

GROUNDWATER MONITORING PLAN

PLANT KRAFT
INACTIVE CCR LANDFILL
GRUMMAN ROAD ASH LANDFILL
CHATHAM COUNTY, GEORGIA

FOR



Georgia
Power

May 2023



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I. CERTIFICATION

I hereby certify that this Groundwater Monitoring Plan was prepared by, or under the direct supervision of, a "Qualified Groundwater Scientist," in accordance with the Georgia Environmental Protection Division (EPD) Rules of Solid Waste Management, Chapter 391-3-4.01. According to 391-3-4-.01, a Qualified Groundwater Scientist is "a professional engineer or geologist registered to practice in Georgia who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields that enable individuals to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action." The design of the groundwater monitoring system was developed in compliance with the Georgia EPD Rules of Solid Waste Management, Chapter 391-3-4.10(6).

ATLANTIC COAST CONSULTING, INC.



Harry M. Jones, P.G.
Project Manager
Date: May 26, 2023



Richard T. Deason, P.E.
Reviewer
Date: May 26, 2023



1. INTRODUCTION

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

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

In accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Rule (CCR) (§257.90), which is incorporated in the Georgia State CCR Rule by reference, a detection monitoring well network for Plant Kraft Inactive CCR Landfill, Grumman Road Ash Landfill (GRL) has been installed. The existing monitoring wells were installed following the guidelines presented herein. Additionally, this plan documents the methods for future monitoring well installation and/or replacement, and procedures for well abandonment. In accordance with the Georgia Rules for Solid Waste Management 391-3-4-.10(6)(g), monitoring wells require replacement after two dry sampling events, unless an alternate schedule has been approved by EPD. A minor modification shall be submitted in accordance with Rule 391-3-4-.02 prior to the installation or decommissioning of monitoring wells. Well installation must be directed by a qualified groundwater scientist. Well installation and/or abandonment must be directed by a qualified groundwater scientist. Currently, routine assessment monitoring is completed as required by 391-3-4.10(6)(a) and §257.95.

2. GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

Geologic and hydrogeologic conditions for this site are described in further detail in a separate Hydrogeological Assessment Report for GRL (ACC, 2023).

The site is located in the Coastal Plain Physiographic Province of Georgia, a part of the Atlantic Coastal Plain which extends from New York to Florida. Surface elevations range from approximately 40 to over 90 feet relative to site datum at the highest point on Parcel B3.

The hydrogeology in the study area generally consists of Coastal Plain near surface soils and sediments that are composed of stratified clay, silt, sand, and considerably deeper weathered limestone at depths over 500 feet. Sediments immediately underlying the GRL consist of variable interbedded sands, silts, and clay. Further discussion of the hydrogeological conceptual site model is presented in the Grumman Road Industrial Landfill Hydrogeological Assessment Report.

The potentiometric surface for the surficial aquifer illustrates that groundwater flow is generally from north to south except for the northern portion of GRL (Parcel B2/B3). In the northern portion of GRL, groundwater flows radially from the apex of Clifton Landfill (located immediately to the east of GRL) toward GRL.

The sediments immediately underlying the Site are part of the regional surficial aquifer system described previously and consist of variable interbedded sands, silts, and clay comprising a near-surface aquifer system (SCS, 1998). Though complex with subtle distinctions, approximately 50 feet of the near-surface aquifer system (soil) can be divided into four units as described below:

- Upper Sands and Topsoil
- Unit 1 Uppermost Aquifer: Silty Fine Sand
- Unit 2 Low Permeability Zone: Interbedded Sand, Silt, and Clay
- Unit 3 Lower Sand Aquifer: Silty and/or Clayey Fine to Medium Sand

Unit 1 comprises the soil unit monitored at the site and has a thickness ranging from approximately 22 to 28 feet across GRL. Although Units 1 through 3 are classified as the surficial aquifer system, layers of lower permeability may be present in the surficial aquifer system (Clarke, Hacke, and Peck 1990; SCS 1998). Generally, groundwater in the near-surface aquifer system flows from north to south at the GRL but is influenced by topography. Groundwater elevations observed across the site and adjacent landfills suggest that hydraulic connection exists between Units 1, 2, and 3. Unit 2 has a lower permeability than Units 1 and 3 and locally may act as an impediment to downward migration, creating perched water within Unit 1 or impeding migration within the near surface aquifer system. Unit 2 does not appear to be continuous across the sites such that it creates distinct groundwater flow systems.

Hydraulic conductivity (K) is defined as the rate at which water can move through a permeable medium. In-situ rising head and falling slug tests have been performed at multiple locations at GRL to determine horizontal K values. The range in horizontal K values at these locations is small, indicating fairly uniform hydrogeologic layers across the units (typically range from 10^{-3} centimeters per second [cm/sec] to 10^{-4} cm/sec). Vertical K values were determined by testing of two undisturbed clayey sample intervals (Shelby Tubes). Both values are in the range of 10^{-7} cm/sec. Appendix A, Table 1A, Monitoring System Details, presents summaries of the K testing values from GRL groundwater wells and laboratory test results for locations throughout GRL. The values from the field tests fall within the standard range of hydraulic conductivity values associated with a silty sand. Testing values are provided in Appendix B, Hydraulic Conductivity Testing Results.

The horizontal hydraulic gradient across GRL was measured during the January 2023 groundwater monitoring event from GWB-6R to GWC-16 and from GWA-7 to GWC-17 resulting with estimated maximum and minimum horizontal gradients of 0.0081 ft/ft and 0.0022 ft/ft, respectively.

Average groundwater flow velocity for GRL is based on K, lateral gradient (i) and effective porosity (P_e). The average horizontal K for the site is 14.3 feet/day, and the average sitewide gradient across GRL (January 2023) was 0.0051 ft/ft (based on average of 0.0081 ft/ft from GWB-6R to GWC-16 and 0.0022 ft/ft from GWA-7 to GWC-17), and the effective porosity (n_e) was estimated at 0.20. The average groundwater velocity is calculated as:

Equation

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

where: v = groundwater velocity
 K = hydraulic conductivity
 dh/dl = hydraulic gradient
 P_e = effective porosity

Values Used in Calculation

Value			Notes
K =	5.0E-03	cm/sec	Average from aquifer testing
	14.3	ft/day	
dh/dl ₁ =	0.0081	unitless	Hydraulic gradient from GWB-6R to GWC-16 GWA-7 to GWC-17
dh/dl ₂ =	0.0022	unitless	
dh/dl _{avg} =	0.0051	unitless	Average of dh/dl _{1,2}
P _e =	0.20	unitless	Estimated

Calculated Flow Velocity

$$v = \frac{(14.3) (0.0051)}{0.20}$$

$$v = 0.36 \text{ ft/day}$$

3. WELL LOCATIONS

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

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

The monitoring well locations are shown in Appendix A, Figure A1. Boring logs and well construction diagrams for the existing monitoring wells are provided in Appendix C, Boring Logs and Well Construction Diagrams.

4. MONITORING WELL DRILLING, CONSTRUCTION, ABANDONMENT & REPORTING

The existing monitoring well network for GRL was installed following USEPA Region 4 Science and Ecosystem Support Division (SESD) Operating Procedure for Design and Installation of Monitoring Wells (USEPA, SESDGUID-101-R1) as a general guide for best practices. All well installation activities will be directed by a qualified groundwater scientist. Monitoring well construction data is provided on Table A1 of Appendix A.

4.1 DRILLING

A variety of well drilling methods are available for the purpose of installing groundwater wells. Drilling methodology may include, but not be limited to: hollow stem augers, direct push, air rotary, mud rotary, or roto sonic techniques. The drilling method shall minimize the disturbance of subsurface materials and shall not cause impact to the groundwater. Borings will be advanced using an appropriate drilling technology capable of drilling and installing a well in site-specific geology. Monitoring wells will be installed using the most current version of the USEPA SESD SESDGUID-101-R1 as a general guide for best practices. Drilling equipment shall be decontaminated before use and between borehole locations using the procedures described in the latest version of the USEPA SESD Region 4 Operating Procedure for Field Equipment Cleaning and Decontamination as a guide. Drilling and well installation activities will be directed by a qualified groundwater scientist.

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

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

4.2 DESIGN AND CONSTRUCTION

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

WELL CASINGS AND SCREENS

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

WELL INTAKE DESIGN

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

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

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

FILTER PACK AND ANNULAR SEAL

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

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

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

PROTECTIVE CASING AND WELL COMPLETION

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

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

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

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

WELL DEVELOPMENT

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

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

Many geologic formations contain clay and silt particles that are small enough to work their way through the wells' filter packs over time. Therefore, the turbidity of the groundwater from the monitoring wells may gradually increase over time after initial well development. As a result, the monitoring wells may have to be redeveloped periodically to remove the silt and clay that has worked its way into the filter pack of the monitoring wells. Each monitoring well should be redeveloped when sample turbidity values have significantly increased since initial development or since prior redevelopment. The redevelopment should be performed as described above. Well development data will be included in the well installation report.

4.3 ABANDONMENT

Per Georgia Rule 391-3-4-.10(6)(g), monitoring wells require abandonment and replacement after two consecutive dry sampling events, unless an alternate schedule is approved by the Georgia EPD. Monitoring wells will be abandoned using industry-accepted practices and using the *Manual for Groundwater Monitoring* (1991) and Georgia Water Well Standards Act (1985) as guides. Neat portland cement or bentonite will be used as appropriate to complete abandonment and seal the well borehole. Well abandonment will be directed by a qualified groundwater scientist.

4.4 DOCUMENTATION

Within 60 days of installation, development, and survey, or abandonment of a groundwater monitoring well, a well installation/abandonment report should be submitted to Georgia EPD by a qualified groundwater scientist or engineer. For installed wells, the following information should be included.

- Well identification,
- Name of drilling contractor and type of drill rig,

- Documentation stating that a Georgia-registered professional surveyor shall certify that the horizontal accuracy for the installed monitoring wells is 0.5 feet, and vertical accuracy for top of casing elevations to 0.01 feet using a known datum,
- Documentation that the driller, at the time the monitoring wells were installed, had a bond on file with the Water Well Standards Advisory Council,
- Type of protective well cap and sump dimensions for each well,
- Dates of drilling and initial well emplacement,
- Drilling method and drilling fluid if used,
- Borehole diameter and well casing diameter,
- Well depth (± 0.1 ft.),
- Lithologic logs,
- Well casing materials,
- Screen materials and design (i.e., interval in feet below ground surface and elevation),
- Screen length,
- Screen slot size,
- Filter pack material/size and volume (placement narrative),
- Seal emplacement method and type/volume of sealant,
- Surface seal and volumes/mix of annular seal material,
- Well development date,
- Sealant materials and volume,
- Well turbidity following development,
- Narrative of well development method - specific well development,
- Documentation of ground surface elevation (± 0.01 ft.),
- Documentation of top of casing elevation (± 0.01 ft.), and
- Schematic of the well with dimensions

In accordance with the Georgia Water Well Standards Act (O.C.G.A. § 12-5-120), at least once every five years, the owner of the property on which a monitoring well is constructed shall have the monitoring well(s) inspected by a professional engineer or professional geologist, who shall direct appropriate remedial corrective work to be performed if the well does not conform to standards. Well inspection records and records of remedial corrective work are subject to review by EPD. Additionally, as part of the closure and post-closure plan, the cost estimate based upon current year cost for the well inspections must be provided for as part of the cost calculations for the groundwater monitoring period.

5. GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

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

Table 1, Groundwater Monitoring Parameters and Frequency, presents the groundwater monitoring parameters and sampling frequency. A minimum of eight independent samples from each groundwater well will be collected and analyzed for EPD-approved modified Appendix I and Appendix II parameters, as well as 40 CFR 257, Subpart D, Appendix III and Appendix IV test parameters to establish a background statistical dataset. Subsequently, in accordance with 391-3-4-.10(6), the monitoring frequency for the Appendix I and Appendix III parameters will be at least semiannual during the active life of the facility and the post-closure care period. If required, Georgia Power will conduct assessment monitoring in accordance with the Georgia Rules for Solid Waste Management Chapter 391-3-4-.10 to also include EPD-approved modified Appendix II and 40 CFR, Subpart D, Appendix IV test parameters.

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

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

**TABLE 1
 GROUNDWATER MONITORING PARAMETERS & FREQUENCY**

MONITORING PARAMETER		GROUNDWATER MONITORING	
		Background	Semiannual Events
Field Parameters	Temperature	X	X
	pH	X	X
	Specific Conductance	X	X
	Turbidity	X	X
	Dissolved Oxygen	X	X
Appendix I and II Metals (State Permit)	Antimony	X	X
	Arsenic	X	X
	Barium	X	X
	Chromium	X	X
	Lead	X	X
	Selenium	X	X
	Vanadium	X	X
	Zinc	X	X
Appendix III (40 CFR 257)	Boron	X	X
	Calcium	X	X
	Chloride	X	X
	Fluoride	X	X
	pH	X	X
	Sulfate	X	X
	Total Dissolved Solids	X	X

**TABLE 1
 GROUNDWATER MONITORING PARAMETERS & FREQUENCY**

MONITORING PARAMETER		GROUNDWATER MONITORING	
		Background	Semiannual Events
Appendix IV (40 CFR 257)	Antimony	X	X ¹
	Arsenic	X	X ¹
	Barium	X	X ¹
	Beryllium	X	X ¹
	Cadmium	X	X ¹
	Chromium	X	X ¹
	Cobalt	X	X ¹
	Fluoride	X	X ¹
	Lead	X	X ¹
	Lithium	X	X ¹
	Mercury	X	X ¹
	Molybdenum	X	X ¹
	Selenium	X	X ¹
	Thallium	X	X ¹
	Radium 226 & 228	X	X ¹

1. As needed during assessment monitoring.
2. Assessment monitoring was initiated on November 13, 2019, per Chapter 391-3-4-.10, Georgia Rules for Solid Waste Management.

**TABLE 2
 ANALYTICAL METHODS**

Parameters	EPA Method Number
Boron	6010D/6020B
Calcium	7140/6010D/6020B
Chloride	300.0/300.1/9250/9251/9253/9056A
Fluoride	300.0/300.1/9214/9056A
pH	150.1field/90405C
Sulfate	9035/9036/9038/300.0/300.1/9056A
Total Dissolved Solids (TDS)	160/2540C
Antimony	7040/7041/6010D/6020B
Arsenic	7060A/7061A/6010D/6020B
Barium	7080A/7081/6010D/6020B
Beryllium	7090/7091/6010D/6020B
Cadmium	7130/7131A/6020B
Chromium	7190/7191/6010D/6020B
Cobalt	7200/7201/6010D/6020B
Fluoride	300.0/300.1/9214/9056A
Lead	7420/7421/6010D/6020B
Lithium	6010D/6020B
Mercury	7470A/7471B
Molybdenum	6010D/6020B
Selenium	7740/7741A/6010D/6020B
Thallium	7840/7841/6010D/6020B
Vanadium	7910/7911/6010D/6020B
Zinc	7950/7951/6010D/6020B
Radium 226 and 228 combined	903/9320/9315

6. SURFACE WATER MONITORING PLAN

During each semiannual groundwater sampling event, a surface water sample will be collected from the stormwater detention pond outfall discharge pipe. The sample point (SWC-1) is located on the adjacent property and accessible from a steel platform (Figure A1). Surface water monitoring is conducted separate from any requirements of existing industrial, industrial stormwater, and/or construction stormwater discharge permitting, which are regulated by the National Pollutant Discharge Elimination System (NPDES) requirements of Section 402 of the Clean Water Act, outside of the Solid Waste Management Program. The stormwater detention pond is designed to shed water away from the cover system during and immediately after rain events, it is possible that water will not be present at the location during semiannual sampling events. In the event no flowing water is present at the sampling location, it will be noted in the field sampling documents associated with that event.

Surface water samples will be collected and handled in accordance with standard industry practice and USEPA Region 4 *Field Branches Quality System and Technical Procedures* as a guide. When possible, the sample should be collected directly in the appropriate sample container provided by the analytical laboratory. If the sample location cannot be physically reached, an intermediate collection device may be used (e.g., a “swing sampler” with a 12-foot handle and a single-use container) as presented in the USEPA field guidance document. When non-dedicated equipment is used, it will be decontaminated prior to use and between surface water sampling locations.

Reporting of monitoring results will be incorporated into semiannual groundwater monitoring reports. Detected concentrations from the current monitoring event and all historical monitoring events will be provided in tabular form to assess potential impacts of the facility on all adjacent surface waters. Surface water samples will be analyzed for Appendix IV constituents as listed in Table 1 and by the methods listed in Table 2.

7. SAMPLE COLLECTION

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

Depths to water will be measured using a device consisting of probe and measuring tape capable of measuring water levels with accuracy to at least 0.01 foot. For groundwater sampling, peristaltic pumps (with dedicated or disposable tubing) will be used or purging. Dedicated positive gas displacement PVC, Teflon™ or stainless-steel bladder pumps may also be installed on a case-by-case basis. Portable bladder pumps may also be used. The applied groundwater purging and sampling methodologies will be discussed in the groundwater semiannual monitoring reports submitted to EPD. All non-dedicated equipment will be decontaminated before use and between well locations using procedures described in the latest version of the Region 4 U.S. Environmental Protection Agency Science and Ecosystem Support Division (SESD) Operating Procedure for Field Equipment Cleaning and Decontamination as a guide.

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

The applied groundwater purging and sampling methodologies will be discussed in the groundwater semiannual monitoring reports submitted to EPD.

8. CHAIN-OF-CUSTODY

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

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

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

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

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

9. FIELD AND LABORATORY QUALITY ASSURANCE / QUALITY CONTROL

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

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

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

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

10. REPORTING RESULTS

A semiannual groundwater report that documents the results of sampling and analysis will be submitted to EPD. Semiannual groundwater monitoring reports will be submitted to the EPD within 90 days of receipt and analysis of the groundwater analytical data from the laboratory. At a minimum, semiannual reports will include:

1. A narrative describing sampling activities and findings including a summary of the number of samples collected, the dates the samples were collected and whether the samples were required by the detection or assessment monitoring programs.
2. A brief overview of purging/sampling methodologies.
3. Discussion of results.
4. Recommendations for the future monitoring consistent with the Rules.
5. Potentiometric surface contour map for the aquifer(s) being monitored, signed, and sealed by a Georgia-registered P.G. or P.E.
6. Table of as-built information for groundwater monitoring wells including top of casing elevations, ground elevations, screened elevations, current groundwater elevations and depth to water measurements.
7. Groundwater flow rate and direction calculations.
8. Identification of any groundwater wells that were installed or decommissioned during the preceding year, along with a narrative description of why these actions were taken.
9. A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels).
10. If applicable, semiannual assessment monitoring results.
11. Any alternate source demonstration completed during the previous monitoring period, if applicable.
12. Laboratory Reports.
13. COC documentation.
14. Field sampling logs including field instrument calibration, indicator parameters and parameter stabilization data.
15. Field logs and forms for each sampling event to include, but not limited to, well signage, well access, sampling and purging equipment conditions, and any site conditions that may affect sampling.
16. Documentation of non-functioning wells or dry surface water locations.
17. Table of current analytical results for each well, highlighting statistically significant increases and concentrations above maximum contaminant level (MCL).
18. Statistical analyses.

19. Certification by a qualified groundwater scientist.
20. Tabulated water quality results for the samples of discharging surface water collected semi-annually from the designated surface water sampling locations. The table will present data for the current reporting period. Data from historical monitoring events associated with the surface water monitoring program will be provided in report appendices.
21. Plume delineation data (if applicable based on exceedances of groundwater protection standards).
22. Trend charts (if applicable based on exceedances of groundwater protection standards).
23. Updated potable water well survey (annually, if applicable based on exceedances of groundwater protection standards).

11. STATISTICAL ANALYSIS

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

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

1. A prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper prediction limit. (§257.93(f)(3))
2. A control chart approach that gives control limits for each constituent. (§257.93(f)(4))
3. Another statistical test method (such as prediction limits or control charts) that meets the performance standards of paragraph §257.93(g) or §257.93(f)(5) of the rule (391-3-4-.14(18)(e)). A justification for an alternative method will be placed in the operating record and the Director notified of the use of an alternative test. The justification will demonstrate that the alternative method meets the performance standards of §257.93(g). An interwell statistical method will be used to compare Appendix III groundwater monitoring data to background conditions. Confidence intervals will be constructed for each downgradient well and used to compare Appendix IV groundwater monitoring data to groundwater protection standards.

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

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

12. REFERENCES

- ACC, Inc., 2021. *2021 Semiannual Groundwater Monitoring & Corrective Action Report*. February 2022.
- ACC, Inc., 2023. *Hydrogeologic Assessment Report*. Grumman Road Ash Landfill.
- Georgia Environmental Protection Division (EPD), 1991. *Manual for Groundwater Monitoring*. (PP. 38).
- Georgia Rules and Regulations, 2018. Chapter 391-3-4, *Solid Waste Management*. Revised March 28, 2018.
- Official Code of Georgia Annotated, 1985. O.C.G.A. § 12-5-120. *Water Well Standards Act of 1985*.
- United States Environmental Protection Agency, 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*. Office of Resource Conservation and Recovery – Program Implementation and Information Division.
- United States Environmental Protection Agency, Region 4 Science and Ecosystem Support Division, 2018. *Operating Procedure for Design and Installation of Monitoring Wells*. SESDGUID-101-R2.
- United States Environmental Protection Agency, Region 4 Laboratory Services and Applied Science Division, 2020. *Operating Procedure for Field Equipment Cleaning and Decontamination*. LSASDPROC-205- R4.
- United States Environmental Protection Agency, Region 4 Science and Ecosystem Support Division, 2017. *Operating Procedure for Groundwater Sampling*. SESDPROC-301-R4.
- United States Environmental Protection Agency, 2015. 40 CFR Parts 257 and 261. *Hazardous and Solid Waste Management System, Disposal of Coal Combustion Residuals from Electric Utilities, Final Rule*.

FIGURE 1. STATISTICAL ANALYSIS PLAN OVERVIEW

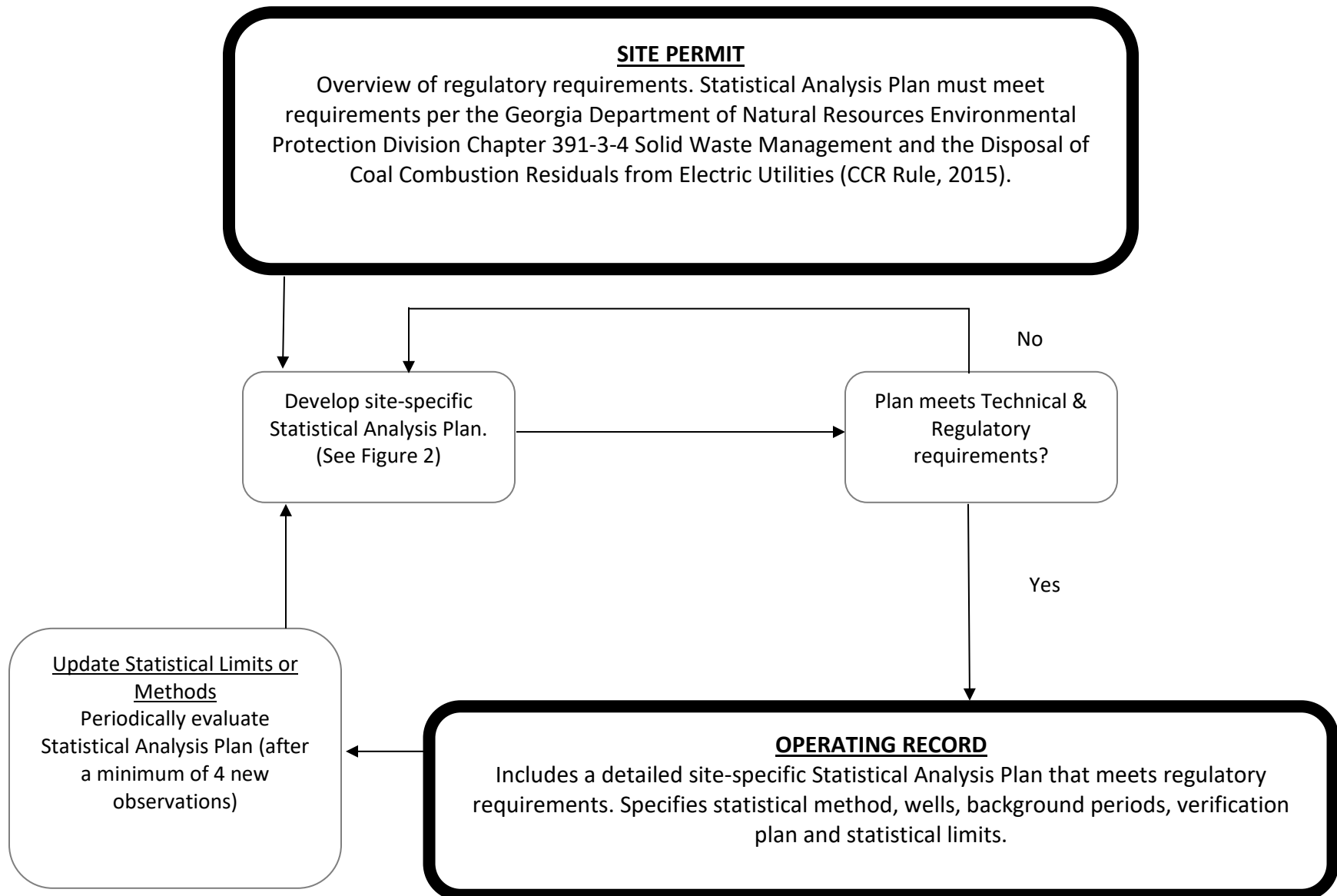
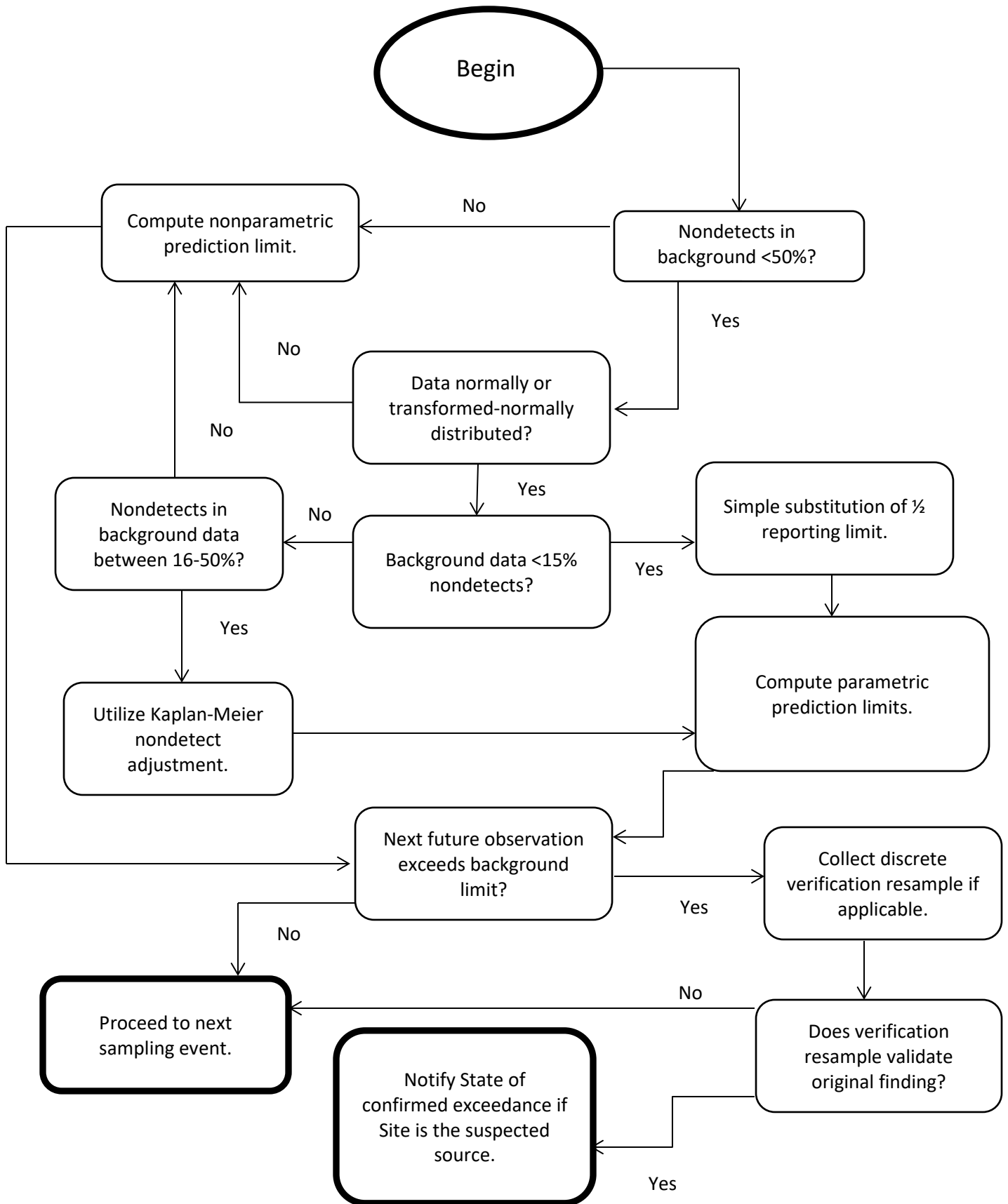


FIGURE 2. DECISION LOGIC FOR COMPUTING PREDICTION LIMITS



APPENDICES

APPENDIX A. MONITORING SYSTEM DETAILS

TABLE A1 MONITORING WELL AND PIEZOMETER NETWORK

FIGURE A1 COMPLIANCE MONITORING NETWORK

FIGURE A2 JANUARY 2023 POTENTIOMETRIC SURFACE CONTOUR MAP

APPENDIX B. HYDRAULIC CONDUCTIVITY TESTING RESULTS

TABLE B1 HORIZONTAL HYDRAULIC CONDUCTIVITY DATA SUMMARY

TABLE B2 VERTICAL HYDRAULIC CONDUCTIVITY DATA SUMMARY

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

APPENDIX D1. GROUNDWATER MONITORING WELL DETAIL

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

APPENDIX E. GROUNDWATER SAMPLING PROCEDURE

APPENDIX A. MONITORING SYSTEM DETAILS

**TABLE A1
MONITORING WELL AND PIEZOMETER NETWORK**

Monitoring Well ID	Hydraulic Location	Total Well Depth (ft BGS)	Top of Casing Elevation	Ground Surface Elevation	Easting	Northing	Screen Interval (ft BGS)	Jan. 2023 Depth to Water (ft BTOC)	Jan. 2023 Groundwater Elevation	Screened Lithology	Horizontal Hydraulic Conductivity (cm/sec)	Vertical Hydraulic Conductivity (cm/sec)	Installation Date (mm/dd/yyyy)
GWA-7	Upgradient	18.30	46.58	43.97	960560.31	780887.38	13.00 - 18.00	6.37	40.21	Soil	n/a	n/a	07/29/1998
GWA-8	Upgradient	17.50	46.20	43.51	960460.57	781167.00	12.20 - 17.20	7.65	38.55	Soil	n/a	n/a	07/29/1998
GWB-4R	Sidegradient	24.00	49.04	46.17	960777.56	779975.18	13.70 - 23.70	14.86	34.18	Soil	2.64E-03	n/a	10/09/2018
GWB-5R	Sidegradient	24.00	47.21	44.72	960693.28	780293.66	13.70 - 23.70	9.93	37.28	Soil	n/a	n/a	10/09/2018
GWB-6R	Sidegradient	20.00	46.99	44.13	960617.28	780572.76	9.70 - 19.70	7.51	39.48	Soil	6.59E-03	n/a	10/08/2018
GWC-1	Downgradient	24.10	49.72	46.49	960870.73	779573.38	18.80 - 23.80	19.11	30.61	Soil	3.61E-03	n/a	03/10/1997
GWC-2	Downgradient	28.30	51.22	47.44	960360.53	779433.23	23.00 - 28.00	19.73	31.49	Soil	4.19E-03	n/a	03/11/1997
GWC-9	Downgradient	24.35	46.57	42.98	959961.26	781006.70	19.05 - 24.05	9.11	37.46	Soil	n/a	n/a	07/24/1998
GWC-11	Downgradient	19.40	48.81	45.35	960122.47	780352.21	14.10 - 19.10	13.63	35.18	Soil	n/a	n/a	07/23/1998
GWC-12	Downgradient	23.95	46.89	43.74	960182.06	780098.49	18.65 - 23.65	13.14	33.75	Soil	n/a	n/a	07/22/1998
GWC-13	Downgradient	21.40	47.68	44.77	960276.20	779737.50	16.10 - 21.10	14.92	32.76	Soil	3.50E-03	n/a	07/22/1998
GWC-14	Downgradient	24.40	50.06	47.22	960431.34	779112.24	19.10 - 24.10	19.57	30.49	Soil	n/a	n/a	07/22/1998
GWC-15	Downgradient	24.40	47.36	44.73	960666.68	778948.56	19.10 - 24.10	19.30	28.06	Soil	1.22E-02	n/a	07/22/1998
GWC-16	Downgradient	26.00	47.29	44.34	960963.23	779034.89	20.70 - 25.70	20.50	26.79	Soil	8.58E-03	n/a	07/21/1998
GWC-17	Downgradient	20.86	43.60	40.82	960048.28	781419.25	15.56 - 20.56	4.98	38.62	Soil	n/a	n/a	1998
GWC-20	Downgradient	22.30	49.43	46.22	960956.67	779293.82	17.00 - 22.00	21.10	28.33	Soil	n/a	n/a	05/07/2010
GWC-21	Downgradient	21.30	47.18	44.10	960948.11	779030.28	16.00 - 21.00	20.41	26.77	Soil	n/a	n/a	05/07/2010
GWC-22	Downgradient	16.20	46.25	43.21	960063.85	780712.09	10.90 - 15.90	9.01	37.24	Soil	n/a	n/a	05/07/2010
MW-23D	Assessment	60.00	49.46	46.51	960955.66	779279.75	54.70 - 59.70	23.06	26.40	Soil	n/a	n/a	12/17/2020
MW-24D	Assessment	62.00	47.86	44.67	960971.12	779042.22	56.70 - 61.70	22.78	25.08	Soil	n/a	n/a	01/04/2021
MW-25D	Assessment	66.00	47.67	44.70	960654.43	778944.28	60.70 - 65.70	21.07	26.60	Soil	n/a	n/a	01/06/2021
GWC-10	Piezometer	18.35	46.77	44.05	960037.03	780703.08	13.05 - 18.05	9.92	36.85	Soil	n/a	n/a	07/24/1998
MW-26D	Piezometer	66.00	48.72	45.77	960774.89	779993.34	60.70 - 65.70	20.23	28.49	Soil	n/a	2.10E-07 ¹ 3.07E-07 ²	01/10/2021
MW-27D	Piezometer	69.00	49.80	47.06	960874.59	779558.89	63.70 - 68.70	21.84	27.96	Soil	n/a	n/a	01/08/2021

Notes:

1. Data from Shelby Tube Sample analysis, sample depth 24 – 26 ft below ground surface.

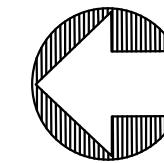
2. Data from Shelby Tube Sample analysis, sample depth 50 – 52 ft below ground surface.

ft BTOC = feet below top of casing; ft BGS = feet below ground surface; cm/sec = centimeters per second; n/a = not applicable.

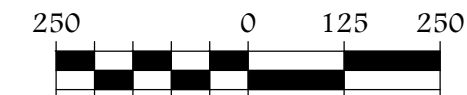
Elevations in U.S. Survey Feet (NAVD88) and northings/eastings are Georgia State Plane East (NAD83) based on March 22, 2023 survey.

Original boring log for GWC-17 is not available.

Depths to water measured January 31, 2023.



ATLANTIC COAST
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SCALE (IN FEET)

LEGEND:

EXISTING	DESCRIPTION
---	PROPERTY BOUNDARY
⊕ GWC-1	DETECTION MONITORING WELL
⊕ GWC-10	PIEZOMETER
● MW-23D	ASSESSMENT MONITORING WELL
△ SWC-1	SURFACE WATER MONITORING POINT

NOTES:

1. PROPERTY BOUNDARY AND WELLS SURVEYED BY GUNNIN LAND SURVEYING ON MARCH 22, 2023.

PROJECT



GEORGIA POWER COMPANY
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

COMPLIANCE MONITORING NETWORK

PROJECT NO. I054-109

March 2023

DRAWN BY: MM

FIGURE:

CHECKED BY: MJ

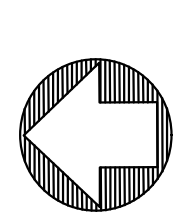
A1



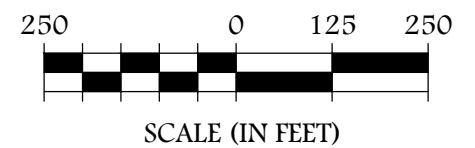


CLIFTON INDUSTRIAL
WASTE LANDFILL
GA EPD PERMIT
NO. 025-030D(L)

GRUMMAN ROAD PRIVATE
INDUSTRIAL LANDFILL
GA EPD PERMIT
NO. 025-061D(LI)



ATLANTIC COAST
CONSULTING, INC.



LEGEND:

EXISTING	DESCRIPTION
---	PROPERTY BOUNDARY
⊕ GWC-1 31.96	DETECTION MONITORING WELL GROUNDWATER ELEVATION
⊕ GWC-10	PIEZOMETER
● MW-23D 36	ASSESSMENT WELL
36	GROUNDWATER ELEVATION CONTOUR
→	GROUNDWATER FLOW DIRECTION
△ SWC-1	SURFACE WATER MONITORING POINT

NOTES:
1. PROPERTY BOUNDARY AND WELLS SURVEYED BY GUNNIN LAND SURVEYING ON MARCH 22, 2023.

PROJECT

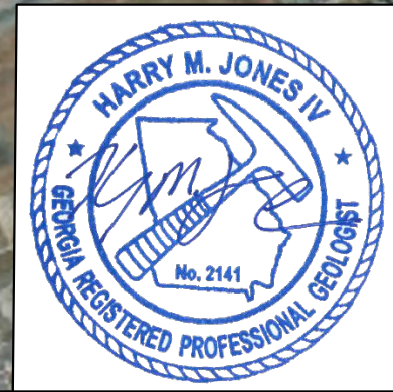


GEORGIA POWER COMPANY
GRUMMAN ROAD PRIVATE INDUSTRIAL LANDFILL

JANUARY 2023 POTENTIOMETRIC
SURFACE MAP

PROJECT NO. I054-109 April 2023

DRAWN BY:	MM	FIGURE:	A2
CHECKED BY:	MJ		



APPENDIX B. HYDRAULIC CONDUCTIVITY TESTING RESULTS

**TABLE B1
HORIZONTAL HYDRAULIC CONDUCTIVITY DATA SUMMARY**

Location	Test	Hydraulic Conductivity (cm/sec)³	Hydraulic Conductivity (ft/day)³
GWC-1 ¹	Slug-In Test	3.29E-03	9.4
	Slug-Out Test	3.94E-03	11.2
GWC-2 ¹	Slug-In Test	2.92E-03	8.3
	Slug-Out Test	5.37E-03	15.3
GWB-4R ²	Slug-In Test	2.48E-03	7.1
	Slug-Out Test	2.80E-03	8.0
GWB-6R ²	Slug-In Test	6.59E-03	18.7
	Slug-Out Test	6.58E-03	18.7
GWC-13 ²	Slug-In Test	3.25E-03	9.2
	Slug-Out Test	3.76E-03	10.7
GWC-15 ²	Slug-In Test	1.65E-02	46.9
	Slug-Out Test	8.01E-03	22.8
GWC-16 ²	Slug-In Test	9.85E-03	28.0
	Slug-Out Test	7.30E-03	20.8
Slug-In Geometric Mean		5.04E-03	14.3
Slug-Out Geometric Mean		5.07E-03	14.4

Notes:

1. Average of slug test data included in Groundwater Monitoring Plan (SCS, 1998).
2. Slug Tests performed by ACC and Anchor personnel May 6-7, 2021.
3. cm/sec = centimeters per second and ft/day = feet per day
4. Supporting data are provided in *Hydrogeologic Assessment Report* (Part B of the Permit Application).

TABLE B2
VERTICAL HYDRAULIC CONDUCTIVITY DATA SUMMARY

Location	Depth (ft bgs)¹	Hydraulic Conductivity² (cm/sec)³	Hydraulic Conductivity² (ft/day)³
MW-26D	24-26	2.10E-07	5.97E-04
MW-26D	50-52	3.07E-07	8.73E-04

Notes:

1. ft bgs = feet below ground surface
2. Data from Shelby Tube sample analysis completed by Timely Engineering, 2021.
3. cm/sec = centimeters per second and ft/day = feet per day
4. Supporting data are provided in *Hydrogeologic Assessment Report* (Part B of the Permit Application).

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

PROJECT: **SEPCO Savannah, Georgia** **WELL LOG** **GWA-7**

PROJECT NO. : 1144-98-185	ELEVATION: 43.97	NOTES: N: 780887.38, E: 960560.31 Top of casing: 46.58. Ground surface: 43.97. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.
LOGGED BY: MM	BORING DEPTH: 20.5 FEET	
DATE DRILLED: 07-29-98	WATER LEVEL: 3.1 Feet @ TOB	
DRILLING METHOD: 4-1/4" I.D. HSA	DRILL RIG: Simco 2400	

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVM (ppm)	SPR	ELEV.	WELL DIAGRAM
0 - 4.5	[Dotted pattern]	SILTY SAND Fine, Medium Gray	7-1	[X symbol]		6		<p>The well diagram shows a 2" PVC Schedule 40 casing extending from the surface down to a depth of approximately 13 feet. The casing is filled with cement grout. A bentonite seal is located between 8 and 10 feet depth. Below the seal, there is a section of fine filter sand. At the bottom, there is a 2" PVC Schedule 40 screen with a 0.010" slot.</p>
4.5 - 9.5	[Dotted pattern]	Fine, Dark Brown, Wet	7-2	[X symbol]		8		
9.5 - 14.5	[Dotted pattern]	Fine, Red Brown to Orange Brown	7-3	[X symbol]		50		
14.5 - 19.5	[Dotted pattern]	As Above	7-4	[X symbol]		13		
19.5 - 21.0	[Diagonal hatching]	CLAYEY FINE SAND Gray, with mica	7-5	[X symbol]		6		
21.0 - 25	[Blank]	Termination of Boring At 21.0 feet						



PROJECT: **SEPCO Savannah, Georgia** WELL LOG **GWA-8**

PROJECT NO. : 1144-98-185	ELEVATION: 43.51	NOTES: N: 781167.00, E: 960460.57 Top of casing: 46.20. Ground surface: 43.51. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.
LOGGED BY: MM	BORING DEPTH: 20.5 FEET	
DATE DRILLED: 07-29-98	WATER LEVEL: 2.5 Feet @ TOB	
DRILLING METHOD: 4-1/4" I.D. HSA	DRILL RIG: Simco 2400	

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OMV (ppm)	SPR	ELEV.	WELL DIAGRAM
0 - 5		SILTY SAND Fine, Dark Gray	8-1			6		<p>WELL DIAGRAM</p> <p>2" PVC Schedule 40 Casing</p> <p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
5 - 10		Fine, Dark Brown	8-2			50		
10 - 15		Fine, Dark Red Brown	8-3			50		
15 - 20		Very Fine, Olive Gray-Green	8-4			13		
20 - 21.0		CLAY Olive Green, with Silty Fine Sand	8-5			4		
21.0 - 25		Termination of Boring At 21.0 feet						



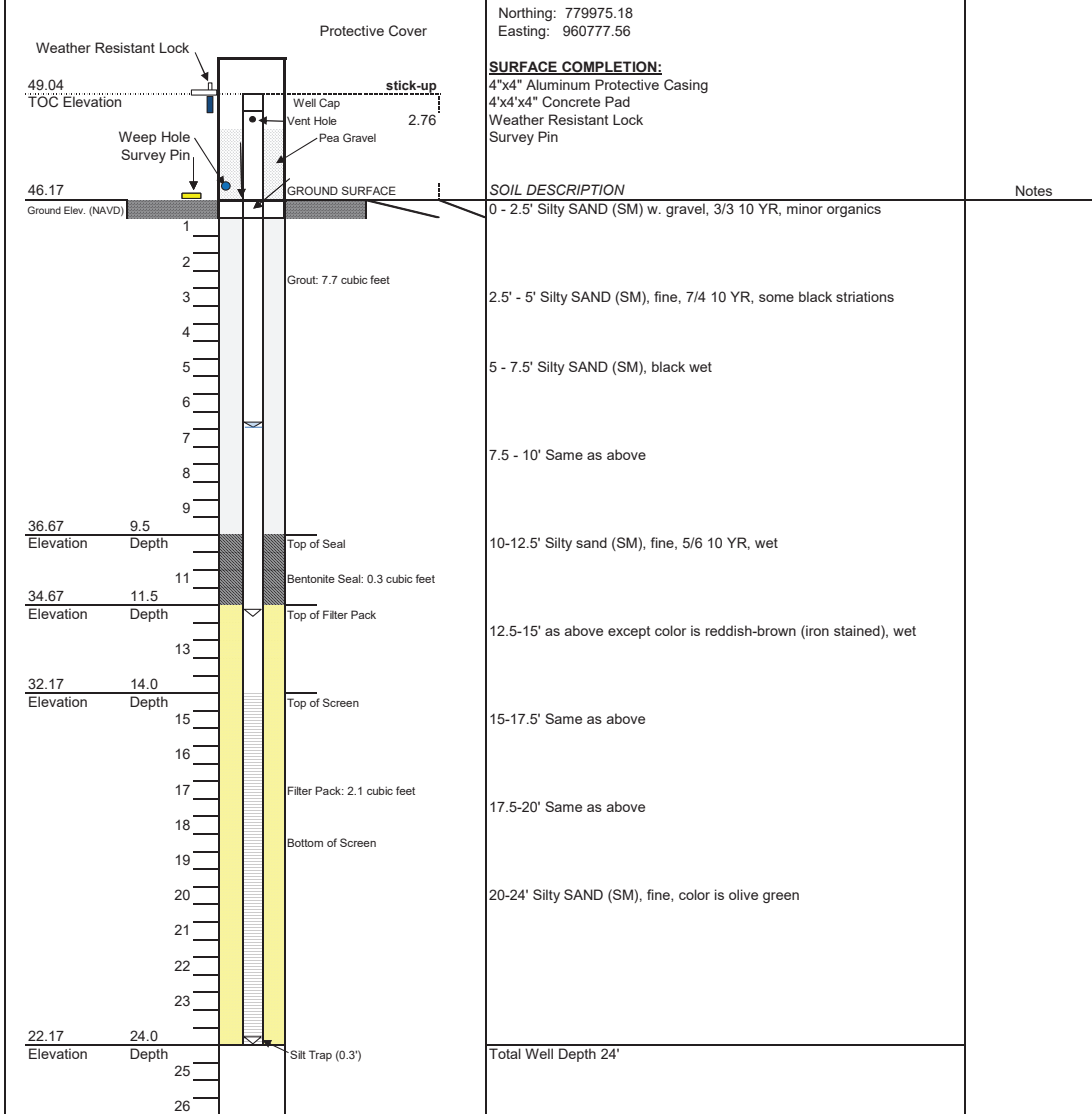


ATLANTIC COAST CONSULTING, INC.

GWB-4R

BORING ID

PROJECT:	Grumman Road Landfill	PROJECT NO.:	I054-110
TOTAL DEPTH:	24 ft. BGS	SITE LOCATION:	Savannah, Georgia
DATE BEGIN:	9-Oct-2018	DRILLER:	Ray Whitt
DATE COMPLETE:	9-Oct-2018	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Taylor Goble		
WATER 1ST ENCOUNTERED:	12' BGS		
WATER AFTER 48 HOURS:	11.89' BTOC		



MATERIALS:

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

Northing: 779975.18
Easting: 960777.56

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

SOIL DESCRIPTION

Notes

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

NOTE:

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).
Well resurveyed March 2023.

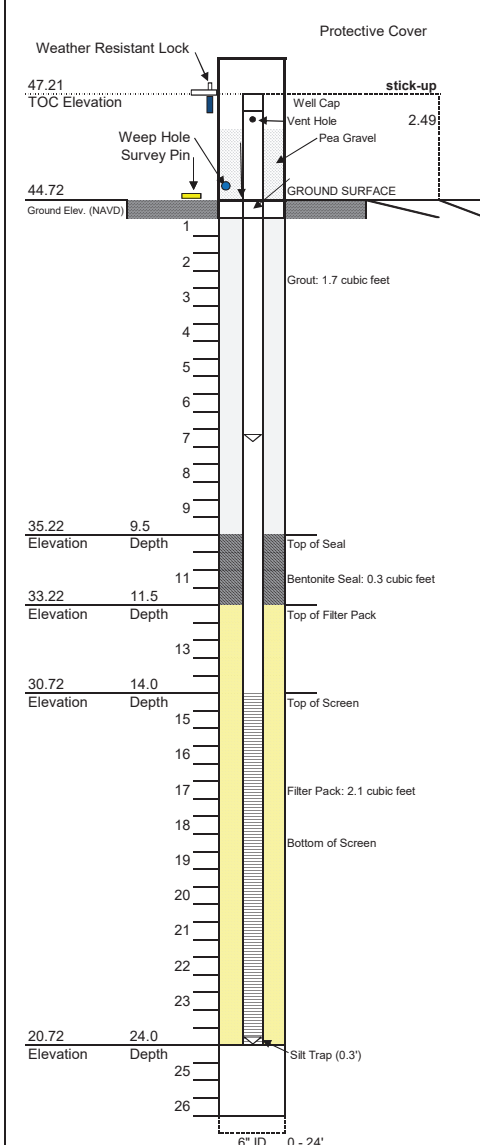


ATLANTIC COAST CONSULTING, INC.

GWB-5R

BORING ID

PROJECT: Grumman Road Landfill	PROJECT NO.: I054-110
TOTAL DEPTH: 24 ft. BGS	SITE LOCATION: Savannah, Georgia
DATE BEGIN: 9-Oct-2018	DRILLER: Ray Whitt
DATE COMPLETE: 9-Oct-2018	RIG TYPE: T-300 Rotasonic
INSTALLED BY: Cascade	METHOD: Rotasonic
SUPERVISED BY: Taylor Goble	
WATER 1ST ENCOUNTERED: 12.5' BGS	
WATER AFTER 48 HOURS: 9.66' BTOC	



Northing: 780293.66
 Easting: 960693.28

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

SOIL DESCRIPTION

0 - 2.5'	Silty SAND (SM), fine, 4/6 10 YR, minor organics
2.5' - 5'	Silty SAND (SM), fine, 2.5/1 10 YR, black
5 - 7.5'	Silty SAND (SM), fine 5/1 10 YR, gray
7.5 - 10'	Same as above
10-12.5'	Silty SAND (SM), 6/1 10 YR, wet
12.5-15'	Silty SAND (SM), 4/6 7.5 YR, wet
15-17.5'	Silty SAND (SM), 3/4 7.5 YR, wet
17.5-20'	Same as above
20-24'	Silty SAND (SM), fine, color is olive green
Total Well Depth 24'	

Notes

MATERIALS:

GROUT: MANUFACTURER:	Portland Type I/II Cement Argos
BENTONITE SEAL: MANUFACTURER:	3/8" Bentonite Pellets Pel-Plug
FILTER PACK SAND: MANUFACTURER:	20/40 Mesh Scruggs Co.
WELL SCREEN: MANUFACTURER: SLOT SIZE:	Sch. 40 - 2" PVC Campbell Monoflex 0.010-Inch Slot
WELL CASING: MANUFACTURER:	Sch. 40 - 2" PVC Campbell Monoflex

Soil Descriptions from Unified Soil Classification System

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

NOTE:

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).
 Well resurveyed March 2023.

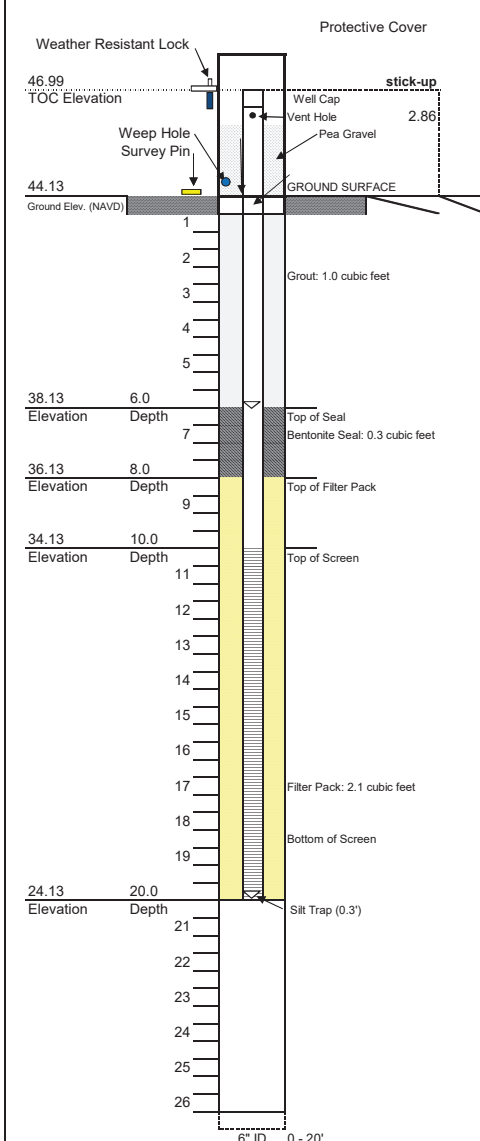


ATLANTIC COAST CONSULTING, INC.

GWB-6R

BORING ID

PROJECT: Grumman Road Landfill	PROJECT NO.: I054-110
TOTAL DEPTH: 24 ft. BGS	SITE LOCATION: Savannah, Georgia
DATE BEGIN: 9-Oct-2018	DRILLER: Ray Whitt
DATE COMPLETE: 9-Oct-2018	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Taylor Goble	
WATER 1ST ENCOUNTERED: 12.5' BGS	
WATER AFTER 48 HOURS: 8.63' BTOC	



Northing: 780572.76
Easting: 960617.28

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

SOIL DESCRIPTION

0 - 2.5' Silty SAND (SM), organics and gravel

2.5' - 5' Silty SAND (SM), fine, light-brown, some black striations

5 - 7.5' Silty SAND (SM), very fine 2.5/1 7.5 YR, black

7.5 - 10' Same as above except wet

10-12.5' Silty SAND (SM), reddish-brown (iron rich)

12.5-15' as above, wet

15-17.5' Silty SAND (SM), 4/6 7.5 YR, wet

17.5-20' Silty SAND (SM), wet

Total Well Depth 20'

Notes

MATERIALS:

GROUT:		Portland Type I/II Cement
MANUFACTURER:		Argos
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/40 Mesh
MANUFACTURER:		Scruggs Co.
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex

Soil Descriptions from Unified Soil Classification System

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

NOTE:

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).
Well resurveyed March 2023.

Southern Company Services, Inc. Soil Boring Log



Project: Grumman Road Monofill	HOLE No. GWC-1
Location: Southeast Corner	
Purpose: Monitoring Well Installation	SHEET 1 OF 1
Position: _____	Surface Elevation: 46.49
Rig Type: Hollow Stem Auger	Contractor: SCS-Atlanta Driller: Brad Flipovitch
Drilling Method: CME 75	Boring Depth: 34.0 No. SPT: 6 No. UD Samples: 3
Date Started: 3/10/97	Date Completed: 3/10/97 Logged By: Terri Hartsfield Date Logged: 3/10/97
Hole Closure: 2" Monitoring Well	

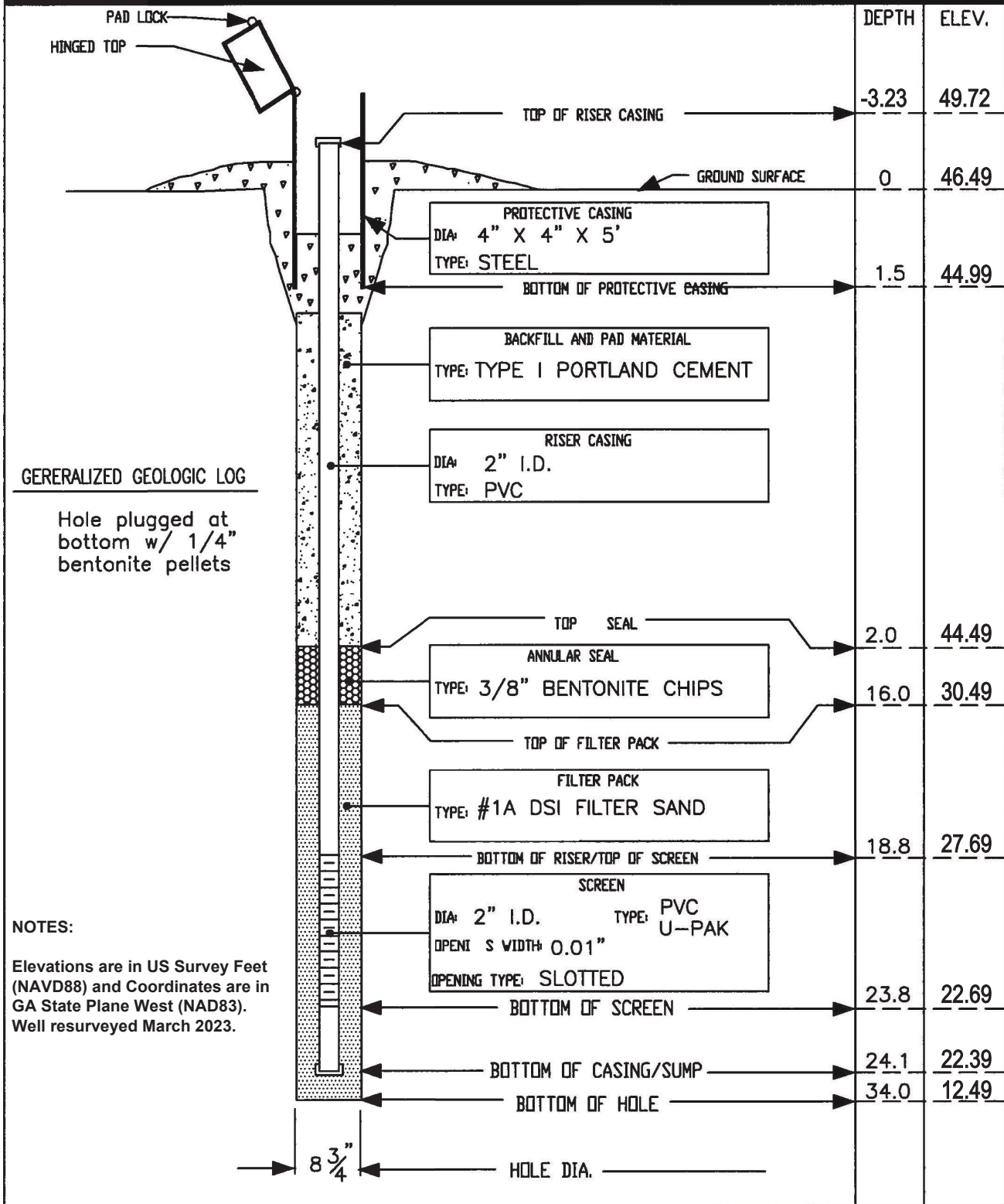
WATER TABLE	DEPTH AND ELEVN. (FT)	SYMBOLIC LOG	SOIL DESCRIPTION	SAMPLE		COMMENTS	TEST RESULTS				
				NUMBER	LEGEND		RECOVERY (%)	SPT VALUES BLOWS/6" (N)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	0	●	Black fine SAND	SS-1	/	90	Sampled w/5' continuous sampler.				
		●	Tan, fine, slightly silty SAND.		/						
	5	●	Dark brown slightly silty fine SAND	SS-2	/	100					
		●	Orangish brown & dark brown, consolidated, silty SAND.		/						
	10	●		UD-1		100					
		●		UD-2		100					
	15	●	Orangish brown silty, fine SAND.	SS-3	/	100					
	20	●	Tan, medium to coarse grained SAND	SS-4	/	100					
		●	1" layer gravel @ 22'		/						
	25	●	Tan, very fine grained, very silty SAND	UD-3		100					
		●	Light olive gray, very fine grained, very silty SAND to sandy silt layered with Tan, fine to medium grained slightly silty SAND.	SS-5	/	100					
	30	●		SS-6	/	100					
		●	Boring Terminated @ 34'		/						

SS = Split Spoon; ST = Shelby Tube; D = Dennison; P = Pitcher; O = Other	<input type="checkbox"/> 18.5 while drilling <input checked="" type="checkbox"/> after drilling	<input checked="" type="checkbox"/> after 24 hours	Hole No.	GWC-1
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Northing - 779573.38 Easting - 960870.73
 Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).
 Well resurveyed March 2023.



WELL CONSTRUCTION LOG		PRO CT Grumman Road Groundwater Monitoring Plan	WELL NO. GWC-1
SITE Grumman Road Monofill		LOCAT N: 779573.38 E: 960870.73	
BEGUN 3/10/97	COMPLETED 3/10/97	PREPARED BY T. Hartsfield	CONTRACTOR SCS-Atlanta



GENERALIZED GEOLOGIC LOG

Hole plugged at bottom w/ 1/4" bentonite pellets

NOTES:

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane West (NAD83). Well resurveyed March 2023.

Southern Company Services, Inc. Soil Boring Log



Project:	Grumman Road Monofill	HOLE No. GWC-2
Location:	Southwest Corner	
Purpose:	Monitoring Well Installation	SHEET 1 OF 1
Position:	Surface Elevation:	47.44
Rig Type:	Hollow Stem Auger	Contractor: SCS-Atlanta Driller: David Ivey
Drilling Method:	CME 75	Boring Depth: 29.0 No. SPT: 6 No. UD Samples: 1
Date Started:	3/11/97	Date Completed: 3/11/97 Logged By: Terri Harsfield Date Logged: 3/11/97
Hole Closure: 2" Monitoring Well		

WATER TABLE	DEPTH AND ELEV. (FT)	SYMBOLIC LOG	SOIL DESCRIPTION	SAMPLE			COMMENTS	TEST RESULTS					
				NUMBER	LEGEND	RECOVERY (%)		SPT VALUES BLOWS/6" (N)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	K (cm/s)	
	0		Dark brown, slightly silty SAND w/organics	SS-1	90		5' Continuous sampler used for soil sampling.						
	5		Tan, slightly silty, fine grained SAND	SS-2	100								
	10		SAND becomes very dense to consolidated & orange brown @ 8'. Contains dark brownish red concretions	SS-3	100								
	15		Tan, silty, very fine grained SAND w/1" layers of gray silt. Grades to very silty fine SAND then to gray, silty SAND to sandy silt	SS-4	100								
	20		White slightly silty, fine SAND (damp)	UD-1				Offset hole 5'					
	20		Light gray, very silty fine SAND to sandy silt	SS-5	100								
	25		White, slightly silty, fine SAND	SS-6	100								
			Boring Terminated @ 29'										

SS = Split Spoon; ST = Shelby Tube; D = Dennison; P = Pitcher; O = Other	<input type="checkbox"/> 17.0 while drilling <input checked="" type="checkbox"/> after 24 hours <input type="checkbox"/> after drilling	Hole No. GWC-2
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Northing - 779433.23 Easting - 960360.53
 Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).
 Well resurveyed March 2023.

WELL CONSTRUCTION LOG			PROJECT	WELL NO.
SITE Grumman Road Monofill			Grumman Road Groundwater Monitoring Plan	GWC-2
LOCATION N: 779433.23 E: 960360.53				
BEGUN	COMPLETED	PREPARED BY	CONTRACTOR	
3/11/97	3/11/97	T. Hartsfield	SCS-Atlanta	

DEPTH	ELEV.
-3.78	51.22
0	47.44
1.5	45.94
3.0	44.44
18.0	29.44
20.0	27.44
23.0	24.44
28.0	19.44
28.3	19.14
29.0	18.44

DESCRIPTION	DEPTH	ELEV.
TOP OF RISER CASING	-3.78	51.22
GROUND SURFACE	0	47.44
PROTECTIVE CASING DIA: 4" X 4" X 5' TYPE: STEEL	1.5	45.94
BOTTOM OF PROTECTIVE CASING	1.5	45.94
TOP OF BACKFILL	3.0	44.44
BACKFILL MATERIAL TYPE: 3/8" BENTONITE CHIPS		
RISER CASING DIA: 2" I.D. TYPE: PVC		
TOP OF SEAL	18.0	29.44
ANNULAR SEAL TYPE: 1/4" BENTONITE PELLETS	20.0	27.44
TOP OF FILTER PACK		
FILTER PACK TYPE: #1A DS1 FILTER SAND		
BOTTOM OF RISER/TOP OF SCREEN	23.0	24.44
SCREEN DIA: 2" I.D. TYPE: PVC OPENINGS WIDTH: 0.01" 480 THREAD OPENING TYPE: SLOTTED		
BOTTOM OF SCREEN	28.0	19.44
BOTTOM OF CASING/SUMP	28.3	19.14
BOTTOM OF HOLE	29.0	18.44
HOLE DIA.	8 3/4"	

NOTES:
 Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane West (NAD83).
 Well resurveyed March 2023.

PROJECT: **SEPCO Savannah, Georgia** WELL LOG **GWC-9**

PROJECT NO.: 1144-98-185 ELEVATION: 42.98
 LOGGED BY: MM BORING DEPTH: 26.0 FEET
 DATE DRILLED: 07-24-98 WATER LEVEL: 3.55 Feet @ TOB
 DRILLING METHOD: 4-1/4" I.D. HSA DRILL RIG: Simco 2400

NOTES:
 N: 781006.70 , E: 959961.26
 Top of casing: 46.57. Ground surface: 42.98.
 Elevations are in US Survey Feet (NAVD88)
 and Coordinates are in GA State Plane East
 (NAD83). Well resurveyed March 2023.

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	QVM (ppm)	SPR	ELEV.	WELL DIAGRAM
0		SILTY SAND Black with Traces of Stones and Organics	9-1	☒		14		<p>WELL DIAGRAM</p> <p>2" PVC Schedule 40 Casing</p> <p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
5		Dark Brown	9-2	☒		14		
10		Reddish Brown, Light Brown	9-3	☒		52		
15		Fine, Gray	9-4	☒		3		
20		Fine, Gray with Gray Clay Seams	9-5	☒		3		
25		CLAYEY FINE SAND Gray	9-6	☒		3		
26.0		Termination of Boring At 26.0 feet						



PROJECT: SEPCO Savannah, Georgia		WELL LOG GWC-11	
PROJECT NO. : 1144-98-185	ELEVATION: 45.35	NOTES:	
LOGGED BY: MM	BORING DEPTH: 21.0 FEET	N: 780352.21, E: 960122.47	
DATE DRILLED: 07-23-98	WATER LEVEL: 7.91 Feet @ TOB	Top of casing: 48.81. Ground surface: 45.35. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.	
DRILLING METHOD: 4-1/4" I.D. HSA	DRILL RIG: Simco 2400		

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVM (ppm)	SPR	ELEV.	WELL DIAGRAM	
0 - 5	[Stippled pattern]	SILTY SAND Fine Dark Gray	11-1	[X symbol]		9		<p>The well diagram shows a 2" PVC Schedule 40 casing extending from the surface down to a depth of approximately 18 feet. The casing is surrounded by cement grout. At the bottom of the casing, there is a bentonite seal, followed by fine filter sand, and a 2" PVC Schedule 40 screen with 0.010" slots.</p>	
5 - 10	[Dotted pattern]	Fine to Medium, Dark Brown, concretions	11-2	[X symbol]		5			
10 - 15	[Stippled pattern]	SAND Mostly Fine, Minor Coarse Light to Dark Brown	11-3	[X symbol]		28			
15 - 20	[Dotted pattern]	Fine, Light Tan	11-4	[X symbol]		21			
20 - 21.0	[Diagonal hatching]	SILTY SANDY CLAY Fine, Light Gray Termination of Boring At 21.0 feet	11-5	[X symbol]		3			



PROJECT: SEPCO Savannah, Georgia **WELL LOG** GWC-12

PROJECT NO.: 1144-98-185 **ELEVATION:** 43.74 **NOTES:**
LOGGED BY: MM **BORING DEPTH:** 26.0 FEET N: 780098.49, E: 960182.06
DATE DRILLED: 07-22-98 **WATER LEVEL:** 8.9 Feet @ TOB Top of casing: 46.89. Ground surface: 43.74.
DRILLING METHOD: 4-1/4" I.D. HSA **DRILL RIG:** Simco 2400 Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVM (ppm)	SPR	ELEV.	WELL DIAGRAM
0								
5		SILTY SAND Fine, Dark Gray to Black with Organics	12-1	☒		15		<p>The well diagram shows a 2" PVC Schedule 40 casing extending to 26 feet. From the surface to approximately 10 feet, the casing is surrounded by cement grout. Below the grout is a bentonite seal. At the bottom, there is a fine filter sand layer with a 2" PVC Schedule 40 screen having 0.010" slots.</p>
5		Fine, Moist, Dark Brown to Brown						
10		Dark Brown to Orange Brown, with Mica, Wet	12-2	☒		13		
10			12-3	☒		37		
15		Fine, Brown, Becomes Clayey	12-4	☒		3		
20		Fine, Light Brown with Medium to Coarse Grained Iron Concretions						
20		Very Silty Fine, Pale Yellow Brown, with Mica, Minor Iron Concretions	12-5	☒		10		
25								
26.0		Termination of Boring At 26.0 feet						
30								



PROJECT: SEPCO Savannah, Georgia		WELL LOG	GWC-13
PROJECT NO.: 1144-98-185	ELEVATION: 44.77	NOTES: N: 779737.50, E: 960276.20 Top of casing: 47.68. Ground surface: 44.77. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.	
LOGGED BY: MM	BORING DEPTH: 26.0 FEET		
DATE DRILLED: 07-22-98	WATER LEVEL: 10.35 Feet @ TOB		
DRILLING METHOD: 4-1/4" I.D. HSA	DRILL RIG: Simco 2400		

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVM (ppm)	SPR	ELEV.	WELL DIAGRAM
0								
0 - 5		SILTY SAND Fine, Dark Gray	13-1	☒		8		<p>WELL DIAGRAM</p> <p>2" PVC Schedule 40 Casing</p> <p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
5 - 10		Fine, Dark Brown Red Brown	13-2	☒		15		
10 - 15		Fine, Orange Brown, Wet	13-3	☒		54		
15 - 20		Fine, Brown to Light Brown with Mica	13-4	☒		24		
20 - 25		Fine, Brown to Gray with Mica and Iron Concretions, Trace Clay	13-5	☒		16		
25 - 26.0		Fine, Light Brown to Gray Very Silty Fine, and Olive Gray Clay	13-6	☒		5		
26.0		Termination of Boring At 26.0 feet						



PROJECT: **SEPCO Savannah, Georgia** WELL LOG **GWC-14**

PROJECT NO.: 1144-98-185 ELEVATION: 47.22
 LOGGED BY: MM BORING DEPTH: 26.0 FEET
 DATE DRILLED: 07-22-98 WATER LEVEL: 17.0 Feet @ TOB
 DRILLING METHOD: 4-1/4" I.D. HSA DRILL RIG: Simco 2400

NOTES:
 N: 779112.24, E: 960431.34
 Top of casing: 50.06. Ground surface: 47.22.
 Elevations are in US Survey Feet (NAVD88)
 and Coordinates are in GA State Plane East
 (NAD83). Well resurveyed March 2023.

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVN (ppm)	SPR	ELEV.	WELL DIAGRAM
0								
0 - 5		SILTY SAND Fine, Dark Brown	14-1	☒		5		<p>WELL DIAGRAM</p> <p>2" PVC Schedule 40 Casing</p> <p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
5 - 10		Fine, Tan	14-2	☒		6		
10 - 15		Fine, Brown to Gray, Wet	14-3	☒		11		
15 - 20		Fine, Gray with Minor Clay Lenses	14-4	☒		2		
20 - 25		Very Silty Fine, Light Gray	14-5	☒		5		
25 - 26.0		Termination of Boring At 26.0 feet	14-6	☒		7		
30								



PROJECT: **SEPCO Savannah, Georgia** WELL LOG **GWC-15**

PROJECT NO.: 1144-98-185 ELEVATION: 44.73 NOTES: N: 778948.56, E: 960666.68
 LOGGED BY: MM BORING DEPTH: 26.0 FEET
 DATE DRILLED: 07-22-98 WATER LEVEL: 16.9 Feet @ TOB
 DRILLING METHOD: 4-1/4" I.D. HSA DRILL RIG: Simco 2400
 Top of casing: 47.36. Ground surface: 44.73. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVN (ppm)	SPR	ELEV.	WELL DIAGRAM
0								
0 - 5		SILTY SAND Fine, Black Organic Fine, Black to Gray	15-1	☒		16		<p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Casing</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
5 - 10		Fine, Light Brown	15-2	☒		8		
10 - 15		Fine, Brown, Wet	15-3	☒		47		
15 - 20		Fine, Brown to Light Brown	15-4	☒		13		
20 - 26.0		Very Silty Fine, Light Brown to Gray	15-5	☒		16		
26.0		Termination of Boring At 26.0 feet						
30								

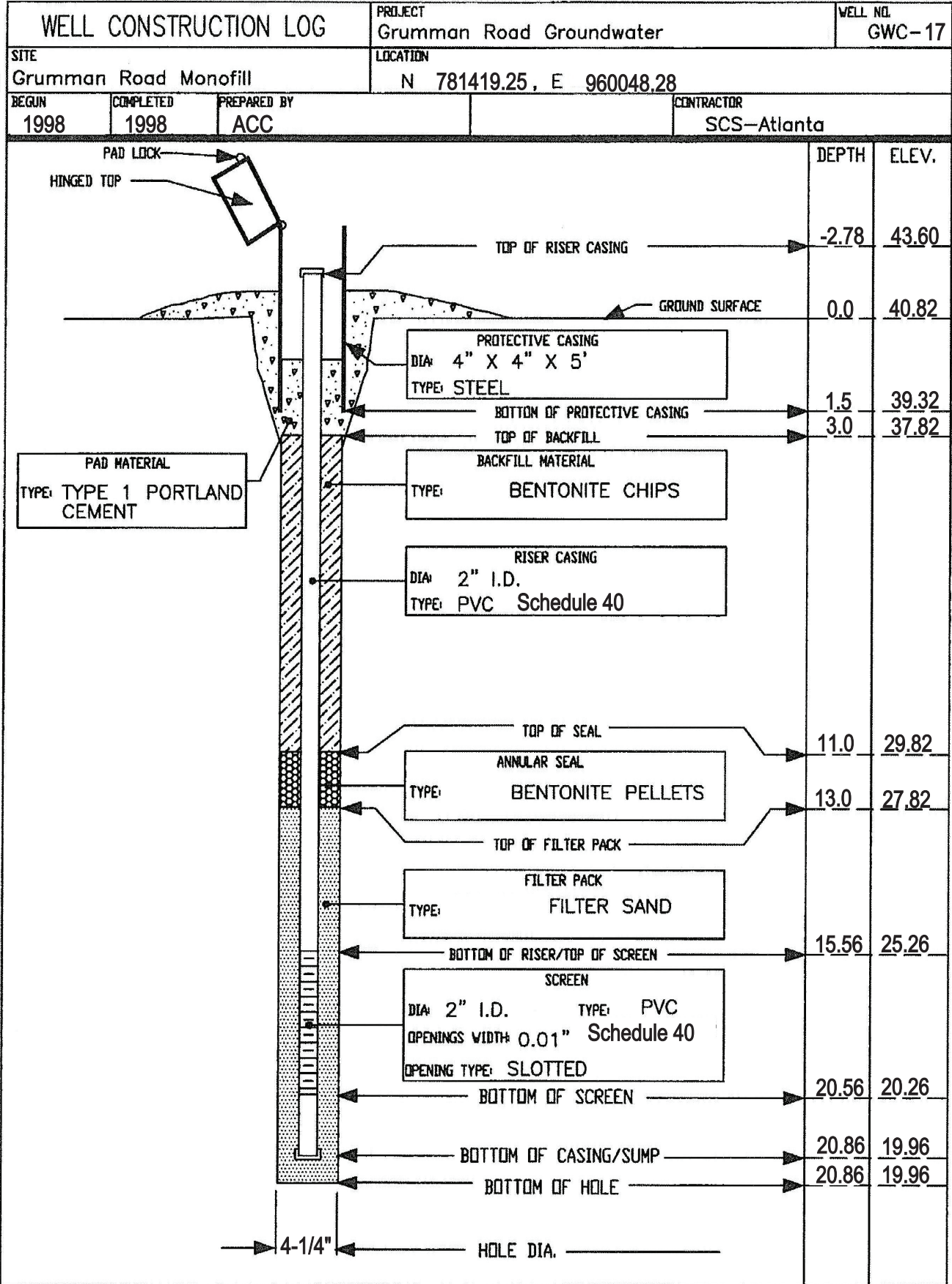


PROJECT: SEPCO Savannah, Georgia	WELL LOG GWC-16
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PROJECT NO. : 1144-98-185	ELEVATION: 44.34	NOTES: N: 779034.89, E: 960963.23 Top of casing: 47.29. Ground surface: 44.34. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.
LOGGED BY: MM	BORING DEPTH: 28.0 FEET	
DATE DRILLED: 07-21-98	WATER LEVEL: 17.81 Feet @ TOB	
DRILLING METHOD: 4-1/4" I.D. HSA	DRILL RIG: Simco 2400	

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	DVM (ppm)	SPR	ELEV.	WELL DIAGRAM
0		SILTY SAND Fine, Light Brown	16-1	X		3		<p style="font-size: small;">Cement Grout</p> <p style="font-size: x-small;">Bentonite Seal</p> <p style="font-size: x-small;">Fine Filter Sand</p> <p style="font-size: x-small;">2" PVC Schedule 40 Casing</p> <p style="font-size: x-small;">2" PVC Schedule 40 Screen, 0.010" Slot</p>
5		Fine, Brown to Light Red Brown	16-2	X		7		
10		Fine, Light Brown to Pale Yellow Brown	16-3	X		20		
15		Tan to White	16-4	X		23		
20		Fine, Wet, Tan to Gray with Minor Gray Clay	16-5	X		23		
25		Very Silty Fine, Gray with Clay	16-6	X		5		
26.0		Termination of Boring At 26.0 feet						
30								





NOTES:

Generalized construction log recreated with contextual historical information and approximated field measurements. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

SOUTHERN COMPANY SERVICES

WELL CONSTRUCTION LOG

SITE Grumman Road Ash Landfill
 DATE STARTED 5/7/2010 ENDED 5/7/2010

PROJECT Grumman Rd Parcel A Inv.
 LOCATION Port Wentworth, GA
 PREPARED

WELL NO.
 GWC-20

N: 779293.82, E: 960956.67

	DEPTH	ELEVATION
TOP OF CASING	-3.21	49.43
TOP OF CONCRETE	-0.22	46.44
GROUND SURFACE	0	46.22
PROTECTIVE CASING DIAMETER: 6" TYPE: Anodized aluminum		
BOTTOM OF PROTECTIVE CASING	1	45.22
BACKFILL MATERIAL TYPE: Neat cement-bentonite		
RISER CASING DIAMETER: 2" TYPE: Sch 40 PVC		
TOP OF SEAL	11.5	34.72
ANNULAR SEAL TYPE: 3/8" bentonite pellets		
TOP OF FILTER PACK	13.5	32.72
SLOW SAND PACK TYPE: 30/65 mesh filter sand	15	31.22
FILTER PACK TYPE: 20/30 mesh filter sand		
BOTTOM OF RISER/ TOP OF SCREEN	17	29.22
SCREEN DIAMETER: 3" x 2" TYPE: Sch 40 U-Pack OPENING WIDTH: 0.010 slot; 1/8" spacing OPENING TYPE: Slotted		
BOTTOM OF SCREEN	22	24.22
BOTTOM OF CASING	22.3	23.92
BOTTOM OF HOLE	22.3	23.92

5/24/10 Water Depth: 20.6'

NOTE:
 Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83).
 Well resurveyed March 2023.

HOLE DIA: 8.5"

SOUTHERN COMPANY SERVICES

WELL CONSTRUCTION LOG

PROJECT		Grumman Rd Parcel A Inv.	WELL NO. GWC-21
SITE		Grumman Road Ash Landfill	
LOCATION		Port Wentworth, GA	
DATE STARTED	5/7/2010	ENDED	5/7/2010
PREPARED			

N: 779030.28, E: 960948.11

	DEPTH	ELEVATION
TOP OF CASING	-3.08	47.18
TOP OF CONCRETE	-0.14	44.24
GROUND SURFACE	0	44.10
<p>PROTECTIVE CASING DIAMETER: 6" TYPE: Anodized aluminum</p>		
BOTTOM OF PROTECTIVE CASING	1	43.10
<p>BACKFILL MATERIAL TYPE: Neat cement-bentonite</p>		
<p>RISER CASING DIAMETER: 2" TYPE: Sch 40 PVC</p>		
TOP OF SEAL	10.5	33.60
<p>ANNULAR SEAL TYPE: 3/8" bentonite pellets</p>		
TOP OF FILTER PACK	12.5	31.60
<p>SLOW SAND PACK TYPE: 30/65 mesh filter sand</p>		
14	30.10	
<p>FILTER PACK TYPE: 20/30 mesh filter sand</p>		
BOTTOM OF RISER/ TOP OF SCREEN	16	28.10
<p>SCREEN DIAMETER: 3" x 2" TYPE: Sch 40 U-Pack OPENING WIDTH: 0.010 slot; 1/8" spacing OPENING TYPE: Slotted</p>		
BOTTOM OF SCREEN	21	23.10
BOTTOM OF CASING	21.3	22.80
BOTTOM OF HOLE	21.3	22.80

5/24/10 Water Depth: 20.19'

NOTE:

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

HOLE DIA: 8.5"

SOUTHERN COMPANY SERVICES

WELL CONSTRUCTION LOG

SITE Grumman Road Ash Landfill

PROJECT

Grumman Rd Parcel A Inv.

WELL NO.

DATE STARTED

5/7/2010

ENDED

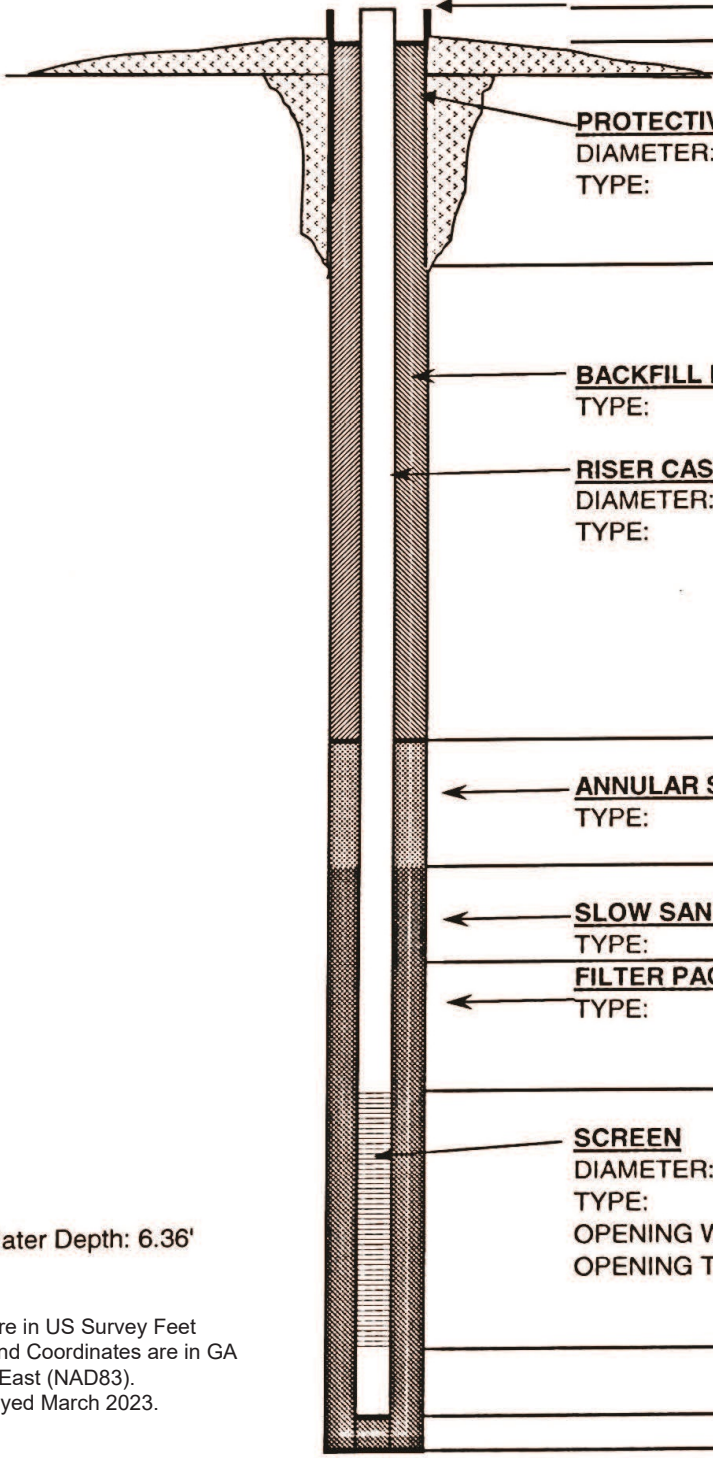
5/7/2010

PREPARED

GWC-22

N: 780712.09, E: 960063.85

	DEPTH	ELEVATION
TOP OF CASING	-3.04	46.25
TOP OF CONCRETE	-0.06	43.27
GROUND SURFACE	0	43.21
PROTECTIVE CASING DIAMETER: 6" TYPE: Anodized aluminum		
BOTTOM OF PROTECTIVE CASING	1	42.21
BACKFILL MATERIAL TYPE: 3/8" bentonite pellets		
RISER CASING DIAMETER: 2" TYPE: Sch 40 PVC		
TOP OF SEAL	7	36.21
ANNULAR SEAL TYPE: 3/8" bentonite pellets		
TOP OF FILTER PACK	9	34.21
SLOW SAND PACK TYPE: 30/65 mesh filter sand	10	33.21
FILTER PACK TYPE: 20/30 mesh filter sand		
BOTTOM OF RISER/ TOP OF SCREEN	10.9	32.31
SCREEN DIAMETER: 3" x 2" TYPE: Sch 40 U-Pack OPENING WIDTH: 0.010 slot; 1/8" spacing OPENING TYPE: Slotted		
BOTTOM OF SCREEN	15.9	27.31
BOTTOM OF CASING	16.2	27.01
BOTTOM OF HOLE	16.2	27.01



5/24/10 Water Depth: 6.36'

NOTE:

Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

HOLE DIA: 8.5"

PROJECT: SEPCO Savannah, Georgia		WELL LOG GWC-10	
--	--	------------------------	--

PROJECT NO. : 1144-98-185	ELEVATION: 44.05	NOTES: N: 780703.08, E: 960037.03 Top of casing: 46.77. Ground surface: 44.05. Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.
LOGGED BY: MM	BORING DEPTH: 21.0 FEET	
DATE DRILLED: 07-24-98	WATER LEVEL: 5.0 Feet @ TOB	
DRILLING METHOD: 4-1/4" I.D. HSA	DRILL RIG: Simco 2400	

DEPTH (ft)	GRAPHIC LOG	Description & Remarks	SAMPLE NUMBER	SAMPLE	OVN (ppm)	SPR	ELEV.	WELL DIAGRAM
0 - 1		SAND Coarse Black	10-1	☒				<p>WELL DIAGRAM</p> <p>2" PVC Schedule 40 Casing</p> <p>Cement Grout</p> <p>Bentonite Seal</p> <p>Fine Filter Sand</p> <p>2" PVC Schedule 40 Screen, 0.010" Slot</p>
1 - 5		SILTY SAND Fine, Dark to Light Brown	10-2	☒		8		
5 - 10		Fine to Medium, Wet Light to Very Dark Brown	10-3	☒		5		
10 - 15		Fine, Orange-Brown	10-4	☒		88		
15 - 20		Fine Red-Brown to Light Brown	10-5	☒		8		
20 - 21.0		CLAY Olive Gray-Green with Fine Sand Termination of Boring At 21.0 feet	10-6	☒		2		





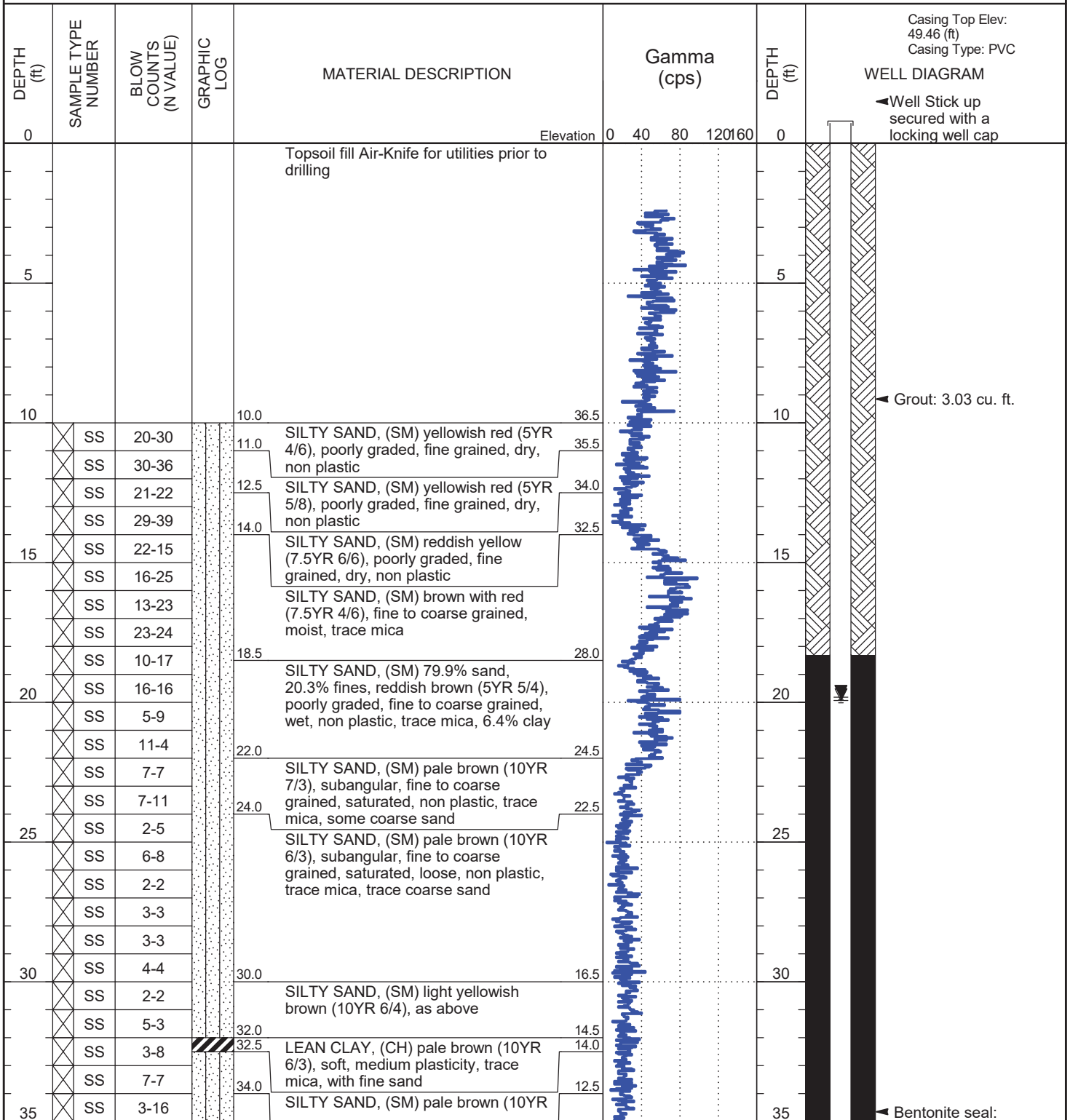
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 1150 Northmeadow Parkway, Suite 100
 Roswell, GA 30076
 770-594-5998

BORING NUMBER MW-23D

CLIENT Georgia Power
PROJECT NUMBER I054-116
DATE STARTED 12/15/20 **COMPLETED** 12/17/20
DRILLING CONTRACTOR Cascade
DRILLING METHOD Rotasonic
LOGGED BY Jordan Berisford **CHECKED BY**
NOTES N: 779279.75, E: 960955.66

PROJECT NAME Jordan Berisford
PROJECT LOCATION Grumman Road
GROUND ELEVATION 46.51 ft **HOLE SIZE** 6 inch
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING 19.82 ft / Elev 26.69 ft
AFTER DRILLING 19.93 ft / Elev 26.58 ft

ENVIRONMENTAL BH PLOTS - GINT STD US_GDT - 2/3/21 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\GRUMMAN DRILLING.GPJ



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BORING NUMBER MW-23D

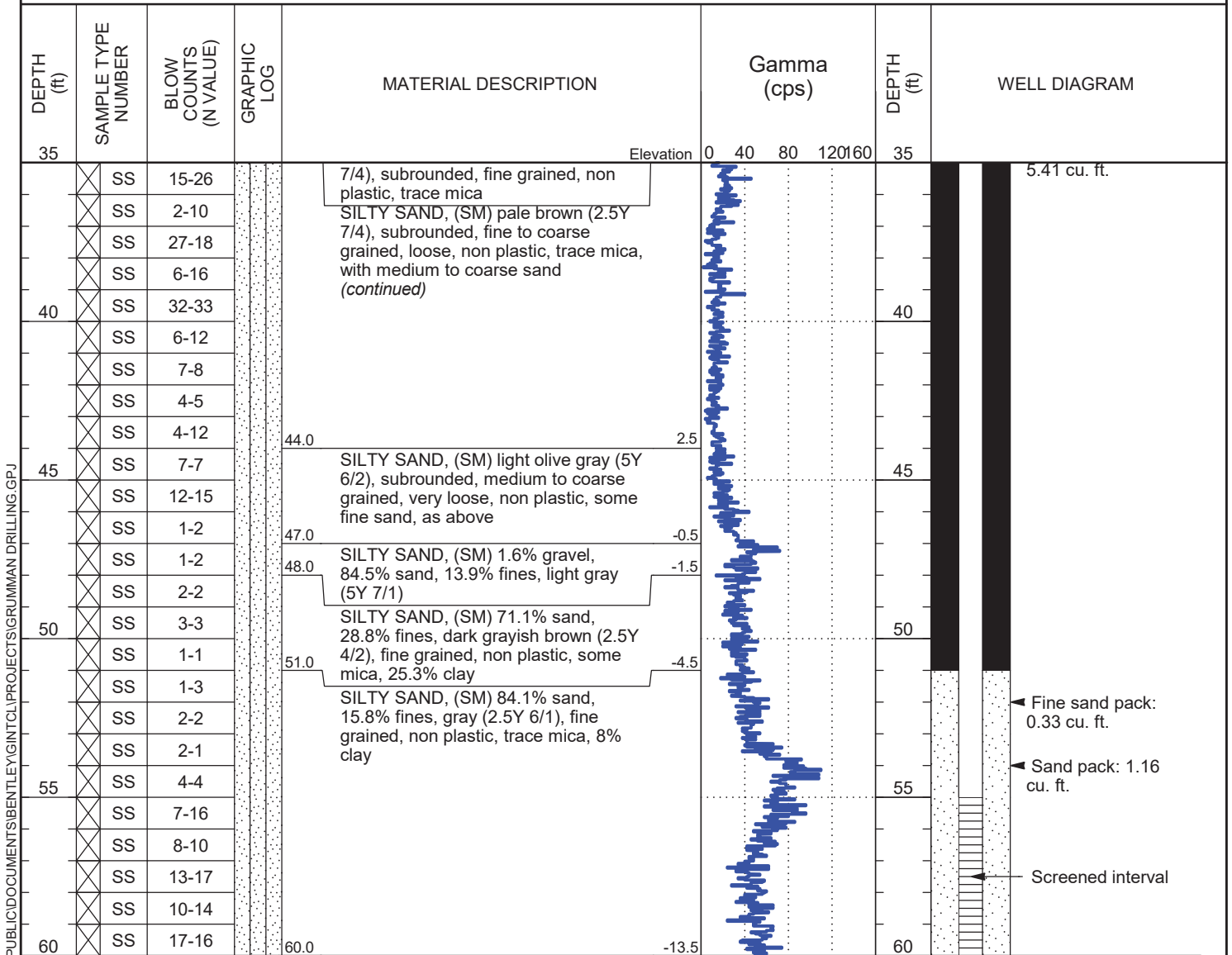
PAGE 2 OF 2

CLIENT Georgia Power

PROJECT NAME Jordan Berisford

PROJECT NUMBER I054-116

PROJECT LOCATION Grumman Road



Bottom of borehole at 60.0 feet.

ENVIRONMENTAL BH PLOTS - GINT STD US_GDT - 2/3/21 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\GRUMMAN DRILLING.GPJ

Note: Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.



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BORING NUMBER MW-24D

CLIENT Georgia Power
PROJECT NUMBER I054-116
DATE STARTED 12/17/20 **COMPLETED** 1/5/21
DRILLING CONTRACTOR Cascade
DRILLING METHOD Rotasonic
LOGGED BY Jordan Berisford **CHECKED BY**
NOTES N: 779042.22, E: 960971.12

PROJECT NAME Jordan Berisford
PROJECT LOCATION Grumman Road
GROUND ELEVATION 44.67 ft **HOLE SIZE** 6 inch
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING 19.47 ft / Elev 25.20 ft
AFTER DRILLING 19.58 ft / Elev 25.09 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	Gamma (cps)	DEPTH (ft)	WELL DIAGRAM
0				Topsoil fill Air-Knife for utilities prior to drilling	0 40 80 120 160	0	Casing Top Elev: 47.86 (ft) Casing Type: PVC Well Stick up secured with a locking well cap
5						5	Grout: 2.15 cu. ft.
10	SS 1-3	1-3		SILTY SAND, (SM) pale brown (2.5Y 7/3), fine grained, dry, loose, non plastic		10	
	SS 4-7	4-7					
	SS 11-16	11-16					
	SS 11-13	11-13					
15	SS 8-8	8-8				15	
	SS 8-8	8-8					
	SS 8-3	8-3					
	SS 4-3	4-3					
20	SS 2-3	2-3		SILTY SAND, (SM) 65.4% sand, 34.6% fines, pale brown (2.5Y 7/4), fine grained, wet, loose, non plastic, 9.7% clay		20	
	SS 5-8	5-8					
	SS 1-1	1-1					
	SS 1-1	1-1					
	SS 0-1	0-1					
	SS 1-1	1-1					
25	SS 1-6	1-6		SILTY SAND, (SM) yellowish brown (10YR 5/4), trace mica, some clay		25	
	SS 6-9	6-9					
	SS 2-5	2-5		SILTY SAND, (SM) yellowish brown (10YR 5/8), as above			
	SS 6-8	6-8					
	SS 6-6	6-6					
30	SS 10-11	10-11		SILTY SAND, (SM) light yellowish brown (2.5Y 6/4), as above		30	
	SS 3-6	3-6					
	SS 6-8	6-8					
	SS 8-9	8-9		SILTY SAND, (SM) light yellowish brown (2.5Y 6/4), subrounded, fine to coarse grained, wet, loose, non plastic, trace mica, with clay			
	SS 12-20	12-20					
35	SS 7-11	7-11		SILTY SAND, (SM) light gray (2.5Y 7/1), well rounded, fine to medium		35	Bentonite seal: 6.62 cu. ft.

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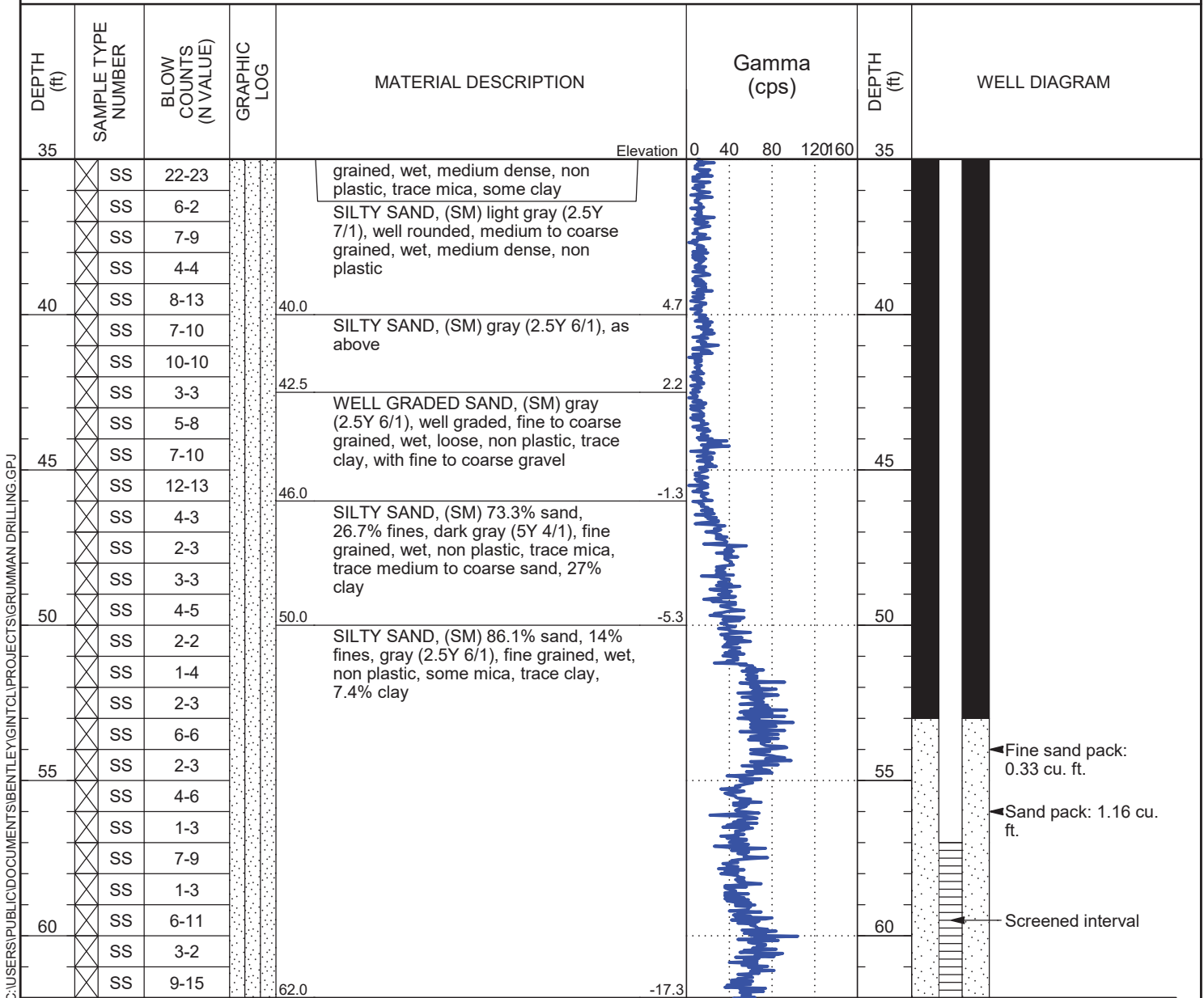
BORING NUMBER MW-24D

CLIENT Georgia Power

PROJECT NAME Jordan Berisford

PROJECT NUMBER I054-116

PROJECT LOCATION Grumman Road



Bottom of borehole at 62.0 feet.

ENVIRONMENTAL BH PLOTS - GINT STD US_GDT - 2/3/21 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\CLPROJECTS\GRUMMAN DRILLING.GPJ



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BORING NUMBER MW-25D

CLIENT Georgia Power
PROJECT NUMBER I054-116
DATE STARTED 1/5/21 **COMPLETED** 1/6/21
DRILLING CONTRACTOR Cascade
DRILLING METHOD Rotosonic
LOGGED BY Jordan Berisford **CHECKED BY**
NOTES N: 778944.28, E: 960654.43

PROJECT NAME Jordan Berisford
PROJECT LOCATION Grumman Road
GROUND ELEVATION 44.70 ft **HOLE SIZE** 6 inch
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING 18.91 ft / Elev 25.79 ft
AFTER DRILLING 17.95 ft / Elev 26.75 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	Gamma (cps)	DEPTH (ft)	WELL DIAGRAM
0				Topsoil fill Air-Knife for utilities prior to drilling		0	Casing Top Elev: 47.67 (ft) Casing Type: PVC Well Stick up secured with a locking well cap
5						5	
10	SS 4-13	19-22		SILTY SAND, (SM) brown (7.5YR 5/8), fine grained, dry, medium dense, non plastic, with silt	34.7	10	Grout: 3.11 cu. ft.
	SS 6-20	24-27		SILTY SAND, (SM) yellowish red (5YR 5/6), fine grained, dry, medium dense, non plastic, trace mica, with silt	32.7		
15	SS 1-1			SILTY SAND, (SM) brown (7.5YR 4/6), as above	30.7	15	
	SS 2-4						
	SS 8-19				27.7		
	SS 25-29			SILTY SAND, (SM) pale brown (2.5Y 7/3), as above	26.7		
	SS 2-3			Drillers lost sample			
20	SS 2-4				24.7	20	
	SS 1-4			SILTY SAND, (SC) pale brown (2.5Y 7/3), as above	24.2		
	SS 6-7			CLAYEY SAND, (SM) pale brown (2.5Y 7/3), fine grained, moist, soft, medium plasticity, trace coarse sand, with silt	23.7		
	SS 1-2						
	SS 4-5				20.7		
25	SS 2-2			SILTY SAND, (SM) 83% sand, 16.9% fines, pale brown (2.5Y 7/3), fine grained, wet, loose, non plastic, trace mica, with silt, 8.8% clay		25	
	SS 4-7						
	SS 1-1			SILTY SAND, (SM) pale brown (2.5Y 7/4), as above			
	SS 2-3						
	SS 2-2						
30	SS 2-6				14.7	30	
	SS 5-7			SILTY SAND, (SM) pale brown (2.5Y 7/4), fine grained, loose, non plastic, with clay	12.7		
	SS 7-9						
	SS 2-3			SILTY SAND, (SM) light gray (2.5Y 7/1), fine to coarse grained, wet, very loose, non plastic			
	SS 2-3						
35	SS 2-2					35	

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BORING NUMBER MW-25D

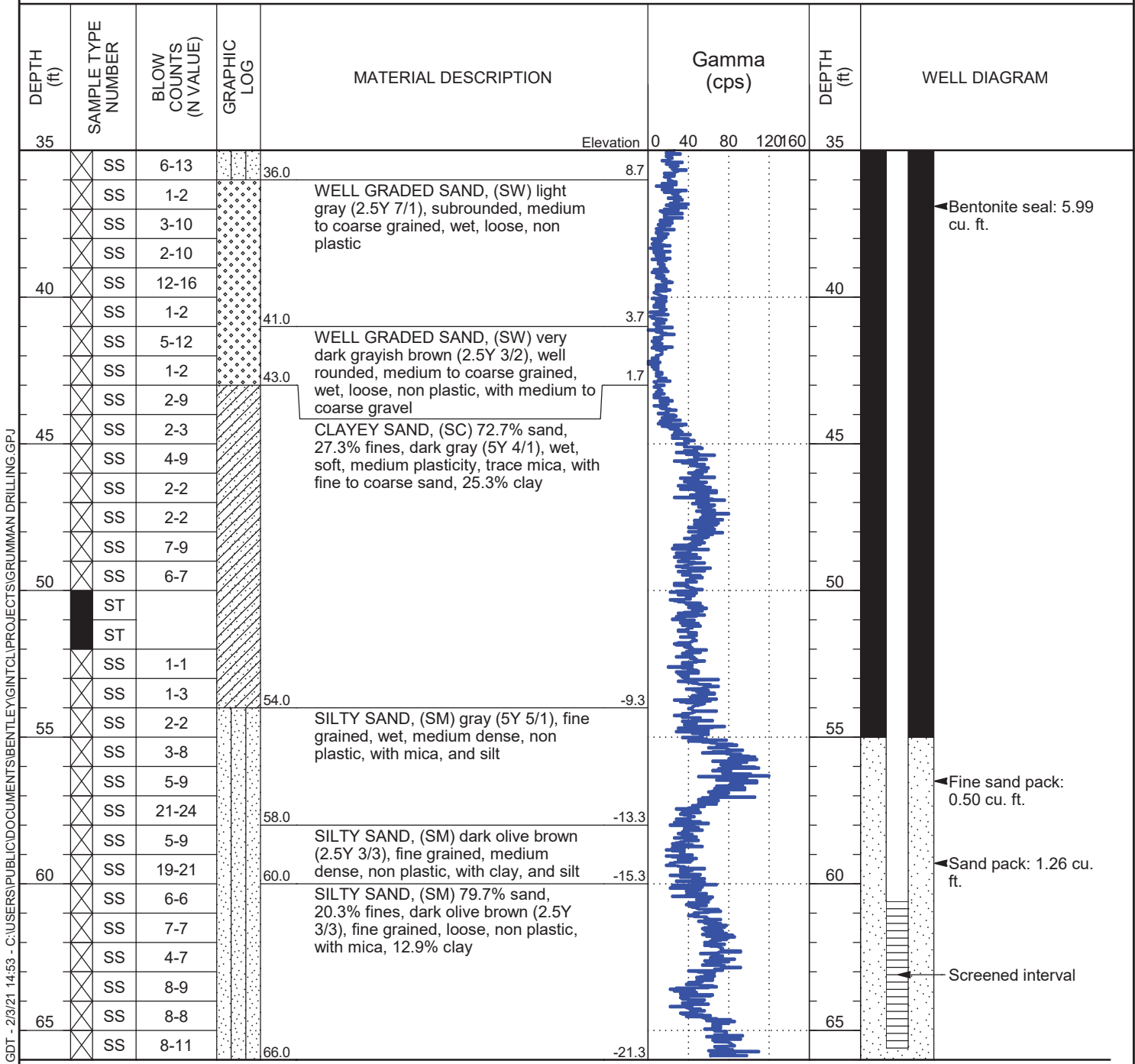
PAGE 2 OF 2

CLIENT Georgia Power

PROJECT NAME Jordan Berisford

PROJECT NUMBER I054-116

PROJECT LOCATION Grumman Road



Bottom of borehole at 66.0 feet.

ENVIRONMENTAL BH PLOTS - GINT STD US_GDT - 2/3/21 14:53 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\CLPROJECTS\GRUMMAN DRILLING.GPJ

Note: Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

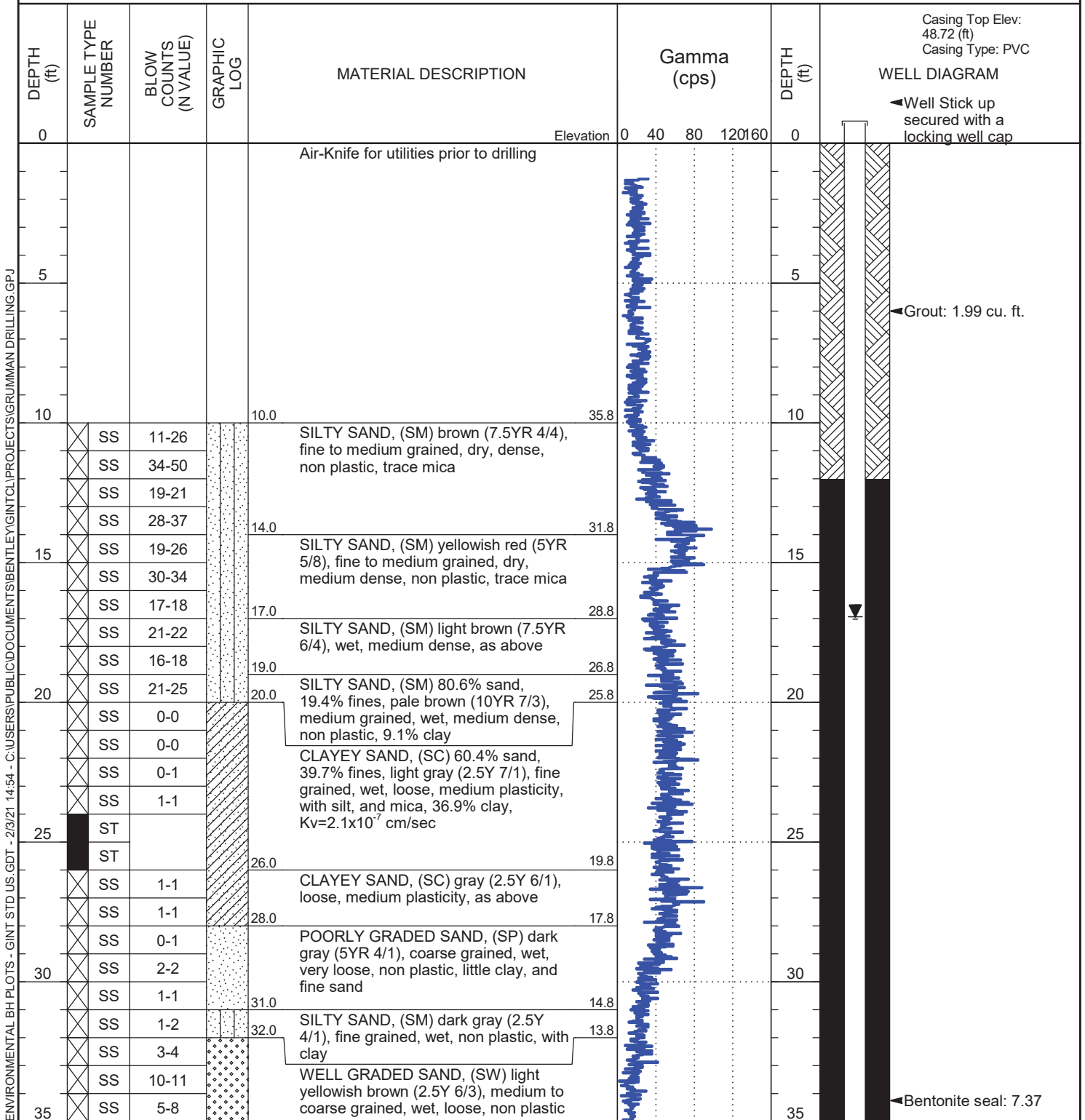


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BORING NUMBER MW-26D

CLIENT Georgia Power
PROJECT NUMBER I054-116
DATE STARTED 1/8/21 **COMPLETED** 1/9/21
DRILLING CONTRACTOR Cascade
DRILLING METHOD Rotasonic
LOGGED BY Jordan Berisford **CHECKED BY**
NOTES N: 779993.34, E: 960774.89

PROJECT NAME Jordan Berisford
PROJECT LOCATION Grumman Road
GROUND ELEVATION 45.77 ft **HOLE SIZE** 6 inch
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING 16.94 ft / Elev 28.83 ft
AFTER DRILLING 16.93 ft / Elev 28.84 ft



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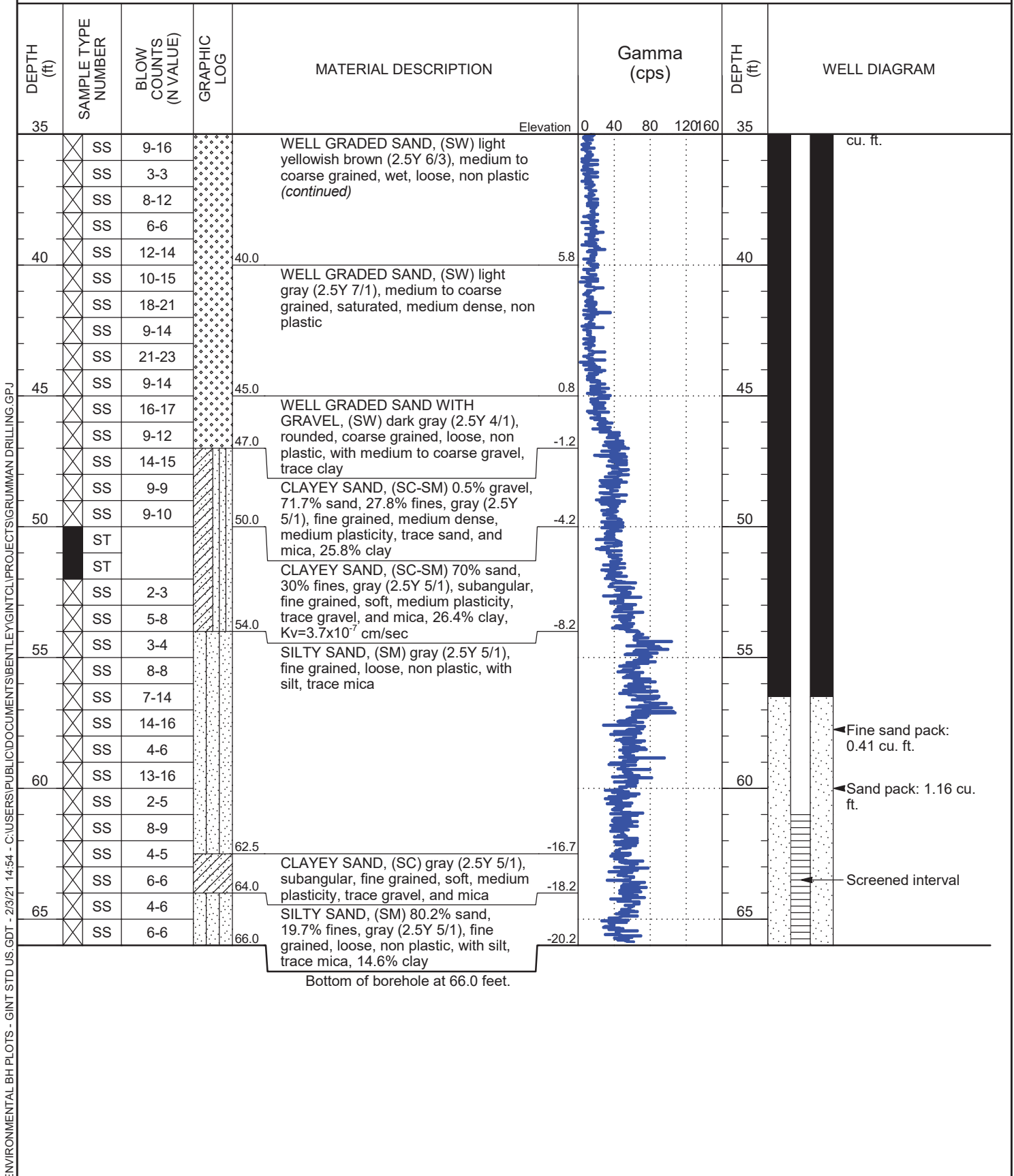


CLIENT Georgia Power

PROJECT NAME Jordan Berisford

PROJECT NUMBER I054-116

PROJECT LOCATION Grumman Road



Note: Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.



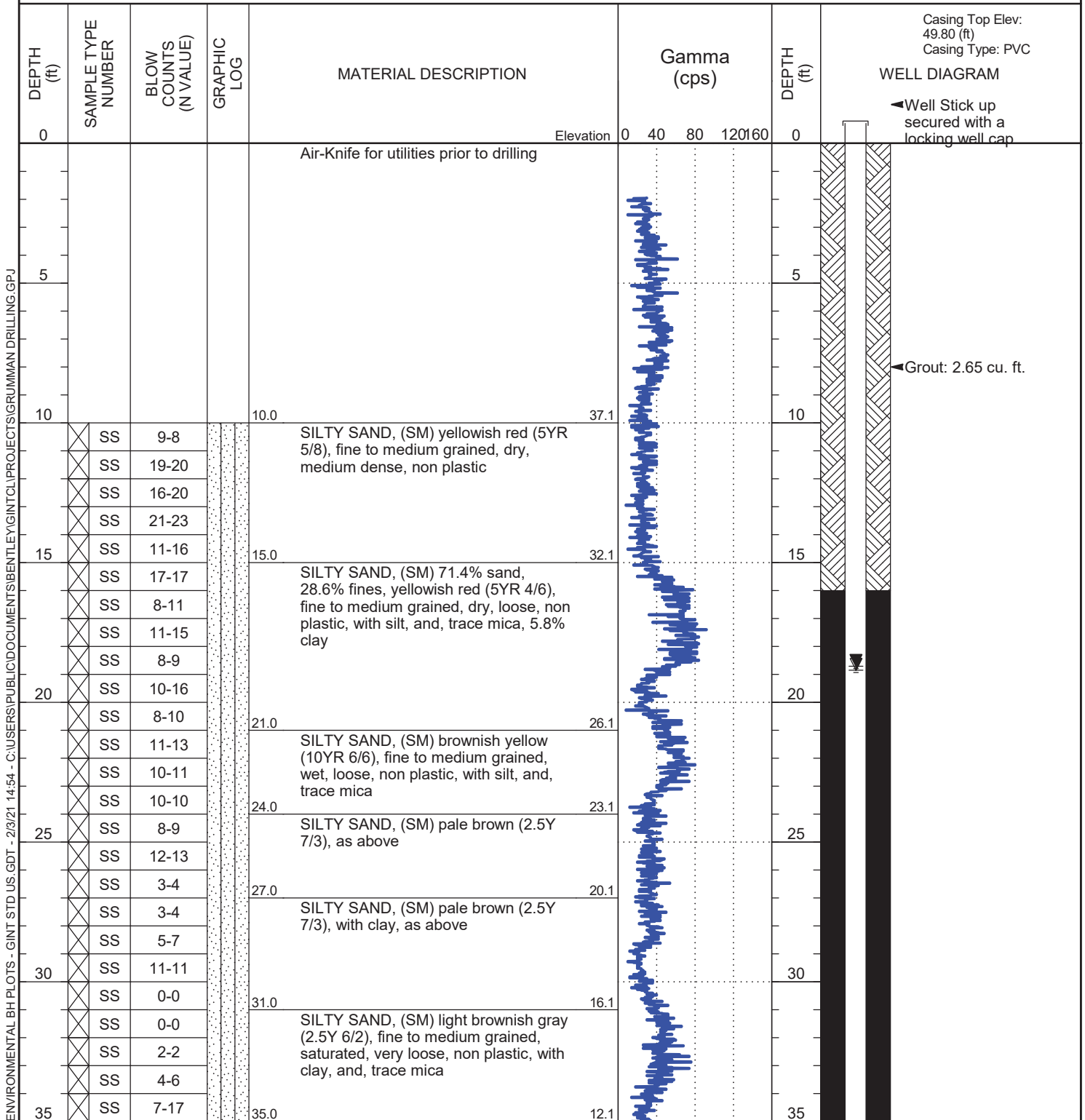
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 Roswell, GA 30076
 770-594-5998

BORING NUMBER MW-27D

PAGE 1 OF 2

CLIENT Georgia Power
PROJECT NUMBER I054-116
DATE STARTED 1/7/21 **COMPLETED** 1/8/21
DRILLING CONTRACTOR Cascade
DRILLING METHOD Rotasonic
LOGGED BY Jordan Berisford **CHECKED BY**
NOTES N: 779558.89, E: 960874.59

PROJECT NAME Jordan Berisford
PROJECT LOCATION Grumman Road
GROUND ELEVATION 47.06 ft **HOLE SIZE** 6 inch
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING 18.71 ft / Elev 28.35 ft
AFTER DRILLING 18.85 ft / Elev 28.21 ft



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BORING NUMBER MW-27D

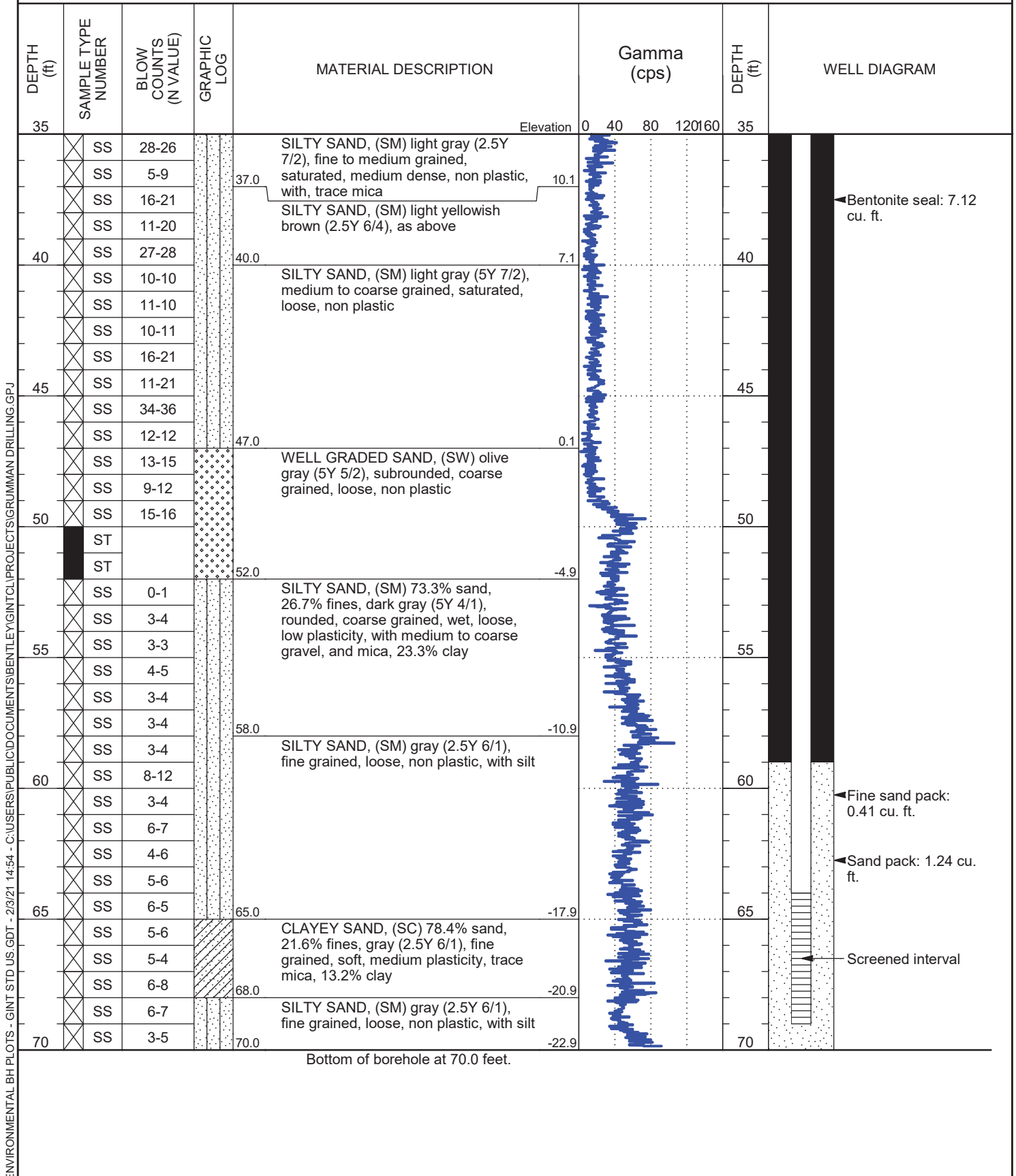
PAGE 2 OF 2

CLIENT Georgia Power

PROJECT NAME Jordan Berisford

PROJECT NUMBER I054-116

PROJECT LOCATION Grumman Road



Note: Elevations are in US Survey Feet (NAVD88) and Coordinates are in GA State Plane East (NAD83). Well resurveyed March 2023.

Southern Company Services, Inc.
64 Perimeter Center East
Atlanta, Georgia 30346
Telephone (404) 393-0650



June 23, 1994

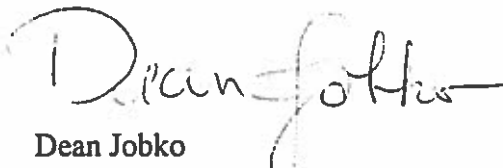
Mr. Michael Laitta
State of Georgia - Environmental Protection Department
Room 400
19 Martin Luther King, Jr. Drive
Atlanta, GA 30334

RE: Southern Company Services, Inc.
Water Well Contractors & Drillers Performance Bond

Dear Mr. Laitta:

Please find enclosed a renewal of the captioned bond. If you have any questions or need further information, please call me at (404)668-3274. Thank you.

Sincerely,



Dean Jobko
Sr. Risk Management Analyst

DMB300

cc: Alan Garrard

PERFORMANCE BOND FOR WATER WELL CONTRACTORS

BOND #4993104

AND DRILLERS

WATER WELL CONTRACTOR OR DRILLER

KNOW ALL MEN BY THESE PRESENTS.

That we SOUTHERN COMPANY SERVICES, INC., as Principal, and SAFECO INSURANCE COMPANY OF AMERICA, as Surety, are held and firmly bound unto the Director of the Environmental Protection Division ("Director"), Department of Natural Resources, State of Georgia and his successor or successors in office, as Obligees, in the full sum of TEN THOUSAND & No/100 Dollars (\$10,000.00), for the payment of which well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

WHEREAS, the Water Well Standards Act of 1983 (Ga. Laws 1983, p. 1192) (the "Act") requires that water well contractors and drillers file performance bonds with the Director to ensure compliance with the Act; and

WHEREAS, the above bound principal is subject to the terms and provisions of said Act.

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

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

This bond shall be effective from date of issuance or, in the case of a water well contractor, date of licensure and shall continue in effect until terminated by expiration, mutual agreement or cancellation upon 60 days written notice to Principal and Obligees; provided that the rights of the Obligees and beneficiaries under this bond which arose prior to such termination shall continue.

Unless sooner terminated, this bond shall terminate June 30, 1997.

IN WITNESS WHEREOF the Principal and Surety have caused these presents to be duly signed and sealed, this 19th day of May, 1994.

SOUTHERN COMPANY SERVICES, INC.
Principal, By: [Signature] (L.S.)
Title: Vice President & Secretary

Approved as to sufficiency
and accepted:

Environmental Protection
Division,

Department of Natural
Resources

SAFECO INSURANCE COMPANY OF AMERICA
Surety, By: [Signature]
Sandra J. Mathis, Attorney-in-Fact



POWER OF ATTORNEY

SAFECO INSURANCE COMPANY OF AMERICA
GENERAL INSURANCE COMPANY OF AMERICA
HOME OFFICE SAFECO PLAZA
SEATTLE, WASHINGTON 98185

No. 4363

KNOW ALL BY THESE PRESENTS:

That SAFECO INSURANCE COMPANY OF AMERICA and GENERAL INSURANCE COMPANY OF AMERICA, each a Washington corporation, does each hereby appoint *****C. A. DRIVER; DEANNA L. FULTON; SANDRA J. MATHIS; EDWARD L. MITCHELL, Atlanta, Georgia*****

its true and lawful attorney(s)-in-fact, with full authority to execute on its behalf fidelity and surety bonds or undertakings and other documents of a similar character issued in the course of its business, and to bind the respective company thereby.

IN WITNESS WHEREOF, SAFECO INSURANCE COMPANY OF AMERICA and GENERAL INSURANCE COMPANY OF AMERICA have each executed and attested these presents

this 26th day of October, 19 93

CERTIFICATE

Extract from the By-Laws of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA:

"Article V, Section 13. - FIDELITY AND SURETY BONDS . . . the President, any Vice President, the Secretary, and any Assistant Vice President appointed for that purpose by the officer in charge of surety operations, shall each have authority to appoint individuals as attorneys-in-fact or under other appropriate titles with authority to execute on behalf of the company fidelity and surety bonds and other documents of similar character issued by the company in the course of its business . . . On any instrument making or evidencing such appointment, the signatures may be affixed by facsimile. On any instrument conferring such authority or on any bond or undertaking of the company, the seal, or a facsimile thereof, may be impressed or affixed or in any other manner reproduced; provided, however, that the seal shall not be necessary to the validity of any such instrument or undertaking."

Extract from a Resolution of the Board of Directors of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA adopted July 28, 1970.

"On any certificate executed by the Secretary or an assistant secretary of the Company setting out,

- (i) The provisions of Article V, Section 13 of the By-Laws, and
(ii) A copy of the power-of-attorney appointment, executed pursuant thereto, and
(iii) Certifying that said power-of-attorney appointment is in full force and effect,

the signature of the certifying officer may be by facsimile, and the seal of the Company may be a facsimile thereof."

I, R. A. Pierson, Secretary of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA, do hereby certify that the foregoing extracts of the By-Laws and of a Resolution of the Board of Directors of these corporations, and of a Power of Attorney issued pursuant thereto, are true and correct, and that both the By-Laws, the Resolution and the Power of Attorney are still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the facsimile seal of said corporation

this 19th day of May, 19 94



S&ME

Celebrating 25 Years of Excellence

June 24, 1998

Mr. Bruce O'Connor
Georgia Geologic Survey
19 MLK, Jr. Drive, SW, Room 400
Atlanta, GA 30334

RE: Bond Number: 159515
Date of Bond: June 29, 1998
Performance Bond for Water Well Contractors and Drillers
State of Georgia

Dear Mr. O'Connor:

Please find enclosed the referenced bond issued on behalf of S&ME, Inc.

Please contact me if you have any questions or if we need to provide additional information.

Regards,

S&ME, Inc.

James R. Attaway, Jr.
Legal Counsel

cc: Joe Weatherford, S&ME, Inc. Spartanburg



Bond Number 159515

PERFORMANCE BOND FOR WATER WELL CONTRACTORS AND DRILLERS

Name of Water Well Contractor or Driller S&ME, Inc., P.O. Box 58069, Raleigh, NC 27658-8069

Know All Men By These Present: S&ME, Inc. and any and all Employees, Officers and Partners, as Principal, and North American Specialty Insurance Company

as Surety, are held and firmly bound unto the Director of the Environmental Protection Division(Director), Department of Natural Resources, State of Georgia and his Successor or Successors in office as Oblige in the full sum of ~~TEN THOUSAND AND NO/00-- DOLLARS (\$10,000.00)~~ for the payment of which will and truly to be made, we bind ourselves, our heir, administrators, successors and assigns, jointly and severally, by these present.

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

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

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

This bond is effective June 29, 1998 and unless sooner terminated, this bond shall terminate June 30, 1999. In Witness Whereof the Principal and Surety have caused these present to be duly signed and sealed, this 29th day of June 1998.

S&ME, INC.
PRINCIPAL BY [Signature] (L.S.)
Executive Vice President

TITLE NORTH AMERICAN SPECIALTY INSURANCE COMPANY

SURETY BY: [Signature]
ANNETTE M. LEUSCHNER, ATTORNEY-IN-FACT
GEORGIA REGISTERED AGENT [Signature] SEAL:
TIMOTHY E. BARNHARDT

GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT THE NORTH AMERICAN SPECIALTY INSURANCE COMPANY, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Manchester, New Hampshire has made, constituted and appointed, and by these presents does make, constitute and appoint

**John D. Leak, III, Raymond J. Garruto, George D. Patrick,
Annette M. Leuschner, jointly or severally,
and all of Charlotte, North Carolina**

its true and lawful Attorney-in-Fact, to make, execute, seal and deliver for and on its behalf and as its act and deed bonds or other writings obligatory in the nature of a bond on behalf of said Company, as surety, bonds undertakings and contracts of suretyship to be given to all obligees provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed in the amount of

FIVE MILLION (5,000,000.00) DOLLARS

The Power of Attorney is granted and is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of North American Specialty Insurance Company at a meeting duly called and held on the 24th of April, 1985.

"RESOLVED, that the President, and Vice President, any Assistant Vice President or any Secretary be and each or any of them hereby is authorized to execute Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of North American Specialty Insurance Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach hereto the seal of the Company." and

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached.

In Witness Whereof, North American Specialty Insurance Company has caused its official seal to be hereunto affixed, and these presents to be signed by its President and attested by one of its Assistant Vice Presidents on the 21st of May, 1996.

BY Robert M. Solitro
Robert M. Solitro, President and Treasurer



BY Gregory G. O'Mahony
Gregory G. O'Mahony, Assistant Vice President

State of Ohio SS:
County of Cuyahoga

For your protection look for the simulated watermark on back

On this May 21, 1996, before me, a Notary Public personally appeared Robert M. Solitro and Gregory G. O'Mahony personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of said NORTH AMERICAN SPECIALTY INSURANCE COMPANY and acknowledged said instrument to be the voluntary act and deed of the corporation.

Monica G. Scarberry
Notary Public - State of Ohio
My commission expires August 11, 1998



Monica G. Scarberry
Monica G. Scarberry, Notary Public

I, Clifford D. St. George, Assistant Secretary of NORTH AMERICAN SPECIALTY INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney by said NORTH AMERICAN SPECIALTY INSURANCE COMPANY, which is still in full force and effect. IN WITNESS WHEREOF,

I hereto set my hand and affixed the seal of said Company this 29th day of June, 19 98



Clifford D. St. George
Clifford D. St. George, Assistant Secretary

Southern Company Services, Inc.
30 Ivan Allen Jr. Boulevard NW
Atlanta, Georgia 30308



May 27, 2009

Mr. Tony McCook
Georgia Geologic Survey
19 Martin Luther King Jr. Dr. SW
Room 400
Atlanta, GA 30334

**RE: Performance Bond for Water Well Contractors and Drillers
Safeco Bond #4993104**

Attached is the original signed Continuation Certificate for the above referenced bond on behalf of Southern Company Services, Inc. This certificate keeps this bond in force until June 30, 2010.

Please let us know if you need additional information.

Best Regards,

A handwritten signature in cursive script that reads "Annie Jackson".

Annie Jackson
Southern Company Services, Inc.
Risk Management Department

/aj

Enclosure

cc: Alan Garrard, SCS

SAFECO Insurance Company of America

, Surety upon

a certain Bond No. **4993104**

dated effective **June 30, 2005**
(MONTH-DAY-YEAR)

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

and in favor of **State of Georgia - Dept. of Natural Resources**
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on **June 30, 2009**
(MONTH-DAY-YEAR)

and ending on **June 30, 2010**
(MONTH-DAY-YEAR)

Amount of bond **\$10,000.00**

Description of bond **License Bond - Water Well Contractors & Drillers**

Premium: **\$100.00**

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

Signed and dated on **April 24, 2009**
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By

Barbara S. MacArthur
Barbara S. MacArthur, Attorney-In-Fact



POWER OF ATTORNEY

Safeco Insurance Company of America
General Insurance Company of America
1001 4th Avenue
Suite 1700
Seattle, WA 98154

KNOW ALL BY THESE PRESENTS:

No. 6724

That SAFECO INSURANCE COMPANY OF AMERICA and GENERAL INSURANCE COMPANY OF AMERICA, each a Washington corporation, does each hereby appoint

SANDRA S. CARTER; GARY D. EKLUND; BARBARA S. MACARTHUR; VIRGINIA B. MCMANUS; EDWARD L. MITCHELL; NANCY G. NIX; CHAUN M. WILSON; Atlanta, Georgia

its true and lawful attorney(s)-in-fact, with full authority to execute on its behalf fidelity and surety bonds or undertakings and other documents of a similar character issued in the course of its business, and to bind the respective company thereby.

IN WITNESS WHEREOF, SAFECO INSURANCE COMPANY OF AMERICA and GENERAL INSURANCE COMPANY OF AMERICA have each executed and attested these presents

this 21st day of March, 2009

Dexter R. Legg

TAMIKOLAJEWSKI

Dexter R. Legg, Secretary

Timothy A. Mikolajewski, Vice President

CERTIFICATE

Extract from the By-Laws of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA:

"Article V, Section 13. - FIDELITY AND SURETY BONDS ... the President, any Vice President, the Secretary, and any Assistant Vice President appointed for that purpose by the officer in charge of surety operations, shall each have authority to appoint individuals as attorneys-in-fact or under other appropriate titles with authority to execute on behalf of the company fidelity and surety bonds and other documents of similar character issued by the company in the course of its business...

Extract from a Resolution of the Board of Directors of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA adopted July 28, 1970.

"On any certificate executed by the Secretary or an assistant secretary of the Company setting out,

- (i) The provisions of Article V, Section 13 of the By-Laws, and
(ii) A copy of the power-of-attorney appointment, executed pursuant thereto, and
(iii) Certifying that said power-of-attorney appointment is in full force and effect,

the signature of the certifying officer may be by facsimile, and the seal of the Company may be a facsimile thereof."

I, Dexter R. Legg, Secretary of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA, do hereby certify that the foregoing extracts of the By-Laws and of a Resolution of the Board of Directors of these corporations, and of a Power of Attorney issued pursuant thereto, are true and correct, and that both the By-Laws, the Resolution and the Power of Attorney are still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the facsimile seal of said corporation

this 24th day of April, 2009



Dexter R. Legg

Dexter R. Legg, Secretary

COPY

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company

, Surety upon

a certain Bond No. **800031223**

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

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

and in favor of State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

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

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

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

Description of bond Water Well Contractor Performance Bond

Premium: \$1,200.00

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

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

By _____
Attorney-in-Fact Elizabeth R. Hahn

Parker, Smith & Feek, Inc.
Agent

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

(425) 709-3600
Telephone Number of Agent

Power of Attorney

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

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

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

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

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

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

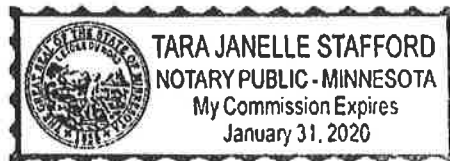
STATE OF MINNESOTA
HENNEPIN COUNTY



By

Paul J. Brehm, Senior Vice President

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



Notary Public

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

Signed and sealed. Dated 9 day of May, 2019

This Power of Attorney expires
October 1, 2019



Christopher V. Jerry, Secretary



141 Railroad Street, Suite 116
Canton, Georgia 30114
www.gunninsurvey.com

DATE: March 23, 2023

TO: Atlantic Coastal Consulting, Inc
1150 Northmeadow Parkway
Suite 100
Roswell, GA 30076

ATTN: Monte Jones of Atlantic Coastal Consulting

SUBJECT: Grumman Road Landfill: 2023 Monitoring Well Survey

The following data has been established on the monitoring wells using the North American Datum of 1983 (HARN) – State Plane Coordinate System of Georgia-East Zone. The vertical reference frame is North American Datum of 1988. Wells were surveyed to the following tolerances: 0.01’ vertical and 0.5’ horizontal via conventional survey methods, Global Positioning Systems, and traditional level loops. Each well was cross-checked for horizontal and vertical accuracy.

WELL ID	NORTHING	EASTING	ELEVATION	ELEVATION	ELEVATION
	NAIL	NAIL	NAIL	TOP OF CASE	TOP OF PVC
GWC-2	779433.23	960360.53	47.44	51.25	51.22
GWB-5R	780293.66	960693.28	44.72	47.46	47.21
GWB-6R	780572.76	960617.28	44.13	47.14	46.99
GWC-13	779737.50	960276.20	44.77	47.84	47.68
GWC-14	779112.24	960431.34	47.22	50.30	50.06
GWC-15	778948.56	960666.68	44.73	47.67	47.36
GWC-16	779034.89	960963.23	44.34	47.44	47.29
MW-23D	779279.75	960955.66	46.51	49.71	49.46
MW-24D	779042.22	960971.12	44.67	47.99	47.86
MW-25D	778944.28	960654.43	44.70	47.78	47.67
MW-26D	779993.34	960774.89	45.77	48.92	48.72
MW-27D	779558.89	960874.59	47.06	50.00	49.80



WELL ID	NORTHING	EASTING	ELEVATION	ELEVATION	ELEVATION
	TOP OF CASE	TOP OF CASE	CONCRETE PAD	TOP OF CASE	TOP OF PVC
GWC-1	779573.38	960870.73	46.49	49.92	49.72
GWB-4R	779975.18	960777.56	46.17	49.72	49.04
GWA-7	780887.38	960560.31	43.97	47.10	46.58
GWA-8	781167.00	960460.57	43.51	46.86	46.20
GWC-9	781006.70	959961.26	42.98	46.82	46.57
GWC-10	780703.08	960037.03	44.05	47.19	46.77
GWC-11	780352.21	960122.47	45.35	49.08	48.81
GWC-12	780098.49	960182.06	43.74	47.17	46.89
GWC-17	781419.25	960048.28	40.82	43.86	43.60
GWC-20	779293.82	960956.67	46.22	49.47	49.43
GWC-21	779030.28	960948.11	44.10	47.20	47.18
GWC-22	780712.09	960063.85	43.21	46.46	46.25

WELL ID	NORTHING	EASTING	ELEVATION
	INVERT PIPE	INVERT PIPE	INVERT PIPE
SWC-1	779026.30	961044.00	31.85

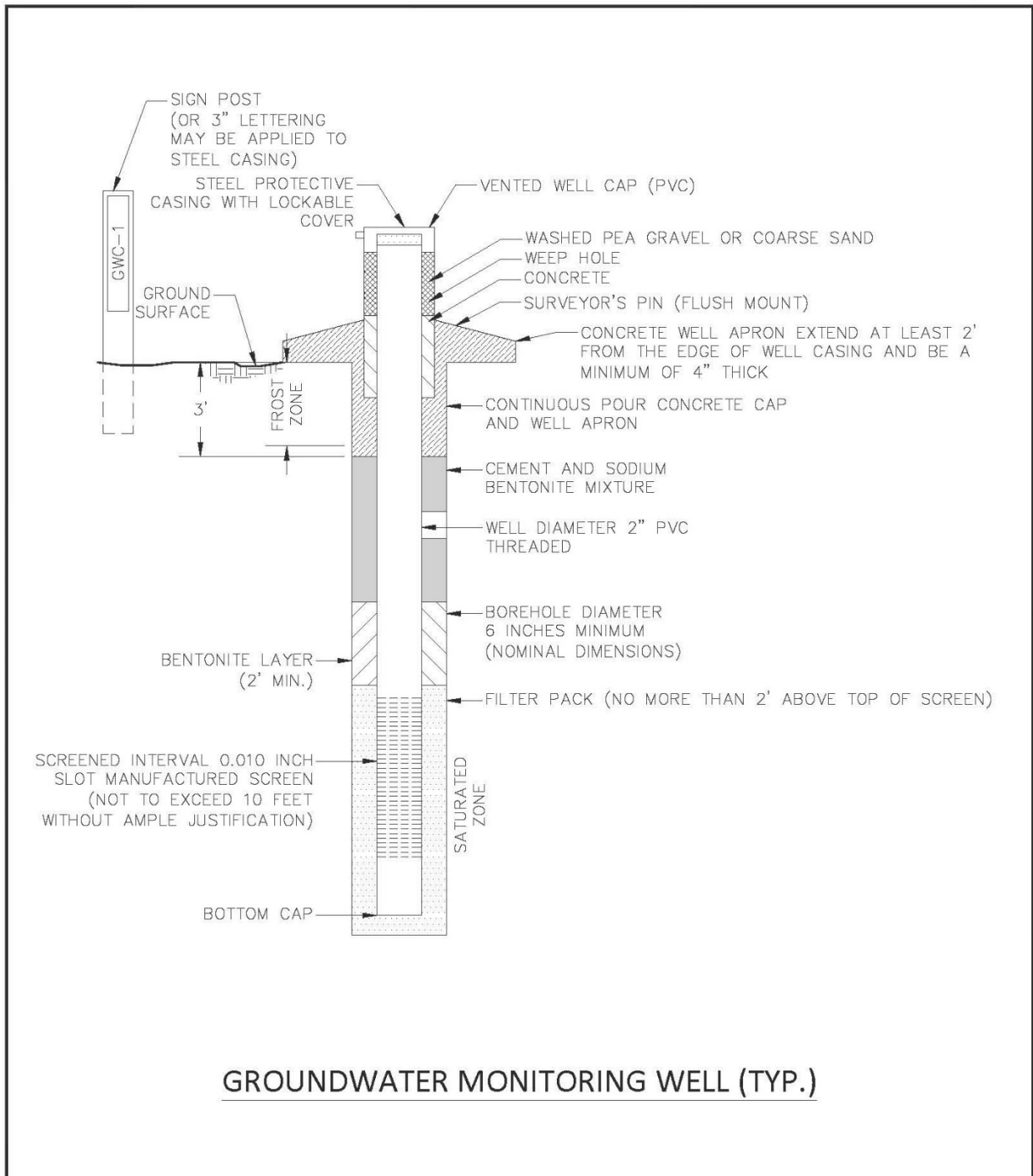
Sincerely yours,

Gunnin Land Surveying, LLC.

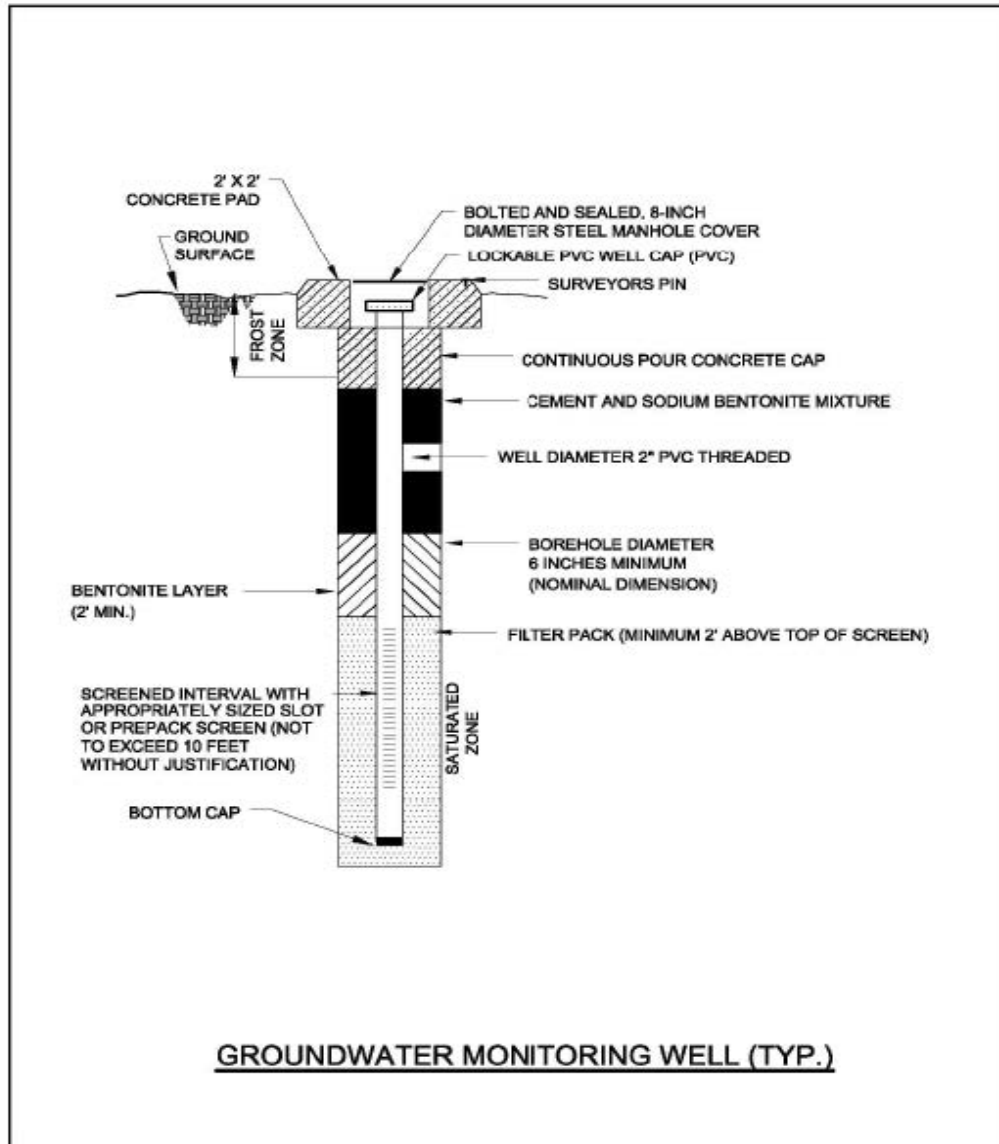


Jesse R. Gunnin, L.S. Principal Surveyor

APPENDIX D1. GROUNDWATER MONITORING WELL DETAIL



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



APPENDIX E. GROUNDWATER SAMPLING PROCEDURES

Groundwater sampling will be conducted using the most current USEPA Region 4 Field Quality and Technical Procedures as a guide. The following procedures describe the general methods associated with groundwater sampling at the site. Prior to sampling, the well must be evacuated (purged) to ensure that representative groundwater is obtained. Any item coming in contact with the inside of the well casing or the well water will be kept in a clean container and handled only with gloved hands.

Sample personnel will follow the procedures below at each well to ensure that a representative sample is collected:

1. Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations and notify Georgia Power if it appears that the well has been compromised.
2. Measure and record the depth to water in all wells to be sampled using a water measuring device consisting of probe and measuring tape capable of measuring water levels with accuracy to at least 0.01 foot. Static water levels will be measured from each well, within a 24-hour period. The water level measuring device will be decontaminated prior to lowering in each well.
3. Install Pump: If a dedicated pump is not present, slowly lower the pump into the well to the midpoint of the well screen or a depth otherwise approved by the hydrogeologist or project scientist. The pump intake must be kept at least two (2) feet above the bottom of the well to prevent disturbance and suspension of any sediment present in the bottom of the well. Record the depth to which the pump is lowered. All non-dedicated pumps and wiring will be decontaminated before use and between well locations using procedures described in the latest version of the USEPA Region 4 SESD Operating Procedure for Field Equipment Cleaning and Decontamination as a guide. The specific groundwater sampling methodology including both purging and sampling must be discussed in semiannual monitoring reports. The discussion must include the type of sampling equipment used.
4. Measure Water Level: Immediately prior to purging, measure the water level again with the pump in the well. Leave the water level measuring device in the well.
5. Purge Well: Begin pumping the well at approximately 100 to 500 milliliters per minute (mL/min). Monitor the water level continually. Maintain a steady flow rate that results in a stabilized water level with 0.3 feet or less of variability. Avoid entraining air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment. A brief overview of the purging and sampling methodologies, including the type of sampling equipment used will be provided in routine monitoring reports.
6. Monitor Indicator Parameters: Monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, oxidation reduction potential [ORP], and dissolved oxygen [DO]) approximately every three to five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings at a minimum:

±0.1 for pH

±5% for specific conductance (conductivity)

±10% or ±0.2 mg/L (milligrams per liter), whichever is greater, for DO where DO > 0.5 mg/L. If DO < 0.5 mg/L, no stabilization criteria applies.

≤5 NTU for turbidity

Temperature – Record only, not used for stabilization criteria.

ORP – Record only, not used for stabilization criteria.

7. Collect samples at a low flow rate according to the most current version of USEPA Region 4 SEDS guidance document, Operating Procedure – Groundwater Sampling (USEPA, SEDSPROC-301-R4), and such that drawdown of the water level within the well is stable. Flow rate must be reduced if excessive drawdown is observed during sampling. All sample containers should be filled with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container.
8. Compliance samples will be unfiltered; however, to determine if turbidity is affecting sample results, duplicate samples may be filtered in the field prior to being placed in a sample container, clearly marked as filtered and preserved. Filtering will be accomplished by the use of 0.45-micron filters on the sampling line. At least two filter volumes of sample will pass through before filling sample containers. Filtered samples are not considered compliance samples and are only used to evaluate the effects of turbidity.
9. All sample bottles will be filled, capped, and placed in an ice containing cooler immediately after sampling where temperature control is required. Samples that do not require temperature control will be placed in a clean and secure container.
10. Sample containers and preservative will be appropriate for the analytical method being used.
11. Information contained on sample container labels will include:
 - a. Name of facility
 - b. Date and time of sampling
 - c. Sample description (well number)
 - d. Sampler's initials
 - e. Preservatives
 - f. Analytical method(s)
12. After samples are collected, samplers will remove all non-dedicated equipment. Upon completion of all activity, the well will be closed and locked.

13. Samples will be delivered to the laboratory following appropriate COC and temperature control requirements. The goal for sample delivery will be within 48 hours of collection. However, at no time will samples be analyzed after the method-prescribed hold time.

Throughout the sampling process, new latex or nitrile gloves will be worn by the sampling personnel. A clean pair of new, disposable gloves will be worn each time a different location is sampled, and new gloves donned prior to filling sample bottles. Gloves will be discarded after sampling each well and before sampling the next well.

The goal when sampling is to attain a turbidity of less than 5 NTU; however, samples may be collected where turbidity is less than 10 NTU and the stabilization criteria described above are met.

If sample turbidity is greater than 10 NTU and all other stabilization criteria have been met, samplers will continue purging for 3 additional hours in order to reduce the turbidity to less than 10 NTU, as follows:

- If turbidity remains above 5 NTU but is less than 10 NTU, and all other parameters are stabilized, the well can be sampled.
- Where turbidity remains above 10 NTU, an unfiltered sample will be collected followed by a filtered sample that has passed through an in-line 0.45-micron filter attached to the discharge (sample collection) tube. Data from filtered samples will only be used to quantify the effects of turbidity on sample results.

Samplers will identify the sample bottle as containing a filtered sample on the sample bottle label and on COC form.