam Creek is the closest named perennial stream, located to the northeast and draining southeastward to Lake Sinclair. Ecological Solutions identified unnamed perennial streams in the vicinity of the proposed landfill Site, but not within the CCR permit boundary.

Wetlands identified by traverses conducted by Ecological Solutions are shown on **Figure 1-2**. Circular 14 states that a solid waste handling facility shall not be located in wetlands, as defined by the U.S. Army Corps of Engineers, without special considerations and permitting. Wetlands were identified in the vicinity of the proposed landfill Site during this survey. Additionally, two wetlands, one measuring 0.60 acres and the other 0.06 acres were identified within the proposed landfill Site, near the northeast corner. The CCR disposal activities and land disturbing activities will be designed to not impact the identified wetlands. The results of the survey along with the U.S. Army Corps of Engineers delineation review letter are included in **Appendix B**.

1.5 **Proximity to National Historic Sites**

The nearest National Historic site, the Martin Luther King, Jr. (MLK) National Historic Site, is located approximately 70 miles from the proposed landfill Site. Circular 14 requires that the proposed landfill Site not be located within 5,708 yards (3.24 miles) of a National Historic Site.

1.6 <u>Proximity to County Boundaries</u>

The Site is greater than one-half miles from county boundaries. Circular 14 requires that the proposed landfill Site not be located within one-half mile of a county boundary except when the governing authority of the adjoining county gives written approval. The county line between Putnam County (where the proposed landfill Site is located) and Baldwin County is located within Lake Sinclair to the south of the Plant. The southernmost edge of the proposed landfill Site is greater than one-half mile from the adjoining Baldwin County line. **Figure 1-3** shows a ¹/₂-mile offset line from the Putnam-Baldwin County line.

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1.7 <u>Wellhead Protection</u>

There are no wells or springs located within two miles of the CCR permit boundary to which wellhead protection requirements apply. The Rules for Safe Drinking Water (Chapter 291-3-5-.40) specify a wellhead protection area around wells and springs that are used as a source of water supply for community public water systems serving a municipality, county, or authority.

1.8 Proximity to Most Significant Groundwater Recharge Areas

The Site is not located within a Most Significant Groundwater Recharge Area. For moderate potential industrial landfill sites, acceptability criteria applicable for a municipal solid waste landfill only apply if the Site is located within a Most Significant Groundwater Recharge Area. A portion of the *Hydrologic Atlas 18 (HA 18): Most Significant Ground-Water Recharge Areas of Georgia* [Georgia Geologic Survey, 1992a] is represented on **Figure 1-4**. The Site boundary is located outside the area mapped as "Piedmont Province Probable Area of Thick Soils", which is located approximately 1¹/₄ miles to the northwest and upgradient of the proposed Site, near the town of Dennis, Georgia.

1.9 <u>Proximity to Public and Domestic Water Supplies</u>

A single Georgia Power water supply well is located within the proposed limit of waste. This well will be abandoned during landfill pre-construction activities. An additional 12 public water supply wells are located within 2 miles and 37 private water supply wells are located within ¹/₂ mile of the Site boundary. However, these wells are hydraulically separated from the Site, based on the topographic locations and the site conceptual groundwater flow. The nearest water supply well (domestic) is 2,050 feet from the Limit of Waste boundary, but this well and other domestic wells within ¹/₂ mile of the Site boundary, are also separated from the Site by drainage features as shown on **Figure 1-5**.

Appendix A, Section (G)(1) of Circular 14 requires that all public water supply wells or surface water intakes within two miles, and private (domestic) water supply wells within $\frac{1}{2}$ -mile of a proposed industrial landfill site must be identified.

A water supply well survey was conducted by Geosyntec in December 2018 and January 2019. Records were reviewed for an area with a radius of approximately 2.3 miles from

the approximate geographic center of the Site to account for Site dimensions (or 2 miles from the Site boundary). Records sources included databases from Environmental Data Resources (EDR), GAEPD, USEPA, and the United States Geological Survey (USGS), and direct communications with the Sinclair Water Authority (SWA) and the Eatonton-Putnam Water & Sewer Authority (EPWSA). Field reconnaissance to identify potential domestic water supply wells was also conducted.

Public water supply wells and surface water intakes within two miles of the Site and private water supply wells within ¹/₂ mile of the Site, identified from the above sources, are shown on Figures 1-5 and 1-6, respectively. Table 1-1 provides a summary of the wells located during the water supply well survey. Water sources identified through more than one data source are shown only once in Table 1-1 and Figures 1-5 and 1-6. A summary of these results is provided below:

- A GeoCheck Database Report from EDR reported 14 wells within two miles of the Site boundary (or 2.3 miles from the Site center). The EDR identification designations (i.e., A1, C6, etc.) are used on **Figure 1-5**. Three wells are identified as public water supply wells based on the assignment of a Water System Identification (WSID) number in the USEPA Safe Drinking Water Information System (SDWIS):
 - Pine Forest Subdivision (SD) (Map ID No. B3; WSID GA2370006) In the EDR report, this well is plotted in the Tall Timbers-Oak Openings SD, not Pine Forest, which is farther to the northwest;
 - o Tall Timbers-Oak Openings (Map ID No. B7, WSID GA2370008); and
 - o Bayside Haven Mobile Home Park (MHP) (Map ID No. 4, WSID GA2370037).

Direct communication with EPWSA confirmed that the Pine Forest and Tall Timbers-Oak Openings SD wells are no longer operational and that both subdivisions and the "Bayside" MHP (currently referred to as Dogwood Point MHP) are now served by the county water distribution network. The abandonment of the "Bayside" MHP well could not be confirmed; therefore, it is considered potentially active. The remaining eleven wells (Map ID Nos. A1, A2, C5, C6, 8-11, D12, D13, and 14) are listed as USGS-GA water wells. It is not known if these wells are used for domestic drinking water; however, based on the latitude and longitude coordinates provided by the USGS, these eleven wells are outside of the ½-mile radius of the Site boundary. The wells are shown on **Figure 1-5** and are identified as "Public" on **Table 1-1**, with status listed as "Unknown". The EDR report did not identify any surface water intakes within the search area.

- The USGS online National Water Information System (NWIS) was reviewed for an area within a 2-mile radius of the Site Boundary. The NWIS database identified the same eleven USGS wells that were identified in the EDR search.
- USEPA Safe Drinking Water Information System (SDWIS) records were reviewed for an area within a 2-mile radius of the Site boundary (or 2.3 miles from the Site center) and identified the following:
 - "Water systems" at Tall Timbers-Oak Openings SD (Map ID Nos. 15 and 16, WSID GA2370008, which is also the WSID assigned to the well with Map ID. No. B7) and Forest Lake Village SD (Map ID Nos. 17 through 21, WSID GA2370002). The systems are listed with an overall status as "inactive" but the individual wells are listed with "active" status. EPWSA personnel confirmed that they assumed control over these seven wells in 2009 and they were decommissioned and capped at that time and are no longer in use.

It is noted that only street addresses were provided for the Forest Lake Village and Tall Timbers-Oak Openings SD wells. However, the five Forest Lake Village SD wells (Map ID Nos. 17 through 21) plot very close to five of the USGS water wells identified in the EDR report (Map ID Nos. A1, A2, and 9 through 11; which are also identified as USGS wells 19Z013 through 19Z017). It is not known whether these coordinates and addresses reference the same wells since the subdivisions generally had multiple wells; therefore, they are all listed in **Table 1-1**.

 One well across Lake Sinclair in Baldwin County at the Cove SD (Map ID No. 22, WSID GA0090008). It is not known whether this well is active or abandoned.

- One active well at the GPC-Skills Development Center (Map ID No. 23, WSID GA2370066) within the Plant property and the Site.
- One active permitted public surface water intake for SWA (Map ID No. 61, WSID GA2370087).
- One inactive, former private surface water intake was located within the Plant property (Map ID No. 62, WSID GA2370003) on Lake Sinclair. This intake was used only for industrial purposes, and not for drinking water, and is no longer in operation since power production ceased at the Plant in 2015.
- A request was made of GAEPD in December 2018 for a records search of Active Permitted Drinking Water Systems near the Site. Two permits within a 2-mile radius of the Site boundary were identified: (i) the GPC Skills Development Center well (Map ID No. 23, GA2370066); and (ii) the SWA public surface water intake (Map ID No. 61, GA2370087). The GPC Skills Development Center well is located within the limit of waste and will be properly abandoned prior to landfill cell development in the vicinity of the GPC Skills Development Center.
- The SWA provides water for Putnam and Baldwin Counties, through their processing of Lake Sinclair surface water at their treatment plant on Cay Road. The public surface water intake is located approximately 1.9 miles northeast of the Site (Map ID No. 61, GA2370087).
- A field reconnaissance by Geosyntec personnel was conducted on January 24, 2019 to search for evidence of domestic water supply wells on private properties located within a ¹/₂-mile radius of the Site boundary. The well search identified 31 properties with structures that appeared to be possible private/domestic wells or well houses, depicted in **Table 1-1** and **Figure 1-6**.
 - Twenty-four of these wells (Map ID Nos. 24 through 47) are located on private properties to the northeast of the Site. Six of the 24 locations (Map ID Nos. 28, 29, 35, 37, 38, and 43) are confirmed by EPWSA to <u>not</u> be served by the county water distribution network.

- Seven wells identified during the field reconnaissance (ID Nos. 48 through 54) are located to the southwest of the Site. According to EPWSA, six of the seven residences (Map ID Nos. 48 through 52, and 54) are confirmed by EPWSA to <u>not</u> be served by the county water distribution network.
- A search of Putnam County Department of Public Health (PCDPH) records for permits issued for water wells within a 2-mile radius of the Site boundary (or 2.3 miles from the Site center) was requested in January 2019. Based on their records, the following wells were identified:
 - Eleven domestic/private water wells were identified within a ¹/₂- mile radius of the Site boundary. Five of these (Map ID Nos. 43, 44, and 48 through 50) were also identified in the field reconnaissance discussed above. The remaining six wells identified only in the PCDPH records are included as Map ID Nos. 55 through 60. One of these six wells (Map ID No. 55) was confirmed by EPWSA to <u>not</u> be served by the county water distribution network. No information on whether the remaining wells are active or abandoned was available.

In summary, the Geosyntec water supply well survey identified the following wells within a 2.3-mile radius of the center of the Site (or 2 miles from the Site boundary):

- One active public SWA surface water intake (the intake is located at a northern arm of Lake Sinclair and is upgradient of the Site);
- Fourteen (14) potentially operational public water supply wells:
 - Nine (9) of the original identified 23 wells were confirmed to be plugged and non-operational. A tenth well at Bayside Haven MHP is confirmed to be on County water and the well is believed to be non-operational but its status in **Table 1-1** is listed as "unknown".
 - The GPC Skills Development Center well (Map ID No. 23, GA2370066) is located within the Site footprint and is planned for demolition as part of the Site development. The GPC Skills Development Center well will be properly abandoned prior to the CCR landfill construction. The remaining 13 wells, potentially used for public water supply, are hydraulically

separated from the Site by topographic groundwater divides and surface water features (ridges, perennial streams, or Lake Sinclair).

- Thirty-seven (37) properties with potentially active private/domestic water wells (31 potential well-house structures identified during the field reconnaissance, and six additional well permits identified by PCDPH):
 - Geosyntec was unable to physically verify these structures as wells or to ascertain their use as drinking water wells. The wells are hydraulically separated from the Site by Lake Sinclair or drainage features separated by a topographic ridge.
- Other than the GPC Skills Development Center well which will be abandoned, the closest domestic/private well that is potentially a source of drinking water is the well with Map ID No. 49, located approximately 2,050 feet from the waste limit.

The EDR report and other records pertaining to the water supply well survey are included in **Appendix C**.

2. SURFACE AND SUBSURFACE INVESTIGATIONS

Circular 14 requires that the siting assessment for industrial waste disposal facilities include a description of general site conditions including topographic setting, borings and wells installed at the Site (including specifics on drilling and installation methods), hydrogeologic conditions and groundwater flow regime, and potential natural or geologic hazards in the vicinity of the Site. The following sections address these characteristics of the area within and surrounding the Site, based primarily on information gathered during site investigations performed by Geosyntec, and supplemented by previous site investigations performed by ATC [ATC, 2000], Golder Associates (Golder, 2017, 2018a, and 2018b)], and SCS [SCS, 2009].

2.1 <u>Topographic Description</u>

Generally, the Plant property slopes gently eastward and southward towards Lake Sinclair. The proposed CCR landfill straddles a ridge at the central portion of the Site, situated between a bend in the Norfolk Southern rail spur to the north and west and the Georgia Transmission Company, Plant Harllee Branch, Bonaire 230 kilovolt (kV) transmission line to the east and southeast. The ridgeline slopes primarily to the northeast toward the confluence of Beaverdam Creek and Lake Sinclair, and to the southwest towards Lake Sinclair, as shown on **Figure 1-2**. Topographic relief from the ridge to Lake Sinclair is approximately 110 feet, with a topographic high of nearly 450 ft MSL at the center of the Site and with a low of approximately 340 ft MSL at Lake Sinclair to the southwest and northeast of the Site.

2.2 Boring and Sampling Program

Three site investigation programs have been conducted at the Site, as follows:

• From 2007 to 2009, a site investigation was conducted by SCS to evaluate the suitability for a proposed gypsum storage facility in a similar footprint as for the currently proposed CCR landfill. The gypsum storage facility was not constructed, but borings were advanced and temporary piezometers installed as part of that investigation. Nineteen (19) borings (BH-series) were advanced using a combination of hollow-stem auger drilling and wireline rock coring. Details of the boring depths, water levels, and lithology are presented in the *Plant Branch Proposed Coal Combustion By-Product Disposal Facility - Site Acceptability*

Report (SCS, 2009). These borings included the installation of temporary piezometers for water level measurements, which were subsequently abandoned following seasonal measurements and aquifer testing.

- In 2014 and 2016, SCS and Golder Associates, respectively, conducted site investigations to collect hydrogeologic data in the vicinity of the ash ponds at the Plant. Among the wells and piezometers installed as part of these investigations, six (6) monitoring wells (BRGW-series) and nine (9) piezometers (PZ-series) were installed either within, or in close proximity to the footprint of the proposed CCR landfill.
- From November 2018 through January 2019, Geosyntec conducted a site investigation including the installation of borings (PB-series) at fourteen (14) locations within or in close proximity to the footprint of the proposed CCR landfill and supporting facilities. Shallow and deep piezometer pairs were installed at four (4) of these boring locations and a single piezometer was installed at three (3) of the locations, for a total of eleven (11) temporary piezometers. In addition to the borings and piezometers, fourteen (14) Cone Penetration Test (CPT) borings were advanced within the same footprint to evaluate the geotechnical properties of the soil beneath the Site.

Overall, 26 piezometers/monitoring wells are currently installed within or in the near vicinity of the proposed CCR landfill. Total depths, screened intervals, and casing elevations for the piezometers and wells (both historical and currently installed) are summarized on **Table 2-1** and locations are shown on **Figure 2-1**. Survey coordinates and total depths are summarized for the Geosyntec PB-series borings and CPT borings on **Table 2-2** and their locations are shown on **Figure 2-2**. Logs for all borings, piezometers, and monitoring wells are included in **Appendix D**.

Based on the conceptual site model developed by SCS for groundwater flow in the vicinity of the Site, monitored borings were installed with one (i.e., single) to three (i.e., clustered) individual piezometers at each location. Most of the piezometer clusters consist of one piezometer screened in the regolith (saprolite) and one in the upper bedrock/partially weathered rock (PWR) while one of the clustered locations also included a third piezometer, screened in the deeper bedrock.

2.2.1 Borehole Drilling and Well and Piezometer Installation

The borings installed by SCS during (i) the 2007-2009 gypsum facility site investigation and (ii) the 2014 site investigations, were advanced using hollow-stem auger drilling methods and wireline rock coring. Boreholes were advanced through the regolith using the hollow-stem augers to the top of the bedrock surface and logged for lithology by a geologist. Regolith piezometers were installed in these augered boreholes. At locations advanced into bedrock, a larger diameter polyvinyl chloride (PVC) casing was installed and grouted in place to the top of the bedrock surface and HQ-size (approximately 3.75inch diameter borehole) rock coring was used to reach target depths. The piezometers were constructed of 2-inch diameter Schedule 40 PVC riser and 10-foot slotted (0.010inch) PVC screen. A minimum 2-foot thick sanitary seal of bentonite pellets was placed above the filter pack and the remaining annular space was filled with bentonite chips. The temporary piezometers associated with the gypsum facility investigation were abandoned in 2009 by removal of the well casing and tremie grouting of the borehole to the ground surface, in accordance with the Water Well Standards Act.

The wells and piezometers installed by Golder in 2016 were advanced using rotasonic drilling methods. Continuous cores of soil and rock were collected using a 4-inch diameter sonic core barrel and 6-inch diameter outer drill casing and logged by a geologist. Wells and piezometers were constructed of 2-inch diameter Schedule 40 PVC riser and 10-foot pre-packed slotted PVC screen. An approximately 5-foot thick sanitary seal of time-release coated bentonite pellets was placed above the filter pack, and the remaining annular space was grouted using a cement-bentonite grout via the tremie pipe method.

Geosyntec, through its subcontractor Thompson Engineering (Thompson), installed borings in 14 locations in 2018-2019. A copy of Thompson's drillers bond is included as **Appendix E**. The Geosyntec borings were completed mainly using hollow-stem auger and wireline rock coring. Continuous Standard Penetration Tests (SPTs) were conducted to collect soil for lithologic logging and for laboratory analysis at intervals of 2 feet within the regolith and at intervals of 5 feet within the partially weathered rock. The SPTs were conducted in accordance with ASTM D1586. Shelby tubes were also used to obtain undisturbed soil samples for laboratory testing in accordance with ASTM D1587. Split-spoon samples were examined and classified in accordance with ASTM D2488, and documented on boring logs in the field by a Geosyntec professional geologist (licensed in Georgia). Seven of the borings were terminated at auger refusal or top of rock depths,

with no rock coring. These borings were abandoned by tremie grouting of the borehole to the ground surface upon completion. Continuous NQ-sized (approximately 3-inch diameter borehole) rock cores were collected from seven (PB-1, PB-2, PB-4, PB-7, PB-8, PB-10, and PB-13) of the 14 borings. These borings were advanced to between 15 and 24 feet into bedrock, and 95 to 100 percent recovery of the core was generally achieved in each case. The observed Rock Quality Designation (RQD) ranged from 0 to 100 percent, with the gneiss bedrock beneath the Site generally being poorly jointed and of good to excellent quality (typically RQD greater than 75 percent).

Eleven (11) temporary piezometers were installed by Geosyntec at seven (7) locations to monitor groundwater levels and to measure the horizontal hydraulic conductivity of the subsurface geologic units. At four of the locations (PB-4, PB-8, PB-10, and PB-13), a piezometer cluster of one (1) shallow and one (1) deep piezometer were installed; at two (2) locations (PB-1 and PB-7), only shallow piezometers were installed because no waterbearing fractures were encountered in the bedrock; and at one (1) location (PB-2) only a deep piezometer was installed because the water table was not encountered within the saprolite. The deep piezometers extended a minimum of 10 feet into bedrock where they were screened. The shallow piezometers were installed adjacent to the deep piezometers at paired locations in the saturated portion of the regolith. The piezometers were constructed similarly to those previously installed at the Site, using 2-inch diameter Schedule 40 PVC riser and pre-packed well screens.

Piezometers installed at the Site were developed using surging and purging methods to remove fines from the filter pack and well screen.

2.2.2 Laboratory Testing

Soil samples were collected from the soil borings installed by Geosyntec at 14 locations of the Site. Samples were selected for laboratory testing based on a variety of parameters, including but not limited to the geology of the Site, visual description of the samples, spatial distribution, and SPT results. The laboratory testing program was developed to support this Site Acceptability Report, geotechnical site characterization, or both. The laboratory testing was performed by Excel Geotechnical Laboratory, Inc. (Roswell, Georgia), following testing procedures in general accordance with applicable ASTM standards. Additional soil samples were sent to Analytical Environmental Services, Inc. (Atlanta, Georgia) for testing of cation exchange capacity in general accordance with applicable USEPA testing standards.

A total of 49 samples were selected for testing to support this Site Acceptability Study, including 34 split-spoon samples, 11 Shelby-tube samples, and 4 bulk samples. The following tests were performed on the selected soil samples and used in support of this Site Acceptability Study:

- 37 moisture content tests (ASTM D2216);
- 43 grain size distribution tests (from split-spoons, Shelby-tubes, and bulk samples) (ASTM D422);
- 43 Atterberg limits tests (i.e., liquid limit, plastic limit, and plasticity index) (ASTM D4318);
- 43 engineering classification tests (ASTM D2487);
- 4 flexible wall vertical permeability tests on undisturbed samples (ASTM D5084);
- 6 cation exchange capacity (sodium acetate) tests (USEPA Method 9081).

The results for the tests listed above are summarized in **Table 2-3**. The laboratory test data collected solely for geotechnical site characterization were not included in this report.

2.3 <u>Description of Soils and Rocks</u>

2.3.1 Overview

The metamorphic and igneous rocks that underlie the Site have been subjected to physical and chemical weathering that has created a landscape dissected by creeks and streams forming a dendritic drainage pattern (Golder, 2018a). These rocks have been weathered near the surface due to the humid climate. As a consequence, bedrock at the Site is typically overlain by a variably thick blanket of residual soils and saprolite (collectively called regolith). The overall depth of weathering in the Piedmont is generally about 20 to 60 feet; however, the depth of weathering along discontinuities and/or mafic rock units may extend to depths greater than 100 feet.

2.3.2 Site Geology

The Site is situated in a region underlain by high-grade metasedimentary and metavolcanic rocks of the Carolina Terrane. These rocks are locally intruded by igneous dikes and sills. The metamorphic rocks are generally poorly jointed, while the igneous intrusions are well-jointed.

A geologic map for the Site is shown in **Figure 2-3**, compiled by Golder (2018a), based on geologic mapping conducted by Petrologic Solutions, Inc. The Site is located within the biotite gneiss formation, with the exception of a small portion on the northwest edge of the Site shown as underlain by a diabase dike. Diabase was not encountered in the Site-wide borings. Shallow rock boulders were encountered during the Geosyntec site investigation; however, no intact rock outcrops were identified within the Site boundary.

A topographic map of the site, depicting the Site boundary and boring locations used to evaluate the Site geology, is provided as **Figure 1-2**. Floodplains and wetlands are also shown on this figure. **Figure 2-4** depicts three geologic cross-sections: A-A', B-B', and C-C'. Cross-section A-A' is slightly oblique to the geologic strike and dip directions. Cross-section B-B' is drawn roughly perpendicular to the direction of the geologic strike and cross-section C-C' is drawn roughly parallel to the direction of the geologic strike. An inset on the figure shows the locations of the three cross-sections. A description of the soils and rocks depicted in the cross-sections is presented below.

2.3.2.1 Regolith: Surficial Clays and Saprolite

Review of boring logs from the previously described studies and the recent Geosyntec field investigation indicate that the residual soils consist of a thin layer of clayey silt to silty clay across most of the Site. Underlying this soil, the saprolite is dominated by more sandy clay and silty or clayey sand textures. In general, grain size of the saprolite increases with depth from silty clay to silty sand. The saprolite is generally characterized as mottled brown to red with abundant mica minerals, showing relict foliations and banding indicative of the underlying gneissic rocks. Few minerals such as feldspar, biotite, and hornblende are noted in the saprolite because of the extensive weathering. Rock fragments increase in number and size with depth in the saprolite.

The residual soil/saprolite regolith varies in thickness from 10 feet to 75 feet. The observed saprolite thickness is consistent with other Piedmont areas in the southeastern

United States. The saprolite is thicker in upland areas, and generally thinner in lowland areas. The thickness of the regolith layer from the ground surface to the top of the partially weathered rock (PWR) across the Site is depicted in **Figure 2-5**.

2.3.2.2 Partially Weathered Rock (PWR)

The saprolite was identified as having transitioned to PWR when the SPTs exceeded 50 blows per 6 inches. The PWR is marked by a continued increase in sand content with depth, and typically classified as a silty sand, clayey sand, or poorly sorted sand. The PWR accounts for a majority of the "transition zone" that lies between the saprolite and the competent bedrock. The thickness of the transition zone, consisting of PWR and upper fractured bedrock, varies considerably across the Site from approximately 5 feet to more than 70 feet, with the PWR making up the greatest part of the thickness. The fractured bedrock portion of the transition zone is typically only 5 to 15 feet thick.

2.3.2.3 Bedrock

Competent bedrock at the Site is primarily characterized as poorly to moderately fractured with low ($<30^\circ$) fracture dip angles. The competent bedrock consists of biotite gneiss occasionally interlayered with amphibolite with few open fractures. The unweathered rocks are well foliated with a planar, northeast-trending fabric, showing distinct dark and light banding, feldspar phenocrysts, quartz and feldspar augen, and few micro-fold structures. The gneissic rocks show moderate to high-grade metamorphism, as indicated by the presence of migmatitic texture noted in some samples.

The top of bedrock surface at the Site is irregular, with elevations estimated to range from about 280 to 380 feet MSL as shown on **Figure 2-6**.

2.3.3 Fractures and Structure

In 2017, Golder completed detailed geologic mapping of the Site through their subcontractor Petrologic Solutions, Inc. (Petrologic). As part of that mapping study, bedrock discontinuity orientations were statistically analyzed using lower hemisphere equal area stereonets to characterize dominant orientations for each discontinuity type (i.e., joints, foliations, and layering). The mapping study found two domains of foliation. The area containing the Site (in the central and northwestern portion of the Plant Branch property) is characterized by northeast striking, northwest dipping foliations; whereas,

the foliations measured in the southeastern portion of the property (southeast of the Site) generally strike northeast, but with southeast dips.

Most of the rocks observed on Site during mapping were poorly jointed, which may be related to the feldspathic and weathered nature of the biotite gneiss. The dominant, extensional joint set observed across the Plant and the surrounding area is oriented northwest to southeast, with an average strike and dip of N46°W and 84°SW, respectively. A second joint set is orientated north to south, with an average strike and dip of N1°W and 54°NE, respectively.

Locally, some of the joints contain clay infilling; however, most of the joints are planar and smooth with little to no evidence of high fluid flow based on field mapping carried out by Golder [Golder, 2018a].

2.4 <u>Description of Unconfined Aquifers (Including Depth to Water Table)</u>

The uppermost aquifer at the Site is an unconfined regional groundwater aquifer that occurs primarily in the regolith and within the PWR and upper fractured bedrock (transition zone). Generally, the water table surface at the Site is a subdued reflection of topography. At the Plant scale, groundwater generally flows east from the higher ridges west of the proposed CCR landfill. At the Site scale, groundwater flow is in three directions, flowing away from the crest of the ridge at the center of the Site to the northeast, southwest, and to the northwest. Localized groundwater flow directions are naturally influenced by variations in topography and the top of bedrock surface. Current groundwater flow directions at the Site are also influenced by the existence of adjacent ash ponds, namely Ash Ponds C and D in the southeast portion of the Site.

Recharge to the aquifer is primarily by way of precipitation. Downward hydraulic gradients dominate in the topographically high areas, while upward gradients are typically observed in topographic lows. Groundwater discharge occurs as baseflow to local tributary streams, and ultimately into Lake Sinclair.

Previous investigations at the Site evaluated annual, seasonal, and daily rainfall averages based on data from the Milledgeville, Georgia area. Average annual rainfall was reported as 45.6 inches from 1940 to 2008, with an average monthly rainfall of 3.88 inches. Average daily rainfall for the period of 2007 to 2009 was reported as 0.14 to 0.21 inches, with April generally being the wettest month of the year [SCS, 2009].

A potentiometric surface map was generated from water level measurements collected on January 31, 2019 and is presented in **Figure 2-7.** Groundwater elevations from the Site wells/piezometers (and wells/piezometers in the immediate vicinity of the Site), with the exception of three wells/piezometers (BGWC-12S, PZ-12D, and PB-4D), were used to develop the potentiometric surface map (BGWC-12S was dry, and PZ-12D and PB-4D had water level readings that appeared to be anomalous). **Table 2-4** summarizes the January 31, 2019 groundwater elevation data. Depths to groundwater vary considerably across the Site from approximately 30 feet to as much as 50 feet in the higher topographic elevations and to as little as two feet at the toe of the Pond D dike, nearest the shoreline of Lake Sinclair. Groundwater flow is generally away from the topographic high near the center of the Site and Ash Pond D toward Lake Sinclair or its tributaries.

Geosyntec installed paired piezometers with screened intervals at shallow and deep depths at four locations during the 2018-2019 field investigation (PB-4S & 4D, PB-8S & 8D, PB-10S & 10D, and PB-13S & 13D). The groundwater levels measured in the shallow piezometers were slightly higher compared to the deep piezometers at three of the four locations, with a maximum of 0.3 feet of difference. This difference is minimal and is consistent with the conceptual model of slight downward gradients in topographically higher areas (typical of the Piedmont region). At the one location at which the deeper piezometer (PB-4D) had a higher groundwater level than the shallow piezometer (PB-4S) at the time of measurement, it was believed that this well had not fully equilibrated after a slug-in falling head aquifer test was conducted on it the previous day. Water level data from the paired piezometers reflect free movement of groundwater between the regolith, PWR, and the bedrock in an unconfined aquifer.

Recharge to the bedrock aquifer system comes primarily from water stored in the regolith. The regolith soil allows for slow infiltration to the bedrock through areas of enhanced permeability. The rate of this infiltration is generally considered to be slow, as the silty, clayey-rich sandy soils present across most of the Site retard recharge from the uppermost aquifer into the underlying bedrock aquifer system. The few open fractures present in the gneiss bedrock are the only pathway for groundwater flow through bedrock, since the rock lacks primary porosity.

2.5 Description of Confined Aquifers

No confined aquifers were encountered at the Site. As is typical of the southern Piedmont province, the groundwater systems are generally unconfined. Localized semi-confined

conditions may be encountered as a result of perched groundwater, isolated lenses of lowpermeability soils, or poorly interconnected fracture networks in the bedrock.

2.6 <u>Potential of Unconfined (and Confined) Aquifers as Sources of Drinking</u> <u>Water</u>

The unconfined aquifer at the Site is a potential source of drinking water. The uppermost groundwater bearing zone is believed to currently be potentially used by a number of residences located within ½ mile of the Site as a primary source of drinking water supply. However, it should be noted that the Site is not located in an area of significant groundwater recharge, and the potential drinking water wells are hydraulically separated from the Site by groundwater divides or discharge zones. A drinking water supply and well survey was completed as part of the current Site investigation and previously discussed in Section 1.9.

2.7 <u>Description of Geologic and/or Natural Hazards, Seismic Impact Zones</u>

Circular 14 presents siting criteria for fault areas, seismic impact zones, and unstable areas. No faults, fault zones, shear zones, or unstable areas were encountered during the Geosyntec field investigation or data review. Additional information is presented below.

2.7.1 Faults

Circular 14 requires that the Site shall not be located within 200 feet of a fault that has had displacement in Holocene time. The Site is located approximately 74 miles south of the Brevard Fault Zone, a major geologic feature that transects the Piedmont region. The latest movement along the Brevard Zone is estimated at $282 (\pm 14)$ million years ago (Late Paleozoic). There are no known Holocene faults in this region of Georgia. Additionally, USGS Unified Hazard Tool delineates the U.S. Quaternary Faults (https://earthquake.usgs.gov/hazards/ interactive/) [USGS, 2014]. No Quaternary faults are shown within the state of Georgia.

2.7.2 Seismic Impact Zones

Circular 14 restricts siting landfills in seismic impact zones, unless it is demonstrated that containment structures, including liners, leachate collection systems, and surface water control systems are designed to resist the maximum horizontal acceleration in lithified earth material at the Site. A seismic impact zone, as defined in Circular 14, is an area

with a ten percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 250 years (i.e., a 2 percent or greater probability that the maximum horizontal acceleration in lithified earth material will exceed 0.10g 50 years). A seismic hazard map obtained from <u>https://earthquake.usgs.gov/hazards/interactive</u> (Petersen et al., 2014) for a portion of Georgia including the Site is included in **Figure 2-8**. The map depicts peak ground acceleration contours (as a percentage of g), in which the contours represent an event with a 2 percent or greater probability of exceedance in 50 years. Based on this map, the Plant and Site are located within a zone with a peak ground acceleration of approximately 0.12g (i.e., greater than 0.10g). Therefore, the Site is located within a seismic impact zone. Based on this evaluation, engineering measures appropriate to resist the maximum horizontal acceleration in lithified earth material at the Site will be implemented as part of the design of the proposed CCR landfill.

2.7.3 Unstable Areas

Circular 14 requires that engineering measures be incorporated into the Site design to ensure the integrity of the structural components of the landfill unit, if the Site is located in an unstable area. An unstable area, as defined in Circular 14, is a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill, and can include poor foundation conditions, areas susceptible to mass movements, and karst terrains.

Unstable areas are typically caused by solutioning of limestone resulting in sinkholes, collapsible soils, expansive soils, thick organic deposits, and highly compressible soils. The Site is located in the Piedmont Physiographic Province and is underlain by saprolite of the metamorphic gneiss and amphibolite bedrock. The saprolite typically consists of sandy clay and silty or clayey sand. This type of material is not prone to differential settling. There is also no evidence that any area of the Site is susceptible to mass movements. This region does not contain natural sinkholes, collapsible soils, or thick organic deposits. The Site does not include natural or human-made features that are known to be unstable areas. The design, construction, and operation of the CCR landfill is not anticipated to create unstable conditions.

3. PATHWAY ANALYSIS

3.1 <u>Description of the Interrelationship Between the Vadose Zone, the</u> <u>Uppermost Aquifer, and Deeper Aquifers</u>

Groundwater recharge at the Site is primarily from infiltration of rainfall. Precipitation percolates through the vadose zone to the unconfined surficial aquifer, which occurs in the regolith and the transition zone of PWR and upper fractured bedrock. Vadose zone thickness at the Site ranges from 1.5 to 50 feet as indicated by depth to water measurements in Site piezometers. Interconnected fractures in the transition zone transmit groundwater stored in the overburden soils to the underlying bedrock. The regolith and transition zone are interconnected and act as one aquifer system. The bedrock becomes more competent (with few to no fractures) with depth and groundwater flow is expected to be very limited. Therefore, there is no recognized deeper or confined aquifer unit at the Site.

The uppermost hydrogeologic unit of continuous extent at the Site is an unconfined (water table) aquifer, which consists of the regolith, grading into the partially weathered rock layer, and the upper fractured portion of the bedrock. This regolith occurs at the ground surface over the entire Site and collectively includes a generally thin layer of clayey surficial soils underlain by silty, clayey sand saprolite weathered from the parent bedrock. The movement of shallow groundwater at the Site can generally be described as a low-to moderate-permeability porous media flow.

3.1.1 Existing Groundwater Conditions

Seasonal and yearly fluctuations in groundwater levels were evaluated using historical groundwater level data available for six wells/piezometers within the proposed CCR landfill area installed prior to the Geosyntec temporary piezometers. These six wells/piezometers are screened across the saprolite (BRGWC-32S, PZ-11S, and PZ-18S); the PWR and bedrock (BRGWA-12I); and the saprolite, PWR, and bedrock (BRGWA-23S and PZ-46). The available data from these six wells/piezometers extend back to August 2016 (with the exception of PZ-46 extending back to February 13, 2018 only) and were used to identify the maximum groundwater elevations measured from August 2016 to January 2019; the data is presented in **Table 3-1**. The maximum groundwater elevation in each well/piezometer over that time period was then compared to the current groundwater elevations. The maximum groundwater elevations were less than five (5)

feet above the January 31, 2019 groundwater elevations in these six locations. Therefore, the estimated seasonal high groundwater levels are anticipated to be no more than five feet above the observed January 31, 2019 groundwater levels.

3.1.2 Estimated Groundwater Conditions After Removal of CCR

As previously stated in Section 2.4, existing ash ponds at the Plant and the free water contained within them have an influence on site-wide groundwater flow directions and hydraulic gradients. The ponds artificially elevate the local groundwater levels and result in flow that is different from natural (pre-ash pond) conditions. During closure of the ash ponds by removal of the CCR and the free water within them, it is anticipated that groundwater conditions will change, and a reduction in groundwater levels of five to ten feet will be seen in the southeast portion of the Site, where surface water would no longer be ponded after the breach of the Ash Pond D dike. The surface topography and natural drainage features (i.e., intermittent streams) and Lake Sinclair will again become the primary control on local shallow groundwater flow, rather than the presence of the CCR impoundments. In order to approximate the seasonal high groundwater levels that may be expected after removal of CCR, an estimated groundwater surface was developed based on current and historical groundwater level ranges, interpretation of site topography, and groundwater discharge areas. This predicted seasonal high groundwater level after removal of CCR is depicted on the geologic cross-sections (Figure 2-4) and on the potentiometric map developed for the estimated seasonal high potentiometric surface after removal of CCR (Figure 3-1).

It should be noted that the dewatering and removal of CCR from the onsite ash ponds will likely result in transient and locally dynamic groundwater flow conditions at the Site. As additional data and information are collected during design and construction of the pond closures, the estimated transient and post-closure groundwater conditions may be re-evaluated and refined with respect to the proposed CCR landfill design.

3.2 <u>Calculated Groundwater Flow Velocities</u>

3.2.1 Hydraulic Conductivity

Hydrogeologic investigations were conducted as part of the November 2018-January 2019 Geosyntec field investigation. Eleven temporary piezometers were installed at seven locations to evaluate hydrogeologic conditions in the vicinity of the proposed CCR

landfill. Additional historical data from existing wells and piezometers were also utilized to evaluate the hydrogeologic regime at the Site.

Pneumatic slug testing was performed at ten of the eleven Geosyntec piezometers. A falling head slug test (using a solid slug) was performed at one piezometer (PB-4D). Each slug test was evaluated using two or three of the following methods: Bouwer-Rice [1989], Hvorslev [1951], and KGS [Hyder et al., 1994]. The slug test results for the three evaluation methods were similar and are included in **Appendix F.** Since the historical slug test data were evaluated using the Bouwer-Rice method, the current tests were also reported using the same method. A summary of the slug test results, both historical and recent (Geosyntec), is presented in **Table 3-2**.

The maximum, minimum, and geometric mean of the hydraulic conductivity values for wells/piezometers screened within each lithologic group were calculated. Horizontal hydraulic conductivity (k_h) values were similar for slug tests conducted on wells/ piezometers screened in the regolith, the regolith/PWR, and the PWR/bedrock. The k_h values for slug tests conducted on wells/piezometers screened entirely in the bedrock were considerably lower.

When results for the six wells/piezometers screened within the regolith only were evaluated, the maximum k_h was 5.30 ft/day, the minimum k_h was 0.38 ft/day, and the geometric mean k_h was 0.85 ft/day. The results from the seven wells/piezometers screened across the regolith/PWR interface yielded a maximum k_h of 6.09 ft/day, a minimum k_h of 0.12 ft/day, and a geometric mean k_h of 0.89 ft/day. Three wells/piezometers were screened across the PWR/bedrock interface, with a maximum k_h of 8.11 ft/day, a minimum k_h of 1.96 ft/day, and a geometric mean k_h of 3.87 ft/day. The maximum, minimum, and geometric mean k_h value for the eight wells/piezometers screened entirely in the fractured or competent bedrock was 0.99 ft/day, 0.0005 ft/day, and 0.04 ft/day, respectively.

As described in Section 2.2.2, four undisturbed Shelby tube samples were collected at varying depths within the regolith at four locations to evaluate vertical hydraulic conductivity (k_v) of the regolith material. Two samples representative of the more clayey soils in the upper portion of the regolith resulted in an average k_v of 0.0001 ft/day (3.53 x 10⁻⁸ centimeters/second, cm/s), while the two samples representative of the more sandy saprolite material resulted in an average k_v of 0.13 ft/day (4.59 x 10⁻⁵ cm/s). The vertical hydraulic conductivity values are summarized with the laboratory results in **Table 2-3**.

3.2.2 Hydraulic Gradient and Groundwater Flow

Circular 14 recommends calculation of groundwater flow velocity based on the Darcy Equation, using representative hydraulic gradients and effective porosity values, and both average and maximum measured hydraulic conductivity values for the pathway analysis. The representative hydraulic gradient for the Site, taken from the January 31, 2019 potentiometric surface map (**Figure 2-7**) is the average of four measurements, one in the direction of east-northeast flow (0.015 ft/ft), one in the direction of north-northwest flow (0.006 ft/ft), and two to the southwest (one to the west of Ash Pond D of 0.035 ft/ft and another through Ash Pond D dike of 0.122 ft/ft) that appear to be under the influence of water levels in Ash Pond D. It should be noted that the gradients in the vicinity of Ash Pond D are expected to decrease following dewatering and closure of the ash ponds, as discussed in Section 3.1.2. As a result, the hydraulic gradients used for these flow velocity calculations should be considered conservative (i.e., using the higher hydraulic gradients observed under existing conditions will calculate higher groundwater flow velocities than will actually be observed when the ash ponds are dewatered, and the proposed landfill is in use).

The average of these four gradients, 0.044 ft/ft, was used in calculations. (The maximum gradient of 0.122 ft/ft imposed by Ash Pond D will not be applicable when Ash Pond D is removed.) An effective porosity of 0.19 (from ATC, 2000) was used to represent average site porosity conditions. The maximum k_h for the regolith, regolith/PWR, and PWR/bedrock tests combined of 8.11 ft/day was used for the highest observed conditions. The geometric mean of these tests (1.09 ft/day) was used for the average site conditions.

The groundwater velocity calculations for the average case were performed using an average k_h of 1.09 ft/day, an average (i.e., conservative) hydraulic gradient of 0.044 ft/ft, and a typical effective porosity of 0.19. These calculations yielded a groundwater flow velocity of 0.25 ft/day for typical Site conditions.

Groundwater velocity calculations for the highest observed conditions were performed using the maximum k_h of 8.11 ft/day, an average/typical hydraulic gradient of 0.044 ft/ft, and an assumed effective porosity of 0.19. These calculations yielded a groundwater flow velocity of 1.9 ft/day in "worst-case" conditions.

3.3 Groundwater Pollution Potential

According to the *Ground-Water Pollution Susceptibility Map of Georgia* [Georgia Geologic Survey, 1992b], the Site is located in a "lower" groundwater pollution susceptibility area. There is an area of thick soils in the vicinity of the Plant as shown on **Figure 1-4**, but it is approximately 5,000 feet northwest and upgradient of the Site.

Several factors influence the migration rate and concentration potential of leachate from a solid waste disposal facility. To evaluate the potential for groundwater pollution, the velocity of groundwater movement and the ability of the soil to reduce contamination by biological and chemical attenuation are predicted in part by soil permeability, clay content, cation exchange capacity (CEC) or sorption capacity, and pH. In addition, the Pollution Potential Method of LeGrand [LeGrand, 1964] is used to estimate the likelihood of groundwater pollution affecting domestic water wells and municipal water supply sources. The degree of chemical attenuation is dependent on the composition of the leachate, the interaction of the leachate with the soil, and the length of time this interaction takes place, which is primarily a function of permeability and overburden thickness.

In order to better estimate the sorption properties of the saprolite at the Site, soil samples were collected and analyzed by Analytical Environmental Services (AES) for CEC, which is a measure of the ability of the soil to hold exchangeable cations. Samples were collected at two locations (PB-7 and PB-10) and at three depth intervals, between 10-14 feet below ground surface (ft bgs), 20-24 ft bgs, and 30-32 ft bgs. The results of the analyses were consistent with each other, with values between 5.6 milliequivalents/100 grams (mEq/100g) and 10 mEq/100g, showing some capacity to retain cations. As a comparison, the clay mineral kaolinite, which typically composes a large portion of the clays in granitic gneiss residuum, has a CEC in the range of 2 to 15 mEq/100g. Therefore, the obtained CEC results are consistent with soils dominated by relatively low CEC kaolinitic minerals, which is typical for the Piedmont region of Georgia. While organic matter can also increase the CEC of a soil, little soil organic matter is generally present at these depths in Georgia subsoils and therefore, the measured CEC values are reflective of the clay mineralogy. The CEC results are summarized with other laboratory results on **Table 2-3** and are included in **Appendix G**.

3.3.1 LeGrand Pollution Potential Method

The LeGrand Pollution Potential Method is used to evaluate the potential impact to nearby drinking water wells or human receptors. The LeGrand method uses a scoring system to assign points to the following site properties under natural conditions:

- Depth to water table;
- Attenuation capacity of soils;
- Aquifer permeability;
- Water table gradient; and
- Thickness of unconsolidated material.

The points assigned to each feature are added for a total point score. The higher the total points, the less likely the potential for pollution, according to the scoring system. The LeGrand system is a conservative method of evaluation since its scoring system was developed prior to the advent of modern liner systems that are much less likely to leak.

The Plant Branch proposed CCR landfill site is a "two-media" site characterized by unconsolidated material at ground surface underlain by bedrock. For a two-media site, factors affecting pollution potential include water table depth (WT), sorption capacity (S), permeability (P), gradient (G), distance to point of water use (D), and thickness of unconsolidated materials (T) [McLemore and Perriello, 1997]. Using the rating chart provided in Circular 14 for two-media sites, numerical scores for the Site in its natural state were assigned as follows:

• Under current conditions, the majority of the Site has a water table that is more than five feet below the bottom of the liner in the proposed landfill. However, due to the presence of Ash Pond D and its impact on the groundwater table, there are some areas of elevated groundwater where this separation is currently less than five feet. Following dewatering of these ponds during removal of CCR, the water table is expected to lower significantly in these areas. The proposed landfill will be constructed such that a minimum of five feet of separation between the bottom of the liner and the water table will be present across the Site. Therefore,

for scoring purposes, a site-wide water table depth below waste of five feet was used, resulting in a WT score of 0.3 points.

- Sorption scoring (S) used a regolith comprised of silty sand and was placed between the "Small Amounts of Clay in Sand" and "Equal Amounts of Clay and Sand" categories on the scale. This resulted in a S score of 2.5 points.
- Permeability scoring (P) also used a regolith comprised of silty sand and was placed between the "Silt or Sandy Clay" and "Clayey Sand" categories on the scale. This resulted in a P score of 2.5 points.
- Hydraulic gradients (G) average 4 percent across the Site in an "adverse direction of flow". The adverse direction designation was used because a component of the radial groundwater flow at the Site is to the southwest, in the direction of a potential receptor well, as described in Section 1.9 and depicted in **Figure 1-6**. This receptor well is likely not hydraulically connected to the Site area due to the presence of Lake Sinclair, but for conservative purposes, it is used for this scoring and results in a G score of 2.1 points.
- The distance from the proposed waste boundary to the nearest potential receptor (D) of 2,050 feet was used based on the location of the well discussed above and shown in **Figure 1-6**. This resulted in a D score of 5.5 points. This is a conservative score since this and other domestic wells in the area are not believed to be hydraulically connected to the Site.
- The thickness of porous media below the waste material (T) is considered to include the regolith and PWR. The thickness of these two units combined ranges from approximately 15 to 90 feet (as described in Section 2.3.2), with an average thickness of 47 feet. This resulted in a T score of 2.8 points.

Circular 14 states that additional points may be given for engineered sites using clay or composite liners and/or leachate collection systems, since the LeGrand method only considers natural site conditions. Following the guidance of Circular 14, the proposed CCR landfill was scored for its use of a composite liner and leachate collection system, which allows for maximum sorption, a favorable water table gradient, and a permeability rating of 3. The LeGrand method calculates a "possible, but not likely" pollution potential for the Site under both the natural and engineered conditions (with composite liner and

leachate collection system). A summary of the LeGrand scoring is included in **Table 3-3**.

3.4 <u>Description of the Interrelationship Between Groundwater Flow Directions</u> <u>and Potential Receptors</u>

Inspection of the 31 January 2019 potentiometric surface map (**Figure 2-7**) indicates groundwater flow at the Site to be outward with general flow directions from the topographically high area in the central portion of the Site toward Lake Sinclair to the south and its tributaries to the east and west, as well as a component of flow to the northwest. The receptor survey performed by Geosyntec in 2018-2019, depicted in **Figures 1-5** and **1-6** and discussed in Section 1.9, identified 14 potential public water supply wells that may still be operational and one active registered surface water intake. The identified public supply wells, with the exception of the GPC Skills Development Center well, and the identified surface water intake appear to be hydraulically separated from the Site by topographic groundwater divides and surface water features (streams and Lake Sinclair). The GPC Skills Development Center well is planned for abandonment along with demolition of existing facilities located within the proposed CCR landfill footprint.

The 2019 field reconnaissance, again depicted in **Figures 1-5** and **1-6** and discussed in Section 1.9, identified a total of 37 potential domestic/private wells located within approximately a ¹/₂-mile of the Site. It is not known if these wells are used for drinking water, but 22 of them located northeast of the Site are hydraulically separated from the proposed CCR landfill by an arm of Lake Sinclair.

3.5 <u>Estimated Travel Time for Leachate to Reach Potential Receptors</u>

The domestic supply wells identified within 2 miles of the Site boundary appear to be hydraulically separated from the Site. For conservatively estimating potential receptors, groundwater travel time is calculated from the closest of these wells (No. 49 on **Figure 1-6**) that is located 2,050 feet from the Site, despite its separation from a drainage divide or water body. Travel time calculations for groundwater flow (leachate) from the Site to reach the potential receptor were performed using the Darcy Equation for groundwater flow velocity, as described in Section 3.2.2, and the relationship for time/distance velocity.

The input parameters and calculations are summarized in **Table 3-4**. The travel time for leachate to reach the potential receptor located approximately 2,050 feet downgradient of the Site is 22 years for the average case and 3 years for the worst case, assuming an unlikely scenario where the hydraulic separation is not present. Both of these travel time scenarios also conservatively assume that an unlikely event of leachate release through the composite liner system has occurred, therefore, the liner permeability is not factored into the travel time.

3.6 <u>Mitigation of Geologic and/or Natural Hazards</u>

No evidence of geologic or natural hazards has been observed at the Site in the surface or subsurface investigations that would require mitigation. The Site is located within a seismic impact zone as described in Section 2.7.2, and the containment structures will be designed to resist a maximum horizontal acceleration expected at the Site. A Geosyntec Professional Engineer registered in the State of Georgia will certify that the containment structures will be designed to resist the estimated maximum horizontal ground acceleration at the Site.

4. RECOMMENDATIONS FOR DESIGN

4.1 Unfavorable Areas

Areas considered unfavorable for the disposal of solid wastes include floodplains, wetlands, areas underlain by shallow groundwater and shallow bedrock, karstic areas, highly erodible soils, or excessively steep slopes. There are no unfavorable areas presently known to be a deterrent to siting the CCR landfill, with the exception of two small wetland areas to the northeast side of the Site (0.66 acres total) as shown on **Figure 1-2**. The CCR landfilling activities and land disturbing activities have been designed to not impact the identified wetlands. No portion of the proposed CCR landfill will be located within floodplains, or wetlands areas identified by the Ecological Solutions survey, as shown on **Figure 1-2**. No karstic areas are present within the Piedmont province. Existing site topography was analyzed for steep slopes, assessed as greater than 25 percent. Very limited areas of the Site with slopes exceeding 25 percent, were identified, predominantly in the area of man-made features, such as the Ash Pond D dike. These small areas are not expected to impact the stability of the containment structures in an unfavorable manner nor hinder landfill construction.

4.2 Liner/Leachate Collection Systems

The proposed CCR landfill will have a composite liner system made up of a 2-foot-thick clay layer having a permeability of 1×10^{-7} cm/s or less overlain by a 60-mil high-density polyethylene (HDPE) liner or an alternative composite liner system of equivalent performance. Soil materials used in the liner system will be screened if necessary, to avoid any deleterious materials that may affect the performance of the liner system. The leachate collection system will include a multi-layered granular drainage system that will be uniform through the entire base of the landfill cells or an alternate protective layer designed to equal performance standards. The collected leachate will gravity-drain to the cell sumps and then pumped through a conveyance system to a leachate storage tank or lined leachate storage pond before final treatment. Once the final cover system of the CCR landfill is installed, leachate generation rates are expected to drop significantly due to installation of the composite final cover system. The landfill cells will be designed such that a maximum of 1 foot of leachate head over the liner will not be exceeded.

4.3 <u>Cell Depths (Including Relationship to Water Table)</u>

A vertical buffer of five feet or more between the bottom of the clay liner and the seasonal-high water table will be maintained across the entire waste footprint. **Figure 4-1** is a schematic cross-section, not to scale, depicting the relationship of the bottom of the liner system to the estimated seasonal high groundwater table and the bedrock surface. **Figure 2-4** shows geologic cross-sections, which have been cut through the proposed waste footprint illustrating the relationship between the observed groundwater table (January 2019), the predicted seasonal-high water level after removal of CCR, and the top of bedrock. Additional data and information collected during detailed design of the proposed CCR landfill may result in a refined estimate of post-pond closure groundwater conditions. If understanding of these conditions is refined, the design cell depths will also be revaluated to maintain this minimum required vertical separation.

4.4 <u>Site Drainage and Erosion Control</u>

The site will be designed and constructed to minimize soil erosion and sediment migration. Diversion ditches, berms, piping, silt fencing, and sedimentation ponds will be included as needed to prevent site runoff from entering waste disposal areas and sediments from leaving the Site. Areas where soil disturbing activities took place will be stabilized as soon as practical.

4.5 <u>Buffer Zones</u>

A minimum 200-foot buffer will be provided between the CCR permit boundary and the limit of waste for the proposed landfill Site in accordance with Solid Waste Rule 391-3-4-.10(3)(e). Additionally, applicable buffer zones, such as a minimum 500-foot buffer between the waste disposal boundary and any occupied dwelling and the dwelling's operational private, domestic water supply well in existence on the date of permit application, will also be provided in accordance with Solid Waste Rule 391-3-4-.10(3)(e). As described in Section 1.9, no dwellings or domestic water supplies are located within 500 feet of the proposed waste disposal boundary.

4.6 <u>Monitoring Network</u>

A water quality sampling and analysis plan is required to monitor the quality of groundwater at the Site. The design of the groundwater monitoring system will conform

to standards outlined in the GAEPD *Manual for Groundwater Monitoring* [GAEPD, 1991]. A typical groundwater monitoring well detail is included as **Figure 4-2**. Monitoring of the wells and surface water monitoring points will be conducted in accordance with the Solid Waste Rules, Chapter 391-3-4-.10 and .14.

Background and downgradient water quality must be monitored to determine if the landfill is impacting the water quality traveling under the Site. Stormwater monitoring will be conducted at a point where effluent passes from the stormwater ponds constructed for this project.

4.7 <u>Disposition of Borings</u>

The temporary piezometers constructed during the Geosyntec field investigations and any other monitoring wells and piezometers located within the footprint of the proposed landfill will be abandoned in accordance with recommendations in the *Manual for Groundwater Monitoring* [GAEPD, 1991], following review of this document and receipt of a letter of site suitability.

4.8 Other Site Conditions

Existing hydrogeologic conditions are affected by the presence of the ash ponds, elevating the water levels above the expected normal conditions. It is anticipated that water levels in the area of Ash Ponds B, C, D, and E will be significantly reduced once the ponds are drained and the CCR materials removed.

5. REFERENCES

- ATC, 2000. Compliance Status Report Plant Branch Steam Electric Generating Plant. ATC Associates Inc. 27 June 2000.
- Bouwer, H., 1989. *The Bouwer and Rice slug test An update*. Ground Water, vol. 27, no. 3. Pp. 304-309.
- Ecological Solutions, Inc., 2019. Ecology Survey Report, Georgia Power Company, Plant Branch – Central Area, Putnam County, Georgia. May 2019.
- GAEPD, 1991. *Manual for Groundwater Monitoring*. Georgia Department of Natural Resources, Environmental Protection Division. 38p.
- Georgia Flood Map Program, 2008. *Flood Insurance Rate Map of Putnam Co., Georgia*, Website: http://map.georgiadfirm.com/
- Georgia Geologic Survey, 1992a. Hydrologic Atlas (HA)-18 Most Significant Ground-Water Recharge Areas of Georgia.
- Georgia Geologic Survey, 1992b. Hydrologic Atlas (HA)-20 Ground-Water Pollution Susceptibility Map of Georgia.
- Golder, 2017. *Piezometer Installation Report for Surface Impoundment* Georgia Power Plant Branch. Golder Associates Inc. September 2017.
- Golder, 2018a. *Geologic and Hydrogeologic Summary Report* Georgia Power Plant Branch. Golder Inc. November 2018.
- Golder, 2018b. Groundwater Monitoring Plan, Plant Branch Ash Pond B, Ash Pond C, Ash Pond D (AP-BCD) – Georgia Power Plant Branch. Golder Associates Inc. November 2018.
- Hvorslev, M.J., 1951. Time Lag and Soil Permeability in Ground-Water Observations. Waterways Exper. Sta. Corps of Engineers. U.S. Army, Vicksburg, Mississippi. Bulletin No. 36, pp. 1-50.
- Hyder, Z., J.J. Butler, C.D. McElwee, and W. Liu, 1994. *Slug Tests in Partially Penetrating Wells*. Water Resources Research, vol. 30, no. 11, pp. 2945-2957.

- Kemron, 2008. *Revised Water Supply Well and Surface Water Intake Survey* Plant Branch Storage Site. Kemron Environmental Services. 18 August 2008.
- LeGrand, H.E., 1964. System for Evaluation of Contamination Potential of Some Waste Disposal Sites. American Water Works Association Journal 56(8), pp. 959-974.
- McLemore, W.H. and P.D. Perriello, 1997. Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia, Circular 14. Georgia Department of Natural Resources, Environmental Protection Division. September 1991 (amended 1997).
- Official Code of Georgia Annotated, 12-5-120 through 138, 1985. Water Well Standards Act of 1985.
- Petersen, M.D., Moschetti, M.P., Powers, P.M., Mueller, C.S., Haller, K.M., Frankel, A.D., Zeng, Y., Rezaeian, S., Harmsen, S.C., Boyd, O.S., Field, N., Chen, R., Rukstales, K.S., Luco, N., Wheeler, R.L., Williams, R.A., and Olsen, A.H., 2014.
 "Documentation for the 2014 Update of the United States National Seismic Hazard Maps," Open-File Report 2014-1091, U.S. Geological Survey, Reston, VA.
- Putnam County and City of Eatonton, 2006. Joint Comprehensive Plan for Putnam County and City of Eatonton, October 2006.
- SCS, 2009. Plant Branch Proposed Coal Combustion By-Product Disposal Facility Site Acceptability Report. Southern Company Services – Earth Science and Environmental Engineering. November 2009.
- U.S. Geological Survey, 2014. *Dynamic: Conterminous U.S. 2014 (v4.1.1) Interactive Deaggregations.* Website: <u>https://earthquake.usgs.gov/ hazards/interactive/</u>, last accessed January 2019. Based on Peterson, et al., 2014 (see above reference).
- U.S. Geological Survey. Lake Sinclair West Quadrangle. 7.5 Minute Series, Reston, VA: United States Department of the Interior, USGS, 2017.

TABLES

Table 1-1 Wells and Surface Water Intakes Plant Branch, Putnam County, Georgia

Map ID	Data Source	Water Source Type	Latitude ⁽¹⁾	Longitude ⁽¹⁾	Street Address	Notes	Status
Al	EDR	Public Groundwater Well	33.22260278	-83.30717778	NA	USGS Well 19Z016	Unknown
A2	EDR	Public Groundwater Well	33.22252500	-83.30669444	NA	USGS Well 19Z017	Unknown
B3	EDR	Public Groundwater Well	33.17888889	-83.34027778	Pine Forest Subdivision, Eatonton, GA/ Location is Tall Timbers Subdivision	WSID: GA2370006	Abandoned
4	EDR	Public Groundwater Well	33.20500000	-83.28444444	Bayside Haven Mobile Home Park, Milledgeville, GA 31061	WSID: GA2370037	Unknown
C5	EDR	Public Groundwater Well	33.20867778	-83.28588889	NA	USGS Well 19Z025	Unknown
C6	EDR	Public Groundwater Well	33.20882500	-83.28588889	NA	USGS Well 19Z024	Unknown
B7	EDR	Public Groundwater Well	33.17833333	-83.34027778	Tall Timbers-Oak Openings	WSID: GA2370008	Abandoned
8	EDR	Public Groundwater Well	33.18156944	-83.34325278	NA	USGS Well 19Z020	Unknown
9	EDR	Public Groundwater Well	33.22097778	-83.29813889	NA	USGS Well 19Z015	Unknown
10	EDR	Public Groundwater Well	33.22555278	-83.30778333	NA	USGS Well 19Z013	Unknown
11	EDR	Public Groundwater Well	33.22302500	-83.29609722	NA	USGS Well 19Z014	Unknown
D12	EDR	Public Groundwater Well	33.19323333	-83.35273056	NA	USGS Well 19Z021	Unknown
D13	EDR	Public Groundwater Well	33.19262222	-83.35307222	NA	USGS Well 19Z023	Unknown
14	EDR	Public Groundwater Well	33.19019167	-83.35282222	NA	USGS Well 19Z022	Unknown
15	EPA SDWIS/GA EPD	Public Groundwater Well	33.19190500	-83.35313700	250 Bluegill Rd SW, Tall Timbers-Oak Openings Subdivision, Eatonton, GA 31024	WSID: GA2370008, Well #2	Abandoned
16	EPA SDWIS/GA EPD	Public Groundwater Well	33.19190500	-83.35313700	250 Bluegill Rd SW, Tall Timbers-Oak Openings Subdivision, Eatonton, GA 31024	WSID: GA2370008, Well #3	Abandoned
17	EPA SDWIS/GA EPD	Public Groundwater Well	33.22297000	-83.29623000	104 Walnut Cove, Forest Lake Village Subdivision, Eatonton, GA 31024	WSID: GA2370002, Well #2	Abandoned
18	EPA SDWIS/GA EPD	Public Groundwater Well	33.22524000	-83.30729000	130 Aspenwood Court, Forest Lake Village Subdivision, Eatonton, GA 31024	WSID: GA2370002, Well #1	Abandoned
19	EPA SDWIS/GA EPD	Public Groundwater Well	33.22151000	-83.29789000	158 Pine Knoll Lane SE, Forest Lake Village Subdivision, Eatonton, GA 31024	WSID: GA2370002, Well #3	Abandoned
20	EPA SDWIS/GA EPD	Public Groundwater Well	33.22241111	-83.30726111	Pine Knoll Ln/Hwy 41-N, Forest Lake Village Subdivision, Eatonton, GA 31024	WSID: GA2370002, Well #4	Abandoned
21	EPA SDWIS/GA EPD	Public Groundwater Well	33.22249722	-83.30598056	Pine Knoll-Cntr Is of S/D Ent, Forest Lake Village Subdivision, Eatonton, GA 31024	WSID: GA2370002, Well #5	Abandoned
22	EPA SDWIS/GA EPD	Public Groundwater Well	33.17207222	-83.29289444	The Cove Subdivision, Milledgeville, GA 31061	WSID: GA0090008, Well #1	Unknown
23	EPA SDWIS/GA EPD	Public Groundwater Well	33.19751030	-83.31556120	GPC-Skills Development Center, Plant Branch, Eatonton, GA	WSID: GA2370066, Well #1	Active
24	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.20244000	-83.30712000	223 Landing(s) Lane	Possible Well House: Parcel 086A-052	Unknown
25	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.20230900	-83.30682400	221 Landing(s) Lane	Possible Well House: Parcel 086A-051	Unknown
26	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.20217000	-83.30652000	219 Landing(s) Lane	Possible Well House: Parcel 086A-050	Unknown
27	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.20205000	-83.30623000	217 Landing(s) Lane	Possible Well House: Parcel 086A-049	Unknown
28	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.20192000	-83.30593000	215 Landing(s) Lane	Possible Well House: Parcel 086A-048	Unknown
29	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.20178000	-83.30563000	213 Landing(s) Lane	Possible Well House: Parcel 086A-047	Unknown
30 31	Geosyntec Drive-by Survey Geosyntec Drive-by Survey	Domestic Groundwater Well Domestic Groundwater Well	33.20162000 33.20148000	-83.30537000 -83.30475000	211 Landing(s) Lane 207 Landing(s) Lane	Possible Well House: Parcel 086A-046 Possible Well House: Parcel 086A-056	Unknown Unknown
31	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.20148000	-83.30473000	207 Landing(s) Lane 205 Landing(s) Lane	Possible Well House: Parcel 086A-044	Unknown
32	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.20121000	-83.30430000	203 Landing(s) Lane	Possible Well House: Parcel 086A-044 Possible Well House: Parcel 086A-043	Unknown
33	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.20121000	-83.30388000	201 Landing(s) Lane	Possible Well House: Parcel 086A-042	Unknown
35	Geosyntee Drive-by Survey	Domestic Groundwater Well	33.20097000	-83.30351300	199 Landing(s) Lane	Possible Well House: Parcel 086A-042	Unknown
36	Geosyntee Drive-by Survey	Domestic Groundwater Well	33.20097000	-83.30320700	19) Landing(s) Late	Possible Well House: Parcel 086A-039	Unknown
37	Geosyntee Drive-by Survey	Domestic Groundwater Well	33.20068000	-83.30236000	187 Landing(s) Late	Possible Well House: Parcel 086A-038	Unknown
38	Geosyntee Drive-by Survey	Domestic Groundwater Well	33.20068000	-83.30200000	183 Landing(s) Lanc	Possible Well House: Parcel 086A-037	Unknown
39	Geosyntee Drive-by Survey	Domestic Groundwater Well	33.19950100	-83.30027000	179 Landing(s) Lane	Possible Well House: Parcel 086A-036	Unknown
40	Geosyntee Drive-by Survey	Domestic Groundwater Well	33.20119000	-83.30167000	175 A Landing(s) Lane	Possible Well House: Parcel 086A-034	Unknown
41	Geosyntee Drive-by Survey	Domestic Groundwater Well	33.20170000	-83.30193000	171 Landing(s) Lane	Possible Well House: Parcel 086A-033	Unknown
42	Geosyntee Drive-by Survey	Domestic Groundwater Well	33.20303000	-83.30251300	146 Landing(s) Late	Possible Well House: Parcel 086A-015	Unknown
43	Geosyntee Drive-by Survey/Putnam County DPH	Domestic Groundwater Well	33.20224000	-83.30326000	184 Landing(s) Late	Possible Well House: Parcel 086A-013	Unknown
44	Geosyntee Drive by Survey/Putnam County DPH Geosyntee Drive-by Survey/Putnam County DPH	Domestic Groundwater Well	33.20224500	-83.30370000	190 Landing(s) Lane	Possible Well House: Parcel 086A-012	Unknown
45	Geosyntee Drive by Survey	Domestic Groundwater Well	33.20307000	-83.30517000	214 Landing(s) Lane	Possible Well House: Parcel 086A-008	Unknown
46	Geosyntee Drive-by Survey	Domestic Groundwater Well	33.20322000	-83.30554000	216 Landing(s) Lane	Possible Well House: Parcel 086A-007	Unknown
47	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.20367000	-83.30665000	224 Landing(s) Lane	Possible Well House: Parcel 086A-004	Unknown
48	Geosyntec Drive-by Survey/Putnam County DPH	Domestic Groundwater Well	33.19013000	-83.32311000	193 Bagley Road	Possible Well House: Parcel 084B-005	Unknown
49	Geosyntec Drive-by Survey/Putnam County DPH	Domestic Groundwater Well	33.18923000	-83.31967000	209 Bagley Road	Possible Well House: Parcel 084B-001	Unknown
50	Geosyntec Drive-by Survey/Putnam County DPH	Domestic Groundwater Well	33.18893000	-83.32021000	205 Bagley Road	Possible Well House: Parcel 084B-002	Unknown
51	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.18592000	-83.32025000	216 Bagley Road	Possible Well House: Parcel 084B-060	Unknown
52	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.18572000	-83.32161000	116 Bagley Way	Possible Well House: Parcel 084B-058	Unknown
53	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.18516200	-83.32135800	112 Bagley Way	Possible Well House: Parcel 084B-057	Unknown
54	Geosyntec Drive-by Survey	Domestic Groundwater Well	33.18453000	-83.32146000	608 Bagley Way	Possible Well House: Parcel 084B-056	Unknown
55	Putnam County DPH	Domestic Groundwater Well	33.18810000	-83.32399000	177 Bagley Road	Possible Well House: Parcel 084B-009	Unknown
56	Putnam County DPH	Domestic Groundwater Well	33.18870000	-83.32557800	173 Bagley Road	Possible Well House: Parcel 084B-010	Unknown
57	Putnam County DPH	Domestic Groundwater Well	33.18855800	-83.32114700	201(?) Bagley Road	Possible Well House: Parcel 084B-003	Unknown
58	Putnam County DPH	Domestic Groundwater Well	33.20279400	-83.30287500	148(?) Landing(s) Lane	Possible Well House: Parcel 084B-014	Unknown
59	Putnam County DPH	Domestic Groundwater Well	33.20329400	-83.30594700	218 Landing(s) Lane	Possible Well House: Parcel 084B-006	Unknown
60	Putnam County DPH	Domestic Groundwater Well	33.20345000	-83.30632200	220 Landing(s) Lane	Possible Well House: Parcel 084B-005	Unknown
(1	EPA SDWIS/GA EPD	Public Water Supply Intake	33.21472222	-83.28333333	Sinclair Water Authority	WSID: GA2370087	Active
61 62	EPA SDWIS/GA EPD	Private Water Supply Intake	33.19336111	-83.29805556	Georgia Power, Plant Branch, Milledgeville, GA	WSID: GA2370003	

Notes: 1) USGS Latitude and Longitudes were used where available; Latitude and Longitudes were not available for drive-by survey wells, EPA SDWIS/GA EPD, and Putnam County DPH; however, approximate coordinates were generated by inputting address information into an online conversion tool: www.latlong.net. 2) NA = Not Available 3) EPA SDWIS = EPA Safe Drinking Water Information System

Table 2-1 Well and Piezometer Location and Construction $\mbox{Details}^{(1)}$ Plant Branch CCR Landfill Putnam County, Georgia

Well/Piezometer ID	Easting	Northing	Ground Surface Elevation (ft MSL)	TOC Elevation (ft MSL)	Top of Screen Elevation (ft MSL)	Bottom of Screen Elevation (ft MSL)	Well Depth (ft bgs)	Monitoring Designation	Screened Media
Groundwater Monit			1						
BRGWA-12I	2557138.60	1164298.55	436.18	439.43	368.90	358.90	80.5	Upgradient (Ash Ponds B, C, D)	Fractured Bedrock; Biotite Gneiss
BRGWA-12S	2557142.91	1164283.78	436.31	439.69	388.60	378.60	61.0	Upgradient (Ash Ponds B, C, D)	Regolith; Clayey Silt (ML to MH) Saprolite
BRGWA-23S	2557868.18	1162970.68	425.50	428.42	395.00	385.00	43.9	Upgradient (Ash Ponds B, C, D)	Regolith; Silty Sand (SM to SP) Saprolite and Partially Weathered Rock
BRGWC-30I	2557692.53	1161608.18	349.78	352.33	340.20	330.20	22.5	Downgradient (Ash Pond D)	Partially Weathered Rock and Fractured Bedrock Biotite Gneiss
BRGWC-32S	2558497.57	1160678.65	403.51	406.51	36.80	358.80	48.0	Downgradient (Ash Pond D)	Regolith; Silt (SM) & Sand (SP) Saprolite
BRGWC-47	2559456.44	1162701.02	408.87	411.32	327.27	317.27	97.0	Downgradient (Ash Pond D)	Partially Weathered Rock
Water Level Piezom									
PZ-11S	2557003.96	1162463.71	395.58	398.97	381.40	371.40	27.5	Site-wide Water Levels	Regolith; Clayey Silt (ML) Saprolite
PZ-12D	2557136.09	1164309.63	436.12	439.17	354.80	294.80	144.4	Site-wide Water Levels	Fractured Bedrock; Biotite Gneiss
PZ-18S	2557749.80	1160755.06	363.91	367.27	349.31	339.31	27.2	Site-wide Water Levels	Regolith; Clayey Silt (MH) Saprolite
PZ-18I	2557748.16	1160763.97	363.75	366.75	335.25	325.25	41.4	Site-wide Water Levels	Partially Weathered Rock; Biotite Gneiss
PZ-23I	2557877.88	1162974.25	424.95	427.90	368.5	358.50	69.8	Site-wide Water Levels	Fractured Bedrock; Biotite Gneiss
PZ-31S	2557972.68	1160937.05	374.21	376.94	345	335.00	43.0	Site-wide Water Levels	Regolith; Gravelly Sand (SP) and Partially Weathered Rock
PZ-39	2557459.67	1163674.96	431.76	434.70	396	386.00	53.8	Site-wide Water Levels	Regolith; Silt (ML) and Silty Sand (SM) Saprolite
PZ-46	2560558.28	1162755.57	382.11	384.70	346.51	336.51	47.0	Site-wide Water Levels	Partially Weathered Rock and Biotite Gniess
PZ-48	2558444.93	1163047.87	418.30	421.05	361.70	351.70	67.0	Site-wide Water Levels	Saprolite, Partially Weathered Rock, and Biotite Gniess
Historical Piezomete	ers (Abandoned) ⁽²⁾								
BH-1	2555946.87	1163963.27	396.16	398.07	353.16	343.16	53.0	Temporary Water Levels (Abandoned)	Regolith; Silt (SM) & Sand (SP) Saprolite
BH-2	2557475.51	1164489.83	395.57	398.96	355.57	345.57	50.0	Temporary Water Levels (Abandoned)	Regolith; Sand (SP) Saprolite
BH-3	2558453.03	1164115.31	389.25	393.34	360.25	350.25	39.0	Temporary Water Levels (Abandoned)	Regolith; Silt (SM) & Sand (SP) Saprolite
BH-4	2557467.17	1163855.17	427.35	428.79	368.35	358.35	69.0	Temporary Water Levels (Abandoned)	Fractured Bedrock; Biotite Gneiss
BH-5	2556445.93	1163413.74	396.29	400.41	356.29	346.29	50.0	Temporary Water Levels (Abandoned)	Regolith; Sand (SP) Saprolite
BH-6	2555683.83	1162771.99	399.12	404.38	354.12	344.12	55.0	Temporary Water Levels (Abandoned)	Regolith; Sand (SP) Saprolite
BH-7	2555395.02	1162367.21	395.99	397.59	356.99	346.99	49.0	Temporary Water Levels (Abandoned)	Fractured Bedrock; Biotite Gneiss
BH-8	2556304.64	1162769.32	369.43	370.41	344.43	334.43	35.0	Temporary Water Levels (Abandoned)	Regolith; Sand (SP) Saprolite
BH-9	2557356.84	1163144.52	416.95	418.27	382.95	372.95	44.0	Temporary Water Levels (Abandoned)	Fractured Bedrock; Biotite Gneiss
BH-10	2558368.33	1163758.26	393.12	397.10	363.12	353.12	40.0	Temporary Water Levels (Abandoned)	Regolith; Sand (SP) Saprolite
BH-11	2558734.56	1163429.20	406.60	410.57	368.10	358.10	48.5	Temporary Water Levels (Abandoned)	Partially Weathered Rock
BH-12	2558055.16	1163135.56	418.31	419.85	370.81	360.81	57.5	Temporary Water Levels (Abandoned)	Regolith; Silt (SM) & Sand (SP) Saprolite
BH-13	2557055.17	1162622.44	393.36	397.37	363.36	353.36	40.0	Temporary Water Levels (Abandoned)	Partially Weathered Rock and Quartzite/Biotite Gniess
BH-14	2556080.23	1161742.98	348.51	352.52	322.51	312.51	36.0	Temporary Water Levels (Abandoned)	Partially Weathered Rock and Biotite Gniess
BH-15	2557684.38	1161806.19	366.76	370.74	345.26	335.26	31.5	Temporary Water Levels (Abandoned)	Partially Weathered Rock and Biotite Gniess
BH-16	2558503.58	1162751.02	406.93	411.33	371.93	361.93	45.0	Temporary Water Levels (Abandoned)	Fractured Bedrock; Biotite Gneiss
BH-17	2558395.21	1160722.41	403.60	406.60	359.60	349.60	54.0	Temporary Water Levels (Abandoned)	Fractured Bedrock; Biotite Gneiss
BH-18	2559047.06	1163117.47	408.60	409.66	378.10	368.10	40.5	Temporary Water Levels (Abandoned)	Partially Weathered Rock and Biotite Gniess
BH-19	2558911.48	1162391.03	407.4	408.41	396.90	386.90	20.5	Temporary Water Levels (Abandoned)	Coal Combustion Residuals (CCR)
Temporary Piezome	ters ⁽³⁾		•					<u> </u>	
PB-1S	2556355.59	1164910.53	400.26	403.06	372.26	362.26	38.0	Temporary Water Levels	Regolith; Silt (SM) & Sand (SP) Saprolite and Partially Weathered Rock
PB-2D	2556913.92	1164853.32	414.86	416.76	367.86	357.86	57.0	Temporary Water Levels	Fractured Bedrock; Biotite Gneiss
PB-4S	2556060.40	1164339.49	409.26	411.06	371.26	361.26	48.0	Temporary Water Levels	Regolith; Silt (SM) & Sand (SP) Saprolite and Partially Weathered Rock
PB-4D	2556069.22	1164335.02	409.08	412.18	304.58	294.58	114.5	Temporary Water Levels	Fractured Bedrock; Biotite Gneiss
PB-7S	2556186.03	1163831.52	399.86	402.86	376.86	366.86	33.0	Temporary Water Levels	Regolith; Sand (SM) Saprolite and Partially Weathered Rock
PB-8S	2556792.10	1163018.18	398.69	401.69	373.69	363.69	35.0	Temporary Water Levels	Regolith; Sand (SM) Saprolite and Partially Weathered Rock
PB-8D	2556786.55	1163024.59	398.47	401.77	302.47	292.47	106.0	Temporary Water Levels	Fractured Bedrock: Biotite Gneiss
PB-10S	2558551.02	1163588.58	398.04	400.94	375.04	365.04	33.0	Temporary Water Levels	Regolith; Sand (SM) Saprolite and Partially Weathered Rock
PB-10D	2558546.51	1163593.00	397.98	400.33	322.98	312.98	85.0	Temporary Water Levels	Fractured Bedrock; Biotite Gneiss
PB-13S	2556626.00	1162084.39	370.88	373.38	330.88	320.88	50.0	Temporary Water Levels	Regolith; Sand (SP) Saprolite
PB-13D	2556638.75	1162084.45	371.13	373.83	284.13	274.13	97.0	Temporary Water Levels	Fractured Bedrock; Biotite Gneiss

<u>Notes:</u> ID = Identification ft MSL = Feet above Mean Sea Level

TOC = Top of Casing

ft bgs = Feet below ground surface

1. Table only includes wells and piezometers at or within the immediate vicinity of the CCR landfill site.

2. Historical piezometers (BH-) were abandoned in 2009.

3. Temporary piezometers were installed by Geosyntec from December 2018 to January 2019.

Table 2-2Boring Location SummaryPlant Branch CCR LandfillPutnam County, Georgia

Boring ID	Easting	Northing	Ground Surface Elevation (ft MSL)	Bottom of Boring Elevation (ft MSL)	Boring Depth (ft bgs)	Depth Into Bedrock (ft)
Geotechnical Borin	ngs					
PB-1S	2556355.59	1164910.53	400.26	362.26	38	-
PB-1D	2556350.54	1164916.83	407.07	311.07	96	15
PB-2D	2556913.92	1164853.32	414.86	353.86	61	18
PB-3	2556754.55	1164263.28	432.08	388.08	44	-
PB-4S	2556060.40	1164339.49	409.26	361.26	48	-
PB-4D	2556069.22	1164335.02	409.08	288.08	121	17
PB-5	2557564.18	1164240.05	397.24	368.24	29	-
PB-6	2557244.14	1163787.23	433.25	359.25	74	-
PB-7S	2556186.03	1163831.52	399.86	366.86	33	-
PB-7D	2556176.27	1163831.32	399.55	339.55	60	23
PB-8S	2556792.10	1163018.18	398.69	363.69	35	-
PB-8D	2556786.55	1163024.59	398.47	292.47	106	20
PB-9	2557580.83	1162754.16	413.09	382.09	31	-
PB-10S	2558551.02	1163588.58	398.04	365.04	33	-
PB-10D	2558546.51	1163593.00	397.98	306.98	91	24
PB-11	2557923.26	1163856.34	410.42	364.42	46	-
PB-12	2556585.18	1162629.04	392.72	341.72	51	-
PB-13S	2556626.00	1162084.39	370.88	320.88	50	-
PB-13D	2556638.75	1162084.45	371.13	263.13	108	21
PB-14	2557951.78	1162544.74	407.10	361.10	46	-
Cone Penetromete	r Test (CPT) Borings	Š				
CPT-1	2556337.23	1164295.24	413.33	394.33	19.0	-
CPT-2	2556912.95	1164854.46	414.76	377.26	37.5	-
CPT-3	2556771.95	1163325.83	398.83	365.83	33.0	-
CPT-4	2556846.55	1163526.40	408.32	367.82	40.5	-
CPT-5	2558051.40	1163016.43	417.08	365.58	51.5	-
CPT-6	2557244.25	1163787.23	433.25	390.25	43.0	-
CPT-7	2556176.27	1163831.27	399.43	367.93	31.5	-
CPT-8	2557772.12	1163492.76	423.25	393.25	30.0	-
CPT-9	2557580.89	1162754.12	413.11	382.11	31.0	-
CPT-10	2556413.67	1164594.34	409.57	383.57	26.0	-
CPT-11	2557923.25	1163856.30	410.43	364.93	45.5	-
CPT-12	2556585.09	1162629.12	392.73	354.73	38.0	-
CPT-13	2556846.67	1161756.95	382.79	378.79	4.0	-
CPT-14	2557251.20	1162462.69	402.91	373.91	29.0	-

Notes:

ID = Identification

ft MSL = Feet above Mean Sea Level

ft bgs = Feet below ground surface

Table 2-3 Summary of Laboratory Testing Results ⁽¹⁾ Plant Branch CCR Landfill Putnam County, Georgia

				Sie	eve Analy	ysis	Atte	rberg Li	mits		Classification			ity
Sample Identification	Bulk (B), Split Spoon (SPT), or Shelby Tube (ST)	Recovery (in.)	Lab ID	% Gravel	% Sand	% Fines	Liquid Limit	Plastic Limit	Plasticity Index	USCS Classification	Description	Moisture Content (%)	Hydraulic Conductivity (cm/s)	Cation Exchange Capacity (meq/100g)
PB-1 (16-18)	SPT	20	19A082	0.4	58.1	41.5	50	41	9	SM	Silty Sand	21.7	-	-
PB-1 (26-28)	SPT	24	19A083	0.2	67.1	32.7	42	32	10	SM	Silty Sand	17.9	-	-
PB-2 (0-5)	В	N/A	18L037	0	34.3	65.7	65	46	19	MH	Sandy Elastic Silt	25.5	-	-
PB-2 (4-6)	ST	24	18L038	0	29.5	70.5	64	57	7	MH	Elastic Silt with Sand	-	-	-
PB-2 (15-16)	SPT	24	18L039	6.6	66.3	27.1	39	34	5	SM	Silty Sand	10.1	-	-
PB-2 (36-38)	SPT	24	18L040	1.5	74.1	24.4	41	32	9	SM	Silty Sand	12.4	-	-
PB-3 (16-18)	SPT	24	18L041	0	58.0	42.0	NP	NP	NP	SM	Silty Sand	22.7	-	-
PB-3 (28-30)	SPT	24	18L042	0	65.5	34.5	NP	NP	NP	SM	Silty Sand	13.9	-	-
PB-3 (30-32)	ST	18	18L043	0.3	67.4	32.3	NP	NP	NP	SM	Silty Sand	-	-	-
PB-3 (40-41.5)	SPT	18	18L044	0.6	75.8	23.6	NP	NP	NP	SM	Silty Sand	11.8	-	-
PB-4 (6-8)	SPT	20	19A047	0	25.8	74.2	68	56	12	MH	Elastic Silt with Sand	27.0	-	-
PB-4 (68-70)	SPT	7.5	19A048	0	65.3	34.7	45	37	8	SM	Silty Sand	13.2	-	-
PB-5 (12-14)	SPT	24	18L101	0	48.1	51.9	NP	NP	NP 12	ML	Sandy Silt	21.5	-	-
PB-5 (14-16) PB-5 (22-24)	ST SPT	24 24	18L102 18L103	0 5.2	50.6	49.4	61 NP	48 NP	13 NP	SM SM	Silty Sand	25.3 17.1	4.4E-05	-
PB-5 (22-24) PB-6 (0-5)	B	Z4 N/A	18L103 18L045	4.1	73.0 36.7	21.8 59.2	54	NP 27	27	CH	Silty Sand Sandy Fat Clay	17.1	-	-
PB-6 (0-3) PB-6 (4-6)	SPT	24	18L045 18L046	4.1	31.5	68.5	69	42	27	MH	Sandy Fat Clay Sandy Elastic Silt	21.4	-	-
PB-6 (24-26)	ST	24	18L040	0	63.1	36.9	NP	NP	NP	SM	Silty Sand	15.7	-	-
PB-6 (34-36)	SPT	24	18L048	0	49.3	50.7	50	40	10	MH	Sandy Elastic Silt	14.8	-	-
PB-6 (52-54)	SPT	24	19L049	0.8	64.7	34.5	38	31	7	SM	Silty Sand	10.2	_	_
PB-7 (12-14)	SPT	18	1901J23-001	-	-	-	-	-	-	-	-	-	-	10.0
PB-7 (20-22)	ST	22	19A050	0.4	66.7	32.9	NP	NP	NP	SM	Silty Sand	18.9	4.7E-05	-
PB-7 (22-24)	SPT	19.2	1901J23-002	-	-	-	-	-	-	-	-	-	-	6.7
PB-7 (28-30)	SPT	12	19A051	0.9	77.3	21.8	41	36	5	SM	Silty Sand	12.5	-	-
PB-7 (30-32)	SPT	12	1901J23-003	-	-	-	-	-	-	-	-	-	-	5.6
PB-8 (8-10)	SPT	24	19A052	1.0	46.0	53.0	65	50	15	MH	Sandy Elastic Silt	23.1	-	-
PB-8 (83-85)	SPT	9.6	19A053	1.3	60.3	38.4	65	29	36	SC	Clayey Sand	19.9	-	-
PB-9 (4-6)	SPT	24	18L104	0	44.0	56.0	NP	NP	NP	ML	Sandy Silt	25.4	-	-
PB-9 (14-16)	ST	28	18L105	0.7	55.1	44.2	NP	NP	NP	SM	Silty Sand	-	-	-
PB-9 (15-20)	В	N/A	18L106	0	47.1	52.9	53	40	13	MH	Sandy Elastic Silt	21.6	-	-
PB-9 (26-28)	SPT	15.6	18L107	1.5	72.5	26.0	NP	NP	NP	SM	Silty Sand	9.7	-	-
PB-10 (8-10)	ST	26	19A057	0.3	51.4	48.3	71	37	34	SM	Silty Sand	-	-	-
PB-10 (10-12)	SPT	24	1901J23-004	-	-	-	-	-	-	-	-	-	-	9.5
PB-10 (16-18) PB-10 (18-20)	SPT	24 24	19A058 19A131	0.1	59.6 57.2	40.3	48 49	20 26	28 23	SC	Clayey Sand	18.4 18.3	- 5.7E-08	-
PB-10 (18-20) PB-10 (20-22)	ST SPT	24	19A131 1901J23-005	-	- 37.2	42.8	- 49	- 20	- 23	SC -	Clayey Sand	-	5./E-08	- 9.4
PB-10 (20-22) PB-10 (30-32)	SPT	7.2	1901J23-005	-	-	-	-	-	-	-	-		-	9.4 8.6
PB-11 (6-8)	SPT	24	1901323-000 18L108	0	52.7	47.3	62	56	6	SM	Silty Sand	12.5	-	-
PB-11 (12-14)	ST	28	18L109	0	55.3	44.7	57	48	9	SM	Silty Sand	-	-	-
PB-11 (14-16)	SPT	20	18L110	0	66.6	33.4	40	32	8	SM	Silty Sand	8.4	-	-
PB-12 (2-4)	SPT	20.4	19A054	0	45.0	55.0	56	23	33	CH	Sandy Fat Clay	18.7	-	-
PB-12 (10-11)	SPT	24	19A055	2.7	69.5	27.8	43	26	17	SC	Clayey Sand	15.7	-	-
PB-12 (20-22)	SPT	24	19A056	0.1	36.4	63.5	61	33	28	MH	Sandy Elastic Silt	21.9	-	-
PB-13 (0-5)	В	N/A	18L111	0.7	42.1	57.2	61	34	27	MH	Sandy Elastic Silt	22.2	-	-
PB-13 (6-8)	SPT	24	18L112	0	20.2	79.8	80	40	40	MH	Elastic Silt with Sand	38.4	-	-
PB-13 (12-14)	ST	24	18L113	0.2	55.4	44.4	43	26	17	SC	Clayey Sand	15.3	1.2E-08	-
PB-13 (42-44)	SPT	15.6	18L114	0.2	62.6	37.2	57	31	26	SM	Silty Sand	29.3	-	-
PB-14 (10-12)	SPT	24	19A084	0	33.2	66.8	50	39	11	MH	Sandy Elastic Silt	40.1	-	-
PB-14 (18-20)	ST	21	19A085	0	55.1	44.9	60	54	6	SM	Silty Sand	-	-	-

Notes: B - Bulk SPT - Split Spoon ST - Shelby Tube USCS - Unified Soil Classification System

N/A - Not Applicable NP - Non Plastic

1. Table only shows lab results relevant for the Site Acceptability Report.

Table 2-4 Groundwater Elevations, January 31, 2019 Plant Branch CCR Landfill Putnam County, Georgia

Well/Piezometer ID	Easting	Northing	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Top of Screen Elevation (ft MSL)	Bottom of Screen Elevation (ft MSL)	Well Depth (ft bgs)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
Groundwater Moni	toring Wells								
BRGWA-12I	2557138.60	1164298.55	439.43	436.18	368.90	358.90	80.54	53.20	386.23
BRGWA-12S	2557142.91	1164283.78	439.69	436.31	388.60	378.60	61.04	Dry ⁽¹⁾	NA
BRGWA-23S	2557868.18	1162970.68	428.42	425.50	395.00	385.00	43.90	37.59	390.83
BRGWC-30I	2557692.53	1161608.18	352.33	349.78	340.20	330.20	22.53	4.00	348.33
BRGWC-32S	2558497.57	1160678.65	406.51	403.51	36.80	358.80	48.01	36.62	369.89
BRGWC-47	2559456.44	1162701.02	411.32	408.87	327.27	317.27	97.00	24.37	386.95
Water Level Piezon	neters								•
PZ-11S	2557003.96	1162463.71	398.97	395.58	381.40	371.40	27.53	22.01	376.96
PZ-12D	2557136.09	1164309.63	439.17	436.12	354.80	294.80	144.43	86.34	352.83
PZ-18S	2557749.80	1160755.06	367.27	363.91	349.31	339.31	27.21	19.76	347.51
PZ-18I	2557748.16	1160763.97	366.75	363.75	335.25	325.25	41.44	19.61	347.14
PZ-23I	2557877.88	1162974.25	427.90	424.95	368.5	358.50	69.75	37.27	390.63
PZ-31S	2557972.68	1160937.05	376.94	374.21	345	335.00	42.98	24.69	352.25
PZ-39	2557459.67	1163674.96	434.70	431.76	396	386.00	53.84	48.95 ⁽²⁾	385.75
PZ-46	2560558.28	1162755.57	384.70	382.11	346.51	336.51	47.00	8.67	376.03
PZ-48	2558444.93	1163047.87	421.05	418.30	361.70	351.70	67.00	29.05	392.00
Temporary Piezom	eters								•
PB-1S	2556355.59	1164910.53	403.06	400.26	372.26	362.26	38.0	27.34	375.72
PB-2D	2556913.92	1164853.32	416.76	414.86	367.86	357.86	57.0	41.40	375.36
PB-4S	2556060.40	1164339.49	411.06	409.26	371.26	361.26	48.0	33.34	377.72
PB-4D	2556069.22	1164335.02	412.18	409.08	304.58	294.58	114.5	32.72	379.46
PB-7S	2556186.03	1163831.52	402.86	399.86	376.86	366.86	33.0	27.51	375.35
PB-8S	2556792.10	1163018.18	401.69	398.69	373.69	363.69	35.0	25.04	376.65
PB-8D	2556786.55	1163024.59	401.77	398.47	302.47	292.47	106.0	25.41	376.36
PB-10S	2558551.02	1163588.58	400.94	398.04	375.04	365.04	33.0	12.81	388.13
PB-10D	2558546.51	1163593.00	400.33	397.98	322.98	312.98	85.0	12.39	387.94
PB-13S	2556626.00	1162084.39	373.38	370.88	330.88	320.88	50.0	9.69	363.69
PB-13D	2556638.75	1162084.45	373.83	371.13	284.13	274.13	97.0	10.44	363.39

Notes:

ID = Identification

TOC = Top of Casing ft MSL = Feet above Mean Sea Level

ft bgs = Feet below ground surface

ft BTOC = Feet Below Top of Casing

NA = Not applicable

1. Dry - BRGWA-12S has bladder pump, well could be dry or water could be below pump present in the well.

2. Depth to water was 0.15 inch above well bottom, reading could be from water trapped inside the bottom well cap.

Table 3-1Historical Groundwater Elevation SummaryPlant Branch CCR LandfillPutnam County, Georgia

	Groundwater Elevations (ft MSL)									
Date (1,2)	BRGWA-12I	BRGWA-23S	BRGWC-32S	PZ-11S	PZ-18S	PZ-46				
8/30/2016	391.00	395.74	372.01	381.13	346.55	NA				
11/14/2016	390.39	393.74	370.00	379.41	345.84	NA				
2/17/2017	389.57	394.05	370.37	381.14	347.09	NA				
6/26/2017	388.80	392.90	371.86	379.68	346.99	NA				
9/25/2017	388.47	392.61	372.10	378.74	346.53	NA				
2/13/2018	387.40	390.74	371.05	377.46	346.85	375.61				
6/25/2018	386.99	390.08	370.65	376.47	352.09	375.52				
9/18/2018	386.50	389.57	369.37	375.37	345.68	374.53				
12/17/2018	386.14	389.28	369.08	375.11	346.72	376.09				
1/31/2019	386.23	390.83	369.89	376.96	347.51	376.03				
Minimum Observed	386.14	389.28	369.08	375.11	345.68	374.53				
Maximum Observed	391.00	395.74	372.10	381.14	352.09	376.09				
Difference between Maximum Observed and 1/31/19 Measurement	4.77	4.91	2.21	4.18	4.58	0.06				

Notes:

ft MSL = Feet above Mean Sea Level

NA = Not available (well not installed at the time)

1. Historical groundwater data provided by Southern Company Services (SCS).

2. Groundwater elevation on 31 January 2019 measured by Geosyntec Consultants.

Table 3-2 Summary of Horizontal Hydraulic Conductivity Results Plant Branch CCR Landfill Putnam County, Georgia

Piezometer ID ^(1,2,3)	Screened Lithology	Saturated Thickness of Aquifer (feet)	Screen Length (feet)	Piezometer Diameter (inches)	Aquifer Test Type	Analysis Method	Horizontal Hydraulic Conductivity (cm/sec)	Horizontal Hydraulic Conductivity (ft/day)	Horizontal Hydraulic Conductivity by Lithological Unit (ft/day) Geometric			
		· · ·					, <i>,</i>		Max	Min	Mean	
BRGWC-32S		20	9.5	2.0	Falling	Bouwer-Rice	1.34E-04	0.38				
BRGWC-525		20	9.5	2.0	Rising	Bouwer-Rice	2.38E-04	0.67				
PZ-11S		100	9.5	2.0	Falling	Bouwer-Rice	1.87E-03	5.30				
12-113		100	9.5	2.0	Rising	Bouwer-Rice	1.44E-03	4.07				
BH-6		100	10	1.0	Falling (Slug in)	Bouwer-Rice	1.33E-04	0.38				
D11-0	Regolith	100	10	1.0	Rising (Slug out)	Bouwer-Rice	1.71E-04	0.48	5.30	0.38	0.85	
BH-8		100	10	1.0	Falling (Slug in)	Bouwer-Rice	2.76E-04	0.78				
D11-0		100	10	1.0	Rising (Slug out)	Bouwer-Rice	5.17E-04	1.47			vity cal Unit () Geometric Mean	
BH-12			100	10	1.0	Falling (Slug in)	Bouwer-Rice	1.41E-04	0.40			
				10		Rising (Slug out)	Bouwer-Rice	1.42E-04	0.40			
PB-13S		80	10	2.0	Pneumatic Slug Testing	Bouwer-Rice	3.14E-04	0.89				
BRGWA-23S		100	9.2	2.0	Rising	Bouwer-Rice	4.26E-05	0.12			I	
PZ-31S	Regolith/PWR	100 9.5 2.0	Falling	Bouwer-Rice	2.15E-03	6.09						
					Rising	Bouwer-Rice	7.61E-03	21.58 ⁴				
PB-1S		42	10	2.0	Pneumatic Slug Testing	Bouwer-Rice	7.90E-04	2.24	6.09	0.12	0.80	
PB-4S	Regolitiki wik	72	10	2.0	Pneumatic Slug Testing	Bouwer-Rice	1.02E-03	2.88	0.09	0.12	0.09	
PB-7S		12	10	2.0	Pneumatic Slug Testing	Bouwer-Rice	1.77E-04	0.50				
PB-8S		64	10	2.0	Pneumatic Slug Testing	Bouwer-Rice	4.26E-05	0.12				
PB-10S		58	10	2.0	Pneumatic Slug Testing	Bouwer-Rice	5.26E-04	1.49				
BRWGC-30I		100	9.5	2.0	Falling	Bouwer-Rice	9.13E-04	2.59				
BRWGE-501		100	7.5	2.0	Rising	Bouwer-Rice	1.98E-03	5.61			1	
PZ-18I	PWR/Bedrock	100	9.5	2.0	Falling	Bouwer-Rice	2.86E-03	8.11	8.11	1.96	3 87	
12-101	I WIN Dedrock	100	9.5	2.0	Rising	Bouwer-Rice	2.33E-03	6.61	0.11	1.90	5.07	
BH-14		100	10	1.0	Falling (Slug in)	Bouwer-Rice	6.90E-04	1.96				
					Rising (Slug out)	Bouwer-Rice	7.80E-04	2.21				
PZ-23I		100	9.5	2.0	Rising	Bouwer-Rice	5.62E-07	0.0016				
BH-4		100	10	1.0	Falling (Slug in)	Bouwer-Rice	3.41E-04	0.97				
DII 4		100	10	1.0	Rising (Slug out)	Bouwer-Rice	3.50E-04	0.99				
BH-7		100	10	1.0	Falling (Slug in)	Bouwer-Rice	9.26E-05	0.26				
	Bedrock				Rising (Slug out)	Bouwer-Rice	1.08E-04	0.31	0.99	4.8E-04	0.04	
PB-2D		21	10	2.0	Pneumatic Slug Testing	Bouwer-Rice	5.63E-07	0.002	0.77	1.012-04	0.04	
PB-4D		88	10	2.0	Falling (Slug in)	Bouwer-Rice	5.12E-06	0.01				
PB-8D		87	10	2.0	Pneumatic Slug Testing	Bouwer-Rice	7.00E-06	0.02				
PB-10D		79	10	2.0	Pneumatic Slug Testing	Bouwer-Rice	1.70E-07	0.00048				
PB-13D		92	10	2.0	Pneumatic Slug Testing	Bouwer-Rice	9.90E-05	0.28				

Notes:

1. BH-series piezometers were slug tested by Southern Company Services in December 2007.

2. BRGW and PZ-series wells and piezometers were slug tested by Golder Associates in August 2016.

3. PB-series piezometers were slug tested by Geosyntec Consultants in February 2019.

4. Value not representative of sitewide conditions; not used for calculations.

 Regolith, Regolith/PWR, PWR/Bedrock combined
 8.11
 0.12
 1.09

Table 3-3 LeGrand Analysis Input Parameters and Results Plant Branch CCR Landfill Putnam County, Georgia

Criteria	Input Value or Type for Natural Site	LeGrand Score for Natural Site	LeGrand Score for Lined Site
Water table depth below waste material (WT)	Minimum 5 feet	0.3	0.3
Sorption (S)	Silty sand	2.5	4.0
Permeability (P)	Silty sand	2.5	3.0
Gradient (G)	4% unfavorable direction	2.1	4.6
Distance to potential receptor (D)	2,050 feet	5.5	5.5
Thickness of porous media below waste material (T)	Average 47 feet	2.8	2.8
Total		15.7	20.2
Rating		Possible, but not likely	Possible, but not likely

Notes:

1. The LeGrand (1964) rating chart for two-media sites was used for scoring.

2. "Possible, but not likely" indicates that the potential for pollution is possible, but it is not likely to occur.

3. Total Points and Pollution Potential for Site (taken from GA EPD Circular 14):

0 - 4 = Imminent

4 - 8 = Probable

8 - 12 = Possible

12 - 25 = Possible, but not likely

25+ = Approaching Impossible

Table 3-4 Estimated Leachate Travel Time Plant Branch CCR Landfill Putnam County, Georgia

	Horizontal Hydraulic Conductivity ⁽¹⁾ K (ft/day)	Gradient ⁽²⁾ (ft/ft)	Effective Porosity ⁽³⁾	Distance to Receptor ⁽⁴⁾ (ft)	Groundwater Flow Velocity (ft/day)	Estimated Travel Time (years)
Typical Conditions	1.09	0.044	0.19	2,050	0.25	22
Worst Case Conditions	8.11	0.044	0.19	2,050	1.9	3

Notes:

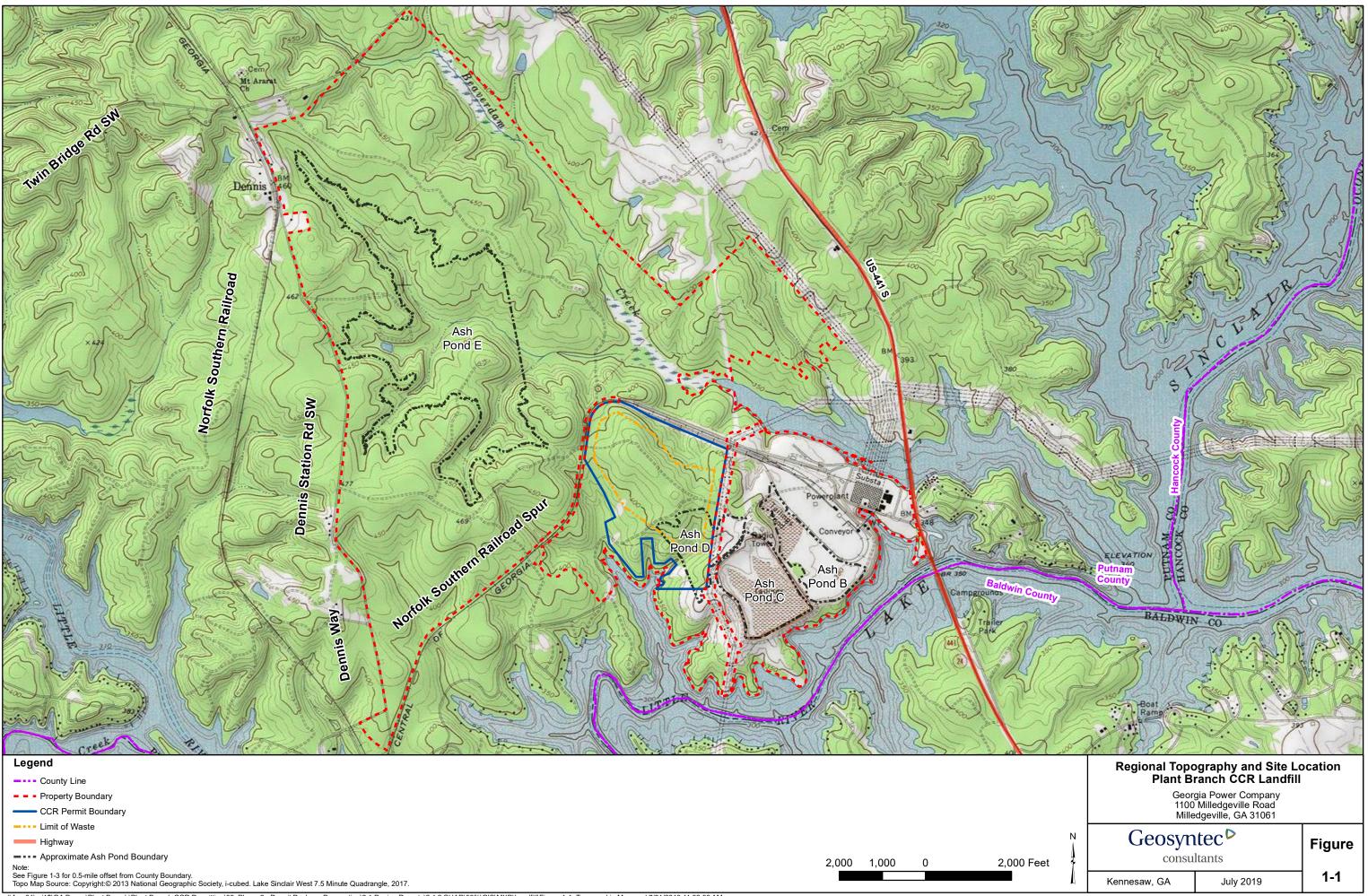
1. Hydraulic conductivity values are geometric mean from Southern Company Services, Golder Associates, and Geosyntec Consultants tests in regolith, regolith/PWR, and PWR/bedrock piezometers. See Table 3-2.

2. Hydraulic gradient from potentiometric surface map developed by Geosyntec Consultants (2019) (Figure 2-7).

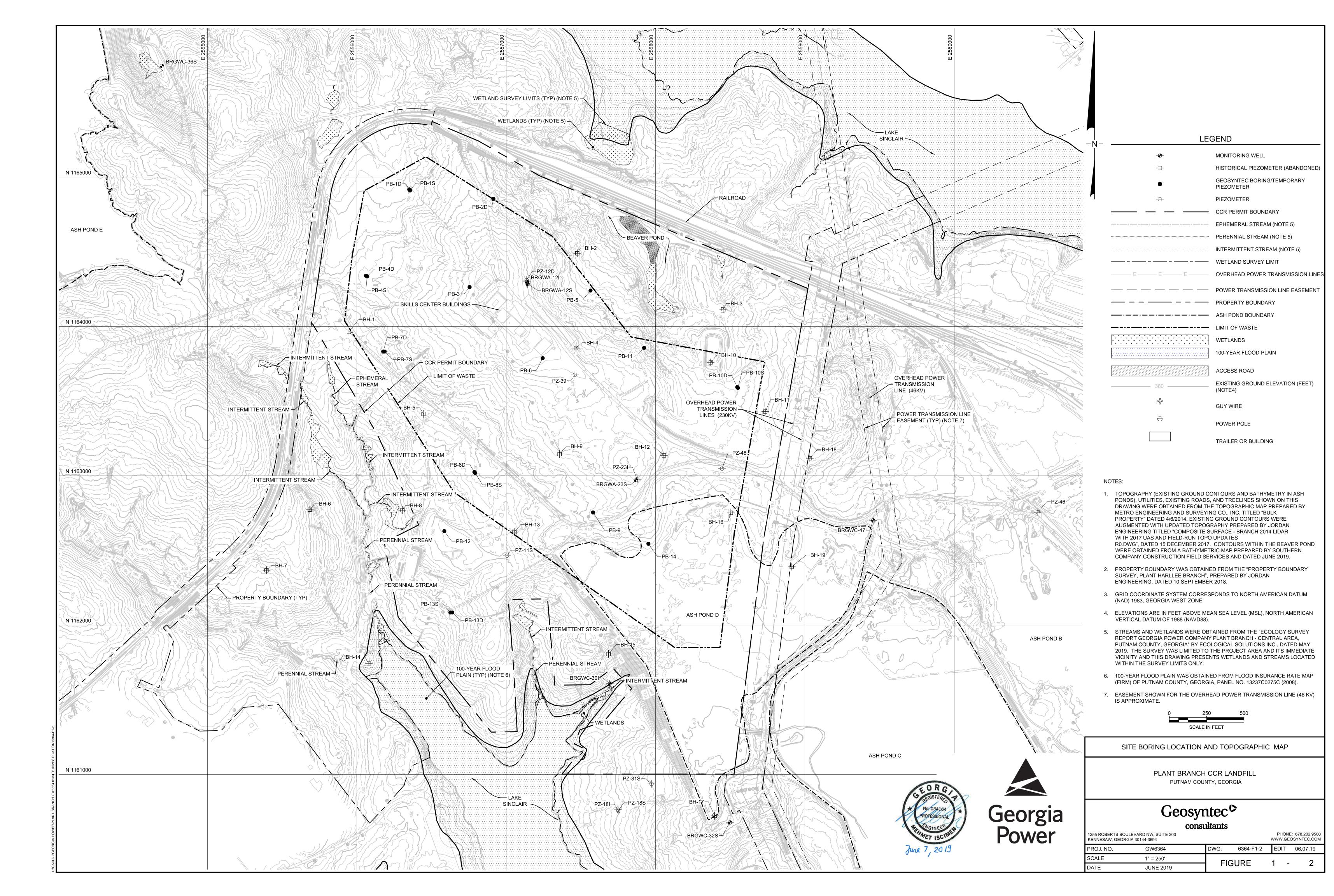
3. Effective porosity estimated by ATC (2000).

4. The distance to nearest potential receptor is based on distance to Domestic Well #49, (Figure 1-6).

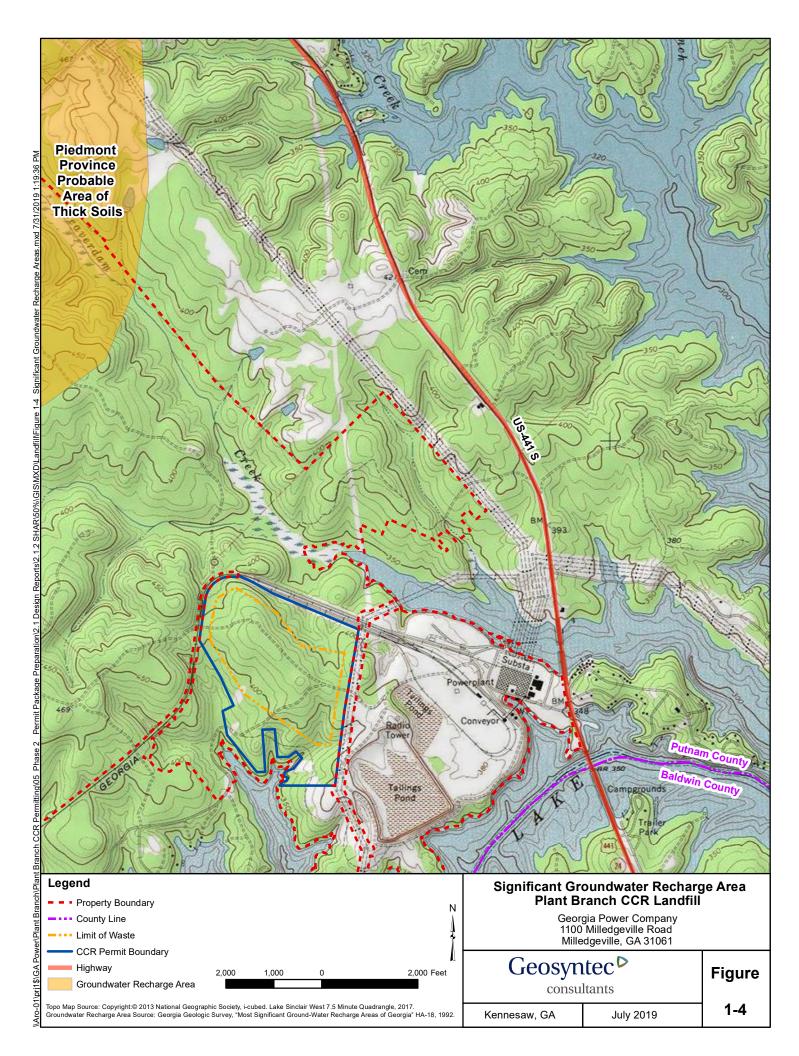
FIGURES

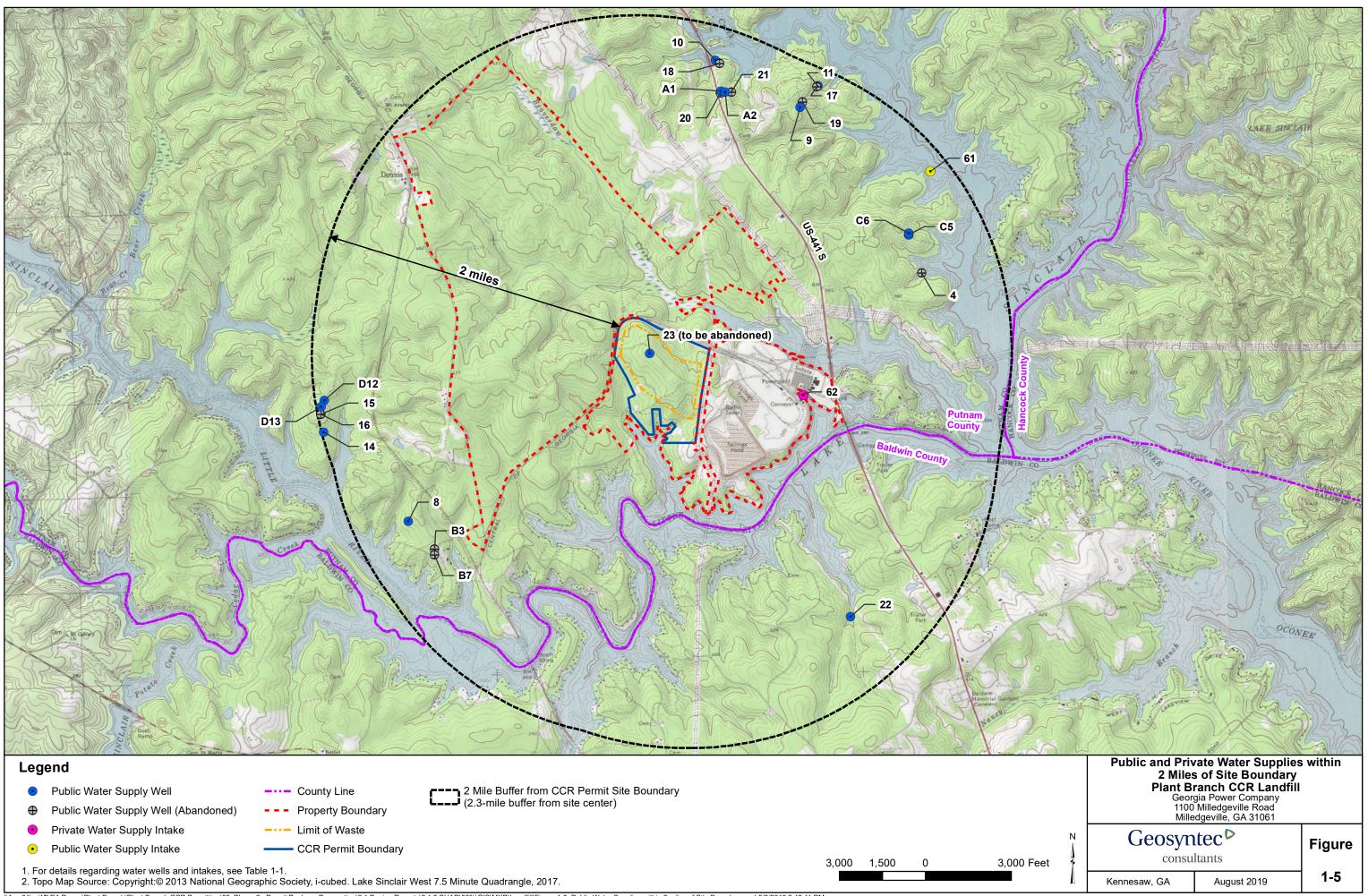


\\Aro-01\prj1\$\GA Power\Plant Branch\Plant Branch\CR Permitting\05_Phase 2_Permit Package Preparation\2.1 Design Reports\2.1.2 SHAR\50%\GIS\MXD\Landfil\Figure 1-1_Topographic Map.mxd 7/31/2019 11:52:50 AM

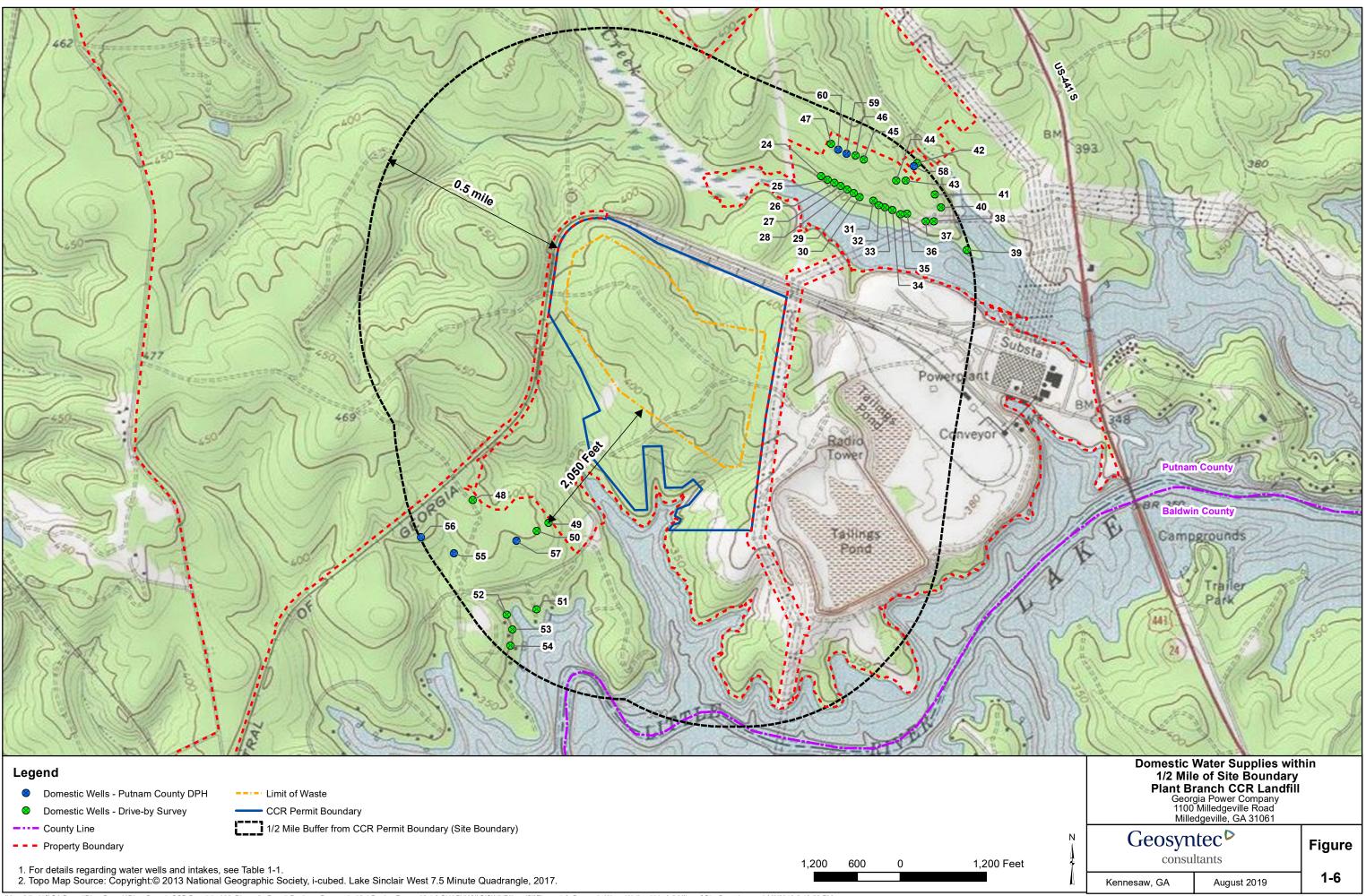




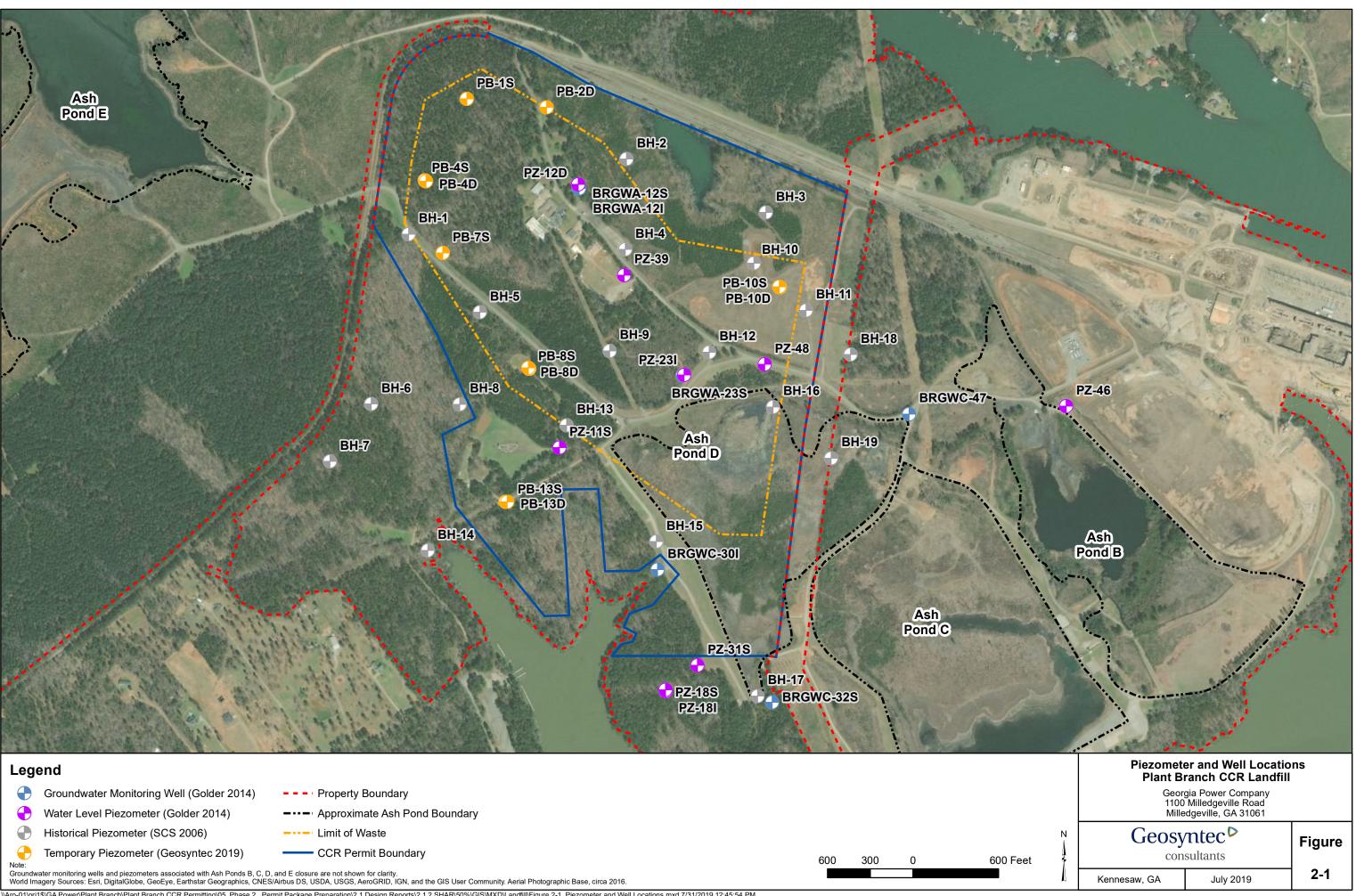




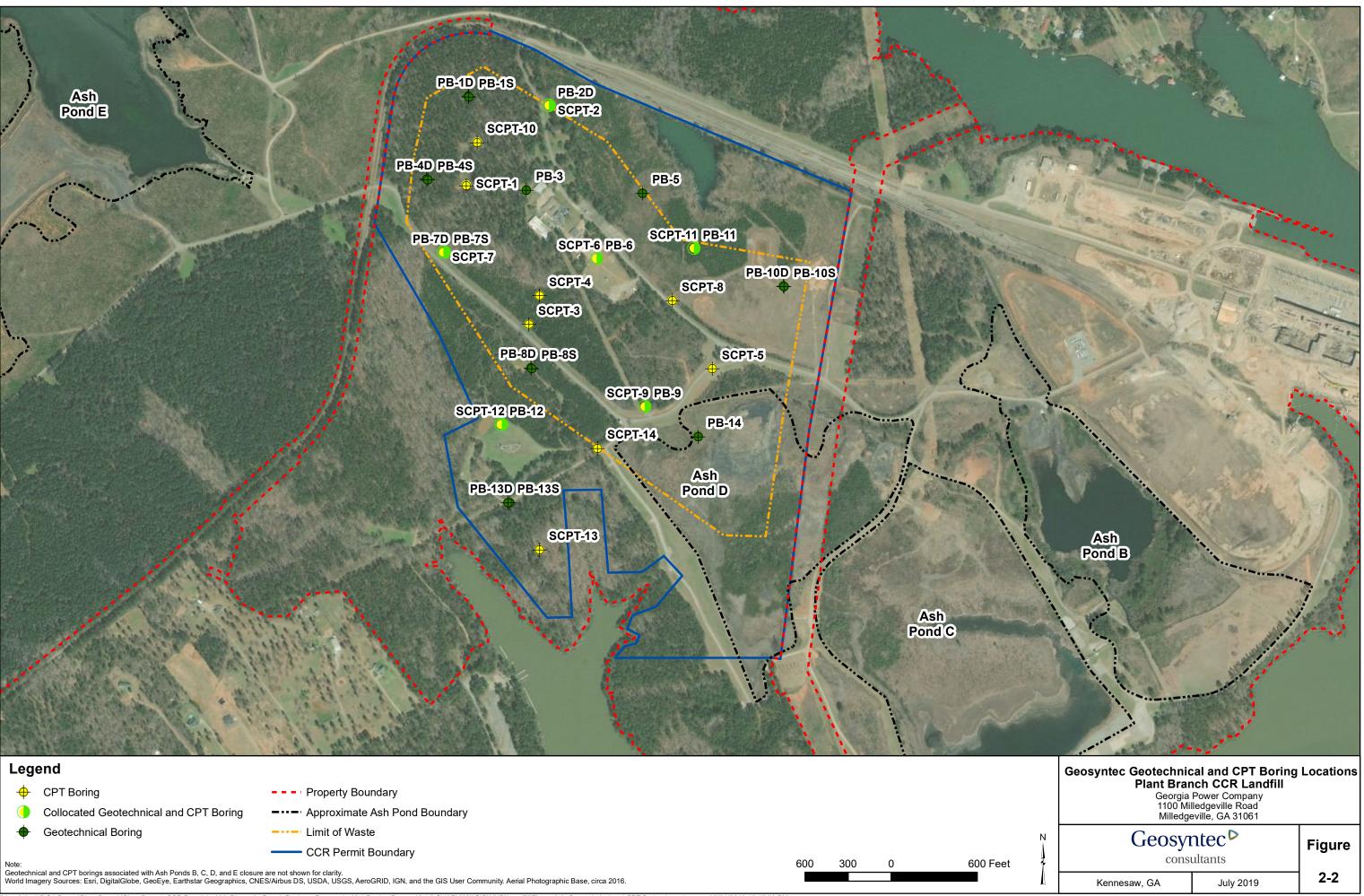
LAro-01\prj1\$\GA Power\Plant Branch\Plant Branch\CR Permitting\05_Phase 2_ Permit Package Preparation\2.1 Design Reports\2.1.2 SHAR\50%\GIS\MXD\Landfill\Figure 1-5_Public Water Supplies within 2 miles of Site Boundary.mxd 8/5/2019 2:49:11 PM



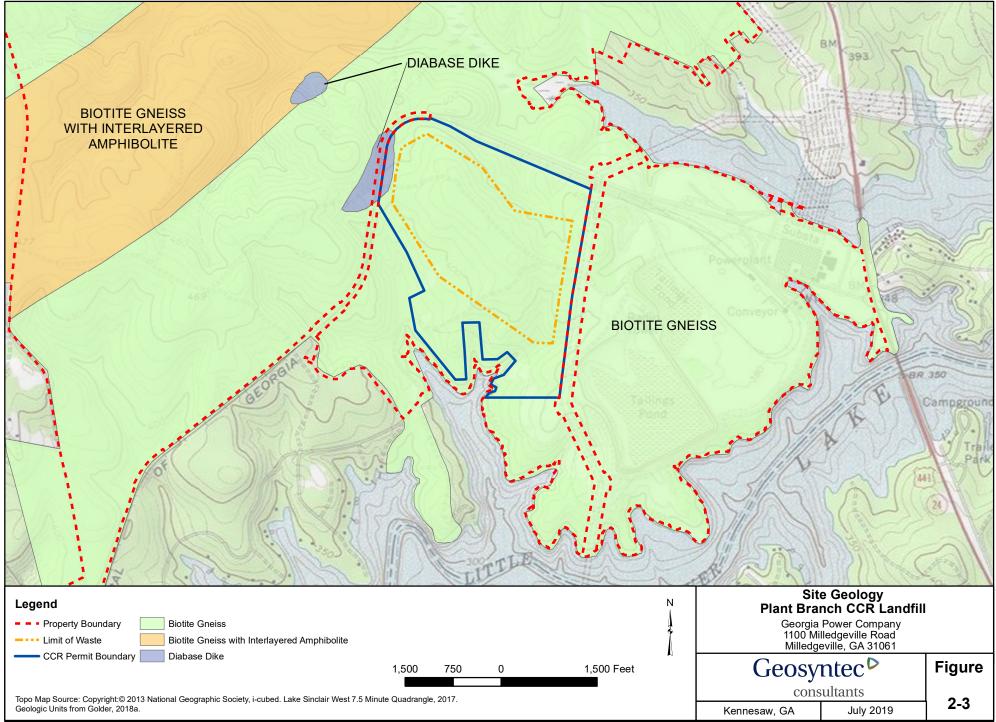
\Aro-01\prj1\$\GA Power\Plant Branch\Plant Branch\Plant Branch\CCR Permitting\05_Phase 2_Permit Package Preparation\2.1 Design Reports\2.1.2 SHAR\50%\GIS\MXD\Landfil\Figure 1-6_Domestic Water Wells within 0.5 Miles of Site Boundary.mxd 8/5/2019 2:43:50 PM



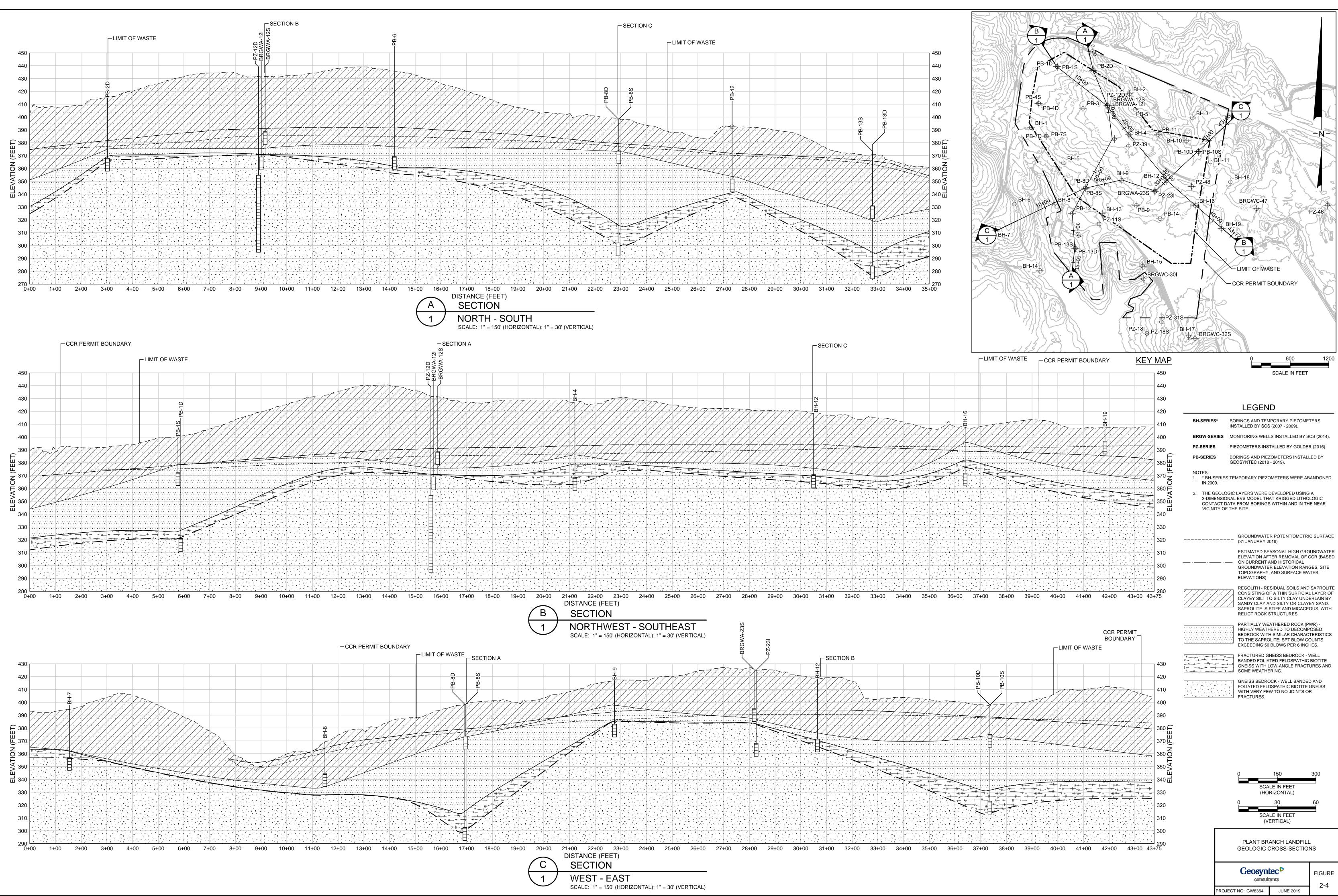
Varo-01/prj1\$\GA Power\Plant Branch\Plant Branch\Plant Branch CCR Permitting\05_Phase 2_ Permit Package Preparation\2.1 Design Reports\2.1.2 SHAR\50%\GIS\MXD\Landfill\Figure 2-1_Piezometer and Well Locations.mxd 7/31/2019 12:45:54 PM

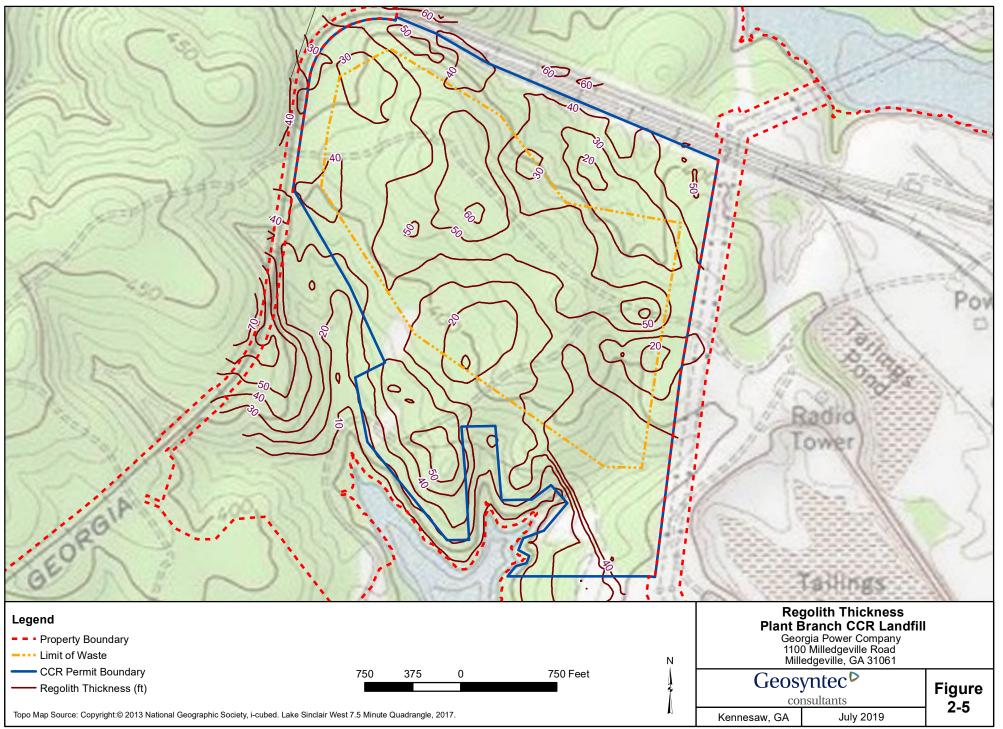


\Aro-01\prj1\$\GA Power\Plant Branch\Plant Branch\Plant Branch\CR Permitting\05_Phase 2_Permit Package Preparation\2.1 Design Reports\2.1.2 SHAR\50%\GIS\MXD\Landfill\Figure 2-2_Geotechnical and CPT Boring Locations.mxd 7/31/2019 12:47:56 PM

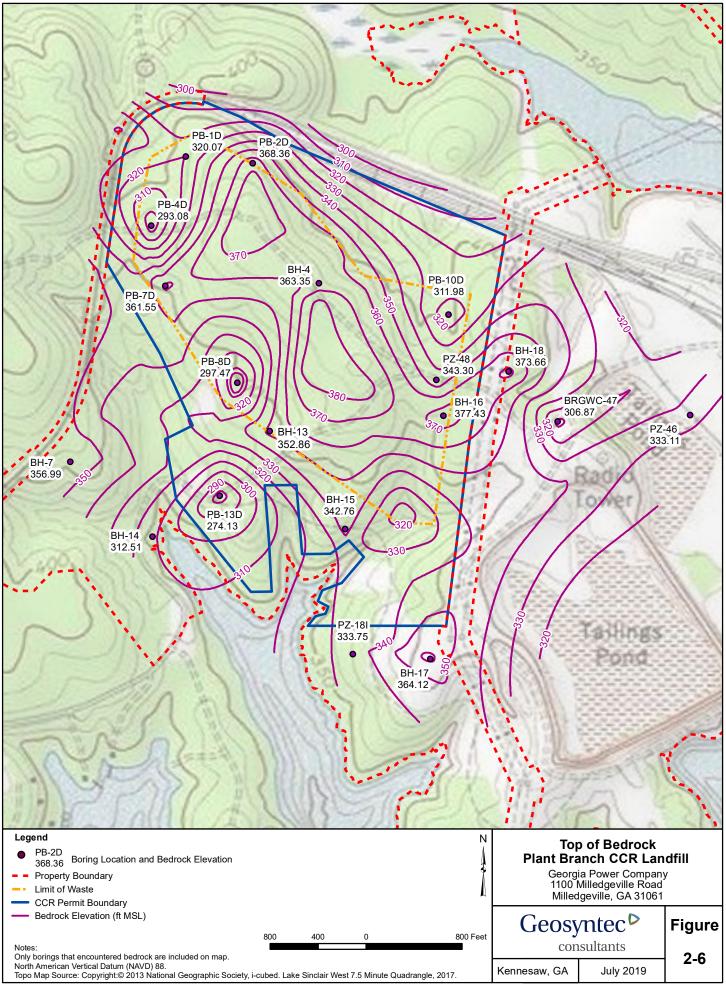


VAro-01/prj1\$\GA Power\Plant Branch\Plant Branch\Plant Branch CCR Permitting\05_Phase 2_Permit Package Preparation\2.1 Design Reports\2.1.2 SHAR\50%\GIS\MXD\Landfill\Figure 2-3_Site Geologic Map.mxd 7/31/2019 1:16:56 PM

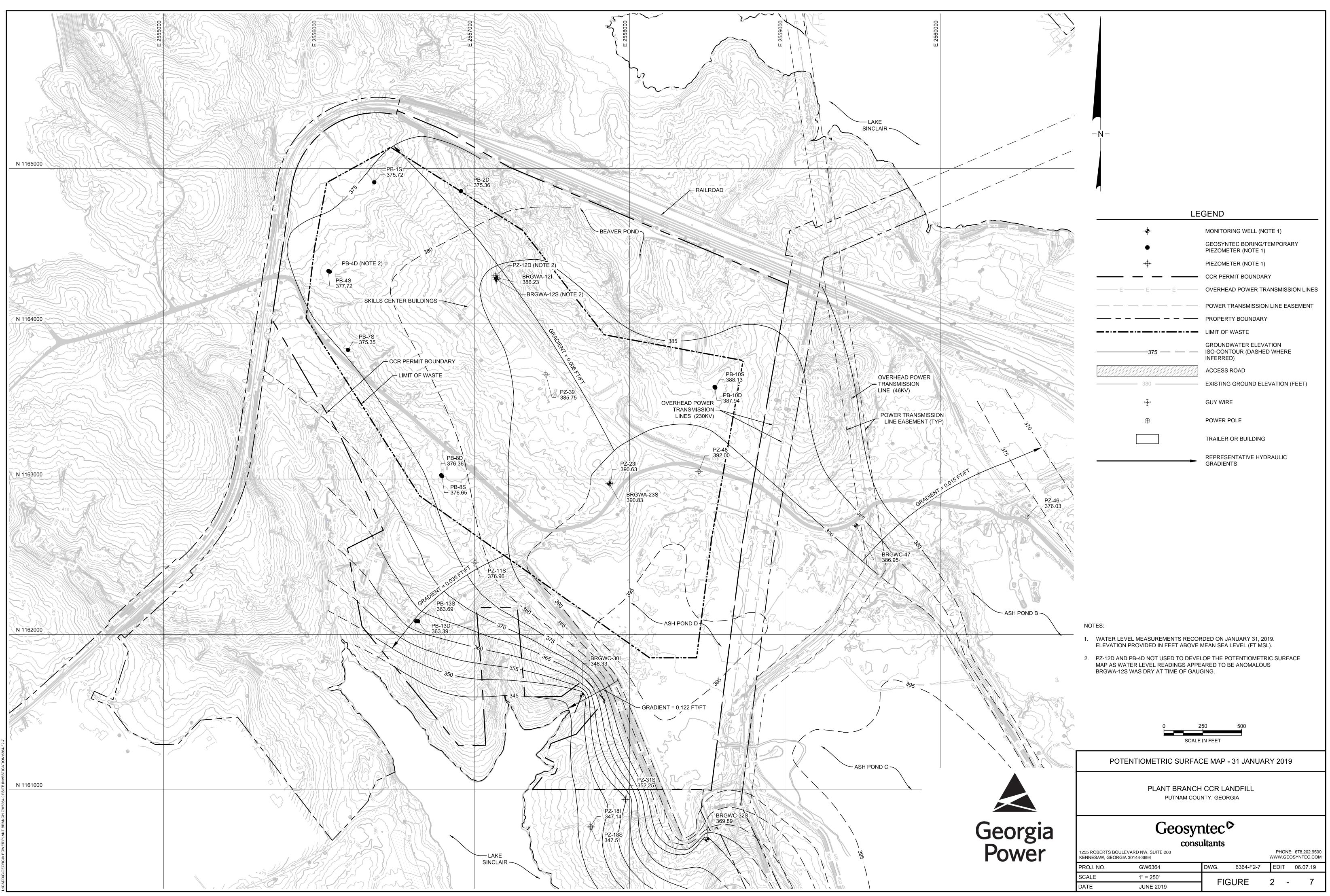


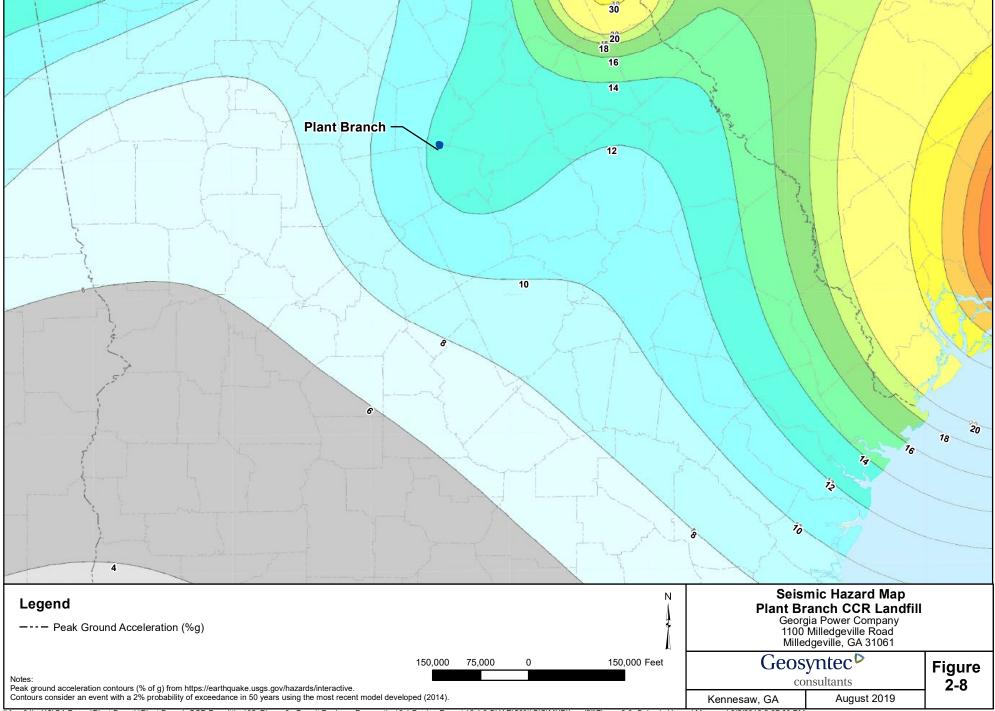


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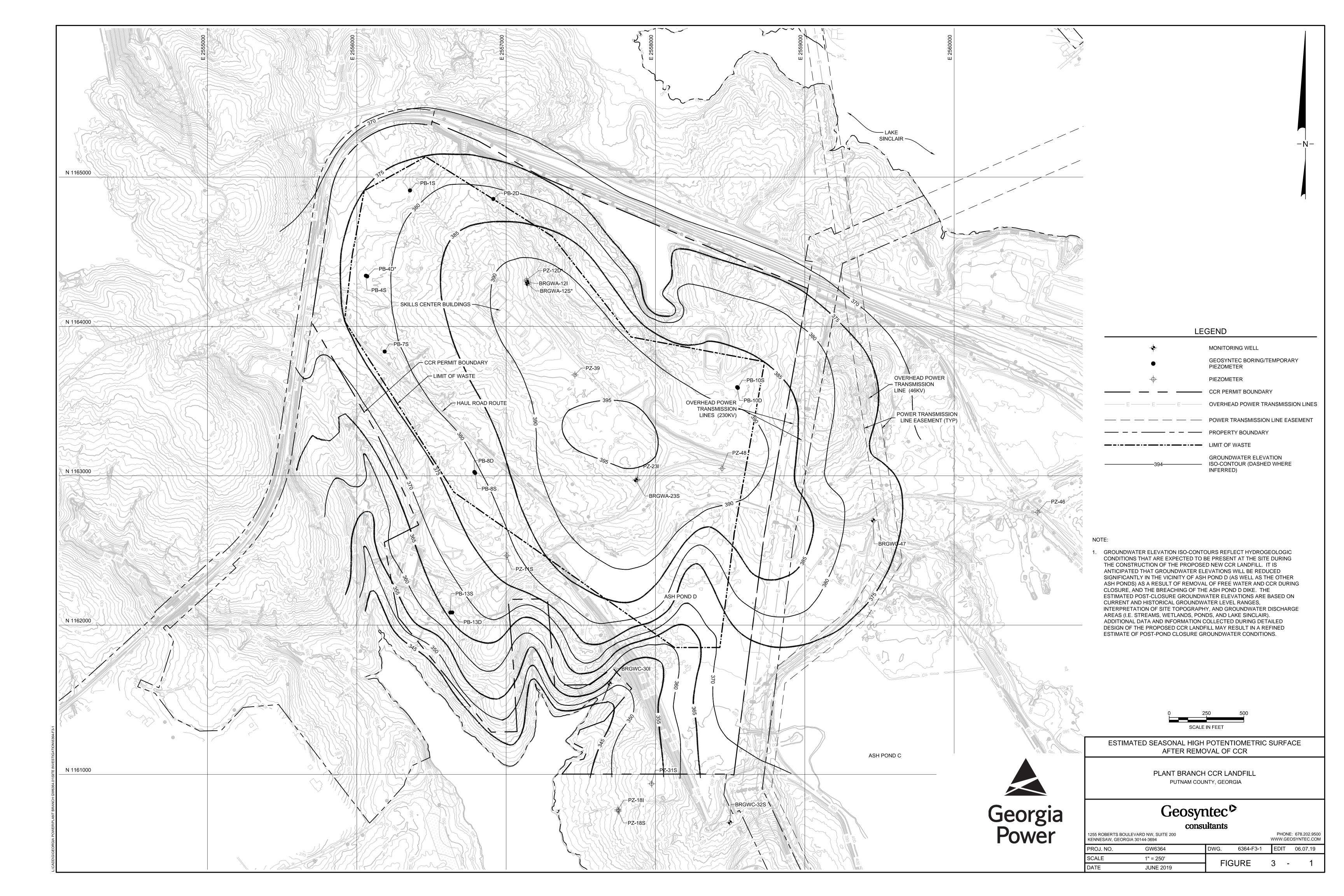


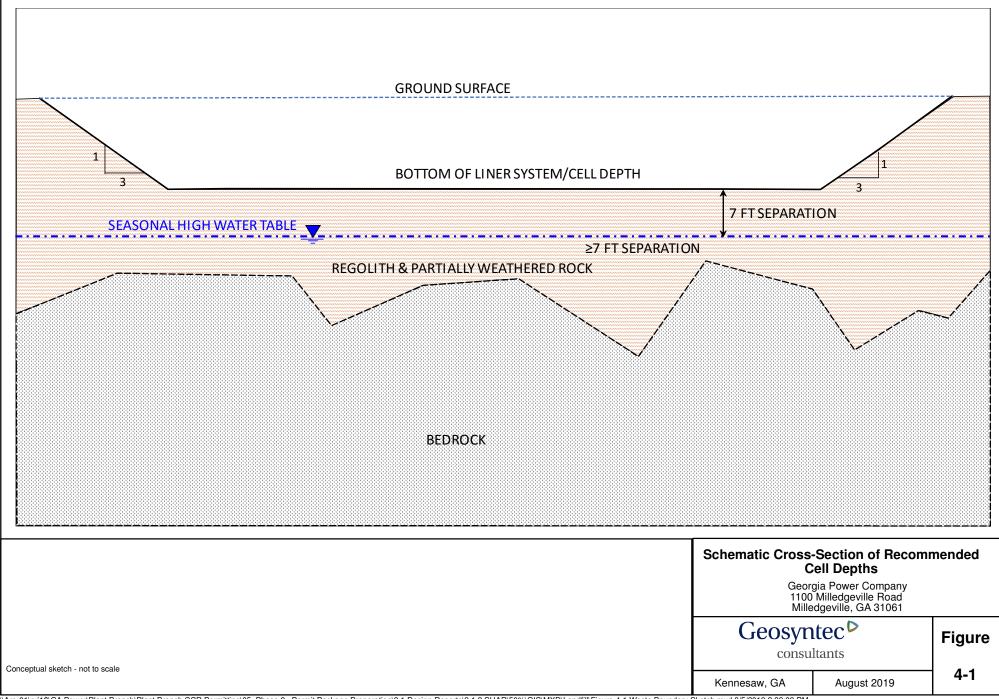
NAro-01/prj1\$\GA Power\Plant Branch\Plant Branch CCR Permitting\05_Phase 2_Permit Package Preparation\2.1 Design Reports\2.1.2 SHAR\50%\GISMXDLLandfill\Figure 2-6_Top Bedrock Contour.mxd 7/31/2019 2:56:55 PM



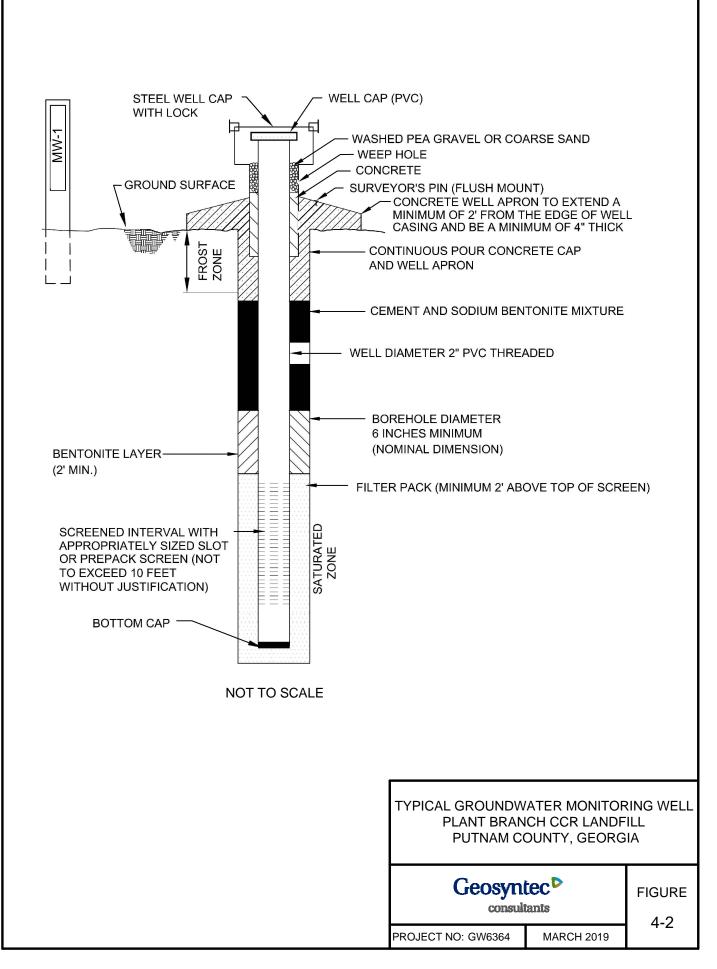


\Aro-01\prj1\$\GA Power\Plant Branch\Plant Branch\Plant Branch\CR Permitting\05_Phase 2_ Permit Package Preparation\2.1 Design Reports\2.1.2 SHAR\50%\GIS\MXD\Landfil\Figure 2-8_Seismic Hazard Map.mxd 8/5/2019 2:37:00 PM





\Aro-01\prj1\$\GA Powen\Plant Branch\Plant Branch\Plant Branch\CR Permitting\05_Phase 2_ Permit Package Preparation\2.1 Design Reports\2.1.2 SHAR\50%\GIS\MXD\Landfill\Figure 4-1 Waste Boundary Sketch.mxd 8/5/2019 2:39:09 PM



APPENDIX A

Zoning Letter

PUTNAM COUNTY BOARD OF COMMISSIONERS



DISTRICT ONE: KELVIN IRVIN DISTRICT TWO: DANIEL W. BROWN CHAIRMAN: Dr. Stephen Hersey DISTRICT THREE: ALAN FOSTER

DISTRICT FOUR: TREVOR J. ADDISON

September 18, 2018

Mr. Jeffrey W. Cown Branch Chief Georgia Environmental Protection Division 2 Martin Luther King Jr. Drive, SE Suite 1054, East Floyd Tower Atlanta, GA 30334-9000

RE: Georgia Power – Plant Branch

Permit Application - Proposed CCR Landfill

Dear Mr. Cown:

The proposed Coal Combustion Residuals (CCR) Landfill located at 1100 Milledgeville Road, Milledgeville, Georgia associated with Georgia Power CCR surface impoundments complies with local zoning and land use ordinances.

Sincerely,

Stephen J. Hersey

Chairman Putnam County

117 Putnam Dr. • Suite A • Eatonton, GA 31024 • Tel: 706.485.5826 • Fax: 706.923.2345 • www.putnamcountyga.us

APPENDIX B

Ecological Solutions Survey



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT 1590 ADAMSON PARKWAY, SUITE 200 MORROW, GEORGIA 30260

May 30, 2019

Regulatory Branch SAS-2019-00266

Mr. Scott Hendricks Georgia Power Company 241 Ralph McGill Boulevard Atlanta, Georgia 30308

Dear Mr. Hendricks:

I refer to the revised "Request for Delineation Review" dated May 3, 2019, submitted on your behalf by Mr. Mark Ballard of Ecological Solutions, requesting a delineation concurrence of aquatic resources for your site located at 1100 Milledgeville Road, Milledgeville, Putnam County, Georgia (latitude 33.197843, longitude -83.313969). This project has been assigned number SAS-2019-00266 and it is important that you refer to this number in all communication concerning this matter.

The enclosed Figure 7 entitled "Aquatic Resource Map", identifies the delineation limits of all aquatic features and resources within the review area. The aquatic features and resources were delineated on September 6, 2018, in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual and Regulatory Guidance Letter 05-05. The field delineation will remain valid for a period of 5-years unless new information warrants revision prior to that date.

If you intend to sell property that is part of a project that requires Department of the Army Authorization, it may be subject to the Interstate Land Sales Full Disclosure Act. The Property Report required by Housing and Urban Development Regulation must state whether or not a permit for the development has been applied for, issued or denied by the U.S. Army Corps of Engineers (Part 320.3(h)) of Title 33 of the Code of Federal Regulations).

This communication does not convey any property rights, either in real estate or material, or any exclusive privileges. It does not authorize any injury to property, invasion of rights, or any infringement of federal, state or local laws, or regulations. It does not obviate your requirement to obtain state or local assent required by law for the development of this property. If the information submitted, and on which the U.S. Army Corps of Engineers has based its decision is later found to be in error, this decision may be revoked.

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A copy of this letter is being provided to the following parties: Mr. Mark Ballard, Ecological Solutions: markballard@ecologicalsolutions.net

Thank you in advance for completing our on-line Customer Survey Form located at <u>http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey</u>. We value your comments and appreciate your taking the time to complete a survey each time you have interaction with our office.

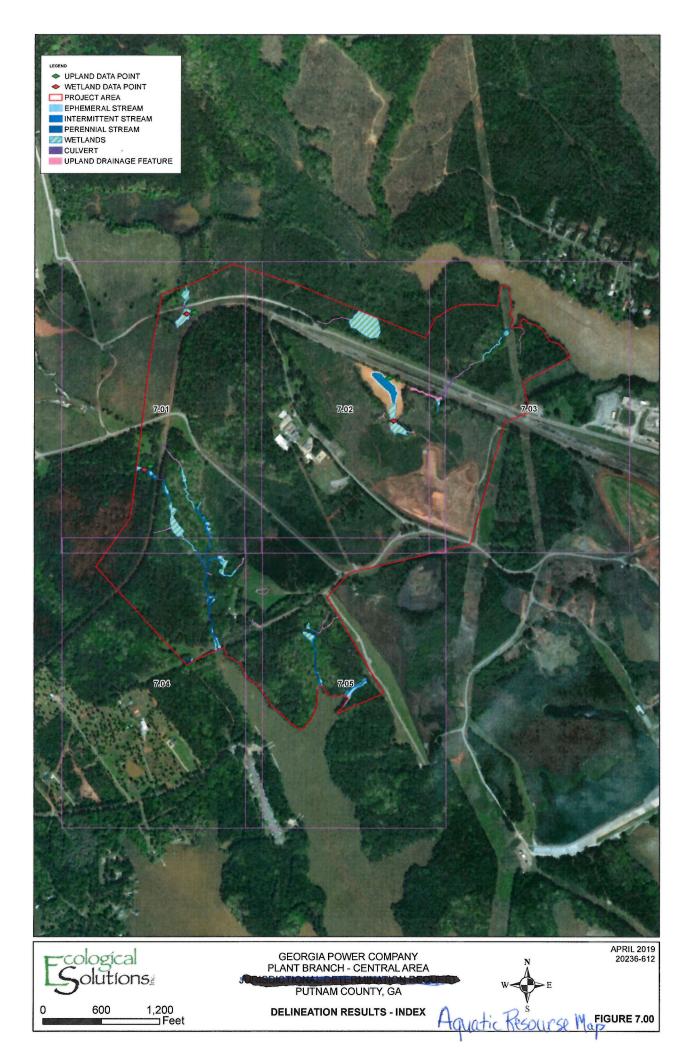
If you have any questions, please call me at (678) 422-6571.

Sincerely,

seall watt

Stacy Marshall Project Manager/Biologist Piedmont Section

Enclosures



Plant Branch - Central Area Putnam County, Georgia



Georgia Power Company





May 2019

Ecology Survey Report Georgia Power Company Plant Branch – Central Area Putnam County, Georgia

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Georgia Power Company Plant Branch – Central Area May 2019

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List of Attachments

Protected Species Documentation

Executive Summary

Ecological Solutions Inc. (Ecological Solutions) was contracted by Georgia Power Company (Georgia Power) to conduct ecological surveys for the Plant Branch - Central Area survey boundary. The survey area is approximately 343.17 acres and is located entirely within Putnam County, Georgia. The survey area is within property that includes the decommissioned and deconstructed (removed) Plant Branch. The project area is approximately seven miles northwest of Milledgeville, Georgia.

Field studies were conducted by Ecological Solutions staff in September and October 2018, and March 2019. Field tasks included delineation of jurisdictional wetlands and streams, photographic documentation and GPS location of delineated environmental resources, and threatened and endangered species surveys. Jurisdictional delineations were conducted in accordance with guidelines provided in the *1987 U.S. Army Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Regional Supplement V 2.0.* State waters were determined in accordance with guidelines provided in the Georgia Environmental Protection Division (EPD) document: *Field Guide for Determining the Presence of State Waters that Require a Buffer.* Field investigations identified twenty-eight jurisdictional wetlands, nineteen jurisdictional streams, one open water, and eighteen non-jurisdictional drainage features.

A list of known protected species was compiled through an online search of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) database and the Georgia Department of Natural Resources (GADNR) quarter-quadrangle database. The IPaC review indicated that five federal protected species of potential occurrence are known from Putnam County. In addition, a search for known locations of federal and state listed species within the project vicinity (*i.e.* USGS quarter-quadrangles) was conducted utilizing the Georgia Wildlife Resources Division (GWRD) Rare Species Information Website. This review identified no additional state listed species. The protected species known to occur within Putnam County are red-cockaded woodpecker (*Picoides borealis*), harperella (*Ptilimnium nodosum*), little amphianthus (*Amphianthus pusillus*), black spored quillwort (*Isoetes melanospora*), and matforming quillwort (*Isoetes tegetiformans*).

Georgia's Natural, Archaeological, and Historic Resources GIS (GNAHRGIS) online database was queried regarding listed species occurrences within a three-mile radius of the survey area. The GNAHRGIS review noted there is a known occurrence of the state listed bald eagle (*Haliaeetus leucocephalus*) 1.4 miles southwest of the project area. No listed species beyond those identified in the desktop data review were identified by the GADNR.

No protected species were observed within or near the project area. No habitat for the granite outcrop or limestone sink plant species (little amphianthus, black spored quillwort, harperella, and mat-forming quillwort) was identified within the survey area. Areas with mature pine trees are present within the survey area; however, these areas are densely wooded with thick understories and do not provide potential habitat for the red-cockaded woodpecker.

Portions of Lake Sinclair are adjacent to the survey area. The lake does provide foraging habitat for the bald eagle. No bald eagles were observed roosting within the survey area and no bald

eagle nests were observed within the survey area; nor or any bald eagle nests known from within Plant Branch property.

Considering the absence of suitable habitat for protected species of potential occurrence within the project vicinity combined with no occurrences, construction activities within the survey have should have no effect on protected species.

Project Description/Location

Georgia Power Company is proposing the construction of Coal Combustion Residual (CCR) landfill within the Plant Branch – Central Area property. The survey area is approximately 343.17 acres and is located entirely within Putnam County, Georgia. The survey area is within property that includes the decommissioned and deconstructed (removed) Plant Branch. Please refer to Figure 1.00 for the location project area. The project is located within the Lake Sinclair USGS 7.5-minute topographic map (Figure 2.00) and is within Hydrologic Unit Code (HUC) 03070101 of the Upper Oconee River Watershed. The project area is located at latitude 33.195393° and longitude -83.311634°.

Habitat Description

Predominant habitat types within the project area include planted pine stands, pine woods, mixed hardwood-pine forest, hardwood forest, maintained roadway/railway, maintained graded areas, institutional, recreational, maintained transmission line easement, and jurisdictional waters (wetlands, streams, and open waters). Below please find general descriptions of each habitat type identified within the survey area. The Figure 6 series provides representative habitat photographs.

Pine Woods

This habitat type is comprised of wooded areas dominated by pine species. These areas regenerated naturally and were not planted for silvicultural production. Trees range from 5 to 20-plus years in age. These areas have a dense understory that is not maintained through fire, mowing, or other means. Dominant species are loblolly pine (*Pinus taeda*), Chinese privet (*Ligustrum sinense*), beautyberry (*Callicarpa americana*), sweetgum (*Liquidambar styraciflua*), muscadine (*Vitis rotundifolia*), groundsel tree (*Baccharis halimifolia*), and serrate-leaf blackberry (*Rubus argutus*). Please refer to Figure 6a for a representative photograph.

Planted Pine Stands

This habitat type is comprised of forested areas dominated by planted loblolly pine. The planted pine stands range in age from 15 to 25-plus years in age. Though planted, the areas are not frequently maintained through fire, mowing, or other means and a dense understory is present throughout this habitat type. Dominant species are similar to those found in the pine woods habitat discussed above.

Mixed Hardwood Forest

This habitat type is comprised of forest dominated hardwood trees and associated upland understory species. This habitat type is predominately located along stream features within the survey area. Dominant species are tulip poplar (*Liriodendron tulipifera*), sweetgum, red maple (*Acer rubrum*), flowering dogwood (*Cornus florida*), water oak (*Quercus nigra*), and pignut hickory (*Carya glabra*). Please refer to Figure 6a for a representative photograph.

Mixed Hardwood-Pine Forest

This habitat type is comprised of forest dominated by a mix of pine and hardwood trees and associated upland understory species. Dominant species are those listed above for mixed hardwood with the addition of loblolly pine. Please refer to Figure 6b for a representative photograph.

Maintained Roadway/Railroad

Several maintained roads as well as multiple railroad tracks are located within the survey area. Typical vegetation within maintained roadside and railway bed is primarily herbaceous grasses and forbs. Routine maintenance consists of mowing and herbicide application. Typical vegetation includes the following species observed at the time of the survey broomsedge (*Andropogon virginicus*), serrate-leaf blackberry (*Rubus argutus*), Canada goldenrod (*Solidago canadensis*), roundleaf greenbrier (*Smilax rotundifolia*), and dog fennel (*Eupatorium capillifolium*). No mature woody canopy species are present within this habitat type. Please refer to Figure 6b for a representative photograph.

Graded/Maintained Habitats

Several locations within the survey area have been previously cleared and/or graded. These areas are maintained through mowing and other practices. Dominant species include Canada goldenrod, serrate-leaf blackberry, sericea (*Lespedeza cuneata*), and other early pioneering species. Please refer to Figure 6c for representative photographs.

Maintained Transmission Line Easements

The eastern portion of the survey area includes an existing transmission line easement. Typical vegetation within maintained transmission line easements is primarily herbaceous grasses and forbs. Routine maintenance consists of mowing and herbicide application. Typical vegetation includes the following species observed at the time of the survey: broomsedge, serrate-leaf blackberry, muscadine, and dog fennel. Species density and height varies throughout the easement. No mature woody canopy species are present within this habitat type.

Institutional

This habitat type includes office buildings near the center of the project area with ancillary infrastructure that includes driveways and maintained lawn.

Recreational

This habitat type/land use includes an area formerly used as a shooting range near the southeastern boundary of the project area. This area consists primarily of maintained lawn and associated buildings.

Jurisdictional Waters

Twenty-eight jurisdictional wetlands, one open water, and nineteen jurisdictional streams (five perennial streams, seven intermittent streams, and eight ephemeral drainages) were identified within the survey area. Details regarding morphology, vegetation, hydrology and soils are included in the Jurisdictional Studies section below. The location of these features is provided in the Figure 5 series.

Jurisdictional Studies

Jurisdictional feature field studies were conducted within the project area. The purpose of the field studies was to identify jurisdictional wetlands, perennial, intermittent and ephemeral streams, open waters, and non-jurisdictional features. Figure 3.00 depicts National Wetland Inventory mapping and Figure 4.00 provides Natural Resource Conservation Services mapped soils for the survey area. The Figure 5 series provides the location of delineated features.

Methodology

Ecological Solutions conducted jurisdictional studies within the survey areas in September and October, 2018, and March 2019. Studies were conducted utilizing the methodology outlined in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Regional Supplement V 2.0. State waters were determined in accordance with guidelines provided in the Georgia Environmental Protection Division (EPD) document: Field Guide for Determining the Presence of State Waters that Require a Buffer.

Specific survey flagging is used to identify each type of environmental feature due to the variety of systems that are identified, field-flagged, and GPS-surveyed.

<u>Wetlands</u> – Wetlands were marked with orange, florescent flagging marked – "WETLAND BOUNDARY." Wetlands were named sequentially starting with WET 01. Wetland flags were field located using GPS equipment with advertised submeter accuracy.

<u>Streams and Open Waters</u> – The approximate 25-foot vegetated buffer of streams and open waters was marked with blue flagging labeled – STREAMSIDE MANAGEMENT ZONE. Features were named sequentially starting with PER 01/INT 01/OW 01 depending on the designation for each system. The wrested vegetation points at major stream meanders and the edge of open waters were field located using GPS equipment.

<u>Jurisdictional Ephemeral Streams</u> – The centerline for jurisdictional ephemeral streams was marked with solid yellow flagging. Features were named sequentially starting with EPH 01. The ordinary high water mark of ephemeral streams was GPS located.

Data for each feature was collected according to Table 1. Representative photographs were taken for each delineated feature.

Feature	GPS Data	Feature Data	Flagging	Additional
Jurisdictional perennial and intermittent streams and open waters	Top of bank every 25 feet and at major meanders	Width, depth, substrate, vegetation in floodplain	Blue streamside management zone	Soil and geomorphic characteristics collected. Transition points from one classification to another (if applicable).
Wetland	Along perimeter	Soils, hydrology, vegetation	Orange wetland boundary	Drainage association noted if applicable.
Ephemeral streams	Top of bank every 25 feet and at major meanders	Width, depth, length	Solid yellow	Soil and geomorphic characteristics collected. Transition points from one classification to another (if applicable).

Table 1. Field Data Collection Procedures

Results

Twenty-eight jurisdictional wetlands (WET 01 - 27; WET A and WET B), one open water (OW A), and nineteen jurisdictional streams [five perennial stream (PER 01 - 05), seven intermittent stream (INT 01 - 06 and INT A), and eight ephemeral streams (EPH 01 - 07 and EPH A)] were identified within the survey area. Additionally, eighteen non-jurisdictional features were identified. The locations of all identified features are depicted on the Figures 5.00 - 5.18. Please refer to the Figures 6a - 6i for representative photographs. Tables 2 and 3 provide a summary of delineated jurisdictional features. Brief descriptions of delineated features are presented below.

Wetlands/Open Water

Delineated wetlands within the project area exhibit typical hydrologic indicators such as saturated soils within 12 inches of the surface, buttressed trees, surface rooting, moss lines, crayfish burrows, geomorphic position, and/or drainage patterns. Additionally, all delineated wetlands exhibit hydric soil indicators such as depleted matrix, with distinct concentrations that are typical of alternating reducing and oxidizing conditions. Dominant vegetation has a wetland indicator status of facultative, facultative wetland, or obligate wetland.

Emergent Wetland Community

WET 05, WET 19, WET A, and WET B are classified as palustrine emergent wetlands. Indicators of wetland hydrology include inundation, saturation to the surface, presence of aquatic fauna, and geomorphic position. Dominant vegetation includes rice cutgrass (*Leersia oryzoides*), camphor weed (*Pluchea camphorata*), pickerel weed (*Pontederia cordata*), and wool-grass (*Scirpus cyperinus*). Typical hydric soils for these systems include a matrix of 10 YR 3/1. Please refer to Figure 6d for a representative photograph.

Scrub-Shrub Wetland Community

WET 02 is classified as palustrine scrub-shrub wetland. Indicators of wetland hydrology include inundation, saturation to the surface, presence of aquatic fauna, and geomorphic position. This is a large wetland that is approximately 5.25 acres within the northernmost section the project area. Dominant vegetation includes fowl mannagrass (*Glyceria striata*), jewelweed (*Impatiens capensis*), tag alder (*Alnus serrulata*), and arrow arum (*Peltandra virginica*). Typical hydric soils for this system include a matrix of 10 YR 3/1. Please refer to Figure 6d for a representative photograph.

Forested Wetland Community

The majority of wetlands within the project area (WET 01, WET 03 – 04, WET 06 – 18, and WET 20 – 27) are classified as palustrine forested systems. Dominant species within the forested wetlands include red maple, sweetgum, swamp tupelo (*Nyssa biflora*), swamp chestnut oak (*Quercus michauxii*), and green ash (*Fraxinus pensylvanica*). Typical hydric soils for these systems include a matrix of 7.5 YR 4/1 and 4/2. Please refer to Figures 6e and 6f for representative photographs.

Open Waters

Open Water (OW A) is located in the northern portion of the project area, abutting WET A and on the south side of the railroad bed. The boundary for Open Water A shown on Figures 5.05 and 5.10 differs from the aerial signature of the open water on the most recent publicly available aerial photography. This feature is located within a natural topographic valley and appears to receive surface runoff as well as some groundwater contribution. The northern limits of the feature are bounded by a series of rail lines. Construction of Plant Branch began in 1961, and based on information from former Plant personnel the rail line was installed to transport large equipment as necessary for construction of the facility. Aerial photography from 1968 documents that Open Water A was not present seven years following Plant construction. Moreover, review of 1972 aerial photography in the Soil Survey of Baldwin, Jones, and Putnam Counties, Georgia does not show the open water.

It is assumed that any runoff/drainage was previously conveyed under the rail lines via a culvert(s) and the culvert was damaged/blocked over time causing the open water to form. Georgia Power has pumped down the open water in an effort to investigate the culvert situation. To date, a culvert has not been located. The boundary for OW A depicts the currently impounded area. Please refer to Figure 6h for a representative photograph.

Jurisdictional Streams

Nineteen jurisdictional streams were identified within the project area. The Figure 5 series provides the location of these features. Representative photographs are provided in the Figure 6 series. A summary of these features is presented in Table 3. Below please find a brief overview of delineated stream features.

Perennial Streams

Tributaries PER 01 - 05 are classified as perennial streams. In a normal climatic year, perennial streams flow year-round and have a base flow connection to groundwater. Perennial streams exhibit well-developed streambanks, riffle/pool complexes, sinuosity, fluctuating high water

marks, headcuts, visible material sorting, and hydrophytic vegetation along stream banks. Streams widths ranged from 3 to 8 feet with substrates including clay, silt, sand, and gravel. Please refer to Figure 6f for a representative photograph.

Intermittent Streams

Seven intermittent streams (INT 01 - 06 and INT A) were identified within project area. Intermittent streams are typically defined as flowing within a well-defined channel during winter/spring, but not for the entire year. Please refer to Figure 6g for representative photographs. Channel width varies from 1 to 4 feet with substrates including muck, sand, and gravel. Please refer to Figure 6g for representative photographs.

Ephemeral Streams

Eight jurisdictional ephemeral streams (EPH 01 - 07 and EPH A) were identified within the survey area. Ephemeral streams are defined channels that only flow during and immediately after a precipitation event with no groundwater contribution. These channels typically exhibit an ordinary high water mark or bed and banks. Channels ranged from 1 to 2 feet in width with substrates of clay. Please refer to Figure 6h for a representative photograph.

Non-Jurisdictional Drainage Features

Eighteen non-jurisdictional drainage features were identified within the survey area. Nonjurisdictional drainage features do not exhibit signs of groundwater contribution or hydric soils. Typically, these drainage features are roadside ditches, hillside swales or relict agricultural ditches and do not exhibit a continuous bank definition. Please refer to Figure 6i for a representative photograph.

Jurisdictional Wetland/Open Water	Cowardin Classification	Acreage within survey area
WET 01	PFO	0.08
WET 02	PSS	5.25
WET 03	PFO	0.29
WET 04	PFO	0.15
WET 05	PEM	0.35
WET 06	PFO	0.12
WET 07	PFO	0.09
WET 08	PFO	0.06
WET 09	PFO	0.52
WET 10	PFO	0.01
WET 11	PFO	0.07
WET 12	PFO	0.01
WET 13	PFO	0.23
WET 14	PFO	0.02
WET 15	PFO	0.04
WET 16	PFO	0.02
WET 17	PFO	0.02
WET 18	PFO	0.14
WET 19	PEM	0.02

Jurisdictional Wetland/Open Water	Cowardin Classification	Acreage within survey area
WET 20	PFO	0.05
WET 21	PFO	0.16
WET 22	PFO	0.01
WET 23	PFO	0.08
WET 24	PFO	0.28
WET 26	PFO	1.36
WET 27	PFO	0.06
WET A	PEM	0.60
WET B	PEM	0.05
OW A	PUB	0.69

Table 3. Jurisdictional Stream Summary

Feature Name	Flow Regime	Cowardin Class	Linear Feet within Survey Area
PER 01	Perennial	R2	71
PER 02	Perennial	R2	72
PER 03	Perennial	R2	1375
PER 04	Perennial	R2	100
PER 05	Perennial	R2	382
INT 01	Intermittent	R4	170
INT 02	Intermittent	R4	215
INT 03	Intermittent	R4	385
INT 04	Intermittent	R4	155
INT 05	Intermittent	R4	170
INT 06	Intermittent	R4	292
INT A	Intermittent	R4	157
EPH 01	Ephemeral	R6	69
EPH 02	Ephemeral	R6	48
EPH 03	Ephemeral	R6	57
EPH 04	Ephemeral	R6	295
EPH 05	Ephemeral	R6	365
EPH 06	Ephemeral	R6	75
EPH 07	Ephemeral	R6	68
EPH A	Ephemeral	R6	340

Protected Species

Methodology

Prior to field investigations, an office review of available protected species resources was conducted to develop a list of state and federally listed species known to occur in Putnam County. Protected species are plants or animals listed as endangered, threatened, rare, or unusual by the U.S. Fish and Wildlife Service (USFWS) and the Georgia Department of Natural Resources (GADNR). The list of known protected species was compiled through an online search of the USFWS Information for Planning and Conservation (IPaC) database and the

GADNR quarter-quadrangle database. The IPaC review indicated that five federal listed species potentially occur in Putnam County. In addition, a search for known locations of federal and state listed species within the project vicinity (*i.e.* USGS quarter-quadrangle) was conducted utilizing the Georgia Wildlife Resources Division (GWRD) Rare Species Information Website. Results indicated no additional state listed species.

Georgia's Natural, Archaeological, and Historic Resources GIS (GNAHRGIS) online database was queried regarding listed species occurrences within a three-mile radius of the survey area. The GNAHRGIS review noted there is a known occurrence of the state listed bald eagle (*Haliaeetus leucocephalus*) 1.4 miles southwest of the project area.

Refer to Table 4 below for a list of protected species of potential occurrence within the project vicinity and Appendix A for IPaC and GADNR information.

Scientific Name	Common Name	Federal Status	State Status	Preferred Habitat	
	Faunal Species				
Picoides borealis	red-cockaded woodpecker	Е	Е	open pine woods; pine savannas	
Haliaeetus leucocephalus	bald eagle		Т	edges of lakes and large rivers; seacoasts	
Floral Species					
Amphianthus pusillus	little amphianthus	Т	Т	vernal pools on granite outcrops	
Ptilimnium nodosum	harperella	Е	Е	granite outcrop seeps; shallow seasonal ponds in limesink depressions	
Isoetes melanospora	black spored quillwort	Е	Е	vernal pools on granite outcrops	
I. tegetiformans	mat-forming quillwort	Е	Е	vernal pools on granite outcrops	

Table 4. Federal and State Listed Species Known to Occur in Putnam County

E = Endangered; T = Threatened

Results

The predominant habitat types within the project area include planted pine stands, pine woods, mixed hardwood-pine forest, hardwood forest, graded/maintained areas, maintained roadway/railway, maintained transmission line easement, institutional, recreational, streams, and wetlands. The entire survey area was traversed on foot.

No protected species were observed within or near the project area. No habitat for the granite outcrop or limestone sink plant species (little amphianthus, black spored quillwort, harperella, and mat-forming quillwort) was identified within the survey area. Areas with mature pine trees are present within the survey area; however, these areas are densely wooded with thick understories and do not provide potential habitat for the red-cockaded woodpecker.

Portions of Lake Sinclair are adjacent to the survey area. The lake does provide foraging habitat for the bald eagle. No bald eagles were observed roosting within the survey area and no bald

eagle nests were observed within the survey area; nor or any bald eagle nests known within Plant Branch property.

Considering the absence of suitable habitat for the majority of protected species of potential occurrence within the project vicinity combined with no occurrences of the three plant species with suitable habitat, the proposed project should have no effect on protected species.

Permitting Guidance

Section 404 Permitting Overview

Streams, open waters, ephemeral drainages, and wetlands are considered "waters of the United States." The discharge of dredge or fill materials within waters of the U.S. are regulated by the USACE under the Clean Water Act (33 U.S.C. 1344). Impacts to jurisdictional systems require authorization under the Clean Water Act. Depending on the extent of the activity, some minor impacts may be conducted without notification to the USACE; however, recent revisions to the permitting process require formal coordination with the USACE for the majority of regulated activities. The USACE has a variety of options to authorize impacts including Nationwide Permits (NWP), Regional Permits, Individual Permits (IP), and Letters of Permission.

Certain types of minor impacts or fill activities may be eligible for permitting under the NWP program; however, applicable NWP's only allow up to 0.5 acre of jurisdictional waters/wetlands impacts and 300 linear feet of perennial, intermittent, and ephemeral stream impacts for single and complete projects. Please be aware that the NWP thresholds are cumulative in nature; therefore, all impacts permitted under a NWP (*i.e.*, filling of wetlands and/or piping of streams) cannot exceed 0.5 acre of wetland and/or 300 linear feet of stream. Compensatory mitigation is required for a project that results in adverse impacts to 0.1 acre or more of wetlands and/or more than 100 linear feet of stream. Should impacts to jurisdictional areas resulting from transmission line construction be unavoidable, that portion of the project should be eligible for NWP 12 (utility line activities). Unavoidable jurisdictional impacts associated with the solar array should be eligible for NWP 51 (land-based renewable energy generation facilities).

To apply for a NWP, the applicant must submit a Pre-Construction Notification (PCN) to the USACE office. This notification must include the proposed project, proposed jurisdictional impacts, existing conditions, applicant contact information, a mitigation plan, if required, and a delineation of affected wetlands. The USACE will request a review of the PCN by other resource agencies such as the USFWS, U.S. Environmental Protection Agency (EPA), and the State Historic Preservation Office. Upon receiving a complete PCN, the USACE has up to 45 days to review the submittal.

Anticipated USACE Permit Requirements

At this time, no proposed USACE jurisdictional impacts are proposed. Should activities within the survey area require impacts to jurisdictional features, the type and extent of proposed impacts should be reviewed to determine potential permitting requirements.

Georgia EPD/State Waters Requiring a Buffer

State waters are defined as "any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface or subsurface water, natural and artificial, lying within or forming a part of the boundaries of the State which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation, except as may be defined in O.C.G.A. 12-7-17(8). Perennial and intermittent streams, as well as open waters, identified within the survey area are considered state waters requiring a 25-foot buffer.

There were no designated trout streams delineated within the project area. The Georgia Erosion and Sedimentation Act, as amended (Code Section 12-7-6(15)) prohibits land disturbing activities within 25 feet (horizontally measured) of state waters, unless a variance is obtained from the Director of the EPD. In many cases, EPD's authority for delineation of state waters is promulgated down to local issuing authorities (LIA), which administer the permitting process and issue Land Disturbance Permits (LDP's). Stream buffers are measured horizontally from the point where vegetation has been wrested by normal stream flow.

Georgia Power is exempt from the Erosion and Sedimentation Act; however, should the project require a Notice of Intent (NOI) under the NPDES permitting program, a stream buffer variance could be required for non-exempt stream buffer activities. Moreover, there are no proposed impacts to state waters or associated buffers as a result of the proposed solar array site.

Conclusion

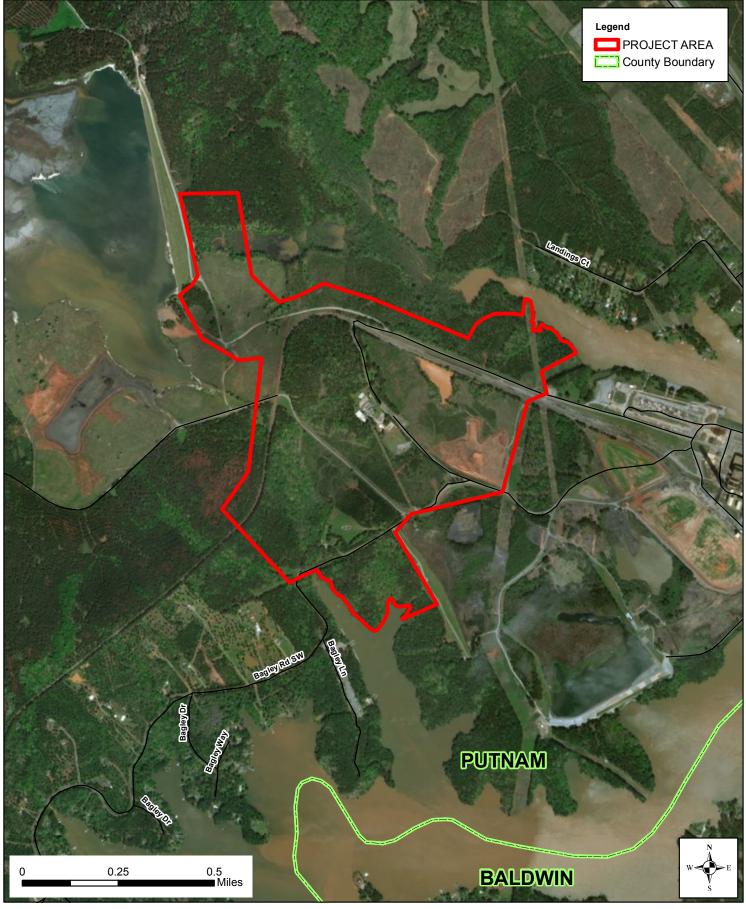
Twenty-eight jurisdictional wetlands, nineteen jurisdictional streams, one open water, and eighteen non-jurisdictional drainage features were identified within or adjacent to the project area. No protected species or their suitable habitat were observed within the survey area. Based on both the absence of suitable habitat for the listed species and no occurrences of species with potential suitable habitat, the proposed project should have no effect on protected species.

No impacts to jurisdictional features are currently proposed.

Plant Branch – Central Area

Putnam County, Georgia

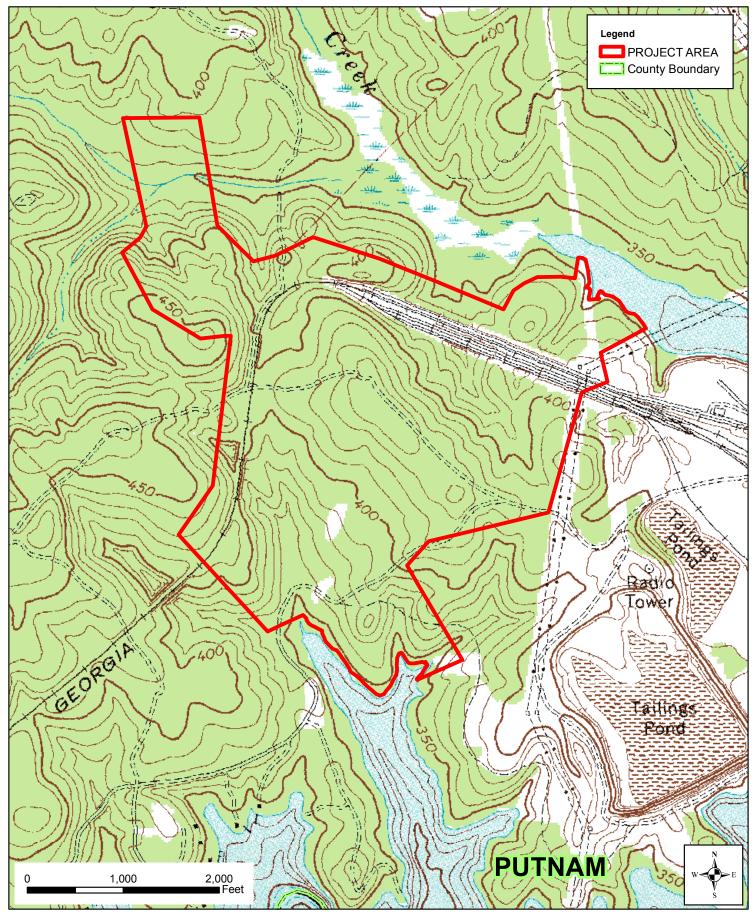
Figures





20236-612 May 2019

Project Location





U.S. Geological Survey Topography

20236-612 May 2019

(Lake Sinclair - West Quadrangle)

Legend PROJECT AREA FRESHWATER EMERGENT WETLAND FRESHWATER FORESTED/SHRUB WETLAND FRESHWATER POND LAKE OTHER OTHER - IDENTIFIED AS SEASONALLY OR TEMPORARY FLOODED, EXCAVATED/SPOILS, PER/USFWS



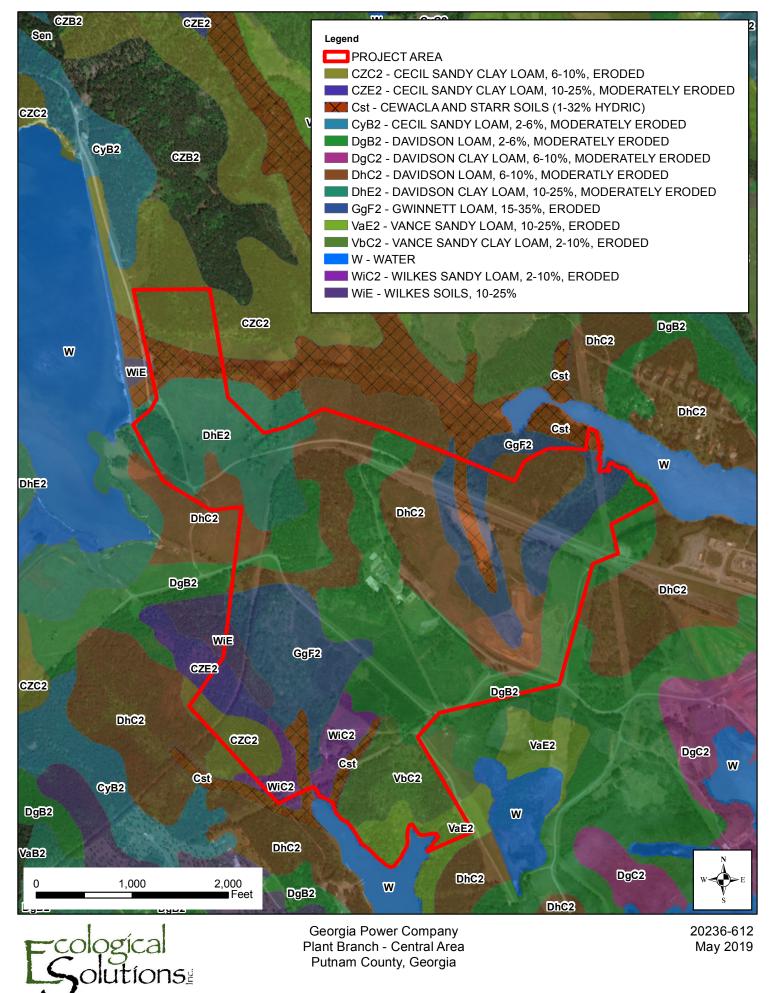
1,000

2,000 Feet

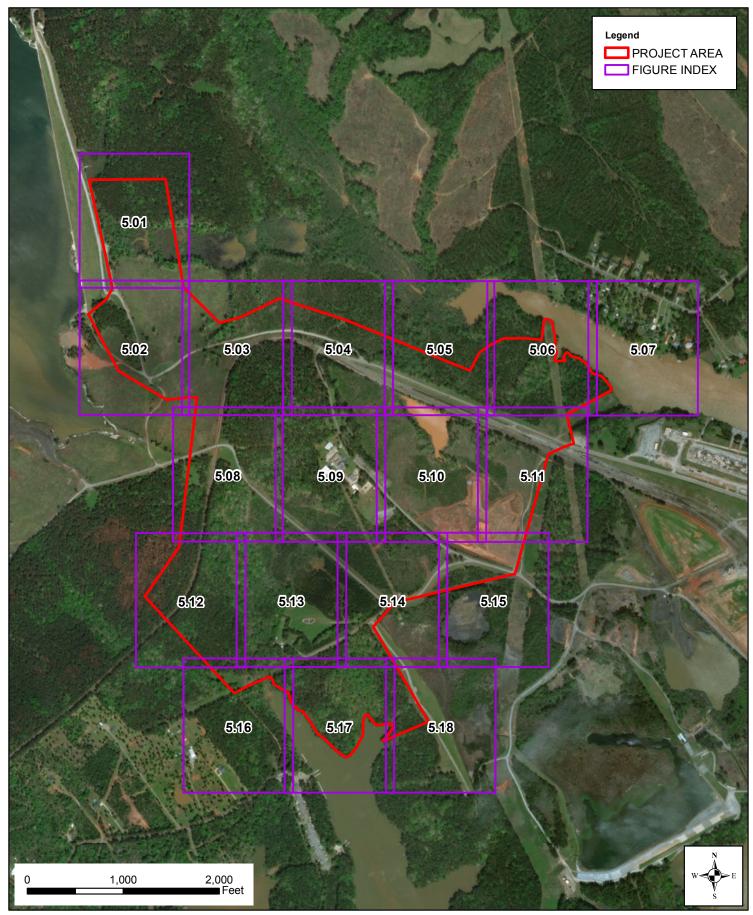
> Georgia Power Company Plant Branch - Central Area Putnam County, Georgia

20236-612 May 2019

National Wetland Inventory (NWI)



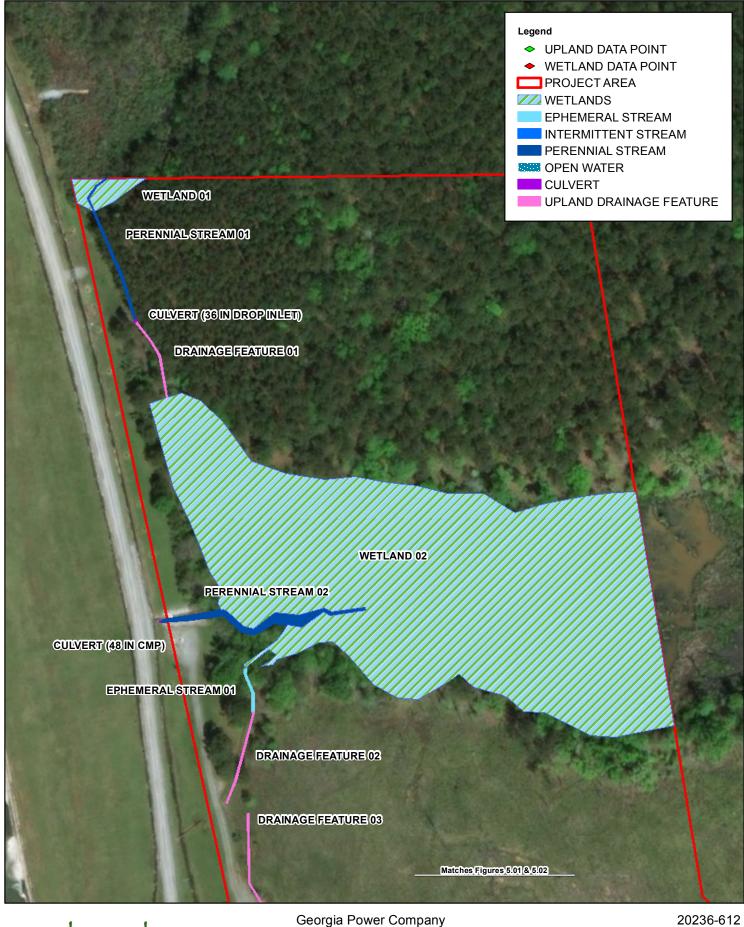
Natural Resource Conservation Service - Soils





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Delineation Results - Index





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Delineation Results

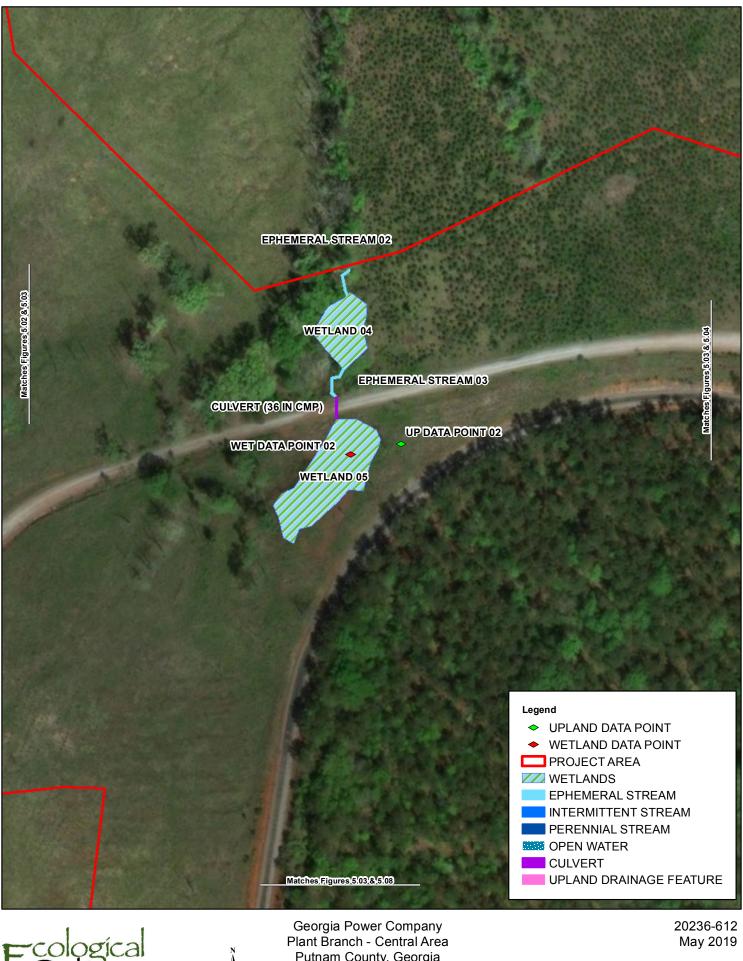
75 150 Feet





20236-612 May 2019





E Solutions¹

Putnam County, Georgia

Delineation Results

150 ⊒Feet 75

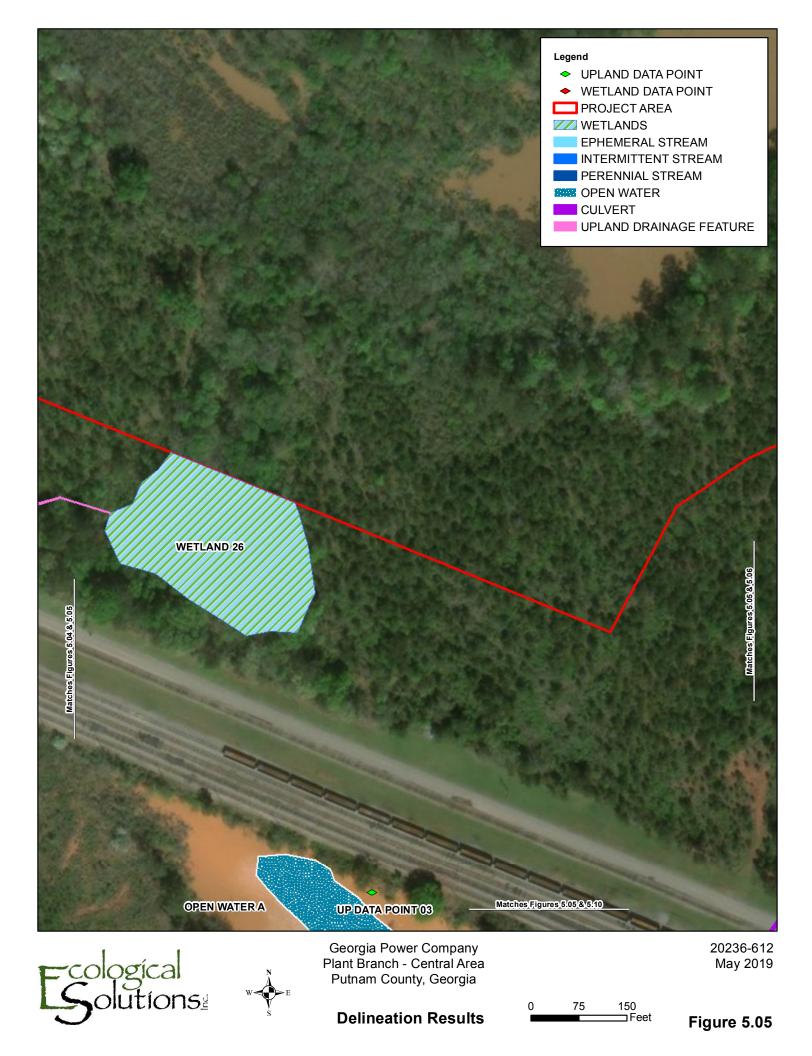


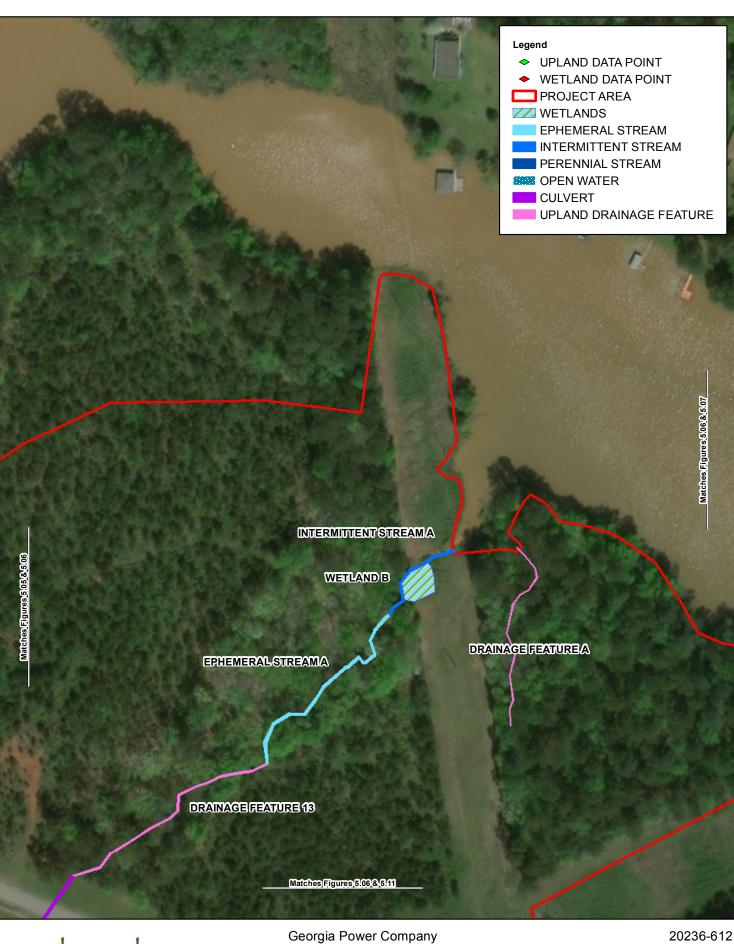


20236-612 May 2019

Delineation Results

0 75 150 Feet







Delineation Results

0 75 150

May 2019



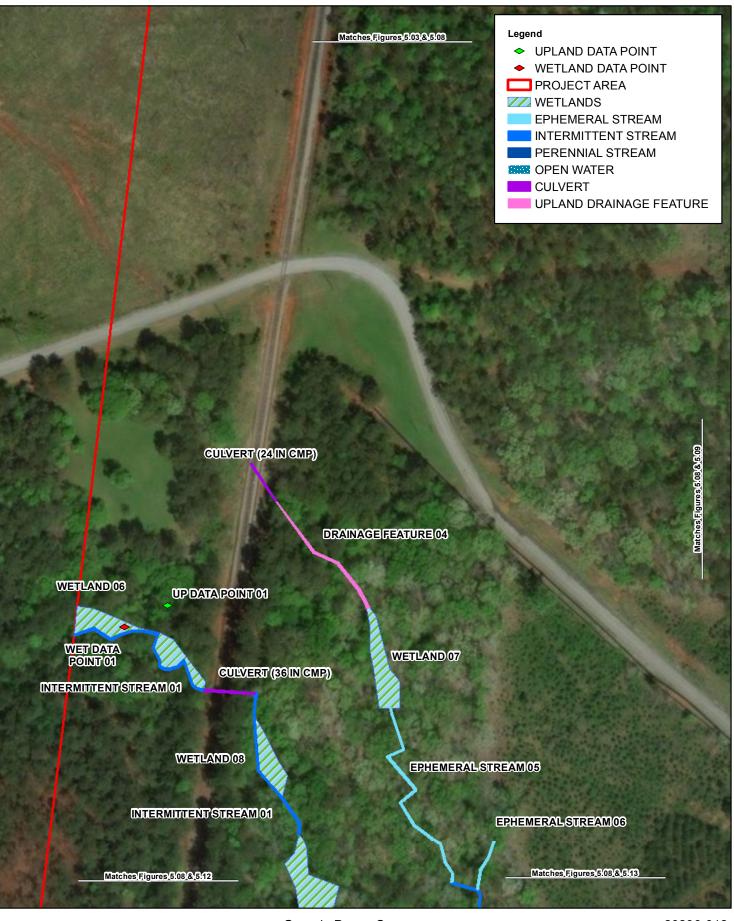


Delineation Results

0 75 150

Figure 5.07

May 2019



E cologícal Solutions¹ Georgia Power Company Plant Branch - Central Area Putnam County, Georgia 20236-612 May 2019

Delineation Results

0 75 150



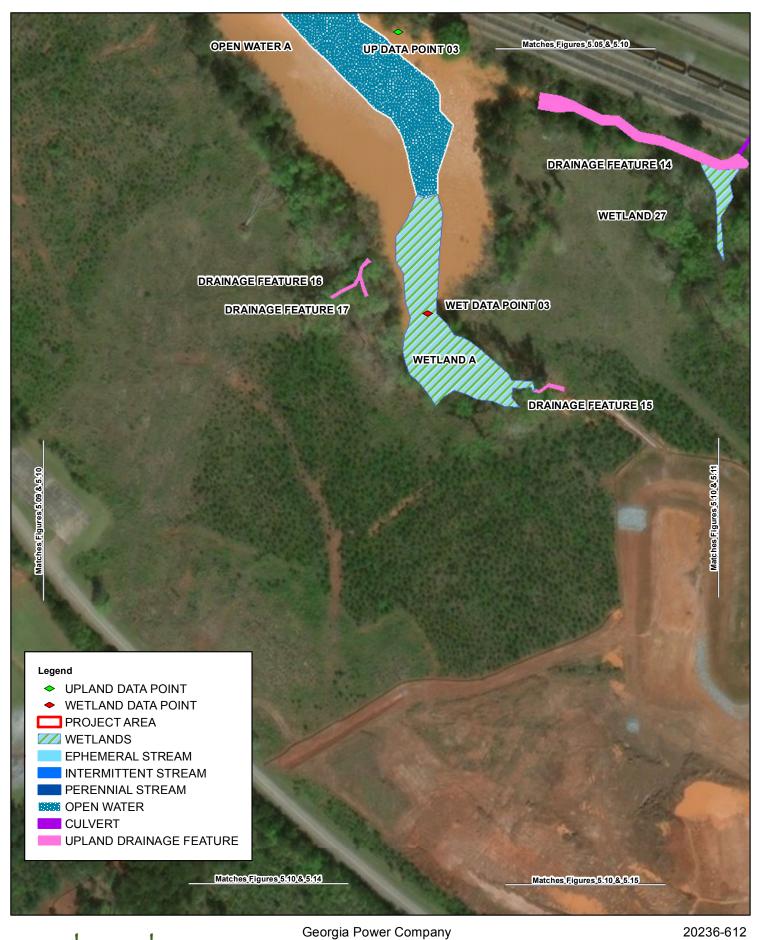


Delineation Results

0 75 150

Figure 5.09

May 2019





Delineation Results

0 75 150

May 2019

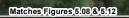




20236-612 May 2019

75 150 Feet

Figure 5.11



WETLAND 09

DRAINAGE FEATURE 05

EPHEMERAL STREAM 04

Matches Figures 5:12 & 5:13

Legend

UPLAND DATA POINT
 WETLAND DATA POINT
 PROJECT AREA
 WETLANDS
 EPHEMERAL STREAM
 INTERMITTENT STREAM
 PERENNIAL STREAM
 OPEN WATER
 CULVERT
 UPLAND DRAINAGE FEATURE



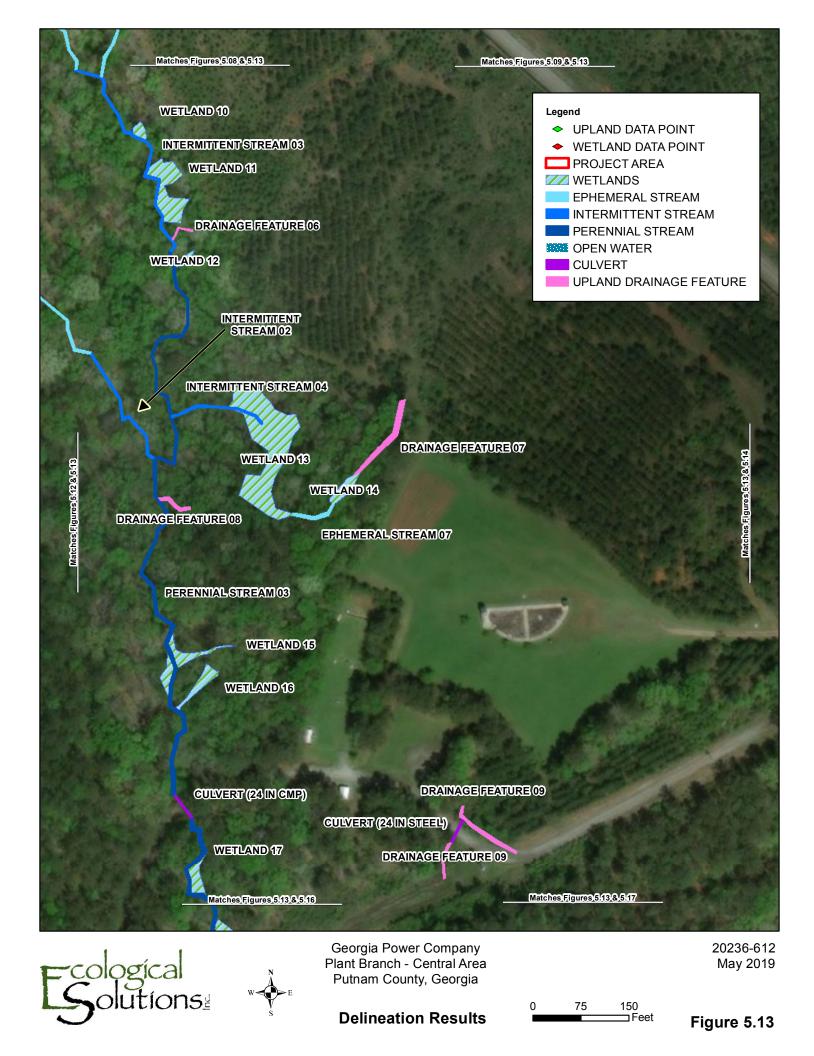
Georgia Power Company Plant Branch - Central Area Putnam County, Georgia

Delineation Results

0 75 150 Feet

Matches Figures 5.12 & 5.16

20236-612 May 2019



Matches Figures 513 & 514

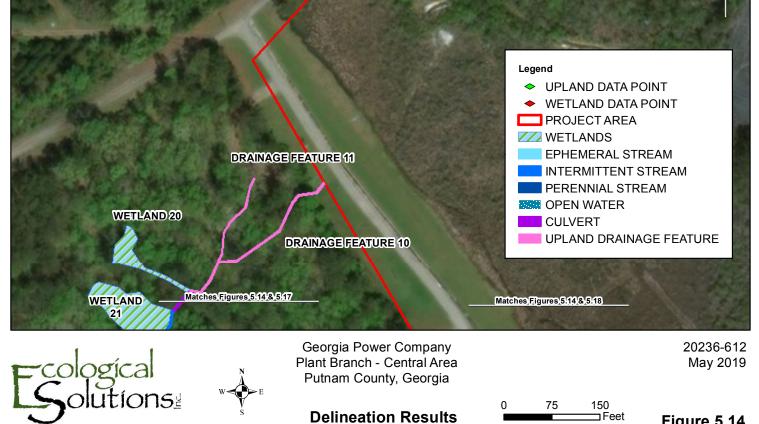


Figure 5.14

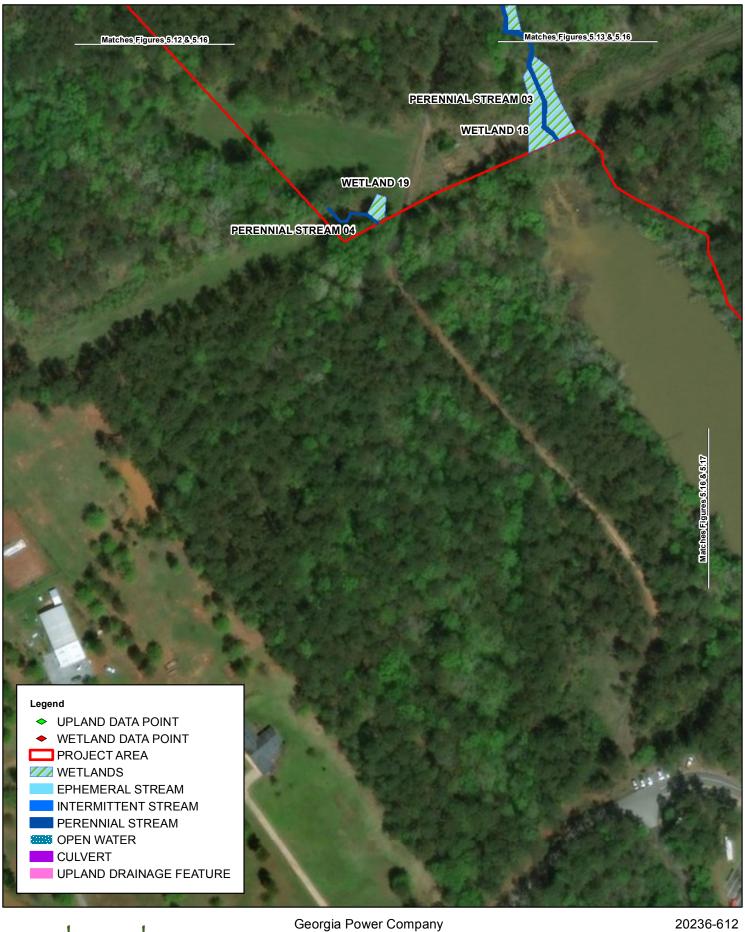




Delineation Results

0 75 150

May 2019



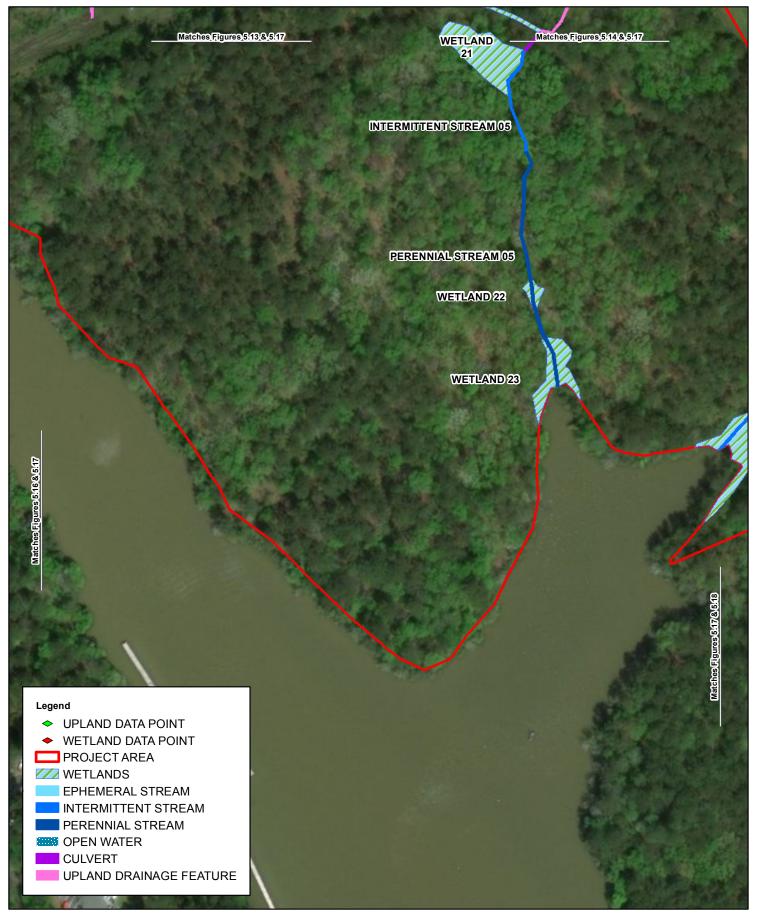


Delineation Results

75 150

Figure 5.16

May 2019



Ecological Solutions: Georgia Power Company Plant Branch - Central Area Putnam County, Georgia 20236-612 May 2019

Figure 5.17

CULVERT (36 IN CMP)

INTERMITTENT STREAM 06

WETLAND 24

Matches Figures 5:17&5:18



Georgia Power Company Plant Branch - Central Area Putnam County, Georgia

Delineation Results

0 75 150

Legend

WETLANDS

CULVERT

 \diamond

UPLAND DATA POINT

WETLAND DATA POINT PROJECT AREA

EPHEMERAL STREAM INTERMITTENT STREAM PERENNIAL STREAM

UPLAND DRAINAGE FEATURE

20236-612 May 2019

Figure 5.18



Photograph 1 - Representative Pine Woods Habitat



Photograph 2 - Representative Mixed Hardwood Habitat



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Representative Photographs

Figure 6a



Photograph 3 - Representative Mixed Hardwood-Pine Habitat



Photograph 4 - Representative Maintained Railroad Habitat



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Representative Photographs

Figure 6b



Photograph 5 - Representative Graded/Maintained Habitat



Photograph 6 - Representative Graded/Maintained Habitat



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Representative Photographs

Figure 6c



Photograph 7 - Representative Emergent Wetland



Photograph 8 - Representative Emergent-Scrub-Shrub Wetland



May 2019 20236-612

Representative Photographs

Figure 6d



Photograph 9 - Representative Forested Wetland



Photograph 10 - Representative Forested Wetland



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Representative Photographs

Figure 6e



Photograph 11 - Representative Forested Wetland



Photograph 12 - Representative Perennial Stream



May 2019 20236-612

Representative Photographs

Figure 6f



Photograph 13 - Representative Intermittent Stream



Photograph 14 - Representative Intermittent Stream



May 2019 20236-612

Representative Photographs

Figure 6g



Photograph 15 - Representative Ephemeral Stream



Photograph 16 - Open Water A



Georgia Power Company Plant Branch - Central Area Putnam County, Georgia May 2019 20236-612

Representative Photographs

Figure 6h



Photograph 17 - Representative Non-Jurisdictional Drainage

Fig6_a-i_20236-612_EcoRpt.fh11



Georgia Power Company Plant Branch - Central Area Putnam County, Georgia May 2019 20236-612

Representative Photographs

Figure 6i

Plant Branch – Central Area

Putnam County, Georgia

Protected Species Documentation



WILDLIFE RESOURCES DIVISION

MARK WILLIAMS COMMISSIONER RUSTY GARRISON DIRECTOR

July 14, 2019

Andrew Croy Project Ecologist Ecological Solutions, INC 630 Colonial Park Drive Ste 200 Roswell, GA 30075

Subject: Known occurrences of natural communities, plants and animals of highest priority conservation status on or near GPC Plant Branch in Putnam County, GA.

Dear Andrew Croy:

This is in response to your request of July 13, 2019. Within a three-mile radius of the project site, there are the following Natural Heritage Database occurrences:

GPC Plant Branch Point 1 (Site Center: -83.315984, 33.197249, WGS84)

- GA Cyprinella xaenura (Altamaha Shiner) 7.6 miles W of site in Big Cedar Creek
- GA Haliaeetus leucocephalus (Bald Eagle) 1.4 miles SW of site

Lake Sinclair Boat Ramp 0.1 miles SW of site

Recommendations:

Please be aware that state protected species have been documented within three miles of the proposed project. For information about these species, including survey recommendations, please visit our webpage at http://georgiawildlife.com/conservation/species-of-concern#rare-locations. Surveys for species of conservation concern should be conducted prior to commencement of construction.

If the applicant is willing to assume presence and implement provisions to protect *state listed aquatic species* identified during this review, it may not be necessary to complete any additional surveys for *aquatic* species. Please refer to the Aquatic Survey Determination Protocol for State Listed Species in determining whether surveys are recommended. Although this document was prepared for use on GDOT projects, it may be applicable to other projects, as well. For any additional questions about aquatics, please contact Paula Marcinek at Paula.Marcinek@dnr.ga.gov about state-listed fishes

A record of a nesting Bald Eagle (*Haliaeetus leucocephalus*) is within three miles of the proposed project. Although Bald Eagles are no longer considered an endangered species,

they are still protected by the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act and the Georgia Endangered Species Act. These Acts continue to protect bald eagles from potentially harmful human activities. For more information on how to prevent impacts to bald eagles that could violate the Eagle Act, download the National Bald Eagle Management

Guidelines:http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManage mentGuidelines.pdf

Development at the recreational park should occur away from sensitive environmental resources, such as streams, wetlands and critical wildlife habitat. Undisturbed buffers of at least 100 feet should be left surrounding any streams or wetlands at the site. We would also recommend that construction be geared toward areas that have been disturbed in the past. Please keep erosion to a minimum during construction and leave as much vegetation intact as possible. In wet areas, use boardwalks if possible to prevent degradation and destruction of these sensitive habitats. If paths are paved, we strongly recommend using a porous pavement that will allow water to soak through instead of running off the surface and into the creek. Please paths carefully and provide for adequate parking and access areas. These measures will help protect water quality, protect sensitive habitats and native species and provide for a more enjoyable recreational experience for the users.

Disclaimer:

Please keep in mind the limitations of our database. The data collected by the Wildlife Conservation Section comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Wildlife Conservation Section can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is received. **Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.**

If you know of populations of highest priority species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site <u>https://georgiawildlife.com/conservation/species-of-concern#providing</u> or by contacting our office.

If I can be of further assistance, please let me know.

Sincerely,

Anna Yellin Wildlife Biologist II

Data Available on the Nongame Conservation Section Website

- Georgia protected plant and animal profiles are available on our website. These accounts cover basics like descriptions and life history, as well as threats, management recommendations and conservation status. Visit <u>http://georgiabiodiversity.org/natels/general-info.html</u>.
- Rare species and natural community information can be viewed by Quarter Quad, County and HUC8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Data Portal at: http://georgiabiodiversity.org/
- Downloadable files of rare species and natural community data by Quarter Quad and County are also available. Please visit: <u>http://georgiabiodiversity.org/natels/natural-element-locations.html</u>

IPaC

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

ONS

Location

Putnam County, Georgia

Local office

Georgia Ecological Services Field Office

▶ (706) 613-9493▶ (706) 613-6059

355 East Hancock Avenue Room 320 Athens, GA 30601

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

- 1. Draw the project location and click CONTINUE.
- 2. Click DEFINE PROJECT.
- 3. Log in (if directed to do so).
- 4. Provide a name and description for your project.
- 5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the <u>Ecological Services Program</u> of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact <u>NOAA Fisheries</u> for <u>species under their jurisdiction</u>.

- 1. Species listed under the <u>Endangered Species Act</u> are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the <u>listing status page</u> for more information.
- 2. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:



Endangered

Red-cockaded Woodpecker Picoides borealis No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/7614</u>

Flowering Plants

NAME	STATUS
Harperella Ptilimnium nodosum No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/3739</u>	Endangered
Little Amphianthus Amphianthus pusillus No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/6445</u>	Threatened
Ferns and Allies	STATUS
Black Spored Quillwort Isoetes melanospora No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/6315</u>	Endangered
Mat-forming Quillwort Isoetes tegetiformans No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/887</u>	Endangered
Critical habitats	

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act^{1} and the Bald and Golden Eagle Protection Act^{2} .

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described <u>below</u>.

1. The Migratory Birds Treaty Act of 1918.

2. The <u>Bald and Golden Eagle Protection Act</u> of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <u>http://www.fws.gov/birds/management/managed-species/</u> <u>birds-of-conservation-concern.php</u>
- Measures for avoiding and minimizing impacts to birds <u>http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/</u> <u>conservation-measures.php</u>
- Nationwide conservation measures for birds <u>http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf</u>

The birds listed below are birds of particular concern either because they occur on the <u>USFWS Birds</u> of <u>Conservation Concern</u> (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ <u>below</u>. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the <u>E-bird data mapping tool</u> (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found <u>below</u>.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bachman's Sparrow Aimophila aestivalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/6177</u>

Breeds May 1 to Sep 30

TFC

Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <u>https://ecos.fws.gov/ecp/species/1626</u>	Breeds Sep 1 to Jul 31
Blue-winged Warbler Vermivora pinus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Cerulean Warbler Dendroica cerulea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/2974</u>	Breeds Apr 28 to Jul 20
Eastern Whip-poor-will Antrostomus vociferus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Kentucky Warbler Oporornis formosus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

- 1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
- 2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
- 3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

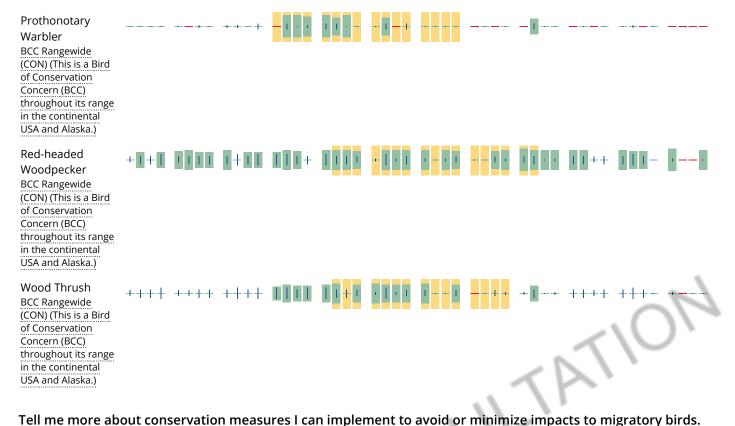
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

				prob	ability o	f presen	ce 🗖 b	reedings	season	survey	effort	— no data
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

0, 10,2010					•		<u>_</u>					
Bachman's Sparrow BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)					88	-11-						-
Bald Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)	1 + 1 +	1+1+	1 + 1 1	+ 1 ++	11++	1 + 1		+-+				7
Blue-winged Warbler BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)		++++	*+++	++++	+++		5	أر		++++ +	<u>+</u> +- +	_
Cerulean Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)	++++	••••	 R	++11+		ATT	-	++	-+	++++ +-	⊬+	_
Eastern Whip- poor-will BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)	*+++	++++	++++	∎∎++	11+	-+-+	• • • •	- + + +		++++ +-	├ ╀ - - - -	_
Kentucky Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)	++++	++++	++++	+ I I <mark>I</mark> +	+11-	+ 1	+ +	+++	-1	++++ +-	++ +	_
Prairie Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)	++++	++++	++++	111	1111	+1+1	1+-+	++	-11-	I +++ +-	├ ┼ ⊦ -	-



Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS <u>Birds of Conservation Concern (BCC)</u> and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the <u>Avian Knowledge Network</u> (<u>AKN</u>). The AKN data is based on a growing collection of <u>survey, banding, and citizen science datasets</u> and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (<u>Eagle Act</u> requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the <u>AKN Phenology Tool</u>.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the <u>Avian Knowledge Network (AKN)</u>. This data is derived from a growing collection of <u>survey, banding, and citizen</u> <u>science datasets</u>.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: <u>The Cornell Lab of Ornithology All About Birds Bird Guide</u>, or (if you are unsuccessful in locating the bird of interest there), the <u>Cornell Lab of Ornithology Neotropical Birds</u> <u>guide</u>. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

- 1. "BCC Rangewide" birds are <u>Birds of Conservation Concern</u> (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
- 2. "BCC BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
- 3. "Non-BCC Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the <u>Eagle Act</u> requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the <u>Northeast Ocean Data Portal</u>. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the <u>NOAA NCCOS</u> <u>Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf</u> project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the <u>Diving Bird Study</u> and the <u>nanotag studies</u> or contact <u>Caleb Spiegel</u> or <u>Pam</u> <u>Loring</u>.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to <u>obtain a permit</u> to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look https://ecos.fws.gov/ipac/location/I4QYHLFXGNA47PC7QYN2EBAJHA/resources

carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of</u> <u>Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

The area of this project is too large for IPaC to load all NWI wetlands in the area. The list below may be incomplete. Please contact the local U.S. Fish and Wildlife Service office or visit the <u>NWI</u> <u>map</u> for a full list.

FRESHWATER EMERGENT WETLAND

PEM1Cb PEM1Ch PEM1Fb PEM1Ad <u>PEM1A</u> PEM1Fh PEM1Ah PEM1C <u>PEM1B</u> PEM1/SS1C PEM1Fx PEM1Cd PEM1F PEM1Cx

PEM1F PEM1Cx
FRESHWATER FORESTED/SHRUB WETLAND
PFO1A
PFO1C
PFO1Ah
PFO1Ch
PFO1Cb
PFO1Ad
PFO1/SS3A
PSS1A
PSS1Cb
PSS1/EM1Cb
PSS1/3A
PSS1Fb
PSS1Ch
PSS1Ah
PFO1/4A
PFO1Fb
PFO1/5Fb
PFO1B
PSS1/EM1Ch
PSS1Ad
PSS1C
PFO1/SS1Cb
PSS1Fh
PSS1Ab PFO1Fh
<u>PFO1F</u>
PSS3/1A
<u>PFO4A</u>
PSS3Cb
<u>PSS1B</u>
PFO1Cd

https://ecos.fws.gov/ipac/location/I4QYHLFXGNA47PC7QYN2EBAJHA/resources

 \sim

FRESHWATER POND

PUBHh PUSCs PUBHx PUBFx PUBHb PUBAh PUBFb

<u>PUBFh</u> <u>PUSCh</u> <u>PUSAs</u>

<u>PUBF</u>

LAKE

L1UBHh	
L2USCh	
LZUJCH	

RIVERINE

R2UBH R4SBC R2UBHx R2USA R5UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

JLTAT

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

5/10/2019

IPaC: Explore Location

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

TEORCONSULTATIO

APPENDIX C

Domestic and Public Water Supply Survey

Plant Branch

1100 Milledgeville Rd Eatonton, GA 31024

Inquiry Number: 5521691.1s December 28, 2018

The EDR GeoCheck® Report



6 Armstrong Road, 4th floor Shelton, CT 06484 Toll Free: 800.352.0050 www.edrnet.com

FORM-NULL-DVV

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Thank you for your business. Please contact EDR at 1-800-352-0050 with any questions or comments.

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GEOCHECK[®] - PHYSICAL SETTING SOURCE REPORT

TARGET PROPERTY ADDRESS

PLANT BRANCH 1100 MILLEDGEVILLE RD EATONTON, GA 31024

TARGET PROPERTY COORDINATES

Latitude (North):	33.196464 - 33° 11' 47.27"
Longitude (West):	83.315194 - 83° 18' 54.70''
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	284176.3
UTM Y (Meters):	3675263.8
Elevation:	425 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	33083-B3 LAKE SINCLAIR WEST, GA
Version Date:	1972

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

- 1. Groundwater flow direction, and
- 2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

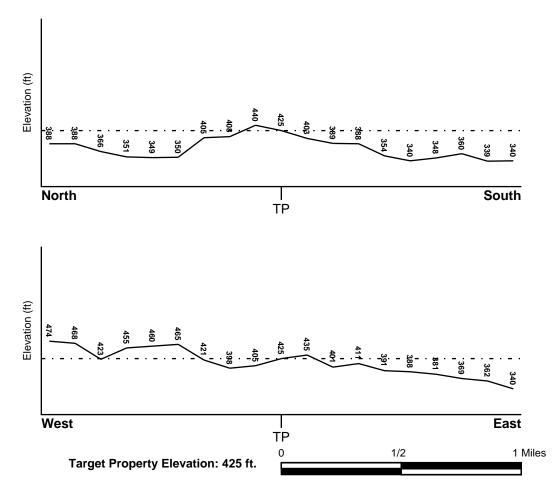
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General ENE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
13009C0050D	FEMA FIRM Flood data
Additional Panels in search area:	FEMA Source Type
13009C0045D	FEMA FIRM Flood data
NATIONAL WETLAND INVENTORY	
NWI Quad at Target Property LAKE SINCLAIR WEST	NWI Electronic <u>Data Coverage</u> YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

MAP ID

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

Not Reported

LOCATION

FROM TP

GENERAL DIRECTION GROUNDWATER FLOW

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

GEOLOGIC AGE IDENTIFICATION

Era:	Paleozoic	Category:	Metamorphic Rocks
System:	Pennsylvanian		
Series:	Felsic paragneiss and schist		
Code:	mm1 (decoded above as Era, System &	& Series)	

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	CECIL	
Soil Surface Texture:	sandy clay loam	
Hydrologic Group:	Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.	
Soil Drainage Class:	Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.	
Hydric Status: Soil does not meet the requirements for a hydric soil.		
Corrosion Potential - Uncoated Steel: HIGH		

Depth to Bedrock Min: > 60 in

Depth to Bedrock Max: > 60 inches

	Soil Layer Information						
	Βοι	Indary		Classi	fication		
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	7 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60	Max: 6.50 Min: 4.50
2	7 inches	11 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60	Max: 5.50 Min: 4.50
3	11 inches	50 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Elastic silt.	Max: 2.00 Min: 0.60	Max: 5.50 Min: 4.50
4	50 inches	75 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures:	sandy loam loam fine sandy loam
Surficial Soil Types:	sandy loam loam fine sandy loam
Shallow Soil Types:	clay sandy clay gravelly - loam
Deeper Soil Types:	loamy fine sand sandy loam weathered bedrock

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	2.300
Federal FRDS PWS	2.300
State Database	2.300

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS40000262392	1 - 2 Miles NNE
A2	USGS40000262391	1 - 2 Miles NNE
C5	USGS40000262340	1 - 2 Miles ENE
C6	USGS40000262339	1 - 2 Miles ENE
8	USGS40000262254	1 - 2 Miles WSW
9	USGS40000262386	1 - 2 Miles NNE
10	USGS40000262403	2 - 3 Miles NNE
11	USGS40000262394	2 - 3 Miles NNE
D12	USGS40000262292	2 - 3 Miles West
D13	USGS40000262290	2 - 3 Miles West
14	USGS40000262278	2 - 3 Miles West

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

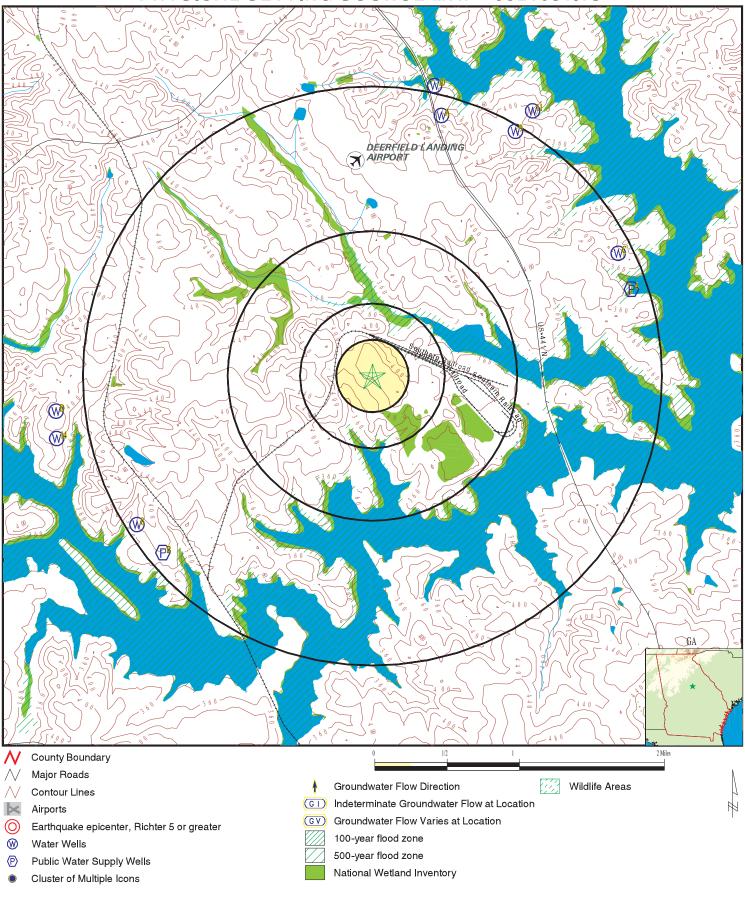
MAP ID	WELL ID	LOCATION FROM TP
B3	GA2370006	1 - 2 Miles SW
4	GA2370037	1 - 2 Miles ENE
B7	GA2370008	1 - 2 Miles SW

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

		LOCATION
MAP ID	WELL ID	FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 5521691.1s



Eatonton GA 31024 INQUIRY #: 5521691.1s LAT/LONG: 33.196464 / 83.315194	SITE NAME: Plant Branch CLIENT: GeoSyntec Consultants ADDRESS: 1100 Milledgeville Rd CONTACT: Martha Carr
---	---

Map ID Direction Distance			Databasa	
Elevation A1				EDR ID Number
NNE 1 - 2 Miles Lower		r	ED USGS	USGS40000262392
Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: Aquifer: Aquifer Type: Well Depth: Well Hole Depth:	USGS-GA 19Z016 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported	Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unit Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units:	Well 0307 Not f ts: Not f Not f Not f Not f	S Georgia Water Science Center 70101 Reported Reported Reported Reported Reported Reported Reported
A2 NNE 1 - 2 Miles Lower		F	ED USGS	USGS40000262391
Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: Aquifer: Aquifer: Aquifer Type: Well Depth: Well Hole Depth:	USGS-GA 19Z017 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported	Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unit Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units:	Well 0307 Not f ts: Not f Not f Not f Not f	S Georgia Water Science Center 10101 Reported Reported Reported Reported Reported Reported Reported
B3 SW 1 - 2 Miles Lower		F	FRDS PWS	GA2370006
Epa region: Pwsid: Cityserved: Zipserved: Status: Pwssvcconn: Pwstype: Contact: Contact: Contactphone: Contactaddress2: Contactstate: Pwsactivitycode:	04 GA2370006 Not Reported Not Reported Closed 388 CWS ARCHEBELLE, DONNA 706-485-5252 Not Reported GA I	State: Pwsname: Stateserved: Fipscounty: Retpopsrvd: Psource longname: Owner: Contactorgname: Contactoddress1: Contactaddress1: Contactcity: Contactzip:	GA 1323 1003 Grou Priva ARC POB EAT	ndwater
Pwsid: Facname: Factype: Trtobjective: Factypecode:	GA2370006 PARCEL B/451 AVANT RD PLANT # Treatment_plant disinfection TP	Facid: 4 Facactivitycode: Trtprocess:	1513 A hypo	2 chlorination, post
Pwsid: Facname:	GA2370006 160 BEAR CREEK EAST PLANT #5	Facid:	1658	9

Factype:	Treatment_plant	Facactivitycode:	А
Trtobjective:	disinfection	Trtprocess:	hypochlorination, post
-	TP	mprocess.	hypochionnation, post
Factypecode:	IF		
Duroid	C 4 22 70006	Facid	16646
Pwsid:	GA2370006	Facid:	16646
Facname:	143 EDGEWATER DRIVE PLANT #6		
Factype:	Treatment_plant	Facactivitycode:	A
Trtobjective:	disinfection	Trtprocess:	hypochlorination, post
Factypecode:	TP		
Pwsid:	GA2370006	Facid:	3517
Facname:	L525/308 LITTLE RIVER TRAILPLAN	NT #3	
Factype:	Treatment_plant	Facactivitycode:	А
Trtobjective:	disinfection	Trtprocess:	hypochlorination, post
Factypecode:	TP		
Tudypeddde.			
PWS ID:	GA2370006	PWS name:	PINE FOREST SUBDIVISION
		Care of:	
Address:	POB 390		GREAT SOUTHEAST UTILITY CO.
City:	GREENSBORO	State:	GA
Zip:	306420390	Owner:	PINE FOREST SUBDIVISION
Source code:	Ground water	Population:	629
PWS ID:	GA2370006	PWS type:	Not Reported
PWS name:	Not Reported	PWS address:	Not Reported
PWS city:	Not Reported	PWS state:	Not Reported
PWS zip:	Not Reported	PWS name:	PINE FOREST SUBDIVISION
PWS type code:	C	Retail population served:	1003
Contact:	ARCHEBELLE, DONNA	Contact address:	663 GODFREY RD.
Contact address:	EATONTON	Contact city:	GA
Contact state:	31	Contact zip:	706-485-52
Contact telephone:	Not Reported		
		2	
County:	PUTNAM	Source:	Ground water
Treatment Objective:	DISINFECTION	Process:	HYPOCHLORINATION, POST
Population:	629		
PWS ID:	GA2370006	Activity status:	Active
Date system activated:	Not Reported	Date system deactivated:	Not Reported
Retail population:	00000564	System name:	PINE FOREST SUBDIVISION
System address:	GREAT SE UTILITY COMPANY	System address:	POB 390
System city:	GREENSBORO	System state:	GA
System zip:	306420390		
Cyclom Zip.	000120000		
Population served:	501 - 1,000 Persons	Treatment:	Treated
Latitude:	335554	Longitude:	0832024
		Longhado.	0002021
Latitude:	331044	Longitude:	0832025
		_0g	0002020
State:	GA	Latitude degrees:	33
Latitude minutes:	10	Latitude seconds:	44.0000
Longitude degrees:	83	Longitude minutes:	20
0 0	25.0000	Longitude minutes.	20
Longitude seconds:	25.0000		
State:	GA	Latitudo dogrado	22
	GA 10	Latitude degrees:	33
Latitude minutes:	19	Latitude seconds:	39.0000
Longitude degrees:	83	Longitude minutes:	21
Longitude seconds:	6.0000		
Violation id:	20101	Orig code:	S
State:	GA	Violation Year:	2000
Contamination code:	1040	Contamination Name:	Nitrate

Violation code: Rule code: Violation measur: State mcl: Cmp edt:

Violation id: State: Contamination code: Violation code: Rule code: Violation measur: State mcl: Cmp edt:

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Violation id: State: Contamination code: Violation code: Rule code: Violation measur: State mcl: Cmp edt:

Violation id: State:

03 331 0 0 12/31/2000 20301 GA 5000 52 350 Not Reported Not Reported Not Reported 20401 GA 5000 52 350 Not Reported Not Reported Not Reported 20604 GA 7000 71 420 Not Reported Not Reported Not Reported 20705 GA 5000

5000 52 350 Not Reported Not Reported Not Reported

20805 GA 7000 71 420 Not Reported Not Reported Not Reported

21008 GA 7000 71 420 Not Reported Not Reported Not Reported

21109 GA Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

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Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Monitoring, Regular Nitrates Not Reported 01/01/2000

S 1997 Lead and Copper Rule Follow-up Or Routine LCR Tap M/R LCR Not Reported 10/01/1997

S 2000 Lead and Copper Rule Follow-up Or Routine LCR Tap M/R LCR Not Reported 10/01/2000

S 2004 Consumer Confidence Rule CCR Complete Failure to Report CCR Not Reported 07/01/2004

S 2003 Lead and Copper Rule Follow-up Or Routine LCR Tap M/R LCR Not Reported 10/01/2003

S 2005 Consumer Confidence Rule CCR Complete Failure to Report CCR Not Reported 07/01/2005

S 2008 Consumer Confidence Rule CCR Complete Failure to Report CCR Not Reported 07/01/2008

S 2009

- Contamination code: Violation code: Rule code: Violation measur: State mcl: Cmp edt:
- Violation id: State: Contamination code: Violation code: Rule code: Violation measur: State mcl: Cmp edt:
- System Name: Contaminant: Compliance End: Enforcement Date:
- System Name:

7000 71 420 Not Reported Not Reported Not Reported

- 21209 GA 3100 23 110 Not Reported Not Reported 07/31/2009
- PINE FOREST SUBDIVISION 5000 2015-12-31 2001-09-20
- PINE FOREST SUBDIVISION 1040 12/31/2000 0:00:00 9/6/2001 0:00:00
- PINE FOREST SUBDIVISION 1040 12/31/2000 0:00:00 9/6/2001 0:00:00
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- PINE FOREST SUBDIVISION 1040 12/31/2000 0:00:00 9/6/2001 0:00:00
- PINE FOREST SUBDIVISION 5000 12/31/2025 0:00:00 9/20/2001 0:00:00
- PINE FOREST SUBDIVISION 5000 12/31/2025 0:00:00 9/20/2001 0:00:00
- PINE FOREST SUBDIVISION

- Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:
- Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:
- Violation Type: Compliance Begin: Violation ID: Enforcement Action:
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- Violation Type: Compliance Begin: Violation ID: Enforcement Action:
- Violation Type:

Consumer Confidence Rule CCR Complete Failure to Report CCR Not Reported 07/01/2009

S 2009 Coliform (TCR) Monitoring, Routine Major (TCR) TCR Not Reported 07/01/2009

- 52 1998-10-01 0100203 SO6
- 3 1/1/2000 0:00:00 20101 SIA
- 3 1/1/2000 0:00:00 20101 SIF
- 3 1/1/2000 0:00:00 20101 SO+
- 3 1/1/2000 0:00:00 20101 SIA
- 3 1/1/2000 0:00:00 20101 SO+
- 3 1/1/2000 0:00:00 20101 SIF
- 52 10/1/1997 0:00:00 20301 SO6
- 52 10/1/1997 0:00:00 20301 SO6
- TC5521691.1s Page 11

52

Contaminant: Compliance End: Enforcement Date:

System Name: Contaminant: Compliance End: 5000 7/24/2001 0:00:00 7/22/2003 0:00:00

PINE FOREST SUBDIVISION 5000 7/24/2001 0:00:00 7/22/2003 0:00:00

PINE FOREST SUBDIVISION 5000 7/24/2001 0:00:00 7/24/2001 0:00:00

PINE FOREST SUBDIVISION 5000 7/24/2001 0:00:00 7/24/2001 0:00:00

PINE FOREST SUBDIVISION 7000 7/23/2004 0:00:00 7/1/2004 0:00:00

PINE FOREST SUBDIVISION 7000 7/23/2004 0:00:00 7/1/2004 0:00:00

PINE FOREST SUBDIVISION 7000 7/23/2004 0:00:00 7/23/2004 0:00:00

PINE FOREST SUBDIVISION 7000 7/23/2004 0:00:00 7/23/2004 0:00:00

PINE FOREST SUBDIVISION 5000 7/27/2004 0:00:00 7/27/2004 0:00:00

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Violation Type: Compliance Begin: Violation ID: 10/1/2000 0:00:00 20401 SO6

52 10/1/2000 0:00:00 20401 SO6

52 10/1/2000 0:00:00 20401 SOX

52 10/1/2000 0:00:00 20401 SOX

71 7/1/2004 0:00:00 20604 SO6

71 7/1/2004 0:00:00 20604 SO6

71 7/1/2004 0:00:00 20604 SOX

71 7/1/2004 0:00:00 20604 SOX

52 10/1/2003 0:00:00 20705 SOX

52 10/1/2003 0:00:00 20705 SOX

52 10/1/2003 0:00:00 20705 SIE

52 10/1/2003 0:00:00 20705 SIA

52 10/1/2003 0:00:00 20705

Enforcement Date:

System Name: Contaminant: Compliance End: Enforcement Date:

Violation ID: Enforcemnt FY: Enforcement Detail: Enforcement Category:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail: Enforcement Category:

Violation ID:

7/14/2005 0:00:00

PINE FOREST SUBDIVISION 5000 7/27/2004 0:00:00 12/1/2004 0:00:00

PINE FOREST SUBDIVISION 5000 7/27/2004 0:00:00 7/14/2005 0:00:00

PINE FOREST SUBDIVISION 5000 7/27/2004 0:00:00 12/1/2004 0:00:00

PINE FOREST SUBDIVISION 7000 7/8/2005 0:00:00 7/8/2005 0:00:00

PINE FOREST SUBDIVISION 7000 7/8/2005 0:00:00 7/1/2005 0:00:00

PINE FOREST SUBDIVISION 7000 7/8/2005 0:00:00 7/8/2005 0:00:00

PINE FOREST SUBDIVISION 7000 7/8/2005 0:00:00 7/1/2005 0:00:00

PINE FOREST SUBDIVISION 3100 1994-11-30 1994-12-19

PINE FOREST SUBDIVISION 3100 1994-11-30 1995-01-16

20101 2001 St Violation/Reminder Notice Informal

20101 2001 St Public Notif received

20201

20101 2001 St No addtl Formal Action needed Informal **Enforcement Action:**

Violation Type: Compliance Begin: Violation ID: Enforcement Action:

Orig Code: Enforcement Action:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action:

Orig Code:

52 10/1/2003 0:00:00 20705 SIA

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52 10/1/2003 0:00:00 20705 SIF

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71 7/1/2005 0:00:00 20805 SOX

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71 7/1/2005 0:00:00 20805 SO6

23 1994-11-01 9500100 SIE

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Enforcemnt FY: Enforcement Detail:

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Violation ID: Enforcemnt FY: Enforcement Detail:

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Violation ID:

2001 St Intentional no-action

20301 2001 St Intentional no-action

20301 2001 St Intentional no-action

20401 2003 St Intentional no-action

20401 2001 St Compliance achieved

20604 2004 St Intentional no-action

20604 2004 St Compliance achieved

20705 2004 St Compliance achieved

20705 2005 St Public Notif received

20705 2005 St Violation/Reminder Notice Informal

20705 2005 St Public Notif requested

20805 2005 St Intentional no-action

20805 2005 St Compliance achieved

21008 2008 St Compliance achieved

21109

21109 2009 State CCR Follow-up Notice Informal Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action:

Orig Code:

09/20/2001 Informal

S 09/20/2001 Informal

S 09/20/2001 Informal

S 07/22/2003 Informal

S 07/24/2001 Resolving

S 07/01/2004 Resolving

S 07/23/2004 Resolving

S 07/27/2004 Resolving

S 07/14/2005 Informal

S 12/01/2004

S 12/01/2004 Informal

S 07/01/2005 Resolving

S 07/08/2005 Resolving

S 07/09/2008 Resolving

S 08/05/2009

S

Enforcemnt FY: Enforcement Detail: Enforcement Category:

Violation ID: Enforcemnt FY: Enforcement Detail: Enforcement Category:

Violation ID: Enforcemnt FY: Enforcement Detail:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Enforcement action: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement: Informal 21209 2009 St Violation/Reminder Notice Informal

State CCR Follow-up Notice

2010

0

21209 2009 St Public Notif requested

PINE FOREST SUBDIVISION C NITRATE 1/1/2000 0:00:00 9/6/2001 0:00:00

PINE FOREST SUBDIVISION C NITRATE 1/1/2000 0:00:00 9/6/2001 0:00:00 0

 PINE FOREST SUBDIVISION
 Pop C

 Viol

 NITRATE

 1/1/2000 0:00:00

 9/6/2001 0:00:00

 State No Additional Formal Action Needed 0

PINE FOREST SUBDIVISION C LEAD & COPPER RULE 10/1/1997 0:00:00 9/20/2001 0:00:00 Not Reported

PINE FOREST SUBDIVISION

LEAD & COPPER RULE 10/1/2000 0:00:00 7/22/2003 0:00:00 Not Reported

PINE FOREST SUBDIVISION C LEAD & COPPER RULE 10/1/2000 0:00:00 7/24/2001 0:00:00 Not Reported

PINE FOREST SUBDIVISION C 7000 7/1/2004 0:00:00 7/1/2004 0:00:00 Not Reported Orig Code: Enforcement Action:

Enforcement Action:

Orig Code: Enforcement Action: Enforcement Category:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action: S 08/19/2009

10/07/2009

S 08/19/2009 Informal

1003 20101 3 12/31/2000 0:00:00 State Violation/Reminder Notice

1003 20101 3 12/31/2000 0:00:00 State Public Notif Received

1003 20101 3 12/31/2000 0:00:00

1003 20301 Follow-up and Routine Tap Sampling 12/31/2025 0:00:00 State Intentional no-action

1003 20401 Follow-up and Routine Tap Sampling 7/24/2001 0:00:00 State Intentional no-action

1003 20401 Follow-up and Routine Tap Sampling 7/24/2001 0:00:00 State Compliance Achieved

1003 20604 71 7/23/2004 0:00:00 State Intentional no-action

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement:

PWS name: PWS type code: Contaminant: Compliance start date: Enforcement date: Violation measurement: PINE FOREST SUBDIVISION C 7000 7/1/2004 0:00:00 7/23/2004 0:00:00 Not Reported

PINE FOREST SUBDIVISION C LEAD & COPPER RULE 10/1/2003 0:00:00 12/1/2004 0:00:00 Not Reported

PINE FOREST SUBDIVISION C LEAD & COPPER RULE

10/1/2003 0:00:00 12/1/2004 0:00:00 Not Reported

PINE FOREST SUBDIVISION C LEAD & COPPER RULE 10/1/2003 0:00:00 7/14/2005 0:00:00 Not Reported

PINE FOREST SUBDIVISION

LEAD & COPPER RULE 10/1/2003 0:00:00 7/27/2004 0:00:00 Not Reported

PINE FOREST SUBDIVISION C 7000 7/1/2005 0:00:00 7/1/2005 0:00:00 Not Reported

PINE FOREST SUBDIVISION C 7000 7/1/2005 0:00:00 7/8/2005 0:00:00 Not Reported

PINE FOREST SUBDIVISION C 7000 7/1/2008 0:00:00 No Enf Action as of Not Reported Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action:

Population served: Violation ID: Violation type: Compliance end date: Enforcement action: 1003 20604 71 7/23/2004 0:00:00 State Compliance Achieved

1003 20705 Follow-up and Routine Tap Sampling 7/27/2004 0:00:00 State Violation/Reminder Notice

1003 20705 Follow-up and Routine Tap Sampling 7/27/2004 0:00:00 State Public Notif Requested

1003 20705 Follow-up and Routine Tap Sampling 7/27/2004 0:00:00 State Public Notif Received

1003 20705 Follow-up and Routine Tap Sampling 7/27/2004 0:00:00 State Compliance Achieved

1003 20805 71 7/8/2005 0:00:00 State Intentional no-action

1003 20805 71 7/8/2005 0:00:00 State Compliance Achieved

1003 21008 71 12/31/2025 0:00:00 7/8/2009 0:00:00

Map ID Direction Distance Elevation

stance evation			Database	EDR ID Number
IE 2 Miles wer			FRDS PWS	GA2370037
Epa region:	04	State:	GA	
Pwsid:	GA2370037	Pwsname:	BAYS	SIDE HAVEN MHP
Cityserved:	Not Reported	Stateserved:	GA	
Zipserved:	Not Reported	Fipscounty:	1323	7
Status:	Closed	Retpopsrvd:	78	
Pwssvcconn:	30	Psource longname:	-	ndwater
Pwstype:	CWS	Owner:	Privat	
Contact:	MORATH, BETTY	Contactorgname:		leported
Contactphone:	706-485-4168	Contactaddress1:		OGWOOD DR. SE
Contactaddress2:	Not Reported	Contactcity:		EDGEVILLE
Contactstate:	GA	Contactzip:	3106	
Pwsactivitycode:	I	oonacizip.	5100	,
Pwsid:	GA2370037	Facid:	1656	7
Facname:	DOGWOOD DRIVE & LEISURE LAN		1050	
Factype:		Facactivitycode:		
	Treatment_plant		l hyper	hlaringtion post
Trtobjective: Factypecode:	disinfection TP	Trtprocess:	пурос	chlorination, post
	040070007			
PWS ID:	GA2370037	PWS name:		
Address:	162 DOGWOOD DRIVE	Care of:		SIDE HAVEN MOBILE HOME PA
City:	MILLEDGEVILLE	State:	GA	
Zip:	31061	Owner:		SIDE HAVEN MHP
Source code:	Ground water	Population:	28	
PWS ID:	GA2370037	PWS type:		eported
PWS name:	Not Reported	PWS address:		eported
PWS city:	Not Reported	PWS state:	Not R	eported
PWS zip:	Not Reported	County:	PUTN	
Source:	Ground water	Treatment Objective:	DISIN	IFECTION
Process:	HYPOCHLORINATION, POST	Population:	28	
PWS ID:	GA2370037	Activity status:	Active	9
Date system activated:	Not Reported	Date system deactivated:	Not R	leported
Retail population:	0000028	System name:	LAKE	FRONT VILLAGE MHP
System address:	LAKEFRONT VILLAGE MH PARK	System address:	117 S	LEISURE LN SE LOT #16
System city:	MILLEDGEVILLE	System state:	GA	
System zip:	31061	-		
Population served:	Under 101 Persons	Treatment:	Treat	ed
Latitude:	331936	Longitude:	08323	318
Latitude:	331218	Longitude:	0831	704
Latitude:	331218	Longitude:	0831	704
State:	GA	Latitude degrees:	33	
Latitude minutes:	12	Latitude seconds:	18.00	00
Longitude degrees:	83	Longitude minutes:	17	
Longitude seconds:	4.0000	-		
Violation id:	100	Orig code:	S	
State:	GA	Violation Year:	2000	
	3100			orm (TCR)

Violation code: Rule code: Violation measur State mcl: Cmp edt:	r.	23 110 0 0 01/31/2000
Violation id: State: Contamination c Violation code: Rule code: Violation measur State mcl: Cmp edt:		200 GA 3100 25 110 0 0 0 0//31/2000
Violation id: State: Contamination c Violation code: Rule code: Violation measur State mcl: Cmp edt:		40101 GA 3100 23 110 0 0 0 04/30/2001
Violation id: State: Contamination c Violation code: Rule code: Violation measur State mcl: Cmp edt:		40201 GA 5000 51 350 Not Reporte Not Reporte Not Reporte
Violation id: State: Contamination c Violation code: Rule code: Violation measur State mcl: Cmp edt:		40301 GA 5000 52 350 Not Reporte Not Reporte Not Reporte
Violation id: State: Contamination c Violation code: Rule code: Violation measur State mcl: Cmp edt:		40402 GA 3100 25 110 Not Reporte 05/31/2002
PWS currently h	as or had major v	violation(s) or

1/31/2000 0101 A 100 3 10 1/30/2001)201 A 000 50 ot Reported ot Reported ot Reported 0301 A 000 50 ot Reported ot Reported ot Reported)402 A 00 10 ot Reported ot Reported 5/31/2002 9200002 Not Reported Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Violation source ID: Contaminant:

Violation end date: Violation awareness date: Maximum contaminant level: Number of samples taken: Analysis result:

Monitoring, Routine Major (TCR) TCR Not Reported 01/01/2000

S 2000 Coliform (TCR) Monitoring, Repeat Major (TCR) TCR Not Reported 01/01/2000

S 2001 Coliform (TCR) Monitoring, Routine Major (TCR) TCR Not Reported 04/01/2001

S 1994 Lead and Copper Rule Initial Tap Sampling for Pb and Cu LCR Not Reported 01/01/1994

S 1999 Lead and Copper Rule Follow-up Or Routine LCR Tap M/R LCR Not Reported 10/01/1999

S 2002 Coliform (TCR) Monitoring, Repeat Major (TCR) TCR Not Reported 05/01/2002

Not Reported COLIFORM (TCR)

053192 Not Reported Not Reported Not Reported Not Reported

F ation(s) or enforcement:Yes

Monitoring, Routine Major (TCR) Violation type: 050192 Violation start date: Violation period (months): 001 Major violator: Yes Number of required samples: Not Reported Analysis method: Not Reported

Violation ID:

PWS telephone:

PWS currently has or had major violation(s) or enforcement:Yes

Violation ID: PWS telephone: Violation type: Violation start date: Violation period (months): Major violator: Number of required samples: Analysis method:

System Name: Contaminant: Compliance End: Enforcement Date:

System Name:

9200003 Not Reported Monitoring, Routine Minor (TCR) 090192 001 No Not Reported Not Reported

BAYSIDE HAVEN MHP 5000 2015-12-31 2001-09-24

BAYSIDE HAVEN MHP 5000 2015-12-31 2001-09-24

BAYSIDE HAVEN MHP 5000 2015-12-31 2001-09-24

BAYSIDE HAVEN MHP 5000 2015-12-31 1994-03-17

BAYSIDE HAVEN MHP 5000 1994-06-30 1994-03-17

BAYSIDE HAVEN MHP 5000 1994-06-30 1997-03-03

BAYSIDE HAVEN MHP 5000 2015-12-31 1997-03-03

BAYSIDE HAVEN MHP 5000 1994-06-30 1997-03-26

BAYSIDE HAVEN MHP 5000 2015-12-31 1997-11-12

BAYSIDE HAVEN MHP 3100 1995-01-31 1994-05-09

BAYSIDE HAVEN MHP

Violation source ID: Contaminant:

Violation end date: Violation awareness date: Maximum contaminant level: Number of samples taken: Analysis result:

Violation Type: Compliance Begin: Violation ID: Enforcement Action:

Violation Type:

Not Reported COLIFORM (TCR)

093092 Not Reported Not Reported Not Reported Not Reported

51 1997-11-13 0100402 SO6

52 1999-10-01 0100403 SO6

52 1999-01-01 0100403 SO6

51 1994-01-01 9400100 SIE

51 1994-01-01 9400100 SIE

51 1994-01-01 9400100 SFL

51 1994-01-01 9400100 SFL

51 1994-01-01 9400100 SOX

51 1994-01-01 9400100 SOX

26 1994-02-01 9400200 SIE

23

Contaminant: Compliance End: Enforcement Date:

System Name: Contaminant: Compliance End: Enforcement Date:

Violation ID: Enforcemnt FY: Enforcement Detail: Enforcement Category:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail: Enforcement Category:

Violation ID: Enforcemnt FY: Enforcement Detail: Enforcement Category:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail: 3100 1995-12-31 1996-01-19

BAYSIDE HAVEN MHP 1040 1994-12-31 1997-05-05

BAYSIDE HAVEN MHP 1040 1994-12-31 1997-05-12

BAYSIDE HAVEN MHP 1040 1995-12-31 1997-05-05

BAYSIDE HAVEN MHP 1040 1995-12-31 1997-05-12

100 2000 St Violation/Reminder Notice Informal

100 2000 St Public Notif requested

200 2000 St Public Notif received

200 2000 St Public Notif requested

200 2000 St Violation/Reminder Notice Informal

40101 2001 St Violation/Reminder Notice Informal

40101 2001 St Public Notif received

40101 2001 St Public Notif requested

40201 2001 St Intentional no-action Compliance Begin: Violation ID: Enforcement Action:

Violation Type: Compliance Begin: Violation ID: Enforcement Action:

Orig Code: Enforcement Action:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action:

Orig Code: Enforcement Action:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action: Enforcement Category: 9600100 SIE 03 1994-01-01 9700200 SIE

1995-12-01

03 1994-01-01 9700200 SOX

03 1995-01-01 9700300 SIE

03 1995-01-01 9700300 SOX

S 05/25/2000

S 05/25/2000 Informal

S 07/07/2000 Informal

S 05/25/2000 Informal

S 05/25/2000

S 05/24/2001

S 07/02/2001 Informal

S 05/24/2001 Informal

S 09/24/2001 Informal

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail: Enforcement Category:

_____ C5____

ENE 1 - 2 Miles Lower

> Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: Aquifer: Aquifer Type: Well Depth: Well Hole Depth:

C6 ENE 1 - 2 Miles Lower

Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: Aquifer: Aquifer Type: Well Depth:

Well Hole Depth:

B7 SW 1 - 2 Miles Lower

Epa region: Pwsid: Cityserved: Zipserved: Status:

40301 2000 St Compliance achieved

40301 2001 St Intentional no-action

40402 2002 St Public Notif requested

40402 2002 St Violation/Reminder Notice Informal

USGS-GA

Not Reported

19Z025

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action: S 08/21/2000 Resolving

S 09/24/2001 Informal

S 06/21/2002 Informal

S 06/21/2002

FED USGS USGS40000262340

Not Reported

Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unts: Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units:

USGS Georgia Water Science Center Well 03070101 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported

FED USGS U

USGS40000262339

Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unts: Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units: USGS Georgia Water Science Center Well 03070101 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported

FRDS PWS GA2370008

State: Pwsname: Stateserved: Fipscounty: Retpopsrvd: GA TALL TIMBERS-OAK OPENINGS GA 13237 733

USGS-GA 19Z024 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported

04

GA2370008

Not Reported

Not Reported

Closed

Pwssvcconn: Pwstype: Contact: Contactphone: Contactaddress2: Contactstate: Pwsactivitycode:

Pwsid: Facname: Facactivitycode: Trtprocess:

Pwsid: Facname: Factype: Trtobjective: Factypecode:

Pwsid: Facname: Factype: Trtobjective: Factypecode:

PWS ID: Address: City: Zip: Source code:

PWS ID: PWS name: PWS city: PWS zip: Source: Process:

PWS ID: Date system activated: Retail population: System address: System city: System zip:

Population served:

Latitude:

Latitude:

State: Latitude minutes: Longitude degrees: Longitude seconds:

Violation id: State: Contamination code: Violation code: Rule code: Violation measur:

279 CWS ARCHEBELLE, DONNA 706-485-5252 Not Reported GA I

GA2370008 WELLS 2 & 3 PLANT A hypochlorination, post

GA2370008 Facid: 116 BLUEGILL RD/L#1 - WELL #5 PLANT Treatment_plant disinfection TΡ

GA2370008 Facid: 308 BLUEGILL ROAD-LOT 215 WELL #6 PLANT Treatment_plant disinfection Trtprocess: TP

GA2370008 POB 390 GREENSBORO 306420390 Ground water

GA2370008 Not Reported Not Reported Not Reported Ground water HYPOCHLORINATION, POST

GA2370008 Not Reported 00000465 GREAT SE UTILITY COMPANY GREENSBORO 306420390

335554 331042

101 - 500 Persons

GA 10 83

25.0000 10101

GA

03

331

0

1040

Contactorgname: Contactaddress1: Contactcity: Contactzip:

Psource longname:

Facid: Factype: Trtobjective: Factypecode:

Owner:

Facactivitycode: Trtprocess:

Facactivitycode:

PWS name: Care of: State: Owner[.] Population:

PWS type: PWS address: PWS state: County: Treatment Objective: Population:

Activity status: Date system deactivated: System name: System address: System state:

Treatment:

Longitude:

Longitude:

Latitude degrees: Latitude seconds: Longitude minutes:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure:

Groundwater Private ARCHEBELLE, DONNA POB 3639 EATONTON 31024-3639

15117 Treatment_plant disinfection TP

15126

A hypochlorination, post

21184

hypochlorination, post

TALL TIMBERS-OAK OPENINGS GREAT SOUTHEAST UTILITY CO. GA TALL TIMBERS-OAK OPENINGS 465

Not Reported Not Reported Not Reported PUTNAM DISINFECTION 465

Active Not Reported TALL TIMBERS-OAK OPENINGS POB 390 GA

Treated 0832024

0832025 33

42.0000 20

S 2000 Nitrate Monitoring, Regular Nitrates Not Reported

State mcl: Cmp edt:	0 12/31/2
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: State mcl: Cmp edt:	10201 GA 1040 03 331 0 0 12/31/2
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: State mcl: Cmp edt:	10301 GA 5000 52 350 Not Re Not Re
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: State mcl: Cmp edt:	10501 GA 5000 52 350 Not Re Not Re
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: State mcl: Cmp edt:	10704 GA 7000 71 420 Not Re Not Re
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: State mcl: Cmp edt:	10805 GA 7000 71 420 Not Re Not Re
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: State mcl: Cmp edt:	10906 GA 5000 52 350 Not Re Not Re
Violation id: State: Contamination code: Violation code: Rule code:	11008 GA 7000 71 420

2000 2000 ported ported eported eported eported eported eported ported eported eported ported eported eported ported eported

Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:

Orig code: Violation Year: Contamination Name: Violation name: Rule name:

01/01/2000

S 2000 Nitrate Monitoring, Regular Nitrates Not Reported 01/01/2000

S 1995 Lead and Copper Rule Follow-up Or Routine LCR Tap M/R LCR Not Reported 10/01/1995

S 2000 Lead and Copper Rule Follow-up Or Routine LCR Tap M/R LCR Not Reported 10/01/2000

S 2004 Consumer Confidence Rule CCR Complete Failure to Report CCR Not Reported 07/01/2004

S 2005 Consumer Confidence Rule CCR Complete Failure to Report CCR Not Reported 07/01/2005

S 2005 Lead and Copper Rule Follow-up Or Routine LCR Tap M/R LCR Not Reported 10/01/2005

S 2008 Consumer Confidence Rule CCR Complete Failure to Report CCR

Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	07/01/2008
Cmp edt:	Not Reported		
PWS currently has or had major	violation(s) or enforcement:Yes		
Violation ID:	9200002	Violation source ID:	Not Reported
PWS telephone:	Not Reported	Contaminant:	COLIFORM (TCR)
Violation type:	Max Contaminant Level, Monthly (TC		
Violation start date:	070192	Violation end date:	073192
Violation period (months):	001	Violation awareness date:	Not Reported
Major violator:	Not Reported	Maximum contaminant level:	Not Reported
Number of required samples: Analysis method:	Not Reported Not Reported	Number of samples taken: Analysis result:	Not Reported Not Reported
System Name:	TALL TIMBERS-OAK OPENINGS	Violation Type:	52
Contaminant:	5000	Compliance Begin:	52 1998-10-01
Compliance End:	2015-12-31	Violation ID:	0100104
Enforcement Date:	2001-09-20	Enforcement Action:	SO6
Enlorcement Date.	2001-03-20	Enforcement Action.	300
System Name:	TALL TIMBERS-OAK OPENINGS	Violation Type:	3
Contaminant:	1040	Compliance Begin:	1/1/2000 0:00:00
Compliance End:	12/31/2000 0:00:00	Violation ID:	10101
Enforcement Date:	5/15/2001 0:00:00	Enforcement Action:	SIE
System Name:	TALL TIMBERS-OAK OPENINGS	Violation Type:	3
Contaminant:	1040	Compliance Begin:	1/1/2000 0:00:00
Compliance End:	12/31/2000 0:00:00	Violation ID:	10101
Enforcement Date:	9/6/2001 0:00:00	Enforcement Action:	SO+
System Name:	TALL TIMBERS-OAK OPENINGS	Violation Type:	3
Contaminant:	1040	Compliance Begin:	1/1/2000 0:00:00
Compliance End:	12/31/2000 0:00:00	Violation ID:	10101
Enforcement Date:	9/6/2001 0:00:00	Enforcement Action:	SIA
System Name:	TALL TIMBERS-OAK OPENINGS	Violation Type:	3
Contaminant:	1040	Compliance Begin:	1/1/2000 0:00:00
Compliance End:	12/31/2000 0:00:00	Violation ID:	10101
Enforcement Date:	5/15/2001 0:00:00	Enforcement Action:	SIA
System Name:	TALL TIMBERS-OAK OPENINGS	Violation Type:	3
Contaminant:	1040	Compliance Begin:	1/1/2000 0:00:00
Compliance End:	12/31/2000 0:00:00	Violation ID:	10101
Enforcement Date:	10/3/2001 0:00:00	Enforcement Action:	SOX
System Name:	TALL TIMBERS-OAK OPENINGS	Violation Type:	3
Contaminant:	1040	Compliance Begin:	1/1/2000 0:00:00
Compliance End:	12/31/2000 0:00:00	Violation ID:	10101
Enforcement Date:	10/3/2001 0:00:00	Enforcement Action:	SOX
System Name:	TALL TIMBERS-OAK OPENINGS	Violation Type:	3
Contaminant:	1040	Compliance Begin:	1/1/2000 0:00:00
Compliance End:	12/31/2000 0:00:00	Violation ID:	10101
Enforcement Date:	9/6/2001 0:00:00	Enforcement Action:	SO+
System Name:	TALL TIMBERS-OAK OPENINGS	Violation Type:	3
Contaminant:	1040	Compliance Begin:	1/1/2000 0:00:00
Compliance End:	12/31/2000 0:00:00	Violation ID:	10101
Enforcement Date:	9/6/2001 0:00:00	Enforcement Action:	SIA
System Name:	TALL TIMBERS-OAK OPENINGS	Violation Type:	3
Contaminant:	1040	Compliance Begin:	1/1/2000 0:00:00

Compliance End: Enforcement Date:

System Name: Contaminant: Compliance End: Enforcement Date: 12/31/2000 0:00:00 5/15/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 1040 12/31/2000 0:00:00 5/15/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 1040 12/31/2000 0:00:00 9/6/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 1040 12/31/2000 0:00:00 9/6/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 1040 12/31/2000 0:00:00 10/3/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 1040 12/31/2000 0:00:00 9/6/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 1040 12/31/2000 0:00:00 9/6/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 1040 12/31/2000 0:00:00 10/3/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 1040 12/31/2000 0:00:00 9/6/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 1040 12/31/2000 0:00:00 9/6/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 5000 8/17/2001 0:00:00 8/17/2001 0:00:00

TALL TIMBERS-OAK OPENINGS 5000 8/17/2001 0:00:00 7/22/2003 0:00:00

TALL TIMBERS-OAK OPENINGS 5000 8/17/2001 0:00:00 8/17/2001 0:00:00 Violation ID: Enforcement Action: Violation Type:

Compliance Begin: Violation ID: Enforcement Action:

Violation Type: Compliance Begin: Violation ID: Enforcement Action:

Violation Type: Compliance Begin: Violation ID: Enforcement Action:

Violation Type: Compliance Begin: Violation ID: Enforcement Action:

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Violation Type: Compliance Begin: Violation ID: Enforcement Action:

Violation Type: Compliance Begin: Violation ID: Enforcement Action:

10101 SIE 3 1/1/2000 0:00:00 10101 SIA 3 1/1/2000 0:00:00 10201 SIF 3 1/1/2000 0:00:00 10201 SIA 3 1/1/2000 0:00:00 10201 SOX З 1/1/2000 0:00:00 10201 SIA 3 1/1/2000 0:00:00 10201 SO+ 3 1/1/2000 0:00:00 10201 SOX 3 1/1/2000 0:00:00 10201 SO+ 3 1/1/2000 0:00:00 10201 SIF 52 10/1/2000 0:00:00 10501 SOX 52 10/1/2000 0:00:00

52 10/1/2000 0:00:00 10501 SOX

10501

SO6

System Name: Contaminant: Compliance End: Enforcement Date:

System Name: Contaminant: TALL TIMBERS-OAK OPENINGS 5000 8/17/2001 0:00:00 7/22/2003 0:00:00

TALL TIMBERS-OAK OPENINGS 7000 7/23/2004 0:00:00 7/1/2004 0:00:00

TALL TIMBERS-OAK OPENINGS 7000 7/23/2004 0:00:00 7/23/2004 0:00:00

TALL TIMBERS-OAK OPENINGS 7000 7/23/2004 0:00:00 7/1/2004 0:00:00

TALL TIMBERS-OAK OPENINGS 7000 7/23/2004 0:00:00 7/23/2004 0:00:00

TALL TIMBERS-OAK OPENINGS 7000 7/8/2005 0:00:00 7/1/2005 0:00:00

TALL TIMBERS-OAK OPENINGS 7000 7/8/2005 0:00:00 7/8/2005 0:00:00

TALL TIMBERS-OAK OPENINGS 7000 7/8/2005 0:00:00 7/8/2005 0:00:00

TALL TIMBERS-OAK OPENINGS 7000 7/8/2005 0:00:00 7/1/2005 0:00:00

TALL TIMBERS-OAK OPENINGS 5000 7/17/2006 0:00:00 7/17/2006 0:00:00

TALL TIMBERS-OAK OPENINGS 5000 7/17/2006 0:00:00 7/12/2006 0:00:00

TALL TIMBERS-OAK OPENINGS 5000 7/17/2006 0:00:00 2/7/2006 0:00:00

TALL TIMBERS-OAK OPENINGS 5000

Violation Type: Compliance Begin: Violation ID: Enforcement Action:

Violation Type: Compliance Begin: 52 10/1/2000 0:00:00 10501 SO6

71 7/1/2004 0:00:00 10704 SO6

71 7/1/2004 0:00:00 10704 SOX

71 7/1/2004 0:00:00 10704 SO6

71 7/1/2004 0:00:00 10704 SOX

71 7/1/2005 0:00:00 10805 SO6

71 7/1/2005 0:00:00 10805 SOX

71 7/1/2005 0:00:00 10805 SOX

71 7/1/2005 0:00:00 10805 SO6

52 10/1/2005 0:00:00 10906 SOX

52 10/1/2005 0:00:00 10906 SIF

52 10/1/2005 0:00:00 10906 SIE

52 10/1/2005 0:00:00

Compliance End: Enforcement Date:

System Name: Contaminant: Compliance End: Enforcement Date:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail: Enforcement Category:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail: Enforcement Category:

Violation ID: Enforcemnt FY: 7/17/2006 0:00:00 2/7/2006 0:00:00

TALL TIMBERS-OAK OPENINGS 5000 12/31/2025 0:00:00 2/7/2006 0:00:00

TALL TIMBERS-OAK OPENINGS 5000 12/31/2025 0:00:00 2/7/2006 0:00:00

TALL TIMBERS-OAK OPENINGS 3100 1994-11-30 1994-12-19

TALL TIMBERS-OAK OPENINGS 3100 1994-11-30 1995-01-16

10101 2001 St Public Notif requested

10101 2002 St Compliance achieved

10101 2001 St Violation/Reminder Notice Informal

10101 2001 St Violation/Reminder Notice Informal

10101 2001 St No addtl Formal Action needed Informal

10201 2001 St Violation/Reminder Notice Informal

10201 2002 St Compliance achieved

10201 2001 St No addtl Formal Action needed Informal

10201 2001 Violation ID: Enforcement Action:

Violation Type: Compliance Begin: Violation ID: Enforcement Action:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action: Enforcement Category:

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Orig Code: Enforcement Action:

Orig Code: Enforcement Action:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action:

Orig Code: Enforcement Action: 52 10/1/2005 0:00:00 10906 SIA 52 10/1/2005 0:00:00 10906 SIE

10906

SIA

23 1994-11-01 9500100 SIE

23 1994-11-01 9500100 SIF

S 05/15/2001 Informal

S 10/03/2001 Resolving

S 05/15/2001

S 09/06/2001

S 09/06/2001

S 09/06/2001

S 10/03/2001 Resolving

S 09/06/2001

S 09/06/2001

Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail: Enforcement Category:

Violation ID: Enforcemnt FY: Enforcement Detail:

Violation ID: Enforcemnt FY: Enforcement Detail:

8 WSW 1 - 2 Miles Lower

Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: St Public Notif received 10301

2001 St Intentional no-action

10501 2003 St Intentional no-action

10501 2001 St Compliance achieved

10704 2004 St Compliance achieved

10704 2004 St Intentional no-action

10805 2005 St Compliance achieved

10805 2005 St Intentional no-action

10906 2006 St Public Notif received

10906 2006 St Compliance achieved

10906 2006 St Violation/Reminder Notice Informal

10906 2006 St Public Notif requested

11008 2008 St Compliance achieved Enforcement Category:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action:

Orig Code: Enforcement Action: Enforcement Category:

Orig Code: Enforcement Action: Enforcement Category: Informal

S 09/20/2001 Informal

S 07/22/2003 Informal

S 08/17/2001 Resolving

S 07/23/2004 Resolving

S 07/01/2004 Resolving

S 07/08/2005 Resolving

S 07/01/2005 Resolving

S 07/12/2006 Informal

S 07/17/2006 Resolving

S 02/07/2006

S 02/07/2006 Informal

S 07/09/2008 Resolving

FED USGS USGS40000262254

Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unts: USGS Georgia Water Science Center Well 03070101 Not Reported Not Reported

USGS-GA 19Z020 Not Reported Not Reported Not Reported

Aquifer: Aquifer Type: Well Depth: Well Hole Depth:

Not Reported Not Reported Not Reported Not Reported

USGS-GA

Not Reported

USGS-GA

Not Reported

Not Reported

Not Reported Not Reported

Not Reported

Not Reported

Not Reported

19Z013

19Z015

Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units: Not Reported Not Reported Not Reported Not Reported

q NNE 1 - 2 Miles Lower

Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: Aquifer: Aquifer Type: Well Depth: Well Hole Depth:

10 NNE 2 - 3 Miles Lower

Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: Aquifer: Aquifer Type: Well Depth: Well Hole Depth:

11 NNE 2 - 3 Miles Lower

- Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: Aquifer: Aquifer Type: Well Depth: Well Hole Depth:
- USGS-GA 19Z014 Not Reported
- Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported

Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unts: Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units:

USGS Georgia Water Science Center Well 03070101 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported

USGS40000262386

FED USGS

FED USGS

USGS40000262403

Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unts: Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units:

USGS Georgia Water Science Center Well 03070101 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported

FED USGS USGS40000262394

Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unts: Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units:

USGS Georgia Water Science Center Well 03070101 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported

Map ID Direction				
Distance Elevation		Data	base	EDR ID Number
D12 West 2 - 3 Miles Lower			USGS	USGS40000262292
Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: Aquifer: Aquifer Type: Well Depth: Well Hole Depth:	USGS-GA 19Z021 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported	Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unts: Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units:	Well 0307 Not I Not I Not I Not I	S Georgia Water Science Center 70101 Reported Reported Reported Reported Reported Reported Reported
D13 West 2 - 3 Miles Lower		FED	JSGS	USGS40000262290
Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: Aquifer: Aquifer Type: Well Depth: Well Hole Depth:	USGS-GA 19Z023 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported	Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unts: Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units:	Well 0307 Not I Not I Not I Not I	S Georgia Water Science Center 70101 Reported Reported Reported Reported Reported Reported
14 West 2 - 3 Miles Lower		FED	USGS	USGS40000262278
Organization ID: Monitor Location: Description: Drainage Area: Contrib Drainage Area: Aquifer: Aquifer: Aquifer Type: Well Depth: Well Hole Depth:	USGS-GA 19Z022 Not Reported Not Reported Not Reported Not Reported Not Reported Not Reported	Organization Name: Type: HUC: Drainage Area Units: Contrib Drainage Area Unts: Formation Type: Construction Date: Well Depth Units: Well Hole Depth Units:	Well 0307 Not I Not I Not I Not I	S Georgia Water Science Center 70101 Reported Reported Reported Reported Reported Reported Reported

AREA RADON INFORMATION

Federal EPA Radon Zone for PUTNAM County: 3

Note: Zone 1 indoor average level > 4 pCi/L.

: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L. : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 31024

Number of sites tested: 10

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.190 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA Telephone: 877-336-2627 Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory Source: Georgia GIS Clearinghouse Telephone: 706-542-1581

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS) Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS) This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Georgia Public Supply Wells Source: Georgia Department of Community Affairs Telephone: 404-894-0127

USGS Georgia Water Wells Source: USGS, Georgia District Office Telephone: 770-903-9100

OTHER STATE DATABASE INFORMATION

DNR Managed Lands

Source: Department of Natural Resources Telephone: 706-557-3032

This dataset provides 1:24,000-scale data depicting boundaries of land parcels making up the public lands managed by the Georgia Department of Natural Resources (GDNR). It includes polygon representations of State Parks, State Historic Parks, State Conservation Parks, State Historic Sites, Wildlife Management Areas, Public Fishing Areas, Fish Hatcheries, Natural Areas and other specially-designated areas. The data were collected and located by the Georgia Department of Natural Resources. Boundaries were digitized from survey plats or other information.

RADON

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities Source: Federal Aviation Administration, 800-457-6656

private sources such as universities and research institutions.

Epicenters: World earthquake epicenters, Richter 5 or greater Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

 Site Information
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USGS 331331083182801 19Z013

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°13'31.99", Longitude 83°18'28.02" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	series:0)

OPERATION:

Record for this site is maintained by the USGS Georgia Water Science Center

Email questions about this site to <u>Georgia Water Science Center Water-Data</u> <u>Inquiries</u>

Questions about sites/data? Feedback on this web site Automated retrievals Help Data Tips Explanation of terms Subscribe for system changes News



National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

 Site Information
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USGS 331322083174501 19Z014

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°13'22.89", Longitude 83°17'45.95" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	eries:0)

OPERATION:

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National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

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USGS 331315083175301 19Z015

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°13'15.52", Longitude 83°17'53.30" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	eries:0)

OPERATION:

Record for this site is maintained by the USGS Georgia Water Science Center

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National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

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USGS 331321083182501 19Z016

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°13'21.37", Longitude 83°18'25.84" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	eries:0)

OPERATION:

Record for this site is maintained by the USGS Georgia Water Science Center

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National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

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USGS 331321083182401 19Z017

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°13'21.09", Longitude 83°18'24.31" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	eries:0)

OPERATION:

Record for this site is maintained by the USGS Georgia Water Science Center

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National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

 Site Information
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USGS 331053083203501 19Z020

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°10'53.65", Longitude 83°20'35.71" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	eries:0)

OPERATION:

Record for this site is maintained by the USGS Georgia Water Science Center

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National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

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USGS 331135083210901 19Z021

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°11'35.64", Longitude 83°21'09.83" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	eries:0)

OPERATION:

Record for this site is maintained by the USGS Georgia Water Science Center

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National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

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USGS 331124083211001 19Z022

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°11'24.69", Longitude 83°21'10.16" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	eries:0)

OPERATION:

Record for this site is maintained by the USGS Georgia Water Science Center

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National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

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USGS 331133083211101 19Z023

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°11'33.44", Longitude 83°21'11.06" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	eries:0)

OPERATION:

Record for this site is maintained by the USGS Georgia Water Science Center

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National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

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USGS 331231083170901 19Z024

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°12'31.77", Longitude 83°17'09.20" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	eries:0)

OPERATION:

Record for this site is maintained by the USGS Georgia Water Science Center

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National Water Information System: Web Interface

USGS Water Resources

 Data Category:
 Geographic Area:

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USGS 331231083170902 19Z025

Available data for this site SUMMARY OF ALL AVAILABLE DATA V GO

Well Site

DESCRIPTION:

Latitude 33°12'31.24", Longitude 83°17'09.20" NAD83 Putnam County, Georgia , Hydrologic Unit 03070101 Well depth: not determined.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Revisions	Unavailable (s	ite:0) (times	eries:0)

OPERATION:

Record for this site is maintained by the USGS Georgia Water Science Center

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Links

Drinking Water Branch

Water System Details

Water System Facilities	Water System No. :	GA2370037	Federal Type :	С
Sample Schedules	Water System Name :	BAYSIDE HAVEN MHP	State Type :	С
Coliform/Microbial Sample Results	Principal County Served :	PUTNAM	Primary Source :	GW
Coliform Sample	Status :	Ι	Activity Date :	04-22-2005

Coliform Sample Summary Results

Lead And Copper Sample Summary Results

Chem/Rad Samples/Results

<u>Chem/Rad</u> <u>Samples/Results by</u> <u>Analyte</u>

Violations/Enforcement Actions

Site Visits

Milestones

Return Links

Water Systems

Water System Search

County Map

Glossary

Points of Contact

oper						
nary	Name	Job Title	Туре	Phone	Address	Email
					162 DOGWOOD	
	MORATH,	OPERATOR	SA	706-485-	DR. SE,	Not
	BETTY	OPERATOR	SA	4168	MILLEDGEVILLE,	Available
lts					GA-31061	
.11.5					162 DOGWOOD	
	MORATH,	OPERATOR	LE	706-485-	DR. SE,	Not
	BETTY	OILKAIOK		4168	MILLEDGEVILLE,	Available
lts by					GA-31061	
					162 DOGWOOD	
	MORATH,	OPERATOR	LC	706-485-	DR. SE,	Not
forcement	BETTY	OTLIGATOR		4168	MILLEDGEVILLE,	Available
					GA-31061	
					162 DOGWOOD	
	MORATH,	OPERATOR	OP	706-485-	DR. SE,	Not
	BETTY	OILKAIOK		4168	MILLEDGEVILLE,	Available
					GA-31061	
					162 DOGWOOD	
	MORATH,	OPERATOR	EC	706-485-	DR. SE,	Not
KS	BETTY	OILKAIOK		4168	MILLEDGEVILLE,	Available
					GA-31061	
					162 DOGWOOD	
	MORATH,	OPERATOR	AC	706-485-	DR. SE,	Not
ms	BETTY	OILKAIOK	AC	4168	MILLEDGEVILLE,	Available
					GA-31061	
m Search					162 DOGWOOD	
	MORATH,	OPERATOR	DO	706-485-	DR. SE,	Not
)	BETTY			4168	MILLEDGEVILLE,	Available
-					GA-31061	
					162 DOGWOOD	
	MORATH,	OPERATOR	OW	706-485-	DR. SE,	Not
	BETTY	OTLIGATOR		4168	MILLEDGEVILLE,	Available
					GA-31061	
					162 DOGWOOD	
	MORATH,	OPERATOR	SA	706-485-	DR. SE,	Not
	BETTY (UPS)	OFERAIOR	SA	4168	MILLEDGEVILLE,	Available
					GA-31061	
•					Service Cor	noctio

Annual Operating Periods &

Service Connections

Population Served

Start Month 1		Population Type R	Population Served 78	Туре	Count	Meter Type	Meter Size Measure
				RS	30	UN	0

Sources of Water

Service Areas

Name	Type Code	Status
DOGWOOD DRIVE & LEISURE LANE WELL	WI	А
WELL #1	WL	Ι
WELL #2	WL	Ι

Code	Name
R	MOBILE HOME PARK,PRINC. RES.

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
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Summary Results

Links

Drinking Water Branch

Water System Details

Water System Facilities	Water System No. :	GA2370008	Federal Type :	С
Sample Schedules	Water System Name :	TALL TIMBERS-OAK OPENINGS	State Type :	С
<u>Coliform/Microbial</u> Sample Results	Principal County Served :	PUTNAM	Primary Source :	GW
Coliform Sample	Status :	Ι	Activity Date :	01-13-2009

Points of Contact

Lead And Copper			_			
Sample Summary	Name	Job Title	Туре	Phone	Address	Email
Results Chem/Rad Samples/Results	COLLINS, DALE (UPS)	OPERATOR	SA	706- 816- 2655	607 Old Phoenix Rd, EATONTON, GA-31024	dcollins@piedmontwater.com
<u>Chem/Rad</u> Samples/Results by	COLLINS, DALE	OPERATOR	SA	706- 816- 2655	607 Old Phoenix Rd, EATONTON, GA-31024	dcollins@piedmontwater.com
<u>Analyte</u> <u>Violations/Enforcement</u> Actions	COLLINS, DALE	OPERATOR	DO	706- 816- 2655	607 Old Phoenix Rd, EATONTON, GA-31024	dcollins@piedmontwater.com
Site Visits	COLLINS, DALE	OPERATOR	EC	706- 816- 2655	607 Old Phoenix Rd, EATONTON, GA-31024	dcollins@piedmontwater.com
<u>Milestones</u> Return Links	COLLINS, DALE	OPERATOR	LE	706- 816- 2655	607 Old Phoenix Rd, EATONTON, GA-31024	dcollins@piedmontwater.com
Water Systems	COLLINS, DALE	OPERATOR	LC	706- 816- 2655	607 Old Phoenix Rd, EATONTON, GA-31024	dcollins@piedmontwater.com
<u>Water System Search</u> <u>County Map</u>	COLLINS, DALE	OPERATOR	OP	706- 816- 2655	607 Old Phoenix Rd, EATONTON, GA-31024	dcollins@piedmontwater.com
<u>Glossary</u>	ARCHEBELLE, DONNA	DIR	AC	706- 485- 5252	POB 3639, EATONTON, GA-31024-3639	darchebelle@putnamcountyga.us
	ARCHEBELLE, DONNA	DIR	EC	706- 485- 5252	POB 3639, EATONTON, GA-31024-3639	darchebelle@putnamcountyga.us
	ARCHEBELLE, DONNA	DIR	LE	706- 485- 5252	GA-31024-3639	darchebelle@putnamcountyga.us
	ARCHEBELLE, DONNA	, DIR	LC			darchebelle@putnamcountyga.us

			706-	POB 3639,	
			485-	EATONTON,	
			5252	GA-31024-3639	
ARCHEBELLE.			706-	POB 3639,	
DONNA	DIR	OW	485-	EATONTON,	darchebelle@putnamcountyga.us
DOMNA			5252	GA-31024-3639	
MATTHEWS,	ADM.		404-	PO. BOX 913,	
JEFF	CONTACT	T EC	235-	GREENSBORO,	jmatthews@piedmontwater.com
JEFF			0666	GA-30642	
MATTHEWS,	ADM.		404-	PO. BOX 913,	
JEFF	CONTACT	LE	235-	GREENSBORO,	jmatthews@piedmontwater.com
JETT	CONTACT		0666	GA-30642	
MATTHEWS,	ADM.		404-	PO. BOX 913,	
JEFF	ADM. CONTACT	LC	235-	GREENSBORO,	jmatthews@piedmontwater.com
JEIT	CONTACT		0666	GA-30642	

Annual Operating Periods & Population Served

Service Connections

Start Month					Population Served		COUDT	Meter	5170
1	1	12	31	R	733			Type	Measure
<i>V</i>						RS	279	UN	0

Sources of Water

Name	Type Code	Status
116 BLUEGILL ROAD/L#1 - WELL #5	WL	А
250 BLUEGILL RD/L#266 - WELL #2	WL	А
250 BLUEGILL RD/L#266 - WELL #3	WL	А
308 BLUEGILL ROAD-LOT 215 WELL #6	WL	А
162 BLUEGILL RD/L#29 - WELL #1	WL	Ι
392 BLUEGILL ROAD/L#179 - WELL #4	WL	Ι

Service Areas

Code	Name
R	SUBDIVISION

Seller	Water System	Seller	Seller State	Buyer	Buyer State
Water	Name	Facility	Asgn ID No.	Facility	Asgn ID No.
		Туре		Туре	

Drinking Water Branch

Water System Details

Water System Facilities

Sample Schedules

Links

Coliform/Microbial Sample Results

Coliform Sample Summary Results

Lead And Copper Sample Summary Results

Chem/Rad Samples/Results

<u>Chem/Rad</u> <u>Samples/Results by</u> <u>Analyte</u>

Violations/Enforcement Actions

Site Visits

Milestones

Return Links

Water Systems

Water System Search

County Map

Glossary

Water System Federal С GA2370002 No. : Type : Water System FOREST LAKE State Type : C Name : VILLAGE S/D Principal County PUTNAM Primary GW Served : Source : Activity Status : Ι 03-13-2017 Date :

Points of Contact

Name	Job Title	Туре	Phone	Address	Email
	ONNER (706-	P.O. Box 81790,	
BAKER,	OWNER /	AC	927-	ATLANTA,	eaglewatermgt@gmail.com
TED	PRESIDENT		0027	GA-30366	
DAKED	ONDIED (706-	P.O. Box 81790,	
BAKER,	OWNER /	OW	927-	ATLANTA,	eaglewatermgt@gmail.con
TED	PRESIDENT		0027	GA-30366	
DAKED	ONDER /		706-	P.O. Box 81790,	
BAKER,	OWNER /	EC	927-	ATLANTA,	eaglewatermgt@gmail.com
TED	PRESIDENT		0027	GA-30366	
DAKED	ONDER /		706-	P.O. Box 81790,	
BAKER,	OWNER /	FC	927-	ATLANTA,	eaglewatermgt@gmail.com
TED	PRESIDENT		0027	GA-30366	
DAVED			706-	P.O. Box 81790,	
BAKER,	OWNER /	LC	927-	ATLANTA,	eaglewatermgt@gmail.cor
TED	PRESIDENT		0027	GA-30366	
DAKED			706-	P.O. Box 81790,	
BAKER,	OWNER /	LE	927-	ATLANTA,	eaglewatermgt@gmail.coi
TED	PRESIDENT		0027	GA-30366	
			706-	P.O. Box 81790,	
WILSON,	OPERATOR	DO	927-	ATLANTA,	eaglewatermgt@gmail.coi
JODI			0027	GA-30366	
NUL GON			706-	P.O. Box 81790,	
WILSON,	OPERATOR	OP	927-	ATLANTA,	eaglewatermgt@gmail.coi
JODI			0027	GA-30366	<u></u>
NHL CON			706-	P.O. Box 81790,	
WILSON,	OPERATOR	EC	927-	ATLANTA,	eaglewatermgt@gmail.coi
JODI			0027	GA-30366	
NHI GON			706-	P.O. Box 81790,	
WILSON,	OPERATOR	SA	927-	ATLANTA,	eaglewatermgt@gmail.com
JODI			0027	GA-30366	
			706-	P.O. Box 81790,	
WILSON,	OPERATOR	LC	927-	ATLANTA,	eaglewatermgt@gmail.com
JODI		-	0027	GA-30366	
			706-	P.O. Box 81790,	
WILSON,	OPERATOR	LE	927-	ATLANTA,	eaglewatermgt@gmail.coi
JODI			0027	GA-30366	
WILSON,	OPERATOR	SA	706-	2561 Lake	eaglewatermgt@gmail.com
JODI (UPS)		~	927-	Oconee	
(010)			0027	Parkway,	
			0027	i univitay,	

	GREENSBORO, GA-30642	
--	-------------------------	--

Annual Operating Periods & Population Served

Service Connections

					Population			Meter	Meter
Month	Day	Month	Day	Туре	Served	Туре	Count	_	Size
1	1	12	31	R	91			. , po	Measure
						RS	35	ME	0

Sources of Water

Name	Type Code	Status
104 WALNUT COVE WELL #2	WL	А
130 ASPENWOOD COURT WELL #1	WL	А
158 PINE KNOLL LANE SE WELL #3	WL	А
PINE KNOLL LN/HWY 41-N/SD ENT WELL #4	WL	А
PINE KNOLL- CNTR IS OF S/D ENT WELL #5	WL	А

Service Areas

Code	Name
R	SUBDIVISION

Seller Water V System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
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Links

Drinking Water Branch

Water System Facilities	Water System No. :	GA0090008	Federal Type :	С
Sample Schedules	Water System Name :	THE COVE SUBDIVISION	State Type :	С
<u>Coliform/Microbial</u> Sample Results	Principal County Served :	BALDWIN	Primary Source :	GW
Coliform Sample	Status :	Ι	Activity Date :	01-08-1990

Coliform Sample Summary Results

Lead And Copper Sample Summary <u>Results</u>

Chem/Rad Samples/Results

Chem/Rad Samples/Results by Analyte

Violations/Enforcement Actions

Site Visits

Milestones

Return Links

Water Systems

Water System Search

County Map

Annual Operating Periods & **Population Served**

Service Connections

Glossary

Start Month 1				Population Served 60	Туре	Count	Meter Type	Meter Size Measure
£				·	RS	24	UN	0
	Sourc	ces (of Water	<u>S</u>	ervic	e Are	as	

Water System Details

Points of Contact

	Name	Job Title	Туре	Phone	Address	Email
	THIGPEN, ROY R	null	AC		POB 1346, MILLEDGEVILLE, GA-31061-1346	Not Available
	THIGPEN, ROY R	null	ow		POB 1346, MILLEDGEVILLE, GA-31061-1346	Not Available
	THIGPEN, ROY R	null	SA		POB 1346, MILLEDGEVILLE, GA-31061-1346	Not Available
e <u>nt</u>	THIGPEN, ROY R	null	LC		POB 1346, MILLEDGEVILLE, GA-31061-1346	Not Available
	THIGPEN, ROY R	null	LE		POB 1346, MILLEDGEVILLE, GA-31061-1346	Not Available
	THIGPEN, ROY R	null	DO		POB 1346, MILLEDGEVILLE, GA-31061-1346	Not Available
	THIGPEN, ROY R	null	OP		POB 1346, MILLEDGEVILLE, GA-31061-1346	Not Available
h	THIGPEN, ROY R (UPS)	null	SA		POB 1346, MILLEDGEVILLE, GA-31061-1346	Not Available

Links

Drinking Water Branch

Water System Details

Water System Facilities	Water System No. :	GA2370066	Federal Type :	NC
Sample Schedules	Water System Name :	GA POWER-SKILLS DEV CENTER	State Type :	NC
<u>Coliform/Microbial</u> Sample Results	Principal County Served :	PUTNAM	Primary Source :	GW
Coliform Sample	Status :	А	Activity Date :	09-10-1993

Coliform Sample Summary Results

Points of Contact

Lead And Conner										
Lead And Copper Sample Summary	Name	Job Title	Type	Phone	Address	Email				
<u>Chem/Rad</u> Samples/Results	GORDY, MARK	OPERATOR	OP	706- 484- 7504	125 WALLACE DAM ROAD, EATONTON, GA-31024	mlgordy@southernco.com				
<u>Chem/Rad</u> Samples/Results by Analyte	LINCH, REGINA	SR. Compliance Sp.	EC	706- 484- 7206	1098 MILLEDGEVILLE ROAD, MILLEDGEVILLE, GA-31061	rllinch@southernco.com				
<u>Violations/Enforcement</u> <u>Actions</u> <u>Site Visits</u> <u>Milestones</u>	WOMACK, JANELLE T.	OPERATOR	DO	706- 484- 7356	SKILLS DEVELOPMENT CENTER, 1098 MILLEDGEVILLE ROAD, MILLEDGEVILLE, GA-31061	jtwomack@southernco.com				
Return Links <u>Water Systems</u> Water System Search	WOMACK, JANELLE T.	OPERATOR	SA	706- 484- 7356	SKILLS DEVELOPMENT CENTER, 1098 MILLEDGEVILLE ROAD, MILLEDGEVILLE, GA-31061	jtwomack@southernco.com				
<u>County Map</u> Glossary	WOMACK, JANELLE T.	OPERATOR	EC		SKILLS DEVELOPMENT CENTER, 1098 MILLEDGEVILLE ROAD, MILLEDGEVILLE, GA-31061	jtwomack@southernco.com				
	WOMACK, JANELLE T.	OPERATOR	OP	706- 484- 7356	SKILLS DEVELOPMENT CENTER, 1098 MILLEDGEVILLE ROAD,	jtwomack@southernco.com				

				MILLEDGEVILLE, GA-31061	
WOMACK, JANELLE T.	OPERATOR	LC	706- 484- 7356	SKILLS DEVELOPMENT CENTER, 1098 MILLEDGEVILLE ROAD, MILLEDGEVILLE, GA-31061	jtwomack@southernco.com
WOMACK, JANELLE T.	OPERATOR	LE	706- 484- 7356	SKILLS DEVELOPMENT CENTER, 1098 MILLEDGEVILLE ROAD, MILLEDGEVILLE, GA-31061	jtwomack@southernco.com
MARTIN, GEORGE	ENV SPECIALIST	EC	404- 506- 1357	241 Ralph MCGill Blvd, BIN 10221, ATLANTA, GA-30308-3374	gamartin@southernco.com
MARTIN, GEORGE	ENV SPECIALIST	LC	404- 506- 1357	241 Ralph MCGill Blvd, BIN 10221, ATLANTA, GA-30308-3374	gamartin@southernco.com
MARTIN, GEORGE	ENV SPECIALIST	LE	404- 506- 1357	241 Ralph MCGill Blvd, BIN 10221, ATLANTA, GA-30308-3374	gamartin@southernco.com
HENDRICKS, A. SCOTT	ADMIN. CONTACT	AC	404- 506- 7780	241 Ralph MCGill BLVD, BIN 10221, ATLANTA, GA-30308	ashendri@southernco.com
HENDRICKS, A. SCOTT	ADMIN. CONTACT	OW	404- 506- 7780	241 Ralph MCGill BLVD, BIN 10221, ATLANTA, GA-30308	ashendri@southernco.com
HENDRICKS, A. SCOTT	ADMIN. CONTACT	LC	404- 506- 7780	241 Ralph MCGill BLVD, BIN 10221, ATLANTA, GA-30308	ashendri@southernco.com
HENDRICKS, A. SCOTT	ADMIN. CONTACT	FC	404- 506- 7780	241 Ralph MCGill BLVD, BIN 10221, ATLANTA, GA-30308	ashendri@southernco.com
WOMACK, JANELLE T. (UPS)	OPERATOR	SA	706- 484- 7356	SKILLS DEVELOPMENT CENTER, 1098 MILLEDGEVILLE ROAD, MILLEDGEVILLE, GA-31061	jtwomack@southernco.com

Service Connections

Annual Operating Periods & Population Served

Start Month					Population Served 60		Count	Meter Type	Size
	1	12	51	1	00	CM	1	UN	0

Sources of Water

Name Type Code WELL #1 WL A

Code	Name
Т	OTHER TRANSIENT

AREA

Service Areas

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
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	Name	Туре	Status	Code	Name
		Code		R	SUBDIVISION
ſ	WELL #1	WL	Α		

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
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Drinking Water Branch

Links Water System Details Water System Facilities Water System No. : GA2370087 Federal Type : С SINCLAIR WATER Water System Name : С State Type : Sample Schedules AUTHORITY **Principal County** Primary PUTNAM SW Coliform/Microbial Source : Served : Sample Results Status : Activity Date : Α 09-05-2008 Coliform Sample Points of Contact Summary Results Lead And Copper **Type**Phone Job Title Address Name Email Sample Summary 706-126 CAY DRIVE, WITCHER, PLT. MILLEDGEVILLE, J.WITCHER@SINCLAIRWATERAUTHORITY.COM Results 485-DO JOSEPH MGR./OPR

	JOSEFII	MOK./OFK.		8993	GA-31061	
Chem/Rad	WITCHER.	PLT.		706-	126 CAY DRIVE,	
Samples/Results	JOSEPH	MGR./OPR.	EC	485-	MILLEDGEVILLE,	J.WITCHER@SINCLAIRWATERAUTHORITY.COM
	JOSEFII	MOK./OFK.		8993	GA-31061	
Chem/Rad	WITCHER.	PLT.		706-	126 CAY DRIVE,	
	JOSEPH	MGR./OPR.	LE	485-	MILLEDGEVILLE,	J.WITCHER@SINCLAIRWATERAUTHORITY.COM
Samples/Results by	JOSEFII	MOK./OFK.		8993	GA-31061	
Analyte	WITCHER.	PLT.		706-	126 CAY DRIVE,	
	JOSEPH	MGR./OPR.	LC	485-	MILLEDGEVILLE,	J.WITCHER@SINCLAIRWATERAUTHORITY.COM
Violations/Enforcement	JOSEPH	MGK./OPK.		8993	GA-31061	
Actions	WITCHER,	PLT.		706-	126 CAY DR.,	
	JOSEPH	MGR./OPR.	SA	485-	MILLEDGEVILLE,	J.WITCHER@SINCLAIRWATERAUTHORITY.COM
Site Visits	(UPS)	MOK./OI K.		8993	GA-31061	
Site visits	MINTON,			706-	126 CAY DRIVE,	
	JOAN	CHAIRPERSON	AC	485-	MILLEDGEVILLE,	J.MINTON@SINCLAIRWATERAUTHORITY.COM
Milestones	JOAN			8993	GA-31061	
	MINTON,			706-	126 CAY DRIVE,	
Return Links	JOAN	CHAIRPERSON	OW	485-	MILLEDGEVILLE,	J.MINTON@SINCLAIRWATERAUTHORITY.COM
	JOAN			8993	GA-31061	
	SHINN,	LEAD		706-	126 CAY DRIVE,	
Water Systems	ANTHONY	OPERATOR	OP	485-	MILLEDGEVILLE,	A.SHINN@SINCLAIRWATERAUTHORITY.COM
water Systems	ANTIONI	OTERATOR		8993	GA-31061	

Water System Search

County Map

Glossary

Annual Operating Periods & Population Served

Start	Start	End	End	Population	Population
Month	Day	Month	Day	Туре	Served
1	1	12	31	W	34840

Sources of Water

Service Connections

Туре	Count	Meter Type	Meter Size Measure
RS	2	UN	0

Service Areas

Name	Туре	Status	Со
	Code		
LAKE SINCLAIR	IN	Α	C

Code	Name
0	WHOLESALER (SELLS WATER)

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
----------------------------------	-------------------	----------------------------	-----------------------------	---------------------------	----------------------------

Links

Drinking Water Branch

Water System Details

Water System Facilities	Water System No. :	GA2370000	Federal Type :	С
Sample Schedules	Water System Name :	EATONTON PUTNAM WATER & SEWER AUTH	State Type :	С
<u>Coliform/Microbial</u> <u>Sample Results</u>	Principal County Served :	PUTNAM	Primary Source :	SWP
Coliform Sample Summary Results	Status :	А	Activity Date :	03-12-1980

Points of Contact

Lead And Copper	Points of Contact						
Sample Summary Results	Name	Job Title	Туре	Phone	Address	Email	
<u>Chem/Rad</u> Samples/Results	PARHAM, JAMES A	OPR	DO	706- 485- 5252	663 GODFREY RD, EATONTON, GA-31024	Not Available	
<u>Chem/Rad</u> <u>Samples/Results by</u> <u>Analyte</u>	PARHAM, JAMES A	OPR	EC	706- 485- 5252	663 GODFREY RD, EATONTON, GA-31024	Not Available	
Violations/Enforcement Actions	PARHAM, JAMES A	OPR	LE	706- 485- 5252	663 GODFREY RD, EATONTON, GA-31024	Not Available	
<u>Site Visits</u> <u>Milestones</u>	PARHAM, JAMES A	OPR	LC	706- 485- 5252	663 GODFREY RD, EATONTON, GA-31024	Not Available	
Return Links	PARHAM, JAMES A	OPR	OP	706- 485- 5252	663 GODFREY RD, EATONTON, GA-31024	Not Available	
<u>Water Systems</u> <u>Water System Search</u>	VAN HAUTE, DONNA	DIRECTOR	LE	706- 485- 5252	663 GODFREY RD, EATONTON, GA-31024	dvanhaute@epwsa.com	
<u>County Map</u>	VAN HAUTE, DONNA	DIRECTOR	LC	706- 485- 5252	663 GODFREY RD, EATONTON, GA-31024	dvanhaute@epwsa.com	
<u>Glossary</u>	VAN HAUTE, DONNA	DIRECTOR	OW	706- 485- 5252	663 GODFREY RD, EATONTON, GA-31024	<u>dvanhaute@epwsa.com</u>	
	VAN HAUTE, DONNA	DIRECTOR	SA	706- 485- 5252	663 GODFREY RD, EATONTON, GA-31024	dvanhaute@epwsa.com	
	VAN HAUTE, DONNA	DIRECTOR	AC		663 GODFREY RD,	dvanhaute@epwsa.com	

		706- 485- 5252	EATONTON, GA-31024	
VAN HAUTE, DONNA (UPS)	SA	706- 485- 5252	663 GODFREY RD, EATONTON, GA-31024	dvanhaute@epwsa.com

Annual Operating Periods & Population Served

Service Connections

Start Month					Population Served		(Count	Meter	SIZE
1	1	12	31	R	12561			туре	Measure
2						RS	4831	ME	0

Sources of Water

Service Areas

Name	Type Code	Status
SINCLAIR WA CONNECTION	CC	А
LITTLE RIVER	IN	Ι

Code	Name
R	MUNICIPALITY

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
GA2370087	SINCLAIR WATER AUTHORITY	DS	950	CC	102

Summary Results

Links

Drinking Water Branch

Water System Details

Water System Facilities	Water System No. :	GA2370003	Federal Type :	NTNC
Sample Schedules	Water System Name :	GEORGIA POWER- PLANT BRANCH	State Type :	NTNC
<u>Coliform/Microbial</u> Sample Results	Principal County Served :	PUTNAM	Primary Source :	SW
Coliform Sample	Status :	Ι	Activity Date :	10-28-2015

Points of Contact

Lead And Copper						
Sample Summary	Name	Job Title	Туре	Phone	Address	Email
Results Chem/Rad Samples/Results	LINCH, REGINA	SR. Compliance Sp.	EC	706- 484- 7206	1098 MILLEDGEVILLE ROAD, MILLEDGEVILLE, GA-31061	rllinch@southernco.com
<u>Chem/Rad</u> <u>Samples/Results by</u> <u>Analyte</u>	BLALOCK, TANYA D.	ADM. CONTACT	AC	404- 506- 7026	241 RALPH MCGILL BLVD.,	tdblaloc@southernco.com
Violations/Enforcement Actions Site Visits	BLALOCK, TANYA D.	ADM. CONTACT	LE	404- 506- 7026	241 RALPH MCGILL BLVD., BIN 10221, ATLANTA, GA-30308-3374	tdblaloc@southernco.com
<u>Milestones</u> Return Links	BLALOCK, TANYA D.	ADM. CONTACT	LC	404- 506- 7026	241 RALPH MCGILL BLVD., BIN 10221, ATLANTA, GA-30308-3374	tdblaloc@southernco.com
<u>Water Systems</u> Water System Search	BLALOCK, TANYA D.	ADM. CONTACT	ow	404- 506- 7026	241 RALPH MCGILL BLVD., BIN 10221, ATLANTA, GA-30308-3374	tdblaloc@southernco.com
<u>County Map</u> <u>Glossary</u>	BLALOCK, TANYA D.	ADM. CONTACT	FC	404- 506- 7026	241 RALPH MCGILL BLVD., BIN 10221, ATLANTA, GA-30308-3374	tdblaloc@southernco.com
	WILLIAMS, ALICIA F	ENV AFFAIRS		404- 506- 3075	241 RALPH MCGILL BLVD, BIN 10221, ATLANTA, GA-30308-3374	afwillia@southernco.com
	MARTIN, STEVEN W. (UPS)	OPERATOR	SA	706- 484- 7321	1100 MILLEDGEVILLE RD, BIN 65020,	Not Available

				MILLEDGEVILLE, GA-31061	
MARTIN, STEVEN W.	OPERATOR	DO	706- 484- 7321	1100 MILLEDGEVILLE RD, BIN 65020, MILLEDGEVILLE, GA-31061	Not Available
MARTIN, STEVEN W.	OPERATOR	OP	706- 484- 7321	1100 MILLEDGEVILLE RD, BIN 65020, MILLEDGEVILLE, GA-31061	Not Available
MARTIN, STEVEN W.	OPERATOR	EC	706- 484- 7321	1100 MILLEDGEVILLE RD, BIN 65020, MILLEDGEVILLE, GA-31061	Not Available
MARTIN, STEVEN W.	OPERATOR	SA	706- 484- 7321	1100 MILLEDGEVILLE RD, BIN 65020, MILLEDGEVILLE, GA-31061	Not Available
MARTIN, STEVEN W.	OPERATOR	LC	706- 484- 7321	1100 MILLEDGEVILLE RD, BIN 65020, MILLEDGEVILLE, GA-31061	Not Available
MARTIN, STEVEN W.	OPERATOR	LE	706- 484- 7321	1100 MILLEDGEVILLE RD, BIN 65020, MILLEDGEVILLE, GA-31061	Not Available

Annual Operating Periods & Se Population Served

Service Connections

Start Month					Population Served		Count	Meter	Size
1	1	12	31	NT	400	11		IVDe	Measure
						RS	3	UN	0

Sources of Water

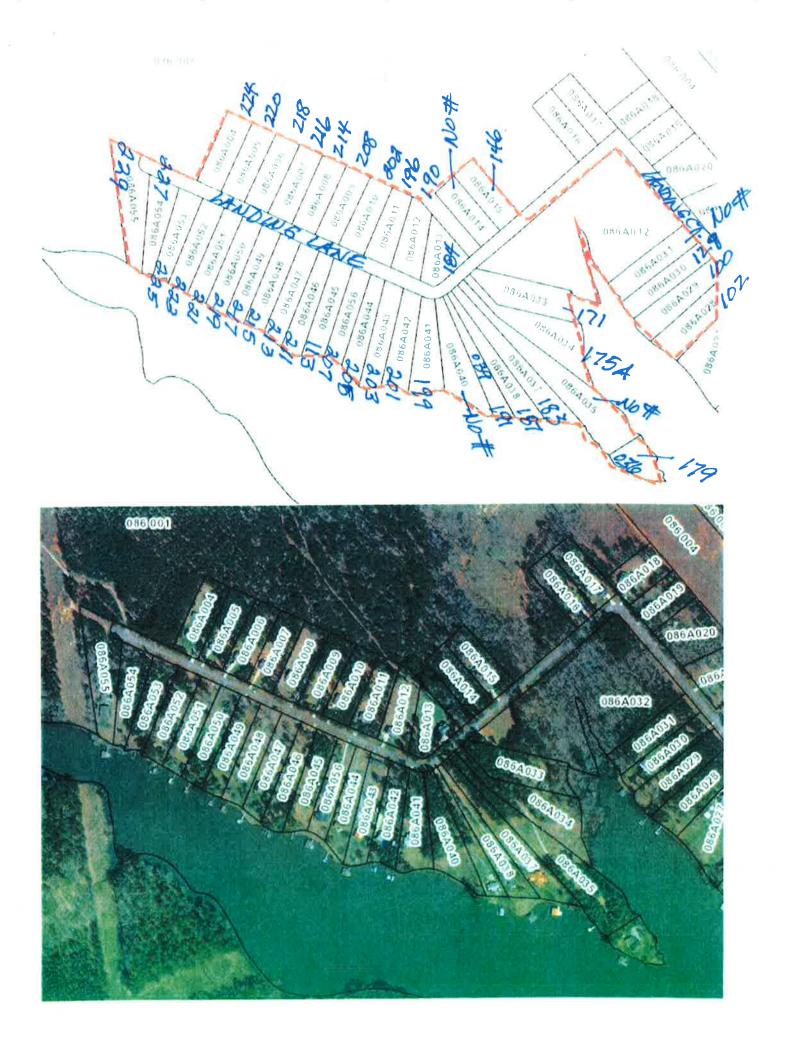
Service Areas

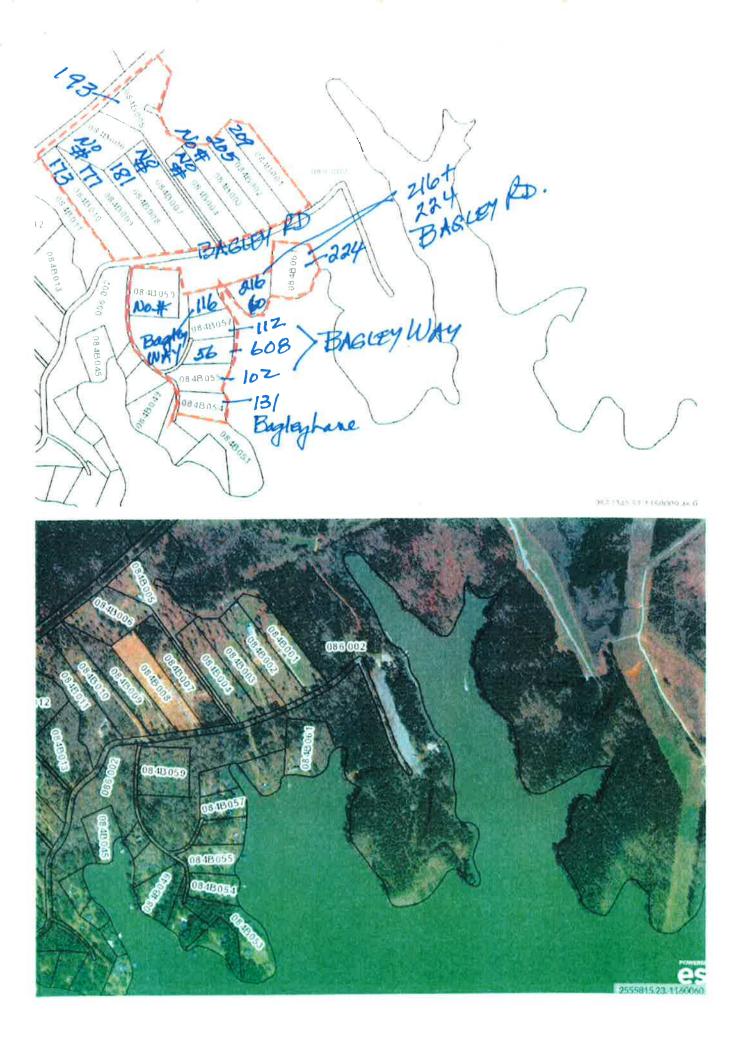
Name	Туре	Status	Code	Name
LAKE SINCLAIR	Code IN	A	NT	OTHER NON- TRANSIENT AREA

Geosyntec Drive-by Domestic Well Survey Plant Branch, Putnam County, Georgia

Putnam Count	y - NE Area			
Parcel No.	Street Address	Comments	Latitude	Longitude
086A-004	224 Landings Lane	Possible well house	33.203670	-83.306650
086A-005	220 Landings Lane			
086A-006	218 Landings Lane			
086A-007	216 Landings Lane	Possible well house	33.203220	-83.305540
086A-008	214 Landings Lane	Possible well house	33.203070	-83.305170
086A-009	208 Landings Lane			
086A-010	202 Landings Lane			
086A-011	196 Landings Lane			
086A-012	190 Landings Lane	Possible well house	33.202245	-83.303700
086A-013	184 Landings Lane	Possible well house	33.202240	-83.303260
086A-014	No # Landings Lane			
086A-031	No # Landings Court			
086A-032	No # Landings Lane			
086A-033	171 Landings Lane	Possible well house	33.201700	-83.301930
086A-034	175 A Landings Lane	Possible well house	33.201190	-83.301670
086A-035	No # Landings Lane			
086A-037	183 Landings Lane	Possible well house	33.200680	-83.302000
086A-038	187 Landings Lane	Possible well house	33.200680	-83.302360
086A-039	191 Landings Lane	Possible well house	33.200970	-83.303210
086A-040	No # Landings Lane			
086A-041	199 Landings Lane	Possible well house	33.200970	-83.303510
086A-042	201 Landings Lane	Possible well house	33.201120	-83.303880
086A-043	203 Landings Lane	Possible well house	33.201210	-83.304210
086A-044	205 Landings Lane	Possible well house	33.201300	-83.304500
086A-056	207 Landings Lane	Possible well house	33.201480	-83.304750
086A-045	113 Landings Lane			
086A-046	211 Landings Lane	Possible well house	33.201620	-83.305370
086A-047	213 Landings Lane	Possible well house	33.201780	-83.305630
086A-048	215 Landings Lane	Possible well house	33.201920	-83.305930
086A-049	217 Landings Lane	Possible well house	33.202050	-83.306230
086A-050	219 Landings Lane	Possible well house	33.202170	-83.306520
086A-051	221 Landings Lane	Possible well house	33.202309	-83.306824
086A-052	223 Landings Lane	Possible well house	33.202440	-83.307120
086A-053	225 Landings Lane			
086A-054	227 Landings Lane			
086A-055	229 Landings Lane			
Putnam Count	=			
Parcel No.	Street Address	Comments	Latitude	Longitude
084B-001	209 Bagley Road	Possible well house	33.189230	-83.319670
084B-002	205 Bagley Road	Possible well house	33.188930	-83.320210
084B-003	No # Bagley Road			
084B-004	No # Bagley Road			
084B-005	193 Bagley Road	Possible well house	33.190130	-83.323110
084B-006	No # Bagley Road			
084B-007	No # Bagley Road			
084B-008	181 Bagley Road			
084B-009	177 Bagley Road	DPH well		
084B-010	173 Bagley Road	-		
084B-055	102 Bagley Way			
084B-056	608 Bagley Way	Possible well house	33.184530	-83.321460
084B-057	112 Bagley Way	Possible well house	33.185162	-83.321358
084B-058	116 Bagley Way	Possible well house	33.185720	-83.321610
084B-059	No # Bagley Road			
		Possible well house	33.185920	-83.320250
084B-060	216 Bagley Road.	POSSIDIE WEILDOUSE	22.102220	-03.320230

DRAFT ATTORNEY-CLIENT PRIVILEGED WORK PRODUCT





Listings for Domestic Well permits on properties within 2 miles of Site boundary provided by Putnam County Department of Public Health. Original report text is in **black**. Notes in **red** added by Geosyntec.

Addresses located using Microsoft Maps program and/or Putnam County Board of Tax Assessors online records.

Strike-throughs are duplicate listings. Highlighted wells are located within 0.5 mile of Site.

2000

- 1. 157 Bagley rd Domestic Well, >0.5 mi from Site boundary
- 2. 150 Brer Rabbit Trail Domestic Well, >0.5 mi from Site boundary
- 3. 106 Brer Fox Trail Domestic Well, >0.5 mi from Site boundary
- 4. 122A Brer Bear Lane Domestic Well, >0.5 mi from Site boundary
- 5. 110 Brer Fox rd Domestic Well, >0.5 mi from Site boundary
- 6. 122A Brer Bear Lane Domestic Well, >0.5 mi from Site boundary
- 7. 110 Brer Fox rd Duplicate Listing, Domestic Well, >0.5 mi from Site boundary
- 8. 111 N. Cay Dr Domestic Well, >0.5 mi from Site boundary
- 9. 121 Cherry Point Domestic Well, >0.5 mi from Site boundary
- 10. 109 Dogwood Point Domestic Well, >0.5 mi from Site boundary
- 11. 134 Dogwood Dr Domestic Well, >0.5 mi from Site boundary
- 12. 108 Lake mont Dr Domestic Well, >0.5 mi from Site boundary
- 13. Lake Mont Dr All Domestic Wells, >0.5 mi from Site boundary
- 14. 184 Mays rd Domestic Well, >0.5 mi from Site boundary
- 15. N. Leisure Lane All Domestic Wells, >0.5 mi from Site boundary
- 16. 185 Spurgeon Dr Domestic Well, >0.5 mi from Site boundary
- 17. 119 Spurgeon Dr Domestic Well, >0.5 mi from Site boundary
- 18. 119 Spurgeon Rd Domestic Well, >0.5 mi from Site boundary
- 19. 186 Spurgeon Dr Domestic Well, >0.5 mi from Site boundary
- 20. 467 Twin Bridges Rd Domestic Well, >0.5 mi from Site boundary
- 21. 526 Twin Bridges Rd Domestic Well, >0.5 mi from Site boundary
- 22. 115 Welch trail Domestic Well, >0.5 mi from Site boundary

2001

- 1. 124 Bagley Lane Domestic Well, >0.5 mi from Site boundary
- 2. Lot 3 Bagley rd 201(?) Bagley Rd, Parcel 084B003. Domestic Well, within 0.5 mi of Site
- 3. 121 Bagley rd Domestic Well, >0.5 mi from Site boundary
- 4. 133 Bagley Rd Domestic Well, >0.5 mi from Site boundary
- 5. 511 twin Bridges rd Domestic Well, >0.5 mi from Site boundary
- 6. 118 Bobcat Trail Domestic Well, >0.5 mi from Site boundary
- 7. Bob Cat trail All Domestic Wells, >0.5 mi from Site boundary
- 8. 113 Casters branch Rd Domestic Well, >0.5 mi from Site boundary
- 9. Casters Branch lot 14 Domestic Well, >0.5 mi from Site boundary

PUTNAM COUNTY WELL PERMITS ISSUED FROM 2000 TO 2005 2/27/19

- 10. 102 Emily Place Domestic Well, >0.5 mi from Site boundary
- 11. 197 Mays rd Domestic Well, >0.5 mi from Site boundary
- 12. 215 Mays rd Domestic Well, >0.5 mi from Site boundary
- 13. 184 Spurgeon dr Domestic Well, >0.5 mi from Site boundary
- 14. 122 S. Cay Dr Domestic Well, >0.5 mi from Site boundary
- 15. 165 Spurgeon Dr Domestic Well, >0.5 mi from Site boundary
- 16. 181 Twin bridges rd Domestic Well, >0.5 mi from Site boundary
- 17. 484 Twin Bridges rd Domestic Well, >0.5 mi from Site boundary

2002

- 1. 105 Bagley Dr Domestic Well, >0.5 mi from Site boundary
- 2. 133 Bagley Rd Duplicate Listing. Domestic Well, >0.5 mi from Site boundary
- 3. Lot 5 Bagley Rd 193 Bagley Rd, Parcel 084B005. Domestic Well, within 0.5 mi of Site
- 4. Bagley Rd Possible other Domestic Wells within 0.5 mi of Site
- 5. 120 Brer Rabbit Trail Domestic Well, >0.5 mi from Site boundary
- 6. Lot 31 Myrick Dr. Domestic Well, >0.5 mi from Site boundary
- 7. Lot 14 Landing lane 148(?) Landing Lane, Parcel 086A014. Domestic Well, within 0.5 mi of Site
- 8. 162 Mays Rd Domestic Well, >0.5 mi from Site boundary
- 9. 162 Mays Rd Duplicate Listing. Domestic Well, >0.5 mi from Site boundary
- 10. 167 Mays Rd Domestic Well, >0.5 mi from Site boundary
- 11. 165 Spurgeon Dr Domestic Well, >0.5 mi from Site boundary
- 12. 647 twin Bridges Rd Domestic Well, >0.5 mi from Site boundary
- 13. (3) sites on Twin bridges Rd All Domestic Wells, >0.5 mi from Site boundary

2003

- 1. Lot 10 Bagley Rd 173 Bagley Rd, Parcel 084B010. Domestic Well, within 0.5 mi of Site
- 2. 205 Bagley rd -- Domestic Well, within 0.5 mi of Site
- 3. 108 brer Fox rd Domestic Well, >0.5 mi from Site boundary
- 4. 103 Emma Dr Domestic Well, >0.5 mi from Site boundary
- 5. Lot 9 Jackson rd Domestic Well, >0.5 mi from Site boundary
- 6. Lot 18-1 Landing Lane Domestic Well, >0.5 mi from Site boundary
- 7. 120 Spurgeon Dr Domestic Well, >0.5 mi from Site boundary
- 8. 152 twin Bridges Rd Domestic Well, >0.5 mi from Site boundary

2004

- 1. 209 Bagley Dr Domestic Well, within 0.5 mi of Site
- 2. 128 Brer Rabbit Domestic Well, >0.5 mi from Site boundary
- 3. 145 Casters Branch rd Domestic Well, >0.5 mi from Site boundary
- 4. Lot 1 Landing Lane Cannot locate parcel/address.
- 5. Lot 3 Landing Lane Cannot locate parcel/address.
- 6. Lot 5 Landing Lane 220 Landings Lane. Domestic Well, within 0.5 mi of Site

PUTNAM COUNTY WELL PERMITS ISSUED FROM 2000 TO 2005 2/27/19

- 7. Lot 6 Landing Lane 218 Landings Lane. Domestic Well, within 0.5 mi of Site
- 8. 138 S. Leisure Lane Domestic Well, >0.5 mi from Site boundary
- 9. 184 Landing Lane Domestic Well, within 0.5 mi of Site
- 10. 136 Landing Lane Domestic Well, >0.5 mi from Site boundary
- 11. 190 Landing Lane Domestic Well, within 0.5 mi of Site
- 12. 184 LANDING LANE- Domestic Well, within 0.5 mi of Site
- 13. Millville Hwy All Domestic Wells, >0.5 mi from Site boundary
- 14. Mays Rd All Domestic Wells, >0.5 mi from Site boundary
- 15. Possum Point All Domestic Wells, >0.5 mi from Site boundary
- 16. Twin Bridges All Domestic Wells, >0.5 mi from Site boundary
- 17. 156 Twin bridges rd Domestic Well, >0.5 mi from Site boundary
- 18. 128 Landing Lane Domestic Well, >0.5 mi from Site boundary
- 19. 134 Landing Lane Domestic Well, >0.5 mi from Site boundary
- 20. 146 Spurgeon Dr Domestic Well, >0.5 mi from Site boundary
- 21. 1044 Dennis Station Rd Domestic Well, >0.5 mi from Site boundary
- 22. 1020 Dennis Station Rd Domestic Well, >0.5 mi from Site boundary

2005

- 1. 980 Dennis Station Rd Domestic Well, >0.5 mi from Site boundary
- 2. Ford Rd All Domestic Wells, >0.5 mi from Site boundary
- Lot 1 Bagley RD Duplicate Listing 209 Bagley Rd. Domestic Well, >0.5 mi from Site boundary

Miscellaneous

- 209 Bagley Dr Duplicate Listing. Domestic Well, >0.5 mi from Site boundary
- 2. 120 N Cay Dr Domestic Well, >0.5 mi from Site boundary
- 3. Dennis Station All Domestic Wells, >0.5 mi from Site boundary
- 4. Dogwood Dr. All Domestic Wells, >0.5 mi from Site boundary
- 5. Emma Dr. All Domestic Wells, >0.5 mi from Site boundary
- 6. Garner Lane All Domestic Wells, >0.5 mi from Site boundary
- 7. 200 Jackson Rd Humber Ferry Lot 6 Domestic Well, >0.5 mi from Site boundary
- 8. 115 Mays Rd Domestic Well, >0.5 mi from Site boundary
- 9. 136 Landing Lane Duplicate Listing. Domestic Well, >0.5 mi from Site boundary
- 10. 116 Leisure lane Domestic Well, >0.5 mi from Site boundary
- 11. 131 Bagley Lane Domestic Well, >0.5 mi from Site boundary
- 12. Deerfield airway community X 15 wells All Domestic Wells, >0.5 mi from Site boundary
- 13. 441 S Milldgeville Rd Old Paradise Restaurant place Business No Longer in Existence
- 14. 441S Old Steam Boat Restaurant Location Business No Longer in Existence
- 15. 128 Brer Rabbit Domestic Well, >0.5 mi from Site boundary
- 16. 177 Bagley Road identified in 2017 PCDPH well search. Domestic Well within 0.5 mile of Site

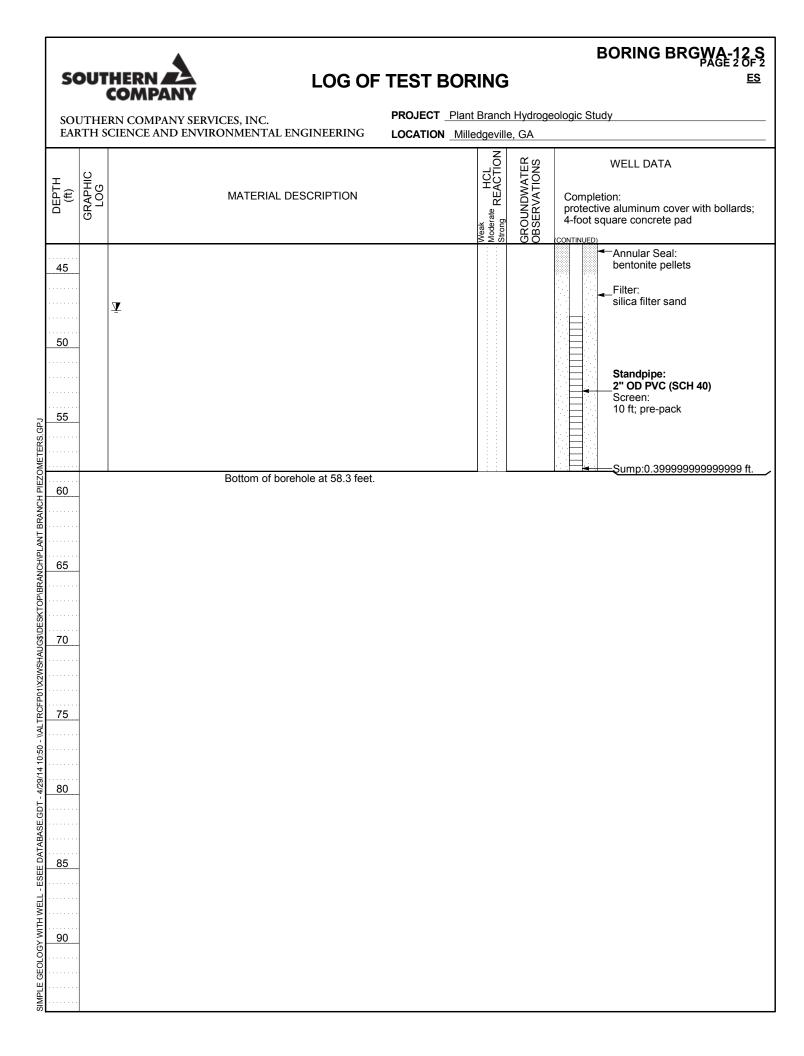
APPENDIX D

Boring Logs

S			RING			BORING BRGWA-12 J PAGE 1 OF 2 ES
SC EA	UTHE	COMPANY	nt Branch	h Hydroge		Study
		TED 2/20/2014 COMPLETED 2/20/2014 SURF. ELEV. Not Sur DR SCS Field Services EQUIPMENT CME 550 METHOD				
BOR	ING DE	Z. Milam LOGGED BY W. Shaughnessy CHECKED BY PTH 77.6 ft. GROUND WATER DEPTH: DURING COM				
NOT	ES		z			
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak Moderate Strong	GROUNDWATER OBSERVATIONS	prot	WELL DATA npletion: ective aluminum cover with bollards; ot square concrete pad
ZOMETERS.GPJ		- CL: dry, very stiff, sandy CLAY, red with yellow-red mottles, micas				
		- CL: dry, very stiff, sandy CLAY, red with yellow-red mottles, micas				
		- CL: dry, very stiff, silty CLAY, yellow-red with gray-brown mottles, sand, micas				
02 02 02 02 02 02 02 02 02 02 02 02 02 0		- ML: dry, stiff, clayey SILT, red and pink with yellow and yellow-brown mottles, sand, micas				
25 // 11 10:20 - // 25	· · · ·	- ML: dry, medium dense, clayey SILT, brown-yellow with red mottles, white mottles, black mottles, micas				
DATABASE.GDT - 4	· · · · · · · · · · · · · · · · · · ·	- ML: damp, medium dense, clayey SILT, strong brown and pink with rec and white mottles, micas	t k			
35 35		- ML: damp, stiff, clayey SILT, yellow-red with black mottles, sand, mica	5			
SIMPLE GEOLOGY WITH WELL - ESEE DATABASE GDT - 4/29/14 10:50ALTRCFP01XZWSHAUG\$/DESKTOP/BRANCH/PLANT BRANCH PIEZOMETERS.GPJ 10 10 10 10 10 10 10 10 11 11 11 11 11 11 11 12 12 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 16 17 18 19 10 10 10 10 10 10 <tr< td=""><td>· · ·</td><td>- ML: damp, stiff, clayey SILT, pale brown with white mottles, sand, micas</td><td></td><td></td><td></td><td></td></tr<>	· · ·	- ML: damp, stiff, clayey SILT, pale brown with white mottles, sand, micas				

					BORING BRGWA-12 PAGE 2 OF 2				
S		COMPANY LOG OF TEST BOR	RING	ì	<u>ES</u>				
	SOUTHERN COMPANY SERVICES, INC. PROJECT Plant Branch Hydrogeologic Study								
EA	EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING LOCATION Milledgeville, GA								
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak Moderate Strong	GROUNDWATER OBSERVATIONS	WELL DATA Completion: protective aluminum cover with bollards; 4-foot square concrete pad				
		(Con't)							
<u>45</u>		- ML: damp, stiff, clayey SILT, pale brown with white and red mottles, sand, micas $\underline{\Psi}$							
50		- MH: wet, stiff, clayey SILT, wery pale brown with white mottles, sand, micas							
		- MH: wet, hard, clayey SILT, pale brown with white mottles, sand, micas							
	-	- ML: wet, hard, sandy SILT, hard, pale gray-brown, micas			Annular Seal: bentonite pellets				
65 1		ML: wet, hard, sandy SILT, light olive-brown, micas			_ Filter:				
		Felsic biotite GNEISS - medium to coarse grain, moderately weathered, flow banded, numerous fractures, dark gray, black-white banding, feldspar, quartz, biotite - Felsic biotite GNEISS: medium to coarse grain, not weathered, flow			silica filter sand				
75		banded, few fractures, distinct black-white banding, feldspar, quartz, biotite, felspar phenocrysts			Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack				
- MAL I		 Felsic biotite GNEISS: medium to coarse grain, not weathered, flow banded, few fractures, distinct black-white banding, feldspar, quartz, biotite, felspar phenocrysts 			Sump:0.2000000000001 ft				
4		Bottom of borehole at 77.6 feet.			Sump:0.39999999999999991 ft. Cave-in to 77.6 ft.				
80	-								
- 									
ASE.									
85									
§ 90	-								
· –	-								

SOUTHERN COMPANY SERVICES INC. PROJECT Paint Branch Hydrogenlog: Study SOUTHERN COMPANY SERVICES INC. PROJECT Paint Branch Hydrogenlog: Study LOCATION Madagenling: GA DATE STARTED 3442014 COMPLETED 3442014 SUBPLETED LEGG WITHOUT MALEY COMPLIANCES CONTRACTOR SCS Field Sension: EQUINPERT CALL GOD Male DRILED BY T. Milam LOGGED BY W. Shaughnessy. OHECKED BY ANGLE DRILED BY T. Milam LOGGED BY W. Shaughnessy. OHECKED BY ANGLE DRILED BY T. Milam LOGGED BY W. Shaughnessy. OHECKED BY ANGLE DRILED BY T. Milam LOGGED BY W. Shaughnessy. OHECKED BY ANGLE BORNE DEPTH: 58.31. GROUND WATER DEPTH: DURING COMP. DELAYED 47.51. after 300 hrs. NOTES						BORING BRGWA-12 S PAGE 1 0F 2						
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING LOCATION Milledgeville, GA DATE STARTED 3/4/2014 COMPLETED 3/4/2014 SURF. ELEV. Not Surveyed COORDINATES: CONTRACTOR SCS Field Services EQUIPMENT CME 550 METHOD Hollow Stem Auger; Casing Advance DRILLED BY T. Milam LOGGED BY W. Shaughnessy CHECKED BY ANGLE BEARING BORING DEPTH 58.3 ft. GROUND WATER DEPTH: DURING COMP. DELAYED 47.5 ft. after 300 hrs. NOTES MATERIAL DESCRIPTION NOTES WELL DATA Completion: protective aluminum cover with bollards; 4-foot square concrete pad MATERIAL DESCRIPTION HERION USA Group of the square concrete pad	S			BORING		<u>ES</u>						
DATE STARTED _3/4/2014COMPLETED _3/4/2014SURF. ELEVNot Surveyed COORDINATES: CONTRACTOR _SCS Field ServicesEQUIPMENT _CME 550METHOD _Hollow Stem Auger; Casing Advance DRILLED BY _T. MilamLOGGED BY _W. ShaughnessyCHECKED BYANGLEBEARING BORING DEPTH _58.3 ftGROUND WATER DEPTH: DURINGCOMPDELAYED _47.5 ft. after 300 hrs. NOTES	SO	UTHE RTH S										
CONTRACTOR_SCS Field Services EQUIPMENT_CME 550_METHOD_Hollow Stem Auger; Casing Advance DRILLED BY_T. Milam LOGGED BY_W. Shaughnessy_CHECKED BY ANGLEBEARING BORING DEPTH_58.3 ft. GROUND WATER DEPTH: DURINGCOMPDELAYED_47.5 ft. after 300 hrs. DELAYED_47.5 ft. after 300 hrs. NOTES												
DRILLED BY T. Milam LOGGED BY W. Shaughnessy CHECKED BY ANGLE BEARING BORING DEPTH 58.3 ft. GROUND WATER DEPTH: DURING COMP. DELAYED 47.5 ft. after 300 hrs. NOTES		DATE STARTED 3/4/2014 COMPLETED 3/4/2014 SURF. ELEV. Not Surveyed COORDINATES:										
NOTES HLdB OHAVE HLdB OHAVE WATERIAL DESCRIPTION Well DATA Completion: protective aluminum cover with bollards; 4-foot square concrete pad												
HLdg H(t)) DHDS NATERIAL DESCRIPTION MATERIAL DESCR												
				Z								
	l –	U E U E		ACTIO	/ATER IONS	WELL DATA						
	DEP1	GRAP LOC	MATERIAL DESCRIPTION	ate RE/	UNDW ERVA	protective aluminum cover with bollards;						
3 - See P2-12 D and P2-12 I for material descriptions 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 10 - 11 - 12 - 13 - 14 - 15 - 15 - 16 - 17 - 18 - 19 - 19 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - <th></th> <th>Ũ</th> <th></th> <th>Weak Modera Strong</th> <th>GROI OBSE</th> <th>4-root square concrete pad</th>		Ũ		Weak Modera Strong	GROI OBSE	4-root square concrete pad						
S - See PZ-12 D and PZ-12 I for material descriptions 10 - 10 - 15 - 20 - 23 - 33 - 35 - 36 - 37 - 38 - 39 - 30 - 31 - 32 - 33 - 34 - 35 - 36 - 37 -												
5												
	2 5	-	- See PZ-12 D and PZ-12 I for material descriptions									
	THINK 10											
	ANIBK											
	15	-										
		-										
	25	_										
	14 10:01 14 10:01											
	- 4/29/											
	30 30	_										
	DALAB											
	35 											
	۲											
	40	-										



RECORD OF BOREHOLE DRILL RIG: Mini-Sonic Track Mounted Rig DATE STARTED: 7/25/16 DATE COMPLETED: 7/26/16 DATE COMPLETED: 7/26/16 BASTING: 2,557,868.18 GS ELEVATION: 425.50 TOC ELEVATION: 428.42 ft

_	NO	SOIL PROFILE					AMPLE	ES		14/01 -
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	- 425 - - -	0.00 - 5.00 SILT, NP, reddish brown, white mottling, highly weathered, massive, friable, relic foliation structure micaceous, SAPROLITE; cohesive, dry, very stiff	ML		420.5	1		<u>5.00</u> 5.00		WELL CASING Interval: 0'-30.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 30.8'-40.8' Material: Schedule 40 PVC Diameter: 2"
	420 	5.00 - 19.00 SILT, low plasticity; reddish brown, white mottling, massive, semi-friable, micaceous, SAPROLITE; cohesive, moist, soft			5.00	2		<u>5.00</u> 5.00		Dialitetic: Slot Size: 0.010" Slot Size: 0.010" End Cap: Schedule 40 PV0 FILTER PACK Interval: 27.5'-40.0' Type: 27.5'-28.5', 30/45 sa 28.5'-40.0', #1 sand FILTER PACK SEAL FILTER PACK SEAL
	— 415 - - -					3		<u>5.00</u> 5.00	Portland Cement – (Type II) Bentonite – Chips 3/8" Bentonite –	 Interval: 22.5'-27.5' Type: 22.5'-25.5', 3/8" Bentonite Chips; 25.5'-27.5', Bentonite Pellets ANNULUS SEAL Interval: 2.0'-22.5' Type: Portland Cement (Ty II)
-	410 	19.00 - 20.00 trace fine-coarse subangular sand, pinkish brown			406.5 19.00 405.5	4		<u>5.00</u> 5.00		WELL COMPLETION Pad: 4'x4'x4'' Protective Casing: Anodize Aluminum DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
20	405 	20.00 - 28.00 NP, well graded; reddish brown, light brown, dark grey, white mottling , moderately weathered, massive, micaceous, SAPROLITE; cohesive, moist, very soft			20.00	5		<u>5.00</u> 5.00	3/8" Bentonite – Chips	-
25	400 	28.00 - 31.40			397.5 28.00	6		<u>5.00</u> 5.00	3/8" Bentonite – Pellets 30/45 Sand –	-
30 -	- 395	silty SAND, fine grained sand, NP, trace coarse subangular grain sand; reddish brown, white mottling, moderately weathered, massive, micaceous, SAPROLITE; cohesive, moist, very soft	SM		394.1					-
	-	31.40 - 35.00 SAND, poorly graded, very fine grained, few silt, trace subangular medium grain sand; light grey, brown, white mottling, medium weathered, massive, micaceous, SAPROLITE; non-cohesive, moist, loose	SP		31.40	7		<u>5.00</u> 5.00	#1 Sand –	-
35	- 390 -	35.00 - 37.00 SAND, poorly graded, fine grained, trace silt; light grey brown, white mottling, highly weathered quartz nodules, heterogenous, micaceous, SAPROLITE; NC, moist-wet, very loose		_P. \	390.5 35.00 388.5 37.00	8		<u>2.00</u> 2.00	0.010" Screen Slot	-
	- - - 385 -	37.00 - 40.50 TRANSITIONALLY WEATHERED ROCK, biotite GNEISS, moderately weathered, banded , dark grey, coarsely crystalline, strong rock, iron oxide staining, Sand part of weathered matrix			385	9		<u>4.00</u> 4.00	#1 Sand	-
-	- 300 - - -	40.50 - 41.00 BEDROCK, biotite GNEISS, slightly weathered, banded, grey to light tan, medium crystalline, highly compotent rock Boring completed at 41.00 ft	GNEISS		384.5				#1 Sand - [한부가]	-

PROJECT: SCS Plant Branch PROJECT NUMBER: 166-0939 DRILLED DEPTH: 20.25 ft LOCATION: Milledgville, GA

RECORD OF BOREHOLE DRILL RIG: Mini-Sonic Track Mounted Rig DATE STARTED: 7/18/16 DATE COMPLETED: 7/18/16 DATE COMPLETED: 7/18/16 BASTING: 2,557,692.53 GS ELEVATION: 349.78 TOC ELEVATION: 352.33 ft

SHEET 1 of 1 DEPTH W.L.:1.55 (bgs) G.W. ELEVATION:350.78 (amsl) DATE W.L.:7/20/2016 TIME W.L.:08:57

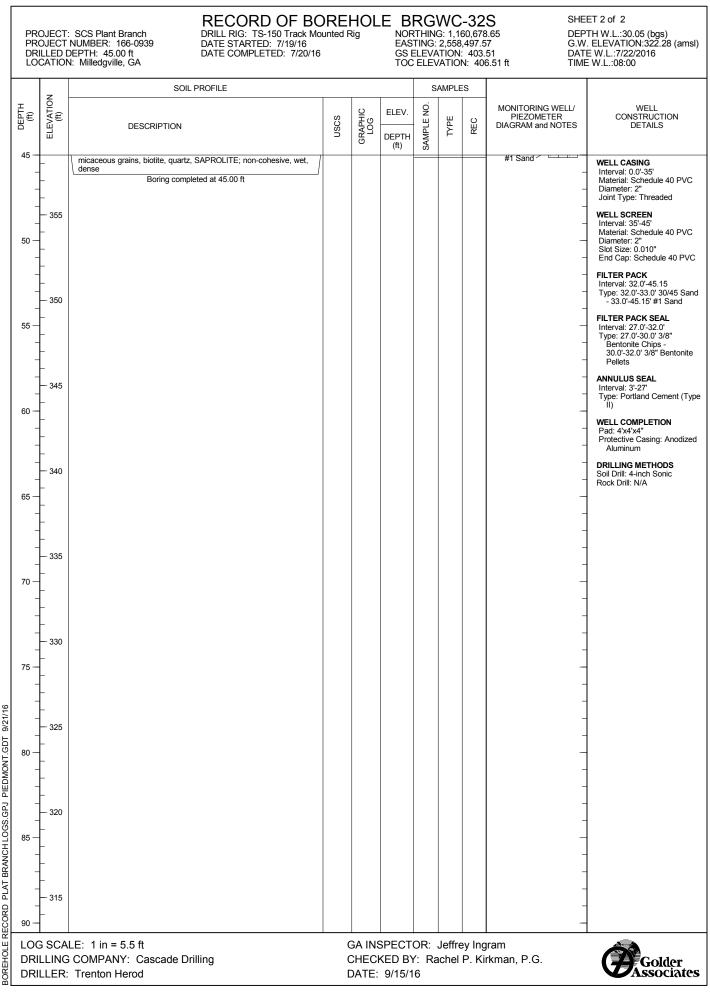
	z	SOIL PROFILE				S	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	-	0.00 - 4.70 Sandy CLAYEY SILT, low plasticity fines, fine to medium sub-angular sand, trace organics (roots); moderate reddish brown (10YR 4/6), cohesive, w <pl, soft<="" td=""><td>ML</td><td></td><td></td><td></td><td></td><td></td><td>Concrete – 1 – 3/8" Bentonite – Chips – 3/8" Bentonite – Pellets –</td><td>WELL CASING Interval: 0'-10' Material: Schedule 40 PV/ Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 10'-20'</td></pl,>	ML						Concrete – 1 – 3/8" Bentonite – Chips – 3/8" Bentonite – Pellets –	WELL CASING Interval: 0'-10' Material: Schedule 40 PV/ Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 10'-20'
5 —	— 345 —	4.70 - 6.60 Sandy SILTY CLAY, medium plasticity fines, fine sand; grayish blue green (5BG 5/2) to light blue gray (5B 7/1) mottled with moderate yellowish brown (10YR 5/4) and white (N9), cohesive, w~PL, firm 6.60 - 6.80	CL TSP		345.08 4.70 343.18 342.38	1		<u>8.00</u> 10.00	Chips - 3/8" - Bentonite - Pellets -	Material: Schedule 40 PV Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 P\
	- - 340	SAND, fine to medium sub-angular sand, non-plastic fines; greenish gray (5G 6/1) to pale olive (10Y 6/2), non-cohesive, moist, loose 6.80 - 7.40 Sandy SILTY CLAY, medium plasticity fines, fine sand; grayish blue green (5BG 5/2) to light blue gray (5B 7/1) mottled with moderate vellowish brown (10YR 5/4) and white (N9), cohesive, w~PL, firm	SM	<u> / / / / / /</u>	342.36				30/45 Sand – #1 Sand – 	Interval: 7.0'-20.25' Type: 7.0'-8.0' 30/45 Sand 8.0'-20.25' #1 Sand FILTER PACK SEAL Interval: 2.0'-7.0'
- - 15 —	- - - 335 -	7.40 - 10.50 SILTY SAND, fine to coarse well graded sub-angular sand, low plasticity fines, trace fine sub-angular gravels; dark yellowish orange (10YR 6/6) to very pale orange (10YR 8/2), SAPROLITE; non-cohesive, moist, compact 10.50 - 11.10 SAND, fine to medium sub-angular sand, trace non-plastic fines, trace fine angular gravels; dusky brown (5YR 2/2) to moderate brown (5YR 4/4), highly weathered (W4), quartz, biotite, and weathered micaceous grains, SAPROLITE; non-cohesive, moist, dense	SP-SM SP-SM SW TWR GNEISS		335.88 335.88 335.88 335.88 334.38 334.38 15.80 332.98	2		<u>7.00</u> 7.00	0.010"	Type: 2.0-5.0' 3/8" Bento Chips - 5.0-7.0' 3/8" Bentonite Pellets ANNULUS SEAL Interval: 0-2' Type: Concrete WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Anodiz Aluminum
- - 20 -	- - 330 -	11.10 - 13.90 SAND, fine angular sand, some non-plastic fines, trace fine angular gravels; dark yellowish orange (10YR 6/6) and grayish orange (10YR 7/4), highly weathered (W\$4, weathered micaceous grains, quartz, and biotite, SAPROLITE; non-cohesive, wet, very dense 13.90 - 15.40 SAND, fine to coarse angular sand, trace non-plastic fines, some fine to coarse soft angular gravel (core stones); moderate yellowish brown (10YR 5/4) mottled white (N9) and pale olive (10YR 6/2), moderately to highly weathered (W3 to W4), weathered micaceous grains, quartz, plagioclase, biotite, SAPROLITE; non-cohesive, wet,			329.78 20.00	3		<u>2.80</u> 3.00	#1 Sand	DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: N/A
- 25 — -	- 325 	very dense 15.40 - 15.80 TRANSITIONALLY WEATHERED ROCK, fine to coarse angular sand, fine to coarse angular gravels (core stones), trace non-plastic fines; lighty to moderately weathered (W2-W3), quartz, biotite and weathered micaceous grains, non-cohesive, wet, very dense 15.80 - 16.80 Slightly weathered (W2), medium bedded, light olive gray (5Y 5/2) to medium light gray (N7), fine grained, slightly porous, weak rock (R2), GNLSS, some weathering staining, quartz, biotite and								
- 30 — - -	- 320 	weathered micaceous grains. 16.80 - 20.00 Slightly weathered (W2), medium to thinly wavy foliated, medium to coarse grained, white (N1) and grayish black (N2) with some dark yellowish orange (10/R 6/6) weathered surfaces, slightly porous (fracture surfaces), medium strong to strong (R3 to R4), BIOTITE GNIESS, with biotite, quartz, hornblende, frequent weathering surfaces 17.00: (17.0) fresh (W1), occasional weathered surfaces Boring completed at 20.25 ft							- - - -	
- 35 — -	- 315 -								- - -	
- 40 — -	- 310 								- - - -	
- 45	- 305								-	
		LE: 1 in = 5.5 ft COMPANY: Cascade Drilling							ram ⁺kman, P.G.	
		Trenton Herod			9/15/1			i . All	Milail, 1 ⁻ .U.	Golder

PROJECT: SCS Plant Branch PROJECT NUMBER: 166-0939 DRILLED DEPTH: 45.00 ft LOCATION: Milledgville, GA

RECORD OF BOREHOLE DRILL RIG: TS-150 Track Mounted Rig DATE STARTED: 7/19/16 DATE COMPLETED: 7/20/16 BASE DATE STARTED: 7/20/16 DATE COMPLETED: 7/20/16 BRGWC-32S NORTHING: 1,160,678.65 EASTING: 2,558,497.57 GS ELEVATION: 403.51 TOC ELEVATION: 406.51 ft

SHEET 1 of 2 DEPTH W.L.:30.05 (bgs) G.W. ELEVATION:322.28 (amsl) DATE W.L.:7/22/2016 TIME W.L.:08:00

	z	SOIL PROFILE					AMPLE	=S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	- - - - - - - - - - - - -	0.00 - 0.70 TOPSOIL, SILTY SAND, fine poorly graded sand, non-plastic fines, some organics (roots); dark yellowish brown (10YR 4/2); non-cohesive, dry, loose 0.70 - 8.30 non-plastic to low plasticity fines, trace organics (roots); moderate reddish brown (10R 4/6), completely weathered (W5), some weathered micaceous grains, SAPROLITE; non-cohesive, moist, loose	SM		 ▲ 402.81 0.70 395.21 	1		<u>8.80</u> 10.00	Portland Cement (Type II) Portland Cement (Type II) Portland Cement	WELL CASING Interval: 0.0'-35' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 35'-45' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 32.0'-45.15 Type: 32.0'-33.0' 30/45 Sai
- 10 — -	395 	8.30 - 17.90 fine to coarse well graded angular sand, non-plastic to low plasticity fines, some fine to coarse soft angular gravels (core stones); pale yellowish brown (10YR 6/2), light brown (5YR 5/6) and black (N1), highly to completely weathered (W4 to W5), some relic foliations in core stones, weathered micaceous grains, quartz, biotite, SAPROLITE; non-cohesive, moist, compact			8.30					- 33.0'-45.15' #1 Sand FILTER PACK SEAL Interval: 27.0'-32.0' Type: 27.0'-30.0' 3/8" Bentonite Chips - 30.0'-32.0' 3/8" Bentonite Pellets ANNULUS SEAL
 15 -	390 				395.61	2		<u>7.90</u> 10.00	Portland Cement – – – (Type II) – – – –	ANNOLUS 3-27' Type: Portland Cement (Ty II) WELL COMPLETION Pad: 4x4'x4" Protective Casing: Anodize Aluminum
- 20 -		17.90 - 19.10 fine to coarse well graded angular sand, non-plastic to low plasticity fines, some fine to coarse soft angular gravels (core stones); layers of dark yellowish orange (10YR 6/6), pale yellowish brown (10YR 6/2), pale reddish brown (10R 5/4) mottled black (N1) and white (N9), highly weathered (W4), some relic foliaitions in core stones, weathered micaceous grains, biotite, quartz, SAPROLITE; non-cohesive, moist, compact 19.10 - 28.50			385.61 17.90 384.41 19.10	-				DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: N/A
- 25 -	- 	19.10 - 28.50 (SP-SM) SAND, fine to coarse sub-angular sand, non-plastic to low plasticity fines, some soft angular gravels (core stones); pale yellowish brown (10YR 6/2), white (N9), and black (N1), highly weathered (W4), some relic foliaitions in core stones, weathered micausous grains, biotite, quartz, SAPROLITE; non-cohesive, moist, Dense 25.00: (25.0) some white (N9) fresh quartz pockets	SP-SM			3		<u>10.00</u> 10.00	3/8" Bentonite – Chips	
	- 375 -	28.50 - 30.00 SILTY SAND, fine to medium sub-angular poorly graded sand, non-plastic to low plasticity fines; light brown (5YR 5/6) black (N1), and pale yellowish brown (10YR 6/2), highly weathered (W4), some	SM		375.01 28.50 373.51 30.00				10000 10000	
-	- - - 370	relict foliations, biotite, quartz, weathered micaceous grains, <u>SAPROLITE; non-cohesive, moist, dense</u> <u>30.00 - 32.00</u> CLAYEY SAND, fine sand, medium plasticity fines; pale yellowish brown (10YR 6/2), to light olive gray (5Y 5/2) mottled black (N1) and white (N9), some relict foliations, weathered micaceous grains, biotite, quartz, SAPROLITE; cohesive, w-PL, hard	sc 		371.51 32.00			10.00	3/8" Bentonite - Pellets - 30/45 Sand - #1 Sand	
35 — - -	-	SAND, fine sand, non-plastic fines; light brown (5YR 5/6), black (N1) and pale yellowish brown (10YR 6/2), highly weathered (W4), weathered micaceous grains, SAPROLITE; non-cohesive, wet, loose	SP-SM			4		10.00		
- 40 — - -	- 365 - - - - - 360	38.70 - 40.00 SAND, fine to coarse sub-angular sand, trace non-plastic fines; pale yellowish brown (10YR 6/2) mottled white (N9) and Black (N1), moderately weathered (W3), some foliation layers, SAPROLITE; non-cohesive, wet, dense 40.00 - 42.50 SANDY SILT, fine sand, low plasticity fines; light olive gray (5Y 5/2), completely weathered rock (W6), weathered micaceous grains, biotite, guartz, SAPROLITE; cohesive, w-PL, firm 42.50 - 45.00 SAND, fine to medium angular sand, trace non-plastic fines; pale yellowish brown (10YR 6/2), some relict foliations, weathered	SW 		364.81 38.70 363.51 40.00 361.01 42.50 358.51	- 5		<u>5.00</u> 5.15	Screen Slot	



PIEDMONT.GDT PLAT BRANCH LOGS.GPJ RECORD BOREHOLE

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 97.00 ft LOCATION: Between Pond B

RECORD OF BOREHOLE BRGWC-47 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/25/18 DATE COMPLETED: 1/26/18 BATE COMPLETED: 1/26/18 BRGWC-47 NORTHING: 1,162,701.04 EASTING: 2,559,456.38 GS ELEVATION: 408.87 TOC ELEVATION: 411.32 ft

SHEET 1 of 3 DEPTH W.L.:25.93 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE		1		S	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	-			Ű	(ft)	SAI			NAME IN CONTRACTOR	
5	- - - - - - - - - - - - - - - - - - -	0.00 - 0.50 Ash as sand, fine, dark gray, moist, non-cohesive	<u>SP</u>		408.37	R1	ROTO SONIC	9.00	Grout Mix with stainless – steel casing	WELL CASING Interval: 0-81.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 81.6-91.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 91.6-92 FILTER PACK Interval: 80-93 Type: FilterSil
	 395 	15.00 - 75.00 SAPROLITE, silty SAND, reddish brown to grayish brown with intermediate white mottling, relic structure, micaceous, dry to moist, non			<u>393.87</u> 15.00					I ype: FilterSil FILTER PACK SEAL Interval: 75-80 Type: 3/8" PEL-PLUG Bentonite Pellets ANNULUS SEAL Interval: 0-75 Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5'
	 390 385 					R2	ROTO SONIC	10.00		DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
	- - - 380 - - - - 375 -		SM			R3	ROTO SONIC		Portland Cement and Quick Gel Bentonite Mix	
- - - 40	- - 370 -	Log continued on next page				R4	ROTO SONIC			
DRI	LLING	LE: 1 in = 5 ft i COMPANY: Cascade Matt Pope	(CHEC	SPECT KED B 2/15/1	: TI		l Han	nam	Golder

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 97.00 ft LOCATION: Between Pond B

RECORD OF BOREHOLE BRGWC-47 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/25/18 DATE COMPLETED: 1/26/18 DATE COMPLETED: 1/26/18 DATE COMPLETED: 1/26/18 DATE COMPLETED: 1/26/18

SHEET 2 of 3 DEPTH W.L.:25.93 DATE W.L.:2/14/18 TIME W.L.:

Z	SOIL PROFILE					AMPLE	S		
ELEVATION (ft) (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45 	15.00 - 75.00 SAPROLITE, silty SAND, reddish brown to gravish brown with intermediate white motiling, relic structure, micaceous, dry to moist, non <i>(Continued)</i>	SM			R5	ROTO SONIC	10.00		 WELL CASING Interval: 0-81.6 Material: Schedule 40 PV0 Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 81.6-91.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 91.6-92 FILTER PACK Interval: 80-93 Type: FilterSil FILTER PACK SEAL Interval: 75-80 Type: 3/8" PEL-PLUG Bentonite Pellets ANNULUS SEAL Interval: 0-75 Type: Portland Cement an Quick Gel Bentonite Mix WELL COMPLETION Pad: 4X4' Protective Casing: 4"x4"x5 DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
	75.00 - 92.00	TWR		333.87 75.00	R8	ROTO SONIC	10.00	3/8" PEL-PLUG Bentonite Pellets	

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 97.00 ft LOCATION: Between Pond B

RECORD OF BOREHOLE BRGWC-47 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/25/18 DATE COMPLETED: 1/26/18 DATE COMPLETED: 1/26/18 DATE COMPLETED: 1/26/18 DATE COMPLETED: 1/26/18

SHEET 3 of 3 DEPTH W.L.:25.93 DATE W.L.:2/14/18 TIME W.L.:

	Z	SOIL PROFILE					AMPLE	_S		
UEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	түре	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	- - 325 - - - - - 320 -	75.00 - 92.00 TRANSITIONALLY WEATHERED ROCK, shows in sample as Sand with trace gravel and trace silt, grayish brown with white mottling, micaceous, relic foliation where preserved, dry to wet, non-cohesive. (Continued)	TWR			R9	ROTO SONIC	10.00	0.010" Slotted Schedule 40 PVC	WELL CASING Interval: 0-81.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 81.6-91.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 91.6-92 FILTER PACK Interval: 80-93 Type: FilterSil
- - 95 -	- 315 	92.00 - 97.00 BIOTITE GNEISS, sample recovered as rock flour, cobbles, and gravel. Slightly weathered to fresh, white and black, thinly bedded, phaneritic, strong, oxide staining in discontinuities.	BR		316.87 92.00 311.87				3/8" - PEL-PLUG - Bentonite - Pellets -	HITER PACK SEAL Interval: 75-80 Type: 3/8" PEL-PLUG Bentonite Pellets ANNULUS SEAL Interval: 0-75 Type: Portland Cement and Quick Gel Bentonite Mix
	- 310	Boring completed at 97.00 ft							-	WELL COMPLETION Pad: 4'x4' Protective Casing: 4'x4'x5 DRILLING METHODS Soil Drill: Rotosonic
00 —	-								-	Rock Drill: Core
-	-								-	
-	- 305								-	
05 —	_								-	
	-								-	
- 10	— 300 —								-	
-	-								-	
	-								-	
- 15	— 295 -								-	
-	-								-	
-	-								-	
- 20	— 290 -								-	
-	-								-	
DRI	LLING	LE: 1 in = 5 ft i COMPANY: Cascade Matt Pope	(CHEC	SPECT SPECT	(: TI		d Han	nam	Golder

			DRILLI					Hole No.		ł-1
	Energy se	o Serve Your	World ⁻ GEOLOGICA					Sheet		
	SITE		Plant Branch Gypsum Storage		۲	OLE DEPTH	55	SURF.ELE	v. <u>396</u>	6.16
	LOCATIO	ON	Milledgeville, GA NA BEARING NA	COORDINA	TES N	1163	963.27	e25	55946.87	
			4¼-in I.D. HSA NO. SAMPLES							
	CASING	SIZE	NA LENGTH NA	CORE	SIZE	NA	гот	AL % REC.	NA	
			отн <u>23 _{ELEV.} 373.16</u> тім							
	TYPE G	ROUT	QUANTITY	MIX	l lordan	[RILLING ST	ART DATE1	0/3/2007	
ļ	DRILLER	R	D. Willis RECORDER R Tinsley APPRO	VED	Standa	rd Penetration 1	Fest		1	
	Depth	Elev.	Material Description, Classification and Remarks	Sample No.				Comments	%Rec	RQD
	о									
	1			۰ ا						
	2									
ĺ	3			-						
İ	4		Dark red, micaceous, medium dense, fine						<u> </u>	
			sity SAND	1	3.5-5.0	3-5-7	12			
	5									
	6									
	7									
	8									
	9		Tan, with red and gray, mottled, moist, stiff sandy SILT	2	8.5-10.0	4-4-8	12			
0.0	10	386.16						·		
	11									
	12									
	13									
	14		Yellow to light gray, micaceous, moist, stiff sandy SILT	3	13.5-15.0	3-6-8	14		-	
	15				10.0-10.0	0-0-0				
	16									
	17									
	18									
	19		Yellow, micaceous, fine, loose							
0.0	20	376.16	SILTY SAND	4	18.5-20.0	2-4-4	8	SAPROLITE		
	21									
	22									
	23	•								
	24					1	1			

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sou		DRILI	LING LO	G			Hole No.	Bł	1-1
Energy	COMP to Serve You	ANY GEOLOGI	CAL SERV	ICES			Sheet 2 of 2		_
SITE	ي فقال البريان	Plant Branch Gypsum Storage			TOTAL DEPTH		55 SURF.ELEV.	396	3 16
	1				ard Penetration T		JUNELEV.	030	1
Depth	Elev.	Material Description, Classification and Remarks	Sample No.	From To	Blows	N	Comments	%Rec	
25		very moist silty SAND with clayey layers, with quartz	5	23.5-25.0	5-4-2	7	SAPROLITE		
	1						· · · · · · · · · · · · · · · · · · ·		
26									
27									
28									
29		large pebbles up to 1 inch					· · · · · · · · · · · · · · · · · · ·		
		diameter	6	28.5-30.0	14-11-12	23	SAPROLITE		
30	366.16								
31									
32									
33									
34	<u> </u>	dark green, dense, silty SAND	7	33.5-35.0	22-20-17	37	SAPROLITE		Γ
35			,	33.3-35.0	22-20-17	37	SAFROETE		
36									
37									
38									
39		very dense, dark green, gray and white SAPROLITE							
40	356.16		8	38.5-40.0	21-31-34	65	SAPROLITE		
									F
41									
42									
43									
44		SAA		<u> </u>		<u></u>			
			9	43.5-45.0	28-42-42	84	SAPROLITE		
45				<u></u>					
46									
47									
48									
49		SAA		ļ					
	[10	48.5-50.0	25-46- 50/3	96+	SAPROLITE		
50	346.16								
51	ļ						1		
52									1
53									
54		SAA	11	53.5-55.0	19-50/4	100+	SAPROLITE		
55	341.16				10 00/4	1007			
4	1	Boring terminated at 55 feet.	I				1		

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Energy s	o Serve Your	World GEOLOGIC						Sheet 1 c		_
		Plant Branch Gypsum Storage								
LOCATI	ON	Milledgeville, GA	COORDINA	TES N	1164	489.83	E	25574	75.509	
ANGLE		NA BEARING NA	CONTRACT		thern Com	pany		CME	550	
DRILLIN	IG METHOD	41/4-in I.D. HSA NO. SAMPLES		10	``	IO. U.D. SAN	MPLES	0		
		NA LENGTH NA							A	
		28.5 ELEV. <u>367.07</u> TIN								
TYPE G	ROUT	QUANTITY	MIX	<u> </u>	0	RILLING ST	ART DATE	10/22	/2007	
DRILLE	R	D. Willis RECORDER D. Willis/Tinsley APPRO	VED				MP. DATE	10/22	/2007	_
Depth	Elev.	Material Description, Classification and Remarks	Sample No.		rd Penetration T Blows	est N	Comm	ents	%Rec	F
0										
							·			
1										
2										
3										
4		Red, micaceous, very stiff SANDY CLAY (CL)	1	3.5-5.0	8-11-15	26				
5										-
6										
7										
8								1		
9		SAA	2	0.5.40.0	0 10 10	- 00				
10	385.57		2	8.5-10.0	8-10-12	22				
11										Γ
12										
13										
14		Yellow to red, micaceous, medium dense, fine	·							┝
		SILTY SAND (SM)	3	13.5-15.0	10-8-7	15	SAPROLIT	E		
15										t
16										
17										ŀ
18										
										L
19		yellow to brown	4	18.5-20.0	6-7-7	14	SAPROLIT	E		
20	375.57									╞
21										
	1									
22										
23										
24										+

sou	THERN COMP	DRIL	LING LO	G			Hole No.	BH	1-2
Energy	to Serve You	r World GEOLOG	CAL SERV	ICES			Sheet 2 of 2		
SITE		Plant Branch Gypsum Storage		1	OTAL DEPTH	5	SURF.ELEV.	395	5.57
					ard Penetration Te				
Depth	Elev.	Material Description, Classification and Remarks miCas	Sample No. 5	From To 23.5-25.0	Blows 10-9-9	N 18	Comments SAPROLITE	%Rec	F
_25									
26									
									ŀ
27									
28	<u> </u>								
29		dense, white, gold and dark brown silty SAND (SM)	6	28.5-30.0	7-11-21	32	SAPROLITE		1
30	365.57		0	20.5-30.0	7-11-21	32	SAFROLITE	_	
31									
32									
33									
34		very dense	7	22 5 25 0	16-24-31	55	SAPROLITE		T
35			/	33.5-35.0	10-24-31		SAINCEITE		
36									
37	+								
38									
39	ļ	dark gray to white SAND (SAPROLITE)	8	38.5-40.0	24-30-	80+	SAPROLITE		Γ
40	355.57			30.3-40.0	50/4				
41									
								1	
42									
43									
44		SAA	9	43.5-45.0	24-34-	84+	SAPROLITE		Τ
45				10.0 40.0	50/4				
46									
47									
48									
49	+	SAA	10	48.5-50.0	31-46-	96+	SAPROLITE		
50	345.57	Desing terminated at 50 fact			50/4			<u> </u>	┢
51		Boring terminated at 50 feet.							
52									
53									
54		1							
55		4							
56				1				1	1

2	SOU				NG LOO				Hole No.		Н-3
		o Serve You	- World" GEOL		L SERV					Sheet 1 of 2	
	SITE _		Plant Branch Gypsum Stora	ge		⊦	IOLE DEPTH	39	SUR	F.ELEV. 38	9.25
	LOCAT		Milledgeville, GA NA BEARING NA		COORDINA	TES N	1164	115.31	E	2558453.0	3
	ANGLE		NA BEARING NA	<u> </u>	CONTRACT		thern Corr	pany c	RILL NO.	CME 550	
		NG METHOD									
			NA LENGTH NA								
			PTH18.1 ELEV371.15								
ŀ	TYPE G	ROUT	QUANTITY		MIX		C	DRILLING STA	RT DATE	10/30/200	
Ļ	DRILLE	R	D. Willis RECORDER D. Willis/Tinsley	APPRO	VED	J. Jordan			MP. DATE	10/30/200	
	Depth	Elev.	Material Description, Classification and Remarks		Sample No.	Standa From To	rd Penetration Blows	N N	Comments	%Rec	RQD
	0									1	
ſ	t										
ľ	2										
ŀ											
ŀ	3										
\mathbf{F}	4		Yellowish red to white, dry, micaceous, dense SILT SAND (SM)	Y	1	3.5-5.0	6-11-21	35			
$\left \right $	5										
╞	6										
	7										
	8						1				
	9		medium dense, with black nodules								
0	10	379.25			2	8.5-10.0	5-5-6	11			
T	11	010.20									
ŀ											
ŀ	12										
$\left \right $	13										
╞	14		White, black, and orange speckled, micaceous, medium dense, fine to medium grained SAND (SP)	3	13.5-15.0	3-5-7	12 5	SAPROLITE		
ŀ	15		with silt	,							
	16										
ļ	17										
	18	<u> </u>									
	19		Greenish gray to gold, very micaceous, moist, mec	lium							+
ļ	20	369 25	dense SILTY SAND (SM) with layers of orange and white weathered feldspar	t	4	18.5-20.0	4-7-22	29 8	SAPROLITE		
ľ		1						<u>├</u> ───┼			
ł	21										
\mathbf{F}	22	<u> </u>									
$\left \right $	23										
	24		SAA								

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່ຈວບ	THERN COMP	DRIL	LING LO	G			Hole No.	BH	1-3
Energy	to Serve You	r World" GEOLOG	ICAL SERV	ICES			Sheet 2 of 2		
SITE		Plant Branch Gypsum Storage			TOTAL DEPTH	3	9 SURF.ELEV.	389	9.25
			T		ard Penetration T				
Depth	Elev.	Material Description, Classification and Remarks	Sample No. 5	From To 23.5-25.0	Blows 10-9-9	N 18	Comments	%Rec	RC RC
25									
26									
27									
28									
29		very dense, relict rock structure							-
30	359.25		6	28.5-30.0	7-11-21	32	SAPROLITE		
				1					
31									
32	<u> </u>								
33									
34		SAA				· · · · · ·			
			7	33.5-35.0	16-24-31	55	SAPROLITE		
35									┝
36									
37									
۱ 38									
1		no sample							
0 39	350.25	BOH @ 39'	-						
40	<u> </u>								
41									
42									
	1								
43									
44									
45									
46									
47	+								
48	+								
49									
50									ļ
51									
	+	4		1					
52		4							
53	ļ	4							
54									
]							
55	+	1		1					
56	9901 7-26-2			I		l	L	<u> </u>	

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sour					ING LOO		Hole No. BH-4					
Energy t	o Serve Your	World"		GEOLOGI					- Anno 1997	Sheet 1		
			Plant Branch Gyp						:			
LOCATI	ON		Milledgeville, GA		COORDINA	TES N	11638	355.17	E	255	7467.17	
ANGLE		NA	BEARING 4¼-in I.D. HSA	NA	CONTRACT	OR SOL	thern Com	pany [CN	IE 550	
DRILLIN												
	SIZE	NA	LENGTH	NA	CORE S	SIZE	HQ		AL % REC		NA	
			28.3 ELEV									
TYPE G	ROUT		QUANTI	Υ	MIX		D	RILLING ST	ART DATE -	10/	1/2007	
DRILLE	R	D. Willis		Finsley APP					MP. DATE	10/	1/2007	_
Depth	Elev.		Material Description, Classification	and Remarks	Sample No.	From To	rd Penetration T Blows	est N	Comm	ents	%Rec	
0												
2												
3												
4		Dark reddis	sh brown, moist, hard, sar	ndv SILT (MH)							<u> </u>	
		Particula			1	3.5-5.0	10-14-21	35				l
5											<u> </u>	┝
6	ļ				· .							
7												1
8												
											ļ	L
9		Very stiff, m	nicaceous, sandy SILT (N	IL)	2	8.5-10.0	8-11-16	27			1	
10	417.35											
11												
12												
13												
14		reddish, mi (ML/SM)	caceous, SANDY SILT C	R SILTY SAND	3	13.5-15.0	3-4-7	11				Γ
15						10.0 10.0	J + ',				<u> </u>	L
16												
		1										
17	·						,					
18	<u> </u>											
19		brown										t
20	407.35				4	18.5-20.0	3-4-5	9				
		1										T
21		4										
22		-										
23												
		1					ļ				<u> </u>	+
24 Form GS	9901 7-26-20		······································			I	I					1

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]	COMP	ANY	DRILLING LOG GEOLOGICAL SERVICES						
Energy :	to Serve You		CAL SERV	ICES			Sheet 2 of 3		
SITE _		Plant Branch Gypsum Storage			TOTAL DEPTH	<u> </u>	SURF.ELEV.	427	7.35
Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Stand From To	ard Penetration Blows	Test N	Comments	%Rec	R
25			5	23.5-25.0	3-4-6	10			
26									
27									
28	<u> </u>								
29		Brown and white, medium dense, micaceous SILTY SAND (SM)	6	28.5-30.0	6-7-9	16	SAPROLITE		
30	397.35								┡
31									
32									
33									
_34		dense							
35			7	33.5-35.0	10-11-21	32	SAPROLITE		
36									
37									
38									
39		brown, gray and white, PARTIALLY WEATHERED							
40	387.35	ROCK (PWR)	8	38.5-40.0	11-21-42	63	SAPROLITE		
41									
_ 42									
43									
44			9	43.5-45.0	50/1	100+	SAPROLITE		
_45			ļ						
46									
47	379.85	Auger refusal at 47.5 feet.							
48		Began coring.	Run 1	47.5-49.0				81%	
49		Weathered black and white biotite GNEISS.		47.5 45.6				01%	Ľ
50									
51									
52			Run 2	49.0-54.0				100%	5
53									
54									
55									
			1						I

SOU	THERN COMP	ANY _	LING LOO				Hole No. Sheet 3 of 3	BH	1-4
SITE		Plant Branch Gypsum Storage			OTAL DEPTH	69	SURF.ELEV.	427	7.35
Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Stand From To	ard Penetration Te Blows	st N	Comments	%Rec	RQ
57									
58		Folded	Run 3	54.0-59.0				46%	20
59		Weathered and fractured							
60	367.35								
61	001100				-				
62			Run 4	59.0-64.0				40%	20
63									
64									
65		Hard, competent biotite GNEISS							
66									
67			Run 5	64.0-69.0				100%	94
68									
69	358.35								
70		BOH @ 69'							
71									
72									
73									
74									
75									
76									
77									
78									
79									
80									
81									
82									
83									
84									
85									
86	ļ			~					
87									
88	339.35								

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SOUI	COMP						Hole No.		_
	o Serve You						Sheet 1 c		
		Plant Branch Gypsum Disposal							
		Millegeville, Ga					Е2556445.		
ANGLE		BEARING							
DRILLIN	IG METHOD	D HSA NO. SAMPLES			NO. L	I.D. SAMF	PLES		
CASING	SIZE								
WATER	TABLE DE	PTH 29.2 ELEV. 367.09 TIM	IE AFTE		24 hr	DA		1/2/2007	
		QUANTITY							
DRILLE	R	Willis RECORDER Tinsley APPRO	VED					1/1/2007	
Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Stan From To	dard Penetration Test Blows	N	Comments	% Rec	F
0	396.29								
1									
2									
3						$\left - \right $			┝
4		Reddish brown highly micaceous firm sandy SILT (MH)		3.5	6 -8 -13	21			
5			<u> </u>	5					
6									
7									
8			L						
9				8.5					
10		Brown sandy SILT (MH)		- 10	8-10-12	22	·		
11									
12									
13									
14		Light brown sandy SILT (MH)		13.5					
15				- 15	4-4-6	10			
16							-		T
17									
								1	
18				18.5					\vdash
19		Reddish brown, micaceous SILT with feldspar		20	5-5-6		SAPROLITE		
20									\vdash
21									
22									
23				23.5	4.0.0				t
24		White micaceous fine- to coarse-grained SAND (feldspar and quartz saprolite)	1	- 25	4-6-8	14	SAPROLITE		

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5 0 U1		DRIL	Hole No.	BH-5					
	o Serve You		CAL SE	RVICES			Sheet 2 of	0	
SITE		Plant Branch Gypsum Disposal		· · · · · · · · · · · · · · · · · · ·	TOTAL DEPTH	50	SURF.ELEV	396	6.29
Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Stan From To	dard Penetration Test Blows	T N	Comments		
	Liev.			FIGHTO	Biows	N	Comments	% Rec	RC
25									
26									
27									
28									
		Brown micaceous fine- to coarse-grained SAND		28.5				<u> </u>	
29		(feldspar and quartz saprolite)		- 30	5-5-6	11	SAPROLITE		
30									
31									
32									
33									
								<u> </u>	-
34				33.5 -	4-4-6	10	SAPROLITE		
35		Mottled green, brown and white micaceous fine- to coarse-grained SAND		35					ļ
36		(feldspar, quartz, and biotite)							
37									
38									
					·*	<u> </u>		<u> </u>	
39		Brown micaceous fine- to coarse-grained SAND (feldspar and quartz saprolite)		38.5 -	5-4-7	11	SAPROLITE		
40				40					
41									
42		·							
43									
				<i>(</i> 0 5				1	
44		saa		43.5 -	22-50/4		SAPROLITE		
45				45					
46									
47									
48									
49		no sample		48.5					
50				50	50/1		SAPROLITE		
		BOH @ 50.0'							
51	 								
52									
53									
54									
55									
56						1			

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SOUT		DANY					Hole No.	BH-6	
Energy 1	o Serve You	r World" GEOLOGICA					Sheet 1 of 2		
SITE		Plant Branch Gypsum Disposal			HOLE DEPTH	56.0)' SURF.ELE	v. <u>399</u>).12
		Millegeville, Ga							
		BEARING							
DRILLIN	IG METHO	D HSA NO. SAMPLES	s		NO. U.D. SAM		PLES		
CASING	SIZE	LENGTH					L % REC.		
WATER	TABLE DE	ртн <u>36</u> ELEV. ти	IE AFTER		24 hr	D/	ATE TAKEN1		
TYPE G	ROUT	QUANTITY	м	IX	DR	ILLING ST		11/6/2007	
		Milam RECORDER Tinsley APPRO				LLING C		/7/2007	
Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Stand From To	lard Penetration Test Blows	N	Comments	% Rec	F
0	0.00								
1									
2									
3		1							
4		1							
5		Reddish brown to white, mottled firm sandy SILT ML)							
6		with quartz and feldspar grains	1	4.5-6.0	4-6-6	12	Saprolite		
7		1			19.7.901.00 F. 1				
8									
9									
10							UD		
11			2	9.5-11			7.1 x 10 ⁻⁵ cm/sec		
12									
13		1							
14									
15		Red fine to coarse grained SAND (SM) dry, loose, with				+			
16		muscovite and feldspar grains	3	14.5-16	4-6-6	12	UD Saprolite		
17									
18									
19									
20		Pale brown, fine to coarse grained SAND with muscovite							
21		and feldspar grains	4	19.5-21	7-3-4	7	Saprolite		
22									
23									
		1							1

SOUT		DRILLI					Hole No.	BH-6	
Energy t	o Serve You		L SE	RVICES	· · · · · · · · · · · · · · · · · · ·		Sheet 2 of	2	
SITE		Plant Branch Gypsum Disposal	_		TOTAL DEPTH	56	SURF.ELEV.	399	.12
Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Stan From To	dard Penetration Test Blows	N	Comments	% Rec	RQD
25									
26		Yellowish brown mottled coarse - grained silty SAND, (SM) loose with muscovite	5	24.5-26	3-5-5	10	Saprolite		
_27									
28									
29									
30		saa	6	29.5-3	4-4-4	8	Saprolite		
31				23.5-0	4- 1 -1		Capione		
32									
33									
34									
35	1	Light gray silty SAND (SM)	7	34.5-36	3-3-4	7	Saprolite		
36	<u> </u>								
37									
. 38									
39									
40		Gray to yellowish brown fine- to coarse-grained silty SAND with feldspar grains and muscovite	8	39.5-41	2-3-4	7	Saprolite		
41									
42									
43									
44									
45			9	3-4-6	3-4-6	10	Saprolite		
46									
47									
48									
49		620 ·				 			
<u>50</u> 51		saa	10	49.5-51	3-4-7	11	Saprolite		
52									
53									
54									
55		saa, mottled							
56	0001 7 26	BOH @ 56'	11	54.5-56	6-9-10	19	Saprolite		

soui		DRILLIN					Hole No.		
Energy t	o Serve You	r World" GEOLOGICA					Sheet 1		
SITE		Plant Branch Gypsum Storage			HOLE DEPTH	49	SURF.	ELEV. <u>395.9</u>	
LOCATI	ON	Milledgeville, GA	COORD	INATES N	116236	7.21	E 2555395.0		
ANGLE		BEARING	CONTR	ACTOR			DRILL NO.	CME 550	
DRILLIN	IG METHO	D H.S.A./HQ NO. SAMPLES	6		NO. U	J.D. SAMF	LES		
	SIZE	LENGTH	co	RE SIZE			L % REC.		
WATER	TABLE DE	ртн <u>27'</u> ELEV. <u>368.99</u> тімі	E AFTE		24hr	DA		11/8/2007	
TYPE G	ROUT	QUANTITY	м	IX	DR	LLING ST	ART DATE	11/7/2007	
DRILLE	R	Milam RECORDER Tinsley APPROV	ED		DR	LLING CO	MP. DATE	ATE11/7/2007	
Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Stand From To	lard Penetration Test Blows	N	Comments	% Rec	
0	0.00								
	0.00					┼╌┤			
1									
2									
3									
4									
					- / - <u>-</u>				
5		Reddish brown micaceous sandy SILT (ML)	1	4.5-6	4-10-12	22			
6									
7									
8									
9									
10		Pink micaceous silty fine - to coarse - grained SAND	2	05.11	7.0.10		Canadita		
11		(SM) with feldspar	2	9.5-11	7-9-12	21	Saprolite		
12									
13		-							
14		• • • • • • • • • • • • • • • • • • •							
15		mottled, orange to tan micaceous, silty fine - coarse -							
16		grained SAND (SM)	3	14.5-16	3-3-5	8	Saprolite		
17	· _ ·	1							
18		-							
19									
20		Brown, micaceous sandy SILT (ML) with feldspar to silty							
		fine- to medium - grained SAND (SM)	4	19.5-21	5-5-7	12	Saprolite		
21		4				+			
22									
23									
		1							

	THERN	PANY					Hole No.	BH-7	
SITE	to Serve Yo	Plant Branch Gypsum Storage		RVICES			Sheet 2 of		- 00
		1	Sample	Star	TOTAL DEPTH		SURF.ELEV	39:	5.99
Depth	Elev.	Material Description, Classification and Remarks	No.	From To	Blows	N	Comments	% Rec	RQD
25		Brown silty fine - to medium - grained SAND (SM)					-		
26			5	24.5-26	3-5-7	12	Saprolite		
		1				+			
27	▼	4							
28		4							
29									
30		saa				<u> </u>			
			6	29.5-31	18-31-38	69	Saprolite		
31									
32		-							
33		Refusal @ 33'							
34		Gray slightly weathered biotite GNEISS							
35									
36			Run-1	33-39				100%	50%
37									
1 38									
39									
40		Extremely folded							
41			Run-2	39-44				1000/	000/
42			110/1-2	39-44				100%	80%
43									
44									
45									
46			Run-3	44-49					
47			- nun-c	44-49				94%	-
48									
49									
		BOH @ 49 feet						 	
50									
51									
52									
_53									
54									
55									
56	L		1						

Form GS9901 7	-26-2004
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s	TUO	HERN	DRILLI					Hole No.	BH-8	
E	nergy to	o Serve Yos						Sheet 1 of		
5	SITE							SURF.E		
ł	OCATIO	ON						E		
1	NGLE	-	BEARING	CONTR	ACTOR	SCS		DRILL NO.	CME 550	
ľ	RILLIN	IG METHO	D HSA NO. SAMPLE	s		NO. U.	.D. SAMF	LES		
		SIZE	LENGTH							
			РТН <u>NA</u> ELEV Т							
1	YPE G	ROUT	QUANTITY	M	IX					
Ŀ	RILLER	R	Milam RECORDER Tinsley APPR				LING CC	MP, DATE	11/7/2007	
	Depth	Elev.	Material Description, Classification and Remarks	Sample No.		dard Penetration Test Blows	N	Comments	% Rec	RQD
0.0	0	0.00								
	1									
	2	_								
	3									
Γ	4									
	5		Reddish brown to white, mottled firm SILT and clayey							
	6		to silty SAND with feldspar	1	4.5-6.0	3-5-9	14			
	ź				···· .					
	8									
F										
┢	9									
┢	10		Gray silty SAND (SM)	2	9.5-11					
\vdash	11			UD				2.0 x 10 ⁻⁵ cm/sec		
┝	12								ľ	
┢	13									
┝	14									
┝	15		Brown, very micaceous sandy SILT (ML)	3	14.5-16					
-	16									
	17									
	18									
L	19			-1				Saprolite		
	20		light brown silty, micaceous fine - coarse grained SAND							
	21		(feldspars)	4	19.5-21	7-3-4	7			
	22									
Γ	23									
	24									

	THERN COMP							Hole No.	BH-8		
	to Serve You		GEOLOGICA Gypsum Disposal	LSE	RVICES		3	Sheet 2 of			
	-			Sample	Stan	TOTAL DEPTH		SURF.ELEV.	369	.43	
Depth	Elev.	Material Description, Classifi	ication and Remarks	No.	From To	Biows	N	Comments	% Rec	RQD	
25		saa		5	24.5-26	16-25-32	57	Saprolite			
_26					24.5-20	10-20-02	57	Saprone			
27		-									
_28											
_29		4									
30		saa		6	29.5-3	17-19-18	37	Saprolite			
31								•			
32		-									
33		-									
34											
35		Dark gray silty fine - coarse - gra with feldspar	ained SAND	7	34.5-36	9 -17-12	29	Saprolite			
36		BOH @ 36'									
37		-									
<u>38</u>											
<u>39</u> 40											
40											
42											
43											
44											
45											
46											
47											
48											
49		-									
50		-									
51											
52		4									
53		4									
_ <u>54</u>		-									
55		4									
56 Form GS	9901 7-26-	2004				l					

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	SOUT		ΔΝΥ	DRILLI).		1-9
		Serve You		GEOLOGICA						Sheet 1		
	SITE		Plant Branch Gypsum S	storage	·····	H	OLE DEPTH	44.5	S	SURF.ELEV.	416	.95
	LOCATIO	ON	Milledgeville, GA		COORDINA	TES N	1163	144.52	^E	2557	356.84	
	ANGLE		NA BEARING	NA 	CONTRACT	OR SOL	Ithern Con	npany		CM	E 550	<u>. </u>
		G METHOD		NO. SAMPLES		6		NO. U.D. SAN	IPLES	()	
		SIZE	NA LENGTH		CORE S	SIZE	HQ	rot/	AL % REC.		NA	
	WATER	TABLE DEF	РТН <u>27</u> ELEV. <u>389</u> .	95 TIM	E AFTER CO	OMP	24 hr	DA'	TE TAKEN	10/:	3/2007	
	TYPE GI	TUOF	QUANTITY		MIX		C	RILLING ST	ART DATE	10/2	2/2007	
ļ	DRILLEF	·	D. Willis RECORDER D. Willis/Tinsl	ey APPROV	/ED	vv. vvang	rd Penetration 1	RILLING CO	MP. DATE	10/2	2/2007	
	Depth	Elev.	Material Description, Classification and Reman	ks	Sample No.	From To	Blows	N	Comm	ents	%Rec	RQD
	0											
Ì									· · · · · · · · · · · · · · · · · · ·			
ł												
	2											
	3						-					
	4		Red, moist, very stiff, micaceous, SANDY S	II T (ML)								
ľ	-			(((12)	1	3.5-5.0	6-7-9	16				
ŀ	5											
•	6											
	7											
	8	:										
ł												
ŀ	9		Brown, micaceous, SANDY SILT and SILTY (ML/SM)	SAND	2	8.5-10.0	4-5-7	12				
0.0	10	406.95										
Ì	11											
	12											
ł												
ŀ	13											
	14		Brown, white, and black, medium dense, mid	caceous,	3	13.5-15.0	E E 10	1=	Saprolita			
	15	·	SILTY SAND (SM),		3	13.3-15.0	5-5-10	15	Saprolite			
	16											
ł												
ł	17											
	18											
	19		Gray, brown, and white, dense, PWR									
20.0	20	396.95			4	18.5-20.0	7- 9 -12	21	Saprolite			
.0.0		030.90										
	21											
	22											
	23											
									<u></u>			
	24	901 7-26-20	SAA		[l İ				L

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SOU	THERN COMP	ANY _	LING LO				Hole No. Sheet 2 of 2	BH	1-9
SITE		Plant Branch Gypsum Storage	OAL OLIN		TOTAL DEPTH	4	4.5 SURF.ELEV.	416	95
	Elev.			Stand	ard Penetration T	est			
Depth	Elev,	Material Description, Classification and Remarks	Sample No. 5	From To 23.5-25.0	Blows 13-13-16	N 29	Comments	%Rec	R
25	+						Saprolite	. <u> </u>	
26									
27	▼								
28									
29	<u> </u>	with rock fragments	6	28.5-30.0	33-50/2	100+	Saprolite		
30	386.95			28.5-30.0	33-50/2		Sapione		
31	L	August refuged at 21.5 feet							
32		Auger refusal at 31.5 feet. Began coring.						·	
33		Slightly weathered, green and white BIOTITE GNEISS with weathered fracture surfaces	Run 1	31.5-34.5				100%	(
34		with weathered fracture surfaces							
35									
36									
37									
38			Run 2	34.5-39.5				100%	
39	377.95								
40									
41									
42									
43		fresh	Run 3	39.5-44.5				94%	:
44									
45		BOH @ 44.5 feet.	i i						
46									
47									
48									
49									ļ
50									
51									
52									
53									
54									
									
56		04							

SOUT	HERN COMP				LING LO				1	0.		-10
Energy to	o Serve You	-World	Diaut Duau ah		ICAL SERV				40 SURF.ELEV. 393.12			
	ON			, GA								
ANGLE		NA	BEARING	NA 6A NO. SAM	CONTRAC	TOR		ipany	DRILL NO.		550	
											IA A	
				NA 2V379.72								
				JANTITY								
DBILLE	R	D. Willis	BECORDER	D. Willis/Tinsley AF		J. Jordan	'		OMP. DATE		0/2007	
						Standa	rd Penetration	Test				
Depth	Elev.	N	Aaterial Description, Class	fication and Remarks	Sample No.	From To	Blows	N	Comm	nents	%Rec	F
0												
1												
2												
3												
4		Yellowish red fine SILTY SA		eous, medium dense,	1	3.5-5.0	6-8-14	22				-
5						3.5-3.0	0-0-14	~~~				
6												
7												
8												
9				2								
10	383.12	yellowish red	to brown, loose		2	8.5-10.0	3-4-4	8				
												Γ
11	-											
12												
13												
14	_	Medium dens	ie, moist, white, ta	n and black, micaceou	s,	1						ŀ
15		fine to mediur	m grained SAND (SP)	3	13.5-15.0	4-6-6	12	Saprolite			
												Γ
<u>16</u>												
17												
18												
19		SAA										-
20	373.12				4	18.5-20.0	6-7-7	14	Saprolite			
	3/3.12											F
21												
22												
23												
												L
24 Form GS9	901 7-26-20	04					I	L				L

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(SOUT	HERN					-	Hole No.	BH	-10
	Energy to SITE	Serve You	r World" GEOLOGIC Plant Branch Gypsum Storage	AL SERVI			40	Sheet 2 of 2 SURF.ELEV.	393	12
					Standa	OTAL DEPTH ard Penetration T	est			.12
	Depth 25	Elev.	Material Description, Classification and Remarks Very moist, with isolated red clays	Sample No. 5	From To 23.5-25.0	Blows 5-10-18	N 28 S	Comments Saprolite	%Rec	RQD
	26									
	27 28									
	29		dense, light tan to white, wet							
30.0	_30	363.12		6	28.5-30.0	16-18-22	40 5	Saprolite		
	31									
	32 33									
	.34		dark brown, white, and tan, medium dense, SILTY SAND (SM)	7	33.5-35.0	6-8-10	18 5	Saprolite		
	35 36									
	37									
(38									
40.0	39 40	353.12	dense, tan and white, fine to coarse grained	8	38.5-40.0	17-27-22	49 5	Saprolite		
	41		BOH @ 40.0'							
	42									
	43 44									
	45									
1	46 47									
	48									
	49									
	50 51									
	52									
	53									
(54 55									
	56	901 7-26-20								

SOU	JTHERN COMP			DRILLI						lo.		-11
Energy	y so Serve You	r World		GEOLOGIC						Sheet 1		
SITE	·····		Plant Branch Gyps									
			Milledgeville, GA									
			BEARING									_
			4¼-in I.D. HSA									
			LENGTH								NA	
			23.3 ELEV.									
TYPE	GROUT		QUANTITY		MIX		C	PAILLING ST	ART DATE	10/2	23/2007	
DRILL		D. Willis	RECORDERD. Willi	S/Tinsley APPRÓ	VED		C	DRILLING CO	MP. DATE	10/2	23/2007	
Depth	n Elev.		Material Description, Classification a	nd Remarks	Sample No.		rd Penetration T Blows		Com	nents	%Rec	ŗ
0												
												F
		1										
2		-										
3												
4		Reddish brow	vn, very stiff silty SAND									-
			, very sum sity crave		1	3.5-5.0	7-8-10	18				
5											<u> </u>	\vdash
6		-										
7												
8												
		1										
9		saa			2	8.5-10.0	4-4-6	10				
10	396.60				L							
11												
		1										
12		1										
13		4										
14						10 - 1 - 1		1.0				T
15		saa			3	13.5-15.0	4-5-10	15				
16]										Γ
		1										
17		4										
18		1										
19												+
		SAA			4	18.5-20.0	4-4-10	14				
20	386.60	-										+
21	_	-										
22												
23												
	1	-			1						ł	

'sou:	THERN COMP	ANY _	ING LO				Hole No.	BH	-11
Energy	to Serve You	r World" GEOLOGIC	AL SERV	ICES			Sheet 2 of 2		
SITE _		Plant Branch Gypsum Storage			TOTAL DEPTH		SURF.ELEV.	40	6.6
Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Stand From To	ard Penetration T Blows	est N	Comments	%Rec	RQ
—			5	23.5-25.0	13-17-19	36			
25				<u> </u>					
26		Multicolored, black and brown, micaceous							
27		SILTY SAND (SM)					Saprolite		
28									
29									┣
30	376.60	very dense	6	28.5-30.0	22-50/3	100+	Saprolite		
	070.00								<u> </u>
31									
32									
33									
34	ļ	54A			50.14	400	Casaralita		-
35		SAA	7	33.5-35.0	50/1	100+	Saprolite		
36									
37									
	<u> </u>								
<u>38</u>	<u> </u>								
39		SAA	8	38.5-40.0	50/1	100+	Saprolite		
40	366.60						····		-
41	ļ								
42									
43									
44		SAA					· · · · · · · · · · · · · · · · · · ·		┝
			9	43.5-45.0	50/1	100+	Saprolite		
45									┢─
46									
47									
48		BOH @ 48.0 feet.							┝
49									
50									
51									
52]							
		1	1						
53									
54		4	1						
55		4							
56		004							

3001		ANY _								lo.		-12
Energy 1	o Serve You	World"		GEOLOGI	CAL SERV	ICES				Sheet	f of 3	
SITE			Plant Branch Gyps	sum Storage		. <u> </u>	HOLE DEPTH	58.	5	SURF.ELEV	418	3.31
LOCATI	ON		Milledgeville, GA		COORDINA	TES N	1163	135.56	E _	255	8055.16	
ANGLE		NA	BEARING	NA	CONTRACT	TOR SOL	uthern Corr	pany	DRILL NO.	CN	/E 550	
DRILLIN	IG METHOD		Milledgeville, GA BEARING 4¼-in I.D. HSA	NO. SAMPL	.ES	10		NO. U.D. SA	MPLES		0	
CASING	SIZE	NA	LENGTH	NA	CORES	SIZE	NA	гот	AL % REC.		NA	
	TABLE DEP	•тн	27.3 ELEV.	391.01	TIME AFTER CO	OMP.	1 week	D#	TE TAKEN	10		
TYPE G	ROUT		QUANTITY	۲ <u></u>	MIX		C	RILLING ST	ART DATE	10/	/2/2007	
DRILLER	R	D. Willis	RECORDER D.	Willis APPI		J. Jordan		RILLING CO	OMP. DATE	10/	/2/2007	
	Elev.		Naterial Description, Classification a			Standa From To	ard Penetration 1 Blows	Test	Com		%Rec	
0												Γ
											†	┝
2												
3												
4		Poddich brow	n very stiff, micaceous,									L
		neudisti brow	m very sun, micaceous,	SILY SAIND	1	3.5-5.0	5-10-15	25				
5										- ,		┡
6												
7												
8												
9		reddish browr	n sandy SII T		2	8.5-10.0	5-8-10	18				
10	408.31	. Sucion brown				0.0-10.0	5.0-10	10				L
11												
12												
13												
14		stiff										\mathbf{f}
15					3	13.5-15.0	4-4-6	10				
											 	T
16												
17												
18												
19		increasing sa	nd									┝
					4	18.5-20.0	3-4-5	9				
20	398.31											┢
21												
22												
23												
23												

sou			LING LO				Hole No.	BH	-12
Energy	to Serve You		CAL SERV	ICES	وراد والمراكل ومرافق والم		Sheet 2 of 3		
SITE		Plant Branch Gypsum Storage		T	OTAL DEPTH	53	3.5 SURF.ELEV.	418	3.3
_			Τ		ard Penetration			-	Г
Depth	Elev.	Material Description, Classification and Remarks	Sample No. 5	From To 23.5-25.0	Blows 3-4-5	N 9	Comments	%Rec	┢
_ 25		· · · · · · · · · · · · · · · · · · ·							┢
26									
27		Multicolored, black and brown, micaceous SILTY SAND (SM)					Saprolite		
	⊻						Cupronto		
28						1			
29		very dense	6	28.5-30.0	2-2-4	6	Saprolite		T
30	388.31			28.5-30.0	2-2-4	0	Sapronte		
31									Γ
32									
33									'
34		CAA					0		┢
35		SAA	7	33.5-35.0	2-3-3	6	Saprolite		
36									
37									
38									
39		~							t
40	378.31	SAA	8	38.5-40.0	5-5-7	12	Saprolite		
41									Τ
42									
43	ļ								
44		SAA				<u> </u>			┢
45			9	43.5-45.0	6-8-9	17	Saprolite		
46									T
	<u> </u>								
47	<u> </u>								
48	 								
49									\uparrow
50			10	48.5-50.0	6-9-13	22	Saprolite		
51									Τ
52	<u> </u>								
53	ļ		1				augering w/o		
54							sampling to term.		
55									
56	9901 7-26-20		1			<u> </u>	I	<u> </u>	

sout	HERN		C	RILLING LC	G			Hole No.	BH	-12
Energy to	o Serve Yo:	ANY	GEO	LOGICAL SER	VICES			Sheet 3 of 3		
		I	Plant Branch Gypsum Storage	>		TOTAL DEPTH	5	8.5 SURF.ELEV	418	3.31
Depth	Elev.	Material D	escription, Classification and Remarks	Sample No		dard Penetration Blows	Test N	Comments	%Rec	RQ
57								augering w/o		
58								sampling		
59		BOH @ 58.5 feet.		·						
60										
61			x							ł
62										
63										
64									1	
65										
66				i ·						
67										
68										
69										
70										
71										
72										
73										
74				l						
75										
76 77										
78										
79										
80										
81										
82										
83										
84										
85										
86										
87										
	330.31									

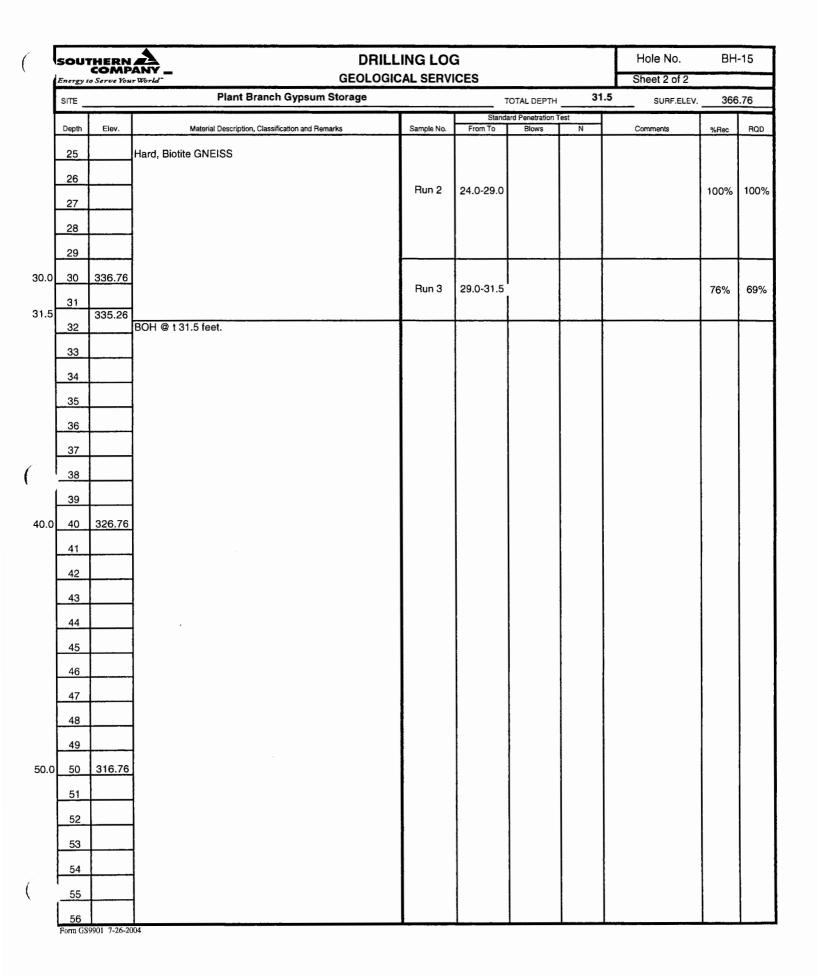
	SOU			ING LO				Hole No.		
		to Serve You	r World" GEOLOGIC	CAL SER	VICES			Sheet 1	of 2	
	SITE	• • • •				HOLE DEPTH				
	LOCAT		Gypsum Disposal	COORE	INATES N	116262	2.44	É2	2557055.17	
	ANGLE		BEARING							
	DRILLI		HSA/HQ coring NO. SAMP	LES	3	NO. U.	D. SAMPL	.ES		
		G SIZE	LENGTH	co		HQ		% REC.	39	
	WATEF	TABLE DE	PTH17.4' ELEV. 375.96	TIME AFTE		24 hr	DAT	E TAKEN	11/7/2007	
			QUANTITY			DRIL	LING STA		11/6/2007	
	DRILLE	R	Willis RECORDER Tinsley APP	ROVED		DRIL	LING CON	MP. DATE	11/7/2007	
	Depth	Elev.	Material Description, Classification and Remarks	Sample No.		dard Penetration Test Blows	N	Comments	% Rec	RQD
0.0	0	393.36								
	1		Yellowish brown to gray mottled, firm SILT with							
	2		feldspar grains							
	3									
	4			1	3.5	6-8-9	17			
	5				5					
	6									
-	7					:				
	8		Light gray to brown, silty, fine- to coarse-grained SAND		8.5					
	9		with biotite, feldpspar and quartz	2	- 10	6-13-50/4		Saprolite		
	10									
	11									
	12									
	13				13.5					
	14		saa	3	- 15	50/1		Saprolite		
	15									
	16									
	17	<u> </u>								
	18	 								
	19									
	20	<u> </u>								
	21									
	22		Begin coring at 22' Very hard quartzite and BIOTITE GNEISS				┝─┼			
	23				22.3				75	67
	24	59901 7-26-	2004		25.5					<u> </u>

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OUT	HERN COMP		LLING L					BH-13	
SITE	Serve Yo	ur World [~] GEOLO Plant Branch	GICAL SE	HVICES		40	Sheet 2 of 2		005
			Sample	Star	TOTAL DEPTH	T	.5 SURF.ELEV.		393. T
Depth	Elev.	Material Description, Classification and Remarks	No.	From To	Blows	N	Comments	% Rec	RQD
25		-				-			
26		Very hard, gray QUARTZITE		25.5					
27		4		- 30.5			rough drilling	8	
28		-							
29									
30		•							
31									†
32									
33		rubbly QUARTZITE		30.5					
34				- 40.5				91	50
35		Hard BIOTITE GNEISS		40.5					
36									
37									
38									
39									
40									
41		BOH @ 40.5'							┝
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									

SOU	THERN COMP	ANY					Hole No.		
Energy	to Serve You	r World ⁻ GEOLOGIC					Sheet 1 of		
		PLANT BRANCH GYPSUM STORAG	Ε	·····	HOLE DEPTH	36'	SURF.ELE	v. <u>348</u>	8.51
LOCAT		Milledgeville, Ga	COORE	DINATES N	116174	2.98	E25	56080.23	}
ANGLE		BEARING	CONTR		SCS		DRILL NO. CN	AE 550X	
	NG METHO		s	0	NO. U	.D. SAM	PLES		
CASING	SIZE	LENGTH							
WATER	TABLE DE	0.1						/8/2007	
TYPE G	ROUT	QUANTITY							
DRILLE	R	Willis RECORDER Willis APPRO					DMP. DATE 11		
			Sample	Stan	dard Penetration Test			T	T
Depth	Elev.	Material Description, Classification and Remarks	No.	From To	Blows	N	Comments	% Rec	
0	348.51								
1		Rocky at surface		0	50/1			0	
				3.5	00,1				
2									
3									
4		Aufer refusal at 3.7'							
				3.7					
5		Slightly sandy SILT and boulders		- 4.9			Very rough drilling	100	
6									+
7				4.9					
,				9.9				26	
8									
9									
10	⊻								
									\vdash
20				9.9					
30				-				0	
36				36.0					
		BOH @ 36'						1	
						1			

SOUT	COMP					ILLING LO					В	
Energy to	o Serve You	r World"				GICAL SEF					Sheet 1 of 2	
SITE			Plant Br	anch Gyp	sum Storage	e		HOLE DEPTH	31.	5 SUI	RF.ELEV. 3	66.76
LOCATI	ON		Mille	dgeville, GA		COORDI	ATES N	1161	806.19	E	2557684.3	38
ANGLE		NA	BI		NA	CONTRA	CTOR SC	outhern Cor	npany	DRILL NO.	CME 550)
DRILLIN	IG METHOD)	4¼-in	I.D. HSA	NA NO. SA	MPLES	3		NO. U.D. SA	MPLES	0	
CASING	SIZE	NA	L L	ENGTH	NA 362.16	COR	SIZE	HQ	ro	TAL % REC.	NA	
TYPE G	ROUT			QUANTIT	Υ	MD			DRILLING S	TART DATE	10/23/200)7
DRILLE	R	D. Willis	RECORD		Garland	APPROVED	J. Jordan		DRILLING C	OMP. DATE	10/25/200)7
Depth					and Remarks		Stand	dard Penetration		Comment	s %Re	c R
		r										
0		Gravish bro	wn. micaced	ous, fine to m	edium, medium			+				+-
1		dense SILT	Y SAND (SM	4)	,							
2												
3												
4	.						3.5-5.0	6-7-9	16			
5	<u> </u>											_
6												
_		dark orangis	sh brown									
7		1										
8		-										
9												-
10	356.76					2	8.5-10.0	4-5-7	12	Saprolite		
11		1										
<u> </u>		1										
12		very dense										
13												
14												
15						3	13.5-15.0	50/1	100+	Saprolite		
		1										
16		-										
17												
18												
10												
19												
20	346.76		al at 20.3 fe	et.								
21			athered Bioti									
22												
		1.				Run	1 20.3-24.0	D			81	
23		Less weath	ered									
24	9901 7-26-20											



5 0U '	THERN COMP							lo.	BH-16	
Energy	to Serve You	r World" GEOLOGIC						neet 1 of		_
		Plant Branch Gypsum Disposal								
LOCAT	ION	Milledgeville, ga	COORE	INATES N	116275	1.02	E	255	8503.58	
ANGLE	:	BEARING								
DRILLI	NG METHO	D HSA/HQ NO. SAMPLES	3		NO. U	.D. SAMF				
CASIN	G SIZE	LENGTH								
WATE	R TABLE DE	РТН12.3 ELEV394.63 TI	ME AFTE		24 hr	DA	TE TAKEN	11/	/1/2007	
TYPE	GROUT	QUANTITY	M	IX	DRI	LING ST	ART DATE	10/3	31/2007	
DRILLE		Willis RECORDER Tinsley APPRO			DRI				31/2007	
			Sample	Stan	dard Penetration Test					[
Depth	Elev.	Material Description, Classification and Remarks	NO.	From To	Blows	N	Com	ments	% Rec	R
0	406.93									
1										
~										
2										
3										
4		Mottled, reddish brown to gray SILT with mica		3.5						+-
_		and feldspar grains	1	- 5	6-8-9	17				
5				5						┢╌
6	<u> </u>									
7										
8										
0										
9		Light gray silty SAND		8.5	6-13-50/4	13				
10				10	0 10 00/4					
11										
12										
13										
14			-	13.5		$\left \right $			+	┝
		Gray sandy SILT with mica and large feldspar grains		-	50/1	50	Saprolite			
15				15					+	\vdash
16										
17										
18										
10				18.5	· · · · ·				1	
19		saa		- 20	50/1	50	Saprolite			
20										
21										
22		4								
23										
	1	Auger refusal @ 23.6								

OUI			DRILLING					Hole No.	BH-16	
	o Serve You	ur World"	GEOLOGICAL	SEF	RVICES			Sheet 2 of	2	
ыте		Plant Branch Gypsum	Disposal		····	TOTAL DEPTH	45	.5 SURF.ELEV	406	6.93
Depth	Elev.	Material Description, Classification and		ample No.	Stand From To	dard Penetration Test Blows	N	Comments	% Rec	RQ
25		Dark to light gray, hard Biotite GNEISS								
		Dark to light gray, hard blottle diverso						very complexly		
26					23.8		1	folded		
27		0.5' void			- 29.5			(Migmatite)	57	3
28								(
29										
30			-							┢━
31										
32										
33										
					29.5					
34					- 39.5				99	ε
35										
36										
37	<u></u>					:				
38										
39										
40										
41										
42					39.5 -				100	ļ
					45.5					
43										
44	<u> </u>									
45										
46	<u></u>	BOH @ 45.5'								
47										
48										
49										
50										
51										
52										
53										
54										
55										
56		1								

(

(

	COMP	ANY _	DRIL		Hole No. BH-17					
	Serve You		GEOLOGI					S		_
SITE		Plant Branch								
	ОМ	Milledgevil	le, GA	COORDINA	TES N	1160	722.41	E	2558395.21	
ANGLE		NA BEARING	, NA	CONTRACT	OR SOL	thern Con	ipany	DRILL NO.	0. CME 550	
DRILLIN		4¼-in I.D. H								
CASING	SIZE					HQ FOTAL % REC.				
WATER	TABLE DEF	тн в е	LEV. 372.32	TIME AFTER CO	ОМР	24 hr	D/		10/30/2007	,
TYPE G	ROUT			MIX			RILLING ST		10/29/2007	
DRILLER	۹ ۴	D. Willis RECORDER	Tinsley APP	ROVED			RILLING CO	OMP. DATE	10/29/2007	,
Depth	Elev.	Material Description, Cla	ssification and Bernarks	Sample No.	Standa From To	rd Penetration		Comments	%Rec	Γ,
				oumpie Ho.		Ciona		Comments	%Rec	+
0	•		······································							╇
1										
2										
3										
4		Réd, micaceous, medium den	ise SILTY SAND (SM)							+
5				1	3.5-5.0	6-5-7	12			
										+
6										
7						-				
8										
9		saa		2	8.5-10.0	7-7-7	14			
10	393.12									
11									1	
12									-	1
12										
13										
14										+
15		saa		3	13.5-15.0	7-8-9	17			
										T
16										
17										
18										
19		saa		4	18.5-20.0	9-7-7	14			
20	383.12									
21										
22										
23										
										1

sou		ANY _	ING LO				Hole No.	BH	-17
Energy	to Serve You	GEOLOGI	CAL SERV	ICES			Sheet 2 of 2		_
SITE		Plant Branch Gypsum Storage		1	TOTAL DEPTH	ł	54 SURF.ELEV	403	3.12
0			1		ard Penetration T			1	
Depth	Elev.	Material Description, Classification and Remarks white to greenish gray fine- to coarse-grained SAND	Sample No. 5	From To 23.5-25.0	Blows 8-8-8	N 16	Comments Saprolite	%Rec	RC
25									
26									ĺ
27									
28									
29		white, black, and grayish green							
30	373.12		6	28.5-30.0	11-12-15	27	Saprolite		
31	•								_
5 	371.62								
32		Auger refusal at 32.3 feet.							
33		Moderately to slightly weathered,gray Biotite GNEISS	Run 1	00.0.04.0					
34		woderately to signify weathered, gray blottle Graciss		32.3-34.0				92%	5
35									
36									
37			Run 2	34.0-39.0				64%	4
38									
39		weathering along fractures							
40	363.12								
	000.12								
41		·	Run 3	39.0-44.0				96%	8
42									_
43									
44									
45									
46									
47		interbedded amphibolite							
48									
49			Run 4	44.0-54.0				100%	74
50	353.12								
	000.12								
51									
52									
53									
54			!]					
		BOH @ 54.0 feet.	<u> </u>						-
55									
56		04							

	HERN		ING L	OG			Hole No.	BH-18	3	
	COMP o Serve You	ANY					Sheet	1 of 2	_	
SITE		Plant Branch Gypsum Storage			HOLE DEPTH	40	SUR	F.ELEV. 40	08.6	
LOCATIO	ON	Milledgeville, GA	COORD	NATES N	1163	117.29	E	2559032.3	1	
ANGLE		0 BEARING 0	CONTR	ACTOR	Ranger	C		CME-550)	
DRILLIN	IG METHO	H.S.A. & NQ coring NO. SAMPLE	s	6	.NC	. U.D. SAMPI	LES	s 0		
CASING	SIZE	NW LENGTH 30 PTH 26.6 ELEV. N/A T	co	RE SIZE	NQ 10'		% REC.	96.50%		
WATER	TABLE DE	ртн <u>26.6</u> еlev. <u>N/A</u> т	IME AFTEI		1 hour	DA1	TE TAKEN	2/16/2009)	
		N/A QUANTITY N/A								
DRILLER	R	J. Crowe RECORDER L. Garland APPR					MP. DATE	2/16/2009	}	
Depth	Elev.	Material Description, Classification and Remarks	Sample No.		dard Penetration Tes Blows	st N	Comments	% Rec	, [
0	408.66			-						
	400.00					++	· · · ·		╉	
1										
2										
3										
4										
		reddish brown clayey medium to fine SAND with some								
5		silt very micacous	1	3.5-5	7-8-8	16				
6										
7										
8										
9		orangish brown silty medium to fine SAND very								
10		micacous	2	8.5-10	4-5-7	12				
11										
12										
13										
14		yellowish orange and brown silty medium to fine								
15		SAND very micacous	з	13.5-15	5-6-7	13				
16										
17										
18										
19										
20		light gray and brown sandy SILT very micacous	4	18.5-20	5-11-12	23				
21										
22										
23		light gray and brown silty medium to fine SAND very								
		micacous								

	THERN COMP	DRILL						BH-18	
	to Serve Yoz	Plant Branch Gypsum Storage	AL SE	RVICES		40	Sheet 2 of		
SITE -			Sample	Stan	TOTAL DEPTH	40	SURF.ELEV.	408	.66
Depth	Elev.	Material Description, Classification and Remarks	No.	From To	Blows	N	Comments	% Rec	RQD
25			5	23.5-25	7-9-15	24			
26									
27		light gray and brown silty medium to fine SAND very							
28		micacous							
29									
30		Encountered Auger Refusal and began coring @ 30'	6	28.5-30	15-50/0	100+			
31							~		
32		BIOTITE GNEISS moderately to highly weathered, moderately hard to soft, intensely to moderately	R-1	30-35					50
33		fractured with highly to completely weathered joints	n-1	30-35				98	52
34									
35									
36									
37		BIOTITE GNEISS slightly to highly weathered, hard to							
		moderately hard, moderately to highly fractured with highly weathered joints	R-2	35-40				95	72
38		Thighly weathered joints							
39									
40		Boring Completed @ 40'							
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
		•							
53									
54									
55									
56	0001 7 00								

Form GS9901 7-26-2004

5 0 U	THERN COMP	ANY	DRILLI					Hole No.		
Energy	to Serve You	- World	GEOLOGIC					Sheet 1 of		_
SITE _		Plant Branch								
LOCAT		Milledgeville	, GA	COORE	NATES N	1162391	.11	E255	8896.55	;
ANGLE	=	0 BEARING H.S.A.	0	CONTR	ACTOR	Ranger	(4E-550	
DRILLI	NG METHO	H.S.A.	NO. SAMPLE	s	3	NO. U.	D. SAMP	LES	0	
		N/A LENGTH								
WATE	R TABLE DE	отн <u>3.72</u> ELE	v. <u>N/A</u> тı	ME AFTE		1 hour	DA	TE TAKEN 2/1	7/2009	
TYPE (GROUT	<u> </u>	ANTITY N/A	M	IXN	I/A DRIL	LING ST			
DRILLE	ER	J. Crowe RECORDER	L. Garland APPRO				LING CO	MP. DATE 2/1	7/2009	
Depth	Elev.	Material Description, Classif	ication and Remarks	Sample No.	Stan From To	dard Penetration Test Blows	N	Comments	% Rec	R
									701100	
0	407.41	·····	· · · · · · · · · · · · · · · · · · ·	·						+
1										
2	<u> </u>									
3										
4										
					055	0.4.0				
5		ash		1	3.5-5	3-4-3	7			
6	<u> </u>									
7	<u> </u>									
8										
9										
		ach			0 5 40	0.0.4				
10		ash		2	8.5-10	2-2-4	6			
11	<u> </u>			1						
12										
13										
	1									
14	+									
15_	+	ash		3	13.5-15	1-2-3	5			
16										
17										
18										
- <u>-</u>										
19						no sample due		out of ash at bottom		
20		red brown sandy CLAY with silt	observed on auger			to blowback		of boring	+	+
21	ļ					,				
22										
23	+			1						

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C	synte consulta	nts	BORING AND WELL LOG LEGEND
LITHOLOGY WATER I EVFI	WELL/BORING COMPLETION	SAMPLE TYPE	DESCRIPTION
		B B S S C	ASPHALT CONCRETE FILL TOPSOIL COBBLES IGNEOUS Rock METAMORPHIC Rock SEDIMENTARY Rock Well-graded GRAVEL (GW) Poorly graded GRAVEL (GP) Stilly GRAVEL (CM) Clayey GRAVEL (CP) Stilly GRAVEL (CM) Poorly graded GRAVEL (Mth sill (GW-GM) Poorly graded GRAVEL with sill (GP-GM) Poorly graded GRAVEL with sill (GP-GM) Well-graded GRAVEL with sill (GP-GM) Poorly graded GRAVEL with sill (SW-SM) Poorly graded GRAVEL with sill (SW-SM) Poorly graded SAND (SM) Silly SAND (SM) Clayey SAND (SC) Well-graded SAND with sill (SV-SM) Well-graded SAND with sill (SV-SM) Poorly graded SAND with sill (SV-SM) Well-graded SAND with sill (SV-SM) Poorly graded SAND with sill (SV-SM) Well-graded SAND with sill (SV-SM) Poorly graded SAND with sill (SV-SM) Well-graded SAND with sill (SV-SM) Poorly graded SAND with sill (SV-SM) Well-graded SAND with sill (SV-SM) Poorly graded SAND with sill (SV-SM) Well-graded SAND with sill (SV-SM) Well-graded SAND with sill (SV-SM) Well-graded SAND with sill (SV-SM) Static Warde Level (N) Static Warde Level (N)

		co		nts	>		Clien Proje Addre	0 1 2	on Well N Page:	lo. PB	L LOG -1S/PB-1 f 5	
Drillin Drillin Drillin Drillin Driller	• • •	Date: bany od:	: 01/2 : Tho Holle at: CME Stan	ow St E-550 n Whit	9 n Eng em Ai	uger	•	Boring Diameter (in):6.50WStatic Water Level (ft):24.54/NARiDTW After Drilling (ft):24.4/NASoTop of Casing Elev. (ft)403.06/NASaGround Elev. (ft):400.26/NAFil	iser Material: creen Materia	/Screen S Sch 40 F al: Sch 40 Bentonit and) PVC Slotted e Chips/Pellet	
DEPTH (ft)	ЛТНОГОСЛ	WATER LEVEL	WELL	Sample Type	Recovery (ft)	s	N Value A RQD (%)	SOIL/ROCK VISUAL DESCRI	IPTION		MEASURE samble Lap S	ELEV. (ft msl)
0-				SS	0.58	1 1 1	2	(0') Clayey SAND (SC); moist, reddish-brown, organ	nic material.		PB-1 (0-2)	— 400 _
_				SS	1.66	1 1 3 4 5	7	(2') Sandy lean CLAY (CL); medium plasticity, mediu reddish-brown, micaceous, some quartz gravel in lea	um stiff, dry, nses.		PB-1 (2-4)	_
5				SS	2	3 5 8 9	13				PB-1 (4-6)	- 395
_				, SS	2	3 3 5 5	8	(6') Clayey SAND (SC); mostly medium grained san few clay, medium dense, dry, light reddish-brown, so sand lenses.			PB-1 (6-8)	_
_	<u>, , , , , , , , , , , , , , , , , , , </u>			SS	1.84	2 3 4 7	7	(8') SILT (ML); mostly silt, nonplastic, medium stiff, small iron oxide concretions throughout (10 mm).	dry, yellowish	. <u> </u>	PB-1 (8-10)	_
10-				SS	1.84	3 4 5 5	9	(10') SILT (ML); mostly silt, nonplastic, medium stiff small iron oxide concretions throughout (10 mm), m			PB-1 (10-12)	— 390 -
-				SS	2	3 4 5 6	9	(12') Silty SAND (SM); medium dense, dry, pale red structure, micaceous, some gravel quartz lenses.	ldish-brown, v	veak relict	PB-1 (12-14)	_
- 15-				SS	2	4 3 5 6	8				PB-1 (14-16)	- 385
				SS	1.66	3 5 7 7	12	(16') Silty SAND (SM); dense, moist, pale reddish-bu structure more evident, micaceous, some gravel qua	rown, relict ro artz lenses.	ock	PB-1 (16-18)	_
20-				SS	2	7 4 4 6 7	10				PB-1 (18-20)	_
NOTES: PB-1S is a stickup well located ~10ft away from PB-1 bore NA = Not Applicable							cated	~10ft away from PB-1 borehole.				

COLLECT MEASURE (1) I	Geosyntec Consultants engineers scientists Innovators Drilling Start Date: 01/18/2019 Drilling End Date: 01/22/2019 Drilling Company: Thompson Engine Drilling Method: Hollow Stem Auge Drilling Equipment: CME-550 Driller: Stan White Logged By: Joseph Ivanowsk	eering er	e 1, j	Well Depth (f Well Diam. (in Riser Materia Screen Materia	I No. PB e: 2 c (ft): 38/NA in)/Screen S al: Sch 40 l erial: Sch 40 al: Bentonit Sand) PVC Slotted e Chips/Pellet				
25 2 4 13 (22) Sity SAND (SM); dense, moist, pale reddish-brown, micaceous with relict rock fabric. PB-1 (22:24) 25 5 8 19 (24) Sity SAND (SM); dense, wet, pale reddish-brown, micaceous with relict rock fabric. weathered quartz lens at 25.5 ft. PB-1 (24:26) 25 5 11 15 31 PB-1 (24:26) 26 5 2 6 11 15 30 5 2 6 13 (28) Sity SAND (SM); dense, wet, pale reddish-brown, micaceous with relict rock fabric, weathered quartz lens at 25.5 ft. PB-1 (24:26) 30 5 1.34 17 86 (28) Sity SAND (SM); dense, wet, pale reddish-brown, material becoming harder, more rock like, highly weathered Gneiss. PB-1 (26:30) 30 5 1.26 11 87 (28) Top of PWR. 98-1 (30:32) - 370 30 5 1.58 1.68 16 77 (35) Weathered Gneiss, abundant quartz, mica with biotite. PB-1 (35:37) - 365		DEPTH (ft) NATER LEVEL NATER LEVEL COMPLETION Sample Type Recovery (ft) Recovery (ft) Solr/Blow Counts N Value Rob (%)								
	$ \begin{array}{c} $	10 10 10 10 10 10 11 10 11 11 12 13 14 17 86 14 17 87 10 11 12 13 14 15 16 17 18 19 11 12 13 14 15 16 17 18 19 10 10 11 12 13 14 15 16 17 18 19 10 10 11 12 13 14 15 16 17 18 17 18 19 10 10 10 10 10 <td>relict rock fabric. (24') Silty SAND (SM); dense, wet, pale reddish- relict rock fabric, weathered quartz lens at 25.5 ff (28') Silty SAND (SM); dense, wet, pale reddish- harder, more rock like, highly weathered Gneiss. (28') Top of PWR. (32') Switched to 5ft-center for SPT (SS) samplin</td> <th>brown, micaced t. brown, materia</th> <td>eous with</td> <td>PB-1 (22-24) . PB-1 (24-26) . PB-1 (26-28) . PB-1 (28-30) . PB-1 (30-32) .</td> <td>-</td>	relict rock fabric. (24') Silty SAND (SM); dense, wet, pale reddish- relict rock fabric, weathered quartz lens at 25.5 ff (28') Silty SAND (SM); dense, wet, pale reddish- harder, more rock like, highly weathered Gneiss. (28') Top of PWR. (32') Switched to 5ft-center for SPT (SS) samplin	brown, micaced t. brown, materia	eous with	PB-1 (22-24) . PB-1 (24-26) . PB-1 (26-28) . PB-1 (28-30) . PB-1 (30-32) .	-			

Ceosyntec Consultants	Clien Proje Addr				L LOG -1S/PB-1 of 5			
Drilling Start Date:01/18/2019Drilling End Date:01/22/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:CME-550Driller:Stan WhiteLogged By:Joseph Ivanowski	r	Boring Depth (ft): 96 Boring Diameter (in): 6.50 Static Water Level (ft): 24.54/NA DTW After Drilling (ft): 24.4/NA Top of Casing Elev. (ft) 403.06/NA Ground Elev. (ft): 400.26/NA Location (X,Y): 1164916.83, 2556350.54	Well D Riser M Screen Sanitar Filter P	epth (ft): 38/NA niam. (in)/Screen S Material: Sch 40 I n Material: Sch 40 ny Seal: Bentonit Pack: Sand ing Method(s): St	PVC) PVC Slotted te Chips/Pellet			
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft) Blow Counts		SOIL/ROCK VISUAL DESC	CRIPTIC	DN	MEASURE lap Sample rap C	ELEV. (ft msl)		
$ \begin{array}{c} 40 \\ - \\ - \\ 45 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ -$	95 95 95 14 50	(45') Silty SAND (SM); very dense, wet, mottled, quartz, biotite, and feldspar.	weather	red Gneiss with	PB-1 (40-42) PB-1 (45-47) PB-1 (50-52)	- 360 355 		
55 - SS 0.5 50/	/5	(55') No bag sample collected.				- - 345 - - -		
NOTES: PB-1S is a stickup well I NA = Not Applicable								

°,	ants		Clien Proje Addr	• • •	Well D	Well No. Pl Page: 4 Depth (ft): 38/NA		010
Drilling Company: The Drilling Method: Hol Drilling Equipment: CM Driller: Sta	Company:Thompson EngineeringStatic Water Level (ft):24.54/NARiser Material:Sch 40 PVCMethod:Hollow Stem AugerDTW After Drilling (ft):24.4/NAScreen Material:Sch 40 PVC SlotteSquipment:CME-550Top of Casing Elev. (ft)403.06/NASanitary Seal:Bentonite Chips/PelStan WhiteGround Elev. (ft):400.26/NAFilter Pack:Sand) PVC 40 PVC Slotted hite Chips/Pellet		
DEPTH (ft) LITHOLOGY WATER LEVEL WELL	Sample Type	Blow Counts	N Value <u>H</u> RQD (%)	SOIL/ROCK VISUAL DESC	RIPTIC	DN	MEASURE Pamble Lap Sample	ELEV. (ft msl)
	SS 0.1	50/4		(60') No bag sample collected. (65') Silty SAND (SM); very dense, wet, some co weathered Gneiss with relict banding, quartz, fek	dspar, a	nd biotite. PWR		- 340 - - - - 335
70-				becomes more competent. Very slow drilling, effe 67ft. (67') Began mud rotary drilling.	ective au	uger refusal at		- - - - 330 -
				(72') No bag sample collected.				- - - 325 -
	a stickup		ocated	(79') Very hard drilling. ∼10ft away from PB-1 borehole.				_

Geosyntec> consultants engineers scientists innovators Drilling Start Date: 01/18/2019 Drilling End Date: 01/22/2019 Drilling Company: Thompson Engine Drilling Method: Hollow Stem Auge Drilling Equipment: CME-550 Driller: Stan White Logged By: Joseph Ivanowski	eering er		R Landfill Site Investigation e Rd, MilledgevilleWell No. PB-1S/PB-1 Page: 				
DEPTH (ft) LITHOLOGY WATER LEVEL COMPLETION Sample Type Recovery (ft) N Value Rounts N Value Rounts Recovery (ft) N Value Rounts Recovery (ft) Recovery (ft)						ELEV. (ft msl)	
	100	Top of competent rock at 81.5 (81.5') MET ROCK (GNEISS); coarse grained, n hard, slightly fractured, dark gray to white, poorly fractures, abundant qzt, feldspar phenocrysts or little evidence of water flow in fractures at 82.3, 8 Cable tool (rock coring) started at 81.5 ft below g Fractures at 82.3 and 82.7 Fracture at 84.5 Fracture at 87 (96') Boring terminated. Well installed on 01/24/2	r jointed augen, 32.7, 84 round s	, few low angle biotite, pyroxene, 4.5, and 87 ft.		- 320 	
NOTES: PB-1S is a stickup well located ~10ft away from PB-1 borehole. NA = Not Applicable							

	Ge	co	onsi	ıltaı	nts	>		Clien Proje Addre	ct: Plant Branch CCR Landfill Site Investigation Well No. PE	LL LOG 3-2D of 4	
Drilling End Date:12/04/2018Boring Diameter (in):6.50Drilling Company:Thompson Engineering Drilling Method:Static Water Level (ft):39.50Drilling Method:Hollow Stem Auger Drilling Equipment:D-50DTW After Drilling (ft):12.40Driller:Phil Pitts Logged By:Ground Elev. (ft):416.76Drilling Logged By:Nardos TilahunLocation (X,Y):1164853.32, 2556913.92						Static Water Level (ft): 39.50 Riser Material: Sch 40 DTW After Drilling (ft): 12.40 Screen Material: Sch 4 Top of Casing Elev. (ft) 416.76 Sanitary Seal: Benton Ground Elev. (ft): 414.86 Filter Pack: Sand	PVC 10 PVC Slotted ite Pellets				
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	WELL	COMPLETION	Sample Type	Recovery (ft)	Blow Counts	N Value RQD (%)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE Lab Sample	ELEV. (ft msl)
0					SS	2	3 3 4 3	7	(0') Elastic SILT (MH); few medium sand, mostly silt, low plasticity, soft, moist, reddish, abundant mica.		_
_					SS	2	1 1 1 1	2	(2') Elastic SILT (MH); few medium sand, mostly silt, low plasticity, soft, moist, reddish, abundant mica.	PB-2 (2-4)	_
5-					SH	1					- 410
_					SS	2	2 3 5 9	8	(6') Elastic SILT (MH); few medium sand, mostly silt, low plasticity, soft, moist, reddish, abundant mica.		_
_					SS	2	2 4 6 8	10		PB-2 (8-10)	- 405
10-					SS	2	3 3 5 4	8	(10') Lean CLAY with sand (CL); few fine sand, some silt, mostly clay, medium plasticity, soft, moist, yellowish-brown to red.	-	- 405
-		▼			SS	2	3 3 2 5	5	(12') Elastic SILT with sand (MH); trace fine sand, mostly silt, few clay, soft, moist, yellow brown to red.	PB-2 (12-14)	-
15					SS SS	2	4 4 7 10 6	11	(15') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, medium dense, dry, brownish-white, weathered rock fragments, black mottles.	PB-2 (15-16)	400
					SS	2	6 5 5 5 6	11			_
20-							5 8				- 395
N	NOTES: PB-2D is a stickup well. NA = Not Applicable										

engineers scientists innov	ec nts	Clier Proje Add	• • • •	ation Well No. Pl	LL LOG B-2D of 4			
Drilling Company: Thon Drilling Method: Hollo Drilling Equipment: D-50 Driller: Phil F	/2018 npson Eng w Stem A	-	Boring Depth (ft): 61 Boring Diameter (in): 6.50 Static Water Level (ft): 39.50 DTW After Drilling (ft): 12.40 Top of Casing Elev. (ft) 416.76 Ground Elev. (ft): 414.86 Location (X,Y): 1164853.32, 2556913.92	ter (in):6.50Well Diam. (in)/Screen Slot (in):2.0/0.0Level (ft):39.50Riser Material:Sch 40 PVCilling (ft):12.40Screen Material:Sch 40 PVC Slottedi Elev. (ft)416.76Sanitary Seal:Bentonite Pellets(ft):414.86Filter Pack:Sand				
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION	Sample Type Recovery (ft)	Blow Counts N Value ROD (%)	SOIL/ROCK VISUAL DESC	CRIPTION	Lab Sample ELEV. (ft msl)			
	SS 2 SS 2 SS 2 SS 2 SS 1.5 SS 2 SS 1.5 SS 2 SS 2 SS 1	7 8 5 3 5 11 5 11 5 13 5 13 5 10 4 9 5 10 4 6 9 6 6 16 9 21 13 7 10 11 15 9 33 8 15 32 33 8 13 38 20 32 30 50 50/5.5 50	 (21.5') SILT (ML); trace fine sand, mostly silt, few dry, reddish-brown, abundant mica. (22') SILT with sand (ML); few fine-coarse sand, nonplastic, stiff, dry, brownish-white, black mottle (24') SILT with sand (ML); few fine-coarse sand, nonplastic, stiff, dry, brownish-white to light gray (26') SILT with sand (ML); few fine-coarse sand, nonplastic, soft, dry, white to yellow brown. (28') SILT with sand (ML); few fine-coarse sand, nonplastic, stiff, dry, brownish-white. (30') SILT with sand (ML); few fine-coarse sand, nonplastic, stiff, dry, brownish-white. (30') SILT (ML); few fine-coarse sand, mostly sil stiff, moist, yellow brown to brownish-white, blac laminated mica. (32') SILT (ML); few fine-coarse sand, mostly sil hard, moist, brown to yellow brown to white, blac laminated, weathered white quartz rock fragment (34') SILT (ML); few fine-coarse sand, mostly sil stiff, moist, gray to white. (36') SILT (ML); few fine-coarse sand, mostly sil stiff, moist, gray to white. (36') SILT with sand (ML); few fine-coarse sand, mostly sil stiff, moist, gray to white. (36') SILT with sand (ML); few fine-coarse sand, mostly sil stiff, moist, gray to white. (36') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, moist, brown to dark gray (39') Top of PWR. 	mostly silt, trace clay, mostly silt, trace clay, abundant mica. mostly silt, trace clay, mostly silt, trace clay, mostly silt, trace clay, mostly silt, trace clay, t, trace clay, nonplastic, k mottles, abundant t, trace clay, nonplastic, k mottles, mica, ts. t, trace clay, nonplastic, k mottles, mica, ts.	PB-2 (24-26) - 390 - 390 			

Drilling Start Date: 11/22/2018 Boring Depht (%): 61 Well Depth (%): 67 Drilling Company: Thompson Engineering Boring Diameter (m): 6.50 Well Depth (%): 67 Drilling Company: Thompson Engineering Diameter (m): 6.50 Well Depth (%): 67 Drilling Equipment: D-50 DTW After Drilling (%): 12400 Screen Material: Sch 40 PVC Slotted Drilling Equipment: D-50 DTW After Drilling (%): 144.86 Santary See: Bentonic Pellets Logged By: Nardos Tilahun Cocute CTV, 144.86 Santary See: Bentonic Pellets Drilling Company: TUBMy OD OULLECT SOIL/ROCK VISUAL DESCRIPTION MEASURE 01 OULL See: OULL See: SOIL/ROCK VISUAL DESCRIPTION MEASURE 01 OULL See: OULL See: SOIL/ROCK VISUAL DESCRIPTION MEASURE 02 OULL See: OULL See: SOIL/ROCK VISUAL DESCRIPTION MEASURE 02 OULL See: OULL See: SOIL/ROCK VISUAL DESCRIPTION MEASURE 03 OULL See: OULL See: SOIL/ROCK VISUAL DESCRIPTION MEASURE 04 OULL See: OULL See: SOIL/ROCK (CNEISS): modentally bedded, fresh, hard,	Geosyntec Consultants	Clien Proje Addr	0 1 3		WEL Well No. PB Page: 3 o		
(i) Hard (i) SOIL/ROCK VISUAL DESCRIPTION 9 dig of (i)	Drilling End Date:12/04/2018Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:D-50Driller:Phil Pitts	ngineering AugerBoring Diameter (in):6.50Well Diam. (in)/Screen Slot (Riser Material:AugerStatic Water Level (ft):39.50Riser Material:Sch 40 PVCDTW After Drilling (ft):12.40Screen Material:Sch 40 PVTop of Casing Elev. (ft)416.76Sanitary Seal:Bentonite PGround Elev. (ft):414.86Filter Pack:Sand					010
45 64 (42.9) Auger refusal. 45 64 (42.9) Auger refusal. 45 64 (43) MET ROCK (GNEISS); moderately bedded, fresh, hard, slightly decomposed near top, competent, fine to medium grain. Cable tool (rock coring) started at 43 ft below ground surface. 370 60 4.3 87 (46.5) MET ROCK (GNEISS); moderately bedded, fresh, hard, unfractured, dark gray to white, dark biotite and white feldspar minerals, strong, dark and light banding, flow banding, competent, fine to medium grain. Cable tool (rock coring) started at 43 ft below ground surface. 370 50 60 4.3 87 (46.5) MET ROCK (GNEISS); moderately bedded, fresh, hard, unfractured, dark white, dark biotite and white feldspar minerals, strong, dark and light banding, flow banding, competent, medium to coarse grain. 385 50 60 61 100 100 3.3 66 61 62 95 (51) MET ROCK (GNEISS); fresh, hard, unfractured, dark white, dark biotite and white feldspar minerals, strong, dark and light banding. 380 55 66 67) MET ROCK (GNEISS); fresh, hard, unfractured, dark white, dark biotite and white feldspar minerals, strong, dark and light banding. 66 67 66 67) MET ROCK (GNEISS); fresh, hard, unfractured, dark white, dark biotite and white feldspar minerals, strong, dark and light banding. 380 55 <td></td> <td>_</td> <td>SOIL/ROCK VISUAL DESC</td> <td>CRIPTIC</td> <td>N</td> <td></td> <td>ELEV. (ft msl)</td>		_	SOIL/ROCK VISUAL DESC	CRIPTIC	N		ELEV. (ft msl)
60	45 - 45 - 43 - 45 - 43 - 45 - 43 - 45 - 43 - 43 - 43 - 43 - 43 - 43 - 43 - 43	64 87 66 95	 (43') MET ROCK (GNEISS); moderately bedded fractured, dark gray to white, dark biotite and wh strong, dark and light banding, trace red, flow ba near top, competent, fine to medium grain. Cable at 43 ft below ground surface. (46.5') MET ROCK (GNEISS); moderately bedded unfractured, dark gray to white, dark biotite and w strong, dark and light banding, flow banding, con grain. Couldn't retrieve core, redrilled with new core cal retrieved core, as a result Run 3 has several mee (51') MET ROCK (GNEISS); fresh, hard, unfract biotite and white feldspar minerals, strong, dark abanding, competent, medium to coarse grain, se from redrilling. 51-52 ft was drilled (not cored) dt (mostly sand) jamming core bit. (56') MET ROCK (GNEISS); fresh, hard, unfract biotite and white feldspar minerals, strong, dark abanding, competent, medium to coarse grain, se from redrilling. 51-52 ft was drilled (not cored) dt (mostly sand) jamming core bit. 	ite feldsp nding, sl e tool (ro ed, fresh white feld npetent, tured, da and light veral me ue to a w	ark white, dark		- - - 365 - - - 360 - - -

					>		Clien Proje Addro	• • • •	Well No. PB	L LOG -2D of 4	
Drillin Drillin Drillin Drillin Drille	Drilling Start Date: 11/29/2018 Drilling End Date: 12/04/2018 Drilling Company: Thompson Engineerin Drilling Method: Hollow Stem Auger Drilling Equipment: D-50 Driller: Phil Pitts Logged By: Nardos Tilahun COLLECT					uger	-	Boring Diameter (in):6.50WellStatic Water Level (ft):39.50RiserDTW After Drilling (ft):12.40ScreetTop of Casing Elev. (ft)416.76SanitGround Elev. (ft):414.86Filter	Depth (ft): 57 Diam. (in)/Screen S Material: Sch 40 I en Material: Sch 44 ary Seal: Bentonit Pack: Sand Jiling Method(s): S	PVC D PVC Slotted te Pellets	010
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	Ś	N Value A RQD (%)	SOIL/ROCK VISUAL DESCRIPT	ON	MEASURE Samble Lap	ELEV. (ft msl)
60 - - 65								(61') Boring terminated. Well installed on 12/05/2018			- 350
N	IOTES:		PB-2D is IA = Not	a stic Appli	kup w cable	vell.					

		CC	onsulta	nts	>		Client Projec Addre	0	Landfill Site Investigation	Boring No. I	ING LOG PB-3 of 3	
Drillin Drillin Drillin Drillin Driller	Drilling Start Date:11/27/2018Boring Depth (ft):44Drilling End Date:11/27/2018Boring Diameter (in):6.50Drilling Company:Thompson EngineeringSampling Method(s):SS/SHDrilling Method:Hollow Stem AugerStatic Water Level (ft):NADrilling Equipment:D-50DTW After Drilling (ft):432.08Logged By:Nardos TilahunLocation (X,Y):1164263.28, 25567						54.55					
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	S	N Value A RQD (%)	SOIL/	ROCK VISUAL DESCRIPT	ION	MEASURE Sample Tap R	ELEVATION (ft)
0	0 - SS 2 2 4 2 2 2 4 2 4 2 4 5 4 (0') Elastic SILT (MH); trace fine sand, mostly silt, few clay, low plasticity, very soft, moist, reddish.									-		
_				SS	2	3 4 6 10	10	(2') Elastic SILT (MH); tra very soft, moist, reddish,	ace fine sand, mostly silt, few o abundant mica.	clay, low plasticity,	PB-3(2-4)	- 430 -
5-	5 - SH 1 (4') Shelby tube discarded (only 12-inch recovery).						_					
-				SS	2	3 3 4 10	7	(6') Elastic SILT (MH); tra very soft, moist, reddish,	ace fine sand, mostly silt, few o abundant mica.	clay, low plasticity,	PB-3(6-8)	- 425 -
- 10-				SE	2	3	6	(10') Silty SAND (SM): m	ostly fine grained sand, some	silt trace clay		-
				SS	2	2 4 4 2	6	loose, moist, yellowish-re	d to red, abundant mica, dark	and pink mottles.	PB-3(12-14)	- 420
						3 3 5 3		loose, moist, yellowish-br				_
15-				SS	2	3 5 7	8		ostly fine grained sand, some own, white layers of quartz (15			_
				SS	2	4 3 5 7 3	8	clay, moist, yellowish-bro layers.	ostly fine-coarse grained sand wn, scattered white layers of q	uartz, dark mottle	PB-3(16-18)	- 415
20-				SS	2	3 3 5 8	8	(18') Silty SAND (SM); m clay, moist, yellowish-bro mottles.	ostly fine-coarse grained sand wn, white layer of quartz (19.5	, little silt, trace -20), scattered dark		_
	IOTES:	: N	IA = Not	Appli	cable							

		CC		nts	>		Clien Proje Addro	..	Landfill Site Investigation	Boring No.	ING LOG PB-3 2 of 3	
Drilling Drilling Drilling	:	Date: bany od:	ti 11/27 Thom Hollo ht: D-50 Phil I	7/2018 mpso ow Sto Pitts	B n Eng	uger	ring		Boring Depth (ft): Boring Diameter (in): Sampling Method(s): Static Water Level (ft): DTW After Drilling (ft): Ground Surface Elev. (ft): Location (X,Y):	44 6.50 SS/SH NA NA 432.08 1164263.28, 25567	754.55	
DEPTH (ft)								MEASURE Lab Sample	ELEVATION (ft)			
20	20 - SS 2 3 8 (20') SILT (ML); some fine sand, trace clay, nonplastic, soft, moist, yellowish-brown, abundant mica, scattered white layers of quartz, dark mottles.									-		
-				SS	2	4 4 5 7	9	(22') SILT (ML); some fin yellowish-brown, abundar mottles.	e sand, trace clay, nonplastic, nt mica, scattered white layers	soft, moist, of quartz, dark		- 410 -
25				SS SH	2	4 5 7 10	12		e sand, trace clay, low plastici ica, white layers of quartz, dar		PB-3(24-26)	- - - 405
30-				SS	2	7 8 9 13	17	(28') Silty SAND (SM); m clay, moist, yellowish-bro	ostly fine-coarse grained sand wn, some mica, black mottles.	 , little silt, trace	PB-3(28-30)	-
-				SH	1.5			(30') Silty SAND (SM); m clay, moist, yellowish-bro	ostly fine-coarse grained sand wn.	, little silt, trace		-
35-				SS	2	15 20 22 25 10 12 10 13	42 22	(32') Silty SAND (SM); m clay, moist, yellowish-bro	ostly fine-coarse grained sand wn.	, little silt, trace		- 400 - -
40				SS	0	7 27 50/2 50/2	77	(36') SILT with sand (ML) nonplastic, stiff, moist, ye (37') Top of PWR.); some fine sand, mostly silt, i illowish-brown, some mica.	 trace clay,		- - 395 -
-	OTES:	: N	IA = Not	Appli	cable							

Ceosyntec Consultants	Client: Georgia Power Con Project: Plant Branch CCR I Address: 1100 Milledgeville F	andfill Site Investigation	Boring No.	NG LOG PB-3 of 3			
Drilling Start Date:11/27/2018Boring Depth (ft):44Drilling End Date:11/27/2018Boring Diameter (in):6.50Drilling Company:Thompson EngineeringSampling Method(s):SS/SHDrilling Method:Hollow Stem AugerStatic Water Level (ft):NADrilling Equipment:D-50DTW After Drilling (ft):NADriller:Phil PittsGround Surface Elev. (ft):432.08Logged By:Nardos TilahunLocation (X,Y):1164263.28, 2556754.55							
DEPTH (ft) LITHOLOGY WATER LEVEL BORING COMPLETION Sample Type Recovery (ft)		ROCK VISUAL DESCRIPTIO	ON	MEASURE Samble Lap	ELEVATION (ft)		
40 40 50 40 50 40 50 50 50 50 50 50 50 50 50 5	³ ⁵ ⁽⁴⁰⁾ ^{SIIIY} SAND (SIV); mc clay, dense, moist, white t ³ ⁵⁰ ^(42') Silty SAND (SM); mc	ostly fine-coarse grained sand, hite to whitish-brown.		Pb-3(40-41.5) -	- - - - - - 385 -		

Ceosyntec consultants engineers scientists Innovators Drilling Start Date: 01/14/2019	Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investigatio ess: 1100 Milledgeville Rd, Milledgeville	t: Plant Branch CCR Landfill Site Investigation ss: 1100 Milledgeville Rd, Milledgeville Page: 1 of 7					
Drilling End Date:01/16/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:CME-550Driller:Stan WhiteLogged By:Joseph Ivanowski	er	Boring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2.Static Water Level (ft):31.54/29.62Riser Material:Sch 40 PVCDTW After Drilling (ft):31.70/31.00Screen Material:Sch 40 PVC SlotTop of Casing Elev. (ft)411.06/412.18Sanitary Seal:Bentonite PelletsGround Elev. (ft):409.26/409.08Filter Pack:SandLocation (X,Y):1164335.02, 2556069.22Sampling Method(s):SS/SH/CO						
	DEPTH (ft) LITHOLOGY WATER LEVEL WATER LEVEL WATER LEVEL MATER LEVEL MATER LEVEL NValue Recovery (ft) N Value Rob (%) N Value Rob (%) Rob (%) N Value Rob (%) Rob (%) N Value Rob (%) Rob (%)							
0 SS 1.34 1 4 (0') Clayey SAND (SC); some fine-coarse grained sand, some silt, little Clay, moist, reddish.								
		(2') Lean CLAY (CL); trace fine sand, mostly clay, m moist, dark reddish, micaceous with trace quartz frag	edium plasticity, stiff, ments.	PB-4 (2-4) –				
5 - ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹ ¹	5		PB-4 (
1.66 5 1.66 4 1.66 7 1.7 10 1.5 2 1.5 3	2 8	(6') Elastic SILT (MH); little fine sand, mostly silt, tra stiff, moist, dark reddish, more micaceous.	ce clay, low plasticity,	PB-4 (6-8) - - - PB-4 (8-10) -				
10-11-5 10-11-5 10-11-5 1.76 3 4	5 3 9			- 400 PB-4 (10-12) -				
5 14 5 14 5 14 5 5 14 5 5 14 5 14 5 14	4 2 8 3	(11') Silty SAND (SM); mostly fine grained sand, trac silt, trace clay, dense, dry, mottled red to pink brown (12') Silty SAND (SM); mostly fine grained sand, trac silt, trace clay, moist, yellowish-white, 1 inch thick cla	trace quartz gravel.	- - PB-4 (12-14) - -				
15 15 1 1 7 1 3 9 4 5 4 - - - -								
Attempted Shelby Tube, only 10 in recovery, discarded.								
20 Image: A mage:								

Ceosyntec Consultants engineers scientists innovators Drilling Start Date: 01/14/2019 Drilling Start Date: 01/14/2019	Clien Proje Addr	Ct: Plant Branch CCR Landfill Site Investigation Well No. PB-4S/PB-4D ess: 1100 Milledgeville Rd, Milledgeville Page: 2 of 7 Boring Depth (ft): 121 Well Depth (ft): 48/114.5					
Drilling End Date: 01/16/2019 Drilling Company: Thompson Engine Drilling Method: Hollow Stem Auge Drilling Equipment: CME-550 Driller: Stan White Logged By: Joseph Ivanowsk	er	Boring Diameter (in): 6.50 Static Water Level (ft): 31.54/29.62 DTW After Drilling (ft): 31.70/31.00 Top of Casing Elev. (ft) 411.06/412.18 Ground Elev. (ft): 409.26/409.08 Location (X,Y): 1164335.02, 2556069.22	Riser Material: Sch Screen Material: Sch Sanitary Seal: Bent Filter Pack: Sand Sampling Method(s):	40 PVC ch 40 PVC Slotted tonite Pellets			
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft) Recovery (ft)	Lab Sample Lab Sample ELEV. (ft msl)						
20 3 14 (20') Silty SAND (SM); mostly fine grained sand, trace coarse gravel, some silt, trace clay, moist, yellowish-white, relict structure more pronounced. PB-4 (20-22) - <t< td=""></t<>							
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	8 (25') SILT with sand (ML); trace coarse gravel, some fine-coarse sand, mostly silt, nonplastic, very stiff, moist, mottled pale brown to gray to white, relict rock fabric. 7 10 13 8 8 24 11 13 16 PB-4 (
- ↓ </td <td colspan="7"></td>							
40 Image: Signal and PB-4D are stickup wells, PB-4S is ~10ft away from PB-4D well. NA = Not Applicable PB-4 (38-40) - 370							

	Ge	CC	ntists in	tar	nts ators			Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investigat ess: 1100 Milledgeville Rd, Milledgeville		Well No. P Page: 3	LL LOG B-4S/PB-4D of 7	
Drilling Drilling Drilling Driller	Drilling End Date: 01/16/2019 Drilling Company: Thompson Engineering Drilling Method: Hollow Stem Auger Drilling Equipment: CME-550 Driller: Stan White Logged By: Joseph Ivanowski								Boring Diameter (in): 6.50 Static Water Level (ft): 31.54/29.62 DTW After Drilling (ft): 31.70/31.00 Top of Casing Elev. (ft) 411.06/412.18 Ground Elev. (ft): 409.26/409.08	Well D Riser M Screer Sanitai Filter F	Material: Sch 40	Slot (in): 2.0/0.0) PVC 40 PVC Slotted hite Pellets	010
DEPTH (ft)	ГІТНОГОЄУ	WATER LEVEL	COMPI FTION		Sample Type	Recovery (ft)	ş	N Value A RQD (%)	SOIL/ROCK VISUAL DESC	RIPTIC	DN	MEASURE eap Sample Lab	ELEV. (ft msl)
40					SS	0.66	40 50/2	50	(43') Poorly graded SAND (SP); very dense.	·		PB-4 (43-45)	- - - 365 -
					SS	0.7	24 50/5	50	(48') Highly weathered Gneiss with quartz veins, s feldspars, and quartz visible.	sandy, i	mica, chalky	PB-4 (48-50)	- - - 360 -
					SS	0.26	50/4		(53') Weathered Gneiss, mostly feldspar and quar	rtz.		PB-4 (53-55)	- - - 355 -
60					SS	0.5	37 50/2	50	(58') Foliated, sandy, biotite.			PB-4 (58-60)	- - - 350
	IOTES:	F	PB-4S IA = N	anc lot /	d PB- Applio	-4D a cable	re sti	ckup	wells, PB-4S is ~10ft away from PB-4D well.				

		CC scie	onsulta ntists innov e: 01/14	nts			Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investigation ess: 1100 Milledgeville Rd, Milledgeville	n Well No. PE	LLLOG 3-4S/PB-4D of 7 .5	
Drilling Drilling Drilling Driller:	Drilling End Date: 01/16/2019 Drilling Company: Thompson Engineering Drilling Method: Hollow Stem Auger Drilling Equipment: CME-550 Driller: Stan White Logged By: Joseph Ivanowski COLLECT							Static Water Level (ft): 31.54/29.62 Ris DTW After Drilling (ft): 31.70/31.00 Sc Top of Casing Elev. (ft) 411.06/412.18 Sa Ground Elev. (ft): 409.26/409.08 Filt	ell Diam. (in)/Screen S ser Material: Sch 40 reen Material: Sch 4 nitary Seal: Bentoni ter Pack: Sand mpling Method(s): S	PVC 0 PVC Slotted te Pellets	
DEPTH (ft)	ГІТНОГОGY	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	Blow Counts	N Value H RQD (%)	SOIL/ROCK VISUAL DESCRI	PTION	MEASURE Lab Sample ELEV. (ft msl)	ברבע. נוי וואין
60				SS	0.3	50/3.	5	(63') Biotite, foliated, sandy, mostly feldspar.		PB-4 (63-65) - 34	345
70-				SS	0.62	17 50/5	50	(68') Moderately weathered biotite gneiss foliated, m	ostly feldspars.	34	340
75-				SS	0.38	50/5		(73') Poorly graded SAND (SP); very dense, mostly f texture.	elsic minerals, sandy		335
80-				SS	0.2	50/3		(78') Biotite, sandy texture.		- - - - - - - - - - - - - - - - - - -	330
N	OTES:	F N	PB-4S an IA = Not	id PB- Appli	-4D a cable	ire st	ickup	wells, PB-4S is ~10ft away from PB-4D well.			

Drilling End Date: 011/16/2019 Boring Diameter (in): 6.50 Static Water Level (ft): 11/12/2016 State L	Geosyntec Consultants	Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investiga ess: 1100 Milledgeville Rd, Milledgeville		Well No. Pl Page: 5	LL LOG B-4S/PB-4D of 7	
Image: Non-State Image: Non-State<	Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:CME-550Driller:Stan White	ər	Static Water Level (ft): 31.54/29.62 DTW After Drilling (ft): 31.70/31.00 Top of Casing Elev. (ft) 411.06/412.18 Ground Elev. (ft): 409.26/409.08	Well D Riser M Screen Sanitar Filter P	iam. (in)/Screen /aterial: Sch 40 Material: Sch 40 y Seal: Benton ack: Sand	Slot (in): 2.0/0.) PVC 40 PVC Slotted ite Pellets	010
85 0.58 44 50/3.5 50 (63') Biotite, sandy, predominately mafic minerals. PB-4 (63-85) -325 90 - <			SOIL/ROCK VISUAL DESC	CRIPTIC	DN		ELEV. (ft msl)
95	85 - - - - - - - - - - - - - - - - - -	3.5		S.			- - - 325 - - - - - 320 -
		0.5				PB-4 (93-95)	- - 315 - - - - 310

105 -110	Geosyntec Consultants	Clien Proje Addr	• • • •		Well No. PE	LL LOG 3-4S/PB-4D of 7	
(i) ASOCIUMITION Interpretation of the second	Drilling End Date:01/16/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:CME-550Driller:Stan White	er	Boring Diameter (in): 6.50 Static Water Level (ft): 31.54/29.62 DTW After Drilling (ft): 31.70/31.00 Top of Casing Elev. (ft) 411.06/412.18 Ground Elev. (ft): 409.26/409.08	Well D Riser M Screen Sanitar Filter P	iam. (in)/Screen S /laterial: Sch 40 I Material: Sch 4 I Seal: Benton Pack: Sand	Slot (in): 2.0/0. PVC IO PVC Slotted ite Pellets	010
105 - 105 - 106 2 5 100 (116) No natural fractures from 116 to 121 ft.			SOIL/ROCK VISUAL DESC	CRIPTIC	DN		ELEV. (ft msl)
NOTES: PB-4S and PB-4D are stickup wells, PB-4S is ~10ft away from PB-4D well.	105 - 4444 = 0	89	gray, some quartz and feldspar, phenocrysts, we fractures at 104.5 and 106 ft. (110') Low angle fractures, some healed high an fractures, very hard, fractures at 110, 111, and 1 (116') No natural fractures from 116 to 121 ft.	ak bandi gle fract	ing, low angle		- - - - - - - - - - - - - - - - - - -

Geosyntec Consultants	Clien Proje Addr	• • •	ation	Well No. PE	LLLOG 3-4S/PB-4D of 7	
Drilling Start Date:01/14/2019Drilling End Date:01/16/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:CME-550Driller:Stan WhiteLogged By:Joseph Ivanowski	r	Boring Depth (ft): 121 Boring Diameter (in): 6.50 Static Water Level (ft): 31.54/29.62 DTW After Drilling (ft): 31.70/31.00 Top of Casing Elev. (ft) 411.06/412.18 Ground Elev. (ft): 409.26/409.08 Location (X,Y): 1164335.02, 2556069.22	Well D Riser M Screen Sanita Filter F	eepth (ft): 48/114. Diam. (in)/Screen S Material: Sch 40 In Material: Sch 4 In Material: Bentoni Pack: Sand ing Method(s): S	Slot (in): 2.0/0. PVC 0 PVC Slotted ite Pellets	
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft) Blow Counts		SOIL/ROCK VISUAL DESC	CRIPTIC	N	MEASURE Pap Sample	ELEV. (ft msl)
		(121') Boring terminated. Well installed on 01/17	/2019			- - - 285
NOTES: PB-4S and PB-4D are s NA = Not Applicable	tickup	wells, PB-4S is ~10ft away from PB-4D well.				

		CO		nts	>		Clien Proje Addro	..	Landfill Site Investigation	Boring No.	ING LOG PB-5 I of 2	
Drillin Drillin Drillin		Date: bany od:	ti 12/07 Thor Hollo ht: D-50 Phil	ow St Pitts		uger	-		Boring Diameter (in): Sampling Method(s): Static Water Level (ft): DTW After Drilling (ft):	29 6.50 SS/SH NA NA 397.24 1164240.05, 25575	64.18	
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	ß	N Value A RQD (%)	SOIL/	ROCK VISUAL DESCRIPTI	ON	MEASURE Samble Lap	ELEVATION (ft)
0				SS SS	1	2 2 3 4 4 6 8	5	soft, moist, reddish.	w fine sand, mostly silt, few cla w fine sand, mostly silt, few cla nica.		PB-5(2-4)	- - - 395 -
				SS SS	2	3 5 7 10 5 6 6 8	12	medium stiff, moist, reddi (5') 5-gallon bucket soil si below ground surface.	ample collected from approxim	ately 0 to 5 feet	-	- - - 390
- - 10				SS SH	2	4 5 6 8	11	(8') Elastic SILT (MH); fe medium stiff, moist, reddi (10') shelby tube discarde		ay, low plasticity,	PB-7(8-10)	-
				SS SH	2	2 4 5 7	9	(12') Sandy SILT (ML); so plasticity, soft, moist, abu	 ome fine-coarse sand, mostly s ndant mica.	 silt, few clay, low	PB-5(12-14) PB-5(15-20)	— 385 - -
				SS SH	2	3 3 3 4	6	(16') SILT (ML); few fine- soft, dry, yellowish-brown	coarse sand, mostly silt, few c , black mottles, abundant mica	 lay, nonplastic, a.	PB-5(16-18)	- - 380 -
20-	IOTES:	: N	IA = Not	Appli	cable			(19.5') 5-gallon bucket so	il sample collected from appro	ximately 15 to 20		

Geosyntec consultants	Client: Georgia Power Com Project: Plant Branch CCR L Address: 1100 Milledgeville R	andfill Site Investigation	Boring No.	ING LOG PB-5 2 of 2							
	Initialing End Date:12/07/2018Boring Diameter (in):6.50Irilling Company:Thompson EngineeringSampling Method(s):SS/SHIrilling Method:Hollow Stem AugerStatic Water Level (ft):NAIrilling Equipment:D-50DTW After Drilling (ft):NAIriller:Phil PittsGround Surface Elev. (ft):397.24Location (X,Y):1164240.05, 2557564										
DEPTH (ft) LITHOLOGY WATER LEVEL BORING COMPLETION Sample Type Recovery (ft) Recovery (ft)		ROCK VISUAL DESCRIPTIO	ON	MEASURE Samble Lap	ELEVATION (ft)						
20 20 5 5 2 25 5 2 25 5 5 2 2 2 2 2 2 2 2 2 2 2 2 2	 10 [teet below ground surface. (20') Sandy SILT (ML); sor nonplastic, stiff, moist, yell 50 (22') Silty SAND (SM); mo clay, very dense, moist, graves 33 39 (24') Silty SAND (SM); mo clay, well-graded, moist, graves 68 (26') Silty SAND (SM); mo clay, well-graded, moist, graves 68 (26') Silty SAND (SM); mo clay, well-graded, moist, graves 68 (26') Silty SAND (SM); mo clay, well-graded, moist, graves 	me fine-coarse sand, mostly s lowish-brown, abundant mica. 	some silt, trace , hard. some silt, trace some silt, trace	PB-5(22-24)	- 375 - 375 - 376 - 370 - 370 - 365 - 365						
NOTES: NA = Not Applicable											

		co	onsulta	nts	>		Clien Proje Addro	..	Landfill Site Investigation	BOF Boring No. Page:	RING LOG PB-6 1 of 4	
Drillin Drillin Drillin Drillin Driller	• • •	Date: pany od:	: 11/29 : Thor Holld ht: D-50 Phil	ow Sto Pitts		uger	ring		Boring Diameter (in): Sampling Method(s): Static Water Level (ft): DTW After Drilling (ft):	74 6.50 SS/SH NA NA 433.25 1163787.23, 2557	/244.14	
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	s	N Value RQD (%)	SOIL	ROCK VISUAL DESCRIPT	ION	MEASURE aldumes generations along generations along al	ELEVATION (ft)
0				SS	2	6 4 4 6 6	8	plasticity, soft, moist, red			_	_
_				55	2	7 8 10	15	(2') Sandy fat CLAY (CH) plasticity, stiff, dry, reddis); some fine sand, trace silt, m h.	ostly clay, high		- - 430
5				SS	2	3 4 10 10	14	medium plasticity, stiff, m	d (MH); some fine sand, trace loist, reddish, abundant mica. ample collected from approxim d (14-inch recovered).		PB-6(4-6)	-
-				SH	2							— 425 -
10-				SS	2	3 4 5 6	9	(10') SILT (ML); few fine moist, yellowish-red to re	sand, mostly silt, trace clay, no d, abundant mica.	onplastic, soft,		-
-				SS	2	4 3 5 6	8	(12') SILT (ML); few fine moist, yellowish-red to re	sand, mostly silt, trace clay, no d, abundant mica.	onplastic, soft,	PB-6(12-14)	- 420
15-				SS	2	3 4 3 9	7	(14') SILT (ML); few fine moist, yellowish-red to re	sand, mostly silt, trace clay, no d, abundant mica.	onplastic, soft,		_
_				SS	2	2 3 3 6	6		sand, mostly silt, trace clay, no n-red, abundant mica, few qua			-
-				SS	2	0 3 5 4 6	9		sand, mostly silt, trace clay, no n-red, abundant mica, few qua		PB-6(18-20)	— 415 -
20	IOTES:	: N	IA = Not	Appli	cable		1					I

		CC	onsulta	nts	>		Clien Proje Addro	-	Landfill Site Investigation	Boring No.	ING LOG PB-6 2 of 4	
Drillin Drillin Drillin Drillin Drillen	• • •	Date: bany od:	ti 11/29 Thor Hollo ht: D-50 Phil	9/2018 npso ow St Pitts	8 n Enç	uger	ring		Boring Depth (ft): Boring Diameter (in): Sampling Method(s): Static Water Level (ft): DTW After Drilling (ft): Ground Surface Elev. (ft): Location (X,Y):	74 6.50 SS/SH NA NA 433.25 1163787.23, 25572	244.14	
DEPTH (ft)	ГІТНОГОЄУ	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	N.	N Value A RQD (%)	SOIL/	ROCK VISUAL DESCRIPT	ION	MEASURE equation of the second	ELEVATION (ft)
20-				SS	2	8 6 2 4	8		e sand, mostly silt, trace clay, white, abundant white quartz			_ _
-				SS	2	4 4 5 10	9		e sand, mostly silt, trace clay, own, abundant white quartz a		PB-6(22-24)	_ — 410
25-				SH	1.76			(24') Silty SAND (SM).				
-				SS	2	6 7 12 18	19		ostly fine grained sand, some ayish-brown, dark mottles, abu		_	_
-				SS	2	3 4 8 15	12		ostly fine grained sand, some ayish-brown, dark mottles, abu		-	- 405 -
30-				SS	2	6 7 9 27	16	(30') Silty SAND (SM); m medium dense, moist, gra	ostly fine grained sand, some ayish-brown, trace white layers	silt, trace clay, s of quartz.	_	-
-				SS	2	5 6 10 35	16	(32') Silty SAND (SM); m medium dense, moist, gra	ostly fine grained sand, some ayish-brown, trace white layers	silt, trace clay, s of quartz.	-	- - 400
35-				SS	2	8 9 17	26	(34') Elastic SILT (MH); s black mottles, abundant r	some fine sand, mostly silt, stif nica and quartz.	f, moist, brown,	PB-6(34-36)	-
-				SS	2	45 9 11 36 41	47		some fine sand, mostly silt, low brown, black mottles, abundar			-
-				SS	1.8	41 5 10 18 50/4	28		some fine sand, mostly silt, low brown, black mottles, abundar		-	— 395 -
40-	IOTES:	: N	IA = Not	Appli	cable	•	I					1

		co	onsulta	nts	>		Client Projec Addro	J	Landfill Site Investigation	Boring No. I	ING LOG PB-6 s of 4	
Drillin Drillin Drillin Drillin Driller	• • •	Date pany od:	: 11/29 : Thor Hollo nt: D-50 Phil	ow Ste Pitts	B n Eng	uger	-		DTW After Drilling (ft):	74 6.50 SS/SH NA NA 433.25 1163787.23, 25572	44.14	
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	ß	N Value A RQD (%)	SOIL/	ROCK VISUAL DESCRIPT	ION	MEASURE sample Cap C	ELEVATION (ft)
40				SS SS	1.8	10 10 19 50/4 24 17 20	29 37	moist, brownish-white to l	ome fine sand, mostly silt, low brown, black mottles, abundar	it mica and quartz.	-	- - - 390
 45 -				SS SS	2	 33 18 22 26 38 21 27 22 	48 49		ome fine sand, mostly silt, trac rown to whitish-brown, more v			_
- - 50 -				SS SS	2	50/4 20 26 25 50/4 10 24 50/5	51	stiff, moist, light to dark b (49.5') Top of PWR.	ome fine sand, mostly silt, trac rown to whitish-brown. ome fine sand, trace clay, non			— 385 - -
				SS SS	2	23 31 38 50 26 44 41	69 85	white. (54') Silty SAND (SM); m	ostly fine-coarse grained sand	d, some silt, trace	PB-6(52-54)	- - 380 -
		▼		SS SS	1.5	50 26 38 50/5.5 32 50	88 50	clay, poorly graded, very of (58') Silty SAND (SM); m	ostly fine-medium grained san dense, moist, dark brown to wi ostly fine-medium grained san dense, wet, dark brown to whit	hite, dark mottles.		- 375
60	IOTES	. : N	IA = Not	Appli	cable							

Geosyntec consultants	Client: Georgia Power Compa Project: Plant Branch CCR Lan Address: 1100 Milledgeville Rd,	ndfill Site Investigation	Boring No.	ING LOG PB-6 I of 4						
	Drilling End Date:11/29/2018Boring Diameter (in):6.50Drilling Company:Thompson EngineeringSampling Method(s):SS/SHDrilling Method:Hollow Stem AugerStatic Water Level (ft):NADrilling Equipment:D-50DTW After Drilling (ft):NADriller:Phil PittsGround Surface Elev. (ft):433.25Location (X,Y):1163787.23, 25									
DEPTH (ft) LITHOLOGY WATER LEVEL BORING COMPLETION Sample Type Recovery (ft)	2	OCK VISUAL DESCRIPTI	ON	MEASURE Samble Lap	ELEVATION (ft)					
65- 65- 70- 70- 55 65 65 65 65 65 65 65 65 65	 (62') Sitly SAND (SM); mostly clay, well-graded, very dense abundant mica. (64') Sitly SAND (SM); mostly clay, well-graded, very dense abundant mica. (66') Sitly SAND (SM); mostly clay, well-graded, very dense abundant mica. (68') Sitly SAND (SM); mostly clay, well-graded, very dense abundant mica. (68') Sitly SAND (SM); mostly clay, well-graded, very dense abundant mica. (70') Sitly SAND (SM); mostly clay, well-graded, very dense abundant mica. 	y fine-coarse grained sand, y fine-coarse grained sand, wet, gray brown to white t y fine-coarse grained sand,	some silt, trace o dark mottles , some silt, trace o dark mottles ,		- - - 370 - - - 365 - -					
75	 (72') Silty SAND (SM); mostly clay, well-graded, very dense abundant mica. (74') Boring terminated, auge 	, wet, gray brown to white t		PB-6(72-74)	- - 360 - - - - 355 -					

Geosyntec consultants	Clien Proje Addr	· · · · · · · · · · · · · · · · · · ·		L LOG -7S/PB-7 f 3		
Drilling Start Date:01/10/2019Drilling End Date:01/14/2019Drilling Company:Thompson EngDrilling Method:Hollow Stem AuDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	-	Static Water Level (ft): 24.51/NA F DTW After Drilling (ft): 24.60/NA S Top of Casing Elev. (ft) 402.86/NA S Ground Elev. (ft): 399.86/399.55 F	lot (in): 2.0/0.010 PVC 9 PVC Slotted e Pellets 6/SH/CO	/C Slotted ellets		
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft)	Blow Counts T N Value RQD (%)	SOIL/ROCK VISUAL DESCF	RIPTION	MEASURE Lap Sample	ELEV. (ft msl)	
0 SS 1.5 SS 2	1 4 1 3 6 3 11 5 6	(0') Lean CLAY (CL); few fine-coarse sand, few sil plasticity, very soft, moist, reddish, few roots and c (2') Lean CLAY (CL); few fine-coarse sand, few sil plasticity, stiff, moist, reddish, trace mica.	rganic matter.	PB-7 (0-2) - - PB-7 (2-4)		
5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5	9 3 7 3 4 6 3 7 3 4	 (4') Lean CLAY (CL); few fine-coarse sand, few silplasticity, soft, moist, reddish, abundant mica. (5') 5-gallon bucket soil sample collected from app below ground surface. (6') Lean CLAY (CL); few fine-coarse sand, few sil soft, moist, yellowish-red, abundant mica. 	roximately 0 to 5 feet	PB-7 (4-6) - 3 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	395	
10 SH 1.76	4 2 5 2 3 4	(8') Lean CLAY (CL); few fine-medium sand, some medium plasticity, soft, moist, yellow to yellowish-b abundant mica.	e silt, mostly clay, prown, back mottles,	3	390	
SS 1.5	2 6 3 3 8 3 4 10	(12') CEC (12') SILT (ML); some fine-coarse sand, mostly sil yellowish-brown, black mottles, abundant mica. (14') SILT (ML); some fine-coarse sand, mostly sil yellowish-brown, black mottles, abundant mica.		PB-7 (12-14) - - - PB-7 (14-16) - 3	385	
15 - SS 1.5	6 9 3 11 4 7 9 4 8	(16') SILT (ML); some fine-coarse sand, mostly sil yellowish-brown, black mottles, abundant mica, mo		PB-7 (16-18) - - PB-7 (18-20)		
20 NOTES: PB-7S is a stickup w NA = Not Applicable	3 5 7	vellowish-brown, black mottles, abundant mica.		- 3	380	

Geosyntec Consultants	Clien Proje Addr	• • • •	_{tion} Well No. I	ELL LOG PB-7S/PB-7 2 of 3		
Drilling Start Date:01/10/2019Drilling End Date:01/14/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	-	oring Depth (ft): 59.6 Well Depth (ft): 33 oring Diameter (in): 6.50 Well Diam. (in)/Screen Slot (in): 2.0 tatic Water Level (ft): 24.51/NA Riser Material: Sch 40 PVC TW After Drilling (ft): 24.60/NA Screen Material: Sch 40 PVC Slott Top of Casing Elev. (ft) 402.86/NA Sanitary Seal: Bentonite Pellets Ground Elev. (ft): 399.86/399.55 Filter Pack: Sand Socation (X,Y): 1163831.32, 2556176.27 Sampling Method(s): SS/SH/CO				
DEPTH (ft) LITHOLOGY WATER LEVEL WATER LEVEL WELL COMPLETION Sample Type Recovery (ft) Blow Counts	_	SOIL/ROCK VISUAL DESC	RIPTION	Lab Sample Lab Lap Sample ELEV. (ft msl)		
20 SS 1.6 5 4 7 11 SS 1.6 5 4 7 12 SS 1.7 6 7 10 10 10 10 10 10 10 10 10 10	22 23 4 4 4 4 4 7 7 7 5 4 1 4 4 7 7 7 50 7 50	 (20') Silty SAND (SM); 5-gallon bucket soil samp approximately 15 to 20 feet below ground surface (22') CEC (22') Silty SAND (SM); mostly fine-coarse grainer clay, well-graded, medium dense, moist, white to quartz. (24') Silty SAND (SM); mostly fine-coarse grainer clay, well-graded, medium dense, moist, white to quartz. (25') 5-gallon bucket soil sample collected from a below ground surface. (26') Silty SAND (SM); mostly fine-coarse grainer clay, well-graded, dense, wet, white to gray, aburn (28') Silty SAND (SM); mostly fine-coarse grainer clay, dense, wet, white to light brown to whitish-g quartz. (30') Silty SAND (SM); mostly fine-coarse grainer clay, very dense, wet, white to light brown to whit and quartz. (32') Silty SAND (SM); mostly fine-coarse grainer clay, very dense, wet, white to light brown to whit and quartz. 	e. d sand, some silt, trace gray, abundant mica ar d sand, some silt, trace gray, abundant mica ar pproximately 20 to 25 fe d sand, some silt, trace dant mica and quartz. d sand, some silt, trace ray, abundant mica and d sand, some silt, trace ish-gray, abundant mica			
	100	(37') MET ROCK (GNEISS); coarse grained, slig slightly fractured, dark biotite, light feldspar miner banding, competent, fracture at ~37.8 and ~38.5 clean, rough). Auger refusal at 37 feet below grou (rock coring) started. Fractures at 37.8 and 38.5	als, strong, light and da ft (not healed, narrow,	rk		
	located	~10ft away from PB-7 borehole.		_ ,		

		CO	onsulta	nts	>		Clien Proje Addre	6 1 5	tion	Well No. PE	L LOG B-7S/PB-7 of 3	
Drilling (Drilling I Drilling I Driller:	Drilling End Date: 01/14/2019 Drilling Company: Thompson Engineering Drilling Method: Hollow Stem Auger Drilling Equipment: D-50							Boring Diameter (in): 6.50 Static Water Level (ft): 24.51/NA DTW After Drilling (ft): 24.60/NA Top of Casing Elev. (ft) 402.86/NA Ground Elev. (ft): 399.86/399.55	Well Depth (ft): 33 Well Diam. (in)/Screen Slot (in): 2.0/0.010 Riser Material: Sch 40 PVC Screen Material: Sch 40 PVC Slotted Sanitary Seal: Bentonite Pellets Filter Pack: Sand S.27 Sampling Method(s): SS/SH/CO			
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	WELL	Sample Type	Recovery (ft)	s	N Value A RQD (%)	SOIL/ROCK VISUAL DESC	RIPTIC	DN	MEASURE Sample Tap S	ELEV. (ft msl)
				CO	5		100	(40') MET ROCK (GNEISS); coarse grained, fresh biotite, light feldspar minerals, strong, light and dar mechanical break.				_
				СО	4.5		90	(45') MET ROCK (GNEISS); coarse grained, fresh biotite, light feldspar minerals, strong, light and dar mechanical break.				355 -
				СО	5		100	(50') MET ROCK (GNEISS); coarse grained, fresh biotite, light feldspar minerals, strong, light and da mechanical break.				— 350 - - -
				СО	4.6		100	(55') MET ROCK (GNEISS); coarse grained, fresh biotite, light feldspar minerals, strong, light and dar mechanical break.				— 345 - - -
60	DTES:		B-7S is a				cated	(59.6') Boring terminated. Well installed on 01/14/ ~10ft away from PB-7 borehole.	/2019		_	- 340

		CC	onsulta	nts	>		Clien Proje Addre	ct: Plant Branch CCR Landfill Site Investigation Well No. PB	L LOG -8S/PB-8D of 6
Drillin Drillin Drillin Driller	Drilling Start Date: 01/06/2019 Drilling End Date: 01/08/2019 Drilling Company: Thompson Engineering Drilling Method: Hollow Stem Auger Drilling Equipment: D-50 Driller: Phil Pitts Logged By: Nardos Tilahun COLLECT COLLECT						ring	Boring Depth (ft):106Well Depth (ft):35/106Boring Diameter (in):6.50Well Diam. (in)/Screen SStatic Water Level (ft):22.05/22.11Riser Material:Sch 40DTW After Drilling (ft):22.60/14.00Screen Material:Sch 40Top of Casing Elev. (ft)401.69/401.77Sanitary Seal:BentonitGround Elev. (ft):398.69/398.47Filter Pack:SandLocation (X,Y):1163024.59, 2556786.55Sampling Method(s):Sa	PVC) PVC Slotted de Pellets
DEPTH (ft)	ЛЛОГОСЛ	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	s	N Value A RQD (%)	SOIL/ROCK VISUAL DESCRIPTION	Lab Sample BELEV. (ft msl)
0				SS	2	3 4 3 4 3 4 6 9	7	 (0') Elastic SILT (MH); trace fine-coarse sand, mostly silt, few clay, low plasticity, soft, moist, reddish, few roots and mica. (2') Elastic SILT (MH); trace fine-coarse sand, mostly silt, few clay, low plasticity, soft, moist, reddish, abundant mica. 	PB-8 (2-4) - 395
5				SS	2	5 8 11 14 4 5 6 13	19	 (4') Elastic SILT (MH); trace fine-coarse sand, mostly silt, few clay, low plasticity, stiff, moist, reddish, black mottles. (5') 5-gallon bucket soil sample collected from approximately 0 to 5 feet below ground surface (6') Elastic SILT (MH); trace fine-coarse sand, mostly silt, few clay, low plasticity, stiff, moist, reddish, black mottles. 	-
				SS	2 0.84	3 3 5 10	8	 (8') Elastic SILT with sand (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, soft, moist, yellowish-brown, abundant mica. Switched from 4 1/4 auger to 3 1/4 auger. Shelby tube discarded. 	PB-8 (8-10) - 390 - -
				SS	2	3 2 4 7	6	(12.5') SILT (ML); few fine-coarse sand, mostly silt, few clay, nonplastic, soft, moist, yellowish-brown, abundant mica.	PB-8 (12-12.5) PB-8 (12.5-14) - 385
-				SS	1.8	4 5 14 19	19	(16') Well-graded SAND (SW); mostly fine-coarse grained sand, some silt, trace clay, medium dense, wet, yellowish-brown, abundant mica and quartz.	- PB-8 (16-18) -
				SS	1.5	19 7 7 12 15	19	(18') Well-graded SAND (SW); mostly fine-coarse grained sand, some silt, trace clay, medium dense, wet, yellowish-brown, abundant mica and quartz.	PB-8 (18-22) - 380 -
N	IOTES:	g	PB-8S ar round su IA = Not	urface) .		ckup	wells, PB-8S is ~10ft away from PB-8D well. Depth to water at PB-8S is 2	2.6 feet below

	Ge	CC	onsu	lta	nts	>		Clien Proje Addr		L LOG -8S/PB-8D f 6			
Drillin Drillin Drillin Drillin Drille	Drilling Start Date: 01/06/2019 Drilling End Date: 01/08/2019 Drilling Company: Thompson Engineering Drilling Method: Hollow Stem Auger Drilling Equipment: D-50 Driller: Phil Pitts Logged By: Nardos Tilahun							-	Boring Depth (ft):106Well Depth (ft):35/106Boring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2.0Static Water Level (ft):22.05/22.11Riser Material:Sch 40 PVCDTW After Drilling (ft):22.60/14.00Screen Material:Sch 40 PVC SlottTop of Casing Elev. (ft)401.69/401.77Sanitary Seal:Bentonite PelletsGround Elev. (ft):398.69/398.47Filter Pack:SandLocation (X,Y):1163024.59, 2556786.55Sampling Method(s):SS/SH/CO				
DEPTH (ft)	ГІТНОГОЄУ	WATER LEVEL						N Value A RQD (%)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE Cap Sample	ELEV. (ft msl)		
20-		∇			SS SS	1.5	5 6 11 17 14 16 20	17 36	 (20') Poorly graded SAND (SP); mostly fine-medium grained sand, some silt, few clay, medium dense, wet, gray to white, abundant mica and quartz. (22') Poorly graded SAND (SP); mostly fine-medium grained sand, some silt, few clay, dense, wet, gray to white, some quartz. 	PB-8 (20-22)	-		
- 25 -					SS	1.4	20 27 14 17 23 32 17	40 81	(24') Poorly graded SAND (SP); mostly fine-medium grained sand, some silt, few clay, dense, wet, gray to white, some quartz.	- - - - - - - - - - - - - - - - - - -	- 375 - -		
-					SS	1.5	31 50/2 25 23 40 50/4	63	 (22') Well-graded SAND (SW); mostly fine-coarse grained sand, few silt, trace clay, very dense, wet, gray to white, some quartz. 		- - 370 -		
30					SS	0.8	34 50/5.8	50	(33') Well-graded SAND (SW); mostly fine-coarse grained sand, few silt, trace clay, very dense, wet, gray to white, some quartz.	-	- - 365 -		
35					SS	0.5	44 50/5	50	(38') Well-graded SAND (SW); mostly fine-coarse grained sand, few silt, trace clay, very dense, wet, gray to white, some quartz.		- - - 360		
40-	NOTES:	g	PB-8S pround	l su	rface).		 ckup '	wells, PB-8S is ~10ft away from PB-8D well. Depth to water at PB-8S is 2	2.6 feet below	-		

		co	onsulta	nts	>		Clien Proje Addr	• • • •		Well No. P	LL LOG B-8S/PB-8D of 6	
Drillin Drillin Drillin Drillin Drille	Drilling Start Date: 01/06/2019 Drilling End Date: 01/08/2019 Drilling Company: Thompson Engineering Drilling Method: Hollow Stem Auger Drilling Equipment: D-50 Driller: Phil Pitts Logged By: Nardos Tilahun						-	Boring Diameter (in): 6.50 Static Water Level (ft): 22.05/22.11 DTW After Drilling (ft): 22.60/14.00 Top of Casing Elev. (ft) 401.69/401.77 Ground Elev. (ft): 398.69/398.47	Well Depth (ft): 35/106 Well Diam. (in)/Screen Slot (in): 2.0/0.010 Riser Material: Sch 40 PVC Screen Material: Sch 40 PVC Slotted Sanitary Seal: Bentonite Pellets Filter Pack: Sand Sampling Method(s): SS/SH/CO			
DEPTH (ft)	ГІТНОГОЄУ	WATER LEVEL	WELL	Sample Type	Recovery (ft)	s	N Value A RQD (%)	SOIL/ROCK VISUAL DESC	RIPTIC	DN	MEASURE ap S amble rap C	ELEV. (ft msl)
40				SS	0.2	50/3.5		(43') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some qu	e graine uartz.	d sand, few silt,		- - - 355 - -
- - 50- -				SS	0.3	50/3		(48') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some qu		d sand, few silt,		- - 350 - -
- - 55-				SS	0.3	50/3.5		(53') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some qu		d sand, few silt,		- - 345 - -
- 60				SS	0	50/2		(58') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some qu		d sand, few silt,		- 340 -
N	NOTES:	g	PB-8S an round su IA = Not	urface			ckup	wells, PB-8S is ~10ft away from PB-8D well. Dep	oth to w	ater at PB-8S is	22.6 feet below	

		co		ants	>		Clien Proje Addr		tion	Well No. F	ELL LOG PB-8S/PB-8D I of 6	
Drillin Drillin Drillin Drillin Drille	Drilling Start Date: 01/06/2019 Drilling End Date: 01/08/2019 Drilling Company: Thompson Engineering Drilling Method: Hollow Stem Auger Drilling Equipment: D-50 Driller: Phil Pitts Logged By: Nardos Tilahun							Boring Diameter (in): 6.50 Static Water Level (ft): 22.05/22.11 DTW After Drilling (ft): 22.60/14.00 Top of Casing Elev. (ft) 401.69/401.77 Ground Elev. (ft): 398.69/398.47	Well D Riser M Screer Sanitar Filter F	Material: Sch 4	n Slot (in): 2.0/0 0 PVC 40 PVC Slotted nite Pellets	
DEPTH (ft)	ГІТНОГОЄУ	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft) O	s	N Value A RQD (%)	SOIL/ROCK VISUAL DESC	RIPTIC	DN	MEASURE eldumes rap rap	ELEV. (ft msl)
60 65 					0.3	50/4		(63') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some qu	e graine uartz.	ed sand, few silt,		- - - - - - - - - - - -
					0.2	50/2.5		 (68') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some que fragments . (73') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some que trace clay, we provide the source clay trace clay the source clay trace cl	e graine	race rock		- 330 - - - - - 325
75				SS	0	50/1.8	5	(75') Began mud rotary drilling (78') No recovery, hard drilling				- - - - 320
	NOTES:	g	PB-8S and round s	urface			 ckup [,]	wells, PB-8S is ~10ft away from PB-8D well. Dep	oth to w	rater at PB-8S is	22.6 feet below	

consultants engineers scientists innovators	Proje Addr	ct: Plant Branch CCR Landfill Site Investiga ess: 1100 Milledgeville Rd, Milledgeville	-8S/PB-8D f 6		
Drilling Start Date:01/06/2019Drilling End Date:01/08/2019Drilling Company:Thompson EngDrilling Method:Hollow Stem ArDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahur	uger	Koring Depth (ft):106Well Depth (ft):35/106Koring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2.0/0Katic Water Level (ft):22.05/22.11Riser Material:Sch 40 PVCOTW After Drilling (ft):22.60/14.00Screen Material:Sch 40 PVC SlottedCop of Casing Elev. (ft)401.69/401.77Sanitary Seal:Bentonite PelletsGround Elev. (ft):398.69/398.47Filter Pack:SandScreation (X,Y):1163024.59, 2556786.55Sampling Method(s):SS/SH/CO			
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft)	Blow Counts T N Value RQD (%)	SOIL/ROCK VISUAL DESC	RIPTION	Lab Sample ELEV. (ft msl)	
80 	39 50 50/3.5 100 100	(83') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, moist, greenish-white. (83.5') Clayey SAND (SC); mostly fine-coarse gra some clay, well-graded, very dense, wet, green to (86') MET ROCK (GNEISS); coarse grained, fres biotite and light feldspar minerals, dark gray and v Cable tool (rock coring) started . (91') MET ROCK (GNEISS); coarse grained, fres biotite and light feldspar minerals, dark gray and v Cable tool (rock coring) started .	h, hard, unfractured, dark	PB-8 (83-85) - 315 	
-100-4.5	66	 (96') MET ROCK (GNEISS); coarse grained, frest dark biotite and light feldspar minerals, dark gray competent, slightly decomposed and integrated in ~98 ft and fracture zone from 99 to 100 ft (fractur narrow, stained/decomposed, and rough). (97') Lost some drilling fluid. Fracture at 98 ft bgs with weathering around fracture at 98 ft bgs with weathering around ftage around	and white banding, ear fracture, fracture at res are not healed,	- - - 300 -	

Geosyntec Consultants	Proje	Itient: Georgia Power Company WELL LOG roject: Plant Branch CCR Landfill Site Investigation Well No. PB-8S/PB address: 1100 Milledgeville Rd, Milledgeville Page: 6 of 6				
Drilling Start Date:01/06/2019Drilling End Date:01/08/2019Drilling Company:Thompson EngirDrilling Method:Hollow Stem AugDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	-	oring Depth (ft):106Well Depth (ft):35/106oring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2.0/0.0tatic Water Level (ft):22.05/22.11Riser Material:Sch 40 PVCTW After Drilling (ft):22.60/14.00Screen Material:Sch 40 PVC Slottedop of Casing Elev. (ft)401.69/401.77Sanitary Seal:Bentonite Pelletstround Elev. (ft):398.69/398.47Filter Pack:Sandocation (X,Y):1163024.59, 2556786.55Sampling Method(s):SS/SH/CO				
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft)	Blow counts T N Value RQD (%)	SOIL/ROCK VISUAL DESC	RIPTION	Lab Sample Lab Sample ELEV. (ft msl)		
	88	(101') MET ROCK (GNEISS); coarse grained, fr fractured, dark biotite and light feldspar minerals banding, competent, slightly decomposed and int fracture at ~103, 104.5, and 104.7 ft (fractures a stained/decomposed, and rough) . (102') Lost some drilling fluid Fracture at 103, 104.5, and 104.7 ft bgs. (106') Boring terminated.	dark gray and white egrated near fracture,			

Geosy cons engineers scientist	sultants		Client Projec Addre	J	Landfill Site Investigation	Boring No.	ING LOG PB-9 of 2					
Drilling Start Date: Drilling End Date: Drilling Company: Drilling Method: Drilling Equipment: Driller: Logged By:	Drilling End Date:12/10/2018Boring Diameter (in):6.50Drilling Company:Thompson EngineeringSampling Method(s):SS/SHDrilling Method:Hollow Stem AugerStatic Water Level (ft):NADrilling Equipment:D-50DTW After Drilling (ft):NADriller:Phil PittsGround Surface Elev. (ft):413.09Location (X,Y):1162754.16, 255758											
DEPTH (ft) LITHOLOGY WATER LEVEL	Z	Recovery (ft) O Blow Counts O	N Value RQD (%)	SOIL/	ROCK VISUAL DESCRIPTI	ON	MEASURE ap Sample Tap S	ELEVATION (ft)				
		2 2 3 4 7 1.3 5 6 8	7	plasticity, soft, moist, redo	ze fine sand, few silt, mostly cl			- - - 410				
5	SS SS SS SS	9 2 4 5 7 2 3 2 4	9	moist, reddish. (5') 5-gallon bucket soil sa below ground surface.	and, mostly silt, few clay, low p ample collected from approxim and, mostly silt, few clay, low p red.	ately 0 to 5 feet	PB-9(4-6)	-				
- 10-		1 3 4 4 1.5 3 3	8	moist, yellowish-brown. (10') SILT (ML); some fin	oarse sand, mostly silt, few cla			— 405 				
		5 4 1.5 4 4 5	8	soft, moist, dark brown to	wn. e-coarse sand, mostly silt, trac white, black mottles, abundar		PB-9(12-14)	- - - 400				
	SH SS	2 2 5 6 5 7	11		ome fine-coarse sand, mostly loist, dark brown to white, blac			-				
20		1.6 4 4 5 11	9		come fine-coarse sand, mostly < brown to white, black mottles			— 395 -				
NOTES: NA	= Not Applic	able										

со	onsultants	D		Client Projec Addre	0	Landfill Site Investigation	Boring No.	ING LOG PB-9 2 of 2	
Drilling Start Date Drilling End Date: Drilling Company: Drilling Method: Drilling Equipmen Driller: Logged By:	12/10/20 Thomps Hollow S	18 on En Stem A s	uger	ring		Sampling Method(s):	31 6.50 SS/SH NA NA 413.09 1162754.16, 2557	580.83	
DEPTH (ft) LITHOLOGY WATER LEVEL	BORING COMPLETION Sample Type	Recovery (ft)	s	N Value RQD (%)	SOIL/	ROCK VISUAL DESCRIPTI	ON	MEASURE ela S ala Band Pla Band Band Pla Pla Band Pla Band Pla Band Pla Band Pla Band Pla Band Pla Ban	ELEVATION (ft)
20	SS SS		6 6 9 5 6 7 15	12	medium stiff, moist, light rock fragments, abundant approximately 15 to 20 fe (22') SILT (ML); some fin	e-coarse sand, mostly silt, few brown to grayish-white, black i	veathered quartz mple collected from clay, nonplastic,	PB-9(22-24)	- - - 390
25 -			6 8 11 15 18 28	19 50	medium stiff, moist, light quartz rock fragments, ab (26') Silty SAND (SM); m clay, poorly graded, dense	e-coarse sand, mostly silt, few brown to grayish-white, black i undant mica, laminated. 	mottles, weathered	PB-9(26-28)	-
			22 14 11 43 50/1.5 50/4	93	clay, poorly graded, very of mottles, some mica. (29') Top of PWR.	ostly fine-medium grained san Jense, moist, light brown to lig	ht gray , black		- - 38
		0.3	30/4			ostly fine-medium grained san dense, moist, light gray to whit ng terminated.		<i>r</i>	- - - 38(
35									_

		CO	onsulta	nts	>		Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investigation Well No.	ELL LOG PB-10S/PB-10D 1 of 5			
Drillin Drillin Drillin Drillin Driller	Nardos Tilahun							Boring Diameter (in):6.50Well Diam. (in)/ScreeStatic Water Level (ft):9.91/10.04Riser Material:SchDTW After Drilling (ft):9.70/9.70Screen Material:SchTop of Casing Elev. (ft)400.94/400.33Sanitary Seal:BentorGround Elev. (ft):398.04/397.98Filter Pack:Sand	Well Depth (ft):33/85Well Diam. (in)/Screen Slot (in):2.0/0.010Riser Material:Sch 40 PVCScreen Material:Sch 40 PVC SlottedSanitary Seal:Bentonite PelletsFilter Pack:SandSampling Method(s):SS/SH/CO			
DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL	Sample Type	Recovery (ft)	Blow Counts	N Value RQD (%)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE apple Lap Sample	ELEV. (ft msl)		
0				SS SS	2 2	3 2 1 2 2 3 4	3	 (0') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, very soft, moist, reddish, some roots. (2') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, soft, moist, reddish. 	PB-10 (0-2) - - PB-10 (2-4) - 3	395		
				SS SS	2	6 3 5 9 8 12 14	10 26	 (4') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, soft, moist, yellowish-brown. (5') 5-gallon bucket soil sample collected from approximately 0 to 5 feet below ground surface. (6') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, medium stiff, moist, yellowish-brown, black mottles. 	PB-10 (4-6) PB-10 (6-8)			
- - 10		▼		SH	2	18 4 6 8	14	(10') CEC (10') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, medium stiff, wet, yellowish-brown, few mica.	PB-10 (10-12)	390		
				SS SS	1.6 2	12 3 4 7 10 6 7	11 23	 (12') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, medium stiff, wet, yellowish-brown, abundant mica. (14') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, medium plasticity, medium stiff, wet, light gray to light brown, abundant 	PB-10 (12-14) - 3 - 9 - 9	385		
15				SS	2	16 26 8 9 16	17	mica. (15') 5-gallon bucket soil sample collected from approximately 10 to 15 f below ground surface. (16') Clayey SAND (SC); mostly fine grained sand, trace silt, some clay, medium dense, wet, greenish-gray, abundant mica.	J PB-10 (16-18) 	380		
20-	NOTES:	b	PB-10S a elow gro IA = Not	and Pl ound s	urface	e.	sticku	(20') CEC up wells, PB-10S is ~10ft away from PB-10D well. Depth to water at PE				

	Ge	CO		ants	D		Clien Proje Addr	0 1 3	Well No. PE	LL LOG 3-10S/PB-10 of 5	D
Drillin Drillin Drillin Drillin Drille	ng Start ng End I ng Comp ng Meth ng Equip r: ed By:	Date: bany od:	: 01/ : The Hol nt: D-5 Phi	llow S 50 il Pitts	19 on En Stem A	Auger				PVC I0 PVC Slotted ite Pellets	010
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	WELL	Sample Type		Blow Counts DIT	N Value RQD (%)	SOIL/ROCK VISUAL DESCRIF	MEASURE Sample Cap	ELEV. (ft msl)	
20-						4 8 11 11 3	19	(20') Clayey SAND (SC); mostly fine grained sand, tr medium dense, wet, greenish-gray to light brown, bla mica. 5-gallon bucket soil sample collected from appr feet below ground surface. (22') Well-graded SAND (SW); mostly fine-coarse gra	ck mottles, abundant oximately 15 to 20 — — — — — — — — — —	PB-10 (20-22) PB-10 (22-24)	_
- 25-				SS		7 30 46 41 26 46	72	(24') Well-graded SAND (SW); mostly fine-coarse graded set (24') Well-graded SAND (SW); mostly fine-coarse graded set (24') Well-graded set (24') well-gra	ained sand, trace silt,	PB-10 (24-26)	— 375 - -
-				SS	0.3	50/3 50/5	1	(26') Well-graded SAND (SW); mostly fine-coarse grafew clay, very dense, wet, light brown, abundant mica	ained sand, trace silt, a.	PB-10 (26-28)	- - - 370
30				SS SS	0.3	50/3		(30') Well-graded SAND (SW); mostly fine-coarse grafew clay, very dense, wet, dark brown, abundant mice		PB-10 (30-32)	-
- - 35-				·····	0.3	50/3		(35') Well-graded SAND (SW); mostly fine-coarse grafew clay, very dense, wet, dark brown, abundant mice		PB-10 (35-37)	— 365 - -
- 40-											- - 360 -
N	NOTES	b	PB-10S elow gr IA = No	ound	surfac	ce.	sticku	ıp wells, PB-10S is ∼10ft away from PB-10D well. D	epth to water at PB-1	0S is 9.7 feet	

Geosyntec Consultants	Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investigati ess: 1100 Milledgeville Rd, Milledgeville	LL LOG B-10S/PB-10D of 5	
Drilling Start Date:01/16/2019Drilling End Date:01/17/2019Drilling Company:Thompson EngliDrilling Method:Hollow Stem AuDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	-	Static Water Level (ft): 9.91/10.04 F DTW After Drilling (ft): 9.70/9.70 S Top of Casing Elev. (ft) 400.94/400.33 S Ground Elev. (ft): 398.04/397.98 F	Slot (in): 2.0/0.010 PVC 40 PVC Slotted ite Pellets SS/SH/CO	
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft)	Blow Counts D N Value RQD (%)	SOIL/ROCK VISUAL DESCR	RIPTION	Lab Sample Lab Lap Sample ELEV. (ft msl)
	0/1.5	(40') No Recovery.		355
	50/2	(45') Well-graded SAND (SW); mostly fine-coarse few clay, very dense, wet, dark brown, abundant m		PB-10 (45-47) - - 350
50	50/2	(50') Well-graded SAND (SW); mostly fine-coarse few clay, very dense, wet, dark brown, abundant m		PB-10 (50-52)
	50/1	(55') No Recovery.		- 345 - - - - -
60 NOTES: PB-10S and PB-10D below ground surface		up wells, PB-10S is ~10ft away from PB-10D well.	Depth to water at PB-1	- 340

Geosyntec consultants	Clien Proje Addr	e 1, j	tion Well No. PB	4 of 5		
Drilling Start Date:01/16/2019Drilling End Date:01/17/2019Drilling Company:Thompson EngirDrilling Method:Hollow Stem AugDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	-				0	
DEPTH (ft) LITHOLOGY WATER LEVEL WATER LEVEL COMPLETION Sample Type Recovery (ft)	N Value RQD (%)	SOIL/ROCK VISUAL DESC	RIPTION	MEASURE black mble S ap N ap N ap N ap N ap N ap N ap N ap	ELEV. (ft msl)	
	0/2 20 88 38 0/4 14	 (60') Well-graded SAND (SW); mostly fine-coars few clay, very dense, wet, dark brown, abundant (62') Began mud rotary drilling. (63') Poorly graded SAND (SP); mostly fine-coar dense, wet, light gray to white, weathered rock fr abundant mica and quartz. (67.5') MET ROCK (GNEISS); coarse grained, n moderately hard, intensely fractured, dark biotite 	mica. se grained sand, very agments (gneiss), noderately weathered, and light feldspar banding,		335	
	20	(71') MET ROCK (GNEISS); coarse grained, mo moderately hard, moderately fractured, dark bioti banding, moderately decomposed near fracture, and are narrow to wide.	ed. derately weathered, te and light feldspar		325	
A.75 4.75 4.75 4.75 80 NOTES: PB-10S and PB-10D a below ground surface.	54	(76') MET ROCK (GNEISS); coarse grained, mo moderately hard, moderately fractured, dark bioti banding, fractures have clay filling and Fe oxide s wide.	e and light feldspar staining and are narrow to	-	320	

	consulta	nts	>		Clien Proje Addr	• • • •	ation	Well No. PB	L LOG 8-10S/PB-10 of 5	D
Drilling Start Drilling End I Drilling Com Drilling Meth Drilling Equip Driller: Logged By:	Date: 01/17 pany: Thor od: Hollo pment: D-50 Phil		n Eng em Au	uger	eringBoring Diameter (in):6.50Well Diam. (in)/Screenstatic Water Level (ft):9.91/10.04Riser Material:Sch 40rDTW After Drilling (ft):9.70/9.70Screen Material:SchTop of Casing Elev. (ft)400.94/400.33Sanitary Seal:BentorGround Elev. (ft):398.04/397.98Filter Pack:SandLocation (X,Y):1163593.00, 2558546.51Sampling Method(s):Sampling Method(s):			Material: Sch 40 n Material: Sch 40 ary Seal: Bentoni Pack: Sand	PVC 0 PVC Slotted te Pellets	010
DEPTH (ft) LITHOLOGY	WATER LEVEL WELL COMPLETION	Sample Type	Recovery (ft)	Blow Counts	N Value RQD (%)	SOIL/ROCK VISUAL DESCRIPTION			MEASURE Sample Lap	ELEV. (ft msl)
		СО	4.5		80	(81') MET ROCK (GNEISS); coarse grained, mo moderately hard, moderately fractured, dark bioti banding, moderately decomposed near the fractu- oxide staining and are narrow to wide, weathered ft). (86') MET ROCK (GNEISS); coarse grained, free competent, mechanical break. (91') Boring terminated.	te and İ ıre, frac I fractur	ight feldspar tures have Fe e zone (81-81.5		- 315 - 315 - 310 - 310 - 305
NOTES	: PB-10S a below gro NA = Not	und su	urface		sticku	ιρ wells, PB-10S is ~10ft away from PB-10D we	II. Dept	h to water at PB-10	DS is 9.7 feet	

		co	onsulta	nts	>	1	Client Projec Addre		Landfill Site Investigation	Boring No.	RING LOG PB-11 1 of 3	
Drillin Drillin Drillin Drillin Driller	• • •	Date: bany od:	ti 12/09 Thor Hollo ht: D-50 Phil	ow St Pitts		uger	ring		DTW After Drilling (ft):	46 6.50 SS/SH NA NA 410.42 1163856.34, 2557	923.26	
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	s	N Value RQD (%)	SOIL	ROCK VISUAL DESCRIPTI	ON	MEASURE Lab Sample	ELEVATION (ft)
0			· ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^	SS	2	2 3 5 5	8	(0') Elastic SILT (MH); fer soft, moist, reddish, abun	w fine sand, mostly silt, few cla dant mica.	ay, low plasticity,		— 410 -
-				SS	1.5	3 5 8	13	(2') Elastic SILT (MH); fe soft, moist, reddish, abun	w fine sand, mostly silt, few cla dant mica, black mottles.	ay, low plasticity,	PB-11(2-4)	_
5-				SS	1.5	11 5 5 4 7	9	plasticity, soft, moist, yelle (5') 5-gallon bucket soil sa	/ fine sand, some silt, mostly c owish-brown to red, abundant ample collected from approxim	mica.	PB-11(4-6)	- - 405
				SS	2	7 4 4 5 6	9	6') Silty SAND (SM); mo yellowish-brown, black m	stly fine grained sand, some si ottles.	llt, few clay, moist,	PB-11(6-8)	_
				SS	1.6	3 4 4 5	8	(8') Silty SAND (SM); mo yellowish-brown, black m	stly fine grained sand, some si ottles.	lt, few clay, moist,		_
10-				SS	2	4 4 5 7	9	(10') Silty SAND (SM); m clay, loose, moist, yellowi quartz.	ostly fine-coarse grained sand sh-brown to dark brown, black	, some silt, few mottles, white	PB-11(10-12)	— 400 -
				SH	2			(12') Silty SAND (SM); 5- approximately 7 to 12 fee	gallon bucket soil sample colle t below ground surface.		-	_
15-				SS	2	6 6 8 7	14	(14') Silty SAND (SM); m clay, medium dense, mois	ostly fine-medium grained san st, brownish-white.	d, some silt, trace	PB-11(14-16)	- 395
				SS	2	6 7 9 11	16		ostly fine-medium grained san st, brownish-white, black mottl			_
20-				SS	2	7 5 7 10	12		ostly fine-medium grained san st, brownish-white, black mottl			_
	IOTES:	: N	IA = Not	Appli	cable							

		CC		nts	>		Client Projec Addre	J	Landfill Site Investigation	Boring No.	RING LOG PB-11 2 of 3
Drillin Drillin Drillin Drillin Drillen	• • •	Date: bany od:	ti 12/09 Thor Hollo ht: D-50 Phil	9/2018 npso ow Ste Pitts		uger	ring		DTW After Drilling (ft):	46 6.50 SS/SH NA NA 410.42 1163856.34, 2557	923.26
DEPTH (ft)	КООТОНТІ	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	s	N Value RQD (%)	SOIL/	ROCK VISUAL DESCRIPT	ION	Lab Sample MEASON (ft) ELEVATION (ft)
20-				SS	2	6 6 7 9	13	(20') Silty SAND (SM); m clay, medium dense, moi:	ostly fine-coarse grained sand st, grayish-white, black mottles	l, some silt, trace s.	- 390
-				SS	2	8 8 8	16		ostly fine-coarse grained sand st, grayish-white, black mottles		
- 25 -				SS	2	11 6 10 10 10	20		ostly fine-coarse grained sand st, grayish-white to white to gra		PB-11(24-26) 385
-				SS	1.5	8 10 14 17	24		ostly fine-coarse grained sand st, grayish-white to white to gra		-
-				SS	2	12 13 17 20	30		ostly fine-coarse grained sand st, grayish-white, black mottles		-
30-				SS	1.3	8 10 13 22	23		ostly fine-coarse grained sand st, grayish-white, black mottles		- 380
-				SS	1.5	3 6 10 13	16	(32') Silty SAND (SM); m clay, medium dense, mois	ostly fine-coarse grained sand st, grayish-white, black mottles	l, some silt, trace s, laminated.	-
35-				SS	1.8	10 14 20 19	34	(34') Silty SAND (SM); m clay, dense, moist, grayis	ostly fine-coarse grained sand h-white, black mottles, lamina	l, some silt, trace ted.	375
-				SS	1	12 16 17 31	33		ostly fine-coarse grained sand white, laminated, weathered q		
-				SS	1.1	5 5 11 16	16	(38') Silty SAND (SM); m clay, dense, wet, grayish-	ostly fine-coarse grained sand white, laminated.	l, some silt, trace	
40-	OTES:	. N	IA = Not	Appli	cable	-					

	co	ynte nsultar	nts	>		Clien Proje Addre	0	Landfill Site Investigation	Boring No.	NING LOG PB-11 3 of 3			
Drilling Corr Drilling Meth	Drilling End Date: 12/09/2018 Boring Diameter (in): 6.50 Drilling Company: Thompson Engineering Sampling Method(s): SS/SH Drilling Method: Hollow Stem Auger Static Water Level (ft): NA Drilling Equipment: D-50 DTW After Drilling (ft): NA Driller: Phil Pitts Ground Surface Elev. (ft): 410.42 Logged By: Nardos Tilahun COLLECT COLLECT												
DEPTH (ft) LITHOLOGY	DEPTH (ft) LITHOLOGY MATER LEVEL WATER LEVEL MATER LE												
40			SS SS SS	0.9	2 8 14 23 3 6 26 50/5.5 50/3		(42') Silty SAND (SM); m clay, medium dense, wet, (43.5') Top of PWR. (44') Silty SAND (SM); m	ostly fine-coarse grained sand grayish-white, laminated, mic ostly fine-coarse grained sand grayish-white, laminated, mic ostly fine-coarse grained sand grayish-white, laminated, mic ng terminated.	a, black mottles. I, some silt, trace a, black mottles.		- 370 365 		

		co		nts	>		Client Projec Addro		Landfill Site Investigation	Boring No.	ING LOG PB-12 I of 3		
Drillin Drillin Drillin Drillin Drille	Drilling Start Date:01/15/2019Boring Depth (ft):51Drilling End Date:01/15/2019Boring Diameter (in):6.50Drilling Company:Thompson EngineeringSampling Method(s):SS/SHDrilling Method:Hollow Stem AugerStatic Water Level (ft):NADrilling Equipment:D-50DTW After Drilling (ft):NADriller:Phil PittsGround Surface Elev. (ft):392.72Logged By:Nardos TilahunLocation (X,Y):1162629.04, 2556584												
DEPTH (ft)	DEPTH (ft) LITHOLOGY BORING COMPLETION Sample Type Recovery (ft) NValue Rounts Recovery (ft) Blow Counts NValue (%) Somple Type												
0				SS	1.5	2 2 2 4	4	(0') Lean CLAY (CL); few plasticity, soft, moist, rede	r fine-coarse sand, some silt, r dish, Few roots and organic ma	nostly clay, medium atter, black mottles.	PB-12(0-2)	-	
-				SS	1.7	3 5 7 8	12		; some fine-coarse sand, little iff, moist, reddish, black mottle		PB-12(2-4)	- 390	
5-				SS	2	3 4 4 6	8	high plasticity, medium st (5') 5-gallon bucket soil sa	; some fine-coarse sand, little iff, moist, reddish, organic mai ample collected from approxim	tter, wood.	PB-12(4-6)	-	
-				SS	2	5 6 6	12	high plasticity, medium st (7') Clayey SAND (SC); n	nostly fine-coarse grained san		PB-12(6-7) PB-12(7-8)	-	
-				SH	1.66	6		clay, moist, greenish-brov	vn, trace sub-rounded gravel, v	wood.		- 385 - -	
10-				SS	2	3 5 4 8	9	clay, moist, dark greenish (11') Lean CLAY (CL); tra	mostly fine-coarse grained sai , trace sub-rounded gravel. ace fine-coarse sand, few silt,		PB-12(10-11) PB-12(11-12)	_	
-				SS	1.6 0	o 4 5 5 10 50	10	medium plasticity, soft, m	ace fine-coarse sand, few silt, loist, dark brown, 5-gallon buck tely 8 to 12 feet below ground	ket soil sample	PB-12(12-14)	- 380 -	
15-						4						-	
-				SS SH	2 1.08	4 5 5 7	10		ace fine-coarse sand, trace silt ioist, reddish-brown, mica. ed (13-inch recovery).	i, mostly clay,	PB-12(16-18)	- 375	
- 20-												-	
N	IOTES:	: N	IA = Not	Appli	cable								

		CO	onsulta	nts	>		Clien Proje Addro	J	Landfill Site Investigation	Boring No. I	ING LOG PB-12 2 of 3	
Drillin Drillin Drillin Drillin Drillen		Date: bany od:	t: 01/11 Thor Hollo t: D-50 Phil	ow St Pitts		uger	ring		Boring Depth (ft): Boring Diameter (in): Sampling Method(s): Static Water Level (ft): DTW After Drilling (ft): Ground Surface Elev. (ft): Location (X,Y):	51 6.50 SS/SH NA NA 392.72 1162629.04, 25565	85.18	
DEPTH (ft)	DEPTH (ft) LITHOLOGY NATER LEVEL BORING COMPLETION Somple Type Recovery (ft) Blow Counts RodD (%) N Value ROD (%) ROD (%)											ELEVATION (ft)
20-				SS	2	4 6 7 12	13	clay, medium plasticity, m top.	nd (MH); some fine-coarse sa nedium stiff, moist, reddish-bro sample collected from approxi	own, wood at the	PB-12(20-22) PB-12(22-24)	- - - 370
- 25				SS SS	1.5	6 8 13 7	16 20	clay, medium dense, mois	mostly fine-coarse grained sa st, yellowish-brown, mica.		PB-12(24-26) PB-12(26-28)	-
-				SS	1.2	9 11 14 6 7	18	clay, well-graded, mediun coarse angular gravel. (28') Clayey SAND (SC);	mostly fine-coarse grained sa n dense, wet, yellowish-brown mostly fine-coarse grained sa n dense, wet, yellowish-brown.	, trace fine to nd, trace silt, some	PB-12(28-30)	- - 365 -
30-				SS	1.3	11 14 10 11 14 16	25	(30') Clayey SAND (SC);	mostly fine-coarse grained sa n dense, wet, yellowish-brown.	nd, trace silt, some	PB-12(30-32)	-
				SH	2	10 13 13	26		(SW); mostly fine-coarse grain redium dense, wet, yellowish-b		PB-12(34-36)	- 360 - -
-				SS	1.4	14 8 13 18 26	31	(36') Well-graded SAND (trace clay, well-graded, de abundant mica.	(SW); mostly fine-coarse grair ense, wet, yellowish-brown, bla	ack mottles,	PB-12(36-38)	- - - 355
40-				SS	1.2	13 15 16 28	31		(SW); mostly fine-coarse grain ense, wet, yellowish-brown, bla		PB-12(38-40)	-
N	IOTES:	: N	IA = Not	Appli	cable							

Ceosyntec Consultants	Client: Georgia Power Con Project: Plant Branch CCR L Address: 1100 Milledgeville F	h CCR Landfill Site Investigation Boring No. PB-12			
Drilling Start Date:01/15/2019Drilling End Date:01/15/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	85.18				
DEPTH (ft) LITHOLOGY WATER LEVEL BORING COMPLETION Sample Type Recovery (ft) Blow Counts		ROCK VISUAL DESCRIPTI	MEASURE Samble Lap	ELEVATION (ft)	
40 40 50/4 45 45 45 45 45 45 45 45 45 4	 4.5 4.5 6.6 6.7 6.7 6.8 6.9 6.0 6.0 6.0 6.1 6.1 6.1 6.1 6.1 6.2 6.2 6.3 6.4 7.4 /ul>	SW); mostly fine-coarse grain t, yellowish-brown, trace angu SW); mostly fine-coarse grain ry dense, wet, yellowish-brow SW); mostly fine-coarse grain ry dense, wet, yellowish-brow	ed sand, trace silt, n, yellow brown to ed sand, trace silt,	PB-12(40-42) PB-12(42-44) PB-12(45-47)	- - 350 - - - 345
50 - SS 0.2 50/2		SW); mostly fine-coarse grain ry dense, wet, yellowish-brow ng terminated.		PB-12(50-51)	- - - 340 -
NOTES: NA = Not Applicable					

		co		ints	>		Clien Proje Addre	· · · · · · · · · · · · · · · · · · ·		L LOG -13S/PB-13D f 6	1
Drillin Drillin Drillin Drillin Drillen	• • •	Date bany od:	: 12/1 : Tho Holl nt: D-50 Phil	0/201 8/201 mpso ow St) Pitts dos Ti	8 n Eng em Ai	uger				PVC PVC Slotted e Pellets	0
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	Blow Counts	N Value A RQD (%)	SOIL/ROCK VISUAL DESCRIPTI	ON	MEASURE Sample Tap C	ELEV. (ft msl)
0				SS	2	2 5 5 6 6	10	(0') Sandy elastic SILT (MH); some fine-coarse sand, m low plasticity, soft, moist, reddish, some organic matter.		PB-13 (2-4)	370
-					2	6 10 16		(2') Sandy elastic SILT (MH); some fine-coarse sand, m low plasticity, medium stiff, moist, yellowish-red to red, r		-	
- 5			<pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre>	SS	2 2	4 7 8 11 2 2	15 10	(4') Sandy elastic SILT (MH); some fine-coarse sand, m low plasticity, medium stiff, moist, yellowish-red to red, r (5') Elastic SILT with sand (MH); little fine sand, mostly plasticity, medium stiff, moist, yellowish-brown, 5-gallon collected from approximately 0 to 5 feet below ground su (6') Elastic SILT with sand (MH); little fine sand, mostly	nica. silt, few clay, low bucket soil sample urface.	- - PB-13 (6-8)	365
-		▼		SS	2	8 11 3 5 9 13	14	plasticity, medium stiff, moist, yéllowish-brown. (8') Sandy lean CLAY (CL); some fine sand, trace silt, n plasticity, medium stiff, moist, light greenish.		-	
10-				SS	2 2	3 8 10 12	18	 (10') Lean CLAY (CL); some fine-coarse sand, trace silt medium plasticity, stiff, moist, light greenish. (10.5') Clayey SAND (SC); mostly fine-coarse grained s some clay, well-graded, medium dense, moist, light gree (12') Clayey SAND (SC). 	 and, trace silt,	PB-13 (10-12) -	360
- 15- -				SS	2	2 3 4 5 2 5 6	7	 (14') Clayey SAND (SC); mostly fine-coarse grained sar clay, well-graded, loose, moist, light green to light brown (15') 5-gallon bucket soil sample collected from approximation below ground surface. (16') Well-graded SAND (SW); mostly fine-coarse grain trace clay, loose, wet, dark gray to grayish-white, abund quartz. 	n. mately 10 to 15 feet ed sand, few silt,	-	355
				SH	2					PB-13 (18-20) - -	
N	NOTES:	b	PB-13S a below gro IA = No	ound s	urface	e.	sticku	ip wells, PB-13S is ~10ft away from PB-13D well. Dep	th to water at PB-13	S is 7.4 feet	

	Ge	CC		ants	D		Clien Proje Addre	• • •	ation		L LOG -13S/PB-13 f 6	D
Drillin Drillin Drillin Drillin Drillin	ig Start I ig End I ig Comp ig Metho ig Equip r: ed By:	Date: bany bd:	: 12/ : The Hol nt: D-5 Phi	10/201 18/201 ompso llow St i0 I Pitts rdos T	8 on Enç tem A	uger	-	Boring Depth (ft): 107.8 Boring Diameter (in): 6.50 Static Water Level (ft): 7.19/7.74 DTW After Drilling (ft): 7.40/7.40 Top of Casing Elev. (ft) 373.38/373.83 Ground Elev. (ft): 370.88/371.13 Location (X,Y): 1162084.45, 2556638.75	Well Depth (ft): 50/97 Well Diam. (in)/Screen Slot (in): 2.0/0.010 Riser Material: Sch 40 PVC Screen Material: Sch 40 PVC Slotted Sanitary Seal: Bentonite Pellets Filter Pack: Sand Sampling Method(s): SS/SH/CO			010
DEPTH (ft)	ГІТНОГОЄУ	WATER LEVEL	WELL	Sample Type	Recovery (ft)	s.	N Value A RQD (%)	SOIL/ROCK VISUAL DESC	CRIPTIC	N	MEASURE Sample Lap S	ELEV. (ft msl)
20-			<pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre>	SS	1.5	3 5 7 9	12	(20') Silty SAND (SM); mostly fine-medium grain clay, poorly graded, medium dense, wet, light gra		l, some silt, trace		⊢ — 350
-			<,<,<,<,<,<,<,<,<,<,<,<,<,<,<,<,<,<,<,	SS	1.2	4 6 8 11	14	(22') Silty SAND (SM); mostly fine-medium grain clay, poorly graded, medium dense, wet, light gra	ed sand ay.	l, some silt, trace		-
- 25 -				A SS	0.8	4 7 9 10	16	(24') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white, ab bucket soil sample collected from approximately 2 surface.	undant	mica, 5-gallon		_
-	· · · · · · · · · · · · · · · · · · ·			SS	1	5 6 9 12	15	(26') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white to y	e graine yellow g	ed sand, trace silt, ray.		— 345 -
-				SS	0.8	2 5 7 9	12	(28') Well-graded SAND (SW); mostly fine-coars few clay, medium dense, wet, grayish-white to ye mica and quartz.			PB-13 (28-30)	-
30-				SH	2	Ū					PB-13 (30-32) ·	- 340
-				SS	0.7	9 13 15 14	28	(32') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white to v quartz.				_
- 35-	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	SS	0.8	5 8 15 15	23	(34') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white to v quartz, laminated.				-
-				SS	0.8	6 7 10	17	(36') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white to v quartz, laminated.				- 335 -
- - 40-	Image: Solution of the second seco											_
N	IOTES:	b	PB-13S elow gr IA = No	ound s	surface	e.	sticku	ıp wells, PB-13S is ~10ft away from PB-13D we	II. Depti	h to water at PB-13	S is 7.4 feet	

	Ge	CC	onsu	lta	nts	>		Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investigation Well No. P	LL LOG B-13S/PB-13 of 6	D
Drillin Drillin Drillin Drillin Drille	Drilling Start Date: 12/10/2018 Drilling End Date: 12/18/2018 Drilling Company: Thompson Engl Drilling Method: Hollow Stem Au Drilling Equipment: D-50 Driller: Phil Pitts Logged By: Nardos Tilahun						uger	-	Boring Depth (ft):107.8Well Depth (ft):50/97Boring Diameter (in):6.50Well Diam. (in)/ScreenStatic Water Level (ft):7.19/7.74Riser Material:Sch 40DTW After Drilling (ft):7.40/7.40Screen Material:Sch 40Top of Casing Elev. (ft)373.38/373.83Sanitary Seal:BentorGround Elev. (ft):370.88/371.13Filter Pack:SandLocation (X,Y):1162084.45, 2556638.75Sampling Method(s):S	PVC 40 PVC Slotted ite Pellets	010
DEPTH (ft)	DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft)					Blow Counts	N Value RQD (%)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE aldumes arbite	ELEV. (ft msl)	
40					SS	0.8	8 10 13 18	23	(40') Well-graded SAND (SW); mostly fine-coarse grained sand, trace silt, trace clay, medium dense, wet, grayish-white to white, abundant mica and quartz.		- 330
-					SS	1.3	7 7 9 16	16	(42') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, well-graded, medium dense, wet, green to white, abundant mica and quartz.	PB-13 (42-44) -	_
45-					SS	1	10 17 30 41	47	(44') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, well-graded, dense, wet, greenish, abundant mica and quartz.		_
_					SS	0.3	5 6 16 42	22	(46') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, well-graded, medium dense, wet, green to white, abundant mica and quartz, laminated.		- 325 -
50-					SS	1.1	32 26 31 43	57	(48') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, well-graded, very dense, wet, dark gray to dark brown to white, abundant mica and quartz, laminated.		-
-				> > > > > > > > >	- - - -		0.1				- 320 -
- 55 -				~ ~ ~ ~ ~ ~ ~ ~ ~	SS	0.4	21 50/5	50	 (53') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, very dense, wet, grayish-white, abundant mica and quartz, laminated black mottles. (54') Top of PWR. 	-	-
-				<pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre>	SS	0.3	50/4		(58') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace	_	- 315 - -
60				< < < < <					clay, very dense, wet, grayish-white, abundant mica and quartz, laminated black mottles.	_	-
N	IOTES:	b	PB-13 elow IA = N	grou	und s	urfac	e.	sticku	up wells, PB-13S is ~10ft away from PB-13D well. Depth to water at PB-	3S is 7.4 feet	

Geosyntec Consultants	Proje	Client: Georgia Power Company WELL Project: Plant Branch CCR Landfill Site Investigation Address: 1100 Milledgeville Rd, Milledgeville Value Death (ft): 50/07					
Drilling Start Date:12/10/2018Drilling End Date:12/18/2018Drilling Company:Thompson EngDrilling Method:Hollow Stem AuDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	iger	Boring Diameter (in):6.50Well DStatic Water Level (ft):7.19/7.74Riser DDTW After Drilling (ft):7.40/7.40ScreenTop of Casing Elev. (ft)373.38/373.83SanitaGround Elev. (ft):370.88/371.13Filter F	epth (ft): 50/97 iam. (in)/Screen Slot (in): 2.0/0.010 /laterial: Sch 40 PVC Material: Sch 40 PVC Slotted ry Seal: Bentonite Pellets Pack: Sand ng Method(s): SS/SH/CO				
DEPTH (ft) LITHOLOGY WATER LEVEL WATER LEVEL COMPLETION Sample Type Recovery (ft)	Blow Counts T N Value RQD (%)	SOIL/ROCK VISUAL DESCRIPTIO	Lab Sample ELEV. (ft msl)				
	50/3.5 38 50	(63') Silty SAND (SM); mostly fine-coarse grained sand, clay, very dense, wet, grayish-white, abundant mica and black mottles. (68') Well-graded SAND (SW); mostly fine-coarse grained	quartz, laminated, - - 305 -				
	50/5	(70') Began mud rotary drilling. (70') Began mud rotary drilling. (73') Well-graded SAND (SW); mostly fine-coarse graine trace clay, well-graded, very dense, wet, gray, abundant mottles.	d sand, few silt,				
	50/2	(78') Well-graded SAND (SW); mostly fine-coarse graine trace clay, well-graded, very dense, wet, gray, abundant mottles. Cable tool (rock coring) started at 78.1 ft below (78.1') No Recovery. p wells, PB-13S is ~10ft away from PB-13D well. Dept	nica, quartz, black ground surface.				

Geosyntec Consultants	Proje	Client: Georgia Power Company WELL Project: Plant Branch CCR Landfill Site Investigation Well No. PB- Address: 1100 Milledgeville Rd, Milledgeville Page: 5 of					
Drilling Start Date:12/10/2018Drilling End Date:12/18/2018Drilling Company:Thompson EDrilling Method:Hollow StemDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilah	Auger	Boring Depth (ft):107.8Well Depth (ft):50/97Boring Diameter (in):6.50Well Diam. (in)/Screen SloperringStatic Water Level (ft):7.19/7.74Riser Material:Sch 40 PrDTW After Drilling (ft):7.40/7.40Screen Material:Sch 40Top of Casing Elev. (ft)373.38/373.83Sanitary Seal:BentoniteGround Elev. (ft):370.88/371.13Filter Pack:SandLocation (X,Y):1162084.45, 2556638.75Sampling Method(s):SS					
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Sample Type	Blow Counts N Value RQD (%)	SOIL/ROCK VISUAL DESCR	PTION	Lab Sample ELEV. (ft msl)			
		(82') No Recovery.		- 29			
	8	(87') MET ROCK (GNEISS); coarse grained, model intensely fractured, wet, dark biotite and white felds competent, iron oxidation on fracture surface, fractur recovery from 78 to 87 feet below ground surface (f competent rock could be at 87 ft bgs.	par minerals, ires not healed. Coring	- 28 - - - - - - - 28			
	. 0	(92') MET ROCK (GNEISS); coarse grained, mode intensely fractured, wet, dark biotite and white felds competent, iron oxidation on fracture surface, fractu	par minerals,	27			
- 100- 100- 100- 100- 100- 100- 100- 10	100	(97') MET ROCK (GNEISS); coarse grained, fresh, biotite and white feldspar minerals, competent, stro	hard, unfractured, dark ng, flow banding.				

		CC	onsulta	nts	>		Clien Proje Addr	• • • •	n Well No. P	LL LOG B-13S/PB-13 of 6	-13S/PB-13D		
Drillin Drillin Drillin Drillin Drille	• • •	Date: bany bd:	ti 12/18 Thor Hollo ht: D-50 Phil	3/2018 npsoi ow Ste	3 n Enç em A	uger	ring	oring Depth (ft): 107.8 Well Depth (ft): 50/97 oring Diameter (in): 6.50 Well Diam. (in)/Screen Slot (in): 2.0/0 tatic Water Level (ft): 7.19/7.74 Riser Material: Sch 40 PVC TW After Drilling (ft): 7.40/7.40 Screen Material: Sch 40 PVC Slotted op of Casing Elev. (ft) 373.38/373.83 Sanitary Seal: Bentonite Pellets iround Elev. (ft): 370.88/371.13 Filter Pack: Sand ocation (X,Y): 1162084.45, 2556638.75 Sampling Method(s): SS/SH/CO					
DEPTH (ft)	КОТОНТИ	WATER LEVEL	WELL	Sample Type	Recovery (ft)	N.	N Value RQD (%)	SOIL/ROCK VISUAL DESCRI	PTION	MEASURE ep Sample Tap S	ELEV. (ft msl)		
100 — - - 105 —		-		СО	5		100	(102') MET ROCK (GNEISS); coarse grained, fresh, dark biotite and white feldspar minerals, competent,	hard, unfractured, strong, flow banding.		- - 270 - -		
-				CO	0.8		100	(107') MET ROCK (GNEISS); coarse grained, fresh, dark biotite and white feldspar minerals, competent, (107.8') Boring terminated.	, hard, unfractured, strong, flow banding.		— 265 - -		
110						1	1						
N	IOTES:	b	PB-13S a elow grou IA = Not	und s	urfac	e.	sticku	p wells, PB-13S is ~10ft away from PB-13D well. D	Pepth to water at PB-	13S is 7.4 feet			

Ceosyntec Consultants	Client: Georgia Power Cor Project: Plant Branch CCR Address: 1100 Milledgeville	Landfill Site Investigation	Boring No. F	NG LOG PB-14 of 3	
Drilling Start Date:01/22/2019Drilling End Date:01/23/2019Drilling Company:Thompson EnginDrilling Method:Mud RotaryDrilling Equipment:D-50Driller:Richard BlackstoLogged By:Nardos Tilahun		Boring Diameter (in): Sampling Method(s): Static Water Level (ft): DTW After Drilling (ft): Ground Surface Elev. (ft):	46 3.50 SS/SH NA NA 407.1 1162544.74, 25579	51.78	
DEPTH (ft) LITHOLOGY WATER LEVEL BORING COMPLETION Sample Type Recovery (ft)		ROCK VISUAL DESCRIPTI	ON	MEASURE Ramble Lap	ELEVATION (ft)
	(0) Lean CLAY (CL); trac medium plasticity, soft, m (2') Lean CLAY (CL); trac plasticity, stiff, moist, redo	e fine sand, few silt, mostly cla dish, some yellow mottles and r	ay, medium mica.	PB-14(0-2) - PB-14(2-4) - PB-14(4-6) -	- 405
5	 (4) Lean CLAY (CL); trac plasticity, stiff, moist, redo 10 (6') Lean CLAY (CL); few plasticity, reddish, some r 	e fine sand, few silt, mostly cla dish, some yellow mottles and i r fine-coarse sand, few silt, mo nica.	mica.	PB-14(6-8) - PB-14(8-10) -	- 400
10 	l low plasticity, very soft, m	MH); some fine-coarse sand, r ioist, reddish-brown, trace quar	nostly silt, few clay, ts and mica.		- 395
- 15 - 15 - 15 - 15 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	 (14') Sandy elastic SIL1 (low plasticity, very soft, m mica, black mottles. 4 (16') Sandy elastic SILT (low plasticity, very soft, m mica, black mottles. 	MH); some fine-coarse sand, r loist, yellowish-brown to yellow MH); some fine-coarse sand, r loist, yellowish-brown to yellow	ish-gray, abundant mostly silt, few clay,	PB-14(14-16) - 	- 390
NOTES: NA = Not Applicable					

		co		nts	>		Client Projec Addro	J	Landfill Site Investigation	Boring No.	RING LOG PB-14 2 of 3	
Drillin Drillin Drillin Drillin Driller	Drilling Start Date:01/22/2019Drilling End Date:01/23/2019Drilling Company:Thompson EngliDrilling Method:Mud RotaryDrilling Equipment:D-50Driller:Richard BlackstLogged By:Nardos Tilahun				tock	C		Boring Depth (ft): Boring Diameter (in): Sampling Method(s): Static Water Level (ft): DTW After Drilling (ft): Ground Surface Elev. (ft): Location (X,Y):	46 3.50 SS/SH NA NA 407.1 1162544.74, 2557	951.78		
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft)	s	N Value A RQD (%)	SOIL/	ROCK VISUAL DESCRIPT	ION	MEASURE sample Cap T	ELEVATION (ft)
20-				SS	1.6	1 2 2 3	4		MH); some fine-coarse sand, loist, yellowish-gray to yellowis			
-				SS	1.5	2 3 3 5	6	(22') Sandy elastic SILT (low plasticity, soft, moist, mica, black mottles.	MH); some fine-coarse sand, yellowish-gray to yellowish-bro	few silt, few clay, own, abundant	PB-14(22-24)	- 385 -
25				SS	2	2 2 4 5	6		me fine-coarse sand, some si oist, yellowish-brown, abunda		PB-14(24-26)	_
				SS	2	2 4 5 6	9		ome fine-coarse sand, some si oist, yellowish-brown, abunda		PB-12(26-28)	- 380
-				SS	2	3 3 4 6	7		ome fine-coarse sand, some si oist, yellowish-brown, abunda		PB-14(28-30)	-
30-				SS	2	3 5 6 8	11		mostly fine-medium grained s e, wet, yellowish-brown, abunc		PB-14(30-32)	-
				SS	2	3 5 6 9	11	(32') Clayey SAND (SC); clay, poorly graded, dense mottles.	mostly fine-medium grained s e, wet, yellowish-brown, abunc	and, few silt, some dant mica, black	PB-14(32-34)	— 375 -
35-				SS	1.6	4 6 7 9	13	(34') Clayey SAND (SC); clay, poorly graded, dense mottles.	mostly fine-medium grained s e, wet, yellowish-brown, abunc	and, few silt, some dant mica, black	PB-14(34-36)	_
				SS	1.6	7 10 10 17	20		0 (SP); mostly fine-medium gra ense, moist, brown, abundant		PB-14(36-38)	- - 370
40				SS	1.6	15 19 25 26	44		0 (SP); mostly fine-medium gra ense, moist, yellowish-brown t		PB-14(38-40)	-
	IOTES:	: N	IA = Not	Appli	cable							

		CO		nts	>		Clien Proje Addre	•	Landfill Site Investigation	Boring No.	ING LOG PB-14 3 of 3	
Drillir Drillir Drillir Drillir Drille	- · ·	Date: bany: bd:	01/23 Thor Mud t: D-50 Rich	3/2019 npso Rota	9 n Eng ry Slacks	stock	_		Boring Depth (ft): Boring Diameter (in): Sampling Method(s): Static Water Level (ft): DTW After Drilling (ft): Ground Surface Elev. (ft): Location (X,Y):	46 3.50 SS/SH NA NA 407.1 1162544.74, 25579	951.78	
DEPTH (ft)	ЛІТНОГОЄУ	WATER LEVEL	BORING COMPLETION	Sample Type	Recovery (ft) O	Blow Counts	N Value RQD (%)	SOIL/	ROCK VISUAL DESCRIPT	ION	MEASURE Sample Lap S	ELEVATION (ft)
40				SS SS SS	1.7 2 0.4	13 17 18 23 21 22 16 25 50/4.5	35 38	(42') Well-graded SAND (trace clay, dense, moist, l (44') Well-graded SAND ((SW); mostly fine-coarse grain whitish-brown, abundant mica (SW); mostly fine-coarse grain prownish-white to dark gray, tr (SW); mostly fine-coarse grain pist, white to dark gray, abund eerminated.	ned sand, trace silt, ace gravel. ned sand, trace silt,	PB-14(40-42) - PB-14(42-44) - PB-14(44-46) -	- 365 - 365 360
50												

	S	DU.				LOG OF	TEST BO	ORIN	IG		BORING PZ-11 S PAGE 1 OF 1 ES
			ERN	N COMPANY SE	RVICES, INC. VIRONMENTAL E						eologic Study
	CONT	RAC	TOF	R SCS Field Sei	rvices		ME 550 METH	HOD H	lollow	Stem A	ATES: Auger _ ANGLE BEARING
	BORI	NG D	EP1	H _26 ft.		DEPTH: DURING	i C				DELAYED 9.2 ft. after 250 hrs.
	DEPTH (ft)	GRAPHIC I OG	0		MATERIAL D	ESCRIPTION		Neak Moderate HCL	Strong REACTION	GROUNDWATER OBSERVATIONS	WELL DATA Completion: protective aluminum cover with bollards; 4-foot square concrete pad
PJ				sand micas	np, stiff, silty CLAY,				2 0)	00	
DESKTOP\BRANCH\PLANT BRANCH PIEZOMETERS.GPJ	5			- ML: saprolite sand, micas	damp, stiff, clayey S						Annular Seal: bentonite pellets
BRANCH/PLANT BRA	10 15			black mottles, s	very damp, medium sand, micas wet, soft, SILT, pale			th			Filter:
	20			micas	wet, medium stiff, S	ILT, pale yellow, li					Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack
SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 4/29/14 10:50 - \\ALTRCFP01\X2WSHAUG\$\	25			- ML: saprolite	wet, medium stiff, S mottles, sand, mica	ILT, pale yellow, li as	ght gray-brown,				Sump:0.3999999999999999 ft.
3ASE.GDT - 4/29/14	30				Bottom of bore	hole at 26.0 feet.					
<u> VELL - ESEE DATAE</u>	35										
GEOLOGY WITH	40	-									
SIMPLE											

SOI EAI DATE CONT DRILI BORI	SOUTHERN COMPANY SERVICES, INC. PROJECT Plant Branch Hydrogeologic Study SOUTHERN COMPANY SERVICES, INC. PROJECT Plant Branch Hydrogeologic Study LOCATION Milledgeville, GA									
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak Moderate REACTION	GROUNDWATER OBSERVATIONS	WELL DATA					
		Lean Clay (CL) - dry, silty CLAY, red with pale yellow mottles	<u> </u>							
5 10 15 20 25 30 35 35 40		- CL: damp, silty CLAY, red with red-yellow mottles, sand, trace micas								
10		- CL: damp, silty CLAY, red with red-yellow mottles, sand, trace micas								
15		 ML: dry, clayey SILT, red-yellow and red with white and pink mottles some quartz gravel, micas ML: dry, clayey SILT, pale red and red with yellow-red mottles, then gray-brown and olive-yellow with white mottles, occasional quartz san micas 								
20		- ML: dry, clayey SILT, yellow-brown and pale red with white and black mottles, white felsic seam with quartz sand 23-24 ft., micas								
25		- ML: dry, sandy SILT, dry, gray-brown, red and yellow-red with black mottles, micas, white felsic sand seam 28-29 ft.								
30		- ML: dry, sandy SILT, pale gray-brown with white mottles, yellow-red with black mottles, micas								
35		- ML: dry, sandy SILT, pale gray-brown with white mottles, yellow-red with black mottles, micas								
40		- ML: dry, clayey SILT, dry to damp, dark gray to black, red and pale gray-brown with white mottles, sand, micas								

(Continued Next Page)

S	DUT		SING	ì		BORING PZ-12 D PAGE 2 OF 3 ES
SO	UTHE	COMPANY PROJECT _ Plan RN COMPANY SERVICES, INC. PROJECT _ Plan			eolog	jic Study
EAI	RTH S	CIENCE AND ENVIRONMENTAL ENGINEERING LOCATION	edgevill	e, GA		
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	Weak HCL ^{Moderate} REACTION	GROUNDWATER OBSERVATIONS	(CONT	
	Ш	(Con't)		~~~	M	
45		- ML: very damp, sandy SILT, gray-brown and gray with white mottles, sand seams, very wet 44-45 ft.				
50		Silty Sand (ML)				
55		- wet, silty SAND, gray-brown with white mottles, mica				
60		∑sampler refusal			X	
			_			
65		 Felsic biotite GNEISS: fine to medium grain, soft to medium hard, slightly weathered, flow banded, few fractures, gray and white banding, partially weathered auger refusal fine to coarse grain, hard, not weathered, flow banded, few fractures, 				←Annular Seal:
		dark gray and white banding, fresh				
<u>70</u>		 medium to coarse grain, hard, flow banded, few fractures, dark gray and white banding, fresh 				
75		- medium to coarse grain, hard, flow banded, few fractures, dark gray and white banding, fresh				- Filter:
80		- medium to coarse grain, hard, flow banded, few fractures, dark gray to black with white banding, fresh				
	$ /\rangle$				F	
85		- medium to coarse grain, hard, flow banded, few fractures, dark gray to black with white banding, fresh				Standpipe:
					F	4" OD PVC (SCH 40) Screen:
90		- medium to coarse grain, hard, flow banded, few fractures, dark gray to black with white banding, fresh				60 ft;
۲						

		IN COMPANY SERVICES, INC.	PROJECT Plant			eologic Sti	Jdy
иет п (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		Weak Moderate Strong	GROUNDWATER OBSERVATIONS	(CONTINUED)	WELL DATA
		(Con't) - medium to coarse grain, hard, flow banded, few fractur black with white banding, fresh	res, dark gray to				
00		- medium to coarse grain, hard to medium hard, flow ba fractures, dark gray to black with white banding, fresh	nded, few				
05		- medium to coarse grain, hard, flow banded, few fractur black with white banding, fresh	res, dark gray to				
10		- medium to coarse grain, hard, flow banded, few fractur black with white banding, fresh	res, dark gray to				
15		- medium to coarse grain, hard to medium hard, flow ba fractures, dark gray to black with white banding, micro-fo					Standpipe: 4" OD PVC (SCH 40)
20		- medium to coarse grain, hard to medium hard, flow ba fractures, dark gray to black with white banding, fresh	nded, few				Screen: 60 ft;
25		- medium to coarse grain, hard to medium hard, flow ba fractures, dark gray to black with white banding, feldspa fresh					
30		- medium to coarse grain, hard to medium hard, flow ba fracture, dark gray to black with white banding, fresh	nded, one				
35		- medium to coarse grain, hard to medium hard, flow ba fractures, dark gray to black with white banding, fresh	nded, several				
40		- medium to coarse grain, hard to medium hard, flow ba fractures, dark gray to black with white banding, fresh	nded, several				

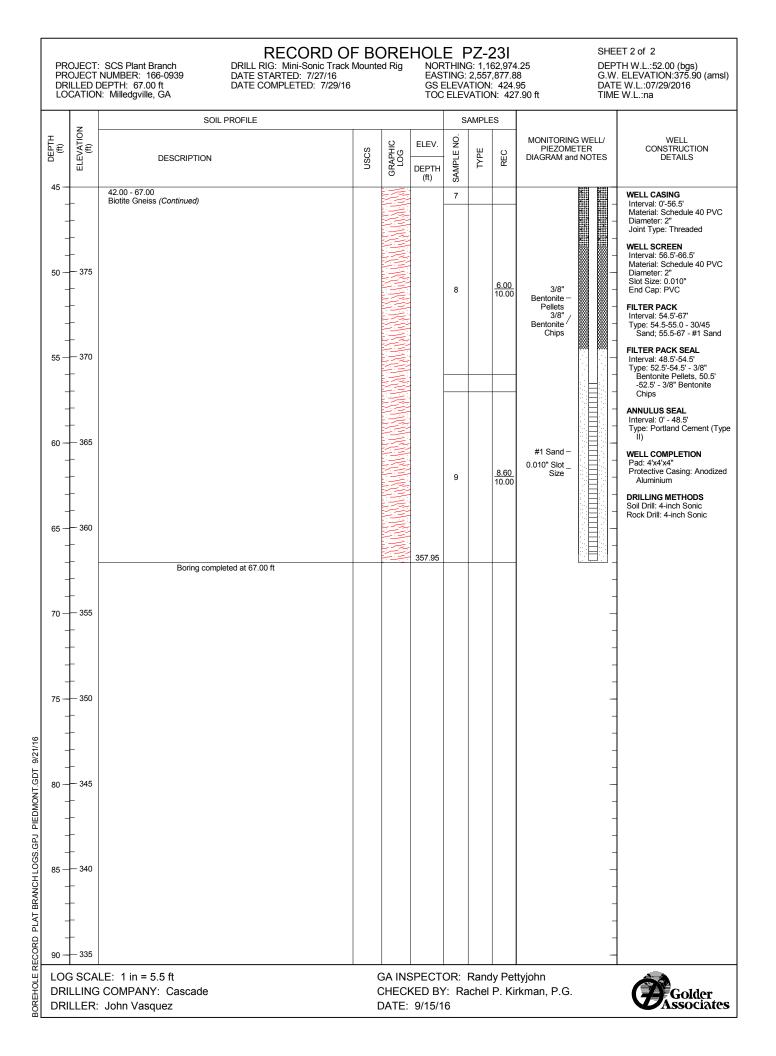
S	DUI			RIN	G		BORING PZ-18 PAGE 1 OF E
		ERN	COMPANY PROJECT _Plate COMPANY SERVICES, INC. PROJECT _Plate ENCE AND ENVIRONMENTAL ENGINEERING LOCATION _M				geologic Study
CON ⁻ DRILI BORI	rract Led B Ng Di	For Y _: EPT	D 2/24/2014 COMPLETED 2/26/2014 SURF. ELEV. Not Suite a SCS Field Services EQUIPMENT CME 550 METHOR S. Denty LOGGED BY W. Shaughnessy CHECKED BY	DD Ho	ollow	Stem A	Auger; Casing Advance; HQ Rock Core ANGLE BEARING
DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION	Weak Moderate	Strong REACTION	GROUNDWATER OBSERVATIONS	WELL DATA Completion: protective steel cover; 4-foot square concrete pad
5			Lean Clay (CL) - residuum dry, medium stiff, CLAY, red, micas, silt - ML: residuum dry, stiff, Clayey SILT, reds, mica				
10			- ML: residuum dry, stiff, Clayey SILT, yellow-red, micas				
15 20		Ā	 ML: saprolite very damp, stiff, Clayey SILT, yellow-red, light gray, pale yellow, micas ML: saprolite wet, stiff, Clayey SILT, brown, white, micas, sand 	•			
25			- ML: saprolite wet, hard, Clayey SILT, yellow-brown, dark gray, gray, micas, sand Felsic biotite GNEISS - medium to coarse grain, medium hard to hard, moderately to not				Annular Seal: bentonite pellets
30			weathered, flow banded, numerous fractures, dark gray, pale yellow, white banding, feldspar, quartz, biotite, pyrite - medium to coarse grain, medium hard to hard, slightly to not weathered, flow banded, few fractures, dark gray, white banding, feldspar, quartz, biotite, pyrite				Standpipe: 2" OD PVC (SCH 40) Screen:
35			- medium to coarse grain, medium hard to hard, slightly to not weathered, flow banded, few fractures, dark gray, white banding, feldspar, quartz, biotite, pyrite Bottom of borehole at 38.8 feet.				10 ft; pre-pack
40							

so			LOG OF TE	ST BORING	6	BORING PZ-18 S PAGE 1 OF 1 ES
SOU EAF	JTHE	RN COMPANY SE	RVICES, INC. PR VIRONMENTAL ENGINEERING LO			eologic Study
						NATES:
			vices EQUIPMENT CME 55 LOGGED BY W. Shaughnessy CHE 0			Auger ANGLE BEARING
			_ GROUND WATER DEPTH: DURING			DELAYED 14.8 ft. after 260 hrs.
	.u					
DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION	Weak Moderate Rirrord	GROUNDWATER OBSERVATIONS	WELL DATA Completion: protective steel cover; 4-foot square concrete pad
5 10 15 20		- See PZ-18 I fo	or material descriptions			Annular Seal: bentonite pellets Filter: silica filter sand Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack Sump:-0.5 ft.
25			Bottom of borehole at 25.1 feet.			Cave-in to 24.2 ft.
30 35 40						

RECORD OF BOREHOLE PZ-231 SHEET 1 of 2 NORTHING: 1,162,974.25 EASTING: 2,557,877.88 PROJECT: SCS Plant Branch PROJECT NUMBER: 166-0939 DRILLED DEPTH: 67.00 ft DEPTH W.L.:52.00 (bgs) G.W. ELEVATION:375.90 (amsl) DATE W.L.:07/29/2016 DRILL RIG: Mini-Sonic Track Mounted Rig DATE STARTED: 7/27/16 GS ELEVATION: 424.95 DATE COMPLETED: 7/29/16 LOCATION: Milledgville, GA TOC ELEVATION: 427.90 ft TIME W.L.:na SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION g GRAPHIC LOG ELEV. USCS TYPE SAMPLE REC DESCRIPTION DETAILS DEPTH (ft) 0 0.00 - 6.00 WELL CASING sandy SILT, fine sand, reddish borwn , cohesive, w < PL Interval: 0'-56.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded 6.00 ML 1 6.00 WELL SCREEN Interval: 56.5'-66.5' Material: Schedule 40 PVC 420 Diameter: 2" Slot Size: 0.010" End Cap: PVC 5 418.95 6 00 - 16 00 6.00 silty SAND, fine to medium sand, light reddish brown, non-cohesive, FILTER PACK moist, micaseous Interval: 54.5'-67' Type: 54.5-55.0 - 30/45 Sand; 55.5-67 - #1 Sand FILTER PACK SEAL Interval: 48.5'-54.5' Type: 52.5'-54.5' - 3/8" Bentonite Pellets, 50.5' -52.5' - 3/8" Bentonite - 415 10 <u>8.00</u> 10.00 2 Chips ANNULUS SEAL Interval: 0' - 48.5' Type: Portland Cement (Type II) 15 - 410 WELL COMPLETION 408.95 Pad: 4'x4'x4" Protective Casing: Anodized 16.00 - 24.00 16.00 light grayish brown Aluminium DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic 405 20 SM <u>5.40</u> 10.00 3 400.95 24.00 - 36.00 silty SAND, fine to coarse, trace gravel, light grayish brown, moist, relict rock structure apparent, SAPROLITE 24.00 Portland 25 400 Cement -(Type II) - 395 30 -7.50 4 10.00 9/21/16 - 390 35 388.95 36.00 387.95 0.00 36.00 - 37.00 5 No Recovery 37.00 37.00 - 40.00 Biotite Gneiss, highly compotent, little weathering <u>2.50</u> 3.00 GNEISS 6 384.95 - 385 40 40.00 - 42.00 40.00 Difficult drilling 382.95 42.00 - 67.00 42.00 0.00 7 **Biotite Gneiss** 6.00 - 380 45 Log continued on next page LOG SCALE: 1 in = 5.5 ft GA INSPECTOR: Randy Pettyjohn DRILLING COMPANY: Cascade CHECKED BY: Rachel P. Kirkman, P.G. Golder DATE: 9/15/16 Associates DRILLER: John Vasquez

GDT. PIEDMONT GPJ BRANCH LOGS. PLAT E RECORD BOREHOLE





PROJECT: SCS Plant Branch PROJECT NUMBER: 166-0939 DRILLED DEPTH: 39.50 ft LOCATION: Milledgville, GA

RECORD OF BOREHOLE PZ-31S DRILL RIG: Prosonic Truck Mounted Rig DATE STARTED: 7/15/16 DATE COMPLETED: 7/26/16 NORTHING: 1,160,937.05 EASTING: 2,557,972.68 GS ELEVATION: 376.94 ft

SHEET 1 of 1 DEPTH W.L.:19.6 (bgs) G.W. ELEVATION:357.34 (amsl) DATE W.L.:7/26/16 TIME W.L.:10:07

т I	~ '									
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0-	ш -	0.00 - 5.50 sandy SILT, NP, medium grained, trace fine gravel; reddish brown,		5	DEPTH (ft)	SAM	' 			WELL CASING – Interval: 0'-29.5'
-	-	massive, micaceous, SAPROLITE; NC, dry loose	MLS					7.00		Material: Schedule 40 PV0 – Diameter: 2" Joint Type: Threaded –
5-	— 370 —				368.71	1		7.00		WELL SCREEN Interval: 29.5'-39.5' Material: Schedule 40 PV(Diameter: 2" Olive Diameter: 2.040"
-	-	5.50 - 5.80 SAND, poorly graded, fine grained; light yellowish brown; NC, dry, loose 5.80 - 7.00	MLS		5.80 367.21 7.00					 Slot Size: 0.010" End Cap: Schedule 40 PV FILTER PACK Interval: 26.5'-39.5'
-	- 365	sandy SILT, NP, medium grained, trace fine gravel; reddish brown, massive, micaceous, SAPROLITE; NC, dry, loose 7.00 - 9.50 fine sand, trace coarse subangular sand; brown, homogenous,			364.71					Type: 26.5.'-27.5', 30/45 sand; 27.5'-39.5', #1 sar
10 -	-	micaceous, SAPROLITE; NC, dry, compact 9.50 - 17.00 SAND, well graded, medium grained, trace subrounded coarse sand, trace silt, grev brown with white mottle, massive, micaceous,			9.50			10.00		 Interval: 21.5'-26.5' Type: 21.5'-24.5', 3/8" Bentonite Chips; 24.5'-26.5', Bentonite
-	- - 360	SAPROLITE; NČ, dry (moist at 16 ft), compact	sw			2		10.00		 Pellets ANNULUS SEAL Interval: 2.0'-21.5' Type: Portland Cement (T)
15 -	_								Portland _	II) WELL COMPLETION Pad: 4'x4'x4"
-	-	17.00 - 19.50 clayey SAND, medium grained, poorly graded, highly plastic clay, trace subangular coarse sand; yellowish brown sand, grey clay, moderately weathered, heterogenous, micaceous; NC, moist,	sc		357.21 17.00					 Protective Casing: Anodiz Aluminum DRILLING METHODS Soil Drill: 4-inch Sonic
20 -	- 355 - -	slightly loose 19.50 - 23.00 poorly graded, medium grained sand, low plastic clay; grey with brown mottling, homogenous, micaceous, SAPROLITE; cohesive,			354.71 19.50	-			Portland Type II Bentonite – Chips 3/8" Bentonite – Pellets	Rock Drill: 4-inch Sonic
-	-	wet, firm 23.00 - 25.00			351.21 23.00	3		<u>10.00</u> 10.00	3/8" Bentonite – Chips 3/8" Bentonite – Pellets	-
25 —	— 350 -	highly plastic clay, trace subangular coarse sand; yellowish brown sand, grey clay, moderately weathered, heterogenous, micaceous, SAPROLITE; NC, moist, slightly loose 25.00 - 27.00			<u>349.21</u> 25.00				3/8" Bentonite –	-
	-	well graded, medium-coarse grained sand, few clay, trace subangular fine gravel, trace cobbles; dark grey clay, light brown sand with white mottling, heterogenous, micaceous, SAPROLITE; NC, moist, loose 27.00 - 29.50			<u>347.21</u> 27.00				Pellets 30/45 Sand –	-
30 -	- 345 -	CLAYEY SAND, poorly graded, medium grained sand, low plastic clay; grey with brown mottling, homogenous, micaceous, SAPROLITE; cohesive, wet, firm 29.50 - 31.50		0	344.71 29.50					_
-	-	gravelly SAND, medium-coarse sand, well graded, some angular cobbles; grey-white mottling, highly weathered bedrock, micaceous; NC, wet, very loose 31.50 - 33.00	SPG TWR		342.71	4		<u>10.00</u> 10.00	#1 Sand –	-
-	- 340	TRANSITIONALLY WEATHERED ROCK, biotite GNEISS, highly weathered, yellow, white brown, medium-coarsely crystalling, soft rock, feldspar, quartz, biotite, pulverized rock, moist, highly fractured 33.00 - 37.00			33.00				0.010" Screen Slot	-
35 -	-	No Recovery			337.21					-
	- - 335	37.00 - 37.80 sluff in hole 37.80 - 38.00 TRANSITIONALLY WEATHERED ROCK, biotite GNEISS, highly verafits and wellow while between produce prototice of the static works and wellow while between produces a search prototic prototic			336.41	5		<u>1.00</u> 2.50	#1 Sand -	-
40 —	-	weathered, yellow, white brown, medium-coarsely crystalling, soft rock, feldspar, quartz, biotite, pulverized rock, wet, highly fractured 38.00 - 39.50 No Recovery Boring completed at 39.50 ft								-
	- - 330									1
45 —	550									-

PR(DRI	DJECT	SCS Plant Branch NUMBER: 166-0939 DEPTH: 56.50 ft Milledgville, GA	RECORD DRILL RIG: TS-150 Track DATE STARTED: 7/30/16 DATE COMPLETED: 7/30	K Mounted F	39 : N:	SHEET 1 of 2 DEPTH W. L.:46.02 (bgs) G.W. ELEVATION:na (an DATE W. L.:08/02/2016 TIME W. L.:14:15						
	_	SC	DIL PROFILE				S	AMPLE	ES			
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION		nscs	RAPHIC LOG	ELEV.	SAMPLE NO.	түре	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
0-	ELE	DESCRIPTION		n	GRA	DEPTH (ft)	SAMPI	È	R			
0 — - - 5 — - - - - - - - - - - - - - - - - - - -		0.00 - 10.00 SILT, NP; reddish brown, mod micaceous, SAPROLITE; coh		ML			1		<u>10.00</u> 10.00		WELL CASING Interval: 0'-34.7' Material: Schedule 40 Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 34.7'-44.7' Material: Schedule 40 Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 FILTER PACK Interval: 31.4'-44.7' Type: 31.4'-32.5', 30/4 sand; 32.5'-44.7', #1 FILTER PACK SEAL	
10 -		10.00 - 15.00 No Recovery				10.00					Interval: 26.2'-31.4' Type: 26.2'-29.4', 3/8" Bentonite Chips; 29.4'-31.4', Bentonit Pollote	

9/21/16 PLAT BRANCH LOGS2.GPJ PIEDMONT.GDT RECORD BOREHOLE

15

15.00 - 19.50

SILT, NP, trace fine sand; reddish brown, moderately weathered, massive, micaceous, SAPROLITE; cohesive, dry, firm

19.50 - 20.00 19.50 20.00 20 trace fine-coarse sand; white mottling, relict rock structure, micaceous, SAPROLITE; cohesive, dry, soft 20.00 - 22.00 No Recovery 22.00 22.00 - 30.00 SILT, NP, trace fine-coarse sand; reddish brown with white mottling, moderately weathered, relict rock structure, micaceous, SAPROLITE; cohesive, moist, soft <u>8.00</u> 10.00 25 3 ML 3/8" Bentonite Chips 3/8" Bentonite Pellets 30 30.00 - 33.00 30.00 No Recovery 30/45 Sand -33 00 - 34 00 33.00 ML SILT, NP, trace fine-coarse sand; reddish brown with white mottling, 34.00 moderately weathered, relict rock structure, micaceous, SAPROLITE; cohesive, moist, soft <u>7.00</u> 10.00 35 4 34.00 - 40.00 light grey brown #1 Sand -0.010" 40 Screen Slot 40.00 40.00 - 45.20 sandy SILT, NP, fine-medium grain sand, trace coarse sand; reddish light grey brown mottled, moderately weathered, relict foliation structure, micaceous, SAPROLITE; cohesive, wet, very <u>6.50</u> 6.50 soft MLS 5 45 Log continued on next page LOG SCALE: 1 in = 5.5 ft GA INSPECTOR: Will Ethier DRILLING COMPANY: Cascade Drilling CHECKED BY: Rachel P. Kirkman, P.G. DRILLER: Trenton Herod DATE: 9/15/16



Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC

Pellets

Portland

Cement

(Type II)

<u>5.00</u> 10.00

2

15.00

ML

ANNULUS SEAL Interval: 2'-26.2'

WELL COMPLETION

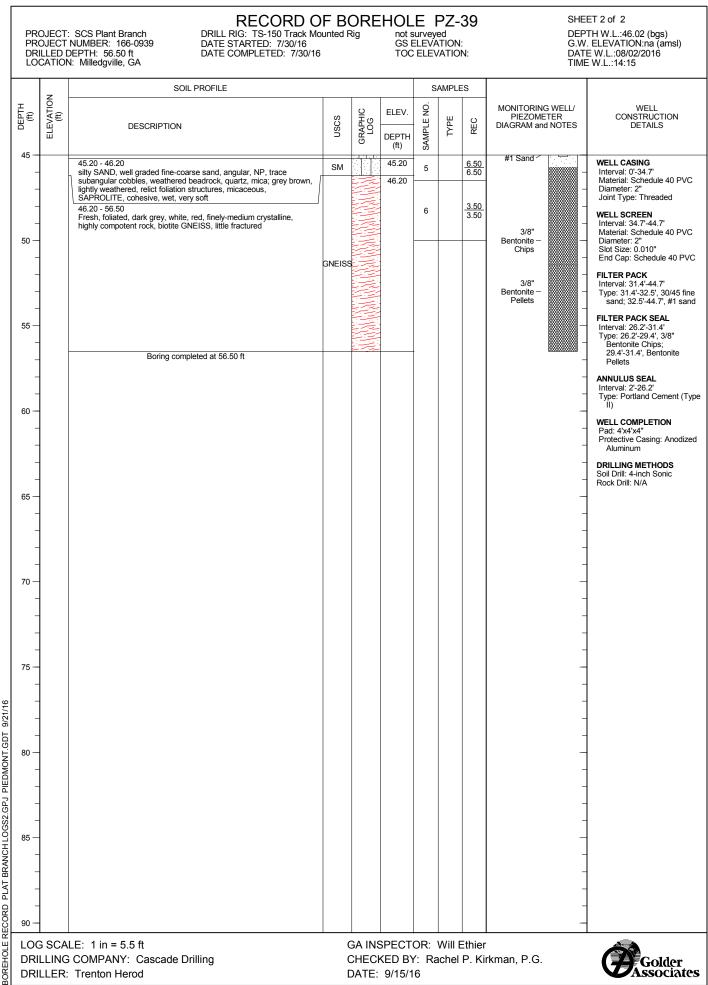
Pad: 4'x4'x4"

Aluminum DRILLING METHODS Soil Drill: 4-inch Sonic Rock Drill: N/A

Interval: 31.4'-44.7' Type: 31.4'-32.5', 30/45 fine sand; 32.5'-44.7', #1 sand

Type: Portland Cement (Type II)

Protective Casing: Anodized



PLAT BRANCH LOGS2.GPJ PIEDMONT.GDT RECORD BOREHOLE

RECORD OF BOREHOLE PZ-46 SHEET 1 of 2 NORTHING: 1,162,755.59 EASTING: 2,560,558.42 PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 47.00 ft DRILL RIG: Pro Sonic 150 DATE STARTED: 2/5/18 DEPTH W.L.:8.85 DATE W.L.:2/14/18 DATE COMPLETED: 2/5/18 GS ELEVATION: 382.11 TIME W.L.: LOCATION: Former Coal Pile TOC ELEVATION: 384.70 ft SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION g ELEV. GRAPHIC LOG USCS TYPE SAMPLE REC DESCRIPTION DETAILS DEPTH (ft) 0 0.00 - 8.00 WELL CASING Grout mix Soil was removed by Hydrovac from 0-8 ft bgs ************************ Interval: 0-35.6 Material: Schedule 40 PVC and stainless steel casing Diameter: 2" Joint Type: Flush/Thread 380 SURFACE CASING Interval: Material Diameter 5 WELL SCREEN Interval: 35.6-45.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" 375 374.11 End Cap: 45.6-47 8.00 - 37.00 8.00 RESIDUUM, silty Sand, sands fine to coarse, dark brown, FILTER PACK micaceous, non-cohesive, moist, loose. Interval: 34-46 Type: FilterSil 10 FILTER PACK SEAL Interval: 29-34 Type: 3/8" PEL-PLUG Bentonite Pellets 00000000 370 ANNULUS SEAL Interval: 0-29 Type: Portland Cement and Quick Gel Bentonite Mix 15 WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5' 365 DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core Portland Cement and 20 Quick Gel entonite Mix 360 SM 25 355 30 3/8' PEL-PLUG Bentonite 5/30/18 Pellets 350 PIEDMONT.GDT FilterSil -35 GP 345.11 345 37 00 - 39 00 37.00 1666254-01 TRANSITIONALLY WEATHERED ROCK (BIOTITE GNEISS), core TWR presented as rock flour, and gravel/cobbles, black and white with light green coating around rock, highly mafic, thinly laminated, fine 0.010' Slotted Schedule 40 343.11 grained, soft. 39.00 39.00 - 47.00 PVC BR RECORD 40 BIOTITE GNEISS, slightly weathered to fresh, thickly banded, white and black, phaneritic, very strong. Log continued on next page LOG SCALE: 1 in = 5 ft GA INSPECTOR: Ben Hodges BOREHOLE DRILLING COMPANY: Cascade CHECKED BY: TIR Golder DATE: 2/15/18 Associates DRILLER: Matt Pope

PR	OJECT	Plant Branch NUMBER: 1666254-01 DEPTH: 47.00 ft I: Former Coal Pile Plant Branch DATE STARTED: 2/5/18 DATE COMPLETED: 2/5/18	F B(ORE	NOR EAS GS E	THING: TING: ELEVA	G: 1,16 2,560 TION:	62,755 ,558.4 382.	5.59 DEP 2 DAT	ET 2 of 2 TH W.L.:8.85 E W.L.:2/14/18 E W.L.:
	_	SOIL PROFILE				S	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	түре	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
- - - 45 -		39.00 - 47.00 BIOTITE GNEISS, slightly weathered to fresh, thickly banded, white and black, phaneritic, very strong. <i>(Continued)</i>	BR		335.11					WELL CASING Interval: 0-35.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 35.6-45.6
- - 50	- 335 - -	Boring completed at 47.00 ft			000.11					Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 45.6-47 FILTER PACK
-	- 								-	Interval: 34-46 Type: FilterSil FILTER PACK SEAL Interval: 29-34 Type: 3/8" PEL-PLUG Bentonite Pellets
- 55 -									-	ANNULUS SEAL Interval: 0-29 Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4'
-	- 325 - -								-	Protective Casing: 4"x4"x5' DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
60	- 									
65 -	- -								-	
	315 								-	
70 -	- - - 310									
BOREHOLE RECORD 1666254-01.GPJ PIEDMONT.GDT 5/30/18 D D - 08 B D - 24									-	
54-01.GPJ PIEL									-	
- 08 16662	-								-	
DR BOREHOLE	ILLING	LE: 1 in = 5 ft COMPANY: Cascade Matt Pope	C	CHEC	SPECT (ED B) 2/15/1	: TII		Hodg	es	Golder

SHEET 1 of 2 RECORD OF BOREHOLE PZ-48 NORTHING: 1,163,047.72 EASTING: 2,558,444.99 PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 67.00 ft DRILL RIG: Pro Sonic 150 DATE STARTED: 1/24/18 DEPTH W.L.:30.55 DATE W.L.:2/14/18 DATE COMPLETED: 1/25/18 GS ELEVATION: 418.30 TIME W.L.: LOCATION: South of Skills Center TOC ELEVATION: 421.05 ft SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION g ELEV. GRAPHIC LOG USCS TYPE SAMPLE REC DESCRIPTION DETAILS DEPTH (ft) 0 0.00 - 8.00 WELL CASING Grout mix Soil removed by Hydrovac from 0-8 ft bgs. ************************ Interval: 0-56.6 Material: Schedule 40 PVC with stainless steel casing Diameter: 2" Joint Type: Flush/Thread SURFACE CASING 415 Interval: Material 000000000 Diameter 5 WELL SCREEN Interval: 56.6-66.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" 410.3 End Cap: 66.6-67 8.00 - 17.00 410 8.00 FILL, silty SAND, reddish brown, micaceous, moist, non-cohesive. FILTER PACK Interval: 55-67 Type: FilterSil 10 FILTER PACK SEAL Interval: 50-55 Type: 3/8" PEL-PLUG Bentonite Pellets 00000000 SM ROTO 10.00 SONIC 10.00 R1 ANNULUS SEAL 405 Interval: 0-50 Type: Portland Cement and Quick Gel Bentonite Mix 15 WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5' 401.3 17.00 - 64.50 DRILLING METHODS RESIDUUM, SAND with some silt, grayish brown with white Soil Drill: Rotosonic mottling, occasional relic structure, micaceous, dry, non-cohesive. Rock Drill: Core 400 20 R2 ROTO 10.00 SONIC 10.00 395 Portland Cement and Quick Gel 25 Bentonite Mix 390 SM 30 5/30/18 ROTO 10.00 SONIC 10.00 R3 PIEDMONT.GDT 385 35 1666254-01.GPJ - 380 ROTO 10.00 SONIC 10.00 R4 RECORD 40 Log continued on next page GA INSPECTOR: David Hannam LOG SCALE: 1 in = 5 ft BOREHOLE DRILLING COMPANY: Cascade CHECKED BY: TIR Golder DATE: 2/15/18 Associates DRILLER: Matt Pope

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 67.00 ft LOCATION: South of Skills Center

RECORD OF BOREHOLE PZ-48 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/24/18 DATE COMPLETED: 1/25/18 NORTHING: 1,163,047.72 EASTING: 2,558,444.99 GS ELEVATION: 418.30 TOC ELEVATION: 421.05 ft

SHEET 2 of 2 DEPTH W.L.:30.55 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE				s	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	түре	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
- - 45 -		17.00 - 64.50 RESIDUUM, SAND with some silt, grayish brown with white mottling, occasional relic structure, micaceous, dry, non-cohesive. (<i>Continued</i>)				R4	ROTO SONIC	<u>10.00</u> 10.00	3/8" PEL-PLUG	WELL CASING Interval: 0-56.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 56.6-66.6 Material: 0.010" Slotted Schedule 40 PVC
- 50 — - - 55 —	- 370 		SM			R5	ROTO SONIC	<u>10.00</u> 10.00	FilterSil –	Diameter: 2" Slot Size: 0.010" End Cap: 66.6-67 FILTER PACK Interval: 55-67 Type: FilterSil FILTER PACK SEAL Interval: 50-55 Type: 3/8" PEL-PLUG Bentonite Peilets ANNULUS SEAL Interval: 0-50 Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Deck Math
	- 360 355 	64.50 - 65.50 TRANSITIONALLY WEATHERED ROCK, sampled as sand and gravel with trace silt, grayish brown, subangular, non-cohesive.	TWR		353.8 64.50 352.8 65.50	R6	ROTO	<u>10.00</u> 10.00	0.010" Slotted Schedule 40 PVC	Pad: 4'x4' Protective Casing: 4"x4"x5' DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
- 70 - - 75	- 350 	BIOTITE GNEISS, fresh, with biotite/muscovite/feldspar/quartz, white/black, weak foliation near horizontal, phaneritic, strong. Boring completed at 67.00 ft			351.3				- لنت⊟ینا - - - - - - - -	
- - 80 -	- - 340 - - - -				SPECT	OR [.]	Davic	l Han	- - - - - - -	

APPENDIX E

Drillers Bond

Georgia Driller's Bond or Letter of Credit Registration Form

Current Date to June 30, 2019

For drillers acting under the direction of a professional geologist or a professional engineer and drilling wells, boreholes, or coreholes, other than water wells or geothermal boreholes as per O.C.G.A. § 12-5-125.

Name of Driller:	
Name of Company:	
Mailing Address:	
-	
Phone:	

Please provide the following:

() The original of an updated performance bond for a minimum of <u>\$15,000</u> with an expiration date of <u>June 30, 2019</u>. A **Notice of Continuation** of an existing bond received from your bonding company is acceptable IF the amount is \$15,000. If you are sending a new bond, please do not forget to sign your bond!

or

() An original irrevocable letter of credit for a minimum amount of \$15,000 with an expiration date of June 30, 2019. A **Notice of Continuation** of an irrevocable letter of credit received from your bank is acceptable IF the amount is \$15,000.

The Performance Bond or Irrevocable Letter of Credit must be worded as follows: "[Name of Contractor] and [Name of Company] and any and all employees, officers and partners."

Note: Complete and return this form. Prior to mailing, please check carefully to ensure that all information is enclosed in your envelope.

Mail to: GA EPD 531 Main St., Suite D Tifton, GA 31794 Attn: John Sides

Bond Number 1001126889

Performance Bond For Drillers

Name of Driller Phillip Pitts and Stan White

Know All Men By These Presents

That we Phillip Pitts and Stan White

Thompson Engineering, Inc. any and all employees, officers and partners (collectively hereinafter, Principal), and we American Contractors Indemnity Company ______, duly organized under the laws of the State of California ______ (hereinafter, Surety), are held and firmly bound unto the Director of the Environmental Protection Division, Department of Natural Resources, State of Georgia (Director) and his or her Successor or Successors in office, as Obligee, in the full sum of FIFTEEN THOUSAND DOLLARS (\$15,000.00) for the payment of which will and truly to be made, the Principal and Surety bind ourselves, our heirs, administrators, successors and assigns, jointly and severally, by these presents.

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

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

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

This bond shall be effective from the 1st day of November , 2018 and shall continue in effect until June 30, 2019, unless sooner terminated by mutual agreement of Principal and Surety, provided that no such termination may be made unless sixty (60) days' prior written notice is made to the Director. In the event of such termination, the rights of the Director as Obligee and beneficiaries under this bond which arose prior to such termination shall continue.

IN WITNESS THEREOF the Principal and Surety have caused these present to be duly signed and sealed, this the 26th day of February ______, 2019.

Principal Thompson Engineering, Inc. Print name: Title:

Surety American Contractors Indemnity, Company

and

Print name: Dewey Brashier Title: Attorney-in-Fact

Seal:

Revised March 2017





POWER OF ATTORNEY

AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING COMPANY UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY

KNOW ALL MEN BY THESE PRESENTS: That American Contractors Indemnity Company, a California corporation, Texas Bonding Company, an assumed name of American Contractors Indemnity Company, United States Surety Company, a M aryland corporation and U.S. Specialty Insurance Company, a Texas corporation (collectively, the "Companies"), do by these presents make, constitute and appoint:

Jim E. Brashier, Troy P. Wagener, Loren Richard Howell, Jr., Dewey Brashier, Kathleen B. Scarborough, Susan Skrmetta, John W. Nance

under and by authority of the following resolutions adopted by the Boards of Directors of the Companies: Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby

Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary of any Assistant Secretary shall be and is needy vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings, including any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts, and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, The Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 1st day of June, 2018.

AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING OMPANY UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY

State of California

County of Los Angeles



A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document

On this 1st day of June, 2018, before me, Sonia O. Carrejo, a notary public, personally appeared Daniel P. Aguilar, Vice President of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

(seal)

WITNESS my hand and official seal.

Signature



I, Kio Lo, Assistant Secretary of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Companies, which is still in full force and effect; furthermore, the resolutions of the Boards of Directors, set out in the Power of Attorney are in full force and effect.

In Witness Whereof, I have hereunto set my hand and affixed the seals of said Companies at Los Angeles, California this <u>26th</u> day of <u>February</u>, <u>2019</u>.



visit tmhcc.com/surety for more information

HCCSMANPOA06/2018

APPENDIX F

Slug Test Results

Summary of AQTESOLV Input Parameters and Estimated Hydraulic Conductivity Plant Branch, Putnam County, Georgia

				Well Informa	ıtion				AQTESOLV Input Parameters											Hydraulic Conductivity							
Well ID	Screen Zone Material	Test number	Stickup length [ft]	Static DTW [ft BTOC]	DTW after Pressure Release [ft BTOC]	Top Screen Depth [ft BTOC]	Bottom Screen Depth [ft BTOC]	Total Depth of Aquifer [ft BTOC]	Ho [ft]	H [ft]	b [ft]	Kv/Kh	d [ft]	L [ft]	T [ft]	r(c) [ft]	r(eq) [ft]	r(w) [ft]	r(sk) [ft]	Bouwer- Rice [ft/day]	Hvorslev [ft/day]	KGS [ft/day]	Geometric Mean [ft/day]	Bouwer- Rice K [cm/sec]	Hvorslev [cm/sec]	KGS [cm/sec]	Geometric Mean [cm/sec]
		1	2.8	27.4	38.4	31.8	41.8	69.8	11.03	14.44	42.44	0.1	4.44	10.0	0.00	0.08	0.01	0.08	0.25	2.207	2.954	2.085	2.387	7.79E-04	1.04E-03	7.36E-04	8.42E-04
PB-1S	Overburden	2	2.8	27.4	37.5	31.8	41.8	69.8	10.17	14.44	42.44	0.1	4.44	10.0	0.00	0.08	0.01	0.08	0.25	2.270	3.055	2.504	2.590	8.01E-04	1.08E-03	8.83E-04	9.14E-04
									-									Geome	etric Mean	2.238	3.004	2.285	2.486	7.90E-04	1.06E-03	8.06E-04	8.77E-04
PB-2D	Bedrock	1	1.9	41.2	41.9	50.5	60.5	62.4	0.69	19.31	21.21	0.1	9.31	10.0	0.00	0.08	0.01	0.08	0.25	0.002	0.003		0.002	5.63E-07	9.55E-07		7.33E-07
		1	1.8	33.4	45.0	40.3	50.3	105.8	11.61	16.92	72.42	0.1	6.92	10.0	0.00	0.08	0.01	0.08	0.25	3.462	4.577	2.282	3.307	1.22E-03	1.61E-03	8.05E-04	1.17E-03
PB-4S	Overburden	2	1.8	33.4	42.2	40.3	50.3	105.8	8.79	16.92	72.42	0.1	6.92	10.0	0.00	0.08	0.01	0.08	0.25	2.395	3.123	2.308	2.584	8.45E-04	1.10E-03	8.14E-04	9.12E-04
																		Geome	etric Mean	2.879	3.781	2.295	2.923	1.02E-03	1.33E-03	8.10E-04	1.03E-03
PB-4D*	Bedrock	1	3.1	32.5	31.3	107.4	117.4	120.5	1.16	84.91	88.01	0.1	74.91	10.0	0.00	0.08	0.01	0.08	0.25	0.015	0.015		0.015	5.12E-06	5.35E-06		5.23E-06
		1	3.0	27.5	29.0	26.3	36.3	40.0	1.46	8.78	12.48	0.1	0.00	10.0	0.00	0.08	0.01	0.08	0.25	0.497	0.574	0.760	0.601	1.75E-04	2.02E-04	2.68E-04	2.12E-04
PB-7S	Overburden	2	3.0	27.5	29.2	26.3	36.3	40.0	1.69	8.78	12.48	0.1	0.00	10.0	0.00	0.08	0.01	0.08	0.25	0.507	0.649	0.845	0.653	1.79E-04	2.29E-04	2.98E-04	2.30E-04
							•									1	T	Geome	etric Mean	0.502	0.610	0.802	0.626	1.77E-04	2.15E-04	2.83E-04	2.21E-04
PB-8S	Overburden	1	3.0	25.1	31.3	29.5	39.5	89.0	6.25	14.45	63.95	0.1	4.45	10.0	0.00	0.08	0.01	0.08	0.25	0.121	0.146	0.150	0.139	4.26E-05	5.16E-05	5.31E-05	4.89E-05
PB-8D	Bedrock	1	3.3	25.5	29.6	99.6	109.6	112.9	4.16	84.15	87.45	0.1	74.15	10.0	0.00	0.08	0.01	0.08	0.25	0.020	0.021	0.020	0.020	7.00E-06	7.33E-06	7.09E-06	7.14E-06
		1	2.9	12.6	25.4	27.0	37.0	70.4	12.81	24.38	57.78	0.1	14.38	10.0	0.00	0.08	0.01	0.08	0.25	1.561	1.935	1.835	1.770	5.51E-04	6.83E-04	6.47E-04	6.24E-04
PB-10S	Overburden	2	2.9	12.6	26.0	27.0	37.0	70.4	13.43	24.38	57.78	0.1	14.38	10.0	0.00	0.08	0.01	0.08	0.25	1.423	1.764	1.690	1.619	5.02E-04	6.22E-04	5.96E-04	5.71E-04
							•									1	T	Geome	etric Mean	1.490	1.848	1.761	1.693	5.26E-04	6.52E-04	6.21E-04	5.97E-04
PB-10D	Bedrock	1	2.3	12.3	14.3	79.2	89.2	91.5	2.02	76.90	79.25	0.1	66.90	10.0	0.00	0.08	0.01	0.08	0.25	0.000	0.001	0.007	0.001	1.70E-07	1.98E-07	2.54E-06	4.40E-07
		1	2.5	9.6	26.9	43.4	53.4	89.5	17.36	43.82	79.92	0.1	33.82	10.0	0.00	0.08	0.01	0.08	0.25	0.838	0.976	0.951	0.920	2.96E-04	3.44E-04	3.35E-04	3.24E-04
PB-13S	Overburden	2	2.5	9.6	32.7	43.4	53.4	89.5	23.15	43.82	79.92	0.1	33.82	10.0	0.00	0.08	0.01	0.08	0.25	0.946	1.102	1.061	1.034	3.34E-04	3.89E-04	3.74E-04	3.65E-04
																1		Geome	etric Mean	0.890	1.037	1.004	0.975	3.14E-04	3.66E-04	3.54E-04	3.44E-04
PB-13D	Bedrock	1	2.7	10.4	20.5	90.1	100.1	102.8	10.13	89.72	92.42	0.1	79.72	10.0	0.00	0.08	0.01	0.08	0.25	0.281	0.295	0.233	0.268	9.90E-05	1.04E-04	8.21E-05	9.45E-05

Note: DTW

Observed initial displacement (change in water level from static) Static water column height Saturated thickness of aquifer Ho

Н

b

Kv/Kh Ratio of vertical to horizontal hydraulic conductivity
 d Depth to top of well screen - this is the length from the water level (or top confining unit) to the top of the screen.

L Length of well screen

Т Transducer Depth below the water table - Note: only used by the Butler-Zahn (2004) & McElwee-Zenner solution. If using Bouwer-Rice or other solution methods, set to zero

Inside radius of well casing r(c)

Radius of downhole equipment r(eq)

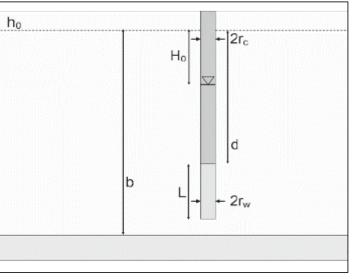
r(w)

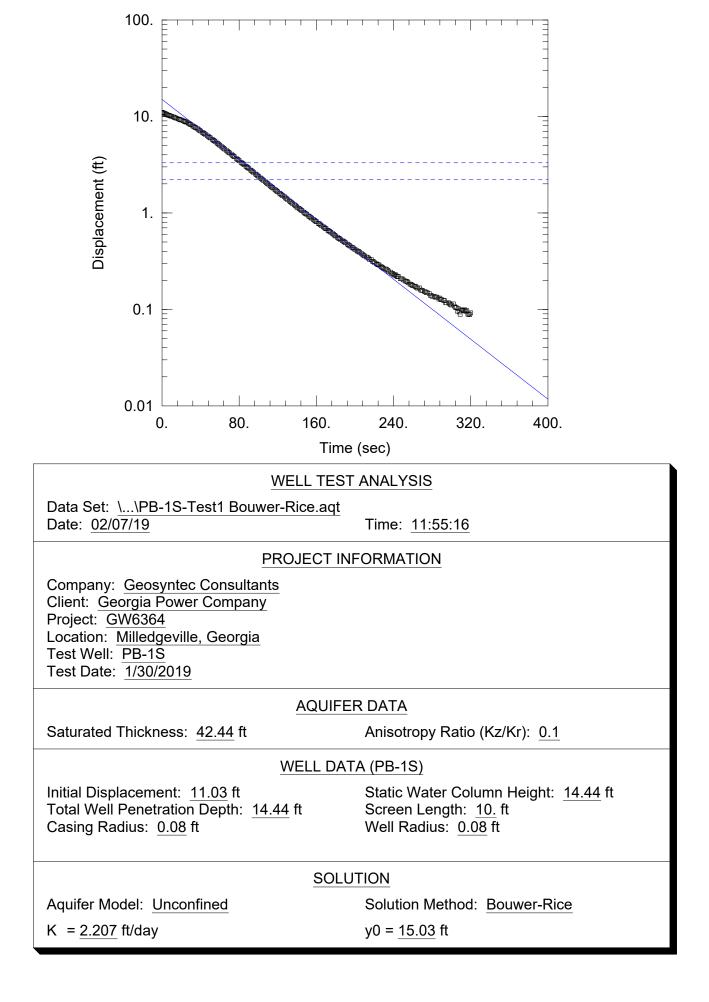
Radius of well open or perforated interval Outside radius of well skin disturbed zone enveloping filter pack r(sk)

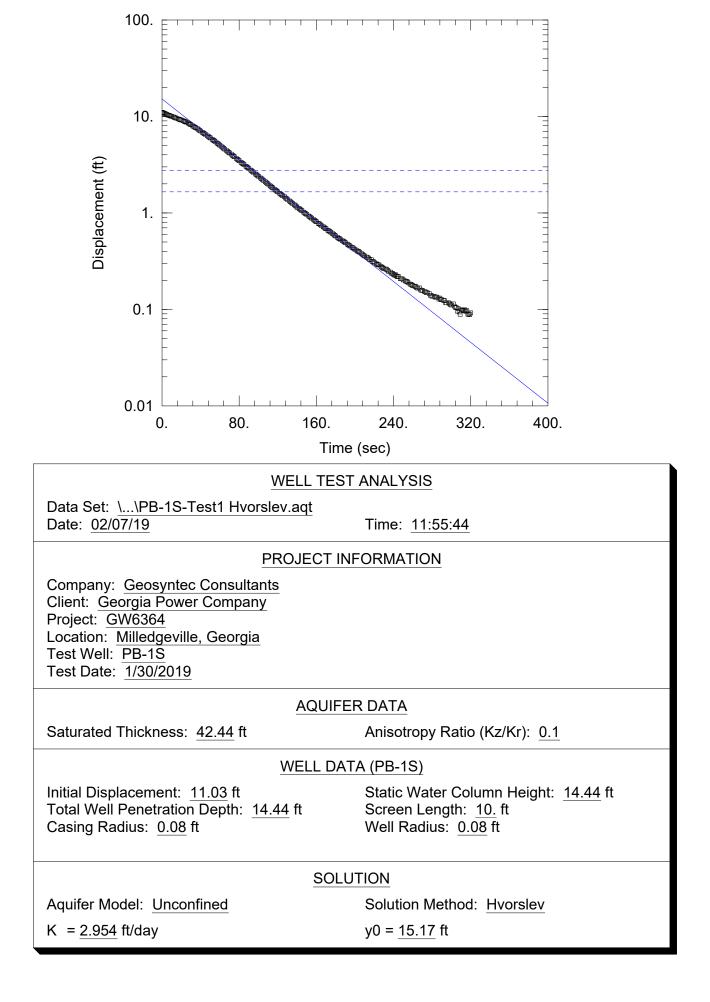
ft BTOC = feet below top of casing. DTW = depth to water

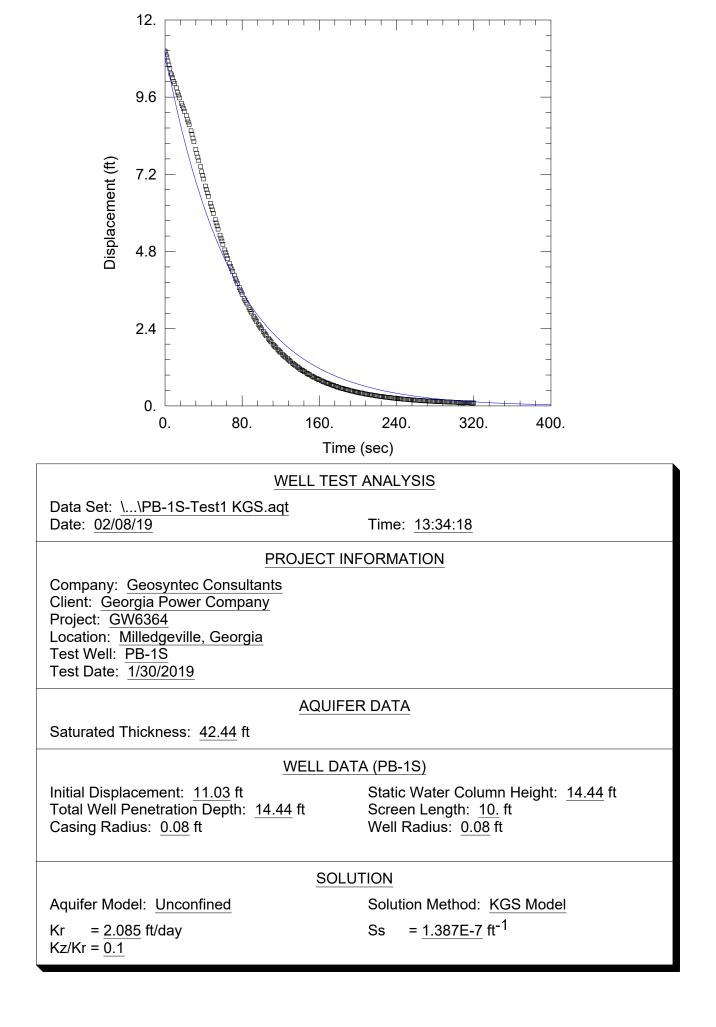
- For b assume that top of bedrock is bottom of aquifer

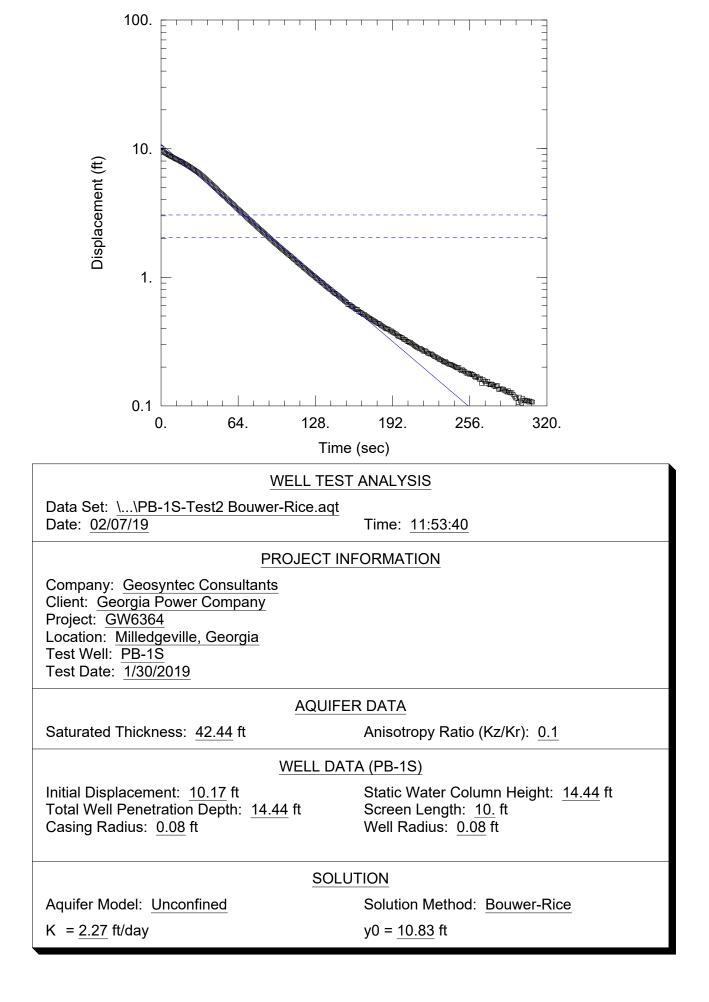
- *Slug-In test was performed for PB-4D

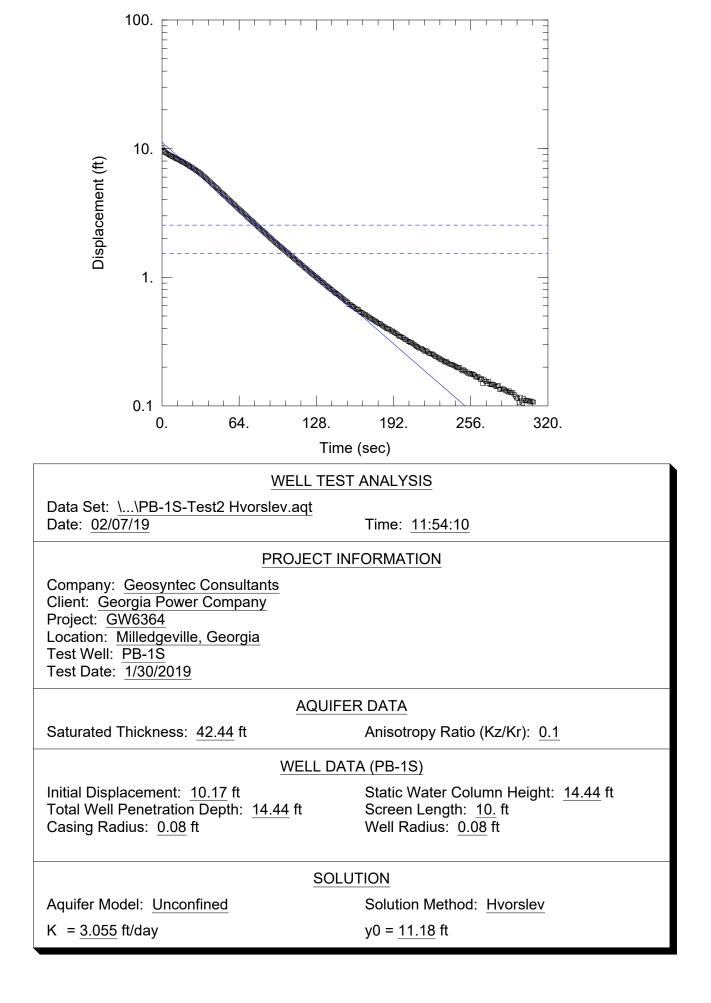


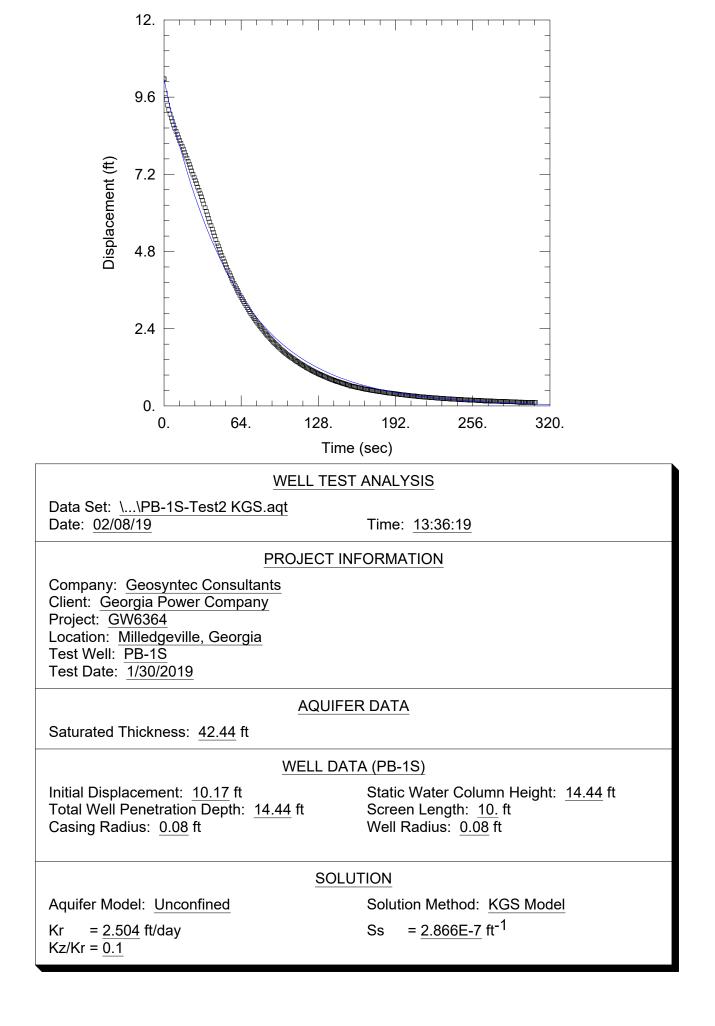


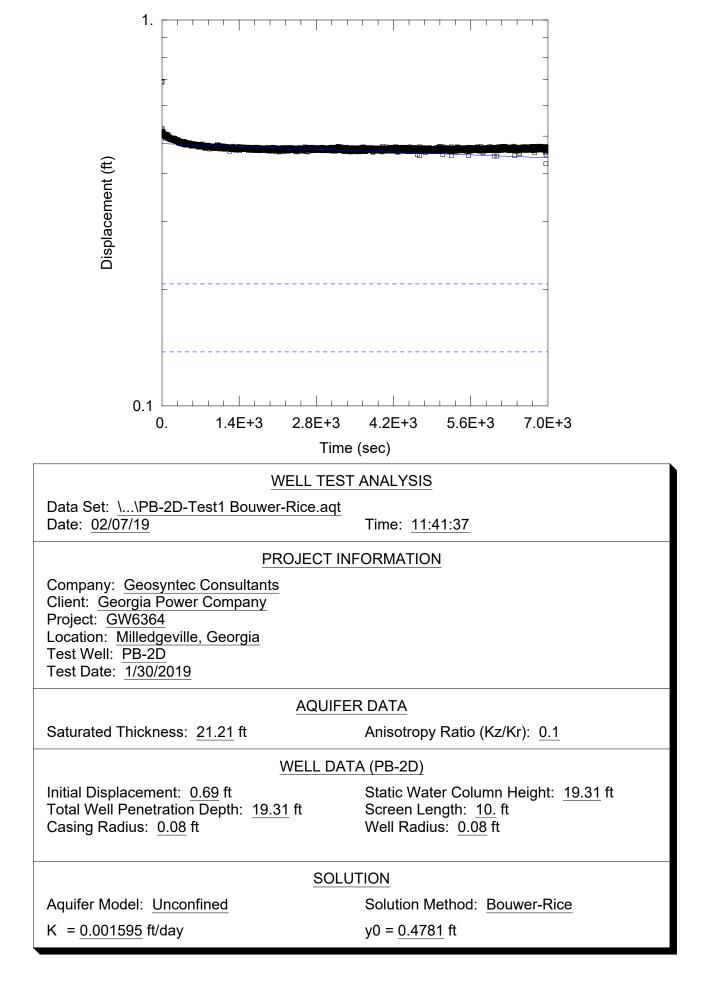


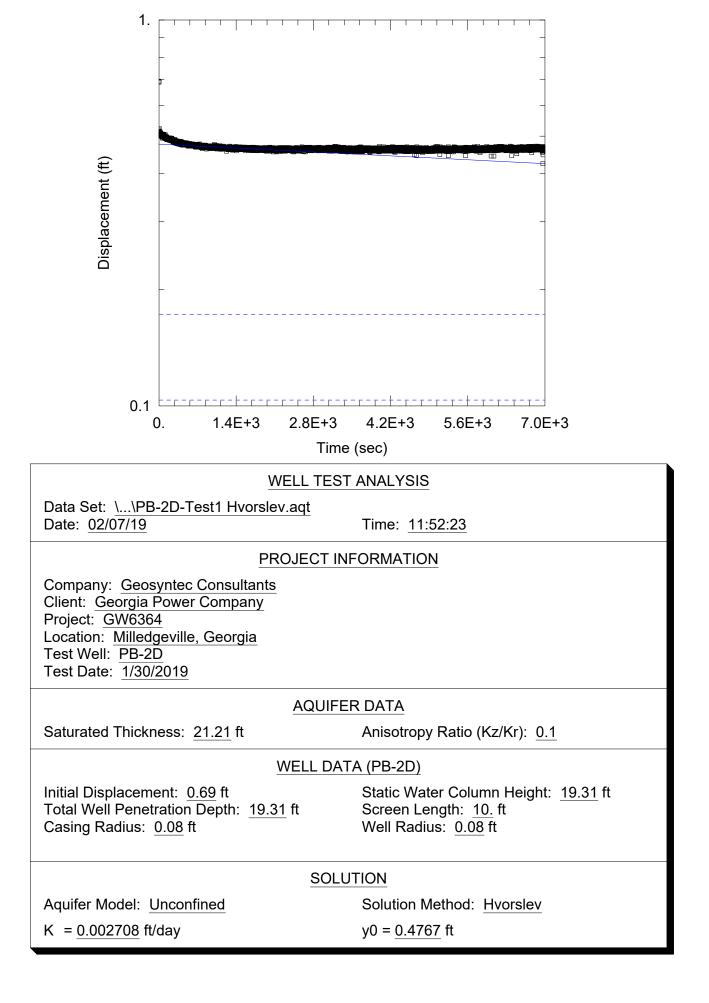


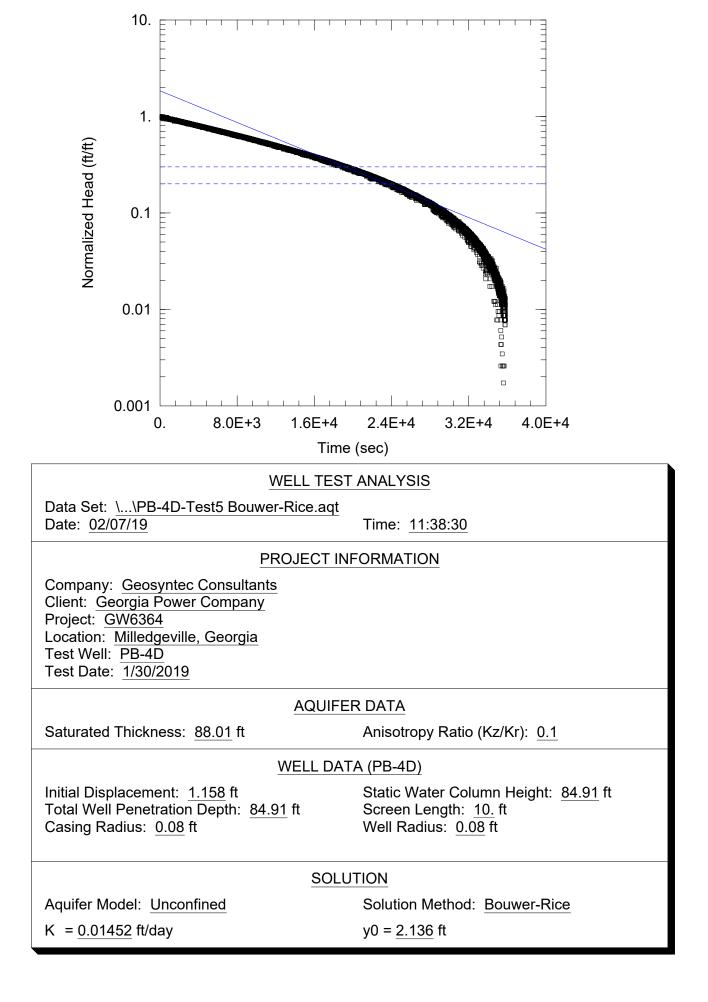


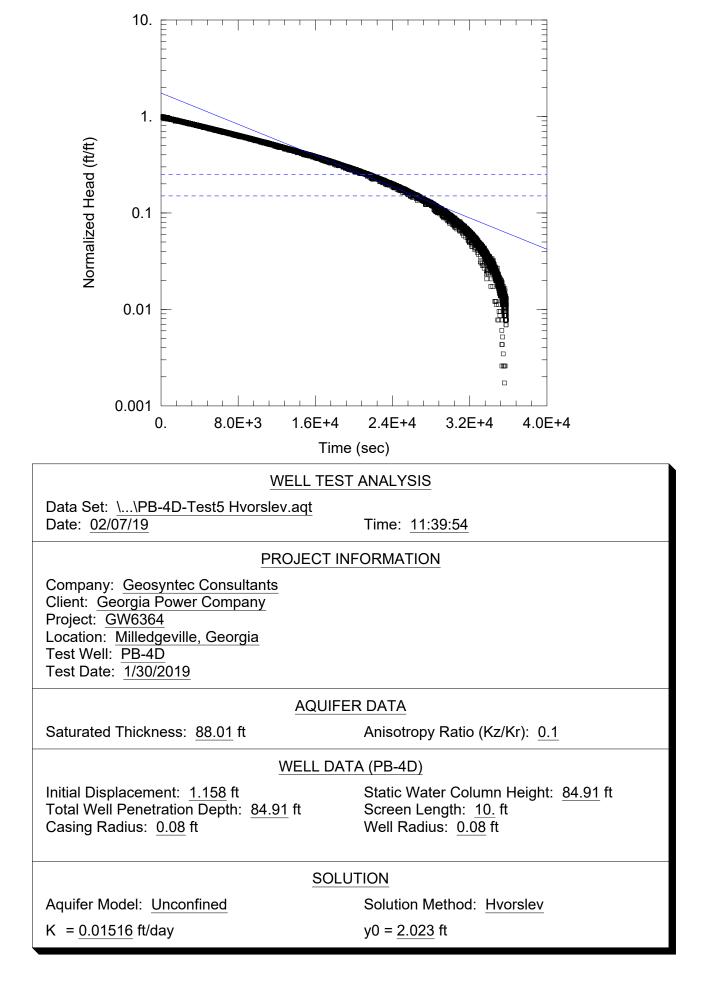


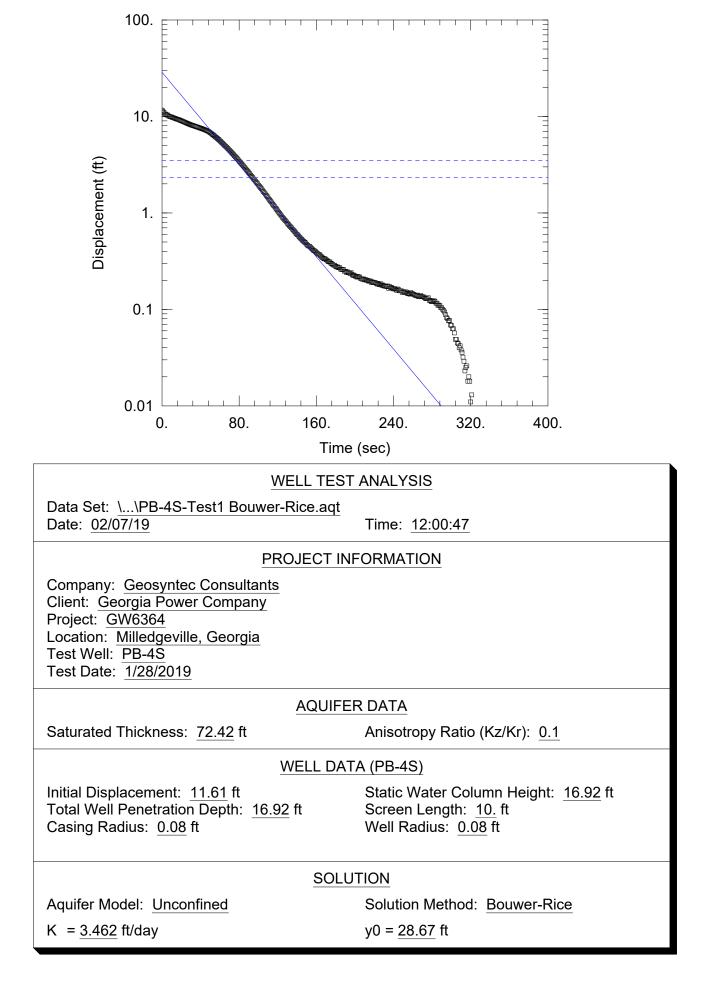


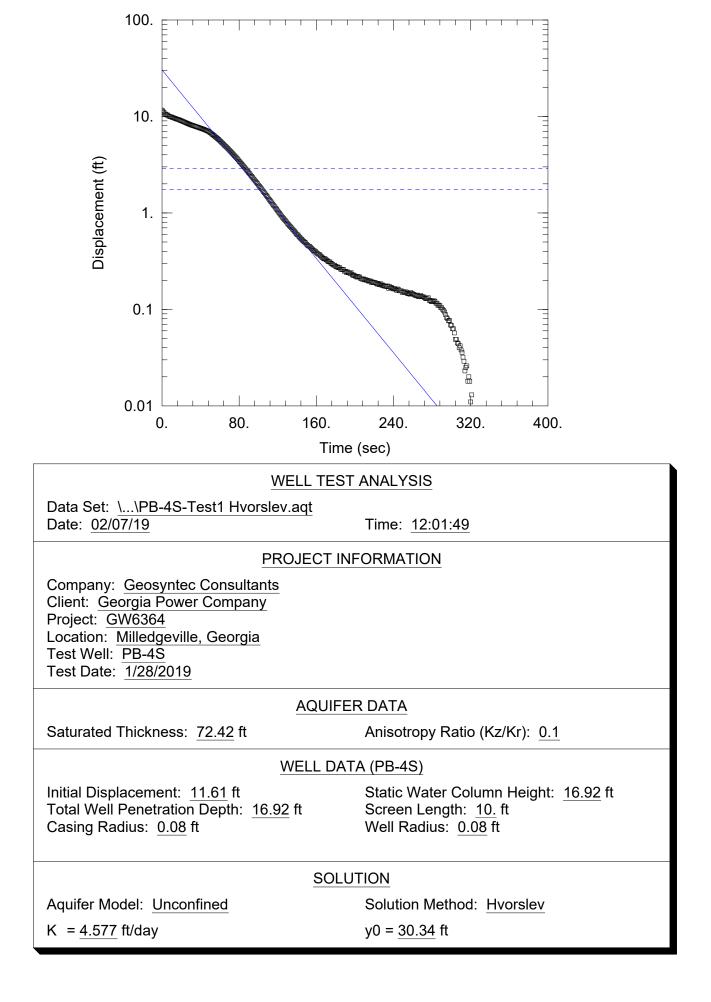


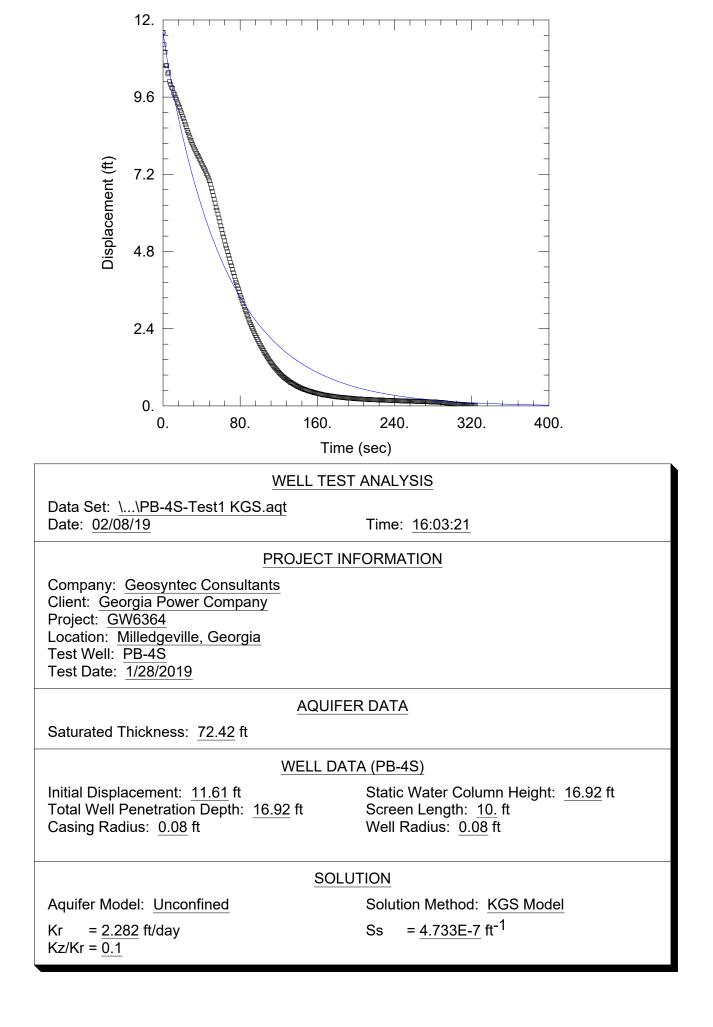


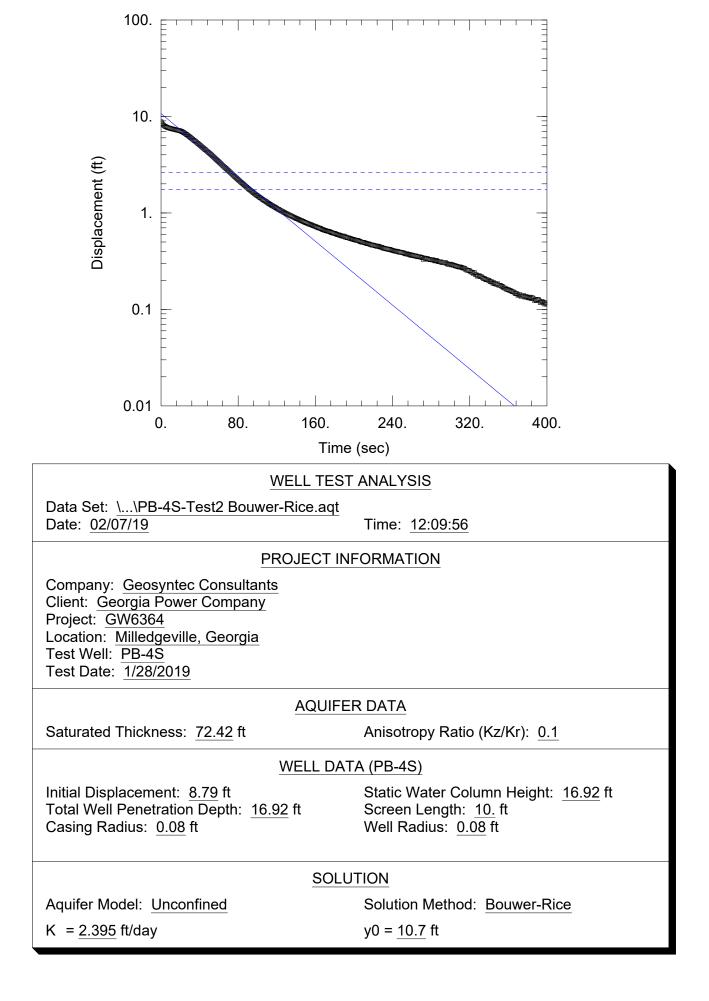


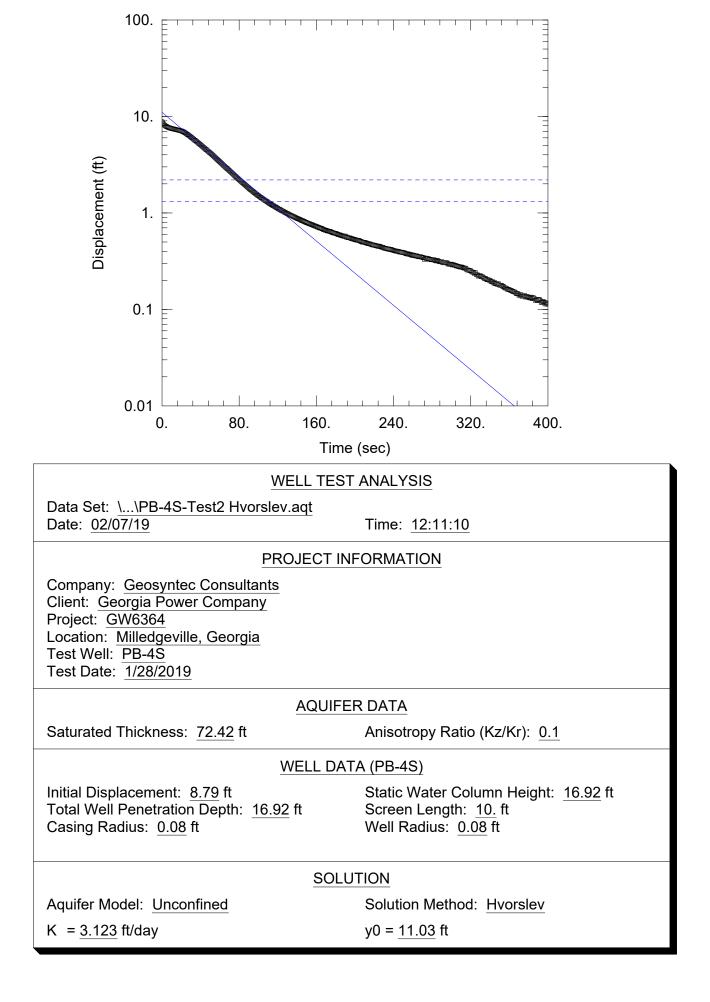


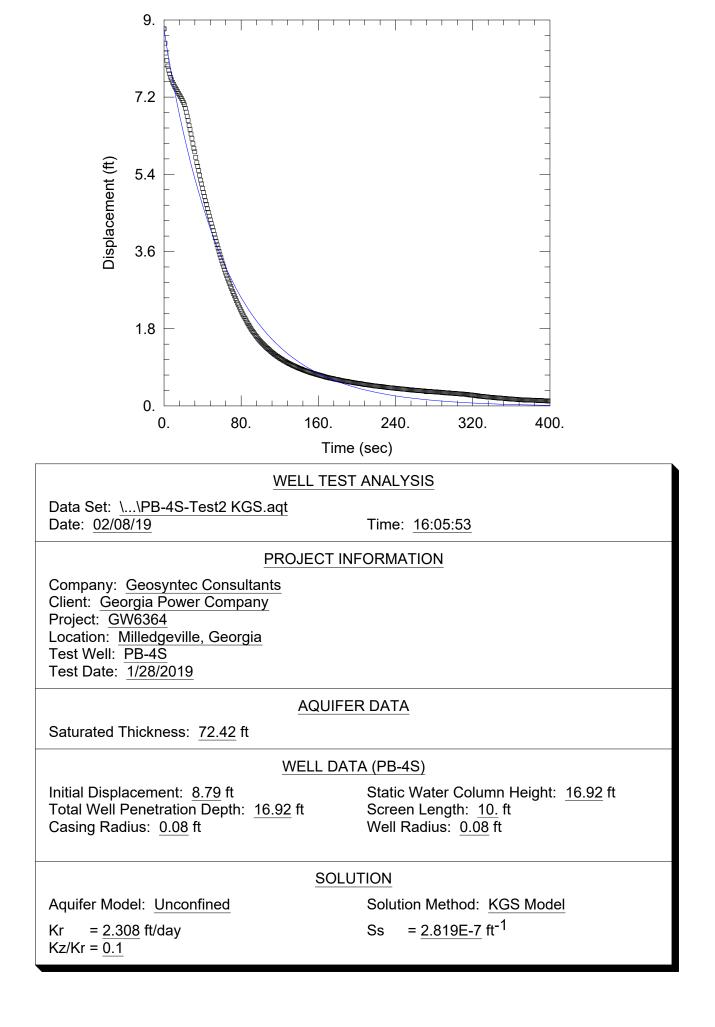


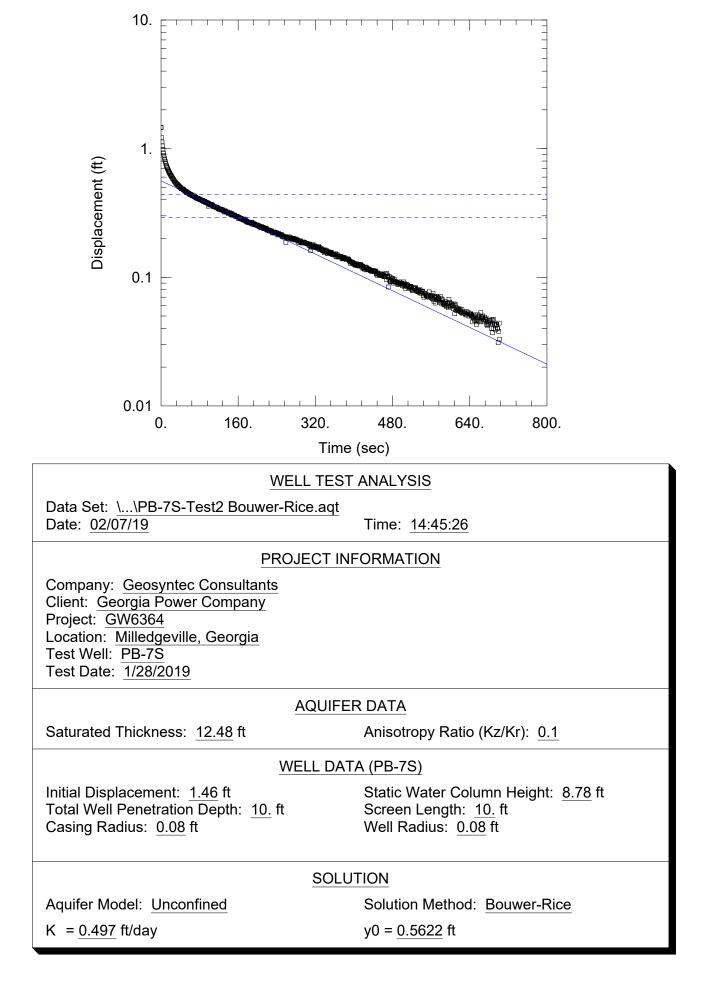


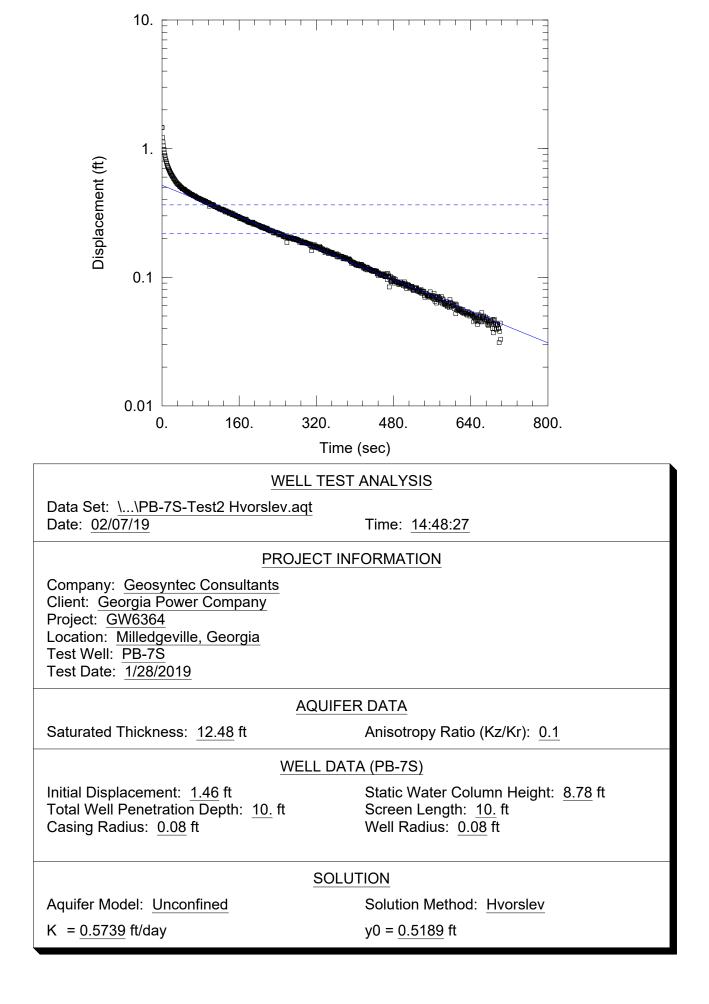


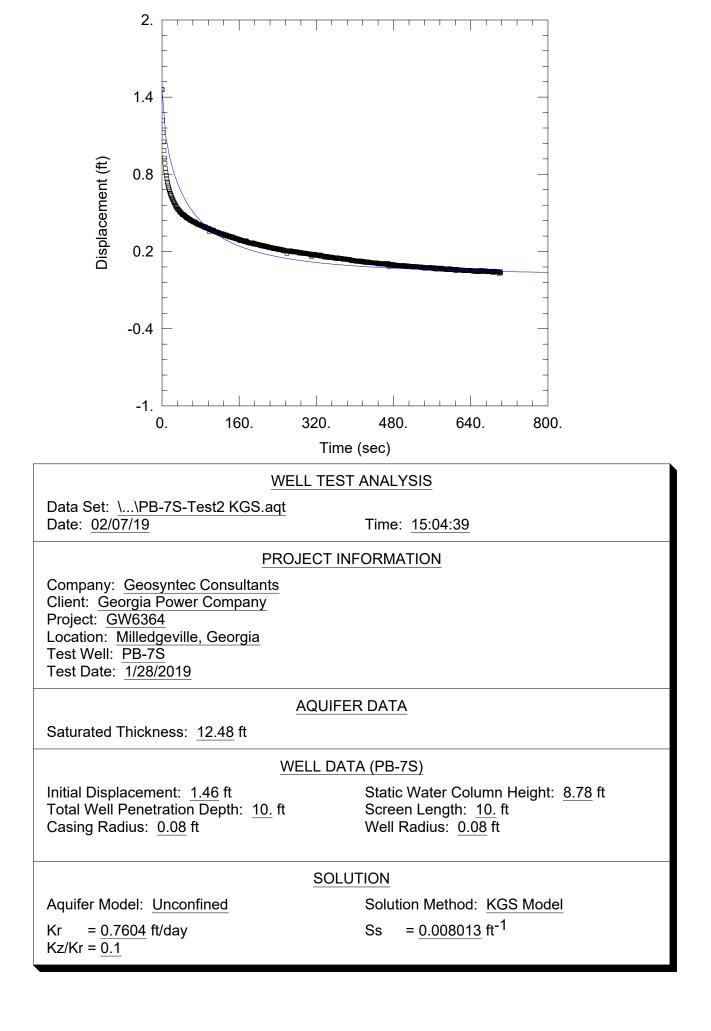


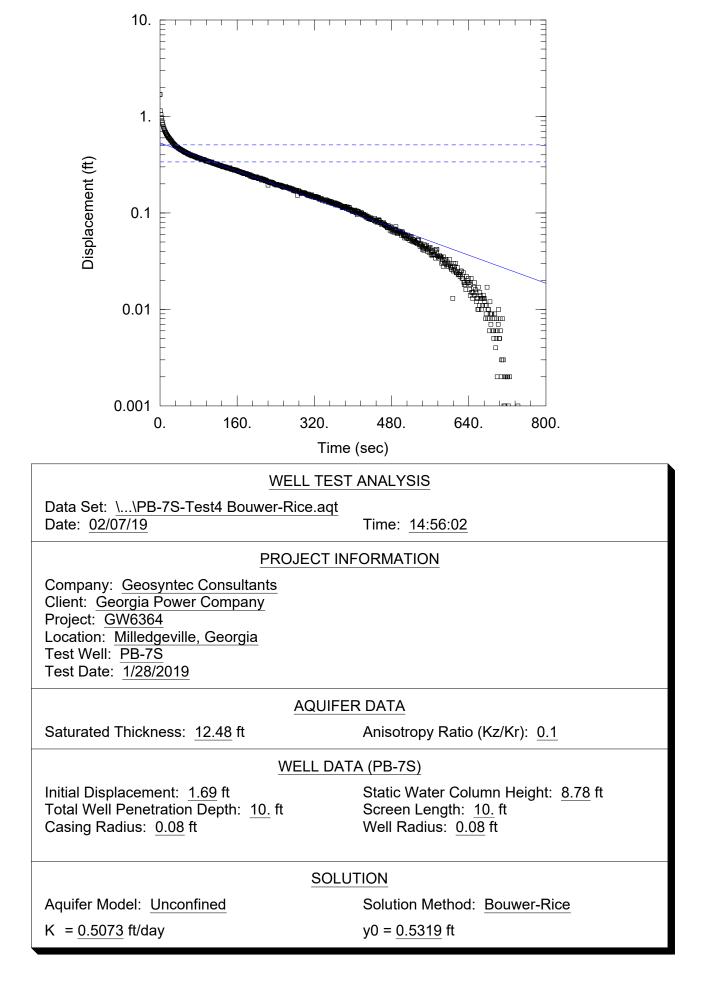


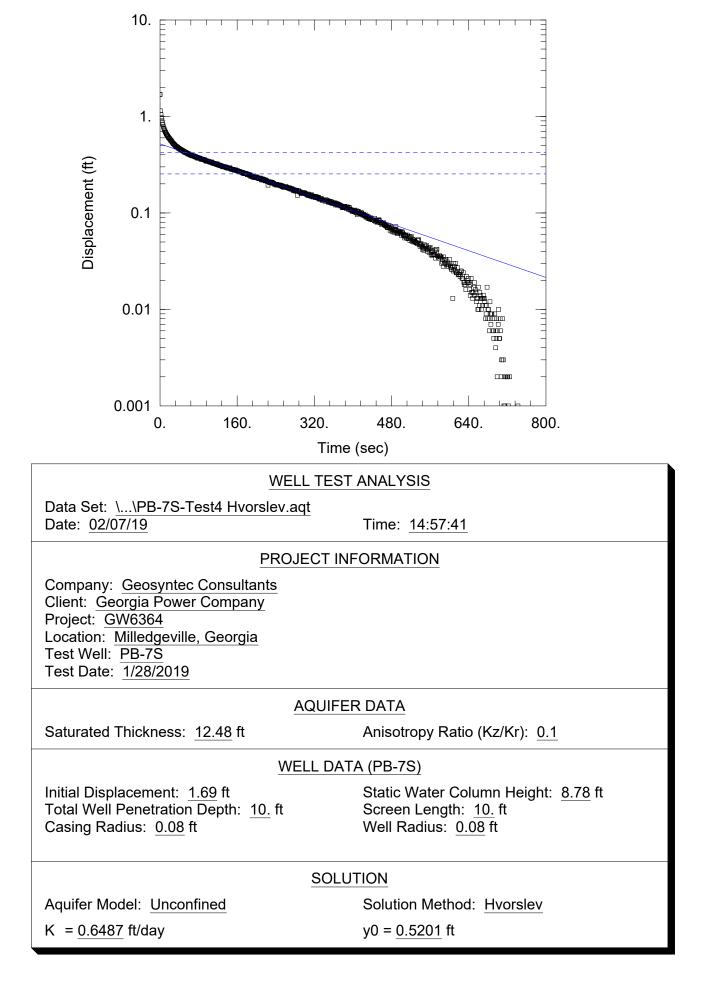


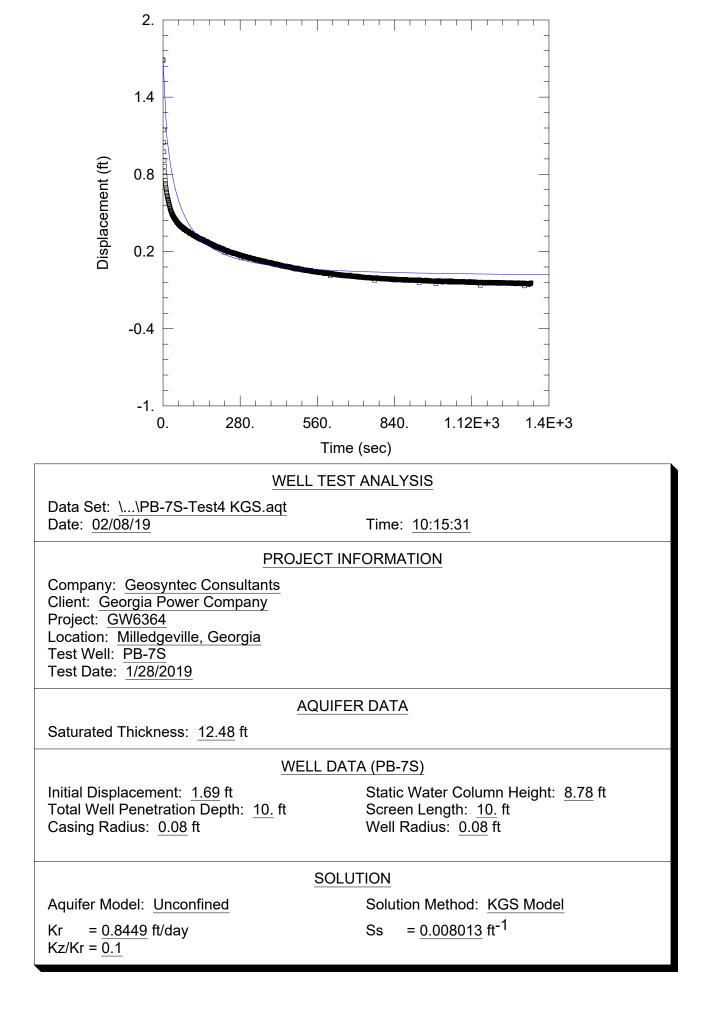


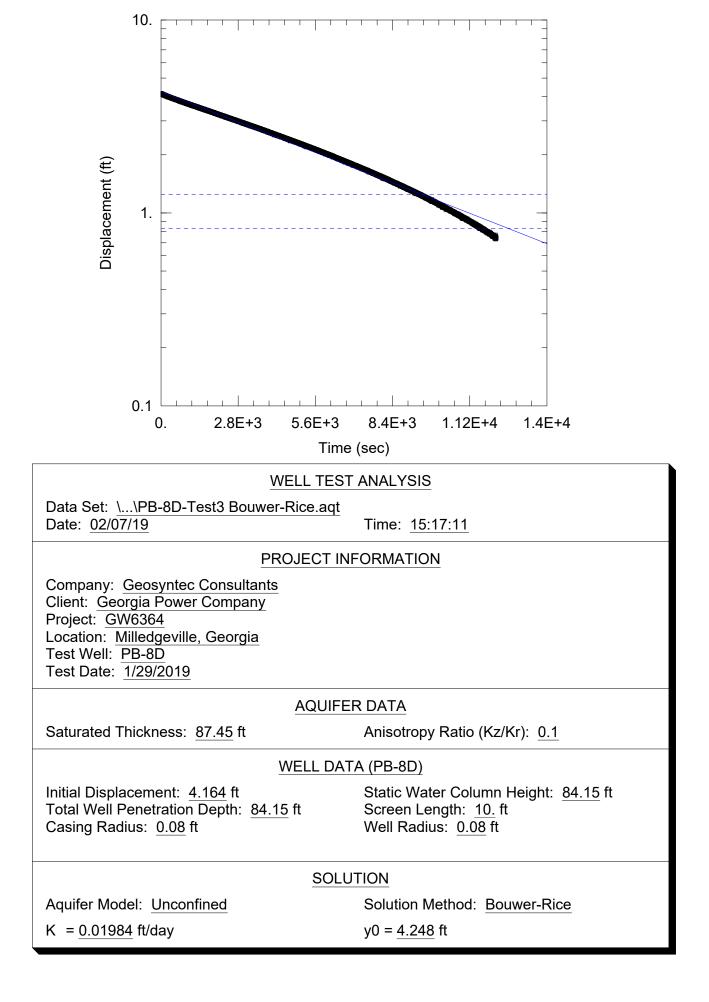


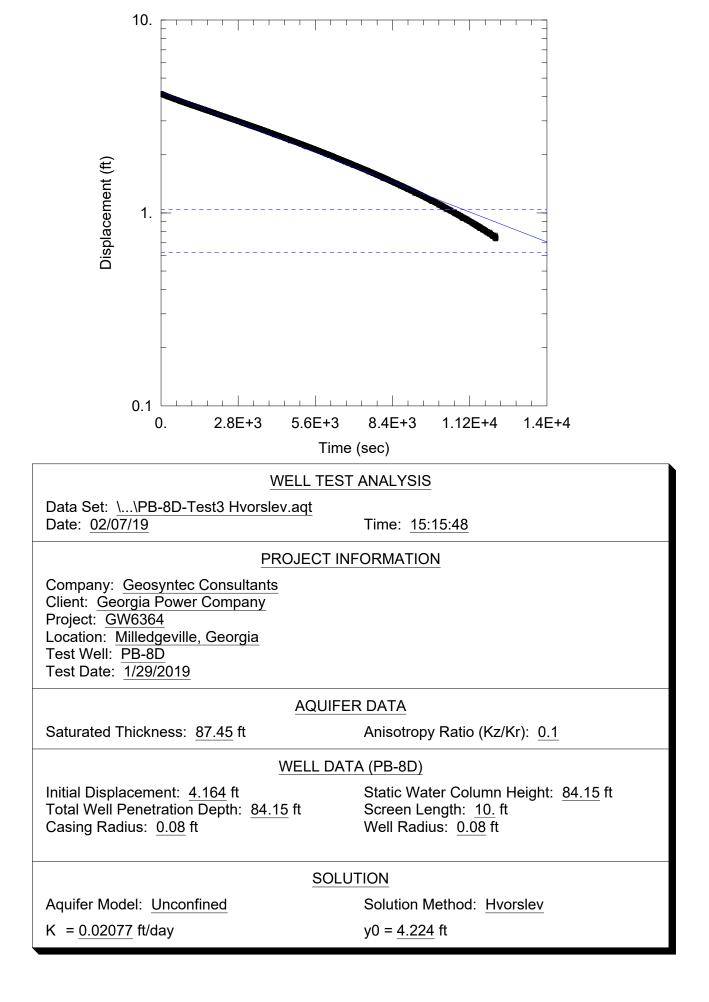


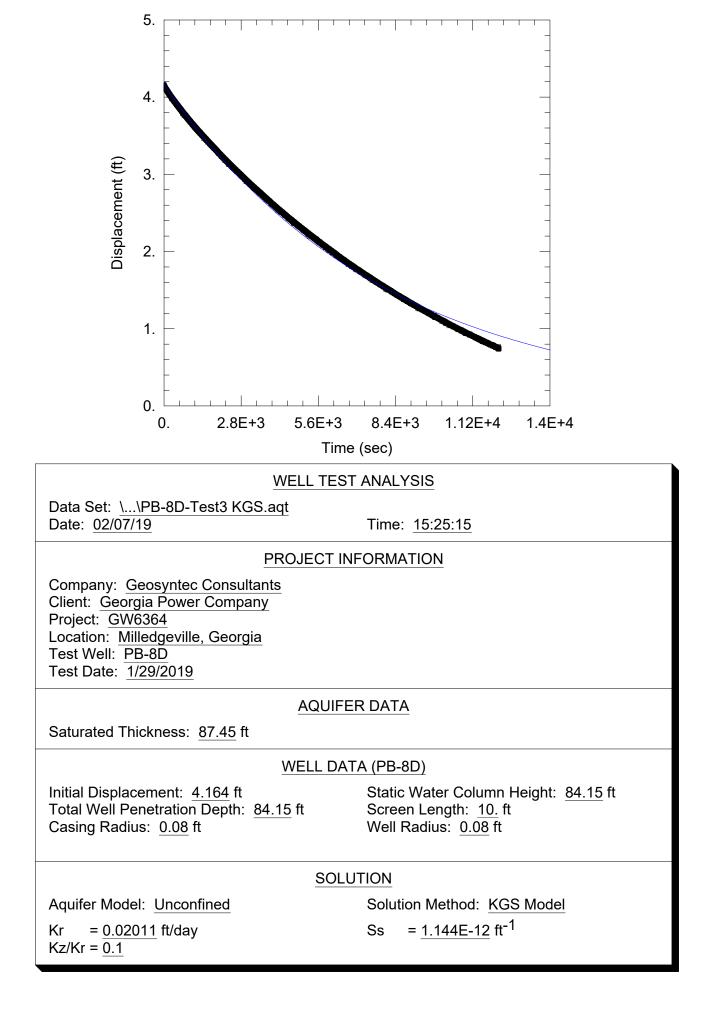


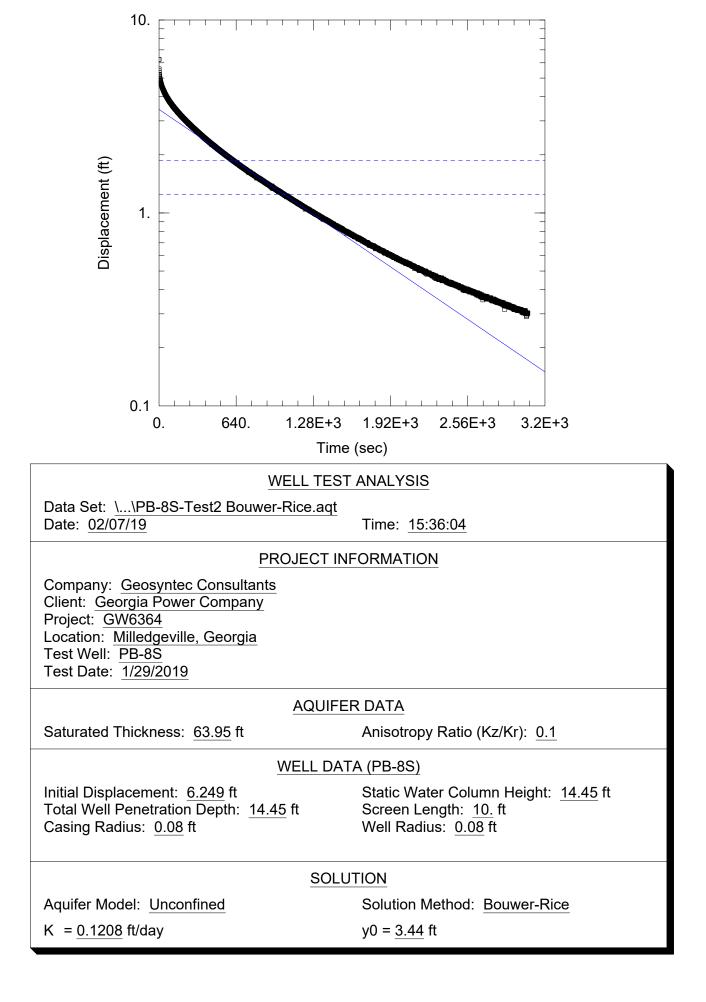


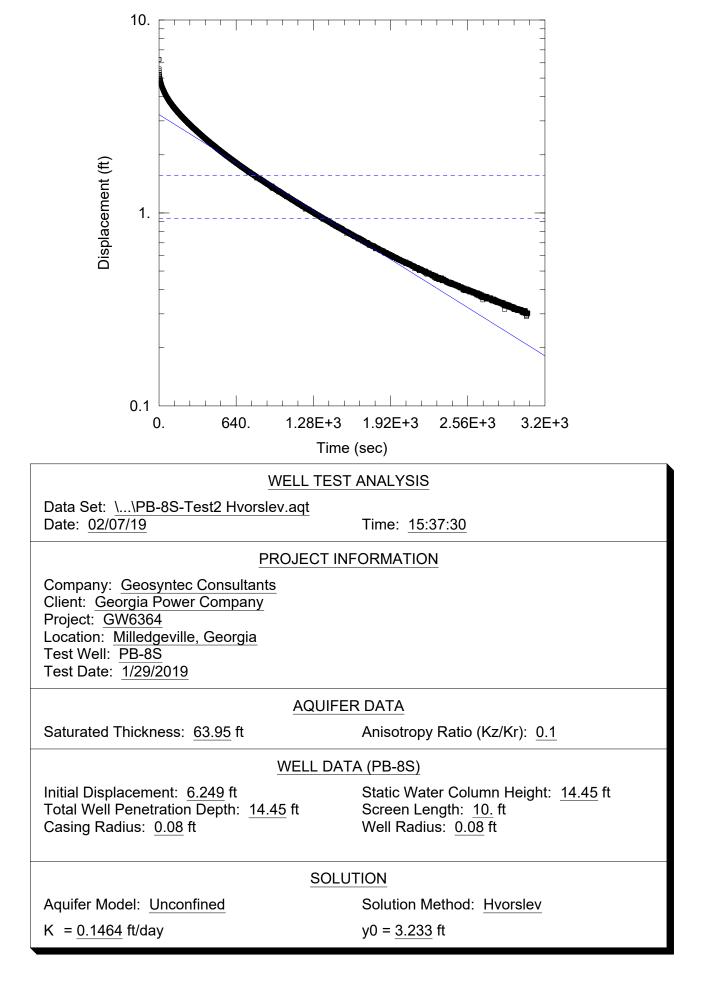


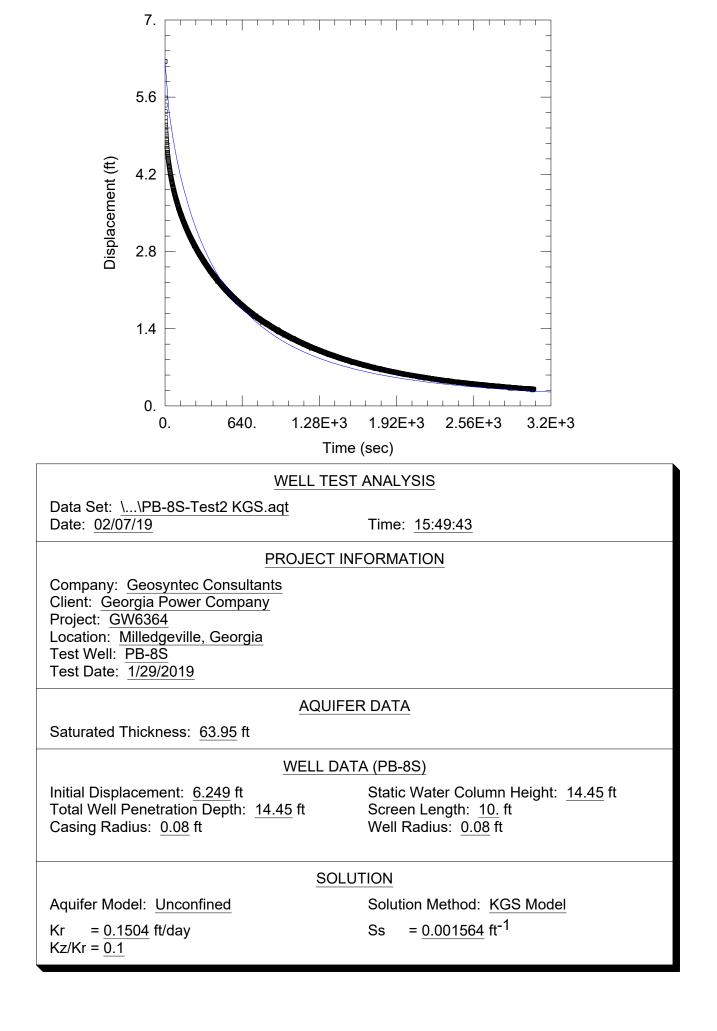


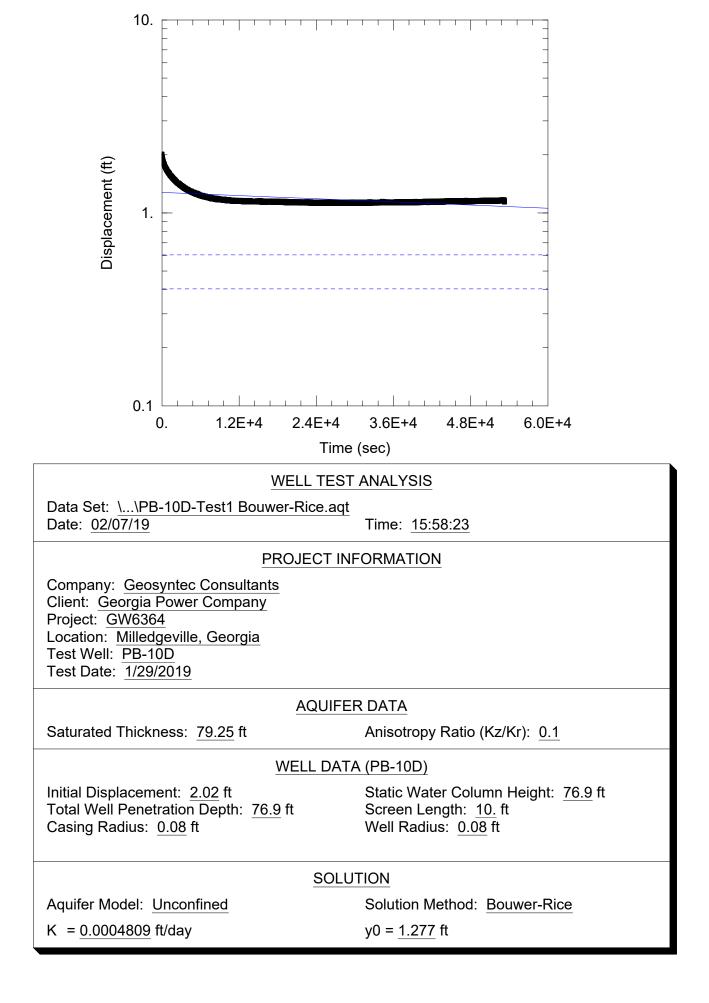


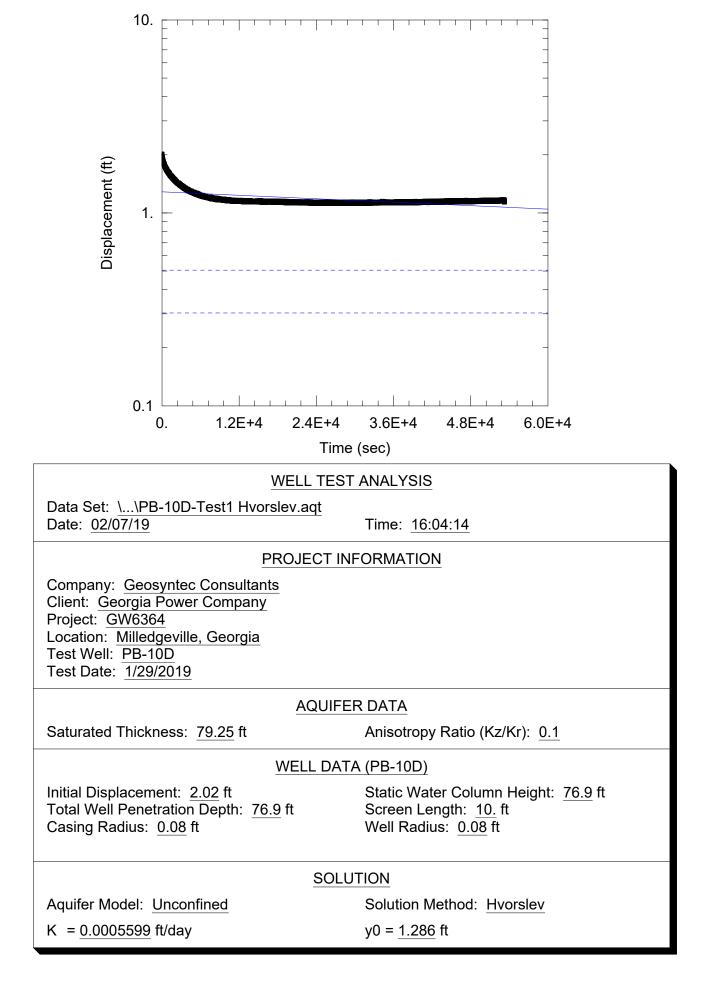


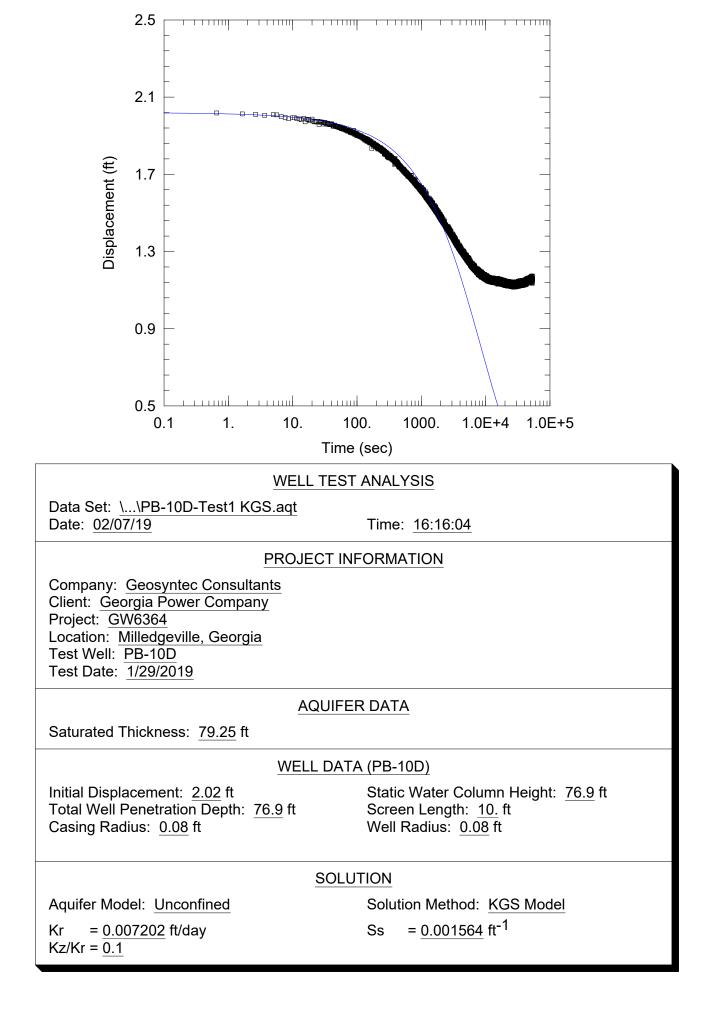


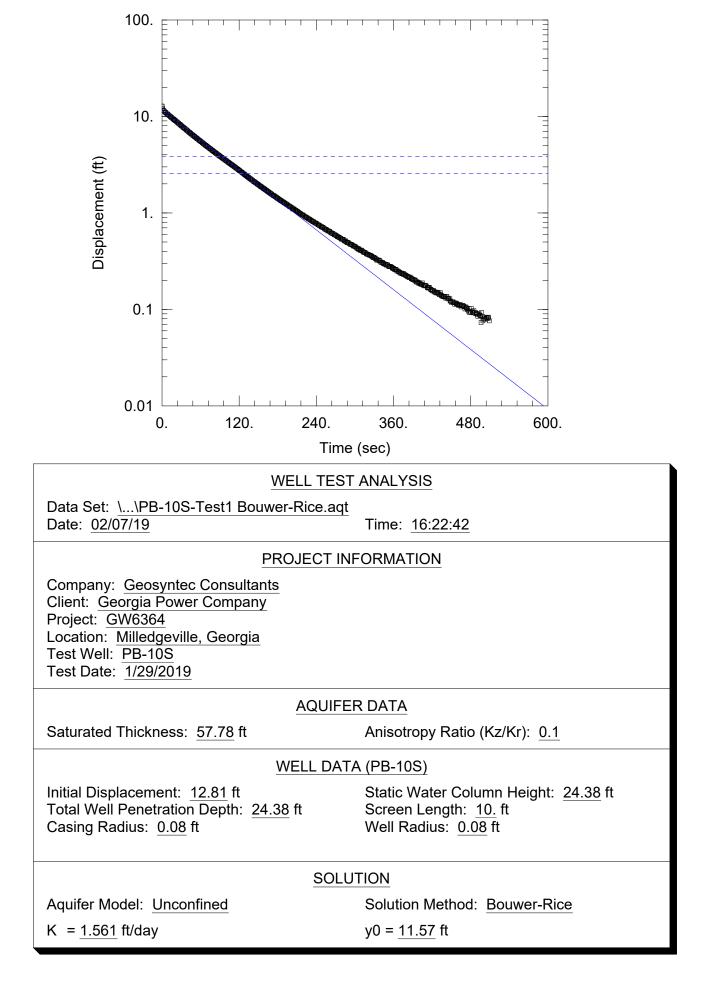


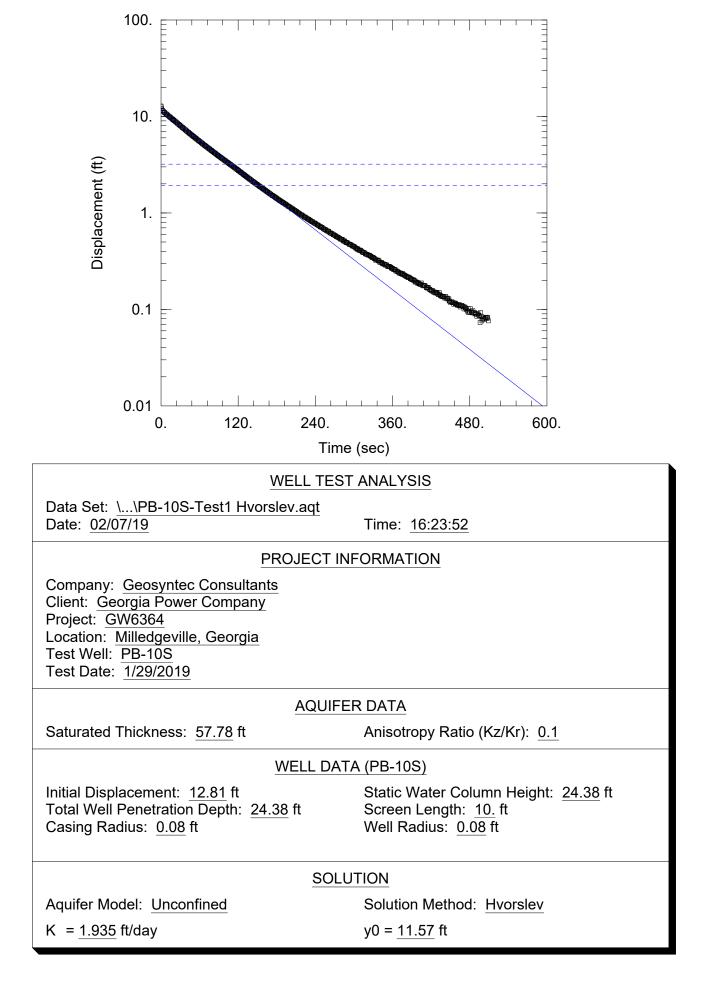


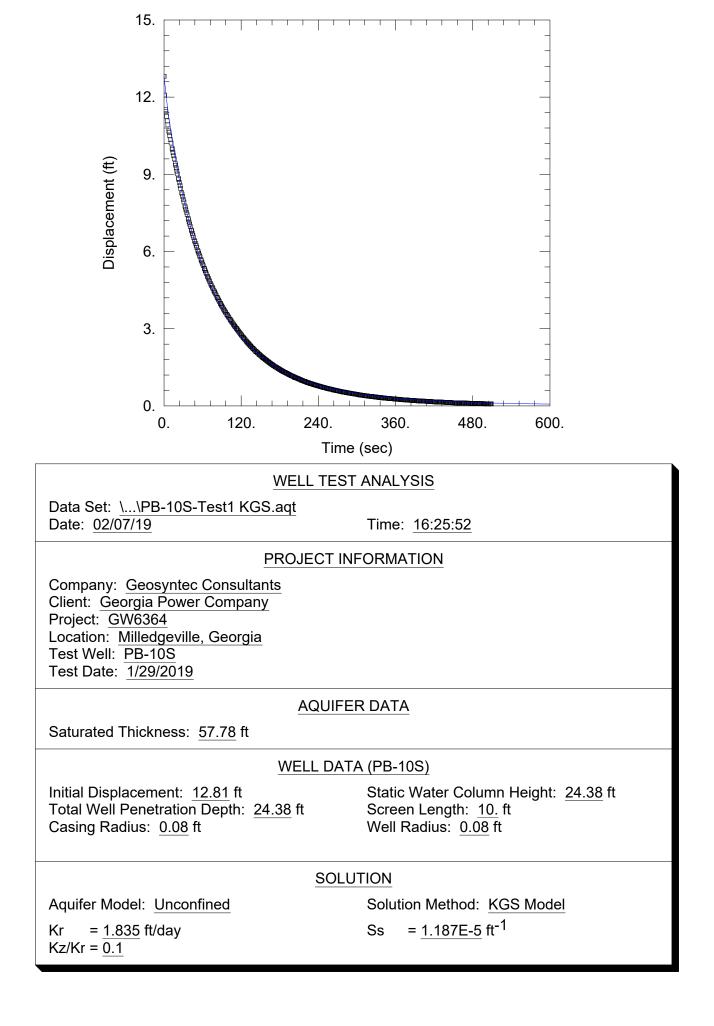


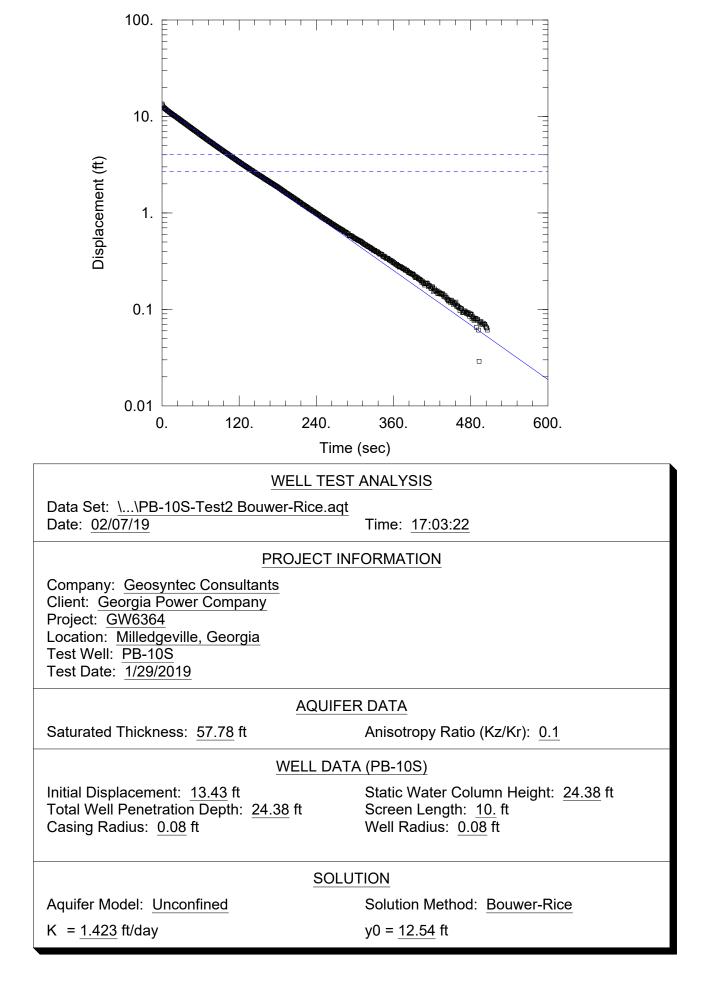


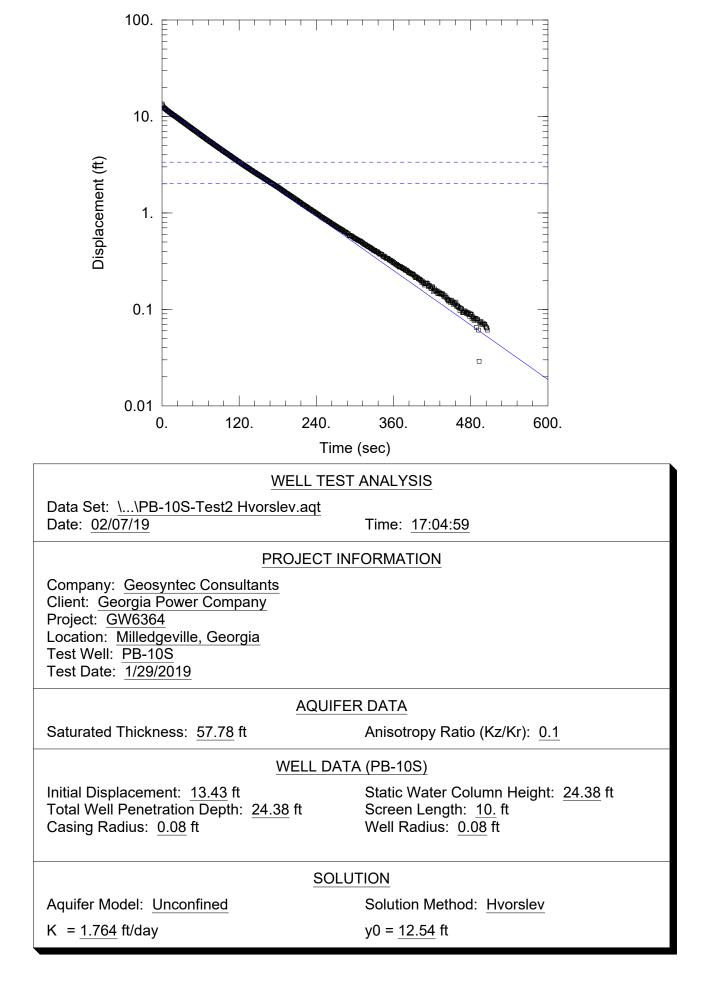


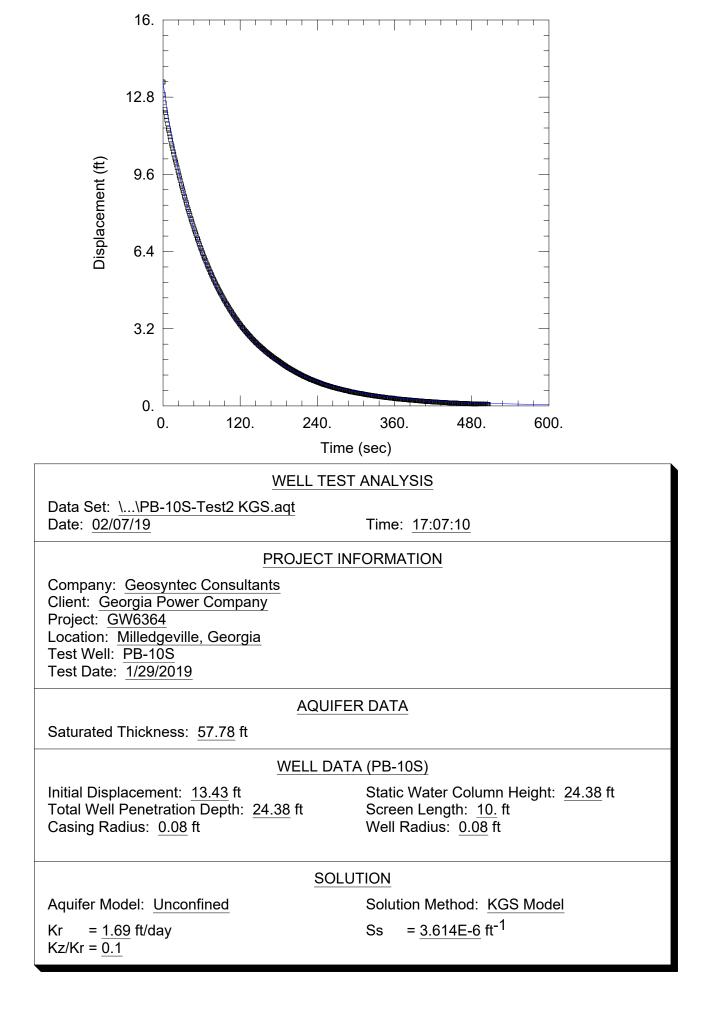


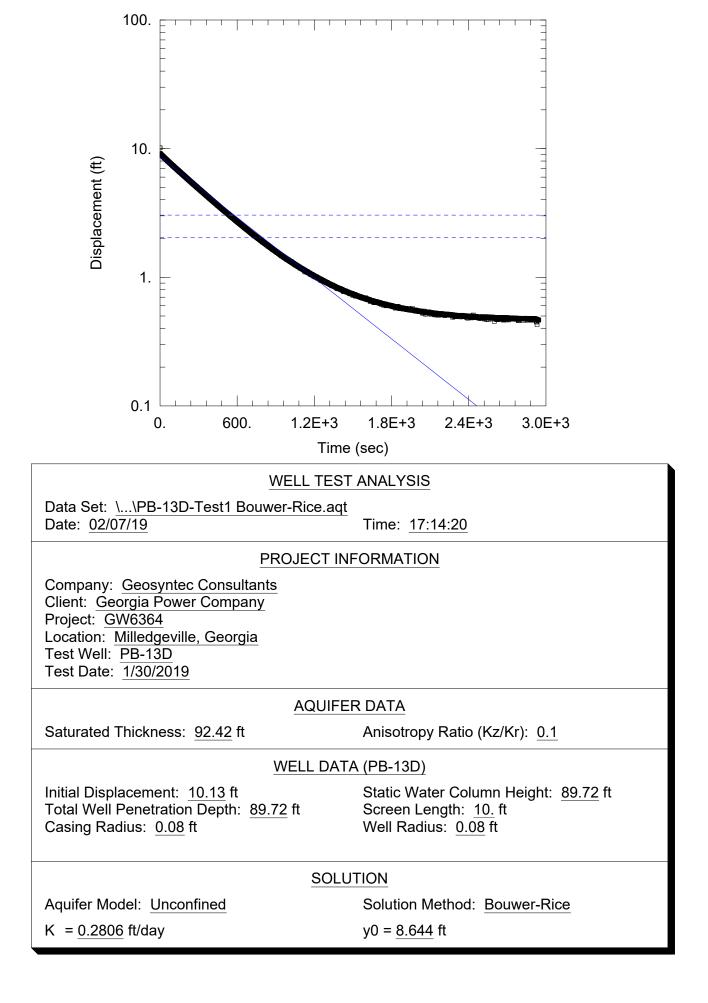


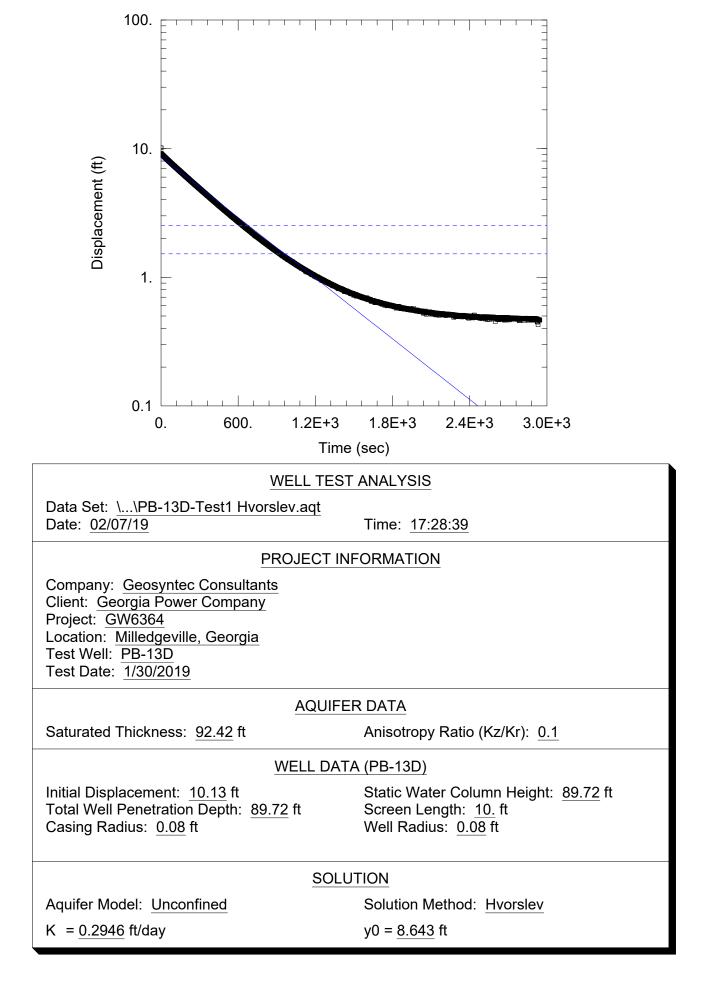


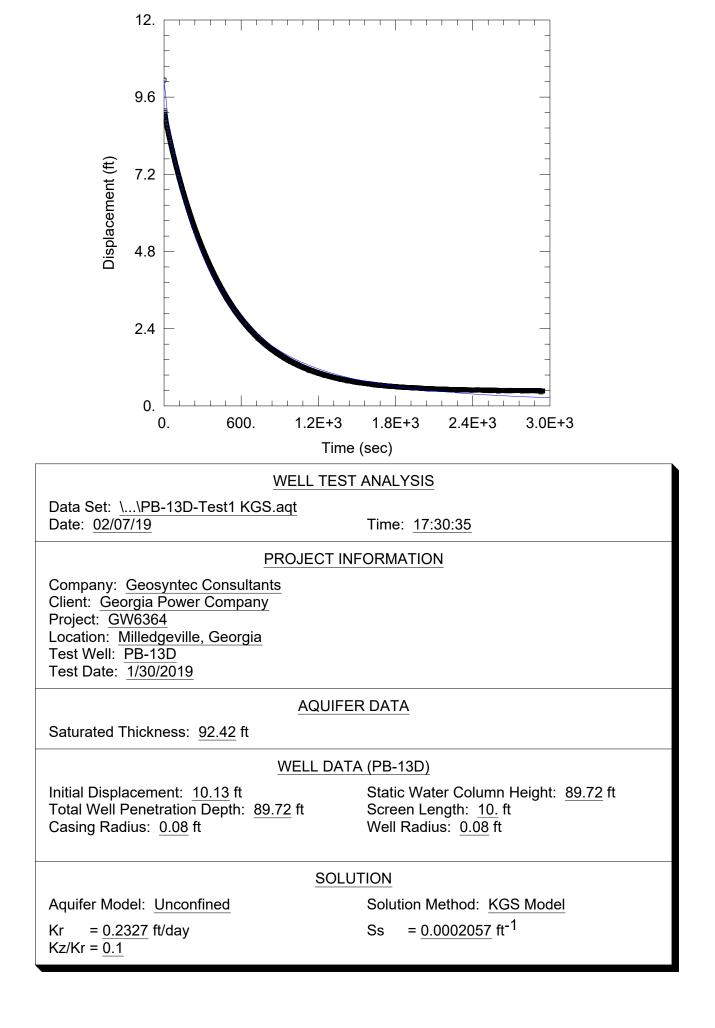


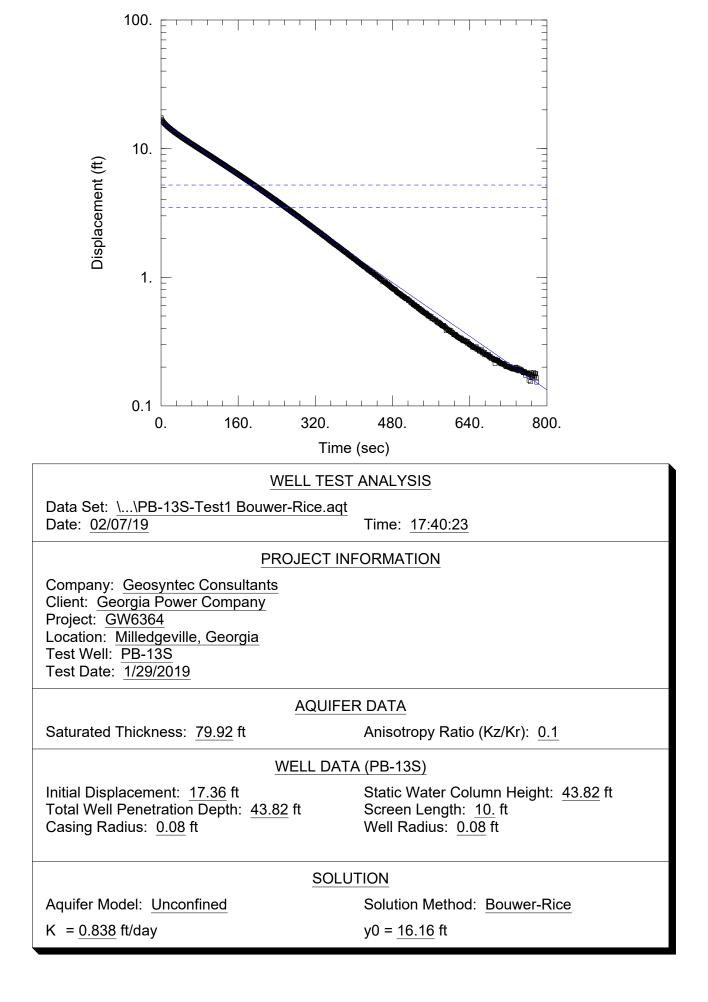


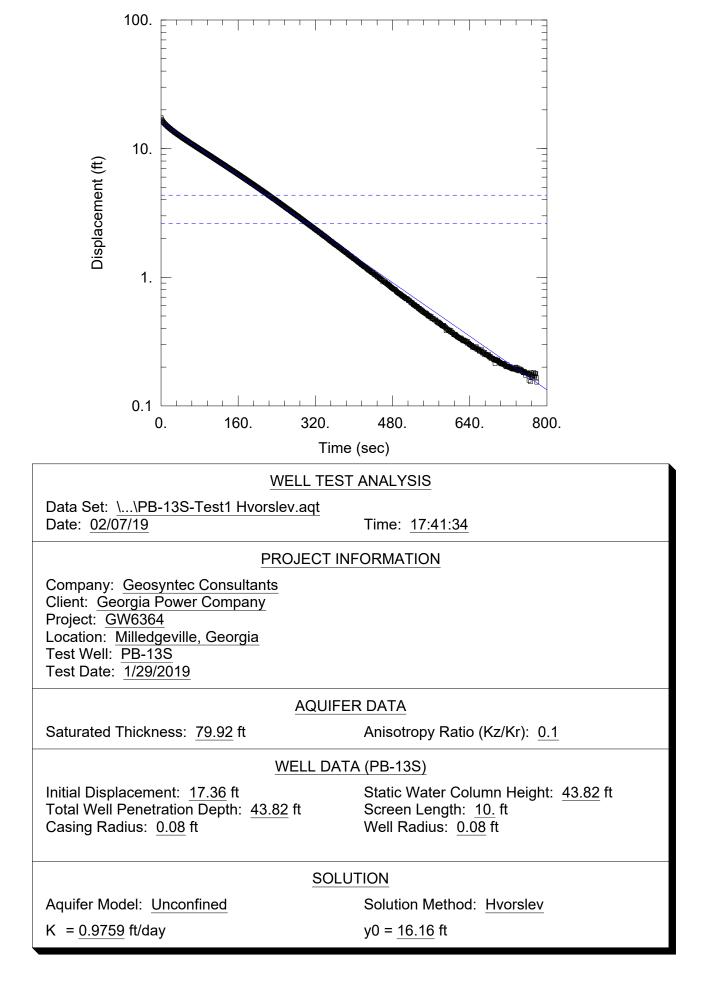


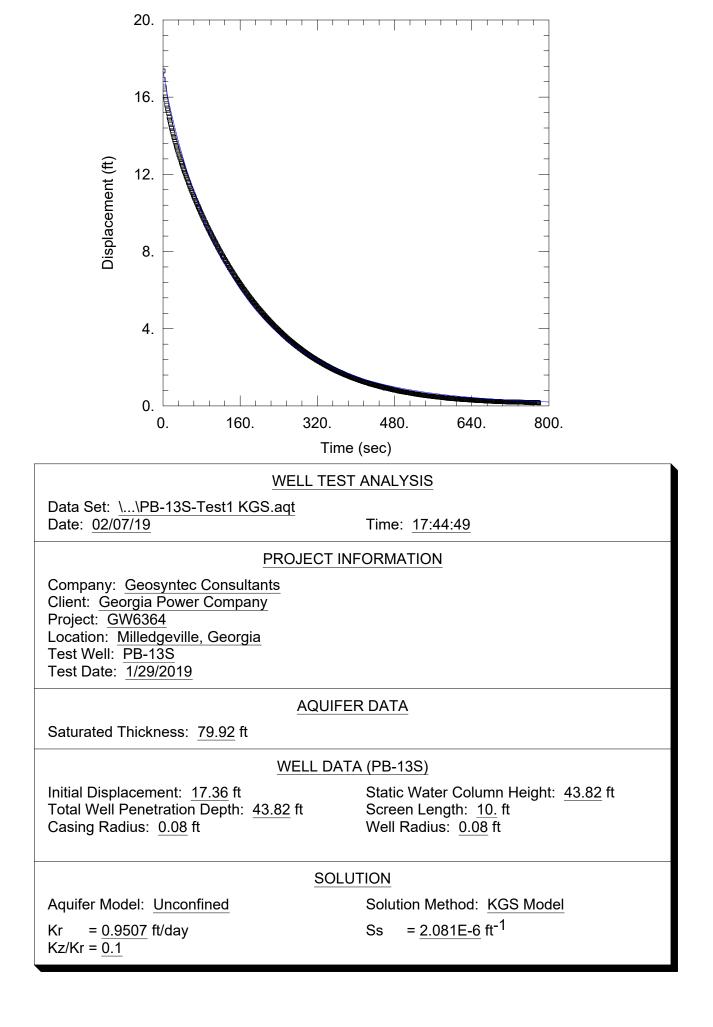


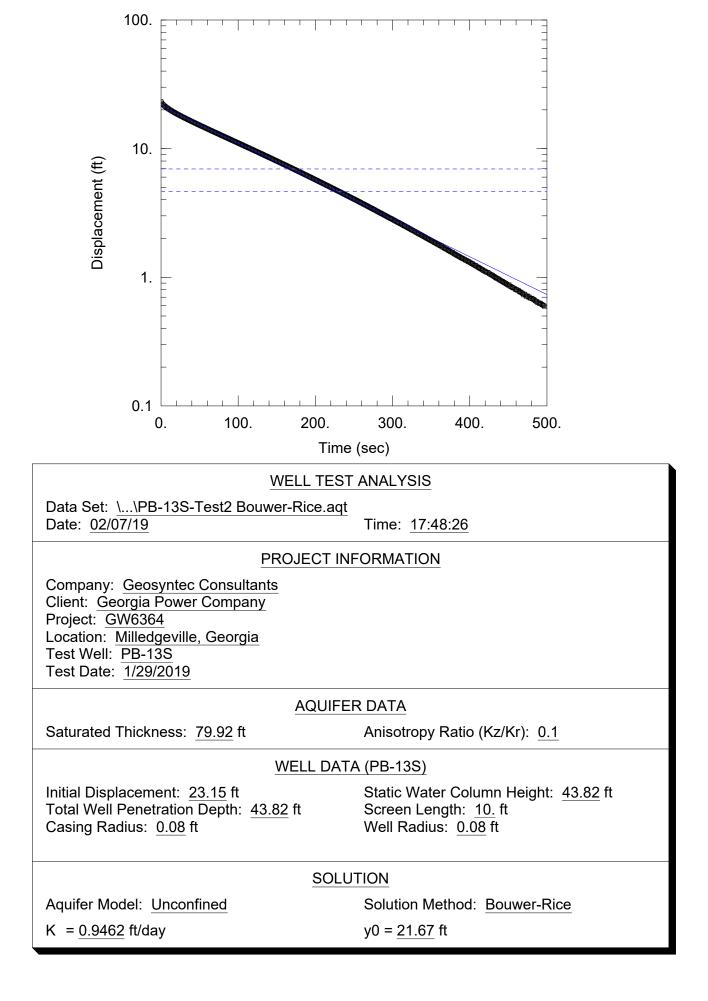


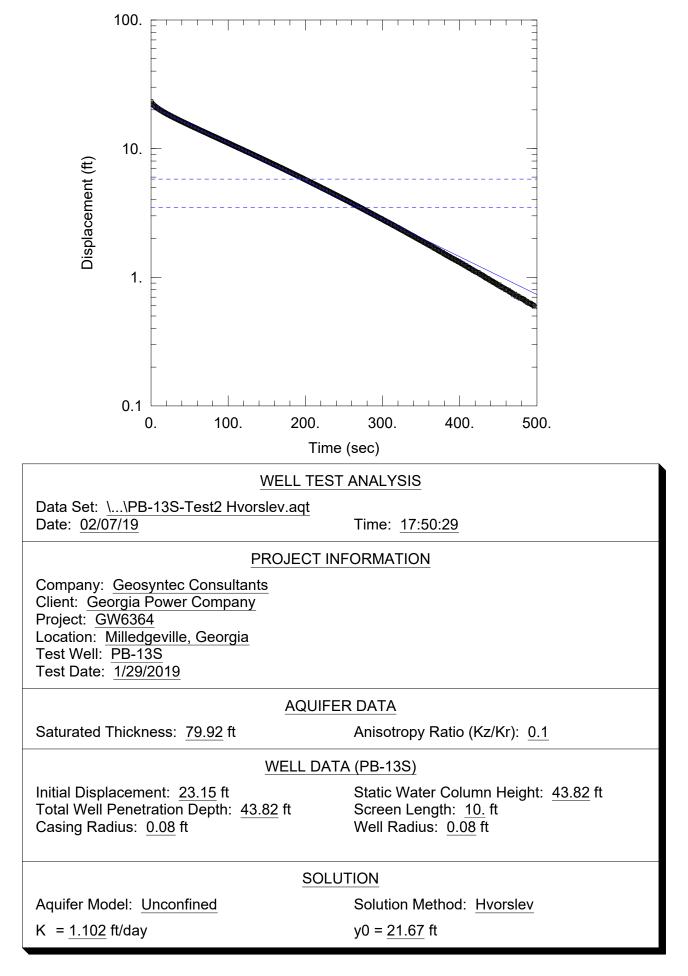


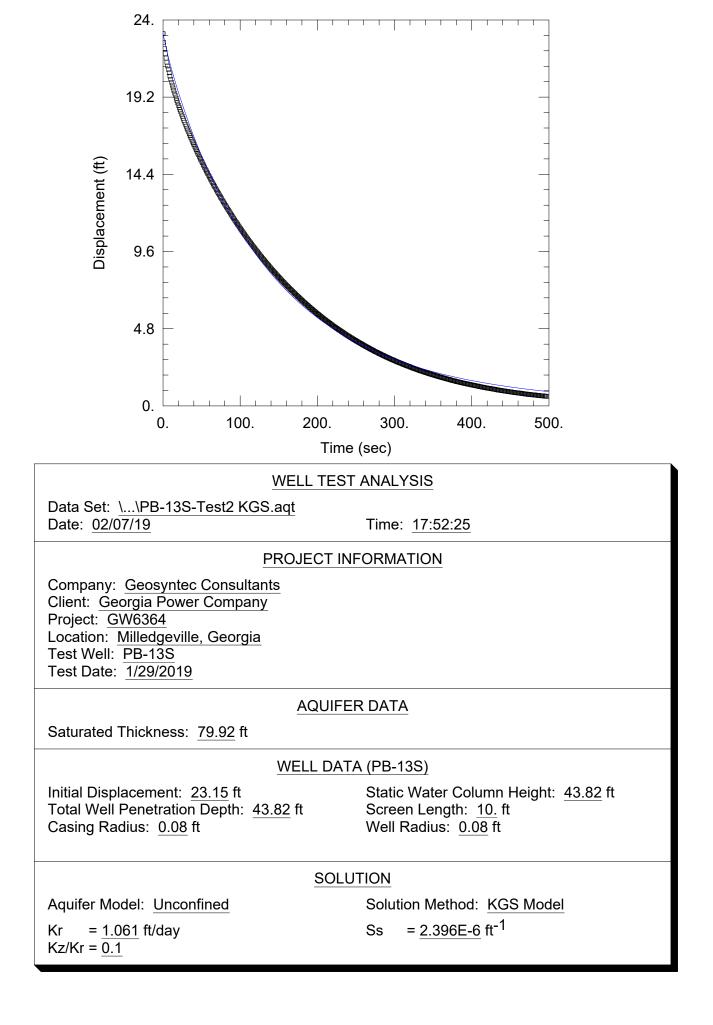






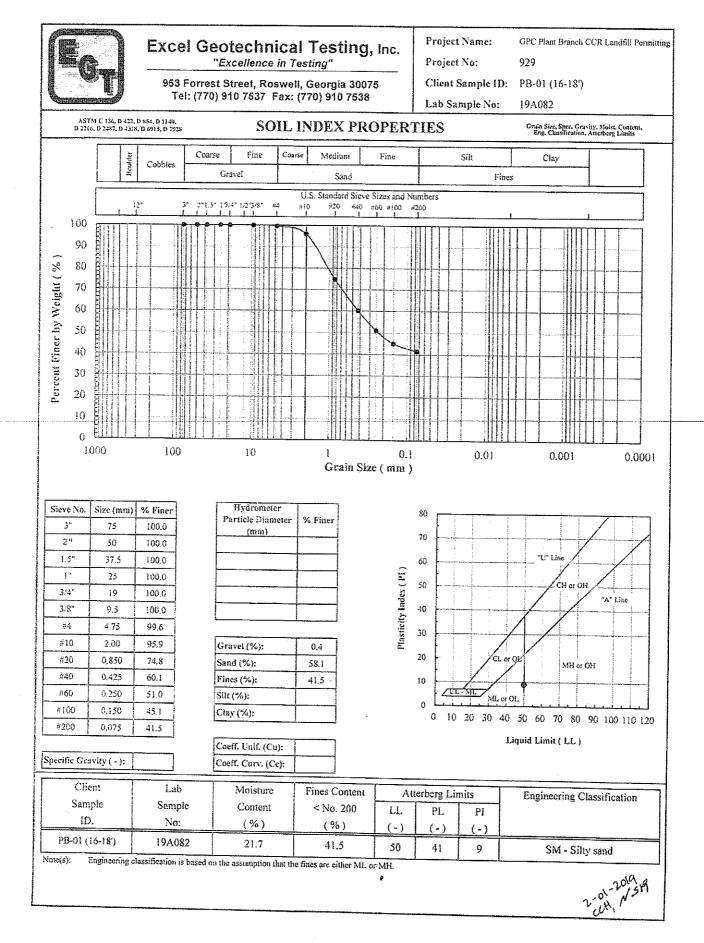


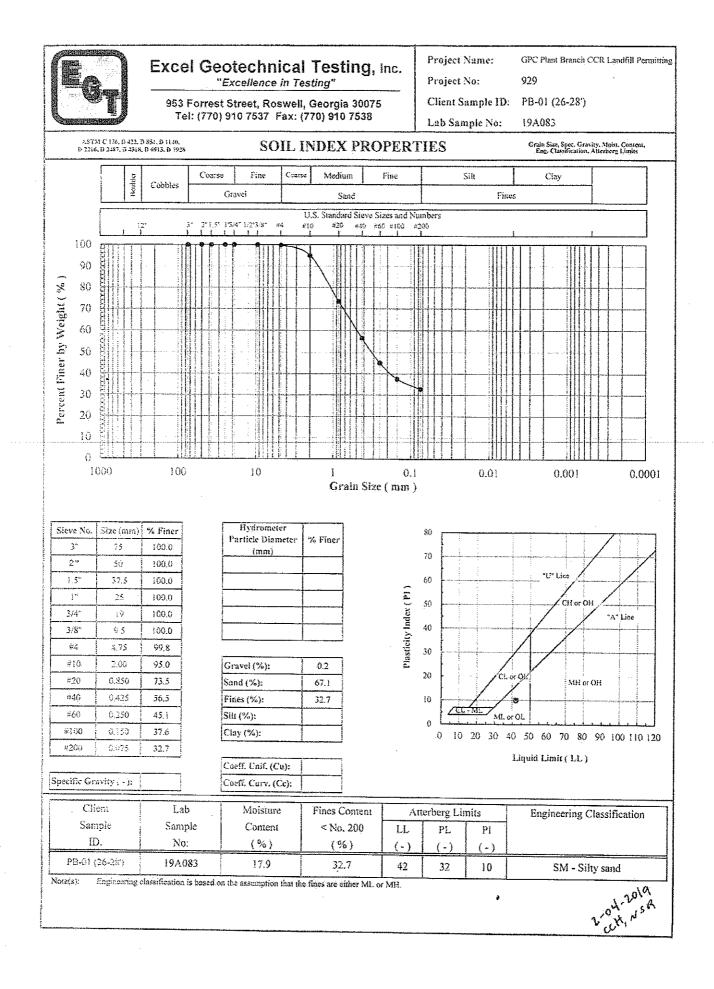


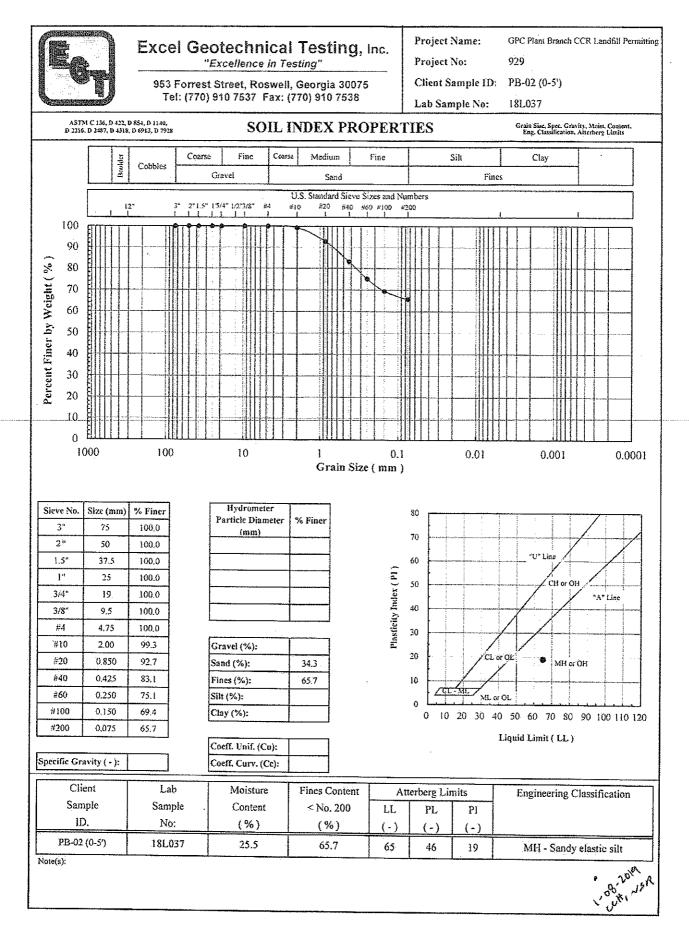


APPENDIX G

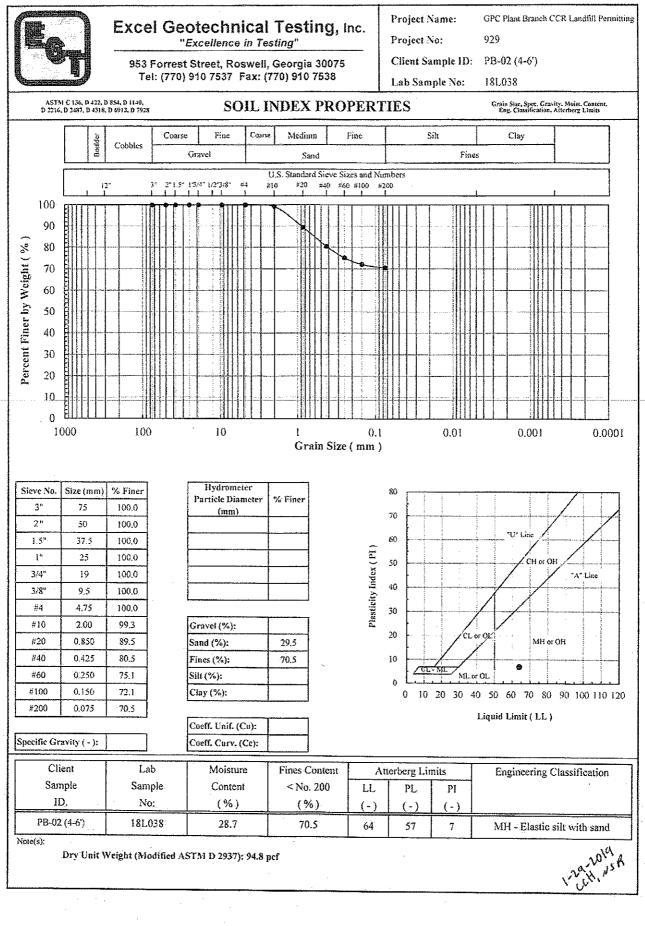
Geotechnical and Analytical Laboratory Testing Results

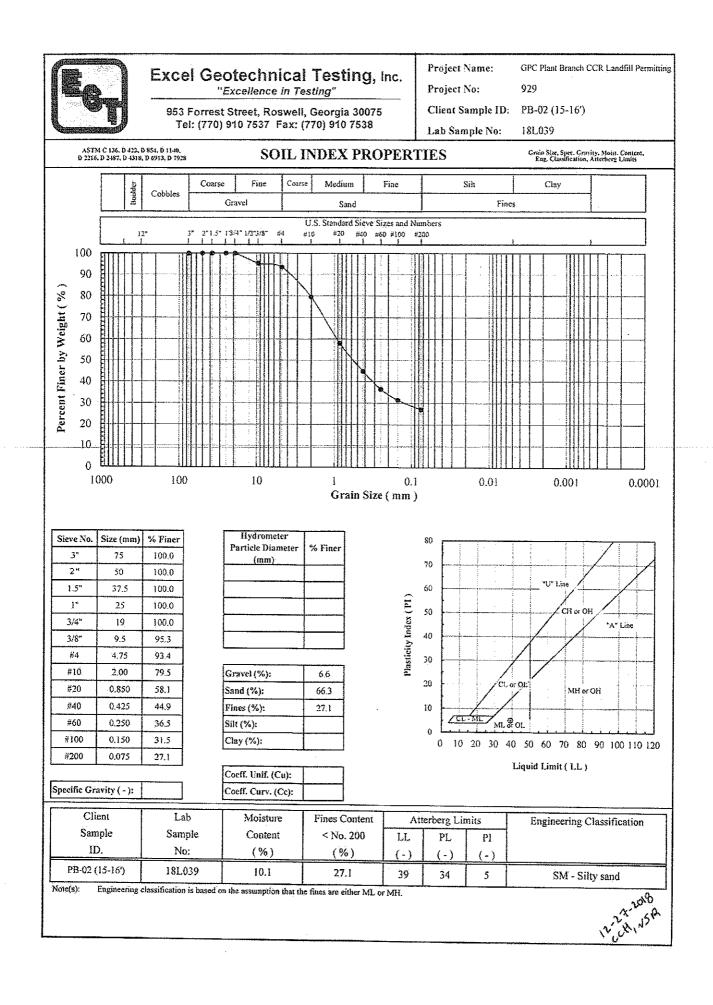


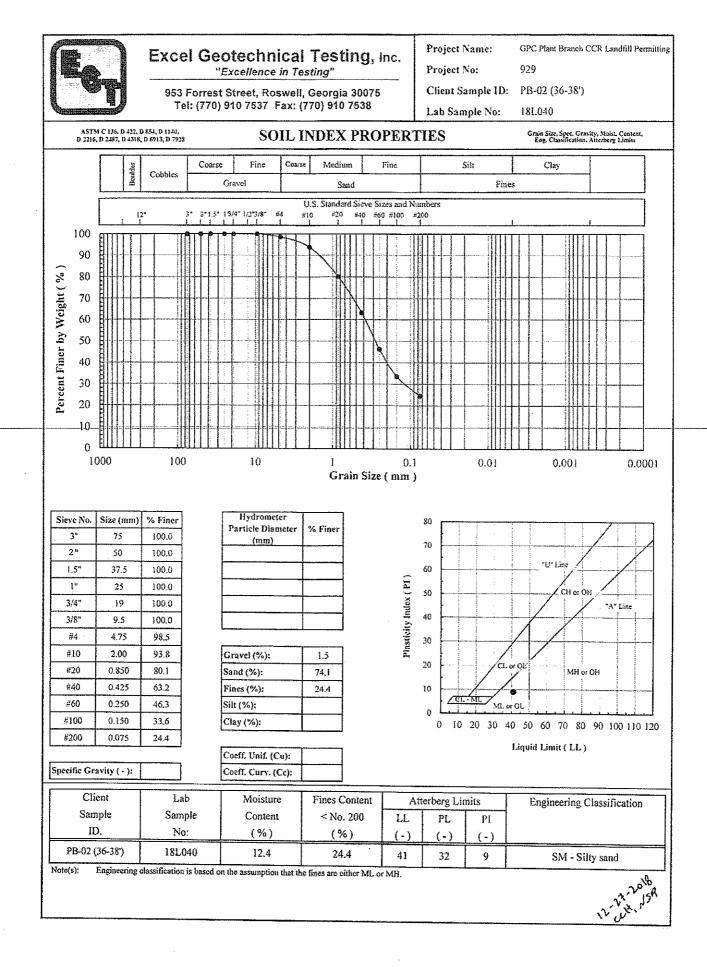


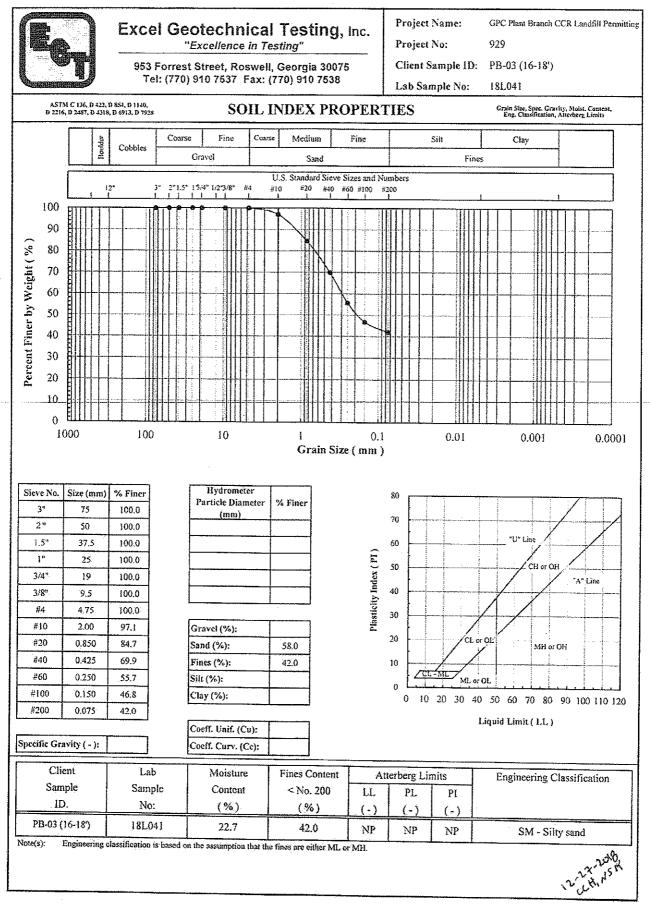


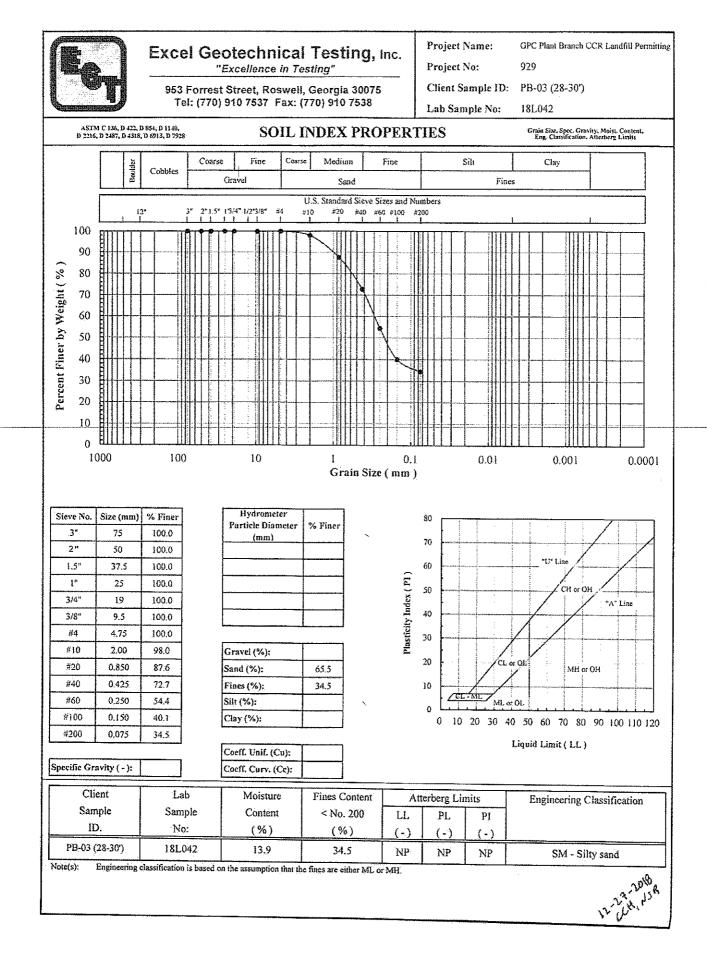
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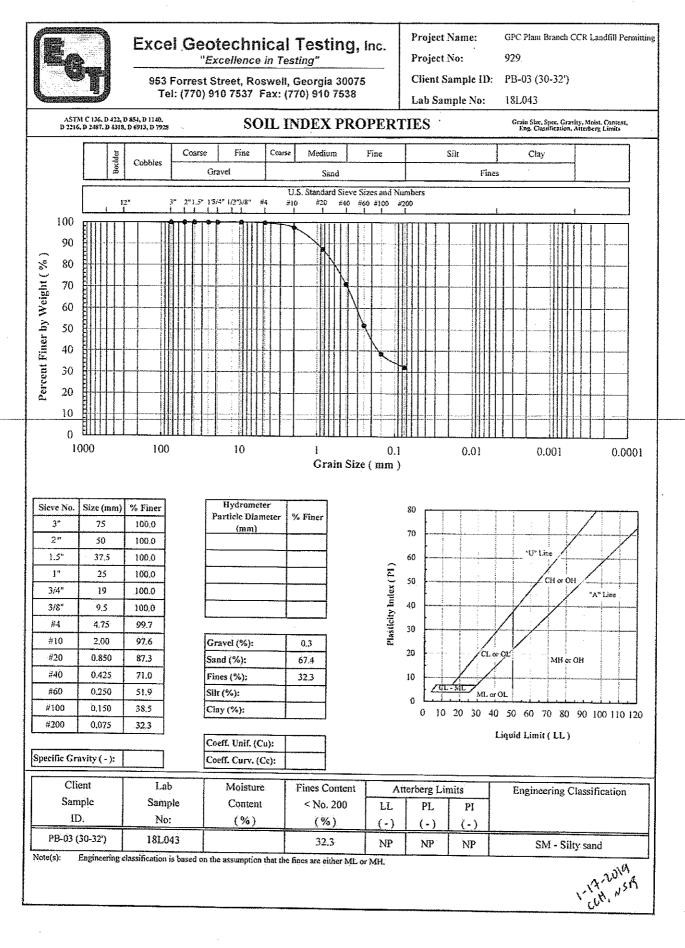


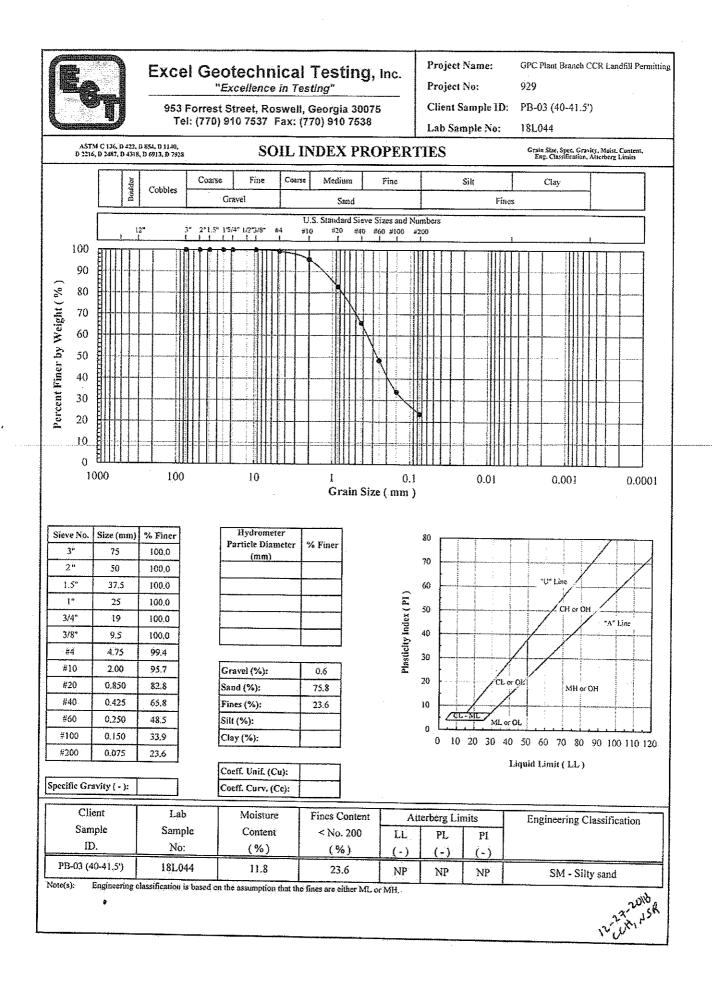


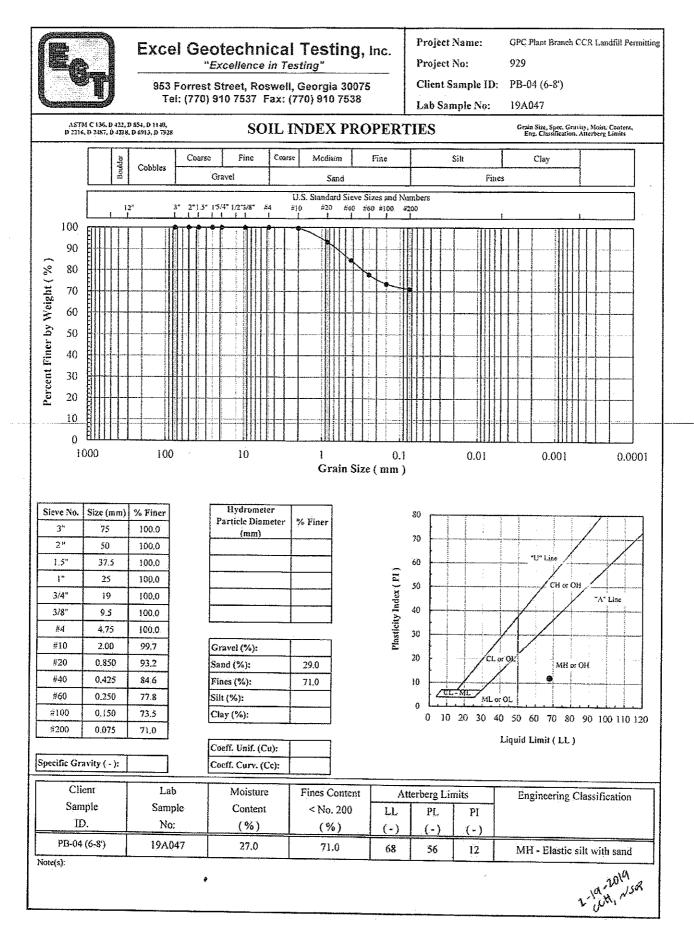


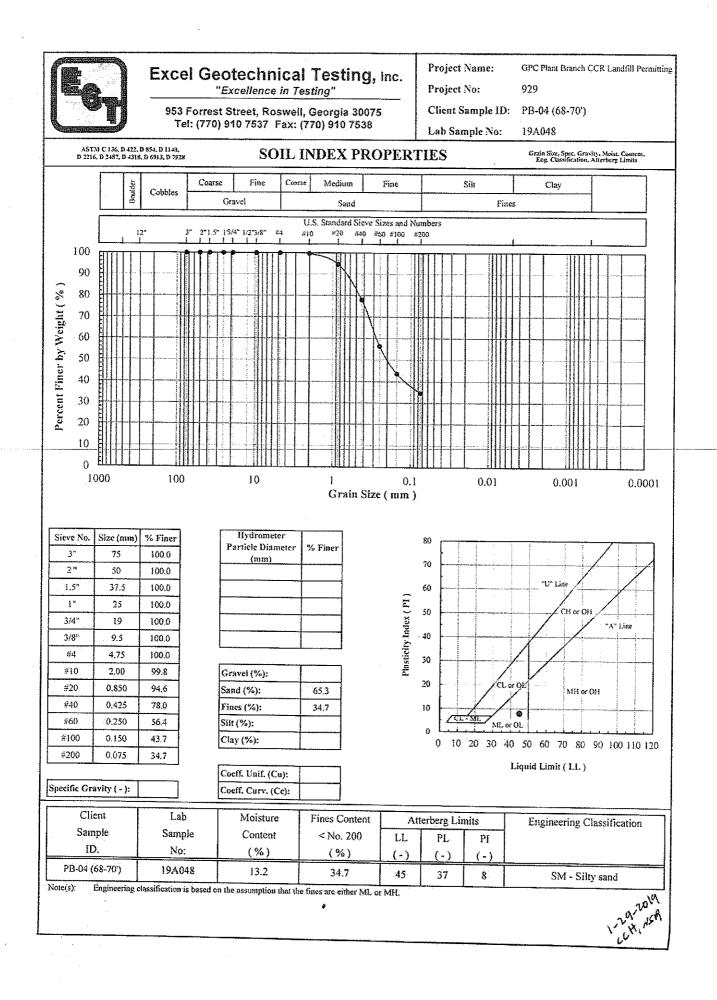


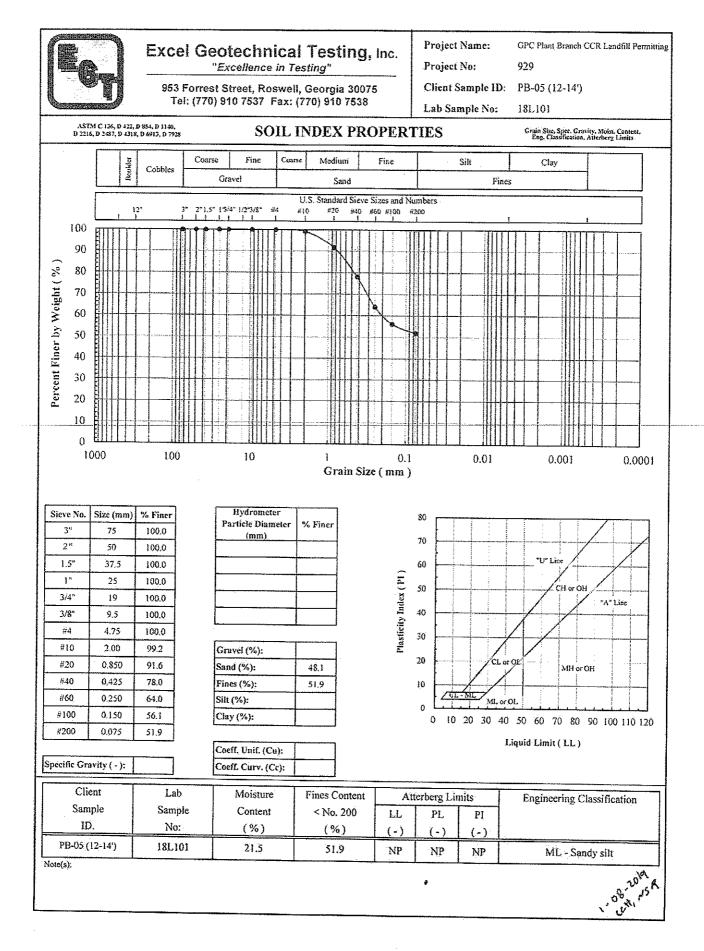


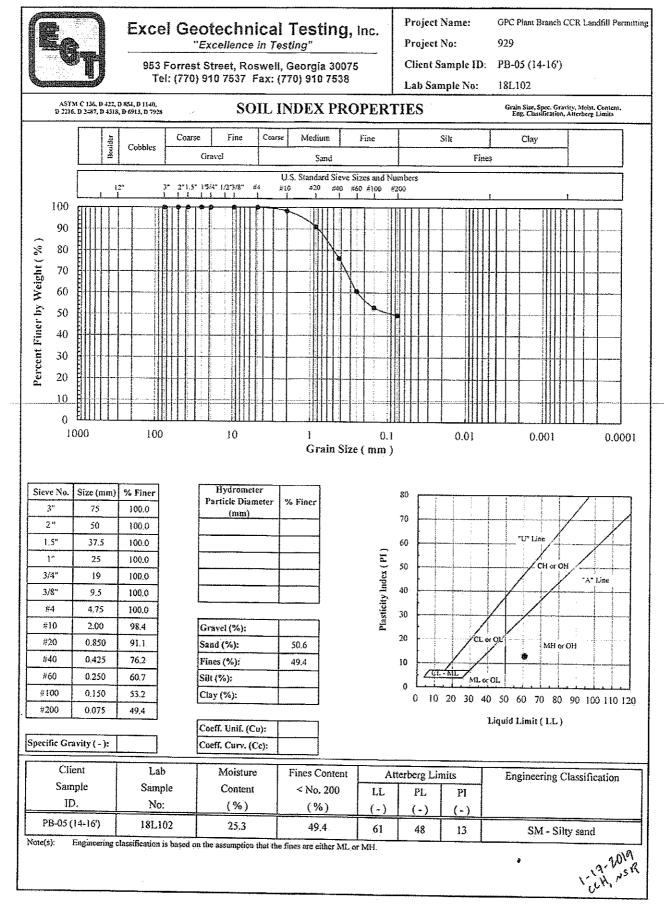


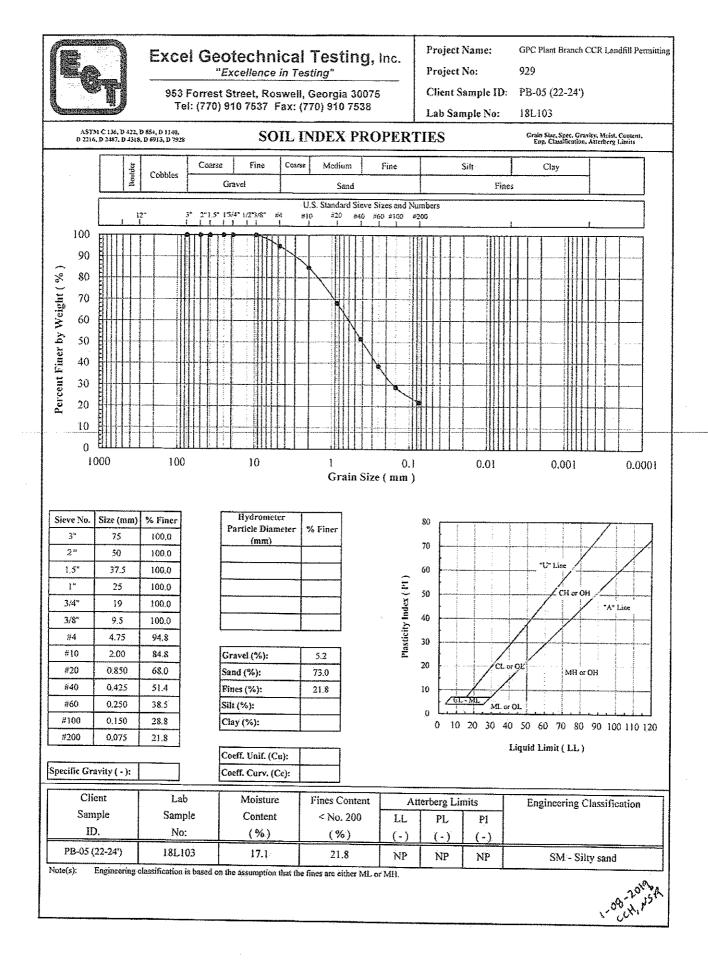


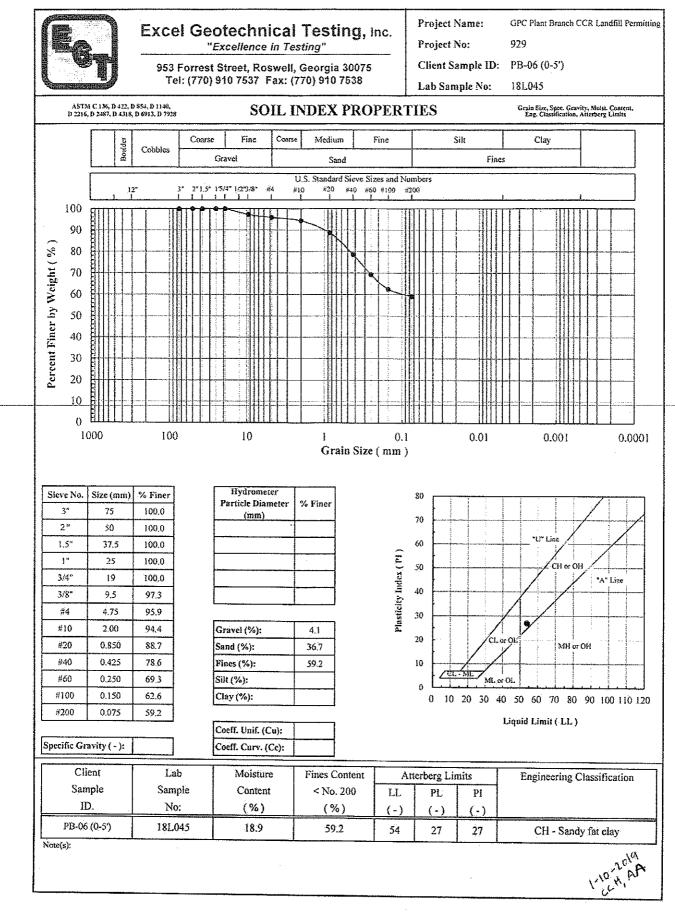




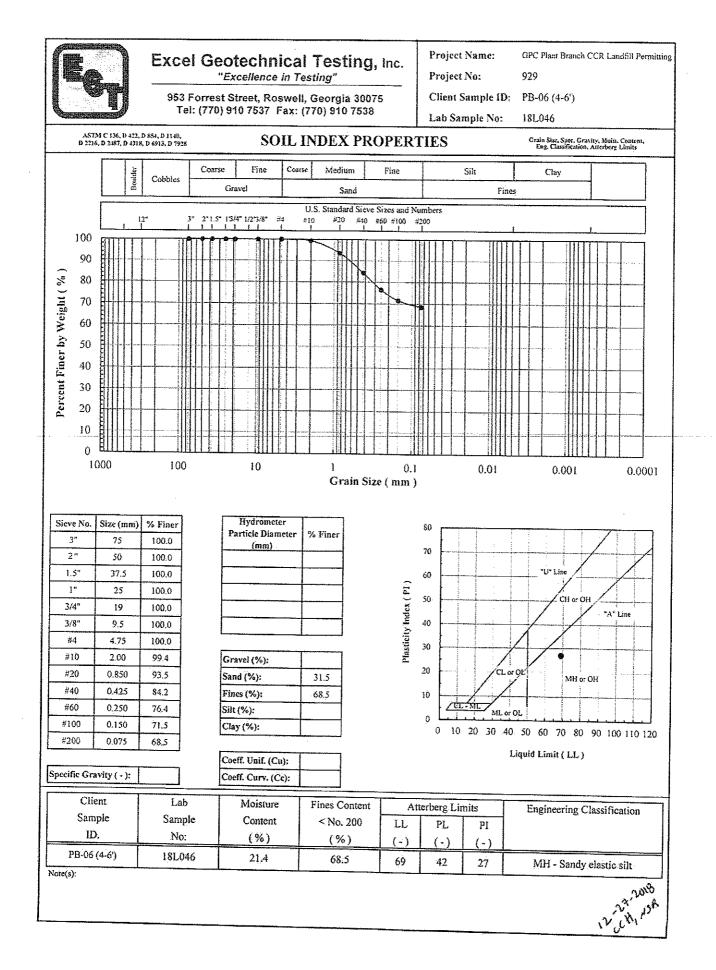


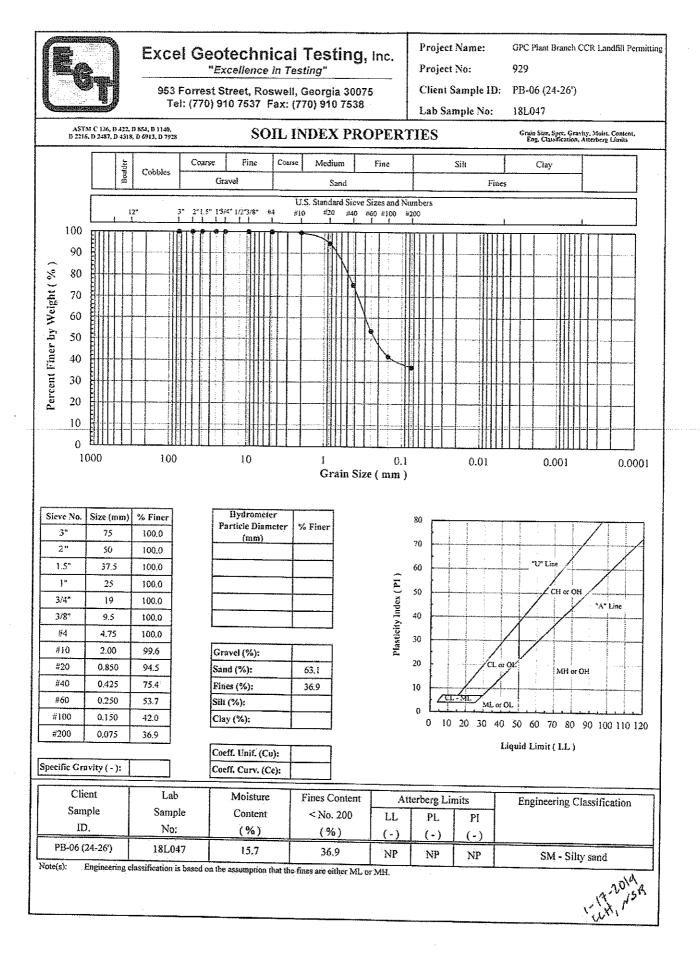




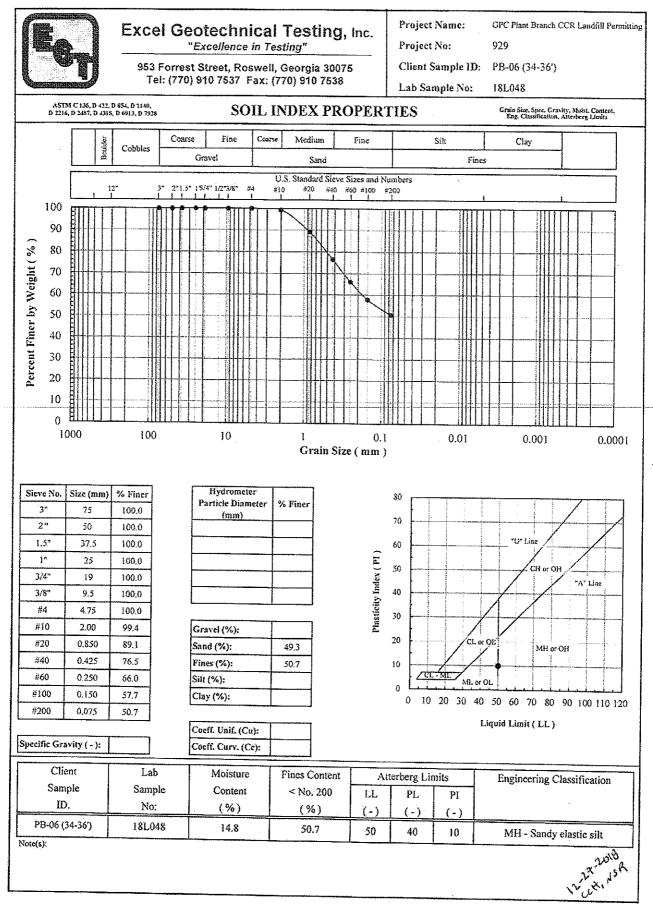


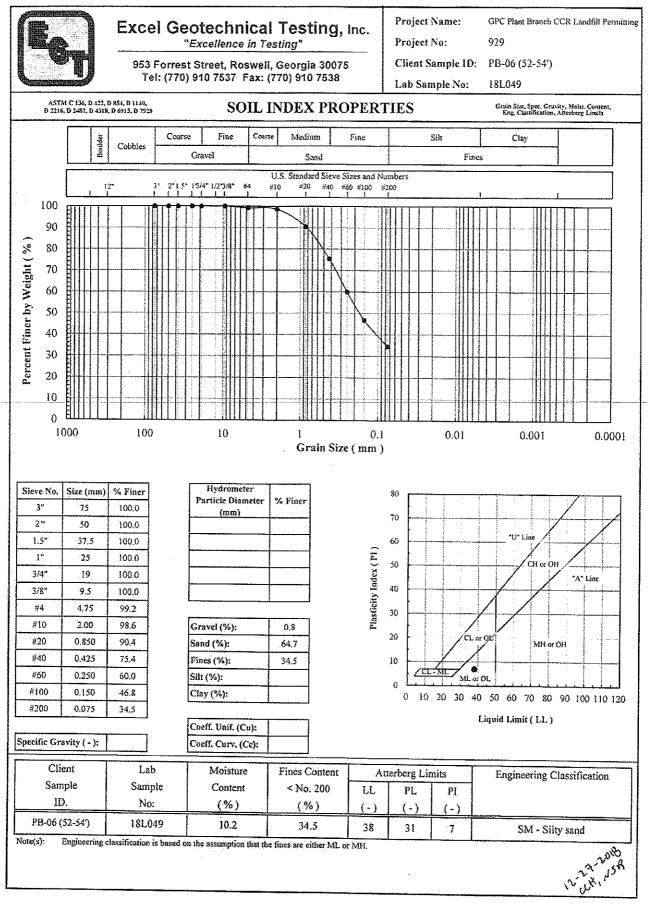
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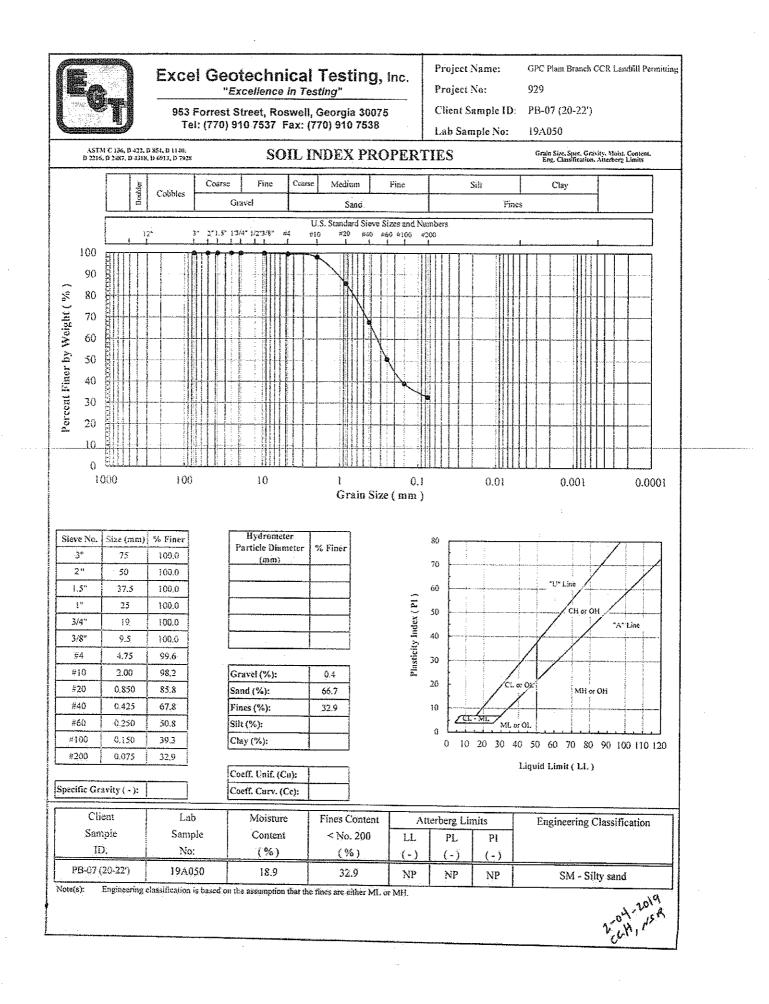


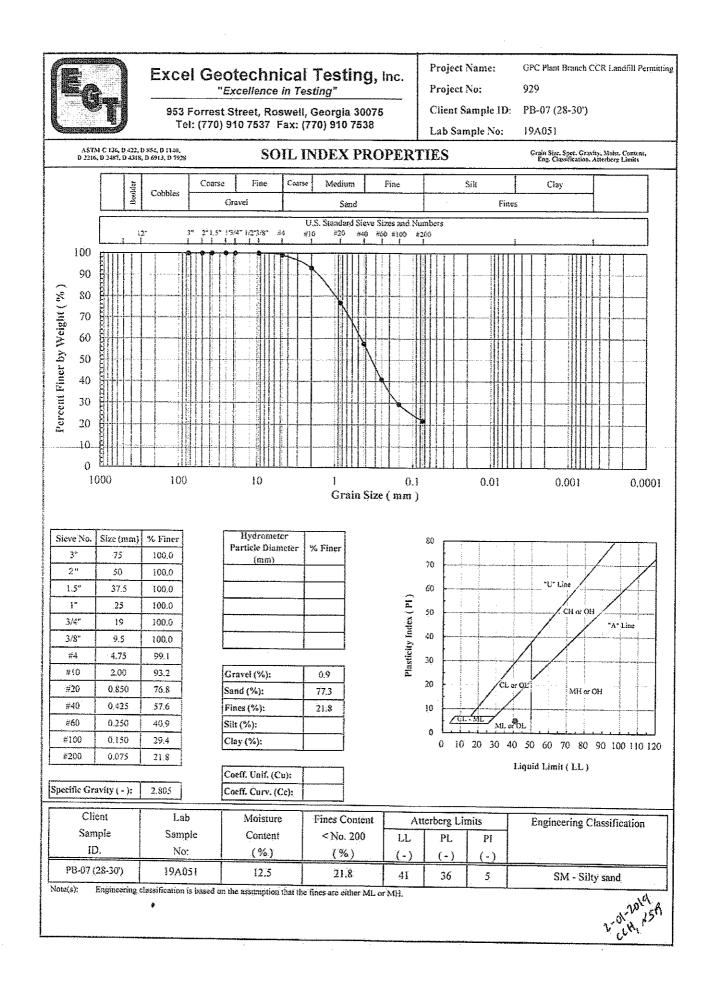


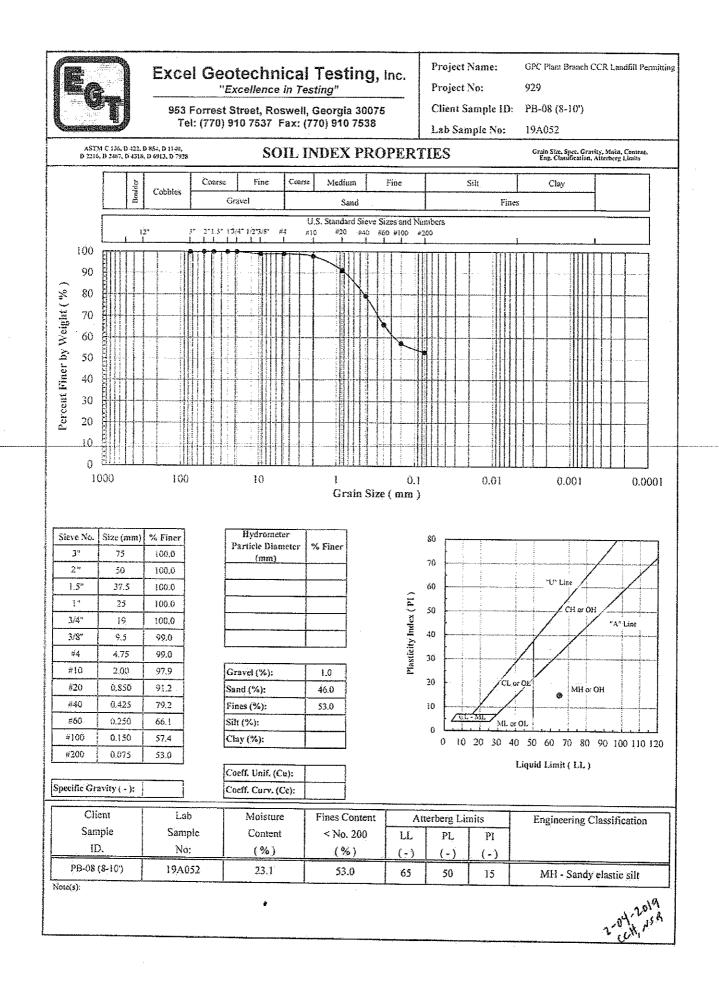
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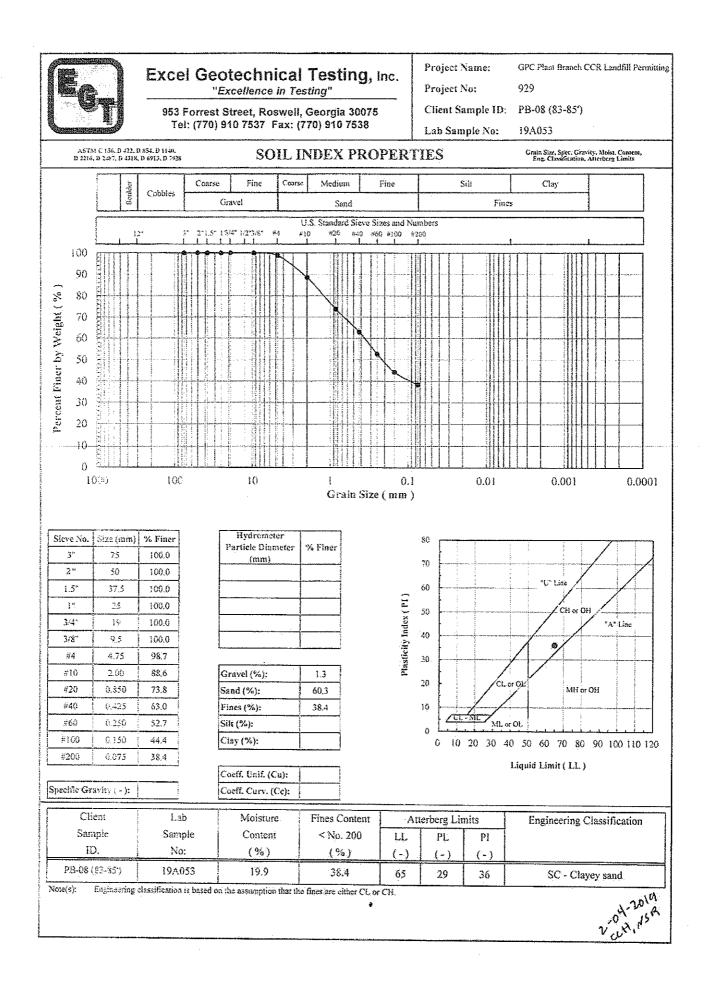


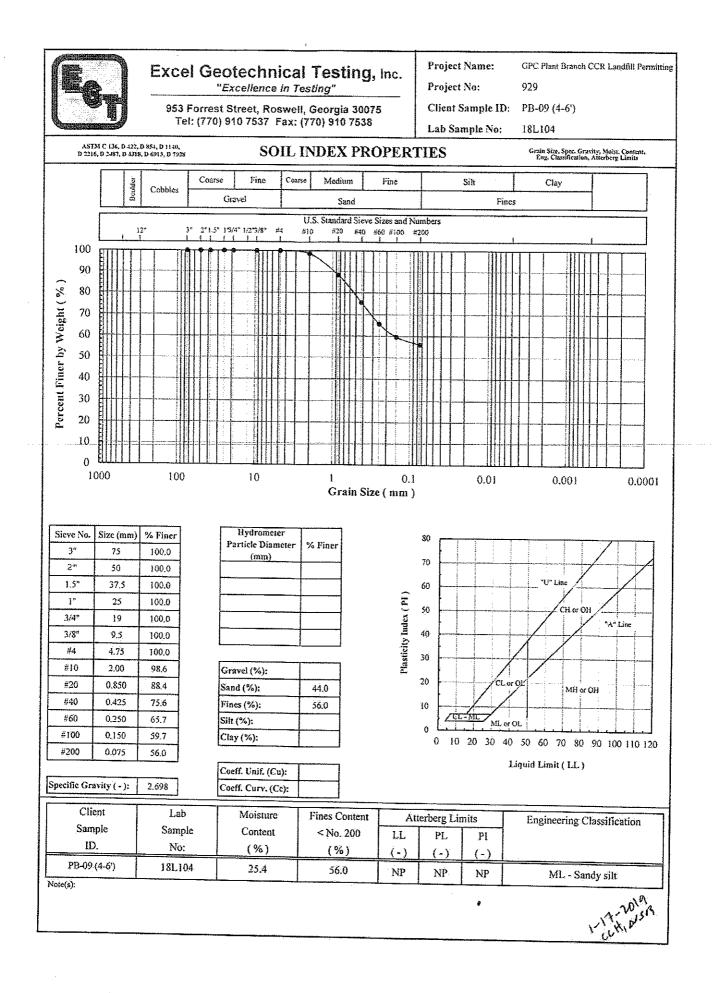


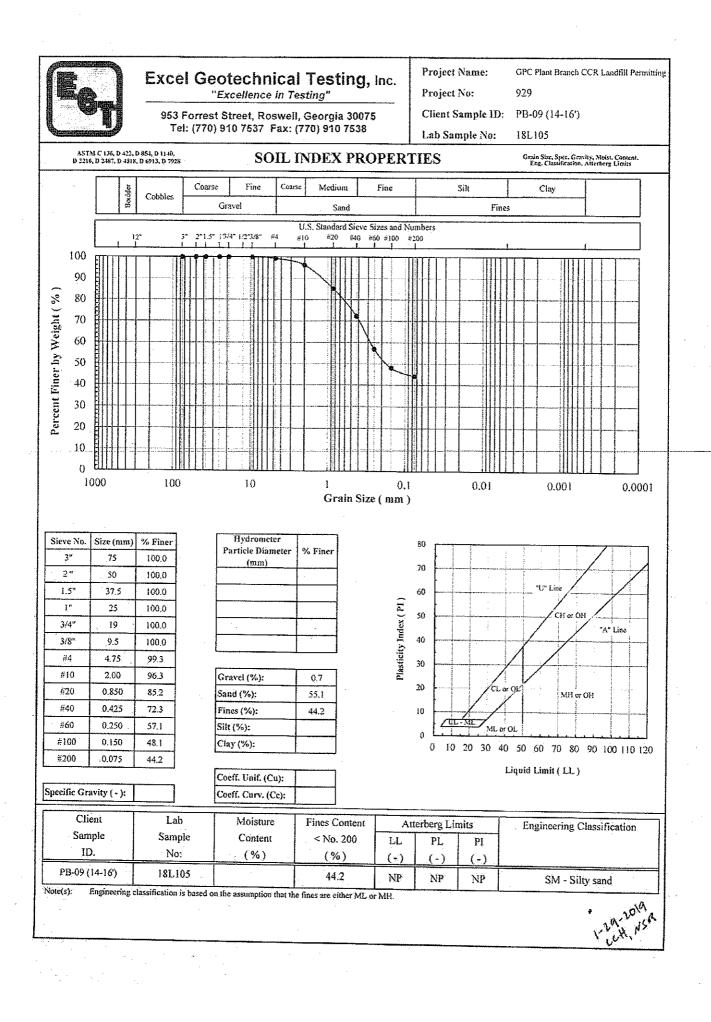


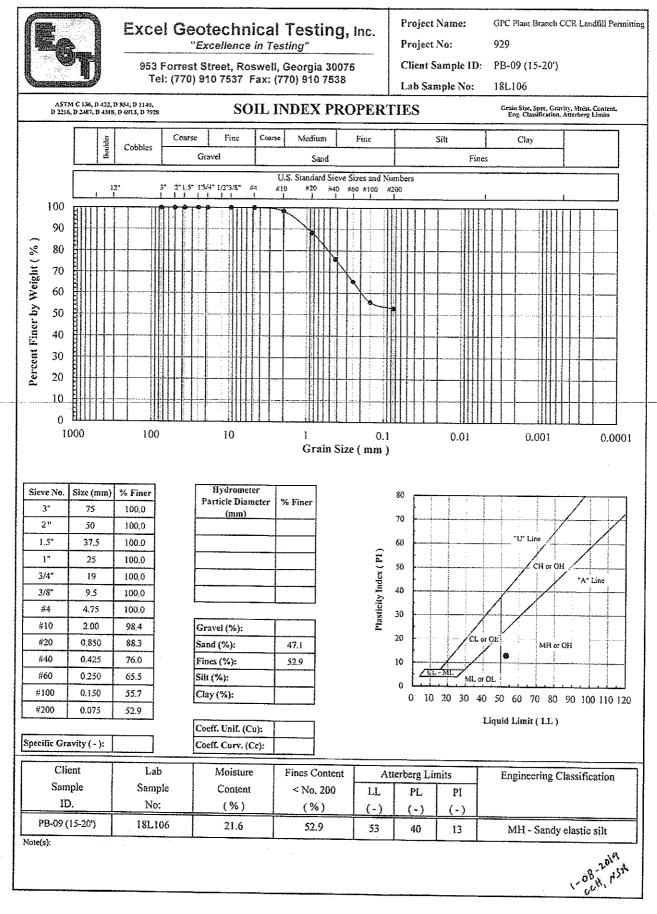


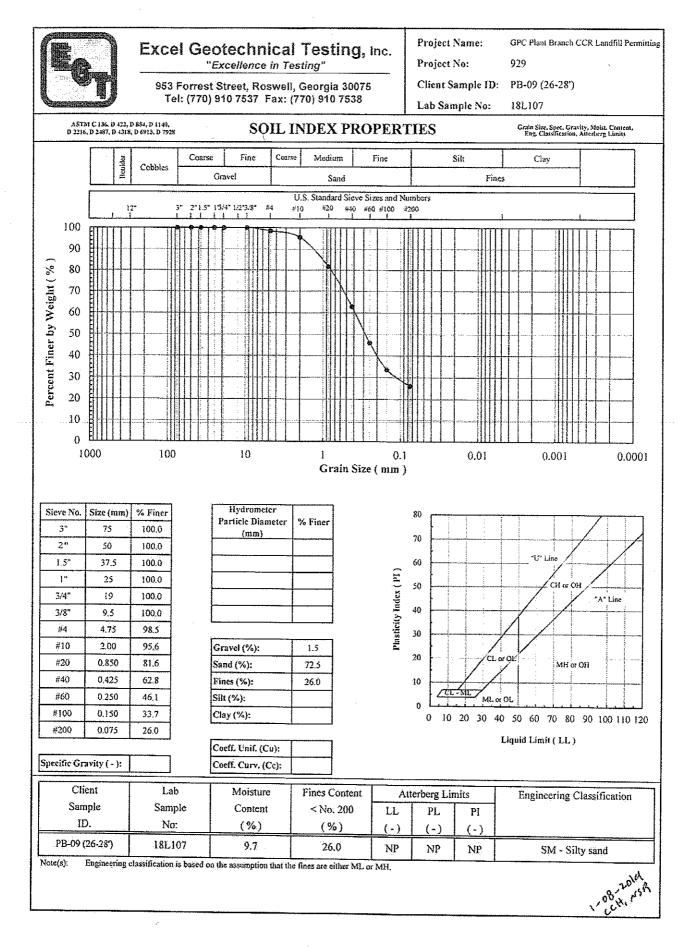




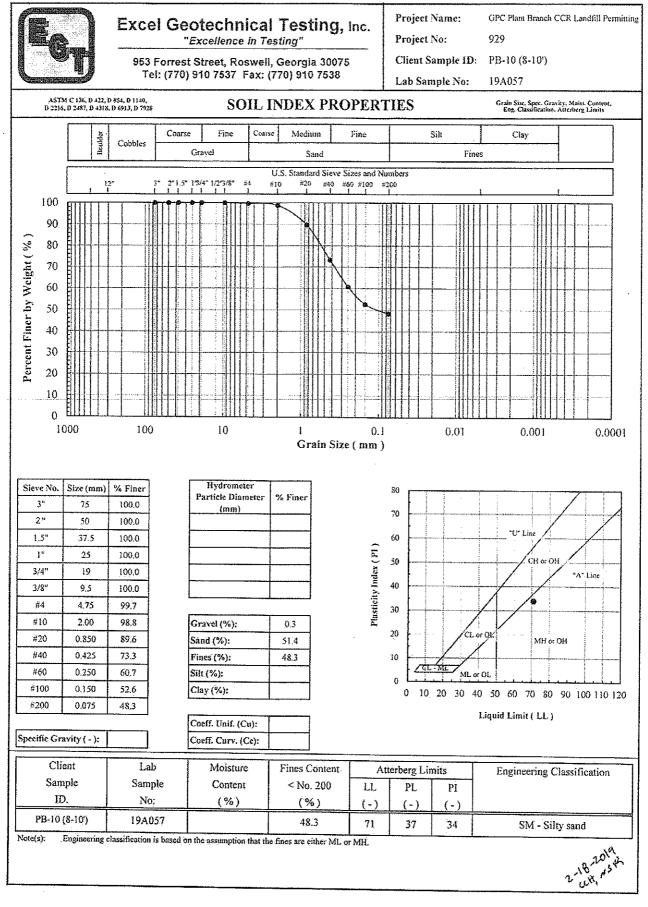


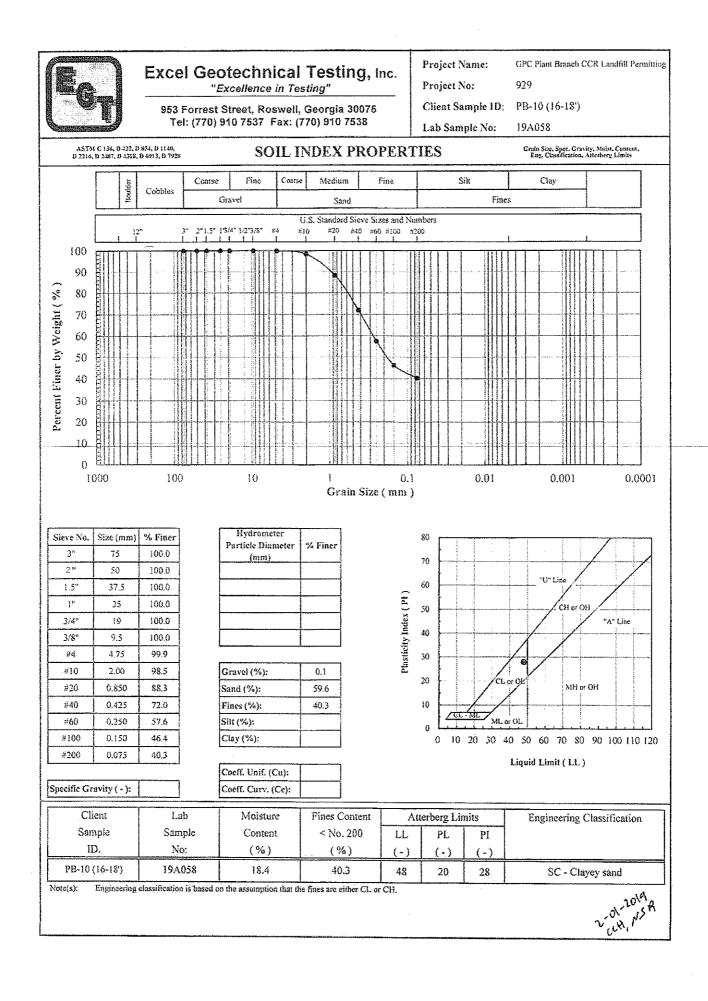


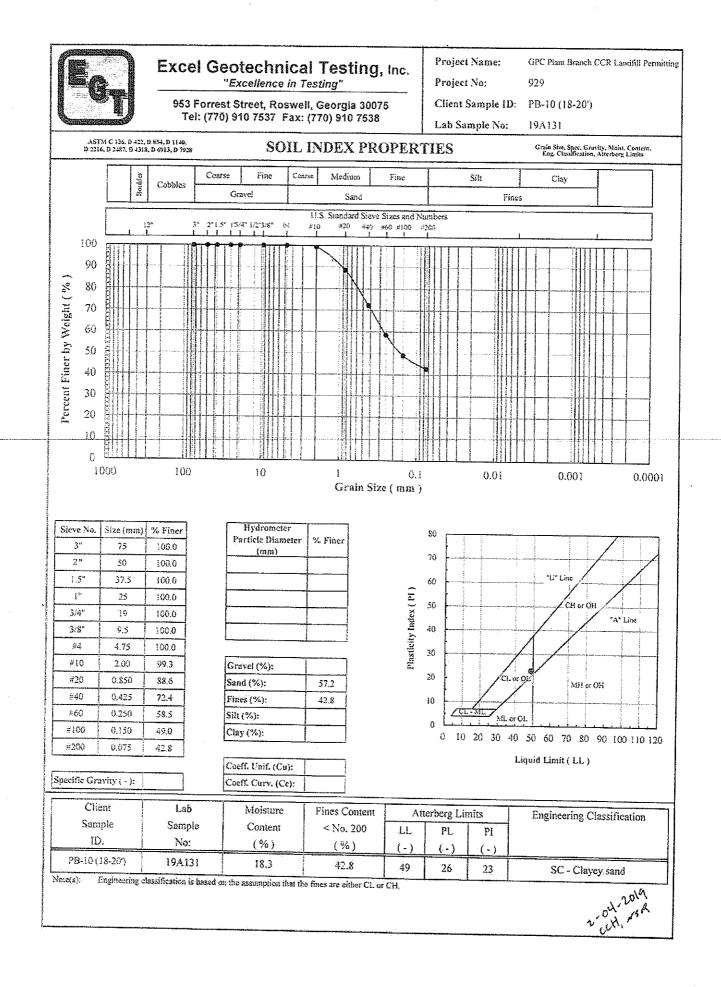




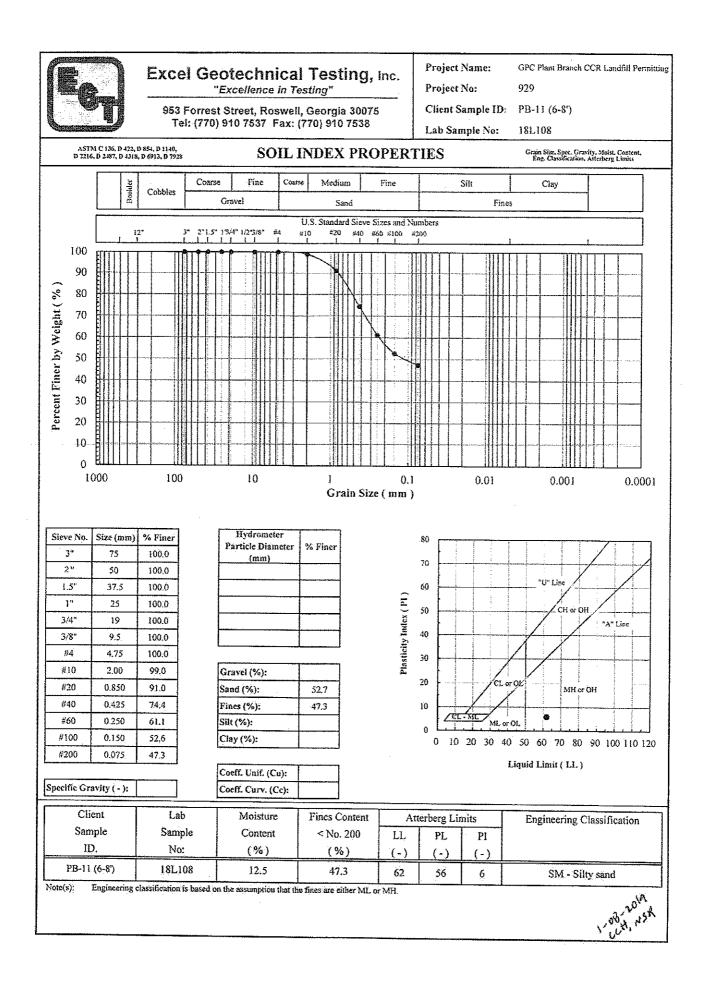
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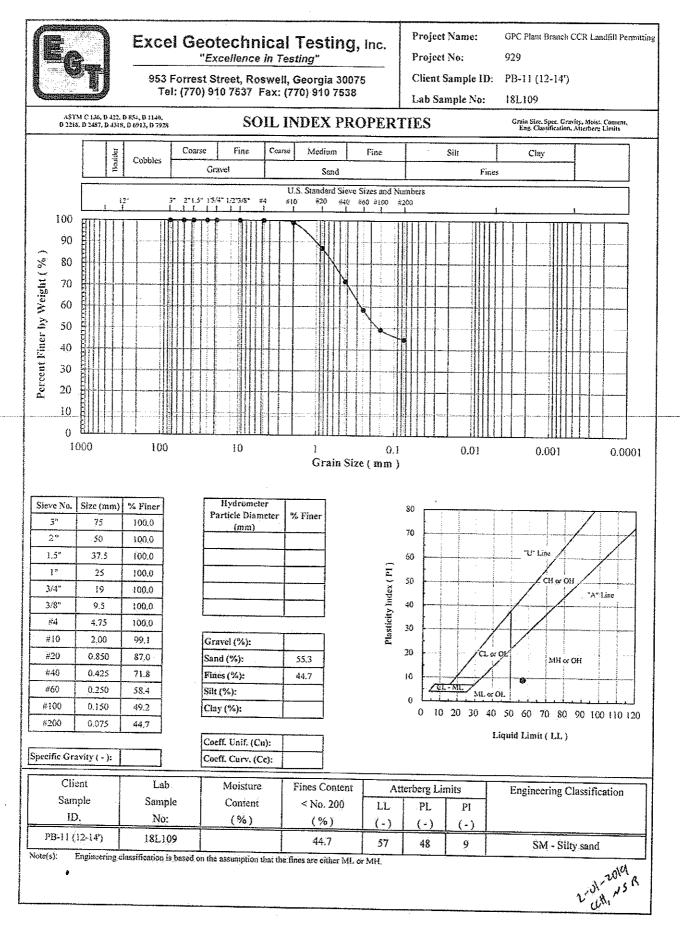


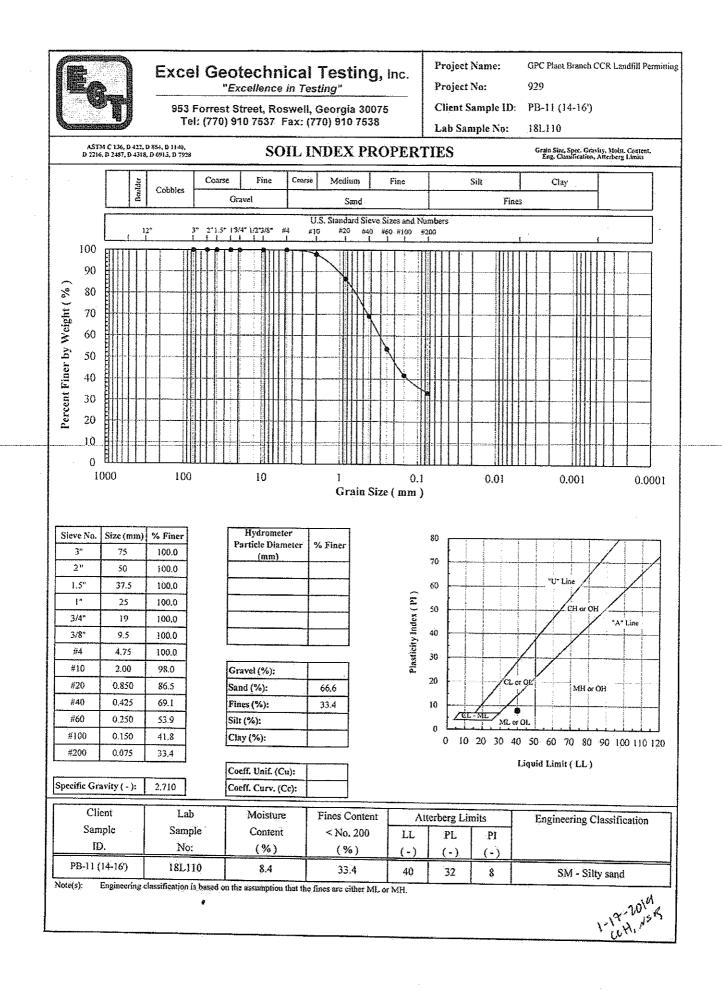


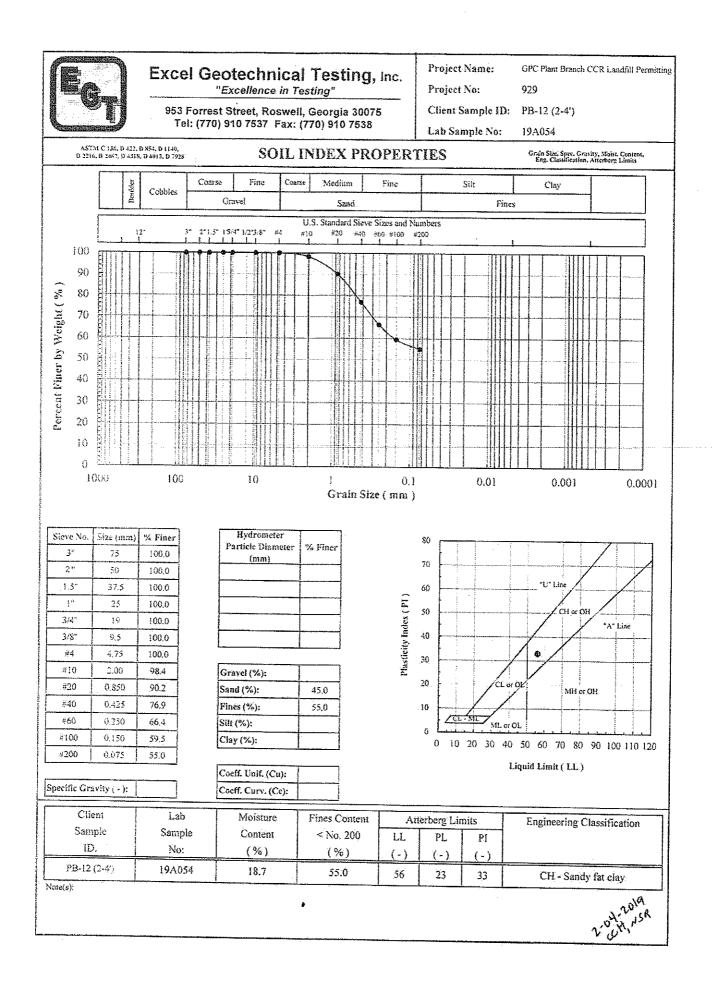


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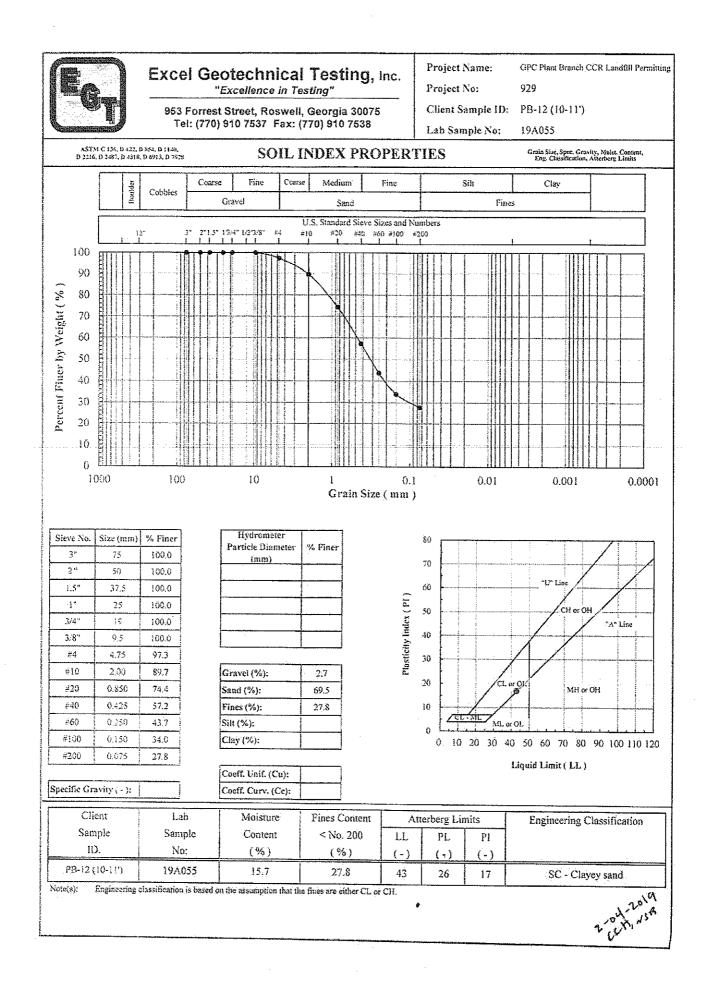


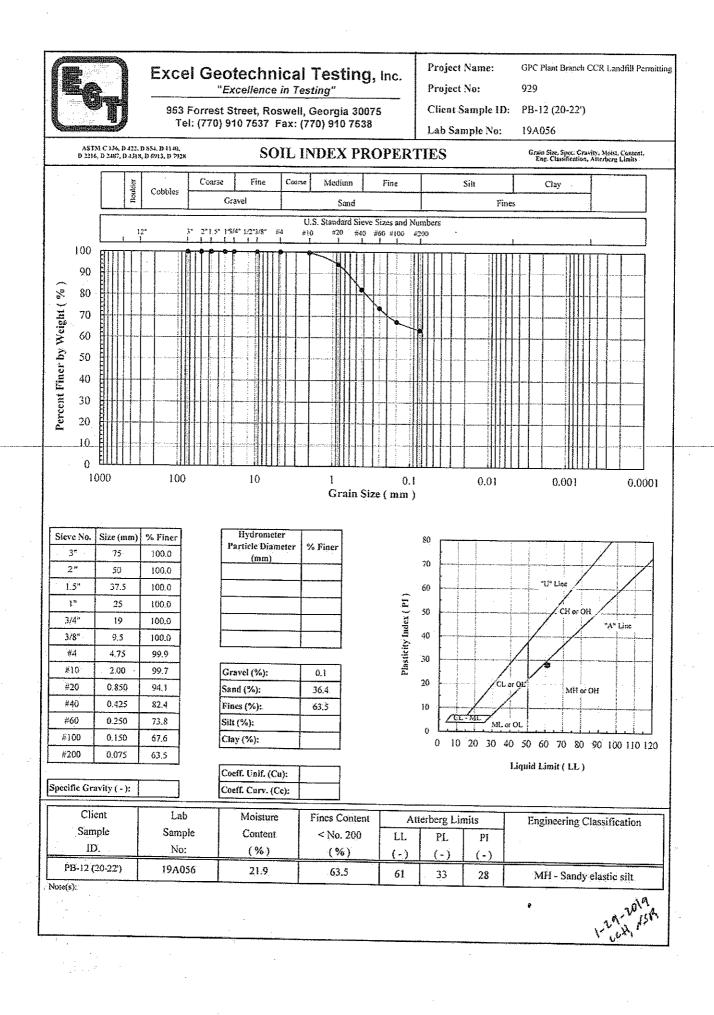


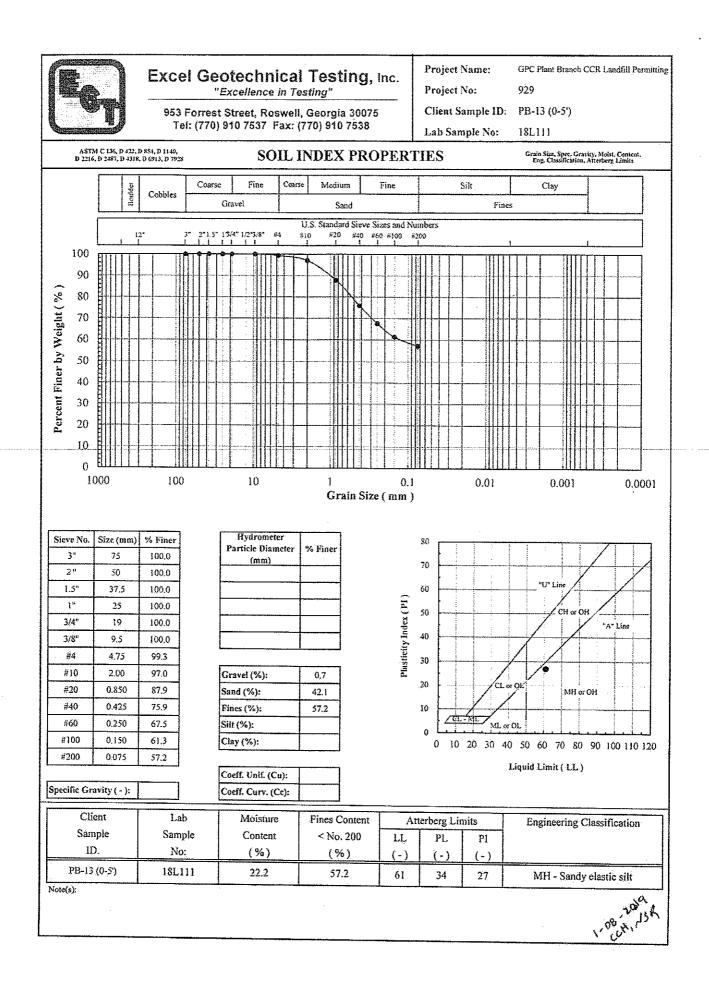


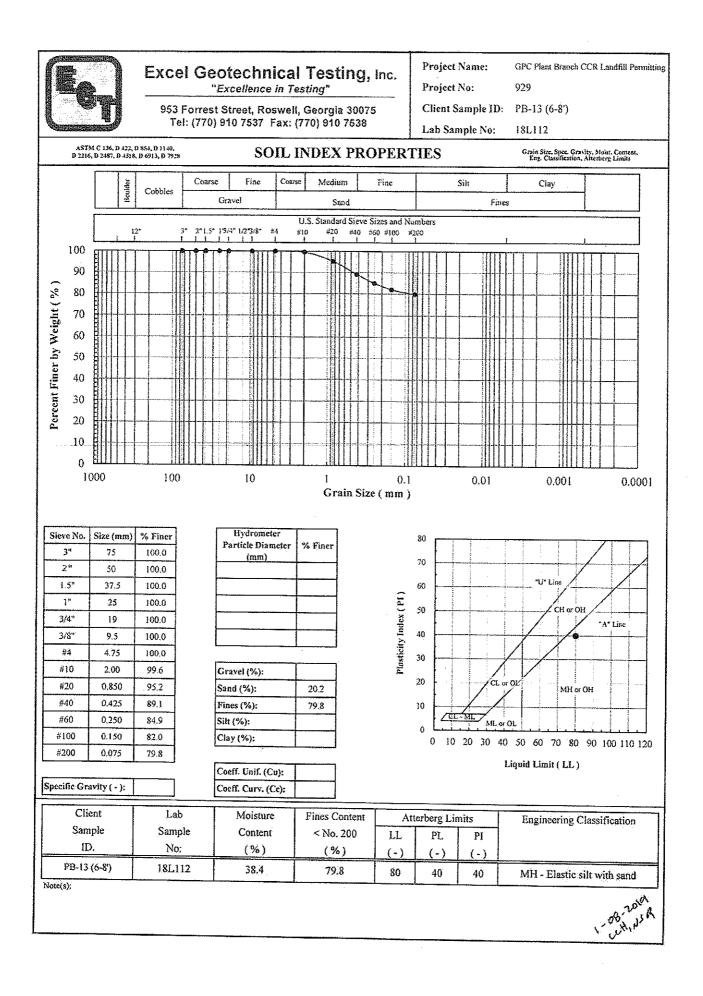


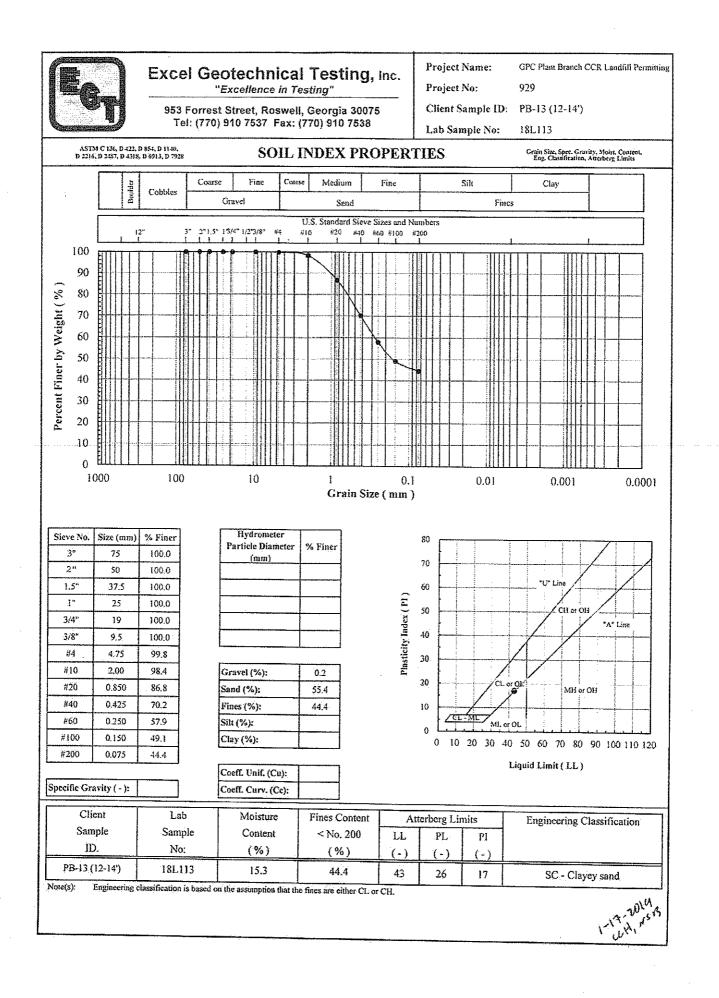
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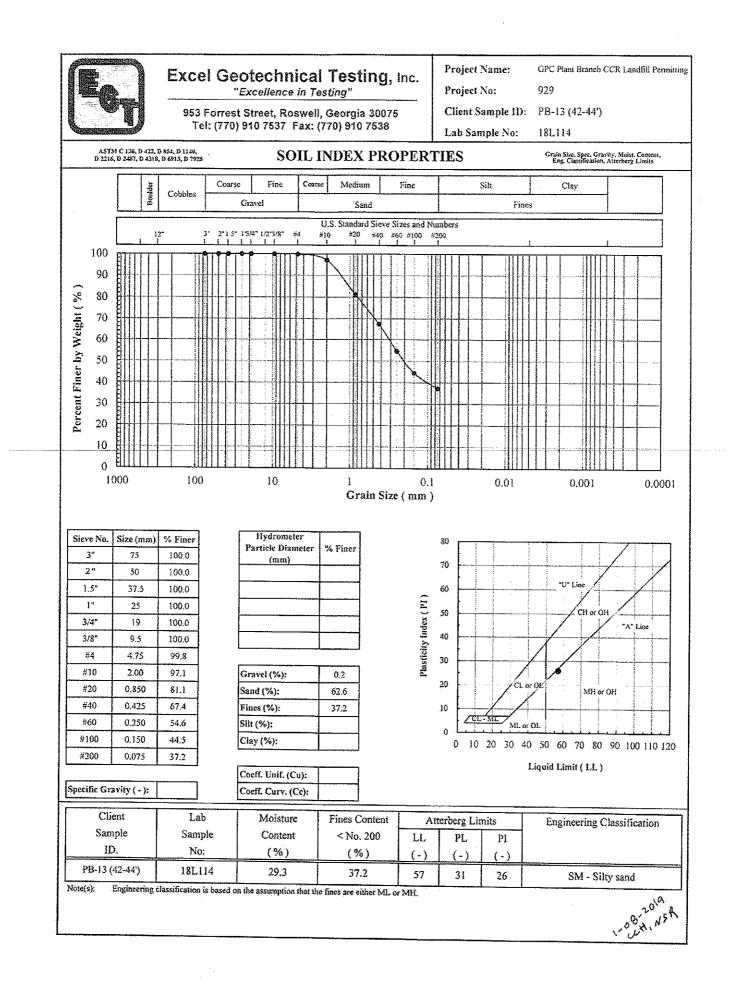


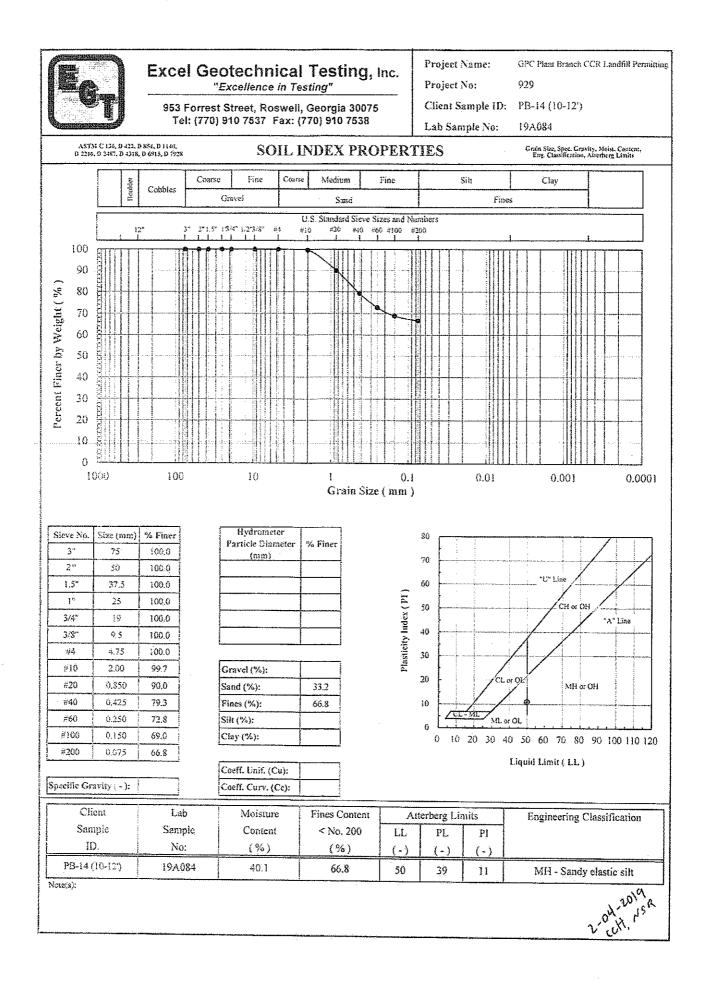


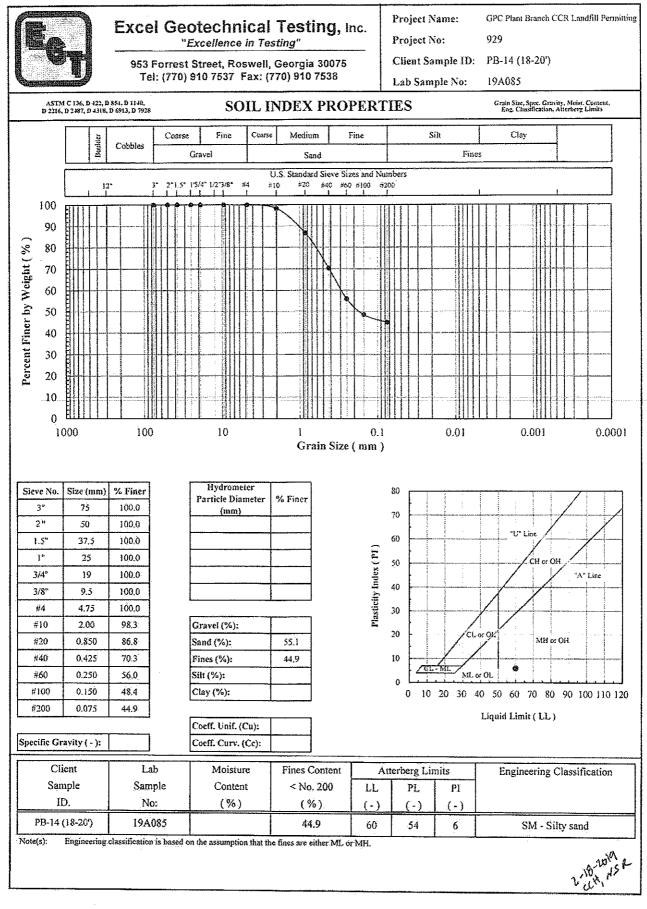














953 Forrest Street, Roswell, Georgia 30075 Tel: (770) 910 7537 Fax: (770) 910 7538

FLEXIBLE WALL PERMEABILITY TEST (1)

ASTM D 5084 *

Project Name: **Project Number:** Client Name: Site Sample ID:

Lab Sample Number:

Material Type:

Specified Value (cm/sec):

Date Test Started:

	· · · · · · · · · · · · · · · · · · ·
GPC Plant Branch CCR Landfill Permitti	ng
929	· · · ·
Geosyntec Consultants	******
PB-05 (14-16')	
18L102	
Soil	
NA	44
12/19/2018	

Specimen	Spe	cimen Init	ial Condit	tions		Hydraulic				
Type	Sp	ecimen Fir	al Condit	ions		Te				
(See Note2)	Spec.	Spec.	Dry Unit	Moisture	Cell	Back	Consolid.	Permeant	Average	Conductivity
	Length	Diameter	Weight	Content	Press.	Press.	Press.	Liquid ⁽³⁾	Gradient	
(-)	(cm)	(cm)	(pcf)	(%)	(psi)	(psi)	(psi)	(-)	(-)	(cm/s)
ST	5.64	7.29	78.4	29.3	83.0	70.0	12.0	DADIN	10 5	4
0,1	5.62	7.30	81.0	37.2	85.0	/0.0	13.0	DTW	12.5	4.4E-5

1-18-2010A

Notes:

ð

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.

2. Specimen Type: ST = Shelby Tube, BS = Block Sample, Ot = Others

3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations: Laboratory temperature at 22±3 °C.



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FLEXIBLE WALL PERMEABILITY TEST (1)

ASTM D 5084 *

Project Name: Project Number: Client Name: Site Sample ID: Lab Sample Number:

Material Type:

Specified Value (cm/sec): Date Test Started:

GPC Plant Branch CCR Landfill Permitting	g
929	
Geosyntec Consultants	· · · · · · · · · · · · · · · · · · ·
PB-07 (20-22')	
19A050	
Soil	
NA	
1/18/19	

Specimen	Spe	cimen Init	ial Condit	ions			Hydraulic				
Туре	Sp	eçimen Fir	al Condit	ions		To					
(See Note 2)	Spec.	Spec.	Dry Unit	Moisture	Cell	Back	Consolid.	Permeant	Average	Conductivity	
	Length	Diameter	Weight	Content	Press.	Press.	Press.	Liquid ⁽³⁾	Gradient		
(-)	(cm)	(cm)	(pcf)	(%)	(psi)	(psi)	(psi)	(-)	(-)	(cm/s)	
ST	5.68	7.22	97.7	18.9	88.0	70.0	18.0	DTW	0	4 655 6	
U 1	5.40	7.25	99.1	25.5	00.0	70.0	18.0	DTW	9	4.7E-5	

201-2019

Notes:

1. Method C, "Falling-Head, increasing-Tailwater" test procedures were followed during the testing.

2. Specimen Type: ST = Shelby Tube, BS = Block Sample, Ot = Others

3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations:





953 Forrest Street, Roswell, Georgia 30075 Tel: (770) 910 7537 Fax: (770) 910 7538

FLEXIBLE WALL PERMEABILITY TEST (1)

ASTM D 5084 *

Project Name: Project Number: Client Name: Site Sample ID: Lab Sample Number: Material Type: Specified Value (cm/sec):

Date Test Started:

GPC Plant Branch CCR Landfill Permitting	
929	· · · · · · · · · · · · · · · · · · ·
Geosyntee Consultants	
PB-10 (18-20')	
19A131	
Soil	
NA	
1/31/2019	****

Specimen	Spe	cimen Init	ial Condit	tions		rj.	est Conditio		Hydraulic	
Туре	Sp	ecimen Fir	nal Condit	ions		1				
(See Note 2)	Spec.	Spec.	Dry Unit	Moisture	Cell	Conductivity				
	Length	Diameter	Weight	Content	Press.	Press.	Press.	Liquid ⁽³⁾	Gradient	
(-)	(cm)	(cm)	(pcf)	(%)	(psi)	(psi)	(psi)	(-)	(-)	(cm/s)
ST	5.63	7.27	109.5	18.3	85.0	70.0	15.0	DTW	-	z 1 17 0
3,1	5.63	7.27	109.0	19.6	03.0	10.0	15.0			5.7E-8

2,13-2019 2,13-2019 2,13-2019

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing,

2. Specimen Type: ST = Shelby Tube, BS = Block Sample, Ot = Others

3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations: Laboratory temperature at 22±3 °C.



953 Forrest Street, Roswell, Georgia 30075 Tel: (770) 910 7537 Fax: (770) 910 7538

FLEXIBLE WALL PERMEABILITY TEST (1)

ASTM D 5084 *

Project Name: Project Number: Client Name: Site Sample ID:

Material Type:

Lab Sample Number:

Specified Value (cm/sec): Date Test Started:

GPC Plant Branch CCR Landfill	Permitting
929	
Geosyntec Consultants	***************************************
PB-13 (12-14')	
18L113	
Soil	
NA	
12/21/2018	na se se se se se se se se se se se se se

Specimen	Spe	cimen Init	ial Condit	tions		Test Conditions					
Туре	Sp	ecimen Fir	nal Condit	ions							
(See Note2)	Spec.	Spec.	Dry Unit	Moisture	Cell	Conductivity					
	Length	Diameter	Weight	Content	Press.	Press.	Press.	Liquid ⁽³⁾	Gradient		
(-)	(cm)	(cm)	(pcf)	(%)	(psi)	(psi)	(psi)	(-)	(-)	(cm/s)	
ST	5.59	7.19	109.1	16.0	81.0	70.0	110	DTW	10.6	1.05.0	
	5.43	7.25	107.9	19.7	01.0	10.0	11.0	DTW	10.6	1.2E-8	

1.18-2019 1.18-2019

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing,

2. Specimen Type: ST = Shelby Tube, BS = Block Sample, Ot = Others

3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

* Deviations:

Laboratory temperature at 22±3 °C.

Analytical En	vironmental Services, Inc	:					Date:	28-Jan-19	
Client: Project Name: Lab ID:	Geosyntec Consultants Plant Branch 1901J23-001				Client Sa Collection Matrix:	•	PB-7 12-1 1/22/2019 Soil		
Analyses		Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analys
CEC of Soils (N	Va Saturation) SW9081				(S ^V	W9081)			
Cation Exchan	ge Capacity	10	1.0		meq/10	0g 273357	7 1	01/24/2019 16:34	DG

- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

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Analytical Environmental Services, Inc Date: 28-Jan-19 Client: Geosyntec Consultants **Client Sample ID:** PB-7 22-24 Project Name: Plant Branch **Collection Date:** 1/22/2019 Lab ID: 1901J23-002 Matrix: Soil Reporting Dilution Analyses Result Qual Units BatchID Date Analyzed Analyst Factor Limit CEC of Soils (Na Saturation) SW9081 (SW9081) Cation Exchange Capacity 6.7 1.0 meq/100g 273357 1 01/24/2019 16:36 DG

Qualifiers:

Value exceeds maximum contaminant level

BRL Below reporting limit

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value

J Estimated value detected below Reporting Limit

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Analytical En	vironmental Services, Inc						Date:	28-Jan-19	
Client:	Geosyntec Consultants				Client Sam	ple ID:	PB-7 30-3	32	
Project Name:	Plant Branch				Collection	Date:	1/22/2019)	
Lab ID:	1901J23-003				Matrix:		Soil		
Analyses		Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analys
CEC of Soils (N	a Saturation) SW9081				(SW	/9081)			
Cation Exchan	ge Capacity	5.6	1.0		meg/100g	273357	1	01/24/2019 16:39	DG

Value exceeds maximum contaminant level
 BRL Below reporting limit

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

> Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value

J Estimated value detected below Reporting Limit

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Analytical En	vironmental Se	rvices, Inc						Date:	28-Jan-19	
Client: Project Name:				Client Sar Collection	•	PB-10 10 1/22/2019	. –			
Lab ID:	1901J23-004					Matrix:		Soil		
Analyses			Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analy
CEC of Soils (N	la Saturation)	SW9081				(SV	V9081)			
Cation Exchan	ge Capacity		9.5	1.0		meg/100)g 273357	7 1	01/24/2019 16:30	DG

* Value exceeds maximum contaminant level

BRL Below reporting limit

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

> Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix

Narr See case narrative

NC Not confirmed

< Less than Result value

J Estimated value detected below Reporting Limit

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Analytical En	vironmental Services, Inc	:					Date:	28-Jan-19	
Client: Project Namc: Lab ID:	Geosyntec Consultants Plant Branch 1901J23-005			Client Sample ID: Collection Date: Matrix:		PB-10 20 1/22/2019 Soil			
Analyses	· · · · · · · · · · · · · · · · · · ·	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analys
CEC of Soils (N	Va Saturation) SW9081				(SV	V9081)			
Cation Exchan	ge Capacity	9.4	1.0		meq/100	g 273357	' I	01/24/2019 16:48	DG

* Value exceeds maximum contaminant level

BRL Below reporting limit

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

> Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix

Narr See case narrative

- NC Not confirmed
- < Less than Result value

J Estimated value detected below Reporting Limit

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Analytical En	vironmental Services, I	Inc					Date:	28-Jan-19	
Client:	Geosyntec Consultants				Client Sample ID:		PB-10 30	-32	
Project Name: Plant Branch					Collection Date:		1/22/2019		
Lab ID: 1901J23-006				Matrix:			Soil		
Analyses		Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analy
CEC of Soils (N	a Saturation) SW908	ſ	(SW9081)						
Cation Exchan	ge Capacity	8.6	1.0		meq/100g	273357	1	01/24/2019 16:50	DG

BRL Below reporting limit

*

H Holding times for preparation or analysis exceeded

Value exceeds maximum contaminant level

N Analyte not NELAC certified

B Analyte detected in the associated method blank

> Greater than Result value

E Estimated (value above quantitation range)

S Spike Recovery outside limits due to matrix

Narr See case narrative

NC Not confirmed

< Less than Result value

J Estimated value detected below Reporting Limit

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