

HYDROGEOLOGIC ASSESSMENT REPORT (rev. 1)

PLANT YATES R6 CCR LANDFILL AND ASH MANAGEMENT AREA (AMA) COWETA COUNTY, GEORGIA

FOR



Georgia Power

MAY 2021



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CERTIFICATION STATEMENT

This *Hydrogeologic Assessment Report, Georgia Power Company – Plant Yates R6-AMA* has been prepared to comply with the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4.10 Coal Combustion Residuals, revised June 18, 2018; which are also in compliance with United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule 40 Code of Federal Regulations [CFR] 257 Subpart D, published in 80 FR 21302-21501, April 17, 2015, by a licensed professional geologist with:

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1.0 INTRODUCTION

In support of Georgia Department of Natural Resources Environmental Protection Division (GA EPD) Regulation 391-3-4-.10 (6) “Groundwater Monitoring and Corrective Action” as referenced in the Code of Federal Regulations (CFR) 40 CFR 257.90 – 40 CFR 257.98, Atlantic Coast Consulting, Inc (ACC) has prepared for Georgia Power Company (Georgia Power) this Hydrogeologic Assessment Report, Georgia Power Company Plant Yates R6 - AMA. Georgia Power is proposing to close several CCR surface impoundments and landfills with “closure by removal” and “closure in-place”. This report is a comprehensive summary of the hydrogeologic characteristics for Plant Yates and focuses on multi-units; R6 CCR Landfill (R6) and the Ash Management Area (AMA).

This report was originally submitted as part of the November 2018 permit application package. The document has been expanded to include additional data (*requested by GA EPD*) supporting the permit application package and is being resubmitted in its entirety. The additional data includes a mapping and lineament study report, hydraulic conductivity testing data, geochemical characterization data, additional potentiometric data, and groundwater modeling.

1.1 Site Location & Topographic Setting

Plant Yates is located at 708 Dyer Road, on the east bank of the Chattahoochee River in Coweta County, Georgia near the Coweta and Carroll County line, approximately eight miles northwest of the city of Newnan and 13 miles southeast of the city of Carrollton. Plant Yates occupies approximately 2,400 acres. Figure 1, Site Location Map depicts the site location relative to the surrounding area. Plant Yates, once a coal fired, power generation facility, was converted to was converted to natural-gas-combustion turbines. Plant Yates is located within the northeast quarter of the Whitesburg, GA United States Geological Survey (USGS) 7.5-minute topographic quadrangle.

1.2 Coal Combustion Residuals

Plant Yates has multiple Coal Combustion Residual (CCR) units which will be permitted separately according to Chapter 391-3-4-.10, Coal Combustion Residuals of the Georgia Rules for Solid Waste Management (State CCR Rule). The CCR units at Plant Yates consist of the Gypsum Stack , R6/AP-C CCR Landfill, AP-1, Ash Pond 2 (AP-2) and the AMA.

1.3 R6 CCR Landfill

The Plant Yates R6, Solid Waste Handling Permit 038-011D(LI) was issued by GA EPD on May 17, 1985. R6 is an Inactive CCR landfill as defined in the Georgia Rules for Solid Waste Management, 391-3-4-.10(2)(a)3. in that it no longer received CCR on or after October 19, 2015. R6 will be closed in place in accordance with the solid waste permit and the CCR Rules. Figure 2, R6-AMA Monitoring Well Network illustrates the monitoring well network and Table 1, R6-AMA Well Construction Detail Summary provides the monitoring well construction details. Boring and well construction logs for the monitoring wells are provided in Appendix A, Boring and Well Construction Diagrams.

1.4 AMA

The AMA is located within the former footprints of AP-3 and AP-B’. This multi-pond area is currently being consolidated and closed in place and contains CCR from AP-1 and AP-2 (permitted separately), and AP-A and AP-B (included as part of the AMA permit application) which have been or are being closed by removal. AP-A is an inactive 8.9-acre CCR surface impoundment

that completed closure by removal in June 2017. AP-B is an inactive 6.3-acre CCR surface impoundment currently undergoing closure by removal. AP-B' is a 29.8-acre CCR surface impoundment that is being closed-in-place. AP-3 is a 55-acre surface impoundment that is being closed-in-place. Figure 2 illustrates the monitoring well network and Table 1 provides the monitoring well construction details. Boring and well construction logs for the monitoring wells are provided in Appendix A.

2.0 SURFACE AND SUBSURFACE INVESTIGATIONS

A geologic investigation was conducted by Golder Associates (Golder) in 2015 to evaluate the subsurface conditions at Plant Yates. Golder relied on published literature, topographic maps and local geologic experts in addition to on-site investigations. The field investigation included strike and dip measurements (orientation) of foliations, lineaments and fractures of outcropping bedrock across the site and remote sensing data. Rock types were identified from previous bedrock core drilling logs and rock/soil weathering profiles from the parent bedrock. Golder's report is provided as Appendix B, Geologic Mapping and Lineament Analysis Report.

2.1 Regional Geology

The Piedmont/Blue Ridge geologic province contains some of the oldest rocks in the Southeastern United States. Since their origin, approximately 276 million to 1,100 million years ago (Ma), these late Precambrian (Neoproterozoic) to late Paleozoic (Permian) rocks have undergone repeated cycles of igneous intrusions and extrusions, metamorphism, folding, faulting, shearing, and silicification. The latest regional metamorphism and associated deformation has been attributed to the collision of the North America plate with the Eurasian plate approximately 200 Ma to 230 Ma. More recent deformation and emplacement of mafic dikes is associated with the rifting of the North American craton during the Mesozoic and Cenozoic Eras.

The metamorphic and igneous rocks that underlie the area have been subjected to physical and chemical weathering which has created a landscape dissected by creeks and streams forming a dendritic drainage pattern. These rocks are deeply weathered due to the humid climate and bedrock is typically overlain by a variably thick blanket of residual soils and saprolite. The overall depth of weathering in the Piedmont/Blue Ridge is generally about 20 to 60 feet; however, the depth of weathering along discontinuities and/or very feldspathic rock units may extend to depths greater than 100 feet. Because of such variations in rock types and structure, the depth of weathering can vary significantly over short horizontal distances. Locally, significant accumulations of alluvial soils are also present in the area. Sand and gravel alluvial terraces related to changing stream base grade elevations occur above residual soils in areas near larger rivers (i.e. Chattahoochee River).

2.2 Site Geology

The site geology is typical of Piedmont weathering of igneous and metamorphic bedrock. In addition to the physical and chemical weathering soil profile that includes residuum and saprolitic soils; alluvial deposits from the Chattahoochee River were noted in the soils and sediments on the west side of the site.

2.1.1 Alluvial Deposits

Alluvial soils primarily consisted of courser material that may be related to a former Chattahoochee River terrace, consisting of silty-sand, clayey silt, and silty clay with well-rounded gravel and cobbles. The terrace was observed primarily within point bars of the Chattahoochee River with up to 20 feet of relief. Overbank, floodplain-type deposits are anticipated to underlie the Plant, as well as former river channels related to previous migration of the Chattahoochee River.

2.1.2 Residuum and Saprolite

Residual soils were also observed at ground surface. These soils were derived from physical and chemical weathering of the underlying bedrock, and consist primarily of silty sand, sandy silt, and

silty clay, with local gravel-sized angular fragments of weathered bedrock. A variably-thick blanket of residual soils is anticipated to overlie bedrock across most of the site.

Based on the detailed geologic mapping, rock types present at the site includes granitic and migmatitic gneiss, biotite gneiss and amphibolite, all of which have highly variable mineralogy, texture and chemistry, and a muscovite schist that serves as a structural marker horizon. Residual soils developed from weathering of these rock types may have variable geochemical characteristics. A thin layer of soil from approximately one foot to ten feet thick overlies a thick layer of saprolite. The saprolite, which extends to typical depths of 20-40 feet below ground surface, was formed from the physical and chemical weathering of the underlying metamorphic rocks. The saprolite generally maintains the texture of the parent bedrock but is friable with unconsolidated hydraulic permeability that is typically greater than the overlying residuum.

2.1.3 Bedrock

Plant Yates lies within the Dadeville Complex of the Inner Piedmont of western Georgia, immediately southeast of the regional zone of deformation referred to as the Brevard Zone. Dadeville Complex rock units are interlayered gneiss and schists as shown in Figure 3, Plant Yates Geologic Map. At ground surface the units have weathered in place to form a layer of saprolite. A regional thrust fault, the Katy Creek Fault, forms boundary between the Brevard Zone, and the Dadeville Complex. The Dadeville Complex is considered to represent an Ordovician-age Island Arc. The rocks in the area have been subjected to several episodes of metamorphism and intrusion by igneous bodies. Extensive jointing occurs in the area. Surface expressions of the joints are observed on topographic maps and aerial photos of the Plant Yates area.

Rocks within the Dadeville complex are generally more mafic near the Brevard Zone, becoming more felsic in areas farther southeast of the Brevard Zone. The mafic portion of the Dadeville Complex observed northwest of Plant Yates primarily consists of biotite gneiss and layers of amphibolite/hornblende gneiss. The continuous and discontinuous amphibolite layers and lenses weather more deeply but less uniformly than the surrounding biotite gneiss in this area. Units underlying that area around Plant Yates and further southeast are more felsic, being comprised of a mixture of granitic intrusives, migmatitic and biotite gneiss, and aluminosilicate schists. Mappable lithologic units across the site described in Section 3.3 of Appendix B, include: massive granite (OZgr), migmatitic gneiss (OZmgn), feldspathic gneiss (OZggn), porphyroblastic schist (OZgss), biotite gneiss (OZog), and amphibolite (OZa). A geologic map prepared by Golder Associates as part of the Geologic Mapping And Lineament Analysis in October 2017 (Golder 2017) is provided on Figure 3.

Geologic cross sections for Plant Yates R6-AMA was prepared along an alignment presented on Figure 4, Cross Section Location Map. Cross section A-A' (Figure 5) is oriented northwest to southeast, B-B' (Figure 6) approximately southwest to northeast, and C-C' (Figure 7) approximately southwest to northeast.

2.2 Fractures and Structure

Based on detailed geologic mapping conducted by Golder, folding and faulting have been observed at and near the site (Appendix B). A regional fault that occurs northwest of the site is a thrust fault that is part of the Brevard Fault Zone. There has been no active displacement of the rocks during the Holocene Epoch. The following description is summarized from the Golder's report.

Migmatitic gneiss occurs both north and south of the Chattahoochee River and this unit is

truncated northwest and southwest of the site by an unnamed, strike-slip fault, referred to as the Katy Creek Fault. The Katy Creek Fault occurs subparallel to the Chattahoochee River near the site and turns southward in the southwest corner of the site. There is likely to be a rheologic contrast between the migmatitic gneiss and the mass of granite, with the granite being much harder than the surrounding gneiss. This hard mass likely forced the fault to deflect around the mass in this area. Rocks that were being transported in the southeastern block of the fault appear to have been “piled” up, creating an upright, slightly overturned, west verging antiformal structure and is presented on the Geologic Map (Figure 3).

The core of the antiformal structure is comprised of feldspathic gneiss, which weathers more deeply than other lithologic units observed on site. Rimming this unit is the porphyroblastic schist, which serves as a distinctive marker horizon for delineating structure on site. Lithologies related to the OZa Amphibolite unit which is observed in the mafic portion of the Dadeville Complex are also present adjacent to the fault on the southeastern block.

Foliation measured during geologic mapping near the site reflects the dominantly north-south trending structures in this area. Mapping further northwest of the fault reflects the more regional orientation of foliation characteristic of the Brevard Zone, which is generally oriented about N40-45E (Golder 2017).

Because the evaluation of joints is visual and judgmental, an effort is made for consistency in describing the relative frequency of occurrence using the following designations: Abundant (A); Common (C); and Scarce (S). These designations are relative to one another but are used consistently in descriptions made throughout the study area. An effort is made to record all of the different joint sets and, if an exposure is large, several same (or similar) joints may be recorded at the same Map Station. This deliberate method of visual evaluation in the field is more scientifically relevant and efficient than saturation-measurement of joints.

Four major joint sets were recorded during the detailed geologic mapping. The four major joint sets are (quadrant and azimuth, right hand rule) (Golder 2017):

- J1: N48E 61NW (228/61) – regional strike joint
- J2: N50E 72SE (050/72) – regional strike joint
- J3: N44W 72SW (136/72) – regional dip joint
- J4: N3W 87SW (177/87) – local strike joint

Joint sets 1 and 2 are oriented subparallel to regional foliation, the dip of which varies in response to the dip of foliation. These joints are referred to above as regional strike joints. Joint set 3 is oriented perpendicular to regional foliation and is referred to as a regional dip joint. Joint 4 appears to have formed locally in response to the north-south trending structures mapped on the site and southwest of the site. This joint set is referred to as the local strike joint

Two major structural/stratigraphic packages occur within the Piedmont/Blue Ridge around the site. These packages are separated by The Katy Creek Fault, a regional fault that occurs northwest of the Plant property and traverses northeast-southwest through this area. This Fault is a thrust fault, dipping at a lower angle than the strike-slip faults present in the region. This thrust fault developed at a relatively shallower depth in the crust than the strike-slip faults, resulting in less-pronounced ductile structural fabrics. Uplift associated with building of the Appalachian Mountains and subsequent erosion has allowed modern exposure of these structural features (Golder 2017).

The Katy Creek Fault forms boundary between a regional zone of deformation, referred to as the

Brevard Zone, and the Dadeville Complex. Lithologic contacts and major structural features in the Brevard Zone generally trend northeast-southwest. In addition to strike-slip and thrust faults, structural features within this shear zone consist of northwest-verging, doubly-plunging, overturned folds that have been overprinted by a shear-induced foliation (Golder 2017).

The Brevard Zone consists, but is not limited to fine-grained and porphyroblastic, phyllonitic, biotite and button schists, and schists locally interlayered with amphibolite/hornblende gneiss, and ultramafic bodies. Other igneous and metamorphic bedrock types include; mylonites, ultramylonites, and flinty crush rock; metagraywacke and feldspathic quartzite; and granitic gneiss. Rocks within these various lithologic units have been intensely deformed, sheared, chemically altered, silicified and are generally repeated because of movement along faults both within and outside of the Brevard Zone (Golder 2017).

The Dadeville Complex occurs southeast of the Brevard Zone and is considered to represent an Ordovician-age Island Arc. Rocks within this complex are generally more mafic near the Brevard Zone, becoming more felsic in areas further southeast of the Brevard. The mafic portion of the Dadeville Complex primarily consists of biotite gneiss and thick, mappable layers of amphibolite/hornblende gneiss. The biotite gneiss is also interlayered with thin, discontinuous layers, lenses and pods of amphibolite. The continuous and discontinuous amphibolite layers and lenses weather more deeply but less uniformly than the surrounding biotite gneiss in this area. These mafic units are observed northwest of Plant Yates. Units underlying that area around Plant Yates and further southeast are more felsic, being comprised of a mixture of granitic intrusives, migamitic and biotite gneiss, and aluminosilicate schists.

Typically, up to four different joint sets formed in this area due to tectonic stresses imposed upon the bedrock. Dip joints form parallel to the regional dip direction of foliation/compositional layering and are typically perpendicular to fold limbs, representing extension perpendicular to the maximum principal stress direction or direction of compression. These joints are commonly near vertical. Strike joints develop parallel to the strike of foliation/compositional layering and fold limbs, typically forming from tension during relaxation of the maximum principal stress. The dip direction and angle of these joints is orthogonal to the dip direction and angle of compositional layering. Oblique joints develop diagonal ($\pm 30^\circ$) to the principal stress direction and represent conjugate sets formed from shear along the intermediate principal stress. (Golder 2017).

3.0 SITE HYDROGEOLOGIC CONDITIONS

The composition of the unsaturated zone varies across the area and includes soils and saprolite. Sieve analyses show an upper zone in most of the area to be clays, silty sands, and clayey sands. Clays may act as a confining or semi-confining material in soils, but at this location, they are interbedded with other materials or absent, and they are not considered a true confining unit. Atterberg limit tests, visual inspection, and grain analyses, indicate the presence of significant fines. The soil/rock interface has been identified as the shallowest water-bearing unit in the area. Groundwater monitoring wells have been installed in shallow bedrock at depths that will allow for consistent sample collection in the event of future drought conditions. Grain size analyses of the soils and saprolite indicate that this unit is predominantly fine to medium silty sand.

At Plant Yates, shallow groundwater is typically encountered near the saprolite/weathered rock interface. Rock becomes increasingly more competent with depth and movement of groundwater occurs only in fractures (i.e. secondary porosity). Recharge to the water-bearing zones in fractured bedrock takes place by seepage through the overlying mantle of residuum/saprolite, or by direct entrance through openings in outcrops. The ponds were established along a topographically low area formed by an unnamed tributary. Monitored aquifer zones in the subsurface at Plant Yates includes the shallow unconsolidated residuum/saprolite and the upper bedrock. Typically, in the Piedmont, fracture frequency and permeability in the igneous and metamorphic bedrock decrease with depth.

3.1 R6-AMA Site Hydrogeology

Groundwater is encountered across R6-AMA in five hydrogeologic units. The uppermost hydrogeologic layer is the residuum/saprolite layer. The residuum layer is located from the ground surface and characteristically has more fines and typically is classified as a sandy silt or clayey silt. The saprolite layer has the texture of the underlying bedrock but is friable and has less fines. Typically, the saprolite layer has nearly an order of magnitude greater hydraulic conductivity compared to the overlying residuum.

The transition zone, located below the saprolite, is hydraulically connected to the residuum/saprolite and has the highest frequency of weathered fractures in the bedrock. The bedrock varies across the site from metamorphosed granitic gneiss to amphibolites to schist. Three zones or layers of the competent bedrock (upper, middle and lower) are monitored zones. Typically, in the Piedmont, the transition zone and upper bedrock have the greatest hydraulic conductivity of the five monitoring zones. The middle and lower bedrock generally have less fractures and thus lower hydraulic conductivity.

Groundwater flow across the site is generally from the southeast to the northwest. Groundwater flow across the R6-AMA area is from three directions; south to north, southeast to northwest and from northeast to southwest as illustrated in the September 2020 potentiometric contour map illustrated on Figure 8. Groundwater elevations for the monitoring wells and piezometers measured during the September 2020 sampling event are presented on Table 1. The monitoring wells are either screened in the residuum/saprolite or the deeper igneous and metamorphic bedrock. Upgradient monitoring well(s) for Plant Yates include:

- YGWA-1I
- YGWA-1D
- GWA-2
- YGWA-2I
- YGWA-5I
- YGWA-5D
- YGWA-14S
- YGWA-17S
- YGWA-21I
- YGWA-30I
- YGWA-39
- YGWA-40

- YGWA-3I
- YGWA-3D
- YGWA-4I
- YGWA-18S
- YGWA-18I
- YGWA-20S
- YGWA-47

Downgradient monitoring wells for the R6-AMA include:

- YGWC-23S
- YGWC-24SA
- YGWC-36A
- YGWC-38
- YGWC-41
- YGWC-42
- YGWC-43
- YGWC-49
- YGWC-50
(Future)

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 were performed at multiple locations on the site. The range in k values at these locations was small, indicating a fairly uniform hydrogeologic layers across the saprolite and weathered rock horizon (typically range from 10^{-3} cm/sec to 10^{-4} cm/sec). Table 2A, Horizontal Hydraulic Conductivity Data Summary, presents a summary of the K values calculated from variable head testing from 2014 and 2017 from wells in CCR unit AP-1. The values from the field tests are consistent with other values measured at Plant Yates. Vertical K values for locations throughout Plant Yates were determined by laboratory testing of undisturbed overburden samples (Shelby Tubes) collected at multiple Plant Yates locations (Cardno ATC, 2015) and are summarized in Table 2B, Sitewide Vertical Hydraulic Conductivity Data Summary. Test data and graphs are presented in Appendix C, Hydraulic Conductivity Testing and Results. The average depth of the water table at the R6-AMA during the September 2020 sampling event varies with topography, ranging from approximately 5 feet below ground surface (bgs) to 28 feet bgs. The water table occurs in the saprolite ranging from ten feet above the top of competent bedrock to within the upper bedrock

3.2 Potentiometric Data

Groundwater monitoring data have been collected since 2016 and multiple potentiometric maps of the uppermost aquifer are presented in Appendix D, 2016 - 2020 Historical Potentiometric Maps and Water Level Data. Groundwater monitoring wells and non-network wells were resurveyed in June 2020. Data depicted on the historical potentiometric surface maps reference slightly different top of casing elevations than those referenced in the remainder of the report. Groundwater flow across the AMA -R6 is generally from the east northeast to the west southwest. The horizontal gradients were consistent until CCR excavations in the AMA began in 2017.

The horizontal hydraulic gradient (i) across the R6-AMA was measured during the September 2020 groundwater monitoring event from YGWA-40 to YGWC-2R and YGWC-49 to PZ-24I resulting in an estimated average horizontal gradient of 0.022 ft/ft (Figure 8).

Average groundwater flow velocity in the R6-AMA area is based on K, lateral gradient (i) and effective porosity (P_e). The average K for the site is 505 feet/year. The effective porosity (n_e) was estimated at 0.20. The average groundwater velocity is calculated as:

$$V_{gw} = (K)(i)/n_e = ((505 \text{ ft/year}) (0.022 \text{ ft/ft})/0.20) = 56 \text{ feet/year.}$$

3.3 Groundwater Modeling

A numerical groundwater flow model (Groundwater Vistas®) for the AMA-R6 area, was prepared to achieve the following objectives;

- Improve the conceptualization of the hydro-stratigraphy, hydrogeology, and groundwater/surface water dynamics at the site,

- Construct a numerical groundwater flow model that accurately depicts pre-closure groundwater flow conditions, and
- Use the numerical groundwater flow model as a tool to predict groundwater flow conditions from the implementation of closure activities.

The numerical groundwater model was set up using six layers to depict the five subsurface hydrogeologic units underlying the ash layer. The model layers are:

- Layer 1 – surficial ash layer
- Layer 2 – unconsolidated residuum/saprolite
- Layer 3 - transition zone, highly weathered upper bedrock
- Layer 4 – moderately weathered, highly fractured competent bedrock
- Layer 5 - less weathered, less fractured competent bedrock
- Layer 6 - lower bedrock with decreased fracture frequency

The model was calibrated using an industry standard software, Parameter Estimation (PEST®), which adjusts various parameters until the groundwater elevations are nearly matched. Groundwater elevation measurements collected from 2014 through 2016 and prior to closure activities were used in the model. A comprehensive groundwater modeling report prepared by TRC is provided in Appendix E, Numerical Modeling Report.

3.4 Conceptual Site Model

The hydrogeologic Conceptual Site Model (CSM) for Plant Yates and R6-AMA consists of geologic and hydrologic elements.

Geologic model elements include:

- Plant Yates is located in the Ordovician-age Dadeville Complex of the Inner Piedmont Physiographic Province of western Georgia. The rocks have been subject to several episodes for metamorphism and intrusion by igneous bodies (granitic units). Rock types present at AP-1 include sillimanite-staurolite-garnet schist, granitic gneiss, and orange gneiss.
- Rocks have been weathered in place to form soil (silty sand residuum), weathered bedrock (saprolite) and partially weathered bedrock. These materials constitute the unconsolidated uppermost aquifer at the site.
- The facility lies to the southeast of the Yates fault, a regional thrust fault that is the boundary between the Dadeville Complex and the Brevard Zone.
- Folding and faulting of rock units has been observed at the site. Joints sets are observable both parallel and perpendicular to foliation.

Hydrologic elements include:

- The facility lies within the Middle Chattahoochee River basin of the Piedmont Physiographic Province, which characteristically has moderate rolling hills that are steeply cut with surface water drainages.
- The depth to groundwater is variable depending on the topography; the depth to groundwater is deeper at topographic highs and shallower at topographic lows.
- Groundwater flow in the upper aquifer is under unconfined conditions and the water table is typically noted in the saprolite near the bedrock interface. Deeper groundwater flow is within the fractured bedrock and along discontinuities.

- Groundwater flow direction in the upper aquifer is controlled by topography and by drainage features such as creeks, man-made ash impoundments, and the Chattahoochee River. The general site-wide groundwater flow direction is from the east-northeast to west-southwest. Groundwater flow at R6-AMA is from three directions; south to north, southeast to northwest and from northeast to southwest.
- Surface water bodies, surface water drainage, and flow across the facility are noted on Figure 2. Surface water flows onto the property in the northeast corner and is routed around the AMA and north and east of R6 CCR Landfill emptying into impoundment AP-2.
- Surface water discharge to the Chattahoochee River is regulated by a Georgia NPDES permit No. GA0001473.

The hydrogeologic framework consists of a residuum overlying fractured bedrock, separated by a relatively-thin soil zone (approximately 10 feet thick) underlain by an approximately 20-40 feet thick saprolite-zone that includes partially-weathered rock and then deeper to a highly-fractured upper bedrock. The thickness of saprolite is variable depending on the lithologic variations across the site. Groundwater level and geochemical data from the site supports topography-controlled groundwater flow with a downward hydraulic gradient from the residuum material and upward hydraulic gradient near discharge areas. Based on extensive data collection from the site, the residuum, saprolite and the upper bedrock together constitutes the uppermost aquifer. Therefore, the monitoring well network is designed to capture groundwater flow from wells screened in the upper bedrock. This well network serves as the detection monitoring network for the CCR monitoring program.

4.0 GROUNDWATER MONITORING NETWORK

An adjacent drainage channel separates R6 and the AMA. Both the CCR units share similar lithologies and hydrogeologic framework, and the groundwater flow is predominantly towards the drainage channel, following the topography, and is directed to the downgradient AP-2. For these reasons, groundwater flow from both the CCR units are expected to mix along preferential flow paths in the regolith-bedrock aquifer system. Therefore, a multi-unit groundwater monitoring network has been designed and installed to monitor groundwater flow from the R6 and the AMA. This multi-unit groundwater monitoring network consists of 19 upgradient background monitoring wells located throughout Plant Yates, 9 existing downgradient groundwater monitoring wells, and 1 proposed groundwater monitoring well located around the intersection of the perimeter of R6, and the adjacent AMA. Figure 2 illustrates the multi-unit monitoring well network and Table 1 provides the monitoring well construction details.

The monitoring system is designed to monitor groundwater at AMA-R6 within the uppermost aquifer. Wells designated with “GWA” are considered upgradient and with a designation of “GWC” are considered downgradient. Wells were located to serve as upgradient and downgradient monitoring points based on groundwater flow direction (Table 1). In accordance with §257.91, a groundwater monitoring system was installed that provides the following; (1) consists of a sufficient number of wells, (2) installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer, and (3) meets the performance standards of §257.91(a). In summary, groundwater monitoring activities included the installation of the following:

- Upgradient groundwater monitoring network wells throughout Plant Yates (YGWA-1I, YGWA-1D, GWA-2, YGWA-2I, YGWA-3I, YGWA-3D, YGWA-4I, YGWA-5I, YGWA-5D, YGWA-14S, YGWA-17S, YGWA-18S, YGWA-18I, YGWA-20S, YGWA-21I, YGWA-30I, YGWA-39, YGWA-40, and YGWA-47)
- Ten (10) downgradient groundwater monitoring network wells; (YGWC-23S, YGWC-24SA, YGWC-33S, YGWC-36A, YGWC-38, YGWC-41, YGWC-42, YGWC-43, YGWC-49 and proposed well YGWC-50)

Well YGWC-24SA was installed to replace well YGWC-24S in June 2020 to accommodate planned construction work along Dyer Road.. Closure by removal activities in the R6 ditch necessitated abandonment of YGWC-36 on July 20, 2020 and replacement well YGWC-36A was installed on September 22, 2020. Monitoring well locations are provided on Figure 2.

The monitoring wells are screened in shallow bedrock. The historical water levels for the R6-AMA are tabulated and are found in Appendix D.

4.1 Groundwater Monitoring and Constituents of Concern

In accordance with 40 CFR 257.91, a groundwater monitoring system was installed at the site, based on the characterization of site-specific hydrogeologic conditions. The well network was certified by a P.E. for the AMA (for AP-A, AP-B, AP-B’ and AP-3) on October 17, 2017 (amended to include AP-A on April 17, 2019); the certification is maintained in the Operating Record. The certified compliance monitoring well network for the original group of AMA CCR units (AP-A, AP-B, AP-B’ and AP-3) consisted of a total of 13 monitoring wells: eight (8) upgradient wells and five (5) downgradient wells (YGWA-4I, YGWA-5I, YGWA-5D, YGWA-17S, YGWA-18S, YGWA-18I, YGWA-20S, YGWA-21I, YGWC-23S, YGWC-24S, YGWC-33S, YGWC-36, and YGWC-49).

The original monitoring well network for R6 included a total of two upgradient wells (YGWA-39 and YGWA-40) and four downgradient wells (YGWC-38, YGWC-41, YGWC-42 and YGWC-43). The well network has been updated in include all 19 upgradient background monitoring wells

installed throughout Plant Yates. Downgradient monitoring wells YGWC-24S and YGWC-36 have been replaced by YGWC-24SA and YGWC-36A, respectively. One location, YGWC-33S has been abandoned. The combined monitoring well networks for AMA and R6 provides for 19 upgradient monitoring wells and 8 downgradient monitoring wells. GPC is also proposing to install one additional downgradient monitoring well YGWC-50, to be located between monitoring wells YGWC-36 and YGWC-43. Additionally, there are 5 downgradient characterization wells (YAMW-1 through YAMW-5) and 10 piezometers used for water level measurements, vertical/horizontals delineation, or non-routine sample collection. Locations are shown on Figure 2; well construction and water level elevation details for monitoring network wells are listed in Table 1.

Statistical analysis of the June and October 2018 analytical data identified a statistically significant level (SSL) for beryllium in one well, YGWC-33S. In accordance with 40 CFR 257.95(g), a notification identifying the SSL was prepared and placed in the Operating Record on November 14, 2018. Pursuant to 40 CFR 257.96, an assessment of corrective measures (ACM) was initiated on January 13, 2019.

To assess the extent of groundwater protection standard (GWPS) exceedances identified in 2018, two additional groundwater monitoring wells, PZ-35 and YAMW-1, were sampled in 2018 to provide additional data for characterizing groundwater quality downgradient of this well.

The facility has completed the actions included in 40 CFR 257.95(g)(1)(i - iv), including the installation of horizontal and vertical extent assessment wells (PZ-35 and YAMW-1). These well locations are downgradient from former well YGWC-33S between YGWC-36A and YGWC-24SA. The location of YGWC-33S was narrowly constrained to an area between R6 and the former footprint of AP-B'. Therefore, delineation wells YAMW-1 and PZ-35 provide appropriate representations with the spatial and vertical extent of beryllium in groundwater near well YGWC-33S.

R6 ceased accepting CCR prior to October 19, 2015 and is therefore not subject to Federal monitoring requirements. A CCR Unit Solid Waste Handling Permit application for R6 was submitted to GA EPD in November 2018 and is currently under review. In accordance with § 257.94(b), a detection monitoring program for R6 was implemented by collecting eight (8) background samples during 2016 - 2018. Groundwater monitoring has been initiated in order to meet GA EPD requirements. The initial detection monitoring data for R6 was collected in March 2019. Assessment monitoring was initiated at the R6 monitoring wells in September 2019. Statistical comparisons of AIV parameters to relevant GWPS indicated SSLs for beryllium at YGWC-38 and selenium at YGWC-38 and YGWC-41. An exceedance for selenium was also identified in delineation well PZ-37. R6 was added to the ACM on January 30, 2020.

The SSL of selenium in well YGWC-41 is spatially delineated to below GWPS at wells YAMW-2 and YAMW-3, and vertically at YAMW-4. The SSL of beryllium and selenium in well YGWC-38 is vertically delineated to below GWPS at YAMW-5, and spatially delineated by downgradient well YGWC-36A. PZ-37 is in a groundwater flow path that leads into the waste boundary. Delineation of selenium at that location is maintained by compliance wells YGWC-23S and YGWC-36A.

4.2 Groundwater Monitoring Status

AMA-R6 is monitored as one multi-unit groundwater monitoring network. In accordance with State CCR rule 391-3-4.10(6), a multi-unit groundwater monitoring network has been designed and installed to monitor groundwater at R6 and the AMA. The combined network reflects a well-defined upgradient and downgradient locations to the combined CCR unit and captures the topographic variations and hydrogeologic units, providing a suitable network for compliance monitoring at the site. The monitoring status of the combined AMA-R6 CCR unit will follow the

schedule established for the AMA unit (i.e., relevant SSLs identified for R6 will be addressed in conjunction with AMA exceedances).

5.0 REFERENCES

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TABLES

TABLE 1
R6-AMA
Monitoring Well Construction Detail Summary
Plant Yates

Well ID	Hydraulic Location	Easting	Northing	Ground Surface Elevation	Top of Casing Elevation	Total Well Depth (ft btoc)	Top of Screen Elevation	Bottom of Screen Elevation	Screen Length (ft)	Depth to Bedrock (ft bgs)	Geologic Description of Bedrock	Sep. 2020 Depth to Groundwater	Sep. 2020 Groundwater Elevation	Date Completed
YGWA-1I	Upgradient	2070097.9	1256876.1	834.3	836.60	53.60	793.30	783.30	10	35.0	Biotite Gneiss/Mica Schist	36.71	799.89	5/20/2014
YGWA-1D	Upgradient	2070104.6	1256867.3	834.9	837.25	128.85	759.20	709.20	50	34.0	Biotite Gneiss/Mica Schist	48.22	789.03	5/20/2014
GWA-2	Upgradient	2073510.0	1261383.1	803.1	805.62	52.02	763.80	753.80	10	32.0	Gneiss/Schist	34.98	770.64	4/17/2007
YGWA-2I	Upgradient	2070790.5	1256144.1	864.0	866.25	63.75	812.80	802.80	10	40.0	Biotite Gneiss/Granitic Gneiss	44.18	822.07	5/20/2014
YGWA-3I	Upgradient	2072024.2	1256405.2	794.0	796.55	59.05	747.70	737.70	10	40.0	Biotite Gneiss/Granitic Gneiss	53.32	743.23	5/20/2014
YGWA-3D	Upgradient	2072026.2	1256399.9	794.1	796.78	134.18	712.90	662.90	50	40.0	Biotite Gneiss/Granitic Gneiss	23.41	773.37	5/20/2014
YGWA-4I	Upgradient	2075455.6	1254436.7	781.9	784.21	48.81	745.70	735.70	10	30.5	Interlayered Granitic Gneiss/Biotite Gneiss	23.45	760.76	5/21/2014
YGWA-5I	Upgradient	2076218.9	1254400.0	782.1	784.54	58.94	735.90	725.90	10	41.0	Biotite Gneiss	19.82	764.72	5/21/2014
YGWA-5D	Upgradient	2076223.6	1254396.7	781.9	784.53	129.13	706.00	656.00	50	40.0	Biotite Gneiss	22.51	762.02	5/21/2014
YGWA-14S	Upgradient	2072537.2	1257828.6	746.8	748.76	34.96	724.10	714.10	10	n/a	n/a	17.37	731.39	5/20/2014
YGWA-17S	Upgradient	2076758.3	1257602.8	780.2	783.05	39.85	753.20	743.20	10	n/a	n/a	12.62	770.43	9/10/2015
YGWA-18S	Upgradient	2077015.3	1257116.1	787.6	790.57	39.97	760.90	750.90	10	n/a	n/a	20.39	770.18	9/8/2015
YGWA-18I	Upgradient	2077015.8	1257090.1	787.9	790.57	79.97	720.90	710.90	10	50.0	Granitic Gneiss	23.59	766.98	9/8/2015
YGWA-20S	Upgradient	2077410.4	1255531.6	764.6	767.12	29.52	747.90	737.90	10	n/a	n/a	11.44	755.68	9/29/2015
YGWA-21I	Upgradient	2076768.1	1255538.3	780.8	783.70	79.90	714.10	704.10	10	38.0	Granitic Gneiss	31.29	756.10	9/28/2015
YGWA-30I	Upgradient	2071107.1	1258421.9	760.1	762.58	59.48	713.40	703.40	10	31.0	Granitic Gneiss	48.47	714.11	9/23/2015
YGWA-39	Upgradient	2073865.6	1255717.1	815.6	818.19	68.59	760.10	750.10	10	33.0	Biotite Gneiss	21.81	796.38	7/7/2016
YGWA-40	Upgradient	2073431.3	1255792.0	813.5	815.73	48.23	778.00	768.00	10	36.0	Biotite Gneiss	25.44	790.29	7/7/2016
YGWA-47	Upgradient	2071818.1	1262411.8	755.6	758.22	59.19	709.60	699.60	10	36.0	Amphibolite Schist	33.38	724.84	7/11/2016
YGWC-23S	Downgradient	2074734.07	1256366.93	762.00	764.91	38.91	736.30	726.30	10	n/a	n/a	17.61	747.44	9/21/2015
YGWC-24SA	Downgradient	2073924.81	1258907.98	762.00	765.00	57.00	718.00	708.00	10	n/a	n/a	28.77	736.23	6/4/2020
YGWC-36A	Downgradient	2073748.73	1258547.74	737.70	740.88	51.20	699.70	689.70	10	n/a	n/a	7.30	733.58	9/22/2020
YGWC-38	Downgradient	2074446.80	1256108.38	797.10	799.69	49.59	760.10	750.10	10	37	Muscovite/Biotite gneiss	29.82	768.78	7/23/2016
YGWC-41	Downgradient	2073274.41	1256510.62	801.10	803.92	66.82	747.10	737.10	10	39	Granitic Gneiss	26.91	777.01	7/8/2016
YGWC-42	Downgradient	2073326.52	1257882.87	795.10	797.86	59.76	748.50	738.50	10	30	Granitic Gneiss	27.48	770.38	7/8/2016
YGWC-43	Downgradient	2073199.65	1257547.41	742.30	744.96	79.66	675.80	665.80	10	28	Granitic gneiss	15.11	729.85	7/9/2016
YGWC-49	Downgradient	2074337.51	1259375.23	780.10	782.73	78.53	715.10	705.10	10	n/a	n/a	31.00	751.73	7/13/2016
Non-Network Locations														
YGWA-6S	Water Level Only	2074786.49	1260484.87	779.80	782.47	39.87	752.90	742.90	10	n/a	n/a	18.22	764.25	5/19/2014
YGWA-6I	Water Level Only	2074790.49	1260490.02	780.20	782.73	69.03	724.00	714.00	10	48.0	Granitic Gneiss/Mica Schist	18.48	764.25	5/19/2014
PZ-04S	Water Level Only	2075454.20	1254442.86	781.80	784.25	32.75	761.80	751.80	10	n/a	n/a	24.95	759.30	5/21/2014
PZ-05S	Water Level Only	2076211.43	1254404.42	782.20	784.64	41.94	753.00	743.00	10	n/a	n/a	19.81	764.83	5/21/2014
PZ-06D	Water Level Only	2074782.68	1260480.15	779.50	782.02	134.02	698.30	688.30	10	46.5	Granitic and Biotite Gneiss	21.43	760.59	5/19/2014
PZ-24IA	Water Level Only	2073930.07	1258910.76	761.80	764.65	89.53	684.80	674.80	10	59.0	Granitic Gneiss	29.13	735.20	6/3/2020
PZ-35	Water Level Only	2073805.60	1258593.16	740.90	743.81	50.01	704.90	694.90	10	42.0	Biotite Gneiss	15.44	728.37	7/20/2016
PZ-37	Water Level Only	2074699.59	1256471.14	758.00	760.78	49.78	721.50	711.50	10	37.0	Biotite Gneiss	13.79	746.40	7/6/2016
PZ-48	Water Level Only	2074528.00	1259868.04	777.20	779.83	58.73	731.40	721.40	10	36.0	Biotite Gneiss	19.94	779.89	7/12/2016
PZ-51	Water Level Only	2073182.55	1257595.80	741.30	744.30	36.32	717.98	707.98	10	4.0	Gneiss/Schist	6.94	737.36	11/8/2019
YAMW-1	Water Level Only	2073814.55	1258602.12	740.90	743.83	69.93	683.90	673.90	10	44.0	Biotite Gneiss	15.14	728.69	9/19/2018
YAMW-2	Water Level Only	2072924.89	1256780.59	777.90	781.04	46.48	744.56	734.56	10	39.0	Gneiss/Schist	22.18	758.86	11/12/2019
YAMW-3	Water Level Only	2073345.21	1256915.25	793.20	796.05	91.44	714.61	704.61	10	29.0	Gneiss/Schist	35.28	760.77	11/6/2019
YAMW-4	Water Level Only	2073280.71	1256532.64	802.60	805.59	96.55	719.04	709.04	10	45.0	Gneiss/Schist	30.61	774.98	11/7/2019
YAMW-5	Water Level Only	2074486.69	1256140.21	785.90	788.90	90.34	708.56	698.56	10	29.0	Gneiss/Schist	12.84	776.06	11/13/2019

Notes:

1. ft BTOC indicates feet below top of casing
2. ft bgs indicates feet below ground surface
3. ft indicates feet
4. Northings and Eastings are GA State Plane West (NAD83)

**TABLE 2A
HORIZONTAL HYDRAULIC CONDUCTIVITY DATA SUMMARY**

Location	Test	Hydraulic Conductivity (cm/sec)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (ft/yr)
PZ-4S	Slug-In Test	7.41E-04	2.10	767
	Slug-Out Test	1.52E-04	0.43	157
YGWA-4I	Slug-In Test	9.17E-05	0.26	95
	Slug-Out Test	8.11E-05	0.23	84
PZ-5S	Slug-In Test	N/A	N/A	N/A
	Slug-Out Test	4.34E-04	1.23	449
YGWA-5I	Slug-In Test	N/A	N/A	N/A
	Slug-Out Test	3.77E-04	1.07	391
YGWA-5D	Slug-In Test	1.16E-04	0.33	121
	Slug-Out Test	1.06E-04	0.30	110
YGWA-17S	Slug-In Test	3.42E-04	0.97	354
	Slug-Out Test	3.46E-04	0.98	358
YGWA-18S	Slug-In Test	9.52E-05	0.27	99
	Slug-Out Test	8.47E-05	0.24	88
YGWA-18I	Slug-In Test	7.76E-04	2.20	804
	Slug-Out Test	5.12E-04	1.45	530
YGWC-19S	Slug-In Test	3.39E-04	0.96	351
	Slug-Out Test	N/A	N/A	N/A
YGWA-20S	Slug-In Test	3.63E-04	1.03	376
	Slug-Out Test	2.22E-04	0.63	230
YGWC-22S	Slug-In Test	3.14E-04	0.89	325
	Slug-Out Test	2.93E-04	0.83	303
YGWC-23S	Slug-In Test	2.15E-04	0.61	223
	Slug-Out Test	2.40E-04	0.68	248
YGWC-24S	Slug-In Test	2.79E-04	0.79	289
	Slug-Out Test	2.93E-04	0.83	303
PZ-35	Slug-In Test	3.12E-03	8.87	3228
	Slug-Out Test	2.05E-03	5.82	2117
YGWC-32S	Slug-In Test	1.45E-03	4.11	1498
	Slug-Out Test	2.39E-03	6.80	2474
YGWC-32I	Slug-In Test	1.88E-03	5.33	1942
	Slug-Out Test	2.39E-03	6.79	2471
YGWC-33S	Slug-In Test	2.37E-03	6.73	2451
	Slug-Out Test	1.58E-03	4.50	1639
YGWC-34I	Slug-In Test	1.99E-03	5.64	2054
	Slug-Out Test	1.78E-03	5.07	1846
YGWC-36	Slug-In Test	2.34E-04	0.67	243
	Slug-Out Test	2.46E-04	0.70	255
PZ-37	Slug-In Test	2.11E-03	6.01	2187
	Slug-Out Test	1.65E-03	4.70	1711
YGWC-38 (PZ-38)	Slug-In Test	2.08E-04	0.59	215
	Slug-Out Test	1.73E-04	0.49	179
YGWA-39 (PZ-39)	Slug-In Test	1.81E-03	5.15	1873
	Slug-Out Test	1.89E-03	5.36	1951
YGWA-40 (PZ-40)	Slug-In Test	5.79E-04	1.65	599
	Slug-Out Test	7.20E-04	2.05	745
YGWC-42	Slug-In Test	2.20E-04	0.63	228
	Slug-Out Test	1.47E-04	0.42	152
YGWC-43	Slug-In Test	3.66E-03	10.42	3791
	Slug-Out Test	2.61E-03	7.43	2705
PZ-48	Slug-In Test	6.54E-04	1.86	677
	Slug-Out Test	5.58E-04	1.59	577
YGWC-49	Slug-In Test	6.92E-04	1.97	716
	Slug-Out Test	8.00E-04	2.27	828
Slug Test Geometric Mean		5.12E-04	1.45	530

Notes:

1. Slug Test on locations -1 through -16 completed in 2014, -17 through -30 in 2015, -31 and higher performed by ACC, Inc. personnel 3/2-3/9, 2017.
2. N/A = Result not available.
3. cm/sec = centimeters per second; ft/day = feet per day; ft/yr = feet per year

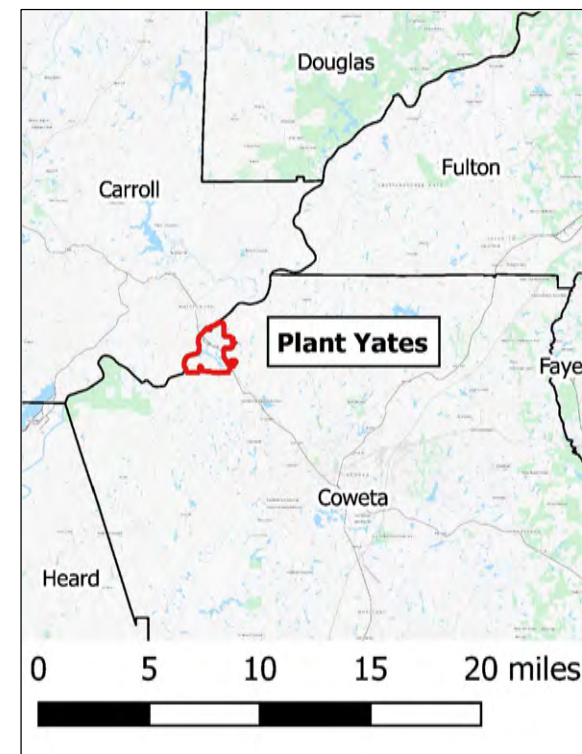
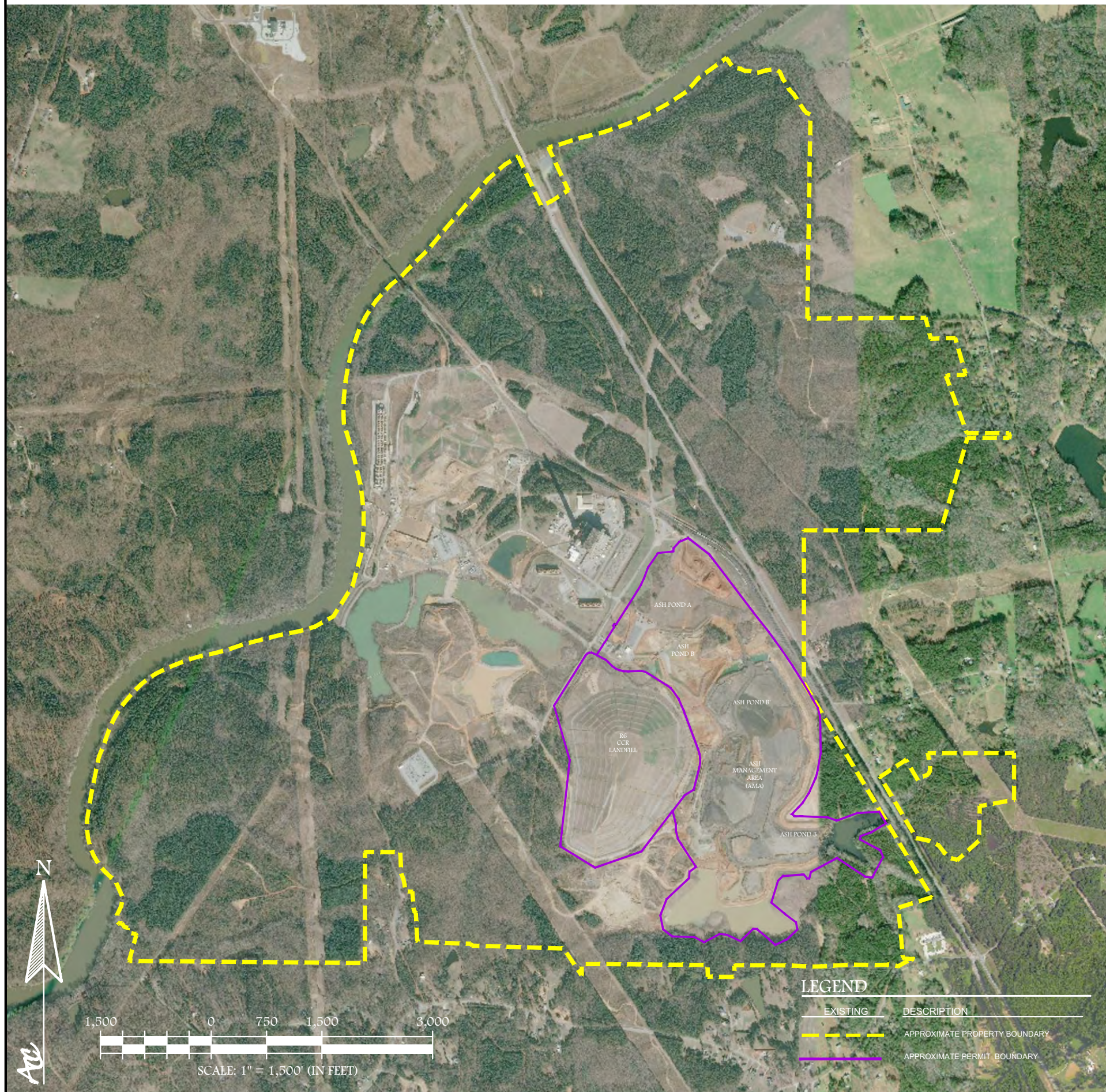
TABLE 2B
Sitewide Vertical Hydraulic Conductivity Data Summary

Location	Depth (ft bgs)	Hydraulic Conductivity (cm/sec)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (ft/yr)
YGWA-17S	17 - 19	6.91E-04	1.96	715
YGWC-19S	17 - 19	1.78E-04	0.50	184
YGWA-20S	17 - 19	9.72E-05	0.28	101
YGWC-22S	7 - 9	1.63E-03	4.62	1688
YGWC-22S	17 - 19	4.66E-04	1.32	485
YGWC-24S	17 - 19	2.51E-03	7.11	2599
YGWC-24S	37 - 39	2.50E-05	0.07	26
PZ-25S	33 - 35	4.13E-05	0.12	43
PZ-25S	44 - 46	2.00E-04	0.57	207
YGWC-26S	17 - 19	1.79E-06	0.01	1.9
YGWC-26S	27 - 29	3.36E-05	0.10	35
YGWC-27S	17 - 19	4.58E-07	0.00	0.5
YGWC-27S	27 - 29	3.56E-06	0.01	3.7
YGWC-28S	17 - 19	2.08E-07	0.00	0.2
PZ-30S	27 - 29	1.38E-05	0.04	14
PZ-31S	44 - 46	7.85E-04	2.23	813
Geometric Mean		4.88E-05	0.14	51

Notes:

1. Data from Shelby Tube sample analysis completed by Cardno ATC, 2015.
2. All locations original IDs were originally pre-fixed with "PZ"; pre-fixes of locations incorporated into a groundwater monitoring network were changed to "YGWA" or "YGWC" as appropriate.
3. ft bgs = feet below ground surface
4. cm/sec = centimeters per second; ft/day = feet per day; ft/yr = feet per year

FIGURES



ATLANTIC COAST
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PROJECT:
PLANT YATES

708 DYER ROAD
NEWNAN, GEORGIA

REVISIONS

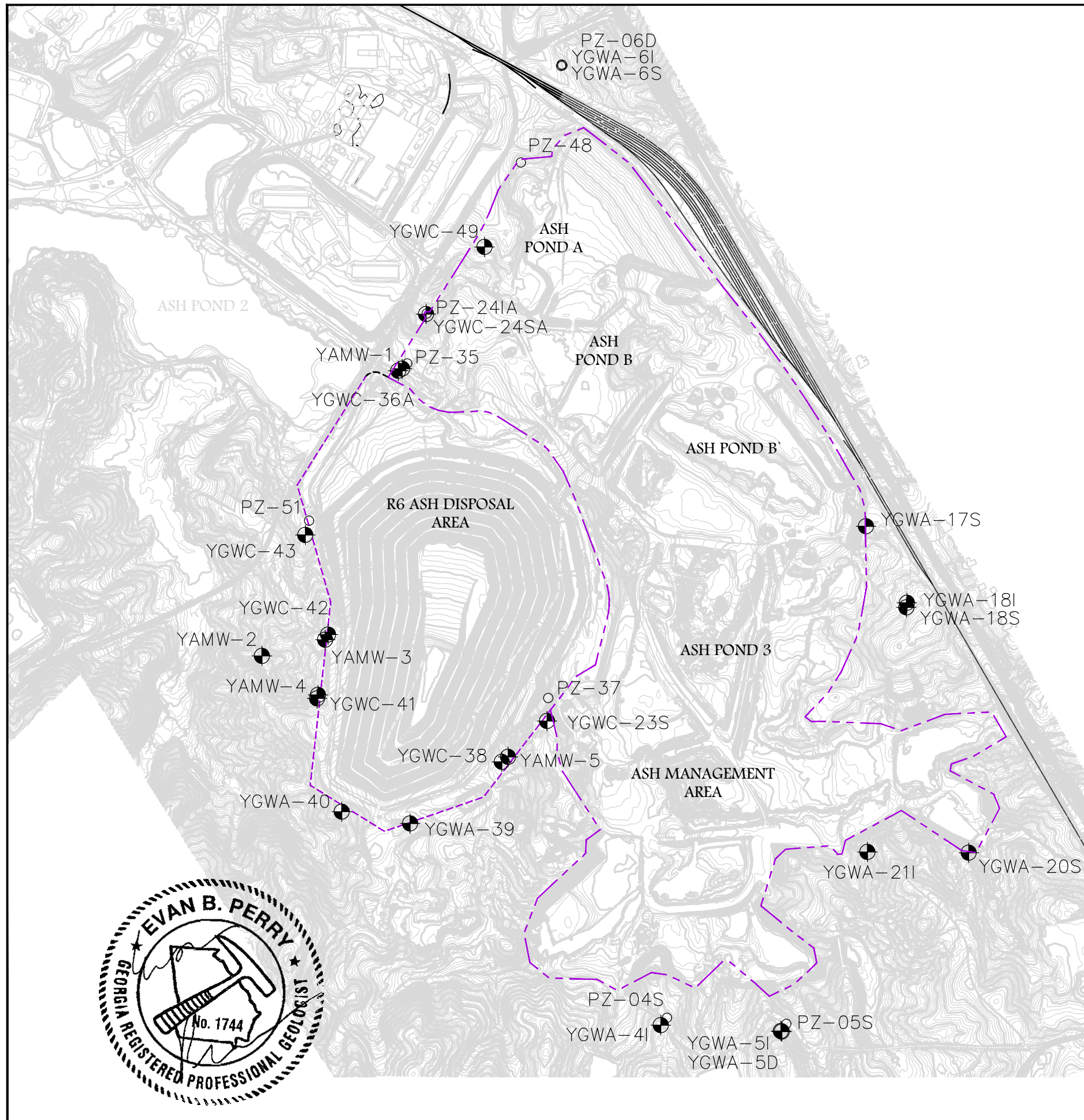
NO.	DATE	DESCRIPTION

Drawn by: MM Checked by: EP

PROJECT NUMBER:
1054-110
May 2021

SITE LOCATION
MAP

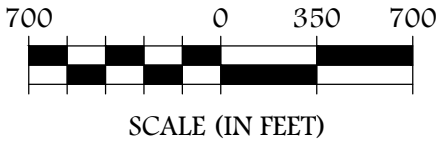
FIGURE 1



NOTES:
 1. TOPOGRAPHIC SURVEY DATED MAY 26, 2017.

LEGEND:

- CCR PERMIT BOUNDARY
- PROMINENT CONTOUR
- INTERMEDIATE CONTOUR
- ROAD
- GROUNDWATER WELL
- PIEZOMETER



ACC
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PROJECT:
PLANT YATES MULTI-UNIT R6-AMA
 708 Dyer Road
 Newnan, Georgia

PROJECT:
PLANT YATES MULTI-UNIT R6-AMA
 708 Dyer Road
 Newnan, Georgia



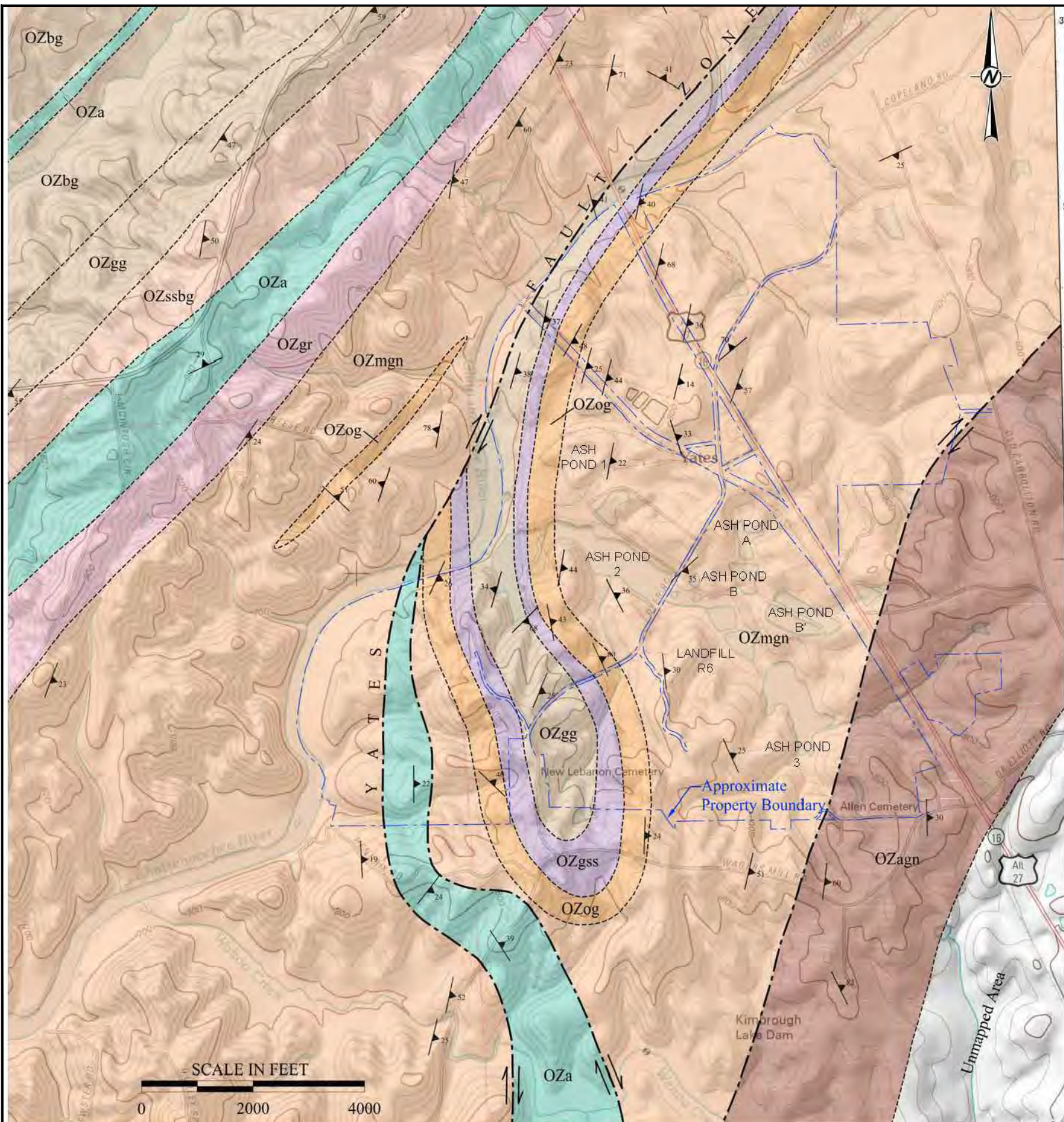
REVISIONS

Drawn by: MM	Checked by: EP	QC by: MJ
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PROJECT NUMBER:
 I054-107
 May 2021

MONITORING WELL NETWORK

P:\Industrial\1054 - Southern Company\110 - Groundwater Consulting Services 2018 - 2021\Plant Yates Hydrogeologic Assessment Report\DWG\Plant Yates Geologic Map.dwg 2019-09-05 MATT MALONE



DESCRIPTION OF MAP UNITS

- OZbg** *Biotite Gneiss*- garnet (small, minor)-muscovite-biotite-quartz-feldspar gneiss, fine- to medium-grained, schistose in part; interlayered with garnet (small, minor)-biotite-feldspar-quartz-muscovite schist, medium- to coarse-grained; some garnet-rich zones, all layered with concordant and discordant pegmatite pods, lenses, and layers up to 10 feet thick; foliation wraps around pegmatite pods/lenses.
- OZa** *Amphibolite*- amphibole/hornblende gneiss, thinly laminated, fine- to medium-grained hornblende and plagioclase; and chlorite-actinolite schist, very fine-grained; joints are close-spaced and abundant.
- OZgg** *Granitic-Gneiss*- biotite-quartz-feldspar gneiss, very feldspathic; quartz and feldspar are medium- to coarse-grained; biotite is fine- to medium-grained. Muscovite is present where this gneiss is sheared. Shear foliation is commonly developed.
- OZssbg** *Biotite Gneiss and Sillimanite Schist*- biotite-quartz-feldspar gneiss; interlayered with sillimanite, garnet, quartz, muscovite schist. Shear foliation is commonly developed.
- OZog** *Orange Gneiss*- well layered, well foliated, moderately jointed, fine- to medium-grained, biotite-quartz-feldspar gneiss; this unit weathers fairly deeply relative to adjacent lithologies, forming a distinctive dark red, vermiculitic soil from weathering of biotite; the gneiss locally contains thin lenses of chlorite-actinolite schist and feldspar-hornblende gneiss/amphibolite, increasing in concentration of these ultramafic and mafic bodies to the southeast.
- OZgr** *Granite*- generally massive, weakly foliated, poorly jointed, fine- to medium-grained, light-gray, large exfoliation boulders are common.
- OZmgn** *Migmatitic Gneiss*- highly contorted, well layered, well foliated, poorly jointed, medium-grained muscovite-biotite-quartz-feldspar migmatitic gneiss. Granite is locally interlayered with biotite gneiss and pods/lenses of ultramafic bodies, which occur as relatively fresh, well foliated, unjointed boulders of medium- to coarse-grained actinolite-chlorite schist.
- OZgss** *Sillimanite Staurolite Garnet Schist*- sillimanite-staurolite-garnet-biotite-quartz-muscovite schist, medium- to coarse-grained, sheared; staurolite and garnet are porphyroblastic, biotite and quartz content are highly variable, generally poorly weathered.
- OZagn** *Porphyroclastic Augen Gneissic*- muscovite-biotite-quartz-feldspar gneissic granite, feldspathic; quartz and feldspar are medium- to coarse-grained; feldspar phenocrysts form porphyroclasts, biotite is fine- to medium-grained.

EXPLANATION OF MAP SYMBOLS

- Lithologic unit contact- Approximate location
- Fault (high angle)- Approximate location
- Fault (strike/slip)- Approximate location
- Strike and Dip of Foliation

REFERENCES

1. USGS 7.5 Minute Quadrangles, Whitesburg, 2011.
2. Property Boundary provided by Coweta County GIS Department, 2015.



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PROJECT:
PLANT YATES
HYDROGEOLOGIC
ASSESSMENT

708 DYER ROAD
NEWMAN, GEORGIA

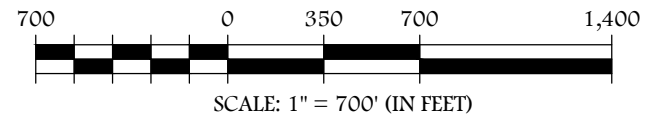
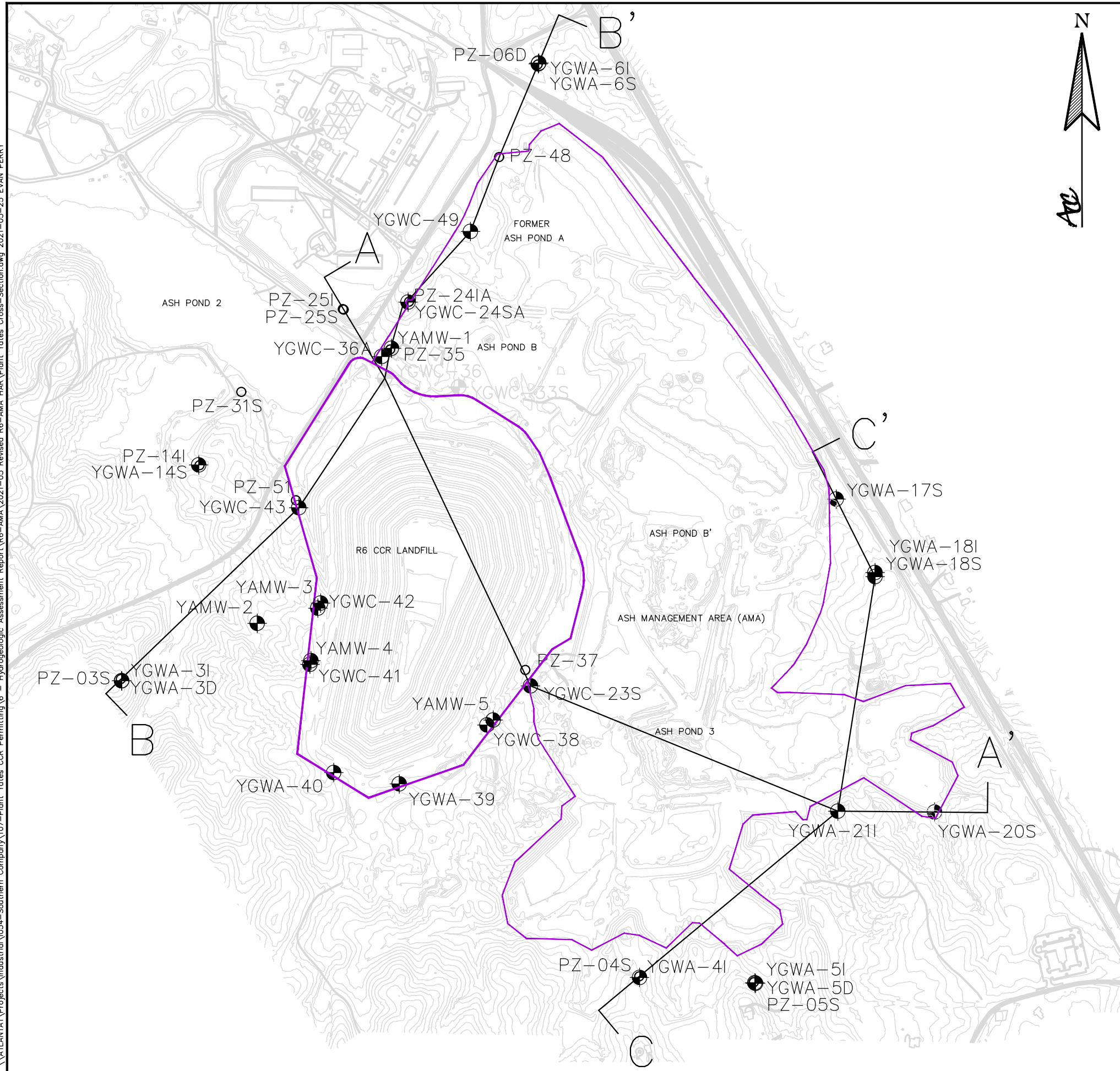
REVISIONS

Drawn by: MM Checked by: JF
PROJECT NUMBER:
1054-110
March 2020

PLANT YATES
GEOLOGIC MAP

NOTE: THIS DRAWING WAS PREPARED BY GOLDR ASSOCIATES, INC. FOR THE GEOLOGIC MAPPING AND LINEAMENT ANALYSIS GEORGIA POWER PLANT YATES, DATED OCTOBER 6, 2017. GEOLOGIC MAPPING WAS CONDUCTED BY PETROLOGIC SOLUTIONS, INC.

\\ATLANTA\Projects\Industrial\054-Southern Company\107-Plant Yates CCR Permitting\6 - Hydrogeologic Assessment Report\R6-AMA HAR\Plant Yates Cross-Section.dwg 2021-05-25 EVAN PERRY



LEGEND

EXISTING	DESCRIPTION
	PROMINENT CONTOUR (5-FOOT INTERVAL)
	RAILROAD
	ACCESS ROAD
	YGWC-49 GROUNDWATER MONITORING WELL
	PZ-25I PIEZOMETER
	YGWC-33S ABANDONED GROUNDWATER MONITORING WELL
	A A' CROSS-SECTION
	BOUNDARY PER D&O PLAN EXTENT OF AMA FINAL COVER

NOTE:
1. TOPOGRAPHIC SURFACE PROVIDED BY PHOTOGRAPHY TAKEN BY METRO ENGINEERING & SURVEYING DATED MAY 26, 2017.



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PROJECT:
PLANT YATES

708 DYER ROAD
NEWNAN, GEORGIA

REVISIONS

Drawn by: MM	Checked by: EP
PROJECT NUMBER: 1054-107 May 2021	



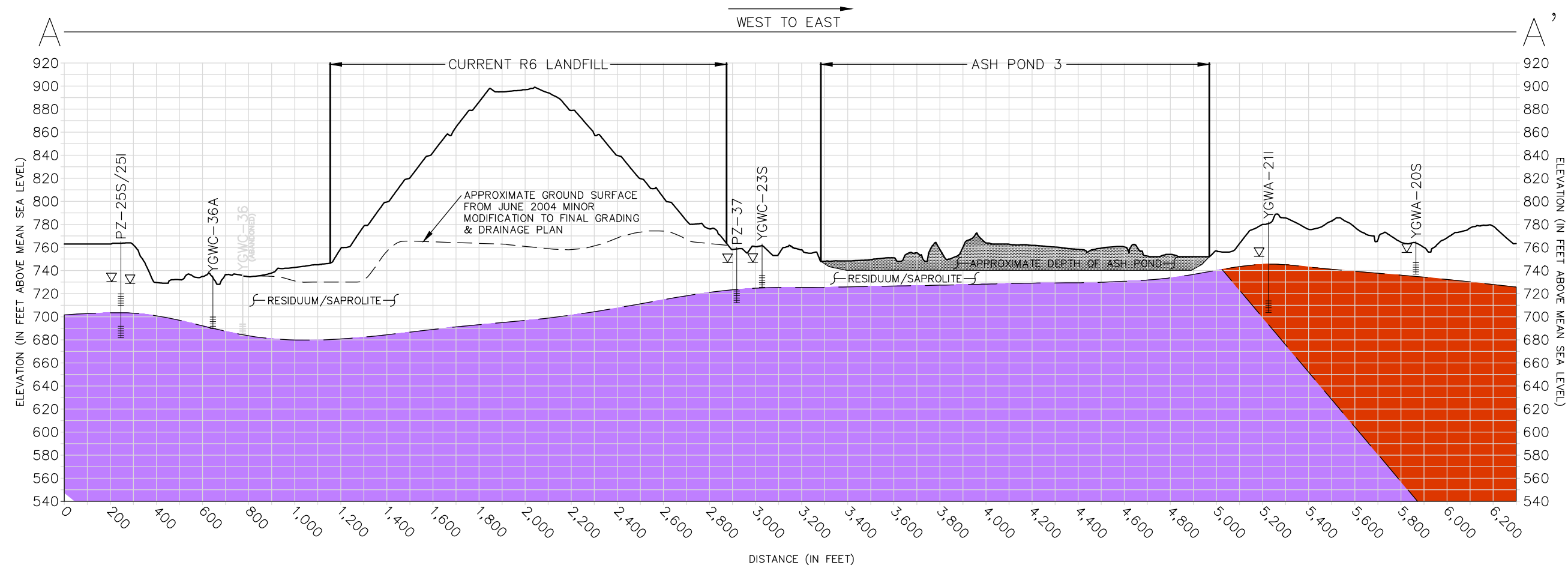
CROSS-SECTION LOCATION MAP

FIGURE 4

P:\Industrial\054-Southern Company\07-Plant Yates CCR Permitting\6 - Hydrogeologic Assessment\Report\R6-AMA\2021-05 Revised R6-AMA HAR\Plant Yates Cross-Section.dwg 2021-05-13 MATT MALONE



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SCALE:
 1" = 500' HORIZONTAL
 1" = 100' VERTICAL

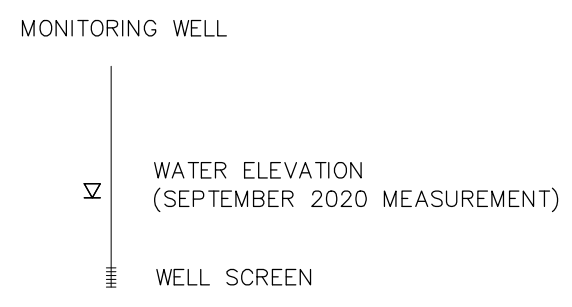
- NOTES:
1. APPROXIMATE GEOLOGIC SUBSURFACE CONTACTS AND DIP ANGLES BASED ON "GEOLOGIC MAPPING AND LINEAMENT ANALYSIS," BY GOLDER ASSOCIATES DATED OCTOBER 2017.
 2. TOPOGRAPHIC GROUND SURFACE PROVIDED BY METRO ENGINEERING & SURVEYING DATED MAY 26, 2017.
 3. DEPTH OF ASH POND 3 DERIVED FROM CLOSURE DRAWINGS BY ACC, INC. DATED NOVEMBER 2018.
 4. BECAUSE INSTALLATION HAD NOT YET BEEN COMPLETED WHEN EVENT TOOK PLACE, YGWC-36A DOES NOT HAVE A WATER ELEVATION SHOWN.



LEGEND

- OZmgn (Migmatitic Gneiss)
- OZagn (Porphyroclastic Augen Gneissic)

- EXISTING GROUND SURFACE
- - - - - LITHOLOGIC CHANGE



PROJECT:
**PLANT YATES
 HYDROGEOLOGIC
 ASSESSMENT**

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

Drawn by: MM Checked by: EP

PROJECT NUMBER:
1054-107
 May 2021

SECTION A-A'

P:\Industrial\054-Southern Company\07-Plant Yates CCR Permitting\6 - Hydrogeologic Assessment\Report\R6-AMA\2021-05 Revised R6-AMA HAR\Plant Yates Cross-Section.dwg 2021-05-13 MATT MALONE



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PROJECT:
**PLANT YATES
 HYDROGEOLOGIC
 ASSESSMENT**

708 DYER ROAD
 NEWNAN, GEORGIA

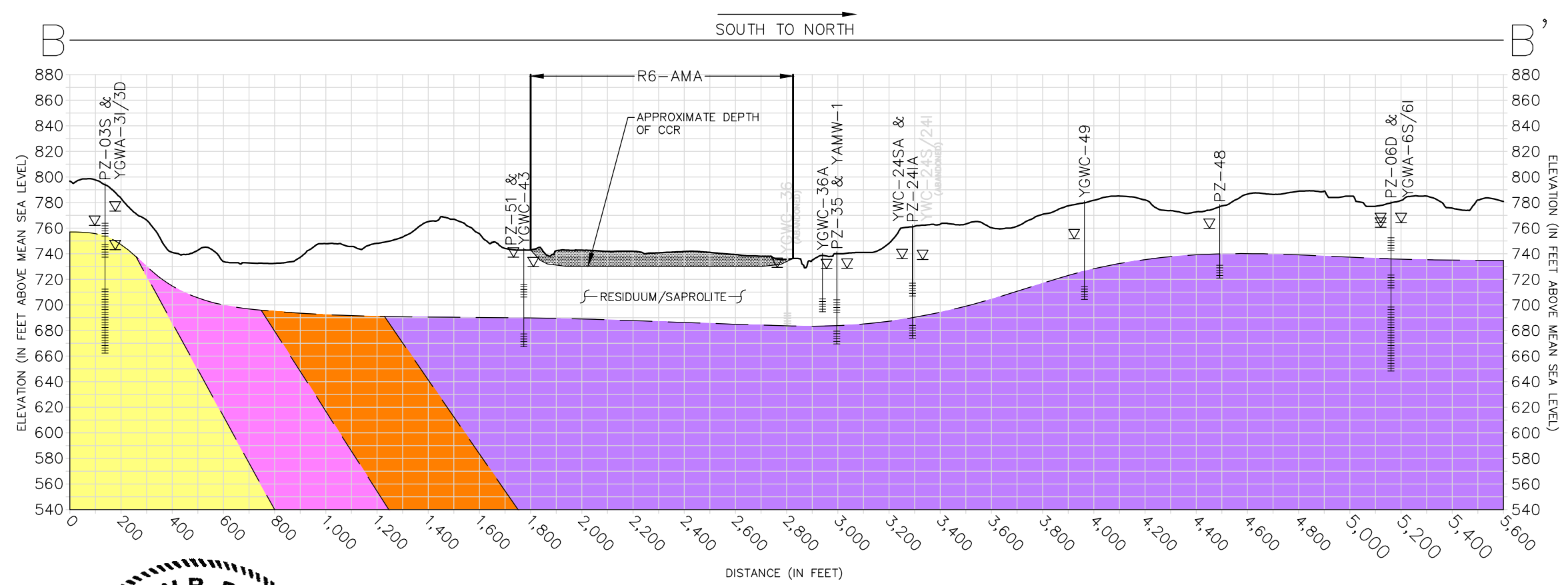
REVISIONS

Drawn by: **MM** Checked by: **JF**

PROJECT NUMBER:
1054-107
 May 2021

SECTION B-B'

FIGURE **6**



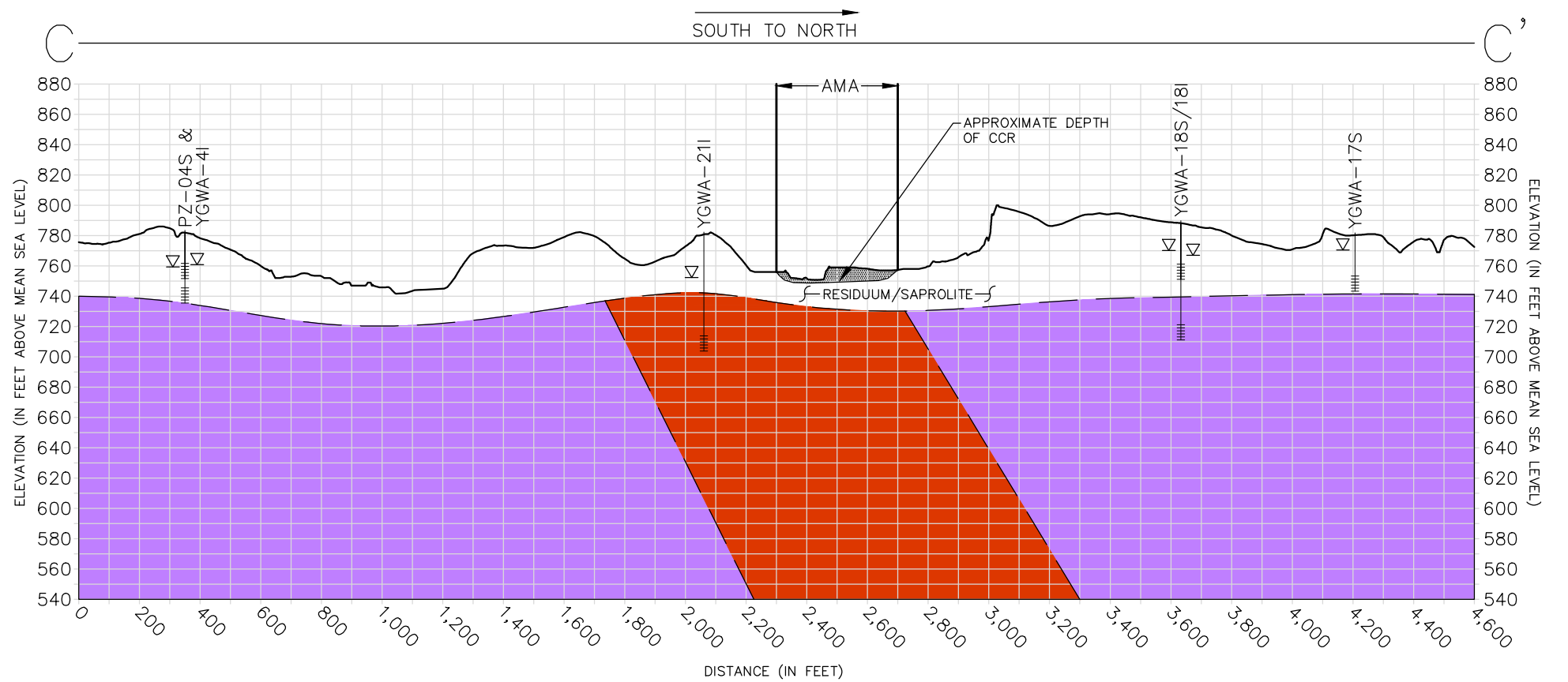
SCALE:
 1" = 500' HORIZONTAL
 1" = 100' VERTICAL

- NOTES:
- APPROXIMATE GEOLOGIC SUBSURFACE CONTACTS AND DIP ANGLES BASED ON "GEOLOGIC MAPPING AND LINEAMENT ANALYSIS," BY GOLDER ASSOCIATES DATED OCTOBER 2017.
 - TOPOGRAPHIC GROUND SURFACE PROVIDED BY METRO ENGINEERING & SURVEYING DATED MAY 26, 2017.
 - BECAUSE INSTALLATION HAD NOT YET BEEN COMPLETED WHEN EVENT TOOK PLACE, YGWC-36A DOES NOT HAVE A WATER ELEVATION SHOWN.



LEGEND

- | | |
|--|--|
| OZgg (Granitic-Gneiss) | OZmgn (Migmatitic Gneiss) |
| OZog (Orange Gneiss) | OZgss (Sillimanite Staurolite Garnet Schist) |
| EXISTING GROUND SURFACE | |
| LITHOLOGIC CHANGE | |
| MONITORING WELL | |
| WATER ELEVATION (SEPTEMBER 2020 MEASUREMENT) | |
| WELL SCREEN | |



SCALE:
 1" = 500' HORIZONTAL
 1" = 100' VERTICAL

- NOTES:
1. APPROXIMATE GEOLOGIC SUBSURFACE CONTACTS AND DIP ANGLES BASED ON "GEOLOGIC MAPPING AND LINEAMENT ANALYSIS," BY GOLDR ASSOCIATES DATED OCTOBER 2017.
 2. TOPOGRAPHIC GROUND SURFACE PROVIDED BY METRO ENGINEERING & SURVEYING DATED MAY 26, 2017.





LEGEND

- OZmgn (Migmatitic Gneiss)
- OZagn (Porphyroclastic Augen Gneissic)

- EXISTING GROUND SURFACE
- - - - - LITHOLOGIC CHANGE

MONITORING WELL

-  WATER ELEVATION (SEPTEMBER 2020 MEASUREMENT)
-  WELL SCREEN



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PROJECT:
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 ASSESSMENT**

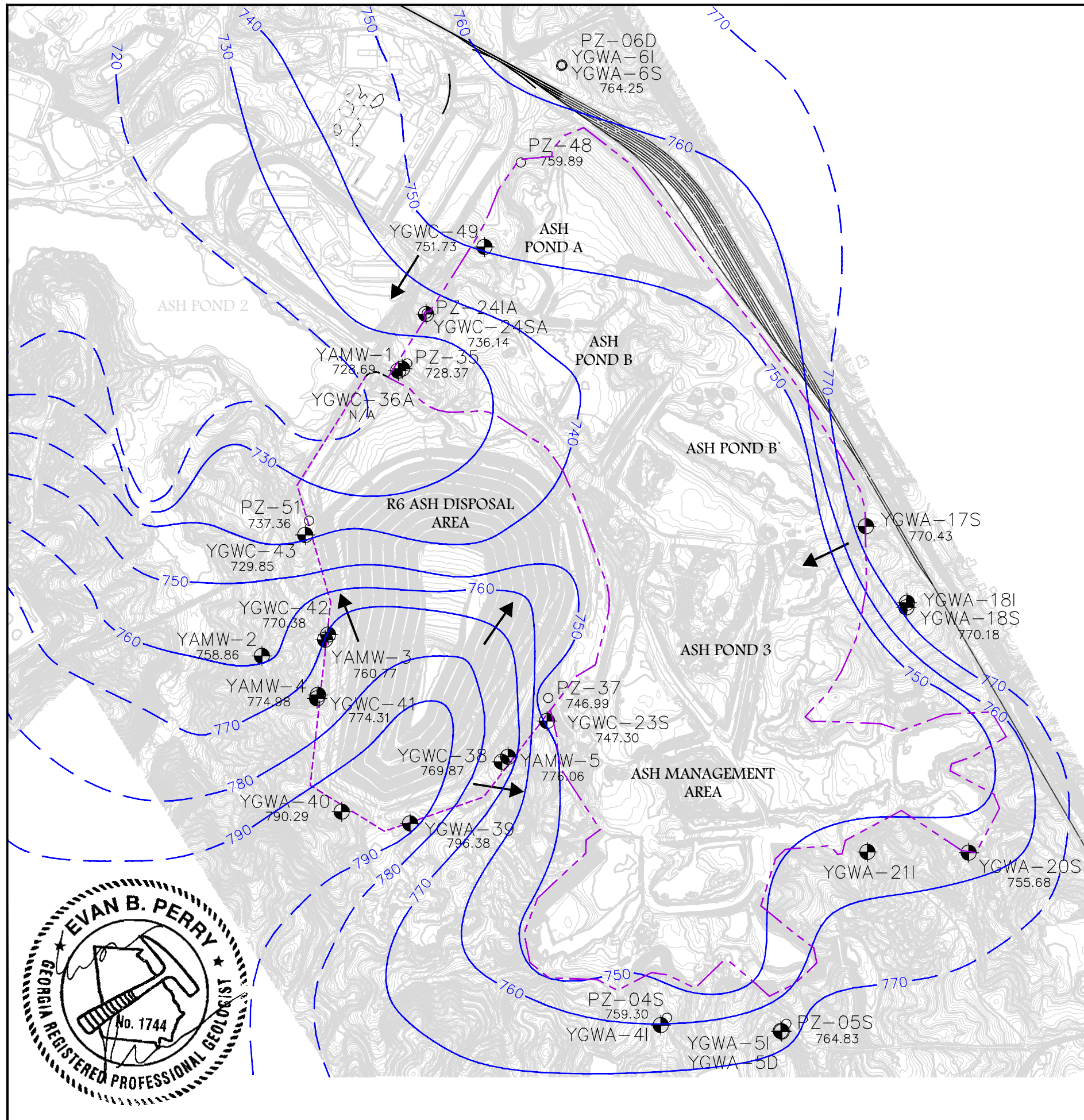
708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

Drawn by: MM Checked by: EP

PROJECT NUMBER:
1054-107
 May 2021

SECTION C-C'



SUMMARY OF SEPTEMBER 2020 GROUNDWATER ELEVATIONS

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing Elevation (ft NAVD88)	Depth to Water (ft BTOC)	Groundwater Elevation (ft NAVD 88)
YGWA-4I	48.81	784.21	23.45	760.76
YGWA-5I	58.94	784.54	19.82	764.72
YGWA-5D	129.13	784.53	22.51	762.02
YGWA-17S	39.85	783.05	12.62	770.43
YGWA-18S	39.97	790.57	20.39	770.18
YGWA-18I	79.97	790.57	23.59	766.98
YGWA-20S	29.52	767.12	11.44	755.68
YGWA-21I	79.90	783.70	31.29	752.41
YGWA-39	68.59	818.19	21.81	796.38
YGWA-40	48.23	815.73	25.44	790.29
YGWC-23S	38.91	764.91	17.61	747.30
YGWC-24SA	57.00	764.91	28.77	736.14
YGWC-36A	51.20	740.88	n/a	n/a
YGWC-38	68.59	799.69	29.82	769.87
YGWC-41	66.82	803.92	29.61	774.31
YGWC-42	59.76	797.86	27.48	770.38
YGWC-43	79.66	744.96	15.11	729.85
YGWC-49	78.53	782.73	31.00	751.73
YGWA-6S	39.87	782.47	18.22	764.25
YGWA-6I	69.03	782.73	18.48	764.25
PZ-04S	32.75	784.25	24.95	759.30
PZ-05S	41.94	784.64	19.81	764.83
PZ-06D	134.02	782.02	21.43	760.59
PZ-24IA	89.53	764.65	29.13	735.52
PZ-35	50.01	743.81	15.44	728.37
PZ-37	49.78	760.78	13.79	746.99
PZ-48	58.73	779.83	19.94	759.89
PZ-51	36.32	744.30	6.94	737.36
YAMW-1	69.93	743.83	15.14	728.69
YAMW-2	46.48	781.04	22.18	758.86
YAMW-3	91.44	796.05	35.28	760.77
YAMW-4	96.55	805.59	30.61	774.98
YAMW-5	90.34	788.90	12.84	776.06

- NOTES:**
1. Depths to water measured September 21, 2020.
 2. ft BTOC indicates feet below top of casing.
 3. Elevation data are feet relative to North American Vertical Datum (NAVD) 1988.
 4. n/a indicates well not installed at time of measurement.

- NOTES:**
1. TOPOGRAPHIC SURVEY DATED MAY 26, 2017.
 2. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.
 3. GROUNDWATER CONTOURS FROM ARCADIS US, INC. 2020. WELLS YGWC-38, YGWC-43, AND YAMW-3 ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.

LEGEND:

- CCR PERMIT BOUNDARY
- PROMINENT CONTOUR
- - - INTERMEDIATE CONTOUR
- == ROAD
- GROUNDWATER WELL
- GROUNDWATER ELEVATION
- PIEZOMETER
- GROUNDWATER ELEVATION
- - - GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- ← GROUNDWATER FLOW DIRECTION



ACC
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 Roswell, Ga 30076
 770-594-5998
 www.atlcc.net

PROJECT:
PLANT YATES MULTI-UNIT R6-AMA
 708 Dyer Road
 Newnan, Georgia



REVISIONS

Drawn by: MM	Checked by: EP	QC by: MJ
-----------------	-------------------	--------------

PROJECT NUMBER:
 I054-107
 May 2021

SEPTEMBER 2020 POTENTIOMETRIC SURFACE CONTOUR MAP

Figure 8

APPENDICES

APPENDIX A
BORING AND WELL CONSTRUCTION LOGS



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-4I
PAGE 1 OF 1
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/10/2014 COMPLETED 5/21/2014 SURF. ELEV. 781.9 COORDINATES: N:1,254,436.58 E:2,075,455.62

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 46.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 17.72 ft. DELAYED _____

NOTES Top of Casing Elevation = 784.21

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 19:25 - VALTRCF502X2DBSMEL\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
		ELEV.	ELEV. (DEPTH)
		Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
		779.4	779.9
	Sandy Silt (ML) - rusty red, damp, medium stiff, low plasticity, very fine grain, cohesive; micaceous; trace organics		(2.0)
	Silty Sand (SM) - reddish brown to light brown, dry, medium dense to loose, no plasticity, lower fine to upper medium grain, some to trace clay decreasing with depth; trace mica; trace organics - SM: medium to light brown to tan, dry, loose, no plasticity, lower fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; noncohesive; trace rock fragments (brittle); trace mica - SM: light brown to tan grading to reddish brown @ 15', damp, loose, no plasticity, lower fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; noncohesive; trace rock fragments (brittle); trace mica - SM: reddish brown to tan to white with a greenish tan zone @ approx. 18-20', moist, medium dense, no plasticity, lower fine to upper medium grain, <i>saprolite</i> , visible zones where <i>saprolite</i> has not completely broken down to residual soil and remnant rock fabric visible; zone of more competent <i>saprolite</i> observed; gravel sized rock fragments included; muscovite, biotite, chlorite phyllosilicates visible - SM: orangish brown to light gray to white, moist, medium dense, no plasticity, lower fine to upper medium grain, <i>saprolite</i> , increasing rock fragment size and abundance with depth; rock fragments range from coarse gravel to cobble size; angular fragments		
		751.4	751.3
	Interlayered Granitic Gneiss and Biotite Gneiss - light gray to white with rusty red to orangish brown staining, lower fine to lower medium grain, medium hard, moderately weathered, trace banding, quartz, biotite, muscovite, plagioclase, hornblende; low to moderate angle fractures visible; slight schistose foliation visible in some weathered zones; some zones highly weathered		(30.6)
			747.4
			(34.5)
			745.7
			(36.2)
			735.7
		735.4	735.4

Bottom of borehole at 46.5 feet.



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-51
PAGE 1 OF 2
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DATE STARTED 4/9/2014 COMPLETED 5/21/2014 SURF. ELEV. 782.1 COORDINATES: N:1,254,399.95 E: 2,076,218.86

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 56.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 13.66 ft. DELAYED _____

NOTES Top of Casing Elevation = 784.54

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:41 - \VALTRCF02X2DB\$ME\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (DEPTH)
			780.1
			(2.0)
5		<p>Silty Sand (SM) - brown, dry, medium dense, no plasticity, upper fine to lower medium grain, noncohesive; trace organics; angular to sub angular grains - SM: brown, dry, medium dense, no plasticity, upper fine to lower medium grain, slight increase in clay content with depth; cohesive (slight); trace mica; trace coarse grains</p>	777.1
10		<p>Poorly-graded Sand (SP) - light gray to off white, dry, very loose, no plasticity, upper fine to upper medium grain, noncohesive; upper coarse to coarse gravel sized weathered rock fragments; angular to subangular grains; angular rock fragments</p> <p>- SP: med gray to tan to light gray /white with orangish brown to greenish gray mottling, damp, medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; zones of more competent (completely weathered) rock increasing with depth; trace lenses of silt/clay interbedded within the sand/saprolite; brittle upper coarse to lower gravel sized rock fragments included; micaceous</p>	
15			
20		<p>- SP: light gray/white grading to med gray with orangish brown to dark gray mottling, damp, medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; angular to subangular grains</p>	
25			
30		<p>- SP: light gray to med gray, damp, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, increasing in gravel sized rock fragments (completely weathered, very brittle)</p>	
35			
40		<p>- SP: medium gray to light gray, damp, loose, no plasticity, upper fine to upper coarse grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil with zones of more competent but brittle rock fragments; angular grains; micaceous</p>	742.1
			Surface Seal: concrete
			Annular Fill: 90/10 Portland Cement/Bentonite Powder

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-51
PAGE 2 OF 2
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	ELEV. (DEPTH)
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
			(CONTINUED)	
				741.8
		Partially Weathered Rock		741.1
		- light gray, Pulverized Rock (powder) due to sonic drilling; no describable sample		(40.3)
		Biotite Gneiss	← Annular Seal: 3/8 Hole Plug (medium bentonite chips)	737.6
		- light brown to light gray to white, upper fine to upper medium grain, medium hard to soft, moderately weathered, banded, quartz, biotite, muscovite, plagioclase, hornblende, trace chlorite; low to moderate angled fractures; no visible healing/fracture fill	← Filter: 20/30 Silica Sand	(44.5)
45	45			735.9
			Well: 2" OD PVC (SCH 40)	(46.2)
			← Screen: 10 ft; pre-pack	
50	50			725.9
		- Biotite Gneiss: light gray to medium gray, upper fine to upper medium grain, medium hard to hard, moderately weathered, banded, quartz, biotite, muscovite, plagioclase, hornblende, trace chlorite; increase in mafic minerals; orangish brown staining visible in zones; low to moderate angled fractures visible; no visible healing/fracture fill; slight schistose foliation observed in zones		725.6
55	55		← Sump: 0.30 ft.	725.6
		Bottom of borehole at 56.5 feet.		

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:41 - \\VALTRCF502X2DB\$MEL\$GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-5D
PAGE 1 OF 3
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/11/2014 COMPLETED 5/21/2014 SURF. ELEV. 781.9 COORDINATES: N:1,254,396.67 E:2,076,223.63

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 126.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 6.84 ft. DELAYED _____

NOTES Top of Casing Elevation = 784.53

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:56 - \\VALTRCF02\X2DB\SMEL\$GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (DEPTH)
			779.9
			(2.0)
5		<p>Silty Sand (SM) - brown, dry, medium dense, no plasticity, upper fine to lower medium grain, noncohesive; trace organics; angular to sub angular grains - SM: brown, dry, medium dense, no plasticity, upper fine to lower medium grain, slight increase in clay content with depth; cohesive (slight); trace mica; trace coarse grains</p>	776.9
10		<p>Poorly-graded Sand (SP) - light gray to off white, dry, very loose, no plasticity, upper fine to upper medium grain, noncohesive; upper coarse to coarse gravel sized weathered rock fragments; angular to subangular grains; angular rock fragments</p> <p>- SP: med gray to tan to light gray /white with orangish brown to greenish gray mottling, damp, medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; zones of more competent (completely weathered) rock increasing with depth; trace lenses of silt/clay interbedded within the sand/saprolite; brittle upper coarse to lower gravel sized rock fragments included; micaceous</p> <p>- SP: light gray/white grading to med gray with orangish brown to dark gray mottling, damp, medium dense, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; angular to subangular grains</p> <p>- SP: light gray to med gray, damp, loose, no plasticity, upper fine to lower medium grain, <i>saprolite</i>, increasing in gravel sized rock fragments (completely weathered, very brittle)</p> <p>- SP: medium gray to light gray, damp, loose, no plasticity, upper fine to upper coarse grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil with zones of more competent but brittle rock fragments; angular grains; micaceous</p>	
15			
20			
25			
30			
35			
40			742.1

← Surface Seal: concrete

Annular Fill: 90/10 Portland Cement/Bentonite Powder



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-5D
PAGE 2 OF 3
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (CONTINUED) ELEV. (DEPTH)
45		Biotite Gneiss - light gray to white with light brown to tan staining, lower fine to upper fine grain, medium hard to soft, slightly to moderately weathered, banded, quartz, biotite, plagioclase, muscovite, hornblende, trace chlorite; low angle fracturing visible; 1-2 mm to 6-8 mm thick quartz fracture fill; moderate to partial healing; visible weathering characteristics include staining/discoloration and some mineral decomposition	
50		- Biotite Gneiss: light gray to white with light brown to tan staining, lower fine to upper fine grain, medium hard, moderately weathered, banded, quartz, biotite, plagioclase, muscovite, hornblende, trace chlorite; low to moderate angle fracturing visible; some quartz fracture fill visible; partial to no visible healing	
55		- Interlayered/Alternating Biotite Gneiss and Mica Schist: alternating dark gray and white bands (Gneiss) interlayered with thin (1-2 mm to 5-6 mm) dark gray to greenish gray (Schist), upper fine to lower medium grain, medium hard to hard, not weathered, banded, slight schistose foliation associated with the interlayered mica schist, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite, trace chlorite; primarily low to moderate angled fracturing observed, difficult to distinguish between natural and mechanical fractures; no fracture healing visible; fracturing tends to occur along thinly interlayered zones of schist	
60		- Interlayered/Alternating Biotite Gneiss and Mica Schist: alternating dark gray and white bands (Gneiss) interlayered with thin (1-2 mm to 5-6 mm) dark gray to greenish gray (Schist), upper fine to lower medium grain, medium hard to hard, not weathered, banded, slight schistose foliation associated with the interlayered mica schist, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite, trace chlorite; primarily low to moderate angled fracturing observed; no to partial healing visible; fracturing tends to occur along thinly interlayered zones of schist; @ approx. 66' and 74', 90-120 mm thick zones of white, localized, coarse grained plagioclase feldspar and quartz (Granulite? unclassified metamorphic) with thinly interlayered mica schist; no banding visible in the plagioclase/quartz zone; trace augen plagioclase surrounded by flaky/bladed habit biotite and muscovite, around the zones associated with the coarse grain plagioclase	
65		- Interlayered/Alternating Biotite Gneiss and Mica Schist: alternating dark gray and white bands (Gneiss) interlayered with thin (1-2 mm to 5-6 mm) dark gray to greenish gray (Schist), upper fine to lower medium grain, medium hard to hard, not to slightly weathered, banded, slight schistose foliation associated with the interlayered mica schist, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite, trace chlorite; primarily low to moderate angled fracturing observed; no to partial healing visible; highly fractured (rubble zone) @ approx. 84-86' with some discoloration/staining	
70		- Interlayered/Alternating Biotite Gneiss and Mica Schist: alternating dark gray and white bands (Gneiss) interlayered with thin (1-2 mm to 5-6 mm) dark gray to greenish gray (Schist), upper fine to lower medium grain, medium hard to hard, not to slightly weathered, banded, slight schistose foliation associated with the interlayered mica schist, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite, trace chlorite; primarily low to moderate angled fracturing observed; no to partial healing visible; highly fractured (rubble zone) @ approx. 84-86' with some discoloration/staining	712.2 (69.7)
75		- Interlayered/Alternating Biotite Gneiss and Mica Schist: alternating dark gray and white bands (Gneiss) interlayered with thin (1-2 mm to 5-6 mm) dark gray to greenish gray (Schist), upper fine to lower medium grain, medium hard to hard, not to slightly weathered, banded, slight schistose foliation associated with the interlayered mica schist, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite, trace chlorite; primarily low to moderate angled fracturing observed; no to partial healing visible; highly fractured (rubble zone) @ approx. 84-86' with some discoloration/staining	Annular Seal: 3/8 Hole Plug (medium bentonite chips) 707.7 (74.2)
80		- Interlayered/Alternating Biotite Gneiss and Mica Schist: alternating dark gray and white bands (Gneiss) interlayered with thin (1-2 mm to 5-6 mm) dark gray to greenish gray (Schist), upper fine to lower medium grain, medium hard to hard, not to slightly weathered, banded, slight schistose foliation associated with the interlayered mica schist, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite, trace chlorite; primarily low to moderate angled fracturing observed; no to partial healing visible; highly fractured (rubble zone) @ approx. 84-86' with some discoloration/staining	Filter: 20/30 Silica Sand 705.7 (76.2)
85		- Biotite Gneiss: light gray to white with dark gray to med gray bands, lower medium to upper medium with zones of lower coarse to trace	Screen: 50 ft; 0.01" slotted

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:56 - \\ALTRCF02X2DBSMEL\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-5D
PAGE 3 OF 3
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION		WELL DATA
			ELEV. (CONTINUED)	Surface: protective aluminum cover with bollards; 4-foot square concrete pad
90		upper coarse grain, medium hard to hard, not weathered, banded, trace schistose foliation, quartz, plagioclase, biotite, muscovite, hornblende, pyrite; decrease to trace interlayered dark gray to greenish gray mica schist; low to moderate angled fractures, no visible healing/ fracture fill Biotite Gneiss (Cont)	685.9	Screen: 50 ft; 0.01" slotted Well: 2" OD PVC (SCH 40)
95		Interlayered/Alternating Unclassified Metamorphic and Biotite Gneiss - white to light gray, lower medium (gneiss) to lower coarse to upper coarse (unclassified metamorphic) grain, hard, not weathered, no banding visible, quartz, plagioclase, biotite, muscovite, hornblende, pyrite; white, coarse grained plagioclase with thin inclusions of porphyroblastic biotite, muscovite crystals in alternating layers; low to moderate angled fractures, no visible healing/ fracture fill; difficult to distinguish between natural and mechanical fractures due to sonic drilling	675.9	
100		Biotite Gneiss - alternating light gray and dark gray, lower medium to upper medium with trace lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite; @ approx. 114-116', highly fractured (rubble zone -no visible weathering or healing/fracture fill) of greenish gray to dark gray to medium gray alternating schist and gneiss; low angled fractures visible; no visible healing/fracture fill	655.4	
105		- Biotite Gneiss: alternating light gray and dark gray, lower medium to upper medium with trace lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite; low angled fractures visible; no visible healing/fracture fill		
110		- Biotite Gneiss: alternating light gray and dark gray, lower medium to upper medium with trace lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite; low angled fractures visible; no visible healing/fracture fill		
115		- Biotite Gneiss: alternating light gray and dark gray, lower medium to upper medium with trace lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite; low angled fractures visible; no visible healing/fracture fill		
120		- Biotite Gneiss: alternating light gray and dark gray, lower medium to upper medium with trace lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite; low angled fractures visible; no visible healing/fracture fill		
125		- Biotite Gneiss: alternating light gray and dark gray, lower medium to upper medium with trace lower coarse grain, medium hard to hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, trace pyrite; low angled fractures visible; no visible healing/fracture fill	655.4	
Bottom of borehole at 126.5 feet.			655.4	Sump: 0.30 ft.

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:56 - VALTRCF02X2DBSMEI\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ



LOG OF TEST BORING

BORING YGWA-17S
 PAGE 1 OF 1
 ECS37967

SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers

LOCATION Plant Yates

DATE STARTED 9/10/2015 COMPLETED 9/10/2015 SURF. ELEV. 780.2 COORDINATES: N:1,257,602.79 E:2,076,758.31

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 37 ft. GROUND WATER DEPTH: DURING 15 ft. COMP. 20 ft. DELAYED 10.3 ft. after 24 hrs.

NOTES Top of casing elev: 783.05

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:03 - \\ALTRFP01\WSHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES2015 PIEZOMETERS\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA	
						Completion: protective aluminum cover with bollards; 4-foot square concrete pad	
5		Silty Sand (SM) - very pale brown (10YR 7/3) dry, fine to coarse-grained, with mica				Surface Seal: concrete	
10		- mottled very pale brown (10YR 7/3) and white (10YR 8/1) - pale brown (10YR 6/3)				Annular Fill: cement-bentonite grout	
15		▽ - brownish yellow (10YR 6/8) - light reddish brown (2.5YR 7/3) thin banding					
20		▽ - white (10YR 8/1) wet, massive feldspar and quartz seam - light reddish brown (2.5YR 7/3) - light reddish brown (2.5YR 7/4) wet				Annular Seal: bentonite pellets	
25		▼ - mottled pale yellow (2.5Y 8/3) and white / yellowish gray (5Y 8/1)				Filter: silica filter sand	
30		- grayish brown (2.5Y 5/2) saprolite - banded pale yellow (2.5Y 7/3) and white / yellowish gray (5Y 8/1)				Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack	
35							
40						Sump:0.299999999999997 ft.	
		Bottom of borehole at 37.0 feet.					



LOG OF TEST BORING

BORING YGWA-18S
PAGE 1 OF 1
ECS37967

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
LOCATION Plant Yates

DATE STARTED 9/4/2015 COMPLETED 9/8/2015 SURF. ELEV. 787.6 COORDINATES: N: 1,257,116.05 E: 2,077,015.25

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

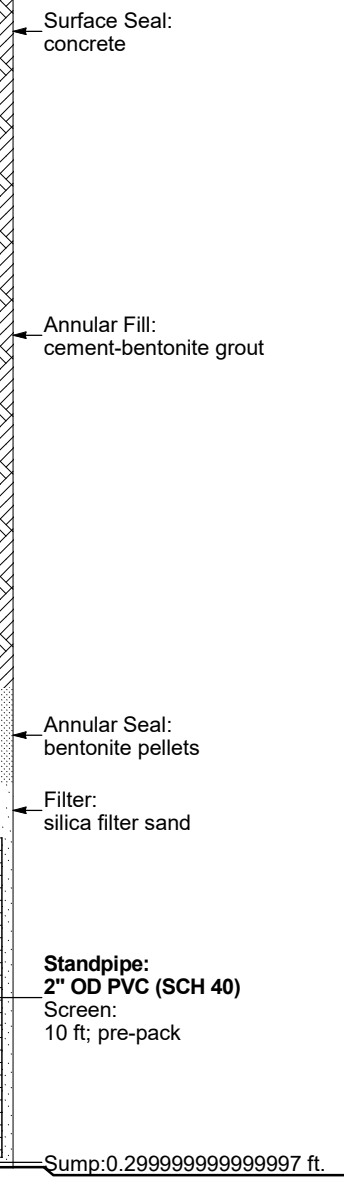
DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 37 ft. GROUND WATER DEPTH: DURING 18 ft. COMP. 19 ft. DELAYED 18.5 ft. after 24 hrs.

NOTES Top of casing elev: 790.57

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:03 - \\ALTRFP01\W\SHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES\2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
5		Clayey Sand (SC) - yellowish red (5YR 5/8) dry, no, fine to medium-grained - with mica				Completion: protective aluminum cover with bollards; 4-foot square concrete pad
10		Silty Sand (SM) - mottled reddish yellow (7.5YR 6/8) and very pale brown (10YR 8/4) dry, fine to medium-grained, with mica - mottled pale yellow (2.5Y 7/4) and very pale brown / very pale orange (10YR 8/2) dry				
15		- moist - saprolite				
20		- banded light yellowish brown (2.5Y 6/3) and white (N9) moist, fine to coarse-grained - pale olive (5Y 6/3) very moist, fine to medium-grained - mottled light yellowish brown (2.5Y 6/3) and dark olive brown (2.5Y 3/3) - mottled pale olive (5Y 6/3), dark olive brown (2.5Y 3/3) and white (N9)				
25		- wet				
30		Clayey Silty Sand (SC-SM) - pale olive / dusky yellow (5Y 6/4) saturated, fine to coarse-grained, with mica - mottled olive / moderate olive brown (5Y 4/4) and white (N9) - pale yellow (5Y 8/2)				
35		- banded olive brown (2.5Y 4/4) and white (N9) - regolith - mottled pale yellow (5Y 7/3) and pale yellow (2.5Y 8/2) wet				
40		Bottom of borehole at 37.0 feet.				





LOG OF TEST BORING

BORING YGWA-181
PAGE 1 OF 2
ECS37967

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
LOCATION Plant Yates

DATE STARTED 9/3/2015 COMPLETED 9/8/2015 SURF. ELEV. 787.9 COORDINATES: N:1,257,090.05 E: 2,077,015.82

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 77 ft. GROUND WATER DEPTH: DURING _____ COMP. 19 ft. DELAYED 18.5 ft. after 24 hrs.

NOTES Top of casing elev: 790.57

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:03 - \\ALTRFP01\W\SHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES\2015 PIEZOMETERS\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
5		Clayey Sand (SC) - olive / light olive brown (5Y 5/6) moist, fine to coarse-grained				Completion: protective aluminum cover with bollards; 4-foot square concrete pad
10		Silty Sand (SM) - mottled strong brown (7.5YR 5/6) and very pale brown / grayish orange (10YR 7/4) dry, fine to coarse-grained, with mica - pale yellow (2.5Y 8/3) dry, some residual quartz gravel - pale yellow (2.5Y 7/3)				
15		- mottled pale yellow (2.5Y 7/3) and yellow (2.5Y 7/6) - mottled light brownish gray (2.5Y 6/2) and light gray (2.5Y 7/1) damp				
20		Clayey Silty Sand (SC-SM) - mottled pale yellow (2.5Y 7/4) and white / yellowish gray (5Y 8/1) wet, fine to coarse-grained, massive white quartz+feldspar (completely weathered), with mica - mottled pale yellow (2.5Y 7/3) and white (2.5Y 8/1)				Annular Fill: cement-bentonite grout
25		- white / yellowish gray (5Y 8/1) fine to coarse-grained, massive white quartz+feldspar (completely weathered), with mica - pale olive (5Y 6/3)				
30		- banded light olive gray (5Y 6/2) and white (2.5Y 8/1) wet, fine to coarse-grained, with mica - banded light yellowish brown (2.5Y 6/3) and white (2.5Y 8/1)				
35		- saprolite				
40		- mottled light gray (2.5Y 7/2) and white (2.5Y 8/1) wet, fine to coarse-grained				

(Continued Next Page)



LOG OF TEST BORING

BORING YGWA-181
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 ECS37967

SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
 LOCATION Plant Yates

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:03 - \\VALTR0FP01\W\SHAUGNE\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES\2015 PIEZOMETERS\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
						Completion: protective aluminum cover with bollards; 4-foot square concrete pad
45		Clayey Silty Sand (SC-SM) (Con't) - mottled light gray (2.5Y 7/2) and white / yellowish gray (5Y 8/1) massive quartz+feldspar - mottled dark yellowish brown (10YR 4/6) and very dark gray (10YR 3/1) weathered schist seam - mottled light gray (2.5Y 7/2) and white (2.5Y 8/1)				(CONTINUED)
50		Silty Sand (SM) - brown (10YR 5/3) wet, cohesive, fine to coarse-grained				
55		Granitic gneiss - transition zone, quartz, interbedded with mica schist - pale yellow (2.5Y 7/3) slightly to completely weathered, with gravelly silty sand (weathered zones) - dark yellowish brown (10YR 4/6) and pale yellow (2.5Y 7/3) fine to coarse grain, medium hard, slightly to completely weathered				Annular Fill: cement-bentonite grout Annular Seal: bentonite pellets Filter: silica filter sand Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack Sump: 0.299999999999997 ft.
60		- yellowish brown (10YR 5/6) and very dark greenish gray (10G 3/1) coarse grain, soft to medium hard, highly weathered, thinly foliated, moderately fractured, fractures sub-horizontal, separates at foliation planes, feldspar, quartz, mica, water stained - dark greenish gray (10BG 4/1) and light bluish gray (5PB 7/1) slightly weathered - yellowish brown (10YR 5/6) and very dark gray (10YR 3/1) highly weathered				
65		- highly weathered, water stained				
70		- grayish brown (10YR 5/2) and black (5Y 2.5/1) coarse grain, moderately weathered, thinly foliated, moderately fractured, fractures sub-horizontal - brownish yellow (10YR 6/8) and white (10R 8/1) - white (10R 8/1) massive feldspar and quartz seam				
75		- grayish brown (10YR 5/2) and white (10R 8/1) massive quartzite seam - thinly foliated - bluish gray (5PB 6/1) and white (10R 8/1) not weathered, fresh competent rock				
		Bottom of borehole at 77.0 feet.				
80						
85						



LOG OF TEST BORING

BORING YGWA-20S
PAGE 1 OF 1
ECS37967

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers

LOCATION Plant Yates

DATE STARTED 9/28/2015 COMPLETED 9/29/2015 SURF. ELEV. 764.6 COORDINATES: N:1,255,531.55 E: 2,077,410.37

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 27 ft. GROUND WATER DEPTH: DURING 7 ft. COMP. 6.5 ft. DELAYED 6.5 ft. after 24 hrs.

NOTES Top of casing elev: 767.12

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:04 - \\VALTRGFP01\W\SHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES\2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
5		Clayey Silty Sand (SC-SM) - dark grayish brown (2.5Y 4/2) wet, fine grained - very pale brown (10YR 7/3) and yellowish brown / moderate yellowish brown (10YR 5/4) fine to coarse-grained, with quartzite gravel - mottled very pale brown (10YR 7/3) and reddish yellow (7.5YR 7/8) moist - moist				Completion: protective aluminum cover with bollards; 4-foot square concrete pad
10		Silty Sand (SM) - mottled light yellowish brown (2.5Y 6/3) and pale yellow (2.5Y 8/3) very moist, fine to coarse grained - dark grayish brown / dark yellowish brown (10YR 4/2) - mottled brownish yellow / dark yellowish orange (10YR 6/6) and white (10YR 8/1)				Surface Seal: concrete Annular Fill: cement-bentonite grout
15						Annular Seal: bentonite pellets Filter: silica filter sand
20		Silty Sand (SM) - mottled brownish yellow / dark yellowish orange (10YR 6/6) and white (10YR 8/1) saprolite wet, fine to coarse-grained - light yellowish brown (2.5Y 6/3), pale yellow (2.5Y 8/2) and white (2.5Y 8/1)				Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack
25		Clayey Silty Sand (SC-SM) - mottled white (2.5Y 8/1) and pinkish white (5YR 8/2) moist, massive weathered feldspar and quartzite				Sump: 0.300000000000001 ft.
Bottom of borehole at 27.0 feet.						
30						
35						
40						



LOG OF TEST BORING

BORING YGWA-211
PAGE 1 OF 2
ECS37967

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
LOCATION Plant Yates

DATE STARTED 9/23/2015 COMPLETED 9/28/2015 SURF. ELEV. 780.8 COORDINATES: N:1,255,538.27 E: 2,076,768.14

CONTRACTOR Cascade EQUIPMENT _____ METHOD Rotosonic

DRILLED BY L. Yancey LOGGED BY W. Shaughnessy CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 77 ft. GROUND WATER DEPTH: DURING _____ COMP. 24 ft. DELAYED 24 ft. after 48 hrs.

NOTES Top of casing elev: 783.7

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:04 - \\ALTRCF01\WSHAUGHNESSY\DESKTOP\PLANTS PROJECTS\GEORGIA POWER\YATES\2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION <small>Weak Moderate Strong</small>	GROUNDWATER OBSERVATIONS	WELL DATA
						Completion: protective aluminum cover with bollards; 4-foot square concrete pad
5		Clayey Sand (SC) - mottled strong brown (7.5YR 5/6) and yellowish red / light brown (5YR 5/6) dry, fine to coarse-grained, mica Silty Sand (SM) - reddish yellow (7.5YR 6/8) soil fine to coarse-grained Well-graded Sand (SW) - very pale brown (10YR 7/3) fine to coarse-grained, mica, gravel (residual rock)				Surface Seal: concrete
10		Poorly-graded Sand with Silt (SP-SM) - pale yellow (2.5Y 8/3) and pale yellow (2.5Y 8/2) dry - fine to medium-grained - yellow (2.5Y 7/6)				
15		Silty Sand (SM) - mottled yellow (2.5Y 7/6), white (2.5Y 8/1) and olive brown (2.5Y 4/4) saprolite weathered schist, feldspar, quartz, fine to coarse-grained				
20		Poorly-graded Sand with Silt (SP-SM) - mottled white (2.5Y 8/1) and yellowish brown / moderate yellowish brown (10YR 5/4) dry, fine to medium-grained - highly decomposed granitic gneiss interbedded with biotite schist - mottled olive brown (2.5Y 4/3) and white (2.5Y 8/1)				Annular Fill: cement-bentonite grout
25		- yellowish brown / moderate yellowish brown (10YR 5/4) - mottled light olive brown (2.5Y 5/4) and pale yellow (2.5Y 8/3) moist, highly decomposed mica scist - mottled white (2.5Y 8/1) and pale brown (10YR 6/3) dry, highly decomposed granitic gneiss, feldspar quartz, mica				
35		Well-graded Sand (SW) - mottled brown (10YR 4/3) and pale yellow (2.5Y 8/2) moist, fine to coarse grained, mica, quartz - Granitic gneiss interbedded with biotite gneiss: mottled light gray (2.5Y 7/2) and white (2.5Y 8/1) - Bedrock transition zone				
40						

(Continued Next Page)



LOG OF TEST BORING

BORING YGWA-211
 PAGE 2 OF 2
 ECS37967

SOUTHERN COMPANY SERVICES, INC.
 EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT CCR Piezometers
 LOCATION Plant Yates

SIMPLE GEOLOGY WITH WELL - ESEE DATABASE.GDT - 11/15/15 12:04 - \\ALTR0FP01\W\SHAUGNES\DESKTOP\PIANTS PROJECTS\GEORGIA POWER\YATES2015 PIEZOMETERS\YATES 2015 PZS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	HCL REACTION Weak Moderate Strong	GROUNDWATER OBSERVATIONS	WELL DATA
						Completion: protective aluminum cover with bollards; 4-foot square concrete pad
45		(Cont) - white (2.5Y 8/1) and dark grayish brown (2.5Y 4/2) coarse grain, soft to hard, slightly to moderately weathered, medium to thick foliation, banded, moderately fractured (vertical to sub-vertical)				(CONTINUED) Annular Fill: cement-bentonite grout Annular Seal: bentonite pellets Filter: silica filter sand Standpipe: 2" OD PVC (SCH 40) Screen: 10 ft; pre-pack Sump: 0.299999999999997 ft.
50		- white (2.5Y 8/1), dark grayish brown (2.5Y 4/2) and pale yellow (2.5Y 7/3) coarse grain, soft to hard, not to highly weathered, medium to thick foliation, banded, moderately fractured (near vertical), biotite gneiss				
55						
60		- gray (2.5Y 6/1), dark gray (2.5Y 4/1) and white (2.5Y 8/1) coarse grain, not to highly weathered, thin to medium foliation, moderately fractured (vertical to sub-vertical), pyrite, biotite, feldspar, quartz - pale yellow / grayish yellow (5Y 8/4)				
65						
70		- very dark gray (2.5Y 3/1) and white (2.5Y 8/1) coarse grain, not to slightly weathered, thin to medium foliation, moderately fractured (vertical to sub-vertical)				
75						
80		Bottom of borehole at 77.0 feet.				
85						

Boring Log/Well Construction Log

Project Name: Plant Yates Date Started: 06/03/2020 Logger: Clement Papafio
 Project Number: 30055278 Date Completed: 06/04/2020 Editor: Grant Willford
 Project Location: Newnan, GA Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
0									
1							(0.0-13.0') No recovery. Hydrovac to 13.0 ft bgs for borehole clearance.	Surface completion consists of a locking monument 3.00' above ground surface with a weep hole, vent hole in well casing, pea gravel between well monument and well casing, 4'x4'x4" concrete pad, and four concrete bollards. Portland Cement with 6% Bentonite. 2 inch diameter schedule 40 PVC riser.	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14							(13.0-16.0') Silty sand (SM); pale brown (10YR 8/3) mottled with white (10YR 8/1); fine grained sand to medium grained sand; very loose; mics present; weathered quartz vein present; saprolitic; moist.		
15							(16.0-19.0') Silty sand (SM); brownish yellow (10YR 6/8); trace clay; loose; slight plasticity; mica present; moist.		
16							(19.0-29.0') Silty sand (SM); brownish yellow (10YR 6/8); fine grained to medium grained sand; mica present; weathered quartz vein present; oxidised iron present; saprolitic; dry.		
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									

Drilling Co.: Cascade Drilling Sampling Method: Core Barrel
 Driller: Ike Young Sampling Interval: Continuous
 Drilling Method: Rotosonic Water Level Start (ft. bgs.): _____
 Drilling Fluid: Water Water Level Finish (ft. btoc.): _____
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; Converted to Well: Yes No
 NA = not applicable / available. Surface Elev.: 762.00
 North Coord.: 1258907.98
 East Coord.: 2073924.81

MPC BORING LOGS TO GINT.L C:\USERS\G\WILLFORD\DESKTOP\FOR NIKKI\GINT FILES\MPC BORING LOGS PASF.P.GPJ ARCADIS.GDT 7/17/20

Boring Log/Well Construction Log

Project Name: Plant Yates Date Started: 06/03/2020 Logger: Clement Papafio
 Project Number: 30055278 Date Completed: 06/04/2020 Editor: Grant Willford
 Project Location: Newnan, GA Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
30							(29.0-39.0') Silty sand (SM); yellowish brown (10YR 5/8); fine grained to medium grained sand; loose to medium dense; mica present; feldspars present.	Portland Cement with 6% Bentonite. 2 inch diameter schedule 40 PVC riser.	
31							(34.0-36.0') Color change to dark brown (10YR 3/3); medium dense; dry.		
32							(36.0-39.0') Color change to white (10YR 8/1); oxidised iron present. (37.0-37.5') Weathered quartz vein.		
33							(39.0-49.0') Silty sand (SM); mottled pale brown (10YR 6/3) with yellow (10YR 8/8); mica present; wet.	Bentonite seal.	
34							(41.0-49.0') Color change to yellowish brown (10YR 5/8); quartz seam present; moist.		
35									
36							(49.0-54.0') Silty sand (SM); light olive gray (5Y 6/2); fine grained to coarse grained sand; loose; mica present; weathered quartz vein present; wet.	Filter pack: #1A (12-40) sand.	
37									
38									
39								2 inch diameter Sch. 40 PVC U-Pack dual wall 0.010-inch slotted screen	
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55							End of boring 54.0 ft bgs.		
56									
57									
58									
59									
60									
61									
62									

Remarks: _____

Soil Boring Log

Project Name: Yates Date Started: 09/21/2020 Logger: Becky Steever
 Project Number: 30061098 Date Completed: 09/22/2020 Editor: Geoff Gay
 Project Location: Newnan, Georgia Weather Conditions: Sunny & Warm

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Well Construction		
								TOC Elev. 740.88		
1							(0-8.0'): Fill, Silty Clayey Sand (SM); tan to orange-red; fine grained to medium grained sand; no staining/odor; wet		Aluminum Stick-up with 4x4 Pad	
2										
3										
4										
5										
6										
7										
8										
9							(8.0-10'): Sand; tan to medium gray; medium grained sand; no staining/odor; some silt; moist			
10										
11							(10-14'): Silty Sandy Clay; mottled gray; orange, tan, and brown; saprolite, relict structure; fine grained sand; dry			
12										
13										
14										
15							(14-35); Silty Sand (SM); medium brown; fine to medium grained sand; no staining/odor; wet			
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										

Drilling Co.: Cascade Sampling Method: Cont.
 Driller: _____ Sampling Interval: Cont.
 Drilling Method: Sonic Water Level Start: 14
 Drilling Fluid: None Water Level Finish: 12.1
 Remarks: _____ Converted to Well: Yes No
 Surface Elev.: 737.7
 North Coord.: 1258547.74
 East Coord.: 2073748.73

SOIL BORING LOG C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\PROJECT FILE\2.GPJ\ARCADIS.GDT 11/11/20

Soil Boring Log

Project Name: Yates

Date Started: 09/21/2020

Logger: Becky Steever


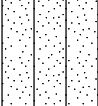
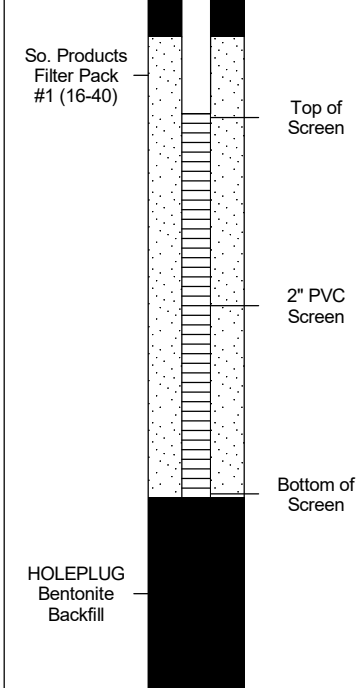

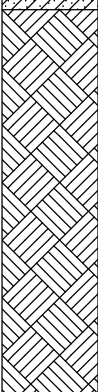
Project Number: 30061098

Date Completed: 09/22/2020

Editor: Geoff Gay

Project Location: Newnan, Georgia

Weather Conditions: Sunny & Warm

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Well Construction	
36							(35-38'); Silty Sand (SM); brown to gray; fine to medium grained sand; no staining/odor; slightly moist	 <p>So. Products Filter Pack #1 (16-40)</p> <p>Top of Screen</p> <p>2" PVC Screen</p> <p>Bottom of Screen</p> <p>HOLEPLUG Bentonite Backfill</p>	
37									Same as above, some clay
38									
39							Pulverized rock sand; pale gray; some fine plagioclase gravel; fine grained sand		
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
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62									
63									
64									
65									
66									
67									
68									
69									
70									
71									
72									

Remarks:

RECORD OF BOREHOLE YGWC-38/PZ-38

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 67.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/20/16
 DATE COMPLETED: 7/23/16

NORTHING: 1,256,108.38
 EASTING: 2,074,446.80
 GS ELEVATION: 797.1
 TOC ELEVATION: 799.69 ft

DEPTH W.L.: 26.35 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/23/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC			
0	795	0.00 - 1.00 silty SAND, goethite, loose, moist	SM		796.10	1			WELL CASING Interval: 0.0'-37.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded				
		1.00 - 8.00 tan to brown, mottled, loose, dry			1.00								
5	790								WELL SCREEN Interval: 37.0'-47.0' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC				
		8.00 - 9.00 white to tan, plagioclase, loose, dry											
10	785	9.00 - 27.00 tan to brown, mottled, micaceous, loose, dry			789.10	2			FILTER PACK Interval: 35.0'-48.0' Type: #1 Type Sand				
					8.00 788.10 9.00								
15	780								FILTER PACK SEAL Interval: 30.0'-35.0' Type: Bentonite Pellets and Chips				
20	775					3			ANNULUS SEAL Interval: 0.0'-30.0' Type: Portland Type 1				
25	770								WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum				
		27.00 - 34.00 brown to tan, relict structure, moist to wet, loose (saprolite)			770.10 27.00								
30	765					4			DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic				
35	760	34.00 - 37.00 transitionally weathered rock - weathered GNEISS to high grade SCHIST, garnet, muscovite, biotite, recrystallization, fractured, friable	PWR		763.10 34.00				1/2" Bentonite Pellets				
40	755	37.00 - 39.00 bedrock - muscovite/biotite GNEISS, hornblende, fresh	GNEISS		760.10 37.00	5			0.010" Slotted Screen				
		39.00 - 40.00 muscovite/biotite GNEISS, hornblende, iron staining			758.10 39.00								
		40.00 - 56.00 muscovite/biotite GNEISS, hornblende, fresh			757.10 40.00								
45	750					6			#1 Type Sand				
50									Sump				

BOREHOLE RECORD - YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

Log continued on next page

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Kirk Fraley
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-38/PZ-38





SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 67.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/20/16
 DATE COMPLETED: 7/23/16

NORTHING: 1,256,108.38
 EASTING: 2,074,446.80
 GS ELEVATION: 797.1
 TOC ELEVATION: 799.69 ft

DEPTH W.L.: 26.35 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/23/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
50	745	40.00 - 56.00 muscovite/biotite GNEISS, hornblende, fresh <i>(Continued)</i>			741.10 56.00	6		6.00 10.00	
55	740	56.00 - 58.00 muscovite/biotite GNEISS, hornblende, iron staining			739.10 58.00				
60	735	58.00 - 67.00 muscovite/biotite GNEISS, hornblende, fresh			730.10	7	7.00 10.00		
65	730	Boring completed at 67.00 ft							
70	725								
75	720								
80	715								
85	710								
90	705								
95	700								
100									

BOREHOLE RECORD: YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Kirk Fraley
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWA-39/PZ-39

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 66.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/6/16
 DATE COMPLETED: 7/7/16

NORTHING: 1,255,717.13
 EASTING: 2,073,865.58
 GS ELEVATION: 815.6
 TOC ELEVATION: 818.19 ft

DEPTH W.L.: 19.15 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0	815	0.00 - 0.40 topsoil	TOPSOIL		0.40				WELL CASING Interval: 0.0'-55.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 55.5'-65.5' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" Slotted Screen End Cap: Schedule 40 PVC FILTER PACK Interval: 52.5'-66.0' Type: #1 Type Sand FILTER PACK SEAL Interval: 47.5'-52.5' Type: Bentonite Pellets and Chips ANNULUS SEAL Interval: 0.0'-47.5' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic
		0.40 - 7.00 poorly sorted SAND with SILT, trace gravel, tan, mica fragments, dry, firm	SP-SM		7.00	1		7.00 7.00	
5	810	7.00 - 17.00 some silt, tan, dry, firm			808.6 7.00				
10	805				798.6 17.00				
		17.00 - 19.00 silty SAND, non-plastic fines, orange tan, micaceous, cohesive, firm	SM		796.6 19.00	3		4.00 4.00	
20	795	19.00 - 21.00 poorly graded SAND with SILT, non-plastic fines, moist, firm	SP-SM		794.6 21.00				
		21.00 - 24.00 silty SAND, 15-20% fines, orange tan with iron staining, wet (saprolite)	SM		791.6 24.00	4		6.00 6.00	
25	790	24.00 - 29.00 SAND to silty SAND, some fines, mica, orange tan to tan, severely weathered fragments, dry to moist (saprolite)	SP-SM		786.6 29.00				
30	785	29.00 - 32.00 transitionally weathered rock - sand, some gravel, tan, rock seams, iron staining	PWR		783.6 32.00 782.6	5		3.80 6.00	
		32.00 - 33.00 pulverized GNEISS, tan			782.6 33.00				
35	780	33.00 - 37.00 bedrock - biotite GNEISS, fresh to medium weathered, medium strong to extremely strong, iron stains and deposits	GNEISS		778.6 37.00	6		4.00 4.00	
		37.00 - 39.00 biotite GNEISS, severely weathered, iron staining and deposits			776.6 39.00				
40	775	39.00 - 43.00 biotite GNEISS, severely weathered, sand layers noted iron staining and deposits			772.6 43.00				
		43.00 - 47.00 biotite GNEISS, severely weathered, iron staining and deposits			768.6 47.00	7		7.00 10.00	
50	770	47.00 - 57.00 biotite GNEISS, fresh to slightly weathered, medium strong to extremely strong							

BOREHOLE RECORD: YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

Log continued on next page

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWA-39/PZ-39

SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 66.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/6/16
 DATE COMPLETED: 7/7/16

NORTHING: 1,255,791.95
 EASTING: 2,073,431.34
 GS ELEVATION: 815.6
 TOC ELEVATION: 818.19 ft

DEPTH W.L.: 19.15 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
50	765	47.00 - 57.00 biotite GNEISS, fresh to slightly weathered, medium strong to extremely strong (<i>Continued</i>)				7			<p>WELL CASING Interval: 0.0'-55.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 55.5'-65.5' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" Slotted Screen End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 52.5'-66.0' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 47.5'-52.5' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-47.5' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
55	760	57.00 - 66.00 biotite GNEISS, fresh to moderately weathered, discoloration, iron stains, medium strong to extremely strong			758.6 57.00		8		
60	755								
65	750				749.6				
		Boring completed at 66.00 ft							
70	745								
75	740								
80	735								
85	730								
90	725								
95	720								
100									

BOREHOLE RECORD_YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWA-40/PZ-40


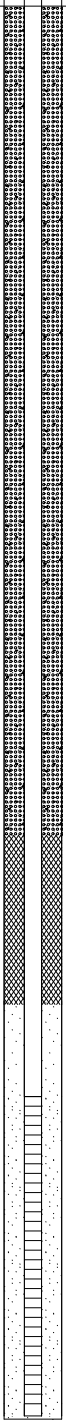


SHEET 1 of 1

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 46.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/6/16
 DATE COMPLETED: 7/7/16

NORTHING: 1,255,791.95
 EASTING: 2,073,431.34
 GS ELEVATION: 813.5
 TOC ELEVATION: 815.73 ft

DEPTH W.L.: 23.1 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0		0.00 - 2.00 sandy SILT, fine to medium sand, reddish brown, low plastic	SM		811.5				WELL CASING Interval: 0.0'-35.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 35.5'-45.5' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" Slotted Screen End Cap: Schedule 40 PVC FILTER PACK Interval: 32.5'-46.0' Type: #1 Type Sand FILTER PACK SEAL Interval: 27.0'-32.5' Type: Bentonite Pellets and Chips ANNULUS SEAL Interval: 0.0'-27.0' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic	
810		2.00 - 6.00 fine to medium sand, light orange brown, micaceous, dry, loose			2.00	1				6.00 6.00
5		6.00 - 16.00 fine to coarse sand, low plastic silt, some gravel, brown grey to grey, corasening downward, relict laminations, more dense with depth, saprolitic, dry			807.5	2				12.00 10.00
805		16.00 - 17.00 coarse, competent	PWR		797.5			Portland Type 1 Bentonite Pellets and Chips 0.010" Slotted Screen #1 Type Sand Sump		
800		17.00 - 19.00 transitionally weathered rock - highly weathered GNEISS, red, white, dark brown			16.00 796.5	3			3.00 3.00	
795		19.00 - 36.00 highly weathered biotite GNEISS, oxidized staining			17.00	4			7.00 7.00	
790					794.5	5			10.00 10.00	
25					777.5	6			9.00 10.00	
785		36.00 - 46.00 bedrock - biotite GNEISS, some weathering, trace pyrite	GNEISS		36.00					
780										
35										
775										
40										
770										
45										
765										
50		Boring completed at 46.00 ft								

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Adam M.

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWC-41/PZ-41

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 64.50 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/7/16
 DATE COMPLETED: 7/8/16

NORTHING: 1,256,510.62
 EASTING: 2,073,274.41
 GS ELEVATION: 801.1
 TOC ELEVATION: 803.92 ft

DEPTH W.L.: 22.1 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: 07:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	ELEV.	SAMPLE NO.	TYPE		
0	800	0.00 - 2.00 sandy SILT, dark reddish brown, severely weathered gneiss, dry	ML		799.10	1		4.00 4.00		WELL CASING Interval: 0.0'-54.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 54.0'-64.0' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 51.0'-64.5' Type: #1 Type Sand FILTER PACK SEAL Interval: 45.5'-51.0' Type: Bentonite Pellets and Chips ANNULUS SEAL Interval: 0.0'-45.5' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic
		2.00 - 4.00 silty SAND, light brown, dry, non-cohesive	SM		797.10					
5	795	4.00 - 14.00 light brown, quartz sand at ~5', dry			4.00					
					787.10	2		10.00 10.00		
10	790				14.00					
		14.00 - 24.00 light brown, dry			787.10					
15	785				24.00	3		9.00 10.00		
		24.00 - 29.00 trace gravel, sand coarsening, light brown, dry			777.10					
20	780				772.10	4		5.00 5.00		
		29.00 - 38.00 transitionally weathered rock - highly weathered biotite/muscovite GNEISS	PWR		29.00			5.00 5.00		
25	775				763.10	6		5.00 5.00		
		38.00 - 39.00 more competent			38.00 762.1					
30	770	39.00 - 44.00 bedrock - biotite GNEISS, red to orange staining	GNEISS		39.00	7		4.00 5.00		
35	765				757.10					
		44.00 - 54.00 transitionally weathered rock - highly weathered biotite GNEISS, red oxide staining	PWR		44.00	8		5.00 10.00		
40	760									
45	755									
50		Log continued on next page								

BOREHOLE RECORD_YATES BORING LOGS.GPJ_PIEDMONT.GDT 9/26/17

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

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-41/PZ-41

SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 64.50 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/7/16
 DATE COMPLETED: 7/8/16

NORTHING: 1,256,510.62
 EASTING: 2,073,274.41
 GS ELEVATION: 801.1
 TOC ELEVATION: 803.92 ft

DEPTH W.L.: 22.1 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: 07:30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
50	750	44.00 - 54.00 transitionally weathered rock - highly weathered biotite GNEISS, red oxide staining (<i>Continued</i>)	PWR	[Blue triangles]	747.10	8		<p style="font-size: small;">0.010" Slotted Screen</p> <p style="font-size: small;">#1 Type Sand</p> <p style="font-size: small;">Sump</p>	<p>WELL CASING Interval: 0.0'-54.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 54.0'-54.0' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 51.0'-64.5' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 45.5'-51.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-45.5' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
55	745	54.00 - 64.00 bedrock - biotite GNEISS, vertical oxide staining along fractures	GNEISS	[Red wavy lines]	54.00	9	5.00 10.00		
60	740				737.10		8.00 10.00		
65	735	Boring completed at 64.50 ft			64.00				
70	730								
75	725								
80	720								
85	715								
90	710								
95	705								
100									

BOREHOLE RECORD_YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

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

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWC-42/ PZ-42

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 57.00 ft
 LOCATION: Newman, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/7/16
 DATE COMPLETED: 7/8/16

NORTHING: 1,256,882.87
 EASTING: 2,073,326.52
 GS ELEVATION: 795.1
 TOC ELEVATION: 797.86 ft

DEPTH W.L.: 26.2 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0	795	0.00 - 3.00 silty SAND, plastic fines, orange brown, micaceous, firm, decreasing moisture with depth	SM		792.10 3.00	1		7.00 7.00	<p>WELL CASING Interval: 0.0'-47' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 46.6'-56.6' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 46.0'-57.0' Type: #1 Sand</p> <p>FILTER PACK SEAL Interval: 37.5'-46.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-37.5' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
5	790	3.00 - 7.00 poorly graded SAND, some silt, tan to black, white to red, micaceous, dry	SP		788.10 7.00				
		7.00 - 10.50 some silt, tan to black, white to red, dry			784.60 10.50	2		10.00 10.00	
10	785	10.50 - 18.00 some silt, tan to black, white to red, increasing biotite, dry			777.10 18.00				
		18.00 - 19.00 silty SAND, red seam	SM		776.10 19.00				
		19.00 - 27.00 poorly graded SAND, some silt, tan to black, white to red, plagioclase, dry	SP		768.10 27.00	3		10.00 10.00	
20	775				765.10 30.00				
		27.00 - 30.00 no recovery			761.10 34.00	4		5.00 10.00	
25	770	30.00 - 34.00 bedrock - biotite GNEISS, fresh to moderately weathered, medium strong to extremely strong, foliated	GNEISS		758.10 37.00				
		34.00 - 37.00 biotite GNEISS, increased biotite, fresh to moderately weathered, medium strong to extremely strong, foliated			755.10 40.00	5		8.00 10.00	
30	765	37.00 - 40.00 biotite GNEISS, fresh to moderately weathered, medium strong to extremely strong, fractured, foliated			745.10	6		6.00 10.00	
35	760	40.00 - 50.00 biotite GNEISS, fresh to moderately weathered, medium strong to extremely strong, foliated							
40	755								
45	750								
50									

BOREHOLE RECORD - YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

Log continued on next page

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-42/ PZ-42

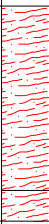
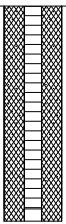

SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 57.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/7/16
 DATE COMPLETED: 7/8/16

NORTHING: 1,256,882.87
 EASTING: 2,073,326.52
 GS ELEVATION: 795.1
 TOC ELEVATION: 797.86 ft

DEPTH W.L.: 26.2 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/8/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
50	745	50.00 - 56.00 biotite GNEISS, fresh to moderately weathered, iron staining, medium strong to extremely strong, foliated			50.00			 <p>0.010" Slotted - Screen</p>	<p>WELL CASING Interval: 0.0'-47' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 46.6'-56.6' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 46.0'-57.0' Type: #1 Sand</p> <p>FILTER PACK SEAL Interval: 37.5'-46.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-37.5' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
55	740	56.00 - 57.00 biotite GNEISS, fresh to moderately weathered, iron staining, medium strong to extremely strong, foliated, stained, fractured			739.10				
		Boring completed at 57.00 ft			56.00 738.10	6	6.00 10.00		
60	735								
65	730								
70	725								
75	720								
80	715								
85	710								
90	705								
95	700								
100									

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-43/ PZ-43

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 77.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/8/16
 DATE COMPLETED: 7/9/16

NORTHING: 1,257,547.41
 EASTING: 2,073,199.65
 GS ELEVATION: 742.3
 TOC ELEVATION: 744.96 ft

DEPTH W.L.: 30.5 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/9/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
0	745	0.00 - 5.00 SAND to silty SAND, 10-15% fines, red to tan to brown, micaceous, dry to moist	SM		737.30				WELL CASING Interval: 0.0'-66.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 66.5'-75.5' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 63.7'-77.0' Type: #1 Sand FILTER PACK SEAL Interval: 58.5'-63.7' Type: Bentonite Pellets and Chips ANNULUS SEAL Interval: 0.0'-58.5' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic	
5	740	5.00 - 6.00 10-15% fines, red to tan to brown, plagioclase, micaceous, dry to moist			5.00					8.00
		6.00 - 14.00 10-15% fines, red to tan to brown, micaceous, dry to moist			736.30					8.00
10	735									
15	730	14.00 - 28.00 transitionally weathered rock - feldspathic GNEISS, moderately to highly weathered, medium strong to extremely strong, discolored, iron stains and deposits	PWR		14.00					
20	725									8.00
										9.00
25	720									
30	715	28.00 - 33.00 bedrock - feldspathic GNEISS, fresh to slightly weathered, medium strong to extremely strong, discolored, iron stains and deposits	GNEISS		714.30				Portland Type 1	
										3.50
										4.00
35	710	33.00 - 38.00 feldspathic GNEISS, fresh to lightly weathered, medium strong to extremely strong, fabric, discolored, some iron stains and deposits			709.30					
					33.00				10.00	
									10.00	
40	705	38.00 - 77.00 feldspathic GNEISS, fresh, olive colored mineral, some garnet, quartz, biotite			704.30					
					38.00				10.00	
									10.00	
45	700									
50										

Log continued on next page

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-43/ PZ-43


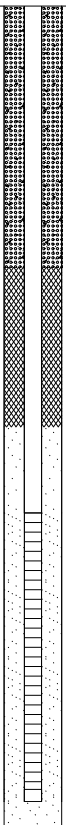
SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 77.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/8/16
 DATE COMPLETED: 7/9/16

NORTHING: 1,257,547.41
 EASTING: 2,073,199.65
 GS ELEVATION: 742.3
 TOC ELEVATION: 744.96 ft

DEPTH W.L.: 30.5 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/9/2016
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC	
50	695	38.00 - 77.00 feldspathic GNEISS, fresh, olive colored mineral, some garnet, quartz, biotite (Continued)						<div style="text-align: center;">  </div>	<p>WELL CASING Interval: 0.0'-66.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 66.5'-75.5' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 63.7'-77.0' Type: #1 Sand</p> <p>FILTER PACK SEAL Interval: 58.5'-63.7' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-58.5' Type: Portlant Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>		
										10.00	
55	690									10.00	
60	685									10.00	Bentonite Pellets and Chips
65	680									10.00	0.010" Slotted Screen
70	675					7.00	#1 Type Sand				
75	670					10.00	Sump				
		Boring completed at 77.00 ft			665.30						
80	665										
85	660										
90	655										
95	650										
100											

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Courtney Vissman
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWC-49/ PZ-49

SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 75.90 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/12/16
 DATE COMPLETED: 7/13/16

NORTHING: 1,259,375.23
 EASTING: 2,074,337.51
 GS ELEVATION: 780.1
 TOC ELEVATION: 782.73 ft

DEPTH W.L.: 26.95 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/13/2016
 TIME W.L.: 15:26

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 10.00 No recovery; Hydrovac						Portland Type I	<p>WELL CASING Interval: 0.0'-65.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 65.4-75.4 Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 63.3'-75.9' Type: #1 Sand</p> <p>FILTER PACK SEAL Interval: 58.7'-62.2' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-58.7' Type: N/A</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
5	775								
10	770	10.00 - 16.00 silty SAND, fine sand, greyish brown to reddish brown, non-cohesive, dry, loose	SM	10.00	1		6.00 6.00		
15	765								
20	760	16.00 - 26.00 No recovery due to soil washing out of core barrel		16.00			0.00 10.00		
25	755			754.0					
30	750	26.00 - 36.00 silty SAND, dark brown to grayish brown, relict laminations, fully weathered schist, dry, loose (saprolite)	SM	26.00	3		10.00 10.00		
35	745			774.0					
40	740	36.00 - 46.00 softer zone		36.00			9.00 10.00		
45	735			734.0					
50	730	46.00 - 54.00 some silt and some gravel increasing with depth, mottled dark brown to orange, relict laminations, dry, loose (saprolite)	SP	46.00	5		8.00 8.00		

Log continued on next page

BOREHOLE RECORD_YATES BORING LOGS.GPJ_PIEDMONT.GDT 9/26/17

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

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-49/ PZ-49

SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 75.90 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/12/16
 DATE COMPLETED: 7/13/16

NORTHING: 1,259,375.23
 EASTING: 2,074,337.51
 GS ELEVATION: 780.1
 TOC ELEVATION: 782.73 ft

DEPTH W.L.: 26.95 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/13/2016
 TIME W.L.: 15:26

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE			REC
50		46.00 - 54.00 some silt and some gravel increasing with depth, mottled dark brown to orange, relict laminations, dry, loose (saprolite) <i>(Continued)</i>	SP	[Dotted Pattern]	726.0	5		8.00 8.00	<p style="font-size: small;">Bentonite Pellets and Chips</p> <p style="font-size: small;">#1 Sand</p> <p style="font-size: small;">0.010" Slotted Screen</p> <p style="font-size: small;">Sump</p>	<p>WELL CASING Interval: 0.0'-65.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 65.4'-75.4' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 63.3'-75.9' Type: #1 Sand</p> <p>FILTER PACK SEAL Interval: 58.7'-62.2' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-58.7' Type: N/A</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
55	725	54.00 - 65.00 transitionally weathered rock -biotite mica SCHIST, deeply stained, highly weathered, friable		[Triangle Pattern]	54.00					
60	720		PWR	[Triangle Pattern]		6	0.50 11.00			
65	715	65.00 - 76.00 highly fractured		[Triangle Pattern]	715.0 65.00					
70	710			[Triangle Pattern]		7	2.00 11.00			
75	705			[Triangle Pattern]	704.0 76.00					
		Boring completed at 75.90 ft								
80	700									
85	695									
90	690									
95	685									
100	680									

BOREHOLE RECORD: YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

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

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17





LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-6S/PZ-6S

PAGE 1 OF 1
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DATE STARTED 4/22/2014 COMPLETED 5/19/2014 SURF. ELEV. 779.8 COORDINATES: N: 1,260,484.87 E: 2,074,786.49

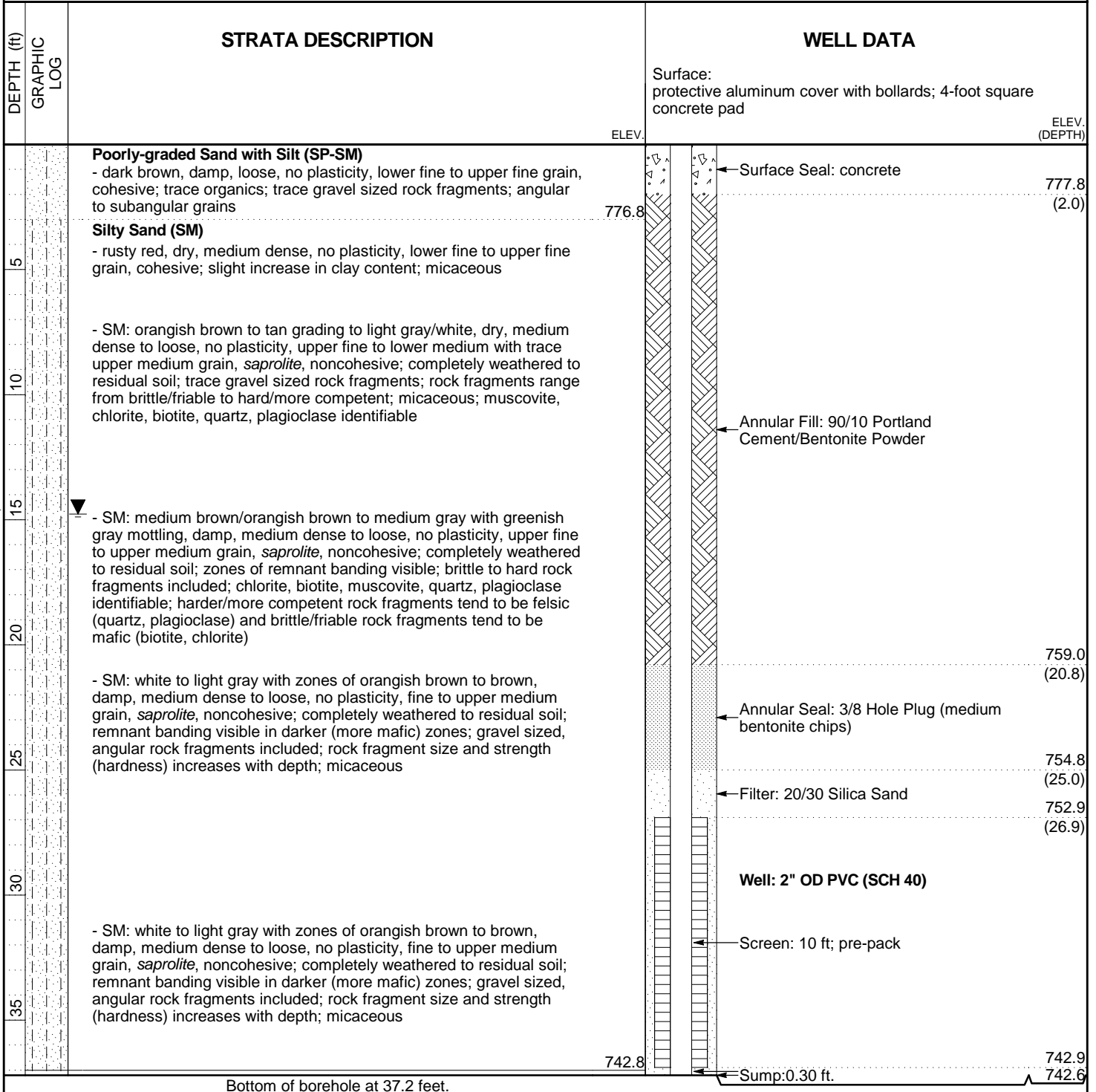
CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 37.2 ft. GROUND WATER DEPTH: DURING _____ COMP. 14.77 ft. DELAYED _____

NOTES Top of Casing Elevation = 782.47

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:32 - \VALTRCF502X2DBSMEL\$GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ





LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-6I/PZ-6I

PAGE 1 OF 2

ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

DATE STARTED 4/21/2014 COMPLETED 5/19/2014 SURF. ELEV. 780.2 COORDINATES: N:1,260,490.02 E:2,074,790.49

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 66.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 14.9 ft. DELAYED _____

NOTES Top of Casing Elevation = 782.73

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:36 - \\ALTRCF02\X2\DB\SMEL\SG\INT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (DEPTH)
			778.2
			(2.0)
		<p>Poorly-graded Sand with Silt (SP-SM) - dark brown, damp, loose, no plasticity, lower fine to upper fine grain, cohesive; trace organics; trace gravel sized rock fragments; angular to subangular grains</p>	ELEV. 777.2
5		<p>Silty Sand (SM) - rusty red, dry, medium dense, no plasticity, lower fine to upper fine grain, cohesive; slight increase in clay content; micaceous</p>	
10		<p>- SM: orangish brown to tan grading to light gray/white, dry, medium dense to loose, no plasticity, upper fine to lower medium with trace upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; trace gravel sized rock fragments; rock fragments range from brittle/friable to hard/more competent; micaceous; muscovite, chlorite, biotite, quartz, plagioclase identifiable</p>	
15		<p>▼ - SM: medium brown/orangish brown to medium gray with greenish gray mottling, damp, medium dense to loose, no plasticity, upper fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; zones of remnant banding visible; brittle to hard rock fragments included; chlorite, biotite, muscovite, quartz, plagioclase identifiable; harder/more competent rock fragments tend to be felsic (quartz, plagioclase) and brittle/friable rock fragments tend to be mafic (biotite, chlorite)</p>	
20			
25		<p>- SM: white to light gray with zones of orangish brown to brown, damp, medium dense to loose, no plasticity, fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; remnant banding visible in darker (more mafic) zones; gravel sized, angular rock fragments included; rock fragment size and strength (hardness) increases with depth; micaceous;</p>	
30			
			Annular Fill: 90/10 Portland Cement/Bentonite Powder

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING YGWA-6I/PZ-6I

PAGE 2 OF 2

ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study

LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:36 - \\VALTRCF02\X2\DB\SMEL\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft) GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
		Surface: protective aluminum cover with bollards; 4-foot square concrete pad
		ELEV. (CONTINUED) ELEV. (DEPTH)
35	<p>Silty Sand (SM) (Con't)</p> <p>- SM: white to light gray with zones of orangish brown to brown, damp, medium dense to loose, no plasticity, fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; remnant banding visible in darker (more mafic) zones; gravel sized, angular rock fragments included; rock fragment size and strength (hardness) increases with depth; micaceous;</p>	
	743.2	
40	<p>Unclassified Metamorphic</p> <p>- white with orangish brown to pinkish staining, lower medium to upper coarse grain, soft to medium hard, moderately weathered, no banding visible, felsic rock; abundant plagioclase with trace quartz; high to moderate angled fractures; quartz fracture fill visible; low recovery; driller notes rubble zone with no recovery 38-40.5'</p>	
	739.7	
45	<p>Interlayered/Alternating Mica Schist and Granitic Gneiss</p> <p>- dark gray/black to greenish gray (schist) with light gray (gneiss), lower fine to upper fine grain size grain, medium hard, moderately to slightly weathered, schistose foliation visible along with slight banding in the zones of interlayered gneiss, gneiss is thinly interlayered and alternating (1-2" to 4-6"); quartz, plagioclase; biotite; chlorite; muscovite; trace pyrite, hornblende; high to moderate angled fractures with rusty red to dark brown staining</p>	
	732.2	
50	<p>Granitic Gneiss</p> <p>- light gray with trace greenish gray interlayering, lower fine to upper fine grain, medium hard to hard, slightly to not weathered, slight banding, slight schistose foliation visible, greenish gray interlayering decreases with depth; thin zone of localized, coarse grained plagioclase with trace to some quartz @ 55-56' (Granulite? Unclassified Metamorphic); increase in siliceous/felsic minerals decrease in mafic; quartz, plagioclase, biotite; muscovite; trace chlorite; trace pyrite; garnet, possible hornblende visible; high to moderate angled fractures; complete to partial healing</p>	
	723.7	
55		Annular Fill: 90/10 Portland Cement/Bentonite Powder
		Annular Seal: 3/8 Hole Plug (medium bentonite chips)
		Filter: 20/30 Silica Sand
		Well: 2" OD PVC (SCH 40)
60	<p>Unclassified Metamorphic</p> <p>- white, upper coarse grain, hard, not weathered, zone of coarse grained plagioclase with slightly pinkish quartz; plagioclase crystals are tabular; interlayered within the unclassified plagioclase zone is thinly (1 cm) layered schist, dark greenish gray with bladed to elongated chlorite, biotite, hornblende; moderately to high angled fractures; moderate angled fractures show more fracture fill and more complete healing than high angle fractures</p>	
	721.7	
65	<p>Interlayered/Alternating Granitic Gneiss and Mica Schist</p> <p>- light gray to white (gneiss) with dark gray /black to greenish gray (schist), lower fine to upper fine with trace lower medium to lower coarse quartz fracture fill grain, medium hard to hard, slightly weathered, banded, schistose foliation visible within some fracture zones and interlayered schist, quartz, plagioclase, biotite, muscovite, trace pyrite, trace chlorite; schist layers range in thickness from 1-2" to 5-6"; moderate to high angle fractures visible; total to moderate healing/quartz fracture fill; quartz fracture fill thickness 1-2 cm to 1-2" in thickness</p>	
	713.7	
		Screen: 10 ft; pre-pack
		Sump: 0.30 ft.
		Bottom of borehole at 66.5 feet.



LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-4S
PAGE 1 OF 1
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/11/2014 COMPLETED 5/21/2014 SURF. ELEV. 781.8 COORDINATES: N:1,254,442.86 E:2,075,454.20

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 30.3 ft. GROUND WATER DEPTH: DURING _____ COMP. 18.98 ft. DELAYED _____

NOTES Top of Casing Elevation = 784.25

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 19:09 - VALTRCF502X2DBSME.L\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
			ELEV. (DEPTH)
		Sandy Silt (ML) - rusty red, damp, medium stiff, low plasticity, very fine grain, cohesive; micaceous; trace organics	← Surface Seal: concrete
			779.8
		Silty Sand (SM) - reddish brown to light brown, dry, medium dense to loose, no plasticity, lower fine to upper medium grain, some to trace clay decreasing with depth; trace mica; trace organics	
5			(2.0)
		- SM: medium to light brown to tan, dry, loose, no plasticity, lower fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; noncohesive; trace rock fragments (brittle); trace mica	← Annular Fill: 90/10 Portland Cement/Bentonite Powder
10			
		- SM: light brown to tan grading to reddish brown @ 15', damp, loose, no plasticity, lower fine to lower medium grain, <i>saprolite</i> , noncohesive; completely weathered to residual soil; noncohesive; trace rock fragments (brittle); trace mica	
15			767.3
			(14.5)
		- SM: reddish brown to tan to white with a greenish tan zone @ approx. 18-20', moist, medium dense, no plasticity, lower fine to upper medium grain, <i>saprolite</i> , visible zones where <i>saprolite</i> has not completely broken down to residual soil and remnant rock fabric visible; zone of more competent <i>saprolite</i> observed; gravel sized rock fragments included; muscovite, biotite, chlorite phyllosilicates visible	← Annular Seal: 3/8 Hole Plug (medium bentonite chips)
20			763.6
			(18.2)
			← Filter: 20/30 Silica Sand
25			761.8
			(20.0)
			Well: 2" OD PVC (SCH 40)
			← Screen: 10 ft; pre-pack
30			751.5
			← Sump: 0.30 ft.
			751.5
		Bottom of borehole at 30.3 feet.	



LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/10/2014 COMPLETED 5/21/2014 SURF. ELEV. 782.2 COORDINATES: N:1,254,404.42 E:2,076,211.43

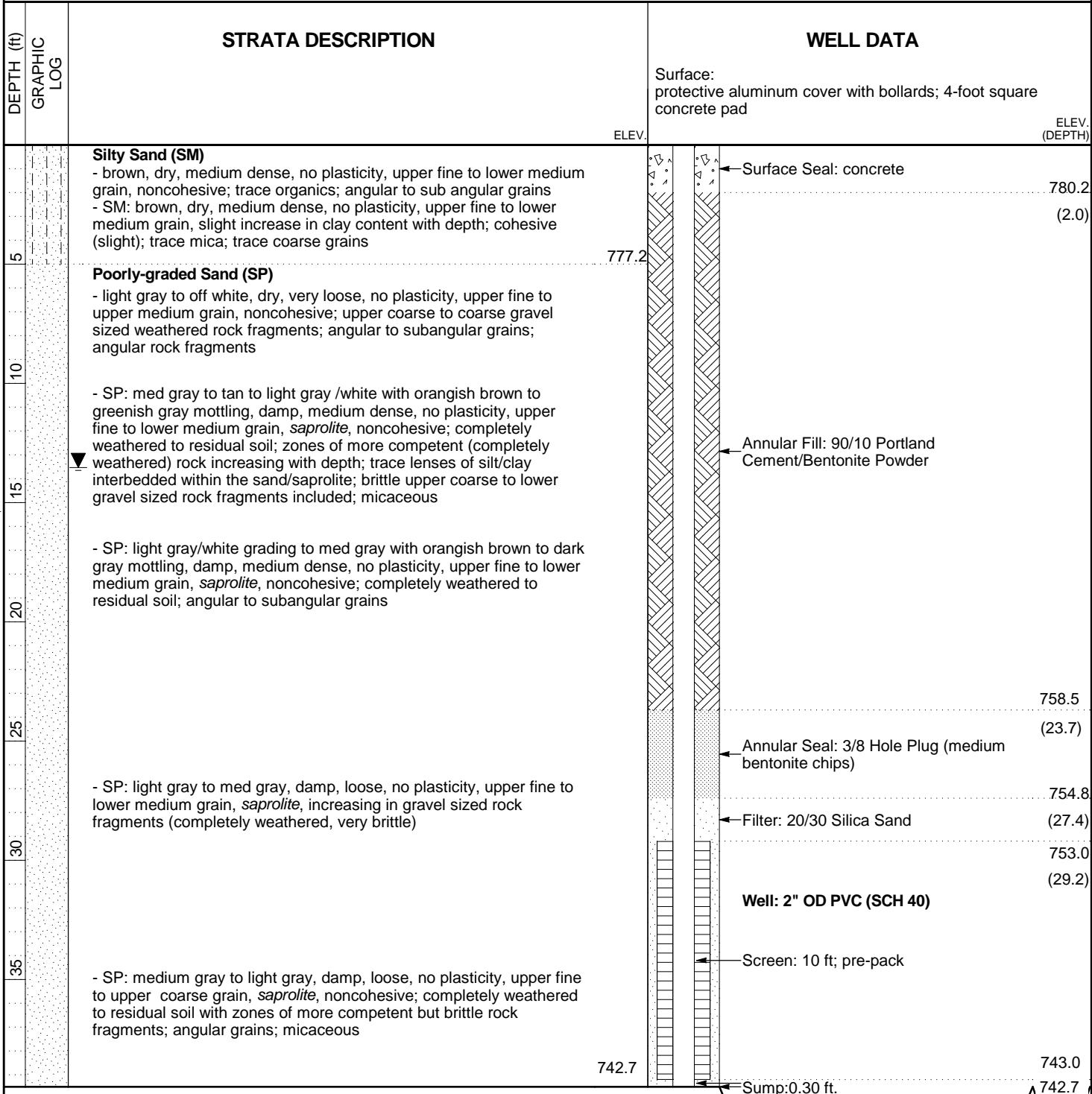
CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 39.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 13.53 ft. DELAYED _____

NOTES Top of Casing Elevation = 784.64

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 18:37 - VALTRCF502X2DBSME.\$\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ



Bottom of borehole at 39.5 feet.



LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-6D
PAGE 1 OF 4
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

DATE STARTED 4/22/2014 COMPLETED 5/19/2014 SURF. ELEV. 779.5 COORDINATES: N: 1,260,480.15 E: 2,074,782.68

CONTRACTOR Cascade Drilling EQUIPMENT PS-150 METHOD Rotosonic

DRILLED BY D. Wilcox LOGGED BY B. Smelser CHECKED BY _____ ANGLE _____ BEARING _____

BORING DEPTH 131.5 ft. GROUND WATER DEPTH: DURING _____ COMP. 18.93 ft. DELAYED _____

NOTES Top of Casing Elevation = 782.02

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:40 - \\VALTRCF502\X2\BBSMEL\S\GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	ELEV. (DEPTH)
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
				777.5
		<p>Poorly-graded Sand with Silt (SP-SM) - dark brown, damp, loose, no plasticity, lower fine to upper fine grain, cohesive; trace organics; trace gravel sized rock fragments; angular to subangular grains</p>	← Surface Seal: concrete	(2.0)
				776.5
5		<p>Silty Sand (SM) - rusty red, dry, medium dense, no plasticity, lower fine to upper fine grain, cohesive; slight increase in clay content; micaceous - SM: orangish brown to tan grading to light gray/white, dry, medium dense to loose, no plasticity, upper fine to lower medium with trace upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; trace gravel sized rock fragments; rock fragments range from brittle/friable to hard/more competent; micaceous; muscovite, chlorite, biotite, quartz, plagioclase identifiable</p>		
10				
15		<p>- SM: medium brown/orangish brown to medium gray with greenish gray mottling, damp, medium dense to loose, no plasticity, upper fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; zones of remnant banding visible; brittle to hard rock fragments included; chlorite, biotite, muscovite, quartz, plagioclase identifiable; harder/more competent rock fragments tend to be felsic (quartz, plagioclase) and brittle/friable rock fragments tend to be mafic (biotite, chlorite)</p>		
20				
25		<p>- SM: white to light gray with zones of orangish brown to brown, damp, medium dense to loose, no plasticity, fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; remnant banding visible in darker (more mafic) zones; gravel sized, angular rock fragments included; rock fragment size and strength (hardness) increases with depth; micaceous</p>		
30				
			Annular Fill: 90/10 Portland Cement/Bentonite Powder	

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-6D
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ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:40 - VALTRCF02X2DBSMEL\$GINTPLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA	
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
			ELEV. (CONTINUED)	ELEV. (DEPTH)
35		<p>Silty Sand (SM)(Cont)</p> <p>- SM: white to light gray with zones of orangish brown to brown, damp, medium dense to loose, no plasticity, fine to upper medium grain, <i>saprolite</i>, noncohesive; completely weathered to residual soil; remnant banding visible in darker (more mafic) zones; gravel sized, angular rock fragments included; rock fragment size and strength (hardness) increases with depth; micaceous</p>	743.0	
40		- No Recovery (36.5-46.5')		
45			733.0	
50		<p>Interlayered/Alternating Granitic Gneiss and Biotite Gneiss</p> <p>- dark gray to light gray, lower fine to upper fine grain, medium hard, moderately to slightly weathered, trace banding visible, slight schistose foliation visible along thin zones of interlayered schist, quartz, biotite, plagioclase, muscovite, pyrite, trace chlorite, hornblende (elongated crystal habit visible); thin (1") interlayered zones of dark gray/black to greenish gray schist; moderate to high angle fractures visible; difficult to distinguish between natural and mechanical fractures; moderately angled fractures show total to moderate healing; high angled fractures not healed and tend to follow interlayered zones of schist; some dark brown staining within fractures; white to light gray, upper medium quartz fracture fill</p>	731.0	
55		<p>Unclassified Metamorphic</p> <p>- white with trace greenish gray veining (fractures?), upper medium to lower coarse grain, medium hard to hard, moderately to slightly weathered, no visible banding or foliation, Granulite? localized, high grade metamorphic; plagioclase (large, white, tabular to bladed crystals), quartz (pinkish, translucent), muscovite, trace mafics i.e. chlorite, biotite; trace orangish brown staining visible; low angled fracturing with trace high angle fractures; high angle fractures show a greenish gray, schistose appearance; difficult to distinguish between natural and mechanical fracturing; slight to no visible healing</p>	728.0	
60		<p>Granitic Gneiss</p> <p>- light gray to white, upper fine to lower medium grain, medium hard to hard, slightly weathered, banding visible, orangish brown staining @ approx. 51-52' and 56-56.5'; quartz, plagioclase, chlorite, biotite, hornblende, muscovite, trace pyrite; thin, high angled fractures observed; partially healed with greenish gray fracture fill</p> <p>- Interlayered/Alternating Granitic Gneiss, Biotite Gneiss and Mica Schist: light gray to medium gray to greenish gray, upper fine to lower medium grain, medium hard to hard, slightly to not weathered, banded (dark bands grading from dark gray to greenish gray in appearance, quartz, plagioclase, muscovite, biotite, chlorite, hornblende, increase in pyrite along fracture planes, trace garnet;</p>		
65				Annular Fill: 90/10 Portland Cement/Bentonite Powder

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-6D
PAGE 3 OF 4
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:40 - \\VALTRCF502X2DB\$MEL\$GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	WELL DATA
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad
		ELEV. (CONTINUED)	ELEV. (DEPTH)
70		thin, high angled fractures observed; partially healed with greenish gray fracture fill; interlayered, greenish gray schist averages 1-2 mm thick throughout the unit Granitic Gneiss (Cont) - Interlayered/Alternating Granitic Gneiss, Biotite Gneiss and Mica Schist: light gray to medium gray to greenish gray, upper fine to upper medium grain, medium hard to hard, not weathered, banded (dark bands grading from dark gray to greenish gray in appearance, quartz, plagioclase, muscovite, biotite, chlorite, hornblende, increase in pyrite along fracture planes, trace garnet; thin, high angled fractures observed; partially healed with greenish gray fracture fill; interlayered, greenish gray schist averages 1-2 mm thick	Annular Fill: 90/10 Portland Cement/Bentonite Powder
75		704.5	705.9 (73.6)
80		Unclassified Metamorphic - white to light gray with dark gray /black veining (fractures?), upper medium to lower coarse to upper coarse, mafic minerals tend to be upper fine to lower medium grain, medium hard to hard, slightly to not weathered, zones of trace banding visible, Granulite? localized, high grade metamorphic; large, tabular to bladed to elongated plagioclase with quartz; dark veins of biotite, chlorite, trace muscovite; visible platy crystal habit of biotite and muscovite; veining shows a slight schistose foliation	Annular Seal: 3/8 Hole Plug (medium bentonite chips)
85		700.5	701.0 (78.5)
90		Interlayered/Alternating Granitic Gneiss and Biotite Gneiss - medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, trace banding with some zones having a schistose foliation, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; pyrite abundant in fractures; thinly (1-2 cm to 1-2") interlayered, dark gray to greenish gray schist; moderate to high angle fractures; trace weathering visible in some fractures	Filter: 20/30 Silica Sand
95		- Interlayered/Alternating Granitic Gneiss and Biotite Gneiss: medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, trace banding with some zones having a schistose foliation, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; pyrite abundant in fractures; thinly (1-2 cm to 1-2") interlayered, dark gray to greenish gray schist; moderate to high angle fractures; trace weathering visible in some fractures	698.3 (81.2)
100		- Interlayered/Alternating Granitic Gneiss and Biotite Gneiss: medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, trace banding with some zones having a schistose foliation, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; pyrite abundant in fractures; thinly (1-2 cm to 1-2") interlayered, dark gray to greenish gray schist; moderate to high angle fractures; trace weathering visible in some fractures	Screen: 50 ft; 0.01" slotted
			Well: 2" OD PVC (SCH 40)

(Continued Next Page)



LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-6D
PAGE 4 OF 4
ECS37976

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Plant Yates Hydro-Geological Study
LOCATION Newnan, GA

2012 GEOTECH LOG WITH WELL - ESEE2012DATABASE.GDT - 6/10/14 17:40 - \\VALTRCF502X2DBSMEL\$GINT\PLANT YATES HYDRO-GEOLOGICAL STUDY.GPJ

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV. (CONTINUED)	WELL DATA	ELEV. (DEPTH)
				Surface: protective aluminum cover with bollards; 4-foot square concrete pad	
105		Interlayered/Alternating Granitic Gneiss and Biotite Gneiss (Con't)	673.5		
110		<p>Unclassified Metamorphic</p> <p>- white to light gray with dark gray /black veining (fractures?), upper medium to lower coarse to upper coarse, mafic minerals tend to be upper fine to lower medium grain, medium hard to hard, not weathered, zones of trace banding visible, Granulite? localized, high grade metamorphic; large, tabular to bladed to elongated plagioclase with quartz; dark veins of biotite, chlorite, trace muscovite; visible platy crystal habit of biotite and muscovite; veining shows a slight schistose foliation; moderate to high angled fractures; partial healing/fracture fill visible</p>		Screen: 50 ft; 0.01" slotted	
115		<p>- Unclassified Metamorphic: white to light gray with dark gray /black veining (fractures?), upper medium to lower coarse to upper coarse, mafic minerals tend to be upper fine to lower medium grain, medium hard to hard, not weathered, zones of trace banding visible, Granulite? localized, high grade metamorphic; large, tabular to bladed to elongated plagioclase with quartz; dark veins of biotite, chlorite, trace muscovite; visible platy crystal habit of biotite and muscovite; veining shows a slight schistose foliation</p>	658.5		
120		Interlayered/Alternating Granitic Gneiss and Biotite Gneiss			
125		<p>- medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; less, thinly interlayered, dark gray to greenish gray schist than above; moderate to high angle fractures; no visible healing/fracture fill; trace weathering visible in some fractures; little to no schistose foliation observed</p> <p>- Interlayered/Alternating Granitic Gneiss and Biotite Gneiss: medium gray to light gray grading to white with depth, lower fine to lower medium grain, hard to very hard, not weathered, banded, quartz, plagioclase, biotite, muscovite, hornblende, pyrite, trace garnet; less, thinly interlayered, dark gray to greenish gray schist than above; moderate to high angle fractures; no visible healing/fracture fill; trace weathering visible in some fractures</p>	648.5		
130					648.3
		Bottom of borehole at 131.5 feet.		Sump: 0.30 ft.	648.0

Boring Log/Well Construction Log

Project Name: Plant Yates Date Started: 06/02/2020 Logger: Clement Papafio
 Project Number: 30055278 Date Completed: 06/03/2020 Editor: Grant Willford
 Project Location: Newnan, GA Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
0									
1							(0.0-19.0') No recovery. Hydrovac to 19.0 ft bgs for borehole clearance.	Surface completion consists of a locking monument above 2.85' ground surface with a weep hole, vent hole in well casing, pea gravel between well monument and well casing, 4'x4'x4" concrete pad, and four concrete bollards.	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20							(19.0-29.0') Silty sand (SM); mottled very pale brown (10YR7/4) and white (10YR 8/1); fine grained to medium grained sand; very loose; some mica; iron oxidation present; low recovery; saprolitic.	Portland Cement with 6% Bentonite. 2 inch diameter Schedule 40 PVC riser.	
21									
22									
23									
24									
25									
26									
27									
28									
29									

Drilling Co.: Cascade Drilling Sampling Method: Core Barrel
 Driller: Ike Young Sampling Interval: Continuous
 Drilling Method: Rotosonic Water Level Start (ft. bgs.): _____
 Drilling Fluid: Water Water Level Finish (ft. btoc.): _____
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; Converted to Well: Yes No
 NA = not applicable / available. Surface Elev.: 761.80
 North Coord.: 1258910.76
 East Coord.: 2073930.07

MPC BORING LOGS TO GINT L. C:\USERS\G\WILLFORD\DESKTOP\FOR NIKKI\GINT FILES\MPC BORING LOGS PASF P.GPJ ARCADIS.GDT 7/17/20

Boring Log/Well Construction Log

Project Name: Plant Yates Date Started: 06/02/2020 Logger: Clement Papafio
 Project Number: 30055278 Date Completed: 06/03/2020 Editor: Grant Willford
 Project Location: Newnan, GA Weather Conditions: -


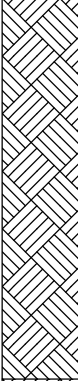
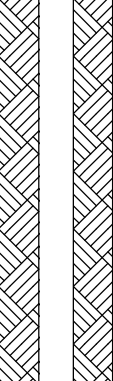

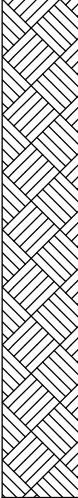
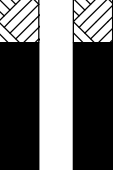

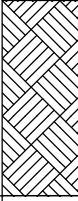
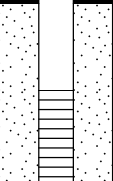


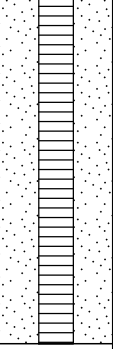
Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well
30							(29.0-39.0') Silty sand (SM); grayish brown (10YR 5/2); fine grained to medium grained sand; loose; iron oxidation present.	Portland Cement with 6% Bentonite. 2 inch diameter Schedule 40 PVC riser.	
31							(33.0-34.0') Color change to mottled very pale brown (10YR 7/4) and white (10YR 8/1).		
32							(34.0-39.0') Color change to very pale brown (10YR 8/2); loose; dry; saprolitic.		
33									
34									
35									
36									
37							(39.0-44.0') Clayey silty sand (SM-SC); light yellowish brown (10YR 6/4); fine grained to medium grained sand; trace clay; loose; slight plasticity; mica present; moist.		
38									
39									
40							(44.0-48.0') Silty sand (SM); pale brown (10YR 6/3); fine grained to medium grained sand; loose; moist.		
41									
42							(48.0-49.0') Sand; white (10YR 8/1); fine grained to coarse grained sand; weathered quartz vein; moist.		
43									
44							(49.0-52.0') Poorly graded sand (SP); very pale brown (10YR 8/3); fine grained to medium grained sand; some silt; loose; dry.		
45									
46							(52.0-54.0') Silty sand (SM); mottled light brown (7.5YR 6/3) and light olive gray (5Y 6/2); fine grained to medium grained sand; mica present; wet.		
47									
48							(54.0-59.0') Well graded sand (SW); mottled reddish brown (2.5YR 6/4) and white (10YR 8/1); fine grained to coarse grained sand; loose to medium dense; residual rock gravel; possible transition to partially weathered bedrock (PWR); dry.		
49									
50							(59.0-71.0') Granitic gneiss; light gray (5YR 7/1); feldspar, quartz, mica mineralogy; highly to moderately weathered; intensely fractured; sub horizontal to horizontal fractures; staining on fracture surface medium foliation; joints and fractures parallel to foliation; low recovery; very poor RQD.		
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									

Remarks: _____

Boring Log/Well Construction Log

Project Name: Plant Yates
 Project Number: 30055278
 Project Location: Newnan, GA

Date Started: 06/02/2020 Date Completed: 06/03/2020
 Logger: Clement Papafio Editor: Grant Willford
 Weather Conditions: -

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Photo Log	PID (ppm)	Graphic Log	Description	Construction Details	Well			
63							(59.0-71.0') Granitic gneiss; light gray (5YR 7/1); feldspar, quartz, mica mineralogy; highly to moderately weathered; intensely fractured; sub horizontal to horizontal fractures; staining on fracture surface medium foliation; joints and fractures parallel to foliation; low recovery; very poor RQD.	Portland Cement with 6% Bentonite. 2 inch diameter Schedule 40 PVC riser.				
64												
65												
66							(71.0-82.5') Granitic gneiss; gray (7.5YR 5/1); feldspar, quartz, mica mineralogy; thin to moderate foliation moderately weathered; moderately fractured; staining on fracture surface.	Bentonite seal.				
67												
68												
69												
70												
71												
72							(75.0-82.5') Near horizontal fractures; moderately foliated; slightly weathered to fresh; hard; fair RQD; color change to white (7.5YR 8/1).	Filter pack: #1A (12-40) sand				
73												
74												
75												
76												
77												
78							(82.5-87.0') Granitic gneiss; light gray (5Y 7/1); feldspar, quartz, mica mineralogy; intensely to moderately fractured; near horizontal to sub horizontal fractures; very slightly weathered to fresh rock; moderately hard; very poor RQD.	2 inch diameter Sch. 40 PVC U-Pack dual wall 0.010-inch slotted screen.				
79												
80												
81												
82												
83												
84												
85												
86												
87												
88							End of boring 87.0 ft bgs.					
89												
90												
91												
92												
93												
94												
95												

Remarks:

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE PZ-35

SHEET 1 of 1

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 47.10 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/13/16
 DATE COMPLETED: 7/20/16

NORTHING: 1,258,593.16
 EASTING: 2,073,805.60
 GS ELEVATION: 740.9
 TOC ELEVATION: 743.81

DEPTH W.L.: 9.99 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/20/16
 TIME W.L.: N/A

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE ft			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0	740	0.00 - 10.00 No recovery; Hydrovac							<p>WELL CASING Interval: 0.0'-36.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 36.0'-46.0' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 34.0'-46.0' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 31.0'-34.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-31.0' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
5	735								
10	730	10.00 - 11.00 silty SAND, ash in core sample possibly recovered from hydrovac zone above	SM		730.90 10.007 29.90				
		11.00 - 14.00 CLAY, dark reddish brown, cohesive, moist	CH		11.00				
		14.00 - 17.00 SAND, fine sand, mottled brown and grey, moist, loose	SP		726.90 14.00	1	7.00 7.00		
15	725	17.00 - 27.00 fine sand, mottled brown and grey, relict laminations, moist, loose			723.90 17.00				
20	720					2	10.00 10.00		
25	715				713.90 27.00				
30	710	27.00 - 30.00 silty SAND, dull grey to brown, moist, loose	SM		710.90 30.00				
		30.00 - 32.00 mottled brown to tan, lamination, dry to moist, loose			708.90 32.00	3	5.00 10.00		
		32.00 - 37.00 mottled brown to tan, lamination, micaceous, dry to moist, loose							
35	705				703.90 37.00				
		37.00 - 42.00 grey, dry, loose							
40	700				698.90 42.00	4	4.00 10.00		
		42.00 - 47.00 transitionally weathered rock - biotite/muscovite GNEISS, weathered, friable	PWR						
45	695				693.90 47.00				
		Boring completed at 47.10 ft							

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

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

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE PZ-37

SHEET 1 of 1

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 47.00 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 6/29/16
 DATE COMPLETED: 7/6/16

NORTHING: 1,256,471.14
 EASTING: 2,074,699.59
 GS ELEVATION: 758.0
 TOC ELEVATION: 760.78

DEPTH W.L.: 6.0 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/6/2016
 TIME W.L.: 07:40

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE ft			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 3.00 silty CLAY, red to brown, micaceous	CL-ML		755.00				<p>WELL CASING Interval: 0.0'-36' Material: Schedule 40 PVC Diameter: 2 Joint Type: Threaded</p> <p>WELL SCREEN Interval: 36.5'-46.5' Material: U-Pack Schedule 40 PVC Diameter: 2 Slot Size: 0.010" Slotted Screen End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 33.0'-47.0' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 25.0'-33.0' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-25.0' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
755		3.00 - 5.00 silty SAND, trace gravel, pale grey to green, plagioclase nodules (saprolite)	SM		3.00	1	7.00 7.00		
5		5.00 - 7.00 trace clay, white and orange nodules, plagioclase, dry (saprolite)			5.00				
750		7.00 - 9.50 trace gravel, white to dark brown, muscovite			7.00				
10		9.50 - 17.00 trace clay, pale yellow brown, plagioclase nodules, dry (saprolite)			9.50				
745					749.00	2	10.00 10.00		
15									
740		17.00 - 27.00 pale yellow brown to brown, white and brown nodules, saprolitic gneiss, dry			741.00				
20					17.00	3	10.00 10.00		
735									
25					731.00				
730		27.00 - 37.00 transitionally weathered rock- feldspathic GNEISS, muscovite, biotite, feldspar, quartz, foliated and layered, dark green, amphibole lense	PWR		27.00	4	10.00 10.00		
725									
35					721.00				
720		37.00 - 43.00 bedrock - feldspathic GNEISS, biotite, muscovite, quartz, plagioclase, grey to white, more feldspar and quartz, oxidized and fractured	GNEISS		37.00	5	8.00 10.00		
715					715.00				
45		43.00 - 47.00 more granitic, lots of feldspar and quartz			43.00				
710		Boring completed at 47.00 ft			711.00				

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

LOG SCALE: 1 in = 6.5 ft
 DRILLING COMPANY: Cascade Drilling
 DRILLER: Tom Ardito

GA INSPECTOR: Tim Richards
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

RECORD OF BOREHOLE YGWC-48/ PZ-48











SHEET 1 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 56.10 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/11/16
 DATE COMPLETED: 7/12/16

NORTHING: 1,259,868.04
 EASTING: 2,074,528.00
 GS ELEVATION: 777.2
 TOC ELEVATION: 779.83 ft

DEPTH W.L.: 17.71 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/13/2016
 TIME W.L.: 15:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0	775	0.00 - 10.00 No recovery; hydrovac							WELL CASING Interval: 0.0'-45.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded WELL SCREEN Interval: 45.8'-55.8' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC FILTER PACK Interval: 43.1'-56.1' Type: #1 Type Sand FILTER PACK SEAL Interval: 38.5'-43.1' Type: Bentonite Pellets and Chips ANNULUS SEAL Interval: 0.0'-38.5' Type: Portland Type 1 WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic
765		10.00 - 12.00 clayey SAND, coarse sand, dark red, cohesive	SC		767.20 10.00				
		12.00 - 14.00 sandy SILT to silty SAND, pinkish orange	SP-ML		765.20 12.00	1		6.00 6.00	
		14.00 - 16.00 sandy SILT, reddish brown, moist loose	ML		763.20 14.00				
760		16.00 - 22.00 sandy SILT to silty SAND, dark reddish brown, trace gravel, dry, loose	SP-ML		761.20 16.00				
		22.00 - 26.00 silty SAND, mottled white and grey, high plagioclase content	SM		755.20 22.00	2		10.00 10.00	
		26.00 - 32.00 poorly sorted, greyish brown, dry, loose			751.20 26.00				
745		32.00 - 36.00 transitionally weathered rock, pegmatite GRANITE, highly weathered, large plagioclase and quartz crytals	PWR		745.12 32.00	3		10.00 10.00	
		36.00 - 46.00 biotite GNEISS, some staining near top of core, pyrite inclusions			741.20 36.00				
730		46.00 - 49.00 biotite GNEISS	GNEISS		731.20 46.00	4		10.00 10.00	
					728.20 49.00	5		10.00 10.00	

BOREHOLE RECORD - YATES BORING LOGS.GPJ - PIEDMONT.GDT 9/26/17

Log continued on next page

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

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



RECORD OF BOREHOLE YGWC-48/ PZ-48

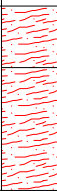
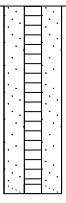
SHEET 2 of 2

PROJECT: SCS Plant Yates
 PROJECT NUMBER: 1660300
 DRILLED DEPTH: 56.10 ft
 LOCATION: Newnan, GA

DRILL RIG: Sonic PS-150
 DATE STARTED: 7/11/16
 DATE COMPLETED: 7/12/16

NORTHING: 1,259,868.04
 EASTING: 2,074,528.00
 GS ELEVATION: 777.2
 TOC ELEVATION: 779.83 ft

DEPTH W.L.: 17.71 ft (bgs)
 ELEVATION W.L.: (amsl)
 DATE W.L.: 7/13/2016
 TIME W.L.: 15:25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
50		49.00 - 52.00 biotite GNEISS, migmatic gneiss bands with iron staining <i>(Continued)</i>			725.20					<p>WELL CASING Interval: 0.0'-45.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded</p> <p>WELL SCREEN Interval: 45.8'-55.8' Material: U-Pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p>FILTER PACK Interval: 43.1'-56.1' Type: #1 Type Sand</p> <p>FILTER PACK SEAL Interval: 38.5'-43.1' Type: Bentonite Pellets and Chips</p> <p>ANNULUS SEAL Interval: 0.0'-38.5' Type: Portland Type 1</p> <p>WELL COMPLETION Pad: 4'x4'x4" Protective Casing: Aluminum</p> <p>DRILLING METHODS Soil Drill: 4" Sonic Rock Drill: 4" Sonic</p>
725		52.00 - 56.00 biotite GNEISS			52.00	5		10.00 10.00		
55		Boring completed at 56.10 ft			721.20				Sump -	
720					56.00					
60										
715										
65										
710										
70										
705										
75										
700										
80										
695										
85										
690										
90										
685										
95										
680										
100										

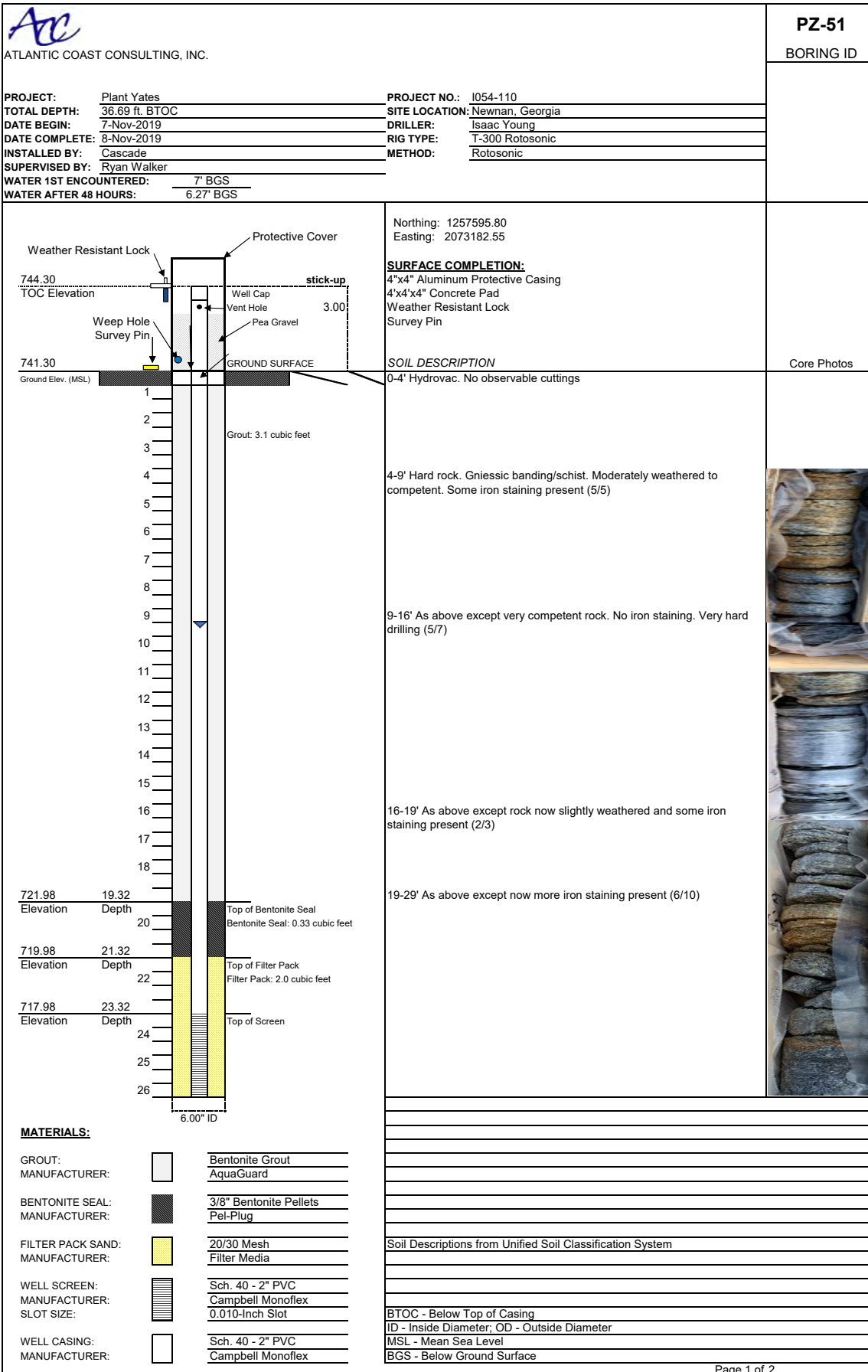
BOREHOLE RECORD_YATES BORING LOGS.GPJ PIEDMONT.GDT 9/26/17

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

GA INSPECTOR: Ben Hodges
 CHECKED BY: Rachel Kirkman, PG
 DATE: 9/29/17



The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).



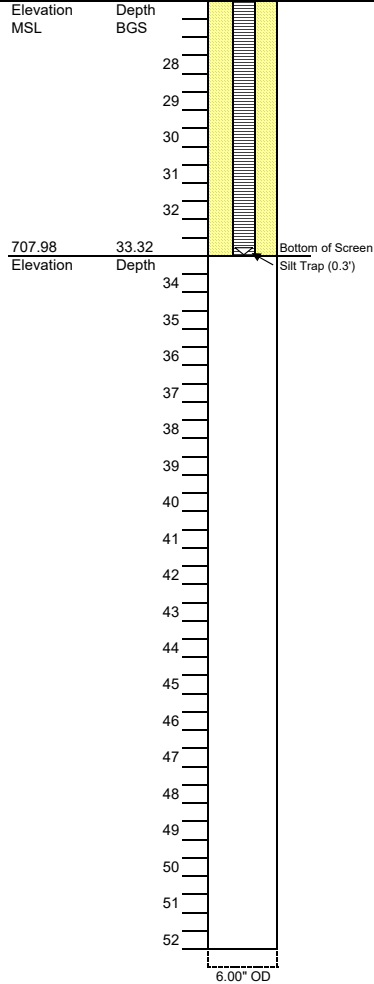


ATLANTIC COAST CONSULTING, INC.

PZ-51
BORING ID

PROJECT: Plant Yates	PROJECT NO.: 1054-110
TOTAL DEPTH: 36.69 ft. BTOC	SITE LOCATION: Newnan, Georgia
DATE BEGIN: 7-Nov-2019	DRILLER: Isaac Young
DATE COMPLETE: 8-Nov-2019	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Ryan Walker	
WATER 1ST ENCOUNTERED: 7' BGS	
WATER AFTER 48 HOURS: 6.27' BGS	

Core Photos



29-33' As above except rock now very competent. No iron staining present. Very hard drilling (4/4)

Total well depth 33.62' BGS



MATERIALS:

GROUT: MANUFACTURER:		Bentonite Grout AquaGuard
BENTONITE SEAL: MANUFACTURER:		3/8" Bentonite Pellets Pel-Plug
FILTER PACK SAND: MANUFACTURER:		20/30 Mesh Filter Media
WELL SCREEN: MANUFACTURER: SLOT SIZE:		Sch. 40 - 2" PVC Silver-Line 0.010-Inch Slot
WELL CASING: MANUFACTURER:		Sch. 40 - 2" PVC Silver-Line

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

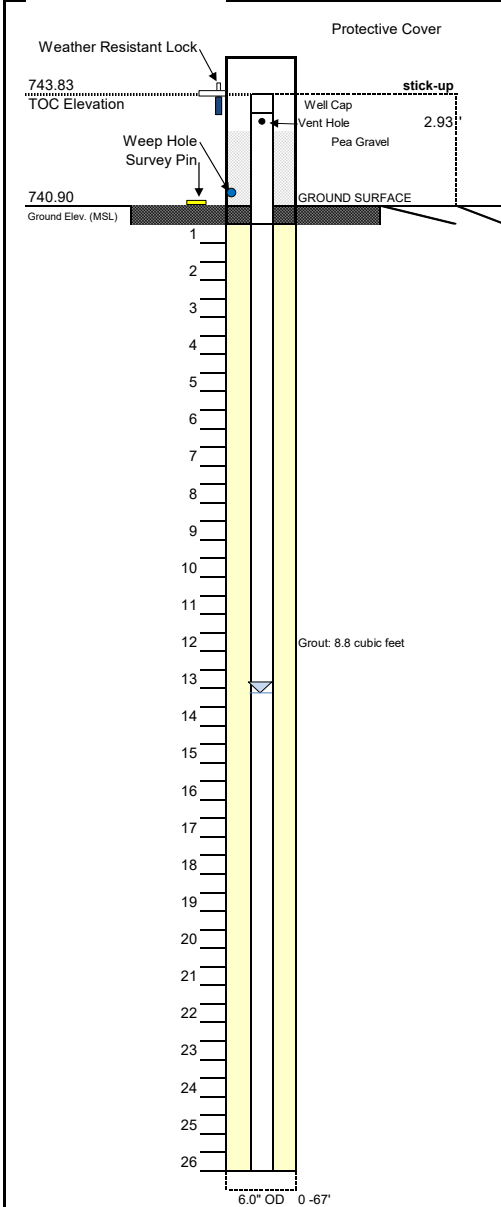
The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

ACC
ATLANTIC COAST CONSULTING, INC.

YAMW-1
BORING ID

PROJECT: Plant Yates - Ash Pond 3	PROJECT NO.: 1054-110
TOTAL DEPTH: 70.53 ft btoc	SITE LOCATION: Newnan, Georgia
DATE BEGIN: 18-Sep-2018	DRILLER: Ray Whitt
DATE COMPLETE: 19-Sep-2018	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Ryan Walker	TOC Elev: 743.83 ft msl
WATER 1ST ENCOUNTERED: 49' BGS	
WATER AFTER 48 HOURS: 13.10' TOC	

Northing: 1258602.12
Easting: 2073815.29



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

SOIL DESCRIPTION

0.00 - 10.00'
No recovery; Hydrovac

9.0 - 19.0

Light brown, moist to saturated sandy SILT (ML),
feldspathic soil overburden

19.00 - 29.00

Light to medium brown, gray and white, saturated, silty SAND, saprolitic (SM)

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™

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



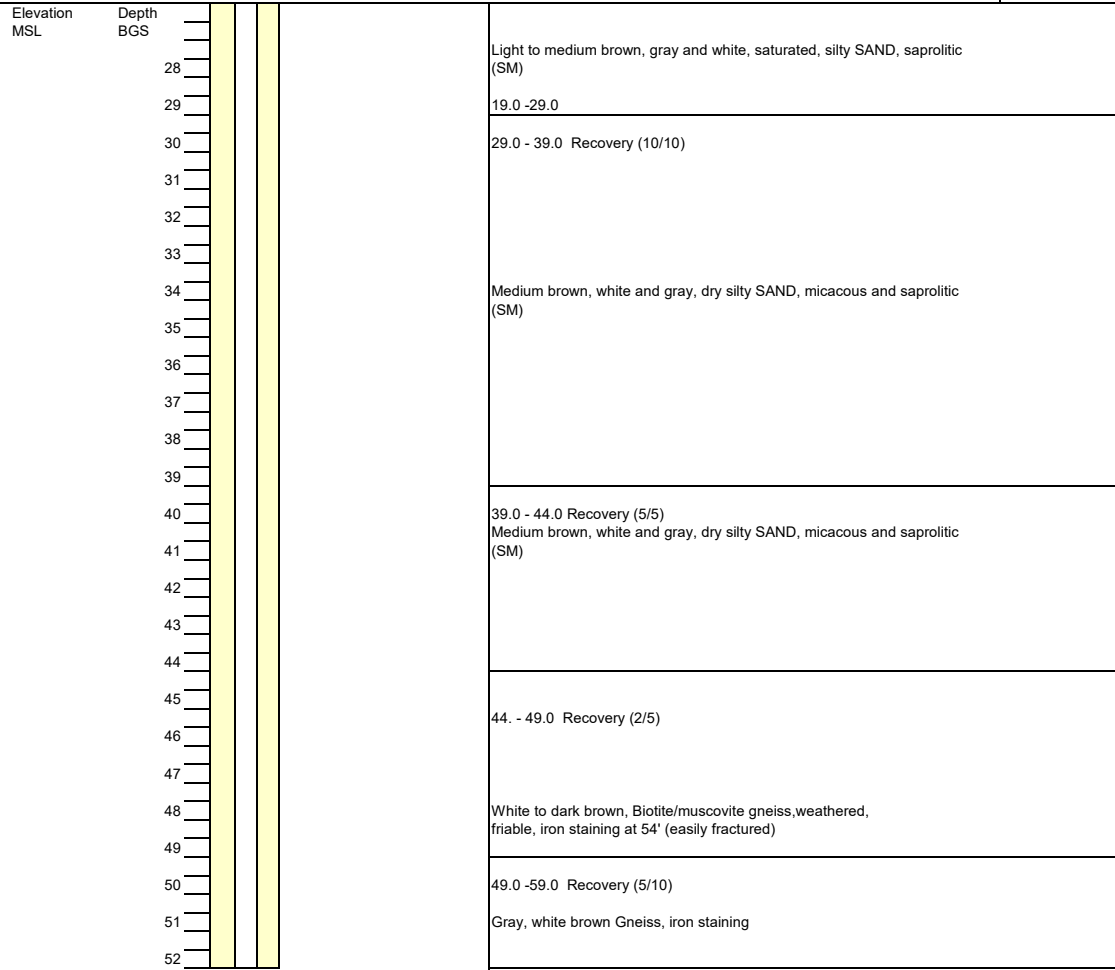
ATLANTIC COAST CONSULTING, INC.

YAMW-1

BORING ID

PROJECT:	Plant Yates - Ash Pond 3	PROJECT NO.:	I054-110
TOTAL DEPTH:	70.53 ft. TOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	18-Sep-2018	DRILLER:	Ray Whitt
DATE COMPLETE:	19-Sep-2018	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker	TOC Elev:	743.83 ft msl

WATER 1ST ENCOUNTERED: 49' BGS
 WATER AFTER 48 HOURS: 13.10' TOC



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™

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



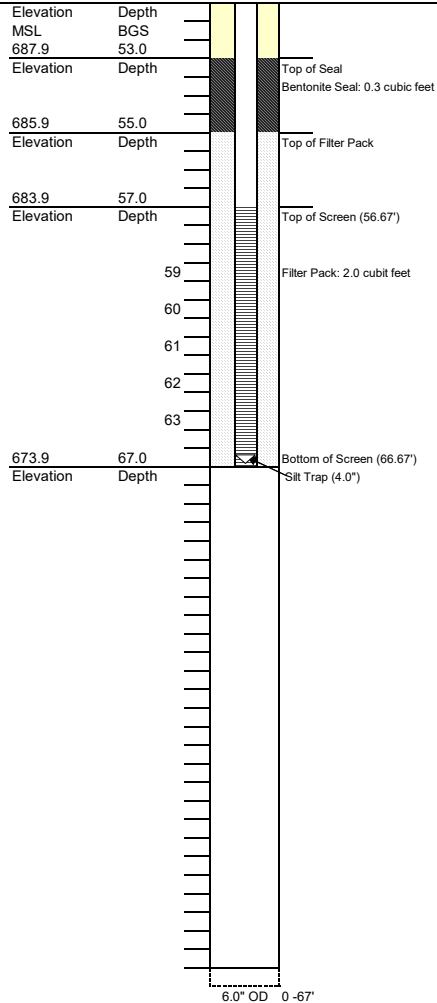
ATLANTIC COAST CONSULTING, INC.

YAMW-1

BORING ID

PROJECT: Plant Yates - Ash Pond 3	PROJECT NO.: I054-110
TOTAL DEPTH: 70.53 ft. TOC	SITE LOCATION: Newnan, Georgia
DATE BEGIN: 18-Sep-2018	DRILLER: Ray Whitt
DATE COMPLETE: 19-Sep-2018	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Ryan Walker	TOC Elev: 743.83 ft msl

WATER 1ST ENCOUNTERED: 49' BGS
WATER AFTER 48 HOURS: 13.10' TOC



49.0 - 59.0 Recovery (5/10)

Gray, white brown Gneiss, iron staining, highly fractured

59.0 - 62.0 Recovery (2.1/3.0)

Gray, white brown Gneiss, iron staining, highly fractured

62.0 - 70.0 Recovery (7.2/8.0)

Hard rock. Visibly harder drilling. Biotite/muscovite gneiss, non-friable.

Gray, white brown Gneiss, iron staining, highly fractured

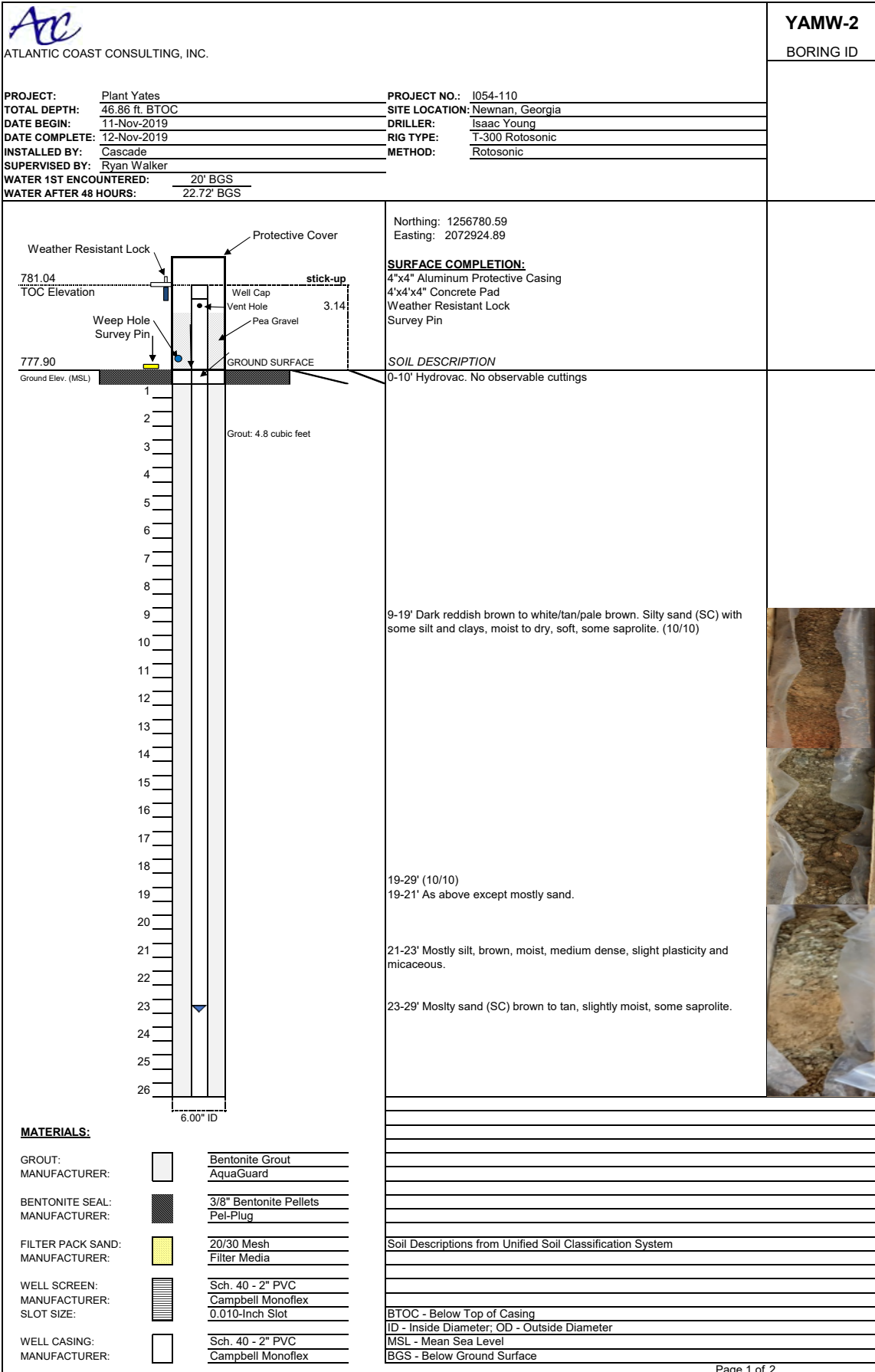
Boring terminated at 70.0' BGS

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™ |

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

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).





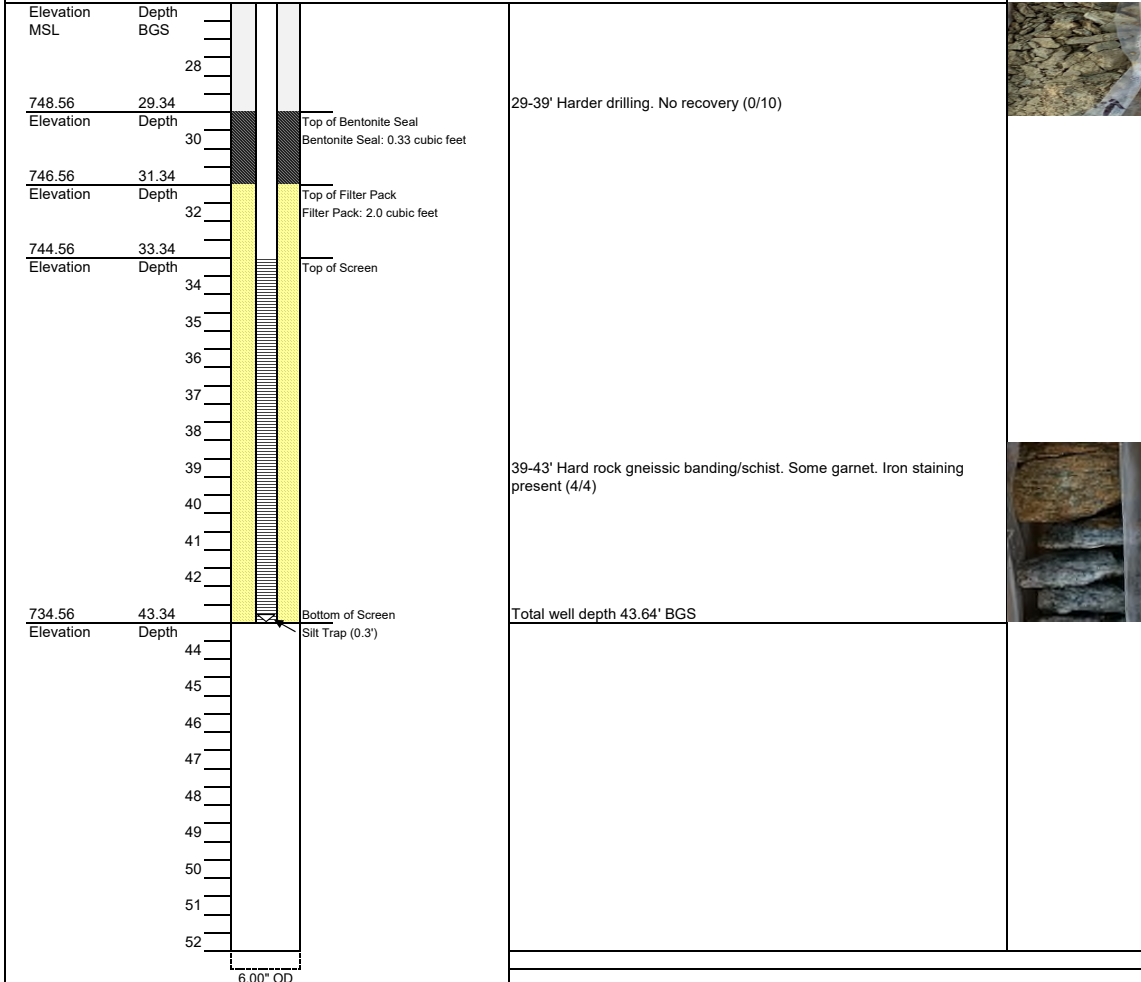
ATLANTIC COAST CONSULTING, INC.

YAMW-2

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	46.86 ft. BTOC	SITE LOCATION:	Newman, Georgia
DATE BEGIN:	11-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	12-Nov-2019	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	20' BGS		
WATER AFTER 48 HOURS:	22.72' BGS		

Core Photos



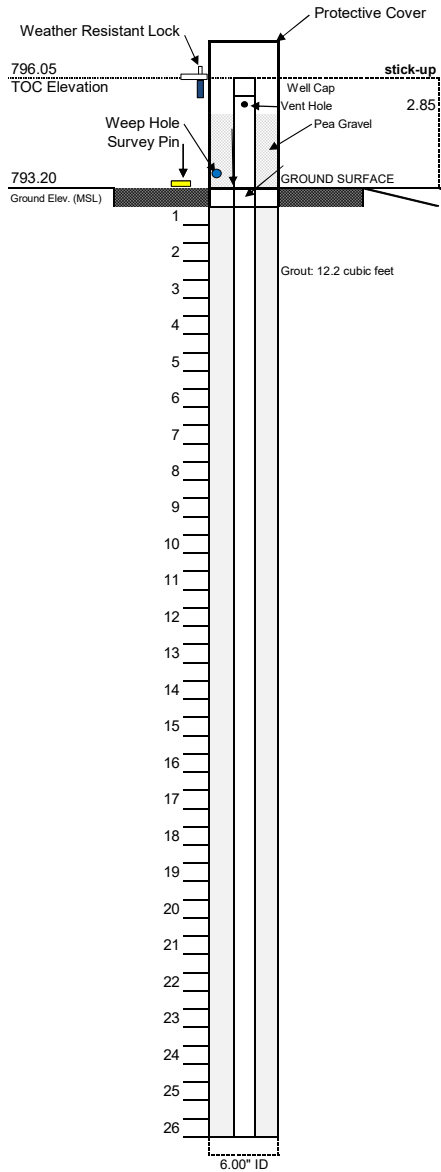
MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

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

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

PROJECT:	Plant Yates	PROJECT NO.:	1054-110
TOTAL DEPTH:	91.96 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	6-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	34.44' BGS		



Northing: 1256915.25
Easting: 2073345.21

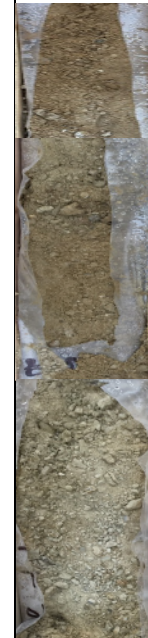
SURFACE COMPLETION:
4"x4" Aluminum Protective Casing
4"x4"x4" Concrete Pad
Weather Resistant Lock
Survey Pin

SOIL DESCRIPTION
0-9' Hydrovac. No observable cuttings

Core Photos

9-19' Dark to pale brown silty sand. Dry, soft with some clay and gravel
Gravel is friable and medium to highly weathered

19-29' As above-tan to medium brown, some hard gravel pieces
(10/10)



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
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



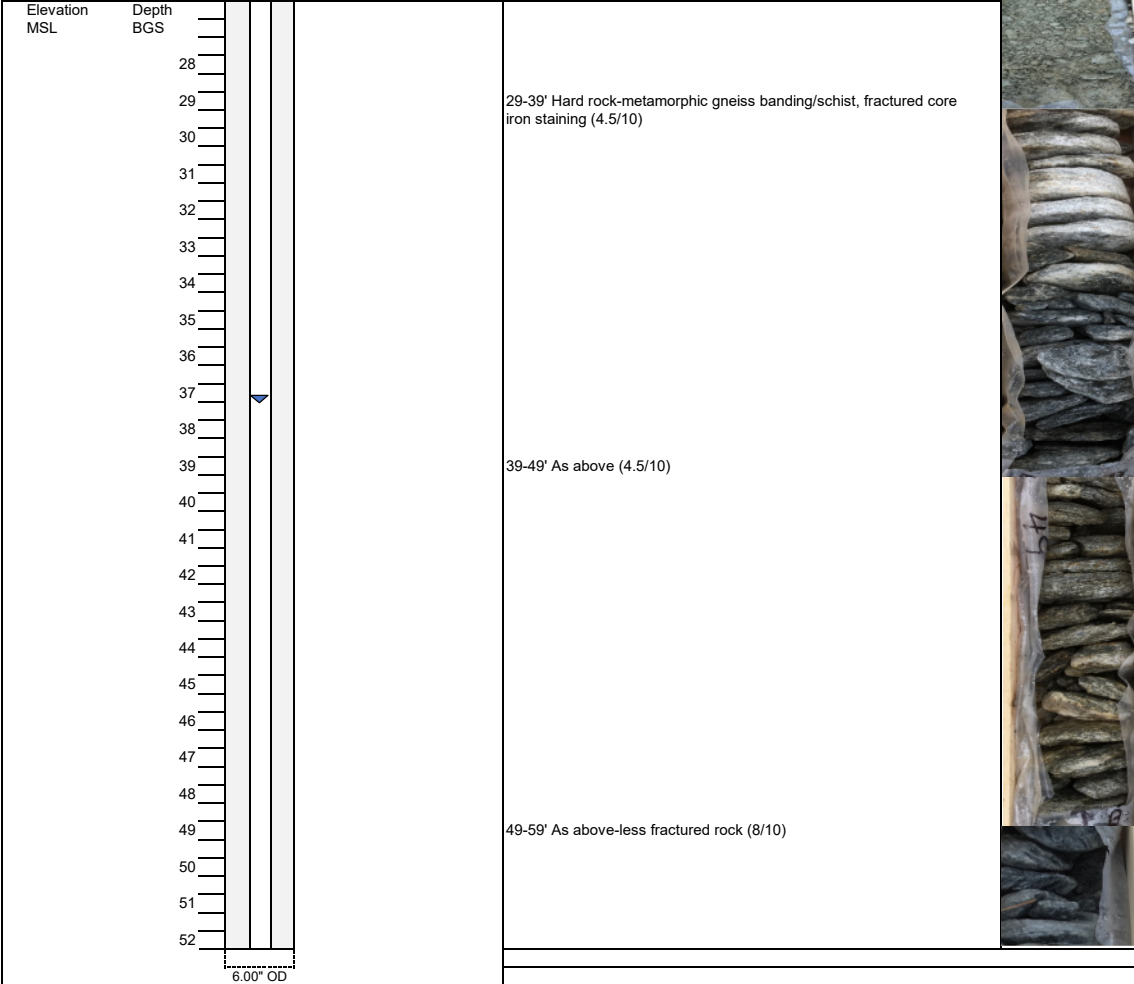
ATLANTIC COAST CONSULTING, INC.

YAMW-3

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	1054-110
TOTAL DEPTH:	91.96 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	6-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	34.44' BGS		

Core Photos



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pei-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

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



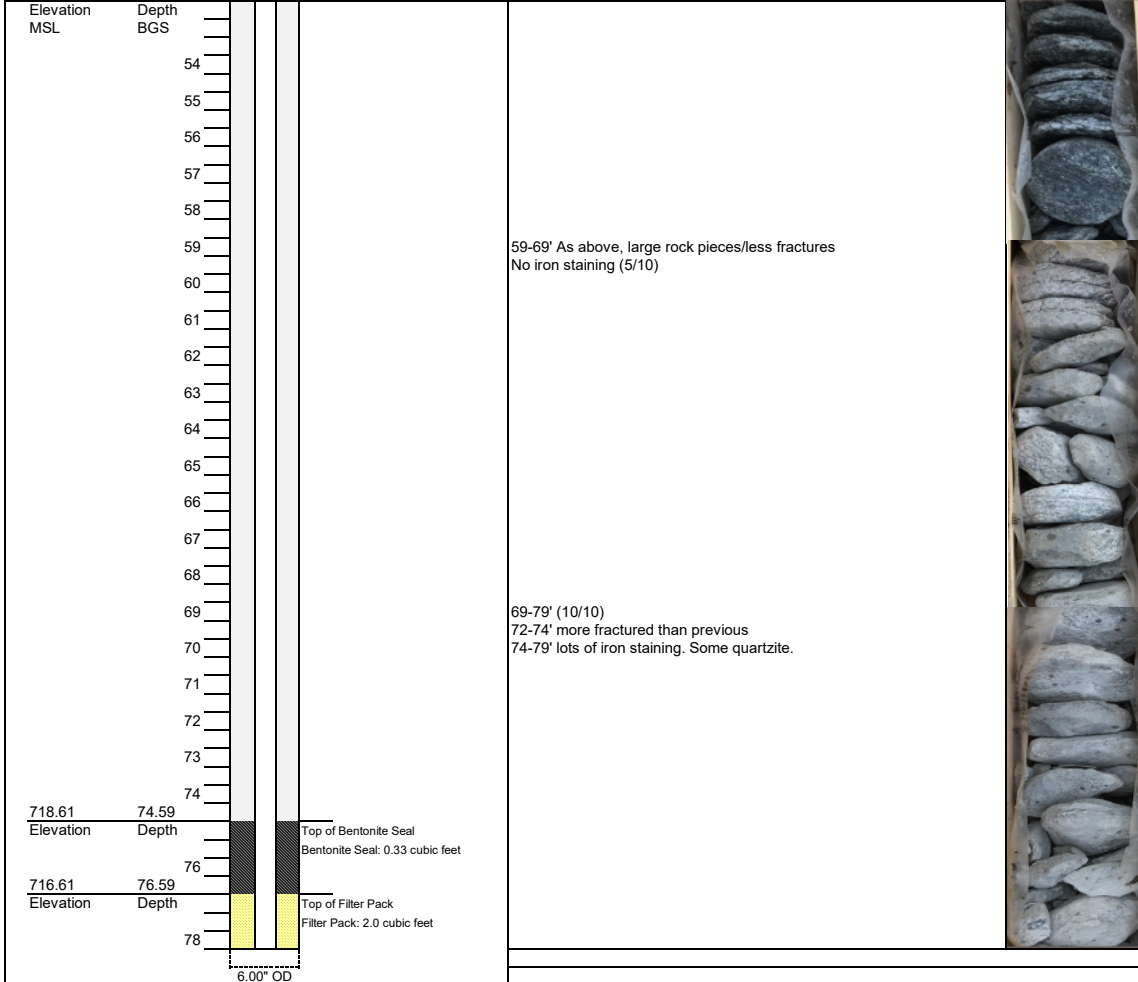
ATLANTIC COAST CONSULTING, INC.

YAMW-3

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	91.96 ft. BTOC	SITE LOCATION:	Newman, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	6-Nov-2019	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	34.44' BGS		

Core Photos



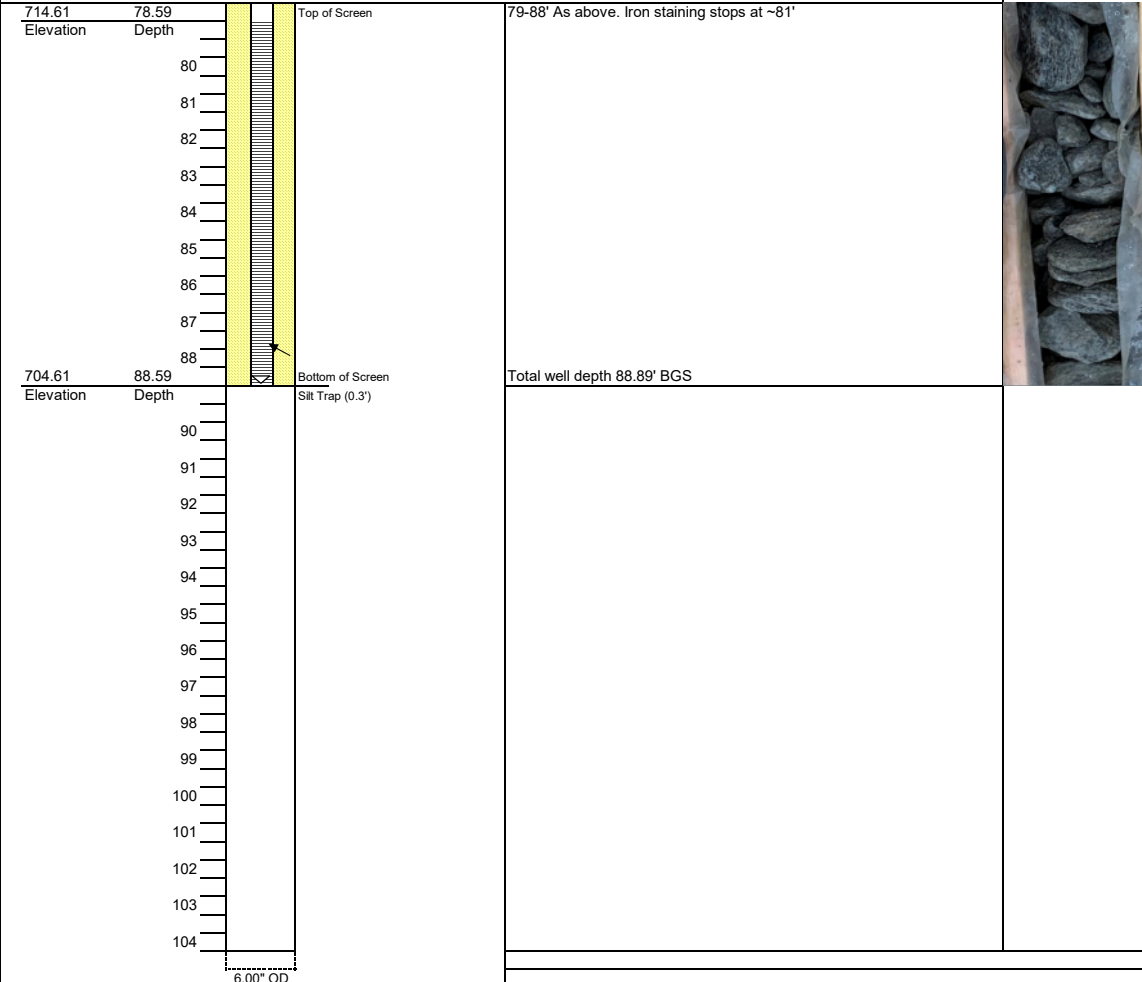
MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

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

PROJECT: Plant Yates	PROJECT NO.: I054-110
TOTAL DEPTH: 91.96 ft. BTOC	SITE LOCATION: Newnan, Georgia
DATE BEGIN: 5-Nov-2019	DRILLER: Isaac Young
DATE COMPLETE: 6-Nov-2019	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Ryan Walker	
WATER 1ST ENCOUNTERED: 30' BGS	
WATER AFTER 48 HOURS: 34.44' BGS	

Core Photos

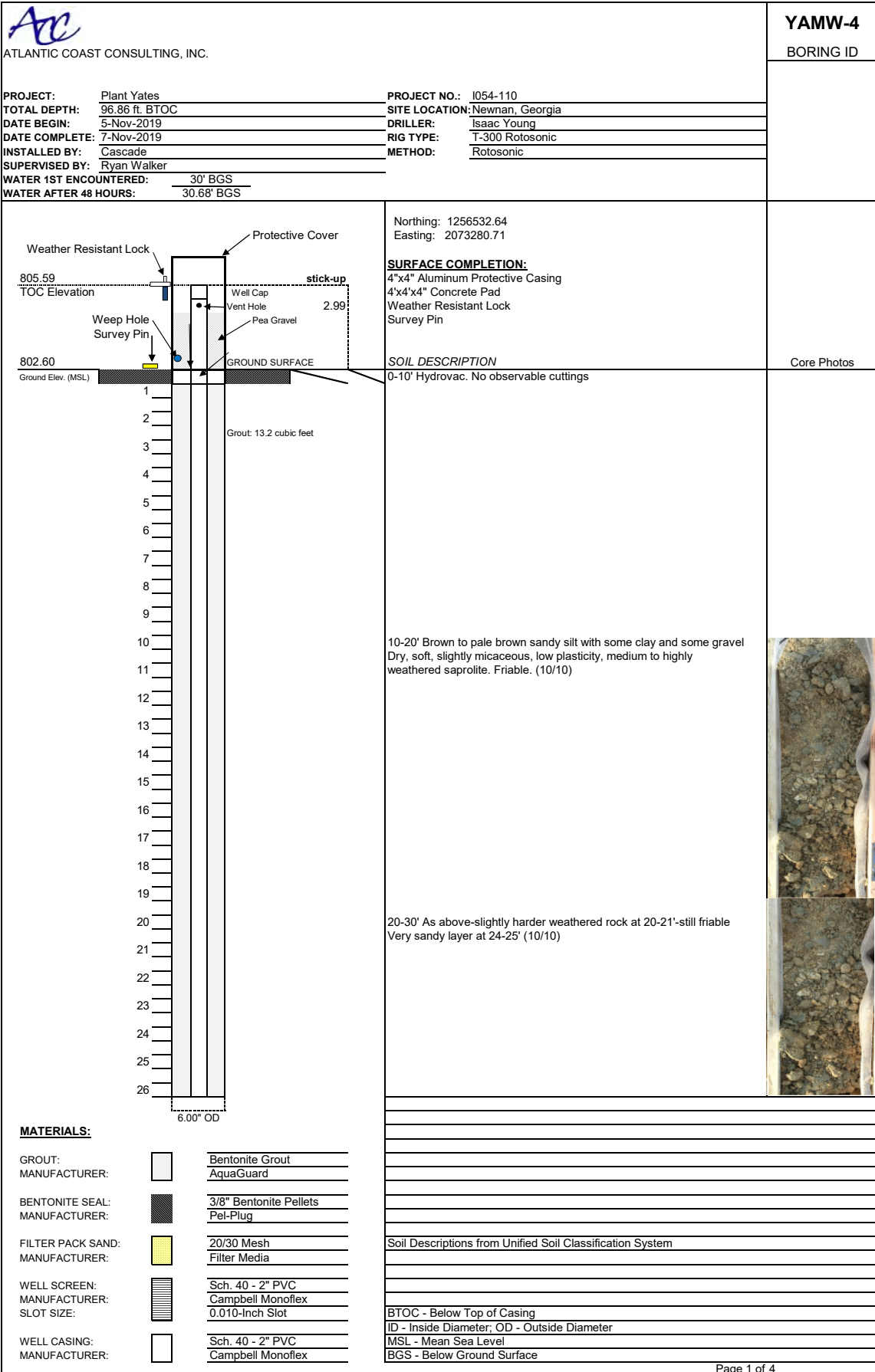


MATERIALS:

- | | | |
|-------------------|--|------------------------|
| GROUT: | | Bentonite Grout |
| MANUFACTURER: | | AquaGuard |
| BENTONITE SEAL: | | 3/8" Bentonite Pellets |
| MANUFACTURER: | | Pei-Plug |
| FILTER PACK SAND: | | 20/30 Mesh |
| MANUFACTURER: | | Filter Media |
| WELL SCREEN: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING: | | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line |

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

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).





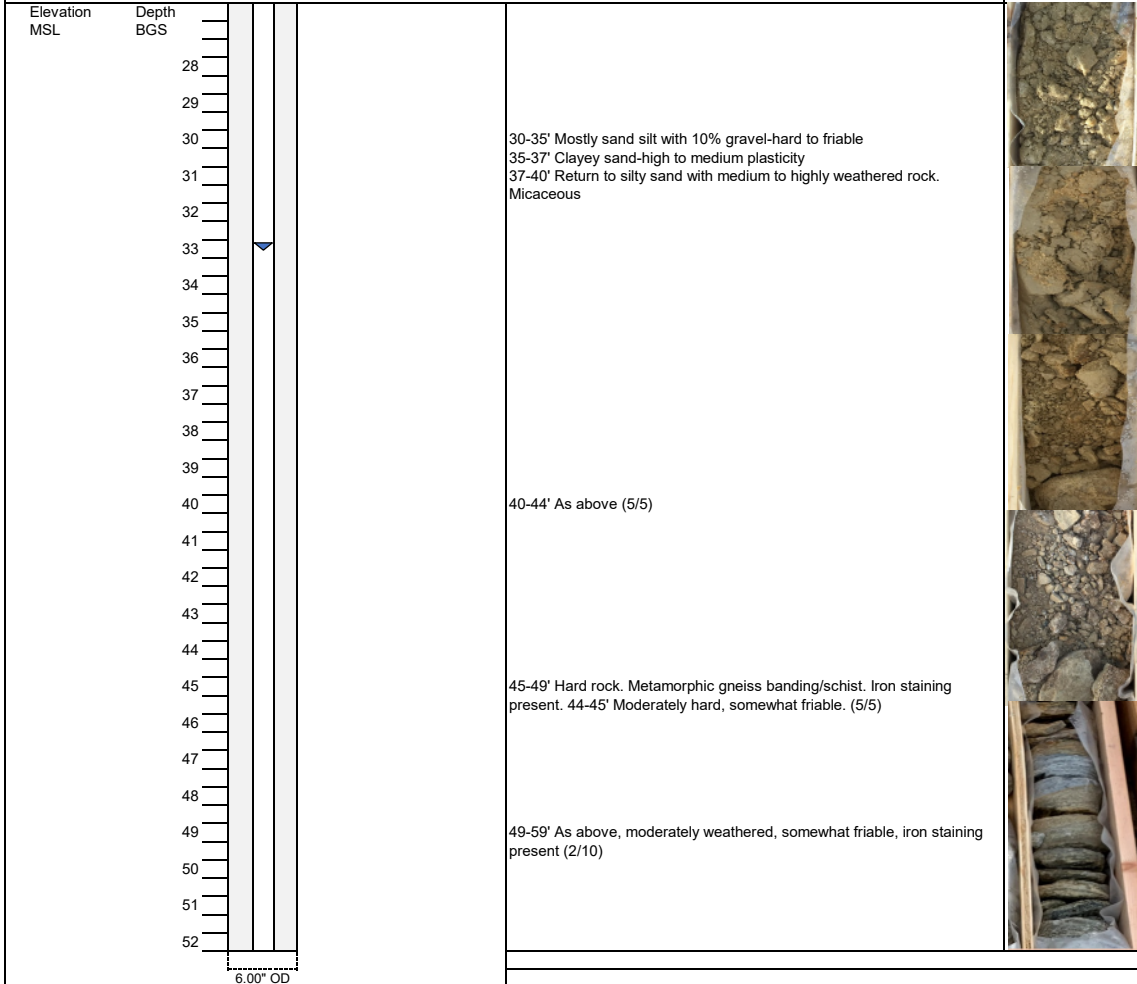
ATLANTIC COAST CONSULTING, INC.

YAMW-4

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	96.86 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	7-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	30.68' BGS		

Core Photos



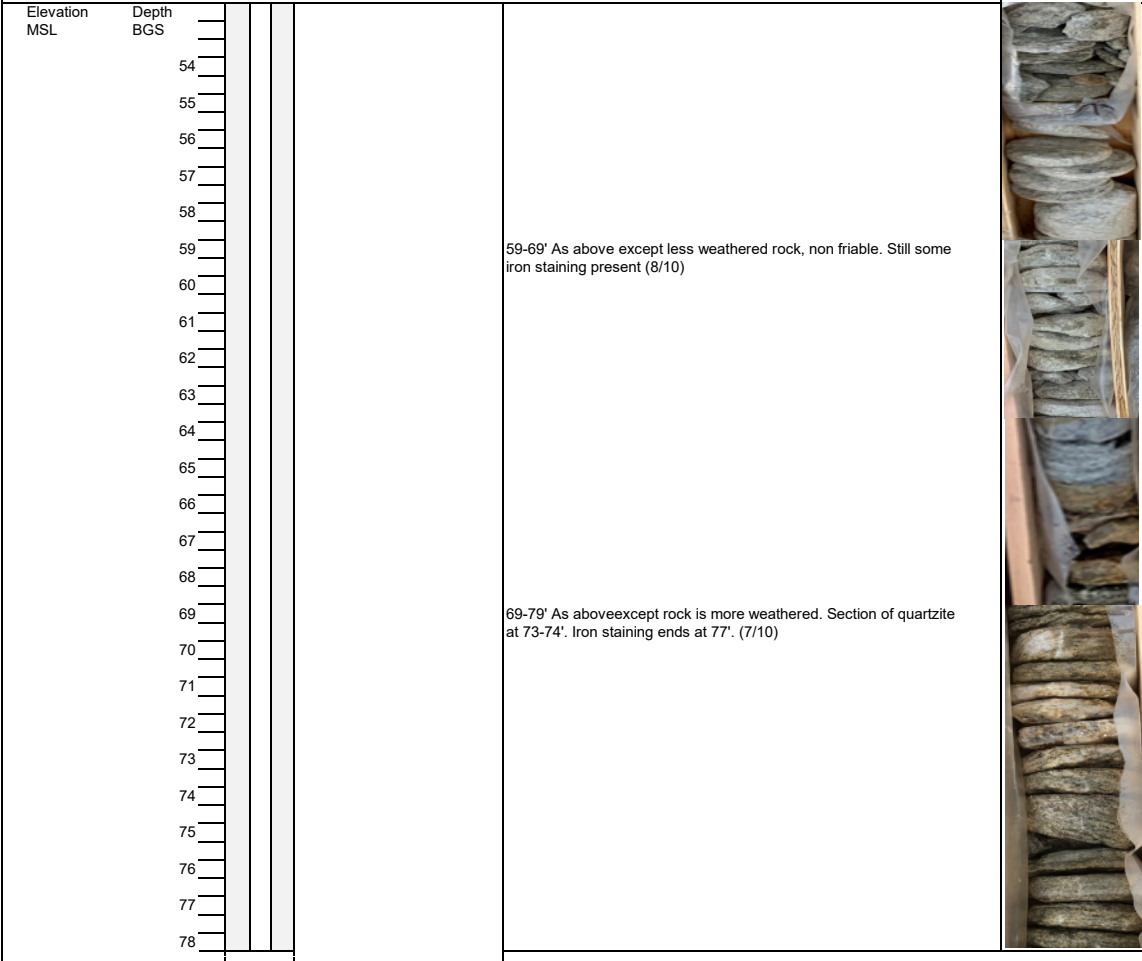
MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line






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

PROJECT: Plant Yates	PROJECT NO.: 1054-110
TOTAL DEPTH: 96.86 ft. BTOC	SITE LOCATION: Newnan, Georgia
DATE BEGIN: 5-Nov-2019	DRILLER: Isaac Young
DATE COMPLETE: 7-Nov-2019	RIG TYPE: T-300 Rotosonic
INSTALLED BY: Cascade	METHOD: Rotosonic
SUPERVISED BY: Ryan Walker	
WATER 1ST ENCOUNTERED: 30' BGS	
WATER AFTER 48 HOURS: 30.68' BGS	

Core Photos



MATERIALS:

- | | | |
|-------------------|---|------------------------|
| GROUT: |  | Bentonite Grout |
| MANUFACTURER: | | AquaGuard |
| BENTONITE SEAL: |  | 3/8" Bentonite Pellets |
| MANUFACTURER: | | Pei-Plug |
| FILTER PACK SAND: |  | 20/30 Mesh |
| MANUFACTURER: | | Filter Media |
| WELL SCREEN: |  | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line |
| SLOT SIZE: | | 0.010-Inch Slot |
| WELL CASING: |  | Sch. 40 - 2" PVC |
| MANUFACTURER: | | Silver-Line |

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



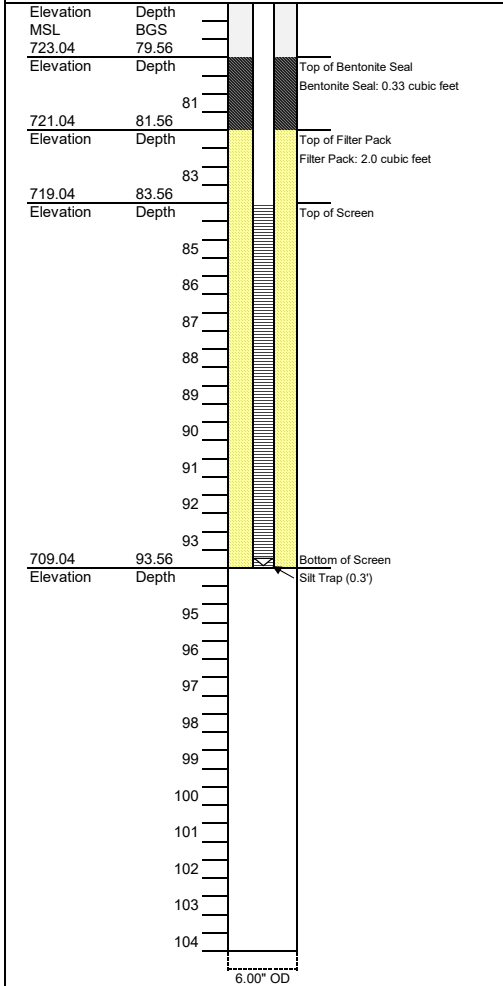
ATLANTIC COAST CONSULTING, INC.

YAMW-4

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	96.86 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	5-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	7-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	30' BGS		
WATER AFTER 48 HOURS:	30.68' BGS		

Core Photos



79-89' Very competent rock with some fracturing at 84-85' and 88-89'. Iron staining at 88-89'

89-94' Fractures and iron staining from 89-90' and 93-94'. Some slight iron staining from 90-93' but mostly solid core.

Total well depth 93.86' BGS



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

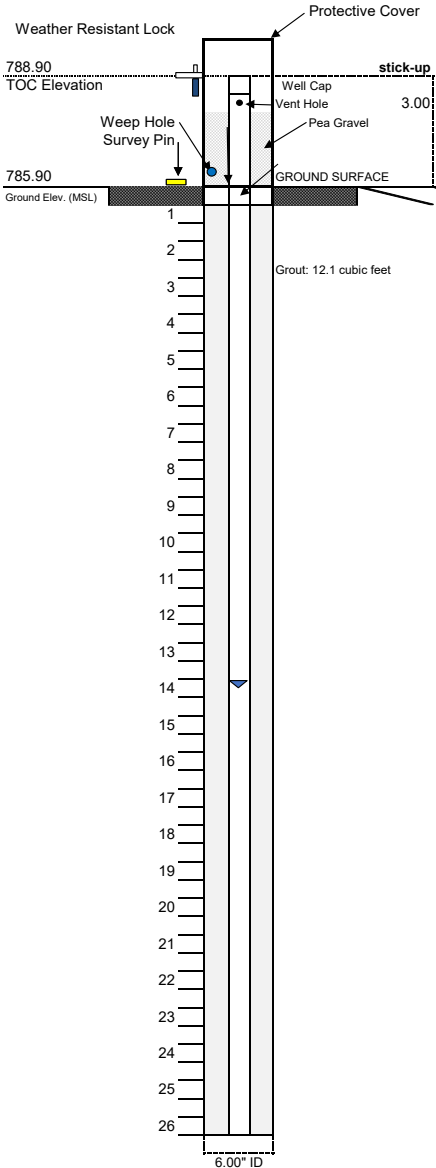
TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
 MSL - Mean Sea Level
 BGS - Below Ground Surface

The well coordinates and elevation data were revised based on a June 2020 survey (Arcadis, June 29, 2020).

ACC
ATLANTIC COAST CONSULTING, INC.

YAMW-5
BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	1054-110
TOTAL DEPTH:	90.66 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	12-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	13-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	35' BGS		
WATER AFTER 48 HOURS:	11.21' BGS		



Northing: 1256140.21
Easting: 2074486.69

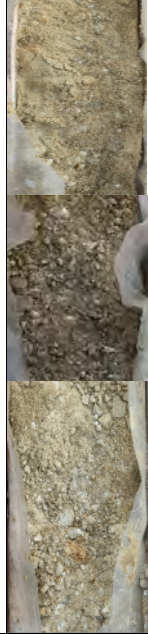
SURFACE COMPLETION:
4"x4" Aluminum Protective Casing
4"x4"x4" Concrete Pad
Weather Resistant Lock
Survey Pin

SOIL DESCRIPTION
0-10' Hydrovac. No observable cuttings

Core Photos

9-19' tan to pale brown. Silty sand (SC) with some silt and clays, moist to dry, soft, some saprolite. (10/10)

19-29' As above (9/10).



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
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



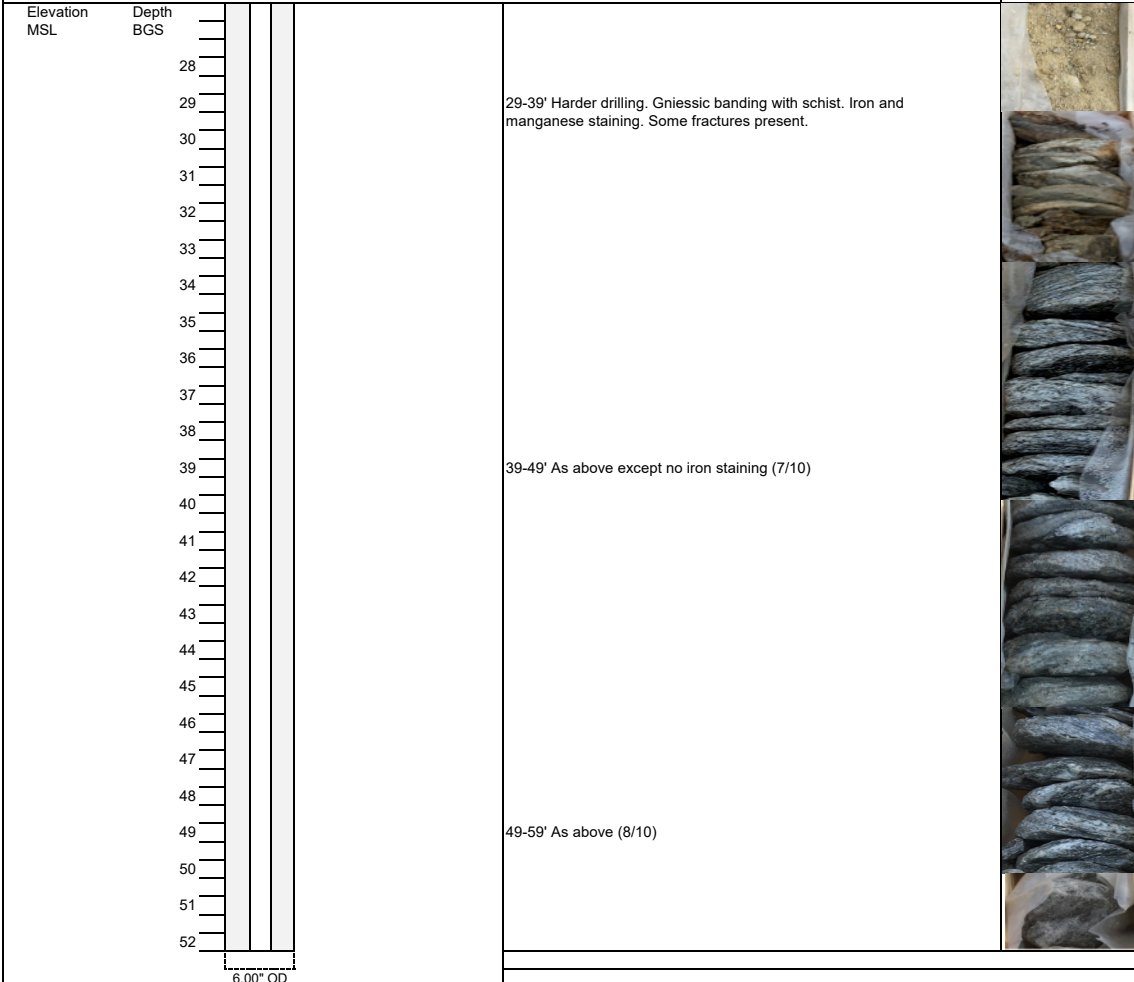
ATLANTIC COAST CONSULTING, INC.

YAMW-5

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	1054-110
TOTAL DEPTH:	90.66 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	12-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	13-Nov-2019	RIG TYPE:	T-300 Rotasonic
INSTALLED BY:	Cascade	METHOD:	Rotasonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	35' BGS		
WATER AFTER 48 HOURS:	11.21' BGS		

Core Photos



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pei-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

TOC - Top of Casing
 ID - Inside Diameter; OD - Outside Diameter
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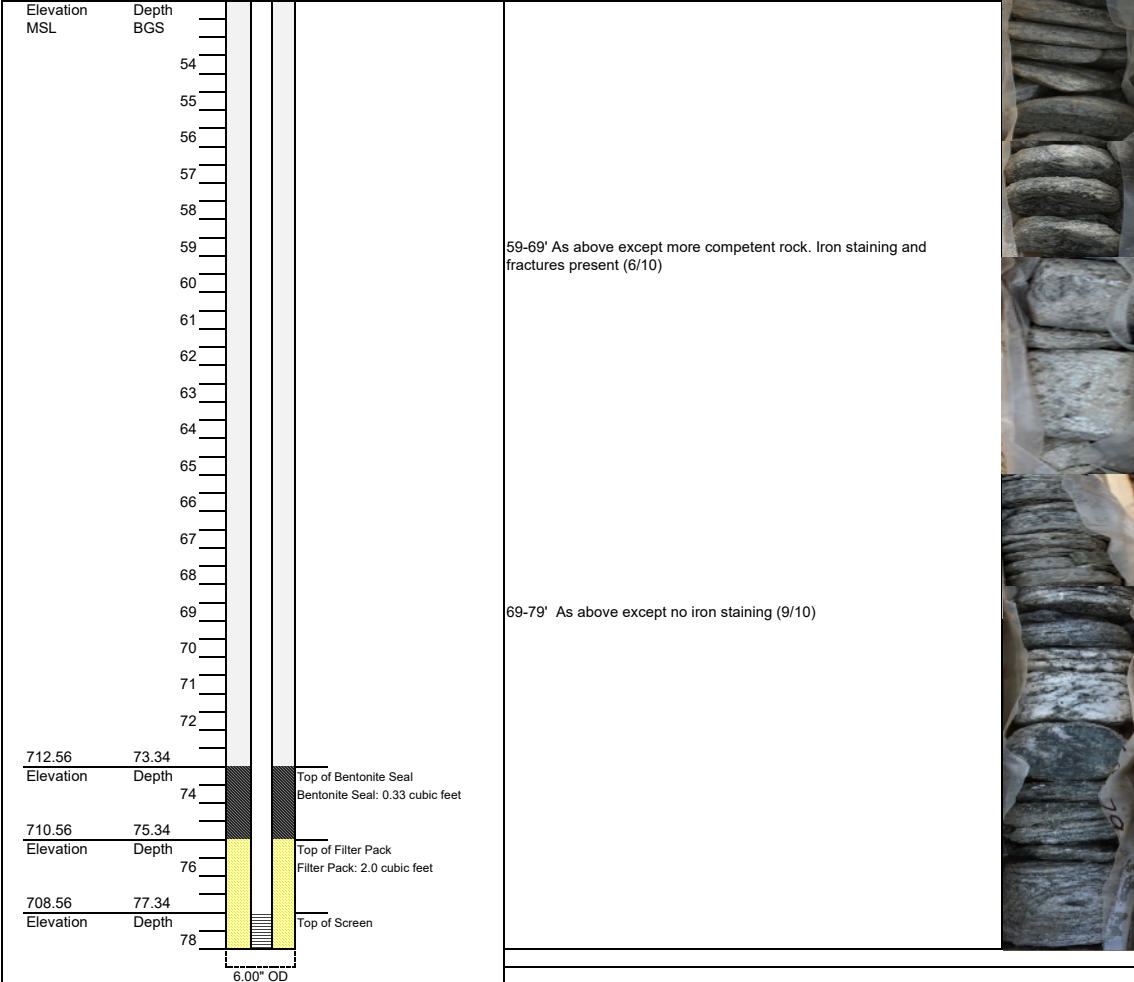
ATLANTIC COAST CONSULTING, INC.

YAMW-5

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	1054-110
TOTAL DEPTH:	90.66 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	12-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	13-Nov-2019	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	35' BGS		
WATER AFTER 48 HOURS:	11.21' BGS		

Core Photos



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pei-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
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MANUFACTURER:		Silver-Line

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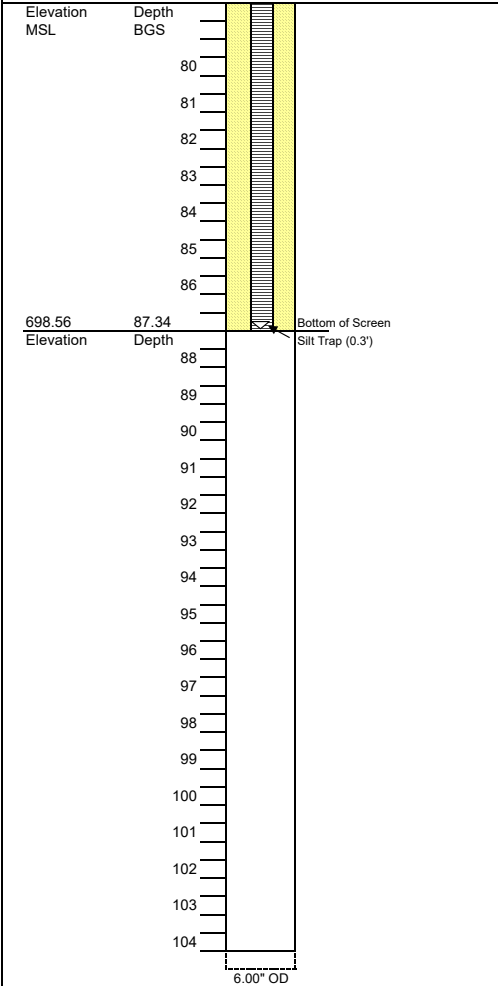
ATLANTIC COAST CONSULTING, INC.

YAMW-5

BORING ID

PROJECT:	Plant Yates	PROJECT NO.:	I054-110
TOTAL DEPTH:	90.66 ft. BTOC	SITE LOCATION:	Newnan, Georgia
DATE BEGIN:	12-Nov-2019	DRILLER:	Isaac Young
DATE COMPLETE:	13-Nov-2019	RIG TYPE:	T-300 Rotosonic
INSTALLED BY:	Cascade	METHOD:	Rotosonic
SUPERVISED BY:	Ryan Walker		
WATER 1ST ENCOUNTERED:	35' BGS		
WATER AFTER 48 HOURS:	11.21' BGS		

Core Photos



79-87" As above except rock slightly weathered. Iron staining and some fractures present (6/10)

Total well depth 87.64' BGS



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pei-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Filter Media
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Silver-Line

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

APPENDIX B
GEOLOGIC MAPPING AND LINEAMENT ANALYSIS

October 13, 2017

1659442, 1772632

Mr. Joju Abraham
Southern Company Services, Inc.
241 Ralph McGill Blvd NE
Atlanta, GA 30308
jabraham@southernco.com
(404) 506-7239

**RE: GEOLOGIC MAPPING AND LINEAMENT ANALYSIS
GEORGIA POWER PLANT YATES NEWNAN, GEORGIA**

Dear Joju:

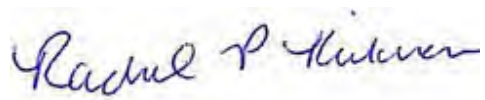
We have enclosed our Geologic Mapping and Lineament Analysis for Plant Yates. Golder appreciates the opportunity to work with SCS on this project. Should you require additional information related to this lineament analysis, please do not hesitate to contact us at (770) 496-1893.

Sincerely,

GOLDER ASSOCIATES INC.



Timothy I. Richards, PG
Associate and Senior Environmental Consultant



Rachel P. Kirkman, PG
Associate and Senior Consultant

Enclosure: Geologic Mapping and Lineament Analysis

DRAFT REPORT

GEOLOGIC MAPPING AND LINEAMENT ANALYSIS

GEORGIA POWER - PLANT YATES

COWETA COUNTY, GEORGIA

Submitted By: Golder Associates Inc.
3730 Chamblee Tucker Rd.
Atlanta, Georgia 30341

October 2017

1537247, 1772632

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1.0 INTRODUCTION

Georgia Power Company operates a natural gas-fired station at Plant Yates approximately 7 miles northwest of Newnan, Georgia (GA) Coweta County. The plant property encompasses approximately 2,400 acres, bounded by the Chattahoochee River to the north and west, Highway 16 to the east, and residential property along Wagers Mill Road to the south.

The plant currently operates two natural gas-fired units (units 6 and 7) to produce electricity. It is our understanding that Georgia Power has retired the five coal-fired units (units 1 through 5) and will continue to operate this station as a natural gas-fired plant. Plant Yates has seven coal combustion residual (CCR) ash ponds and one permitted “dry stacking” landfill as identified in the RFP. Ash Pond 1 is dry and uncovered; Ash Ponds 2 and 3 are wet ponds; and Ash Ponds A, B, and C are dry and covered, with C partially underneath the R6 Landfill. The B Ash Pond is currently being used to dewater wet ash before being landfilled at R6.

Golder Associates Inc. (Golder) was retained by Southern Company Services (SCS) to perform an evaluation of the geologic conditions in and around Plant Yates. For this evaluation, a review of limited site-specific information was conducted, a desktop study was conducted to review existing information on geologic conditions within the vicinity of Plant Yates; a lineament analysis was performed to identify linear features that may control groundwater flow within the bedrock; and detailed geologic mapping was conducted by Golder’s subcontractor Petrologic Solutions, Inc. (Petrologic). Information collected during this investigation can be used by SCS to provide a framework for development a site conceptual groundwater model.

Information that we relied upon for the desk study, lineament analysis and geologic mapping includes:

1. Limited review during geologic mapping of available rock core collected by SCS on Plant property
2. Boring logs for PZ-35 through PZ-49 from Golder’s 2017 Piezometer Installation Report
3. Publicly Available Information
 - Whitesburg, GA USGS 7.5 minute topographic quadrangle
 - 10-m Digital Elevation Model taken from the USGS Whitesburg and Newnan North, Georgia, 7.5 minute quadrangles.
 - McConnell, K. and Abrams, C., 1984. Geology of the Greater Atlanta Region, Georgia: Geological Survey Bulletin 96.
 - Redwine, J., Tinsely, R., Patel, D., and Bloomberg, D., 1991. Geology, Hydrogeology, and Ground-Water Chemistry of the Plant Yates Gypsum Stacking Area, Coweta County, Georgia: Proceedings of the 1991 Ground Water Resources Conference March 19-21, 1991, pp 326-330.

- Steltenpohl, M., Kish, S., and Neilson, M., 1990. Geology of the Southern Inner Piedmont, Alabama and Southwest Georgia: Guidebook for Field Trip VII April 7-8, 1990.

2.0 BACKGROUND INFORMATION

2.1 General

Information presented in this section is based on published literature, discussion with local geologic experts, and experience working in this geologic terrain. This section is presented to provide an overview of regional geology in the area. A detailed discussion of large-scale, site-specific geology is presented in Section 3.0.

2.2 Physiography

Plant Yates is located within the Piedmont Physiographic Province of western GA, which is characterized by gently rolling hills and narrow valleys, with locally pronounced linear ridges. Topographic relief within the vicinity of the site is greater than 150 feet, with topographic highs of over 860 feet above mean sea level (ft. MSL) occurring on small hilltops, and topographic lows of less than 700 ft. MSL near the Chattahoochee River. The site has generally been constructed in a valley with several north-south to northwest-trending tributaries to the Chattahoochee River, as shown on Figure 1.

2.3 Regional Geologic Setting

Plant Yates is located within the northeast quarter of the Whitesburg, GA United States Geological Survey (USGS) 7.5-minute topographic quadrangle. The Piedmont/Blue Ridge geologic province contains some of the oldest rocks in the Southeastern United States. Since their origin, approximately 276 to 1,100 million years ago (Ma), these late Precambrian (Neoproterozoic) to late Paleozoic (Permian) rocks have undergone repeated cycles of igneous intrusions and extrusions, metamorphism, folding, faulting, shearing, and silicification. The latest regional metamorphism and associated deformation has been attributed to the collision of the North America plate with the Eurasian plate approximately 200 to 230 Ma. More recent deformation and emplacement of mafic dikes is associated with the rifting of the North American craton during the Mesozoic and Cenozoic Eras.

The metamorphic and igneous rocks that underlie the area have been subjected to physical and chemical weathering which has created a landscape dissected by creeks and streams forming a dendritic drainage pattern. These rocks are deeply weathered due to the humid climate and bedrock is typically overlain by a variably thick blanket of residual soils and saprolite. The overall depth of weathering in the Piedmont/Blue Ridge is generally about 20 to 60 feet; however, the depth of weathering along discontinuities and/or very feldspathic rock units may extend to depths greater than 100 feet. Because of such variations in rock types and structure, the depth of weathering can vary significantly over short horizontal distances. Locally, significant accumulations of alluvial soils are also present in the area. Sand and gravel alluvial

terraces related to changing stream base grade elevations occur above residual soils in areas near larger rivers.

2.4 Regional Stratigraphy and Structure

Two major structural/stratigraphic packages occur within the Piedmont/Blue Ridge around the site. These packages are separated by The Katy Creek Fault, a regional fault that occurs northwest of the Plant property and traverses northeast-southwest through this area. This Fault is a thrust fault, dipping at a lower angle than the strike-slip faults present in the region. This thrust fault developed at a relatively shallower depth in the crust than the strike-slip faults, resulting in less-pronounced ductile structural fabrics. Uplift associated with building of the Appalachian Mountains and subsequent erosion has allowed modern exposure of these structural features.

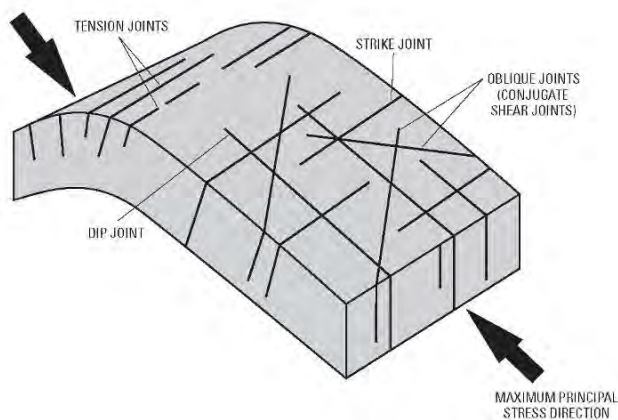
The Katy Creek Fault forms boundary between a regional zone of deformation, referred to as the Brevard Zone, and the Dadeville Complex. Lithologic contacts and major structural features in the Brevard Zone generally trend northeast-southwest. In addition to strike-slip and thrust faults, structural features within this shear zone consist of northwest-verging, doubly-plunging, overturned folds that have been overprinted by a shear-induced foliation.

The Brevard Zone includes fine-grained and porphyroblastic schists, button schists, phyllonitic schists, biotite schists, and schists locally interlayered with amphibolite/hornblende gneiss, and ultramafic bodies; mylonites, ultramylonites, and flinty crush rock; metagraywacke and feldspathic quartzite; and granitic gneiss. Rocks within these various lithologic units have been intensely deformed, sheared, chemically altered, silicified and are generally repeated because of movement along faults both within and outside of the Brevard Zone.

The Dadeville Complex occurs southeast of the Brevard Zone and is considered to represent an Ordovician-age Island Arc. Rocks within this complex are generally more mafic near the Brevard Zone, becoming more felsic in areas further southeast of the Brevard. The mafic portion of the Dadeville Complex primarily consists of biotite gneiss and thick, mappable layers of amphibolite/hornblende gneiss. The biotite gneiss is also interlayered with thin, discontinuous layers, lenses and pods of amphibolite. The continuous and discontinuous amphibolite layers and lenses weather more deeply but less uniformly than the surrounding biotite gneiss in this area. These mafic units are observed northwest of Plant Yates. Units underlying that area around Plant Yates and further southeast are more felsic, being comprised of a mixture of granitic intrusives, migamitic and biotite gneiss, and aluminosilicate schists.

Typically up to four different joint sets formed in this area due to tectonic stresses imposed upon the bedrock. Dip joints form parallel to the regional dip direction of foliation/compositional layering and are typically perpendicular to fold limbs, representing extension perpendicular to the maximum principal

stress direction or direction of compression. These joints are commonly near vertical. Strike joints develop parallel to the strike of foliation/compositional layering and fold limbs, typically forming from tension during relaxation of the maximum principal stress. The dip direction and angle of these joints is orthogonal to the dip direction and angle of compositional layering. Oblique joints develop diagonal ($\pm 30^\circ$) to the principal stress direction and represent conjugate sets formed from shear along the intermediate principal stress.



Schematic diagram showing the typical joint patterns

3.0 SITE GEOLOGIC CONDITIONS

3.1 Geologic Mapping Methodology

Detailed geologic mapping was performed by Petrologic within and around the site within the more felsic portion of the Dadeville Complex, using the Whitesburg, GA USGS 7.5-minute topographic quadrangle as a base map. Mafic lithologies of the Dadeville that occur further northwest of the site, labeled OZa, OZssbg and Ozgg on Figure 2, are not considered to influence groundwater conditions around Plant Yates, and therefore are not discussed in this report.

Figure 2 presents interpretation of structural and lithologic features encountered during mapping of the area. Information recorded at each map station included: lithology and mineralogy; orientation and characteristics of structural discontinuities including, shearing, faulting, jointing, cleavage, and compositional layering; and depth and type of weathering characteristics of the rock. Bedrock discontinuity orientations were statistically analyzed by Petrologic using lower hemisphere equal-area stereonet, presented as Figure 3, to determine dominant orientations for each discontinuity type (i.e., faults, joints, and foliation). Map station locations were recorded using a hand-held, Wide Area Augmentation System (WAAS)-enabled Global Positioning System (GPS).

3.2 Alluvial and Residual Soils

Limited boring logs were available for review based on Golder's June and July 2017 piezometer installation. A review of boring logs indicates that surficial soils are composed of a mixture of sands, silts, and clays.

Also, both alluvial and residual soils were observed at ground surface around the site. Alluvial soils primarily consisted of coarser material that may be related to a former Chattahoochee River terrace, consisting of silty-sand, clayey silt, and silty clay with well-rounded gravel and cobbles. The terrace was observed primarily within point bars of the Chattahoochee with up to 20 feet of relief. Overbank, floodplain-type deposits are anticipated to underlie the Plant, as well as former river channels related to previous migration of the Chattahoochee.

Residual soils were also observed at ground surface. These soils were derived from physical and chemical weathering of the underlying bedrock, and consist primarily of silty sand, sandy silt, and silty clay, with local gravel-sized angular fragments of weathered bedrock. A variably-thick blanket of residual soils is anticipated to overlie bedrock across most of the site.

Based on the detailed geologic mapping, rock types present at the site includes granitic and migmatitic gneiss, biotite gneiss and amphibolite, all of which have highly variably mineralogy, texture and chemistry, and a muscovite schist that serves as a structural marker horizon. Residual soils developed from weathering of these rock types may have variable geochemical characteristics. These descriptions are consistent with bedrock descriptions from Golder's June-July 2017 piezometer installation report, which indicate the presence of biotite gneiss, granitic gneiss, and amphibolite beneath the site.

3.3 Lithologic Units.

During geologic mapping, distinct lithologic units were identified to underlie the site. A brief description of these lithologies is presented below and the aerial distribution of each unit is shown on Figure 2.

Massive Granite (OZgr): Massive, weakly foliated, poorly jointed, fine-to medium-grained granite. Large, relatively unweathered, exfoliation boulders are commonly observed within the residual and saprolitic soils. Weathering of this granite may yield Uranium and daughter products (e.g., Radium 226/228); however, this unit is separated from the site by the Chattahoochee River. Consequently it is unlikely that this unit will impact groundwater quality on site.

Migmatitic Gneiss (OZmgn): Highly contorted, well layered, well foliated, poorly jointed, medium-grained muscovite-biotite-quartz-feldspar migmatitic gneiss. Granite is locally interlayered with biotite gneiss and pods/lenses of ultramafic bodies, which occur as relatively fresh, well foliated, unjointed boulders of medium- to coarse-grained actinolite-chlorite schist. A relatively large body of granite occurs within the migmatitic gneiss southwest of the site. Overall, this unit does not weather deeply, but exhibits differential weathering where the magmatic gneiss and schist are relatively fresh compared to the biotite gneiss. Most of the biotite gneiss occurs as unmappable layers within the magmatic gneiss; however, one mappable lens of biotite gneiss was observed north of the Chattahoochee River (labeled OZog on

Figure 2). Weathering of ultramafic bodies could produce naturally elevated metals in groundwater, this unit occurs north of the Chattahoochee but also underlies the property and may potentially impact groundwater quality on site.

Feldspathic Gneiss (OZggn): Variably well foliated to weakly foliated, slightly sheared, weakly jointed, fine- to medium-grained micaceous, feldspathic granitic gneiss. Due to the high feldspar content, this unit weathers more deeply than others observed on site, as indicated by the formation of a natural valley in areas where this unit occurs.

Porphyroblastic Schist (OZgss): Well foliated, crenulated, highly sheared, poorly jointed, medium- to coarse-grained, sillimanite-quartz-muscovite schist with porphyroblastic garnet and staurolite. This unit is very distinctive and is used as a marker horizon to delineate structure on site, discussed further in Section 3.4. Although this unit is typically fresh, weathering of the porphyroblastic garnets and staurolite may promote naturally enriched Fe, Mn, Ca, and Zn in groundwater.

Biotite Gneiss (OZog): Well layered, well foliated, moderately jointed, fine- to medium-grained, biotite-quartz-feldspar gneiss. This unit weathers fairly deeply relative to adjacent lithologies, forming a distinctive dark red, vermiculitic soil from weathering of biotite. The gneiss locally contains thin lenses of chlorite-actinolite schist and feldspar-hornblende gneiss/amphibolite, increasing in concentration of these ultramafic and mafic bodies to the southeast.

Amphibolite (OZa): Thinly laminated, moderately jointed, fine- to medium-grained hornblende-plagioclase gneiss/amphibolite with interlayered chlorite-actinolite schist. Weathering of this unit may promote naturally enriched Fe, Mn, Mg, and Ca in groundwater.

In general, the lithologic units observed to underlie the site do not weather deeply and do not have well-developed secondary permeability; consequently, preferential pathways for groundwater flow are likely not enhanced, significantly limiting the potential for groundwater flow in the bedrock aquifer systems.

3.4 Geologic Structure

Based on detailed geologic mapping by Petrologic, indication of folding and faulting has been observed at and near the site. As shown on Figure 2, the migmatitic gneiss occurs both north and south of the Chattahoochee River. This unit is truncated northwest and southwest of the site by an unnamed, strike-slip fault, referred to in this report as the Yates Fault. This fault occurs subparallel to the Chattahoochee River near the site but abruptly turns south in the southwest corner of the site. A relatively hard knot of migmatitic granite occurs in the gneiss where the fault deflects south. There is likely to be a rheologic contrast between the migmatitic gneiss and the mass of granite, with the granite being much harder than the surrounding gneiss. This hard mass likely forced the fault to deflect around the mass in this area. Rocks that were being transported in the southeastern block of the fault appear to have been “piled” up, creating an upright, slightly overturned, west verging antiformal structure, as shown on Figure 2.

The core of this fold is comprised of feldspathic gneiss, which weathers more deeply than other lithologic units observed on site. Rimming this unit is the porphyroblastic schist, which serves as a distinctive marker horizon for delineating structure on site. Lithologies related to the OZa Amphibolite unit, which is

observed in the mafic portion of the Dadeville Complex are also present adjacent to the fault on the southeastern block.

Foliation measured during geologic mapping near the site reflects the dominantly north-south trending structures in this area, with an average foliation of N9E, 38SE, as graphically shown on the equal-area, lower hemisphere stereonet and rose diagram presented as Figure 3 (prepared by Petrologic). Mapping further northwest of the fault reflects the more regional orientation of foliation characteristic of the Brevard Zone, which is generally oriented about N40-45E.

Because the evaluation of joints is visual and judgmental, an effort is made for consistency in describing the relative frequency of occurrence using the following designations: Abundant (A); Common (C); and Scarce (S). These designations are relative to one another but are used consistently in descriptions made throughout the study area. An effort is made to record all of the different joint sets and, if an exposure is large, several same (or similar) joints may be recorded at the same Map Station. This deliberate method of visual evaluation in the field is more scientifically relevant and efficient than saturation-measurement of joints.

Four major joint sets were recorded during the detailed geologic mapping. Equal-area stereonet analysis of all joints measured in all lithologies is presented in Figure 4.

The four major joint sets are (quadrant and azimuth, right hand rule):

- J1: N48E 61NW (228/61) – regional strike joint
- J2: N50E 72SE (050/72) – regional strike joint
- J3: N44W 72SW (136/72) – regional dip joint
- J4: N3W 87SW (177/87) – local strike joint

Joint sets 1 and 2 are oriented subparallel to regional foliation, the dip of which varies in response to the dip of foliation. These joints are referred to above as regional strike joints. Joint set 3 is oriented perpendicular to regional foliation and is referred to as a regional dip joint. Joint 4 appears to have formed locally in response to the north-south trending structures mapped on the site and southwest of the site. This joint set is referred to as the local strike joint.

3.5 Lineament Analysis

3.5.1 Methodology

Preferential weathering of subsurface geologic discontinuities such as lithologic contacts between resistant or non-resistant units, fracture zones, jointing, shear planes, and faults often results in ground surface expressions that can be identified through analysis of photographic and topographic images. These topographic expressions, which are referred to as lineaments, commonly have enhanced porosity and permeability in the rock mass due to differential weathering. Ground water in igneous and

metamorphic rocks generally moves along discontinuities in the bedrock, enhancing the differential weathering processes.

Many lineaments observed on the small scale imagery or maps are related to fence, property, and section lines. However, many lineaments are related to local and regional geologic anomalies. Because discontinuity zones are typically less resistant to weathering, they are often expressed as natural topographic lows, such as straight stream valley segments, swales, aligned depressions and gaps in ridges or as linear tonal or vegetative alignments due to variations in soil thickness and moisture (see inset). Faults tend to be long linear features that are often difficult to detect at ground surface, but generally form photographic and topographic lineaments.

Inset - Block diagram shows how lineament/fracture trace is a surface manifestation of an underlying bedrock fracture zone.

Lineaments were identified for this project using shaded relief maps generated from USGS 10-meter digital elevation model (DEM) data, presented as Figure 5. Use of DEM as a base has an advantage over imagery and topographic maps in that the horizontal and vertical light (sun position) can be adjusted to enhance the visibility of a lineament. Additionally, other lineaments may be well defined on the different image maps. Lineaments identified using the different sun angles are graphically represented on the rose diagrams presented as Figure 6. The center rose diagram on this figure is a composite of lineaments identified using all sun angles. Once lineaments have been identified on the DEMs, they can be correlated with discontinuities identified during geologic mapping.

3.5.2 Discussion of Lineaments

As discussed above, orientations and relative persistence of lineaments identified on the DEM are illustrated on Figure 5 and summarized in rose diagrams presented on Figure 6. As shown on the summary rose diagram, a total of 297 lineaments were identified on the DEM viewed with light source from various angles (i.e., NW, NE, SE, and SW as shown on the individual rose diagrams). A total of two major lineaments and two minor lineaments were identified:

- L1: N30-50E
- L2: N10W–N10E
- L3: N20-40W
- L4: N70-80W

Major lineaments L1 and L2 were identified using every light source angle; although not as dominant, L3 was also identified on every light source. Lineament L4 was observed as a minor lineament on only the southwest light source (lower left rose diagram). DEM lineation orientations are tabulated in Appendix A.

3.5.3 Discontinuity Mapping and Lineament Analysis Correlation

Structural weaknesses in rocks are reflected by the fractures formed, which subsequently can be weathered to form lineaments. These fractures are caused by application of directional stresses on the rock body. Generally, the stress is due to regional tectonics and/or unloading due to weathering and erosion but can also be influenced by local structure.

The project area is characterized by four lineament sets whose orientations are consistent with the structural stresses experienced in this area (as indicated by foliation and joint orientation). L1 is subparallel to regional foliation and the measured orientations of J1 and J2, which are considered to be strike joints related to the regional foliation. These features likely developed in response to Brevard Zone shearing. L3 is subparallel to J3 and is considered to represent dip joints formed in response to regional foliation. L2 is subparallel to local foliation and J4, which are related to structures that occur near the site (Yate Fault and antiformal fold axis). Although a dip joint related to these local structures was not observed during geologic mapping, the orientation of lineament L4 is consistent with the orientation that would be predicted for a dip joint forming in response to these structures. Because lineament orientations identified during this analysis correlate with known regional tectonic fabrics and local structures, it is likely that most are true manifestations of subsurface fracture zones or low-resistance stratigraphic layers within the rock formations underlying the site.

4.0 DISCUSSION

Groundwater likely occurs within overburden residual and alluvial soils beneath the site. The alluvial soils are locally present adjacent to the Chattahoochee River and may be present near an unnamed tributary that flows through the site. These soils will have greater permeability relative to adjacent residual soils and will likely be the preferred pathway for groundwater flow beneath the site. The hydrochemistry of alluvial soils may differ from that of the residual soils.

Different lithologic units will develop residual soils of variable geochemistry; consequently, geochemistry of groundwater flowing through residual soils may be locally influenced by naturally occurring elements and metals in the groundwater. These soils are expected to be fairly fine-grained in nature, creating lower hydraulic conductivity characteristics. Consequently, groundwater is expected to flow through the overburden, more slowly through residual soils, with preferential flow paths through alluvial soils where present, ultimately discharging into the Chattahoochee River.

Groundwater may also occur in a series of discrete bedrock aquifer systems beneath the site. Flow characteristics related to the different geologic units on site are largely anticipated to be consistent. Geologic units OZa, OZggn, OZmgn, and OZgss are all generally massive and weakly jointed and anticipated to have low water-bearing potential. Groundwater flow potential is relatively greater in areas of deeper weathering associated with discontinuities, particularly in the OZggn and OZmgn units. The OZog geologic unit observed on site may have preferred groundwater flow relative to other units on site due to differential weathering of amphibolite lenses within the well-jointed gneiss, shown to rim the antiformal structure on Figure 2.

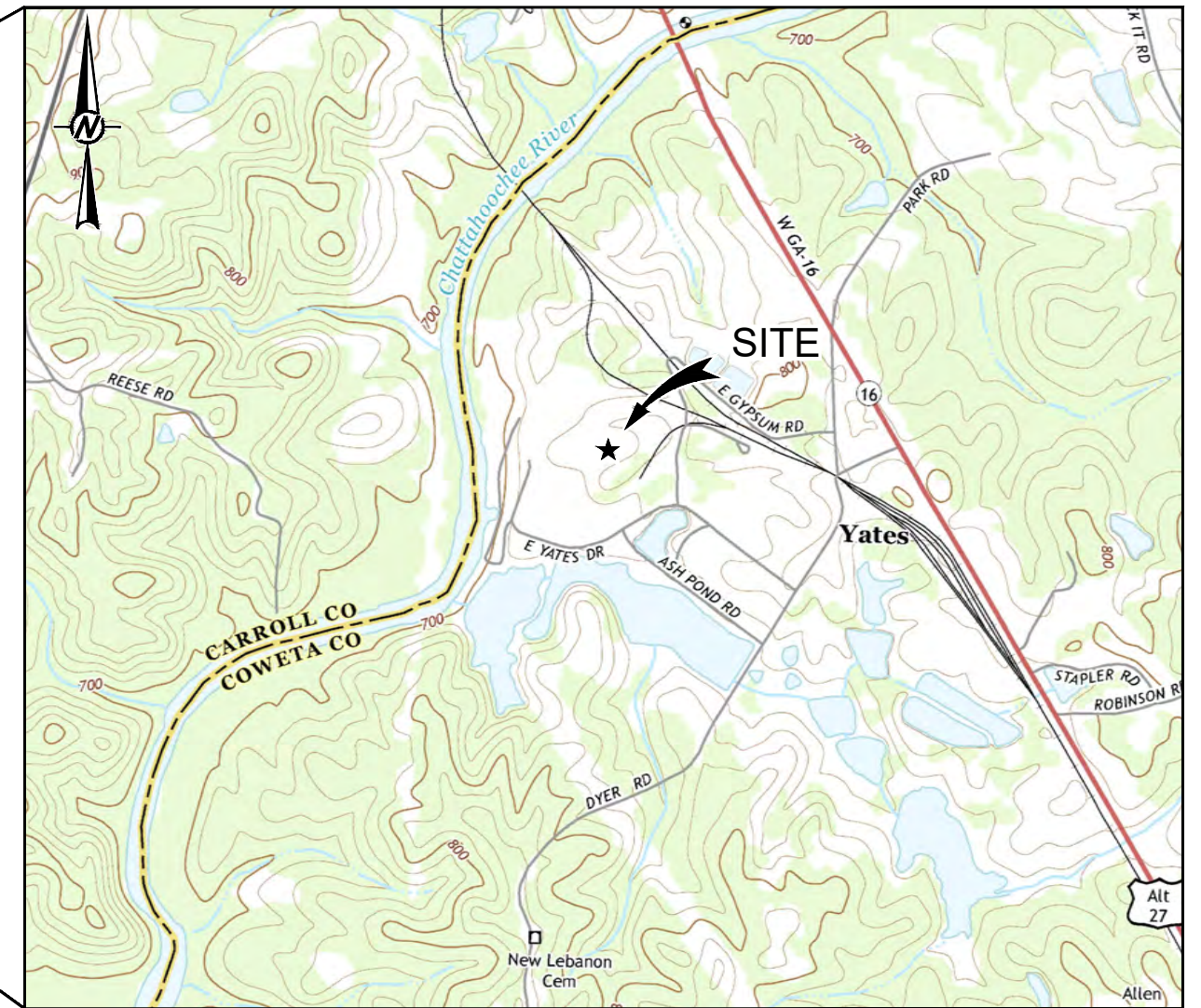
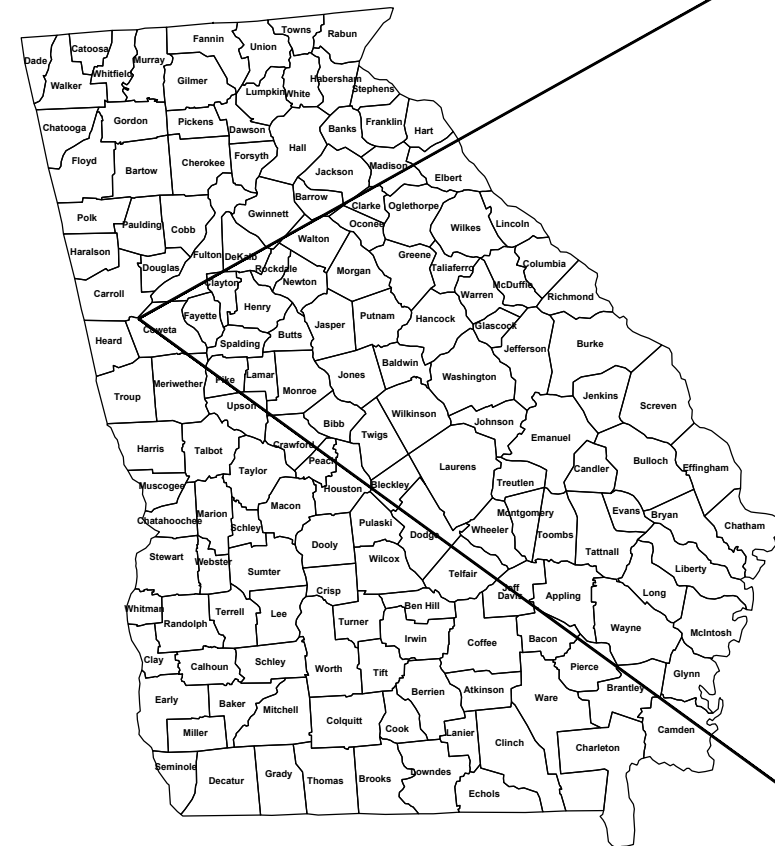
Naturally occurring uranium and daughter products (e.g., ^{226}Ra and ^{228}Ra) may be associated with granite in the OZgr unit. The distance between the mapped occurrence of this unit and the site is significant, however, and therefore considered unlikely to influence groundwater chemistry upgradient of the site. Naturally occurring metals may be associated with the ultramafic bodies present in the OZmgn unit. This unit occurs southeast of the Yates Fault and is likely upgradient of many of the CCR units at the site. Naturally elevated concentrations of Fe, Mn, Ca, and Zn (associated with porphyroblastic garnet and staurolite) may occur in groundwater flowing through the OZgss unit; and naturally elevated concentrations of Fe, Mg, Mn, and Ca may occur in groundwater flowing through the OZa (amphibolite) unit.

PLANT YATES

GEOLOGIC MAPPING AND LINEAMENT ANALYSIS

OCTOBER 2017

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2	GEOLOGIC MAP
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4	COMPARISON OF MEASURED DISCONTINUITIES AND LINEAMENTS
5	REMOTE SENSING LINEAMENT MAP
6	DEM ROSE LINEAMENT DIAGRAMS



SITE LOCATION MAP

0 1000 2000
1" = 2000' FEET

PREPARED FOR:



SOUTHERN COMPANY SERVICES, INC.
42 INVERNESS CENTER PARKWAY
BIRMINGHAM, AL 35424

SITE ADDRESS AND OPERATOR:

GEORGIA POWER
708 DYER ROAD
NEWMAN, GA 30263

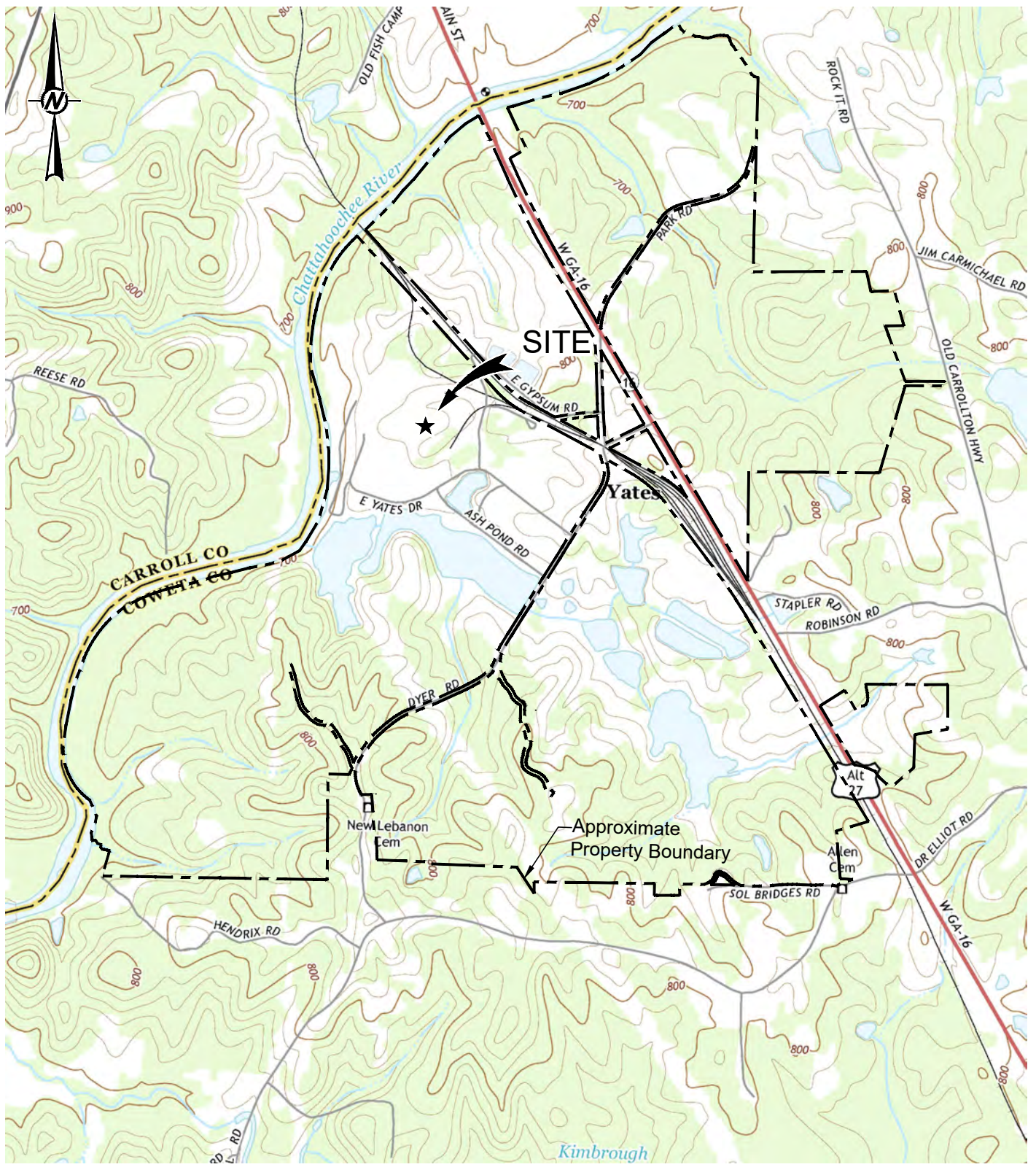
CLIENT CONTACT: MR. JOJU ABRAHAM

PHONE NUMBER: 205-992-6075

PLANS PREPARED BY:

GOLDER ASSOCIATES INC.
3730 CHAMBLEE TUCKER ROAD
ATLANTA, GA 30341
TELEPHONE: 770-496-1893





- REFERENCES**
1. USGS 7.5 MINUTE QUADRANGLE, WHITESBURG, 2014.
 2. PROPERTY BOUNDARY PROVIDED BY COWETA COUNTY GIS DEPARTMENT, 2015.



CLIENT



PROJECT

**PLANT YATES
GEOLOGIC MAPPING AND LINEAMENT ANALYSIS**

CONSULTANT



YYYY-MM-DD 2017/10/06

DESIGNED -

PREPARED SEP

REVIEWED TIR

APPROVED RPK

TITLE

SITE LOCATION MAP

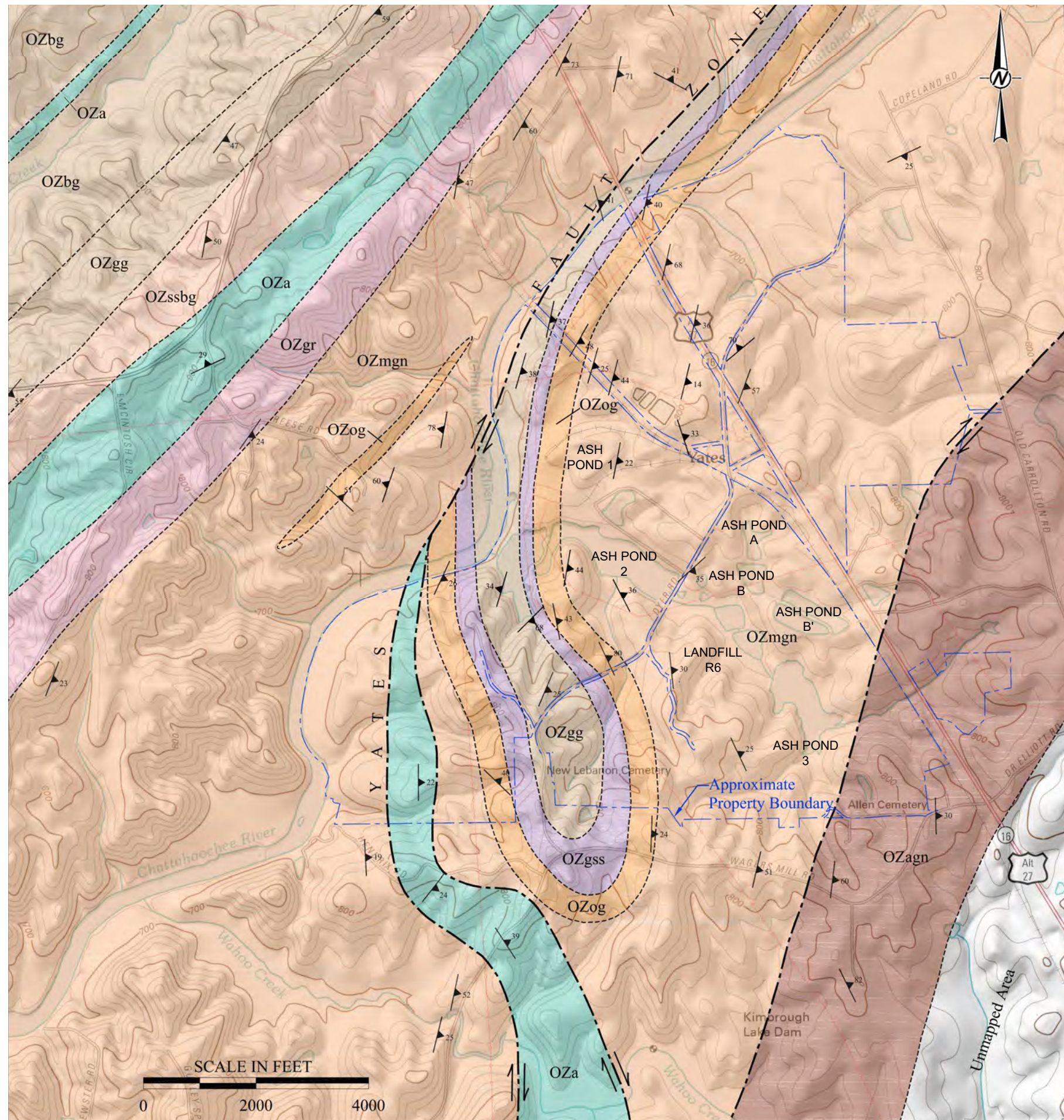
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FIGURE

1

Path: \\gms\hobbs\projects\Southern Company Services\Confidential\GIS\Characterization\Yates\Final\CD\1537247_002_Geologic_Map_GA_01_2013\Production | File Name: 1537247_002_Geologic_Map.dwg



DESCRIPTION OF MAP UNITS

- OZbg** *Biotite Gneiss*- garnet (small, minor)-muscovite-biotite-quartz-feldspar gneiss, fine- to medium-grained, schistose in part; interlayered with garnet (small, minor)-biotite-feldspar-quartz-muscovite schist, medium- to coarse-grained; some garnet-rich zones, all layered with concordant and discordant pegmatite pods, lenses, and layers up to 10 feet thick; foliation wraps around pegmatite pods/lenses.
- OZa** *Amphibolite*- amphibole/hornblende gneiss, thinly laminated, fine- to medium-grained hornblende and plagioclase; and chlorite-actinolite schist, very fine-grained; joints are close-spaced and abundant.
- OZgg** *Granitic Gneiss*- biotite-quartz-feldspar gneiss, very feldspathic; quartz and feldspar are medium- to coarse-grained; biotite is fine- to medium-grained. Muscovite is present where this gneiss is sheared. Shear foliation is commonly developed.
- OZssbg** *Biotite Gneiss and Sillimanite Schist*- biotite-quartz-feldspar gneiss; interlayered with sillimanite, garnet, quartz, muscovite schist. Shear foliation is commonly developed.
- OZog** *Orange Gneiss*- well layered, well foliated, moderately jointed, fine- to medium-grained, biotite-quartz-feldspar gneiss; this unit weathers fairly deeply relative to adjacent lithologies, forming a distinctive dark red, vermiculitic soil from weathering of biotite; the gneiss locally contains thin lenses of chlorite-actinolite schist and feldspar-hornblende gneiss/amphibolite, increasing in concentration of these ultramafic and mafic bodies to the southeast.
- OZgr** *Granite*- generally massive, weakly foliated, poorly jointed, fine- to medium-grained, light-gray, large exfoliation boulders are common.
- OZmgn** *Migmatitic Gneiss*- highly contorted, well layered, well foliated, poorly jointed, medium-grained muscovite-biotite-quartz-feldspar migmatitic gneiss. Granite is locally interlayered with biotite gneiss and pods/lenses of ultramafic bodies, which occur as relatively fresh, well foliated, unjointed boulders of medium- to coarse-grained actinolite-chlorite schist..
- OZgss** *Sillimanite Staurolite Garnet Schist*- sillimanite-staurolite-garnet-biotite-quartz-muscovite schist, medium- to coarse-grained, sheared; staurolite and garnet are porphyroblastic, biotite and quartz content are highly variable, generally poorly weathered.
- OZagn** *Porphyroclastic Augen Gneissic*- muscovite-biotite-quartz-feldspar gneissic granite, feldspathic; quartz and feldspar are medium- to coarse-grained; feldspar phenocrysts form porphyroclasts, biotite is fine- to medium-grained.

EXPLANATION OF MAP SYMBOLS

- Lithologic unit contact- Approximate location
- Fault (high angle)- Approximate location
- Fault (strike/slip)- Approximate location
- Strike and Dip of Foliation

REFERENCES

1. USGS 7.5 Minute Quadrangles, Whitesburg, 2011.
2. Property Boundary provided by Coweta County GIS Department, 2015.

NOTE

GEOLOGIC MAPPING CONDUCTED BY PETROLOGIC SOLUTIONS, INC.

CLIENT	Southern Company
CONSULTANT	Goldier Associates
DESIGNED	2017/10/06
PREPARED	SEP
REVIEWED	TIR
APPROVED	RPK

PROJECT
PLANT YATES
GEOLOGIC MAPPING AND LINEAMENT ANALYSIS

TITLE
GEOLOGIC MAP

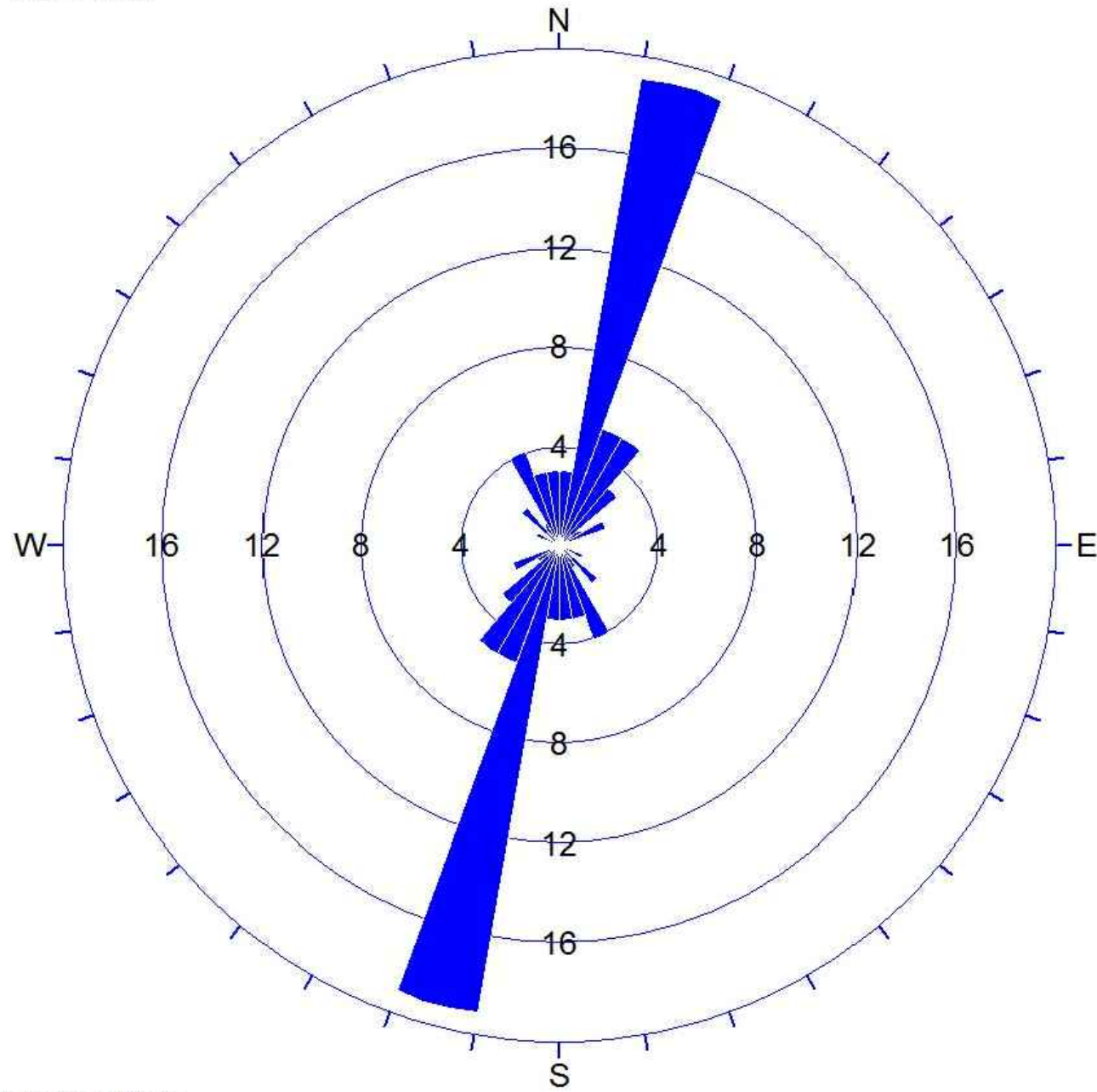
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1537247

REV.

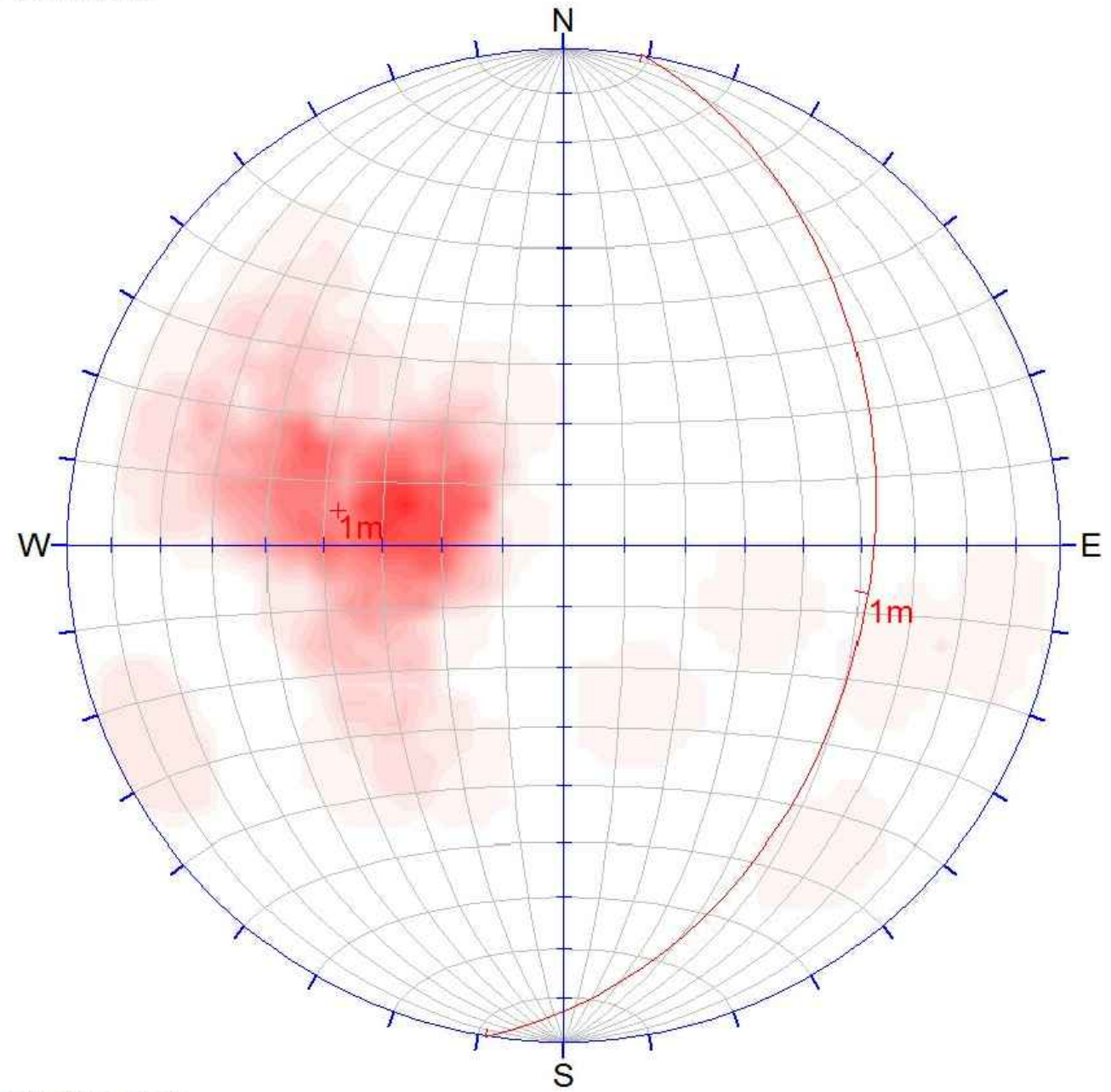
FIGURE
2

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

Plant Yates



Plant Yates



Foliation Data

Apparent Strike
20 max planes / arc
at outer circle

Trend / Plunge of
Face Normal = 0, 90
(directed away from viewer)

No Bias Correction

52 Planes Plotted
Within 0 and 90
Degrees of Viewing
Face

Foliation Data

Orientations

ID	Strike / Dip Right
1 m	009 / 38

Equal Area
Lower Hemisphere
52 Poles
52 Entries

NOTE
DISCONTINUITY DATA
COLLECTED BY
PETROLOGIC SOLUTIONS,
INC.

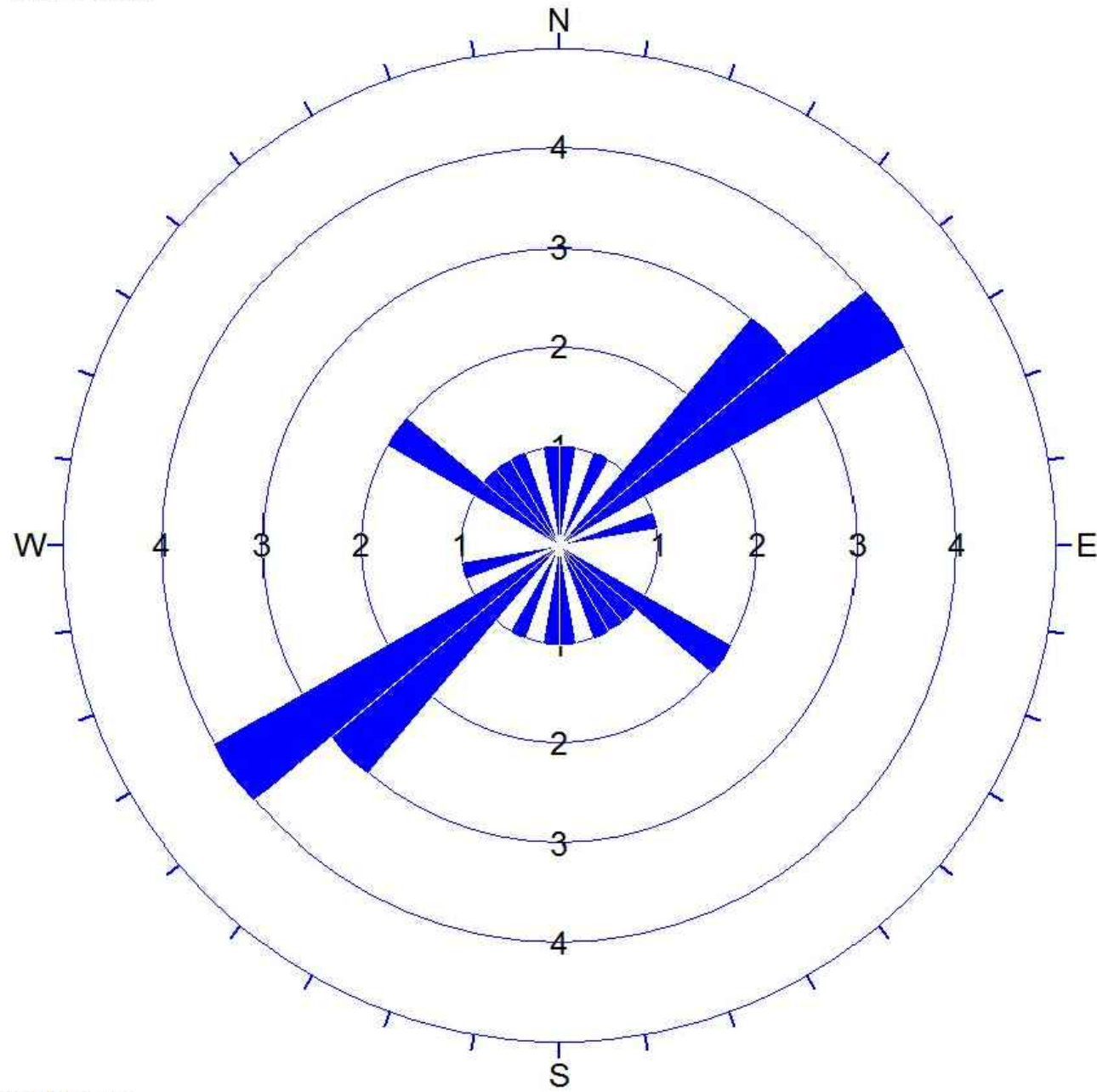
Path: \\grembo\data\PROJECTS\Southern Company - Services\Confidential\GIS\Characterization\Yates\FaultCD\1537247_003\Discontinuity Data from Geologic Mapping - GA.01_2013\Products\1 - File Name - 1537247_003\Discontinuity Data from Geologic Mapping.dwg

CLIENT	Southern Company	
CONSULTANT	Golder Associates	
PROJECT	PLANT YATES GEOLOGIC MAPPING AND LINEAMENT ANALYSIS	
TITLE	DISCONTINUITY DATA FROM GEOLOGIC MAPPING	
PROJECT NO.	1537247	
REV.	FIGURE	3

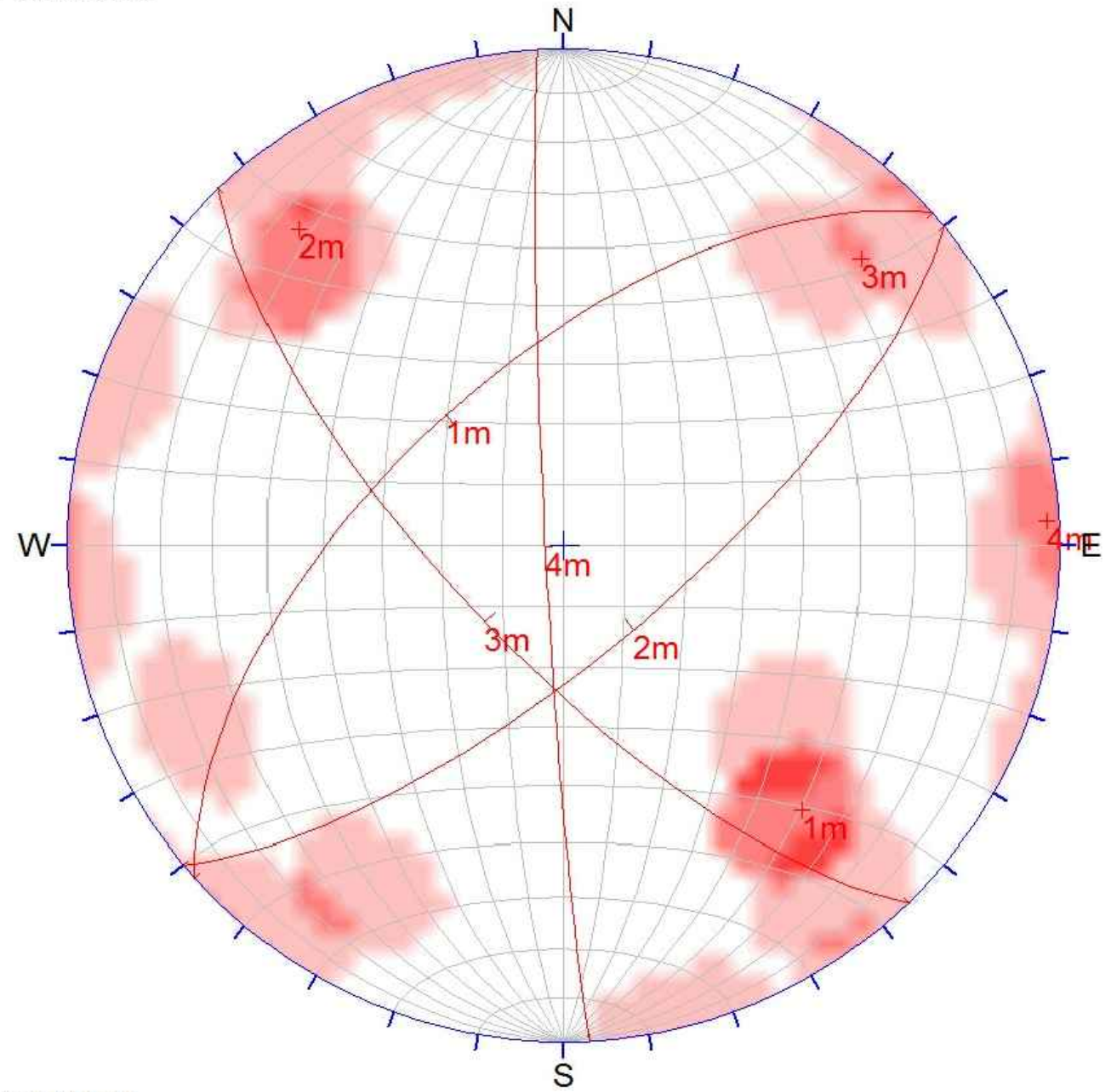
DESIGNED	2017/10/06
PREPARED	SEP
REVIEWED	TIR
APPROVED	RPK

1b. IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

Plant Yates



Plant Yates



Joint Data

Apparent Strike
5 max planes / arc
at outer circle

Trend / Plunge of
Face Normal = 0, 90
(directed away from viewer)

No Bias Correction

16 Planes Plotted
Within 0 and 90
Degrees of Viewing
Face



Joint Data

Orientations		
ID	Strike	Dip Right
1 m	228	61
2 m	050	72
3 m	136	72
4 m	177	87

Equal Area
Lower Hemisphere
16 Poles
16 Entries

NOTE
DISCONTINUITY DATA
COLLECTED BY
PETROLOGIC SOLUTIONS,
INC.

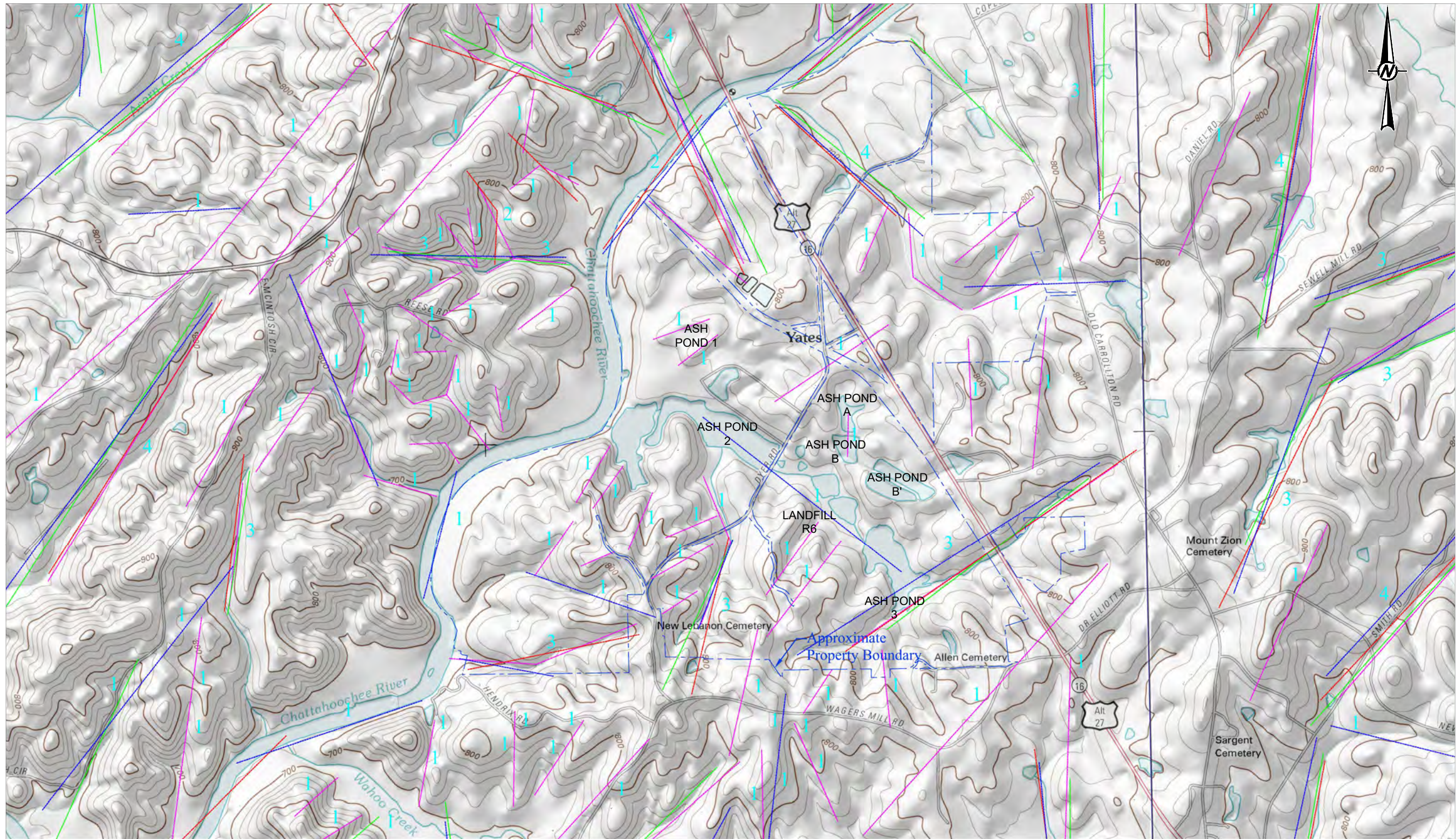
Path: \\grembo\data\PROJECTS\Southern Company - Services\Confidential\GIS\Characterization\Yates\Final\CAD\1537247_001\Comparison of Measured Discontinuities and Lineaments.dwg

CLIENT  Southern Company CONSULTANT  Golder Associates	DESIGNED 2017/10/06
	PREPARED SEP
	REVIEWED TIR
	APPROVED RPK

PROJECT: PLANT YATES
 TITLE: COMPARISON OF MEASURED DISCONTINUITIES AND LINEAMENTS
 PROJECT NO.: 1537247

1b. IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

Path: \\gms\hobbs\data\PROJECTS\Southern Company Services\Confidential GIS Characterization Yates\Final\CD\September 2017\1 File Name: 1537247_005 Remote Sensing Lineament Map.dwg



- Southeast Sun Angle Lineaments
- Northeast Sun Angle Lineaments
- Northwest Sun Angle Lineaments
- Southwest Sun Angle Lineaments

2 Lineament Count- number of occurrences using different sun angles, 4 = significant (occurs on all four sun angle views) and 1 = less significant (only occurs on one sun angle view)

REF: DIGITAL ELEVATION MODEL TAKEN FROM THE USGS WHITESBURG AND NEWNAN NORTH, GEORGIA, 7.5 MINUTE QUADRANGLES.
PROPERTY BOUNDARY PROVIDED BY COWETA COUNTY GIS DEPARTMENT, 2015.

NOT TO SCALE

PROJECT
PLANT YATES
GEOLOGIC MAPPING AND LINEAMENT ANALYSIS

CLIENT
 Southern Company

TITLE
REMOTE SENSING LINEAMENT MAP

CONSULTANT



YYYY-MM-DD 2017/10/06

DESIGNED

PREPARED SEP

REVIEWED TIR

APPROVED RPK

PROJECT NO.
1537247

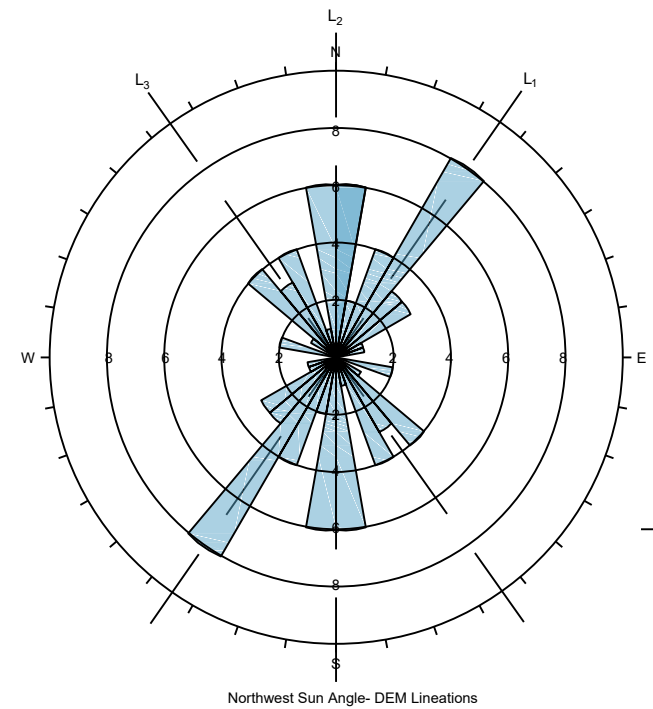
1 in. IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

REV.

FIGURE

5

Path: \grem\hobbs\PROJECTS\Southern Company Services\Confidential\GIS\Characterization\Values\Final\CAD\1537247_005\DEM Lineament Rose Diagrams.dwg



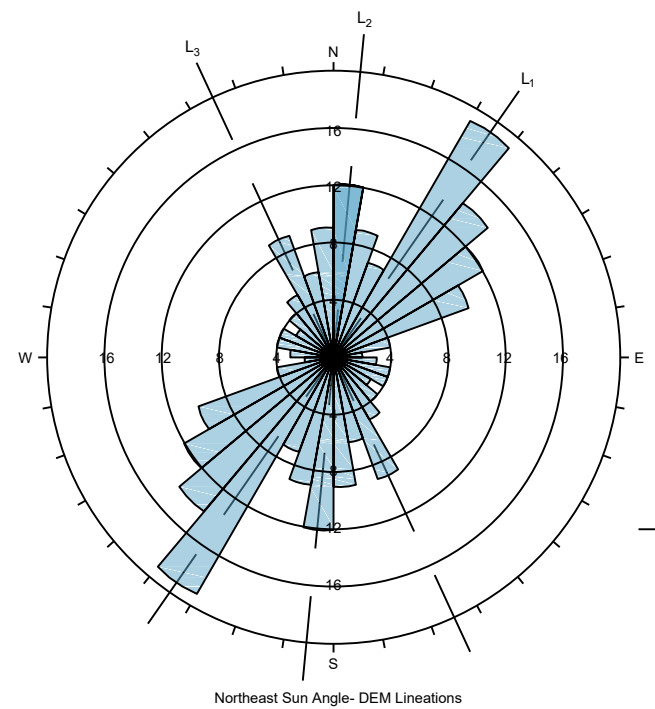
Apparent Strike
10 max planes / arc
at outer circle

Trend / Plunge of
Face Normal = 0, 90
(directed away from viewer)

No Bias Correction

49 Planes Plotted
Within 0 and 90
Degrees of Viewing
Face

Northwest Sun Angle- DEM Lineations



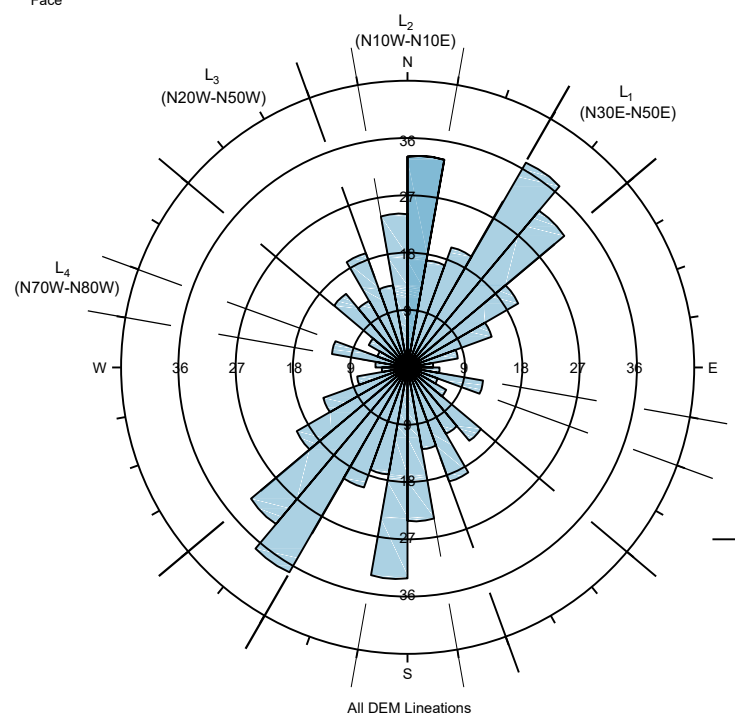
Apparent Strike
20 max planes / arc
at outer circle

Trend / Plunge of
Face Normal = 0, 90
(directed away from viewer)

No Bias Correction

136 Planes Plotted
Within 0 and 90
Degrees of Viewing
Face

Northeast Sun Angle- DEM Lineations



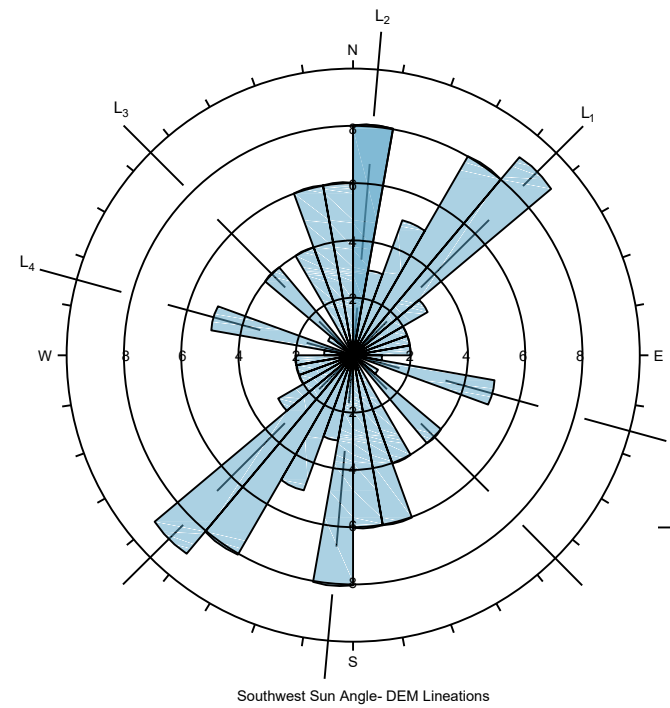
Apparent Strike
45 max planes / arc
at outer circle

Trend / Plunge of
Face Normal = 0, 90
(directed away from viewer)

No Bias Correction

297 Planes Plotted
Within 0 and 90
Degrees of Viewing
Face

All DEM Lineations



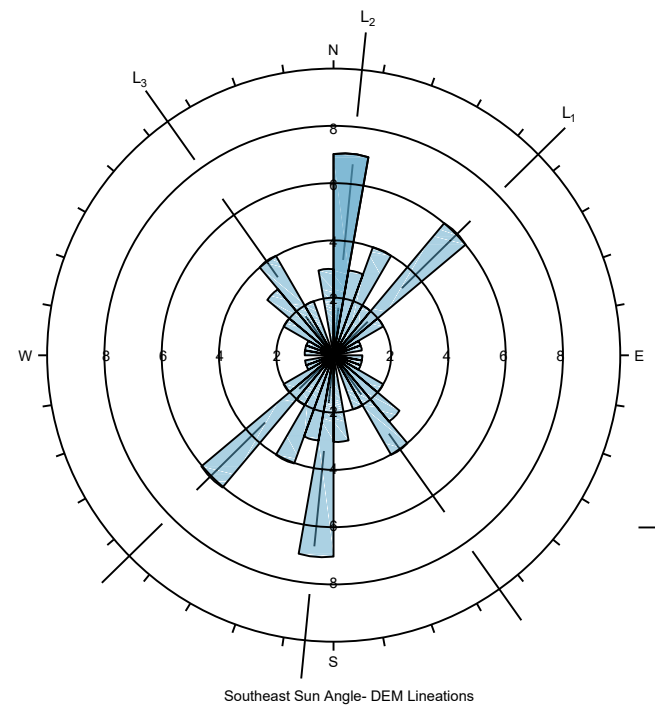
Apparent Strike
10 max planes / arc
at outer circle

Trend / Plunge of
Face Normal = 0, 90
(directed away from viewer)

No Bias Correction

69 Planes Plotted
Within 0 and 90
Degrees of Viewing
Face

Southwest Sun Angle- DEM Lineations



Apparent Strike
10 max planes / arc
at outer circle

Trend / Plunge of
Face Normal = 0, 90
(directed away from viewer)

No Bias Correction

43 Planes Plotted
Within 0 and 90
Degrees of Viewing
Face

Southeast Sun Angle- DEM Lineations

NOT TO SCALE

CLIENT: Southern Company

CONSULTANT: Goldier Associates

PROJECT: PLANT YATES
GEOLOGIC MAPPING AND LINEAMENT ANALYSIS

TITLE: DEM LINEAMENT ROSE DIAGRAMS

PROJECT NO.: 1537247

DESIGNED	2017/10/06
PREPARED	SEP
REVIEWED	TIR
APPROVED	RPK

REV. _____

FIGURE 6

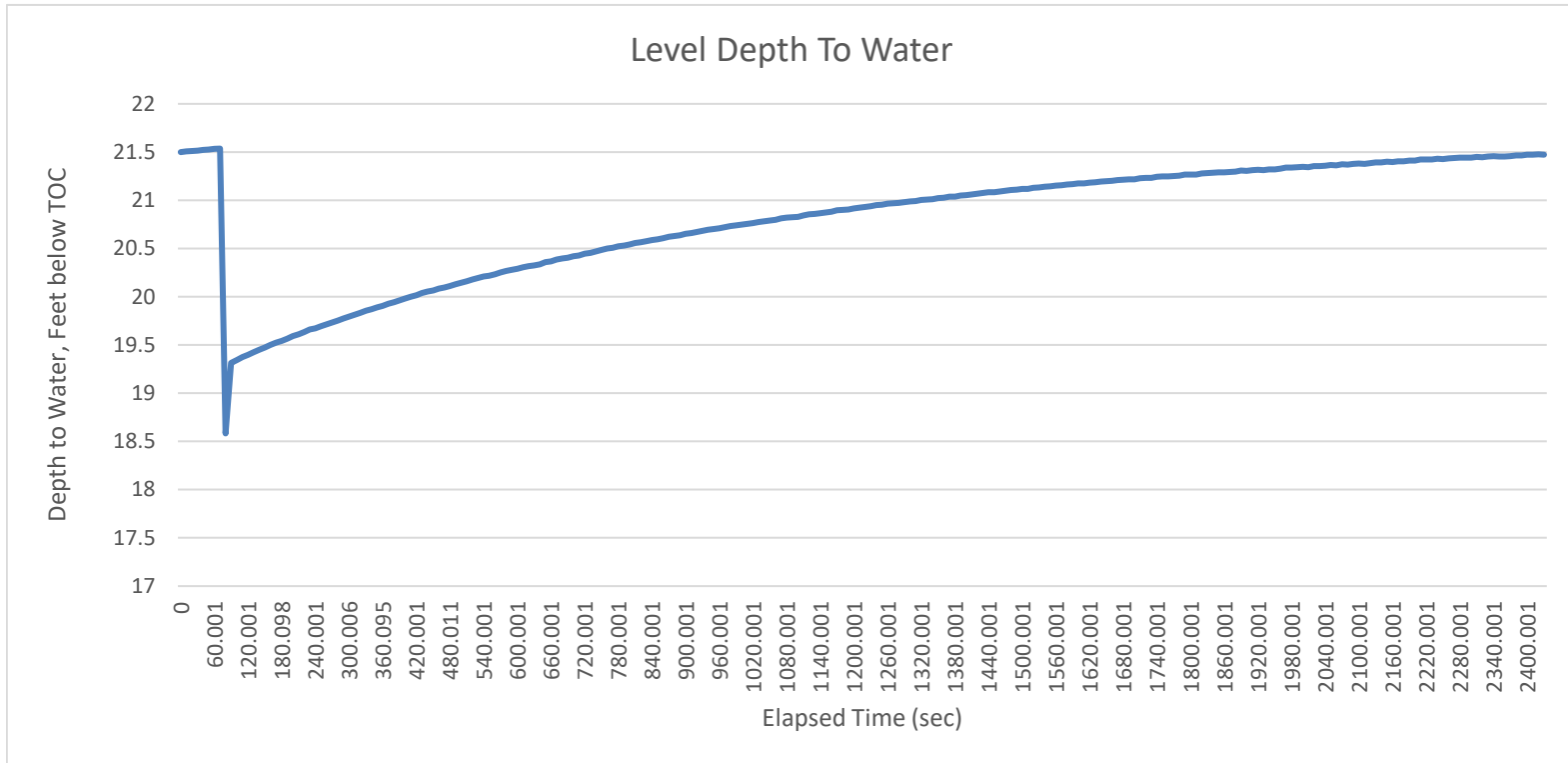
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

Golder Associates Inc.
3730 Chamblee Tucker Rd.
Atlanta, GA 30341
Tel: (770) 496-1893
Fax: (770) 934-9476



APPENDIX C
HYDRAULIC CONDUCTIVITY
TESTING AND RESULTS

PZ-4i Test 1 (in)



Log Configuration	
Log Name	PZ-04 I
Created By	X2WSHAUG
Computer Name	X2WSHAUGH
Application	WinSitu.exe
Application Version	5.6.25.0
Create Date	7/10/14 10:00 AM
Log Setup Time Zone	Central Daylight Time
Notes Size(bytes)	4096
Overwrite when full	Disabled
Scheduled Start Time	Manual Start
Scheduled Stop Time	No Stop Time
Type	Fast Linear

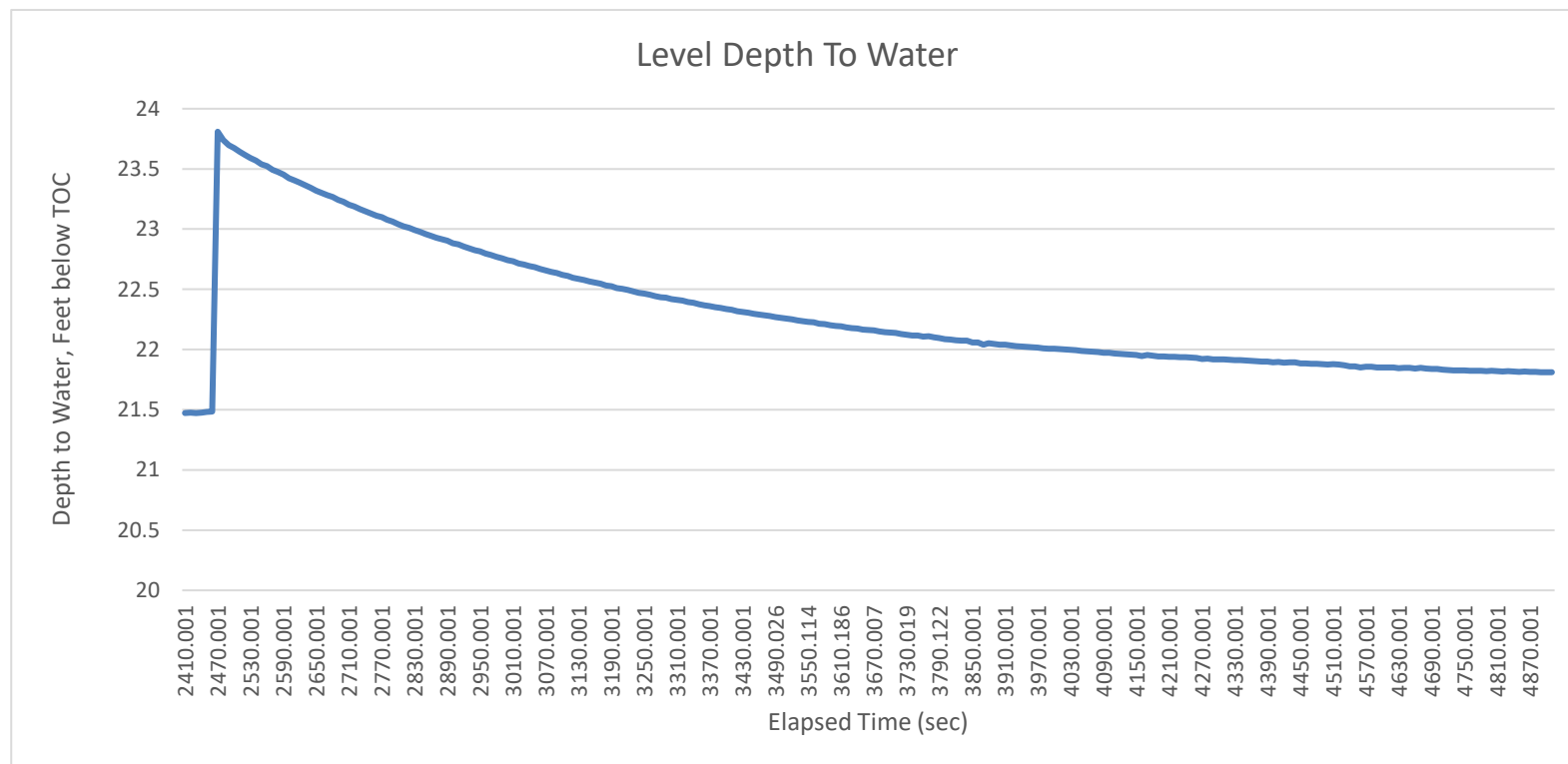
Level Reference Settings At Log Creation	
Level Measurement Mode	Level Depth To Water
Specific Gravity	0.999
Level Reference Mode:	Set new reference
Level Reference Value:	84
Level Reference Head Pressure	23

Other Log Settings	
Depth of Probe:	18.9311 (ft)
Head Pressure:	8.19895 (PSI)
Temperature:	60.3496 (F)

Device Properties	
Device	Level TROLL 500
Site	Plant Yates
Device Name	
Serial Number	160731
Firmware Version	2.04
Hardware Version	3
Device Address	1
Device Comm Cfg	19200,8,Even,1,(Modbus-RTU)
Used Memory(%)	21.45 (ft)
Used Battery(%)	8.19992 (PSI)

Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)
0	21.499	450	20.067	900	20.652	1350	21.023	1800	21.267
10	21.507	460	20.084	910	20.662	1360	21.028	1810	21.266
20	21.511	470	20.097	920	20.672	1370	21.038	1820	21.278
30	21.516	480	20.112	930	20.684	1380	21.039	1830	21.282
40	21.521	490	20.130	940	20.694	1390	21.049	1840	21.284
50	21.528	500	20.147	950	20.703	1400	21.055	1850	21.290
60	21.534	510	20.160	960	20.711	1410	21.060	1860	21.288
70	21.536	520	20.180	970	20.721	1420	21.069	1870	21.293
80	18.583	530	20.195	980	20.733	1430	21.076	1880	21.299
90	19.315	540	20.209	990	20.741	1440	21.083	1890	21.307
100	19.344	550	20.219	1000	20.749	1450	21.085	1900	21.306
110	19.373	560	20.232	1010	20.755	1460	21.091	1910	21.312
120	19.398	570	20.253	1020	20.765	1470	21.099	1920	21.315
130	19.424	580	20.266	1030	20.774	1480	21.106	1930	21.314
140	19.450	590	20.279	1040	20.783	1490	21.111	1940	21.319
150	19.475	600	20.292	1050	20.791	1500	21.117	1950	21.321
160	19.499	610	20.305	1060	20.798	1510	21.119	1960	21.329
170	19.523	620	20.316	1070	20.811	1520	21.129	1970	21.338
180	19.544	630	20.325	1080	20.819	1530	21.133	1980	21.339
190	19.566	640	20.335	1090	20.825	1540	21.140	1990	21.344
200	19.592	650	20.359	1100	20.829	1550	21.146	2000	21.347
210	19.611	660	20.368	1110	20.844	1560	21.151	2010	21.343
220	19.635	670	20.387	1120	20.853	1570	21.155	2020	21.353
230	19.659	680	20.398	1130	20.857	1580	21.164	2030	21.356
240	19.673	690	20.405	1140	20.866	1590	21.167	2040	21.359
250	19.694	700	20.421	1150	20.875	1600	21.174	2050	21.365
260	19.714	710	20.428	1160	20.882	1610	21.174	2060	21.362
270	19.735	720	20.446	1170	20.896	1620	21.182	2070	21.372
280	19.753	730	20.456	1180	20.902	1630	21.188	2080	21.368
290	19.774	740	20.468	1190	20.905	1640	21.195	2090	21.378
300	19.796	750	20.485	1200	20.916	1650	21.197	2100	21.382
310	19.814	760	20.500	1210	20.924	1660	21.203	2110	21.379
320	19.832	770	20.508	1220	20.932	1670	21.210	2120	21.386
330	19.854	780	20.522	1230	20.940	1680	21.213	2130	21.391
340	19.872	790	20.531	1240	20.950	1690	21.216	2140	21.394
350	19.891	800	20.543	1250	20.953	1700	21.217	2150	21.400
360	19.906	810	20.559	1260	20.964	1710	21.227	2160	21.397
370	19.927	820	20.566	1270	20.968	1720	21.231	2170	21.405
380	19.945	830	20.576	1280	20.972	1730	21.234	2180	21.403
390	19.964	840	20.587	1290	20.981	1740	21.244	2190	21.413
400	19.980	850	20.596	1300	20.989	1750	21.247	2200	21.411
410	20.000	860	20.606	1310	20.994	1760	21.247	2210	21.422
420	20.016	870	20.621	1320	21.002	1770	21.251	2220	21.422
430	20.039	880	20.629	1330	21.008	1780	21.255	2230	21.425
440	20.055	890	20.637	1340	21.012	1790	21.265	2240	21.430

PZ-4i Test 1 (out)



Log Configuration	
Log Name	PZ-04 I
Created By	X2WSHAUG
Computer Name	X2WSHAUGH
Application	WinSitu.exe
Application Version	5.6.25.0
Create Date	7/10/14 10:00 AM
Log Setup Time Zone	Central Daylight Time
Notes Size(bytes)	4096
Overwrite when full	Disabled
Scheduled Start Time	Manual Start
Scheduled Stop Time	No Stop Time
Type	Fast Linear

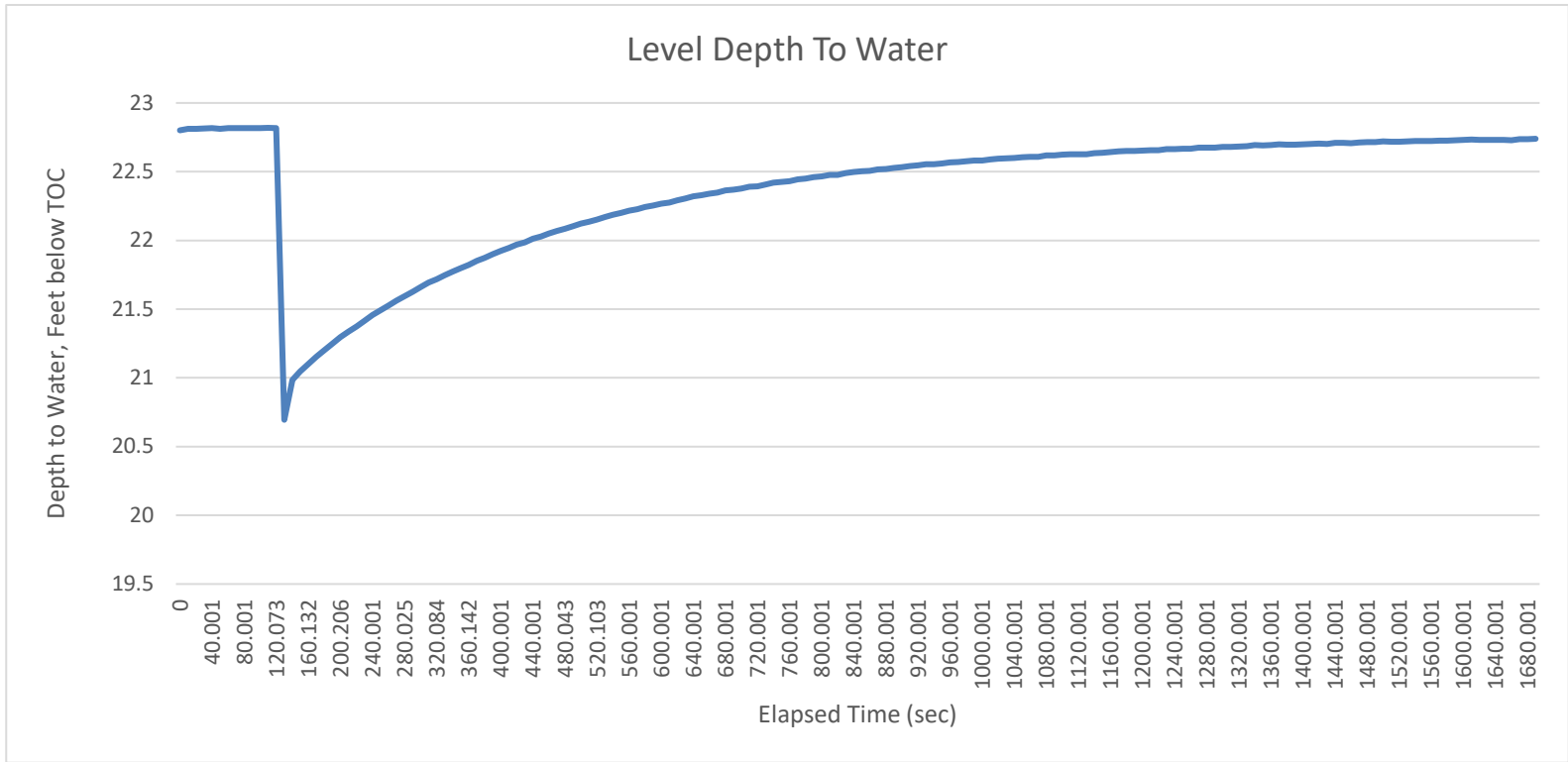
Level Reference Settings At Log Creation	
Level Measurement Mode	Level Depth To Water
Specific Gravity	0.999
Level Reference Mode:	Set new reference
Level Reference Value:	21.45 (ft)
Level Reference Head Pressure	8.19992 (PSI)

Other Log Settings	
Depth of Probe:	18.9311 (ft)
Head Pressure:	8.19895 (PSI)
Temperature:	60.3496 (F)

Device Properties	
Device	Level TROLL 500
Site	Plant Yates
Device Name	
Serial Number	160731
Firmware Version	2.04
Hardware Version	3
Device Address	1
Device Comm Cfg	19200,8,Even,1,(Modbus-RTU)
Used Memory(%)	84
Used Battery(%)	23

Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)
2400		2850	22.958	3300	22.42	3750	22.118	4200	21.943
2410	21.473	2860	22.945	3310	22.413	3760	22.108	4210	21.94
2420	21.477	2870	22.928	3320	22.405	3770	22.109	4220	21.94
2430	21.472	2880	22.915	3330	22.394	3780	22.102	4230	21.935
2440	21.476	2890	22.904	3340	22.387	3790	22.094	4240	21.937
2450	21.483	2900	22.882	3350	22.375	3800	22.087	4250	21.933
2460	21.486	2910	22.873	3360	22.367	3810	22.082	4260	21.929
2470	23.809	2920	22.856	3370	22.36	3820	22.076	4270	21.922
2480	23.739	2930	22.839	3380	22.351	3830	22.073	4280	21.925
2490	23.697	2940	22.825	3390	22.345	3840	22.073	4290	21.919
2500	23.672	2950	22.815	3400	22.336	3850	22.06	4300	21.918
2510	23.641	2960	22.798	3410	22.329	3860	22.058	4310	21.917
2520	23.614	2970	22.786	3420	22.319	3870	22.04	4320	21.916
2530	23.591	2980	22.77	3430	22.313	3880	22.053	4330	21.912
2540	23.569	2990	22.756	3440	22.306	3890	22.047	4340	21.911
2550	23.54	3000	22.741	3450	22.298	3900	22.039	4350	21.909
2560	23.523	3010	22.732	3460	22.29	3910	22.039	4360	21.906
2570	23.493	3020	22.716	3470	22.283	3920	22.035	4370	21.902
2580	23.476	3030	22.704	3480	22.277	3930	22.028	4380	21.9
2590	23.453	3040	22.692	3490	22.27	3940	22.025	4390	21.9
2600	23.424	3050	22.685	3500	22.263	3950	22.023	4400	21.895
2610	23.404	3060	22.67	3510	22.256	3960	22.019	4410	21.896
2620	23.385	3070	22.656	3520	22.25	3970	22.017	4420	21.891
2630	23.365	3080	22.643	3530	22.243	3980	22.01	4430	21.893
2640	23.343	3090	22.634	3540	22.237	3990	22.008	4440	21.893
2650	23.32	3100	22.619	3550	22.229	4000	22.008	4450	21.886
2660	23.3	3110	22.611	3560	22.226	4010	22.004	4460	21.885
2670	23.282	3120	22.597	3570	22.215	4020	21.999	4470	21.88
2680	23.268	3130	22.585	3580	22.21	4030	21.996	4480	21.88
2690	23.243	3140	22.577	3590	22.203	4040	21.994	4490	21.878
2700	23.227	3150	22.566	3600	22.196	4050	21.988	4500	21.875
2710	23.203	3160	22.557	3610	22.192	4060	21.985	4510	21.878
2720	23.187	3170	22.547	3620	22.185	4070	21.981	4520	21.874
2730	23.167	3180	22.533	3630	22.179	4080	21.978	4530	21.87
2740	23.147	3190	22.526	3640	22.175	4090	21.974	4540	21.859
2750	23.13	3200	22.511	3650	22.165	4100	21.972	4550	21.859
2760	23.112	3210	22.503	3660	22.162	4110	21.968	4560	21.852
2770	23.099	3220	22.496	3670	22.16	4120	21.965	4570	21.857
2780	23.078	3230	22.484	3680	22.151	4130	21.961	4580	21.856
2790	23.062	3240	22.472	3690	22.143	4140	21.958	4590	21.852
2800	23.042	3250	22.463	3700	22.142	4150	21.956	4600	21.85
2810	23.024	3260	22.454	3710	22.139	4160	21.946	4610	21.852
2820	23.01	3270	22.444	3720	22.128	4170	21.954	4620	21.85
2830	22.992	3280	22.434	3730	22.122	4180	21.95	4630	21.846
2840	22.977	3290	22.43	3740	22.118	4190	21.944	4640	21.847

PZ-4s Test 1 (in)



Log Configuration	
Log Name	PZ-04 S
Created By	X2WSHAUG
Computer Name	X2WSHAUGH
Application	WinSitu.exe
Application Version	5.6.25.0
Create Date	7/10/14 9:01 AM
Log Setup Time Zone	Central Daylight Time
Notes Size(bytes)	4096
Overwrite when full	Disabled
Scheduled Start Time	Manual Start
Scheduled Stop Time	No Stop Time
Type	Fast Linear

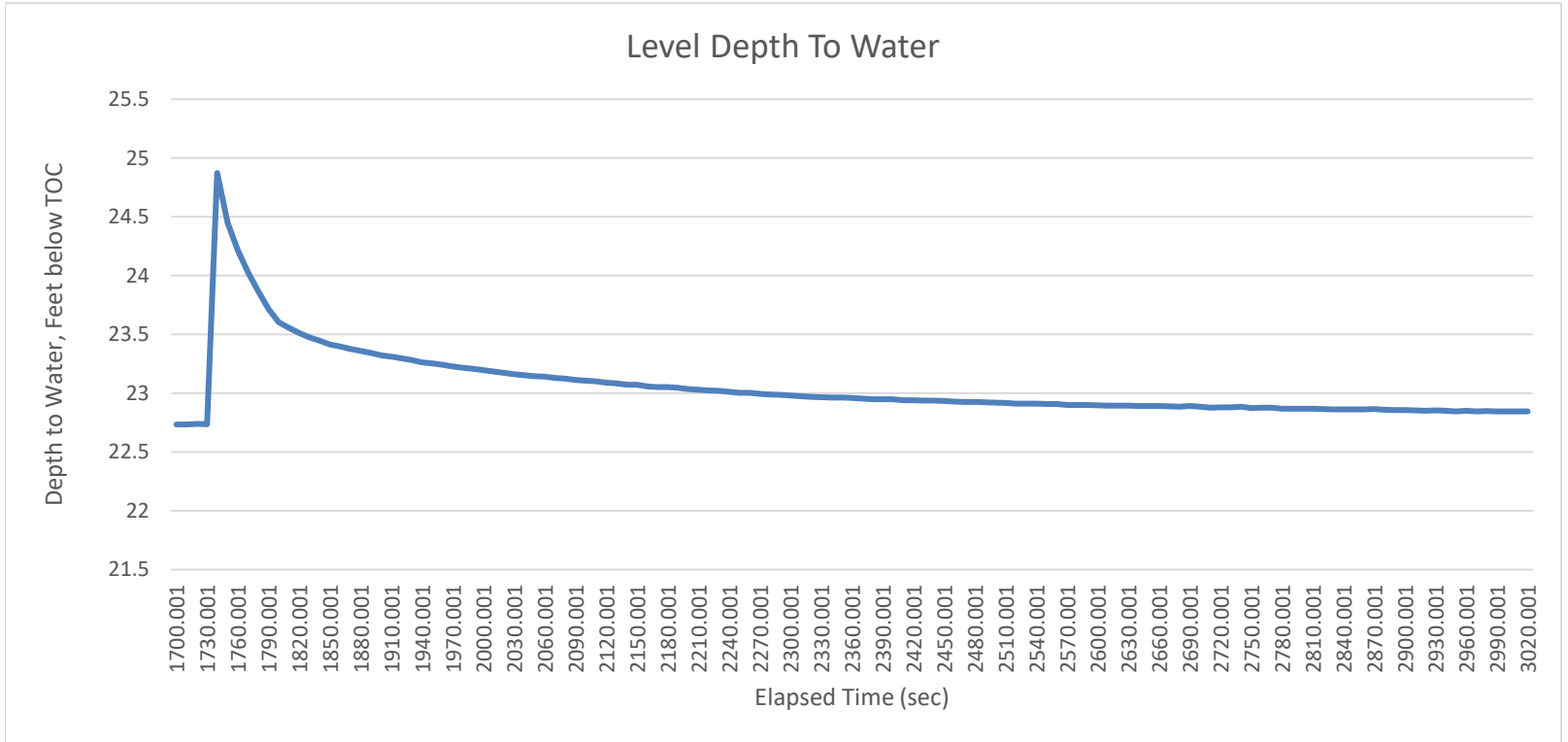
Other Log Settings	
Depth of Probe:	9.73925 (ft)
Head Pressure:	4.21801 (PSI)
Temperature:	60.8266 (F)

Level Reference Settings At Log Creation	
Level Measurement Mode	Level Depth To Water
Specific Gravity	0.999
Level Reference Mode:	Set new reference
Level Reference Value:	22.74 (ft)
Level Reference Head Pressure	4.21807 (PSI)

Device Properties	
Device	Level TROLL 500
Site	Plant Yates
Device Name	
Serial Number	160731
Firmware Version	2.04
Hardware Version	3
Device Address	1
Device Comm Cfg	19200,8,Even,1,(Modbus-RTU)
Used Memory(%)	81
Used Battery(%)	23

Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)
0	22.802	450	22.029	900	22.532	1350	22.692		
10	22.812	460	22.050	910	22.541	1360	22.694		
20	22.813	470	22.070	920	22.545	1370	22.698		
30	22.814	480	22.086	930	22.553	1380	22.696		
40	22.818	490	22.104	940	22.553	1390	22.697		
50	22.813	500	22.123	950	22.560	1400	22.700		
60	22.816	510	22.135	960	22.567	1410	22.703		
70	22.817	520	22.153	970	22.571	1420	22.705		
80	22.817	530	22.170	980	22.576	1430	22.702		
90	22.816	540	22.186	990	22.580	1440	22.710		
100	22.818	550	22.201	1000	22.581	1450	22.710		
110	22.819	560	22.216	1010	22.589	1460	22.708		
120	22.818	570	22.228	1020	22.594	1470	22.712		
130	20.695	580	22.242	1030	22.596	1480	22.716		
140	20.985	590	22.255	1040	22.601	1490	22.716		
150	21.046	600	22.268	1050	22.606	1500	22.721		
160	21.101	610	22.275	1060	22.607	1510	22.718		
170	21.154	620	22.292	1070	22.607	1520	22.718		
180	21.202	630	22.304	1080	22.618	1530	22.721		
190	21.249	640	22.320	1090	22.619	1540	22.722		
200	21.295	650	22.330	1100	22.624	1550	22.723		
210	21.336	660	22.340	1110	22.627	1560	22.724		
220	21.375	670	22.347	1120	22.628	1570	22.725		
230	21.415	680	22.363	1130	22.628	1580	22.725		
240	21.457	690	22.370	1140	22.635	1590	22.729		
250	21.492	700	22.377	1150	22.638	1600	22.730		
260	21.528	710	22.390	1160	22.644	1610	22.735		
270	21.563	720	22.394	1170	22.648	1620	22.732		
280	21.595	730	22.407	1180	22.651	1630	22.732		
290	21.626	740	22.420	1190	22.650	1640	22.732		
300	21.660	750	22.426	1200	22.653	1650	22.732		
310	21.692	760	22.432	1210	22.657	1660	22.729		
320	21.717	770	22.445	1220	22.656	1670	22.736		
330	21.746	780	22.451	1230	22.665	1680	22.736		
340	21.773	790	22.461	1240	22.665	1690	22.739		
350	21.799	800	22.466	1250	22.667				
360	21.823	810	22.476	1260	22.666				
370	21.851	820	22.476	1270	22.676				
380	21.874	830	22.490	1280	22.674				
390	21.901	840	22.497	1290	22.674				
400	21.924	850	22.502	1300	22.681				
410	21.945	860	22.507	1310	22.681				
420	21.970	870	22.518	1320	22.683				
430	21.986	880	22.519	1330	22.687				
440	22.013	890	22.528	1340	22.694				

PZ-4s Test 1 (out)



Log Configuration	
Log Name	PZ-04 S
Created By	X2WSHAUG
Computer Name	X2WSHAUGH
Application	WinSitu.exe
Application Version	5.6.25.0
Create Date	7/10/14 9:01 AM
Log Setup Time Zone	Central Daylight Time
Notes Size(bytes)	4096
Overwrite when full	Disabled
Scheduled Start Time	Manual Start
Scheduled Stop Time	No Stop Time
Type	Fast Linear

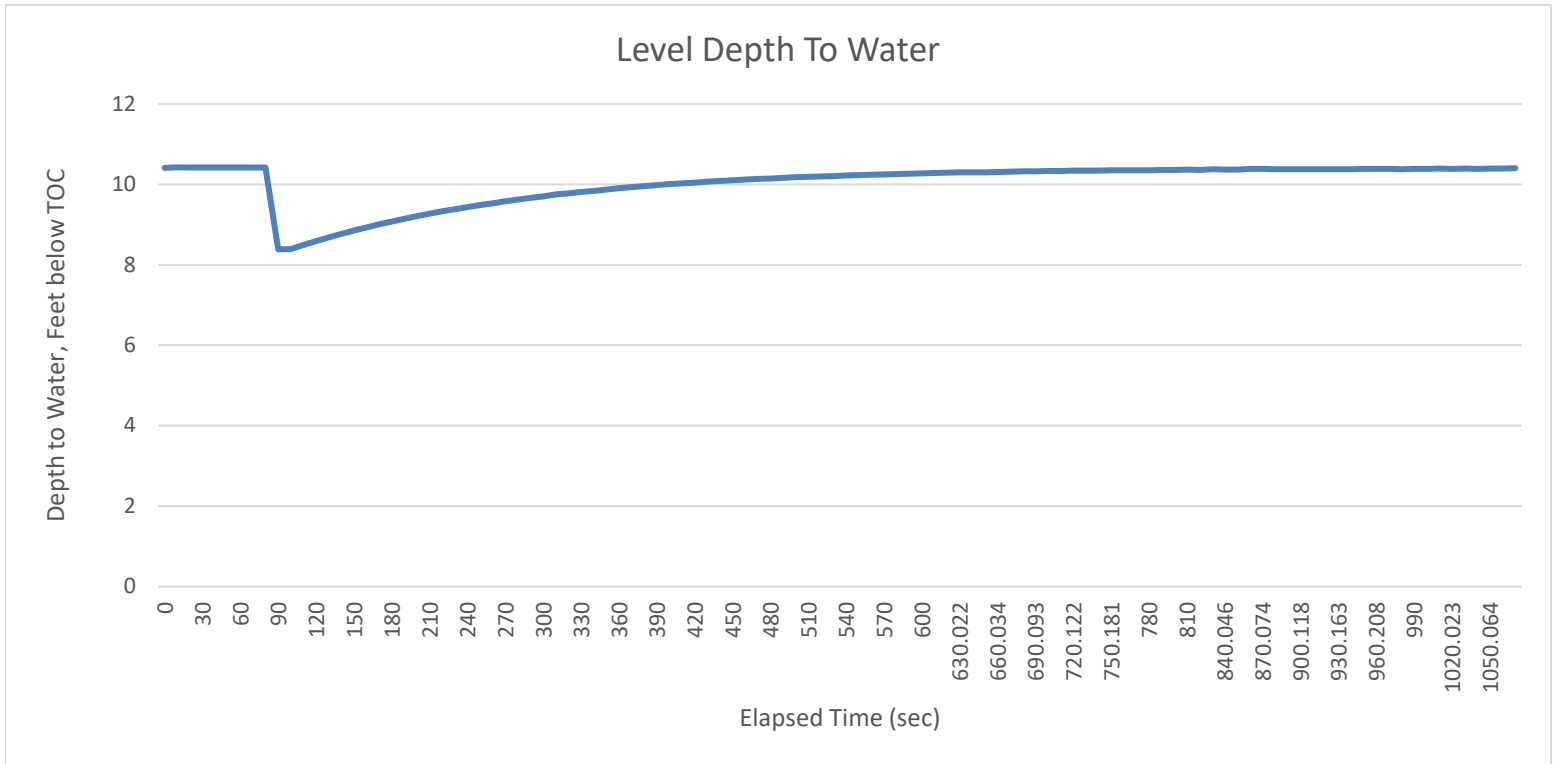
Other Log Settings	
Depth of Probe:	9.73925 (ft)
Head Pressure:	4.21801 (PSI)
Temperature:	60.8266 (F)

Level Reference Settings At Log Creation	
Level Measurement Mode	Level Depth To Water
Specific Gravity	0.999
Level Reference Mode:	Set new reference
Level Reference Value:	22.74 (ft)
Level Reference Head Pressure	4.21807 (PSI)

Device Properties	
Device	Level TROLL 500
Site	Plant Yates
Device Name	
Serial Number	160731
Firmware Version	2.04
Hardware Version	3
Device Address	1
Device Comm Cfg	19200,8,Even,1,(Modbus-RTU)
Used Memory(%)	81
Used Battery(%)	23

Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)
1690		2140	23.073	2590	22.901				
1700	22.734	2150	23.071	2600	22.897				
1710	22.734	2160	23.059	2610	22.894				
1720	22.739	2170	23.051	2620	22.895				
1730	22.735	2180	23.051	2630	22.893				
1740	24.873	2190	23.046	2640	22.891				
1750	24.448	2200	23.034	2650	22.89				
1760	24.215	2210	23.03	2660	22.891				
1770	24.028	2220	23.024	2670	22.889				
1780	23.864	2230	23.019	2680	22.885				
1790	23.717	2240	23.013	2690	22.89				
1800	23.604	2250	23.003	2700	22.884				
1810	23.555	2260	23.003	2710	22.878				
1820	23.513	2270	22.994	2720	22.88				
1830	23.474	2280	22.988	2730	22.88				
1840	23.445	2290	22.987	2740	22.885				
1850	23.415	2300	22.981	2750	22.874				
1860	23.398	2310	22.975	2760	22.877				
1870	23.377	2320	22.968	2770	22.876				
1880	23.359	2330	22.967	2780	22.868				
1890	23.342	2340	22.964	2790	22.869				
1900	23.323	2350	22.963	2800	22.868				
1910	23.311	2360	22.959	2810	22.869				
1920	23.296	2370	22.955	2820	22.865				
1930	23.281	2380	22.949	2830	22.863				
1940	23.263	2390	22.949	2840	22.863				
1950	23.254	2400	22.949	2850	22.861				
1960	23.242	2410	22.94	2860	22.861				
1970	23.228	2420	22.94	2870	22.864				
1980	23.216	2430	22.937	2880	22.859				
1990	23.206	2440	22.936	2890	22.856				
2000	23.196	2450	22.933	2900	22.857				
2010	23.183	2460	22.928	2910	22.855				
2020	23.173	2470	22.926	2920	22.851				
2030	23.162	2480	22.926	2930	22.853				
2040	23.154	2490	22.924	2940	22.851				
2050	23.144	2500	22.92	2950	22.846				
2060	23.142	2510	22.917	2960	22.85				
2070	23.129	2520	22.911	2970	22.846				
2080	23.124	2530	22.911	2980	22.847				
2090	23.113	2540	22.91	2990	22.844				
2100	23.106	2550	22.908	3000	22.845				
2110	23.101	2560	22.909	3010	22.846				
2120	23.089	2570	22.9	3020	22.844				
2130	23.085	2580	22.9						

PZ-5d Test 1 (in)



Log Configuration	
Log Name	PZ-05 D
Created By	X2WSHAUG
Computer Name	X2WSHAUGH
Application	WinSitu.exe
Application Version	5.6.25.0
Create Date	7/10/14 1:15 PM
Log Setup Time Zone	Central Daylight Time
Notes Size(bytes)	4096
Overwrite when full	Disabled
Scheduled Start Time	Manual Start
Scheduled Stop Time	No Stop Time
Type	Fast Linear

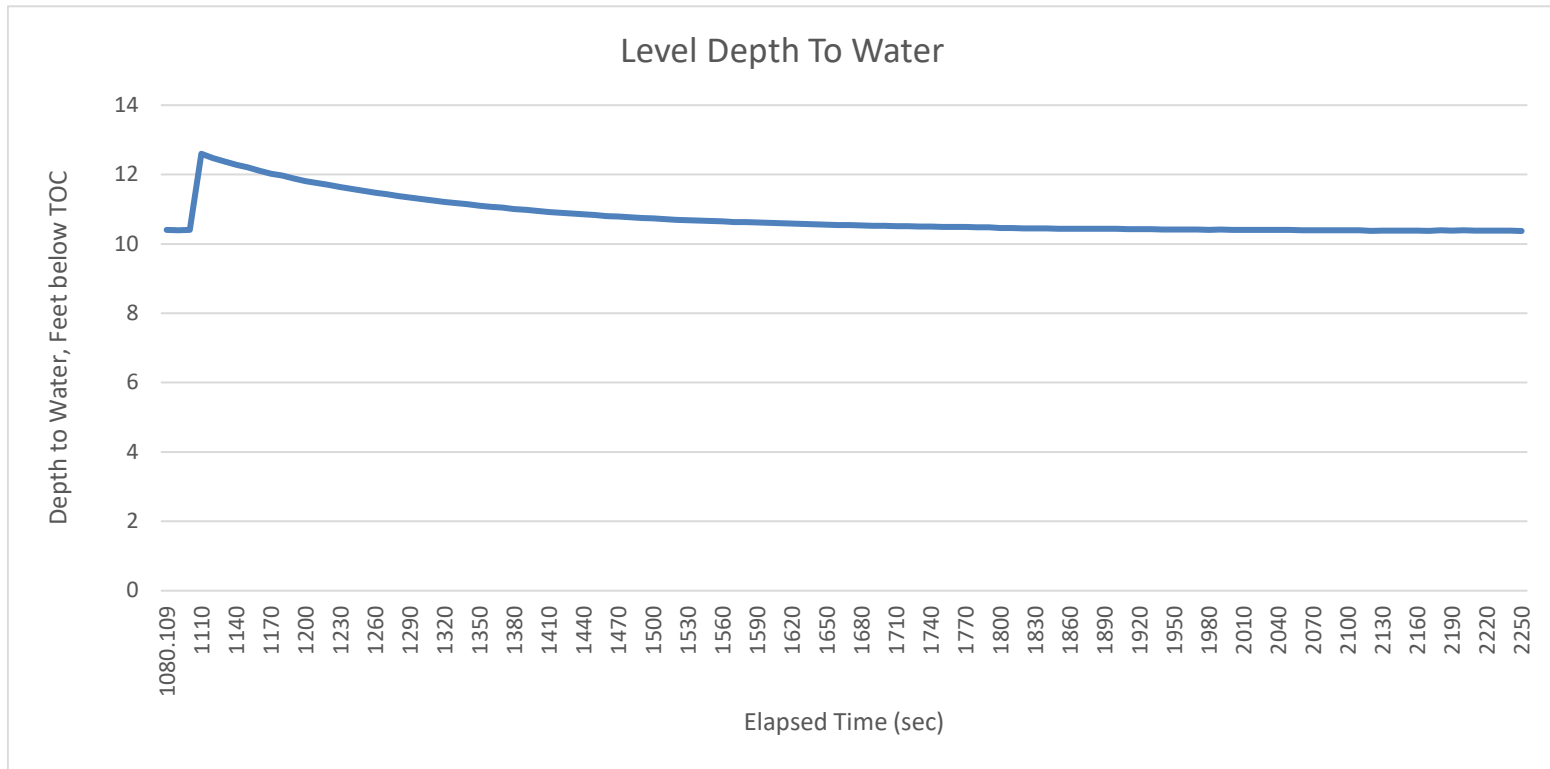
Level Reference Settings At Log Creation	
Level Measurement Mode	Level Depth To Water
Specific Gravity	0.999
Level Reference Mode:	Set new reference
Level Reference Value:	10.43 (ft)
Level Reference Head Pressure	18.6373 (PSI)

Other Log Settings	
Depth of Probe:	43.0264 (ft)
Head Pressure:	18.6345 (PSI)
Temperature:	62.0456 (F)

Device Properties	
Device	Level TROLL 500
Site	Plant Yates
Device Name	
Serial Number	160731
Firmware Version	2.04
Hardware Version	3
Device Address	1
Device Comm Cfg	19200,8,Even,1,(Modbus-RTU)
Used Memory(%)	93
Used Battery(%)	23

Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)
0	10.412	450	10.104	900	10.378				
10	10.425	460	10.120	910	10.379				
20	10.422	470	10.134	920	10.378				
30	10.423	480	10.149	930	10.378				
40	10.422	490	10.164	940	10.381				
50	10.422	500	10.176	950	10.382				
60	10.422	510	10.187	960	10.383				
70	10.421	520	10.201	970	10.383				
80	10.416	530	10.210	980	10.381				
90	8.385	540	10.221	990	10.387				
100	8.391	550	10.232	1000	10.384				
110	8.492	560	10.242	1010	10.393				
120	8.590	570	10.251	1020	10.389				
130	8.683	580	10.259	1030	10.398				
140	8.772	590	10.269	1040	10.389				
150	8.854	600	10.276	1050	10.396				
160	8.932	610	10.283	1060	10.397				
170	9.008	620	10.288	1070	10.400				
180	9.079	630	10.297						
190	9.146	640	10.301						
200	9.210	650	10.304						
210	9.270	660	10.312						
220	9.330	670	10.317						
230	9.386	680	10.324						
240	9.438	690	10.326						
250	9.487	700	10.330						
260	9.533	710	10.336						
270	9.584	720	10.339						
280	9.622	730	10.342						
290	9.667	740	10.346						
300	9.704	750	10.348						
310	9.750	760	10.350						
320	9.775	770	10.353						
330	9.810	780	10.353						
340	9.841	790	10.360						
350	9.874	800	10.358						
360	9.903	810	10.369						
370	9.928	820	10.362						
380	9.955	830	10.375						
390	9.981	840	10.367						
400	10.007	850	10.367						
410	10.026	860	10.383						
420	10.046	870	10.382						
430	10.068	880	10.375						
440	10.086	890	10.378						

PZ-5d Test 1 (out)



Log Configuration	
Log Name	PZ-05 D
Created By	X2WSHAUG
Computer Name	X2WSHAUGH
Application	WinSitu.exe
Application Version	5.6.25.0
Create Date	7/10/14 1:15 PM
Log Setup Time Zone	Central Daylight Time
Notes Size(bytes)	4096
Overwrite when full	Disabled
Scheduled Start Time	Manual Start
Scheduled Stop Time	No Stop Time
Type	Fast Linear

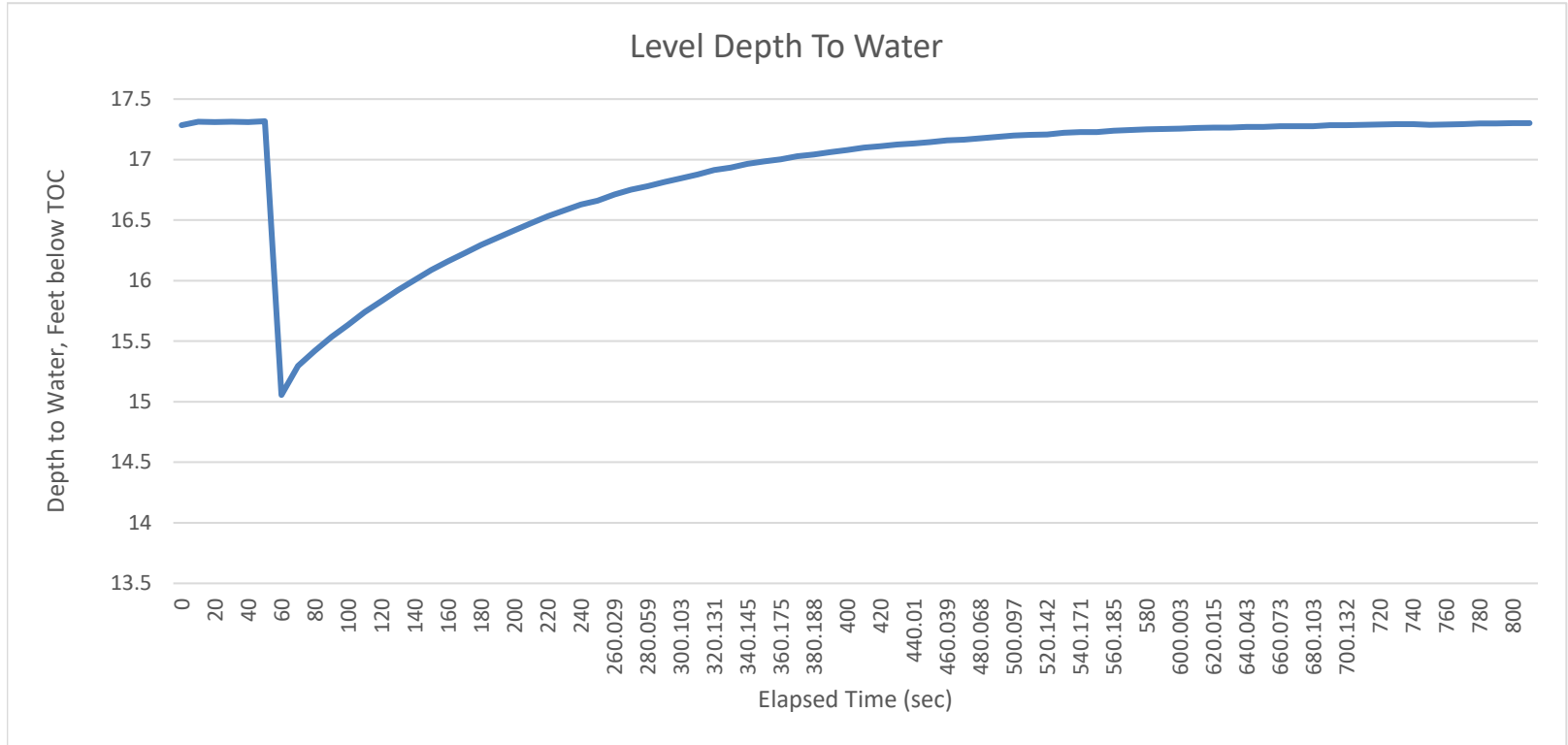
Level Reference Settings At Log Creation	
Level Measurement Mode	Level Depth To Water
Specific Gravity	0.999
Level Reference Mode:	Set new reference
Level Reference Value:	10.43 (ft)
Level Reference Head Pressure	18.6373 (PSI)

Other Log Settings	
Depth of Probe:	43.0264 (ft)
Head Pressure:	18.6345 (PSI)
Temperature:	62.0456 (F)

Device Properties	
Device	Level TROLL 500
Site	Plant Yates
Device Name	
Serial Number	160731
Firmware Version	2.04
Hardware Version	3
Device Address	1
Device Comm Cfg	19200,8,Even,1,(Modbus-RTU)
Used Memory(%)	93
Used Battery(%)	23

Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)
20		470		920		1370	11.043	1820	10.45
30		480		930		1380	11.009	1830	10.444
40		490		940		1390	10.98	1840	10.443
50		500		950		1400	10.951	1850	10.439
60		510		960		1410	10.923	1860	10.437
70		520		970		1420	10.897	1870	10.431
80		530		980		1430	10.874	1880	10.437
90		540		990		1440	10.85	1890	10.434
100		550		1000		1450	10.828	1900	10.433
110		560		1010		1460	10.804	1910	10.423
120		570		1020		1470	10.788	1920	10.423
130		580		1030		1480	10.77	1930	10.42
140		590		1040		1490	10.751	1940	10.416
150		600		1050		1500	10.738	1950	10.418
160		610		1060		1510	10.717	1960	10.414
170		620		1070		1520	10.698	1970	10.416
180		630		1080	10.401	1530	10.688	1980	10.409
190		640		1090	10.394	1540	10.676	1990	10.411
200		650		1100	10.402	1550	10.662	2000	10.407
210		660		1110	12.599	1560	10.646	2010	10.404
220		670		1120	12.472	1570	10.634	2020	10.404
230		680		1130	12.373	1580	10.624	2030	10.402
240		690		1140	12.284	1590	10.615	2040	10.399
250		700		1150	12.203	1600	10.606	2050	10.399
260		710		1160	12.114	1610	10.595	2060	10.396
270		720		1170	12.026	1620	10.585	2070	10.395
280		730		1180	11.97	1630	10.576	2080	10.39
290		740		1190	11.885	1640	10.566	2090	10.392
300		750		1200	11.808	1650	10.556	2100	10.388
310		760		1210	11.759	1660	10.547	2110	10.389
320		770		1220	11.699	1670	10.541	2120	10.375
330		780		1230	11.641	1680	10.53	2130	10.382
340		790		1240	11.587	1690	10.526	2140	10.384
350		800		1250	11.53	1700	10.52	2150	10.383
360		810		1260	11.477	1710	10.511	2160	10.381
370		820		1270	11.429	1720	10.507	2170	10.375
380		830		1280	11.382	1730	10.502	2180	10.388
390		840		1290	11.334	1740	10.495	2190	10.383
400		850		1300	11.294	1750	10.49	2200	10.391
410		860		1310	11.25	1760	10.489	2210	10.385
420		870		1320	11.21	1770	10.486	2220	10.377
430		880		1330	11.177	1780	10.482	2230	10.378
440		890		1340	11.14	1790	10.476	2240	10.379
450		900		1350	11.106	1800	10.455	2250	10.376
460		910		1360	11.071	1810	10.455	2260	

PZ-5i Test 1 (in)



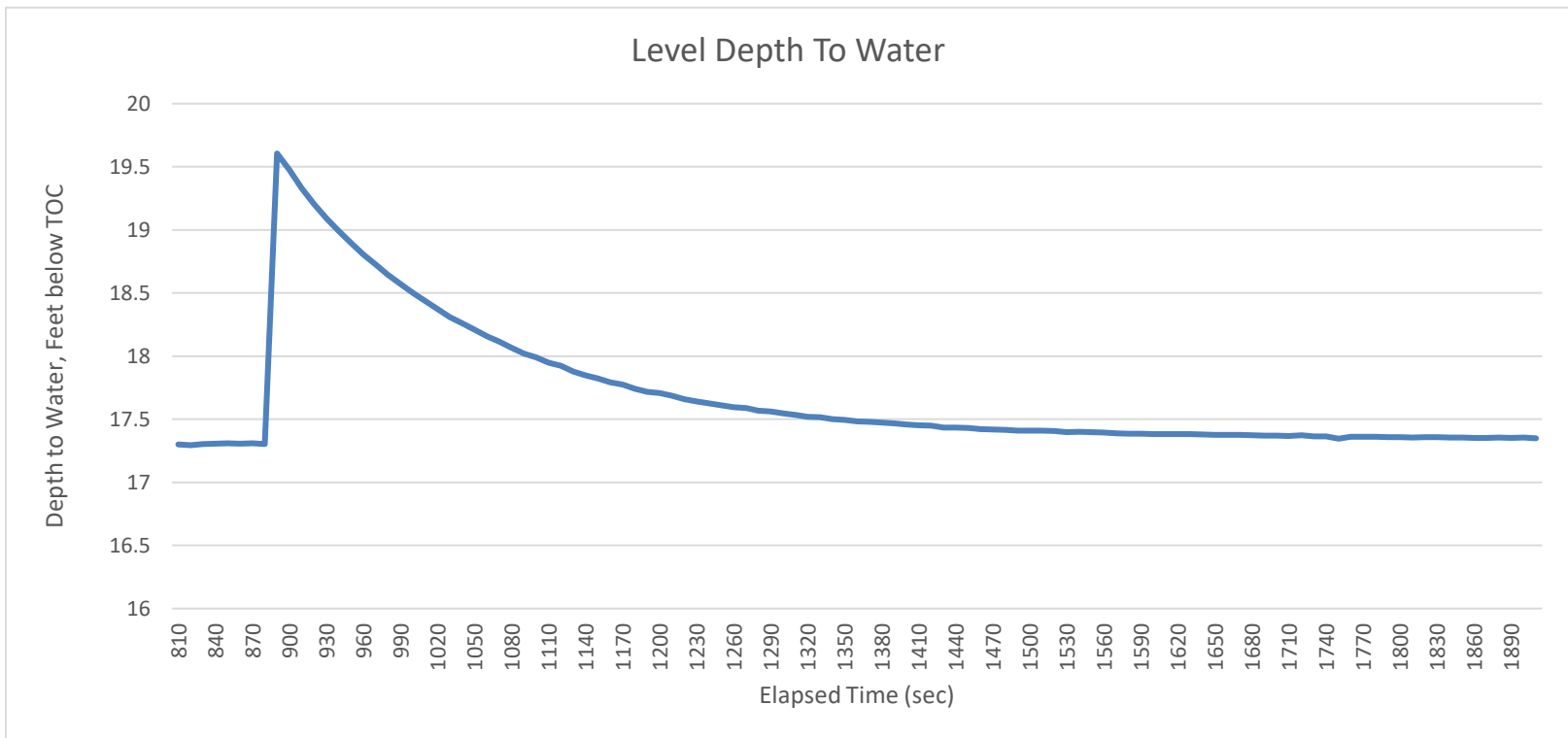
Log Configuration	
Log Name	PZ-05 I
Created By	X2WSHAUG
Computer Name	X2WSHAUGH
Application	WinSitu.exe
Application Version	5.6.25.0
Create Date	7/10/14 12:26 PM
Log Setup Time Zone	Central Daylight Time
Notes Size(bytes)	4096
Overwrite when full	Disabled
Scheduled Start Time	Manual Start
Scheduled Stop Time	No Stop Time
Type	Fast Linear

Level Reference Settings At Log Creation	
Level Measurement Mode	Level Depth To Water
Specific Gravity	0.999
Level Reference Mode:	Set new reference
Level Reference Value:	17.31 (ft)
Level Reference Head Pressure	13.1886 (PSI)

Other Log Settings	
Depth of Probe:	30.4527 (ft)
Head Pressure:	13.1889 (PSI)
Temperature:	61.7533 (F)

Device Properties	
Device	Level TROLL 500
Site	Plant Yates
Device Name	
Serial Number	160731
Firmware Version	2.04
Hardware Version	3
Device Address	1
Device Comm Cfg	19200,8,Even,1,(Modbus-RTU)
Used Memory(%)	90
Used Battery(%)	23

PZ-5i Test 1 (out)



Log Configuration	
Log Name	PZ-05 I
Created By	X2WSHAUG
Computer Name	X2WSHAUGH
Application	WinSitu.exe
Application Version	5.6.25.0
Create Date	7/10/14 12:26 PM
Log Setup Time Zone	Central Daylight Time
Notes Size(bytes)	4096
Overwrite when full	Disabled
Scheduled Start Time	Manual Start
Scheduled Stop Time	No Stop Time
Type	Fast Linear

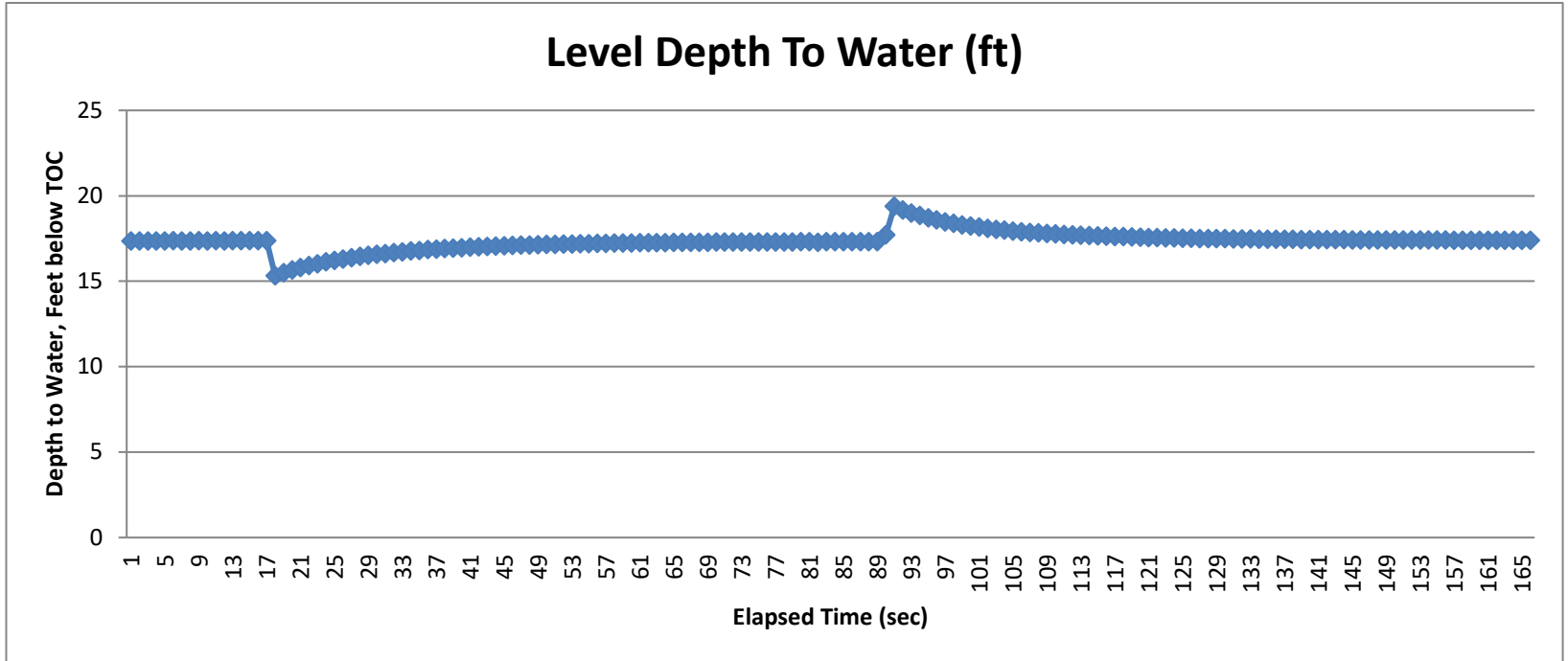
Other Log Settings	
Depth of Probe:	30.4527 (ft)
Head Pressure:	13.1889 (PSI)
Temperature:	61.7533 (F)

Level Reference Settings At Log Creation	
Level Measurement Mode	Level Depth To Water
Specific Gravity	0.999
Level Reference Mode:	Set new reference
Level Reference Value:	17.31 (ft)
Level Reference Head Pressure	13.1886 (PSI)

Device Properties	
Device	Level TROLL 500
Site	Plant Yates
Device Name	
Serial Number	160731
Firmware Version	2.04
Hardware Version	3
Device Address	1
Device Comm Cfg	19200,8,Even,1,(Modbus-RTU)
Used Memory(%)	90
Used Battery(%)	23

Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)
0		450		900	19.476	1350	17.493	1800	17.357
10		460		910	19.33	1360	17.483	1810	17.356
20		470		920	19.204	1370	17.478	1820	17.357
30		480		930	19.091	1380	17.473	1830	17.357
40		490		940	18.99	1390	17.467	1840	17.356
50		500		950	18.894	1400	17.459	1850	17.355
60		510		960	18.805	1410	17.452	1860	17.353
70		520		970	18.724	1420	17.448	1870	17.353
80		530		980	18.644	1430	17.435	1880	17.355
90		540		990	18.569	1440	17.433	1890	17.351
100		550		1000	18.5	1450	17.43	1900	17.354
110		560		1010	18.438	1460	17.423	1910	17.349
120		570		1020	18.372	1470	17.418		
130		580		1030	18.309	1480	17.415		
140		590		1040	18.26	1490	17.41		
150		600		1050	18.209	1500	17.41		
160		610		1060	18.158	1510	17.409		
170		620		1070	18.113	1520	17.406		
180		630		1080	18.067	1530	17.396		
190		640		1090	18.02	1540	17.4		
200		650		1100	17.989	1550	17.396		
210		660		1110	17.946	1560	17.395		
220		670		1120	17.924	1570	17.389		
230		680		1130	17.878	1580	17.386		
240		690		1140	17.846	1590	17.386		
250		700		1150	17.824	1600	17.382		
260		710		1160	17.792	1610	17.382		
270		720		1170	17.774	1620	17.382		
280		730		1180	17.742	1630	17.382		
290		740		1190	17.717	1640	17.38		
300		750		1200	17.706	1650	17.376		
310		760		1210	17.685	1660	17.376		
320		770		1220	17.658	1670	17.375		
330		780		1230	17.64	1680	17.374		
340		790		1240	17.624	1690	17.369		
350		800		1250	17.611	1700	17.371		
360		810	17.301	1260	17.595	1710	17.368		
370		820	17.294	1270	17.588	1720	17.372		
380		830	17.303	1280	17.567	1730	17.365		
390		840	17.307	1290	17.562	1740	17.363		
400		850	17.308	1300	17.545	1750	17.346		
410		860	17.306	1310	17.533	1760	17.362		
420		870	17.308	1320	17.52	1770	17.362		
430		880	17.302	1330	17.516	1780	17.36		
440		890	19.605	1340	17.501	1790	17.358		

PZ-05 S



Log Configuration	
Log Name	PZ-05 S
Created By	X2WSHAUG
Computer Name	X2WSHAUGH
Application	WinSitu.exe
Application Version	5.6.25.0
Create Date	7/10/14 11:50 AM
Log Setup Time Zone	Central Daylight Time
Notes Size(bytes)	4096
Overwrite when full	Disabled
Scheduled Start Time	Manual Start
Scheduled Stop Time	No Stop Time
Type	Fast Linear

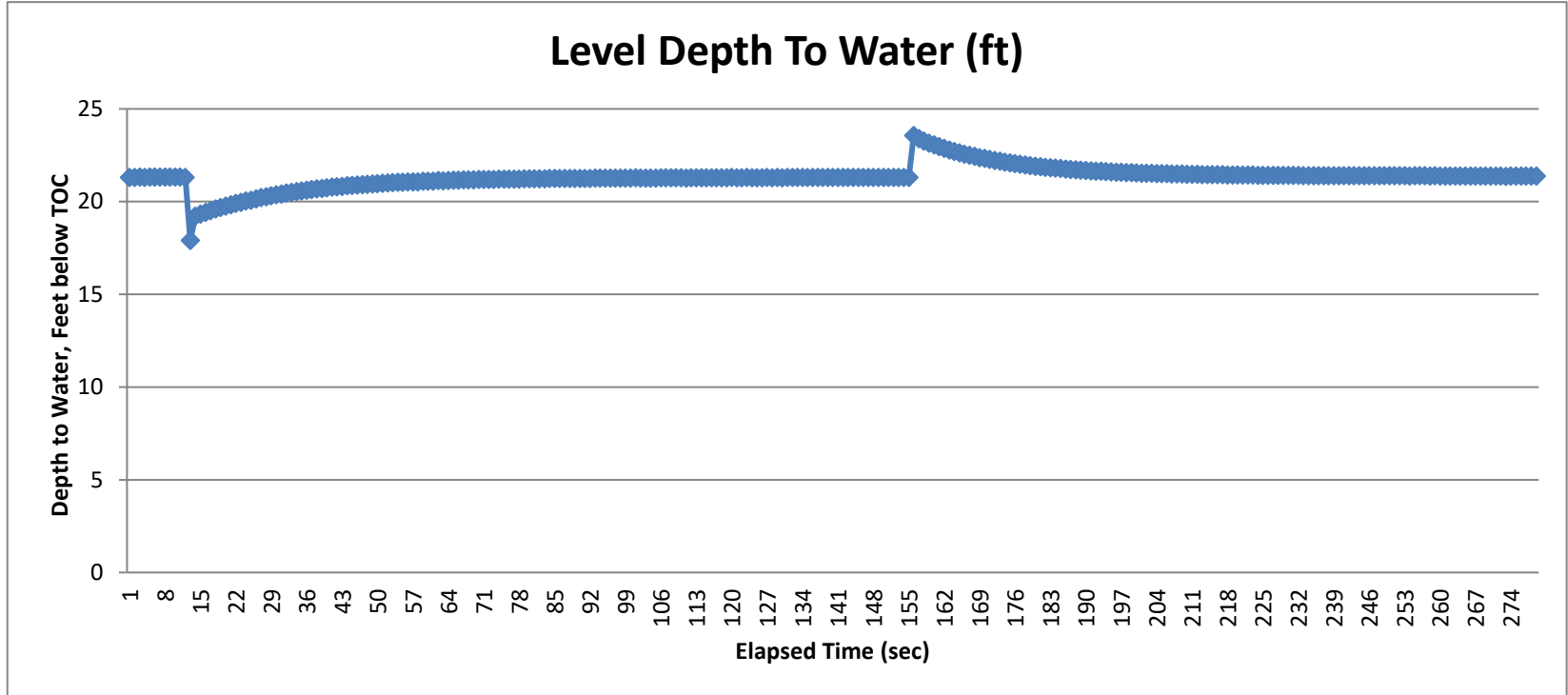
Level Reference Settings At Log Creation	
Level Measurement Mode	Level Depth To Water
Specific Gravity	0.999
Level Reference Mode:	Set new reference
Level Reference Value:	17.35 (ft)
Level Reference Head Pressure	10.5736 (PSI)

Other Log Settings	
Depth of Probe:	24.4049 (ft)
Head Pressure:	10.5696 (PSI)
Temperature:	65.1142 (F)

Device Properties	
Device	Level TROLL 500
Site	Plant Yates
Device Name	
Serial Number	160731
Firmware Version	2.04
Hardware Version	3
Device Address	1
Device Comm Cfg	19200,8,Even,1,(Modbus-RTU)
Used Memory(%)	87
Used Battery(%)	23

Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)
0	17.348	450	17.098	900	19.398	1350	17.454		
10	17.357	460	17.113	910	19.174	1360	17.446		
20	17.357	470	17.122	920	18.996	1370	17.451		
30	17.364	480	17.144	930	18.842	1380	17.442		
40	17.36	490	17.153	940	18.706	1390	17.441		
50	17.37	500	17.166	950	18.588	1400	17.438		
60	17.362	510	17.174	960	18.48	1410	17.436		
70	17.362	520	17.186	970	18.387	1420	17.429		
80	17.367	530	17.193	980	18.302	1430	17.428		
90	17.365	540	17.195	990	18.227	1440	17.425		
100	17.369	550	17.213	1000	18.164	1450	17.42		
110	17.365	560	17.22	1010	18.098	1460	17.419		
120	17.371	570	17.23	1020	18.038	1470	17.414		
130	17.369	580	17.234	1030	17.99	1480	17.417		
140	17.374	590	17.243	1040	17.943	1490	17.411		
150	17.373	600	17.251	1050	17.904	1500	17.411		
160	17.372	610	17.253	1060	17.862	1510	17.408		
170	15.328	620	17.263	1070	17.83	1520	17.411		
180	15.505	630	17.263	1080	17.798	1530	17.409		
190	15.659	640	17.269	1090	17.771	1540	17.409		
200	15.794	650	17.273	1100	17.739	1550	17.408		
210	15.919	660	17.277	1110	17.718	1560	17.402		
220	16.027	670	17.281	1120	17.694	1570	17.403		
230	16.132	680	17.285	1130	17.677	1580	17.404		
240	16.225	690	17.287	1140	17.654	1590	17.399		
250	16.309	700	17.291	1150	17.64	1600	17.401		
260	16.385	710	17.291	1160	17.621	1610	17.401		
270	16.456	720	17.291	1170	17.607	1620	17.399		
280	16.52	730	17.294	1180	17.592	1630	17.397		
290	16.576	740	17.297	1190	17.58	1640	17.4		
300	16.623	750	17.3	1200	17.562	1650	17.389		
310	16.68	760	17.304	1210	17.55				
320	16.725	770	17.305	1220	17.541				
330	16.77	780	17.305	1230	17.532				
340	16.807	790	17.309	1240	17.521				
350	16.85	800	17.314	1250	17.515				
360	16.882	810	17.276	1260	17.505				
370	16.917	820	17.317	1270	17.498				
380	16.947	830	17.323	1280	17.493				
390	16.967	840	17.319	1290	17.486				
400	16.993	850	17.317	1300	17.479				
410	17.021	860	17.322	1310	17.474				
420	17.043	870	17.321	1320	17.467				
430	17.062	880	17.321	1330	17.462				
440	17.078	890	17.721	1340	17.455				

PZ-06 D



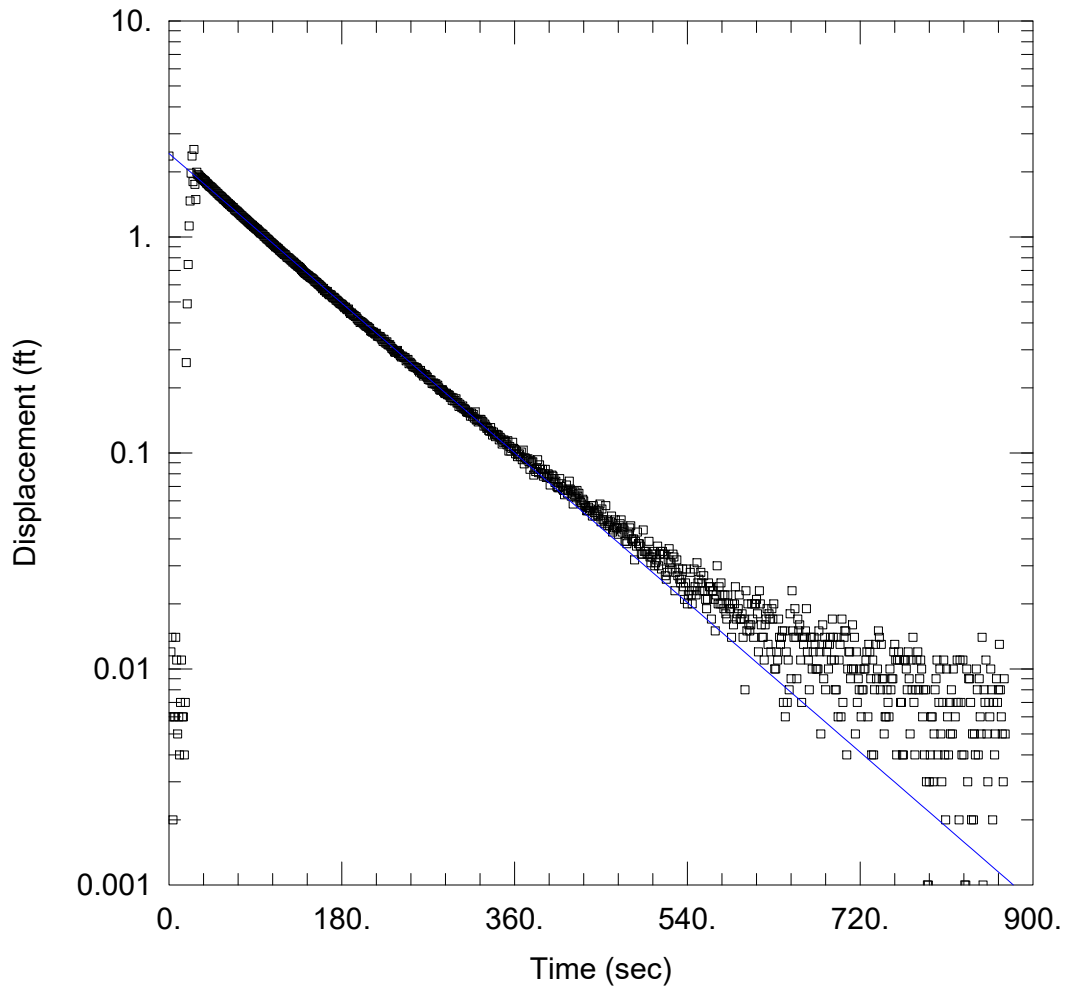
Log Configuration	
Log Name	PZ-06 D
Created By	X2WSHAUG
Computer Name	X2WSHAUGH
Application	WinSitu.exe
Application Version	5.6.25.0
Create Date	7/10/14 7:04 AM
Log Setup Time Zone	Central Daylight Time
Notes Size(bytes)	4096
Overwrite when full	Disabled
Scheduled Start Time	Manual Start
Scheduled Stop Time	No Stop Time
Type	Fast Linear

Level Reference Settings At Log Creation	
Level Measurement Mode	Level Depth To Water
Specific Gravity	0.999
Level Reference Mode:	Set new reference
Level Reference Value:	21.33 (ft)
Level Reference Head Pressure	38.4335 (PSI)

Other Log Settings	
Depth of Probe:	88.7382 (ft)
Head Pressure:	38.432 (PSI)
Temperature:	63.6079 (F)

Device Properties	
Device	Level TROLL 500
Site	Plant Yates
Device Name	
Serial Number	160731
Firmware Version	2.04
Hardware Version	3
Device Address	1
Device Comm Cfg	19200,8,Even,1,(Modbus-RTU)
Used Memory(%)	78
Used Battery(%)	23

Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)	Elapsed Time (sec)	Level Depth To Water (ft)
0	21.313	450	20.898	900	21.257	1350	21.301	1800	21.883
10	21.314	460	20.921	910	21.258	1360	21.299	1810	21.851
20	21.324	470	20.935	920	21.261	1370	21.3	1820	21.826
30	21.305	480	20.956	930	21.262	1380	21.302	1830	21.803
40	21.318	490	20.973	940	21.26	1390	21.3	1840	21.796
50	21.325	500	20.987	950	21.264	1400	21.305	1850	21.755
60	21.319	510	21.008	960	21.269	1410	21.301	1860	21.733
70	21.323	520	21.021	970	21.266	1420	21.302	1870	21.713
80	21.324	530	21.038	980	21.271	1430	21.304	1880	21.696
90	21.322	540	21.05	990	21.271	1440	21.304	1890	21.681
100	21.321	550	21.064	1000	21.293	1450	21.306	1900	21.662
110	21.304	560	21.057	1010	21.275	1460	21.298	1910	21.645
120	17.9	570	21.068	1020	21.276	1470	21.305	1920	21.632
130	19.223	580	21.1	1030	21.276	1480	21.308	1930	21.616
140	19.321	590	21.105	1040	21.276	1490	21.305	1940	21.603
150	19.42	600	21.097	1050	21.278	1500	21.305	1950	21.59
160	19.512	610	21.132	1060	21.281	1510	21.306	1960	21.579
170	19.6	620	21.119	1070	21.279	1520	21.305	1970	21.568
180	19.681	630	21.144	1080	21.279	1530	21.306	1980	21.559
190	19.757	640	21.156	1090	21.28	1540	21.307	1990	21.547
200	19.829	650	21.161	1100	21.274	1550	23.555	2000	21.538
210	19.901	660	21.169	1110	21.28	1560	23.395	2010	21.529
220	19.953	670	21.174	1120	21.288	1570	23.27	2020	21.523
230	20.036	680	21.181	1130	21.287	1580	23.155	2030	21.514
240	20.08	690	21.188	1140	21.29	1590	23.055	2040	21.506
250	20.154	700	21.19	1150	21.286	1600	22.958	2050	21.504
260	20.213	710	21.195	1160	21.288	1610	22.868	2060	21.491
270	20.267	720	21.199	1170	21.292	1620	22.785	2070	21.485
280	20.315	730	21.207	1180	21.29	1630	22.707	2080	21.485
290	20.37	740	21.212	1190	21.296	1640	22.632	2090	21.48
300	20.41	750	21.214	1200	21.291	1650	22.563	2100	21.471
310	20.461	760	21.218	1210	21.292	1660	22.499	2110	21.466
320	20.501	770	21.219	1220	21.296	1670	22.436	2120	21.462
330	20.541	780	21.223	1230	21.293	1680	22.375	2130	21.457
340	20.579	790	21.229	1240	21.293	1690	22.323	2140	21.453
350	20.615	800	21.228	1250	21.294	1700	22.267	2150	21.446
360	20.652	810	21.233	1260	21.296	1710	22.219	2160	21.446
370	20.685	820	21.239	1270	21.295	1720	22.175	2170	21.443
380	20.716	830	21.24	1280	21.299	1730	22.126	2180	21.439
390	20.744	840	21.241	1290	21.295	1740	22.089	2190	21.434
400	20.775	850	21.245	1300	21.3	1750	22.047	2200	21.431
410	20.804	860	21.247	1310	21.298	1760	22.012	2210	21.431
420	20.827	870	21.251	1320	21.298	1770	21.974	2220	21.427
430	20.853	880	21.248	1330	21.298	1780	21.943	2230	21.424
440	20.876	890	21.257	1340	21.301	1790	21.91	2240	21.42



YATES PZ-17S

Data Set: S:\...\17S-1.aqt
Date: 03/01/17

Time: 08:46:37

PROJECT INFORMATION

Company: SCS
Client: GPC
Project: Yates
Location: Yates
Test Well: PZ-17S
Test Date: 11/20/2015

AQUIFER DATA

Saturated Thickness: 27.3 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (Yates PZ-17S)

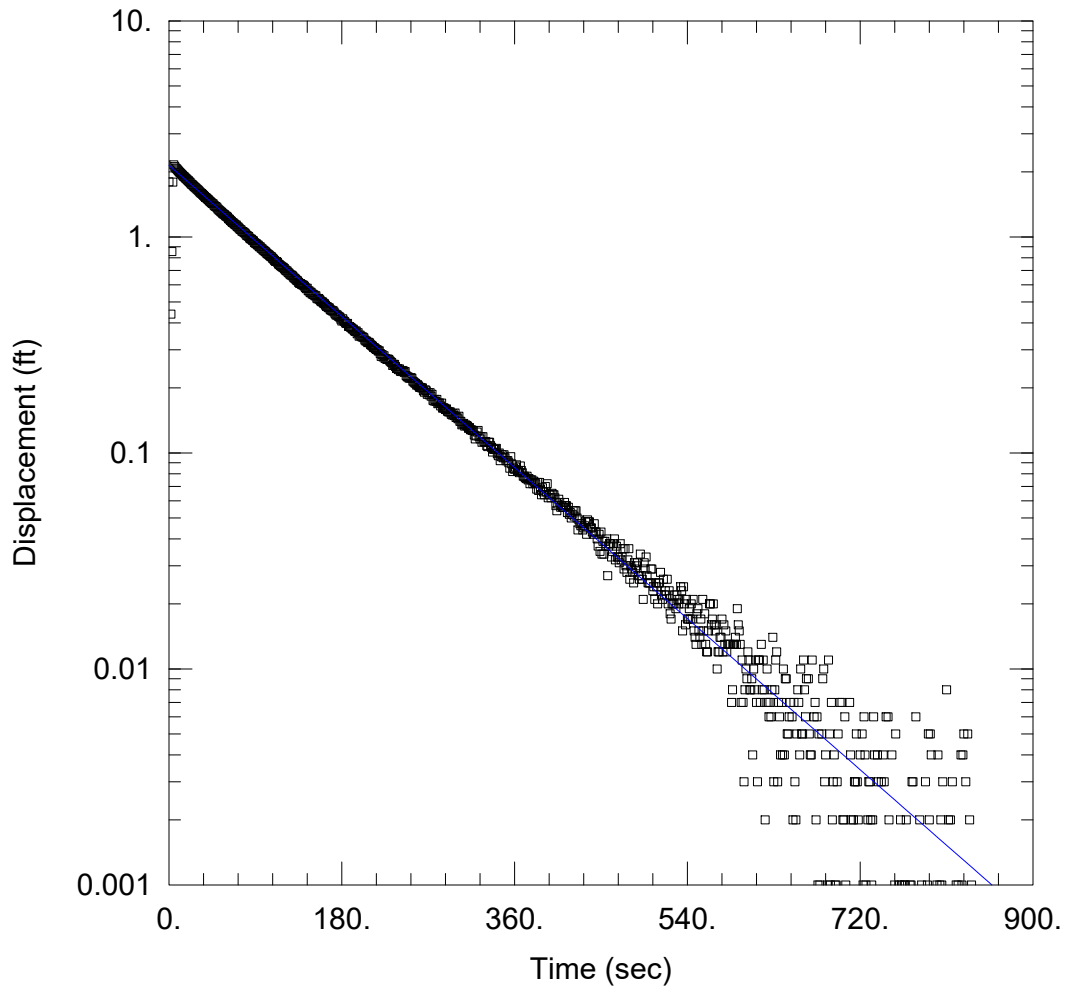
Initial Displacement: 2.37 ft
Total Well Penetration Depth: 27.15 ft
Casing Radius: 0.08333 ft

Static Water Column Height: 27.3 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
K = 0.9747 ft/day

Solution Method: Bower-Rice
 y_0 = 2.434 ft



YATES PZ-17S

Data Set: S:\...\17S-2.aqt
 Date: 03/01/17

Time: 08:47:43

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-17S
 Test Date: 11/20/2015

AQUIFER DATA

Saturated Thickness: 27.3 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-17S)

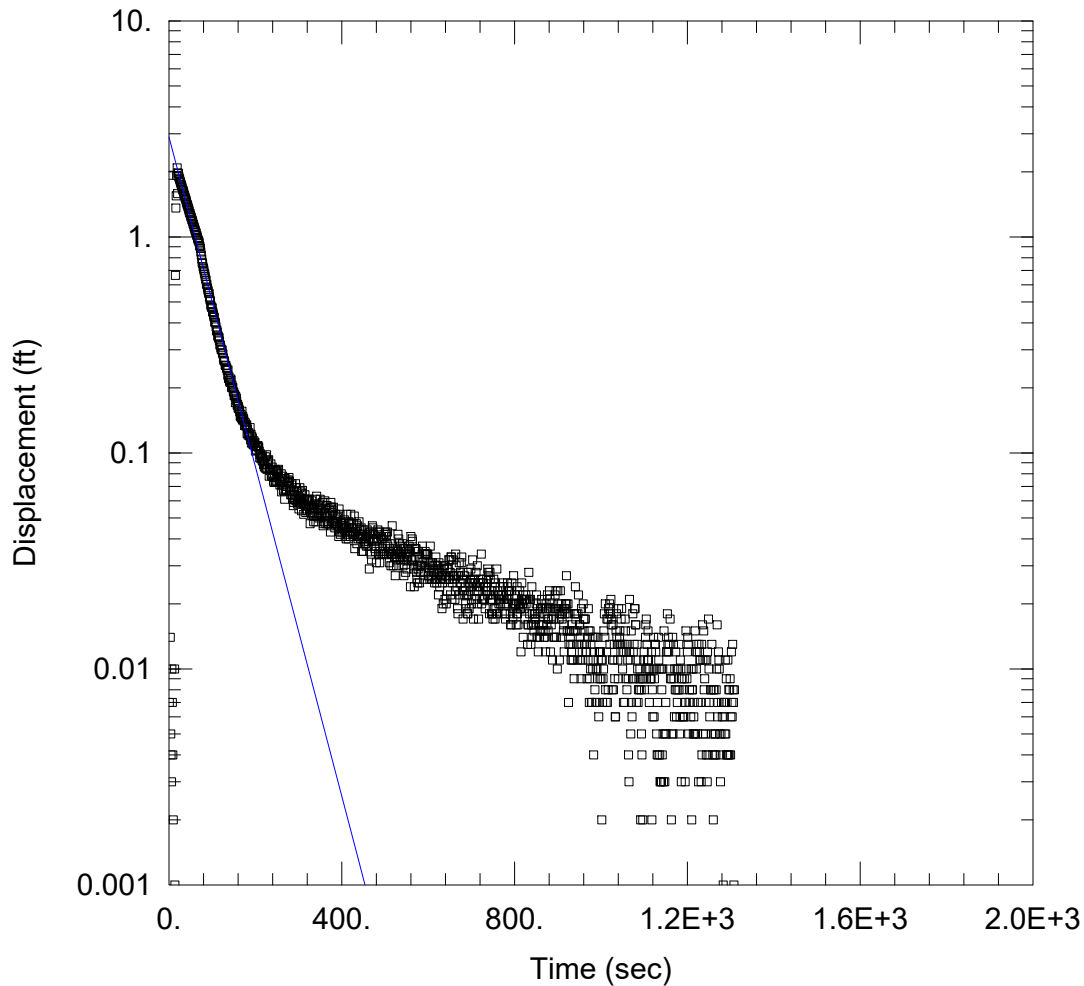
Initial Displacement: 1.8 ft
 Total Well Penetration Depth: 27.15 ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 27.3 ft
 Screen Length: 10. ft
 Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.984 ft/day

Solution Method: Bower-Rice
 y0 = 2.147 ft



YATES PZ-18I

Data Set: S:\...\18I-1.aqt
 Date: 03/01/17

Time: 08:44:47

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-18I
 Test Date: 11/20/2015

AQUIFER DATA

Saturated Thickness: 65.27 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-18I)

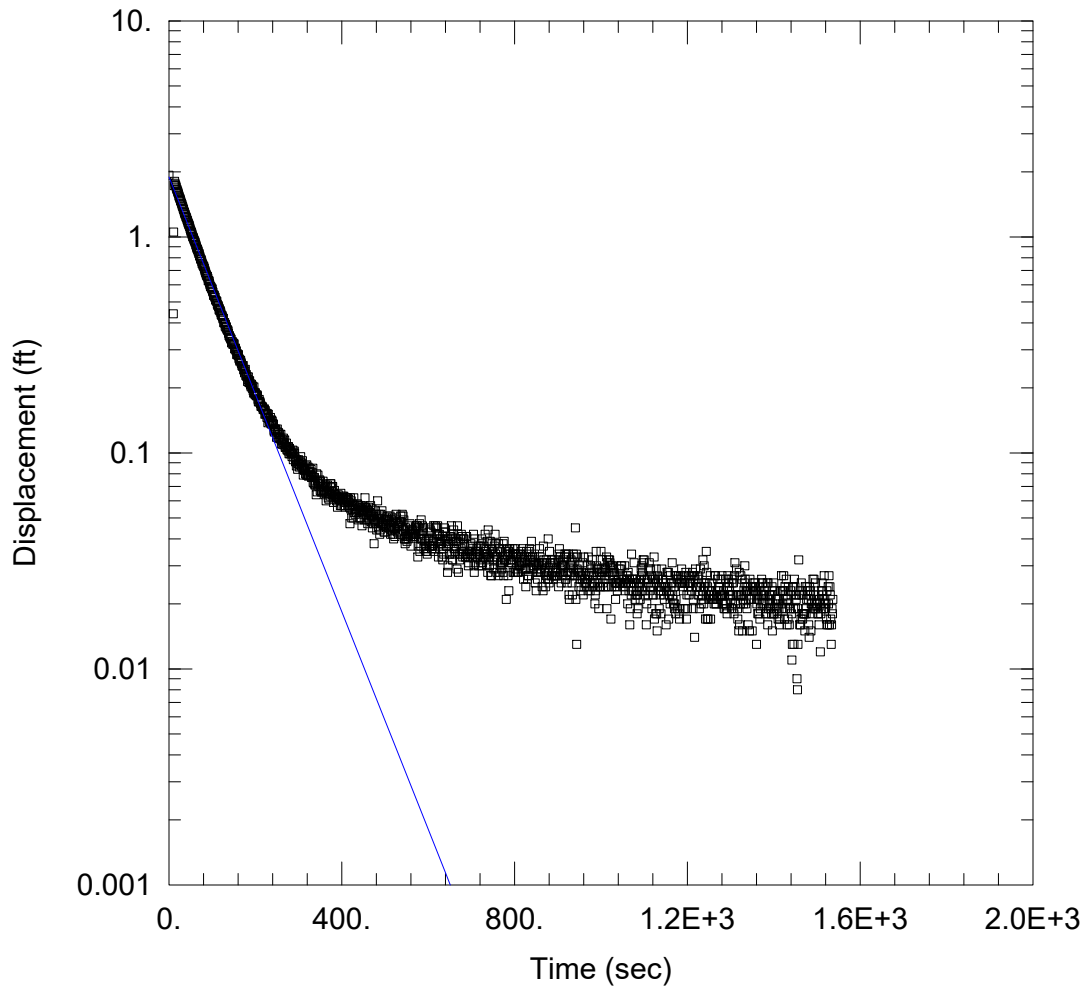
Initial Displacement: 1.93 ft
 Total Well Penetration Depth: 65.3 ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 65.27 ft
 Screen Length: 10. ft
 Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
 K = 2.196 ft/day

Solution Method: Bower-Rice
 y0 = 2.899 ft



YATES PZ-18I

Data Set: S:\...\18I-2.aqt
 Date: 03/01/17

Time: 08:43:34

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-18I
 Test Date: 11/23/2015

AQUIFER DATA

Saturated Thickness: 65.27 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-18I)

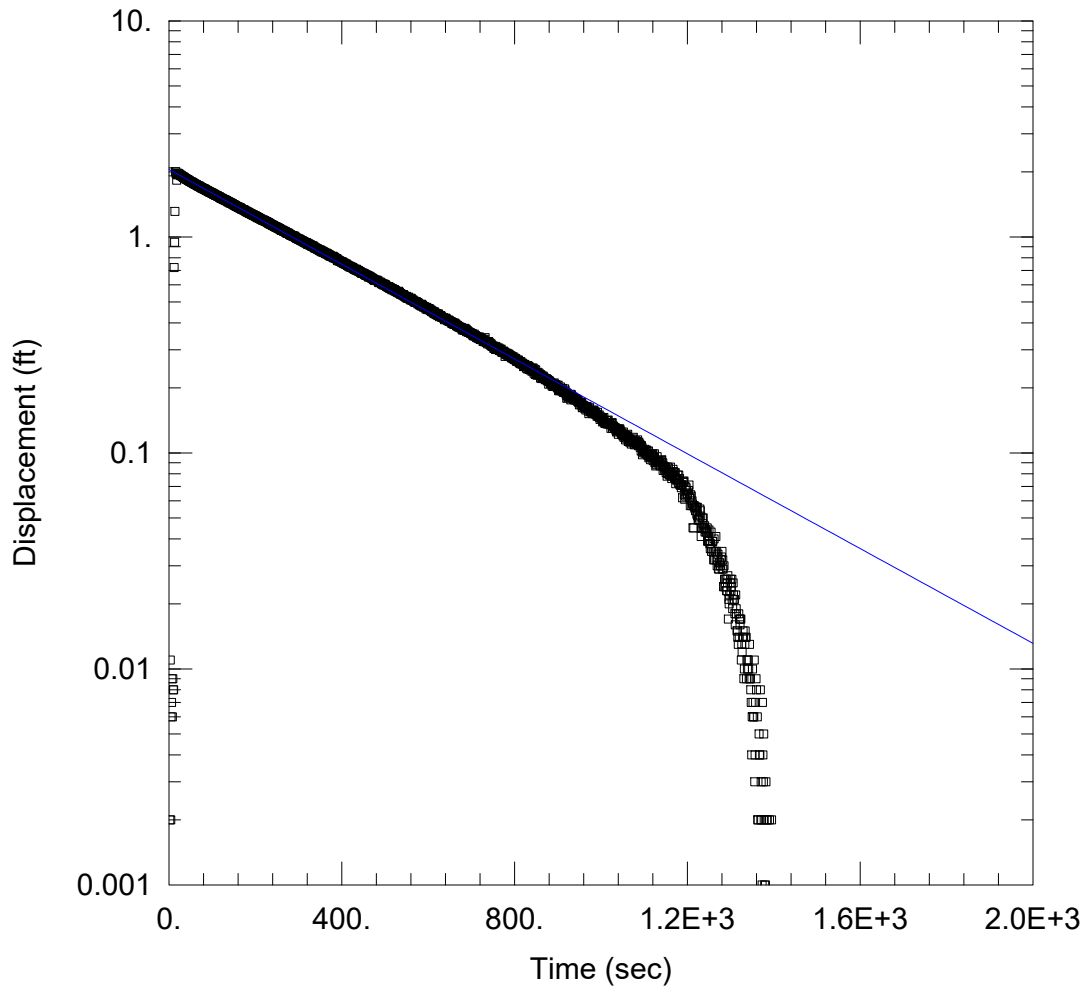
Initial Displacement: 1.93 ft
 Total Well Penetration Depth: 65.3 ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 65.27 ft
 Screen Length: 10. ft
 Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
 K = 1.449 ft/day

Solution Method: Bower-Rice
 y0 = 1.896 ft



YATES PZ-18S

Data Set: S:\...\18S-1.aqt
 Date: 03/01/17

Time: 08:51:07

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-18S
 Test Date: 11/20/2015

AQUIFER DATA

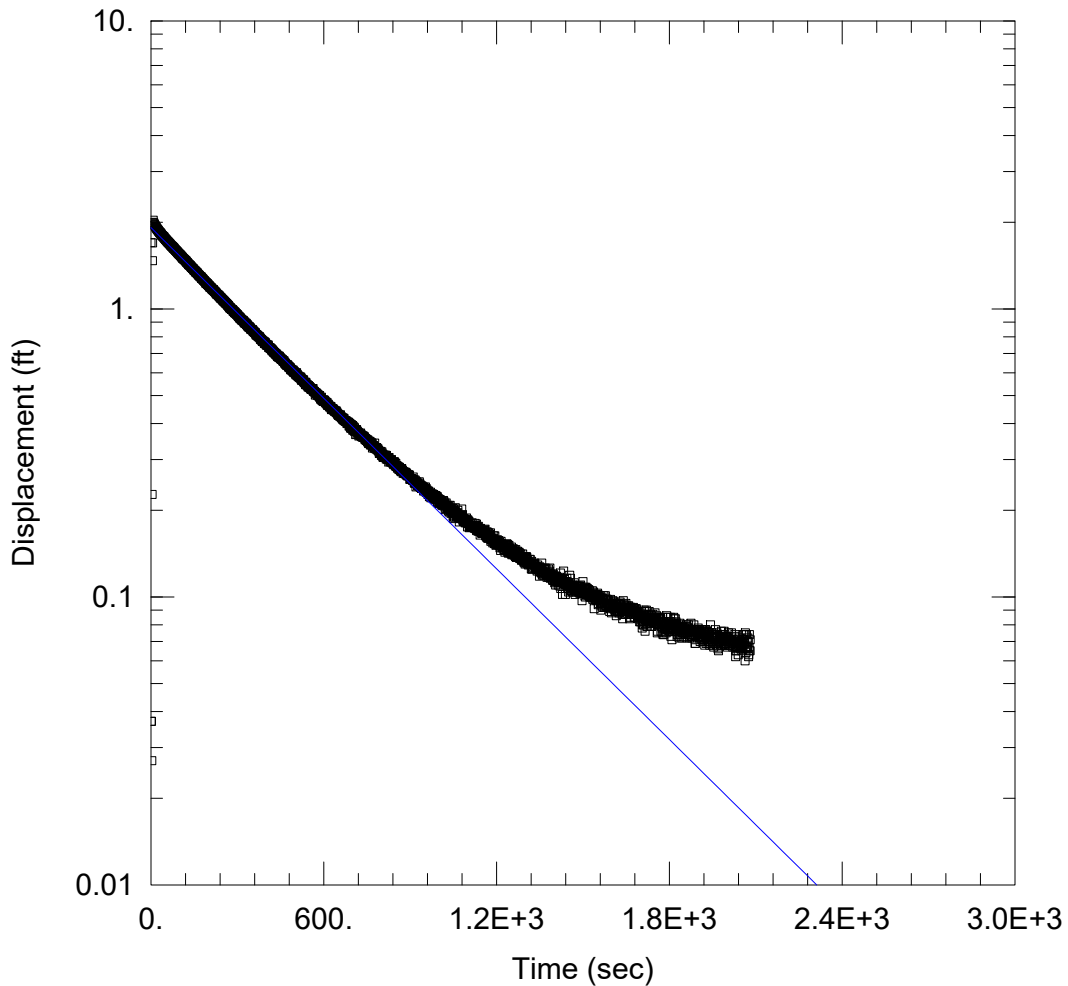
Saturated Thickness: 18.6 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-18S)

Initial Displacement: 2. ft Static Water Column Height: 18.6 ft
 Total Well Penetration Depth: 19.1 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bower-Rice
 K = 0.2674 ft/day y0 = 2.053 ft



YATES PZ-18S

Data Set: S:\...\18S-2.aqt
 Date: 03/01/17

Time: 08:53:39

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-18S
 Test Date: 11/20/2015

AQUIFER DATA

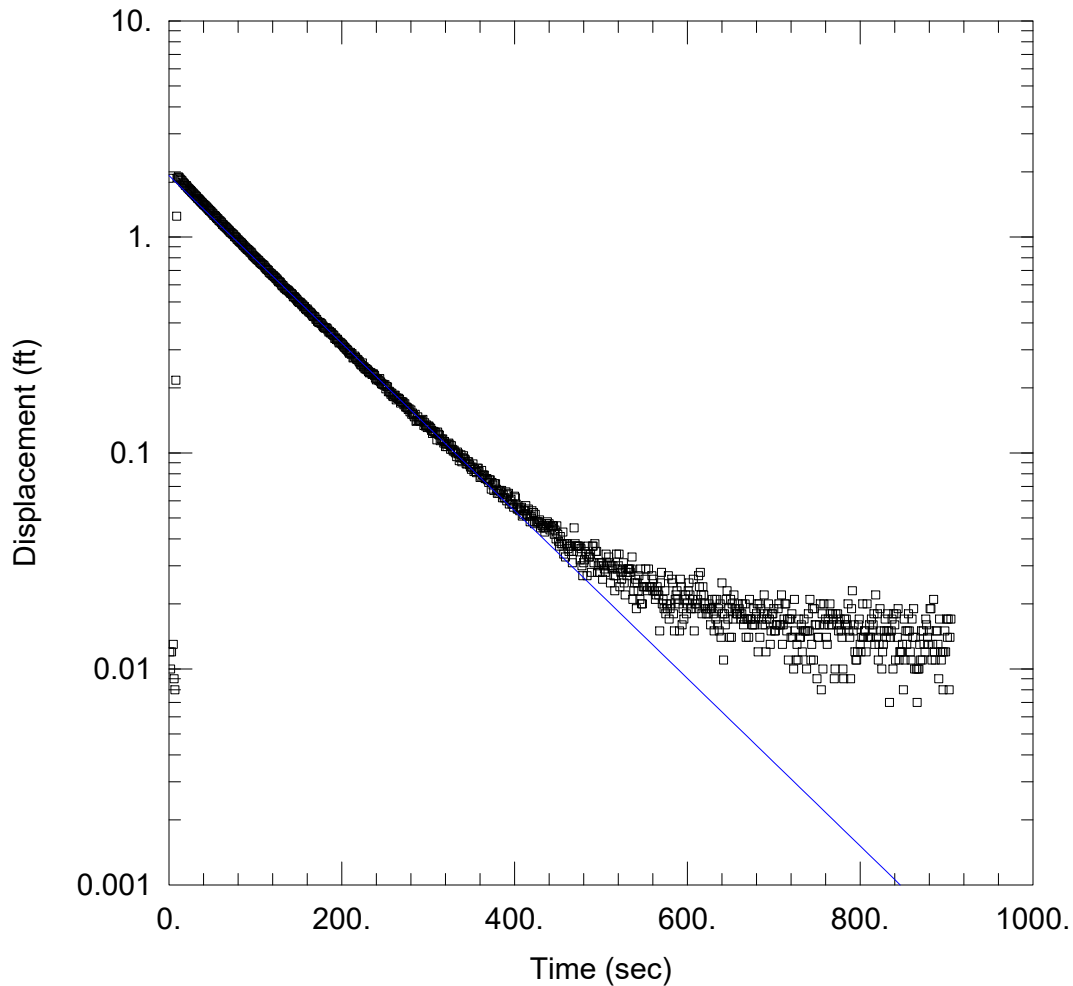
Saturated Thickness: 18.6 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-18S)

Initial Displacement: 1.7 ft Static Water Column Height: 18.6 ft
 Total Well Penetration Depth: 19.1 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bower-Rice
 K = 0.2407 ft/day y0 = 1.916 ft



YATES PZ-19S

Data Set: S:\...\19S-2.aqt
 Date: 03/01/17

Time: 08:56:25

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-19S
 Test Date: 11/20/2015

AQUIFER DATA

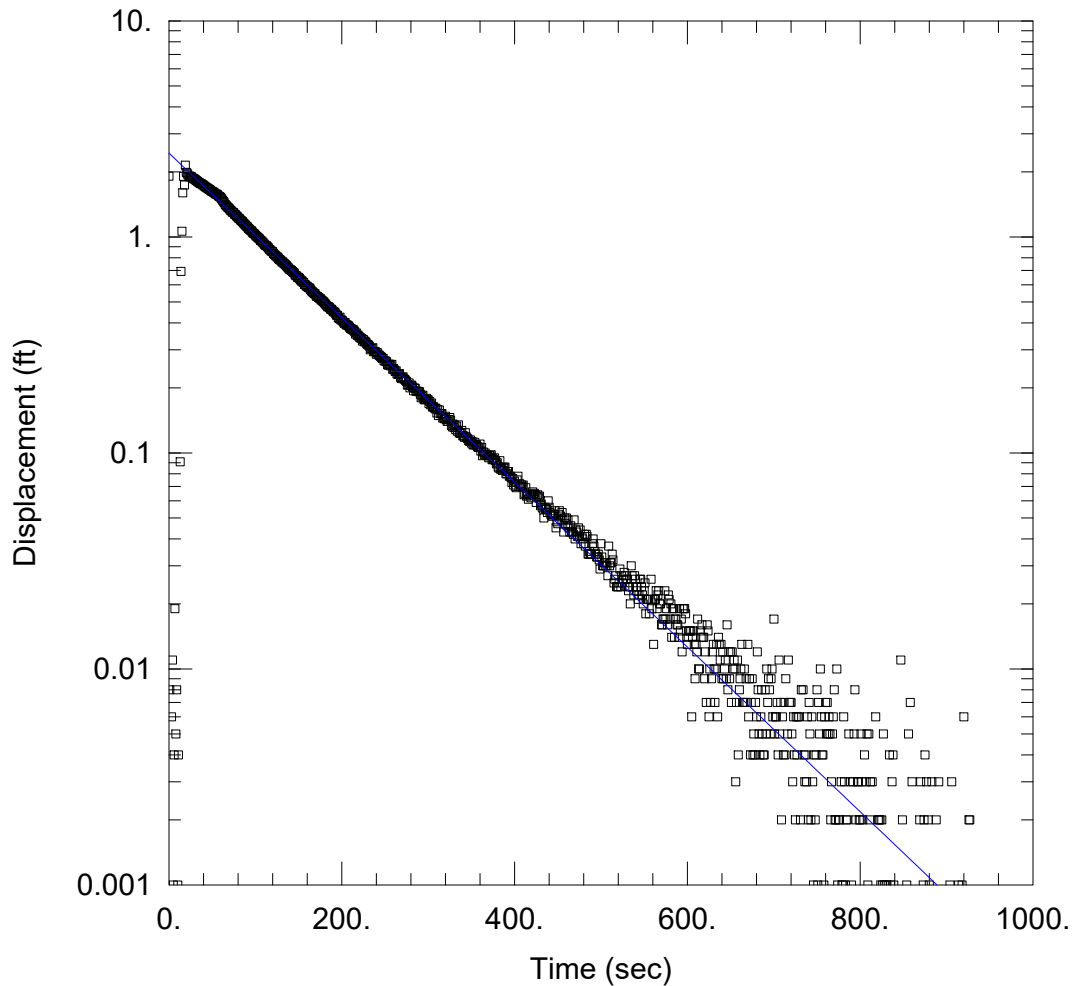
Saturated Thickness: 20.6 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-19S)

Initial Displacement: 1.87 ft Static Water Column Height: 20.6 ft
 Total Well Penetration Depth: 21. ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bower-Rice
 K = 0.9593 ft/day y0 = 1.922 ft



YATES PZ-20S

Data Set: S:\...\20S-1.aqt
Date: 03/01/17

Time: 08:57:38

PROJECT INFORMATION

Company: SCS
Client: GPC
Project: Yates
Location: Yates
Test Well: PZ-20S
Test Date: 11/20/2015

AQUIFER DATA

Saturated Thickness: 20.5 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-20S)

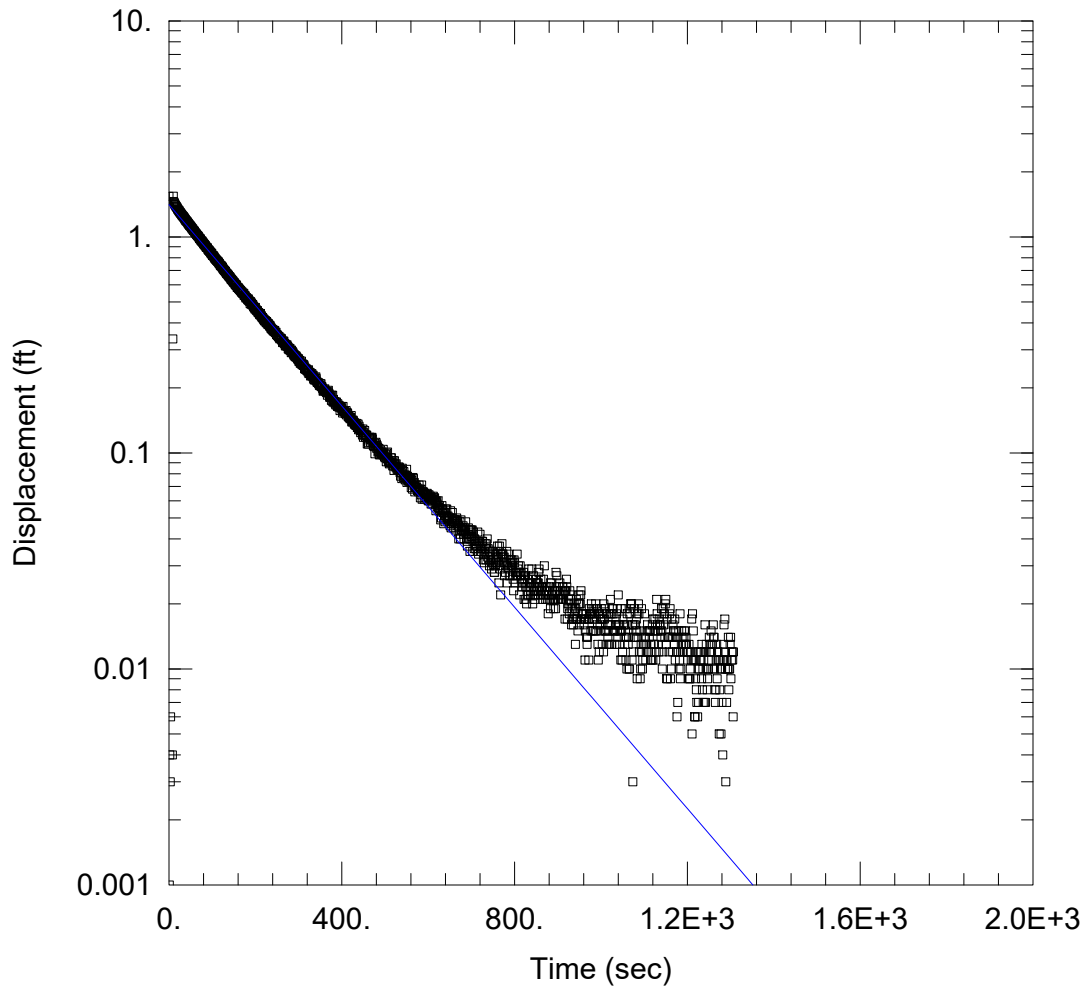
Initial Displacement: 1.91 ft
Total Well Penetration Depth: 39. ft
Casing Radius: 0.08333 ft

Static Water Column Height: 20.5 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
K = 1.028 ft/day

Solution Method: Bower-Rice
y0 = 2.444 ft



YATES PZ-20S

Data Set: S:\...\20S-2.aqt
 Date: 03/01/17

Time: 09:13:42

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-20S
 Test Date: 1/13/16

AQUIFER DATA

Saturated Thickness: 20.5 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-20S)

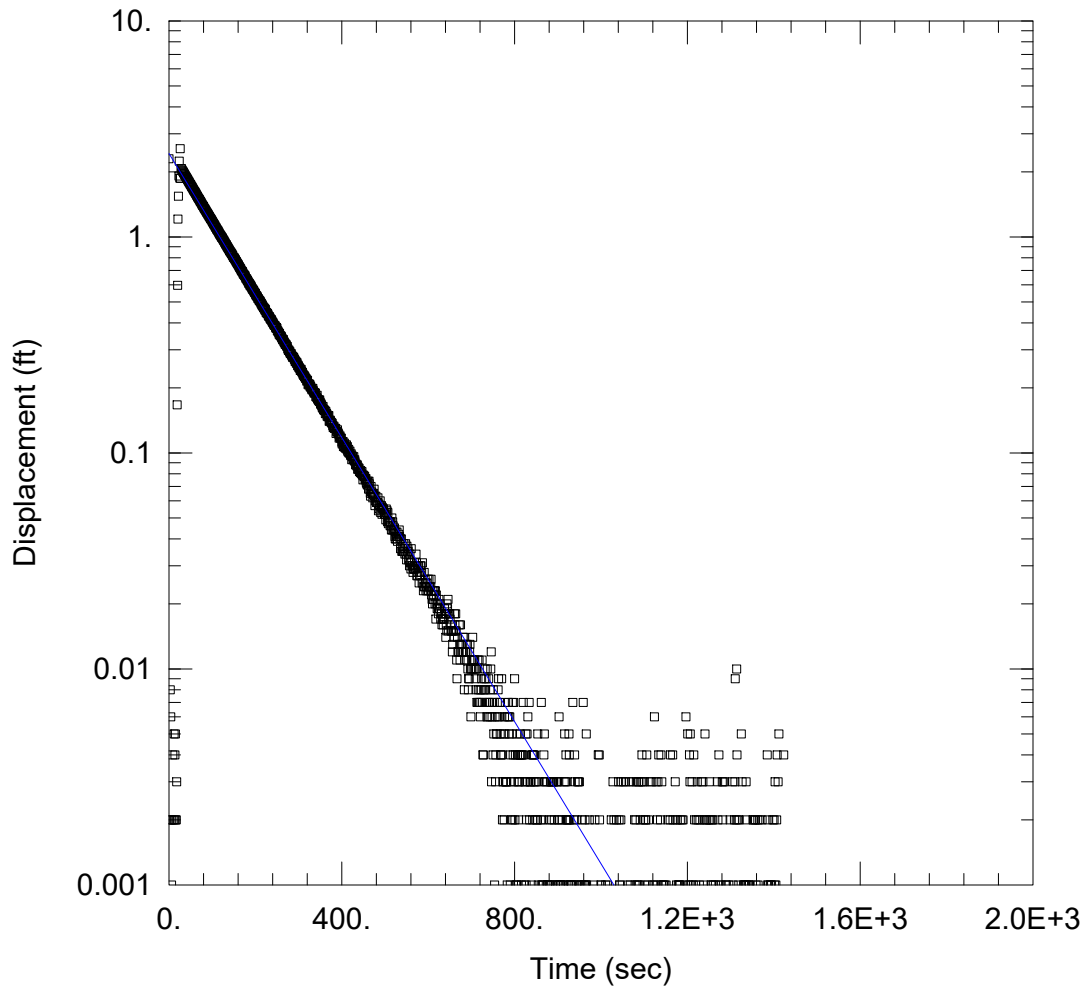
Initial Displacement: 1.54 ft
 Total Well Penetration Depth: 39. ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 20.5 ft
 Screen Length: 10. ft
 Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.6286 ft/day

Solution Method: Bower-Rice
 y0 = 1.41 ft



YATES PZ-22S

Data Set: S:\...\22S-1.aqt
 Date: 03/01/17

Time: 09:20:55

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-22S
 Test Date: 11/23/2015

AQUIFER DATA

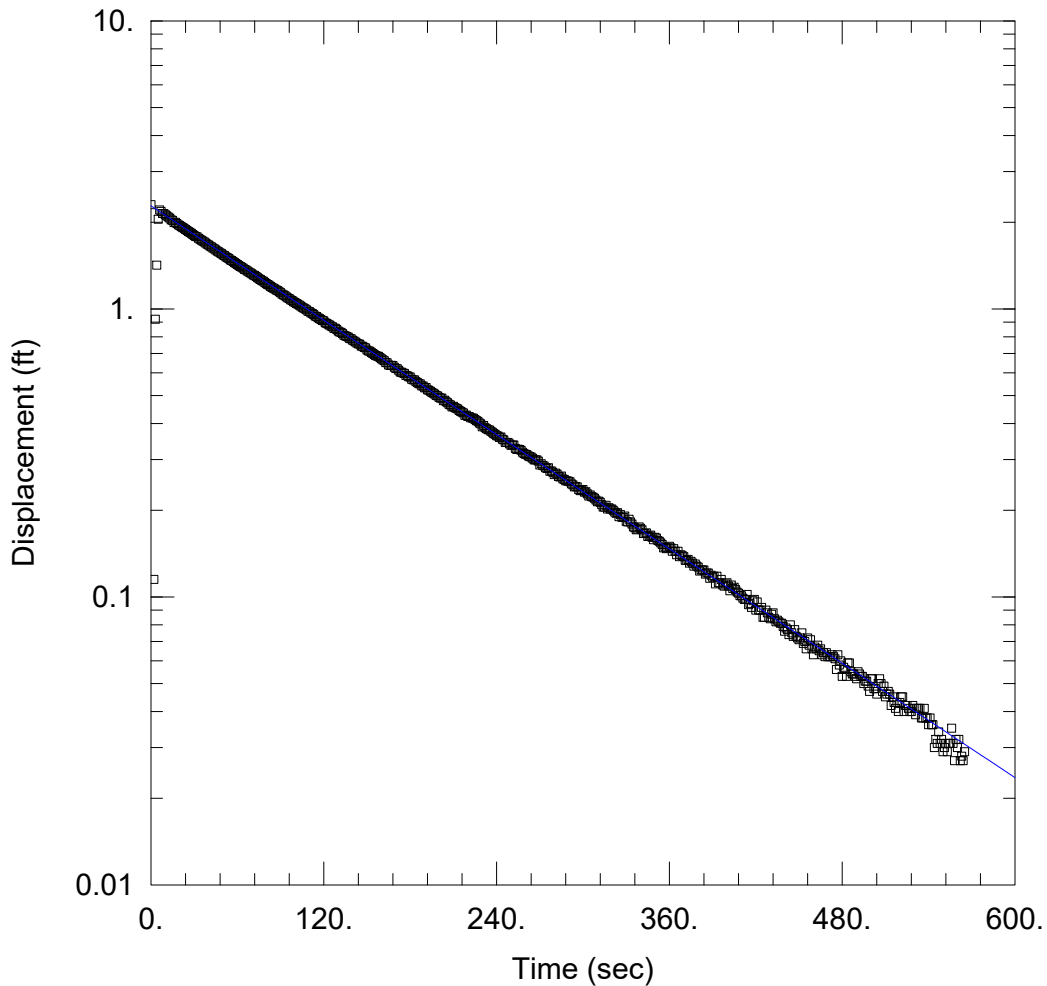
Saturated Thickness: 30.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-22S)

Initial Displacement: 2.3 ft Static Water Column Height: 30.5 ft
 Total Well Penetration Depth: 40.13 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bower-Rice
 K = 0.8904 ft/day y0 = 2.434 ft



YATES PZ-22S

Data Set: S:\...\22S-2.aqt
 Date: 03/01/17

Time: 09:22:57

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-22S
 Test Date: 11/23/2015

AQUIFER DATA

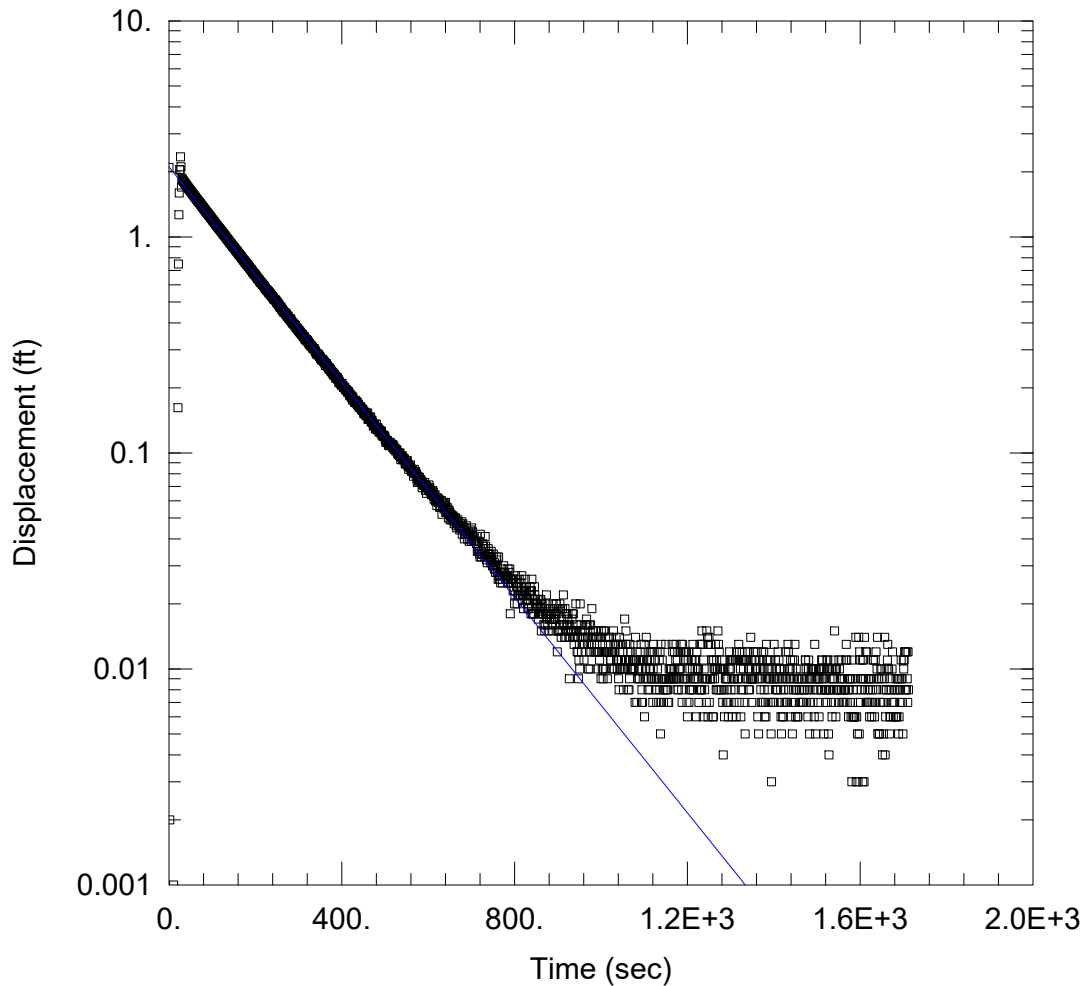
Saturated Thickness: 30.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-22S)

Initial Displacement: 2.3 ft Static Water Column Height: 30.5 ft
 Total Well Penetration Depth: 30.13 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bower-Rice
 K = 0.828 ft/day y0 = 2.28 ft



YATES PZ-23S

Data Set: S:\...\23S-1.aqt
 Date: 03/01/17

Time: 09:24:54

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-23S
 Test Date: 11/23/2015

AQUIFER DATA

Saturated Thickness: 23.6 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (Yates PZ-23S)

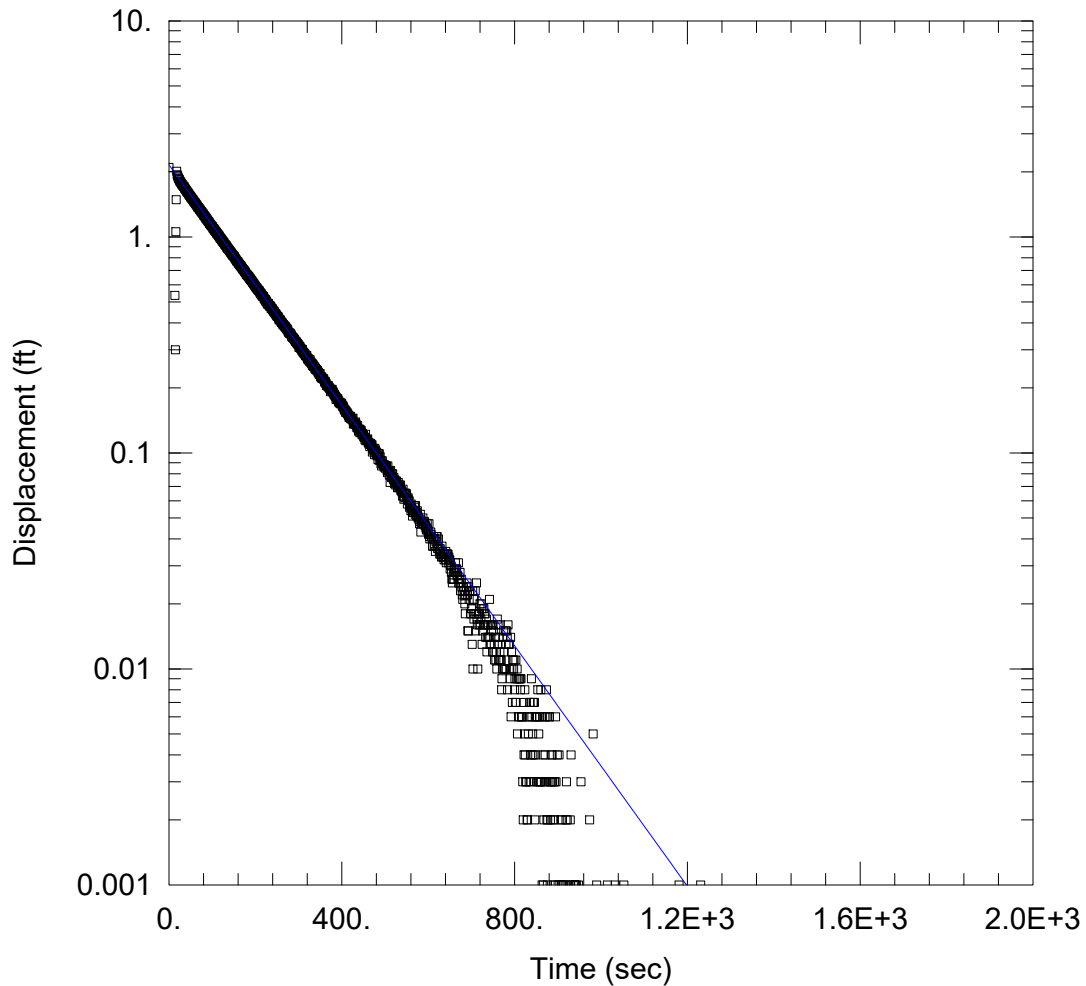
Initial Displacement: 2.1 ft
 Total Well Penetration Depth: 23.3 ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 23.6 ft
 Screen Length: 10. ft
 Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
 $K = 0.6054$ ft/day

Solution Method: Bower-Rice
 $y_0 = 2.108$ ft



YATES PZ-23S

Data Set: S:\...\23S-2.aqt
 Date: 03/01/17

Time: 09:25:50

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ_23S
 Test Date: 11/23/2015

AQUIFER DATA

Saturated Thickness: 23.6 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-23S)

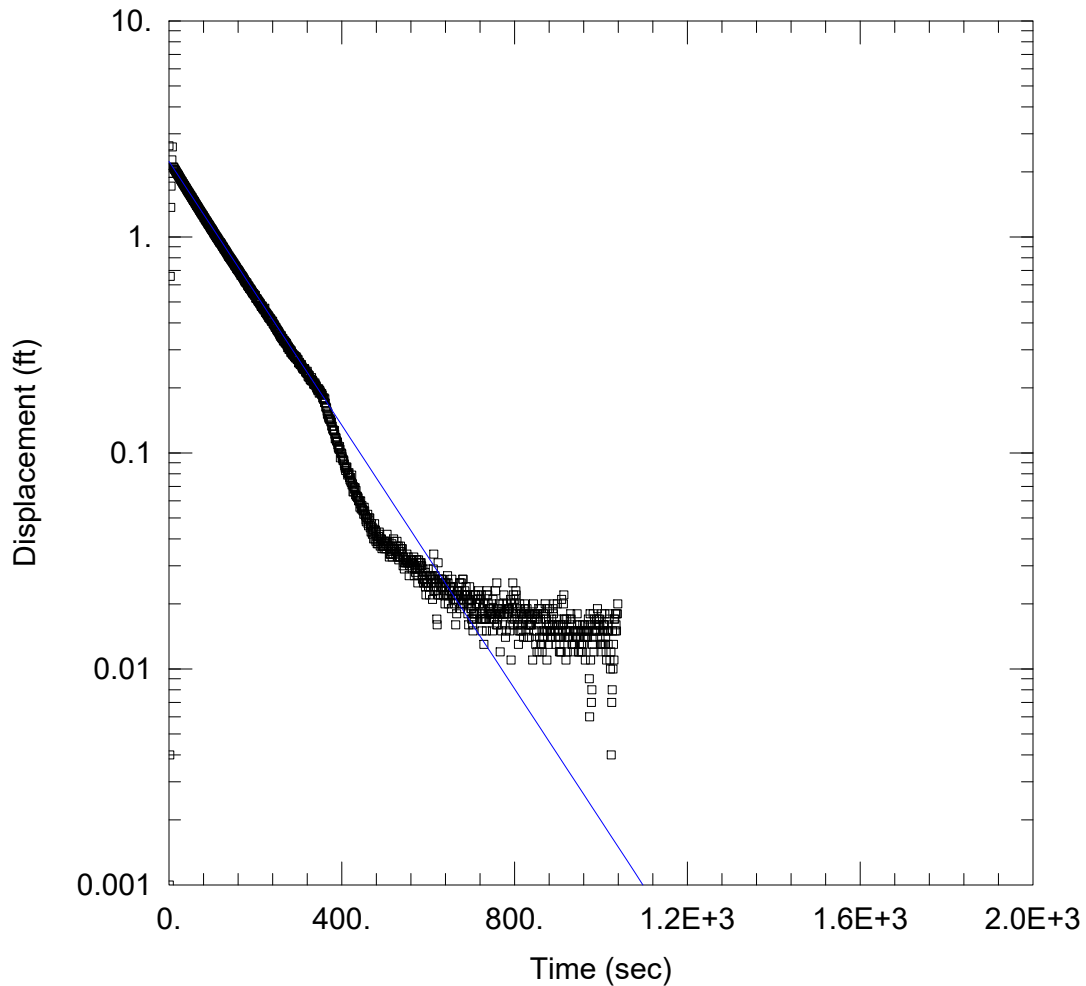
Initial Displacement: 2.1 ft
 Total Well Penetration Depth: 23.3 ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 23.6 ft
 Screen Length: 10. ft
 Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.6763 ft/day

Solution Method: Bower-Rice
 y0 = 2.157 ft



YATES PZ-24S

Data Set: S:\...\24S-1.aqt
 Date: 03/01/17

Time: 09:28:07

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-24S
 Test Date: 11/23/2015

AQUIFER DATA

Saturated Thickness: 29.37 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-24S)

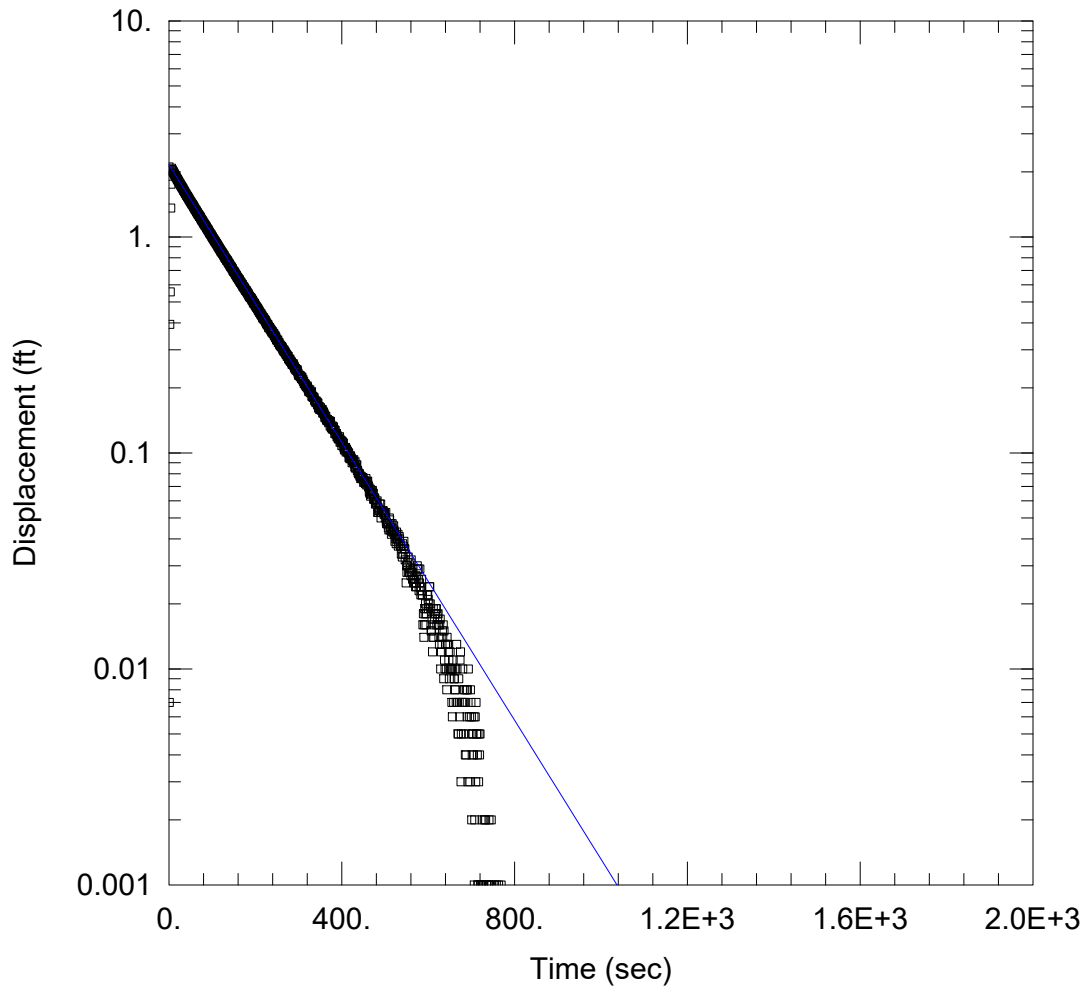
Initial Displacement: 2.64 ft
 Total Well Penetration Depth: 29.4 ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 29.4 ft
 Screen Length: 10. ft
 Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.7924 ft/day

Solution Method: Bower-Rice
 y0 = 2.235 ft



YATES PZ-24S

Data Set: S:\...\24S-2.aqt
 Date: 03/01/17

Time: 09:29:40

PROJECT INFORMATION

Company: SCS
 Client: GPC
 Project: Yates
 Location: Yates
 Test Well: PZ-24S
 Test Date: 11/23/2015

AQUIFER DATA

Saturated Thickness: 29.37 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Yates PZ-24S)

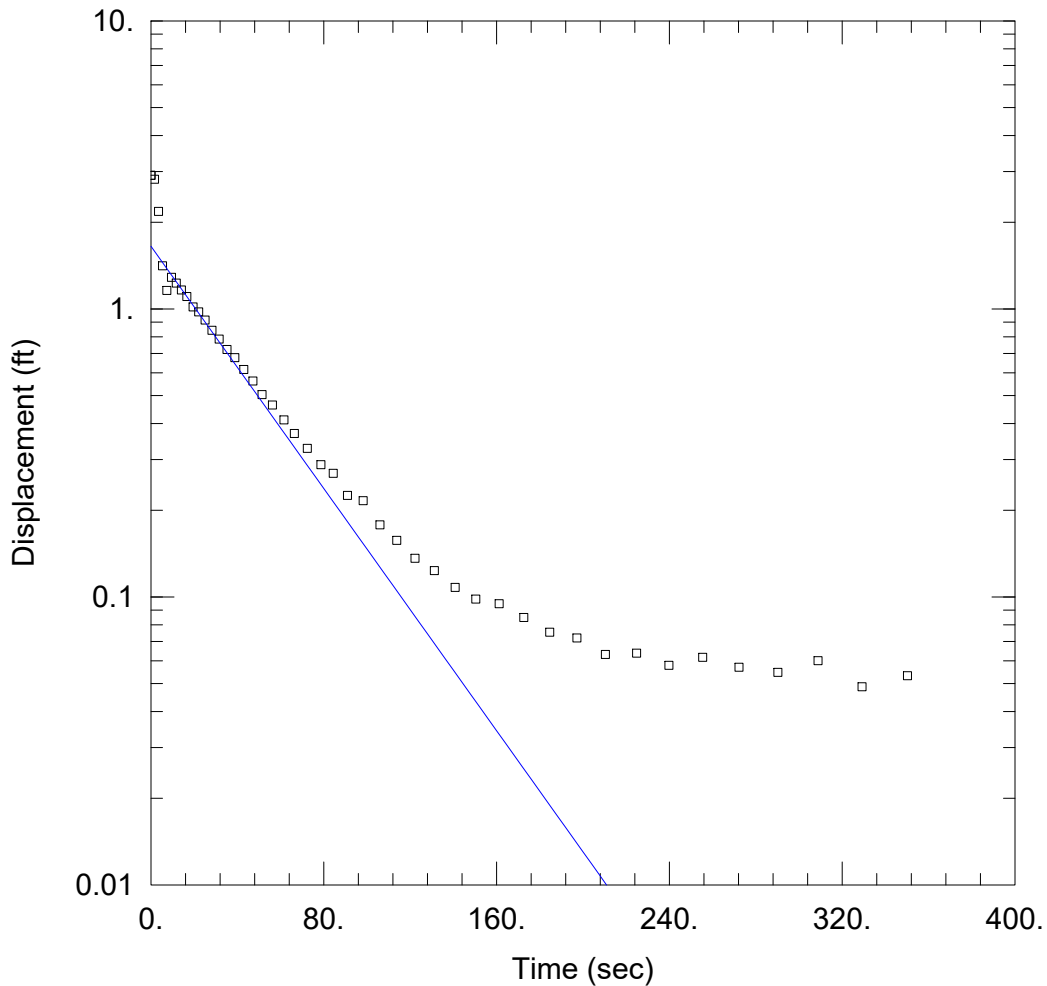
Initial Displacement: 2.11 ft
 Total Well Penetration Depth: 29.4 ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 29.4 ft
 Screen Length: 10. ft
 Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.8348 ft/day

Solution Method: Bouwer-Rice
 y0 = 2.161 ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-35 IN.aqt
 Date: 03/15/17

Time: 14:12:51

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-35 IN
 Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 36.58 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-35)

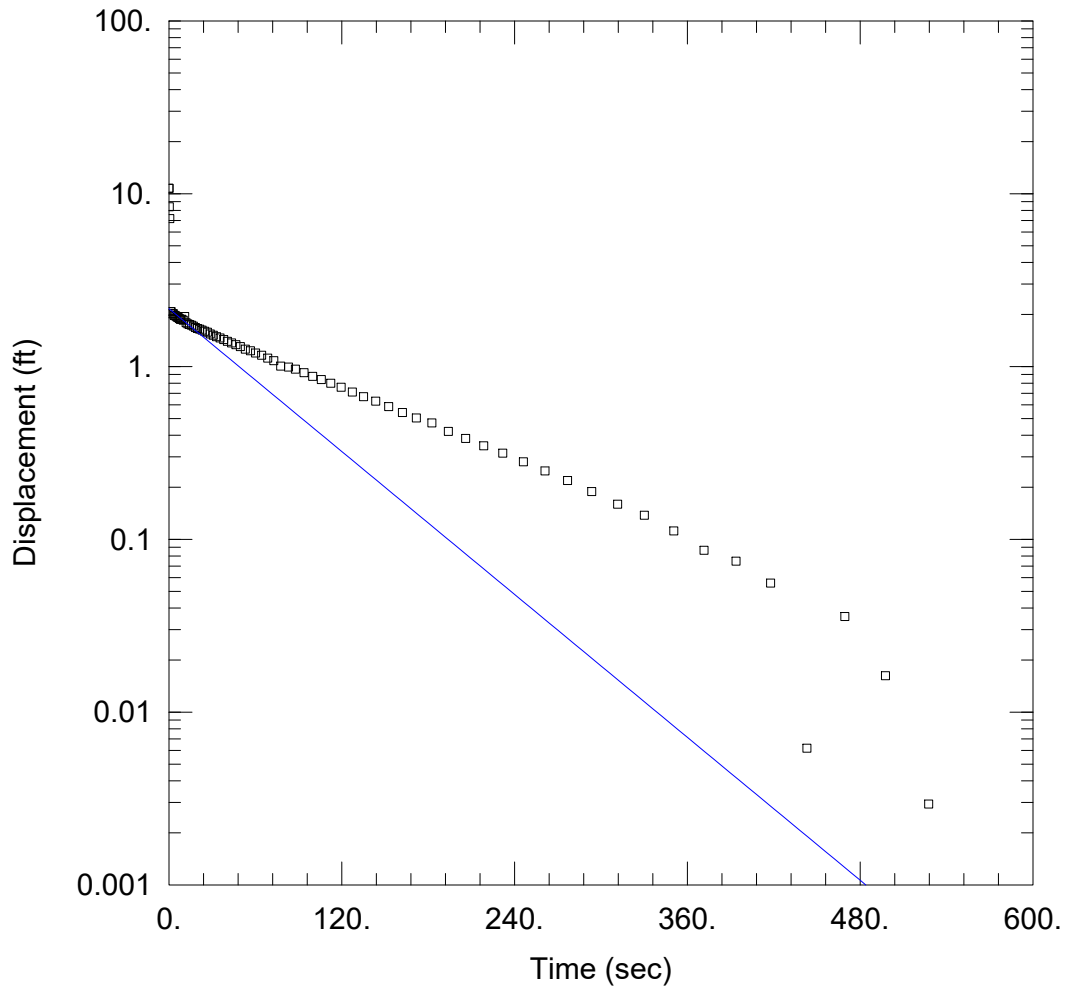
Initial Displacement: 2.91 ft
 Total Well Penetration Depth: 36.58 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 36.58 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.003119 cm/sec

Solution Method: Bower-Rice
 y0 = 1.65 ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-35 OUT.aqt
 Date: 03/15/17

Time: 14:13:10

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-35 OUT
 Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 36.58 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PZ-35)

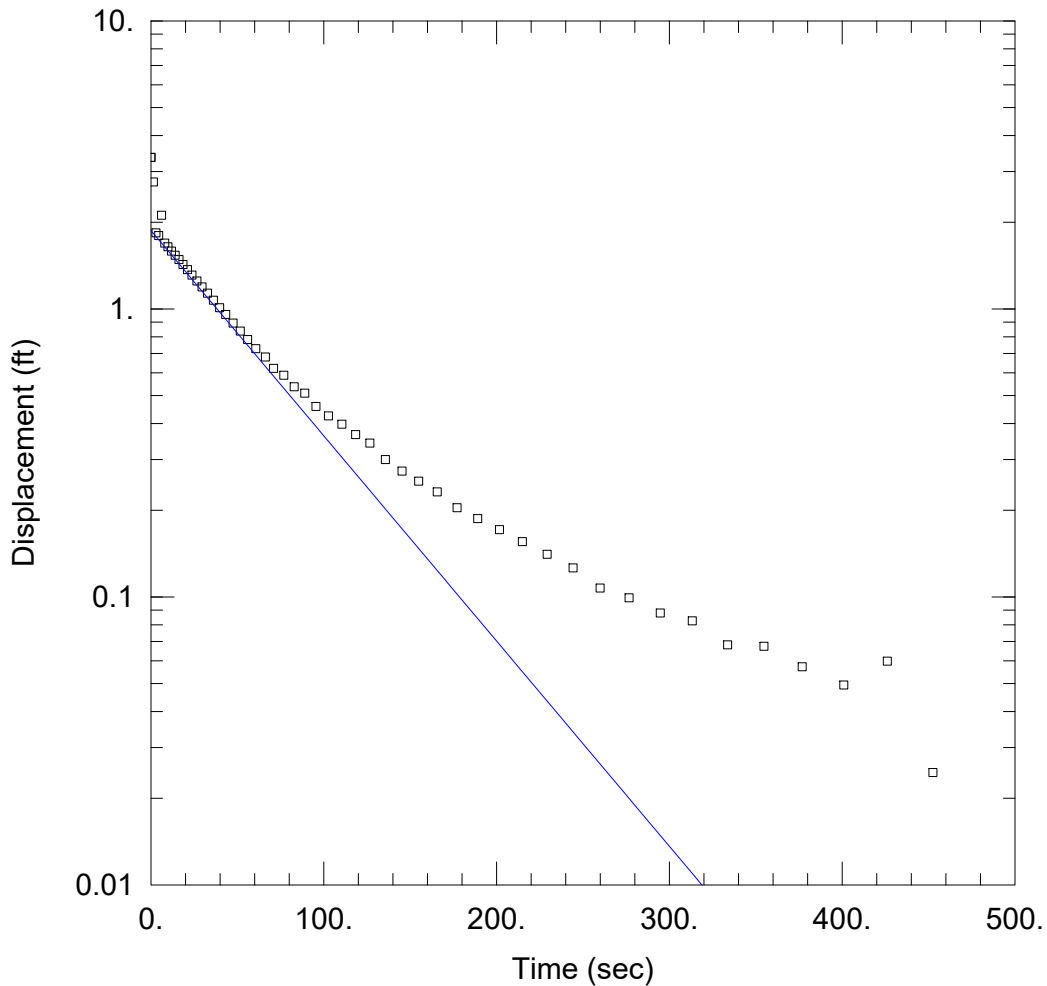
Initial Displacement: 10.76 ft
 Total Well Penetration Depth: 36.58 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 36.58 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.002045 cm/sec

Solution Method: Bower-Rice
 y_0 = 2.163 ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-37 IN.aqt
 Date: 03/15/17

Time: 14:13:25

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-37 IN
 Test Date: 3/8/2017

AQUIFER DATA

Saturated Thickness: 12.66 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PZ-37)

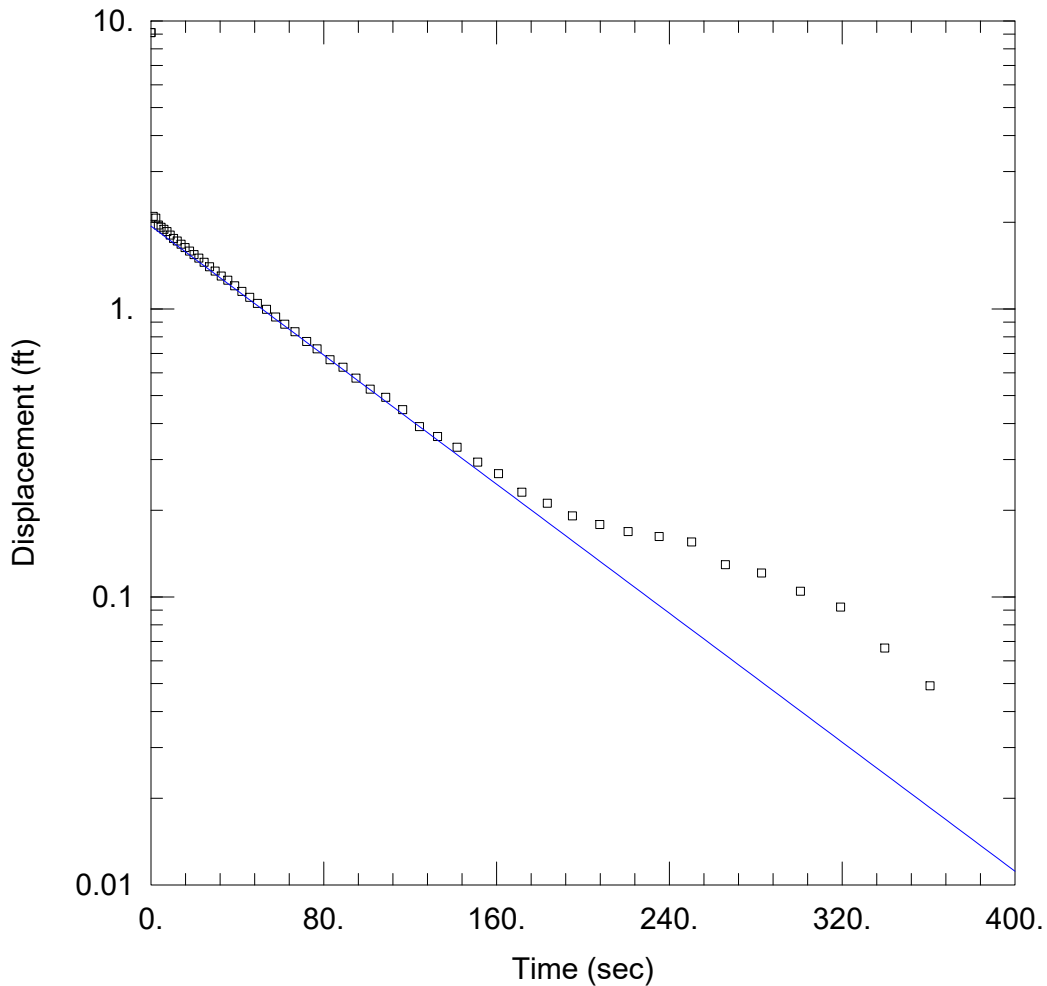
Initial Displacement: 3.36 ft
 Total Well Penetration Depth: 36.43 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 35.43 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.002113 cm/sec

Solution Method: Bower-Rice
 y_0 = 1.871 ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-37 OUT.aqt
 Date: 03/15/17

Time: 14:13:36

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-37 OUT
 Test Date: 3/8/2017

AQUIFER DATA

Saturated Thickness: 12.66 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PZ-37)

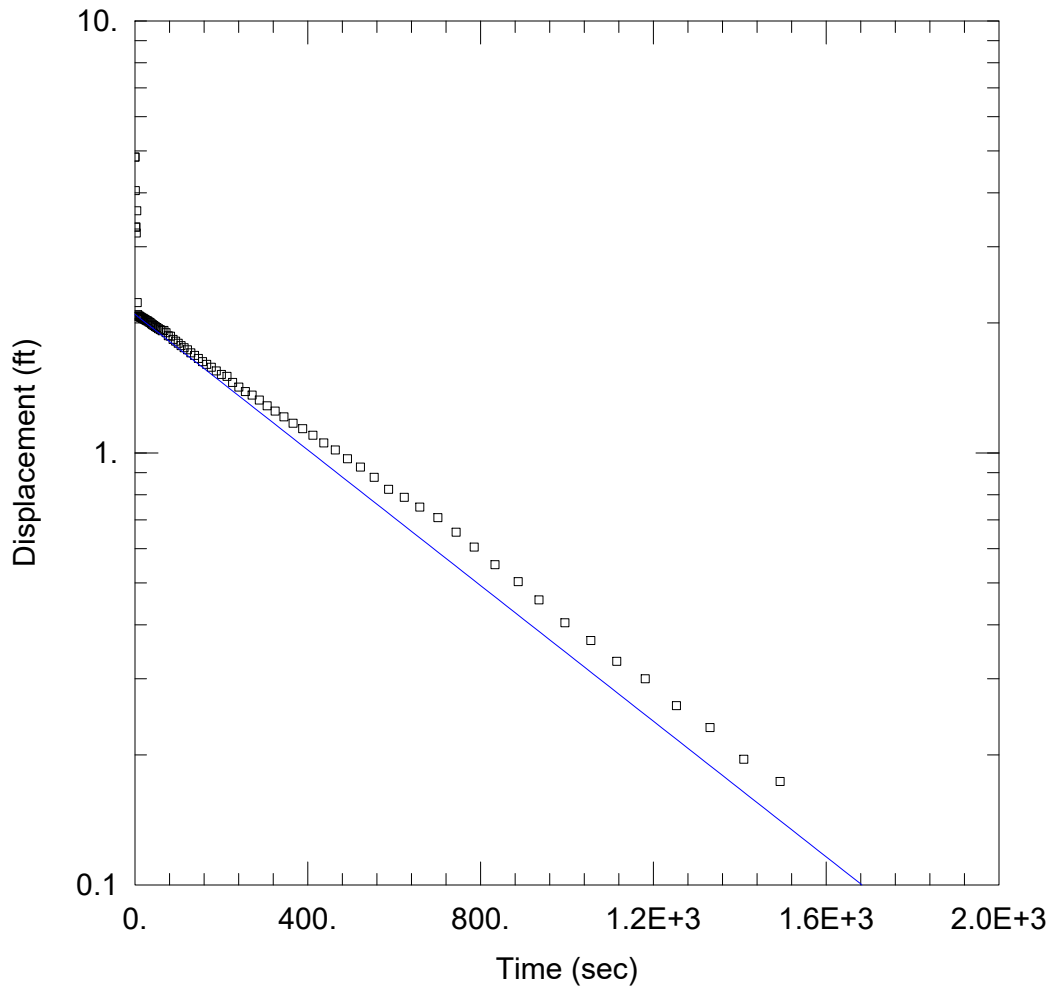
Initial Displacement: 9.11 ft
 Total Well Penetration Depth: 35.43 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 35.43 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.001653 cm/sec

Solution Method: Bower-Rice
 y_0 = 1.938 ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-38 IN.aqt
 Date: 03/15/17

Time: 14:13:49

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-38 IN
 Test Date: 3/8/2017

AQUIFER DATA

Saturated Thickness: 19.02 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PZ-38)

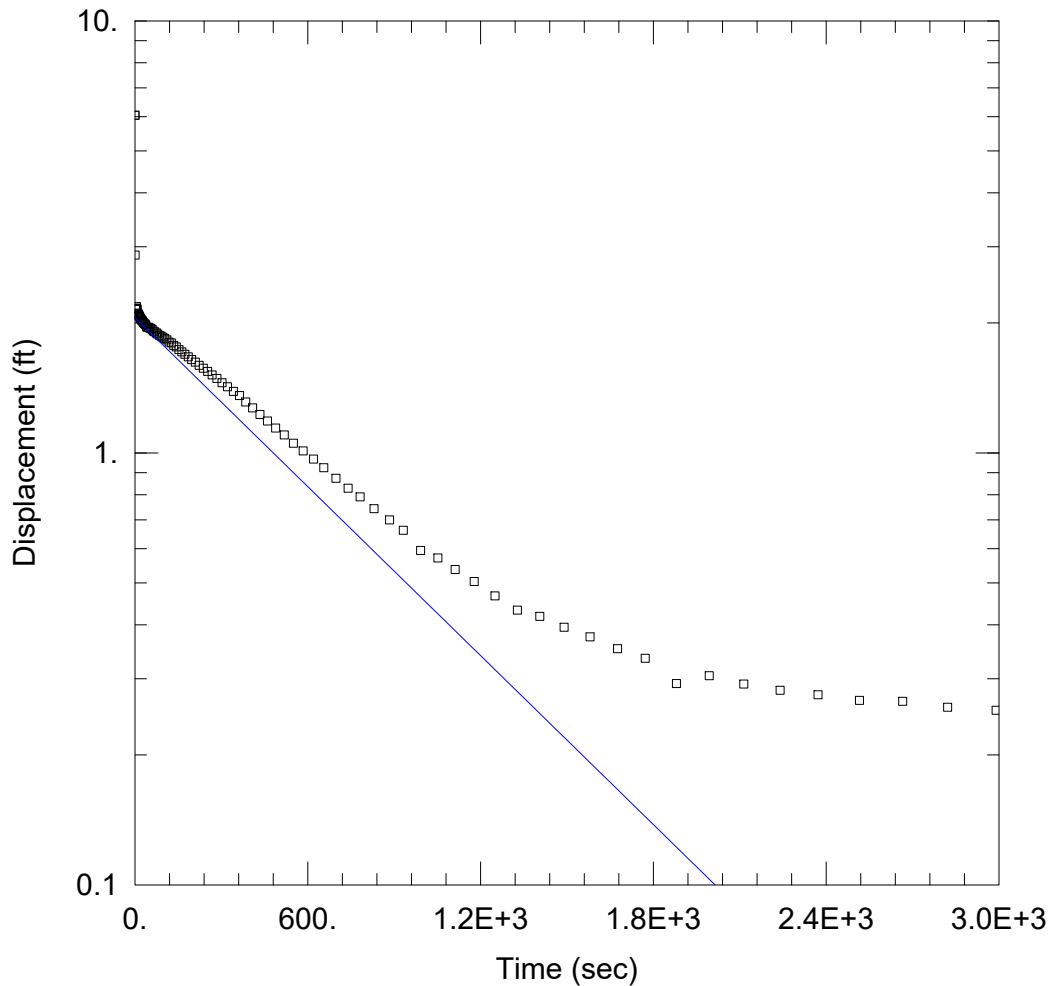
Initial Displacement: 4.84 ft
 Total Well Penetration Depth: 19.02 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 19.02 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.0002079 cm/sec

Solution Method: Bower-Rice
 y_0 = 2.093 ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-38 OUT.aqt
 Date: 03/15/17

Time: 14:14:09

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-38 OUT
 Test Date: 3/8/2017

AQUIFER DATA

Saturated Thickness: 19.02 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PZ-38)

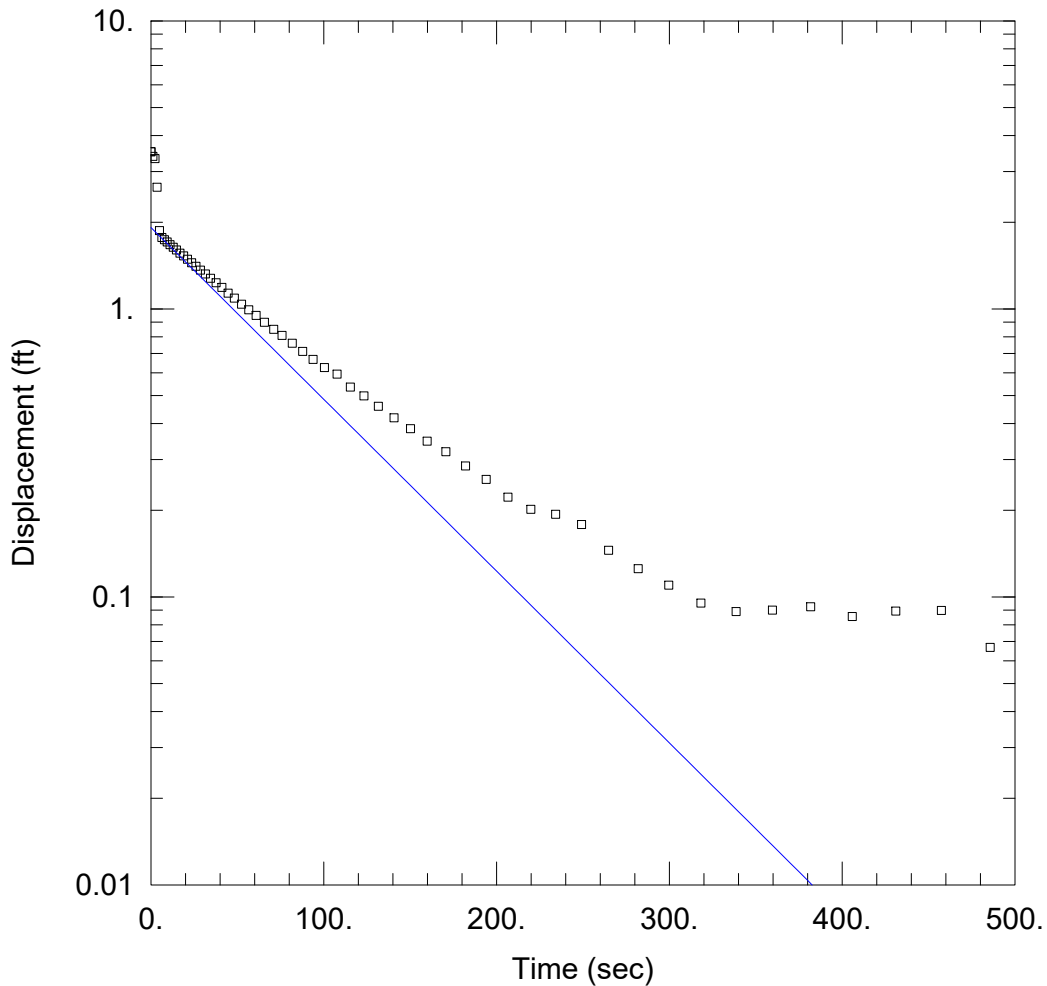
Initial Displacement: 6.05 ft
 Total Well Penetration Depth: 19.02 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 19.02 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.0001727 cm/sec

Solution Method: Bower-Rice
 y_0 = 2.056 ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-39 IN.aqt
 Date: 03/15/17

Time: 14:14:25

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-39 IN
 Test Date: 3/8/2017

AQUIFER DATA

Saturated Thickness: 42.21 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-39)

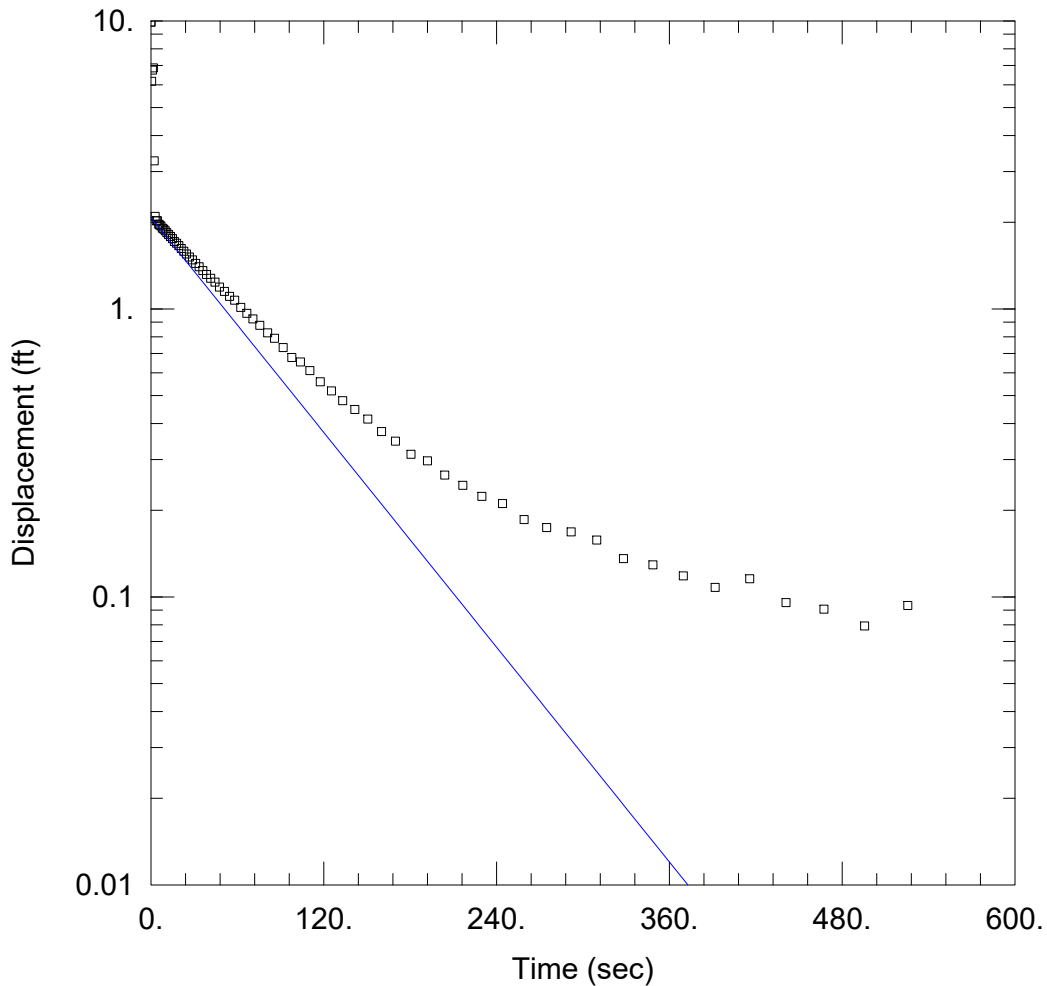
Initial Displacement: 3.52 ft
 Total Well Penetration Depth: 42.21 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 42.21 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.00181 cm/sec

Solution Method: Bower-Rice
 y0 = 1.917 ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-39 OUT.aqt
 Date: 03/15/17

Time: 14:14:44

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-39 OUT
 Test Date: 3/8/2017

AQUIFER DATA

Saturated Thickness: 42.21 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-39)

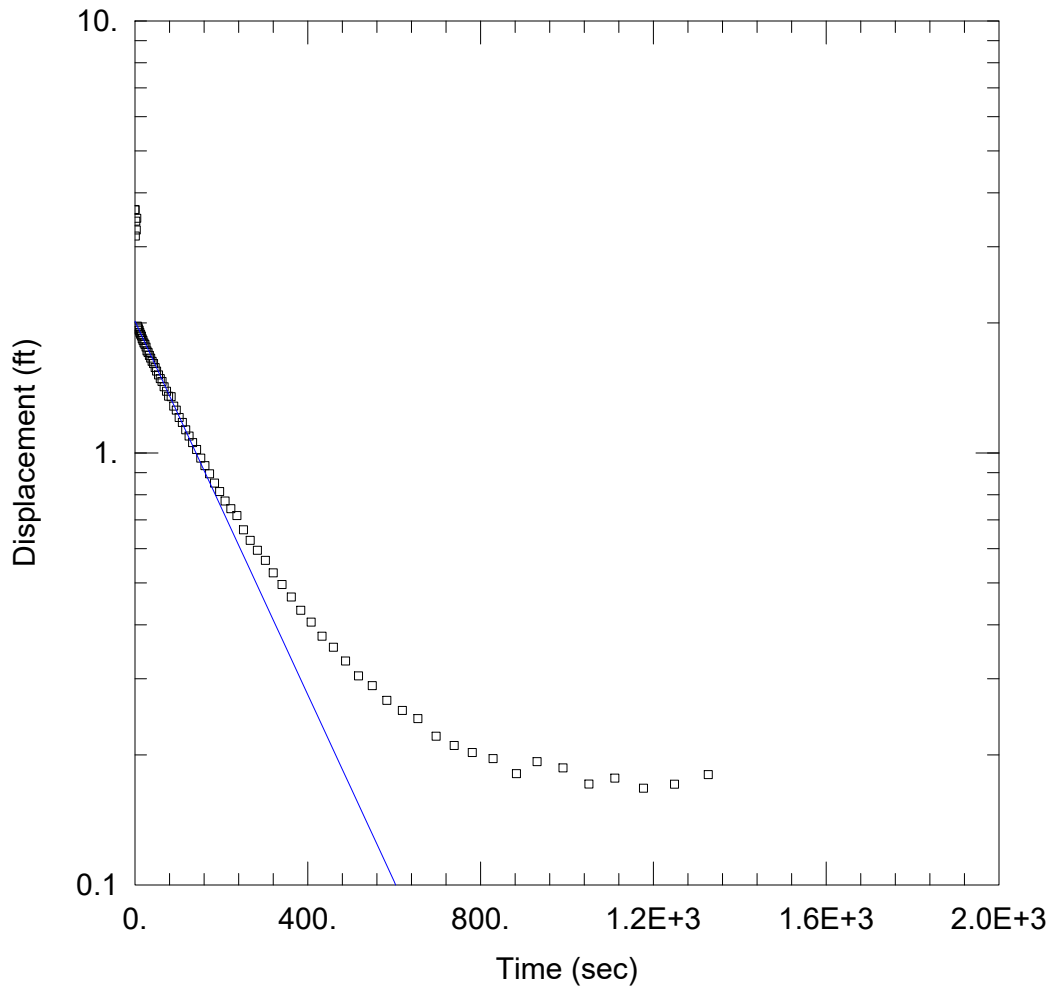
Initial Displacement: 9.91 ft
 Total Well Penetration Depth: 42.21 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 42.21 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.001885 cm/sec

Solution Method: Bowser-Rice
 y0 = 2.074 ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-40 IN.aqt
 Date: 03/15/17

Time: 14:15:02

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-40 IN
 Test Date: 3/8/2017

AQUIFER DATA

Saturated Thickness: 20.13 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PZ-40)

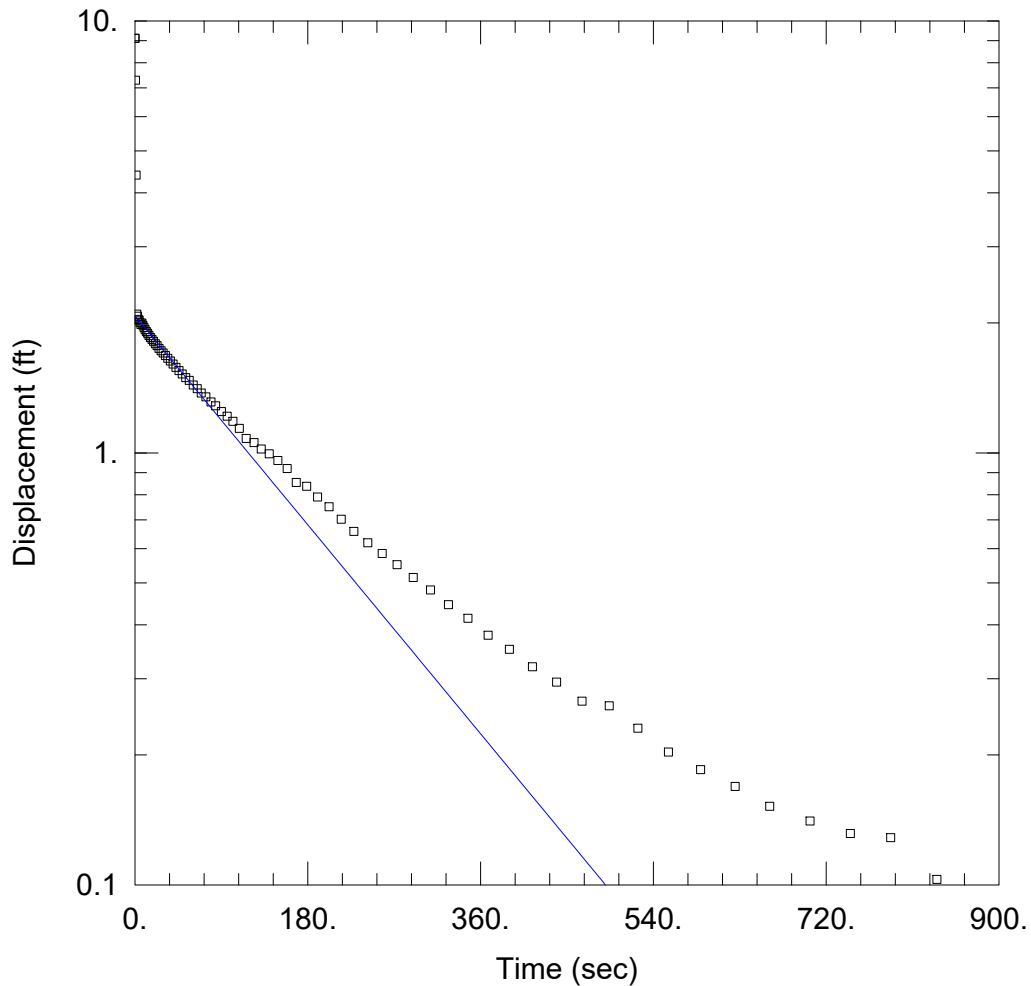
Initial Displacement: 3.66 ft
 Total Well Penetration Depth: 20.13 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 20.13 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.0005789 cm/sec

Solution Method: Bower-Rice
 y_0 = 2.019 ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-40 OUT.aqt
 Date: 03/15/17

Time: 14:15:18

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-40 OUT
 Test Date: 3/8/2017

AQUIFER DATA

Saturated Thickness: 20.13 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PZ-40)

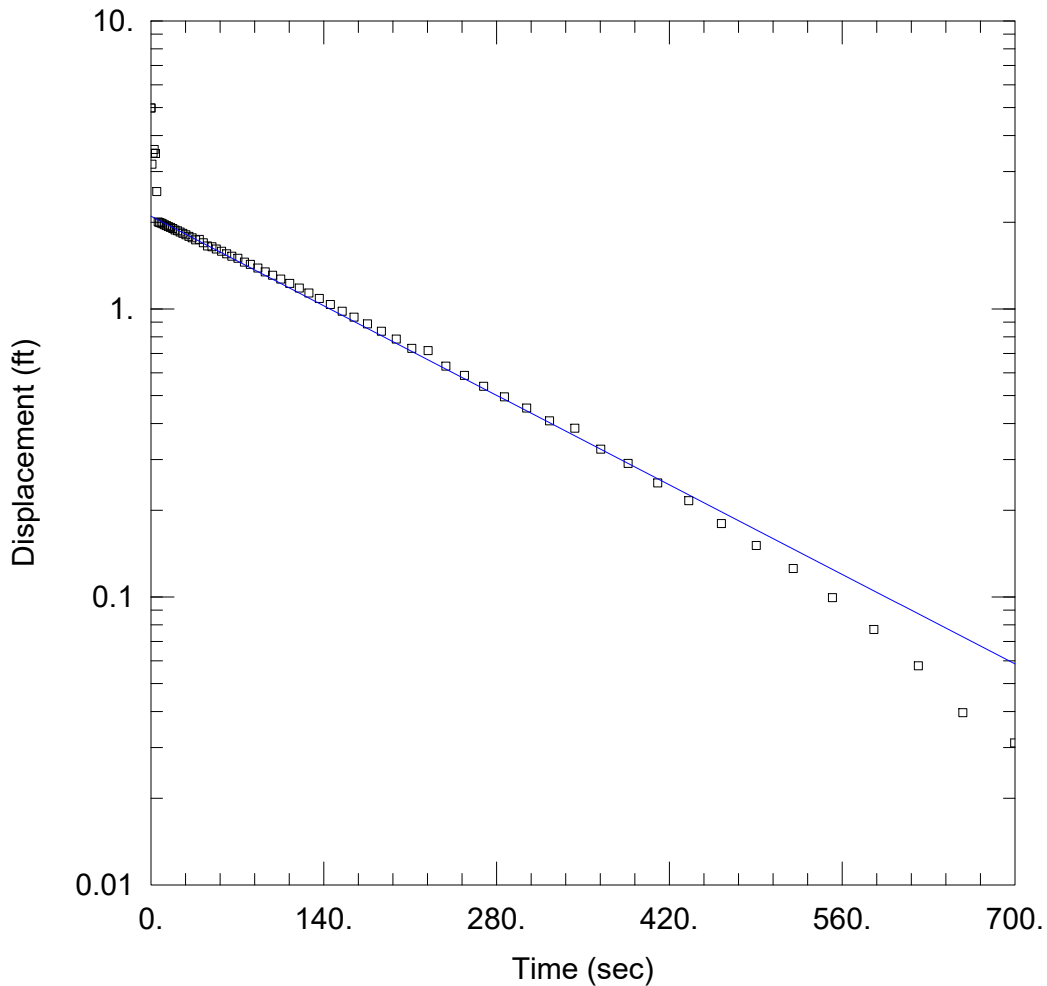
Initial Displacement: 9.12 ft
 Total Well Penetration Depth: 20.13 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 20.13 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 $K = 0.0007197$ cm/sec

Solution Method: Bower-Rice
 $y_0 = 2.077$ ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-48 IN.aqt
 Date: 03/15/17

Time: 14:16:14

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-48 IN
 Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 34.93 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PZ-48)

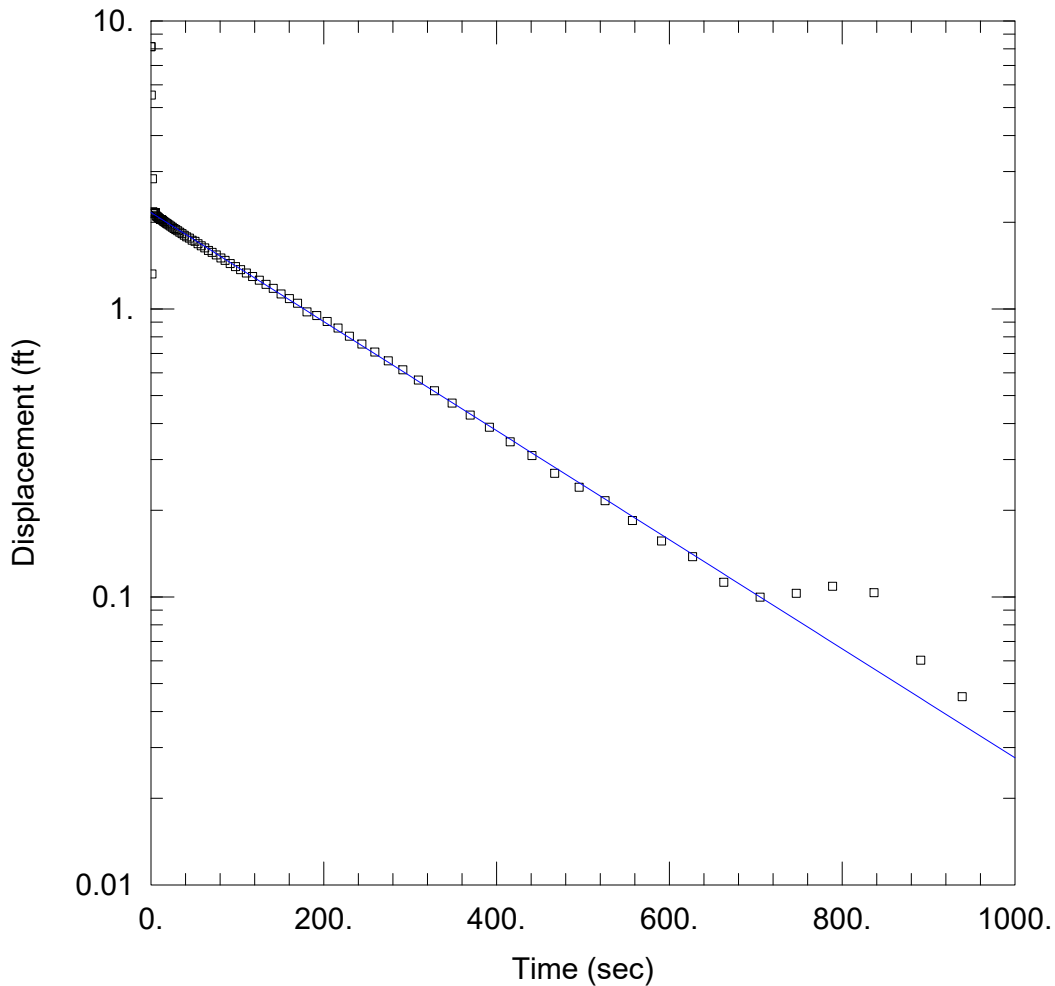
Initial Displacement: 4.99 ft
 Total Well Penetration Depth: 34.93 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 34.93 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 $K = 0.0006539$ cm/sec

Solution Method: Bower-Rice
 $y_0 = 2.098$ ft



WELL TEST ANALYSIS

Data Set: P:\...\PZ-48 OUT.aqt
 Date: 03/15/17

Time: 14:16:27

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: PZ-48 OUT
 Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 34.93 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PZ-48)

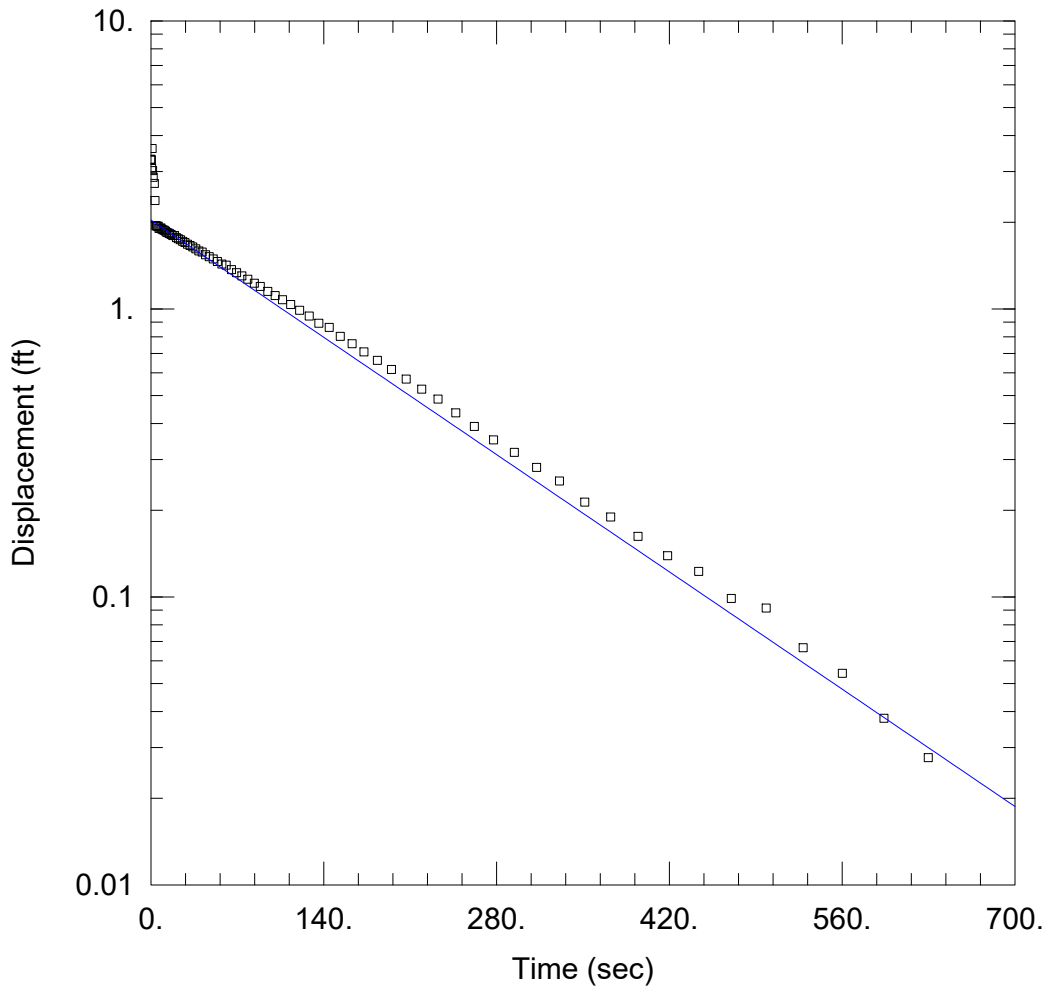
Initial Displacement: 8.14 ft
 Total Well Penetration Depth: 34.93 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 34.93 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.0005577 cm/sec

Solution Method: Bower-Rice
 y_0 = 2.162 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWA-47 IN.aqt
 Date: 03/15/17

Time: 14:16:43

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWA-47 IN
 Test Date: 3/3/2017

AQUIFER DATA

Saturated Thickness: 27.53 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWA-47)

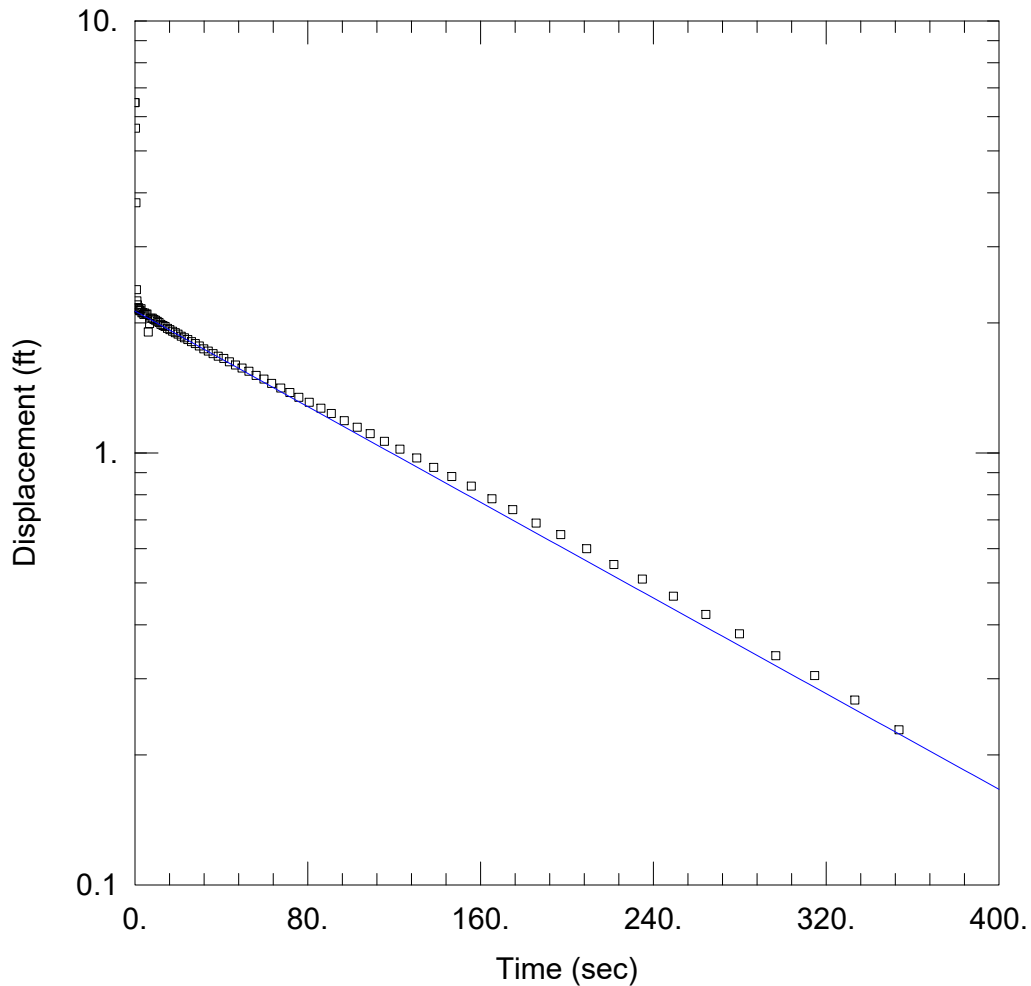
Initial Displacement: 3.31 ft
 Total Well Penetration Depth: 27.53 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 27.53 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.0008235 cm/sec

Solution Method: Bower-Rice
 y0 = 2.036 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWA-47 OUT.aqt
 Date: 03/15/17

Time: 14:16:59

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWA-47 OUT
 Test Date: 3/3/2017

AQUIFER DATA

Saturated Thickness: 27.53 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWA-47)

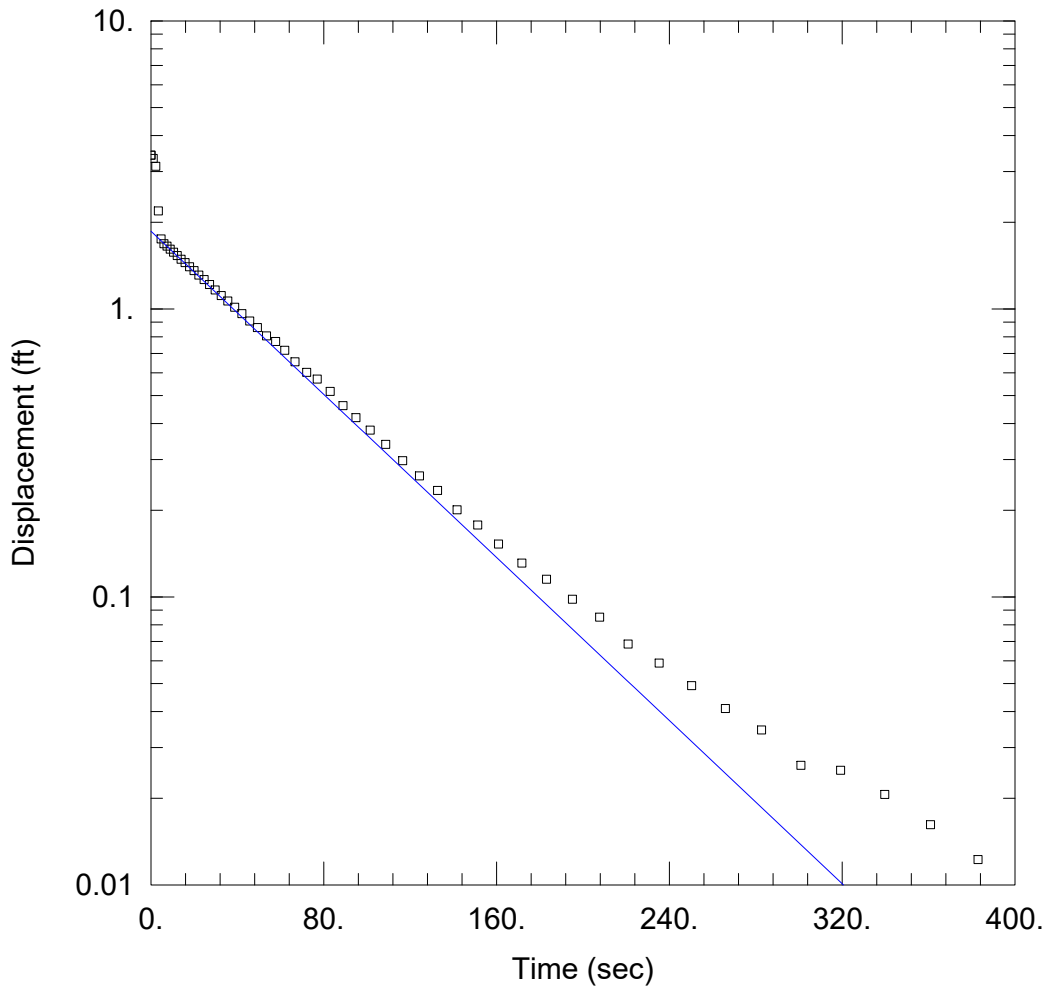
Initial Displacement: 6.47 ft
 Total Well Penetration Depth: 27.53 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 27.53 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.0007836 cm/sec

Solution Method: Bower-Rice
 y0 = 2.131 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-32I IN.aqt
 Date: 03/15/17

Time: 14:19:20

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-32I IN
 Test Date: 3/9/2017

AQUIFER DATA

Saturated Thickness: 19.03 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-32I)

Initial Displacement: 3.42 ft
 Total Well Penetration Depth: 19.03 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 19.03 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

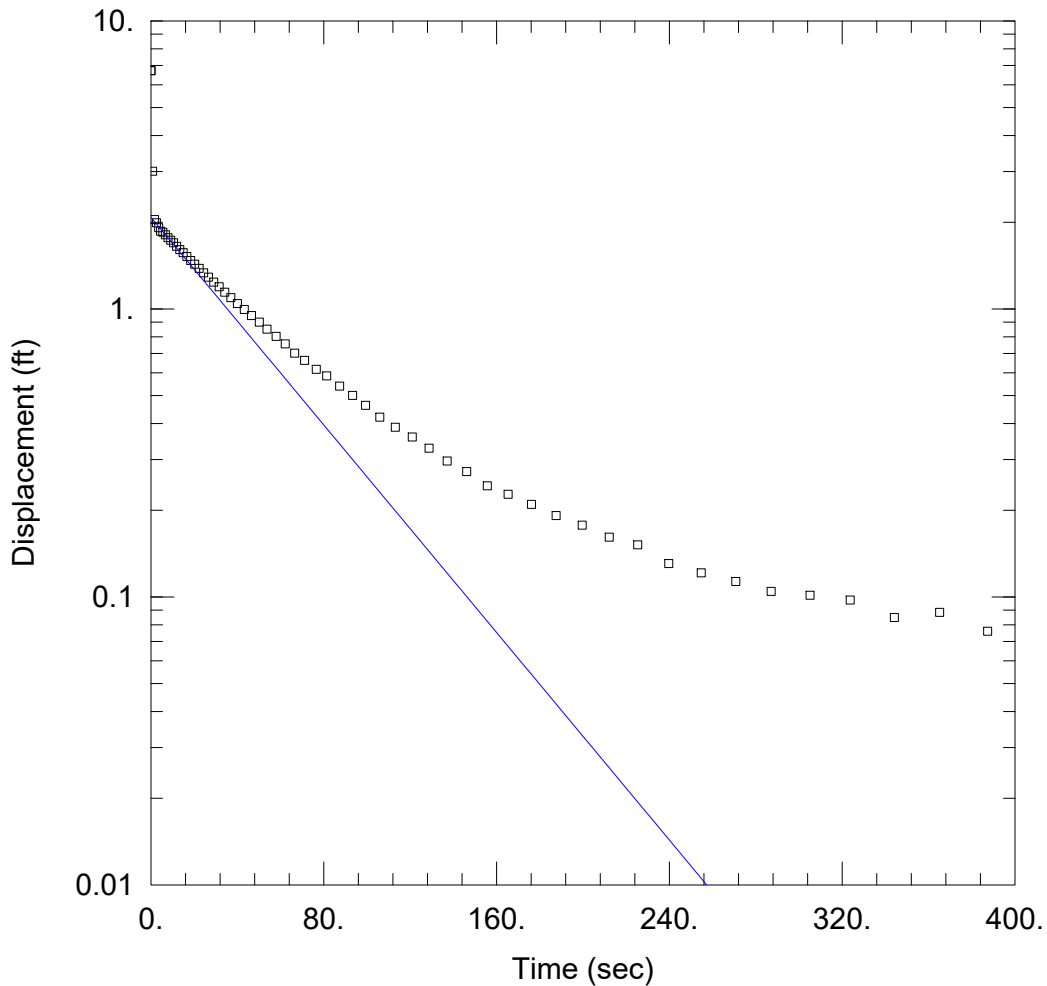
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bower-Rice

K = 0.001876 cm/sec

y0 = 1.86 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-32I OUT.aqt
 Date: 03/15/17

Time: 14:19:37

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-32I OUT
 Test Date: 3/9/2017

AQUIFER DATA

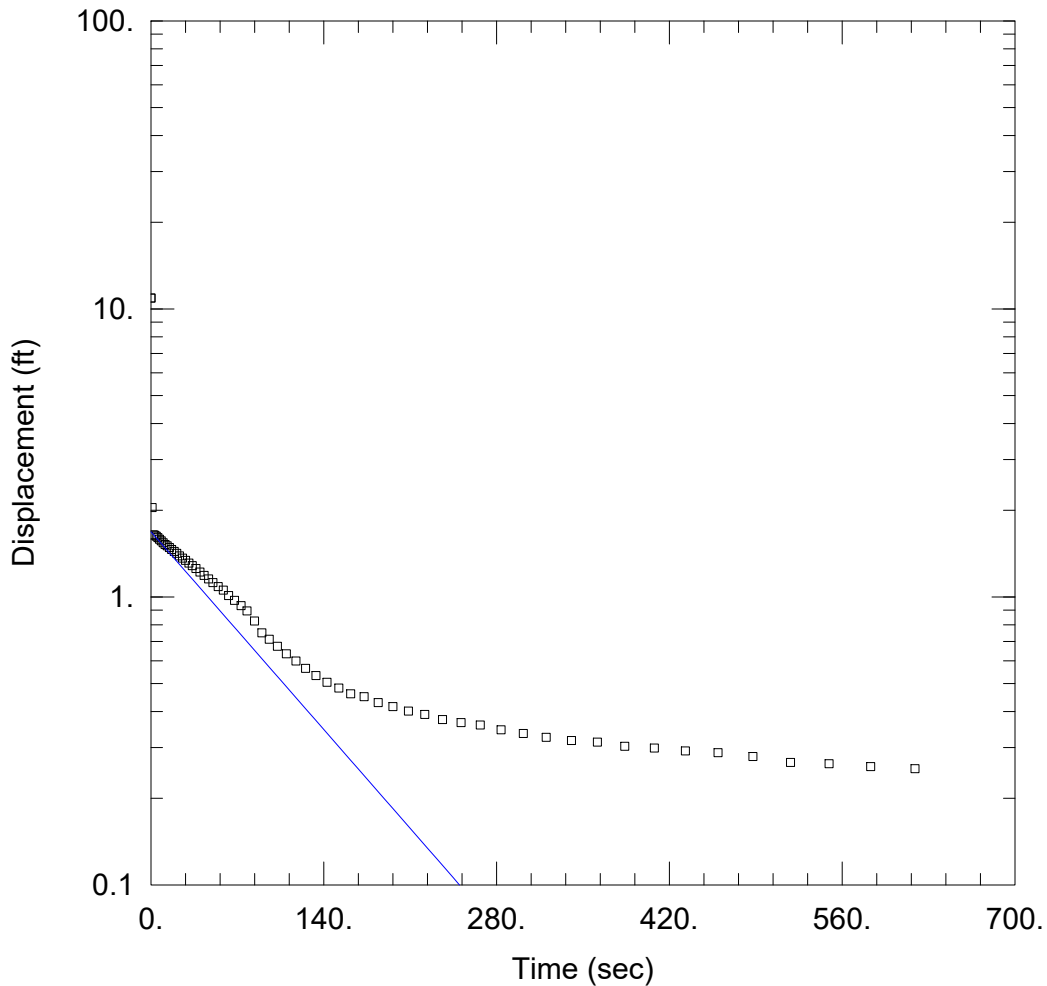
Saturated Thickness: 19.03 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-32I)

Initial Displacement: <u>6.72 ft</u>	Static Water Column Height: <u>19.03 ft</u>
Total Well Penetration Depth: <u>19.03 ft</u>	Screen Length: <u>10. ft</u>
Casing Radius: <u>0.0833 ft</u>	Well Radius: <u>0.25 ft</u>
	Gravel Pack Porosity: <u>0.3</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Bower-Rice</u>
K = <u>0.002387</u> cm/sec	y0 = <u>2.079</u> ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-32S IN.aqt
 Date: 03/15/17

Time: 14:19:56

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-32S IN
 Test Date: 3/9/2017

AQUIFER DATA

Saturated Thickness: 7.03 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (YGWC-32S)

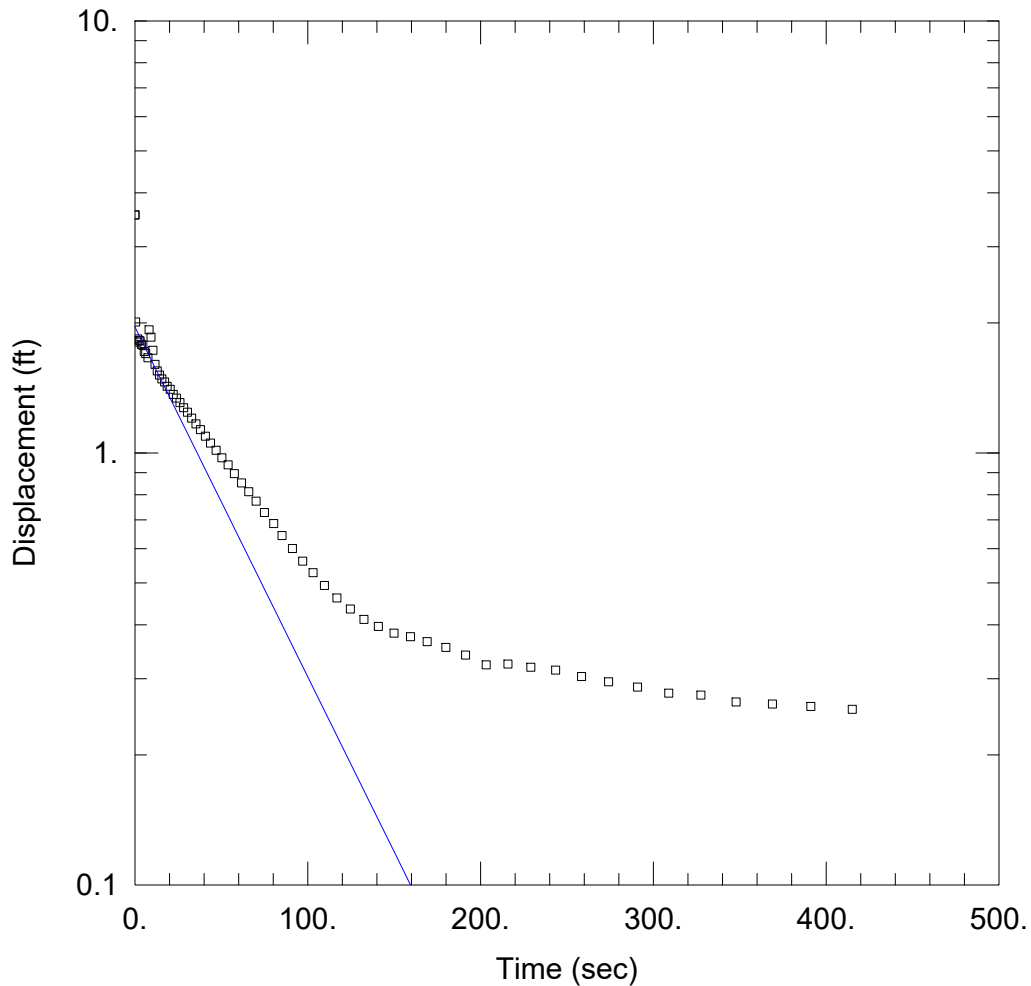
Initial Displacement: 10.91 ft
 Total Well Penetration Depth: 7.03 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 7.03 ft
 Screen Length: 7.03 ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.001447 cm/sec

Solution Method: Bower-Rice
 y_0 = 1.683 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-32S OUT.aqt
 Date: 03/15/17

Time: 14:20:09

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-32S OUT
 Test Date: 3/9/2017

AQUIFER DATA

Saturated Thickness: 7.03 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-32S)

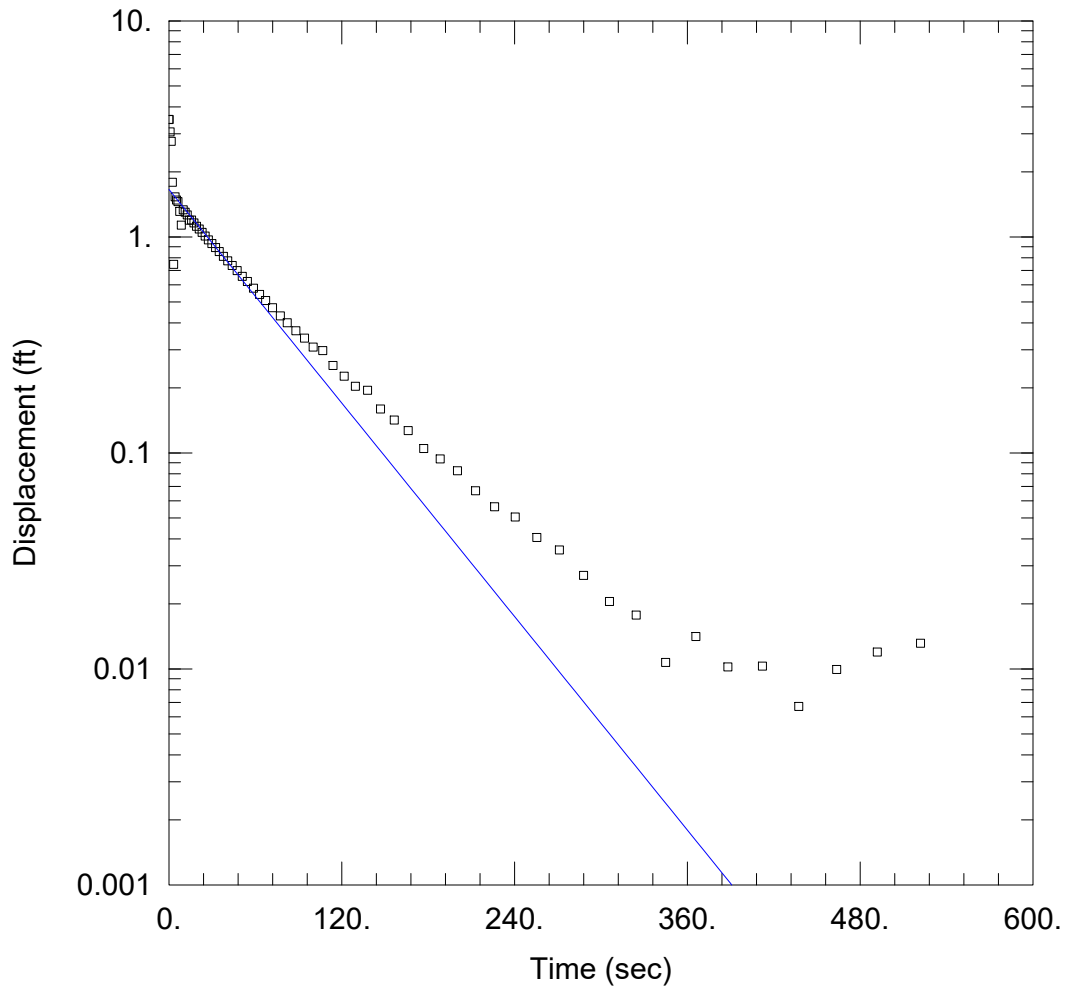
Initial Displacement: 3.56 ft
 Total Well Penetration Depth: 7.03 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 7.03 ft
 Screen Length: 7.03 ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.00239 cm/sec

Solution Method: Bower-Rice
 y0 = 1.956 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-33S IN.aqt
 Date: 03/15/17

Time: 14:20:26

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-33S IN
 Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 30.12 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (YGWC-33S)

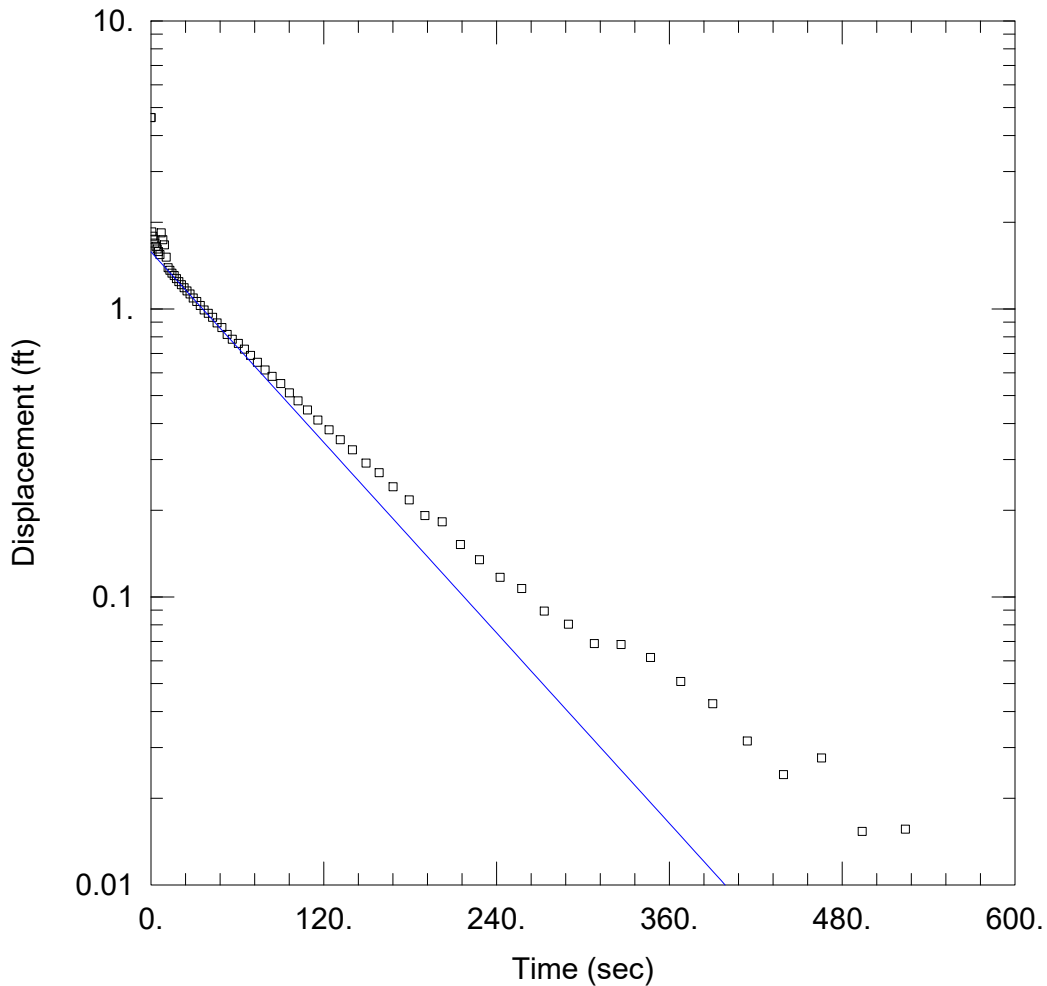
Initial Displacement: 3.5 ft
 Total Well Penetration Depth: 30.12 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 30.12 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.002368 cm/sec

Solution Method: Bower-Rice
 y_0 = 1.657 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-33S OUT.aqt
 Date: 03/15/17

Time: 14:20:44

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-33S OUT
 Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 30.12 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (YGWC-33S)

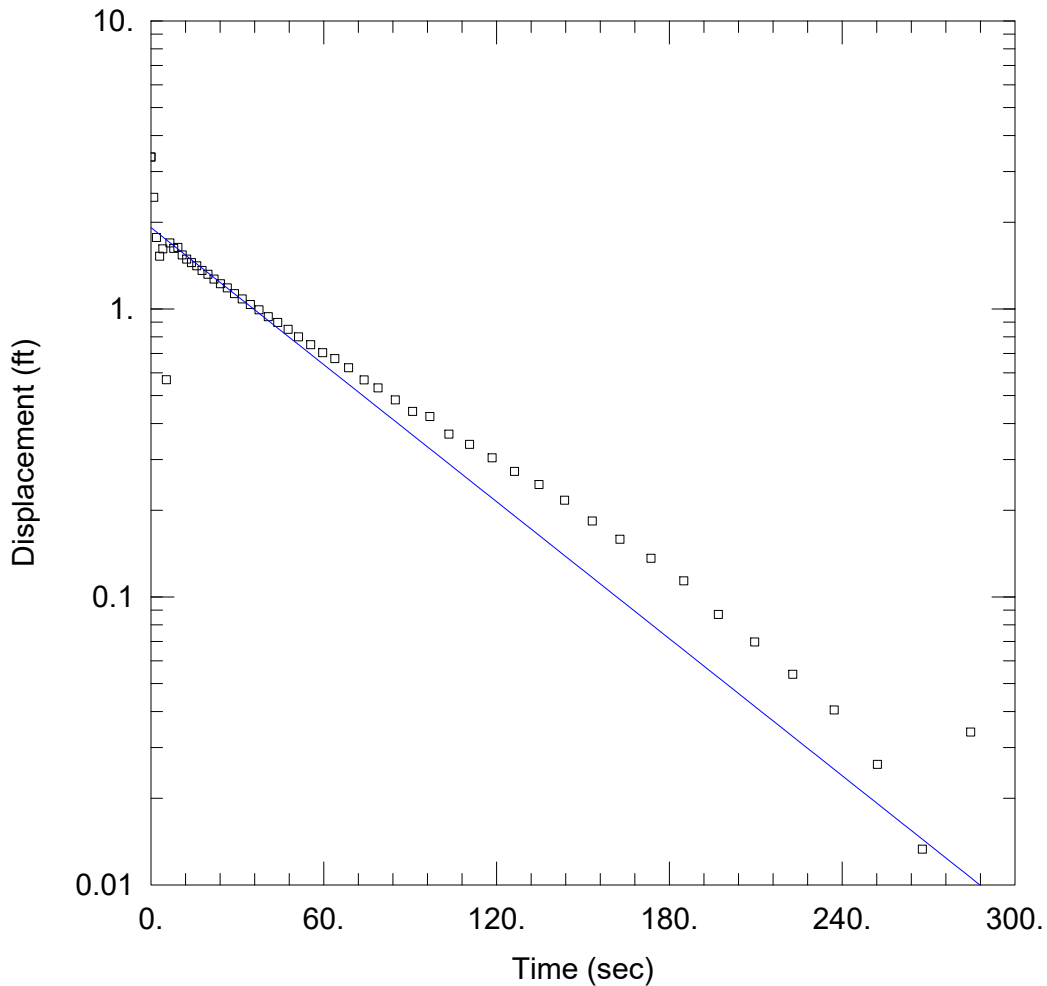
Initial Displacement: 4.62 ft
 Total Well Penetration Depth: 30.12 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 30.12 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.001584 cm/sec

Solution Method: Bower-Rice
 y_0 = 1.577 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-34I IN.aqt
 Date: 03/15/17

Time: 14:21:01

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-34I IN
 Test Date: 3/8/2017

AQUIFER DATA

Saturated Thickness: 14.25 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (YGWC-34I)

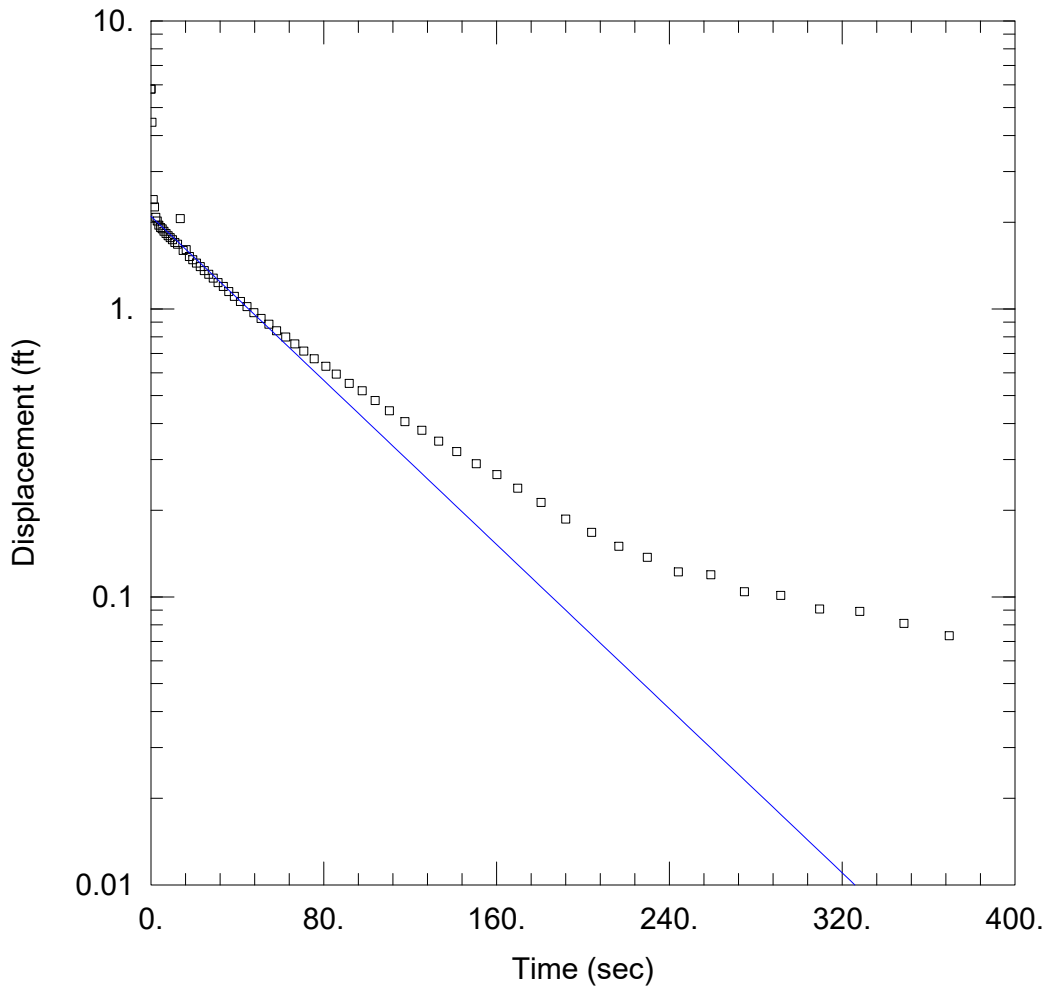
Initial Displacement: 3.37 ft
 Total Well Penetration Depth: 14.25 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 14.25 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 $K = 0.001985$ cm/sec

Solution Method: Bower-Rice
 $y_0 = 1.915$ ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-34I OUT.aqt
 Date: 03/15/17

Time: 14:21:19

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-34I OUT
 Test Date: 3/8/2017

AQUIFER DATA

Saturated Thickness: 14.25 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (YGWC-34I)

Initial Displacement: 5.8 ft
 Total Well Penetration Depth: 14.25 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 14.25 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

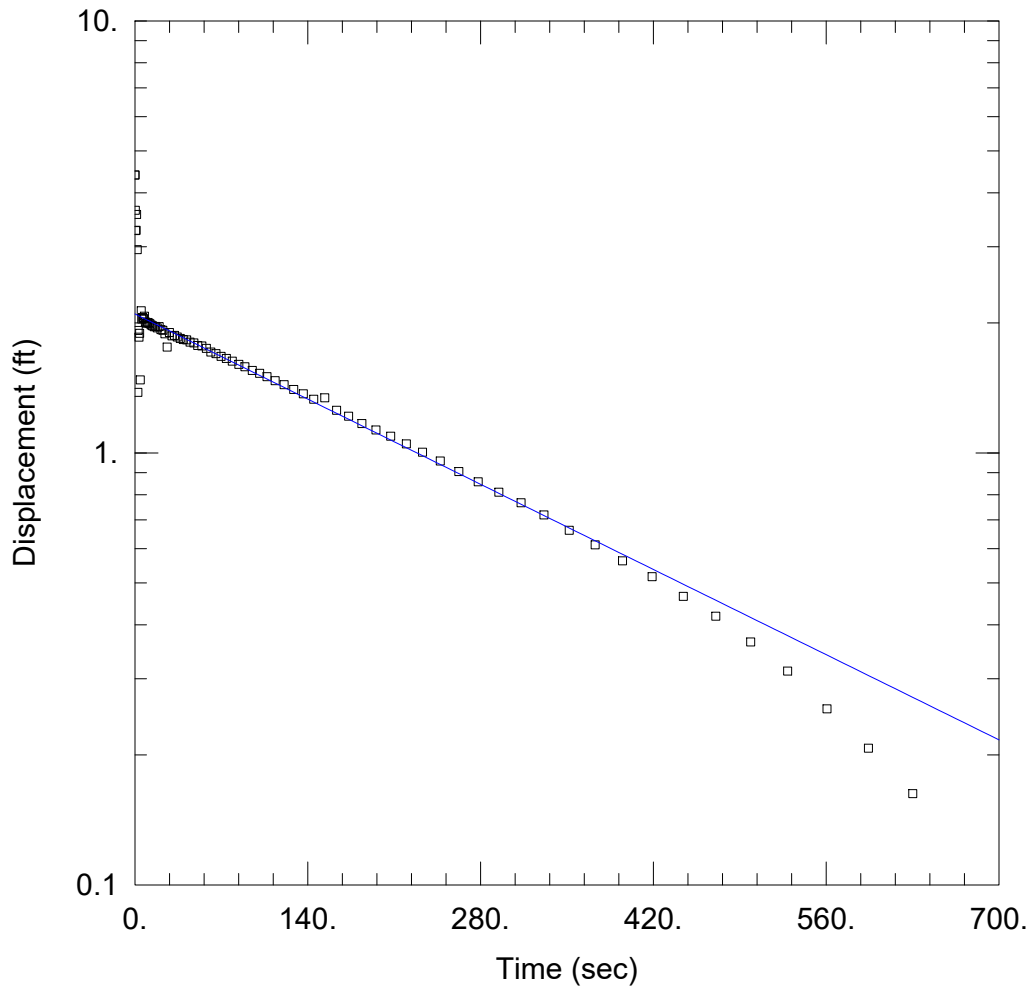
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bower-Rice

$K = 0.001784$ cm/sec

$y_0 = 2.098$ ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-36 IN.aqt
 Date: 03/15/17

Time: 14:21:36

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-36 IN
 Test Date: 3/6/2017

AQUIFER DATA

Saturated Thickness: 45.56 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-36)

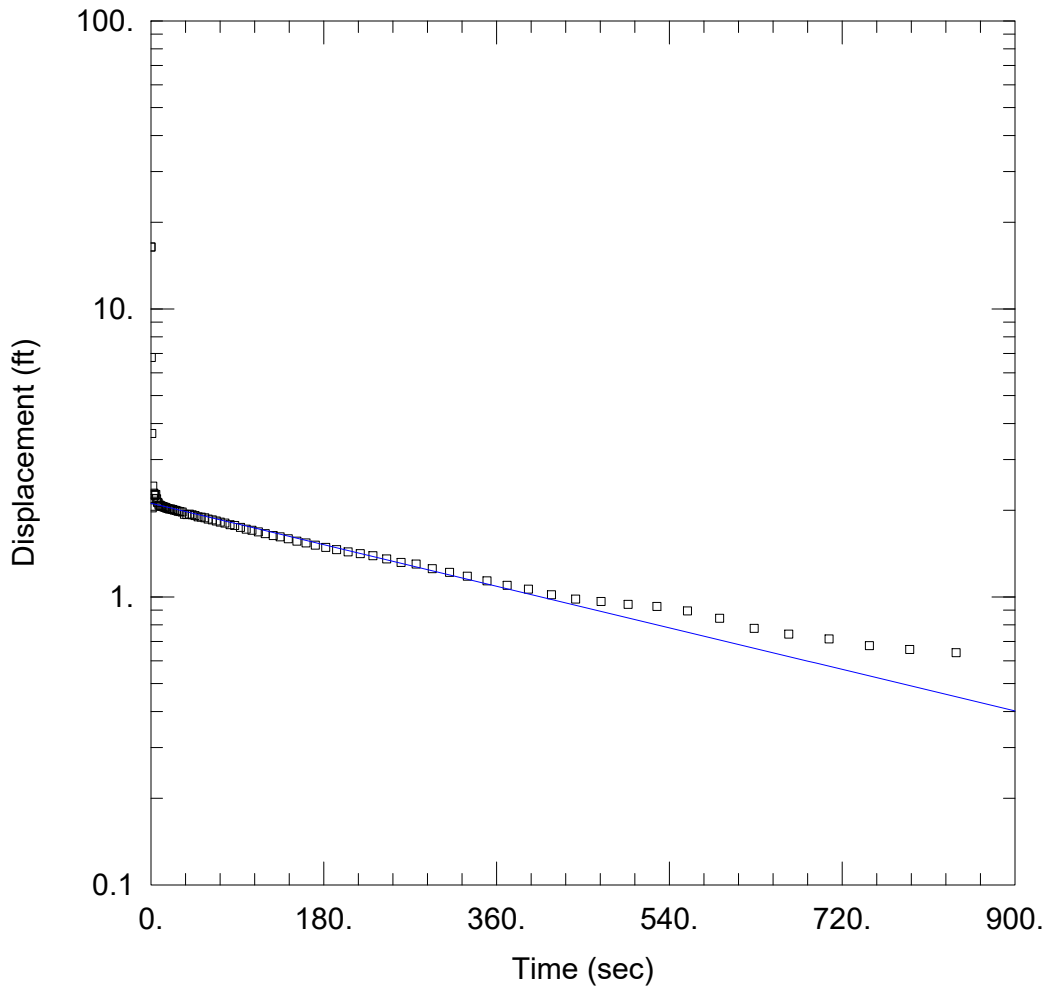
Initial Displacement: 4.4 ft
 Total Well Penetration Depth: 45.56 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 45.56 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.0004323 cm/sec

Solution Method: Bower-Rice
 y0 = 2.097 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-36 OUT.aqt
 Date: 03/15/17

Time: 14:21:55

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-36 OUT
 Test Date: 3/6/2017

AQUIFER DATA

Saturated Thickness: 45.56 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-36)

Initial Displacement: 16.41 ft
 Total Well Penetration Depth: 45.56 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 45.56 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

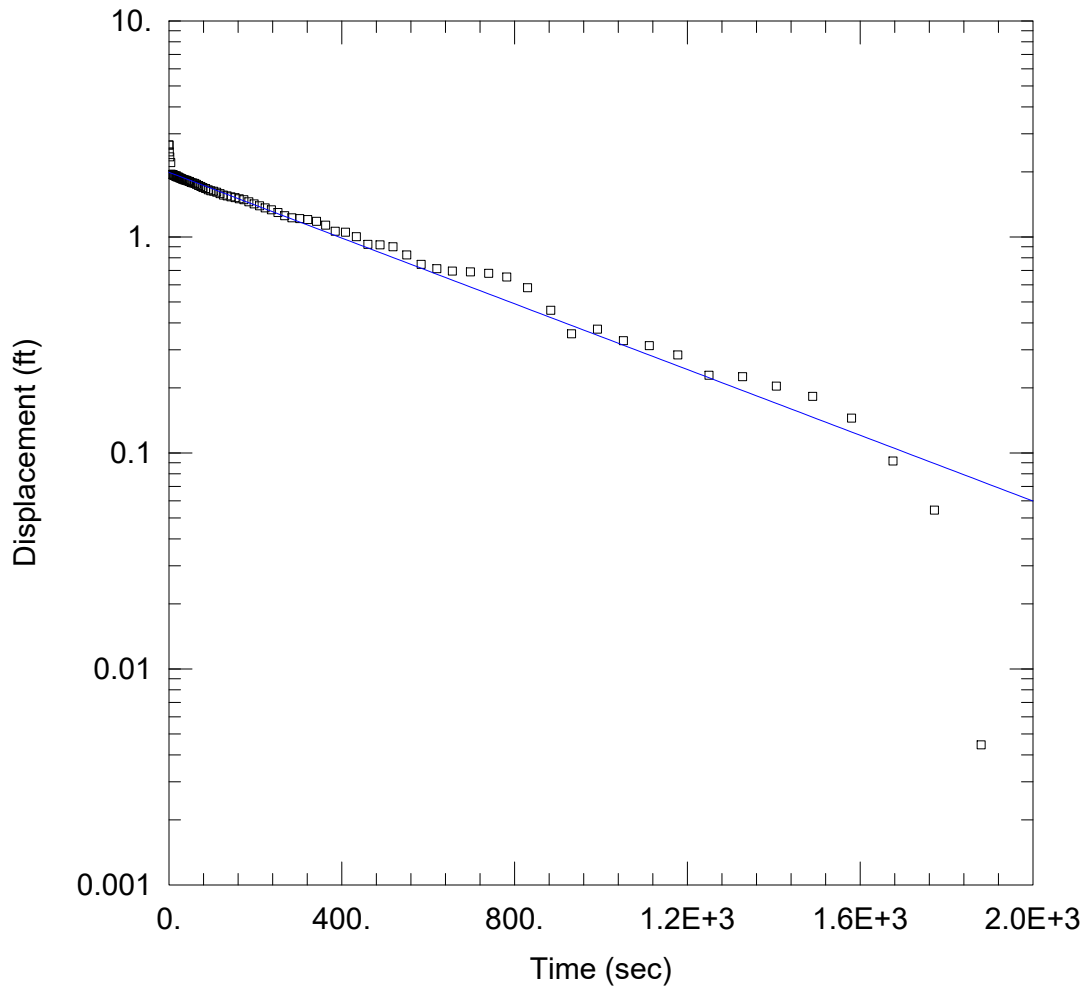
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bower-Rice

K = 0.000246 cm/sec

y0 = 2.116 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-42 IN.aqt
 Date: 03/15/17

Time: 14:22:11

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-42 IN
 Test Date: 3/6/2017

AQUIFER DATA

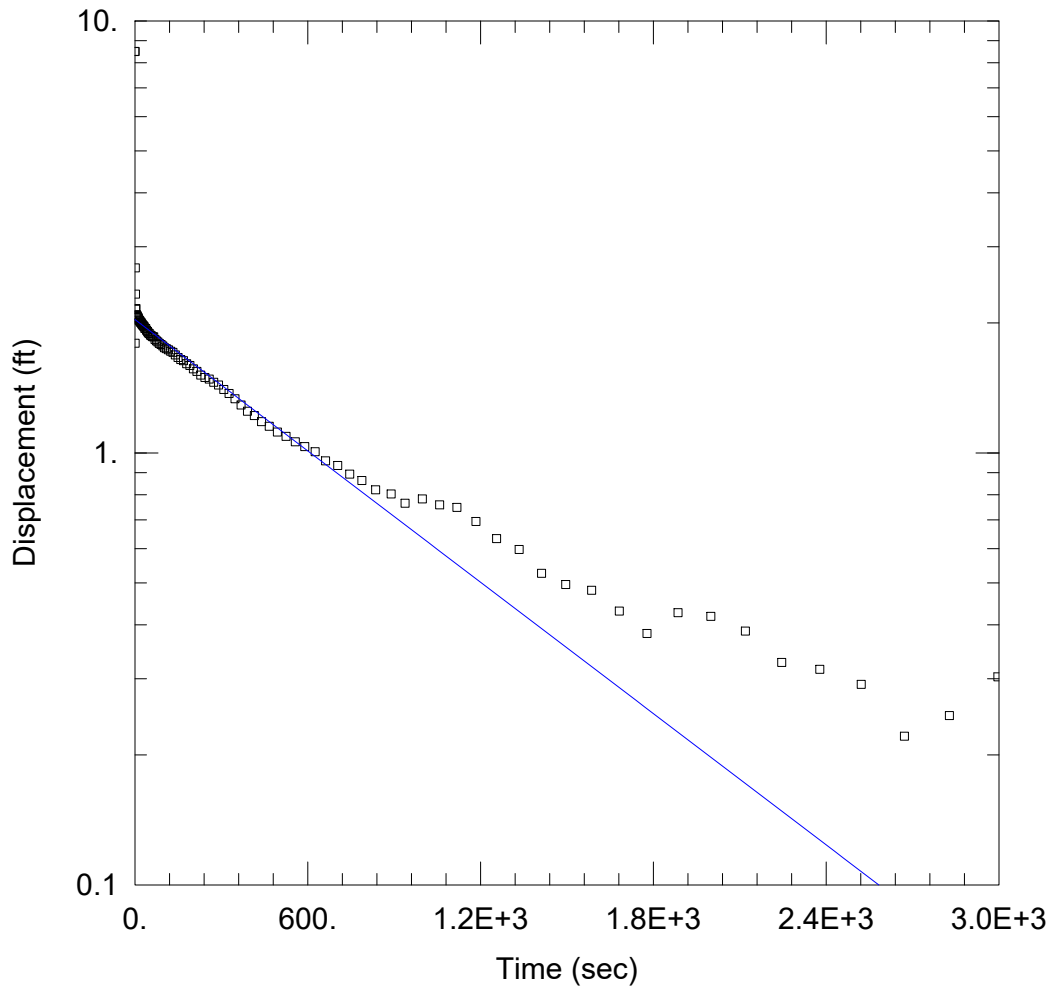
Saturated Thickness: 31.41 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-42)

Initial Displacement: <u>2.67 ft</u>	Static Water Column Height: <u>21.41 ft</u>
Total Well Penetration Depth: <u>31.41 ft</u>	Screen Length: <u>10. ft</u>
Casing Radius: <u>0.0833 ft</u>	Well Radius: <u>0.25 ft</u>
	Gravel Pack Porosity: <u>0.3</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Bower-Rice</u>
K = <u>0.0002203</u> cm/sec	y0 = <u>1.992</u> ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-42 OUT.aqt
Date: 03/15/17

Time: 14:22:47

PROJECT INFORMATION

Company: ACC
Project: I054-104
Location: Plant Yates
Test Well: YGWC-42 OUT
Test Date: 3/6/2017

AQUIFER DATA

Saturated Thickness: 31.41 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (YGWC-42)

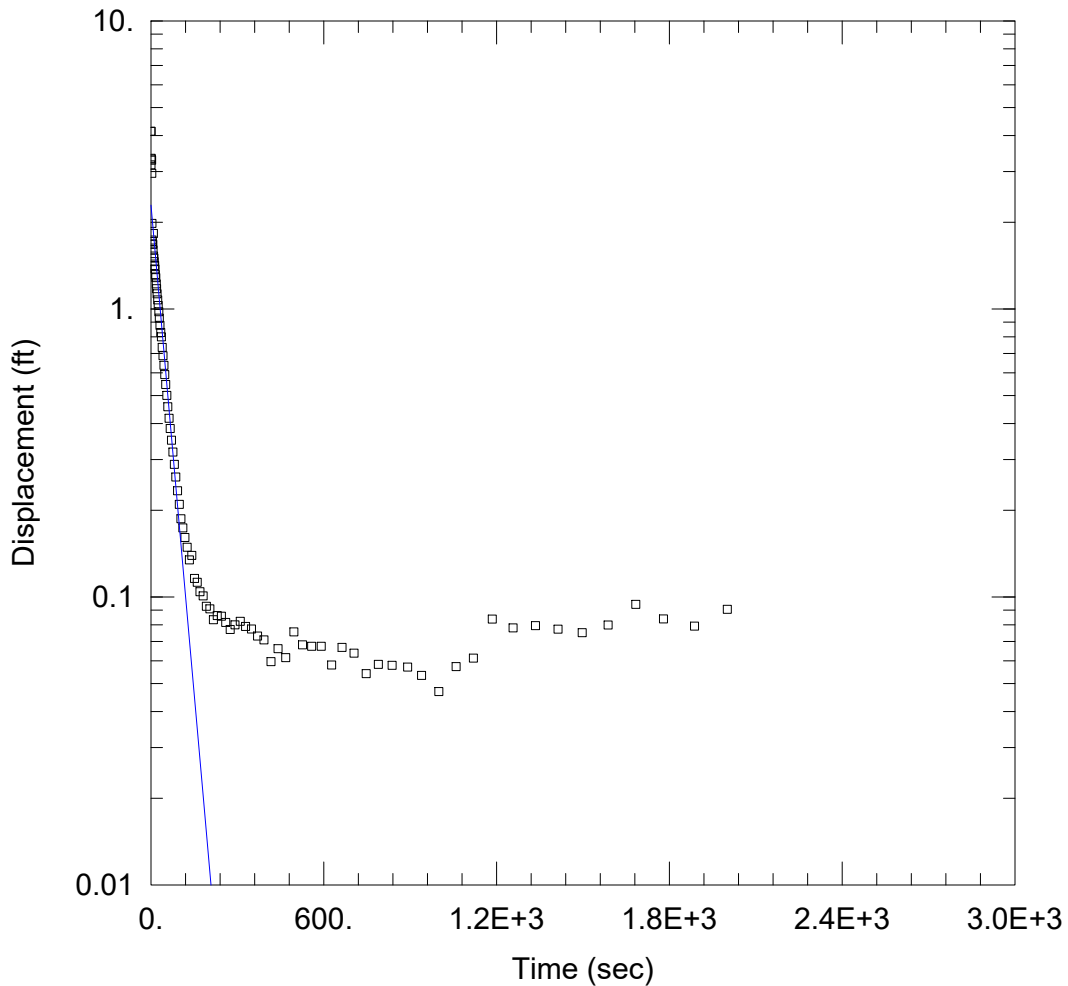
Initial Displacement: 8.5 ft
Total Well Penetration Depth: 31.41 ft
Casing Radius: 0.0833 ft

Static Water Column Height: 31.41 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 0.0001467 cm/sec

Solution Method: Bower-Rice
 y_0 = 2.036 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-43 IN.aqt
 Date: 03/15/17

Time: 14:23:00

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-43 IN
 Test Date: 3/2/2017

AQUIFER DATA

Saturated Thickness: 55.59 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-43)

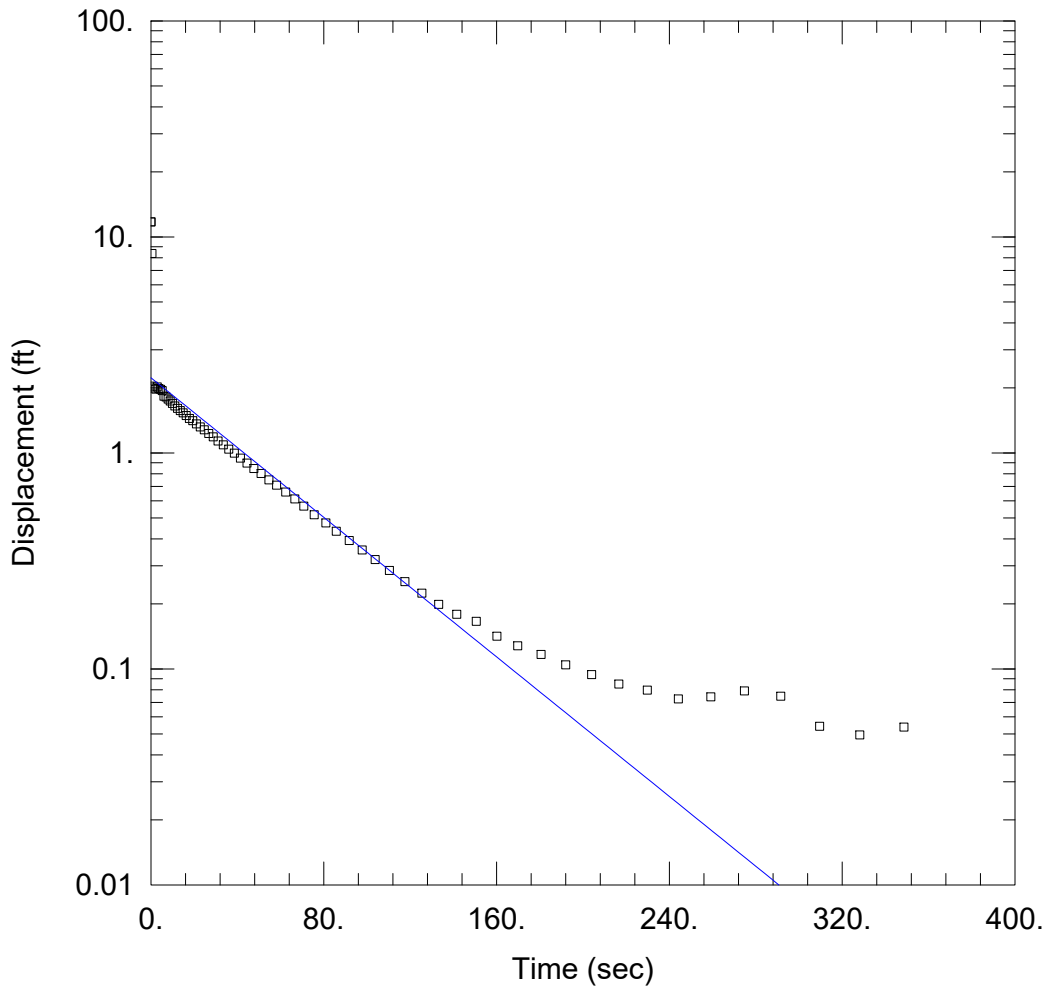
Initial Displacement: 4.14 ft
 Total Well Penetration Depth: 65.59 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 65.59 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.003663 cm/sec

Solution Method: Bower-Rice
 y0 = 2.293 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-43 OUT.aqt
 Date: 03/15/17

Time: 14:23:17

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-43 OUT
 Test Date: 3/2/2017

AQUIFER DATA

Saturated Thickness: 65.59 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-43)

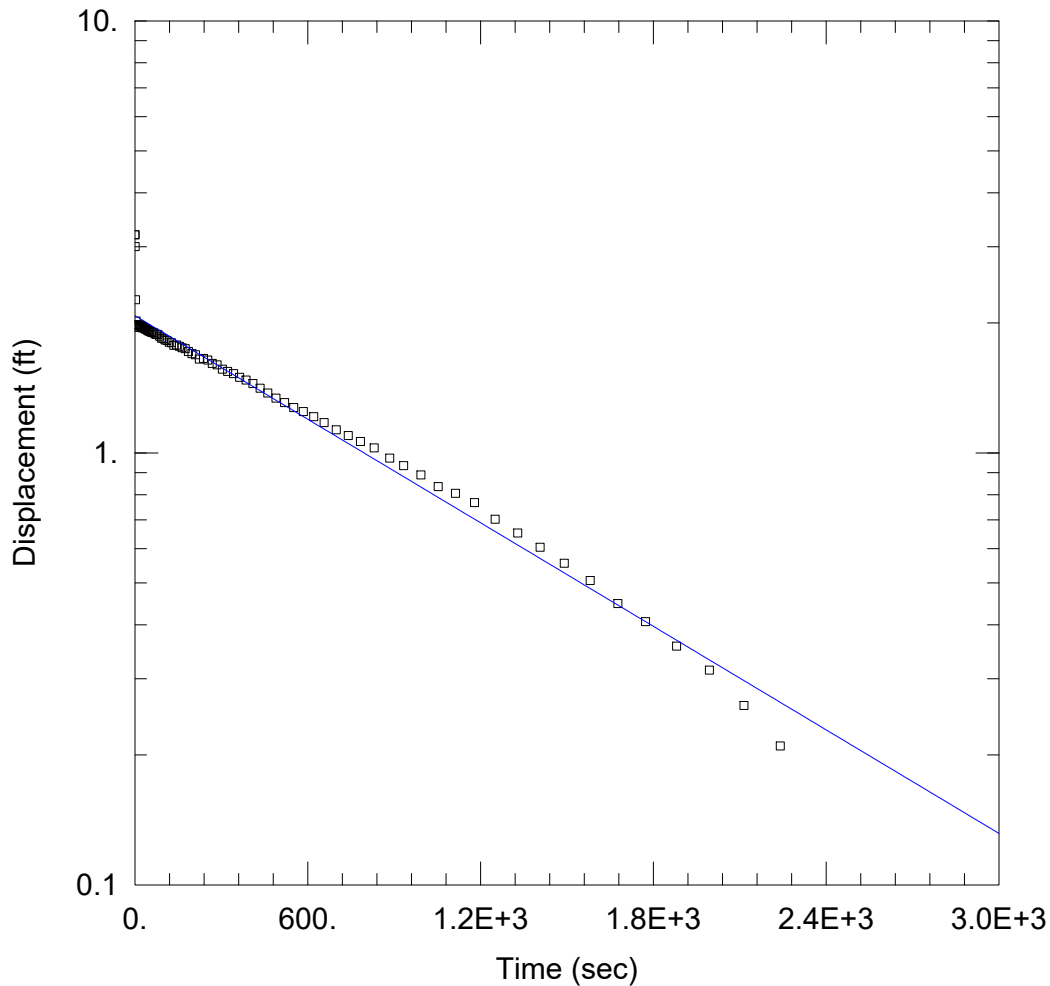
Initial Displacement: 11.74 ft
 Total Well Penetration Depth: 65.59 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 65.59 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.002614 cm/sec

Solution Method: Bower-Rice
 y0 = 2.228 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-44 IN.aqt
Date: 03/15/17

Time: 14:23:30

PROJECT INFORMATION

Company: ACC
Project: I054-104
Location: Plant Yates
Test Well: YGWC-44 IN
Test Date: 3/2/2017

AQUIFER DATA

Saturated Thickness: 39.39 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (YGWC-44)

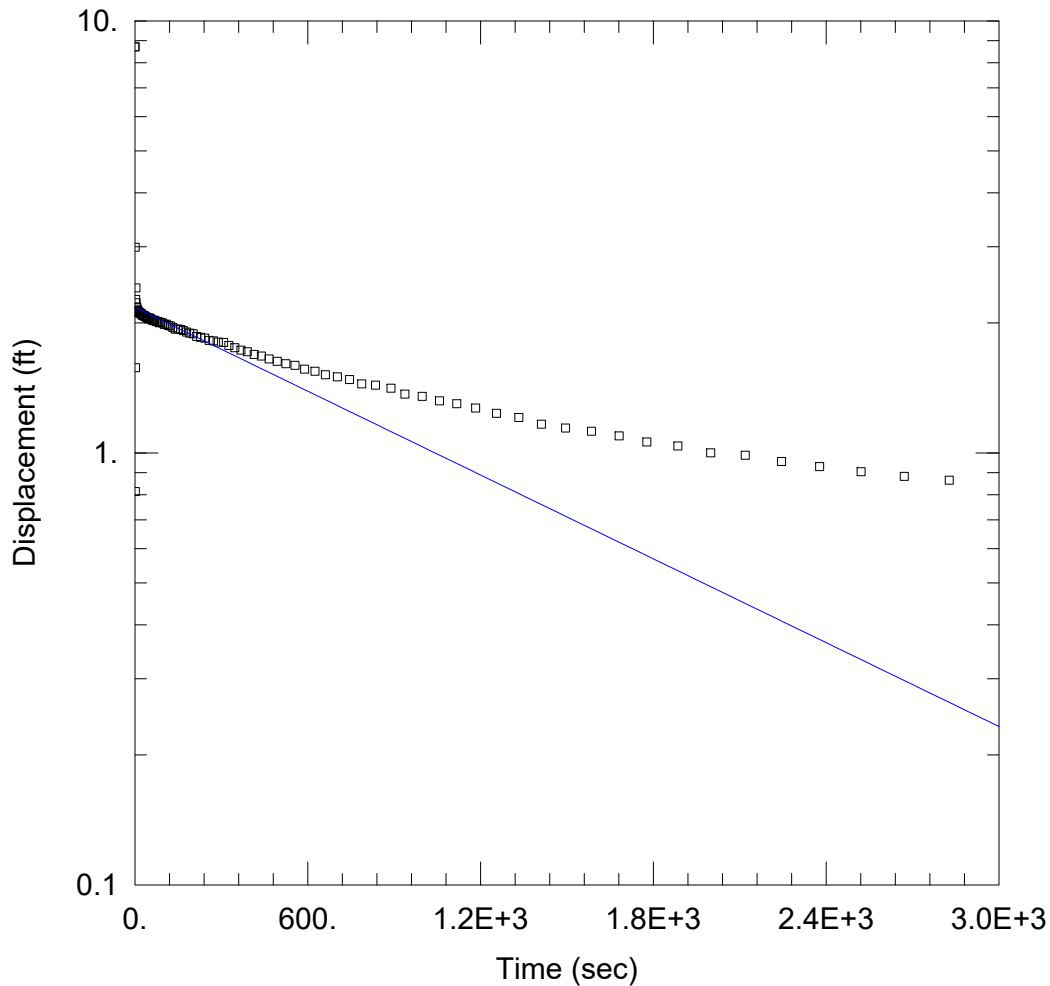
Initial Displacement: 3.2 ft
Total Well Penetration Depth: 39.39 ft
Casing Radius: 0.0833 ft

Static Water Column Height: 39.39 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 0.0001199 cm/sec

Solution Method: Bower-Rice
 y_0 = 2.078 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-44 OUT.aqt
 Date: 03/15/17

Time: 14:23:48

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-44 OUT
 Test Date: 3/2/2017

AQUIFER DATA

Saturated Thickness: 39.39 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-44)

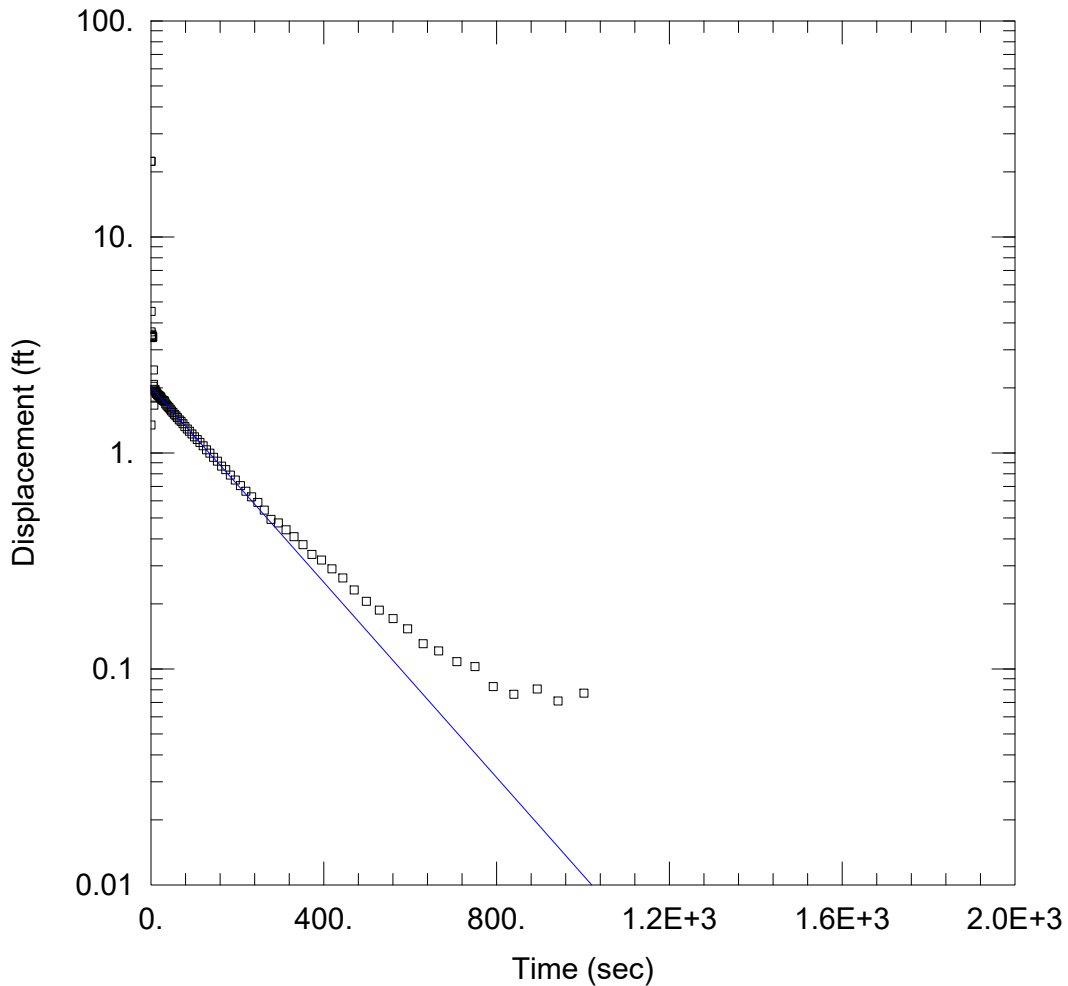
Initial Displacement: 8.71 ft
 Total Well Penetration Depth: 39.39 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 39.39 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 9.707E-5 cm/sec

Solution Method: Bower-Rice
 y0 = 2.172 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-49 IN.aqt
 Date: 03/15/17

Time: 14:25:07

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-49 IN
 Test Date: 3/6/2017

AQUIFER DATA

Saturated Thickness: 44.89 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-49)

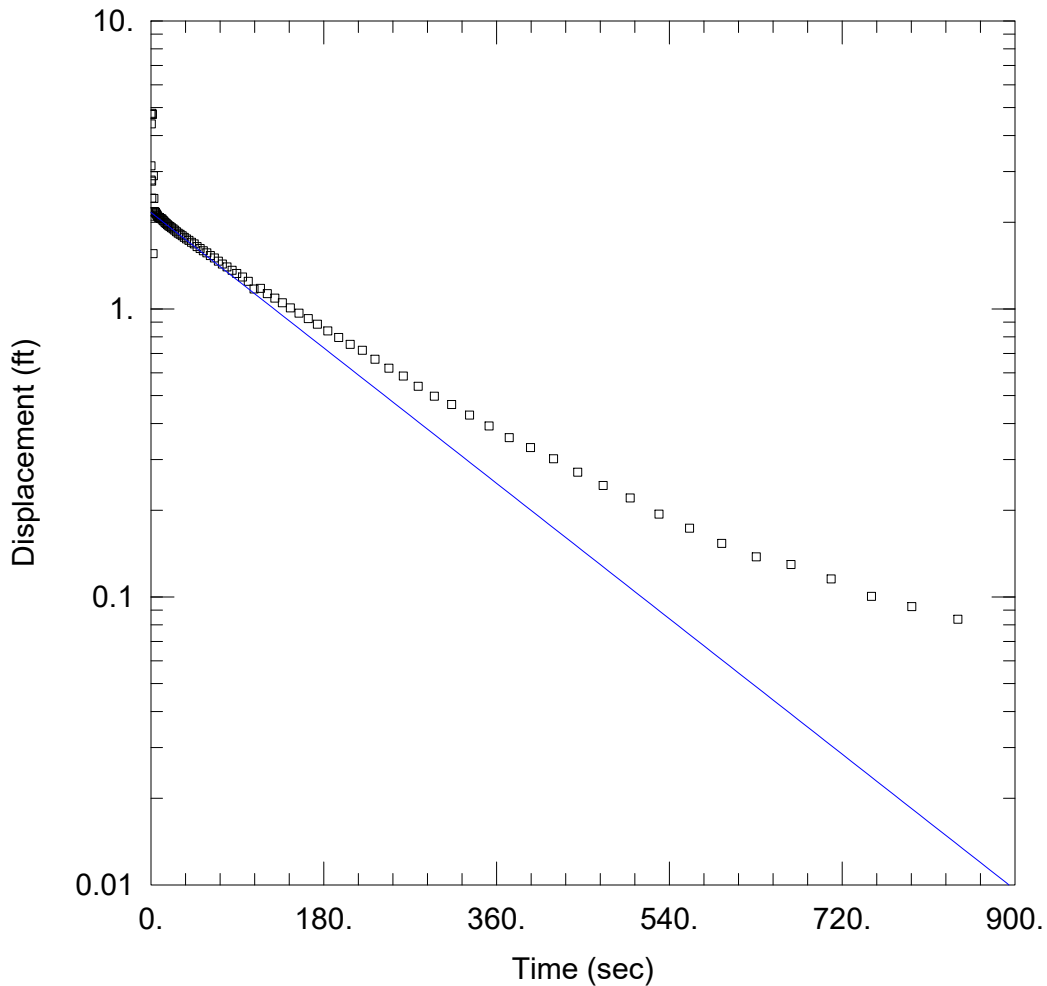
Initial Displacement: 22.38 ft
 Total Well Penetration Depth: 44.89 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 44.89 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.0006917 cm/sec

Solution Method: Bower-Rice
 y0 = 2.015 ft



WELL TEST ANALYSIS

Data Set: P:\...\YGWC-49 OUT.aqt
 Date: 03/15/17

Time: 14:25:20

PROJECT INFORMATION

Company: ACC
 Project: I054-104
 Location: Plant Yates
 Test Well: YGWC-49 OUT
 Test Date: 3/6/2017

AQUIFER DATA

Saturated Thickness: 44.89 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (YGWC-49)

Initial Displacement: 4.74 ft
 Total Well Penetration Depth: 44.89 ft
 Casing Radius: 0.0833 ft

Static Water Column Height: 44.89 ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft
 Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
 K = 0.0008 cm/sec

Solution Method: Bower-Rice
 y0 = 2.162 ft

October 27, 2015

Bart Smelser
Southern Company Services, Inc.
299 Logan Martin Village Road
Vincent, AL 35178
205-438-5893 direct

Subject: Laboratory Testing Results
Plant Yates Piezometers Geotechnical Investigation
Cardno Project Number Z003000203

Mr. Smelser:

Cardno ATC has completed the soils testing for the Shelby Tube samples collected from the Plant Yates Piezometers location. These samples were collected by Southern Company Services, Inc. and delivered to the Cardno ATC laboratory in Alabaster, AL by members of Cardno staff. This work was conducted in accordance with the master agreement between Cardno ATC and Southern Company Affiliates, dated February 28, 2014, and detailed in the Work Authorization dated September 23, 2015.

The purpose of this letter is to report the results of the laboratory testing which are detailed in the following pages.

Cardno ATC sincerely appreciates the opportunity to work with you on this project. If you have any questions or if we may be of further service to you, please contact us.

Respectfully Submitted,

Cardno ATC



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Cardno ATC
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Fred R. DeLeon, Jr., P.E., P.G.
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Enclosures: laboratory report

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SUMMARY OF LABORATORY RESULTS

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	% <#200 Sieve	Classification	Water Content (%)	Dry Density (pcf)	Specific Gravity	Void Ratio
PZ-17s	17.0	NP	NP	NP	4.75	21.2	SM-SC			2.665	
PZ-19s	17.0	NP	NP	NP	9.5	42.0	SM-SC			2.681	
PZ-20s	17.0	NP	NP	NP	4.75	28.9	SM-SC			2.665	
PZ-22s	7.0	NP	NP	NP	9.5	20.3	SM-SC			2.731	
PZ-22s	17.0	NP	NP	NP	9.5	28.0	SM-SC			2.717	
PZ-24s	17.0	NP	NP	NP	19	15.3	SM-SC			2.693	
PZ-24s	37.0	NP	NP	NP	4.75	22.0	SM-SC			2.701	
PZ-25s	33.0	NP	NP	NP	9.5	23.4	SM-SC			2.678	
PZ-25s	44.0	NP	NP	NP	19	22.3	SM-SC			2.682	
PZ-26s	17.0	37	27	10	4.75	57.9	ML			2.741	
PZ-26s	27.0	NP	NP	NP	4.75	33.7	SM-SC			2.720	
PZ-27s	17.0	39	30	9	4.75	73.5	ML			2.661	
PZ-27s	27.0	NP	NP	NP	2	45.0	SM-SC			2.673	
PZ-28s	17.0	NP	NP	NP	19	18.9	SM-SC			2.578	
PZ-30s	27.0	NP	NP	NP	4.75	16.6	SM-SC			2.710	
PZ-31s	7.0	NP	NP	NP	4.75	16.7	SM-SC			2.653	

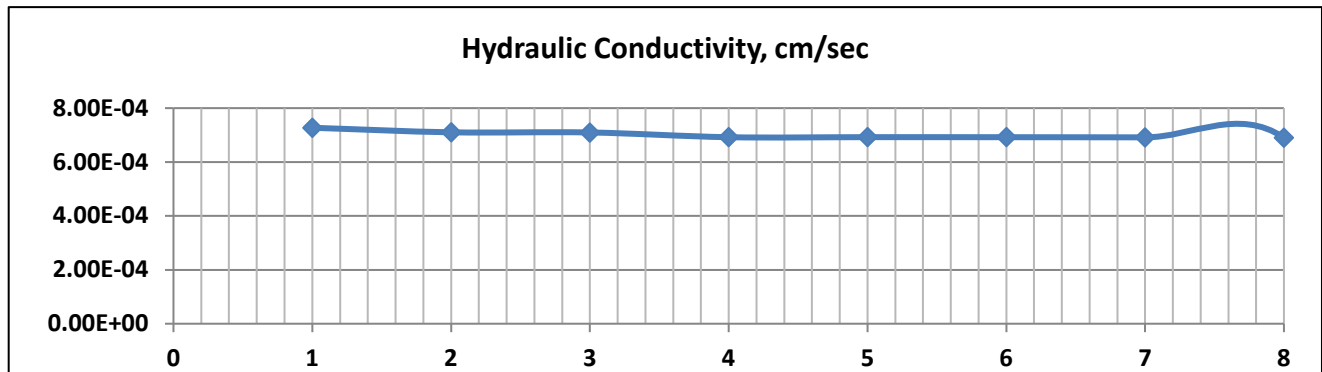
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-17s (17'-19')
Sample Location :	PZ-17S (17'-19') UD-01	Date Sampled:	09/10/15
Northing: --	Easting: --	Elevation:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	119.8	Chamber	92	Wet Density, pcf	119.6
Dry Density, pcf	98.0	Head	79	Dry Density, pcf	98.1
Moisture Content, %	22.2	Tail	77	Moisture Content, %	22.0
Void ratio, e	0.697	Conso.	14	Void ratio, e	0.695
Porosity, n	0.411	Soil Specific Gravity		Porosity, n	0.410
Saturation, Percent	84.9	Gs	2.665	Saturation, Percent	84.2
Hydraulic Gradient, i	9.8	Proctor Referenced		Hydraulic Gradient, i	7.1
Sample Length, Inches	5.668	--		Sample Length, Inches	5.650
Sample Volume, cc	584.4856	--		Sample Volume, cc	583.5545
B-value :	97.0%	Sample Consolidated During Saturation, %		0.32%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	0.08	1.9180	7.27E-04	20
2	0.17	1.8429	7.10E-04	20
3	0.25	1.7692	7.10E-04	20
4	0.33	1.7053	6.92E-04	20
5	0.42	1.6385	6.92E-04	20
6	0.50	1.5746	6.92E-04	20
7	0.58	1.5134	6.92E-04	20
8	0.67	1.4550	6.91E-04	20
9	0.00			20

Hydraulic Conductivity, cm/sec

6.91E-04



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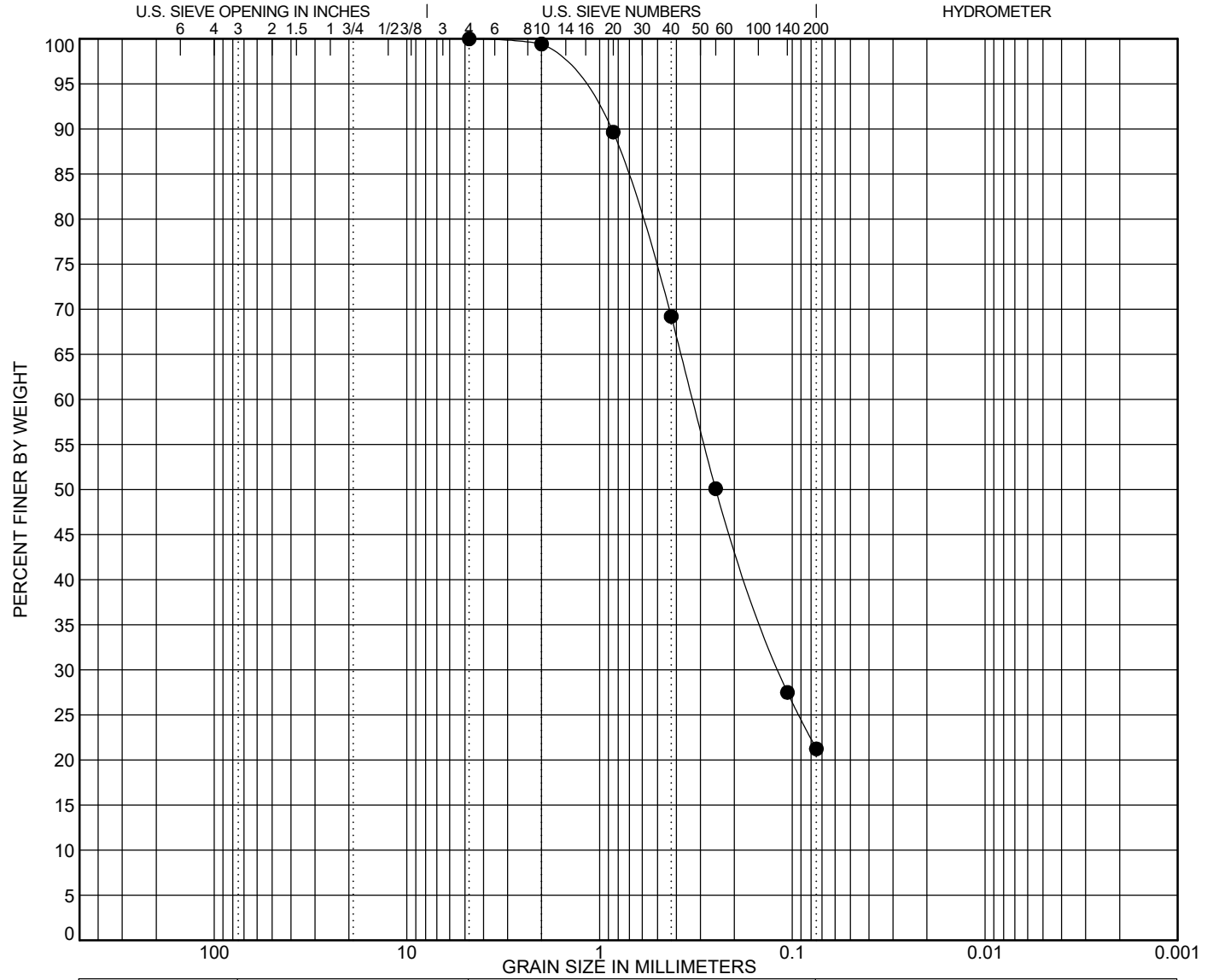
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-17S	17	SILTY SAND (SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-17S	17	4.75	0.329	0.117		0.0	78.8	21.2	

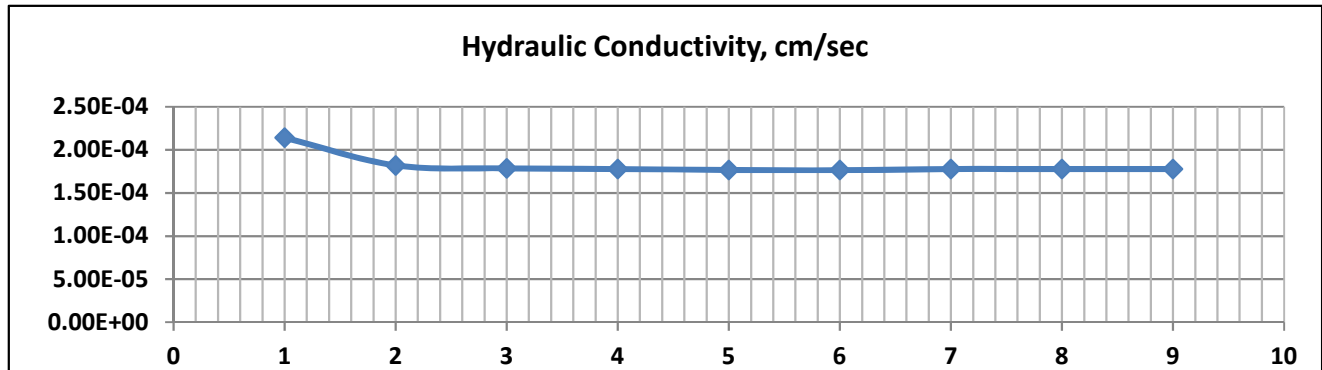
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-19S (17'-19')
Sample Location :	PZ-19S (17'-19') UD-01	Date Sampled:	09/21/15
Northing: --	Easting: --	Elevation:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	112.9	Chamber	87	Wet Density, pcf	110.9
Dry Density, pcf	85.5	Head	78	Dry Density, pcf	85.5
Moisture Content, %	32.1	Tail	76	Moisture Content, %	29.7
Void ratio, e	0.956	Conso.	10	Void ratio, e	0.956
Porosity, n	0.489	Soil Specific Gravity		Porosity, n	0.489
Saturation, Percent	89.9	Gs	2.681	Saturation, Percent	83.3
Hydraulic Gradient, i	9.9	Proctor Referenced		Hydraulic Gradient, i	8.4
Sample Length, Inches	5.613	--		Sample Length, Inches	5.613
Sample Volume, cc	582.1245	--		Sample Volume, cc	582.1245
B-value :	98.0%	Sample Consolidated During Saturation, %		0.00%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	0.17	1.9513	2.14E-04	20
2	0.33	1.9180	1.82E-04	20
3	0.50	1.8804	1.79E-04	20
4	0.67	1.8429	1.78E-04	20
5	0.83	1.8068	1.77E-04	20
6	1.00	1.7706	1.77E-04	20
7	1.00	1.7692	1.78E-04	20
8	1.17	1.7331	1.78E-04	20
9	1.33	1.6983	1.78E-04	20

Hydraulic Conductivity, cm/sec

1.78E-04



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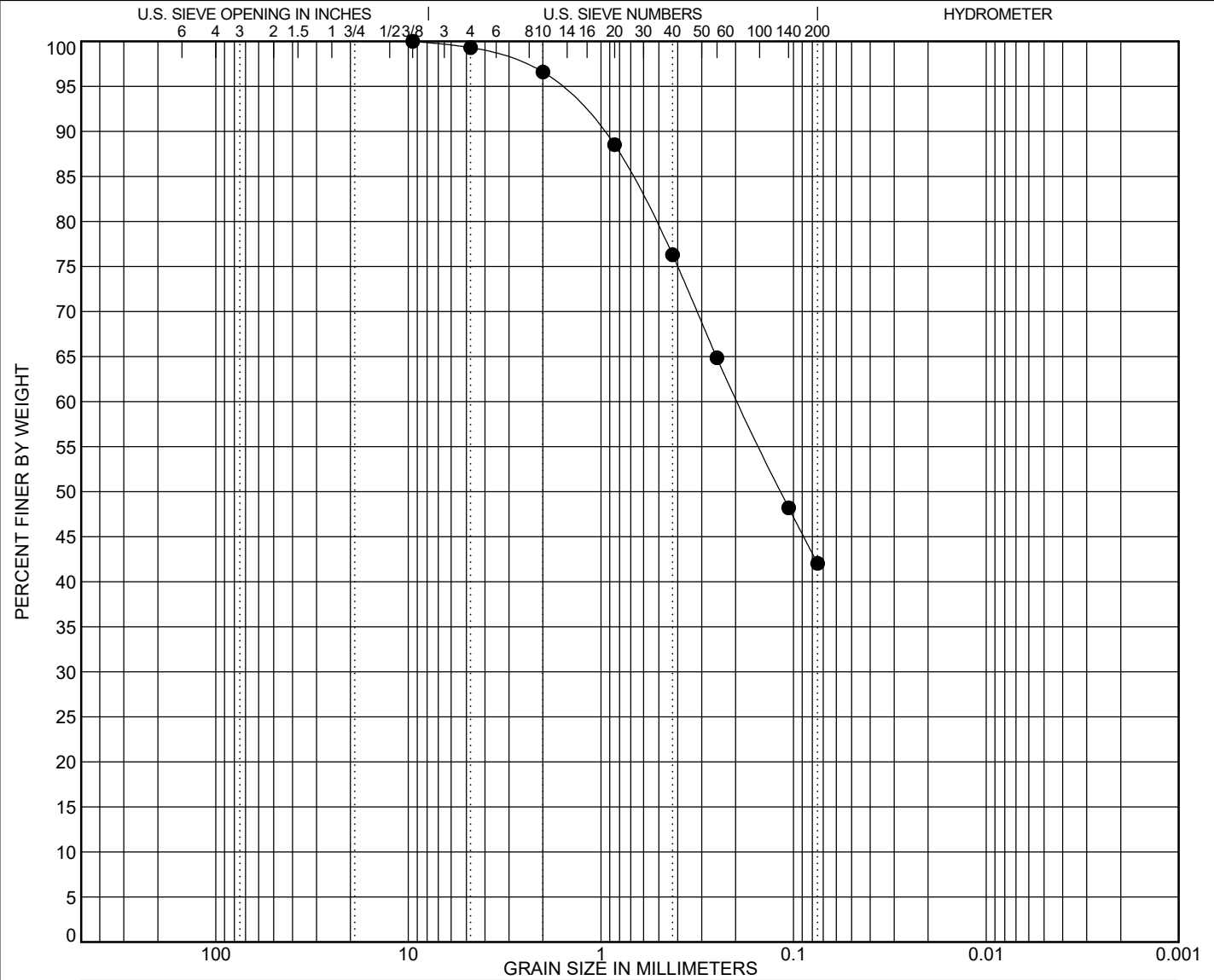
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-19S	17	SILTY SAND (SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-19S	17	9.5	0.195			0.7	57.3	42.0	

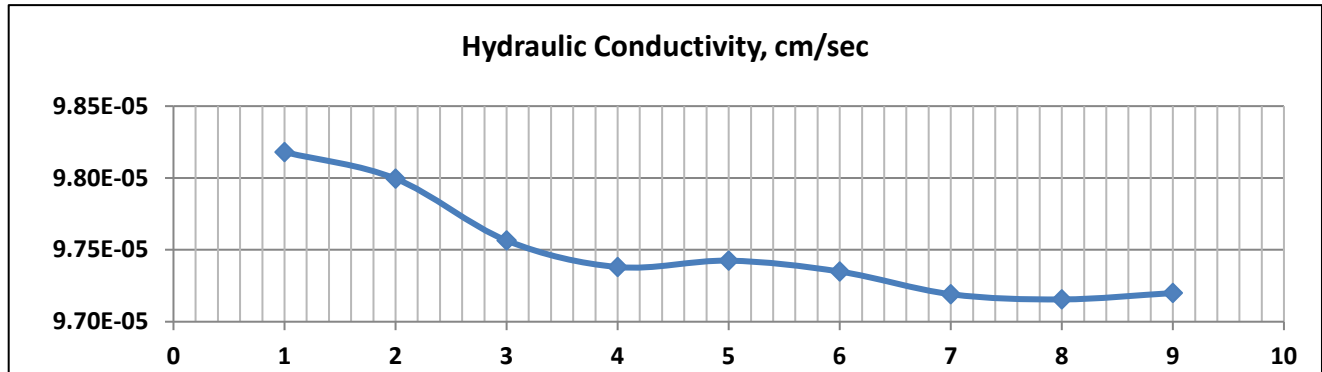
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-20s (17'-19')
Sample Location :	PZ-20s (17'-19') UD-01	Date Sampled:	09/03/15
Northing:	--	Easting:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	126.8	Chamber	93	Wet Density, pcf	120.2
Dry Density, pcf	98.4	Head	79	Dry Density, pcf	98.8
Moisture Content, %	28.9	Tail	77	Moisture Content, %	21.7
Void ratio, e	0.690	Conso.	15	Void ratio, e	0.683
Porosity, n	0.408	Soil Specific Gravity		Porosity, n	0.406
Saturation, Percent	111.5	Gs	2.665	Saturation, Percent	84.5
Hydraulic Gradient, i	9.9	Proctor Referenced		Hydraulic Gradient, i	8.2
Sample Length, Inches	5.585	--		Sample Length, Inches	5.535
Sample Volume, cc	569.1641	--		Sample Volume, cc	566.5934
B-value :	100.0%	Sample Consolidated During Saturation, %		0.90%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	0.33	1.9563	9.82E-05	20
2	0.67	1.9138	9.80E-05	20
3	1.00	1.8727	9.76E-05	20
4	1.33	1.8323	9.74E-05	20
5	1.67	1.7926	9.74E-05	20
6	2.00	1.7539	9.73E-05	20
7	2.33	1.7164	9.72E-05	20
8	2.67	1.6794	9.72E-05	20
9	3.00	1.6430	9.72E-05	20

Hydraulic Conductivity, cm/sec

9.72E-05



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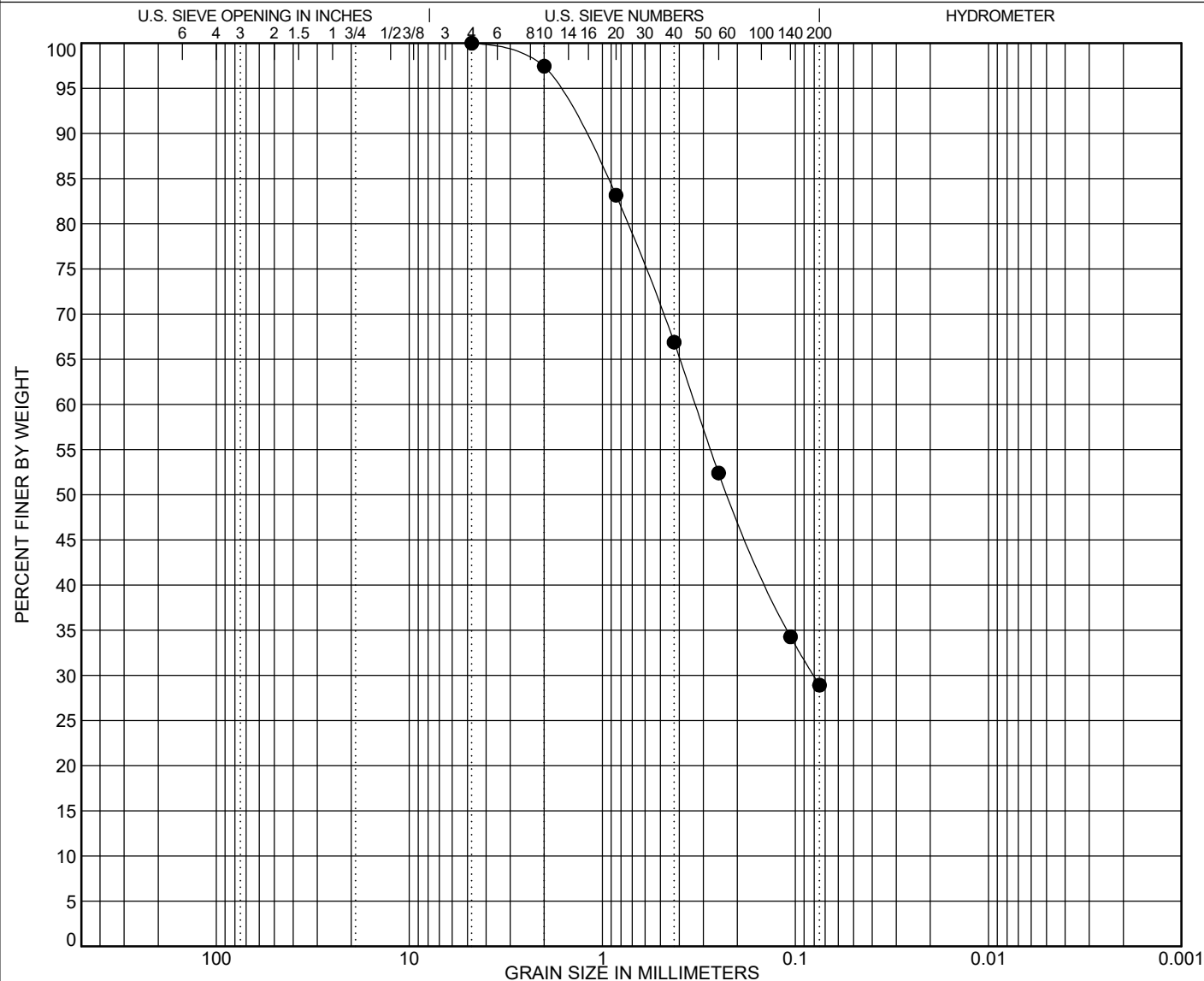
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-20s	17	SILTY SAND (SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-20s	17	4.75	0.33	0.08		0.0	71.1	28.9	

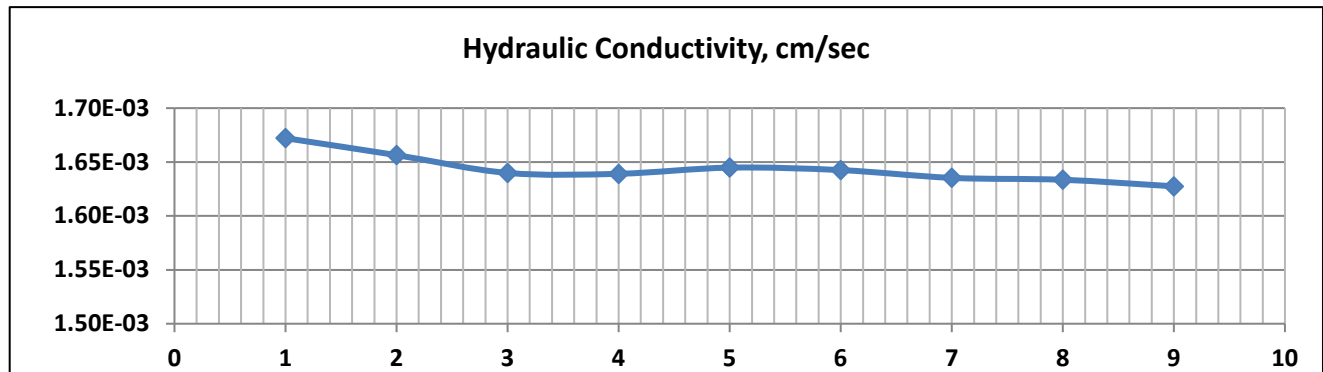
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-22S (7'-9')
Sample Location :	PZ-22S (7'-9') UD-01	Date Sampled:	09/17/15
Northing: --	Easting: --	Elevation:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	110.9	Chamber	83	Wet Density, pcf	110.3
Dry Density, pcf	83.5	Head	78	Dry Density, pcf	83.6
Moisture Content, %	32.8	Tail	76	Moisture Content, %	31.9
Void ratio, e	1.040	Conso.	6	Void ratio, e	1.038
Porosity, n	0.510	Soil Specific Gravity		Porosity, n	0.509
Saturation, Percent	86.2	Gs	2.731	Saturation, Percent	84.0
Hydraulic Gradient, i	9.9	Proctor Referenced		Hydraulic Gradient, i	8.4
Sample Length, Inches	5.618	--		Sample Length, Inches	5.600
Sample Volume, cc	571.7477	--		Sample Volume, cc	570.8288
B-value :	96.0%	Sample Consolidated During Saturation, %		0.32%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2, psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	0.02	1.9625	1.67E-03	20
2	0.03	1.9263	1.66E-03	20
3	0.05	1.8916	1.64E-03	20
4	0.07	1.8568	1.64E-03	20
5	0.08	1.8220	1.64E-03	20
6	0.10	1.7887	1.64E-03	20
7	0.12	1.7567	1.64E-03	20
8	0.13	1.7247	1.63E-03	20
9	0.15	1.6941	1.63E-03	20

Hydraulic Conductivity, cm/sec

1.63E-03



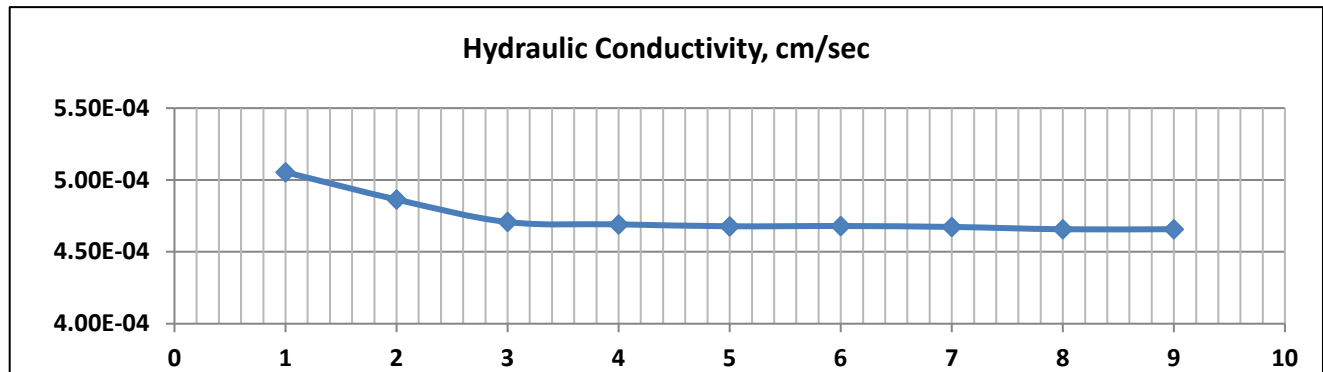
200 Wellington Manor Court Suite 100
Alabaster, Alabama 35007

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-22s (17'-19')
Sample Location :	PZ-22s (17'-19') UD-02	Date Sampled:	09/17/15
Northing: --	Easting: --	Elevation:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	111.1	Chamber	88	Wet Density, pcf	110.3
Dry Density, pcf	82.5	Head	78	Dry Density, pcf	82.4
Moisture Content, %	34.7	Tail	76	Moisture Content, %	33.8
Void ratio, e	1.056	Conso.	11	Void ratio, e	1.057
Porosity, n	0.514	Soil Specific Gravity		Porosity, n	0.514
Saturation, Percent	89.4	Gs	2.717	Saturation, Percent	86.9
Hydraulic Gradient, i	9.8	Proctor Referenced		Hydraulic Gradient, i	7.8
Sample Length, Inches	5.645	--		Sample Length, Inches	5.648
Sample Volume, cc	572.9644	--		Sample Volume, cc	573.1166
B-value :	99.0%	Sample Swelled During Saturation, %		0.05%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	0.08	1.9444	5.05E-04	20
2	0.17	1.8943	4.86E-04	20
3	0.25	1.8485	4.71E-04	20
4	0.33	1.8012	4.69E-04	20
5	0.42	1.7553	4.68E-04	20
6	0.50	1.7100	4.68E-04	20
7	0.58	1.6663	4.67E-04	20
8	0.67	1.6246	4.66E-04	20
9	0.75	1.5829	4.66E-04	20

Hydraulic Conductivity, cm/sec

4.66E-04



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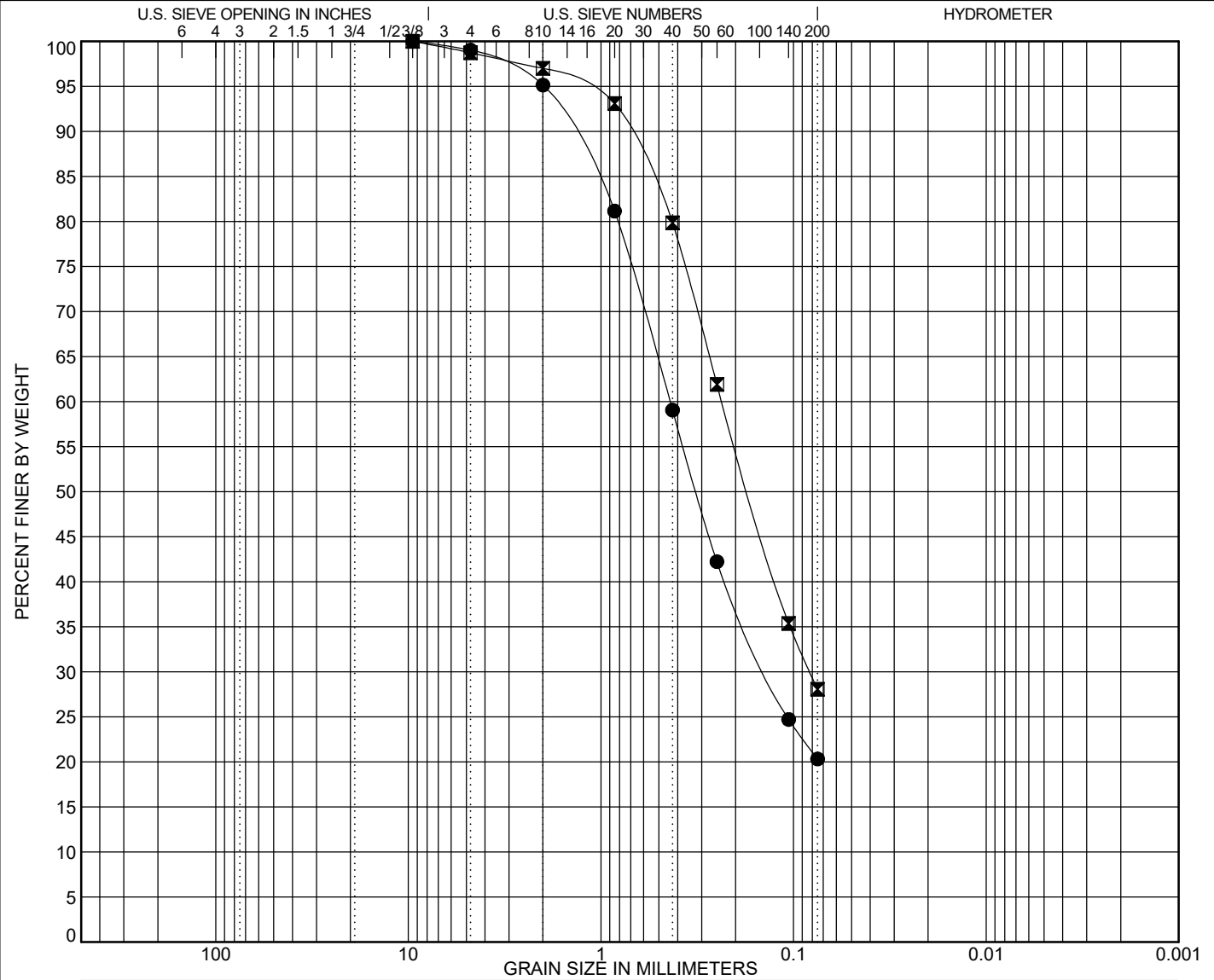
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-22S	7	SILTY SAND (SM-SC)	NP	NP	NP		
⊠ PZ-22S	17	SILTY SAND (SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-22S	7	9.5	0.438	0.137		1.0	78.7	20.3	
⊠ PZ-22S	17	9.5	0.235	0.082		1.3	70.7	28.0	

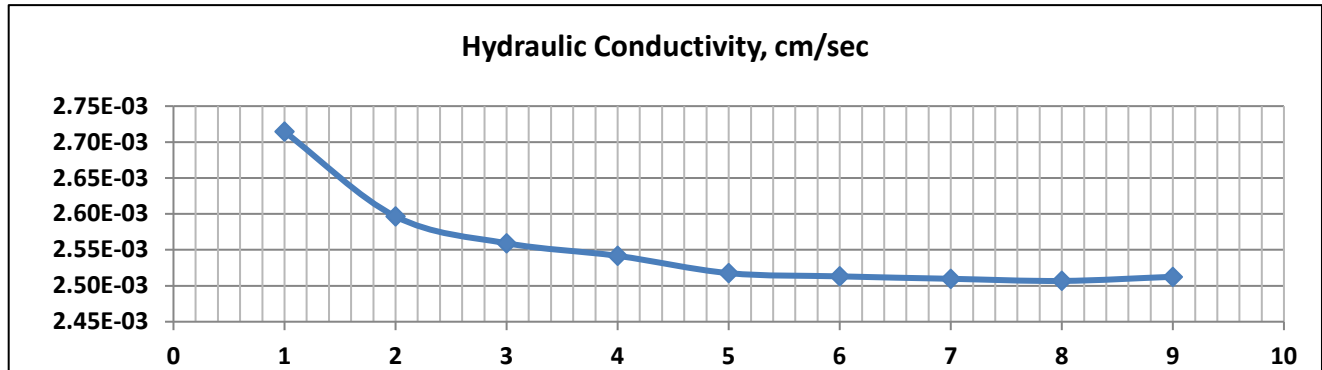
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-24S (17'-19')
Sample Location :	PZ-24S (17'-19') UD-01	Date Sampled:	09/17/15
Northing:	--	Easting:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	103.0	Chamber	90	Wet Density, pcf	111.1
Dry Density, pcf	83.4	Head	79	Dry Density, pcf	83.4
Moisture Content, %	23.5	Tail	77	Moisture Content, %	33.3
Void ratio, e	1.015	Conso.	12	Void ratio, e	1.015
Porosity, n	0.504	Soil Specific Gravity		Porosity, n	0.504
Saturation, Percent	62.2	Gs	2.693	Saturation, Percent	88.2
Hydraulic Gradient, i	9.9	Proctor Referenced		Hydraulic Gradient, i	7.7
Sample Length, Inches	5.587	--		Sample Length, Inches	5.583
Sample Volume, cc	566.4718	--		Sample Volume, cc	566.2689
B-value :	96.0%	Sample Consolidated During Saturation, %		0.07%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	0.02	1.9388	2.71E-03	20
2	0.03	1.8846	2.60E-03	20
3	0.05	1.8318	2.56E-03	20
4	0.07	1.7803	2.54E-03	20
5	0.08	1.7317	2.52E-03	20
6	0.10	1.6830	2.51E-03	20
7	0.12	1.6357	2.51E-03	20
8	0.13	1.5899	2.51E-03	20
9	0.15	1.5440	2.51E-03	20

Hydraulic Conductivity, cm/sec

2.51E-03



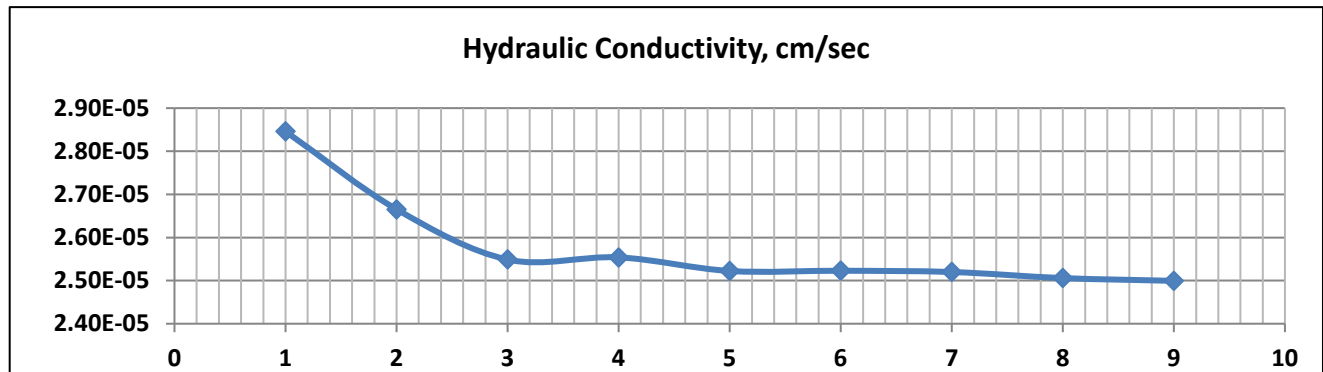
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-24S (37'-39')
Sample Location :	PZ-24S (37'-39') UD-02	Date Sampled:	09/16/15
Northing: --	Easting: --	Elevation:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	109.6	Chamber	101	Wet Density, pcf	112.3
Dry Density, pcf	90.6	Head	79	Dry Density, pcf	91.0
Moisture Content, %	21.0	Tail	77	Moisture Content, %	23.3
Void ratio, e	0.860	Conso.	23	Void ratio, e	0.851
Porosity, n	0.462	Soil Specific Gravity		Porosity, n	0.460
Saturation, Percent	66.0	Gs	2.701	Saturation, Percent	74.0
Hydraulic Gradient, i	9.6	Proctor Referenced		Hydraulic Gradient, i	8.3
Sample Length, Inches	5.745	--		Sample Length, Inches	5.687
Sample Volume, cc	594.031	--		Sample Volume, cc	591.0023
B-value :	100.0%	Sample Consolidated During Saturation, %		1.01%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	1.00	1.9611	2.85E-05	20
2	2.00	1.9277	2.67E-05	20
3	3.00	1.8971	2.55E-05	20
4	4.00	1.8638	2.55E-05	20
5	5.00	1.8332	2.52E-05	20
6	6.00	1.8015	2.52E-05	20
7	7.00	1.7706	2.52E-05	20
8	8.00	1.7414	2.51E-05	20
9	9.00	1.7122	2.50E-05	20

Hydraulic Conductivity, cm/sec

2.50E-05



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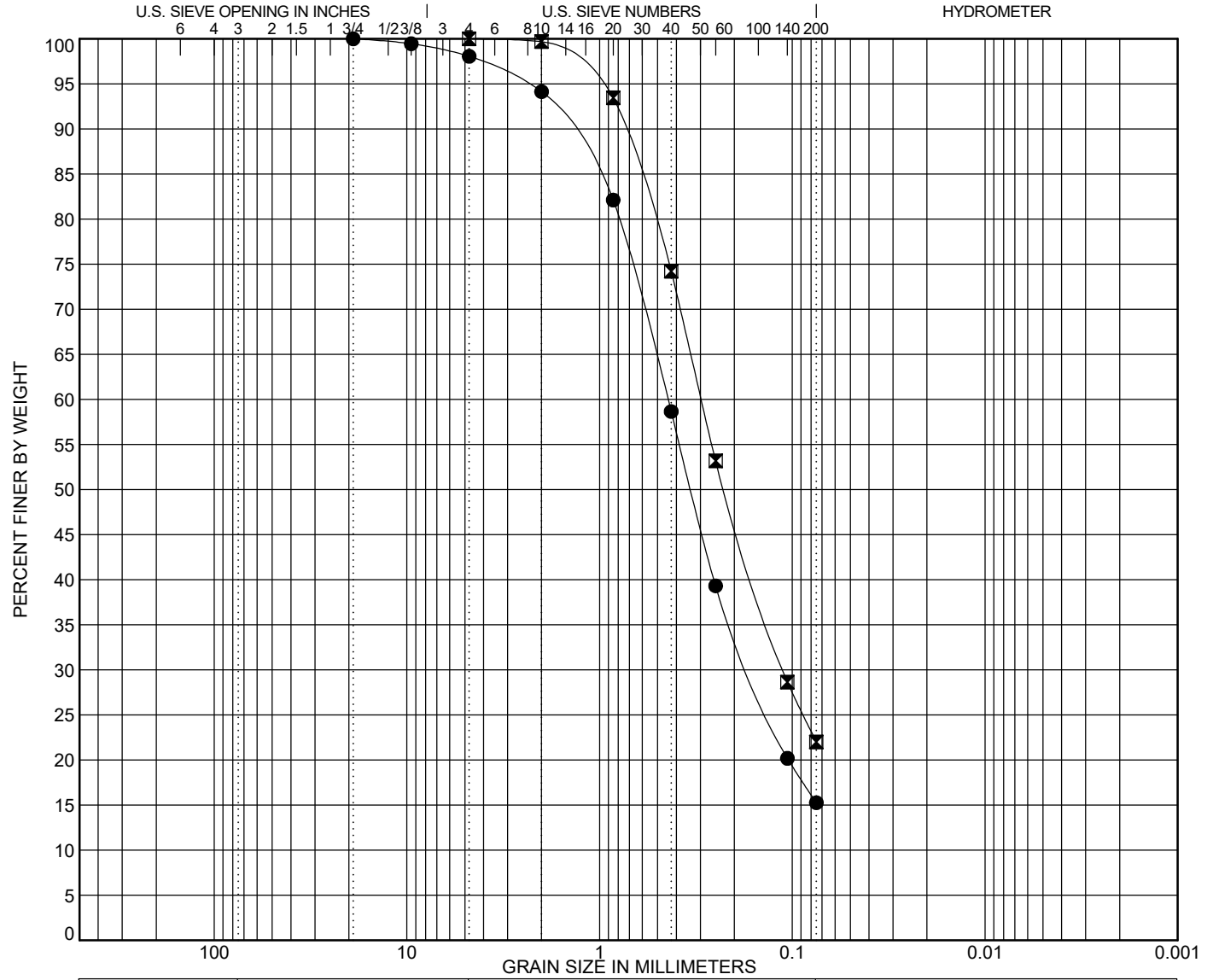
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-24S	17	SILTY SAND (SM-SC)	NP	NP	NP		
☒ PZ-24S	37	SILTY SAND (SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-24S	17	19	0.442	0.165		1.9	82.8	15.3	
☒ PZ-24S	37	4.75	0.297	0.111		0.0	78.0	22.0	

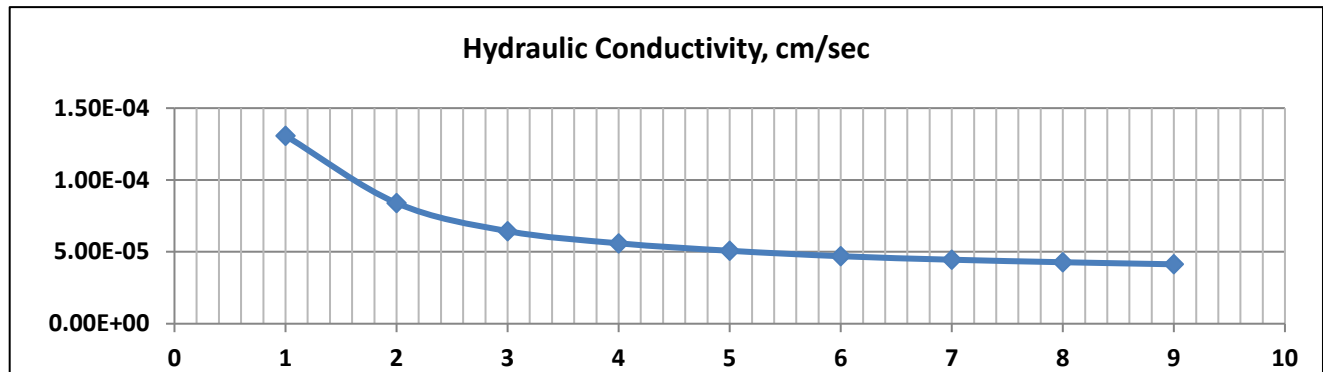
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-25S (33'-35')
Sample Location :	PZ-25S (33'-35') UD-01	Date Sampled:	09/03/15
Northing:	--	Easting:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	110.9	Chamber	98	Wet Density, pcf	112.1
Dry Density, pcf	85.8	Head	79	Dry Density, pcf	86.1
Moisture Content, %	29.2	Tail	77	Moisture Content, %	30.3
Void ratio, e	0.947	Conso.	20	Void ratio, e	0.942
Porosity, n	0.486	Soil Specific Gravity		Porosity, n	0.485
Saturation, Percent	82.7			Gs	2.678
Hydraulic Gradient, i	9.8	Proctor Referenced		Hydraulic Gradient, i	7.7
Sample Length, Inches	5.635			Sample Length, Inches	5.600
Sample Volume, cc	575.4849	--	Sample Volume, cc	573.6865	
B-value :	97.0%	Sample Consolidated During Saturation, %		0.62%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	1.00	1.8290	1.31E-04	20
2	2.00	1.7831	8.40E-05	20
3	3.00	1.7525	6.44E-05	20
4	4.00	1.7164	5.59E-05	20
5	5.00	1.6816	5.07E-05	20
6	6.00	1.6497	4.70E-05	20
7	7.00	1.6163	4.45E-05	20
8	8.00	1.5829	4.28E-05	20
9	9.00	1.5509	4.13E-05	20

Hydraulic Conductivity, cm/sec

4.13E-05



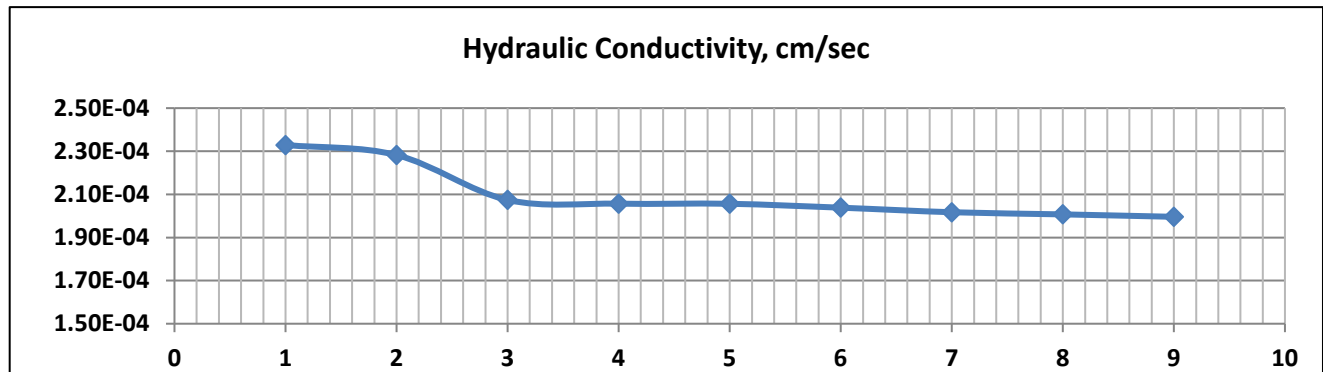
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-25S (44'-46')
Sample Location :	PZ-25S (44'-46') UD-02	Date Sampled:	09/03/15
Northing: --	Easting: --	Elevation:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	118.4	Chamber	104	Wet Density, pcf	119.4
Dry Density, pcf	97.9	Head	78	Dry Density, pcf	98.1
Moisture Content, %	21.0	Tail	76	Moisture Content, %	21.7
Void ratio, e	0.710	Conso.	27	Void ratio, e	0.706
Porosity, n	0.415	Soil Specific Gravity		Porosity, n	0.414
Saturation, Percent	79.2	Gs	2.682	Saturation, Percent	82.4
Hydraulic Gradient, i	9.9	Proctor Referenced		Hydraulic Gradient, i	9.0
Sample Length, Inches	5.610	--		Sample Length, Inches	5.577
Sample Volume, cc	572.1864	--		Sample Volume, cc	570.4937
B-value :	97.0%	Sample Consolidated During Saturation, %		0.59%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	0.08	1.9736	2.33E-04	20
2	0.17	1.9486	2.28E-04	20
3	0.25	1.9302	2.07E-04	20
4	0.33	1.9082	2.06E-04	20
5	0.42	1.8860	2.06E-04	20
6	0.50	1.8651	2.04E-04	20
7	0.58	1.8451	2.02E-04	20
8	0.67	1.8248	2.01E-04	20
9	0.75	1.8051	2.00E-04	20

Hydraulic Conductivity, cm/sec

2.00E-04



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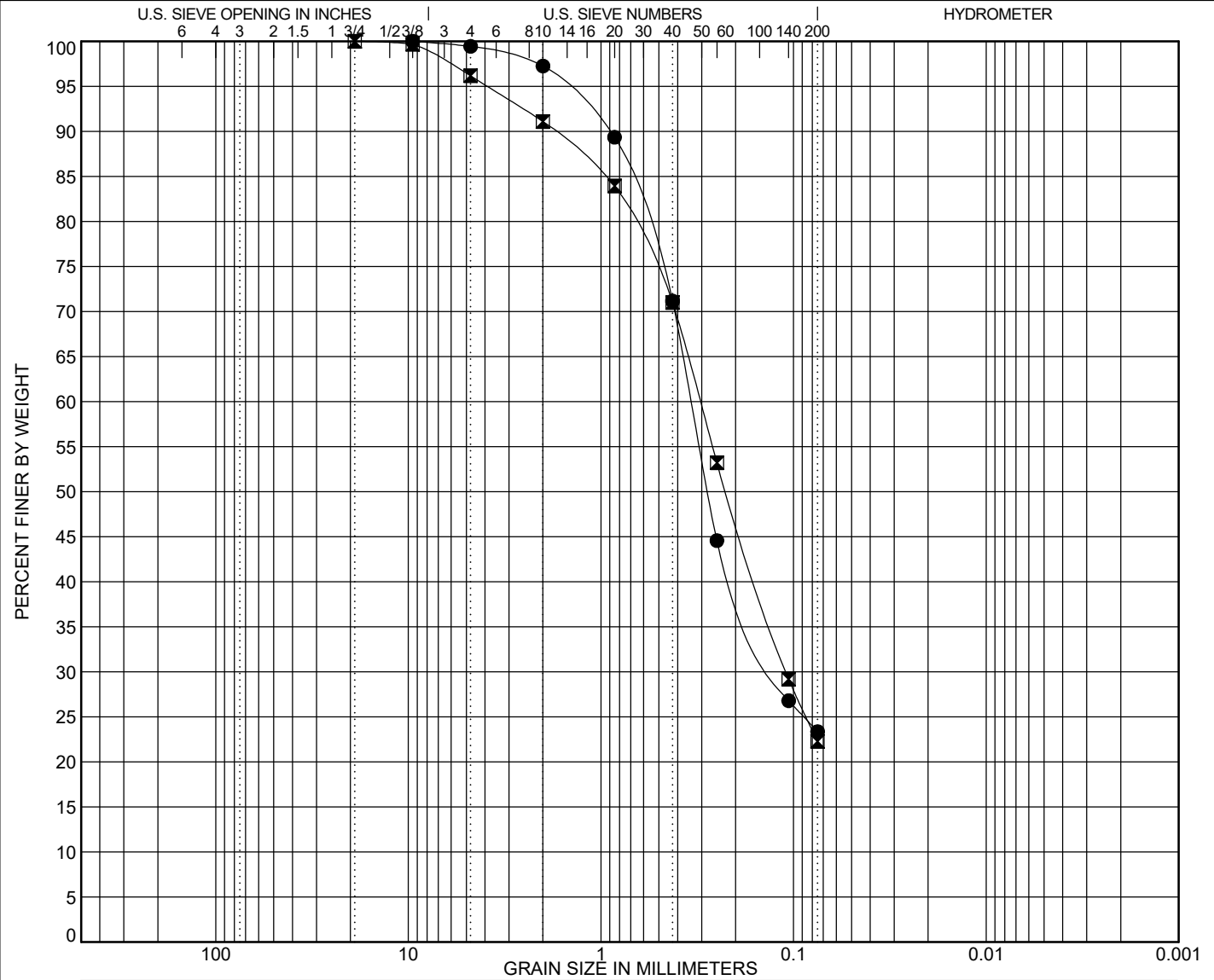
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-25S	33	SILTY SAND (SM-SC)	NP	NP	NP		
◻ PZ-25S	44	SILTY SAND (SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-25S	33	9.5	0.34	0.124		0.6	76.1	23.4	
◻ PZ-25S	44	19	0.306	0.109		3.8	73.9	22.3	

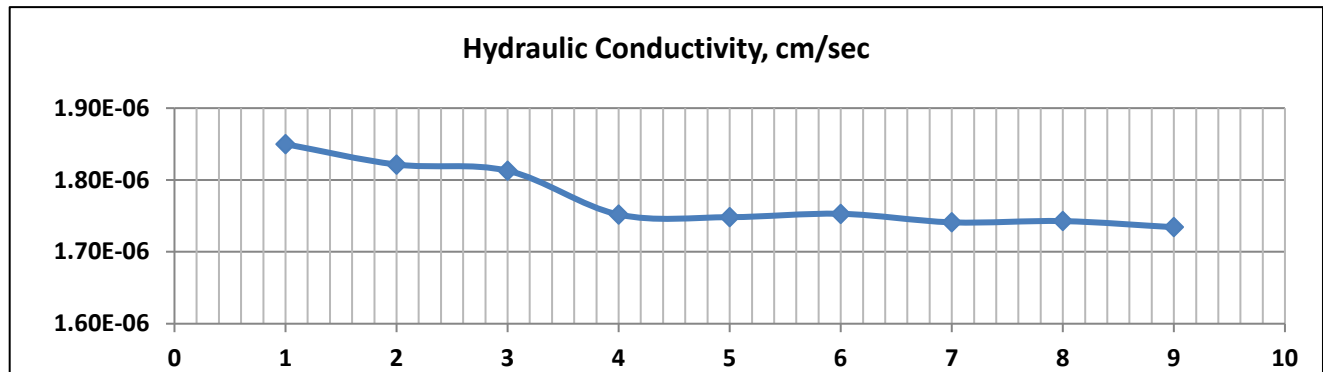
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-26S (17'-19')
Sample Location :	PZ-26S (17'-19') UD-01	Date Sampled:	9/31/2015
Northing:	--	Easting:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	122.6	Chamber	92	Wet Density, pcf	115.8
Dry Density, pcf	94.9	Head	79	Dry Density, pcf	95.2
Moisture Content, %	29.3	Tail	77	Moisture Content, %	21.7
Void ratio, e	0.803	Conso.	14	Void ratio, e	0.797
Porosity, n	0.445	Soil Specific Gravity		Porosity, n	0.443
Saturation, Percent	99.9	Gs	2.741	Saturation, Percent	74.5
Hydraulic Gradient, i	9.8	Proctor Referenced		Hydraulic Gradient, i	8.9
Sample Length, Inches	5.645	--		Sample Length, Inches	5.601
Sample Volume, cc	590.4383	--		Sample Volume, cc	588.1194
B-value :	100.0%	Sample Consolidated During Saturation, %		0.78%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	10.00	1.9741	1.85E-06	20
2	20.00	1.9494	1.82E-06	20
3	30.00	1.9249	1.81E-06	20
4	40.00	1.9038	1.75E-06	20
5	50.00	1.8807	1.75E-06	20
6	60.00	1.8574	1.75E-06	20
7	70.00	1.8357	1.74E-06	20
8	80.00	1.8131	1.74E-06	20
9	90.00	1.7920	1.73E-06	20

Hydraulic Conductivity, cm/sec

1.73E-06



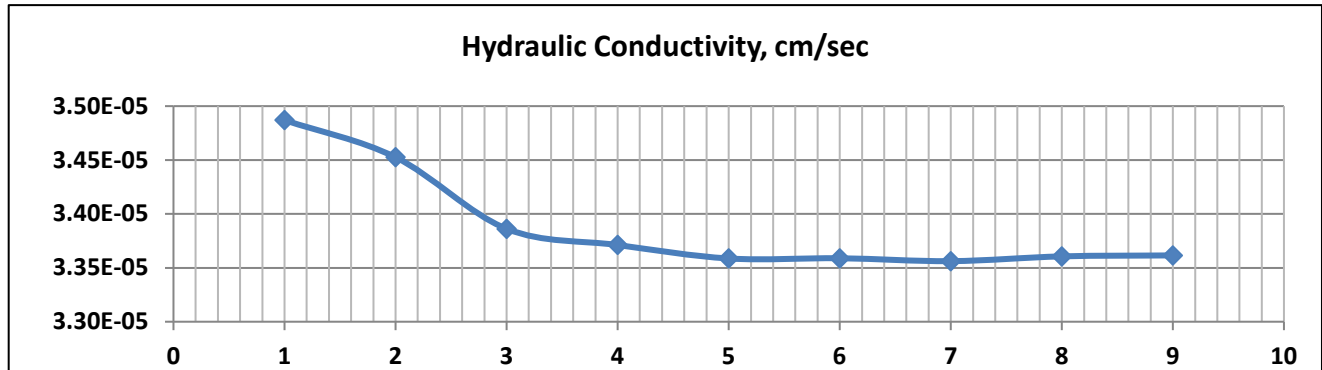
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-26S (27'-29')
Sample Location :	PZ-26S (27'-29') UD-02	Date Sampled:	9/31/15
Northing: --	Easting: --	Elevation:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	120.1	Chamber	101	Wet Density, pcf	119.2
Dry Density, pcf	92.5	Head	79	Dry Density, pcf	92.5
Moisture Content, %	29.8	Tail	77	Moisture Content, %	28.8
Void ratio, e	0.834	Conso.	23	Void ratio, e	0.834
Porosity, n	0.455	Soil Specific Gravity		Porosity, n	0.455
Saturation, Percent	97.1	Gs	2.720	Saturation, Percent	94.1
Hydraulic Gradient, i	9.8	Proctor Referenced		Hydraulic Gradient, i	8.0
Sample Length, Inches	5.623	--		Sample Length, Inches	5.619
Sample Volume, cc	570.3925	--		Sample Volume, cc	570.1895
B-value :	100.0%	Sample Consolidated During Saturation, %		0.07%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	1.00	1.9538	3.49E-05	20
2	2.00	1.9096	3.45E-05	20
3	3.00	1.8685	3.39E-05	20
4	4.00	1.8273	3.37E-05	20
5	5.00	1.7873	3.36E-05	20
6	6.00	1.7475	3.36E-05	20
7	7.00	1.7089	3.36E-05	20
8	8.00	1.6705	3.36E-05	20
9	9.00	1.6332	3.36E-05	20

Hydraulic Conductivity, cm/sec

3.36E-05



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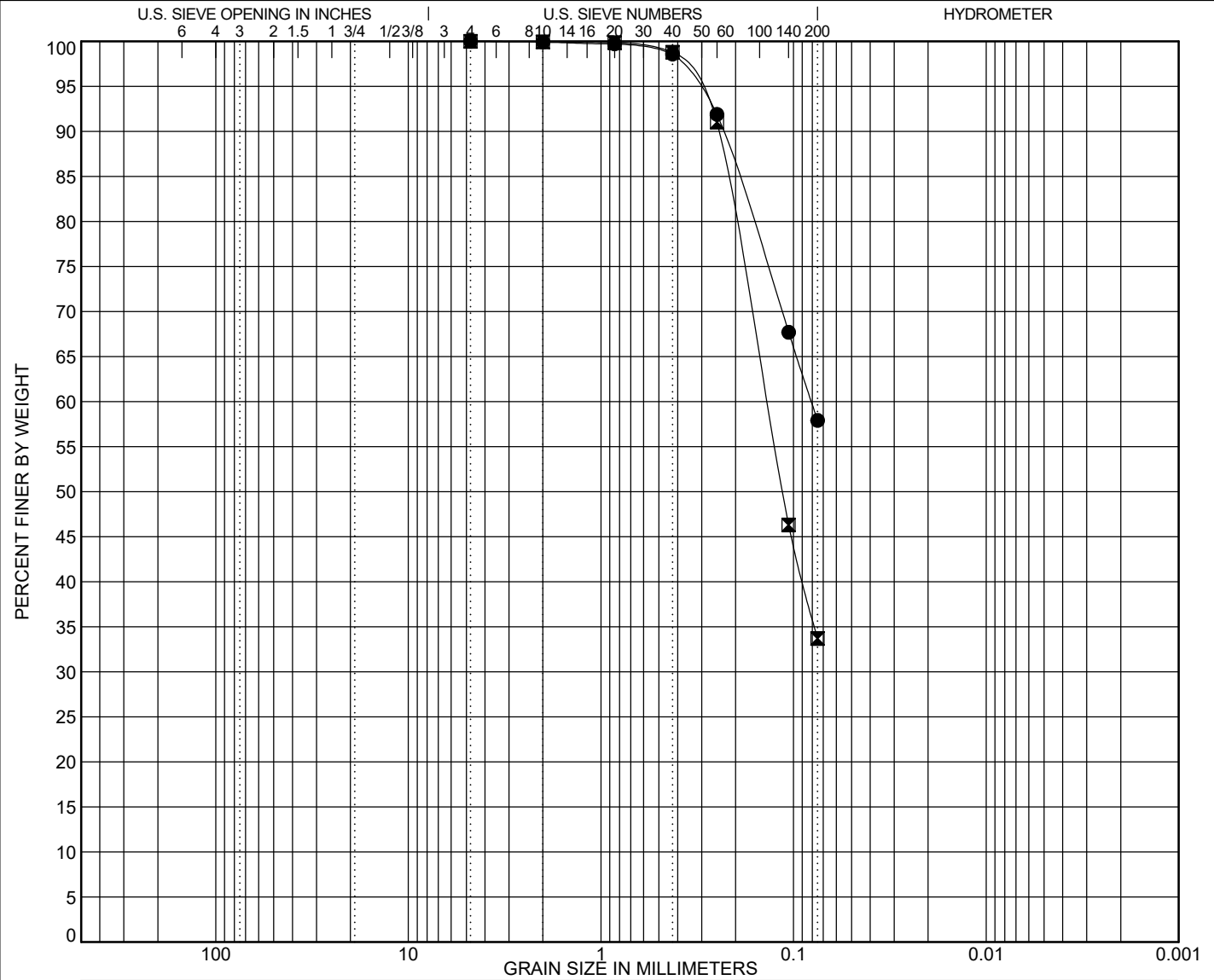
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-26s	17	SANDY SILT (ML)	37	27	10		
✕ PZ-26s	27	SILTY SAND (SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-26s	17	4.75	0.081			0.0	42.1	57.9	
✕ PZ-26s	27	4.75	0.138			0.0	66.3	33.7	

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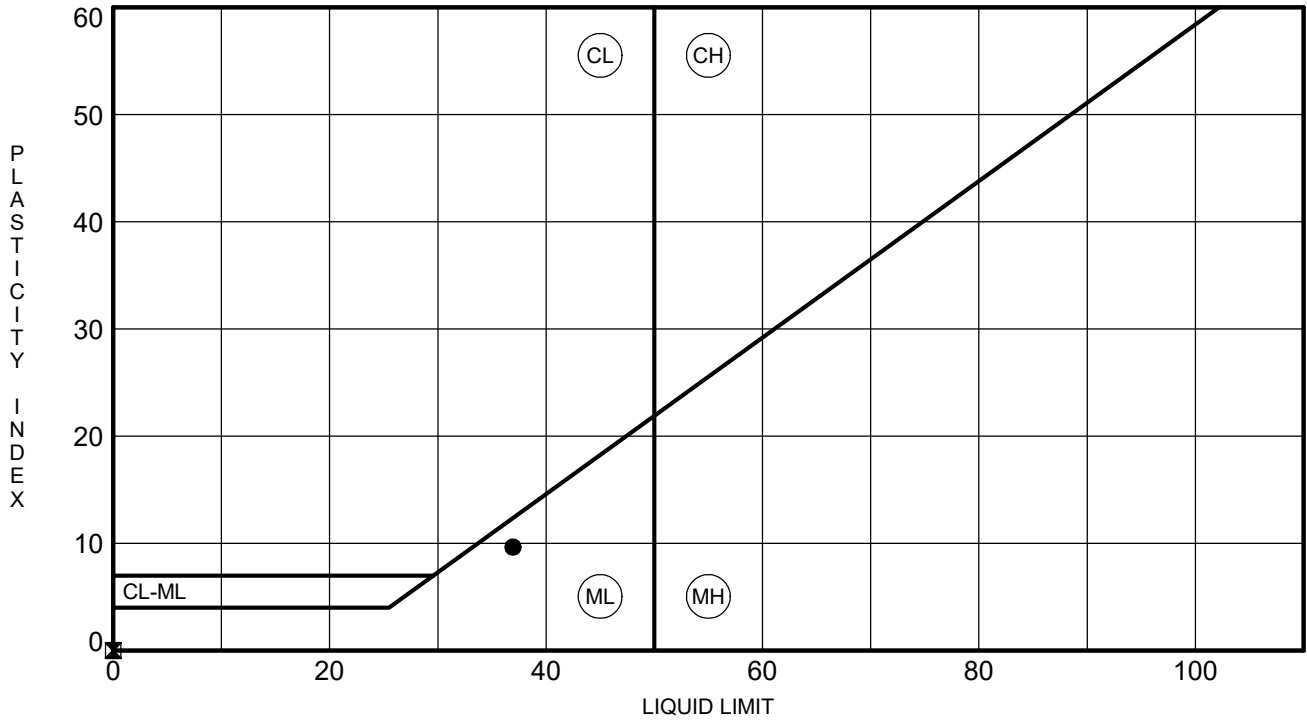
ATTERBERG LIMITS RESULTS

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



ATTERBERG LIMITS - GINT STD US LAB.GDT - 10/27/15 11:29 - S:\TRADITIONAL\BIRMINGHAM LAB\SOUTHERN COMPANY\PLANT YATES PIEZOMETERS\GINT\PLANT YATES PIEZOMETERS.GPJ

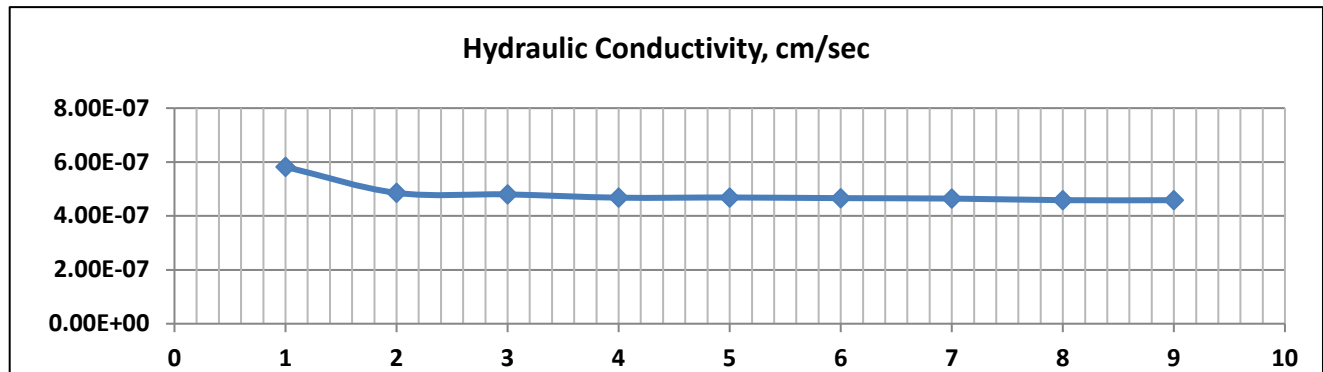
BOREHOLE	DEPTH	LL	PL	PI	%M	Fines	Classification
● PZ-26s	17	37	27	10		58	SANDY SILT (ML)
☒ PZ-26s	27	NP	NP	NP		34	SILTY SAND (SM-SC)

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-27S (17'-19')
Sample Location :	PZ-27S (17'-19') UD-01	Date Sampled:	10/07/15
Northing:	--	Easting:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	126.5	Chamber	93	Wet Density, pcf	126.1
Dry Density, pcf	99.6	Head	79	Dry Density, pcf	99.8
Moisture Content, %	27.0	Tail	77	Moisture Content, %	26.3
Void ratio, e	0.667	Conso.	15	Void ratio, e	0.663
Porosity, n	0.400	Soil Specific Gravity		Porosity, n	0.399
Saturation, Percent	107.7	Gs	2.661	Saturation, Percent	105.7
Hydraulic Gradient, i	9.8	Proctor Referenced		Hydraulic Gradient, i	9.6
Sample Length, Inches	5.635	--		Sample Length, Inches	5.603
Sample Volume, cc	578.7582	--		Sample Volume, cc	577.1055
B-value :	97.0%	Sample Consolidated During Saturation, %		0.57%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	10.00	1.9917	5.82E-07	20
2	20.00	1.9861	4.86E-07	20
3	30.00	1.9794	4.80E-07	20
4	40.00	1.9733	4.68E-07	20
5	50.00	1.9666	4.68E-07	20
6	60.00	1.9602	4.66E-07	20
7	70.00	1.9538	4.64E-07	20
8	80.00	1.9480	4.58E-07	20
9	90.00	1.9416	4.58E-07	20

Hydraulic Conductivity, cm/sec

4.58E-07



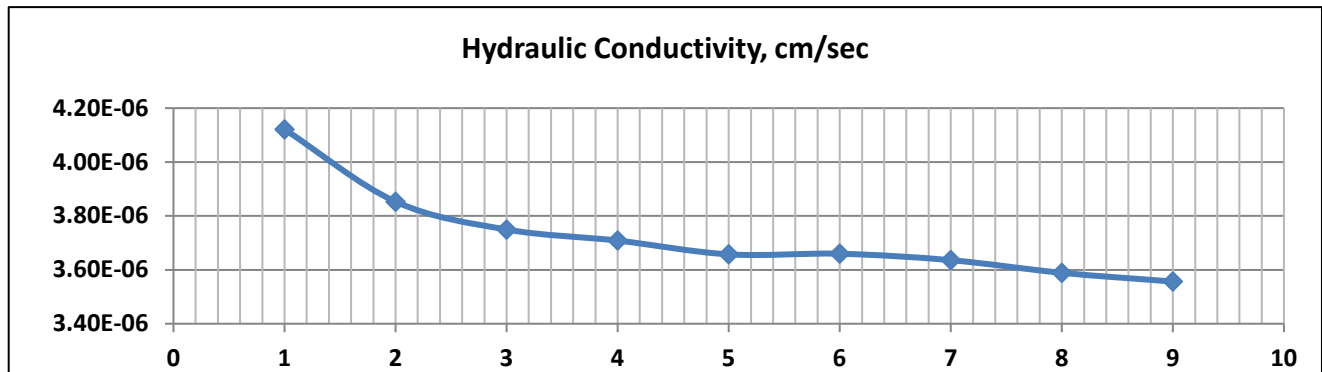
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Alabaster, Alabama 35007

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-27S (27'-29')
Sample Location :	PZ-27S (27'-29') UD-02	Date Sampled:	10/07/15
Northing:	--	Easting:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	120.0	Chamber	98	Wet Density, pcf	119.6
Dry Density, pcf	91.1	Head	79	Dry Density, pcf	91.3
Moisture Content, %	31.7	Tail	77	Moisture Content, %	31.0
Void ratio, e	0.831	Conso.	20	Void ratio, e	0.827
Porosity, n	0.454	Soil Specific Gravity		Porosity, n	0.453
Saturation, Percent	101.9	Gs	2.673	Saturation, Percent	100.2
Hydraulic Gradient, i	9.8	Proctor Referenced		Hydraulic Gradient, i	8.8
Sample Length, Inches	5.657	--		Sample Length, Inches	5.629
Sample Volume, cc	576.1263	--		Sample Volume, cc	574.6934
B-value :	99.0%	Sample Consolidated During Saturation, %		0.49%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	5.00	1.9725	4.12E-06	20
2	10.00	1.9488	3.85E-06	20
3	15.00	1.9258	3.75E-06	20
4	20.00	1.9027	3.71E-06	20
5	25.00	1.8807	3.66E-06	20
6	30.00	1.8576	3.66E-06	20
7	35.00	1.8359	3.64E-06	20
8	40.00	1.8159	3.59E-06	20
9	45.00	1.7959	3.56E-06	20

Hydraulic Conductivity, cm/sec

3.56E-06



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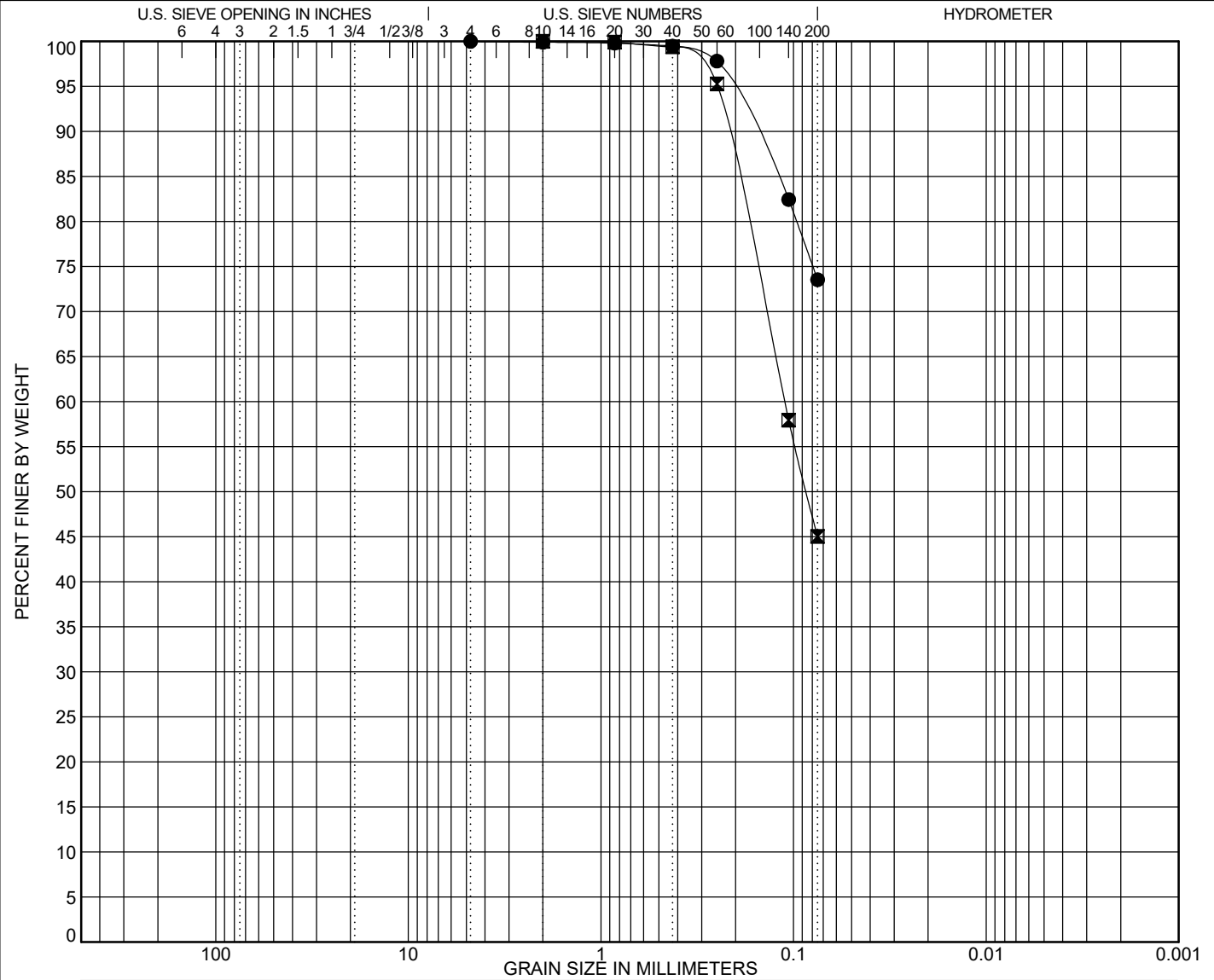
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-27s	17	SILT with SAND (ML)	39	30	9		
☒ PZ-27s	27	SILTY SAND(SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-27s	17	4.75				0.0	26.5	73.5	
☒ PZ-27s	27	2	0.111			0.0	55.0	45.0	

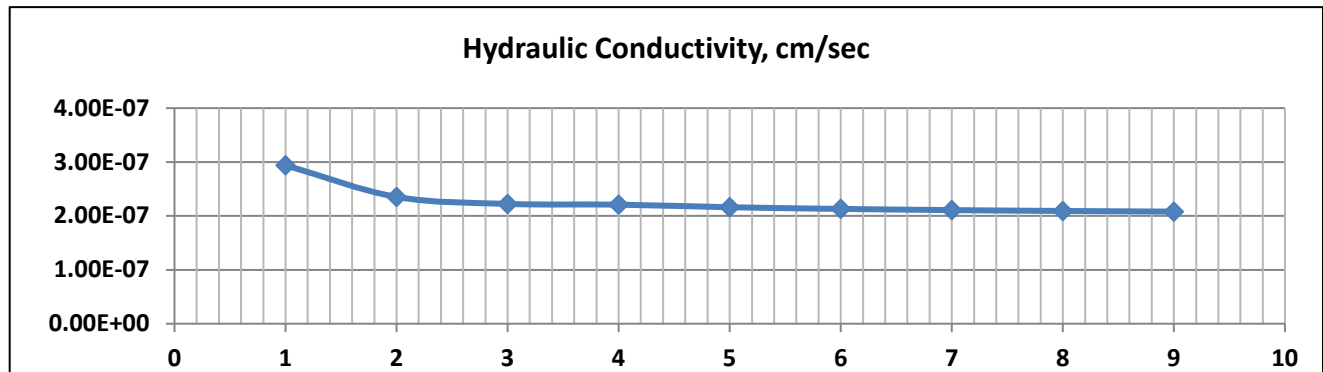
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-28S (17'-19')
Sample Location :	PZ-28S (17'-19') UD-01	Date Sampled:	No Date
Northing:	--	Easting:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	124.6	Chamber	93	Wet Density, pcf	126.0
Dry Density, pcf	100.8	Head	79	Dry Density, pcf	100.9
Moisture Content, %	23.6	Tail	77	Moisture Content, %	24.9
Void ratio, e	0.597	Conso.	15	Void ratio, e	0.594
Porosity, n	0.374	Soil Specific Gravity		Porosity, n	0.373
Saturation, Percent	102.2	Gs	2.578	Saturation, Percent	108.0
Hydraulic Gradient, i	9.9	Proctor Referenced		Hydraulic Gradient, i	9.8
Sample Length, Inches	5.606	--		Sample Length, Inches	5.584
Sample Volume, cc	568.1281	--		Sample Volume, cc	567.0091
B-value :	99.0%	Sample Consolidated During Saturation, %		0.39%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	10.00	1.9958	2.94E-07	20
2	20.00	1.9933	2.35E-07	20
3	30.00	1.9905	2.22E-07	20
4	40.00	1.9875	2.21E-07	20
5	50.00	1.9847	2.16E-07	20
6	60.00	1.9819	2.13E-07	20
7	70.00	1.9791	2.11E-07	20
8	80.00	1.9764	2.09E-07	20
9	90.00	1.9736	2.08E-07	20

Hydraulic Conductivity, cm/sec

2.08E-07



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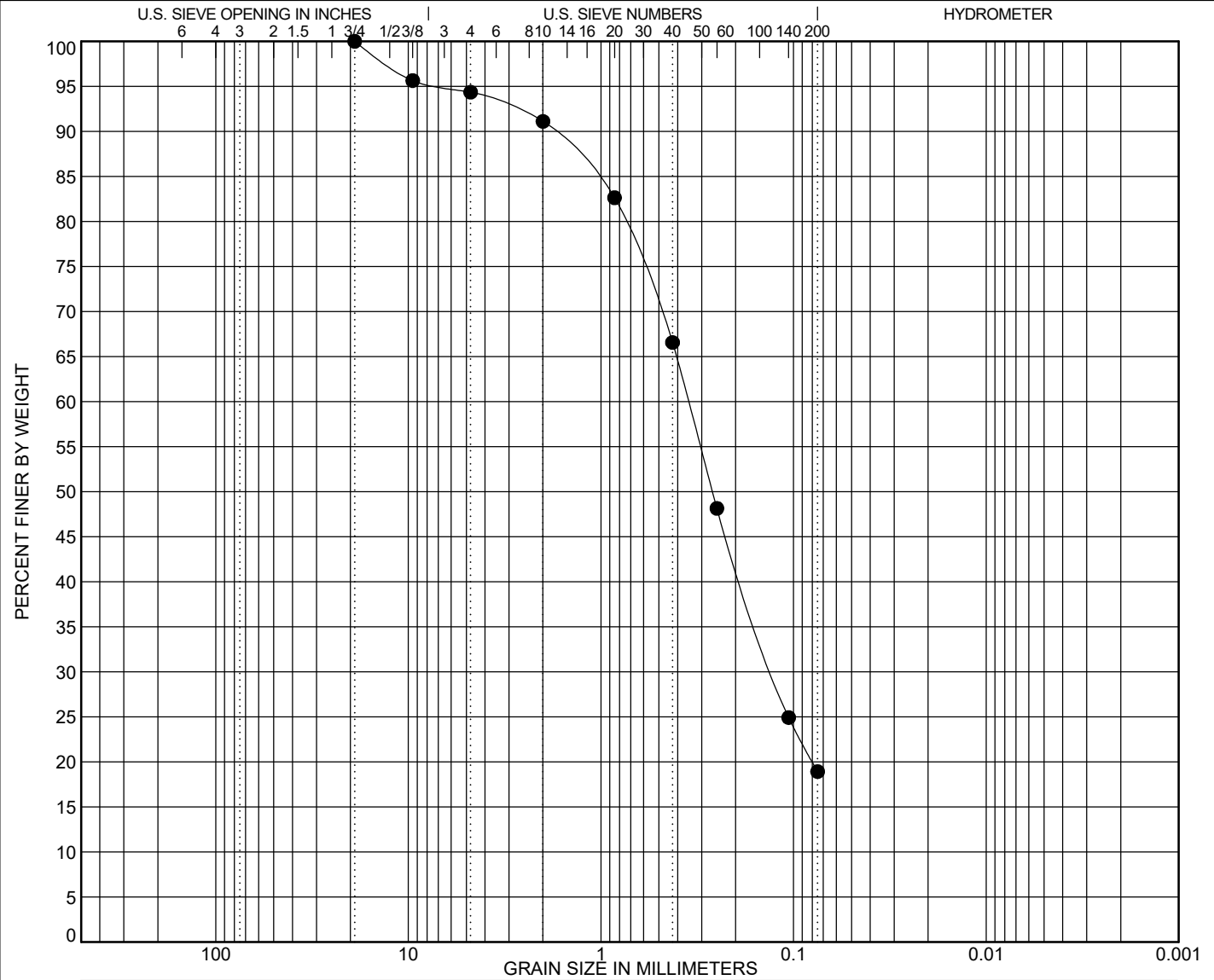
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-28s	17	SILTY SAND (SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-28s	17	19	0.352	0.128		5.7	75.4	18.9	

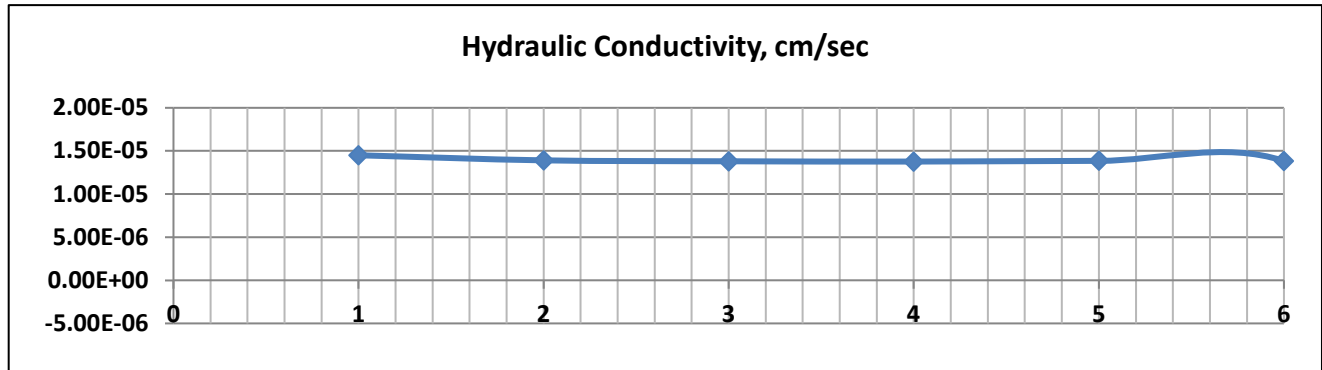
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-30S (27'-29')
Sample Location :	PZ-30S (27'-29') UD-01	Date Sampled:	09/23/15
Northing:	--	Easting:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	122.4	Chamber	101	Wet Density, pcf	124.0
Dry Density, pcf	99.7	Head	79	Dry Density, pcf	100.5
Moisture Content, %	22.7	Tail	77	Moisture Content, %	23.5
Void ratio, e	0.696	Conso.	23	Void ratio, e	0.683
Porosity, n	0.410	Soil Specific Gravity		Porosity, n	0.406
Saturation, Percent	88.5	Gs	2.710	Saturation, Percent	93.1
Hydraulic Gradient, i	10.0	Proctor Referenced		Hydraulic Gradient, i	7.5
Sample Length, Inches	5.538	--		Sample Length, Inches	5.450
Sample Volume, cc	580.1959	--		Sample Volume, cc	575.5133
B-value :	100.0%	Sample Consolidated During Saturation, %		1.59%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2, psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	5.00	1.8985	1.45E-05	20
2	10.00	1.8098	1.39E-05	20
3	15.00	1.7236	1.38E-05	20
4	20.00	1.6410	1.38E-05	20
5	25.00	1.5596	1.38E-05	20
6	30.00	1.4842	1.38E-05	20
7	0.00			20
8	0.00			20
9	0.00			20

Hydraulic Conductivity, cm/sec

1.38E-05



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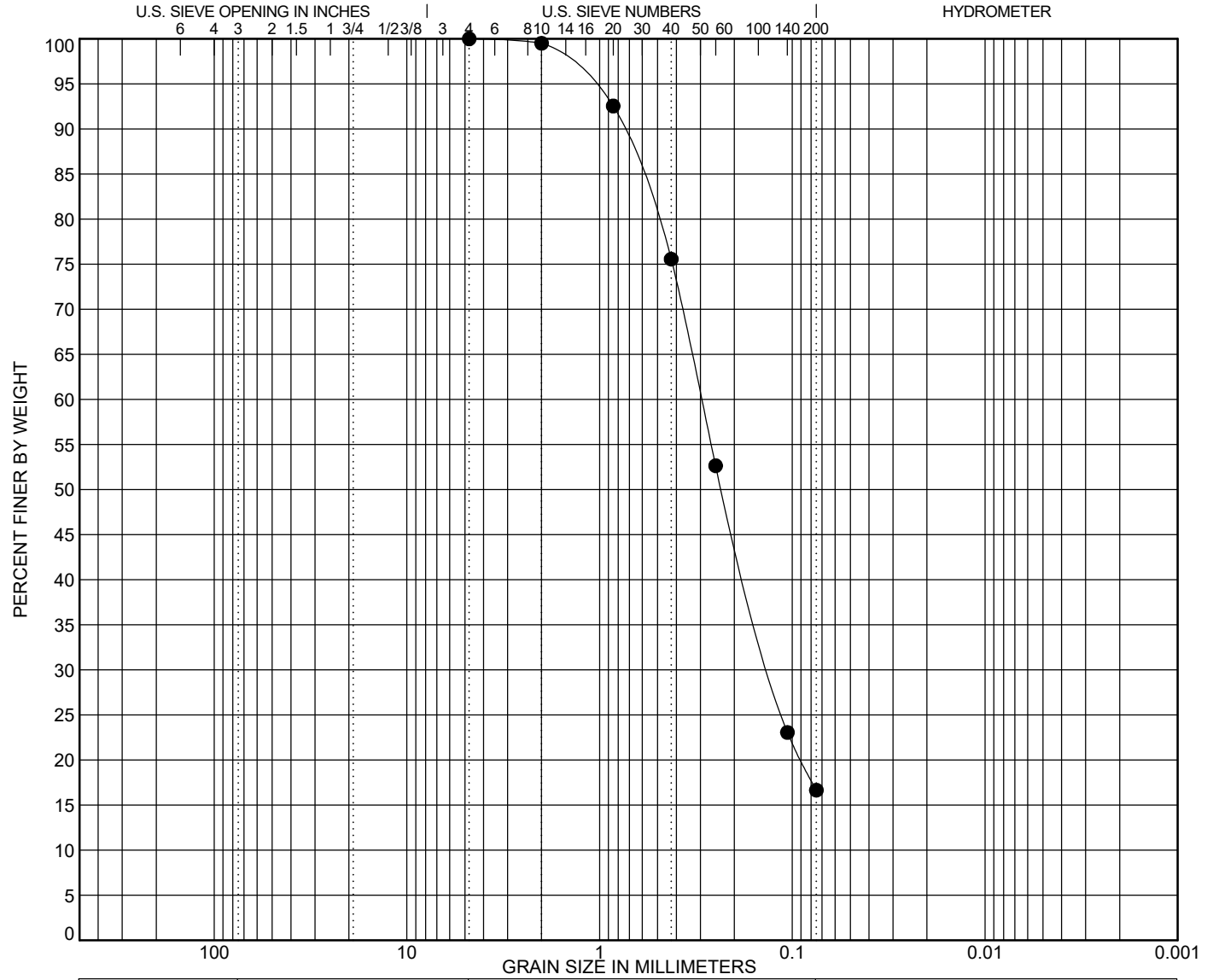
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-30s	27	SILTY SAND (SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-30s	27	4.75	0.296	0.13		0.0	83.4	16.6	

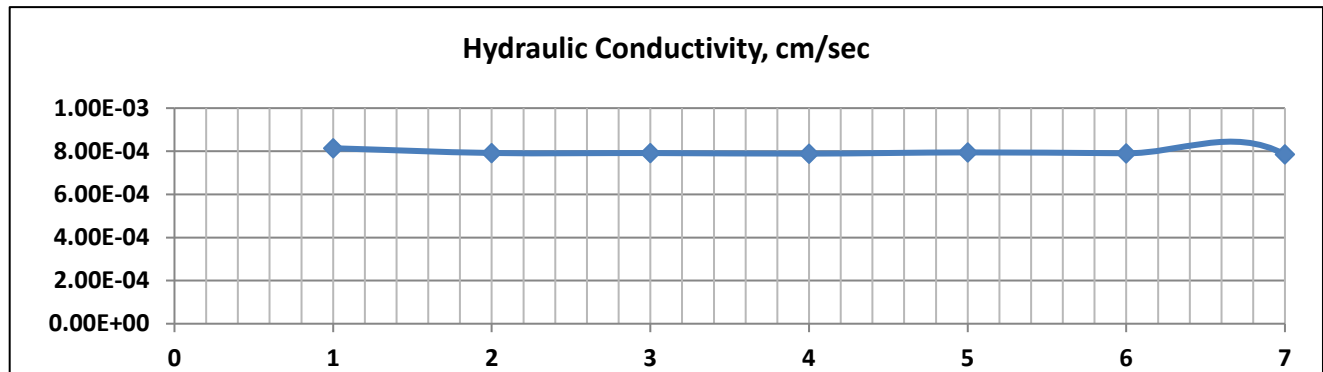
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Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

ASTM D 5084-10

Project :	Plant Yates Piezometers	Project Number:	Z003000203
Client :	Southern Company Services, INC	Sample Number :	PZ-31S (44'-46')
Sample Location :	PZ-31S (44'-46')	Date Sampled:	09/03/15
Northing:	--	Easting:	--
Sample Preparation:	Shelby Tube Pushed	Permeant Liquid :	De-Aired Tap Water

Initial Sample Conditions		Initial Working Pressures, psi		Final Sample Conditions	
Wet Density, pcf	99.9	Chamber	83	Wet Density, pcf	108.3
Dry Density, pcf	79.1	Head	79	Dry Density, pcf	79.2
Moisture Content, %	26.3	Tail	77	Moisture Content, %	36.7
Void ratio, e	1.092	Conso.	5	Void ratio, e	1.089
Porosity, n	0.522	Soil Specific Gravity		Porosity, n	0.521
Saturation, Percent	63.8	Gs	2.653	Saturation, Percent	89.3
Hydraulic Gradient, i	9.9	Proctor Referenced		Hydraulic Gradient, i	7.2
Sample Length, Inches	5.617	--		Sample Length, Inches	5.598
Sample Volume, cc	583.669	--		Sample Volume, cc	582.6785
B-value :	98.0%	Sample Consolidated During Saturation, %		0.34%	



Start Test @ t=0	Cum. Time Δ t, min.	Head Loss, Δh2 psi	Hydraulic Conductivity, k (Permeability)	
0	0.00	2.0000	cm/sec	°C
1	0.08	1.9099	8.14E-04	20
2	0.17	1.8284	7.92E-04	20
3	0.25	1.7484	7.92E-04	20
4	0.33	1.6727	7.89E-04	20
5	0.42	1.5971	7.95E-04	20
6	0.50	1.5290	7.90E-04	20
7	0.58	1.4653	7.85E-04	20
8	0.67			20
9	0.75			20

Hydraulic Conductivity, cm/sec

7.85E-04



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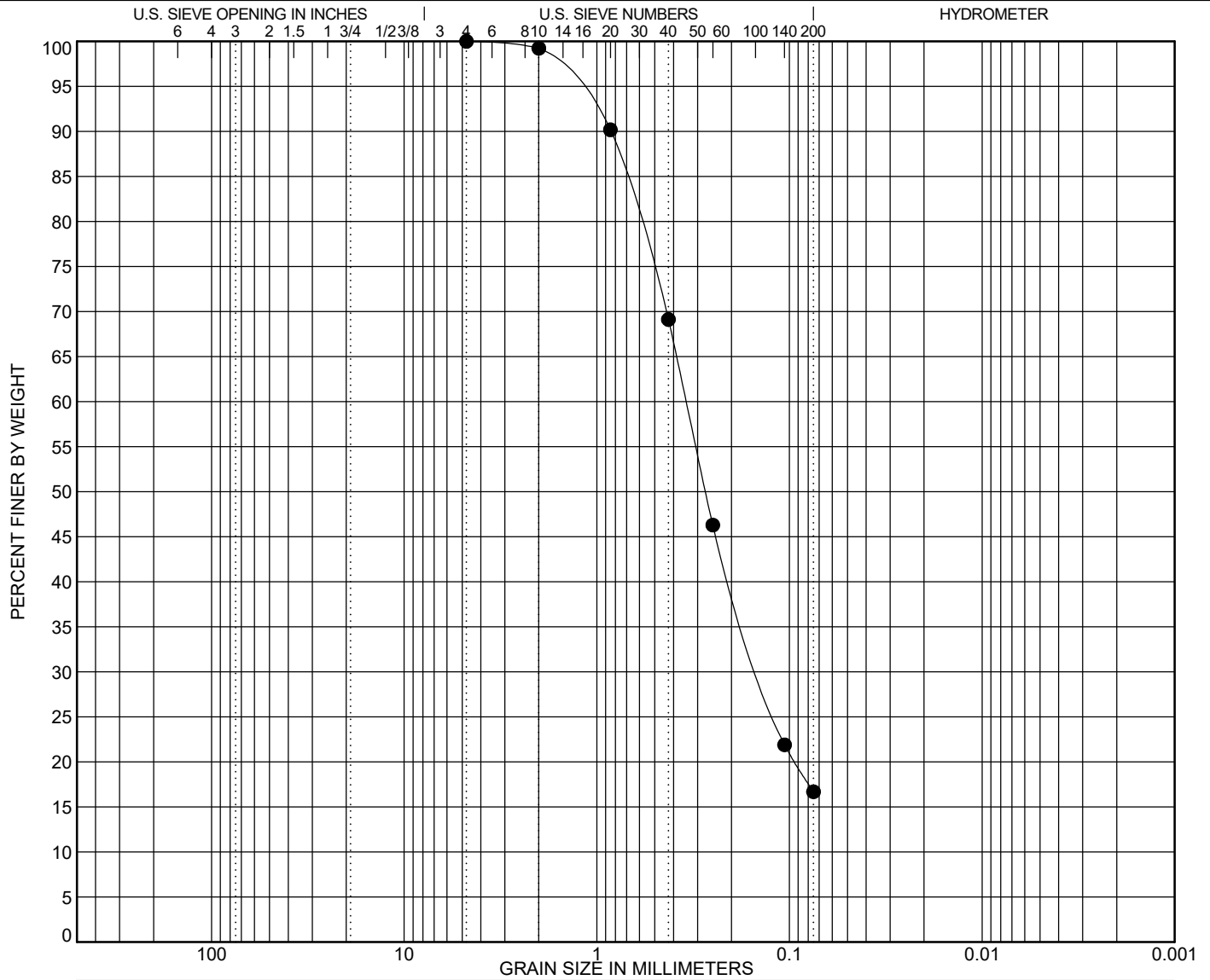
GRAIN SIZE DISTRIBUTION

CLIENT Southern Company Services

PROJECT NAME Plant Yates Piezometers

PROJECT NUMBER Z003000203

PROJECT LOCATION Newnan, GA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● PZ-31s	7	SILTY SAND (SM-SC)	NP	NP	NP		

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● PZ-31s	7	4.75	0.344	0.141		0.0	83.3	16.7	

GRAIN SIZE - GINT STD US LAB.GDT - 10/27/15 11:30 - S:\TRADITIONAL\BIRMINGHAM LAB\SOUTHERN COMPANY\PLANT YATES PIEZOMETERS\GINT\PLANT YATES PIEZOMETERS.GPJ

**APPENDIX D
HISTORICAL POTENTIOMETRIC MAPS
(2016 – 2018)
AND WATER LEVEL DATA**



ATLANTIC COAST CONSULTING, INC.
 1150 Northmeadow Pkwy.
 Suite 100
 Roswell, GA 30076
 770.594.5998
 www.atlcc.net

PROJECT:
 PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

Drawn by: MM Checked by: EP

PROJECT NUMBER:
 I054-110
 November 2016

NOVEMBER 2016
 WATER TABLE
 CONTOUR MAP

FIGURE C-1

Summary of Groundwater Elevations
 Plant Yates
 R6 CCR Landfill
 November 2016 Sampling Event

Monitoring Well ID	Total Depth (ft BTCC)	Top of Casing (ft MSL)	Depth to Water (ft BTCC)	Groundwater Elevation (ft MSL)
YGWA-11	49.70	784.18	26.06	758.12
YGWA-51	58.50	784.53	22.24	762.29
YGWA-5D	131.60	784.53	15.21	769.32
YGWA-6S	30.00	782.28	22.48	759.80
YGWA-61	69.10	782.58	22.74	759.84
YGWA-17S	39.97	783.03	15.98	767.05
YGWA-18S	39.86	780.53	23.76	766.77
YGWA-181	70.67	780.56	26.08	764.48
YGWA-20S	29.71	767.30	9.94	757.36
YGWA-211	80.07	783.62	31.29	752.33
YGWA-21S	30.43	764.48	18.12	746.36
YGWA-25S	40.14	751.60	10.30	741.30
YGWA-23S	39.18	764.02	17.45	746.57
YGWA-24S	57.01	764.12	29.14	734.98
YGWA-32S	22.90	757.31	17.24	740.07
YGWA-321	39.97	758.21	20.12	738.09
YGWA-33S	38.73	744.54	9.30	735.24
YGWA-341	38.69	773.67	25.29	748.38
YGWA-36	60.00	780.54	10.67	769.87
YGWA-39	79.00	782.72	32.57	750.15
PZ-04S	33.67	784.53	27.44	757.09
PZ-05S	42.05	784.64	22.37	762.27
PZ-06S	136.34	781.03	25.00	756.03
PZ-241	89.60	764.13	24.65	739.48
PZ-48	59.60	779.88	23.50	756.38

Notes: Depths to water measured within a 24 hour period October 31, 2016
 ft MSL = feet mean sea level
 ft BTCC = feet below top of casing



Summary of Groundwater Elevations
 Plant Yates
 Ash Ponds 3, A, B/B'
 November 2016 Sampling Event

Monitoring Well ID	Total Depth (ft BTCC)	Top of Casing (ft MSL)	Depth to Water (ft BTCC)	Groundwater Elevation (ft MSL)
YGWA-41	49.70	784.18	26.06	758.12
YGWA-51	58.50	784.53	22.24	762.29
YGWA-5D	131.60	784.53	15.21	769.32
YGWA-6S	30.00	782.28	22.48	759.80
YGWA-61	69.10	782.58	22.74	759.84
YGWA-17S	39.97	783.03	15.98	767.05
YGWA-18S	39.86	780.53	23.76	766.77
YGWA-181	70.67	780.56	26.08	764.48
YGWA-20S	29.71	767.30	9.94	757.36
YGWA-211	80.07	783.62	31.29	752.33
YGWA-21S	30.43	764.48	18.12	746.36
YGWA-25S	40.14	751.60	10.30	741.30
YGWA-23S	39.18	764.02	17.45	746.57
YGWA-24S	57.01	764.12	29.14	734.98
YGWA-32S	22.90	757.31	17.24	740.07
YGWA-321	39.97	758.21	20.12	738.09
YGWA-33S	38.73	744.54	9.30	735.24
YGWA-341	38.69	773.67	25.29	748.38
YGWA-36	60.00	780.54	10.67	769.87
YGWA-39	79.00	782.72	32.57	750.15
PZ-04S	33.67	784.53	27.44	757.09
PZ-05S	42.05	784.64	22.37	762.27
PZ-06S	136.34	781.03	25.00	756.03
PZ-241	89.60	764.13	24.65	739.48
PZ-48	59.60	779.88	23.50	756.38

Notes: Depths to water measured within a 24 hour period October 31, 2016
 ft MSL = feet mean sea level
 ft BTCC = feet below top of casing



NOTE:
 1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.
 2. AERIAL IMAGE FROM 2018.

LEGEND

EXISTING	DESCRIPTION
	RAILROAD
	ACCESS ROAD
	PERMITTED UNIT BOUNDARY
	WATER TABLE CONTOUR
	GROUNDWATER FLOW DIRECTION (INFERRED)
	GROUNDWATER MONITORING WELL
	CONTOUR ELEVATION
	PIEZOMETER
	CONTOUR ELEVATION

Scale: 1" = 600' (IN FEET)



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Summary of Groundwater Elevations
 Plant Yates
 R6 CCR Landfill
 January 2017 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-2	80.00	797.75	29.33	768.42
YGWA-5	50.00	794.89	14.80	780.09
PZ-37	46.80	767.73	12.75	754.98
PZ-38	50.00	799.45	32.28	767.17
PZ-39	65.00	792.55	26.55	766.00
PZ-40	48.00	792.55	29.25	763.30
PZ-41	67.00	803.53	29.25	774.28

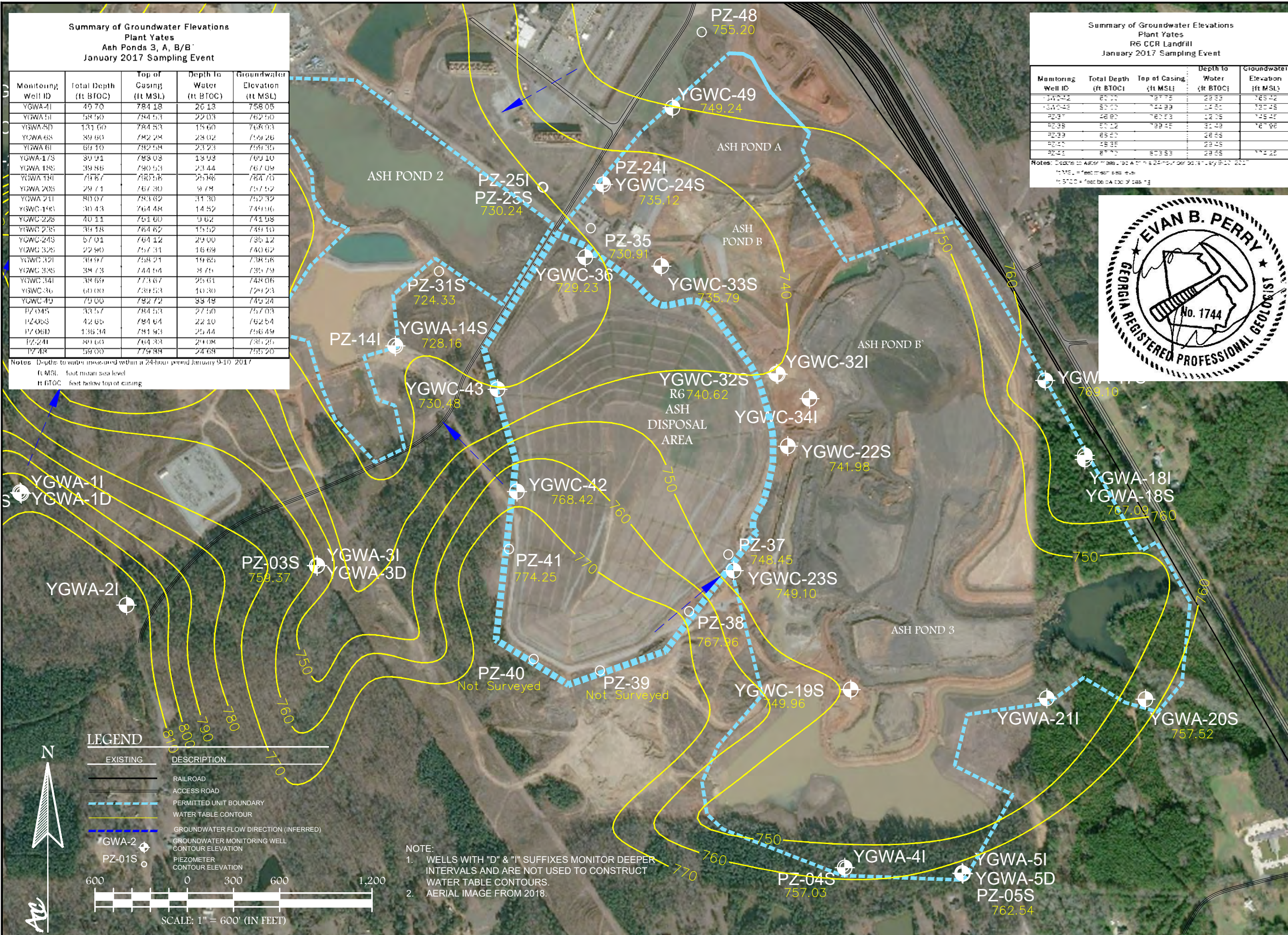
Notes: Depth to Water measured within a 24-hour period January 9-10, 2017.
 ft MSL = feet mean sea level.
 ft BTOC = feet below top of casing.



Summary of Groundwater Elevations
 Plant Yates
 Ash Ponds 3, A, B/B'
 January 2017 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-4I	49.70	784.18	26.13	758.05
YGWA-5I	58.50	784.53	22.03	762.50
YGWA-5IS	131.60	784.53	15.60	768.93
YGWA-6S	39.60	782.24	23.02	759.22
YGWA-6I	69.10	782.54	23.23	759.31
YGWA-17S	39.91	783.03	13.93	769.10
YGWA-18S	39.86	780.53	23.44	757.09
YGWA-18I	79.67	780.53	25.36	755.17
YGWA-20S	29.71	767.30	9.79	757.51
YGWA-21I	80.07	783.62	31.30	752.32
YGWA-19S	30.43	764.48	14.52	749.96
YGWA-22S	40.11	761.60	9.62	751.98
YGWA-23S	39.13	764.62	15.52	749.10
YGWA-24S	57.01	764.12	29.00	735.12
YGWA-32S	22.90	757.31	16.69	740.62
YGWA-32I	39.97	758.21	19.65	738.56
YGWA-33S	38.73	744.54	9.75	734.79
YGWA-34I	38.69	773.67	25.61	748.06
YGWA-36	60.00	739.53	10.30	729.23
YGWA-39	79.00	782.72	33.48	749.24
PZ-04S	33.57	784.53	27.50	757.03
PZ-06S	42.65	784.64	22.10	762.54
PZ-06I	136.34	781.93	25.44	756.49
PZ-24I	89.60	764.33	29.08	735.25
PZ-48	59.00	779.89	24.68	755.21

Notes: Depth to water measured within a 24-hour period January 9-10, 2017.
 ft MSL = foot mean sea level.
 ft BTOC = feet below top of casing.



PROJECT:
PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

Drawn by: MM Checked by: EP

PROJECT NUMBER:
1054-110
 February 2017

JANUARY 2017 WATER TABLE CONTOUR MAP

FIGURE **C-2**

LEGEND

EXISTING	DESCRIPTION
	RAILROAD
	ACCESS ROAD
	PERMITTED UNIT BOUNDARY
	WATER TABLE CONTOUR
	GROUNDWATER FLOW DIRECTION (INFERRED)
	GROUNDWATER MONITORING WELL CONTOUR ELEVATION
	PIEZOMETER CONTOUR ELEVATION

SCALE: 1" = 600' (IN FEET)

NOTE:
 1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.
 2. AERIAL IMAGE FROM 2018.



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PROJECT:
 PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

Drawn by: MM Checked by: EP

PROJECT NUMBER:

I054-110
 March 2017

FEBRUARY 2017
 WATER TABLE
 CONTOUR MAP

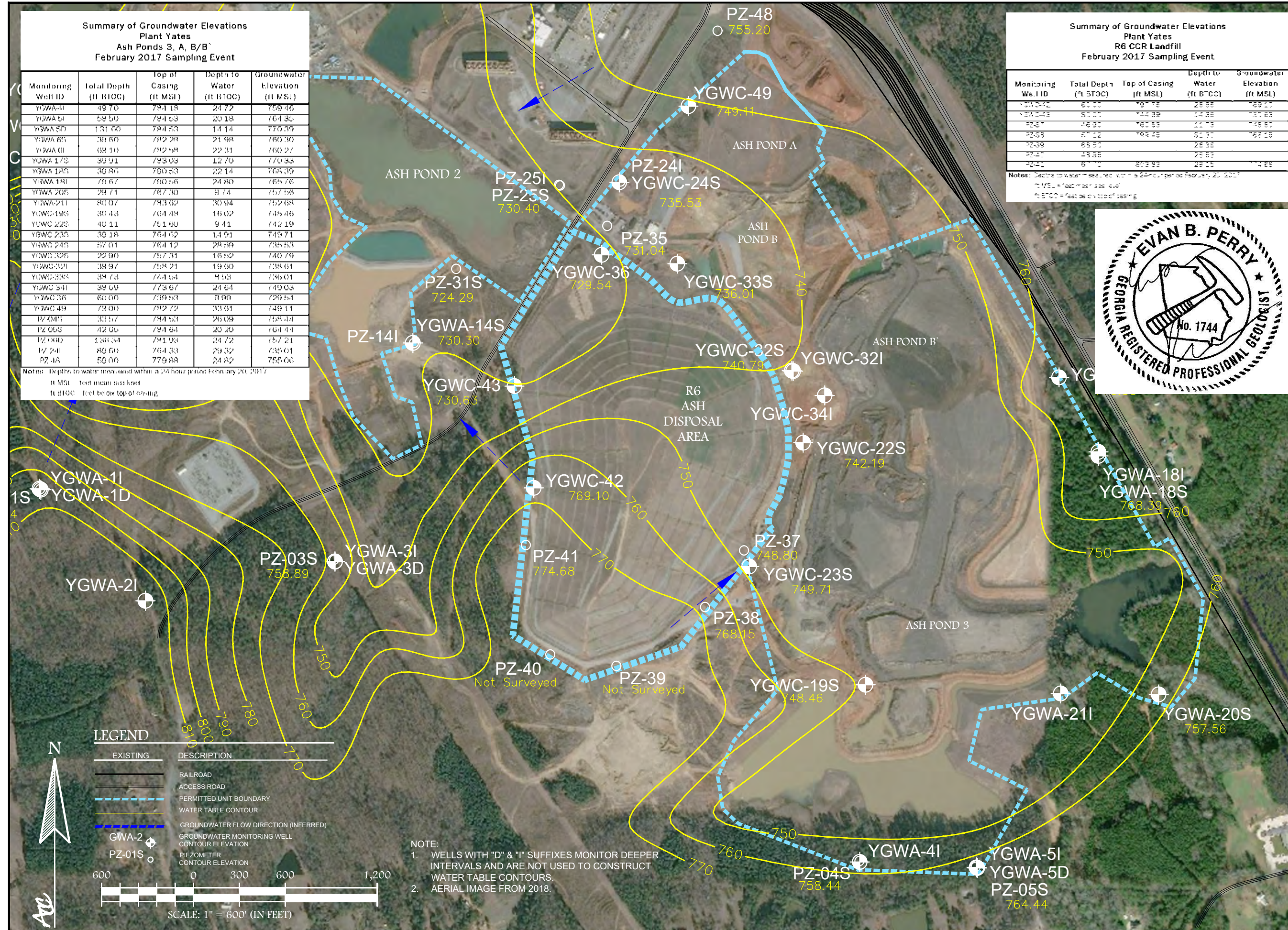
FIGURE C-3

Summary of Groundwater Elevations Plant Yates R6 CCR Landfill February 2017 Sampling Event				
Monitoring Well ID	Total Depth (ft BTCC)	Top of Casing (ft MSL)	Depth to Water (ft BTCC)	Groundwater Elevation (ft MSL)
YGWA-02	61.00	797.78	28.88	768.90
YGWA-05	82.00	794.89	24.88	769.99
PZ-07	26.90	760.55	22.73	737.82
PZ-09	27.22	799.25	62.90	736.35
PZ-39	68.57		28.88	
PZ-41	28.88		28.88	
PZ-42	67.70	803.88	28.25	775.63

Notes: Depths to water measured within a 24-hour period February 20, 2017.
 ft MSL = feet mean sea level.
 ft BTCC = feet below top of casing.

Summary of Groundwater Elevations Plant Yates Ash Ponds 3, A, B/B' February 2017 Sampling Event				
Monitoring Well ID	Total Depth (ft BTCC)	Top of Casing (ft MSL)	Depth to Water (ft BTCC)	Groundwater Elevation (ft MSL)
YGWA-11	49.70	784.18	24.72	759.46
YGWA-51	58.50	784.53	20.18	764.35
YGWA-5D	131.60	784.53	14.14	770.39
YGWA-6S	39.60	782.28	21.98	760.30
YGWA-6I	69.10	782.58	22.31	760.27
YGWA-17S	39.91	793.03	12.70	770.33
YGWA-18S	39.86	790.53	22.14	768.39
YGWA-18I	79.67	790.56	24.80	765.76
YGWA-20S	29.71	767.30	9.74	757.56
YGWA-21I	80.07	783.62	30.94	752.68
YGWA-19S	30.43	764.48	16.02	748.46
YGWC-22S	40.11	751.60	9.41	742.19
YGWC-23S	39.18	764.62	14.91	749.71
YGWC-24S	57.01	764.12	28.59	735.53
YGWC-32S	22.90	757.31	16.52	740.79
YGWC-32I	39.97	758.21	19.60	738.61
YGWC-33S	38.73	744.64	8.53	736.01
YGWC-34I	38.69	773.67	24.64	749.03
YGWC-36	60.00	739.53	9.99	729.54
YGWC-49	79.00	782.72	33.61	749.11
PZ-04S	33.57	784.53	26.09	758.44
PZ-05S	42.05	784.64	20.20	764.44
PZ-06D	136.34	783.93	24.72	759.21
PZ-24I	89.60	764.33	29.32	735.01
PZ-48	50.00	779.88	24.82	755.06

Notes: Depths to water measured within a 24-hour period February 20, 2017.
 ft MSL = feet mean sea level.
 ft BTCC = feet below top of casing.



NOTE:
 1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.
 2. AERIAL IMAGE FROM 2018.

LEGEND

EXISTING	DESCRIPTION
	RAILROAD
	ACCESS ROAD
	PERMITTED UNIT BOUNDARY
	WATER TABLE CONTOUR
	GROUNDWATER FLOW DIRECTION (INFERRED)
	GROUNDWATER MONITORING WELL
	PIEZOMETER
	CONTOUR ELEVATION

SCALE: 1" = 600' (IN FEET)



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PROJECT:
 PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

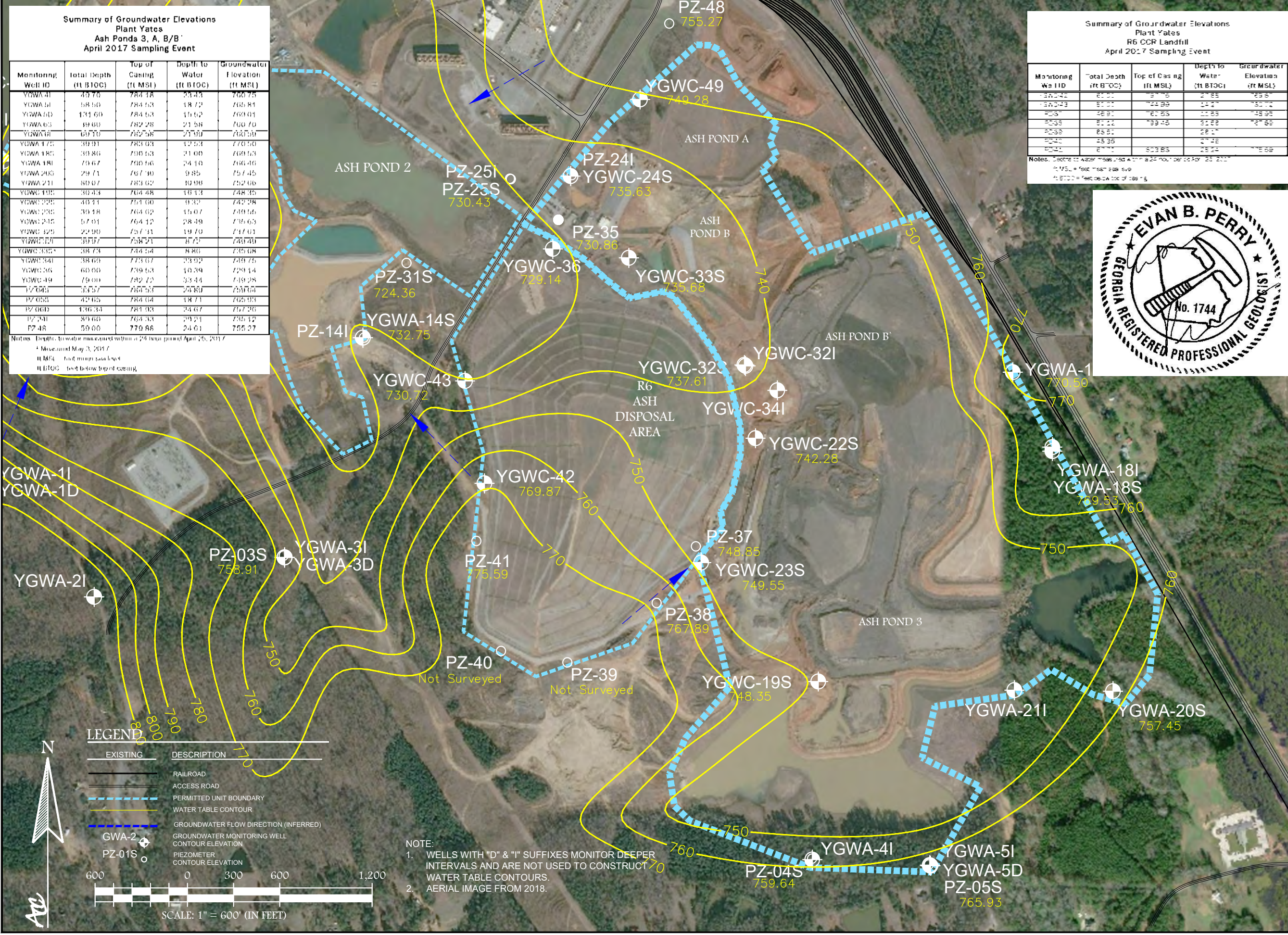
NO.	DATE	DESCRIPTION

Drawn by: MM Checked by: EP

PROJECT NUMBER:
 I054-110
 May 2017

APRIL 2017 WATER TABLE CONTOUR MAP

FIGURE C-4





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PROJECT:
 PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

Drawn by: MM Checked by: EP

PROJECT NUMBER:
 I054-110
 July 2017

JUNE 2017
 WATER TABLE
 CONTOUR MAP

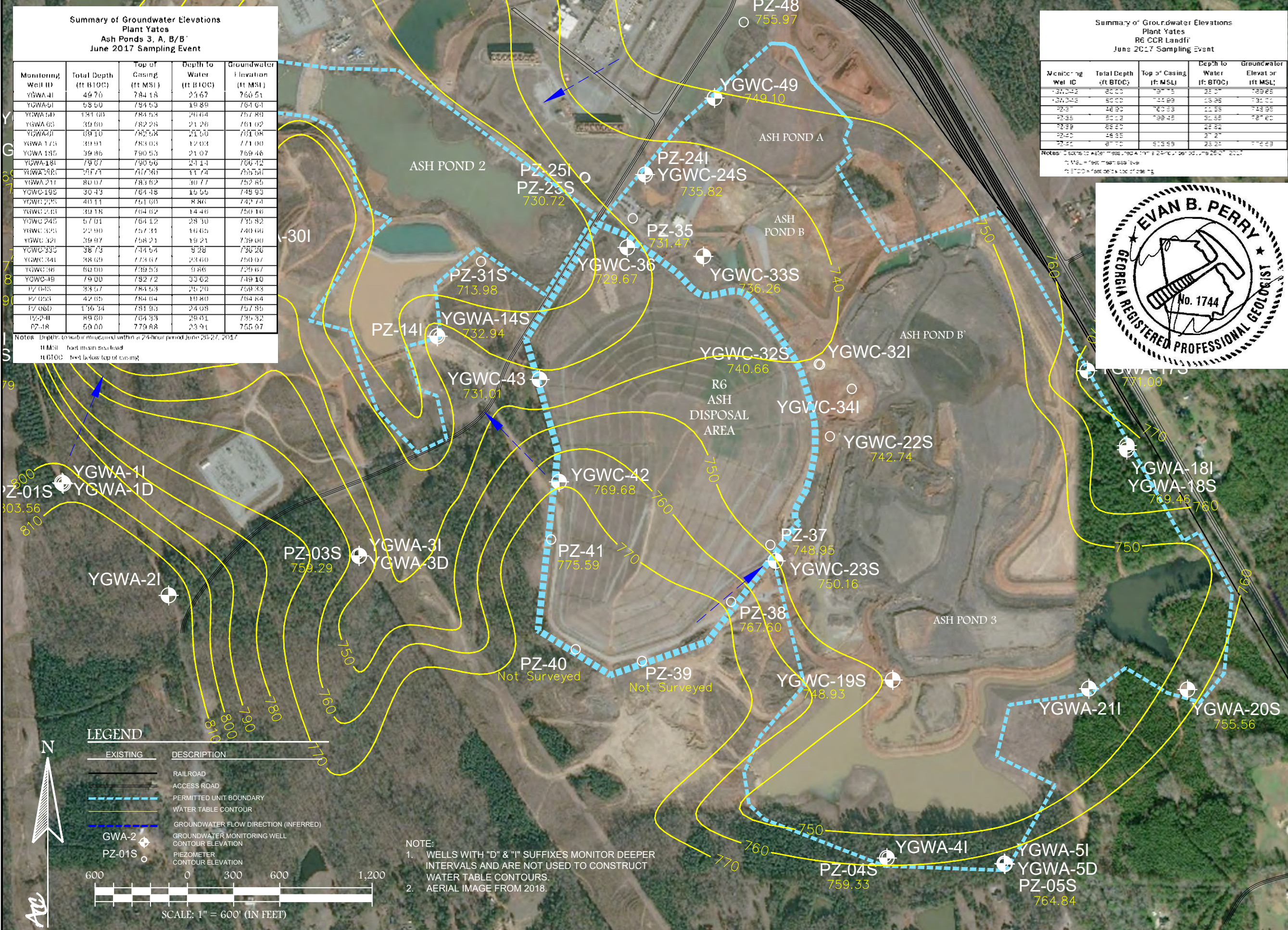
FIGURE C-5

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-2	82.00	797.75	25.37	772.38
YGWA-4	85.00	797.99	25.38	772.61
PZ-3	48.90	783.53	21.55	761.98
PZ-35	82.00	798.45	22.56	775.89
PZ-39	68.00	797.99	22.56	775.43
PZ-40	48.90	797.99	21.27	776.72
PZ-42	87.00	813.89	25.21	788.68

Notes: Elevations were measured within a 24-hour period June 26-27, 2017.
 MSL = feet mean sea level
 BTOC = feet below top of casing

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-41	49.70	784.18	21.67	762.51
YGWA-51	58.50	784.53	19.89	764.64
YGWA-51D	191.00	784.53	26.64	757.89
YGWA-61	39.60	782.28	21.26	761.02
YGWA-71	68.10	782.58	21.50	761.08
YGWA-173	39.91	783.03	12.03	771.00
YGWA-185	39.86	780.53	21.07	759.46
YGWA-181	79.67	790.56	21.14	769.42
YGWA-205	59.71	787.30	11.74	775.56
YGWA-211	80.00	783.62	30.77	752.85
YGWA-195	30.43	784.38	15.55	768.83
YGWA-235	40.11	781.00	8.86	772.14
YGWA-243	39.18	784.02	14.48	769.54
YGWA-245	57.01	784.12	28.30	755.82
YGWA-323	22.90	787.31	16.65	770.66
YGWA-321	39.97	788.21	19.21	768.99
YGWA-335	38.73	784.54	9.28	775.26
YGWA-341	38.69	783.67	23.60	760.07
YGWA-346	60.00	789.53	9.86	779.67
YGWA-19	79.00	782.72	33.62	749.10
PZ-04S	33.67	784.53	28.20	756.33
PZ-05S	42.65	784.64	19.80	764.84
PZ-06D	136.34	781.53	24.08	757.45
PZ-34	88.60	784.53	29.61	754.92
PZ-48	69.00	779.88	23.91	755.97

Notes: Elevations were measured within a 24-hour period June 26-27, 2017.
 MSL = feet mean sea level
 BTOC = feet below top of casing



NOTE:
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 2. AERIAL IMAGE FROM 2018.



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Summary of Groundwater Elevations
 Plant Yates
 R6 CCR Landfill
 October 2017 Sampling Event

Monitoring Well ID	Total Depth (ft. BTOC)	Top of Casing (ft. MSL)	Depth to Water (ft. BTOC)	Groundwater Elevation (ft. MSL)
YGWA-21	80.00	787.15	28.80	758.35
YGWA-21S	82.00	785.98	28.95	757.03
YGWA-21D	46.80	782.83	11.38	771.45
YGWA-21I	80.00	789.05	31.80	757.25
YGWA-20S	68.80	811.99	24.80	787.19
YGWA-20D	48.80	825.63	27.08	798.55
YGWA-20I	61.00	803.53	25.00	778.53

Notes: Depths to water measured within a 24-hour period October 23-25, 2017.
 BTOC = feet below top of casing.
 MSL = feet below top of casing.



PROJECT:
 PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

Drawn by: MM Checked by: EP
 PROJECT NUMBER:
 I054-110
 October 2017

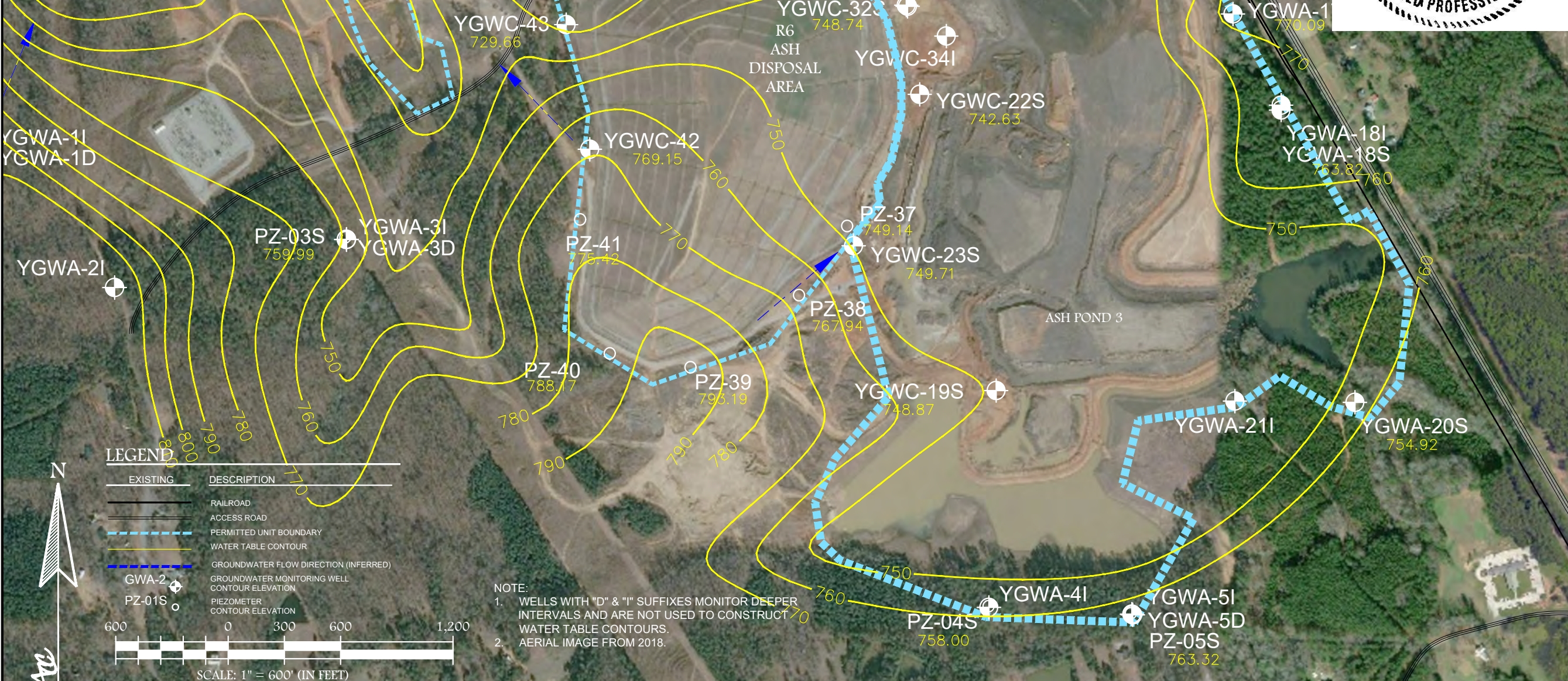
OCTOBER 2017
 WATER TABLE
 CONTOUR MAP

FIGURE C-6

Summary of Groundwater Elevations
 Plant Yates
 Ash Ponds 3, A, B/B'
 October 2017 Sampling Event

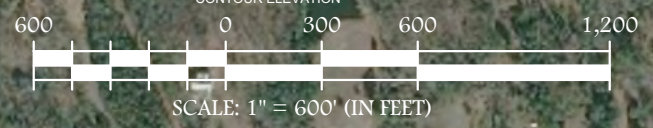
Monitoring Well ID	Total Depth (ft. BTOC)	Top of Casing (ft. MSL)	Depth to Water (ft. BTOC)	Groundwater Elevation (ft. MSL)
YGWA-11	49.70	784.18	24.81	759.37
YGWA-51	58.50	784.53	21.32	763.21
YGWA-51D	131.00	784.53	28.99	755.54
YGWA-45S	39.60	782.28	20.27	762.01
YGWA-45I	69.10	782.58	20.59	761.99
YGWA-17S	39.93	783.03	12.94	770.09
YGWA-18S	39.86	790.53	26.71	763.82
YGWA-18I	79.57	790.56	24.65	765.91
YGWA-20S	29.71	767.30	12.38	754.92
YGWA-21I	80.07	783.62	32.90	750.72
YGWC-19S	30.43	764.48	15.61	748.87
YGWC-22S	40.11	751.60	8.97	742.63
YGWC-25S	39.18	764.62	14.91	749.71
YGWC-24S	57.01	764.12	28.36	735.76
YGWC-32S	22.90	757.31	8.57	748.74
YGWC-32I	39.97	758.21	14.44	743.77
YGWC-33S	38.73	744.54	8.38	736.16
YGWC-34I	38.69	773.67	24.23	749.44
YGWC-36	60.00	739.53	10.23	729.30
YGWC-49	79.00	782.72	12.28	750.44
PZ-04S	33.57	784.53	26.22	758.31
PZ-05S	42.65	784.64	21.32	763.32
PZ-06D	136.34	781.93	23.65	758.28
PZ-24I	89.60	764.33	29.00	735.33
PZ-48	59.66	779.88	21.66	758.22

Notes: Depths to water measured within a 24-hour period October 23-25, 2017.
 MSL = feet below top of casing.
 BTOC = feet below top of casing.



LEGEND

EXISTING	DESCRIPTION
	RAILROAD
	ACCESS ROAD
	PERMITTED UNIT BOUNDARY
	WATER TABLE CONTOUR
	GROUNDWATER FLOW DIRECTION (INFERRED)
	GROUNDWATER MONITORING WELL
	CONTOUR ELEVATION
	PIEZOMETER
	CONTOUR ELEVATION



NOTE:
 1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.
 2. AERIAL IMAGE FROM 2018.



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PROJECT:
 PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

Drawn by: MM Checked by: EP

PROJECT NUMBER:
 I054-110
 March 2018

JANUARY 2018
 WATER TABLE
 CONTOUR MAP

FIGURE C-7

Summary of Groundwater Elevations
 Plant Yates
 R6 CCR Landfill
 January 2018 Sampling Event

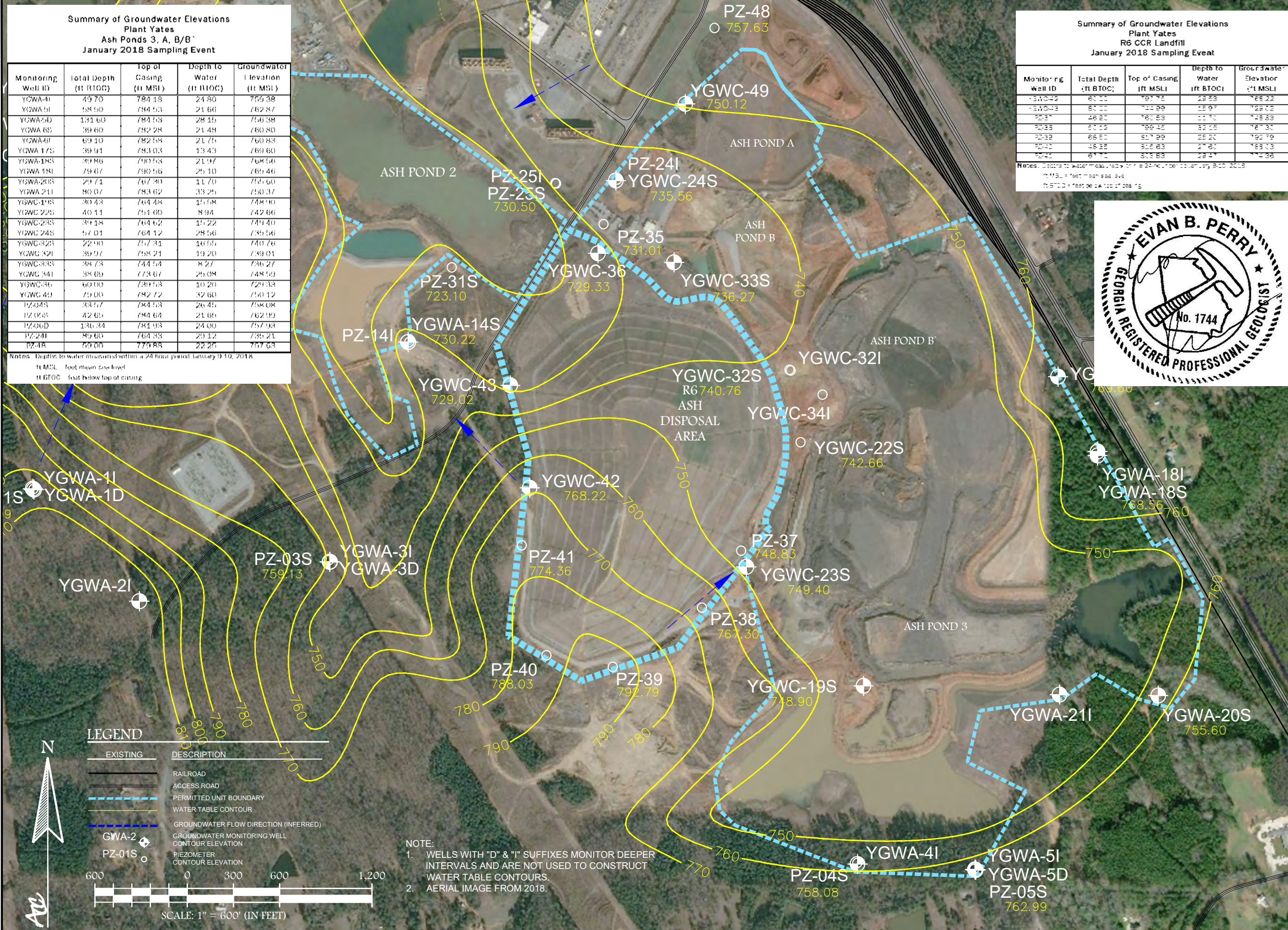
Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-1	49.70	784.18	24.80	759.38
YGWA-5I	58.50	784.53	21.66	762.87
YGWA-5D	131.60	784.53	28.15	756.38
YGWA-6S	39.60	782.28	21.48	760.80
YGWA-6I	69.10	782.58	21.75	760.83
YGWA-17S	39.91	783.03	13.43	769.60
YGWA-18S	39.86	790.53	21.97	768.56
YGWA-18I	79.67	790.56	25.10	765.46
YGWA-20S	29.71	767.30	11.70	755.60
YGWA-21I	80.07	783.62	33.25	750.37
YGWA-19S	30.43	764.48	15.58	748.90
YGWC-22S	40.11	751.60	8.94	742.66
YGWC-23S	39.18	764.62	15.22	749.40
YGWC-24S	57.01	764.12	28.56	735.56
YGWC-32S	22.90	747.31	18.55	740.76
YGWC-32I	39.97	758.21	19.20	739.01
YGWC-33S	38.73	744.54	8.27	736.27
YGWC-34I	38.69	773.67	25.08	748.59
YGWC-36	60.00	781.53	10.20	771.33
YGWC-43	75.00	782.72	32.60	750.12
PZ-04S	33.57	784.53	26.45	758.08
PZ-05S	42.65	784.64	21.65	762.99
PZ-06D	136.34	783.93	24.00	759.93
PZ-24I	89.60	764.33	23.12	735.21
PZ-24S	69.00	775.88	22.25	757.63

Notes: Depths to water measured within a 24 hour period January 9-10, 2018
 ft MSL = feet mean sea level
 ft BTOC = feet below top of casing

Summary of Groundwater Elevations
 Plant Yates
 Ash Ponds 3, A, B/B'
 January 2018 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-4I	49.70	784.18	24.80	759.38
YGWA-5I	58.50	784.53	21.66	762.87
YGWA-5D	131.60	784.53	28.15	756.38
YGWA-6S	39.60	782.28	21.48	760.80
YGWA-6I	69.10	782.58	21.75	760.83
YGWA-17S	39.91	783.03	13.43	769.60
YGWA-18S	39.86	790.53	21.97	768.56
YGWA-18I	79.67	790.56	25.10	765.46
YGWA-20S	29.71	767.30	11.70	755.60
YGWA-21I	80.07	783.62	33.25	750.37
YGWA-19S	30.43	764.48	15.58	748.90
YGWC-22S	40.11	751.60	8.94	742.66
YGWC-23S	39.18	764.62	15.22	749.40
YGWC-24S	57.01	764.12	28.56	735.56
YGWC-32S	22.90	747.31	18.55	740.76
YGWC-32I	39.97	758.21	19.20	739.01
YGWC-33S	38.73	744.54	8.27	736.27
YGWC-34I	38.69	773.67	25.08	748.59
YGWC-36	60.00	781.53	10.20	771.33
YGWC-43	75.00	782.72	32.60	750.12
PZ-04S	33.57	784.53	26.45	758.08
PZ-05S	42.65	784.64	21.65	762.99
PZ-06D	136.34	783.93	24.00	759.93
PZ-24I	89.60	764.33	23.12	735.21
PZ-24S	69.00	775.88	22.25	757.63

Notes: Depths to water measured within a 24 hour period January 9-10, 2018
 ft MSL = feet mean sea level
 ft BTOC = feet below top of casing



NOTE:
 1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.
 2. AERIAL IMAGE FROM 2018.

LEGEND

EXISTING	DESCRIPTION
	RAILROAD
	ACCESS ROAD
	PERMITTED UNIT BOUNDARY
	WATER TABLE CONTOUR
	GROUNDWATER FLOW DIRECTION (INFERRED)
	GROUNDWATER MONITORING WELL
	PIEZOMETER

SCALE: 1" = 600' (IN FEET)



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PROJECT:
 PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

Drawn by: MM Checked by: EP

PROJECT NUMBER:
 I054-110
 May 2018

APRIL 2018
 WATER TABLE
 CONTOUR MAP

FIGURE C-8

Summary of Groundwater Elevations
 Plant Yates
 R6 CCR Landfill
 April 2018 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-4I	49.70	784.18	22.88	761.30
YGWA-5I	58.50	784.53	19.13	765.40
YGWA-5D	131.60	784.53	27.24	757.29
YGWA-6S	39.60	782.28	19.80	762.48
YGWA-6I	69.10	782.58	20.13	762.45
YGWA-17S	39.91	783.03	11.95	771.08
YGWA-18S	39.86	790.53	20.19	770.34
YGWA-18I	79.67	790.53	23.53	767.00
YGWA-20S	29.71	767.30	11.60	755.70
YGWA-21I	80.07	783.62	32.24	751.38
YGWA-23S	39.18	764.62	14.05	750.57
YGWC-24S	57.01	764.12	27.95	736.17
YGWC-33S	38.73	744.54	9.75	734.79
YGWC-36	60.00	739.53	10.16	729.37
YGWC-49	79.00	782.72	31.83	750.89
PZ-04S	33.57	784.53	24.57	759.96
PZ-05S	42.65	784.64	19.09	765.55
PZ-06D	136.34	781.93	22.88	759.05
PZ-24I	89.60	764.33	28.48	735.85
PZ-4S	59.00	779.84	20.64	759.20

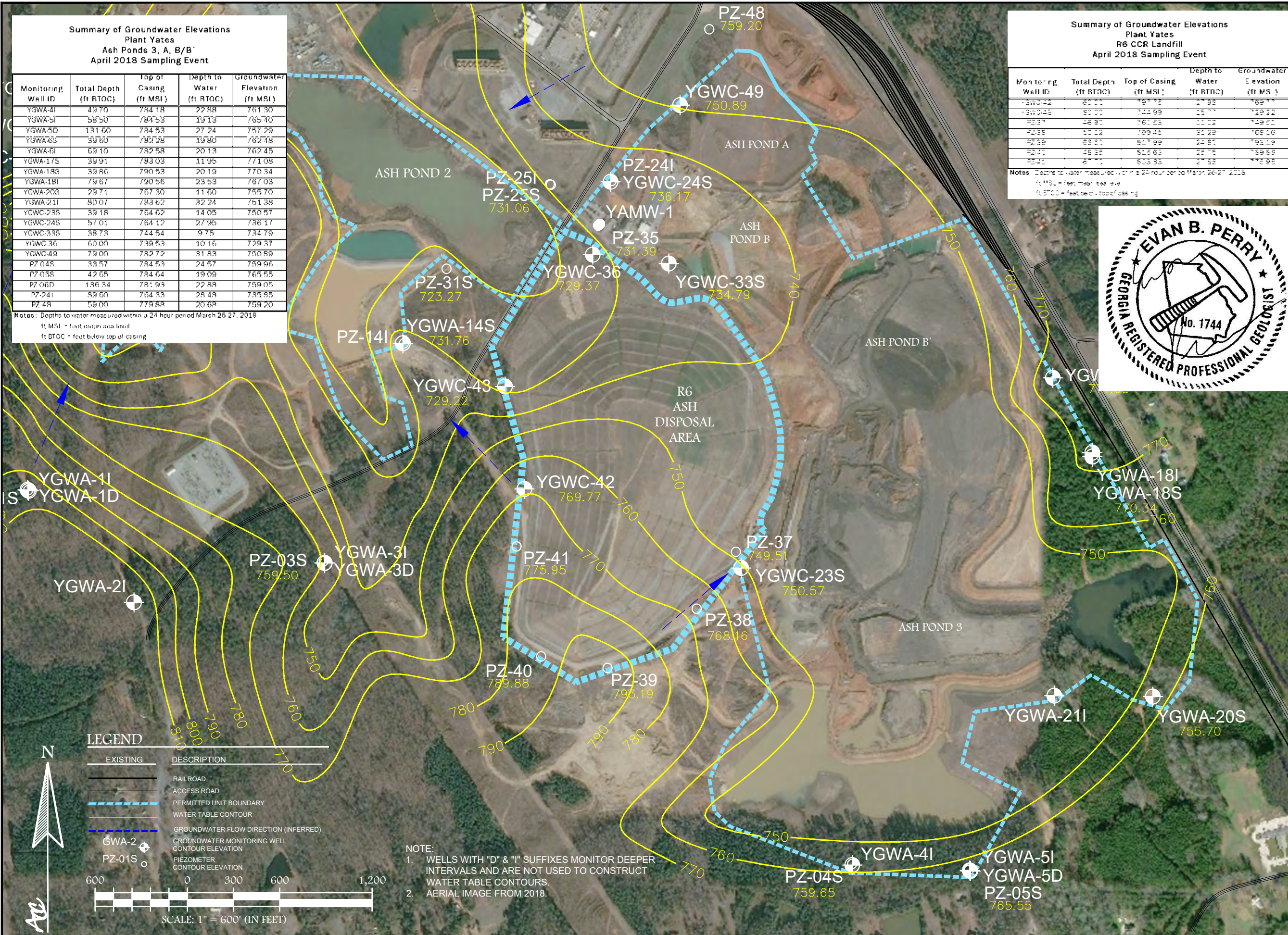
Notes: Depths to water measured within a 24-hour period March 26-27, 2018.
 ft MSL = feet mean sea level
 ft BTOC = feet below top of casing



Summary of Groundwater Elevations
 Plant Yates
 Ash Ponds 3, A, B/B'
 April 2018 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-4I	49.70	784.18	22.88	761.30
YGWA-5I	58.50	784.53	19.13	765.40
YGWA-5D	131.60	784.53	27.24	757.29
YGWA-6S	39.60	782.28	19.80	762.48
YGWA-6I	69.10	782.58	20.13	762.45
YGWA-17S	39.91	783.03	11.95	771.08
YGWA-18S	39.86	790.53	20.19	770.34
YGWA-18I	79.67	790.53	23.53	767.00
YGWA-20S	29.71	767.30	11.60	755.70
YGWA-21I	80.07	783.62	32.24	751.38
YGWA-23S	39.18	764.62	14.05	750.57
YGWC-24S	57.01	764.12	27.95	736.17
YGWC-33S	38.73	744.54	9.75	734.79
YGWC-36	60.00	739.53	10.16	729.37
YGWC-49	79.00	782.72	31.83	750.89
PZ-04S	33.57	784.53	24.57	759.96
PZ-05S	42.65	784.64	19.09	765.55
PZ-06D	136.34	781.93	22.88	759.05
PZ-24I	89.60	764.33	28.48	735.85
PZ-4S	59.00	779.84	20.64	759.20

Notes: Depths to water measured within a 24-hour period March 26-27, 2018.
 ft MSL = feet mean sea level
 ft BTOC = feet below top of casing



NOTE:
 1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.
 2. AERIAL IMAGE FROM 2018.

LEGEND

EXISTING	DESCRIPTION
	RAILROAD
	ACCESS ROAD
	PERMITTED UNIT BOUNDARY
	WATER TABLE CONTOUR
	GROUNDWATER FLOW DIRECTION (INFERRED)
	GROUNDWATER MONITORING WELL
	PIEZOMETER
	CONTOUR ELEVATION

SCALE: 1" = 600' (IN FEET)



ATLANTIC COAST CONSULTING, INC.
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 www.atlcc.net

PROJECT:
 PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

Drawn by: MM Checked by: EP

PROJECT NUMBER:
 I054-110
 July 2018

JUNE 2018 WATER TABLE CONTOUR MAP

FIGURE C-9

Summary of Groundwater Elevations
 Plant Yates
 R6 CCR Landfill
 June 2018 Sampling Event

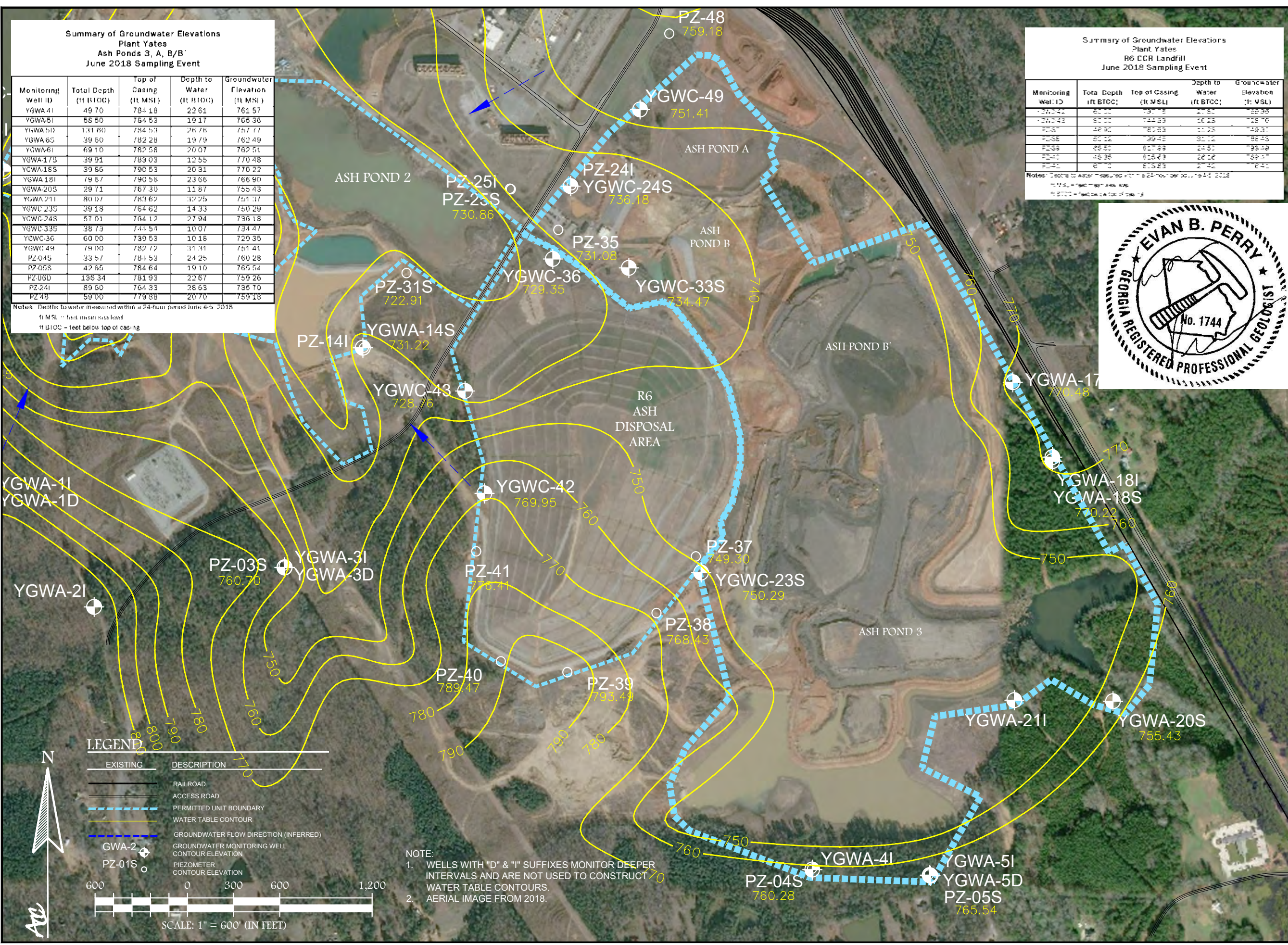
Monitoring Well ID	Total Depth (ft BTCC)	Top of Casing (ft MSL)	Depth to Water (ft BTCC)	Groundwater Elevation (ft MSL)
YGWA-41	49.70	784.18	22.61	761.57
YGWA-51	55.50	784.53	19.17	765.36
YGWA-5D	131.60	784.53	26.76	757.77
YGWA-6S	39.60	782.28	19.79	762.49
YGWA-6I	69.10	782.58	20.07	762.51
YGWA-17S	39.91	783.03	12.55	770.48
YGWA-18S	39.56	790.53	20.31	770.22
YGWA-18I	79.67	790.56	23.66	766.90
YGWA-20S	29.71	767.30	11.87	755.43
YGWA-21I	80.07	783.62	32.25	751.37
YGWC-23S	39.18	764.62	14.33	750.29
YGWC-24S	57.01	764.12	27.94	736.18
YGWC-33S	38.73	744.54	10.07	734.47
YGWC-36	60.00	739.53	10.18	729.35
YGWC-49	79.00	782.72	31.31	751.41
PZ-04S	33.57	784.53	24.25	760.28
PZ-05S	42.65	784.64	19.10	765.54
PZ-06D	136.34	781.93	22.87	759.06
PZ-24I	59.60	764.33	28.63	735.70
PZ-48	59.00	779.38	20.70	758.68

Notes: * Depths to water measured within a 24-hour period June 4-5, 2018
 ft MSL = feet mean sea level
 ft BTCC = feet below top of casing

Summary of Groundwater Elevations
 Plant Yates
 Ash Ponds 3, A, B/B'
 June 2018 Sampling Event

Monitoring Well ID	Total Depth (ft BTCC)	Top of Casing (ft MSL)	Depth to Water (ft BTCC)	Groundwater Elevation (ft MSL)
YGWA-41	49.70	784.18	22.61	761.57
YGWA-51	55.50	784.53	19.17	765.36
YGWA-5D	131.60	784.53	26.76	757.77
YGWA-6S	39.60	782.28	19.79	762.49
YGWA-6I	69.10	782.58	20.07	762.51
YGWA-17S	39.91	783.03	12.55	770.48
YGWA-18S	39.56	790.53	20.31	770.22
YGWA-18I	79.67	790.56	23.66	766.90
YGWA-20S	29.71	767.30	11.87	755.43
YGWA-21I	80.07	783.62	32.25	751.37
YGWC-23S	39.18	764.62	14.33	750.29
YGWC-24S	57.01	764.12	27.94	736.18
YGWC-33S	38.73	744.54	10.07	734.47
YGWC-36	60.00	739.53	10.18	729.35
YGWC-49	79.00	782.72	31.31	751.41
PZ-04S	33.57	784.53	24.25	760.28
PZ-05S	42.65	784.64	19.10	765.54
PZ-06D	136.34	781.93	22.87	759.06
PZ-24I	59.60	764.33	28.63	735.70
PZ-48	59.00	779.38	20.70	758.68

Notes: * Depths to water measured within a 24-hour period June 4-5, 2018
 ft MSL = feet mean sea level
 ft BTCC = feet below top of casing



LEGEND

EXISTING	DESCRIPTION
	RAILROAD
	ACCESS ROAD
	PERMITTED UNIT BOUNDARY
	WATER TABLE CONTOUR
	GROUNDWATER FLOW DIRECTION (INFERRED)
	GROUNDWATER MONITORING WELL
	PIEZOMETER

SCALE: 1" = 600' (IN FEET)

NOTE:
 1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.
 2. AERIAL IMAGE FROM 2018.



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PROJECT:
 PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

NO.	DATE	DESCRIPTION

Drawn by: MM Checked by: EP

PROJECT NUMBER:
 I054-110
 October 2018

SEPTEMBER 2018
 WATER TABLE
 CONTOUR MAP

FIGURE C-11

Summary of Groundwater Elevations
 Plant Yates
 R6 CCR Landfill
 September 2018 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-12	82.00	797.75	29.31	768.44
YGWA-14S	80.00	744.89	16.23	728.66
PZ-37	16.90	760.53	-	743.63
PZ-38	50.12	799.15	-	749.03
PZ-39	68.80	817.99	24.53	793.46
PZ-40	49.35	815.65	27.37	788.28
PZ-41	67.70	808.93	28.57	780.36

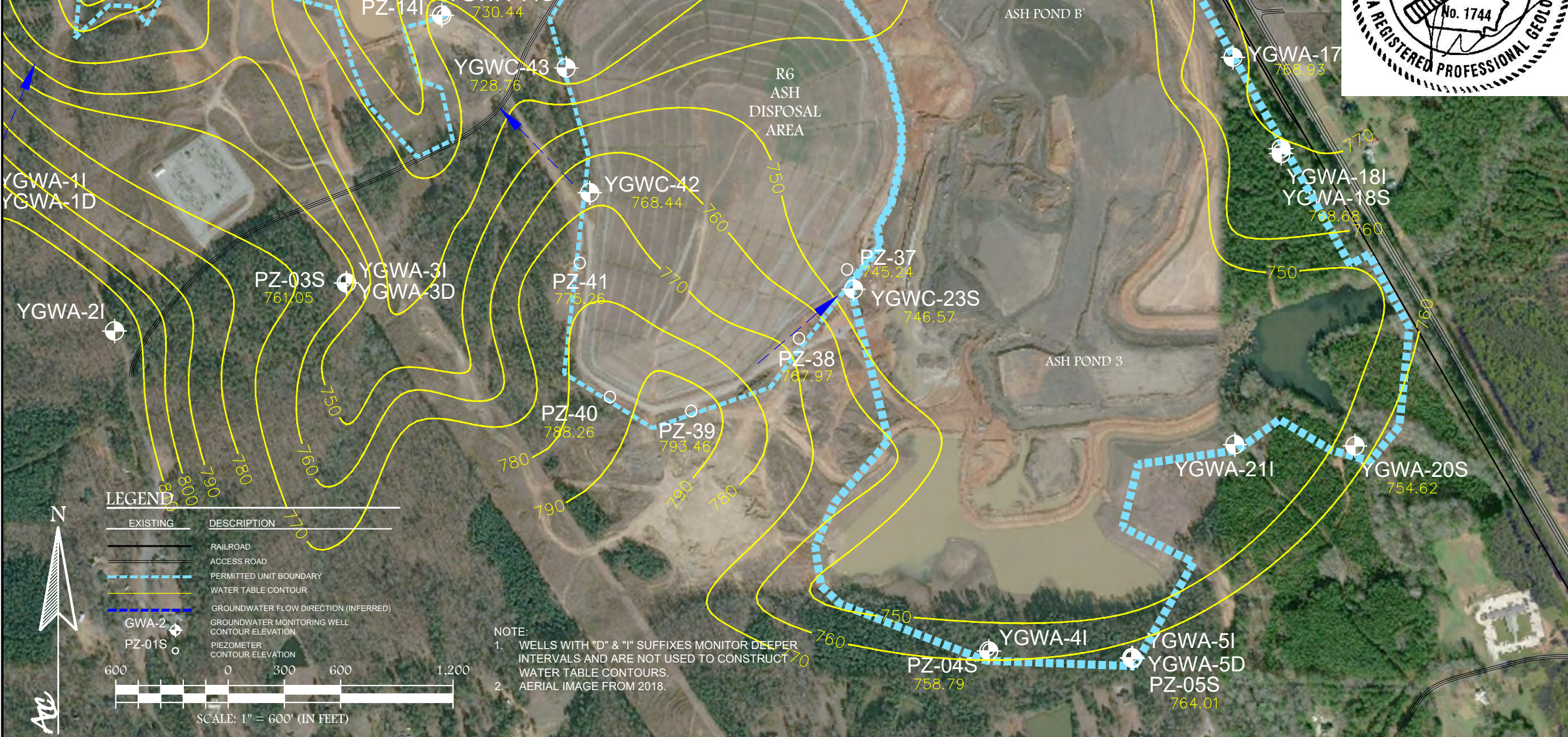
Notes: Depths to water measured within a 24-hour period September 17, 2018.
 ft MSL = feet mean sea level
 ft BTOC = feet below top of casing
 * Depth to water recorded from transducer reading from 10:00am September 14, 2018



Summary of Groundwater Elevations
 Plant Yates
 Ash Ponds 3, A, B/B'
 September 2018 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YGWA-11	49.70	784.18	28.97	755.21
YGWA-51	58.50	784.53	20.61	763.92
YGWA-53	131.60	784.53	26.28	758.25
YGWA-17S	39.91	783.03	14.10	768.93
YGWA-18S	39.86	790.53	21.55	768.98
YGWA-18I	79.67	790.56	25.03	765.53
YGWA-20S	29.71	767.90	12.68	755.22
YGWA-21I	80.07	783.62	-	703.55
YGWC-23S	19.18	764.62	-	745.44
YGWC-24S	57.01	764.12	28.87	735.25
YGWC-33S	38.73	744.54	-	705.81
YGWC-36	60.00	739.53	-	700.00
YGWC-49	79.00	782.72	31.66	751.06
PZ-04S	33.57	784.53	25.43	759.10
PZ-05S	42.65	784.64	26.63	758.01
YGWA-6S	39.60	782.26	20.24	762.02
YGWA-6I	69.10	782.56	20.53	762.03
PZ-06D	136.34	781.93	23.18	758.75
PZ-24I	89.60	761.33	29.56	731.77
PZ-48	59.00	779.85	21.07	758.78

Notes: Depths to water measured within a 24-hour period September 17, 2018.
 ft MSL = feet mean sea level
 ft BTOC = feet below top of casing
 * Depth to water recorded from transducer reading from 11:00am September 14, 2018



NOTE:
 1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.
 2. AERIAL IMAGE FROM 2018.

Summary of Groundwater Elevations
Plant Yates
Ash Ponds 3, A, B/B', R6 CCR Landfill
March 2019 Sampling Event

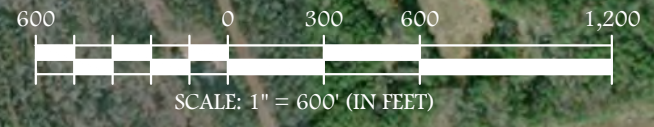
Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YAMW-1	70.53	743.76	12.08	731.68
YGWA 4I	49.70	784.18	19.03	765.15
YGWA 5I	58.50	784.53	15.49	769.04
YGWA-5D	131.60	784.53	22.57	761.96
YGWA-17S	39.91	783.03	11.05	771.98
YGWA-18S	39.86	790.53	17.15	773.38
YGWA-18I	79.67	790.56	20.78	769.78
YGWA-20S	29.71	767.30	11.10	756.20
YGWA-21I	80.07	783.62	*	755.96
YGWA-39	68.50	817.99	22.41	795.58
YGWA-40	48.35	815.63	23.82	791.81
YGWC-23S	39.18	764.62	*	748.55
YGWC-24S	57.01	764.12	26.67	737.45
YGWC-33S	38.73	744.54	*	731.32
YGWC-36	60.00	739.53	*	729.53
YGWC-38	50.12	799.45	*	770.48
YGWC-41	67.70	803.83	25.62	778.21
YGWC 42	60.00	797.75	25.45	772.30
YGWC 43	80.00	744.99	14.08	730.91
YGWC-49	79.00	782.72	29.34	753.38
PZ-04S	33.57	784.53	20.65	763.88
P7-05S	47.65	784.64	15.40	769.24
YGWA 6S	39.60	782.28	16.62	765.66
YGWA 6I	69.10	782.58	17.17	765.41
PZ-06D	136.34	781.93	20.12	761.81
PZ-24I	89.60	764.33	27.63	736.70
P7-37	46.90	760.53	*	744.07
PZ 48	59.00	779.88	18.04	761.84

Notes: Depths to water measured within a 24-hour period March 25-26, 2019.
 ft MSL = feet mean sea level
 ft BTOC = feet below top of casing
 *Depth to water recorded from transducer reading on March 25, 12:00 pm.



EXISTING	DESCRIPTION
	RAILROAD
	ACCESS ROAD
	PERMITTED UNIT BOUNDARY
	WATER TABLE CONTOUR
	GROUNDWATER FLOW DIRECTION (INFERRED)
	GROUNDWATER MONITORING WELL CONTOUR ELEVATION
	PIEZOMETER CONTOUR ELEVATION

NOTE:
 1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.



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PROJECT:
PLANT YATES

708 DYER ROAD
 NEWNAN, GEORGIA

REVISIONS

NO.	DESCRIPTION

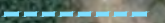

Drawn by: **MM** Checked by: **EP**
 PROJECT NUMBER:
I054-110
 July 2019

MARCH 2019 WATER TABLE CONTOUR MAP
 FIGURE **C-12**

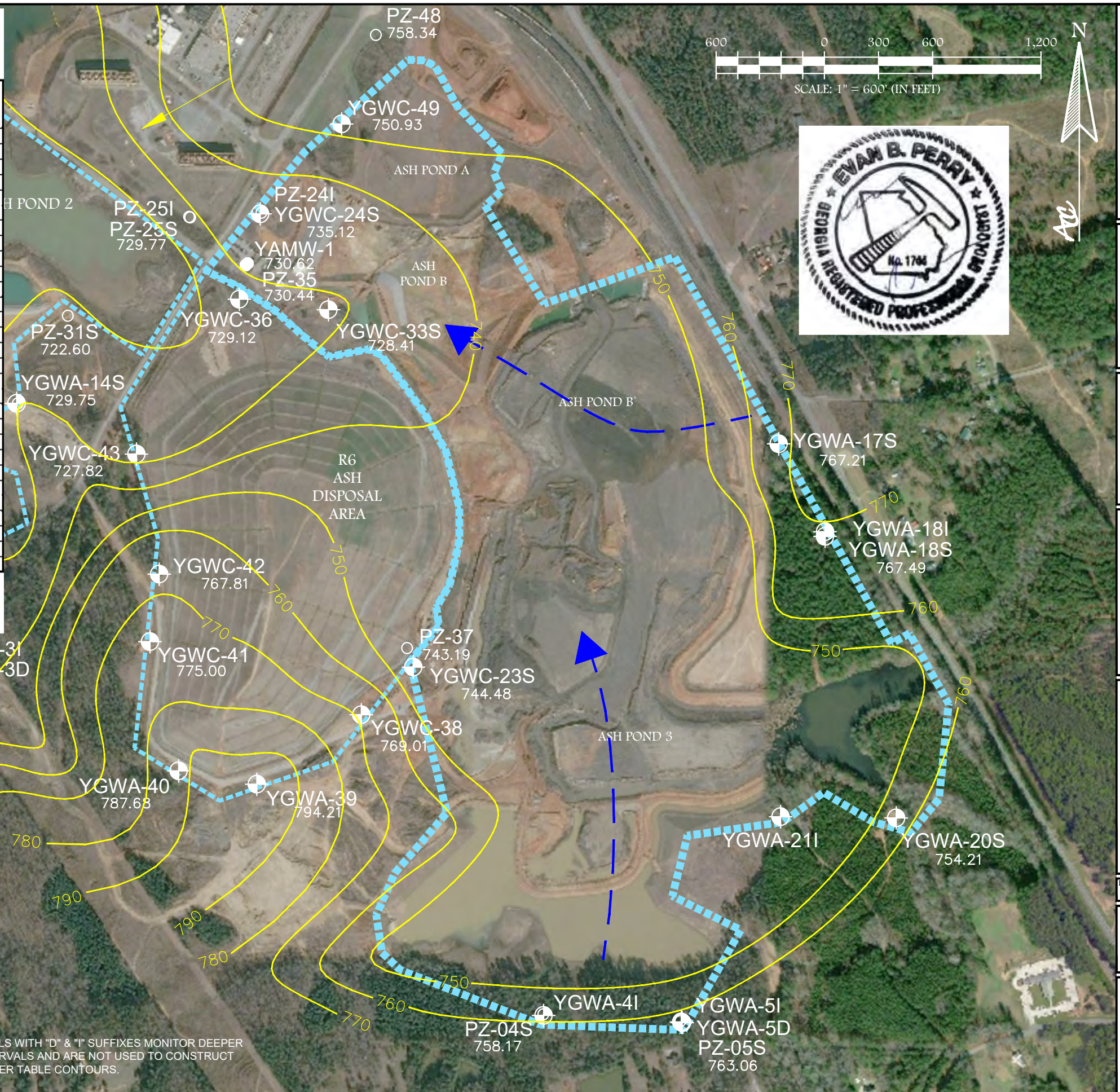
Summary of Groundwater Elevations Plant Yates Landfill Ash Ponds 3, A, B/B', R6 CCR Landfill October 2019 Sampling Event

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)
YAMW 1	70.53	743.76	13.14	730.62
YGWA-4I	49.70	784.18	25.03	759.15
YGWA-5I	58.50	784.53	21.53	763.00
YGWA-5D	131.60	784.53	24.45	760.08
YGWA-17S	39.91	783.03	15.82	767.21
YGWA-18S	39.86	790.53	23.04	767.49
YGWA-18I	79.67	790.56	25.92	764.64
YGWA-20S	29.71	767.30	13.09	754.21
YGWA-21I	80.07	783.62	*	753.60
YGWA-39	68.50	817.99	23.78	794.21
YGWA-40	48.35	815.63	27.95	787.68
YGWC 23S	39.18	764.62	*	744.48
YGWC 24S	57.01	764.12	29.00	735.12
YGWC-33S	38.73	744.54	*	728.41
YGWC-36	60.00	739.53	*	729.12
YGWC-38	50.12	799.45	*	768.74
YGWC-41	67.70	803.83	28.83	775.00
YGWC-42	60.00	797.75	29.94	767.81
YGWC 43	80.00	744.99	17.17	727.82
YGWC-49	79.00	782.72	31.79	750.93
PZ-04S	33.57	784.53	26.36	758.17
PZ-05S	42.65	784.64	21.58	763.06
YGWA-6S	39.60	782.28	20.86	761.42
YGWA-6I	69.10	782.58	21.29	761.29
PZ-06D	136.34	781.93	23.48	758.45
P7-24I	89.60	764.33	29.78	734.55
P7-35	49.37	743.74	13.30	730.44
PZ-37	48.90	760.53	*	743.19
PZ-48	59.00	779.88	21.54	758.34

Notes: Depths to water measured within a 24-hour period October 7-8, 2019.
ft MSL = foot mean sea level
ft BTOC = feet below top of casing
*Depth to water recorded from transducer reading on October 7, 12:00 pm.

EXISTING	DESCRIPTION
	PERMITTED UNIT BOUNDARY
	WATER TABLE CONTOUR
	GROUNDWATER FLOW DIRECTION (INFERRED)
	GROUNDWATER MONITORING WELL CONTOUR ELEVATION
	PIEZOMETER CONTOUR ELEVATION

NOTE:
1. WELLS WITH "D" & "I" SUFFIXES MONITOR DEEPER INTERVALS AND ARE NOT USED TO CONSTRUCT WATER TABLE CONTOURS.




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PROJECT:
PLANT YATES

708 DYER ROAD
NEWMAN, GEORGIA

REVISIONS

Drawn by: **MM** Checked by: **EP**

PROJECT NUMBER:
I054-110
November 2019

OCTOBER 2019 WATER TABLE CONTOUR MAP

FIGURE **C-14**



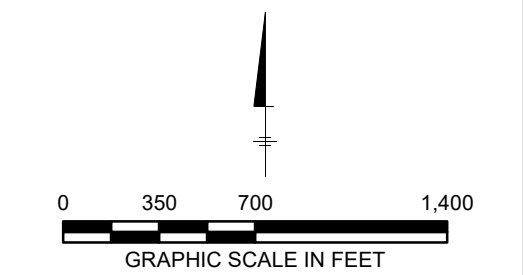
LEGEND

- SAPROLITE NETWORK MONITORING WELL LOCATION
- TRANSITION NETWORK MONITORING WELL LOCATION
- BEDROCK NETWORK MONITORING WELL LOCATION
- SAPROLITE NON-NETWORK WELL/PIEZOMETER
- TRANSITION NON-NETWORK WELL/PIEZOMETER
- BEDROCK NON-NETWORK WELL/PIEZOMETER
- PERMITTED UNIT BOUNDARY
- APPROXIMATE POTENTIOMETRIC CONTOUR (FEET) DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION

773.31 GROUNDWATER ELEVATION (FEET)

NOTES:

1. * = DEPTH TO WATER RECORDED FROM TRANSDUCER READING ON MARCH 16 AT 12PM.
2. SHALLOW GROUNDWATER ELEVATIONS ARE DERIVED FROM SOIL COMPRISED OF SAPROLITE, RANGING FROM 15 - 60 FEET BELOW GROUND SURFACE.
3. BEDROCK WELLS YGWA-40, YGWA-39, YGWC-38, YGWC-41, YGWC-42 USED FOR CONTOURING. ALL OTHER BEDROCK WELLS NOT USED TO CREATE CONTOURS.
4. SAPROLITE WELL GROUNDWATER ELEVATIONS WERE USED FOR CONTOURING FOR SAPROLITE/TRANSITION ZONE/BEDROCK WELL CLUSTER LOCATIONS.
5. AERIAL IMAGE SOURCES: NOVEMBER 11, 2020 IMAGERY FLOWN AND PROCESSED BY SAM LLC; NATIONAL AGRICULTURE IMAGERY PROGRAM (NAIP) 2019 IMAGERY.
6. ELEVATION IS PRESENTED IN U.S. SURVEY FEET (NAVD 1988).



COORDINATE SYSTEM: NAD 1983 STATEPLANE
GEORGIA WEST FIPS 1002 FEET

Georgia Power
PLANT YATES
ANNUAL GROUNDWATER MONITORING AND
CORRECTIVE ACTION REPORT – 2020

**GROUNDWATER ELEVATION MAP
MARCH 2020**

FIGURE
C-15



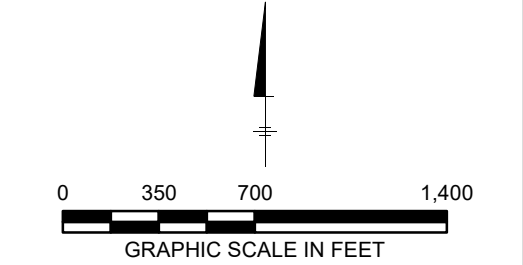
LEGEND

- SAPROLITE NETWORK MONITORING WELL LOCATION
- TRANSITION NETWORK MONITORING WELL LOCATION
- BEDROCK NETWORK MONITORING WELL LOCATION
- SAPROLITE NON-NETWORK WELL/PIEZOMETER
- TRANSITION NON-NETWORK WELL/PIEZOMETER
- BEDROCK NON-NETWORK WELL/PIEZOMETER
- PERMITTED UNIT BOUNDARY
- APPROXIMATE POTENTIOMETRIC CONTOUR (FEET) DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION


773.31 GROUNDWATER ELEVATION (FEET)

NOTE:

1. SHALLOW GROUNDWATER ELEVATIONS ARE DERIVED FROM SOIL COMPRISED OF SAPROLITE, RANGING FROM 15 - 60 FEET BELOW GROUND SURFACE.
2. BEDROCK WELLS YGWA-40, YGWA-39, YGWC-38, YGWC-41, YGWC-42 USED FOR CONTOURING. ALL OTHER BEDROCK WELLS NOT USED TO CREATE CONTOURS.
3. SAPROLITE WELL GROUNDWATER ELEVATIONS WERE USED FOR CONTOURING FOR SAPROLITE/TRANSITION ZONE/BEDROCK WELL CLUSTER LOCATIONS.
4. SAPROLITE WELL YGWC-36A NOT USED FOR CONTOURING, WELL WAS INSTALLED DURING THE SEPTEMBER 2020 MONITORING EVENT.
5. AERIAL IMAGE SOURCES: NOVEMBER 11, 2020 IMAGERY FLOWN AND PROCESSED BY SAM LLC; NATIONAL AGRICULTURE IMAGERY PROGRAM (NAIP) 2019 IMAGERY.
6. ELEVATION IS PRESENTED IN U.S. SURVEY FEET (NAVD 1988).



COORDINATE SYSTEM: NAD 1983 STATEPLANE
GEORGIA WEST FIPS 1002 FEET



Georgia Power
PLANT YATES
ANNUAL GROUNDWATER MONITORING AND
CORRECTIVE ACTION REPORT - 2020

**GROUNDWATER ELEVATION MAP
SEPTEMBER 2020**




FIGURE
C-16

PATH: T:\EN\GVA_Power\GFC_Plant_Yates\MapDocs\Annual_GW_SAP_Trans.mxd DATE SAVED: 10/27/2021 3:43:12 PM LAST SAVED BY: ldm
 33°27'50"N
33°27'40"N
33°27'30"N
33°27'20"N
33°27'10"N
33°27'0"N
33°26'50"N

84°54'20"W
84°54'10"W
84°54'0"W
84°53'50"W
84°53'40"W
84°53'30"W
84°53'20"W
84°53'10"W
84°53'0"W
84°52'50"W
84°52'40"W

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
PZ-04S	33.57	784.53	27.41	757.12	10/31/2016
PZ-04S	33.57	784.53	27.50	757.03	1/9/2017
PZ-04S	33.57	784.53	26.09	758.44	2/20/2017
PZ-04S	33.57	784.53	24.89	759.64	4/25/2017
PZ-04S	33.57	784.53	25.20	759.33	6/26/2017
PZ-04S	33.57	784.53	26.22	758.31	10/2/2017
PZ-04S	33.57	784.53	26.45	758.08	1/9/2018
PZ-04S	33.57	784.53	24.57	759.96	3/26/2018
PZ-04S	33.57	784.53	24.25	760.28	6/4/2018
PZ-04S	33.57	784.53	24.93	759.60	8/6/2018
PZ-04S	33.57	784.53	25.43	759.10	9/17/2018
PZ-04S	33.57	784.53	21.45	763.08	2/25/2019
PZ-04S	33.57	784.53	20.65	763.88	3/25/2019
PZ-04S	33.57	784.53	24.59	759.94	8/19/2019
PZ-04S	33.57	784.53	25.88	758.65	9/23/2019
PZ-04S	33.57	784.53	26.36	758.17	10/7/2019
PZ-04S	33.57	784.25	24.18	760.07	2/10/2020
PZ-04S	33.57	784.25	20.27	763.98	3/16/2020
PZ-04S	33.57	784.25	24.95	759.30	9/21/2020
PZ-05S	42.65	784.64	22.37	762.27	10/31/2016
PZ-05S	42.65	784.64	22.10	762.54	1/9/2017
PZ-05S	42.65	784.64	20.20	764.44	2/20/2017
PZ-05S	42.65	784.64	18.71	765.93	4/25/2017
PZ-05S	42.65	784.64	19.80	764.84	6/26/2017
PZ-05S	42.65	784.64	21.32	763.32	10/2/2017
PZ-05S	42.65	784.64	21.65	762.99	1/9/2018
PZ-05S	42.65	784.64	19.09	765.55	3/26/2018
PZ-05S	42.65	784.64	19.10	765.54	6/4/2018
PZ-05S	42.65	784.64	19.79	764.85	8/6/2018
PZ-05S	42.65	784.64	20.63	764.01	9/17/2018
PZ-05S	42.65	784.64	15.62	769.02	2/25/2019
PZ-05S	42.65	784.64	15.40	769.24	3/25/2019
PZ-05S	42.65	784.64	19.69	764.95	8/19/2019
PZ-05S	42.65	784.64	21.07	763.57	9/23/2019
PZ-05S	42.65	784.64	21.58	763.06	10/7/2019
PZ-05S	42.65	784.64	18.25	766.39	2/10/2020
PZ-05S	42.65	784.64	14.38	770.26	3/16/2020
PZ-05S	42.65	784.64	19.81	764.83	9/21/2020

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
PZ-06D	136.34	781.93	25.09	756.84	10/31/2016
PZ-06D	136.34	781.93	25.44	756.49	1/9/2017
PZ-06D	136.34	781.93	24.72	757.21	2/20/2017
PZ-06D	136.34	781.93	24.67	757.26	4/25/2017
PZ-06D	136.34	781.93	24.08	757.85	6/26/2017
PZ-06D	136.34	781.93	23.65	758.28	10/2/2017
PZ-06D	136.34	781.93	24.00	757.93	1/9/2018
PZ-06D	136.34	781.93	22.88	759.05	3/26/2018
PZ-06D	136.34	781.93	22.67	759.26	6/4/2018
PZ-06D	136.34	781.93	22.32	759.61	8/6/2018
PZ-06D	136.34	781.93	23.18	758.75	9/17/2018
PZ-06D	136.34	781.93	20.37	761.56	2/25/2019
PZ-06D	136.34	781.93	20.12	761.81	3/25/2019
PZ-06D	136.34	781.93	22.16	759.77	8/19/2019
PZ-06D	136.34	781.93	23.17	758.76	9/23/2019
PZ-06D	136.34	781.93	23.48	758.45	10/7/2019
PZ-06D	136.34	782.02	21.81	760.21	2/10/2020
PZ-06D	136.34	782.02	19.46	762.56	3/16/2020
PZ-06D	136.34	782.02	21.43	760.59	9/21/2020
PZ-24I	89.60	764.33	24.85	739.48	10/31/2016
PZ-24I	89.60	764.33	29.08	735.25	1/9/2017
PZ-24I	89.60	764.33	29.32	735.01	2/20/2017
PZ-24I	89.60	764.33	29.21	735.12	4/25/2017
PZ-24I	89.60	764.33	29.01	735.32	6/26/2017
PZ-24I	89.60	764.33	29.00	735.33	10/2/2017
PZ-24I	89.60	764.33	29.12	735.21	1/9/2018
PZ-24I	89.60	764.33	28.48	735.85	3/26/2018
PZ-24I	89.60	764.33	28.63	735.70	6/4/2018
PZ-24I	89.60	764.33	28.95	735.38	8/6/2018
PZ-24I	89.60	764.33	29.56	734.77	9/17/2018
PZ-24I	89.60	764.33	27.49	736.84	2/25/2019
PZ-24I	89.60	764.33	27.63	736.70	3/25/2019
PZ-24I	89.60	764.33	29.04	735.29	8/19/2019
PZ-24I	89.60	764.33	29.61	734.72	9/23/2019
PZ-24I	89.60	764.33	29.78	734.55	10/7/2019
PZ-24I	89.60	764.33	28.29	736.04	2/11/2020
PZ-24I	89.60	764.33	27.03	737.30	3/16/2020
PZ-24IA	89.53	764.33	29.13	735.20	9/21/2020

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
PZ-35	49.37	743.74	11.81	731.93	2/25/2019
PZ-35	49.37	743.74	13.22	730.52	3/25/2019
PZ-35	49.37	743.74	12.94	730.80	8/19/2019
PZ-35	49.37	743.74	13.22	730.52	9/23/2019
PZ-35	49.37	743.74	13.30	730.44	10/7/2019
PZ-35	49.37	743.81	12.14	731.67	2/11/2020
PZ-35	49.37	743.81	11.94	731.87	3/16/2020
PZ-35	49.37	743.81	15.44	728.37	9/21/2020
PZ-37	46.90	760.53	12.09	748.44	10/31/2016
PZ-37	46.90	760.53	12.08	748.45	1/9/2017
PZ-37	46.90	760.53	11.73	748.80	2/20/2017
PZ-37	46.90	760.53	11.58	748.95	4/25/2017
PZ-37	46.90	760.53	11.58	748.95	6/26/2017
PZ-37	46.90	760.53	11.39	749.14	10/2/2017
PZ-37	46.90	760.53	11.70	748.83	1/9/2018
PZ-37	46.90	760.53	11.02	749.51	3/26/2018
PZ-37	46.90	760.53	11.23	749.30	6/4/2018
PZ-37	46.90	760.53	*	749.49	7/7/2018
PZ-37	46.90	760.53	*	745.24	9/17/2018
PZ-37	46.90	760.53	*	744.22	2/25/2019
PZ-37	46.90	760.53	*	744.07	3/25/2019
PZ-37	46.90	760.53	*	744.07	8/19/2019
PZ-37	46.90	760.53	*	742.58	9/23/2019
PZ-37	46.90	760.53	*	743.19	10/7/2019
PZ-37	46.90	760.78	14.13*	746.65	2/11/2020
PZ-37	46.90	760.78	12.68*	748.10	3/16/2020
PZ-37	46.90	760.78	13.79	746.40	9/21/2020
PZ-48	59.00	779.88	23.50	756.38	10/31/2016
PZ-48	59.00	779.88	24.68	755.20	1/9/2017
PZ-48	59.00	779.88	24.82	755.06	2/20/2017
PZ-48	59.00	779.88	24.61	755.27	4/25/2017
PZ-48	59.00	779.88	23.92	755.96	6/26/2017
PZ-48	59.00	779.88	21.96	757.92	10/2/2017
PZ-48	59.00	779.88	22.25	757.63	1/9/2018
PZ-48	59.00	779.88	20.68	759.20	3/26/2018
PZ-48	59.00	779.88	20.70	759.18	6/4/2018
PZ-48	59.00	779.88	20.43	759.45	8/6/2018
PZ-48	59.00	779.88	21.07	758.81	9/17/2018

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
PZ-48	59.00	779.88	18.14	761.74	2/25/2019
PZ-48	59.00	779.88	18.04	761.84	3/25/2019
PZ-48	59.00	779.88	20.23	759.65	8/19/2019
PZ-48	59.00	779.88	21.20	758.68	9/23/2019
PZ-48	59.00	779.88	21.54	758.34	10/7/2019
PZ-48	59.00	779.83	19.43	760.40	2/10/2020
PZ-48	59.00	779.83	17.38	762.45	3/16/2020
PZ-48	59.00	799.83	19.94	779.89	9/21/2020
PZ-51	36.32	744.30	6.69	737.61	2/11/2020
PZ-51	36.32	744.30	5.82	738.48	3/16/2020
PZ-51	36.32	744.30	6.94	737.36	9/21/2020
YAMW-1	69.66	743.76	11.54	732.22	2/25/2019
YAMW-1	69.66	743.76	12.08	731.68	3/25/2019
YAMW-1	69.66	743.76	12.74	731.02	8/19/2019
YAMW-1	69.66	743.76	13.03	730.73	9/23/2019
YAMW-1	69.66	743.76	13.14	730.62	10/7/2019
YAMW-1	69.66	743.83	11.99	731.84	2/11/2020
YAMW-1	69.66	743.83	11.74	732.09	3/16/2020
YAMW-1	69.66	743.83	15.14	728.69	9/21/2020
YAMW-2	46.48	781.04	18.60	762.44	2/11/2020
YAMW-2	46.48	781.04	15.60	765.44	3/16/2020
YAMW-2	46.48	781.04	22.18	758.86	9/21/2020
YAMW-3	91.44	796.05	35.36	760.69	2/10/2020
YAMW-3	91.44	796.05	30.18	765.87	3/16/2020
YAMW-3	91.44	796.05	35.28	760.77	9/21/2020
YAMW-4	96.55	805.59	31.19	774.40	2/11/2020
YAMW-4	96.55	805.59	27.07	778.52	3/16/2020
YAMW-4	96.55	805.59	30.61	774.98	9/21/2020
YAMW-5	90.34	788.90	31.73	757.17	2/11/2020
YAMW-5	90.34	788.90	14.32	774.58	3/16/2020
YAMW-5	90.34	788.90	12.84	776.06	9/21/2020
YGWA-17S	39.91	783.03	15.98	767.05	10/31/2016
YGWA-17S	39.91	783.03	13.93	769.10	1/9/2017
YGWA-17S	39.91	783.03	12.70	770.33	2/20/2017
YGWA-17S	39.91	783.03	12.53	770.50	4/25/2017
YGWA-17S	39.91	783.03	12.03	771.00	6/26/2017
YGWA-17S	39.91	783.03	12.94	770.09	10/2/2017
YGWA-17S	39.91	783.03	13.43	769.60	1/9/2018

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
YGWA-17S	39.91	783.03	11.95	771.08	3/26/2018
YGWA-17S	39.91	783.03	12.55	770.48	6/4/2018
YGWA-17S	39.91	783.03	12.73	770.30	8/6/2018
YGWA-17S	39.91	783.03	14.10	768.93	9/17/2018
YGWA-17S	39.91	783.03	10.02	773.01	2/25/2019
YGWA-17S	39.91	783.03	11.05	771.98	3/25/2019
YGWA-17S	39.91	783.03	14.63	768.40	8/19/2019
YGWA-17S	39.91	783.03	15.53	767.50	9/23/2019
YGWA-17S	39.91	783.03	15.82	767.21	10/7/2019
YGWA-17S	39.91	783.05	10.49	772.56	2/10/2020
YGWA-17S	39.91	783.05	9.39	773.66	3/16/2020
YGWA-17S	39.91	783.05	12.62	770.43	9/21/2020
YGWA-18I	79.67	790.56	26.08	764.48	10/31/2016
YGWA-18I	79.67	790.56	25.86	764.70	1/9/2017
YGWA-18I	79.67	790.56	24.80	765.76	2/20/2017
YGWA-18I	79.67	790.56	24.10	766.46	4/25/2017
YGWA-18I	79.67	790.56	24.14	766.42	6/26/2017
YGWA-18I	79.67	790.56	24.65	765.91	10/2/2017
YGWA-18I	79.67	790.56	25.10	765.46	1/9/2018
YGWA-18I	79.67	790.56	23.53	767.03	3/26/2018
YGWA-18I	79.67	790.56	23.66	766.90	6/4/2018
YGWA-18I	79.67	790.56	24.15	766.41	8/6/2018
YGWA-18I	79.67	790.56	25.03	765.53	9/17/2018
YGWA-18I	79.67	790.56	20.92	769.64	2/25/2019
YGWA-18I	79.67	790.56	20.78	769.78	3/25/2019
YGWA-18I	79.67	790.56	24.37	766.19	8/19/2019
YGWA-18I	79.67	790.56	25.50	765.06	9/23/2019
YGWA-18I	79.67	790.56	25.92	764.64	10/7/2019
YGWA-18I	79.67	790.57	22.57	768.00	2/10/2020
YGWA-18I	79.67	790.57	19.87	770.70	3/16/2020
YGWA-18I	79.67	790.57	23.59	766.98	9/21/2020
YGWA-18S	39.86	790.53	23.76	766.77	10/31/2016
YGWA-18S	39.86	790.53	23.44	767.09	1/9/2017
YGWA-18S	39.86	790.53	22.14	768.39	2/20/2017
YGWA-18S	39.86	790.53	21.00	769.53	4/25/2017
YGWA-18S	39.86	790.53	21.07	769.46	6/26/2017
YGWA-18S	39.86	790.53	26.71	763.82	10/2/2017
YGWA-18S	39.86	790.53	21.97	768.56	1/9/2018

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
YGWA-18S	39.86	790.53	20.19	770.34	3/26/2018
YGWA-18S	39.86	790.53	20.31	770.22	6/4/2018
YGWA-18S	39.86	790.53	20.93	769.60	8/6/2018
YGWA-18S	39.86	790.53	21.85	768.68	9/17/2018
YGWA-18S	39.86	790.53	17.35	773.18	2/25/2019
YGWA-18S	39.86	790.53	17.15	773.38	3/25/2019
YGWA-18S	39.86	790.53	21.22	769.31	8/19/2019
YGWA-18S	39.86	790.53	22.55	767.98	9/23/2019
YGWA-18S	39.86	790.53	23.04	767.49	10/7/2019
YGWA-18S	39.86	790.57	19.43	771.14	2/10/2020
YGWA-18S	39.86	790.57	16.04	774.53	3/16/2020
YGWA-18S	39.86	790.57	20.39	770.18	9/21/2020
YGWA-20S	29.71	767.30	9.94	757.36	10/31/2016
YGWA-20S	29.71	767.30	9.78	757.52	1/9/2017
YGWA-20S	29.71	767.30	9.74	757.56	2/20/2017
YGWA-20S	29.71	767.30	9.85	757.45	4/25/2017
YGWA-20S	29.71	767.30	11.74	755.56	6/26/2017
YGWA-20S	29.71	767.30	12.38	754.92	10/2/2017
YGWA-20S	29.71	767.30	11.70	755.60	1/9/2018
YGWA-20S	29.71	767.30	11.60	755.70	3/26/2018
YGWA-20S	29.71	767.30	11.87	755.43	6/4/2018
YGWA-20S	29.71	767.30	11.86	755.44	8/6/2018
YGWA-20S	29.71	767.30	12.68	754.62	9/17/2018
YGWA-20S	29.71	767.30	11.01	756.29	2/25/2019
YGWA-20S	29.71	767.30	11.10	756.20	3/25/2019
YGWA-20S	29.71	767.30	12.46	754.84	8/19/2019
YGWA-20S	29.71	767.30	12.95	754.35	9/23/2019
YGWA-20S	29.71	767.30	13.09	754.21	10/7/2019
YGWA-20S	29.71	767.12	11.05	756.07	2/10/2020
YGWA-20S	29.71	767.12	10.87	756.25	3/16/2020
YGWA-20S	29.71	767.12	11.44	755.68	9/21/2020
YGWA-21I	80.07	783.62	31.29	752.33	10/31/2016
YGWA-21I	80.07	783.62	31.30	752.32	1/9/2017
YGWA-21I	80.07	783.62	30.94	752.68	2/20/2017
YGWA-21I	80.07	783.62	30.96	752.66	4/25/2017
YGWA-21I	80.07	783.62	30.77	752.85	6/26/2017
YGWA-21I	80.07	783.62	32.90	750.72	10/2/2017
YGWA-21I	80.07	783.62	33.25	750.37	1/9/2018

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
YGWA-21I	80.07	783.62	32.24	751.38	3/26/2018
YGWA-21I	80.07	783.62	32.25	751.37	6/4/2018
YGWA-21I	80.07	783.62	*	751.40	7/7/2018
YGWA-21I	80.07	783.62	*	752.06	9/14/2018
YGWA-21I	80.07	783.62	*	755.51	2/25/2019
YGWA-21I	80.07	783.62	*	755.96	3/25/2019
YGWA-21I	80.07	783.62	*	755.96	8/19/2019
YGWA-21I	80.07	783.62	*	753.78	9/23/2019
YGWA-21I	80.07	783.62	*	753.60	10/7/2019
YGWA-21I	80.07	783.70	27.52*	756.18	2/11/2020
YGWA-21I	80.07	783.70	25.77*	757.93	3/16/2020
YGWA-21I	80.07	783.70	31.29	756.10	9/21/2020
YGWA-39	68.50	817.99	24.94	793.05	10/31/2016
YGWA-39	68.50	817.99	26.58	791.41	1/9/2017
YGWA-39	68.50	817.99	26.38	791.61	2/20/2017
YGWA-39	68.50	817.99	26.17	791.82	4/25/2017
YGWA-39	68.50	817.99	25.82	792.17	6/26/2017
YGWA-39	68.50	817.99	24.80	793.19	10/2/2017
YGWA-39	68.50	817.99	25.20	792.79	1/9/2018
YGWA-39	68.50	817.99	24.80	793.19	3/26/2018
YGWA-39	68.50	817.99	24.50	793.49	6/4/2018
YGWA-39	68.50	817.99	24.33	793.66	8/6/2018
YGWA-39	68.50	817.99	24.53	793.46	9/17/2018
YGWA-39	68.50	817.99	24.15	793.84	2/25/2019
YGWA-39	68.50	817.99	22.41	795.58	3/25/2019
YGWA-39	68.50	817.99	22.88	795.11	8/19/2019
YGWA-39	68.50	817.99	23.46	794.53	9/23/2019
YGWA-39	68.50	817.99	23.78	794.21	10/7/2019
YGWA-39	68.50	818.19	23.45	794.74	2/11/2020
YGWA-39	68.50	818.19	21.64	796.55	3/16/2020
YGWA-39	68.50	818.19	21.81	796.38	9/21/2020
YGWA-40	48.35	815.63	29.19	786.44	10/31/2016
YGWA-40	48.35	815.63	29.48	786.15	1/9/2017
YGWA-40	48.35	815.63	28.53	787.10	2/20/2017
YGWA-40	48.35	815.63	27.46	788.17	4/25/2017
YGWA-40	48.35	815.63	27.27	788.36	6/26/2017
YGWA-40	48.35	815.63	27.46	788.17	10/2/2017
YGWA-40	48.35	815.63	27.60	788.03	1/9/2018

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
YGWA-40	48.35	815.63	25.75	789.88	3/26/2018
YGWA-40	48.35	815.63	26.16	789.47	6/4/2018
YGWA-40	48.35	815.63	26.65	788.98	8/6/2018
YGWA-40	48.35	815.63	27.37	788.26	9/17/2018
YGWA-40	48.35	815.63	23.89	791.74	2/25/2019
YGWA-40	48.35	815.63	23.82	791.81	3/25/2019
YGWA-40	48.35	815.63	26.54	789.09	8/19/2019
YGWA-40	48.35	815.63	27.55	788.08	9/23/2019
YGWA-40	48.35	815.63	27.95	787.68	10/7/2019
YGWA-40	48.35	815.73	24.90	790.83	2/11/2020
YGWA-40	48.35	815.73	21.45	794.28	3/16/2020
YGWA-40	48.35	815.73	25.44	790.29	9/21/2020
YGWA-4I	49.70	784.18	26.06	758.12	10/31/2016
YGWA-4I	49.70	784.18	26.13	758.05	1/9/2017
YGWA-4I	49.70	784.18	24.72	759.46	2/20/2017
YGWA-4I	49.70	784.18	23.43	760.75	4/25/2017
YGWA-4I	49.70	784.18	23.67	760.51	6/26/2017
YGWA-4I	49.70	784.18	24.61	759.57	10/2/2017
YGWA-4I	49.70	784.18	24.80	759.38	1/9/2018
YGWA-4I	49.70	784.18	22.88	761.30	3/26/2018
YGWA-4I	49.70	784.18	22.61	761.57	6/4/2018
YGWA-4I	49.70	784.18	23.35	760.83	8/6/2018
YGWA-4I	49.70	784.18	23.97	760.21	9/17/2018
YGWA-4I	49.70	784.18	19.79	764.39	2/25/2019
YGWA-4I	49.70	784.18	19.03	765.15	3/25/2019
YGWA-4I	49.70	784.18	23.17	761.01	8/19/2019
YGWA-4I	49.70	784.18	24.55	759.63	9/23/2019
YGWA-4I	49.70	784.18	25.03	759.15	10/7/2019
YGWA-4I	49.70	784.21	22.66	761.55	2/10/2020
YGWA-4I	49.70	784.21	18.95	765.26	3/16/2020
YGWA-4I	49.70	784.21	23.45	760.76	9/21/2020
YGWA-5D	131.60	784.53	15.21	769.32	10/31/2016
YGWA-5D	131.60	784.53	15.60	768.93	1/9/2017
YGWA-5D	131.60	784.53	14.14	770.39	2/20/2017
YGWA-5D	131.60	784.53	15.52	769.01	4/25/2017
YGWA-5D	131.60	784.53	26.64	757.89	6/26/2017
YGWA-5D	131.60	784.53	28.99	755.54	10/2/2017
YGWA-5D	131.60	784.53	28.15	756.38	1/9/2018

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
YGWA-5D	131.60	784.53	27.24	757.29	3/26/2018
YGWA-5D	131.60	784.53	26.76	757.77	6/4/2018
YGWA-5D	131.60	784.53	25.77	758.76	8/6/2018
YGWA-5D	131.60	784.53	26.28	758.25	9/17/2018
YGWA-5D	131.60	784.53	23.91	760.62	2/25/2019
YGWA-5D	131.60	784.53	22.57	761.96	3/25/2019
YGWA-5D	131.60	784.53	23.32	761.21	8/19/2019
YGWA-5D	131.60	784.53	24.29	760.24	9/23/2019
YGWA-5D	131.60	784.53	24.45	760.08	10/7/2019
YGWA-5D	131.60	784.53	22.81	761.72	2/10/2020
YGWA-5D	131.60	784.53	21.31	763.22	3/16/2020
YGWA-5D	131.60	784.53	22.51	762.02	9/21/2020
YGWA-5I	58.50	784.53	22.24	762.29	10/31/2016
YGWA-5I	58.50	784.53	22.03	762.50	1/9/2017
YGWA-5I	58.50	784.53	20.18	764.35	2/20/2017
YGWA-5I	58.50	784.53	18.72	765.81	4/25/2017
YGWA-5I	58.50	784.53	19.89	764.64	6/26/2017
YGWA-5I	58.50	784.53	21.32	763.21	10/2/2017
YGWA-5I	58.50	784.53	21.66	762.87	1/9/2018
YGWA-5I	58.50	784.53	19.13	765.40	3/26/2018
YGWA-5I	58.50	784.53	19.17	765.36	6/4/2018
YGWA-5I	58.50	784.53	19.80	764.73	8/6/2018
YGWA-5I	58.50	784.53	20.61	763.92	9/17/2018
YGWA-5I	58.50	784.53	15.75	768.78	2/25/2019
YGWA-5I	58.50	784.53	15.49	769.04	3/25/2019
YGWA-5I	58.50	784.53	19.68	764.85	8/19/2019
YGWA-5I	58.50	784.53	21.05	763.48	9/23/2019
YGWA-5I	58.50	784.53	21.53	763.00	10/7/2019
YGWA-5I	58.50	784.54	18.33	766.21	2/10/2020
YGWA-5I	58.50	784.54	14.53	770.01	3/16/2020
YGWA-5I	58.50	784.54	19.82	764.72	9/21/2020
YGWA-6I	69.10	782.58	22.74	759.84	10/31/2016
YGWA-6I	69.10	782.58	23.23	759.35	1/9/2017
YGWA-6I	69.10	782.58	22.31	760.27	2/20/2017
YGWA-6I	69.10	782.58	21.99	760.59	4/25/2017
YGWA-6I	69.10	782.58	21.50	761.08	6/26/2017
YGWA-6I	69.10	782.58	20.59	761.99	10/2/2017
YGWA-6I	69.10	782.58	21.75	760.83	1/9/2018

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
YGWA-6I	69.10	782.58	20.13	762.45	3/26/2018
YGWA-6I	69.10	782.58	20.07	762.51	6/4/2018
YGWA-6I	69.10	782.58	19.56	763.02	8/6/2018
YGWA-6I	69.10	782.58	20.53	762.05	9/17/2018
YGWA-6I	69.10	782.58	17.12	765.46	2/25/2019
YGWA-6I	69.10	782.58	17.17	765.41	3/25/2019
YGWA-6I	69.10	782.58	19.61	762.97	8/19/2019
YGWA-6I	69.10	782.58	20.76	761.82	9/23/2019
YGWA-6I	69.10	782.58	21.29	761.29	10/7/2019
YGWA-6I	69.10	782.73	17.74	764.99	2/10/2020
YGWA-6I	69.10	782.73	15.82	766.91	3/16/2020
YGWA-6I	69.10	782.73	18.48	764.25	9/21/2020
YGWA-6S	39.60	782.28	22.43	759.85	10/31/2016
YGWA-6S	39.60	782.28	23.02	759.26	1/9/2017
YGWA-6S	39.60	782.28	21.98	760.30	2/20/2017
YGWA-6S	39.60	782.28	21.58	760.70	4/25/2017
YGWA-6S	39.60	782.28	21.26	761.02	6/26/2017
YGWA-6S	39.60	782.28	20.27	762.01	10/2/2017
YGWA-6S	39.60	782.28	21.48	760.80	1/9/2018
YGWA-6S	39.60	782.28	19.80	762.48	3/26/2018
YGWA-6S	39.60	782.28	19.79	762.49	6/4/2018
YGWA-6S	39.60	782.28	19.32	762.96	8/6/2018
YGWA-6S	39.60	782.28	20.24	762.04	9/17/2018
YGWA-6S	39.60	782.28	16.66	765.62	2/25/2019
YGWA-6S	39.60	782.28	16.62	765.66	3/25/2019
YGWA-6S	39.60	782.28	19.27	763.01	8/19/2019
YGWA-6S	39.60	782.28	20.43	761.85	9/23/2019
YGWA-6S	39.60	782.28	20.86	761.42	10/7/2019
YGWA-6S	39.60	782.47	17.40	765.07	2/10/2020
YGWA-6S	39.60	782.47	15.15	767.32	3/16/2020
YGWA-6S	39.60	782.47	18.22	764.25	9/21/2020
YGWC-19S	30.43	764.48	18.12	746.36	10/31/2016
YGWC-19S	30.43	764.48	14.52	749.96	1/9/2017
YGWC-19S	30.43	764.48	16.02	748.46	2/20/2017
YGWC-19S	30.43	764.48	16.13	748.35	4/25/2017
YGWC-19S	30.43	764.48	15.55	748.93	6/26/2017
YGWC-19S	30.43	764.48	15.61	748.87	10/2/2017
YGWC-19S	30.43	764.48	15.58	748.90	1/9/2018

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
YGWC-22S	40.11	751.60	10.30	741.30	10/31/2016
YGWC-22S	40.11	751.60	9.62	741.98	1/9/2017
YGWC-22S	40.11	751.60	9.41	742.19	2/20/2017
YGWC-22S	40.11	751.60	9.32	742.28	4/25/2017
YGWC-22S	40.11	751.60	8.86	742.74	6/26/2017
YGWC-22S	40.11	751.60	8.97	742.63	10/2/2017
YGWC-22S	40.11	751.60	8.94	742.66	1/9/2018
YGWC-23S	39.18	764.62	17.45	747.17	10/31/2016
YGWC-23S	39.18	764.62	15.52	749.10	1/9/2017
YGWC-23S	39.18	764.62	14.91	749.71	2/20/2017
YGWC-23S	39.18	764.62	15.07	749.55	4/25/2017
YGWC-23S	39.18	764.62	14.46	750.16	6/26/2017
YGWC-23S	39.18	764.62	14.91	749.71	10/2/2017
YGWC-23S	39.18	764.62	15.22	749.40	1/9/2018
YGWC-23S	39.18	764.62	14.05	750.57	3/26/2018
YGWC-23S	39.18	764.62	14.33	750.29	6/4/2018
YGWC-23S	39.18	764.62	*	750.30	7/7/2018
YGWC-23S	39.18	764.62	*	746.57	9/14/2018
YGWC-23S	39.18	764.62	*	749.43	2/25/2019
YGWC-23S	39.18	764.62	*	748.55	3/25/2019
YGWC-23S	39.18	764.62	*	748.55	8/19/2019
YGWC-23S	39.18	764.62	*	744.62	9/23/2019
YGWC-23S	39.18	764.62	*	744.48	10/7/2019
YGWC-23S	39.18	764.91	17.18*	747.73	2/11/2020
YGWC-23S	39.18	764.91	15.93*	748.98	3/16/2020
YGWC-23S	39.18	794.91	17.61	747.44	9/21/2020
YGWC-24S	57.01	764.12	29.14	734.98	10/31/2016
YGWC-24S	57.01	764.12	29.00	735.12	1/9/2017
YGWC-24S	57.01	764.12	28.59	735.53	2/20/2017
YGWC-24S	57.01	764.12	28.49	735.63	4/25/2017
YGWC-24S	57.01	764.12	28.30	735.82	6/26/2017
YGWC-24S	57.01	764.12	28.36	735.76	10/2/2017
YGWC-24S	57.01	764.12	28.56	735.56	1/9/2018
YGWC-24S	57.01	764.12	27.95	736.17	3/26/2018
YGWC-24S	57.01	764.12	27.94	736.18	6/4/2018
YGWC-24S	57.01	764.12	28.21	735.91	8/6/2018
YGWC-24S	57.01	764.12	28.87	735.25	9/17/2018
YGWC-24S	57.01	764.12	26.56	737.56	2/25/2019

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
YGWC-24S	57.01	764.12	26.67	737.45	3/25/2019
YGWC-24S	57.01	764.12	28.23	735.89	8/19/2019
YGWC-24S	57.01	764.12	29.59	734.53	9/23/2019
YGWC-24S	57.01	764.12	29.00	735.12	10/7/2019
YGWC-24S	57.01	764.12	27.53	736.59	2/11/2020
YGWC-24S	57.01	764.12	25.96	738.16	3/16/2020
YGWC-24SA	57.00	765.00	28.77	736.23	9/21/2020
YGWC-32I	39.97	758.21	20.12	738.09	10/31/2016
YGWC-32I	39.97	758.21	19.65	738.56	1/9/2017
YGWC-32I	39.97	758.21	19.60	738.61	2/20/2017
YGWC-32I	39.97	758.21	8.72	749.49	4/25/2017
YGWC-32I	39.97	758.21	19.21	739.00	6/26/2017
YGWC-32I	39.97	758.21	14.44	743.77	10/2/2017
YGWC-32I	39.97	758.21	19.20	739.01	1/9/2018
YGWC-32S	22.90	757.31	17.24	740.07	10/31/2016
YGWC-32S	22.90	757.31	16.69	740.62	1/9/2017
YGWC-32S	22.90	757.31	16.52	740.79	2/20/2017
YGWC-32S	22.90	757.31	19.70	737.61	4/25/2017
YGWC-32S	22.90	757.31	16.65	740.66	6/26/2017
YGWC-32S	22.90	757.31	8.57	748.74	10/2/2017
YGWC-32S	22.90	757.31	16.55	740.76	1/9/2018
YGWC-33S	38.73	744.54	9.49	735.05	10/31/2016
YGWC-33S	38.73	744.54	8.75	735.79	1/9/2017
YGWC-33S	38.73	744.54	8.53	736.01	2/20/2017
YGWC-33S	38.73	744.54	8.86	735.68	5/3/2017
YGWC-33S	38.73	744.54	8.28	736.26	6/26/2017
YGWC-33S	38.73	744.54	8.38	736.16	10/2/2017
YGWC-33S	38.73	744.54	8.27	736.27	1/9/2018
YGWC-33S	38.73	744.54	9.75	734.79	3/26/2018
YGWC-33S	38.73	744.54	10.07	734.47	6/4/2018
YGWC-33S	38.73	744.54	*	734.47	7/7/2018
YGWC-33S	38.73	744.54	*	729.88	9/14/2018
YGWC-33S	38.73	744.54	*	732.07	2/25/2019
YGWC-33S	38.73	744.54	*	731.32	3/25/2019
YGWC-33S	38.73	744.54	*	731.32	8/19/2019
YGWC-33S	38.73	744.54	*	728.36	9/23/2019
YGWC-33S	38.73	744.54	*	728.41	10/7/2019
YGWC-33S	38.73	744.54	15.41*	729.13	2/11/2020

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

**Historical Groundwater Elevations
Plant Yates
AMA and R6 CCR Landfill**

Monitoring Well ID	Total Depth (ft BTOC)	Top of Casing (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Date
YGWC-33S	38.73	744.54	14.87*	729.67	3/16/2020
YGWC-34I	38.69	773.67	25.29	749.75	10/31/2016
YGWC-34I	38.69	773.67	25.61	748.06	1/9/2017
YGWC-34I	38.69	773.67	24.64	749.03	2/20/2017
YGWC-34I	38.69	773.67	23.92	749.75	4/25/2017
YGWC-34I	38.69	773.67	23.60	750.07	6/26/2017
YGWC-34I	38.69	773.67	24.23	749.44	10/2/2017
YGWC-34I	38.69	773.67	25.08	748.59	1/9/2018
YGWC-36	60.00	739.53	10.67	728.86	10/31/2016
YGWC-36	60.00	739.53	10.30	729.23	1/9/2017
YGWC-36	60.00	739.53	9.99	729.54	2/20/2017
YGWC-36	60.00	739.53	10.39	729.14	4/25/2017
YGWC-36	60.00	739.53	9.86	729.67	6/26/2017
YGWC-36	60.00	739.53	10.23	729.30	10/2/2017
YGWC-36	60.00	739.53	10.20	729.33	1/9/2018
YGWC-36	60.00	739.53	10.16	729.37	3/26/2018
YGWC-36	60.00	739.53	10.18	729.35	6/4/2018
YGWC-36	60.00	739.53	*	729.39	7/7/2018
YGWC-36	60.00	739.53	*	729.05	9/14/2018
YGWC-36	60.00	739.53	*	729.88	2/25/2019
YGWC-36	60.00	739.53	*	729.53	3/25/2019
YGWC-36	60.00	739.53	*	729.53	8/19/2019

Notes:

1. * = indicates depth to water recorded from transducer.
2. ft MSL = feet mean sea level.
3. ft BTOC = feet below top of casing.

APPENDIX E
NUMERICAL MODELING REPORT



Groundwater Modeling Report

Georgia Power Company

Plant Yates

April 2020



A handwritten signature in blue ink, reading "Richard A. Mayer Jr.".

Richard A. Mayer Jr., P.G.
Project Hydrogeologist

A handwritten signature in blue ink, reading "Karen C. Saucier".

Karen C. Saucier, Ph.D.
VP, Business Unit Leader – Atlantic South

A handwritten signature in blue ink, reading "Michelle Hays".

Michelle Hays, P.G.
Project Technical Coordinator

TRC Environmental Corporation | Georgia Power Company Plant Yates
Groundwater Modeling Report

\\GREENVILLE-FP1\WPGVL\PJT2\242211\242211.0002\0001\R2422110002-002 GW MODELING REPORT.DOCX

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Appendix A	AQTESOLV Slug Test Data Outputs
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Executive Summary

Georgia Power Company (Georgia Power) converted from coal to natural gas at its Plant Yates facility (Site) located near Newnan, Georgia. There are currently several inactive ash-related units at Plant Yates which are being closed in accordance with state and federal regulations, namely the Georgia Environmental Protection Division (GA EPD) Rules of Solid Waste Management 391-3-4-.10 and the United States Environmental Protection Agency (US EPA) Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) 257 Subpart D. A CCR Unit Solid Waste Handling Permit application for R6 CCR landfill (R6 landfill) was submitted to GA EPD in November 2018 and is currently under review.

A component of the closure approach being developed and implemented for selected impoundments at the Site consists of consolidating ash and placing it within the ash management area (AMA). To better understand the hydrology of the Site, TRC Environmental Corporation (TRC) prepared a groundwater model. The primary objectives of the groundwater model were to:

- Improve the conceptualization of the hydro-stratigraphy, hydrogeology, and groundwater/surface water dynamics at the Site.
- Construct a numerical groundwater flow model that accurately depicts pre-closure groundwater flow conditions.
- Use the calibrated numerical groundwater flow model as a tool to predict groundwater flow conditions following the implementation of closure activities.

Groundwater flow modeling was conducted using Groundwater Vistas. The groundwater model was set up based on the site conceptual hydrogeologic model using six layers to depict the Site lithology. The surficial aquifer includes two modeled layers: a coal residual ash material as Layer 1, where applicable, and the unconsolidated regolith/saprolite as Layer 2. A transition zone consisting of weathered bedrock underlies the surficial aquifer as Layer 3. The competent bedrock beneath the transition zone was segregated as upper bedrock and lower bedrock based on the degree of weathering. The upper bedrock included model Layers 4 and 5. Layer 4 consisted of soft, moderately weathered, fractured biotite gneiss and/or mica schist. Layer 5 was similar to Layer 4 with the exception that the fracture density decreased, and the bedrock was less weathered. The lower bedrock included Layer 6 which represented basement bedrock with little to no weathering or fractures.

The model was calibrated using a combination of trial and error and automated adjustments using Parameter Estimation (PEST) developed by Watermark Numerical Computing (2004), an industry-standard inverse modeling software package. Calibration was accomplished by adjusting various parameters within realistic and expected ranges until simulated groundwater elevations were in reasonable agreement with observed groundwater elevations. The model was calibrated with 49 target groundwater elevations from June 26, 2014 representing pre-closure conditions. The calibration

statistics indicated a residual sum of squares (RSS) value of 1,450 with a root mean square error (RMS error) of 5.44. A small RSS value indicates a tight fit of the model to the Site data. The RSS value observed during the calibration process suggests a reasonable calibration was achieved using PEST. Additionally, the RMS error indicates that groundwater may fluctuate plus/minus 5.44 feet which is within the range of observed seasonal groundwater fluctuations at the Site. Furthermore, the absolute residual mean value (3.94) from the calibration statistics is lower than the 10 percent of the simulated difference in heads, which is generally considered a target value for the acceptance of a model calibration (Anderson and Woessner, 1992).

Following groundwater model calibration, the proposed closure plan was incorporated to build a post-closure groundwater flow model. The post-closure model incorporated the potential future layout of the R6 landfill and the AMA. The post-closure groundwater flow model was used to provide an estimate of changes to Site water levels following completion of closure activities. The overall general groundwater flow direction in the predicted model was to the northwest, which is similar to pre-closure conditions. However, groundwater flow in the R6 landfill area appears to have shifted more to the northeast around the landfill as compared to beneath it, as in previous conditions. The hydraulic gradient in the post-closure model ranged from a minimum of approximately 0.01 ft/ft in the northern portion of the AMA to a maximum of approximately 0.09 ft/ft to the south of AP-2 West. With respect to groundwater elevation, the post-closure model estimated an average decrease of approximately between less than 1 foot to over 4 feet within the R6 landfill and approximately between less than 2 feet to over 8 feet within the AMA as compared to pre-closure conditions.

Section 1

Introduction


Georgia Power (Georgia Power) converted from coal to natural gas at its Plant Yates facility (Site) located near Newnan, Georgia. There are currently several inactive ash-related units at Plant Yates which are being closed in accordance with state and federal regulations, namely the Georgia Environmental Protection Division (GA EPD) Rules of Solid Waste Management 391-3-4-.10 and the United States Environmental Protection Agency (US EPA) Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) 257 Subpart D. The six original coal ash impoundments subject to the CCR Rule included ash ponds (AP) AP-1, AP-2 (west and east), AP-3, AP-A, AP-B, and AP-B' as shown on **Figure 1-1**. A component of the closure approach being developed and implemented for selected impoundments consists of consolidating ash from AP-2 (including AMAX Cove) and the coves of AP-3, where the ash will be used as subgrade material in the ash management area (AMA) that will encompass AP-A, AP-B', AP-B and the remaining portion of AP-3. AP-2 and the AP-3 coves will be closed by removal of CCR. A CCR Unit Solid Waste Handling Permit application for R6 CCR Landfill (R6 landfill) was submitted to GA EPD in November 2018 and is currently under review.

To better understand the Site hydrology and the potential changes in groundwater flow conditions that may result from CCR unit closure activities, TRC Environmental Corporation (TRC) prepared a groundwater flow model. The groundwater modeling effort consisted of a two-phase approach. The first phase was to create a calibrated groundwater flow model that accurately depicted baseline pre-closure groundwater flow conditions. The second phase was to use the calibrated model as a tool to predict post-closure groundwater flow conditions following the implementation of proposed closure activities. This document presents a summary of procedures and results of the groundwater modeling process. Specifically, the report is organized as follows:

- Section 2 summarizes the groundwater model objectives.
- Section 3 presents the development of the conceptual site model.
- Section 4 presents a summary of the calibrated pre-closure groundwater flow model, including a description of the program used, domain and computational grid, layers, boundary conditions, calibration process and results, and pre-closure groundwater flow conditions.
- Section 5 includes a summary of the post-closure groundwater model which was used to estimate groundwater flow conditions at the completion of closure activities.
- Section 6 includes a summary of this report.
- Section 7 presents the references used for this report.



AERIAL SOURCE: GOOGLE EARTH PRO (11/13/2015)

PROJECT: GEORGIA POWER COMPANY - PLANT YATES NEWNAN, GEORGIA			
SHEET TITLE: SITE LAYOUT			
DRAWN BY: RAM	SCALE: 1: 9,600	PROJ. NO. 242211.0001.0.6	
CHECKED BY: MAH		FILE NO. Fig03-01_SiteLayout.mxd	
APPROVED BY: KCS	DATE PRINTED:	FIGURE 1-1	
DATE: JANUARY 2020			
		Patwood Plaza Three, Suite 150 50 International Drive Greenville, SC 29615-3535 Phone: 864-281-0030 FAX: 864-281-0288	

Section 2

Groundwater Model Objectives

The groundwater flow model was prepared consistent with the Georgia Environmental Protection (EPD) Guidance: Groundwater Contaminant Fate and Transport Modeling (Georgia EPD, 2016). The primary objectives of the groundwater modeling effort were to:

- Improve the conceptualization of the hydro-stratigraphy, hydrogeology, and groundwater/surface water dynamics at the Site.
- Construct a numerical groundwater flow model that accurately depicts pre-closure groundwater flow conditions.
- Use the calibrated numerical groundwater flow model as a tool to predict groundwater flow conditions following the implementation of closure activities.

Section 3

Development of Conceptual Site Model

TRC developed an overall understanding of the hydrogeology, lithology and groundwater quality for the Site using numerous site-specific investigation reports that are referenced within this report and summarized in Section 7.

3.1 Geologic Setting

The geology of the Site is within the Inner Piedmont Physiographic province of western Georgia, immediately southeast of the regional zone of deformation referred to as the Brevard Zone (ACC, 2019). This province is underlain by metamorphic rocks including chlorite schists and quartzofeldspathic gneisses. A thin layer of soil from one to two feet thick overlies a thick layer of saprolite. The saprolite, which extends to typical depths of 20-40 feet below ground surface, was formed in-place by the physical and chemical weathering of the underlying metamorphic rocks. There is typically a zone of variable thickness (approximately 5-20 feet) of transitionally weathered rock between the saprolite and competent bedrock. Localized alluvial soils consisting of generally coarser material (silty-sand, clayey silt, and silty clay with well-rounded gravel and cobbles) than that observed in saprolite may be related to historical river channel migration (ACC, 2019). The groundwater aquifer is unconfined and most of the groundwater flow occurs through the transition zone.

3.2 Hydrogeologic Setting

The Site is in an area of significant groundwater recharge, yet no portion of the Site is within the 100-year floodplain (Southern Company Services (SCS), 2014). The hydraulic gradients observed between piezometer clusters indicate groundwater recharge in upland areas and groundwater discharge near lowland areas with groundwater flow generally from the south, southwestern, and northeastern areas towards the central valley and the Chattahoochee River (SCS, 2014). Based on field values of hydraulic conductivity estimates available at the time of model construction, the hydraulic conductivity values ranged from approximately 0.1 to 5.86 feet/day in the saprolite, from approximately 1.21 to 8.92 feet/day in the transition zone, and from approximately 0.07 to 2.65 feet/day in the upper bedrock. Field estimates of groundwater flow velocities range from approximately 0.05 to 2 feet/day (ACC, 2019). A conceptual site model (CSM) from pre-closure conditions (June 2014) is included as **Figure 3-1**.

3.3 Summary of Supplemental Investigations

3.3.1 Summary of Pre-Closure Groundwater Flow Conditions

A site-wide groundwater gauging event that represented typical pre-closure groundwater conditions occurred in June 2014. The direction of groundwater flow during this event was beneath the R6 landfill area and AMA toward the northwest.

3.3.2 Summary of Supplemental Hydraulic Conductivity Testing within Ash

Aquifer hydraulic conductivities are often determined through the performance of single-well aquifer tests, commonly referred to as slug tests. The tests are conducted by producing a rapid (“instantaneous”) change in the water level within the well and recording the recovery of the water level over time. The instantaneous change is produced by submerging a solid plastic rod (“slug”) into the groundwater within the well, allowing the water level to return to an equilibrium water level, then rapidly withdrawing the slug from the well. The recovery of the water level is recorded using a down-well pressure transducer connected to a programmable data logger. The data is then downloaded to specialized software and used to calculate hydraulic conductivity.

To refine hydraulic conductivity of the ash, TRC conducted supplemental slug testing on February 1 and 2, 2018 in advance of the initiation of a stability and dewatering investigation conducted by MoreTrench along the AP-3 earthen dam. As part of this investigation, a series of dewatering wells were installed by MoreTrench along the crest of the AP-3 earthen dam. Initially, the plan was to conduct a constant rate pumping test on one of the dewatering wells to ascertain hydrogeological properties of the ash. As such, observation wells were installed to monitor water levels during the pumping test. During the installation of the dewatering wells however, it was discovered that the ash thickness was less than anticipated in the study area and that performance of a successful pumping test was unlikely. As an alternative, slug testing was conducted on the dewatering and observation wells to determine the hydraulic conductivity of the ash.

The slug tests were conducted by displacing a known volume of water within the well and measuring the fluctuation of the groundwater level. This procedure was followed for conducting both a falling-head (slug lowered into a well) and a rising-head (slug removed from the well) slug test. A rising and falling-head slug test was conducted at each well and the data was processed using the aquifer test analysis software AQTESOLV. The hydraulic conductivity estimate from each slug test was evaluated using the Bouwer and Rice (1976) straight-line method for unconfined aquifers. The results of the slug tests are presented in **Table 3-1**.

Observation wells P-1 and P-2 were installed by MoreTrench under the direction of TRC personnel and both wells were screened completely within the ash. The hydraulic conductivity geometric mean for the ash at these two locations was 7.5×10^{-6} cm/sec or 0.021 feet/day. Slug testing was conducted on additional wells during this study however, review of available field notes for these wells (DW-1, WP-1, and WP-2) indicated that the borings for each well were advanced without sample collection to the base of the ash. As such, the wells were installed partially penetrating or in contact with the underlying higher conductivity natural material (ash/saprolite/transition zone) and therefore were not suitable for hydraulic conductivity testing of the ash given that these wells were screened across multiple units. Since P-1 and P-2 were screened completely within the ash, the hydraulic conductivity value obtained from the slug test results for these wells was incorporated into the groundwater model for the ash hydraulic conductivity. Copies of the AQTESOLV output files are provided in **Appendix A**.

3.3.3 Summary of Lithology Investigations

Bedrock Investigation Along Dyer Road

In June 2017, Georgia Power performed a subsurface boring investigation along Dyer Road, which runs on the northwest side of the R6 landfill as illustrated in **Figure 3-2**. The investigation focused on delineating the ash thickness in this area under the roadway and near the natural gas line located in the right-of-way. TRC requested that four of the borings (YTPR-38, YTPR-46, YTPR-51, and YTPR-55) be advanced 5 feet into the bedrock surface. Drilling was performed by hollow stem auguring through saprolite and NQ™ Diamond Core technology through the transition zone and bedrock. TRC provided oversight of the bedrock borings and it was observed that competent rock ranged from approximately 42 feet to 52 feet below land surface (bls). Upon drilling completion, each borehole was abandoned by grouting from the termination depth to the ground surface and topped off with asphalt patch at the surface. Details from this investigation were incorporated into the groundwater model construction.

Table 3-1
Summary of Supplemental Hydraulic Conductivity Testing within Ash
Plant Yates, Georgia

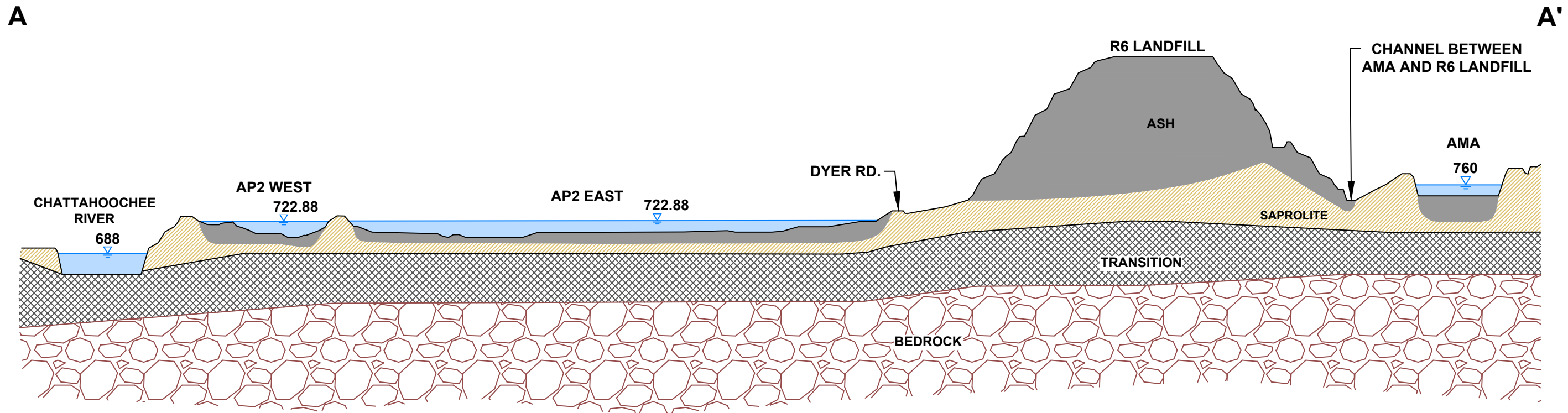
WATER TABLE AQUIFER WELLS				
WELL	GEOLOGIC MATERIAL	ESTIMATED K (ft/day)	PER WELL AVERAGE K (ft/day)	PER UNIT GEOMETRIC MEAN K (ft/day)
P-1 (FH)	Ash	0.01828	0.01667	0.02124
P-1 (RH)	Ash	0.01506		
P-2 (FH)	Ash	0.04986	0.03235	
P-2 (RH)	Ash	0.01484		

Hydraulic conductivity testing conducted in February 2018.

(FH) Falling Head Test

(RH) Rising Head Test

* Results for second Falling Head or Rising Head Test



CROSS SECTION A-A'
NOT TO SCALE

NOTE

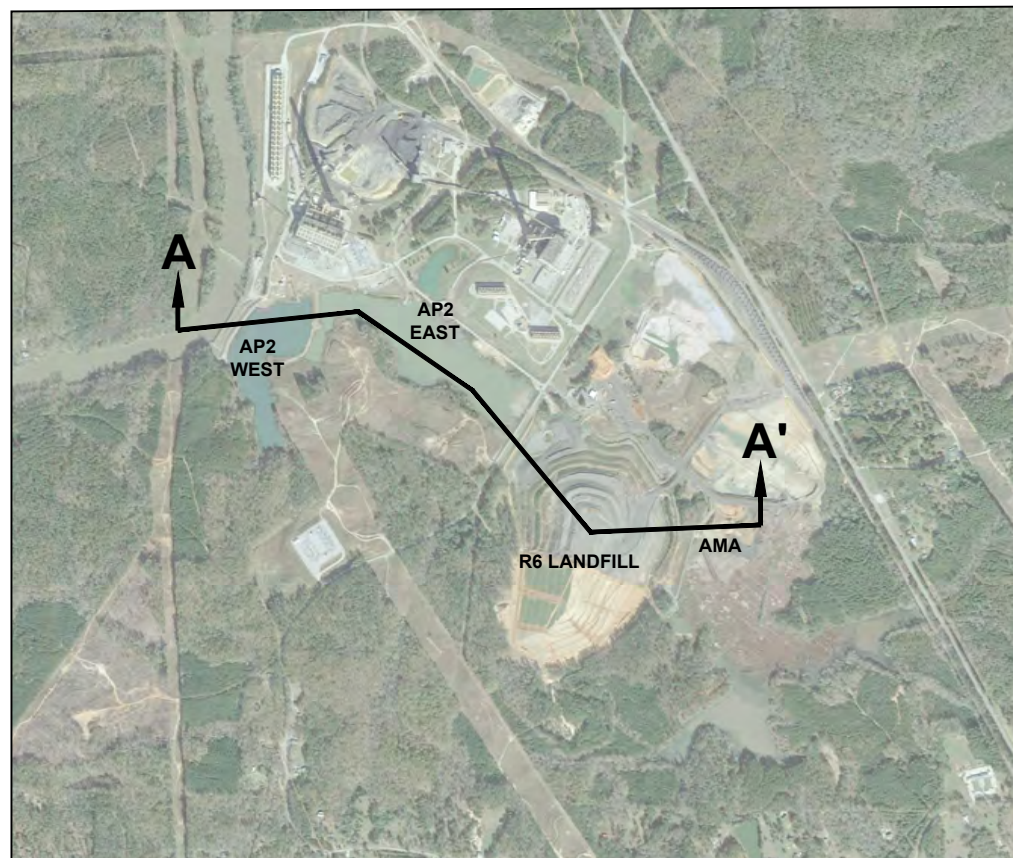
1. CROSS-SECTION DEPTICS PRE-CLOSURE CONDITIONS. (JUNE 2014)

SOURCE

1. PROFILE IS BASED ON MAY 2014 LIDAR TAKEN FROM METRO ENGINEERING & SURVEYING CO. INC. DRAWING SUPPLIED BY PLANT YATES, 4143YSP.DWG.

LEGEND

- ASH
- SAPROLITE
- TRANSITION ZONE
- BEDROCK
- APPROXIMATE WATER SURFACE ELEVATION



CROSS SECTION LAYOUT MAP
SCALE: 1=2000'

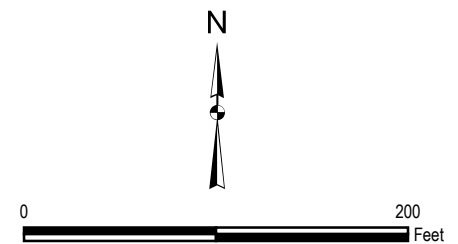
PROJECT:		GEORGIA POWER COMPANY - PLANT YATES NEWNAN, GEORGIA	
TITLE:		CONCEPTUAL SITE MODEL CROSS SECTION A-A'	
DRAWN BY:	C. NEWELL	PROJ NO.:	242211.0001.0.6
CHECKED BY:	M. HAYS	FIGURE 3-1	
APPROVED BY:	K. SAUCIER		
DATE:	APRIL 2020		
		50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.281.0030	
FILE NO.:	242211-CROSS-SECTION.dwg		

11x17 - ATTACHED REFS: - ATTACHED IMAGES: 20191113_Google_Aerial; DRAWING NAME: J:\CAD\Yates\242211-SCS Plant Yates\0001\242211-CROSS-SECTION.dwg; PLOT DATE: April 08, 2020 - 11:00AM; LAYOUT: FIGURE 3-1



LEGEND

- Soil Boring Locations
- Soil Boring Locations that extend to Bedrock



PROJECT: GEORGIA POWER COMPANY - PLANT YATES NEWNAN, GEORGIA			
SHEET TITLE: BEDROCK INVESTIGATION ALONG DYER ROAD			
DRAWN BY: DJS	SCALE: 1:1,200	PROJ. NO. 242211.0001.0.6	
CHECKED BY: MAH		FILE NO. FIGURE 3-2	
APPROVED BY: KCS	DATE PRINTED:	FIGURE 3-2	
DATE: JANUARY 2020			
		Patewood Plaza Three, Suite 150 50 International Drive Greenville, SC 29615-3535 Phone: 864-281-0030 FAX: 864-281-0288	

Section 4

Pre-Closure Groundwater Flow Modeling

Groundwater modeling efforts were conducted using the numerical modeling software Groundwater Vistas (version 7.24). The following narrative presents an overview of TRC's Groundwater Flow Model (model).

4.1 Groundwater Model Software Selection

Groundwater flow modeling was conducted using Groundwater Vistas. The flexibility of Groundwater Vistas' finite-difference structure makes it easy to conform the model geometry to streams, channels, ponds, and other hydrologic features. The software provides a graphical interface for building, running, and analyzing three-dimensional (3D) groundwater flow models using the MODFLOW suite of codes.

4.2 Model Domain and Computational Grid

The model domain and grid layout are shown on **Figure 4-1**. The model domain has been extended to natural hydraulic boundaries that define the Site watershed. The groundwater and surface water within this watershed drain to the Chattahoochee River located along the western model boundary.

The finite-difference grid consists of 598 rows by 588 columns that was constructed by dividing the model domain into square or rectangular regions called blocks or cells. In plan view, the Site model domain consists of 931,330 active cells. Aquifer hydraulic properties are specified within each cell and layer. The cell size resolution within the model is 20 feet by 20 feet.

4.3 Hydrogeologic Layers and Properties

The groundwater model was set up using six layers to depict the Site lithology. The model layering is illustrated on **Figure 4-2** which represents an east-west cross-sectional view through the central portion of the R6 landfill. The model layers that comprise the surficial aquifer includes two layers: (1) a coal residual ash material (Layer 1 - Ash) where applicable and (2) the unconsolidated regolith/saprolite (Layer 2 - Saprolite). In areas outside of the coal ash footprint, Layer 1 was set to be very thin (0.1-foot thick) and made inactive (no-flow boundary condition). The presence of the thin inactive cells was accommodated in the model by applying the vertical infiltration (recharge) to the underlying Layer 2. This condition in the model was set so that the regolith/saprolite would not be split in half thus creating excessive dry cells within Layer 1 and to allow for better model convergence.

A transition zone (Layer 3 – Transition Zone) consisting of weathered bedrock underlies the surficial aquifer and was modeled as Layer 3. The competent bedrock beneath the transition zone was

segregated into upper bedrock and lower bedrock based on the degree of weathering. The upper bedrock (Layer 4 – Upper Bedrock (some fractures) and Layer 5 – Upper Bedrock (fresh, few fractures)) included Layers 4 and 5. Layer 4 consisted of soft, moderately weathered, fractured biotite gneiss and/or mica schist. Layer 5 was similar to Layer 4 with the exception that the fracture density decreased, and the bedrock was less weathered. The lower bedrock (Layer 6 – Lower Bedrock (fresh, no fractures)) included Layer 6 which represented basement bedrock with little to no weathering or fractures. **Table 4-1** depicts the layer details used in the groundwater model.

The top of the model represents the land surface. The distribution of the land surface elevation was obtained from a May 2014 LIDAR survey which was provided by SCS (SCS, 2014). Information from Site groundwater monitoring well boring logs was used to define the layer elevations where available. The bottom of the saprolite aquifer (Layer 2) was interpolated using mapping software (Surfer®) from boring logs PZ-1S, PZ-2I, PZ-3S through PZ-10S, PZ-13S, PZ-14S, PZ-16S through PZ-20S, PZ-20I, PZ-22S through PZ-28S, PZ-29I, PZ-30I, PZ-31S through PZ-33S, PZ-34 through PZ-49, GYP-1, GYP-4 through GYP-28, and YTPR-36 through YTPR-55.

Ash was included in the groundwater model (Layer 1) at the AP-2 and AP-3 impoundments, the R6 landfill, and the R6 channel. The ash was not modeled as a continuous layer and pinched out outside of these areas. When present, the ash layer exists on top of the saprolite and represents the top of the model. The ash thickness in AP-2 varied between 3.43 to 19.65 feet and was incorporated into the model based on previous investigative activities conducted by TRC. Additionally, the ash thickness of the R6 landfill, R6 channel, and AP-3 was incorporated into the model based on pre-existing ground surface elevations for these areas. This included the November 2000 United States Geological Survey (USGS) digital elevation model (DEM) for the topography of the R6 landfill and R6 channel area, and the 1976 topographic map (digitized in AutoCAD) for the AP-3 pond/coves. Ash thickness in the R6 landfill/R6 channel ranged between 0.18 to 160.68 feet and in AP-3 between 4.72 to 31.45 feet.

The bottom elevation of the transition zone (Layer 3) was interpolated from boring logs PZ-1I through PZ-10I, PZ-13I, PZ-14I, PZ-16I, PZ-18I, PZ-21I, PZ-24I through PZ-30I, PZ-32I, PZ-34I, PZ-35 through PZ-49, GYP-1, GYP-4 through GYP-6, GYP-8, GYP-10, GYP-13, GYP-16, GYP-19, GYP-20, GYP-23, GYP-26, GYP-28, YTPR-38, YTPR-46, YTPR-51, and YTPR-55. Boring logs PZ-1D, PZ-3D, PZ-5D, PZ-6D, PZ-38, PZ-40, PZ-43, and PZ-48 were used to help define the bedrock layers. However, sufficient spatial information on bedrock layers was not available for interpolation, and as such a uniform thickness of 5 feet was assumed for shallow/fractured bedrock (Layer 4) and 15 feet for Layer 5. The thickness of the lower bedrock (Layer 6) varied and the model base was set at an elevation of 500 feet above mean sea level.

Hydraulic conductivity properties were assigned within the model using specific zones. In general, a zone correlated to the model layer and represented the average hydraulic conductivity value for the associated lithology. The hydraulic conductivity values used for each zone were assigned based on a

combination of available slug testing data and through the process of model calibration. Model calibration is described separately in Section 4.5. **Table 4-2** provides a summary of available hydraulic conductivity estimates from Site slug testing results. The hydraulic conductivity values assigned within the model are presented on **Table 4-3**. Additionally, the hydraulic conductivity zones modeled within the ash layer (Layer 1) and saprolite (Layer 2) are depicted on **Figure 4-3**. For visual purposes, the ash from Layer 1 is superimposed onto Layer 2 in **Figure 4-3**.

The horizontal (Kh) hydraulic conductivities shown in **Table 4-3** are generally similar to the average hydraulic conductivity values observed from available slug testing data (**Table 4-2**) with respect to the saprolite. For example, the model Kh for the saprolite was 0.031 feet/day in the uplands (zone 8) and 1.61 feet/day in the valley (zone 1) while the average Kh from slug testing data for 21 wells installed in the saprolite was 1.44 feet/day. The model Kh for the transition zone, however, was 0.01 feet/day which is lower than the average Kh from slug testing for 11 wells installed in the transition zone was 4.72 feet/day. In regard to the upper fractured bedrock layer (Layer 4), the model Kh results were also lower (0.021 feet/day) than the 1.69 feet/day average from slug testing at seven wells. The upper slightly fractured bedrock layer (Layer 5) Kh from the model was 0.01 feet/day and the average from slug testing at 13 wells was 0.28 feet/day. The Kh for the lower bedrock (Layer 6) and the vertical (Kv) hydraulic conductivities were estimated during model calibration.

4.4 Boundary Conditions

Boundary conditions were specified for the model perimeter, model top, and model bottom. These boundary conditions include constant head, lake, drainage channels, recharge, evapotranspiration, and inactive cells (no flow).

4.4.1 Model Perimeter

The watershed drainage basin surrounding the Site was used to establish the model perimeter. Inactive cells were used to represent the edge or topographic ridge surrounding the watershed encompassing the Site. One exception to this was along the western extent of the model perimeter at the Chattahoochee River where a constant head elevation ranging from approximately 688 feet above mean sea level (AMSL) at the upstream portion of the river to 685 feet AMSL at the downstream extent. This elevation was approximated from the May 2014 LIDAR survey data (SCS, 2014).

For the bottom of the model, vertical flow between the upper bedrock (Layer 5) and underlying deep/basement bedrock (Layer 6) was assumed to be very small compared with flow in the overlying fractured bedrock and thus served as the model base consisting of inactive cells. With respect to the model top, the topography of the Site dictates as previously discussed. Recharge and evapotranspiration fluxes were applied to the highest active layer as described below.

4.4.2 Drains

Information was not readily available regarding the geometry, bed conductance, or flow characteristics of the Site tributaries. As such, these features were treated as drains in the groundwater model. The drain feature is a type of head-dependent boundary condition in Groundwater Vistas that will only allow water to be removed from the system. For instance, if the head computed by the model is less than the head in the boundary (drain), the boundary condition is turned off.

The drain boundary condition in the groundwater model was set close to or equal to the ground surface elevation for each cell within a tributary footprint. Using this approach, any water above the ground surface within the model would be removed from the system reducing the likelihood of artificially flooded areas. In general, the drain boundary condition served to keep the water table at or close to the tributary bottom. As with the Site tributaries, the R6 channel was similarly modeled as a drain.

4.4.3 Ash Ponds

The two ash ponds at the Site included in the groundwater model were AP-2 (AP-2 East and AP-2 West) and the AP-3 pond/coves. AP-2 was modeled using the lake boundary condition. This represents a head-dependent boundary condition in which a boundary head and conductance term are assigned to allow for the flux of water into or out of the cell. Since the entire base of AP-2 is covered in ash, this boundary condition was most suitable to allow for water to migrate into or out of the ash layer.

AP-3 was modeled using the constant head boundary condition. This boundary condition differs than that used for AP-2 in that the bottom of AP-3 does not contain a continuous layer of ash and therefore the constant head boundary condition was suitable. Constant head boundary conditions are assigned a head that does not vary throughout the model simulation.

For AP-2, the boundary head was set at 722.88 feet above mean sea level (AMSL). The AP-3 elevation was set at 754 feet AMSL. These elevations were selected based on staff gauge measurements collected by TRC during ash thickness investigation activities conducted in 2016.

4.4.4 Additional Surface Water Features

In review of historical aerial imagery of the Site, several small ponds appear to be historically present and were included in the model using the constant head boundary condition. The water surface elevation of each pond was estimated using the topography of the pond shoreline/edge

from the May 2014 LIDAR survey data (SCS, 2014). The following constant head elevations were used in the model:

- Pond 1 – 804 feet AMSL
- Pond 2 – 777 feet AMSL
- Pond 3 – 778 feet AMSL
- Pond 4 – 782 feet AMSL
- Pond 5 – 779 feet AMSL
- Pond 6 – 725 feet AMSL

4.4.5 Recharge and Evapotranspiration

Recharge is the rate at which infiltrating water reaches the water table while evapotranspiration (ET) is the sum of evaporation from the land surface plus transpiration from plants. Both recharge and ET were expressed in units of feet per day in the model. Recharge and ET are represented in the groundwater model as specified flux boundary cells; however, they are treated as properties because they are distributed to every cell in the top (or highest active) layer of the model.

As reported in the 2014 Hydrogeological Characterization Report (SCS, 2014), the mean annual precipitation observed in the Newnan, Georgia area based on 85 years of data is 51.4 inches per year. In general, approximately 70 percent of precipitation in Georgia is lost to evapotranspiration (Rasmussen, 2016). An initial conservative estimate of 15.4 inches per year (0.0035 feet/day) for recharge was used based on ET loss alone (precipitation minus 70 percent loss to ET). This initial value did not however, account for surface runoff. In using this initial value, the groundwater model was inundated with excessive surface water thus flooding most of the model area. Information regarding the Site surface water features/tributaries was not readily available to provide an estimate of surface runoff and groundwater recharge. Recharge in the model was assigned using zones that were based on simulations conducted during model calibration. A recharge rate of 3.5 inches per year (0.0008 feet/day) was used for the lowland/valley portions of the site while the upland areas were assigned a recharge rate of 2.2 inches per year (0.0005 feet/day). Model calibration is discussed in Section 4.5.

A recharge rate of 1 inch per year (0.00023 feet/day) was used within the R6 landfill footprint to account for the clay liner that serves as the cap for the landfill. The recharge zones modeled within Layer 1 is depicted on **Figure 4-4**.

Evapotranspiration from the water table can be significant in this region of Georgia, as in general, there is a relatively shallow water table at many locations, including Plant Yates. The

computed ET decreases linearly with depth of the water table below the land surface to a value of zero at a specified root extinction depth. The extinction depth is a function of vegetative cover, soil type, and land use. Similar to recharge, ET and extinction depth in the model was assigned using zones that were based on simulations conducted during model calibration. An ET rate of 175 inches per year (0.04 feet/day) with an extinction depth of 1 foot was used for the lowland/valley portions of the site while the upland areas were assigned an ET rate of 191 inches per year (0.0437 feet/day) with an extinction depth of 10 feet. These ET rates are higher than what you would anticipate from actual site conditions however, ET does not remove water from the model if groundwater is below the extinction depth. Additionally, a shallow extinction depth as used in the lowland areas of the model (1 foot) may represent removal of water from the ground surface via overland flow. Review of the volumetric budget of the model indicated that the amount of recharge was similar to the amount of ET. The evapotranspiration zones modeled within Layer 1 are depicted on **Figure 4-5**.

4.5 Groundwater Flow Model Calibration

The groundwater flow model was calibrated using a comparison of the observed heads in monitoring wells to model computed heads for steady-state simulations representing average hydrologic conditions. The observed heads from Site monitoring wells were selected from the June 26, 2014 groundwater measurement event which represents data that was closest to the time interval of the May 2014 LIDAR topographic survey data. This provided the best spatial coverage closest to the time of the topographic survey which was used as the ground surface for the model. The observed heads used in the calibration process are depicted on **Table 4-4**.

The groundwater model was calibrated using a combination of trial and error and automated adjustments using Parameter Estimation (PEST), an industry-standard inverse modeling software package developed by Watermark Numerical Computing (2004). PEST uses calibration targets to compute statistics that guide the selection of aquifer property values. The calibration targets used in the model calibration were observed groundwater elevations as presented on **Table 4-4**. An upper and lower boundary was assigned in PEST to refine the model hydrogeological parameters. The objective of PEST was to find the best set of parameter estimates that minimized the sum of weighted squared deviations between certain model outcomes and the corresponding field-measured counterparts.

The PEST parameters estimated during model calibration were recharge, ET, Kh, and Kv. A total of 49 groundwater head measurements (targets) were used during the calibration process. The results of the observed versus simulated target values following use of the PEST calibration tool is presented on **Figure 4-6**. For a perfect fit of modeled results to observed values, all points would plot on a line extending at a 45-degree angle through the origin of the modeled versus observed value chart. As

depicted in **Figure 4-6**, the majority of the points fall on or close to the line indicating a good fit between the observed and modeled results.

A statistical summary of the minimum residual, maximum residual, and the absolute residual mean are presented in **Table 4-5**. The residual is the difference between observed groundwater elevations and simulated groundwater elevations. If the residual is positive, the observed groundwater elevation is higher than the simulated groundwater elevation. If the residual is negative, the observed groundwater elevation is lower than the simulated groundwater elevation. The standard deviation of the residuals and the range of observed groundwater elevations are also provided in **Table 4-5**. A common statistical test to examine calibration is the standard deviation of the residuals (the difference between observed and simulated values) divided by the range of observed values. Rumbaugh (2004) suggests that a good calibration yields a value less than 10 to 15 percent or (0.10 to 0.15). The standard deviation of the residuals divided by the range of observed groundwater elevations for the calibrated model is 0.039.

The summary also includes the value of the sum of squared residuals, which was used as the objective function during parameter estimation. Finally, the summary includes the frequency of residuals within 1-foot, 2.5-foot, and 5-foot intervals. A graphical summary showing the match between the observed and simulated groundwater elevations is shown on **Figure 4-6**. Sixteen percent of the simulated groundwater elevations are within ± 1 foot of the observed groundwater elevations, 49 percent are within ± 2.5 feet, while 71 percent are within ± 5 feet. A model output of the pre-closure calibrated head contours is presented as **Figure 4-7**.

A mass balance conducted on the calibrated model concluded that the model reflects a good conservation of mass (inputs and outputs) with a total calculated error of only 0.002 percent.

4.6 Groundwater Flow Model Sensitivity Analysis

A sensitivity analysis evaluated how changes in selected model parameters affect the model. One parameter at a time was varied while all the other parameters were held constant. The tested model parameters were varied by 50 percent of the calibrated values. The sensitivity analysis was conducted on horizontal and vertical conductivity, recharge, and evapotranspiration. A sensitivity analysis was not conducted on the constant head boundary conditions as these values were designated by SCS as operational requirements for the facility. Results of the sensitivity analysis are presented in **Table 4-6**. These results were analyzed to identify the parameters causing the greatest sensitivity when changed, and to confirm that final calibrated values fall within the range of expected values according to the ranges set during conceptual model formulation.

Model results are most sensitive to changes in recharge rate and horizontal conductivity in the saprolite zone. Calibrated values for these parameters are consistent with observed values in the study area, as identified during the conceptual model formulation stage. No significant improvement in the model

calibration was noted to be by adjusting these parameters. Thus, changes to the model are unwarranted, and the model was accepted for post-closure use, according to the objectives set forth at the beginning of the modeling process and the model-calibration criteria established during numerical model development.

4.7 Groundwater Flow Model Verification

The groundwater flow model was evaluated to determine the suitability for post-closure simulations. This was accomplished by testing the calibrated model to determine if the simulated groundwater elevations would match those from a separate historic data set of observed groundwater elevations, a process commonly referred to as model verification. The data set used for the verification process was the February 20, 2017 observed groundwater elevations. The observed groundwater elevations from February 20, 2017 are listed on **Table 4-7**, along with the simulated groundwater elevations from the model. **Table 4-7** also lists the residuals which is the difference between observed groundwater elevations and simulated groundwater elevations. As previously discussed, if the residual is positive, the observed groundwater elevation is higher than the simulated groundwater elevation. If the residual is negative, the observed groundwater elevation is lower than the simulated groundwater elevation. The results of the observed versus simulated target values for the February 20, 2017 event are also graphically depicted on **Figure 4-8**.

A statistical summary of the fit of the February 20, 2017 data set using the calibrated model is presented on **Table 4-8**. The standard deviation of the residuals divided by the range of observed groundwater elevations using the February 20, 2017 verification data set is 0.036. As previously discussed, a good fit yields a value less than 0.10 to 0.15 (Rumbaugh, 2004) suggesting the independent data set is a good match to the calibrated model. Additionally, the statistical summary includes the frequency of residuals within 1-foot, 2.5-foot, and 5-foot intervals. Twelve percent of the simulated groundwater elevations are within ± 1 -foot of the observed groundwater elevations, 27 percent are within ± 2.5 feet, while 58 percent are within ± 5 feet.

Of the approximately 42 percent (25 water level measurements) of the simulated groundwater elevations that were outside of the ± 5 -foot range of observed groundwater elevations, 40 percent or 10 of the 15 measurements were in the northwestern area of the site near the Chattahoochee River. The USGS maintains a stream gauge approximately a half mile upstream of the site. In reviewing the historical gage height data, the river was approximately 5.5 feet lower during the February 20, 2017 event compared to that used for the calibrated model. Additionally, 28 percent or seven of the 25 simulated groundwater elevations that were outside of the ± 5 -foot range of observed groundwater elevations were located within bedrock which has the least amount of information available for the site.

Although there is slightly more variation in the simulated groundwater elevations using the February 20, 2017 data set, the overall fit of the data seemed to match the observed values and thus the calibrated model was accepted for post-closure use.

Table 4-1
Groundwater Model Layer Description

LAYER NUMBER	DESCRIPTION	LAYER THICKNESS (ft)	TOP LAYER ELEVATION (ft msl)
1	CCR Ash ⁽¹⁾	Between 0.18 to 160.68	700 to 878
2	Saprolite/Regolith/Alluvium	Between 5 to 88	685 to 885
3	Transition Zone	Between 8 to 45	653 to 855
4	Upper Bedrock (some fractures)	Assumed 5	633 to 808
5	Upper Bedrock (fresh, few fractures)	Assumed 15	628 to 803
6	Lower Bedrock (fresh, no fractures)	Varies, greater than 20	613 to 788

(1) The CCR Ash does not cover the entire layer and Layer 1 is inactive outside of the ash footprint.

Table 4-2
Summary of Available Hydraulic Conductivity Testing
Plant Yates, Georgia

WELL	DESCRIPTION/LAYER	LAYER	ESTIMATED K (ft/day)	AVERAGE K (ft/day)	PER UNIT GEOMETRIC MEAN K (ft/day)
PZ-4S	Saprolite	2	1.3	1.44	0.87
PZ-5S	Saprolite	2	1.2		
PZ-7S	Saprolite	2	0.1		
PZ-8S	Saprolite	2	0.7		
PZ-9S	Saprolite	2	0.6		
PZ-10S	Saprolite	2	0.4		
PZ-14S	Saprolite	2	1.4		
PZ-17S	Saprolite	2	0.98		
PZ-18S	Saprolite	2	0.25		
PZ-19S	Saprolite	2	0.92		
PZ-20S	Saprolite	2	0.83		
PZ-22S	Saprolite	2	0.86		
PZ-23S	Saprolite	2	0.64		
PZ-24S	Saprolite	2	0.81		
PZ-25S	Saprolite	2	0.47		
PZ-26S	Saprolite	2	0.22		
PZ-28S	Saprolite	2	0.90		
PZ-31S	Saprolite	2	5.86		
PZ-32S	Saprolite	2	5.45		
PZ-33S	Saprolite	2	5.62		
PZ-36	Saprolite	2	0.69		
PZ-18I	Transition Zone	3	1.82	4.72	3.98
PZ-26I	Transition Zone	3	1.21		
PZ-30I	Transition Zone	3	6.19		
PZ-32I	Transition Zone	3	6.06		
PZ-35	Transition Zone	3	7.35		
PZ-37	Transition Zone	3	5.36		
PZ-39	Transition Zone	3	5.25		
PZ-41	Transition Zone	3	5.35		
PZ-43	Transition Zone	3	8.92		
PZ-47	Transition Zone	3	2.28		
PZ-49	Transition Zone	3	2.12		
PZ-5I	Fractured Bedrock	4	1.10	1.69	1.63
PZ-3D	Fractured Bedrock	4	1.60		
PZ-40	Fractured Bedrock	4	1.85		
PZ-41	Fractured Bedrock	4	2.65		
PZ-45	Fractured Bedrock	4	1.15		
PZ-46	Fractured Bedrock	4	1.78		
PZ-48	Fractured Bedrock	4	1.73		
PZ-1D	Slightly Fractured Bedrock	5	0.20	0.28	0.23
PZ-3I	Slightly Fractured Bedrock	5	0.30		
PZ-4I	Slightly Fractured Bedrock	5	0.20		
PZ-5D	Slightly Fractured Bedrock	5	0.30		
PZ-6D	Slightly Fractured Bedrock	5	0.30		
PZ-21I	Slightly Fractured Bedrock	5	0.07		
PZ-25 I	Slightly Fractured Bedrock	5	0.09		
PZ-27I	Slightly Fractured Bedrock	5	0.51		
PZ-28I	Slightly Fractured Bedrock	5	0.10		
PZ-29I	Slightly Fractured Bedrock	5	0.13		
PZ-38	Slightly Fractured Bedrock	5	0.54		
PZ-42	Slightly Fractured Bedrock	5	0.53		
PZ-44	Slightly Fractured Bedrock	5	0.31		

Data from 2014 Draft Hydrogeological Characterization Report and March 2017 Slug Test Summary

Table 4-3
Groundwater Model Hydraulic Conductivity Parameters

LAYER NUMBER	LAYER/MATERIAL DESCRIPTION	AQUIFER TYPE	MODEL ZONE NUMBER	Kh (feet/day)	Kv (feet/day)
1	CCR Ash	Unconfined	6	0.0028	0.0011
2	Saprolite/Regolith - Valley	Unconfined	1	1.61	0.2
	Saprolite/Regolith - Uplands	Unconfined	8	0.031	0.002
	Alluvial/Fluvial Deposits ⁽¹⁾	Unconfined	7	10	4
3	Transition Zone	Unconfined	2	0.01	0.001
4	Upper Bedrock (some fractures)	Unconfined	3	0.021	0.0025
5	Upper Bedrock (fresh, few fractures)	Unconfined	5	0.01	0.005
6	Lower Bedrock (fresh, no fractures)	Unconfined	4	0.013	0.0013

(1) A narrow band of alluvial/fluvial deposits adjacent to the Chattahoochee River are included in the model within the saprolite layer.

Table 4-4
Groundwater Model Calibration Targets
June 26, 2014

PIEZOMETER / WELL ID	GROUNDWATER ELEVATION ⁽¹⁾	MODEL LAYER	PIEZOMETER / WELL ID	GROUNDWATER ELEVATION ⁽¹⁾	MODEL LAYER
PZ-1S	805.88	2	PZ-14S/YGWA-14S	733.37	2
PZ-1I/YGWA-1I	800.95	3	PZ-14I	732.46	3
PZ-1D/YGWA-1D	788.77	4	PZ-16S	766.66	2
PZ-2I/YGWA-2I	822.65	3	PZ-16I	766.31	3
PZ-3S	762.40	2	GYP-1	775.87	3
PZ-3I/YGWA-3I	747.03	3	GYP-4	765.27	3
PZ-3D/YGWA-3D	765.96	4	GYP-5	823.69	3
PZ-4S	762.25	2	GYP-6	756.68	3
PZ-4I/YGWA-4I	763.20	3	GYP-8	787.51	3
PZ-5S	767.73	2	GYP-9	732.78	2
PZ-5I/YGWA-5I	767.66	3	GYP-11	731.66	2
PZ-5D/YGWA-5D	774.51	4	GYP-13	749.86	3
PZ-6S/YGWA-6S	764.38	2	GYP-14	770.40	2
PZ-6I/YGWA-6I	764.46	3	GYP-15	754.04	2
PZ-6D	760.81	4	GYP-16	787.62	3
PZ-7S	723.32	2	GYP-17	757.09	2
PZ-7I	723.56	3	GYP-18	758.95	3
PZ-8S	733.93	2	GYP-19	759.80	3
PZ-8I	734.68	3	GYP-21	769.00	2
PZ-9S	694.76	2	GYP-22	758.69	2
PZ-9I	694.58	3	GYP-23	757.82	3
PZ-10S	693.39	2	GYP-24	770.40	2
PZ-10I	687.06	3	GYP-25	766.24	2
PZ-13S	772.05	2	GYP-28	755.93	3
PZ-13I	769.32	3			

- (1) Groundwater elevation measured in feet above mean sea level.
Groundwater elevations for PZ 1 through PZ-16 from Yate-wlupdate-2017 file provided by Southern Company Services, Inc.
Groundwater elevations for GYP-1 through GYP-28 from GYP water levels file provided by Southern Company Services, Inc.

Table 4-5
Statistical Summary of Simulated Groundwater Elevations in Calibrated Model

CALIBRATION STATISTIC	CALIBRATED MODEL VALUE
Minimum Residual (feet)	-19.50
Maximum Residual (feet)	6.64
Absolute Residual Mean (feet)	3.94
Average Residual (feet)	-1.26
Standard Deviation of Residuals	5.29
Range of Observed Groundwater Elevations (feet)	136.63
Standard Deviation/Range	0.039
Absolute Residual Mean/Range*100	2.88
Sum of Squared Residuals	1450
Percent of residuals within:	
± 1 ft	16
± 2.5 ft	49
± 5 ft	71

Table 4-6
Summary of Groundwater Model Sensitivity Analysis

MODEL PARAMETER	MULTIPLIER	NORMALIZED RSS ⁽¹⁾
Recharge Rate (Lowlands – Zone 1)	0.5	1.05
	1.5	1.15
Recharge Rate (R6 landfill Footprint)	0.5	1.00
	1.5	1.00
Recharge Rate (Uplands – Zone 3)	0.5	1.21
	1.5	1.26
Evapotranspiration Rate (Lowlands – Zone 1)	0.5	1.00
	1.5	1.00
Evapotranspiration Rate (Uplands – Zone 3)	0.5	1.01
	1.5	1.00
Evapotranspiration Extinction Depth (Lowlands – Zone 1)	0.5	1.00
	1.5	1.00
Evapotranspiration Extinction Depth (Uplands – Zone 3)	0.5	1.45
	1.5	0.95
Horizontal Conductivity of Ash (Layer 1)	0.5	1.00
	1.5	1.00
Horizontal Conductivity of Saprolite/Regolith in Lowlands (Layer 2 – Zone 1)	0.5	1.24
	1.5	0.99
Horizontal Conductivity of Saprolite/Regolith in Uplands (Layer 2 – Zone 8)	0.5	1.23
	1.5	0.92
Horizontal Conductivity of Alluvial/Fluvial Deposits (Layer 2 – Zone 7)	0.5	1.00
	1.5	1.00
Horizontal Conductivity of Transition Zone (Layer 3)	0.5	1.00
	1.5	0.98
Horizontal Conductivity of Upper Bedrock (Layer 4)	0.5	1.03
	1.5	0.98
Horizontal Conductivity of Upper Bedrock (Layer 5)	0.5	1.04
	1.5	0.97
Horizontal Conductivity of Lower Bedrock (Layer 6)	0.5	1.01
	1.5	1.00
Vertical Conductivity of Ash (Layer 1)	0.5	1.00
	1.5	1.00

Table 4-6
Summary of Groundwater Model Sensitivity Analysis

MODEL PARAMETER	MULTIPLIER	NORMALIZED RSS ⁽¹⁾
Vertical Conductivity of Saprolite/Regolith in Lowlands (Layer 2 – Zone 1)	0.5	1.02
	1.5	0.99
Vertical Conductivity of Saprolite/Regolith in Uplands (Layer 2 – Zone 8)	0.5	0.98
	1.5	1.01
Vertical Conductivity of Alluvial/Fluvial Deposits (Layer 2 – Zone 7)	0.5	1.00
	1.5	1.00
Vertical Conductivity of Transition Zone (Layer 3)	0.5	1.00
	1.5	1.00
Vertical Conductivity of Upper Bedrock (Layer 4)	0.5	1.00
	1.5	1.00
Vertical Conductivity of Upper Bedrock (Layer 5)	0.5	1.00
	1.5	1.00
Vertical Conductivity of Lower Bedrock (Layer 6)	0.5	1.03
	1.5	0.99

(1) Normalized RSS (residual sum of squares) is the new RSS from the sensitivity analysis divided by calibrated model RSS.

Table 4-7
Groundwater Model Verification – February 20, 2017 Observed Water Levels

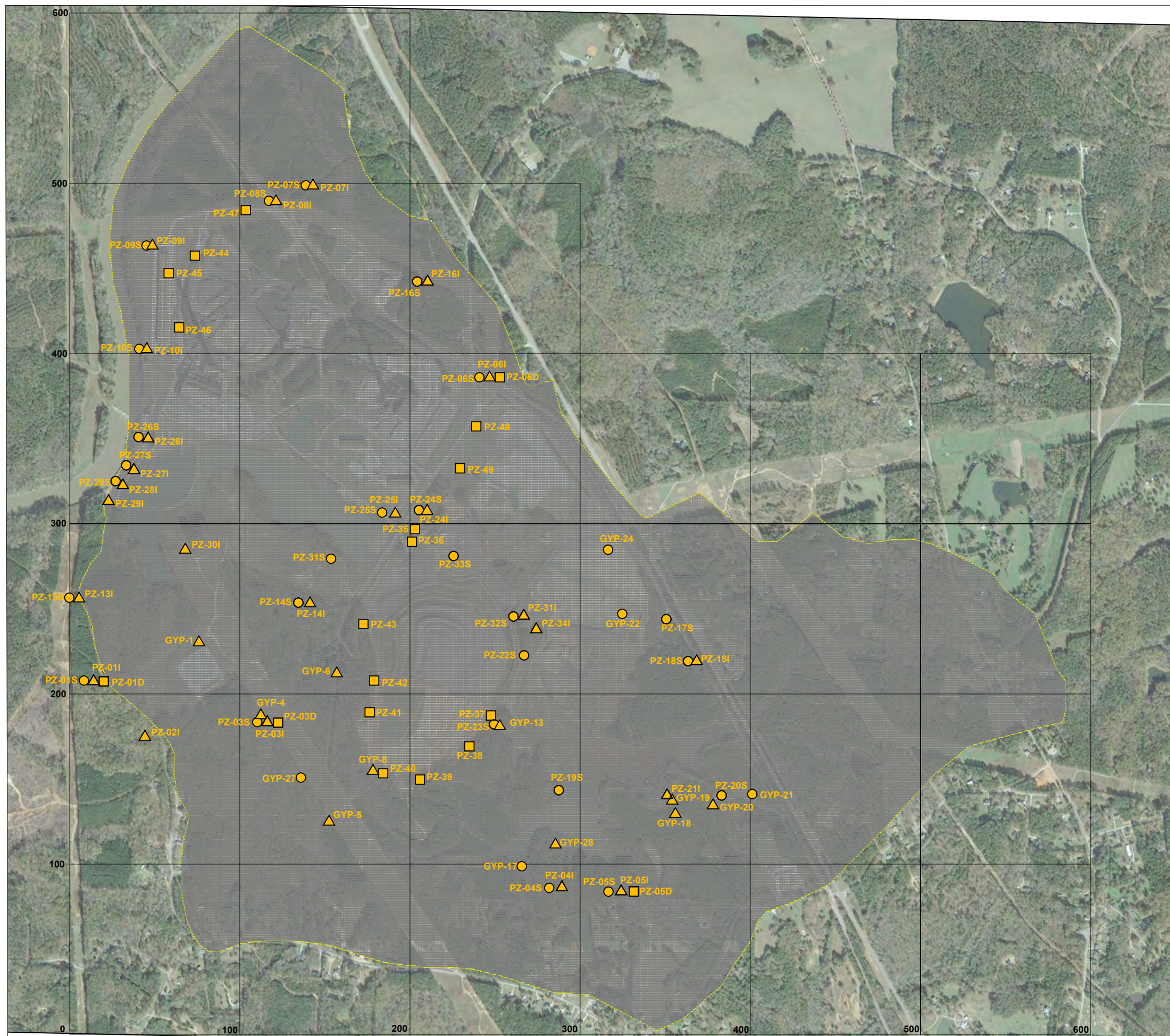
WELL ID	OBSERVED	SIMULATED	RESIDUAL	MODEL LAYER	WELL ID	OBSERVED	SIMULATED	RESIDUAL	MODEL LAYER
PZ-1S	801.24	803.84	-2.60	2	PZ-23S	749.71	745.61	4.10	2
PZ-1I	796.93	799.09	-2.16	3	PZ-24S	735.53	741.17	-5.64	2
PZ-2I	819.21	821.52	-2.31	3	PZ-24I	735.01	740.53	-5.52	3
PZ-3S	758.89	765.84	-6.95	2	PZ-25S	730.40	735.52	-5.12	2
PZ-4S	758.44	757.51	0.93	2	PZ-25I	729.02	735.62	-6.60	3
PZ-4I	759.46	758.87	0.59	3	PZ-26S	695.70	700.35	-4.65	2
PZ-5S	764.44	762.61	1.83	2	PZ-26I	691.49	699.68	-8.19	3
PZ-5I	764.35	764.15	0.20	3	PZ-27S	689.24	696.53	-7.29	2
PZ-5D	770.39	765.57	4.82	4	PZ-27I	688.15	696.88	-8.73	3
PZ-6S	760.30	765.54	-5.24	2	PZ-28S	695.37	697.01	-1.64	2
PZ-6I	760.27	764.97	-4.70	3	PZ-28I	693.78	698.08	-4.30	3
PZ-6D	757.21	764.53	-7.32	4	PZ-29I	690.86	695.11	-4.25	3
PZ-7S	720.86	733.97	-13.11	2	PZ-30I	724.29	727.55	-3.26	3
PZ-7I	720.78	731.91	-11.13	3	PZ-31S	724.29	722.62	1.67	2
PZ-8S	733.21	732.28	0.93	2	PZ-35	731.04	734.43	-3.39	3
PZ-8I	733.37	738.56	-5.19	3	PZ-36	729.54	732.39	-2.85	2
PZ-9S	693.57	702.62	-9.05	2	PZ-37	748.80	746.49	2.31	3
PZ-9I	693.46	704.65	-11.19	3	PZ-38	768.15	763.01	5.14	3
PZ-10S	692.98	696.06	3.08	2	PZ-39	791.61	790.81	0.80	4
PZ-10I	686.57	696.07	-9.50	3	PZ-40	787.10	792.32	-5.22	3
PZ-14S	730.30	735.08	-4.78	2	PZ-41	774.68	772.13	2.55	4
PZ-14I	730.29	733.08	-2.79	3	PZ-42	769.10	765.41	3.69	4
PZ-16S	765.58	765.99	-0.41	2	PZ-43	730.63	734.30	-3.67	4
PZ-17S	770.33	769.01	1.32	2	PZ-44	708.89	719.45	-10.56	4
PZ-18S	768.39	767.28	1.11	2	PZ-45	696.77	709.75	-12.98	3
PZ-18I	765.76	767.39	-1.63	3	PZ-46	700.36	715.20	-14.84	3
PZ-19S	748.46	754.04	-5.58	2	PZ-47	726.93	737.93	-11.00	4
PZ-20S	757.56	755.87	1.69	2	PZ-48	755.06	762.34	-7.28	4
PZ-21I	752.68	756.30	-3.62	3	PZ-49	749.11	754.68	-5.57	3
PZ-22S	742.19	742.02	0.17	2					

(1) Groundwater elevations listed in feet above mean sea level.






Table 4-8
 Statistical Summary of Model Verification Evaluation
 Using February 20, 2017 Observed Groundwater Elevations

CALIBRATION STATISTIC	CALIBRATED MODEL VALUE
Minimum Residual (feet)	-14.84
Maximum Residual (feet)	5.14
Absolute Residual Mean (feet)	4.89
Average Residual (feet)	-3.75
Standard Deviation of Residuals	4.73
Range of Observed Groundwater Elevations (feet)	132.64
Standard Deviation/Range	0.036
Absolute Residual Mean/Range*100	3.69
Sum of Squared Residuals	2150
Percent of residuals within:	
± 1 ft	12
± 2.5 ft	27
± 5 ft	76

1:KVT - ATTACHED REFERENCES - ATTACHED IMAGES: 20181113-0008-Aerial
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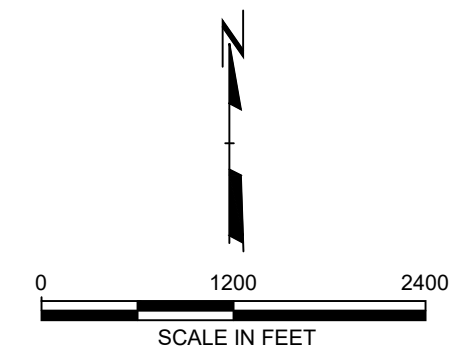



LEGEND

-  EXISTING SHALLOW (SAPROLITE) PIEZOMETER
-  EXISTING INTERMEDIATE (TRANSITION ZONE) PIEZOMETER
-  EXISTING DEEP (BEDROCK) PIEZOMETER
-  GROUNDWATER MODEL DOMAIN
-  GRID LAYOUT (EACH CELL IS 20'X20')

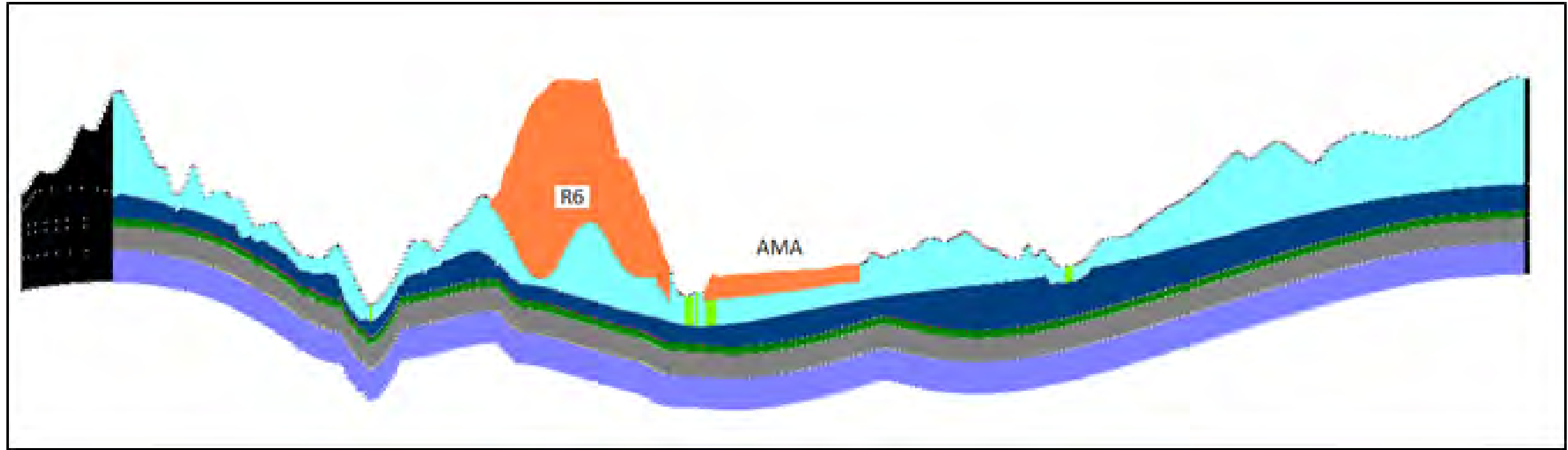
SOURCE

1. NOVEMBER 2015 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



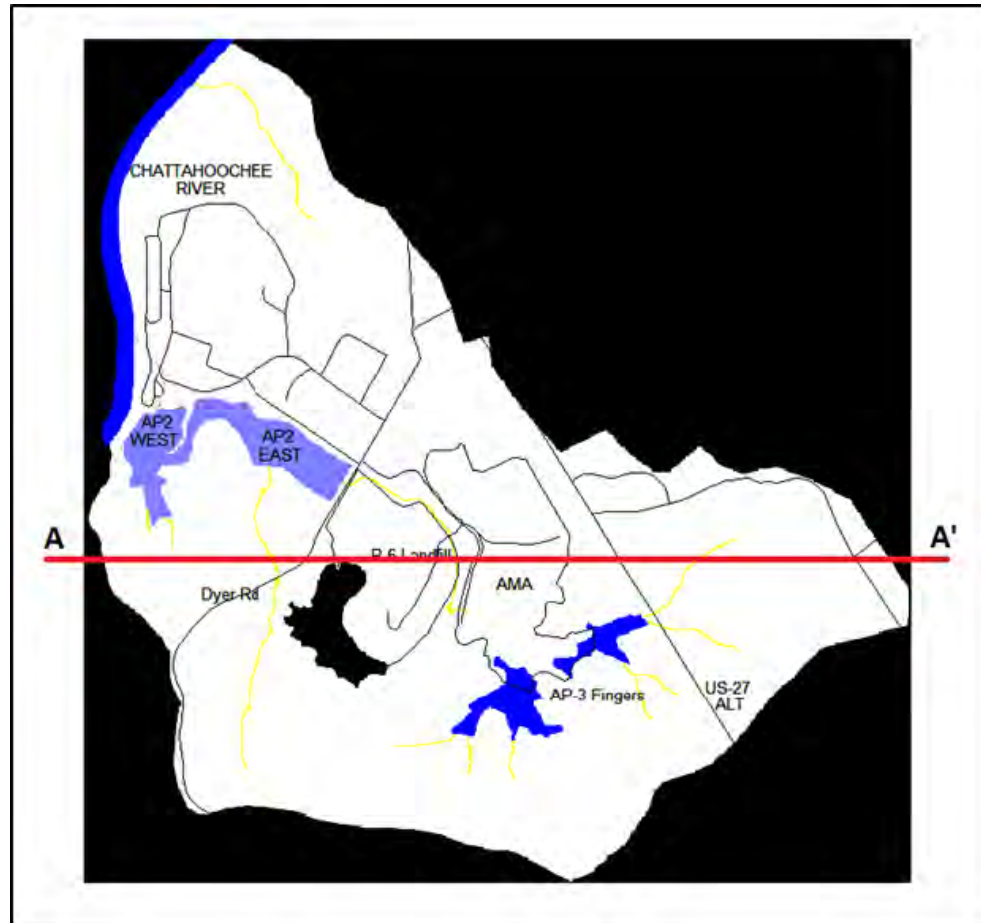
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TITLE:		GROUNDWATER MODEL DOMAIN AND GRID LAYOUT	
DRAWN BY:	A. PEBBLES	PROJ NO.:	242211.0001.0.6
CHECKED BY:	M. HAYS	FIGURE 4-1	
APPROVED BY:	K. SAUCIER		
DATE:	APRIL 2020		
		50 International Drive Patwood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.261.0030	
FILE NO.:		242211-DATA_GAP-GRIDBOUND.dwg	

A



A'

CROSS SECTION A-A'
NOT TO SCALE



CROSS SECTION LAYOUT MAP
NOT TO SCALE

LEGEND

- Ash
- Saprolite
- Transition Zone
- Upper Bedrock (some fractures)
- Upper Bedrock (fresh, few fractures)
- Lower Bedrock (fresh, no fractures)

SOURCE

1. PROFILE IS BASED ON MAY 2014 LIDAR TAKEN FROM METRO ENGINEERING & SURVEYING CO. INC. DRAWING SUPPLIED BY PLANT YATES, 4143YSP.DWG.

PROJECT:		GEORGIA POWER COMPANY - PLANT YATES NEWMAN, GEORGIA	
TITLE:		GROUNDWATER MODEL LAYER CROSS SECTION A-A'	
DRAWN BY:	R. MAYER	PROJ NO.:	242211.0001.0.6
CHECKED BY:	M. HAYS	FIGURE 4-2	
APPROVED BY:	K. SAUCIER		
DATE:	JANUARY 2020		
		50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.281.0030	
		FILE NO.:	242211-CROSS-SECTION.pdf

Figure 4-3
Horizontal Hydraulic Conductivity Zones – Ash/Saprolite (Layers 1 and 2)

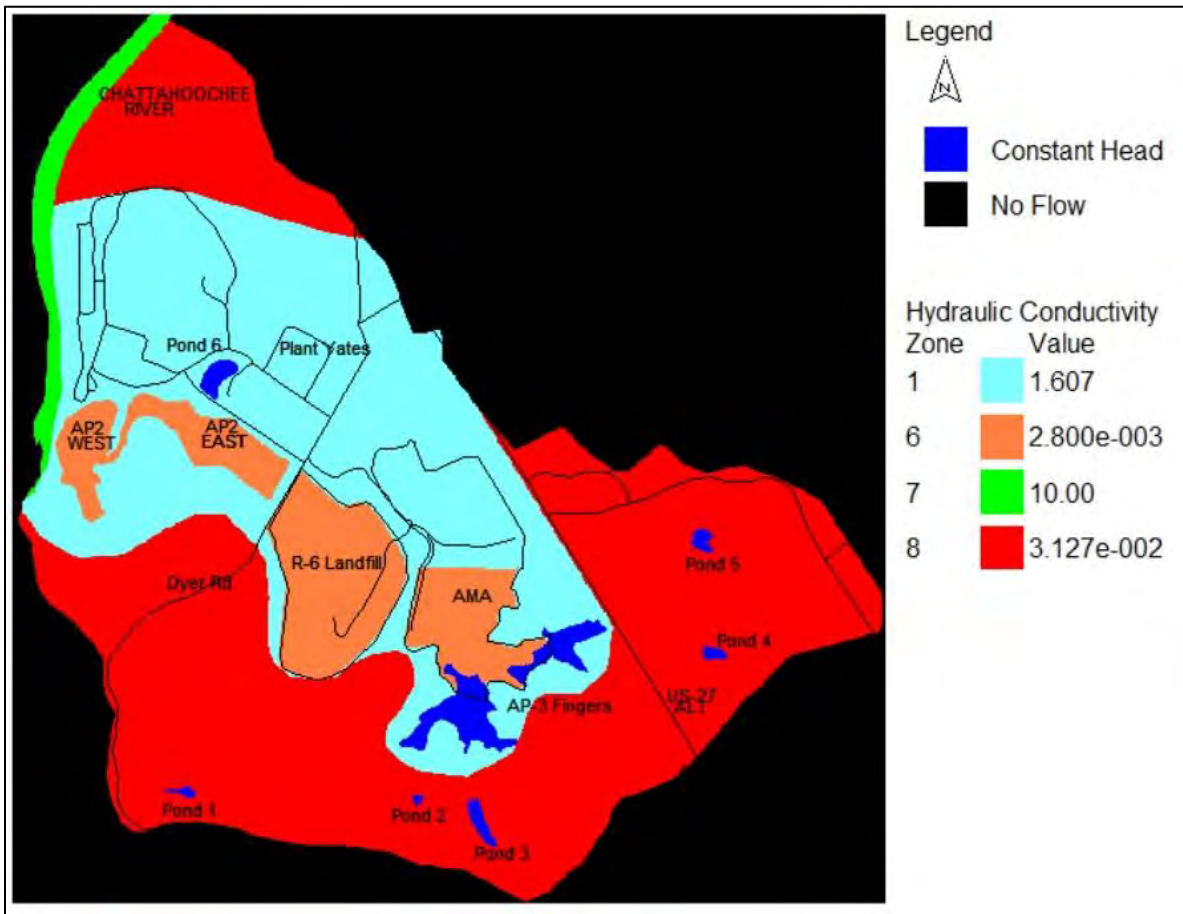


Figure 4-4
Recharge Zones – Layer 1

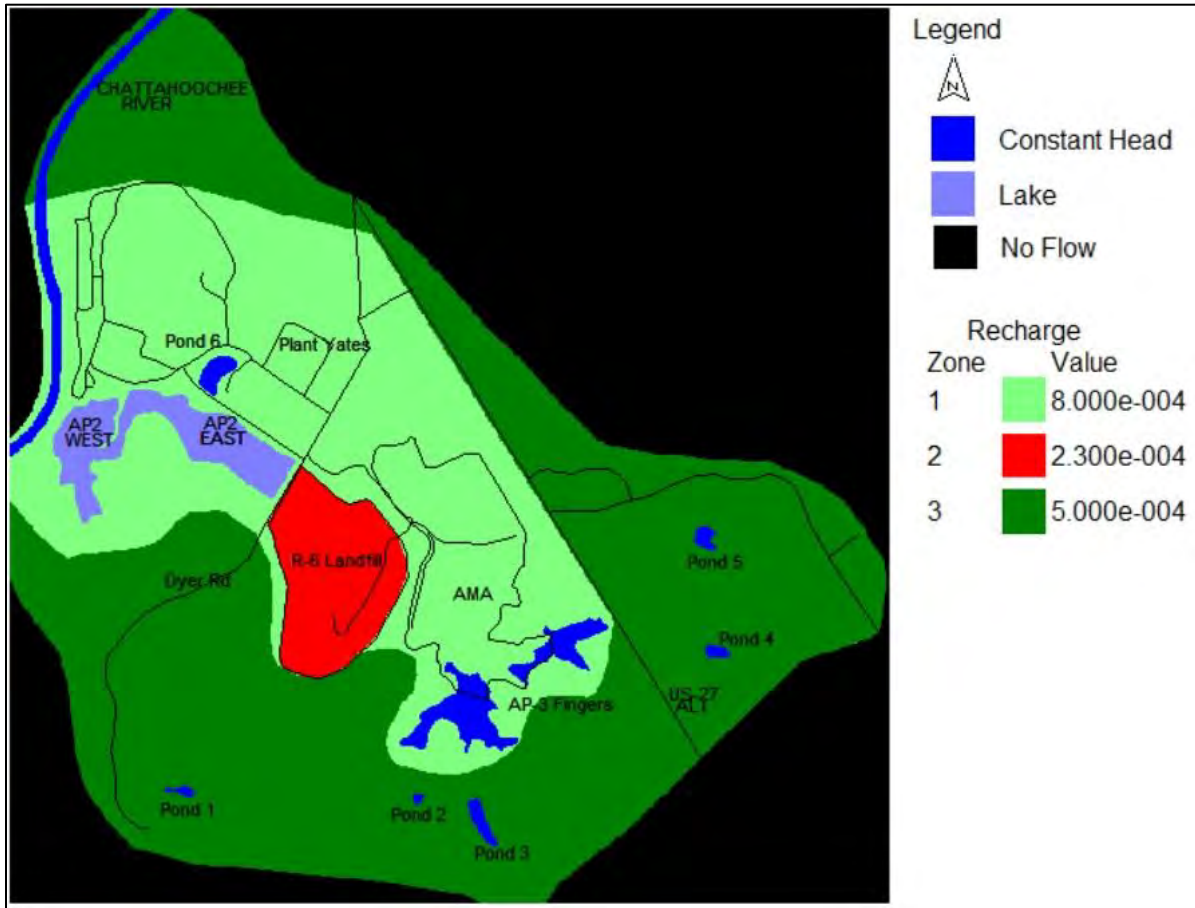


Figure 4-5
Evapotranspiration Zones – Layer 1

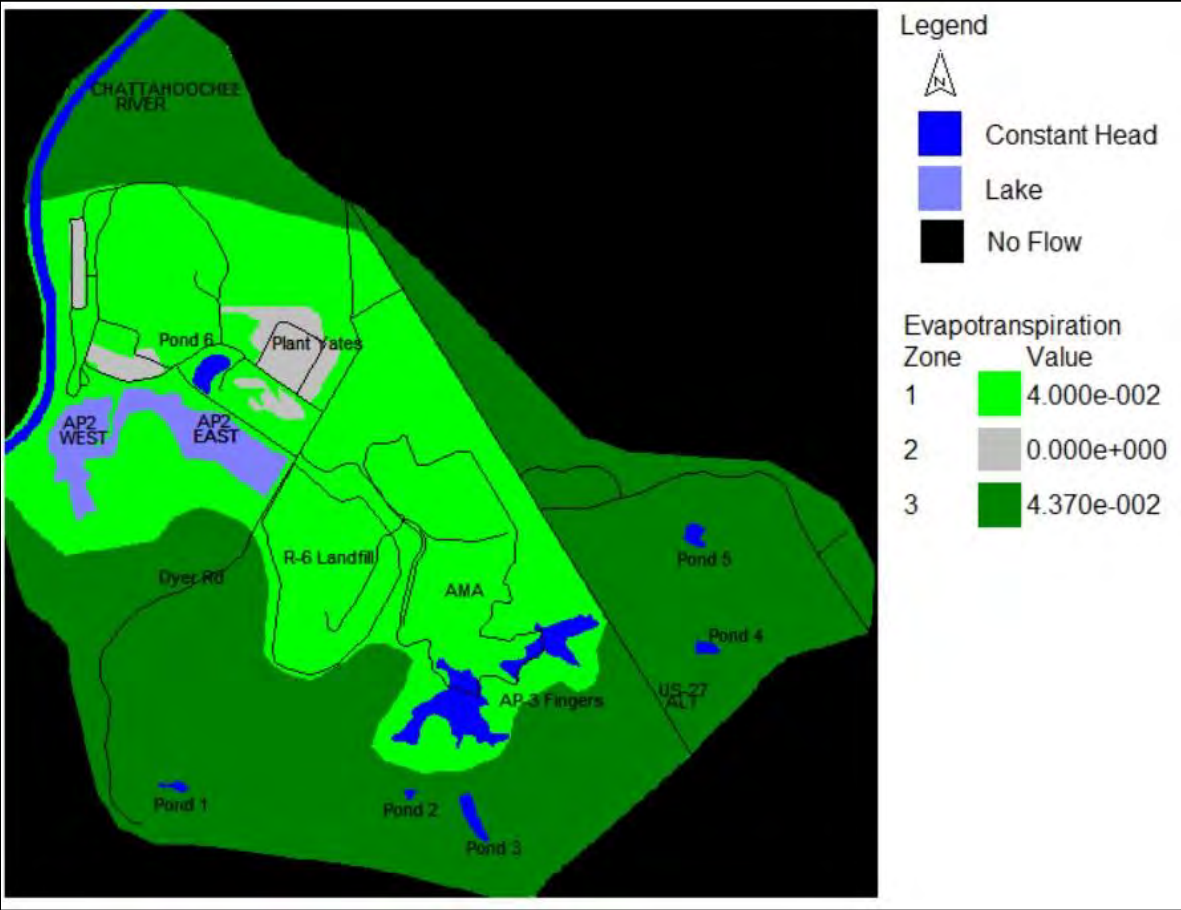
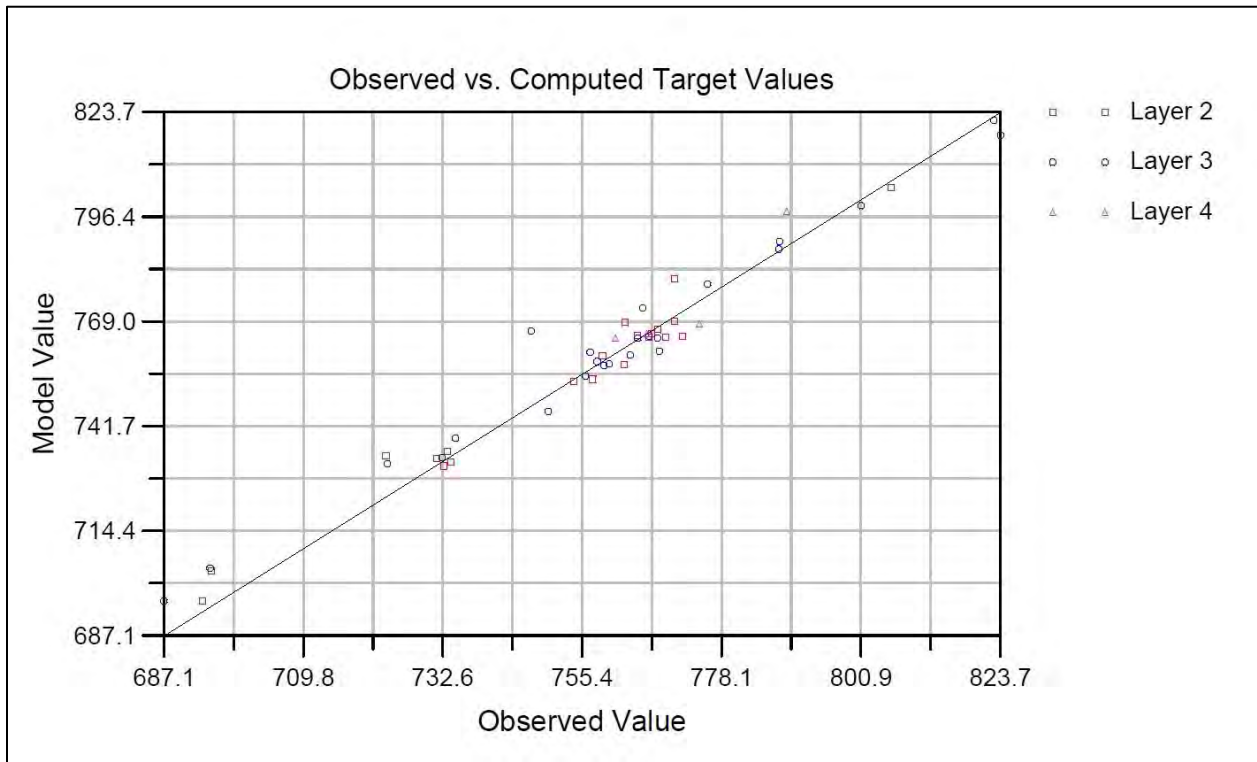
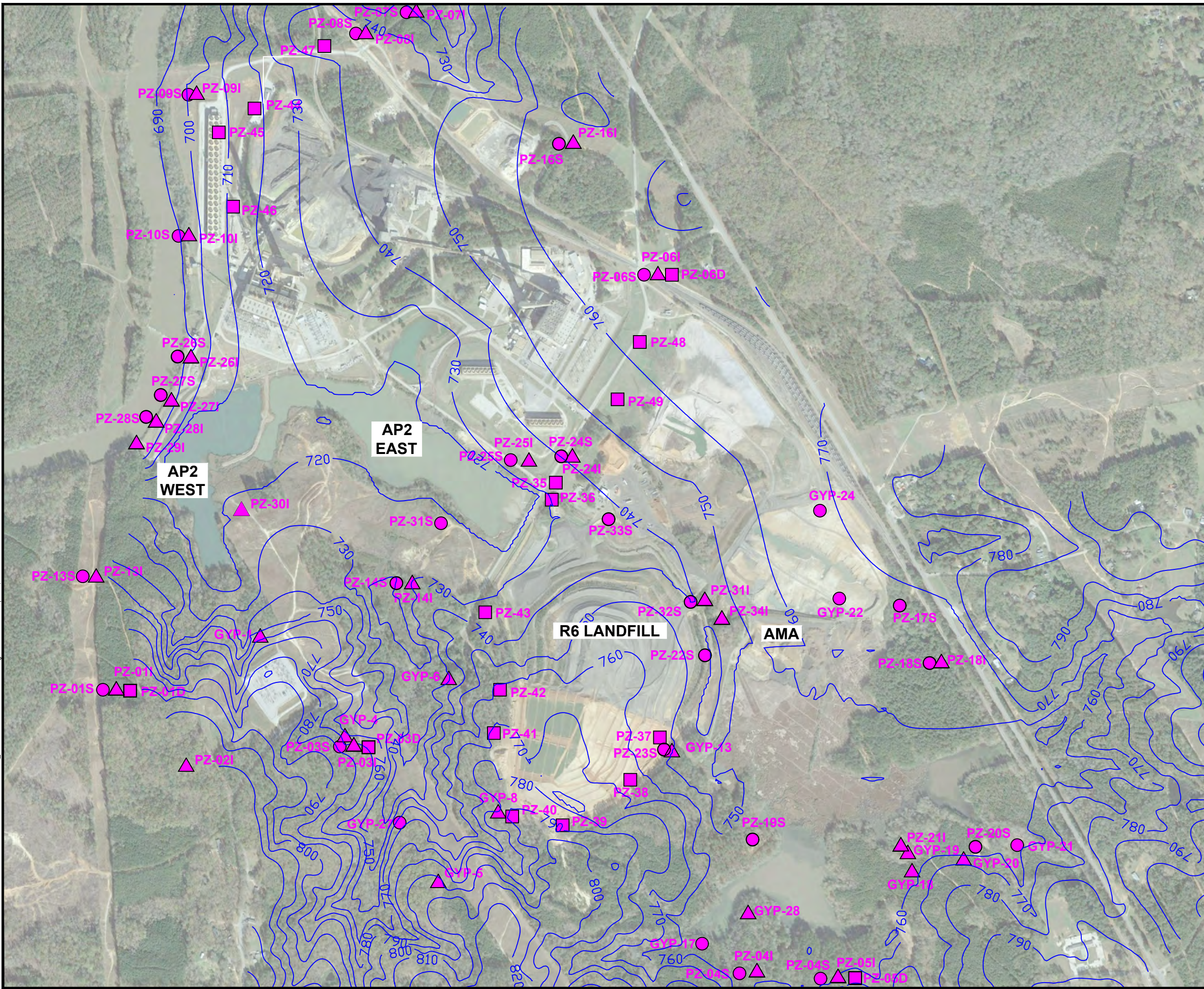


Figure 4-6
Plot of Observed Versus Simulated Groundwater Levels



11x17 - ATTACHED XREFS: Blank_Visuals_Plot_Rev_4 - ATTACHED IMAGES: 20151113-Google_Aerial
 DRAWING NAME: J:\CAD\Yates\242211-SCS Plant Yates\0001\242211-001\DATA_GAP-11-2019-calibratedhead.dwg -- PLOT DATE: April 10, 2020 - 1:02PM -- LAYOUT: FIGURE 4-7



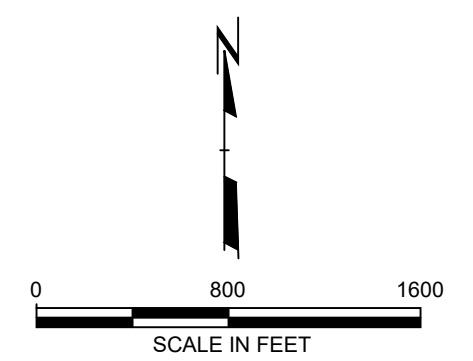
LEGEND

- EXISTING SHALLOW (SAPROLITE) PIEZOMETER
- ▲ EXISTING INTERMEDIATE (TRANSITION ZONE) PIEZOMETER
- EXISTING DEEP (BEDROCK) PIEZOMETER
- 720 — GROUNDWATER CONTOURS

NOTE:
 PRE-CLOSURE CONTOURS ARE FROM JUNE 26, 2014
 GROUND WATER ELEVATIONS.

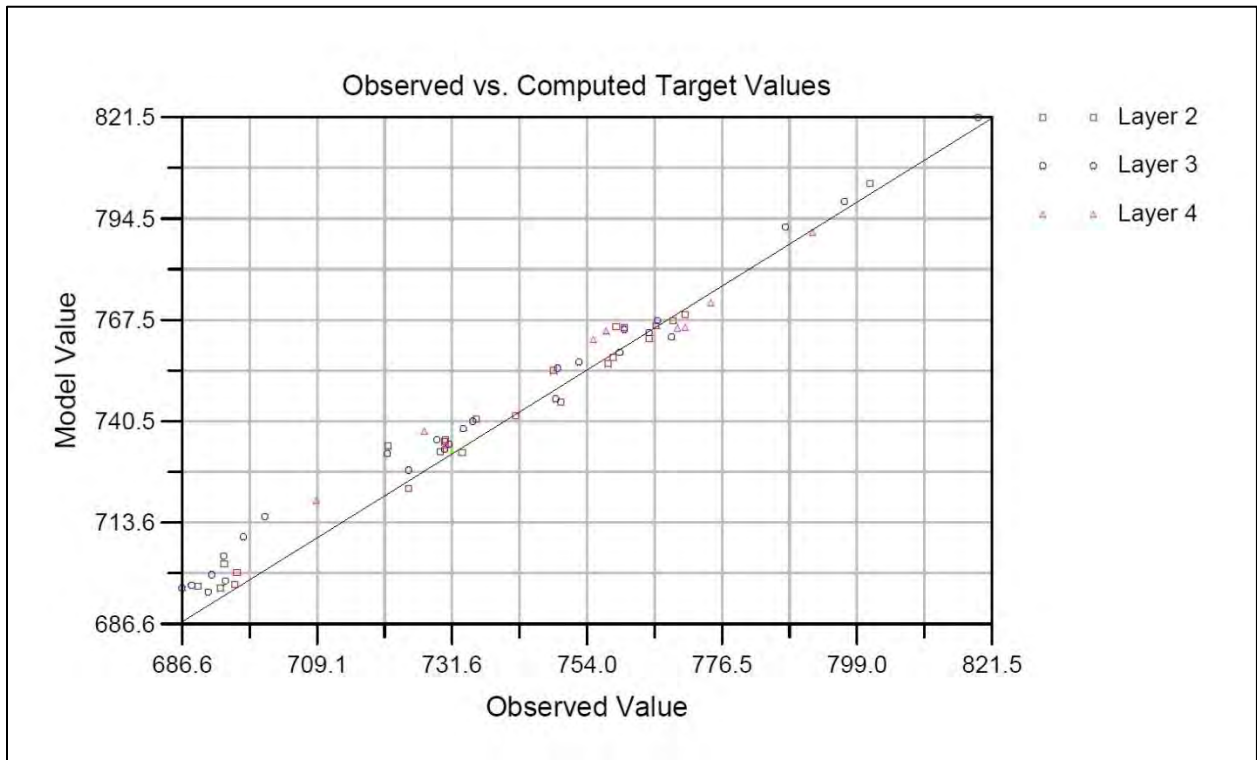
SOURCE

1. NOVEMBER 2015 AERIAL WAS OBTAINED FROM
 GOOGLE EARTH AT <https://www.google.com/>



PROJECT:		GEORGIA POWER COMPANY - PLANT YATES NEWNAN, GEORGIA	
TITLE:		PRE-CLOSURE GROUNDWATER CONTOURS	
DRAWN BY:	A. PEEBLES	PROJ NO.:	242211.0001.06
CHECKED BY:	M. HAYS	FIGURE 4-7	
APPROVED BY:	K. SAUCIER		
DATE:	APRIL 2020		
DRAWING NAME:		50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.261.0030	
FILE NO.:	242211-DATA GAP-11-2019-calibratedhead.dwg		

Figure 4-8
Plot of Observed Versus Simulated Groundwater Levels – February 20, 2017



Section 5

Post-Closure Groundwater Flow Modeling

Following groundwater modeling calibration, the calibrated parameter values such as hydraulic conductivity, recharge, and ET were used to create a post-closure groundwater flow model. The post-closure model represented the potential future Site closure plan and was used as a predictive tool for evaluating the impact of the closure plan to Site groundwater flow conditions.

The post-closure model incorporated the potential future layout of the R6 landfill and the AMA. This included the following changes:

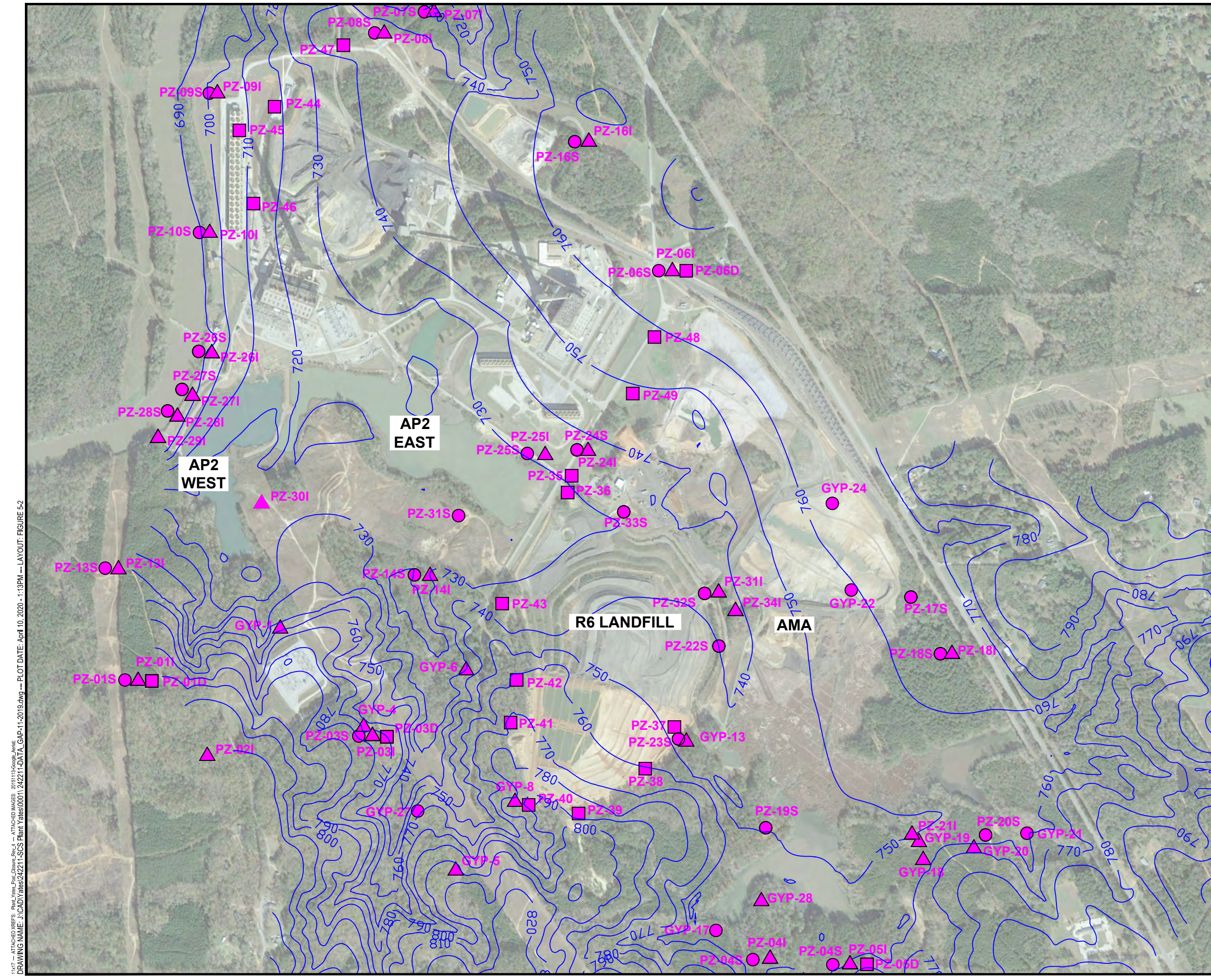
- Consolidation of on-site ash within the AMA footprint. This change to the post-closure model was created by removing the ash layer from AP-2 and reflecting its placement within a revised AMA footprint.
- The ash consolidated within the AMA is covered with a synthetic liner. To account for the synthetic liner over the AMA, a recharge rate of zero inches per year was assigned to within the AMA footprint.
- The layout of the AMA and corresponding berm contour details was provided by SCS in an AutoCAD file titled AMA with AP-B, dated August 14, 2017. The features depicted in the AutoCAD file in addition to an updated topographic survey from April 2017 (UAV drone survey) were incorporated into the post-closure model to update the revised topographic surface.
- The AP-3 area was modified to reflect the separation into the East Cove and South Cove. Based on the anticipated operating levels provided by SCS, a constant head boundary condition of 748.50 feet AMSL was applied to the East Cove and a constant head elevation of 744.50 feet AMSL was applied to the South Cove.
- The addition of perimeter surface drains designed to convey surface water from the synthetic liner covering the AMA was included in the post-closure model. This was accomplished by setting the drain elevation within the post-closure model equal to the ground surface elevation.
- A storm water retention basin was added to the post-closure model north of the R6 landfill. Based on the anticipated operating level provided by SCS, a constant head boundary condition of 730 feet AMSL was applied to the basin.

Figure 5-1 depicts a comparison of the pre-closure model configuration to the post-closure model configuration.

The post-closure groundwater flow model was used to provide an estimate of changes to Site water levels following completion of closure activities. The post-closure model was run to achieve steady-state using the hydraulic properties obtained from the calibrated model. The predicted groundwater contours from

the model are depicted on **Figure 5-2**. Additionally, a side by side comparison of the pre-closure groundwater contour output to the post-closure groundwater contour output is depicted on **Figure 5-3**. The overall general groundwater flow direction in the predicted model was to the northwest, which is similar to pre-closure conditions. However, groundwater flow in the R6 landfill area appears to have shifted more to the northeast around the landfill as compared to through it, as in previous conditions. The hydraulic gradient in the predictive model ranged from approximately 0.01 ft/ft in the northern portion of the AMA to approximately 0.09 ft/ft to the south of AP-2 West.

The change in post-closure groundwater elevation is depicted on **Figure 5-4**. With respect to the change in groundwater elevations, the predicted change in groundwater elevations in the post-closure model appears to decrease from approximately less than 1 foot to over 4 feet within the R6 landfill and approximately less than 2 feet to over 8 feet within the AMA compared to pre-closure conditions.



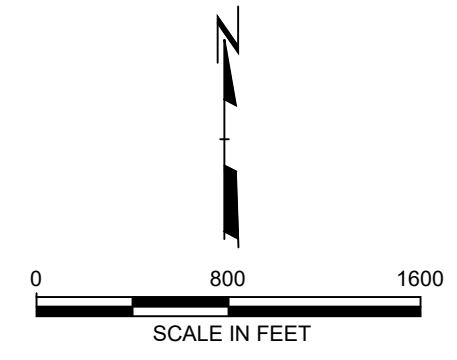
LEGEND

- EXISTING SHALLOW (SAPROLITE) PIEZOMETER
- ▲ EXISTING INTERMEDIATE (TRANSITION ZONE) PIEZOMETER
- EXISTING DEEP (BEDROCK) PIEZOMETER
- 720 — GROUNDWATER CONTOURS

NOTE:
 POST-CLOSURE MODELED GROUNDWATER CONTOURS
 AR BASED ON PLANT YATES' CLOSURE PLAN AS OF
 APRIL 2017.

SOURCE

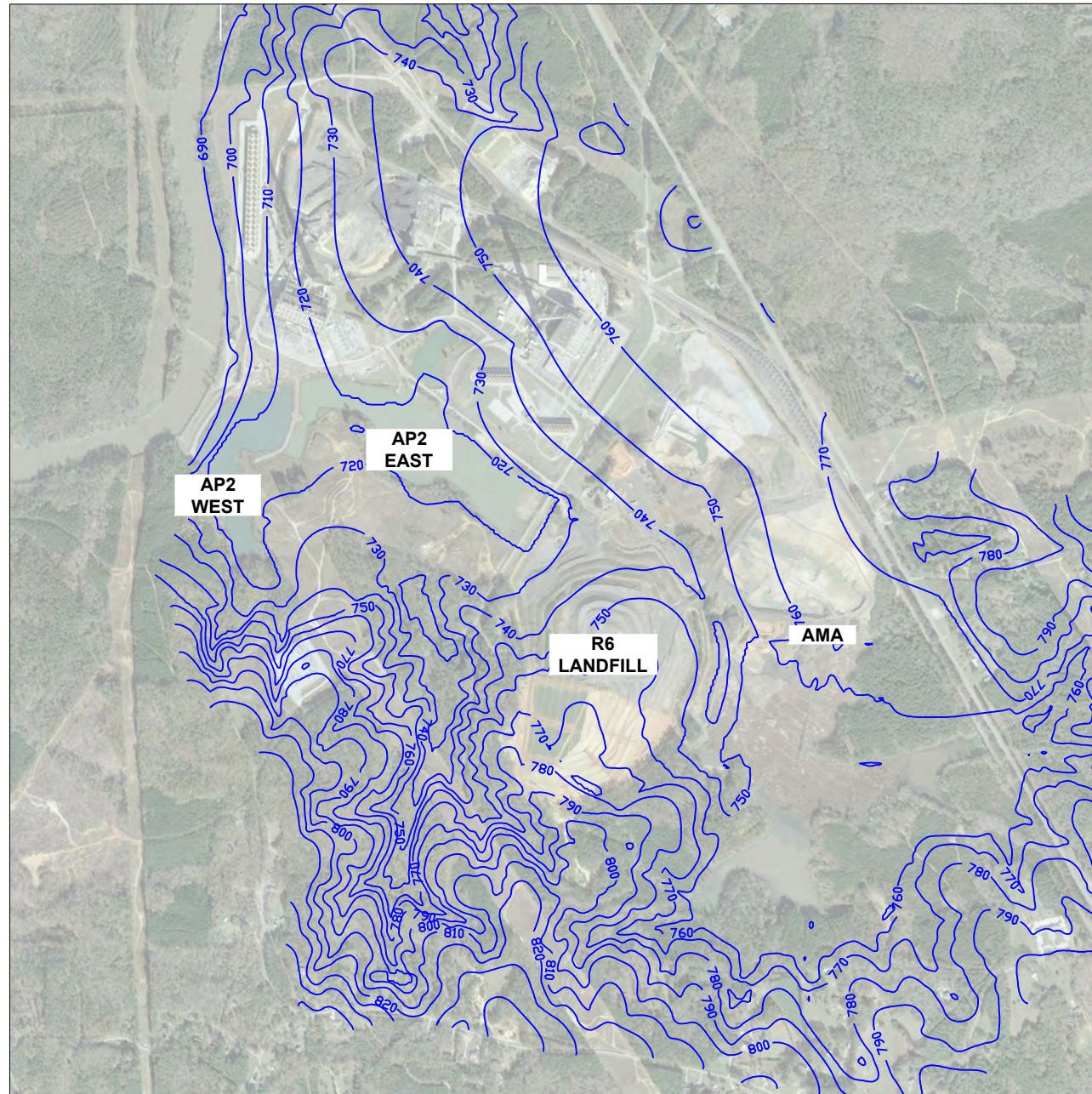
1. NOVEMBER 2015 AERIAL WAS OBTAINED FROM
 GOOGLE EARTH AT <https://www.google.com/>



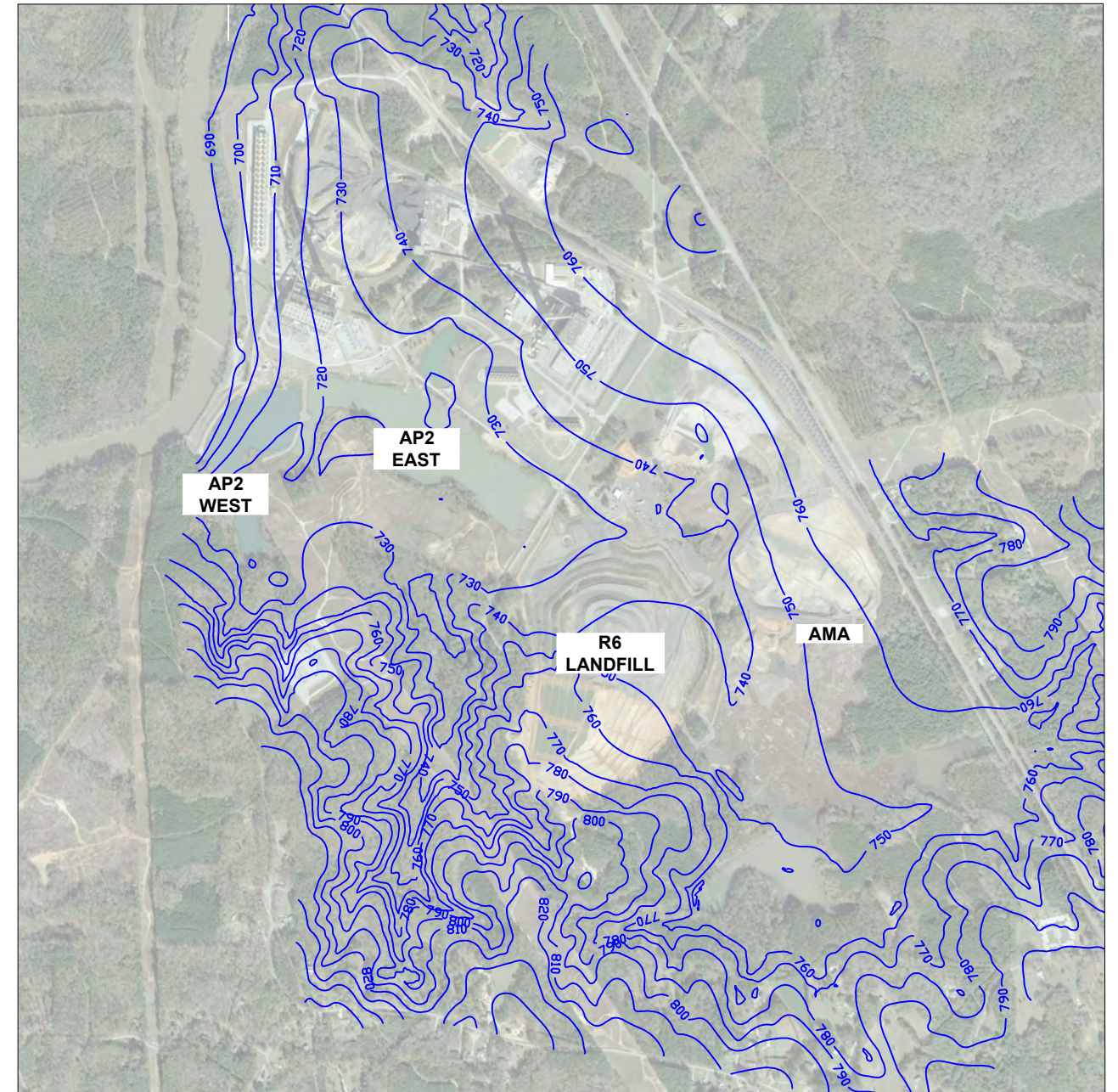
11/17 - ATTACHED XREFS: Blank_View_Plot_Closure_Rev_4 - ATTACHED IMAGES: 20151115-Google_Aerial
 DRAWING NAME: J:\CAD\Yates\242211-SCS Plant Yates\0001\242211-001\DATA_GAP-11-2019.dwg -- PLOT DATE: April 10, 2020 - 1:13PM -- LAYOUT: FIGURE 5-2

PROJECT:		GEORGIA POWER COMPANY - PLANT YATES NEWMAN, GEORGIA	
TITLE:		POST-CLOSURE GROUNDWATER CONTOURS	
DRAWN BY:	A. PEBBLES	PROJ NO.:	242211.0001.06
CHECKED BY:	M. HAYS	FIGURE 5-2	
APPROVED BY:	K. SAUCIER		
DATE:	APRIL 2020		
		50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.261.0030	
FILE NO.:	242211-DATA_GAP-11-2019.dwg		

11x17 - ATTACHED XREFS: Blank_Yates_Pre_Closure_Rev_4; Blank_Yates_Post_Closure_Rev_4 - ATTACHED IMAGES: 20181113-Coopg_Aerial; DRAWING NAME: J:\CAD\Yates\242211-SCS Plant Yates\0001\242211-DATA_GAP-11-2019-FIGURE_5-3.dwg -- PLOT DATE: April 10, 2020 - 12:18PM -- LAYOUT: FIGURE 5-3



PRE-CLOSURE



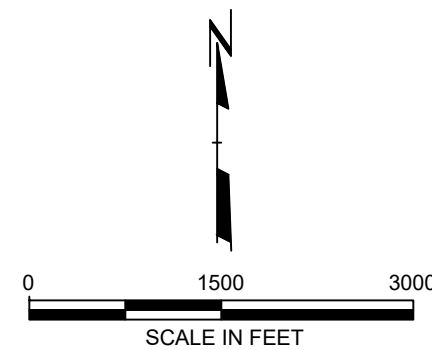
POST-CLOSURE


LEGEND

— 720 — MODEL GROUNDWATER CONTOURS

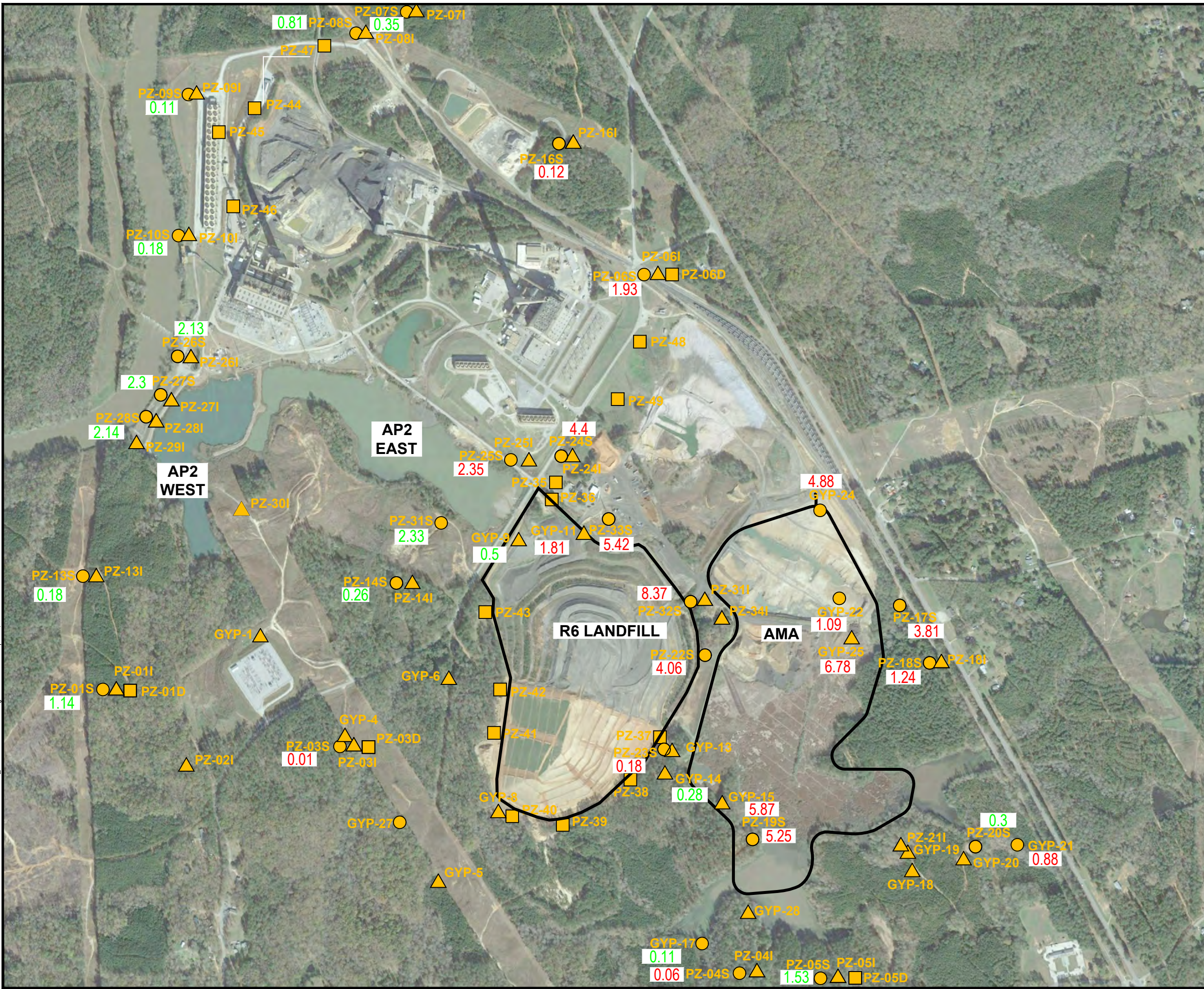
SOURCE

- NOVEMBER 2015 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



PROJECT: GEORGIA POWER COMPANY - PLANT YATES NEWNAN, GEORGIA	
TITLE: COMPARISON OF PRE-CLOSURE VERSUS POST-CLOSURE GROUNDWATER CONTOURS	
DRAWN BY: A. PEEBLES	PROJ NO.: 242211.0001.06
CHECKED BY: M. HAYS	FIGURE 5-3
APPROVED BY: K. SAUCIER	
DATE: APRIL 2020	
	
50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.261.0030	
FILE NO.:	242211-DATA_GAP-11-2019-FIGURE_5-3.dwg

11K7 - ATTACHED REFERENCES - ATTACHED IMAGES: 20181113-Google/Janet - PLOT DATE: April 08, 2020 - 2:08PM - LAYOUT: FIGURE 5-4
 DRAWING NAME: J:\Yates\24221-SCS Plant Yates\0001\24221-1-DATA_GAP-GW-CHANGE.dwg

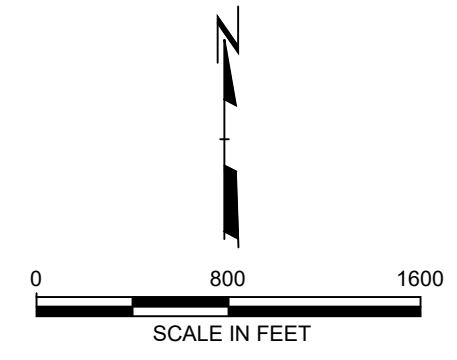


LEGEND

- EXISTING SHALLOW (SAPROLITE) PIEZOMETER
- ▲ EXISTING INTERMEDIATE (TRANSITION ZONE) PIEZOMETER
- EXISTING DEEP (BEDROCK) PIEZOMETER
- 0.94 INDICATES AN INCREASE IN POST-CLOSURE GROUNDWATER ELEVATION LEVEL (FEET)
- 4.03 INDICATES A DECREASE IN POST-CLOSURE GROUNDWATER ELEVATION LEVEL (FEET)

SOURCE

1. NOVEMBER 2015 AERIAL WAS OBTAINED FROM GOOGLE EARTH AT <https://www.google.com/>



PROJECT:		GEORGIA POWER COMPANY - PLANT YATES NEWNAN, GEORGIA	
TITLE:		CHANGE IN POST-CLOSURE GROUNDWATER ELEVATIONS	
DRAWN BY:	A. PEEBLES	PROJ NO.:	242211.0001.06
CHECKED BY:	M. HAYS	FIGURE 5-4	
APPROVED BY:	K. SAUCIER		
DATE:	APRIL 2020		
		50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.261.0030	
FILE NO.:	242211-DATA_GAP-GW-CHANGE.dwg		

Section 6 Summary

This report documents the development and application of groundwater flow modeling for the Georgia Power Plant Yates Facility located near Newnan, Georgia. Groundwater modeling was performed at the Site to help predict changes in groundwater levels following the completion of closure activities. Groundwater Vistas was used to create a calibrated model that accurately depicted pre-closure groundwater levels for the Site. Following groundwater modeling calibration, the proposed closure plan was incorporated to build a post-closure groundwater flow model. The post-closure model incorporated the potential future layout of the R6 landfill and the AMA. The post-closure groundwater flow model was used to provide an estimate of changes to Site water levels and groundwater flow dynamics following completion of closure activities.

Based on the results of the modeling efforts, the following conditions are predicted to occur:

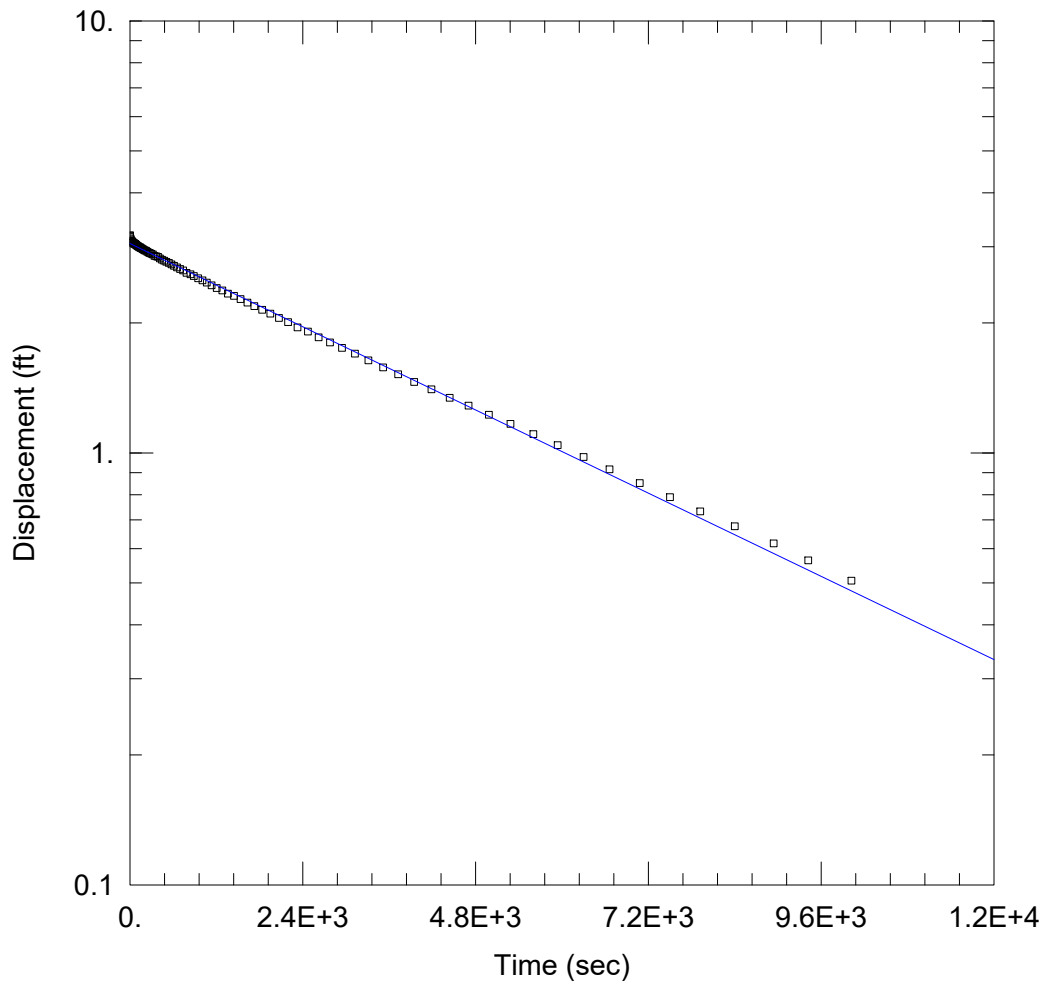
- The overall general groundwater flow direction in the predicted model is anticipated to remain similar to pre-closure conditions which is flow to the northwest;
- Groundwater flow in the R6 landfill area appears to have shifted more to the northeast around the landfill as compared to through it, as in previous conditions;
- The hydraulic gradient is predicted to range from a minimum of approximately 0.01 ft/ft in the northern portion of the AMA to a maximum of approximately 0.09 ft/ft to the south of AP-2 West; and
- The predicted change in groundwater elevations appears to decrease from approximately less than 1 foot to over 4 feet within the R6 landfill and approximately less than 2 feet to over 8 feet within the AMA.

Section 7

References

- Anderson, M.P. and W.W. Woessner. 1992. *Applied Groundwater Modeling; Simulation of Flow and Advective Transport*. San Diego, California: Academic Press, Inc
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- Georgia Department of Natural Resources Environmental Protection Division Land Protection Branch. Guidance: Groundwater Contaminant Fate and Transport Modeling. October 2016, Revision 1.
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- Moretrench. 2017. AP3 Embankment Dewatering Project Memorandum. Georgia Power Company, Plant Yates. Dated October 12, 2017.
- Rasmussen, T.C. 2016. "Water Cycle in Georgia." *New Georgia Encyclopedia*. 2016. March 15, 2018 Accessed.
- Rumbaugh, J.O. and Rumbaugh, D.B., 2004, Guide to using Groundwater Vistas version 4, Environmental Simulations, Inc., 358 p.
- Southern Company Services, Inc. - Environmental Solutions. 2010. Draft Proposed R6 Disposal Facility Lateral Expansion Site Acceptability Report (SAR). Georgia Power Company, Plant Yates.
- Southern Company Services, Inc. - Environmental Solutions. 2014. Draft Hydrogeological Characterization Report. Georgia Power Company, Plant Yates CCB Disposal Facilities.
- Watermark Numerical Computing, 2004, PEST Model-Independent Parameter Estimation User Manual: 5th Edition.

Appendix A
AQTESOLV Slug Test Data Outputs



P-1 FALLING HEAD TEST

Data Set: P:\...\P-1 Falling Head.aqt
 Date: 02/15/18

Time: 08:49:11

PROJECT INFORMATION

Company: TRC
 Client: SCS
 Project: 242211
 Location: Plant Yates, GA
 Test Well: P-1
 Test Date: 2/1/2018

AQUIFER DATA

Saturated Thickness: 12. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (P-1)

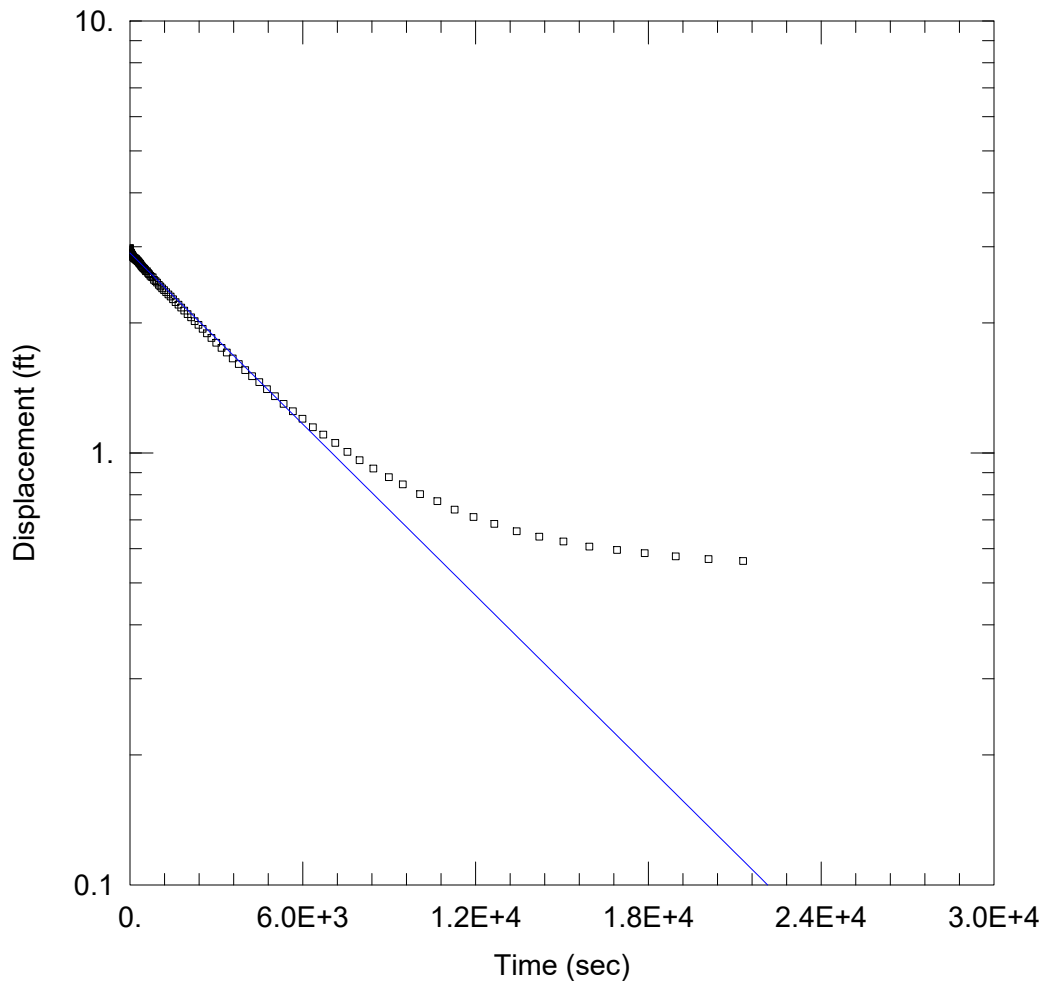
Initial Displacement: 3.19 ft
 Total Well Penetration Depth: 22. ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 8. ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.01828 ft/day

Solution Method: Bower-Rice
 y0 = 3.051 ft



P-1 RISING HEAD TEST

Data Set: P:\...P-1 Rising Head.aqt
 Date: 02/15/18

Time: 08:49:42

PROJECT INFORMATION

Company: TRC
 Client: SCS
 Project: 242211
 Location: Plant Yates, GA
 Test Well: P-1
 Test Date: 2/1/2018

AQUIFER DATA

Saturated Thickness: 12. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (P-1)

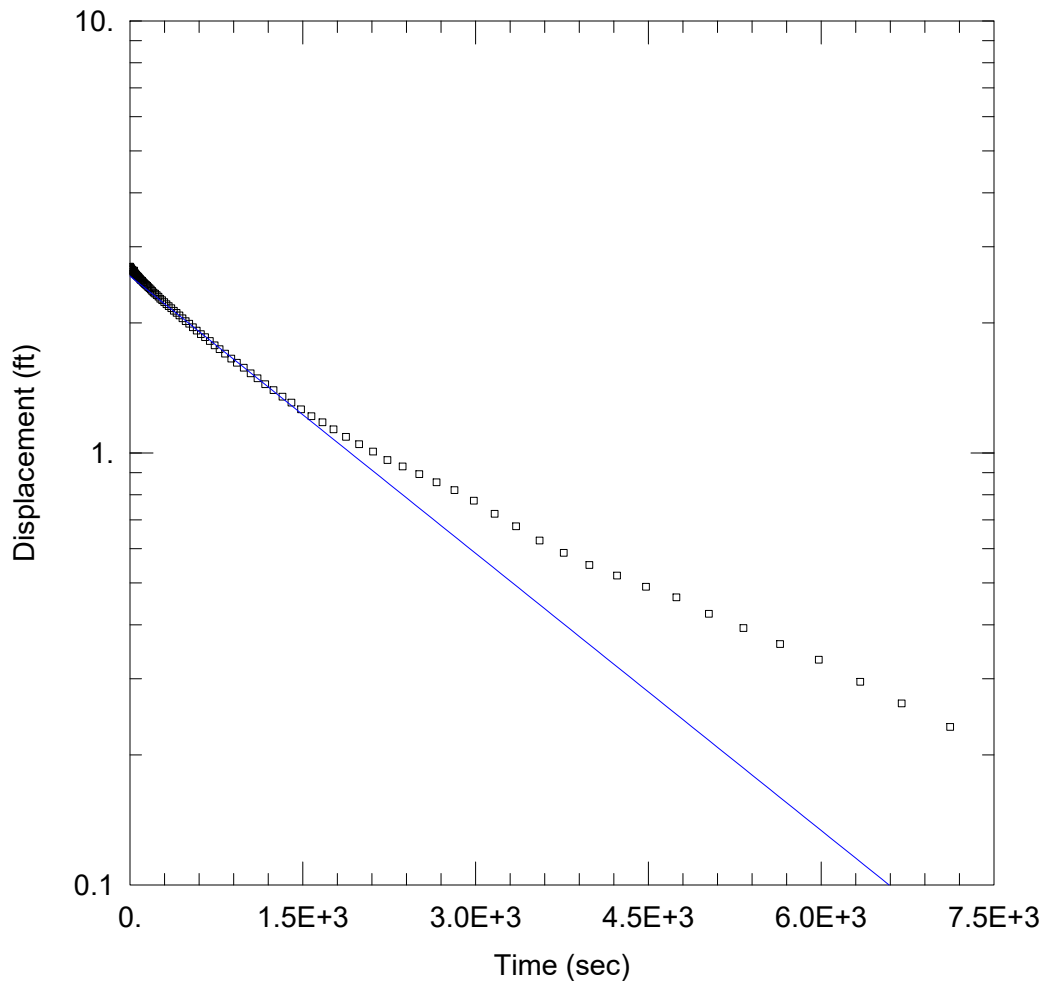
Initial Displacement: 2.98 ft
 Total Well Penetration Depth: 22. ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 8. ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.01506 ft/day

Solution Method: Bouwer-Rice
 y0 = 2.903 ft



P-2 FALLING HEAD TEST

Data Set: P:\...\P-2 Falling Head.aqt
 Date: 02/15/18

Time: 08:50:25

PROJECT INFORMATION

Company: TRC
 Client: SCS
 Project: 242211
 Location: Plant Yates, GA
 Test Well: P-2
 Test Date: 2/2/2018

AQUIFER DATA

Saturated Thickness: 18. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (P-2)

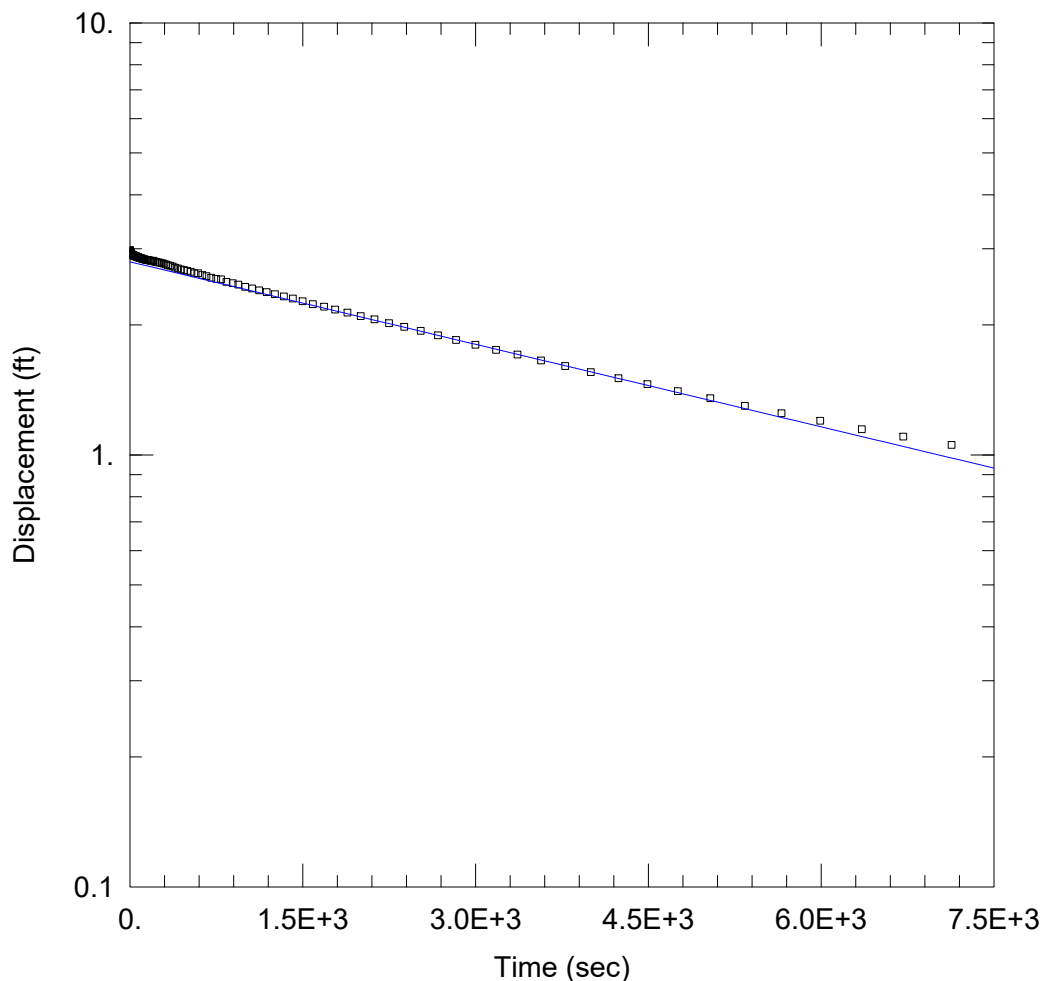
Initial Displacement: 2.7 ft
 Total Well Penetration Depth: 25. ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 8. ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.04986 ft/day

Solution Method: Bower-Rice
 y0 = 2.566 ft



P-2 RISING HEAD TEST

Data Set: P:\...\P-2 Rising Head.aqt
 Date: 02/15/18

Time: 08:43:54

PROJECT INFORMATION

Company: TRC
 Client: SCS
 Project: 242211
 Location: Plant Yates, GA
 Test Well: P-2
 Test Date: 2/2/2018

AQUIFER DATA

Saturated Thickness: 18. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (P-2)

Initial Displacement: 2.98 ft
 Total Well Penetration Depth: 25. ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 8. ft
 Screen Length: 10. ft
 Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.01484 ft/day

Solution Method: Bower-Rice
 y0 = 2.799 ft