

FC-6260

Peachtree Creek South Fork  
Relief Storage and Pumping Stations

Reference Materials





**REPORT OF SUBSURFACE EXPLORATION AND  
GEOTECHNICAL ENGINEERING EVALUATION**  
**Liddell Drive Equalization Project**  
*(Revised October 9, 2012)*  
Atlanta, Fulton County, Georgia

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Willmer Project No. 71.3801

Prepared For

**Atlanta Services Group**  
Atlanta, Georgia

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VIA EMAIL

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**SUBJECT: Subsurface Exploration and Geotechnical Engineering Evaluation  
Liddell Drive Equalization Project**  
Atlanta, Fulton County, Georgia  
Willmer Project No. 71.3801

Dear Mr. Fry:

Willmer Engineering Inc. (Willmer) is pleased to support our Atlanta Services Group (ASG) team by providing this report of subsurface exploration and geotechnical engineering evaluation for the proposed Liddell Drive Equalization project in Atlanta, Fulton County, Georgia. This work was performed in general accordance with our proposals No. 12.P116, dated February 6, March 23, April 17, May 25, and September 27, 2012. The results of our evaluation and our recommendations are summarized in this report. This report was revised to incorporate additional borings for foundation recommendations for the east side pump station and diversion structures and for some changes made to the equalization tank location and force main alignment.

This report presents our understanding of the proposed development, the results of our geotechnical exploration, analyses, and evaluation and our recommendations for the design and construction of the proposed facilities.

We greatly appreciate the opportunity to be of service to you on this project. Please contact us if you have any questions concerning this report or require further assistance.

Sincerely,

**WILLMER ENGINEERING INC.**

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The original of this document was signed and sealed by James L. Willmer, PE, Registration No. 10780 on October 9, 2012.

DCP/SKB/JLW: bw

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### Executive Summary

The following summary highlights significant aspects of the project and our conclusions and recommendations. The reader is referred to the report text for detailed descriptions of our subsurface exploration and geotechnical analyses and recommendations.

- The Liddell Drive Equalization Project includes an equalization tank (185 feet internal diameter and 52 feet high), a 48-inch diameter force main, installed from north fork of Peachtree Creek, under Cheshire Bridge Road and to the tank, diversion structures at the creek, a 48-inch diameter diversion pipe, pump stations, and other associated structures and appurtenances.
- Forty-one Standard Penetration Tests (SPT) borings were drilled for the proposed tank location and for previous tank alternative locations, for the force main alignment, and to study alternate pipeline alignments. Rock coring was performed at thirteen boring locations.
- The soil conditions at the force main pipe invert elevations vary between fill, alluvial soils, residual soils, PWR, and weathered rock/rock. Undercutting of soft alluvial soils and replacement with No. 57 stone will be required at some locations. Also, undercutting of rock and PWR and replacement with No. 57 stone will be required in some areas to provide uniform support in the transition areas from soil to PWR and rock.
- A jack and bore tunnel will extend 300 feet under Cheshire Bridge Road through mixed soil conditions consisting of fill and residual soils.
- We recommended that the tank bottom be supported directly on PWR/rock; undercutting of up to 6 feet of soils and replacement with compacted GAB will be required in some parts of the tank footprint. Alternately, a combination deep foundations and the tank bottom bearing directly on rock can be used. For the tank bottom bearing directly on rock/PWR, allowable bearing pressures of 10 and 20 ksf are recommended for PWR and rock, respectively. For the deep foundation option, 120 ton capacity auger-cast piles can be used.
- Rock anchors can be used to resist hydrostatic uplift load at the tank, pump stations, and diversion structures. An uplift load capacity of 130 kips can be achieved with 6-inch diameter anchors embedded 16 feet into rock.
- Temporary bracing will be required for excavation support for the force main trench, jack and bore tunnel pits, pump station, diversion structure, and the equalization tank area. Sheet piles or H-piles may encounter refusal in the existing miscellaneous debris fill encountered in the tank area. The debris fill should be excavated prior to installation of the excavation support system. Dewatering will be required during excavation.
- We recommend that Willmer Engineering Inc. be retained to provide geotechnical engineering oversight during construction of the facilities to confirm that the subsurface conditions encountered during construction are consistent with our interpretation based on the results of our geotechnical exploration and that the recommendations provided herein are properly interpreted and implemented.

## 1.0 Introduction

### 1.1 Project Description

The Peachtree Creek sewer system conveys wastewater generated in the City of Atlanta (COA) Peachtree Creek basin and in the intergovernmental basin in DeKalb County to the R. M. Clayton Water Reclamation Facility for treatment. DeKalb County's connections to the COA collection system in the Peachtree Creek basin are located on the North Fork Peachtree Creek Trunk Sewer and the South Fork Peachtree Creek Trunk Sewer near the DeKalb County/Fulton County boundary. The capacity of the piping system is sufficient to convey dry weather flows but not peak flows generated during wet weather. As a result, sanitary sewer overflows (SSOs) have occurred during periods of wet weather. A new equalization storage system has been planned to prevent wet-weather SSOs. The proposed equalization system will temporarily store peak flows and then return the stored flows to the collection system when peak flows subside. The stored flows will be pumped back into the relief sewers at a controlled rate.

Sanitary sewer flow will be diverted from the existing South Fork Peachtree Creek Relief Sewer through a 48-inch diameter force main. Flows will be equalized in a tank constructed on property owned by the City of Atlanta adjacent to Liddell Drive as shown in Figures 1 and 2. There is an AM radio station antenna tower in the central part of the proposed site, and the site is leased for use by the radio station until 2014. The City plans to expedite the removal of the tower before the lease expiration in order to use the site efficiently for wastewater flow equalization. At this time, it is anticipated that the tower will be removed before construction of equalization facilities begins.

### 1.2 Description of Proposed Facilities

The proposed location of the tank is shown in Figure 2. The tank will have a cylindrical shape with a conical bottom. The conical bottom of the tank will have a slope of about 12 to 1 towards the center. Dimensions and elevations of the proposed tank are summarized below:

Proposed Structure	Dimensions (approximate)	Foundation Level
Equalization Tank	185 feet internal diameter 52 feet tall	Perimeter EL. = 802 feet Conical Bottom EL. = 794.5 feet
Equalization Pump Station	56 feet by 74 feet	783.5 Feet
Diversion Pump Station	67 feet by 82 feet	Lower Level = 781 feet Upper Level = 804 feet
Diversion Structures	19 feet by 22 feet	Bottom #1 = 792.5 feet Bottom #2 = 791.5 feet



As noted above, the tank will have an internal diameter of 185 and will be 52 feet in height. The tank will store approximately 50 feet of water. The tank is to be constructed of pre-stressed concrete, and the pressure exerted at the tank bottom is anticipated to be about 3600 pounds per square foot (psf). The expected foundation levels of the tank perimeter bottom and conical bottom range from about 35 to 45 feet below the existing grade.

New diversion structures will be constructed at the existing South Fork Peachtree Creek Relief Sewer at the eastern end of the project site. Also near the east end of the alignment, proposed construction includes an electrical building, an odor control building, and a diversion pump station.

The flow from the diversion structures will be transported to the equalization tanks using a new 48-inch diameter force main. The proposed alignment and profile of the force main are shown in Figures 2 and 3, respectively. As shown in Figure 3, the invert elevation of the force main ranges from about 789.8 feet at the west end near the equalization tanks to about 861.5 feet at the junction box north of Cheshire Bridge Road to about 810 feet at the east end near the diversion pump station. A jack and bore tunnel will be used to install the force main under Cheshire Bridge Road. The proposed tunnel is approximately 300 feet long, extending from the west side to the east side of Cheshire Bridge Road.

Other structures to be constructed as part of this project include an equalization pump station located adjacent to the equalization tank, an odor control system, and an access road connecting the tank area to Liddell Drive.

In addition, a flood plain compensation area east of Cheshire Bridge Road is planned for this project. Also, retaining walls along the pipe alignment and at various locations on the site are proposed. However, evaluation of the flood plain compensation area is not included in our present scope of work, and retaining wall details are not available at this time.

Our understanding of the proposed construction as described above is based on a plan and profile of the pipeline and tank information provided to us by ASG on October 5, 2012. If there are significant changes to the pipeline profile or tank configuration, we should be notified to re-evaluate and revise our recommendations accordingly.

### **1.3 Existing Site Conditions**

The Liddell Drive Equalization Project is located within a suburban/urbanized environment with developed commercial properties and associated infrastructure located adjacent to the proposed force main alignment and tank site. The existing topography in the project area varies from elevation 877 feet near the junction box north of Cheshire Bridge Road to elevation 811 feet near the diversion structures at the east end near the creek. There are significant grade changes along the proposed force main alignment as fill materials were used to create the roadway embankment for Cheshire Bridge Road and the nearby building areas.

The equalization tank will be constructed in a partially paved area at the northwestern corner of the project site, east of Liddell Drive within property owned by the City of Atlanta. Currently this portion of the site is occupied by an AM radio antenna tower and temporary office trailers. The existing ground surface elevation in the proposed tank area ranges from about 834 to 845 feet.

## 2.0 Field Exploration Program

### 2.1 General

A field exploration program was conducted by Willmer to determine the type, strength, and deformation characteristics of *in situ* soils and to assess the groundwater conditions at the site of the proposed development. The field exploration consisted of Standard Penetration Test (SPT) borings, rock coring, bulk soil sampling, undisturbed soil sampling, piezometer installation, and groundwater table measurements at selected locations along the force main alignment and in the tank areas.

Existing subsurface utilities at the boring locations were located by the subscribers of Georgia Utilities Protection Center and a private utility locator. Upon completion of drilling and groundwater table measurements, the boreholes were backfilled using soil cuttings from the drilling operation. In paved areas, the surface of bore holes was patched with asphalt/concrete patch after backfilling.

### 2.2 Standard Penetration Test Boring

The subsurface exploration program consisted of drilling 40 SPT borings along various pipeline alignment options for multiple tank locations and in the proposed equalization tank area. The boring locations were selected by Willmer and ASG. All boring locations and elevations (except for B-26 through B-40) were surveyed in the field by a survey crew provided by ASG. B-26 through B-40 were located by our field engineer using estimated distances from existing site features, and the elevations at these locations were estimated from topographic drawings provided by ASG. The boring locations are shown on Figure 2.

Of the 40 SPT borings, 11 borings (B-15 through B-23, B-11 and B-38) were used to assess the feasibility of previously selected pipeline alignment options which were subsequently abandoned by ASG. Borings B-1 through B-9 and B-29 through B-37 were drilled in the tank area. Boring B-10 was drilled for a previously proposed electrical and generator building in the tank area. Borings B-13B, B-14, were drilled for the jack and bore tunnel under Cheshire Bridge Road. Borings B-11, B-13A, B-24, and B-38 were drilled to evaluate alternative alignments of proposed tunnels crossings under Cheshire Bridge Road. The currently selected jack and bore tunnel alignment passes through Boring B-13B and B-14.

It should be noted that the force main alignment was recently revised after the completion of our field exploration program and no boring was performed for the force main between boring B-13B and the equalization tank. Additional geotechnical exploration should be performed in this area to characterize the existing subsurface conditions that may impact the force main alignment and construction.

The borings were drilled using a rubber-tired all-terrain vehicle (ATV)-mounted rotary drill rig to advance continuous hollow-stem augers. All work was performed under the observation of our geotechnical engineers. The SPT borings were performed in general accordance with ASTM Standard D 1586. The Standard Penetration Test is a widely accepted method for *in situ* testing of soils. A 2-foot long, 2-inch outside-diameter split-spoon sampler attached to the end of a



string of drilling rods is driven 18 inches into the ground by successive blows of a 140-pound hammer freely dropping 30 inches. The number of blows needed for each 6 inches of penetration is recorded. The blows required for the first 6 inches of penetration are allowed for seating the sampler into any loose cuttings, and the sum of the blows required for penetration of the second and third 6-inch increments constitutes the penetration resistance or N-value. After the test, the sampler is extracted from the ground and opened to allow visual examination and classification of the retained soil sample. The N-value has been empirically correlated with various soil properties including consistency, relative density, strength, compressibility, and potential for difficult excavation. Correlations between the N-value and the relative density of cohesionless soils (sands) and consistency of cohesive soils (clays/silts) are included in Appendix I.

Results of the SPT borings are summarized in Table 1, and presented in the form of individual boring logs in Appendix I along with a list of the legends used in the boring logs, and a reference sheet describing the Unified Soil Classification System.

### **2.3 Rock Coring**

Rock coring (NQ size) was performed at thirteen selected boring locations to obtain samples of auger refusal materials for use in evaluation of excavation methods and foundation bearing capacity. The depth of rock coring, percent recovery (REC) of rock core and the Rock Quality Designation (RQD) are presented on the boring logs in Appendix I. Percent recovery is defined as the length of rock core recovered divided by the total length cored. RQD is defined as the fraction of core run with rock core pieces equal to or longer than 4 inches; it is computed by summing the length of intact rock core pieces 4 inches or longer (ignoring mechanical breaks) and dividing the sum by the total length of the core run. Percent REC and RQD provide an indication of the continuity, fracturing, and degree of weathering of the rock.

### **2.4 Piezometer Installation**

Temporary piezometers were installed at boring locations B-1, B-2, B-6, B-8, and B-11 to monitor the variation in groundwater level during the period of our field exploration program and to estimate the stabilized groundwater levels at these locations. The total depth of the piezometers ranged from 25 to 27 feet below the existing ground surface. The piezometers consisted of 5-foot long, 2-inch diameter slotted PVC pipes installed at the bottom of the drilled hole and connected to 2-inch diameter solid PVC pipes rising up above the ground surface. Clean sand was used to backfill the 5-foot screened zone (i.e., the annular space between the slotted pipe and the drilled hole). An 8-inch thick bentonite seal was used above the screen zone, and soil cuttings were used to backfill above the bentonite seal. Water samples were obtained from the piezometers for limited environmental testing; results of environmental sampling and testing are provided in a separate report.

### **2.5 Soil Sampling**

Soil samples (split-spoon and bulk samples) obtained during the field exploration program were classified by our geotechnical engineer. Split-spoon samples were obtained from all borings and placed in glass jars. A bulk sample was collected in a plastic bag from boring B-10 at a depth of 1 to 5 feet below the existing grade. The samples were transported to our laboratory for further

classification and characterization. Soil classification was performed in general accordance with ASTM D 2487 / D 2488 classification system.

During SPT boring, undisturbed Shelby tube samples were also obtained from selected soils for possible use in laboratory consolidation/triaxial testing. Locations of the undisturbed samples are shown on the individual boring logs in Appendix I. The undisturbed samples were obtained from boring locations B-3 and B-4 for previous equalization tank alternatives.

## **2.6 Ground Water Level Measurement**

Depth to groundwater was recorded where encountered during drilling. The water table elevations at the boring locations are summarized in Table 1, and shown on the individual boring logs in Appendix I. The depth to the groundwater table ranged from 3 to 42 feet below the existing ground surface, and groundwater elevations ranged from 802 to 836.6 feet.

## **2.7 Rock Outcrop/Boulders**

Exposed rock/boulders were observed at a number of locations on existing slopes adjacent to the Seaboard Coastline Railroad extending along the eastern portion of the site. Based on the boring data for adjacent areas and close visual observation of the exposed materials, we determined that these are rocks/boulders in the fill materials that were used for site grading in these areas.

### **3.0 Laboratory Testing Program**

#### **3.1 General**

A laboratory testing program was conducted by Willmer to determine the engineering properties of soils for use in our analyses and recommendations for the proposed facilities. The laboratory testing program consisted of: (i) classification and index tests on recovered split-spoon, bulk, and undisturbed soil samples, (ii) Standard Proctor compaction and California Bearing Ratio (CBR) tests on a remolded bulk soil sample, and (iii) triaxial compression tests on a selected undisturbed soil sample. All laboratory tests were performed in general accordance with appropriate ASTM standards.

#### **3.2 Classification and Index Tests**

Classification and index tests were performed to aid in the characterization of soil samples obtained from the boring locations. The tests included visual classification in the laboratory, grain size distribution analyses (ASTM D 422), and percent fines (i.e., percent by dry weight of materials passing the US #200 sieve) determination (ASTM D 1140). Results of these tests are summarized in Tables 2 and 3, and the individual test results are included in Appendix II. As shown in Tables 2 and 3, the tested samples were mostly sandy silt, silty sand, sandy clay with natural moisture contents ranging from 6.3 to 49.4 percent. The percent fines of the samples ranged from 36.5 to 57.4 percent, the liquid limit of the samples ranged from 25 to 49 percent, and the plasticity index of the samples ranged from 5 to 17 percent.

#### **3.3 Standard Proctor Compaction and CBR Tests**

A bulk soil sample was obtained from B-10 performed at the proposed electrical and generator building location. The bulk sample was obtained from a depth near the proposed final grade of the building. The bulk sample was used for Standard Proctor Compaction tests to determine the compaction characteristics of the soil. The result of the test is presented in Table 2. The Standard Proctor maximum dry density for the sample was 121.3 lb/ft<sup>3</sup> and the optimum moisture content was 12.0 percent. The natural moisture content for the sample was 6.3 percent. Based on this test, the natural moisture content is 5.7 percent lower than the Standard Proctor optimum moisture content.

A California Bearing Ratio (CBR) test was performed on the sample selected for compaction testing to determine the subgrade-support characteristics of the soil. The CBR test was performed on a specimen molded 100% of the Standard Proctor maximum dry density at a moisture content approximately equal to the optimum moisture content. The CBR value was determined to be 16.7. It should be noted that this CBR value is significantly higher than what is usually obtained for this type of soil (silty clayey medium to fine sand).

#### **3.4 Triaxial Compression Test**

A Consolidated Undrained Triaxial Compression tests (ASTM D4767) with pore water pressure measurement was performed on an undisturbed soil sample obtained from boring B-4 to determine shear strength parameters for this soil. Because of the nature of the soil and the presence of non-homogeneous materials in the Shelby tube sample, only one specimen was

suitable for use in triaxial test. The test specimen was consolidated using a uniform effective confining pressure of 15 psi prior to shearing under undrained conditions. Results of the triaxial compression test are presented in Table 3. As shown in this table, the effective stress friction angle for this sample was 24.8 degrees with a zero cohesion intercept.

## 4.0 Area Geology and Subsurface Conditions

### 4.1 Area Geology

The Liddell Drive Equalization project is located in the Southern Piedmont Geologic Province of Georgia. The Southern Piedmont has a soil weathering profile above the unweathered parent rock, which is formed by in-place mechanical disintegration of the original rock mass structure and chemical decomposition of the original rock mass material. The mechanical processes include stress relief from unloading due to erosion and the resulting differential strains and displacements. The predominant rock types along the project alignment are described as biotite gneiss, mica schist, and amphibolite.

The weathered profile can vary considerably over short distances due to variations in rock type or structure, topography, rates of erosion, groundwater conditions and regional variations in climate, particularly rainfall. The profile can be described as residual soil overlying weathered rock, underlain by relatively unweathered rock. The contacts between these zones are often very irregular and gradational. Near the surface, the residual soils are often fine grained and no indication of the original structure of the rock mass remains. With depth, the original relic rock structure can be recognized although the material is still soil. The relic rock structure includes joints and faults. Minerals are oriented identical to their original relative position, but feldspars are converted to kaolinite or other clays, micas are partially or completely degraded and altered, and most other minerals, except quartz, are altered. This results in a rock appearance but soil consistency and behavior. The relic structure inherited from the parent rock persists and results in planes of weakness.

Sandy silts and silty sands predominate, and highly micaceous zones or bands are common when micas were present in the original rock. Saprolite is the term commonly applied to this zone of soil-like material that retains the relic rock structure. The silty and sandy size materials of this zone can be very compressible, particularly when micaceous, and are very susceptible to erosion.

The base of the saprolite is locally defined as partially weathered rock (PWR) and is characterized as soil that exhibits a standard penetration resistance in excess of the equivalent of 100 blows per foot. The thickness of the PWR can vary considerably from less than one foot to in excess of 20 feet. This zone is often composed of larger sand sizes and can exhibit high permeability. The presence of PWR usually indicates the transition to weathered rock.

Weathered rock is characterized by a wide range of physical properties of its components, from soil-like appearance to rock-like corestones. Weathering has occurred more rapidly along the pre-existing joints and faults and along lithologic units that are more susceptible to weathering. This zone is the cause of a great many engineering problems. With further depth, the rock has noticeable discoloration, alteration of feldspars and micas, and some staining along joints. Eventually unweathered, but possibly still jointed, rock is found.

The above-described subsurface profile can be altered by alluvial erosion or deposition near drainage features or by man through excavation or fill placement.

## 4.2 Subsurface Conditions

Results of the SPT borings are presented in the form of individual boring logs in Appendix I. A summary of the boring records is presented in Table 1, and subsurface profiles obtained from the boring logs are presented in Figures 3 through 7. The stratification lines shown on the boring logs represent our interpretation of the field logs and laboratory test results, in accordance with generally accepted geotechnical engineering practice. The stratification lines represent approximate transition boundaries between soil types; actual transitions between soil types are expected to be gradual. Although individual test borings are representative of the subsurface conditions at the precise boring locations on the dates shown, they are not necessarily indicative of the subsurface conditions at other locations or at other times. Also, in the absence of foreign substances, it is difficult to distinguish between virgin (undisturbed) residual soils and clean soil fill; the soil was classified as fill only at locations and depths where the fill material was visually distinguishable from residual soils.

In the subsurface profiles presented in Figures 3 through 7, the lines showing strata breaks between two borings are based on linear interpolation and the actual depth/elevation of any stratum between two borings could be different from what is shown on the profiles.

The subsurface profiles at the site can be generally characterized as a surficial layer of fill underlain by a natural soil profile consisting of residual soils underlain by partially weathered rock (PWR) and parent bedrock. However, at some locations, no fill soils were encountered, and at some locations no PWR was encountered above rock. Also, alluvial soils were encountered above residual soils along the proposed force main alignment in the flood plain area east of Cheshire Bridge Road. Generalized discussions of the soil types encountered at various locations within the project site are presented in the following paragraphs. For the purpose of this discussion, partially weathered rock (PWR) is characterized for engineering purposes as residual soils exhibiting N-values in excess of 50 blows for 6 inches of penetration. Auger refusal is indicative of the top of parent bedrock.

### 4.2.1 Equalization Tank

Borings B-1 through B-9 were drilled near/within the currently selected footprint of the equalization tank, as shown in Figure 2. Asphalt pavement and base materials were initially encountered at these borings and the pavement system thickness ranged from 11 to 24 inches. Below the pavement, these borings encountered 10 to 20 feet of fill soil consisting of silty sands and sandy clays with organics including stumps, roots, and other plant remains. Underlying the fill, residual soils, typically silty sand and sandy silt, were encountered to depths varying from 26 to 42 feet below the existing grades. SPT N-values in the fill ranged from 2 to 18 blows per foot (bpf), and the SPT N-values in the residuum ranged from 1 to 47 bpf.

Underlying the residual soils, a layer of partially weathered rock (PWR), sampled as very dense silty sand, was encountered eight of the borings. Layer thickness of PWR varied from 2 to 18 feet with SPT N-values varying from 50 blows for 6-inches to 50 blows for 0-inch.

Auger refusal, indicating the top of weathered rock/rock, was encountered at eight borings. The depth to auger refusal varied from 28 to 57 feet below the existing grades. The auger refusal elevation ranged from 818 to 780 feet. Boring B-7 was terminated in PWR at 60 feet below the

existing ground surface, elevation 778 feet without encountering auger refusal. In borings B-3, B-5, and B-9 where auger refusal was encountered, the underlying rock was cored. The core recovery ranged from 23 to 91 percent, and the rock quality designation ranged from 8 to 66 percent.

#### **4.2.2 Jack and Bore Tunnel**

The proposed force main alignment will extend 300 feet under Cheshire Bridge Road, and a jack and bore installation technique will be used to install the force main under the roadway. Two borings (B-13B, and B-14) were performed for the Jack and bore tunnel section.

Boring B-13B was drilled along the tunnel section of the alignment off Cheshire Bridge Road in the parking lot of an auto mechanic shop (see Figure 2). Asphalt pavement and base materials were encountered at this location, and the pavement system thickness is about 6 inches. Below the pavement system, the boring encountered fill soil consisting of possible construction debris and organics, residuum, and PWR. The tunnel invert elevation at this location is about 840 feet, and fill soils consisting of clayey sand with trace organics were encountered at this location at depth in our boring.

Boring B-14 was drilled near the east end of the proposed jack and bore tunnel section (see Figure 2). The boring encountered fill soil, residuum, and PWR. The tunnel invert elevation at this location is about 831 feet, and residual soils consisting of sandy silt was encountered at this depth.

As indicated earlier, borings B-11 and B-38 (see Figure 2) were drilled to evaluate alternative alignments of the tunnel crossings under Cheshire Bridge Road. Borings B-11 and B-38 encountered 12 to 14 feet of fill consisting of loose to medium dense silty sand and highly organic soil with leaves and decaying plant matter. Underlying the fill soils, residual soils were encountered, typically consisting of silty sand, sandy silt, and clayey sand. Under the fill and residual soils PWR was encountered, extending to the auger refusal depth of 40 feet.

#### **4.2.3 Equalization Pump Station**

An equalization pump station will be constructed adjacent to the equalization tank. The pump station is approximately 56 feet by 74 feet in plan dimensions and the foundation level of the pump station is about 57.75 feet below the ground surface at an elevation of 783.5 feet. Borings B-4 and B-5 were drilled near the proposed pump station (see Figure 2). Asphalt pavement and base materials were encountered at these locations, and the thickness of the pavement system ranged from about 18 to 24 inches. Below the pavement, these borings encountered 10 to 15.5 feet of fill soils typically consisting of very loose to loose silty sand with debris and trash such as glass, crushed concrete, and organics, with SPT N-value ranging from 2 to 8 bpf.

Underlying the fill soils, 20 to 25 feet of residual soils were encountered. The residual soils consisted mostly of very soft to very stiff sandy silt with SPT N-values ranging from 1 to 35 bpf. Below the residual soil, PWR was encountered. PWR layer thickness ranged from 12 to 15 feet. The SPT N-value in the PWR ranged from 50 blows for 6-inches to 50 blows for 1 inch of penetration. At the proposed pump station bottom elevation of 783.5 feet, PWR is expected.



Groundwater was encountered at elevations ranging from about 819 to 825.5 feet, 36 to 42 feet above the bottom elevation of the pump station.

#### **4.2.4 Force Main Alignment**

Borings performed for the entire force main alignment include nine borings ( B-13A, B-13B, B-14, B-24, B-28, B-27, B-25, B-39, and B-40) were performed near/along the force main alignment. It is our understanding that a trench excavation method will be used to install the force main.

At the invert elevations along this portion of the force main alignment, the soil types are expected to vary from PWR at B-25 to soft alluvium at Diversion Structure #2. Borings B-13B and B-14 were drilled along the jack and bore tunnel portion of the alignment and B-25 and B-39 were drilled for the diversion structure pump station and Diversion Structure #2. The soil types encountered at these borings are described in the respective sections. Soil types encountered at the other boring locations along the alignment are described below.

At the proposed invert elevation of about 850.5 feet near B-24, the expected soil is a medium dense silty sand (micaceous) with an SPT N-value of about 18 bpf. At this location, groundwater was encountered at an elevation of about 819 feet, which is substantially below the proposed invert elevation.

At location B-13A auger refusal was encountered at shallow depths ranging from 4.5 to 14 feet at five different locations, indicating possible boulder fill.

Boring B-28 was drilled east of the proposed jack and bore tunnel (see Figure 2). The boring encountered fill soil, residuum, and PWR. At the proposed invert elevation of about 821.5 feet, medium dense silty sand is expected, with an SPT N-value of 24. At this location, groundwater was encountered at an elevation of 815 feet, i.e., about 6 feet below the proposed invert elevation.

At the proposed elevation of about 815 feet near boring B-27, the boring encountered medium dense clayey sand with an SPT N-value of 13. Groundwater was encountered at an elevation of 805.5 feet, which is 10 feet below the proposed invert elevation.

At the proposed invert elevation of 794 feet near B-25, the expected soil is PWR with an SPT N-value of 50 blows for 5 inches of penetration.

#### **4.2.5 Diversion Pump Station and Associated Structures**

Near the east end of the alignment, structures including a pump station, electrical building, odor control structure, and transformer pad are proposed. For these structures, borings B-26 and B-39 were drilled adjacent to/within the proposed footprint. B-26 was drilled for a previous force main alignment and is approximately 70 feet away from the structures. Boring B-26 encountered 6 feet of possible fill from the sewer easement consisting of firm to soft sandy clay. Below the possible fill, this boring encountered 6 feet of alluvial soils, typically sandy clay or clayey sand, with SPT N-values ranging from 3 to 7 bpf. Underlying the alluvial soils, 7 feet of residuum consisting of silty sand was encountered with a SPT N-value of 55. Below the residual soil a

PWR layer extended from a depth of 19 feet to the boring termination depth of 24 feet below the existing ground surface. The SPT N-value in the PWR was 50 blows for 3 inches of penetration. Groundwater was encountered at an elevation of 806 feet.

Boring B-39 was drilled in the northeast corner of the building footprint. Residual soils consisting of sandy clay and silty sand were encountered to a depth of 10 feet. The SPT N-value of the residual soil ranged from 20 to 55 bpf. Underlying the residual soils a 2-foot layer of PWR was encountered. The PWR was a silty sand with SPT N-value of 50 blows for 4 inches of penetration. Auger refusal was encountered at 11.5 feet below the existing ground surface. The underlying rock was cored to a depth of 21.5 feet. The core recovery was 65% and the rock quality designation was 17%.

#### **4.2.6 Diversion Structures**

The new diversion structures will be constructed at the existing South Fork Peachtree Creek Relief Sewer at the eastern end of the project site. Diversion Structure #1 located east of Peachtree Creek and Diversion Structure #2 is located approximately 50 feet south of the proposed diversion pump station.

Boring B-40 was drilled adjacent to the footprint of Diversion Structure #1. The boring encountered 8 feet of possible fill material from the sewer easement consisting of silty sand and gravel with SPT N-values ranging from 19 to 8 bpf. Below the fill, an alluvial layer consisting of sandy clay and silty sand was encountered to a depth of 18.5 feet. Underlying the alluvial soil, PWR was encountered to a depth of 23 feet. The SPT N-value in the alluvial soil ranged from 2 to 10 bpf, and in PWR it ranged from 50 blows for 4 inches to 50 blows for 0 inches of penetration. Auger refusal was encountered at 23 feet and rock was cored to a depth of 33 feet. The rock recovery was 97% and the rock quality designation was 33%.

#### **4.3 Site Environmental Assessment**

Willmer performed a Phase I environmental assessment for this site. Also, during drilling at borings locations B-1 and B-2 in the tank area, a hydrocarbon smell (possibly gasoline) was encountered in samples obtained from depths of about 12 to 28 feet. Temporary piezometers were placed in these borings. ASG was informed of potential soil and/or groundwater impacts and Willmer was subsequently authorized by ASG to sample the ground water from the piezometers and submit the samples for analyses of petroleum hydrocarbons. Results of this soil and groundwater exploration and the Phase I environmental assessments were provided under separate reports.

## 5.0 Geotechnical Engineering Evaluation and Recommendations

### 5.1 General

The geotechnical engineering evaluation and recommendations presented herein are based on the soil boring, rock coring, and laboratory test data gathered during this exploration, our understanding of the proposed construction, and our experience with similar site and subsurface conditions and structures. These recommendations were prepared in accordance with generally accepted geotechnical engineering practice for the exclusive use of ASG, the City of Atlanta, and their designated consultants for use in the design of the proposed Liddell Drive Equalization project. No other warranty, expressed or implied, is made. This report should not be relied upon by other third parties.

We request that we be advised of any changes in the proposed development from that described in this report so that we may amend our recommendations accordingly. In addition, we request the opportunity to review the portions of the project specifications that relate to geotechnical engineering to ensure that our recommendations are properly incorporated.

### 5.2 Site Preparation

A portion of the area for the proposed construction is located in an urbanized setting. Many buried and overhead utilities will likely be encountered in the tank area and on either side of Cheshire Bridge Road during construction. Disruption to traffic and local businesses will also likely be a major impact. The construction work will need to be coordinated with all parties to minimize disruption.

Site and subgrade preparation should begin with the removal of all trees, surface vegetation, organic-laden soils, topsoil, and any uncontrolled fill materials within the proposed construction area. All existing miscellaneous debris fill in the equalization tank area and the unsuitable soft alluvial soils encountered along the force main alignment should be removed and disposed offsite. In the existing pavement areas, all asphalt/concrete including aggregate base materials below the pavements should be removed from the proposed construction areas. If the aggregate base material can be removed without substantial contamination by organics, it may be reused as engineered fill.

### 5.3 Difficult Excavation

At a number of locations, excavation of PWR and/or rock will be required to achieve design grades. These locations are summarized below:

Location	Boring Number	Excavation
Equalization Tank	B-1	PWR and Rock
	B-2	PWR and Rock
	B-3	PWR and Rock
	B-5	PWR
	B-9	PWR and Rock

Equalization Pump Station	B-4	PWR
	B-5	PWR and Rock
Force Main Alignment	B-25	PWR
Diversion Pump Station	B-26	PWR and Rock
	B-39	PWR and Rock

We recommend that the following general guidelines be used in the excavation specifications for this project:

The soil overburden (existing fill, alluvial, and residual soil) can be removed by conventional excavation equipment such as large backhoes. On the boring summary (Table 1), this is the material overlying the PWR and refusal level in the borings.

PWR and fractured/weathered rock would likely be rippable with heavy excavation equipment such as a D-8 dozer with single ripper claw attachment, or a CAT 330 or equivalent trackhoe. Material that cannot be removed by such equipment may have to be jack-hammered out with a hydraulic jack hammer attached to a trackhoe. Hard rock will likely require blasting for removal. The following definitions can be used to clarify material excavation techniques and equipment capabilities:

- 1) Rip Rock: Any material that cannot be moved by scrapers, loaders, pans, or graders and that requires the use of a single-tooth ripper mounted on a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds.
- 2) Blast Rock (General Excavation): Any material which cannot be excavated with a single-tooth ripper mounted on a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds (Caterpillar D-8K or equivalent) or by a Caterpillar 977 front-end loader or equivalent, and occupying an original volume of at least one cubic yard.
- 3) Blast Rock (Trench Excavation): Any material which cannot be excavated with a backhoe having a bucket curling force rated at not less than 25,700 pounds (Caterpillar Model 225 or equivalent), and occupying an original volume of at least one half cubic yard.

In evaluating site grading and excavation requirements, it must be noted that subsurface conditions, particularly the location and elevation of rock, whether in boulders or massive form, can vary erratically in the Piedmont Physiographic Province in which this site is located. Therefore, there is always a possibility that rock may be encountered at shallower depths in unexplored areas. If large boulders or massive rocks are encountered during the grading operations, blasting may be necessary to facilitate removal.

#### 5.4 Temporary Bracing for Excavation

##### 5.4.1 Force Main, Diversion Pump Station, and Diversion Structures

Due to the urban conditions along the proposed alignment, we recommend that a temporary shoring system be installed or trench boxes be used where required to permit excavation for the

proposed force main. Excavation for the pipeline alignment is anticipated to be rectangular in shape. The choice of excavation support (steel sheet pile, trench box, etc.) will be the option of the contractor, subject to review by the design engineer. Sheet piling may be required in some areas to protect adjacent buried utilities or property. Open excavation can be considered where sufficient space is available for a safe side slope. Depending on the site constraints, a combination of open excavation on one side and braced excavation on the other can also be considered at some locations. All excavations should be performed in accordance with OSHA regulations for Occupational Safety and Health Standards - Excavations (29 CFR Part 1926). The excavation should be carefully monitored and further flattening of slopes will be required if significant sloughing occurs.

**5.4.2 Equalization Tank and Pump Station**

Special consideration will be required in the design and construction of excavation supports for installation of the equalization tank due to the presence of near surface uncontrolled miscellaneous debris fill in this area which could cause difficulty in installation. Sheet piles will be difficult to vibrate through the debris fill. H-piles for excavation support will also likely encounter refusal in the debris fill. As such, the debris fill should be excavated (i.e. with a sloped open excavation) where possible prior to installation of the excavation support system for the tank. Once the debris fill is removed either sheet piles or H-piles and lagging can be installed to achieve support in the materials below the debris fill. Adequate embedment into PWR/rock and/or tie-back anchors will be required for stability of the excavation support system.

**5.5 Drainage and Groundwater Management**

Good site drainage must be provided during the construction phase. All ground surfaces must be sloped to prevent the ponding of surface water adjacent to the proposed excavations. Groundwater was encountered at or above the anticipated pipe invert or tank bottom elevations at seven locations. These locations are summarized below:

Boring Number	Location	Bottom/Invert Elevation (ft)	Water Elevation (ft)
B-1	Equalization Tank	Perimeter: 802 Conical Base: 794.5	826
B-2			823
B-3			836
B-4			819
B-5			826
B-6			822
B-7			819
B-8			817
B-9			821
B-4	Equalization Pump Station	783.5	819
B-5			816.7

B-26	Diversion Pump Station	781	806
B-40	Diversion Structure #1	792.5	806
B-26	Diversion Structure #2	791.5	806

Groundwater was encountered in the above borings at the time of drilling at elevation ranging from 802 to 836 feet, as shown above. At the time of construction, water levels may be different from the presently observed levels. Groundwater will need to be lowered to allow excavation for these structures. Dewatering may be accomplished by pumping from sumps within the excavation. Alternatively, a dewatering system consisting of well points may be required around the outside perimeter of excavations to lower the groundwater prior to the start of excavation. In addition, dewatering will be required to permit trench excavation for the pipe alignment to permit excavations in dry conditions and avoid further softening of bearing soils.

In the event dewatering well points are used to control groundwater along any particular segment of the alignment, the drawdown of the groundwater may cause settlement and possible damage to adjacent underground utilities and other structures. If well points are to be used, the effect of the drawdown will need to be evaluated to determine potential impacts to buried utilities on adjacent structures. It should also be noted that groundwater levels are subject to seasonal and climatic changes.

In addition, a low area with ponded water was observed near the east end of the force main alignment during one of our field visits. This area will need to be drained or separated from the alignment by a berm prior to beginning excavation for the pipe trench.

**5.6 Engineered Fill Placement**

Structural fill will be used to replace undercut materials, achieve finished grades, or backfill around the proposed tank, pump stations, diversion structures, and pipelines. Existing fill soils may be re-used as structural fill provided the material is free of debris and organics and is not highly micaceous. At locations along the alignment, debris and rock were encountered in the fill. This material should not be re-used. Also, any alluvium should not be reused. Debris laden fill and alluvium should be wasted.

All structural fill used on site should be free of significant organic matter or debris, have a low to moderate plasticity (liquid limit less than 50 percent and plasticity index less than 30 percent), exhibit uniform composition, and be free of rock fragments greater than three inches in diameter. Soils selected for use as engineered fill material should also have a standard Proctor (ASTM D 698) maximum dry density of at least 90 pounds per cubic foot (pcf). It is recommended that bulk soil samples along the alignment be obtained and tested for compliance with this recommendation.

The engineered fill must be brought to the proposed subgrade elevation by placing and compacting only approved fill materials upon a subgrade approved by the geotechnical engineer. Compaction of engineered fill must be accomplished by placing the fill material in

horizontal lifts of four inches until above the pipe, then eight inches maximum loose thickness and mechanically compacting each lift to at least the specified minimum dry density. The newly placed engineered fill must be uniformly compacted to a dry density that corresponds to at least 95% of the standard Proctor maximum dry density (ASTM D698) of the fill soil. Under roadway/pavement areas, we recommend that the final 12-inches below pavement subgrade be compacted to 98% of the standard Proctor maximum dry density (ASTM D698) of the fill soil before replacing pavement section materials (GAB and asphalt).

To achieve the requirement for dry density, the newly placed engineered fill must be placed at a moisture content that corresponds to  $\pm 3\%$  of the optimum moisture content, as determined by the Standard Proctor moisture-density relationship test. During wet and rainy periods, aeration (drying) is often necessary to reduce the fill materials to the required moisture condition.

During dry periods, water may need to be added to achieve the proper moisture content for compaction. Silty soils, which are wet, may require aeration prior to compaction even during dry periods. Proper drying would involve spreading the overly wet soil over a large area to allow the sun to evaporate some moisture in addition to continuously turning the soil over. Within the proposed alignment this does not appear to be viable due to the urban nature of the site. As alternatives to natural aeration to dry the excavated soils, blending with dryer soil and lime or cement treatment may be considered to lower the moisture content close to optimum moisture conditions for compaction purposes. We recommend that all fill placement be witnessed by a qualified soils technician and that density and moisture tests be performed at a minimum frequency of one test per 100 yd<sup>3</sup> of fill placed to verify that the specified compaction is achieved.

### **5.7 Pipe Bedding**

The soil conditions vary along the proposed force main alignment. In the areas where soft alluvial soils are encountered, the alluvium should be undercut and replaced with compacted No. 57 stone at the discretion of the project geotechnical engineer. In addition, in order to provide uniform support throughout and minimize differential settlement of the pipe, PWR/rock should be undercut by at least two feet and replaced with No. 57 stone. This will minimize non-uniform support conditions in the transition area from PWR/rock to soil and minimize the possibility of overstressing the pipe.

Also, as indicated earlier, the force main alignment west of Cheshire Bridge Road was revised recently after completion of our field exploration program, and no subsurface information is available for the force main alignment between B-13B and the equalization tank. It is recommended that additional geotechnical exploration be performed in this area to characterize the existing subsurface conditions that may impact design and construction. This information is critical for obtaining representative construction bids.

### **5.8 Jack and Bore Tunnel**

Based on the two borings (B-13B and B-14) performed for the jack and bore tunnel section, the installation will extend through mixed soil conditions consisting of fill and residual soils. Groundwater was not encountered above the pipe invert in the borings performed along this section.



## **5.9 Foundation Recommendations**

### **5.9.1 Equalization Tank**

As indicated earlier, the elevation of the top of rock at the tank location is expected to range from 794 to 817.5 feet, and the elevation of the top of PWR ranges from about 795 to 817 feet. The tank bottom elevation ranges from approximately 794.5 to 802 feet. Based on the boring data, the tank bottom is expected to be underlain by a combination of residual soils, PWR, and rock. On the southwestern side, the tank bottom will likely be underlain directly by rock. On the northern and eastern sides, the tank bottom will likely be underlain by residual soils and PWR above rock.

Based on the subsurface conditions described above, we recommend that the tank bottom be supported directly on PWR/rock. Up to 6 feet of residual soils may be encountered in some parts of the tank footprint. We recommended that the residual soils be undercut to top of PWR and replaced with compacted GAB.

Alternately, a combination of deep foundation and tank bottom bearing directly on rock can be used. In areas where rock is encountered at the tank bottom elevation, the tank bottom will bear directly on rock. Deep foundations will be used in areas where residual soils or PWR are encountered above rock.

### **5.9.2 Deep Foundation Support for Equalization Tank**

As recommended above, deep foundations can be used in areas where residual soils and/or PWR are encountered above rock below the tank bottom. Auger-cast piles are recommended as the deep foundation for this project.

An allowable capacity of 120 tons can be achieved with 16-inch diameter auger-cast piles installed to rock (i.e., drilling refusal). However, for piles shorter than 15 feet, we recommend an allowable capacity of 75 tons per pile. Smaller diameter piles with lower capacities and larger diameter piles with higher capacities can also be used. However, friction auger-cast piles are not recommended for this project because of inadequate thickness of PWR above the bearing level and the relatively low-strength soil profile above PWR/rock.

Unlike driven piles, auger-cast piles can be advanced through soil and PWR with similar levels of effort. Therefore, to ensure adequate capacity, the auger should be advanced through the overburden soils and PWR until practical refusal is encountered.

If auger cast piles are used, we recommend that several probe piles be installed and a compression load test be performed prior to production pile installation. The probe piles and the test pile should be used to establish installation procedures including speed of withdrawal and number of strokes and corresponding volume of grout being pumped during withdrawal. A Willmer geotechnical engineer should observe the installation procedures and load test and mutually agree with the pile contractor on the installation methods, guidelines, and load test results. The load test pile should be able to carry at least twice the design load without

excessive deflection. Installation of production piles should begin only after successful completion and acceptance of the load test by the geotechnical and structural engineer.

A minimum center-to-center spacing of 4 feet is recommended for the 16-inch diameter auger-cast piles. Contiguous piles should not be installed before initial set of the adjacent pile to avoid any possible connection of wet concrete between the piles. For long piles, there is a risk of piles being closer at the tip level than the minimum design spacing at the cap level. Therefore, special attention should be directed towards spacing and plumbness during pile installation.

Auger-cast piles require continuous removal of soil spoils excavated by the pile rig. This will result in some additional overall cost to the project. Because auger-cast piles can be monitored only by indirect means, a very "tight" set of specifications are generally required.

### **5.9.3 Shallow Foundation Support for Equalization Tank**

As recommended in Section 5.9.1, the tank bottom will bear directly on PWR/rock depending on the chosen foundation option. Allowable bearing pressures of 10 and 20 ksf are recommended for PWR and rock, respectively. All subsurface should be inspected by the project geotechnical engineer to confirm suitable bearing conditions. The geotechnical engineer will determine the areal extent of the tank bottom area where piles are not required. If rock is over-excavated during construction, lean concrete should be used to fill fractures and create a uniform mat for supporting the tank bottom.

### **5.9.4 Equalization Pump Station**

The foundation base level for the pump station, at elevation 783.5, is expected to be in PWR and rock. Allowable bearing pressures of 10 and 20 ksf are recommended for PWR and rock, respectively. All subsurface conditions should be inspected by the project geotechnical engineer to confirm suitable bearing conditions.

### **5.9.5 Uplift Resistance for Equalization Tank**

The groundwater elevations in the equalization tank area are above the tank bottom elevation. Groundwater levels are subject to seasonal and climatic changes. Therefore, the tank will be subjected to hydrostatic uplift pressure. A portion of the uplift pressure will be balanced by the dead weight of the tank/pump station. Rock anchors can be used to provide additional uplift resistance.

Rock anchors installed through auger-cast piles can be used to provide uplift capacities for these piles. Based on our experience with the rock anchors and rock anchor load tests performed recently in similar rock, an uplift capacity of 15 kips can be obtained with 3-inch diameter anchors embedded 10 feet into rock. These anchors consisted of 1-inch diameter reinforcing steel bars grouted in 3-inch diameter holes. Longer/larger diameter anchors can be designed to achieve higher load capacities. If used, all anchors should be proof-tested to 150 percent of the design load.

In areas where the tank bottom will bear directly on rock/PWR, rock anchors can be installed directly from and tied to the tank bottom mat to provide uplift capacities. Based on our

experience with rock anchors and rock anchor load tests performed recently in similar rock, an uplift capacity of 130 kips can be obtained with 6-inch diameter anchors embedded 16 feet into rock. These anchors consisted of 1<sup>3</sup>/<sub>8</sub>-inch diameter reinforcing steel bars grouted in 6-inch diameter holes. Longer/larger diameter anchors can be designed to achieve higher load capacities. If used, all anchors should be proof-tested to 150 percent of the design load.

#### **5.9.6 Diversion Pump Station and Associated Structures**

Borings B-26 and B-39 were drilled near/within the proposed building footprint of the diversion pump station. The pump station will have upper and lower foundation base levels. The base level elevations for the structure range from 781 (lower) to 804 (upper). At the base level the soil condition expected is to be predominantly PWR and rock. Allowable bearing pressures of 10 and 20 ksf are recommended for PWR and rock, respectively. All subsurface should be inspected by the project geotechnical engineer to confirm suitable bearing conditions. If rock is over-excavated during construction, lean concrete should be used to fill fractures and create a uniform mat for supporting diversion pump station bottom. A portion of the pump station foundation may be located in a soft alluvial layer. This compressible alluvial layer is expected to underlie the upper level of the pump station and should be removed and replaced with compacted engineered fill or GAB during construction. Approximately 5 feet of undercut will likely be required in some portions of the pump station footprint.

#### **5.9.7 Diversion Structures**

Along the eastern end of the alignment, two diversions structures (#1 and #2) will tie the proposed pipeline into the existing relief sewer. The diversion structures will be constructed with an upper level, for tie-in to the existing sewer, and a lower level, for flow to the proposed pipeline. Borings B-26 and B-40 were drilled near the proposed footprint of diversion structures #1 and #2, respectively. At both diversion structures, a soft alluvial layer was encountered to elevations from 799 to 794 feet. This compressible alluvial layer is expected to underlie the upper level of the diversion structure and existing pipe and should be removed and replaced with compacted engineered fill or GAB during construction. Approximately 5 feet of undercut will likely be required at each diversion structure. The foundation level of the lower level is expected to be in partially weathered rock. An allowable bearing pressure of 10 ksf is recommended for PWR. All subsurface should be inspected by the project geotechnical engineer to confirm suitable bearing conditions.

#### **5.9.8 Uplift Resistance for Pump Stations and Diversion Structures**

The groundwater elevations at the pump stations and the diversion structures are above the foundation bottom elevation. These structures will be subjected to hydrostatic uplift pressure. A portion of the uplift pressure will be balanced by the dead weight of the individual structure. Rock anchors can be used to provide additional uplift resistance.

Rock anchors can be installed directly from and tied to the bottom of the structure to provide uplift capacities. Based on our experience with rock anchors and rock anchor load tests performed recently in similar rock, an uplift capacity of 130 kips can be obtained with 6-inch diameter anchors embedded 16 feet into rock. These anchors consisted of 1<sup>3</sup>/<sub>8</sub>-inch diameter reinforcing steel bars grouted in 6-inch diameter holes. Longer/larger diameter anchors can be

designed to achieve higher load capacities. If used, all anchors should be proof-tested to 150 percent of the design load.

### 5.10 Lateral Earth Pressure for Temporary Bracing

The temporary bracing systems for the force main excavations, jack and bore tunnel pits, tank area excavations, diversion pump station and associated structures, and the diversion structures will be designed for lateral earth pressure. The earth pressure distribution will depend on the type of wall and the bracing or tie-back anchors used. Active earth pressure distribution should be used for sheet pile walls. It should be noted that groundwater was encountered in some borings along the force main alignment. If the groundwater is drawn down using a dewatering system, there will be no lateral pressure due to groundwater.

Based on the soil types encountered at this project, the following general soil parameters are recommended for design of bracing system:

• Friction Angle for Soil	25 degrees
• Active Earth Pressure Coefficient ( $K_a$ )	0.41
• At-rest Pressure Coefficient ( $K_0$ )	0.58
• Passive Earth Pressure Coefficient ( $K_p$ )	2.5*
• Unit Weight of Soil as Placed	120 pcf
• Equivalent Active Fluid Pressure	49 pcf
• Equivalent Passive Fluid Pressure	300 pcf*
• Equivalent At-rest Fluid Pressure	70 pcf
• Coefficient of Sliding Friction	0.30*

\* In the design calculations, the resisting forces computed using the above recommended passive earth pressure coefficient, equivalent passive fluid pressure, and coefficient of sliding friction should be reduced using a safety factor of 1.5.

In addition to the lateral earth pressure from the soil behind the bracing system, a uniform surcharge pressure of 500 psf should be added to account for construction equipment loading and/or surcharge due to stockpiled soil near the top of the braced excavation.

### 5.11 Lateral Earth Pressure for Walls of Structures

The walls of the equalization tank, pump stations, and diversion structures will be designed for lateral earth pressures from the backfill materials behind the walls. Since these will be rigid structures, active earth pressure condition will not develop in the backfill materials behind the walls; therefore, higher at-rest earth pressures should be used for design of the walls. Groundwater was encountered in the borings above bottom elevations of the structures. It should also be noted that groundwater levels are subject to seasonal and climatic changes. Therefore, hydrostatic pressures must be added to the effective earth pressures to obtain the design lateral pressure for the walls.

It is recommended that granular soils with a minimum friction angle of 32 degrees be used as backfill behind the tank walls, and the granular backfill should be compacted to at least 95

percent of the Standard Proctor (ASTM D 698) maximum dry density. The following parameters are recommended for tank wall design:

• Friction Angle for Granular Backfill	32 degrees
• Active Earth Pressure Coefficient ( $K_a$ )	0.31
• At-rest Pressure Coefficient ( $K_0$ )	0.5
• Passive Earth Pressure Coefficient ( $K_p$ )	3.0*
• Unit Weight of Granular Soil as Placed	125 pcf
• Equivalent Active Fluid Pressure	40 pcf
• Equivalent Passive Fluid Pressure	375 pcf*
• Equivalent At-rest Fluid Pressure	65 pcf

\* In the design calculations, the resisting forces computed using the above recommended passive earth pressure coefficient and equivalent passive fluid pressure should be reduced using a safety factor of 1.5.

### 5.12 Seismic Site Classification

The seismic site class for the proposed tank area was determined in accordance with the procedures outlined in Section 1613 of the 2009 International Building Code (IBC). The seismic site class was determined using the SPT N-values in borings B-1 through B-9 performed at the tank location.

The weighted average N-value within the top 100 feet of the subsurface profile was calculated in accordance with the procedures outlined in Section 1613.5.5 of IBC. Partially weathered rock and rock were encountered within the top 100 feet at the boring locations. In accordance with IBC guidelines, these materials were assigned an SPT N-value of 100 blows/foot. Based on the subsurface profile within the top 100 feet, the site was classified as Site Class D.

### 5.13 Design Response Spectrum

As outlined in Section 1613.5.1 of IBC, the design spectral response acceleration parameters for short periods and 1-second period were determined based on the site class described above, the contour maps of maximum considered earthquake ground motion in Figures 1613.5(1) and 1613.5(2), and the procedures outlined in Sections 1613.5.3 and 1613.5.4 of IBC. Based on Site Class 'D', the design spectral response accelerations were computed as follows:

Short Periods Acceleration, $S_{DS}$	= 0.267g
1-second Period Acceleration, $S_{D1}$	= 0.144g

A design response spectrum curve constructed using the above acceleration values is presented in Figure 8 for use in design.

## 6.0 Geotechnical Engineering Oversight During Construction

The recommendations provided herein are based on the geotechnical information gathered for the site, our interpretation of the available data, and our experience with similar soils and similar projects in the Atlanta area. Geotechnical recommendations cannot be considered complete until the geotechnical engineer has the opportunity to confirm the subsurface conditions by performing actual field observations during construction. It is critical that our engineering staff provide inspection during subgrade preparation, backfill compaction, and foundation installation. We recommend that Willmer be retained to provide geotechnical engineering oversight during construction to confirm that the recommendations provided herein are properly interpreted and implemented. We look forward to providing these services during construction of the project, as well as construction monitoring and material testing. Geotechnical oversight and material testing for this project will include:

- Subgrade bearing verification
- Tank rock anchor proof testing verification
- Observation of undercutting and replacement
- Backfill compaction
- Sampling and testing of fresh concrete

## TABLES





**Table 1**  
**Summary of Subsurface Conditions**  
**Liddell Drive Equalization Project**  
**Atlanta, Fulton County, Georgia**  
**Willmer Engineering Project No. 71.3801**

Boring Number	Ground Surface Elev. (ft)	Groundwater Depth and Elevation (ft)		Depths and Elevations to Top of Layer (ft)										Layer Thickness (ft)			
		Depth	Elevation	Fill		Alluvium		Residuum		PWR <sup>1</sup>		Auger Refusal		Fill	Alluvium	Residuum	PWR <sup>1</sup>
				Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation				
B-1	844.9	18.5	826.4	2	842.9	--	--	12	832.9	32	812.9	34	810.9	10	--	20	2
B-2	843	20	823	1.5	841.5	--	--	12	831	26	817	31	812	10.5	--	14	5
B-3	845.6	9	836.6	1.5	844.1	--	--	12	833.6	--	--	28	817.6	10.5	--	16	--
B-4	837.2	18	819.2	1.5	835.7	--	--	17	820.2	42	795.2	57	780.2	15.5	--	25	15
B-5	838.3	13	825.3	2	836.3	--	--	12	826.3	32	806.3	44	794.3	10	--	20	12
B-6	834.9	13	821.9	2	832.9	--	--	22	812.9	37	797.9	39	795.9	20	--	15	2
B-7	837.9	19	818.9	1.5	836.4	--	--	17	820.9	42	795.9	--	--	15.5	--	25	18+
B-8	834.7	18	816.7	2	832.7	--	--	12	822.7	34	800.7	45	789.7	10	--	22	11
B-9	840.8	20	820.8	2	838.8	--	--	17	823.8	28	812.8	31	809.8	15	--	11	3
B-10	845	--	--	--	--	--	--	1.5	843.5	12	833	--	--	--	--	10.5	8+
B-11	832.5	11.5	821	0	832.5	--	--	12	820.5	34	798.5	40	792.5	12	--	22	6
B-13A	860	--	--	0.75	859.25	--	--	--	--	--	--	14	846	13.25	--	--	--
B-13B	861.5	--	--	0.5	861	--	--	27	834.5	--	--	42	819.5	26.5	--	15	--
B-14	839.5	--	--	0	839.5	--	--	6	833.5	13	826.5	22	817.5	6	--	7	9
B-15A	818.1	8	810.1	0	818.1	8	810.1	12	806.1	22	796.1	24	794.1	8	4	10	2
B-16	812	3	809	--	--	0	812	5.5	806.5	18	794	--	--	--	5.5	12.5	12+
B-17	813.7	6	807.7	0	813.7	3	810.7	12	801.7	15	798.7	--	--	3	9	3	14+
B-18	813.5	7	806.5	0	813.5	3	810.5	12	801.5	15	798.5	--	--	3	9	3	13.5+
B-19	813	5	808	--	--	0	813	12	801	17	796	20	793	--	12	5	3
B-20	813.5	6	807.5	--	--	0	813.5	--	--	14.5	799	17	796.5	--	14.5	--	2.5
B-21	812.4	6.5	805.9	--	--	0	812.4	17	795.4	28	784.4	--	--	--	17	11	1+
B-22	811.5	6	805.5	0	811.5	3	808.5	14	797.5	--	--	17.5	794	3	11	3.5	--
B-23	811.6	5	806.6	--	--	0	811.6	--	--	14	797.6	--	--	--	14	--	5+
B-24	861	42	819	0.9	860.1	--	--	8	853	18	843	49.5	811.5	7	--	10	31.5
B-25	812.9	8	804.9	0	812.9	6	806.9	--	--	18	794.9	--	--	6	12	--	2+
B-26	811	5	806	0	811	6	805	12	799	19	792	--	--	6	6	7	5+
B-27	817	11.5	805.5	0	817	--	--	3	814	22	795	--	--	3	--	19	7+
B-28	826	11	815	0	826	--	--	3	823	13	813	14.5	811.5	3	--	10	1.5
B-29	841	--	--	0	841	--	--	4.5	836.5	8.5	832.5	11	830	4.5	--	4	2.5
B-30	834	20	814	1.5	832.5	--	--	13	821	18	816	23	811	11.5	--	5	5
B-31	835	17	818	2	833	--	--	12	823	29	806	41	794	10	--	17	12
B-32	837	22.5	814.5	1	836	--	--	6	831	23	814	24.5	812.5	5	--	17	1.5
B-33	831	16	815	1	830	--	--	--	--	22	809	30	801	21	--	--	8
B-34	833	17	816	1	832	--	--	18	815	34	799	43.5	789.5	17	--	16	14.5
B-35	837	18	819	1	836	--	--	13	824	24	813	39.5	797.5	12	--	11	15
B-36	836	17	819	1	835	--	--	21	815	44	792	59	777	20	--	23	15
B-37	844	19	825	1	843	--	--	6	838	18	826	23	821	5	--	12	5
B-38	834	14	820	1	833	--	--	13.5	820.5	33	801	43.5	790.5	12.5	--	24.5	10.5
B-39	816	--	--	--	--	--	--	0	816	10	806	11.5	804.5	--	6	4	1.5
B-40	812.5	10.5	802	0	812.5	8	804.5	--	--	18.5	794	23	789.5	8	5	5.5	4.5

Notes:  
1. PWR - Partially Weathered Rock



Table 2

Summary of Laboratory Test Results  
 Liddell Drive Equalization Project  
 Atlanta, Fulton County, Georgia  
 Willmer Engineering Project No. 71.3801

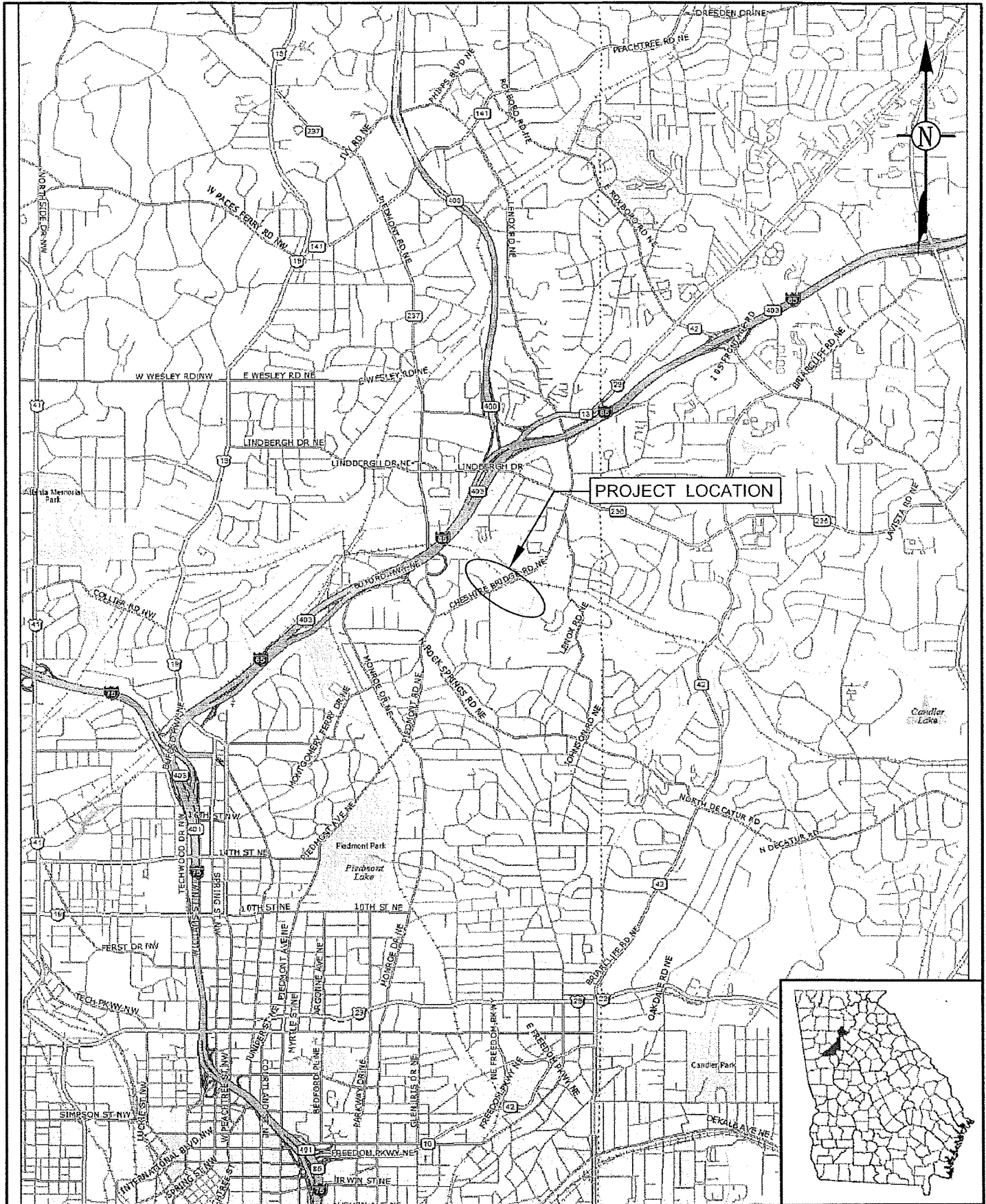
Boring Number	Sample Depth (feet)	Soil Description	Natural Moisture Content (%)	Liquid Limit	Plasticity Index	Percent Fines	Standard Proctor Compaction Test Results			CBR
							Maximum Dry Density (pcf)	Optimum Moisture Content (%)		
B-10	1-5	Brown silty clayey medium to fine SAND	6.3	26	6	40.8	121.3	12	16.7	
B-11	18.5-20	Brown silty medium to fine SAND (micaceous)	23.8	31	5	36.5	--	--	--	
B-13B	13.5-15	Brown clayey medium to fine SAND (micaceous)	22.6	28	12	49.7	--	--	--	
B-15A	3.5-5	Brown fine sandy SILT (micaceous)	36.3	37	8	57.4	--	--	--	
B-16	3.5-5	Brown fine sandy SILT (micaceous)	49.4	49	17	52.7	--	--	--	
B-17	8.5-10	Grey fine sandy lean CLAY (micaceous)	25.5	25	8	51.5	--	--	--	

**Consolidated-Undrained Triaxial Compression Test Results**  
**Liddell Drive Equalization Project**  
**Atlanta, Fulton County, Georgia**  
**Willmer Engineering Project No. 71.3801**

Table 3

Location	Sample No.	Sample Depth (ft)	Soil Description	Natural Moisture Content (%)	Percent Fines (%)	Dry Density (lb/ft <sup>3</sup> )	Effective Consolidation Pressure (lb/in <sup>2</sup> )	Effective Stress Strength Parameters	
								Cohesion Intercept, c (lb/ft <sup>2</sup> )	Friction Angle, $\phi$
B-4 Equalization Tank Area	B-4	25-26.5	Brown silty fine SAND (micaceous)	42.8	31.3	79.5	15	0	24.8°

## FIGURES



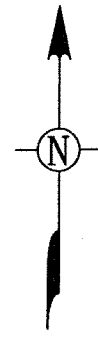
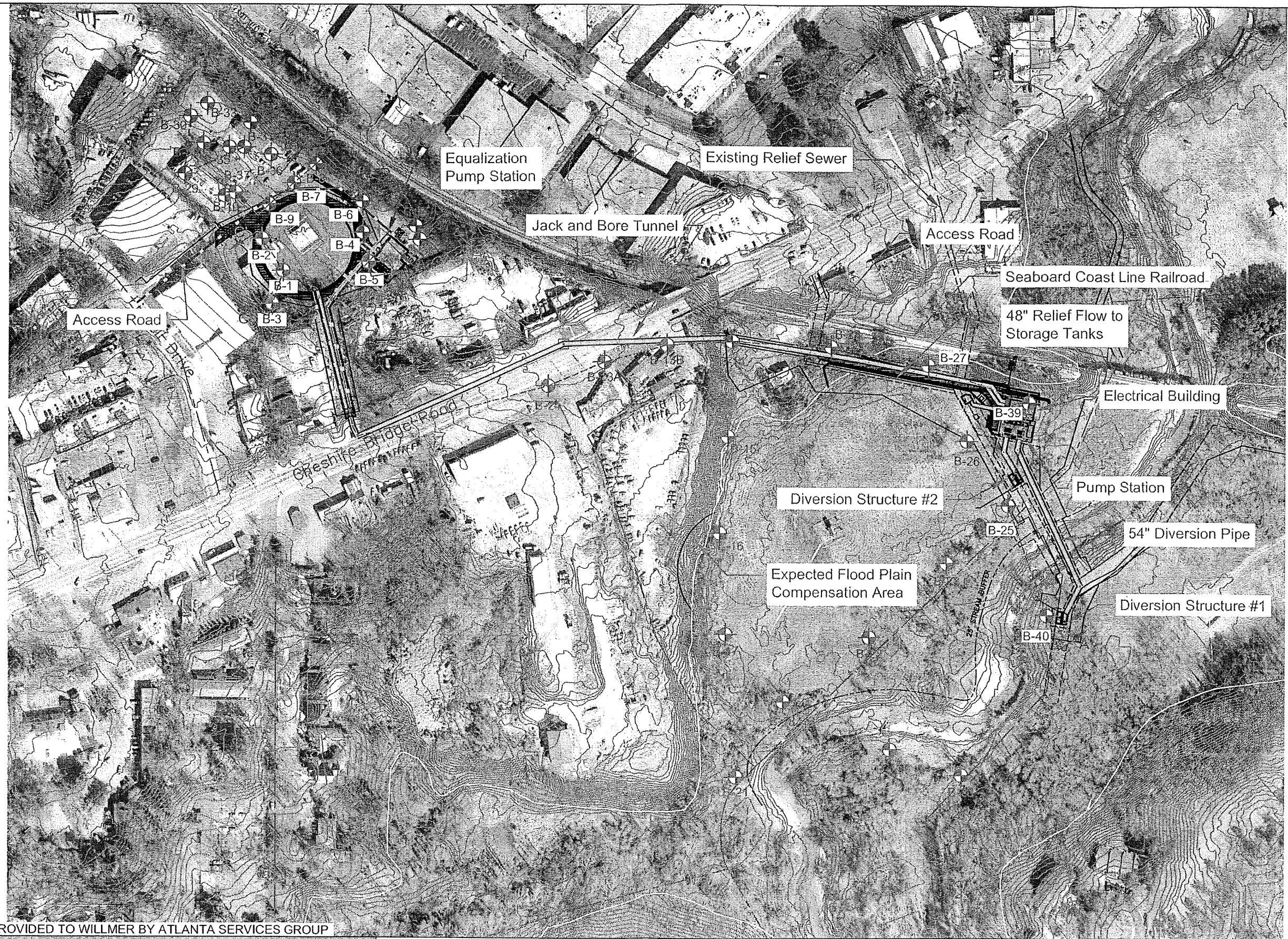
SCALE: 1" = 4000'  
 SOURCE: DELORME  
 DATE: 2/29/12  
 DRAWN BY: CDL  
 REVIEWED BY: DP



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FIGURE 1  
 PROJECT LOCATION MAP  
 LIDDELL DRIVE EQUALIZATION PROJECT  
 ATLANTA, FULTON COUNTY, GEORGIA  
 WILLMER PROJECT No. 71.3801





SOURCE: BASE DRAWING PROVIDED TO WILLMER BY ATLANTA SERVICES GROUP  
 SCALE: 1" = 200'

DATE: 10/9/2012  
 DRAWN BY: CDL  
 REVIEWED BY: DME

WILLMER ENGINEERING INC.



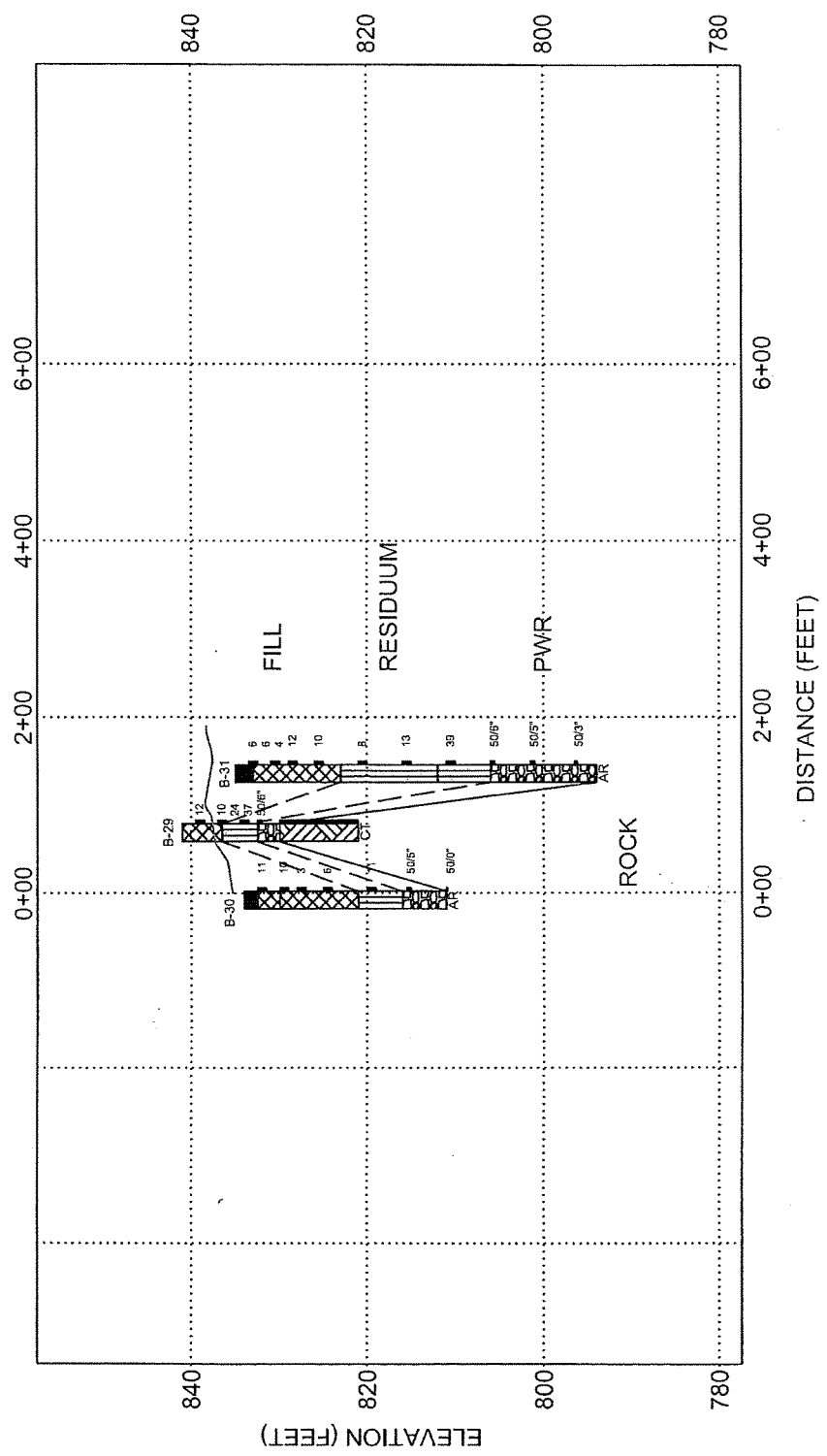
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 ATLANTA, GA 30340-4270

FIGURE 2  
 BORING LOCATION PLAN  
 LIDDELL DRIVE EQUALIZATION PROJECT  
 ATLANTA, FULTON COUNTY, GEORGIA  
 WILLMER PROJECT No. 71.3801

P:\3801 PEACHTREE CREEK ALTERNATIVE LD-1\CADD\FIGURE 2 - BORING LOCATION PLAN 5.16.12.DWG







**NOTES**

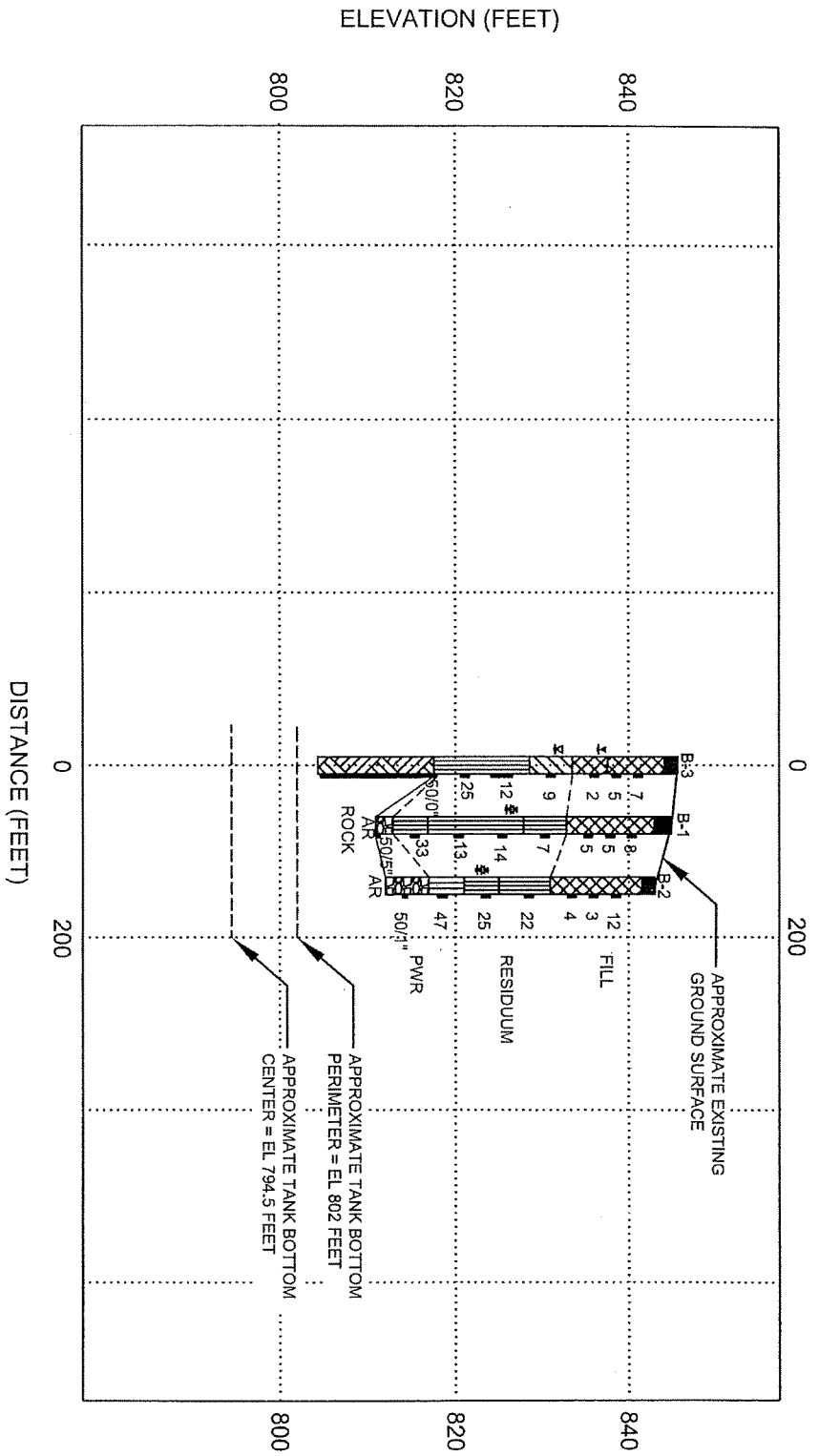
1. THE APPROXIMATE EXISTING GROUND SURFACE WAS PROVIDED TO WILLMER BY ATLANTA SERVICES GROUP. GROUND SURFACE ELEVATIONS AT THE BORING LOCATIONS WERE ESTIMATED BY INTERPOLATION USING A TOPOGRAPHIC MAP PROVIDED BY ASG.
2. THE SOIL STRATIGRAPHY SHOWN ON THIS PROFILE REPRESENTS OUR INTERPRETATION OF THE BORING DATA IN ACCORDANCE WITH GENERALLY ACCEPTED GEOTECHNICAL ENGINEERING PRACTICE. THE LINES SHOWING STRATA BREAKS ARE APPROXIMATE AND BASED ON LINEAR INTERPOLATION BETWEEN BORINGS. THE ACTUAL TRANSITION BETWEEN SOIL STRATA ARE EXPECTED TO BE GRADUAL, AND THE DEPTH/ELEVATION OF ANY STRATUM BETWEEN TWO BORINGS COULD BE DIFFERENT FROM WHAT IS SHOWN ON THIS PROFILE.

SCALE: 1" = 200' H'
1" = 20' V'
DATE: 6/14/2012
DRAWN BY: CDL
REVIEWED BY: SKB

**WILLMER ENGINEERING, INC.**

GEOTECHNICAL ENGINEERING + CONSTRUCTION SERVICES  
ENVIRONMENTAL SERVICES AND ENGINEERING  
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**FIGURE 4**  
GENERALIZED SUBSURFACE PROFILE B-B'  
LIDDELL DRIVE EQUALIZATION PROJECT  
ATLANTA, FULTON COUNTY, GEORGIA  
WILLMER PROJECT No. 71.3801



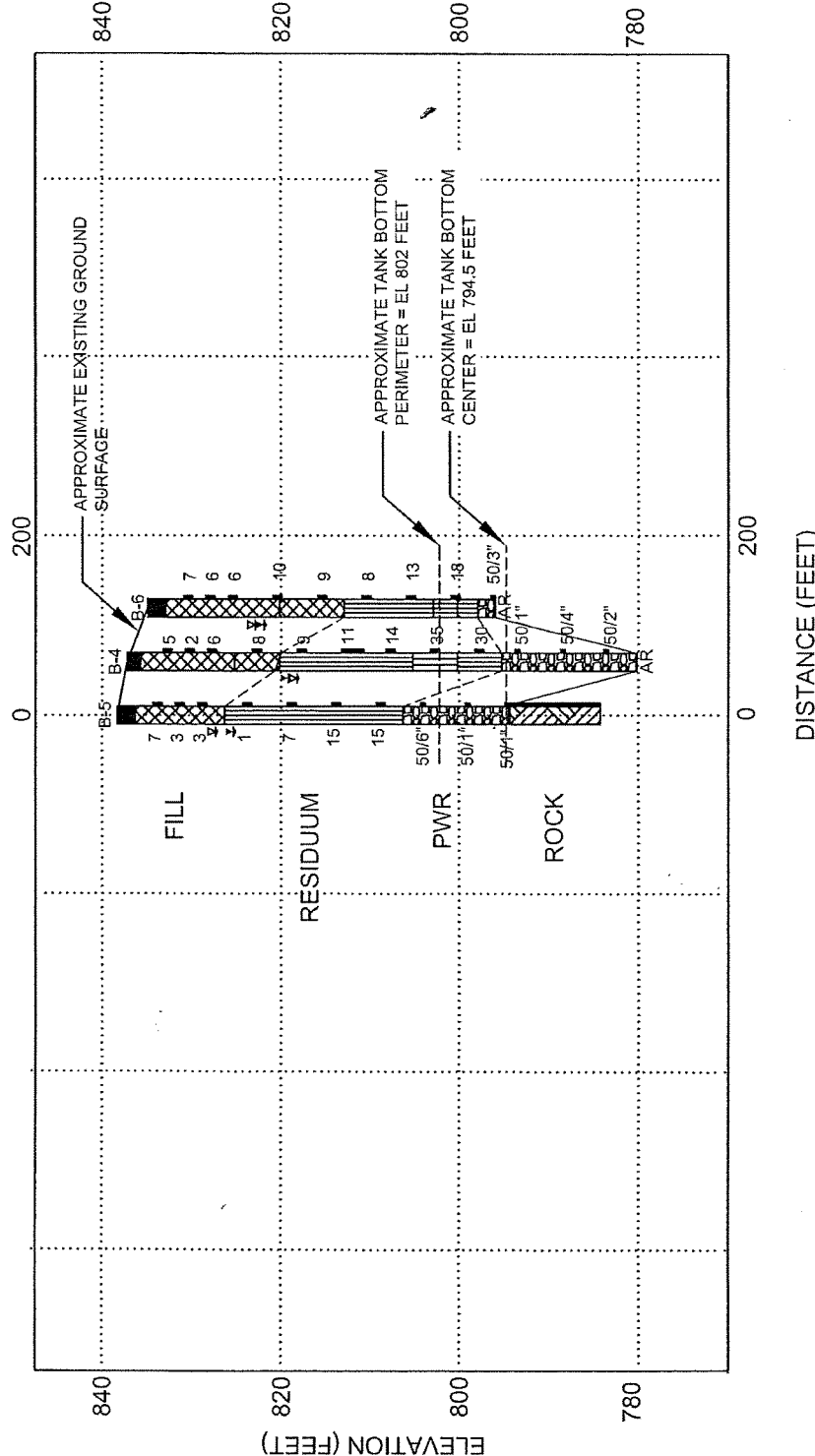
- NOTES**
1. GROUND SURFACE ELEVATIONS AT THE BORING LOCATIONS WERE PROVIDED TO WILLMER BY ATLANTA SERVICES GROUP. THE APPROXIMATE EXISTING GROUND SURFACE WAS ESTIMATED BY INTERPOLATION USING A TOPOGRAPHIC MAP PROVIDED BY ASG.
  2. THE SOIL STRATIGRAPHY SHOWN ON THIS PROFILE REPRESENTS OUR INTERPRETATION OF THE BORING DATA IN ACCORDANCE WITH GENERALLY ACCEPTED GEOTECHNICAL ENGINEERING PRACTICE. THE LINES SHOWING STRATA BREAKS ARE APPROXIMATE AND BASED ON LINEAR INTERPOLATION BETWEEN BORINGS. THE ACTUAL TRANSITION BETWEEN SOIL STRATA ARE EXPECTED TO BE GRADUAL, AND THE DEPTH/ELEVATION OF ANY STRATUM BETWEEN TWO BORINGS COULD BE DIFFERENT FROM WHAT IS SHOWN ON THIS PROFILE.

SCALE: 1" = 200' H  
 1" = 20' V  
 DATE: 6/14/2012  
 DRAWN BY: CDL  
 REVIEWED BY: SKB



GEOTECHNICAL ENGINEERING & CONSTRUCTION SERVICES  
 ENVIRONMENTAL SERVICES AND ENGINEERING  
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 ATLANTA, GA 30340-4270

FIGURE 5  
 GENERALIZED SUBSURFACE PROFILE C-C  
 LIDDELL DRIVE EQUALIZATION PROJECT  
 ATLANTA, FULTON COUNTY, GEORGIA  
 WILLMER PROJECT No. 71.3801



**NOTES**

- GROUND SURFACE ELEVATIONS AT THE BORING LOCATIONS WERE PROVIDED TO WILLMER BY ATLANTA SERVICES GROUP. THE APPROXIMATE EXISTING GROUND SURFACE WAS ESTIMATED BY INTERPOLATION USING A TOPOGRAPHIC MAP PROVIDED BY ASS.
- THE SOIL STRATIGRAPHY SHOWN ON THIS PROFILE REPRESENTS OUR INTERPRETATION OF THE BORING DATA IN ACCORDANCE WITH GENERALLY ACCEPTED GEOTECHNICAL ENGINEERING PRACTICE. THE LINES SHOWING STRATA BREAKS ARE APPROXIMATE AND BASED ON LINEAR INTERPOLATION BETWEEN BORINGS. THE ACTUAL TRANSITION BETWEEN SOIL STRATA ARE EXPECTED TO BE GRADUAL, AND THE DEPTH/ELEVATION OF ANY STRATUM BETWEEN TWO BORINGS COULD BE DIFFERENT FROM WHAT IS SHOWN ON THIS PROFILE.

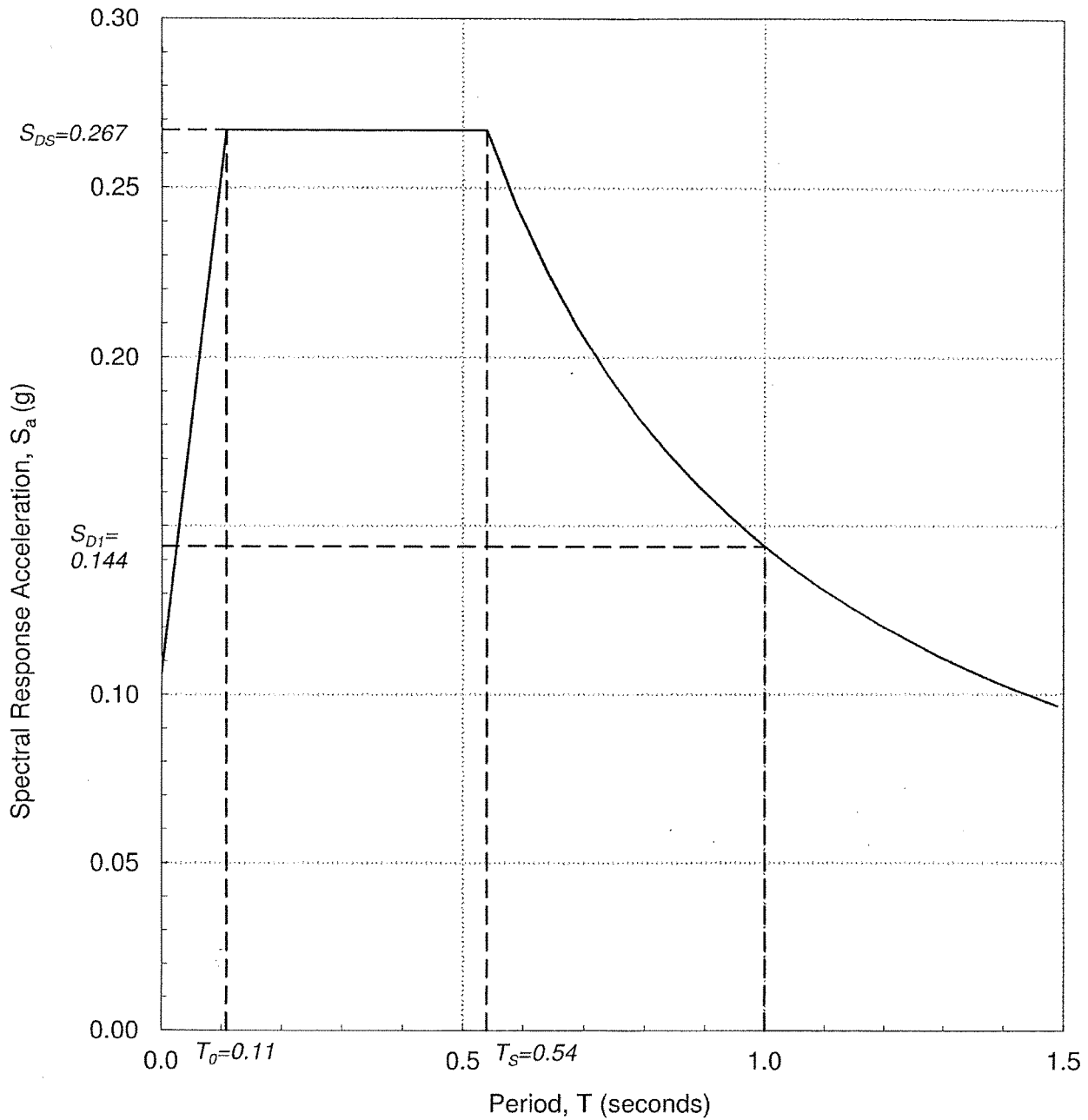
SCALE: 1" = 200' H
1" = 20' V
DATE: 6/14/2012
DRAWN BY: DCP
REVIEWED BY: SKB

**WILLMER ENGINEERING INC.**

GEOTECHNICAL ENGINEERING & CONSTRUCTION SERVICES  
 ENVIRONMENTAL SERVICES AND ENGINEERING  
 3772 PLEASANTDALE ROAD - SUITE 165  
 ATLANTA, GA 30340-4270

**FIGURE 6**  
 GENERALIZED SUBSURFACE PROFILE D-D'  
 LIDDELL DRIVE EQUALIZATION PROJECT  
 ATLANTA, FULTON COUNTY, GEORGIA  
 WILLMER PROJECT No. 71.3801





**Design Response Spectrum - Site Class 'D'**

SCALE: N.T.S.

DATE: 6/14/2012

DRAWN BY: DCP

REVIEWED BY: SKB



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FIGURE 8

DESIGN RESPONSE SPECTRUM  
LIDDELL DRIVE EQUALIZATION PROJECT  
ATLANTA, FULTON COUNTY, GEORGIA  
WILLMER PROJECT No. 71.3801

## APPENDIX I



# BORING RECORD LEGEND

SM, CL, etc. - GROUP SYMBOL based on Unified Soil Classification System.  
(Refer to ASTM D-2488 and Table 1 of D-2487)

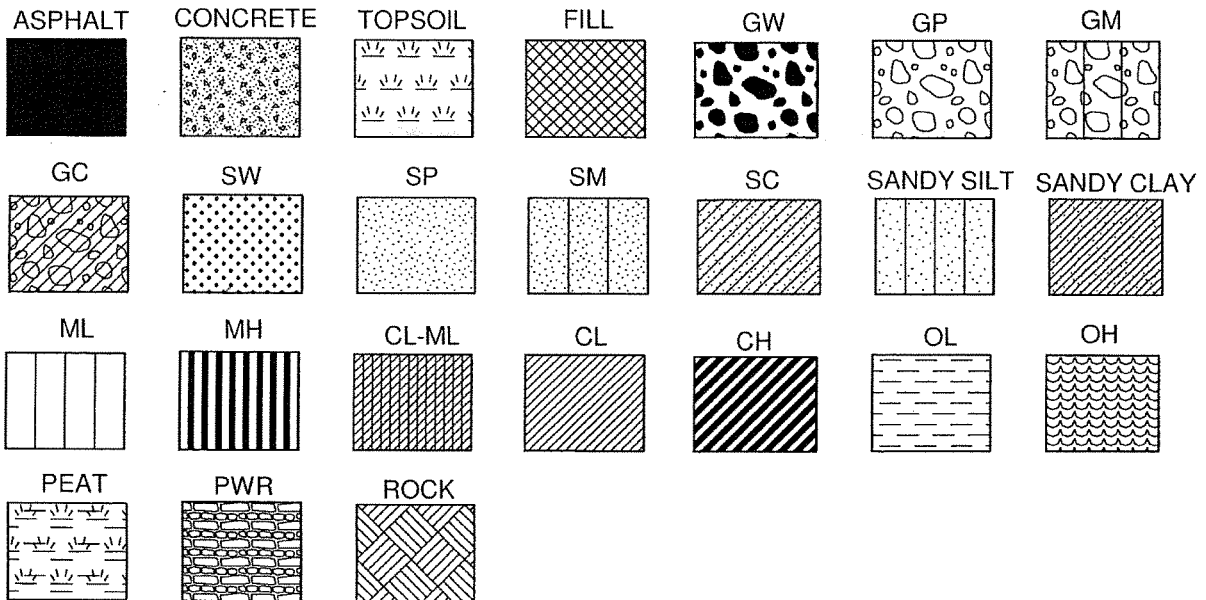
N-VALUE: BLOWS PER FOOT- Standard Penetration Resistance (SPT) blow count ,  
the sum of the second and third 6-inch increments of the SPT test.  
(Refer to ASTM D-1586)

CONSISTENCY / RELATIVE DENSITY Correlated with SPT Blow Count, N:

<u>SILTS AND CLAYS</u>		<u>SANDS</u>	
<u>N</u> (blows per foot)	<u>Consistency</u>	<u>N</u> (blows per foot)	<u>Relative Density</u>
0 - 2	Very Soft	0 - 4	Very Loose
3 - 4	Soft	5 - 10	Loose
5 - 8	Firm	11 - 30	Medium Dense
9 - 15	Stiff	31 - 50	Dense
16 - 30	Very Stiff	> 50	Very Dense
31 - 50	Hard		
> 50	Very Hard		

NOTES:

- Groundwater Measurements:  Water level at time of backfilling  
 Water level at time of boring  
 Caved level at 24 hours

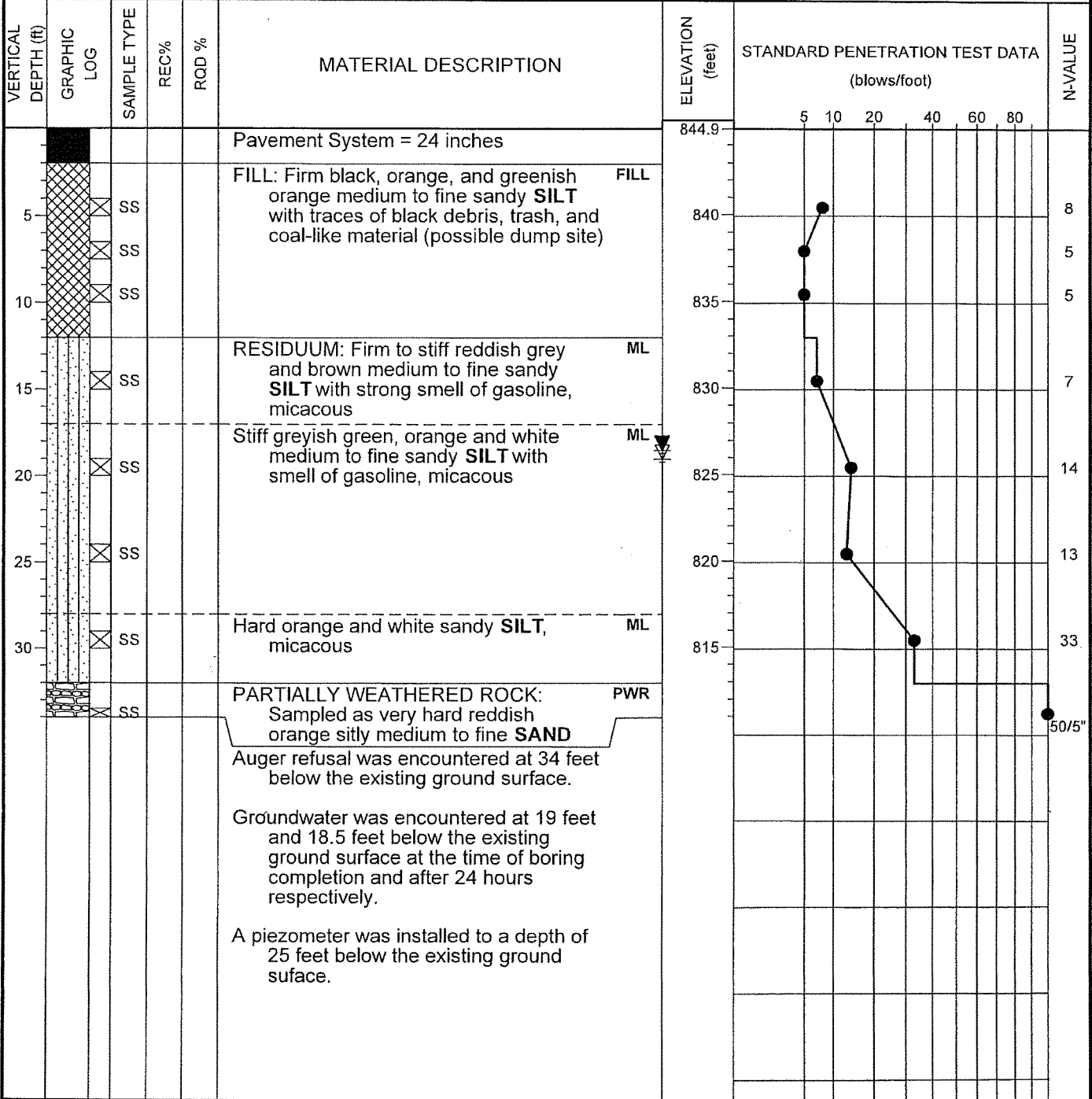


## UNIFIED SOIL CLASSIFICATION SYSTEM REFERENCE SHEET

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS  MORE THAN 50% OF MATERIAL IS <u>LARGER</u> THAN #200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS  MORE THAN 50% OF COARSE FRACTION <u>RETAINED</u> #4 SIEVE	CLEAN GRAVELS LITTLE OR NO FINES	(GW)	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			(GP)	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES APPRECIABLE AMOUNT OF FINES	(GM)	SILTY GRAVELS and GRAVEL-SAND-SILT MIXTURES
			(GC)	CLAYEY GRAVELS and GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS  MORE THAN 50% OF COARSE FRACTION <u>PASSING</u> #4 SIEVE	CLEAN SAND LITTLE OR NO FINES	(SW)	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			(SP)	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES APPRECIABLE AMOUNT OF FINES	(SM)	SILTY SANDS and SAND-SILT MIXTURES
			(SC)	CLAYEY SANDS and SAND-CLAY MIXTURES
FINE GRAINED SOILS  MORE THAN 50% OF MATERIAL IS <u>SMALLER</u> THAN #200 SIEVE SIZE	SILTS AND CLAYS  LIQUID LIMIT <u>LESS</u> THAN 50		(ML)	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR VERY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			(CL)	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			(OL)	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS  LIQUID LIMIT <u>GREATER</u> THAN 50		(MH)	INORGANIC ELASTIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS
			(CH)	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			(OH)	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			(PT)	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS



Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-1</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: <b>--</b>	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>844.90</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>8</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
Logged By: <b>DP</b>		Total Depth (ft): <b>34.0</b>	
		Date Drilled: <b>2/16/12</b>	



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <div style="text-align: center; font-size: 1.2em; font-weight: bold;">B-1</div>
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Project: **Liddell Drive Equalization Project**  
 Location: **Fulton County, Georgia**  
 Project Number: **71.3801**

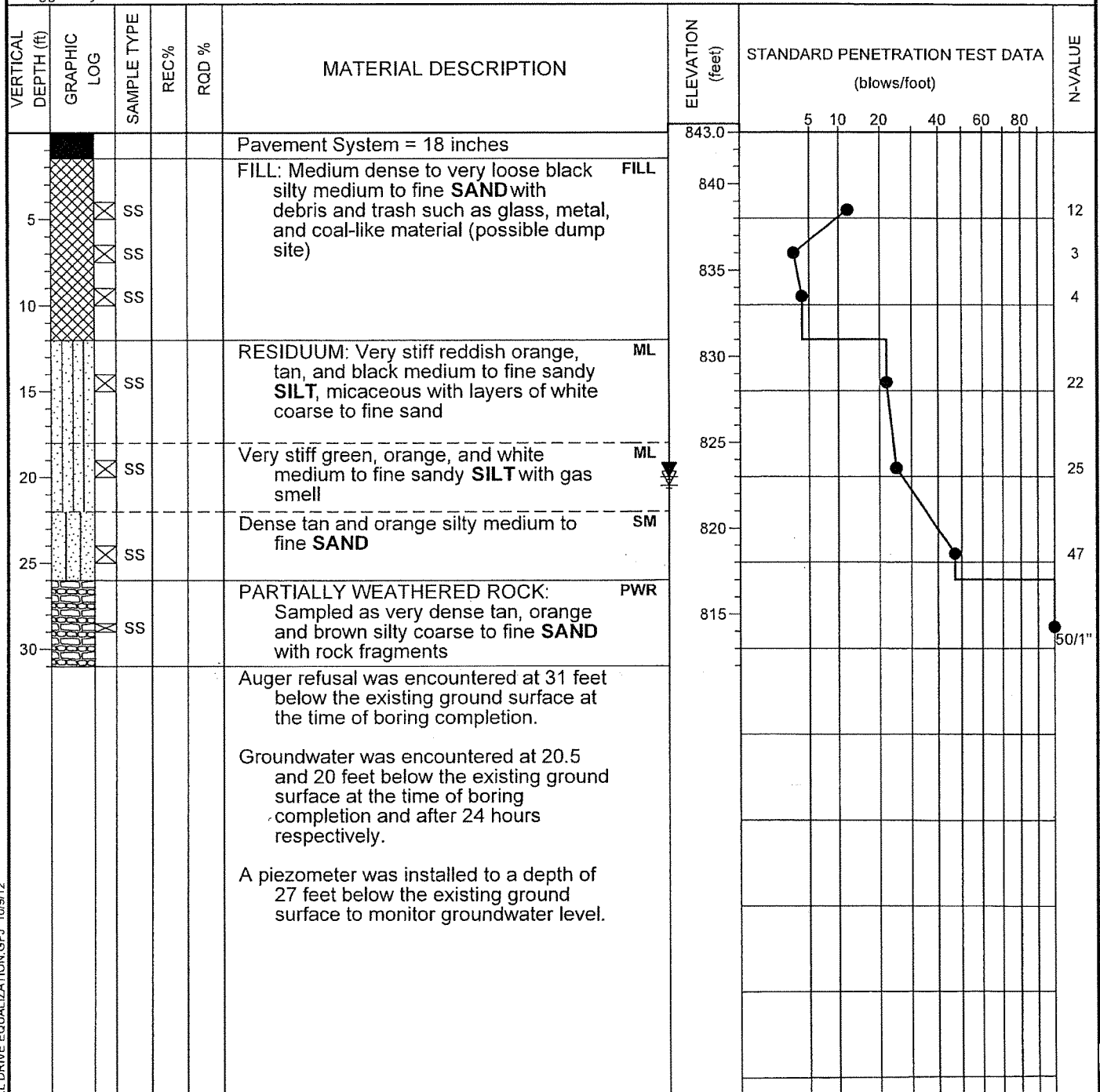
**HOLE No. B-2**  
 Sheet 1 of 1  
 Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **843.00** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **N/A** Samples: **7** Overburden (ft): **N/A** Rock (ft): **N/A** Total Depth (ft): **31.0**

Logged By: **DP** Date Drilled: **2/16/12**



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NX - Rock Core, 2-1/8" CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <b>B-2</b>
--	--	------------------------



Project: **Liddell Drive Equalization Project**  
 Location: **Fulton County, Georgia**  
 Project Number: **71.3801**

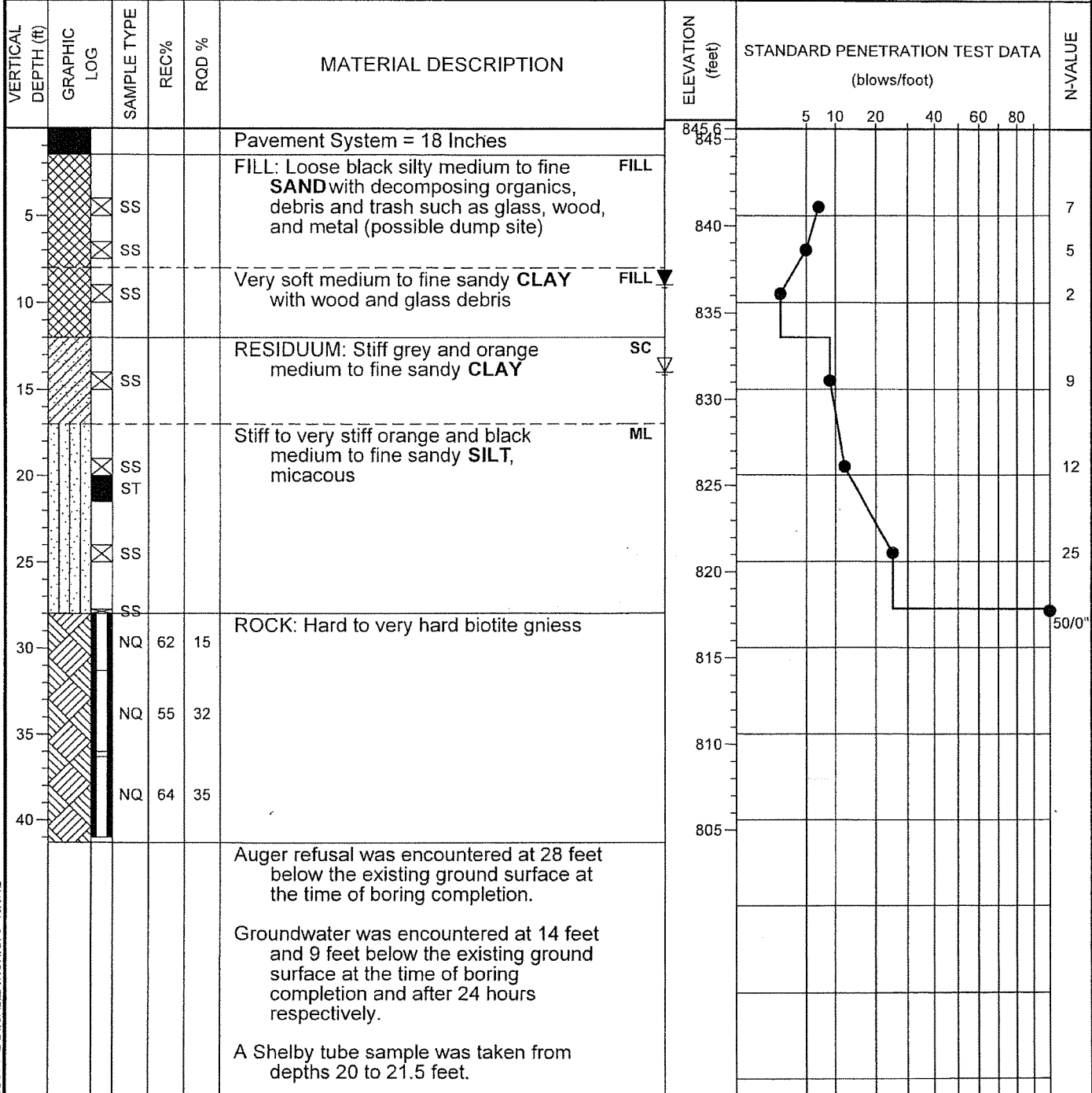
HOLE No. **B-3**  
 Sheet 1 of 1  
 Location: **See Figure 2**

Azimuth: --    Angle from Horizontal: **90**    Surface Elevation (ft): **845.60**    Station: **N/A**

Drilling Equipment: **CME 45**    Drilling Method: **HSA Manual Hammer**

Core Boxes: **1**    Samples: **7**    Overburden (ft): **28**    Rock (ft): **13**    Total Depth (ft): **41.0**

Logged By: **DP**    Date Drilled: **2/20/12**

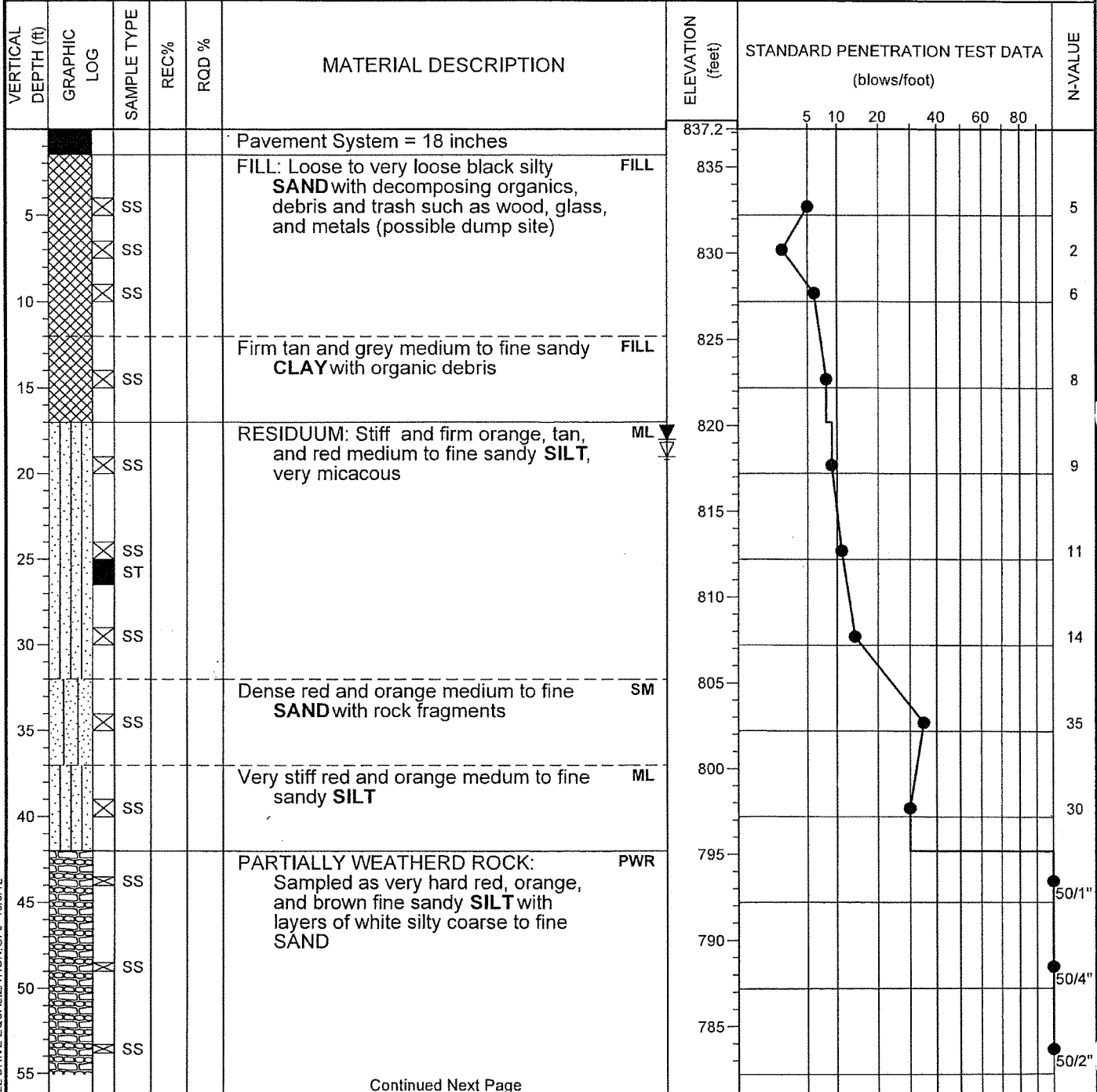


SPTN: LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>DRILLING METHOD</b> RW - Rotary Wash RC - Rock Core	Hole No. <p style="text-align: center;"><b>B-3</b></p>
---	---	--	--	---



Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-4</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 2	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>837.20</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>13</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
Logged By: <b>DP</b>		Total Depth (ft): <b>58.0</b>	
		Date Drilled: <b>2/20/12</b>	



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

Continued Next Page

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	Hole No. <b>B-4</b>
NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	RW - Rotary Wash RC - Rock Core	



Project: **Liddell Drive Equalization Project**  
 Location: **Fulton County, Georgia**  
 Project Number: **71.3801**

**HOLE No. B-4**  
 Sheet 2 of 2  
 Location: **See Figure 2**

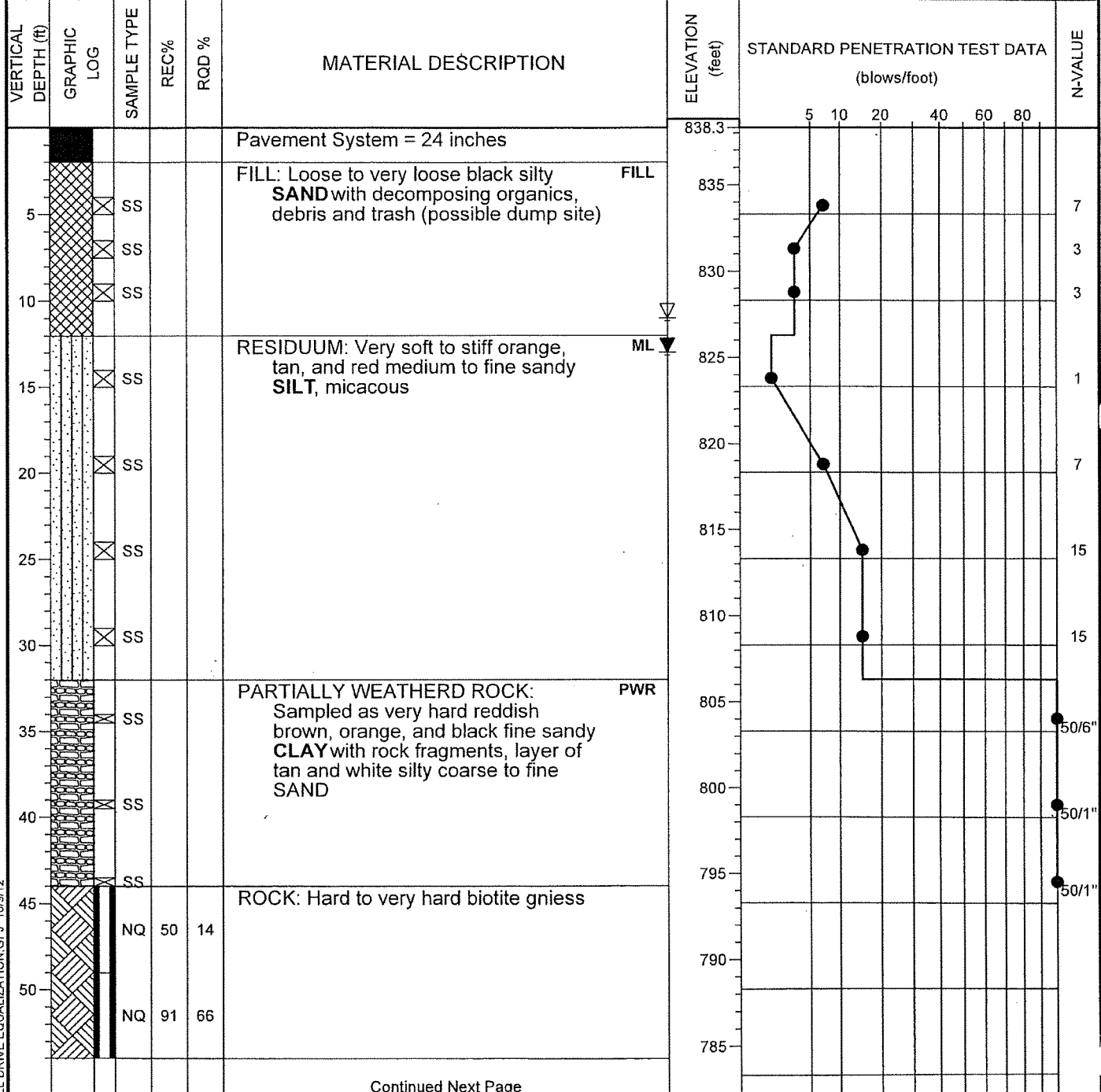
VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)						N-VALUE
							5	10	20	40	60	80	
					(Continued)								
					Auger refusal was encountered at 57 feet below the existing ground surface.	780							
					Groundwater was encountered at 19 feet and 18 feet below the existing ground surface at the time of boring completion and after 24 hours respectively.								
					A Shelby tube sample was taken from a depths 25 to 26.5 feet below the existing ground surface.								

SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>SAMPLER TYPE</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>DRILLING METHOD</b> RW - Rotary Wash RC - Rock Core	Hole No. <p style="text-align: center;"><b>B-4</b></p>
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Project: <b>Liddell Drive Equalization Project</b>				HOLE No. <b>B-5</b>	
Location: <b>Fulton County, Georgia</b>				Sheet 1 of 2	
Project Number: <b>71.3801</b>				Location: <b>See Figure 2</b>	
Azimuth: --		Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>838.30</b>	Station: <b>N/A</b>	
Drilling Equipment: <b>CME 45</b>			Drilling Method: <b>HSA Manual Hammer</b>		
Core Boxes: <b>1</b>	Samples: <b>10</b>	Overburden (ft): <b>44</b>	Rock (ft): <b>10</b>	Total Depth (ft): <b>54.0</b>	
Logged By: <b>DP</b>			Date Drilled: <b>2/16/12</b>		



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

Continued Next Page

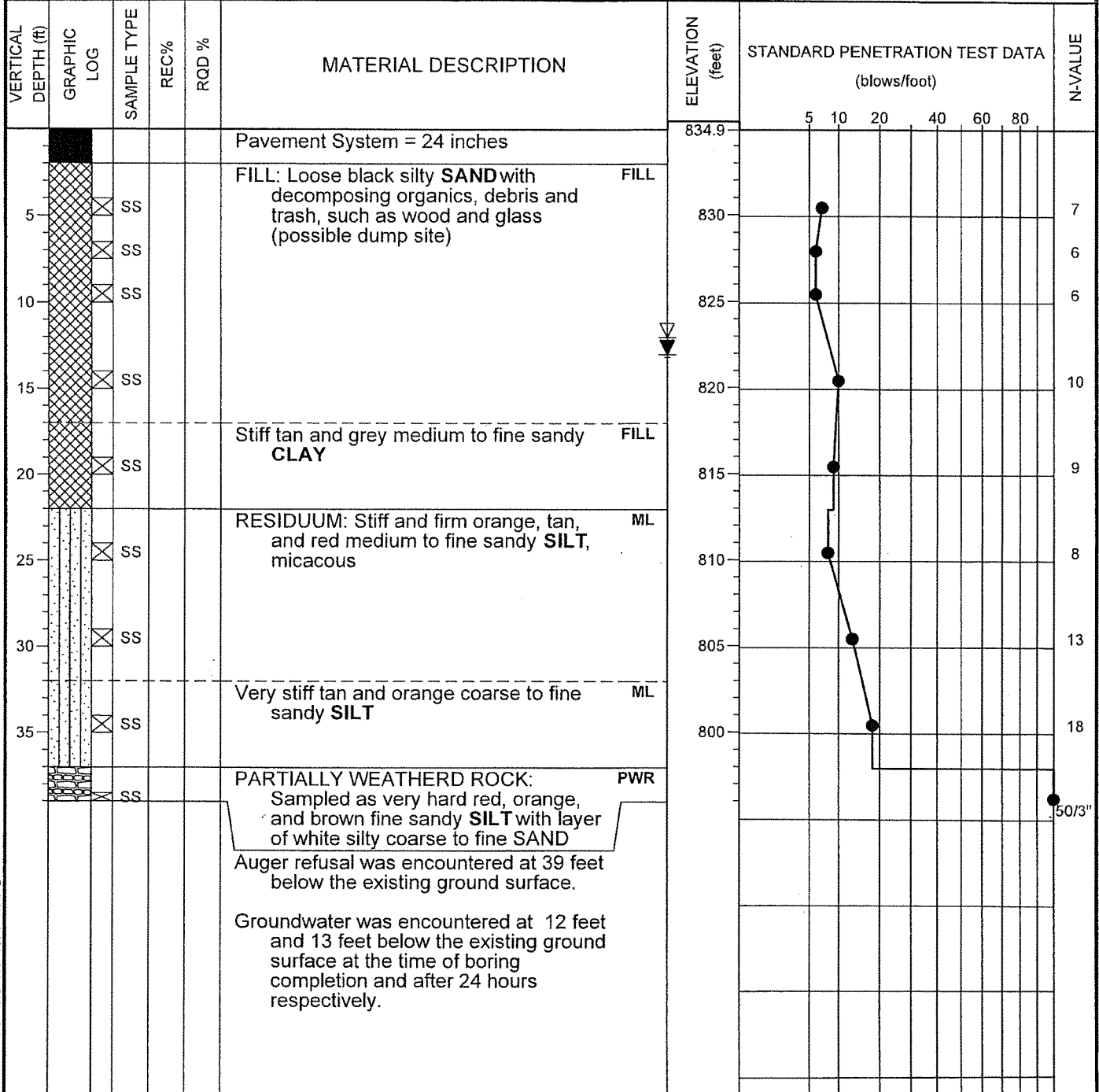
<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-5</div>
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Project: <b>Liddell Drive Equalization Project</b>	HOLE No. <b>B-6</b>
Location: <b>Fulton County, Georgia</b>	Sheet 1 of 1
Project Number: <b>71.3801</b>	Location: <b>See Figure 2</b>

Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>834.90</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>9</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
Logged By: <b>DP</b>		Total Depth (ft): <b>39.0</b>	
		Date Drilled: <b>2/15/12</b>	

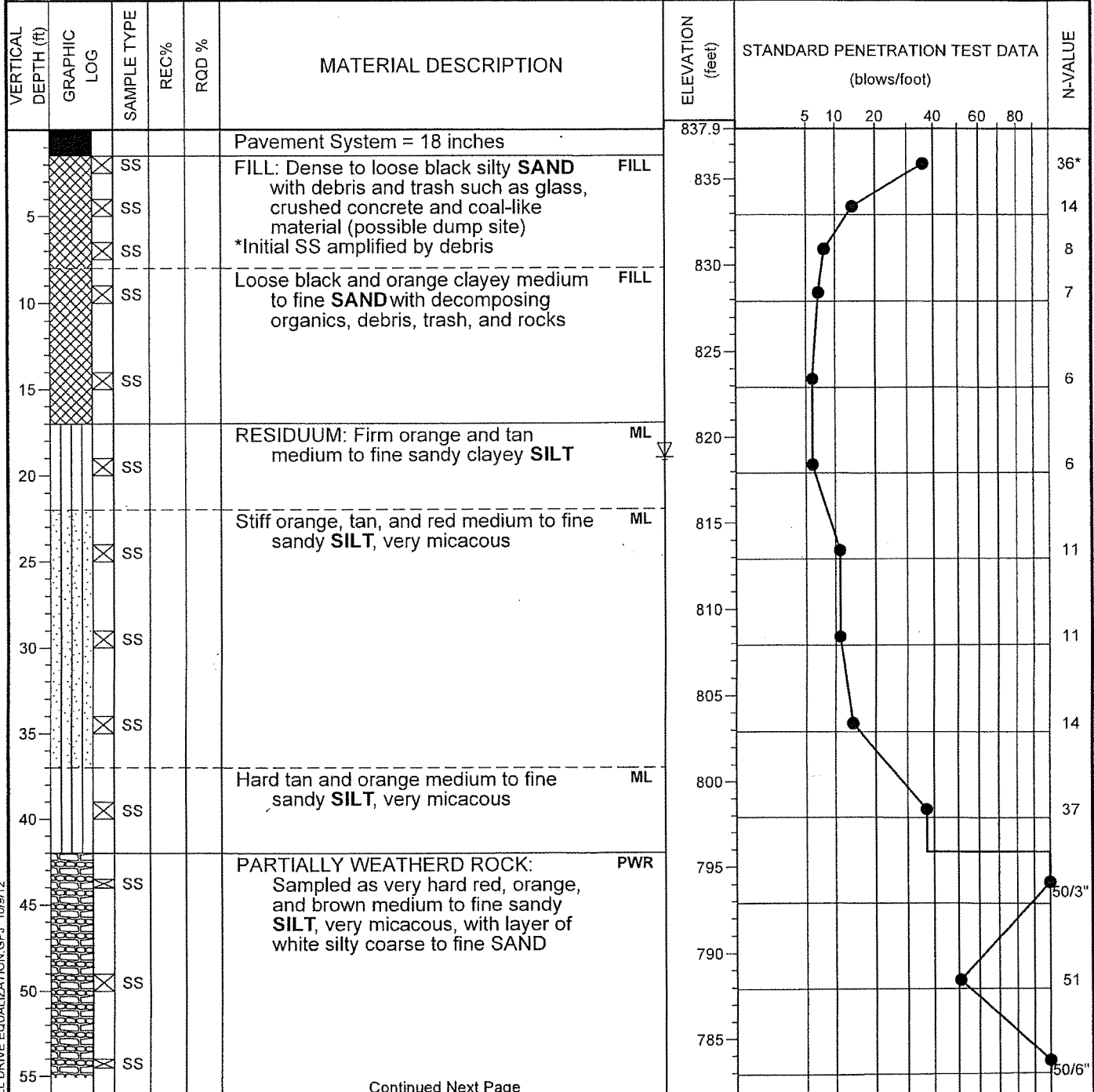


<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube
RW - Rotary Wash RC - Rock Core		Hole No. <b>B-6</b>

SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12



Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-7</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 2	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>837.90</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>14</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
Logged By: <b>DP</b>		Date Drilled: <b>2/21/12</b>	
Total Depth (ft): <b>60.0</b>			

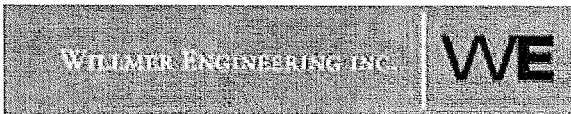


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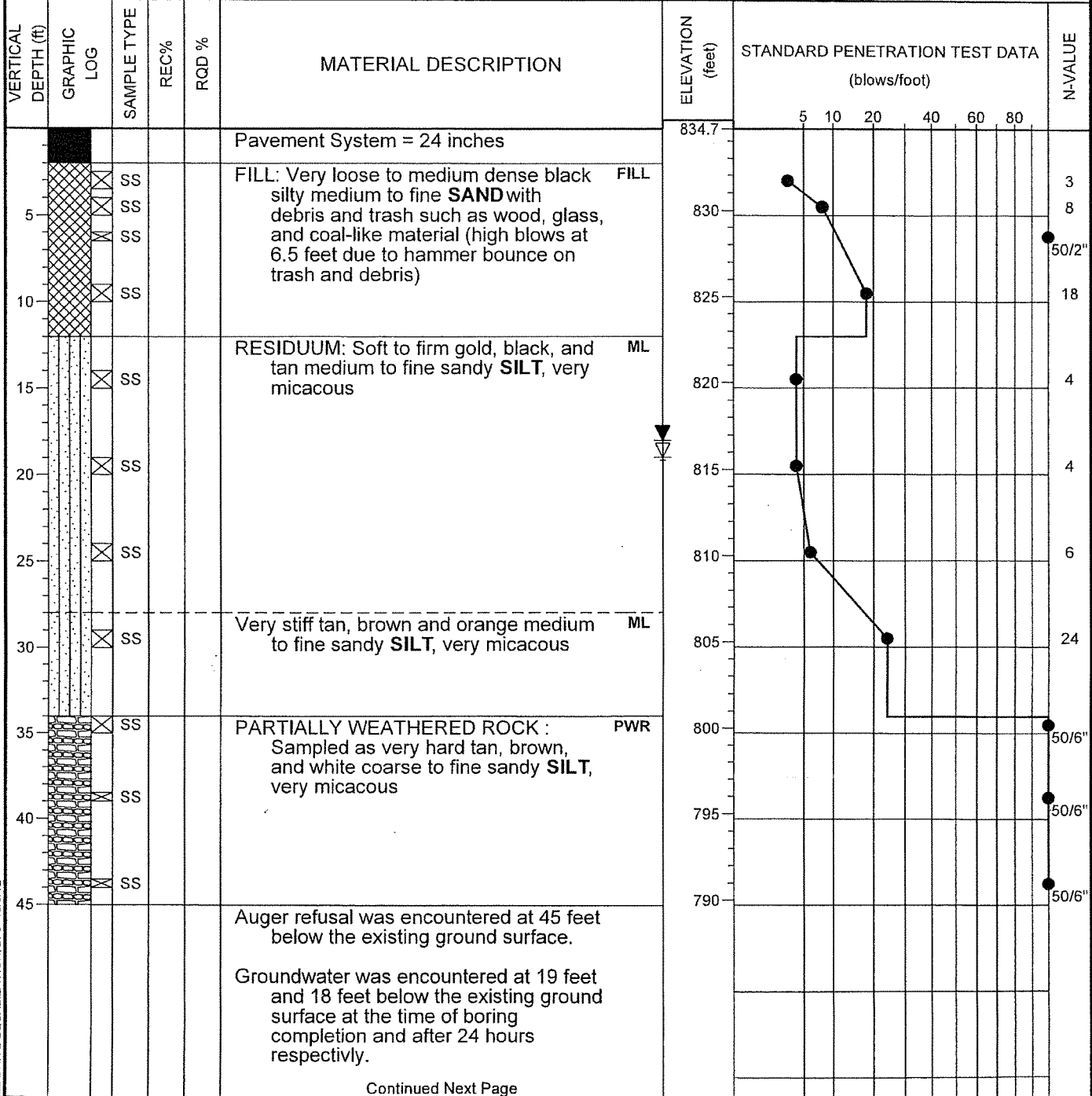
SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core
Hole No. <b>B-7</b>		





Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-8</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 2	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>834.70</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>11</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
Logged By: <b>DP</b>		Total Depth (ft): <b>45.0</b>	
		Date Drilled: <b>2/16/12</b>	



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

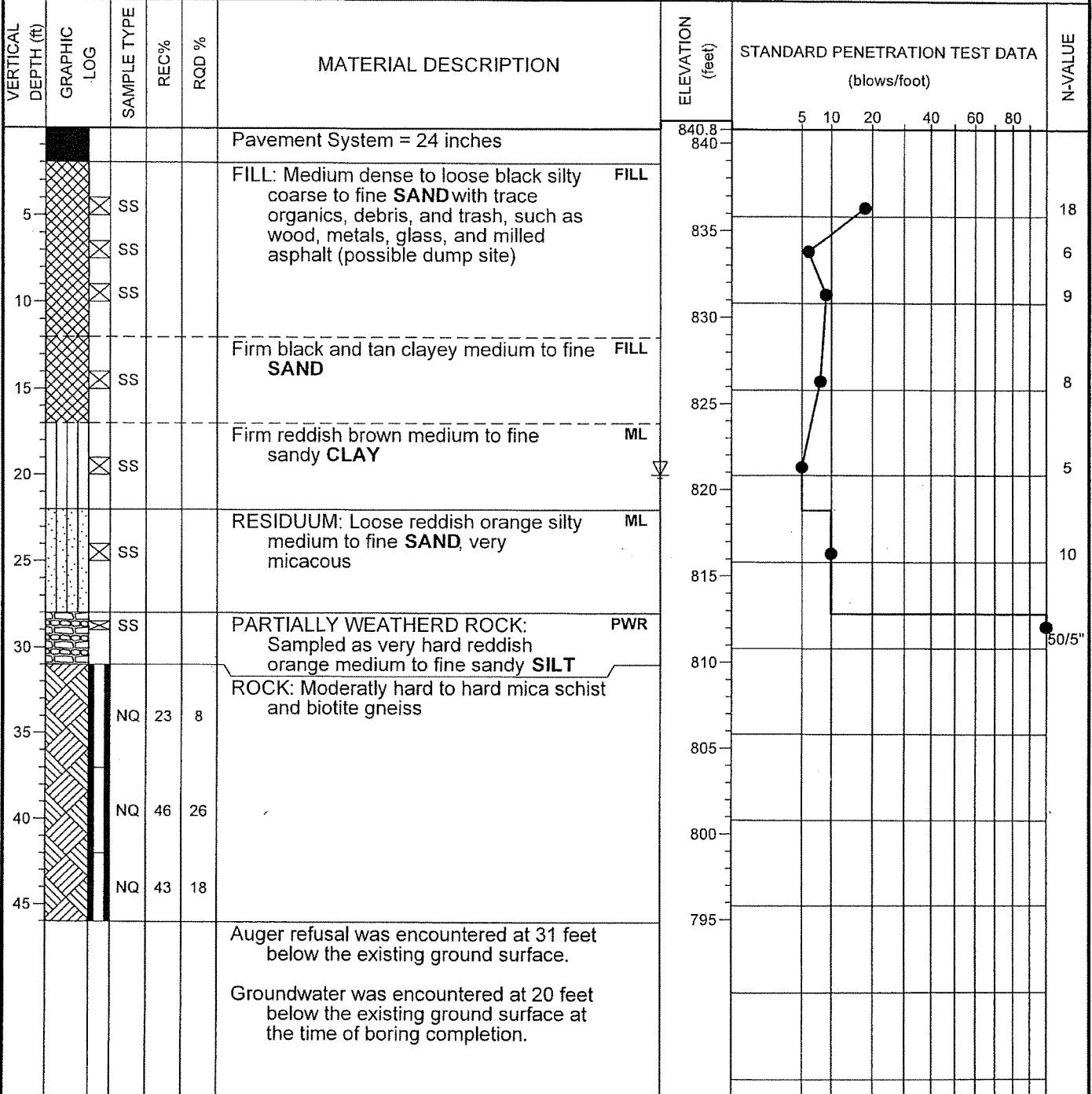
Continued Next Page

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8" NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <b>B-8</b>
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Project: <b>Liddell Drive Equalization Project</b>				<b>HOLE No. B-9</b>	
Location: <b>Fulton County, Georgia</b>				Sheet 1 of 1	
Project Number: <b>71.3801</b>				Location: <b>See Figure 2</b>	
Azimuth: --		Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>840.80</b>	Station: <b>N/A</b>	
Drilling Equipment: <b>CME 45</b>			Drilling Method: <b>HSA Manual Hammer</b>		
Core Boxes: <b>1</b>	Samples: <b>7</b>	Overburden (ft): <b>31</b>	Rock (ft): <b>15</b>	Total Depth (ft): <b>46.0</b>	
Logged By: <b>DP</b>			Date Drilled: <b>2/16/12</b>		



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-9</div>
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Project: <b>Liddell Drive Equalization Project</b>						<b>HOLE No. B-10</b>	
Location: <b>Fulton County, Georgia</b>						Sheet 1 of 1	
Project Number: <b>71.3801</b>						Location: <b>See Figure 2</b>	
Azimuth: --		Angle from Horizontal: <b>90</b>		Surface Elevation (ft): <b>845.00</b>		Station: <b>N/A</b>	
Drilling Equipment: <b>CME 45</b>				Drilling Method: <b>HSA Manual Hammer</b>			
Core Boxes: <b>N/A</b>		Samples: <b>5</b>		Overburden (ft): <b>N/A</b>		Rock (ft): <b>N/A</b>	
Total Depth (ft): <b>20.0</b>							
Logged By: <b>DP</b>				Date Drilled: <b>2/20/12</b>			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					Pavement System = 18 inches	845.0		
					RESIDUUM: Dense to very dense reddish brown silty medium to fine SAND, micaceous			<b>SM</b>
5	X	SS					31	
	X	SS					40	
10	X	SS					71	
	X	SS			PARTIALLY WEATHERED ROCK: Sampled as very dense greenish grey silty medium to fine SAND, slightly micaceous			<b>PWR</b>
15	X	SS					50/6"	
20	X	SS					50/4"	
Boring was terminated at 20 feet below the existing ground surface.								
No groundwater was encountered at the time of boring completion.								

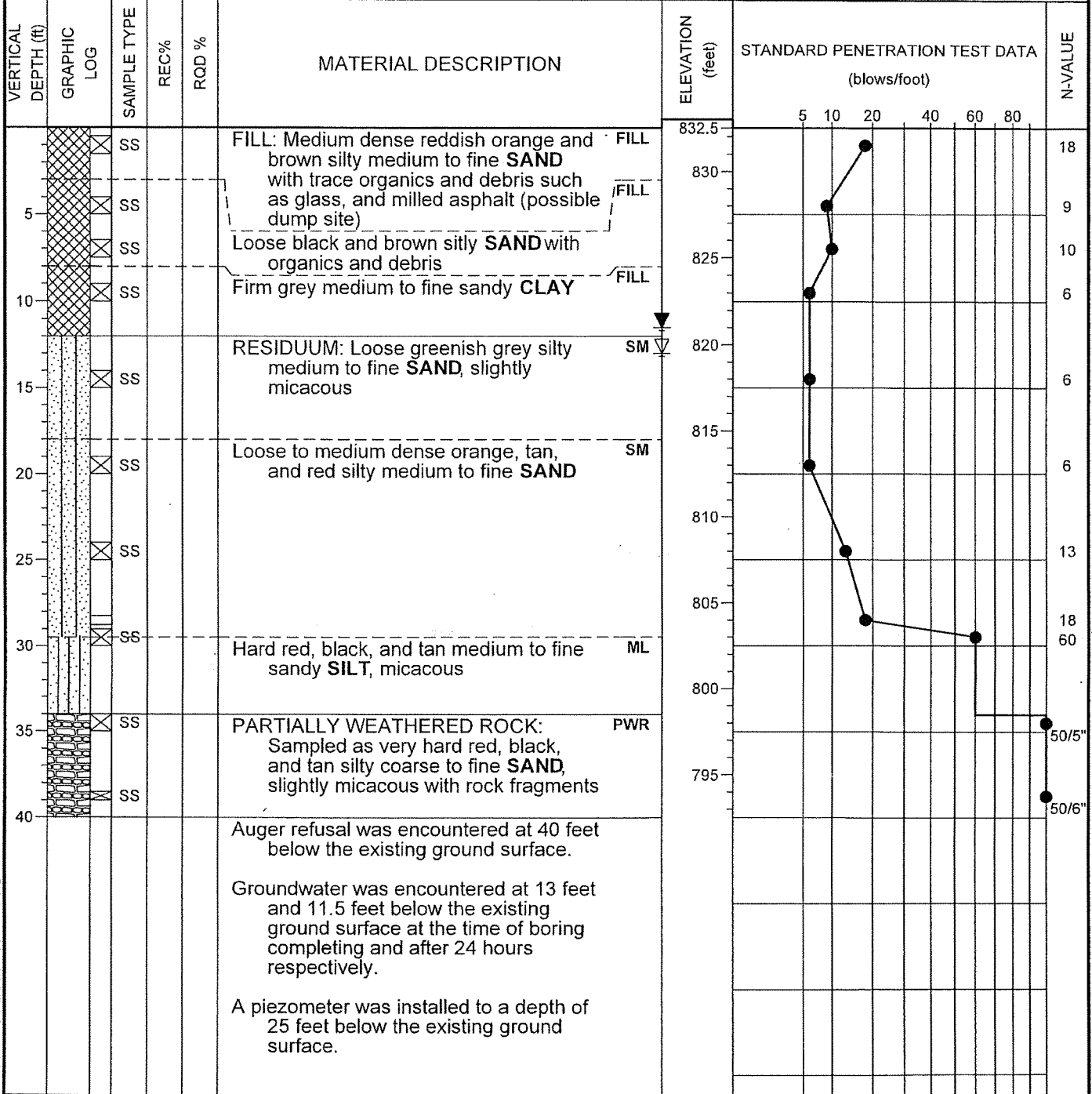
<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-size: 1.2em; font-weight: bold;">B-10</div>
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SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12





Project: <b>Liddell Drive Equalization Project</b>				<b>HOLE No. B-11</b>	
Location: <b>Fulton County, Georgia</b>				Sheet 1 of 1	
Project Number: <b>71.3801</b>				Location: <b>See Figure 2</b>	
Azimuth: --		Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>832.50</b>	Station: <b>N/A</b>	
Drilling Equipment: <b>CME 45</b>			Drilling Method: <b>HSA Manual Hammer</b>		
Core Boxes: <b>N/A</b>		Samples: <b>10</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>	Total Depth (ft): <b>40.0</b>
Logged By: <b>DP</b>			Date Drilled: <b>2/16/12</b>		

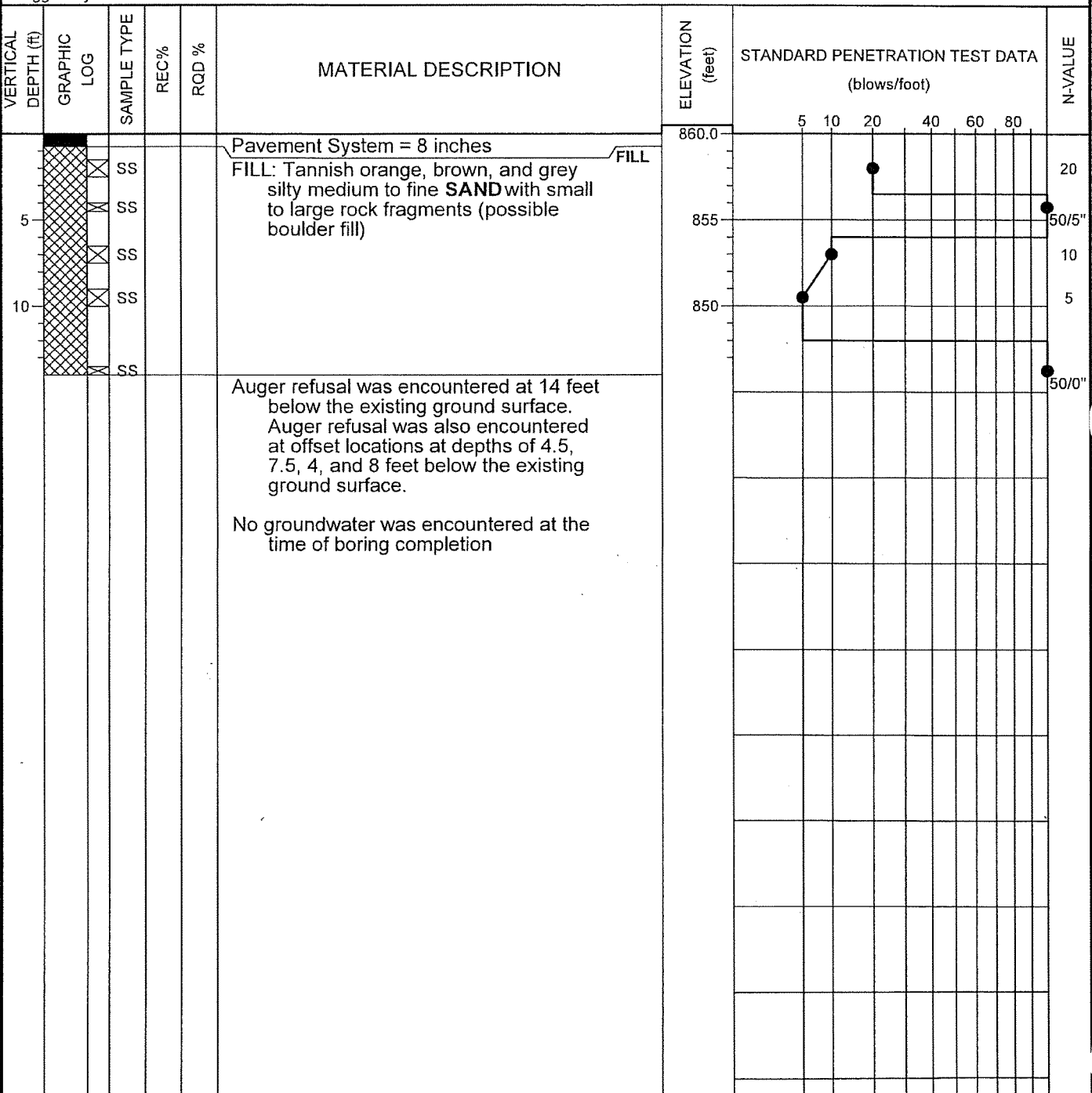


SP1N LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8" NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <b>B-11</b>
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Project: <b>Liddell Drive Equalization Project</b>	<b>HOLE No. B-13A</b>
Location: <b>Fulton County, Georgia</b>	Sheet 1 of 1
Project Number: <b>71.3801</b>	Location: <b>See Figure 2</b>
Azimuth: --    Angle from Horizontal: <b>90</b> Surface Elevation (ft): <b>860.00</b> Station: <b>N/A</b>	
Drilling Equipment: <b>CME 45</b> Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b> Samples: <b>5</b> Overburden (ft): <b>N/A</b> Rock (ft): <b>N/A</b> Total Depth (ft): <b>13.5</b>	
Logged By: <b>DP</b> Date Drilled: <b>2/23/12</b>	



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon    NX - Rock Core, 2-1/8" ST - Shelby Tube    CU - Cuttings NQ - Rock Core, 1-7/8"    CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger    RW - Rotary Wash CFA - Continuous Flight Augers    RC - Rock Core DC - Driving Casing	Hole No. <b>B-13A</b>
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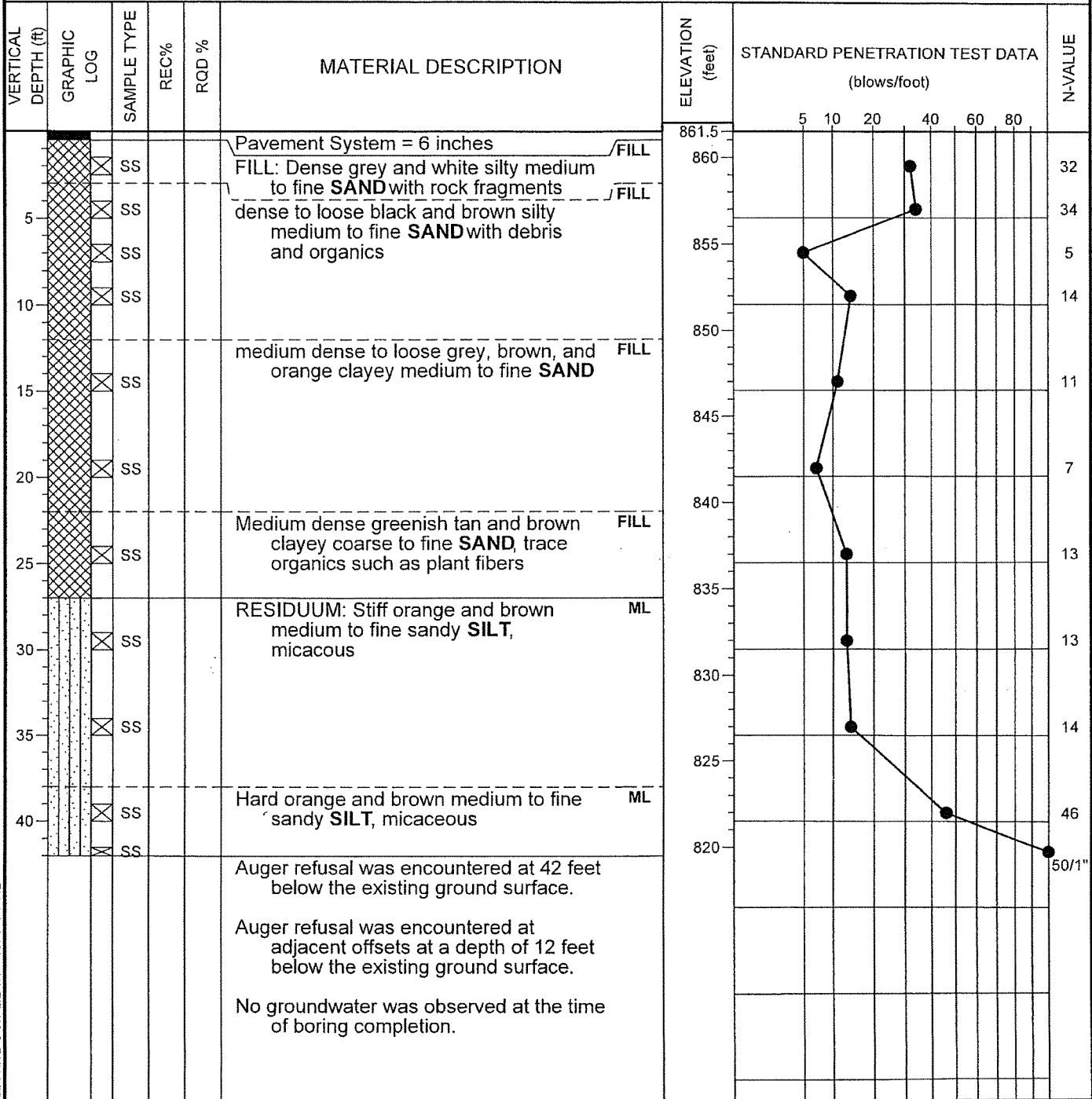
Project: **Liddell Drive Equalization Project** HOLE No. **B-13B**  
 Location: **Fulton County, Georgia** Sheet 1 of 1  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **861.50** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **N/A** Samples: **11** Overburden (ft): **N/A** Rock (ft): **N/A** Total Depth (ft): **42.0**

Logged By: **DP** Date Drilled: **2/23/12**



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>SAMPLER TYPE</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>DRILLING METHOD</b> RW - Rotary Wash RC - Rock Core	Hole No. <b>B-13B</b>
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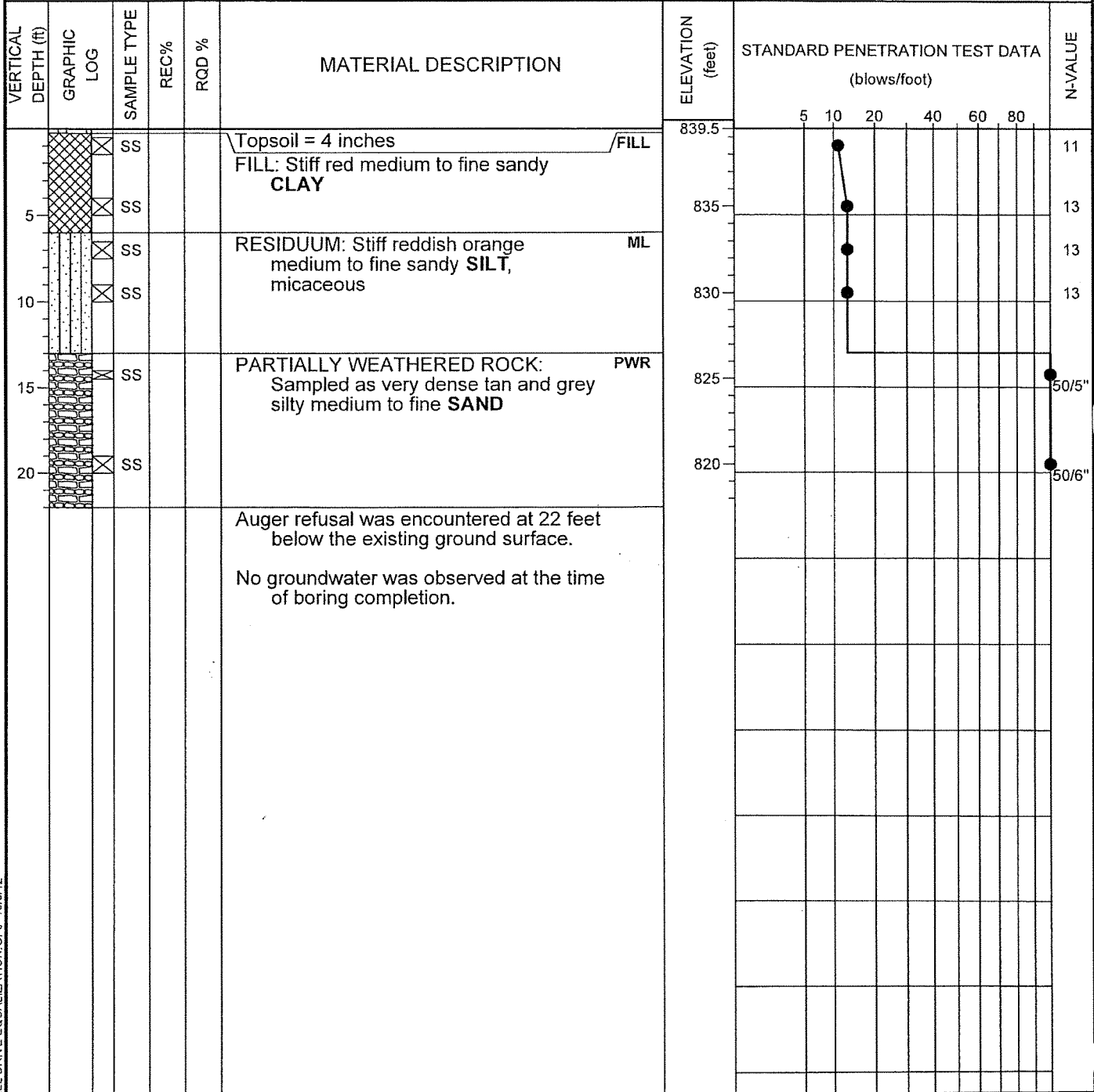
Project: **Liddell Drive Equalization Project** HOLE No. **B-14**  
 Location: **Fulton County, Georgia** Sheet 1 of 1  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **839.50** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **N/A** Samples: **6** Overburden (ft): **N/A** Rock (ft): **N/A** Total Depth (ft): **22.0**

Logged By: **DP** Date Drilled: **2/15/12**

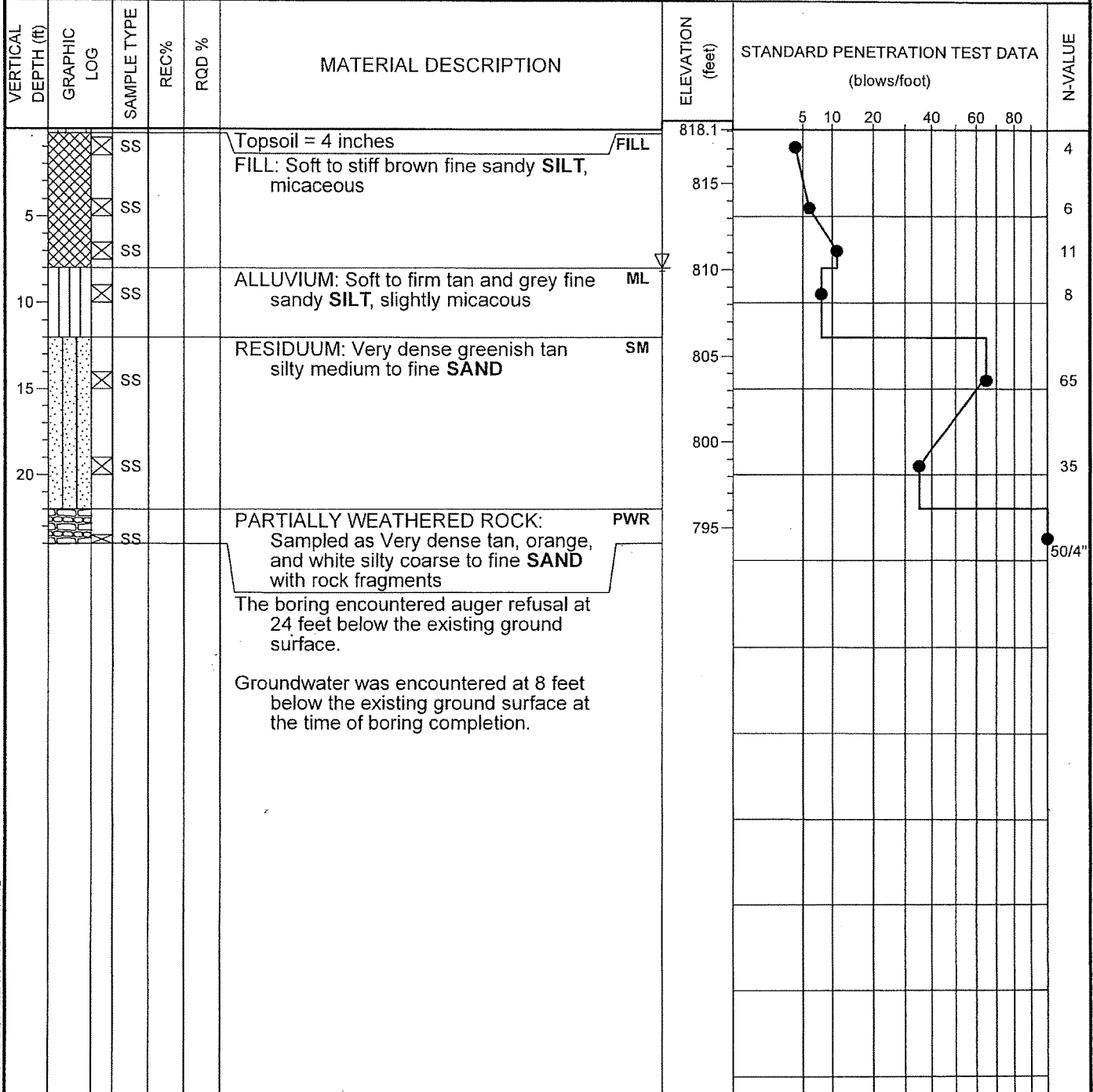


SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-14</div>
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Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-15A</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>818.10</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>7</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
Logged By: <b>DP</b>		Total Depth (ft): <b>24.0</b>	
		Date Drilled: <b>2/15/12</b>	



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-15A</div>
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Project: **Liddell Drive Equalization Project**  
 Location: **Fulton County, Georgia**  
 Project Number: **71.3801**

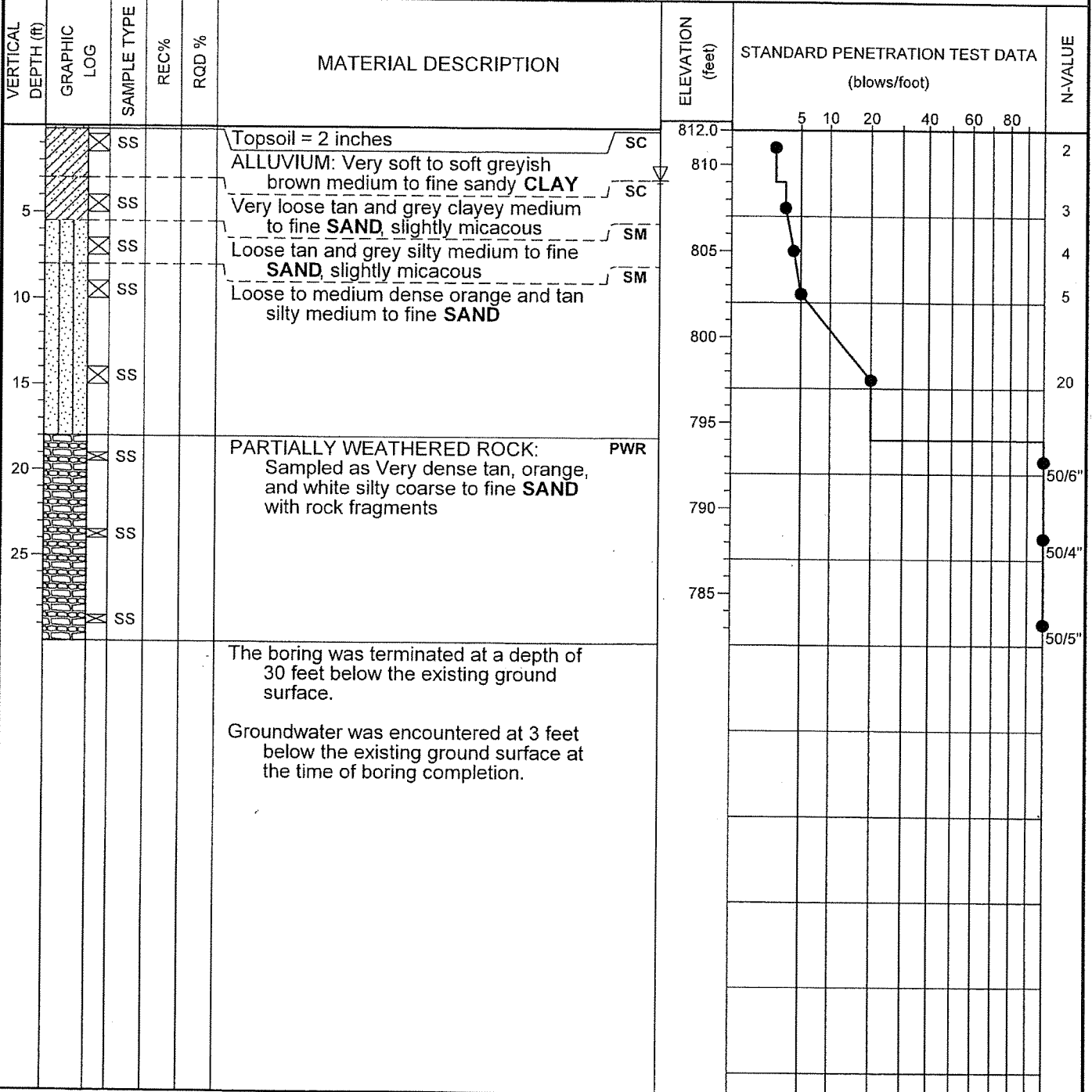
**HOLE No. B-16**  
 Sheet 1 of 1  
 Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **812.00** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **N/A** Samples: **8** Overburden (ft): **N/A** Rock (ft): **N/A** Total Depth (ft): **29.0**

Logged By: **DP** Date Drilled: **2/15/12**

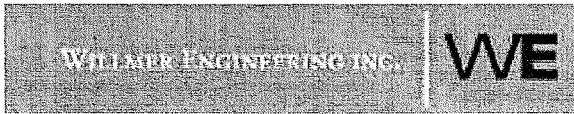


The boring was terminated at a depth of 30 feet below the existing ground surface.

Groundwater was encountered at 3 feet below the existing ground surface at the time of boring completion.

SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>SAMPLER TYPE</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>DRILLING METHOD</b> RW - Rotary Wash RC - Rock Core	Hole No. <b>B-16</b>
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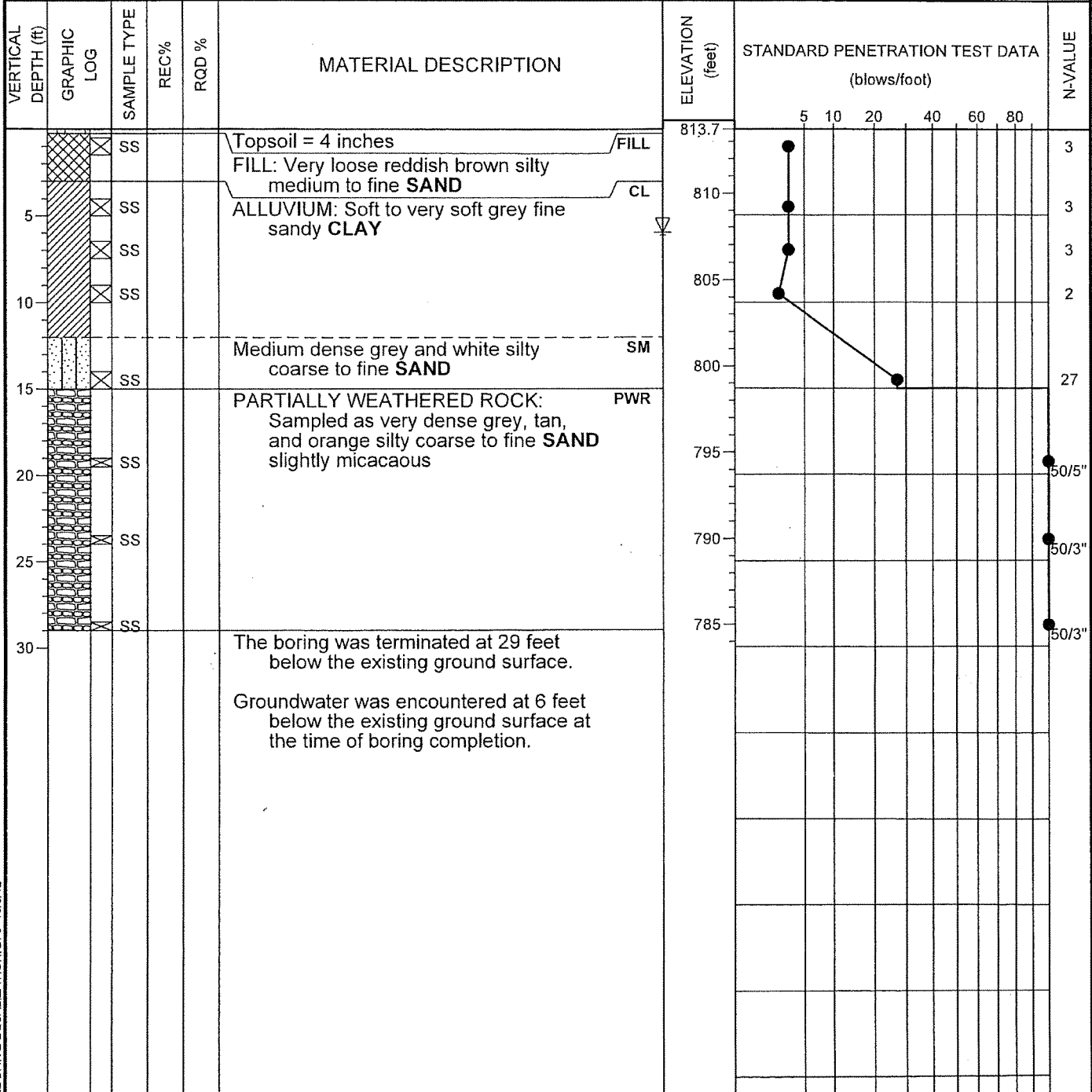
Project: **Liddell Drive Equalization Project** HOLE No. **B-17**  
 Location: **Fulton County, Georgia** Sheet 1 of 1  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **813.70** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

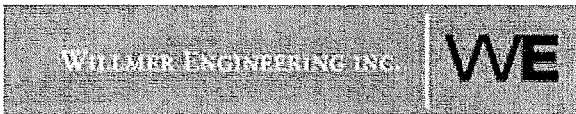
Core Boxes: **N/A** Samples: **8** Overburden (ft): **N/A** Rock (ft): **N/A** Total Depth (ft): **30.0**

Logged By: **DP** Date Drilled: **2/15/12**

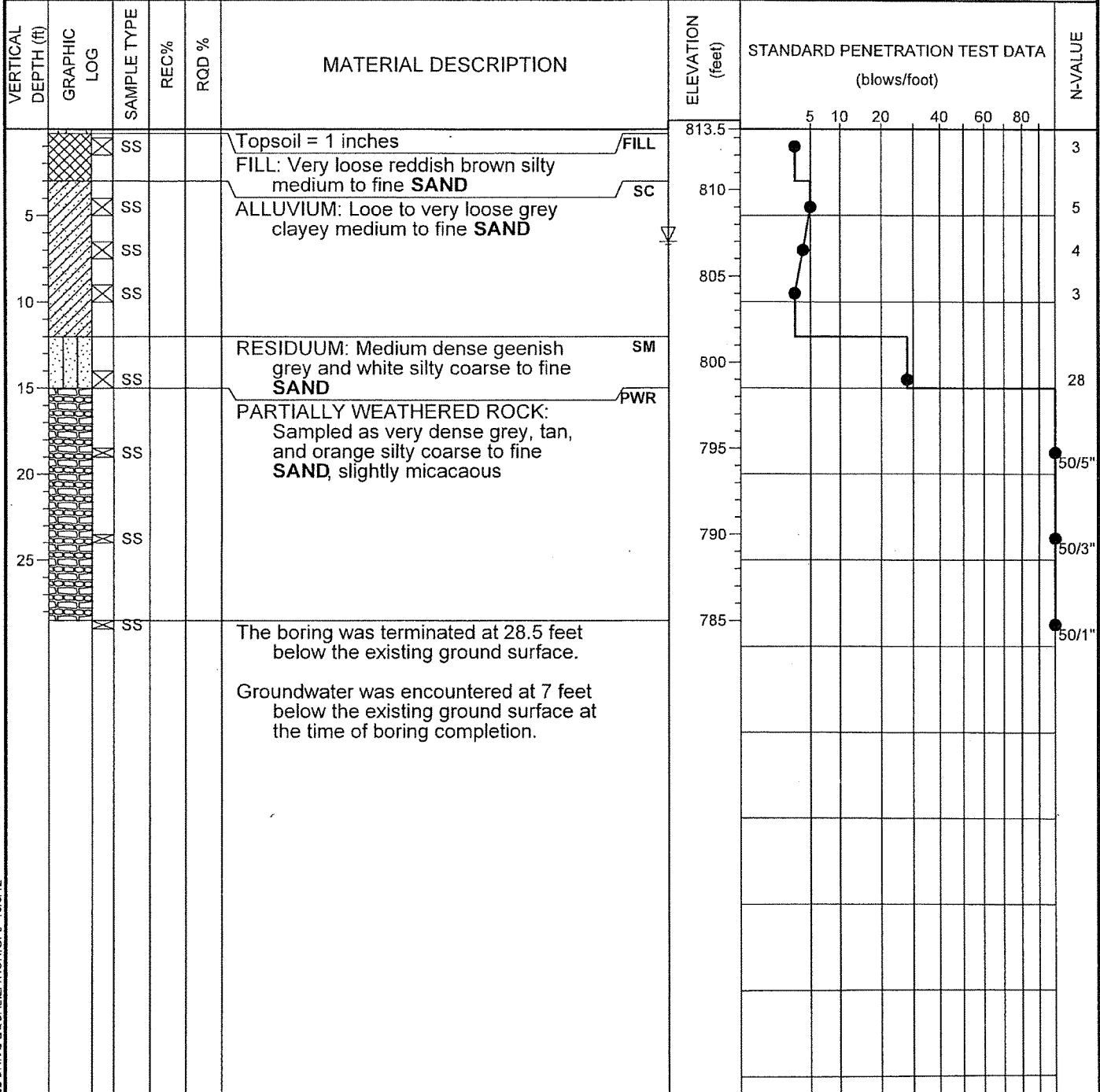


SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8" NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <b>B-17</b>
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Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-18</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>813.50</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>8</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
Logged By: <b>DP</b>		Date Drilled: <b>2/15/12</b>	
Total Depth (ft): <b>28.5</b>			



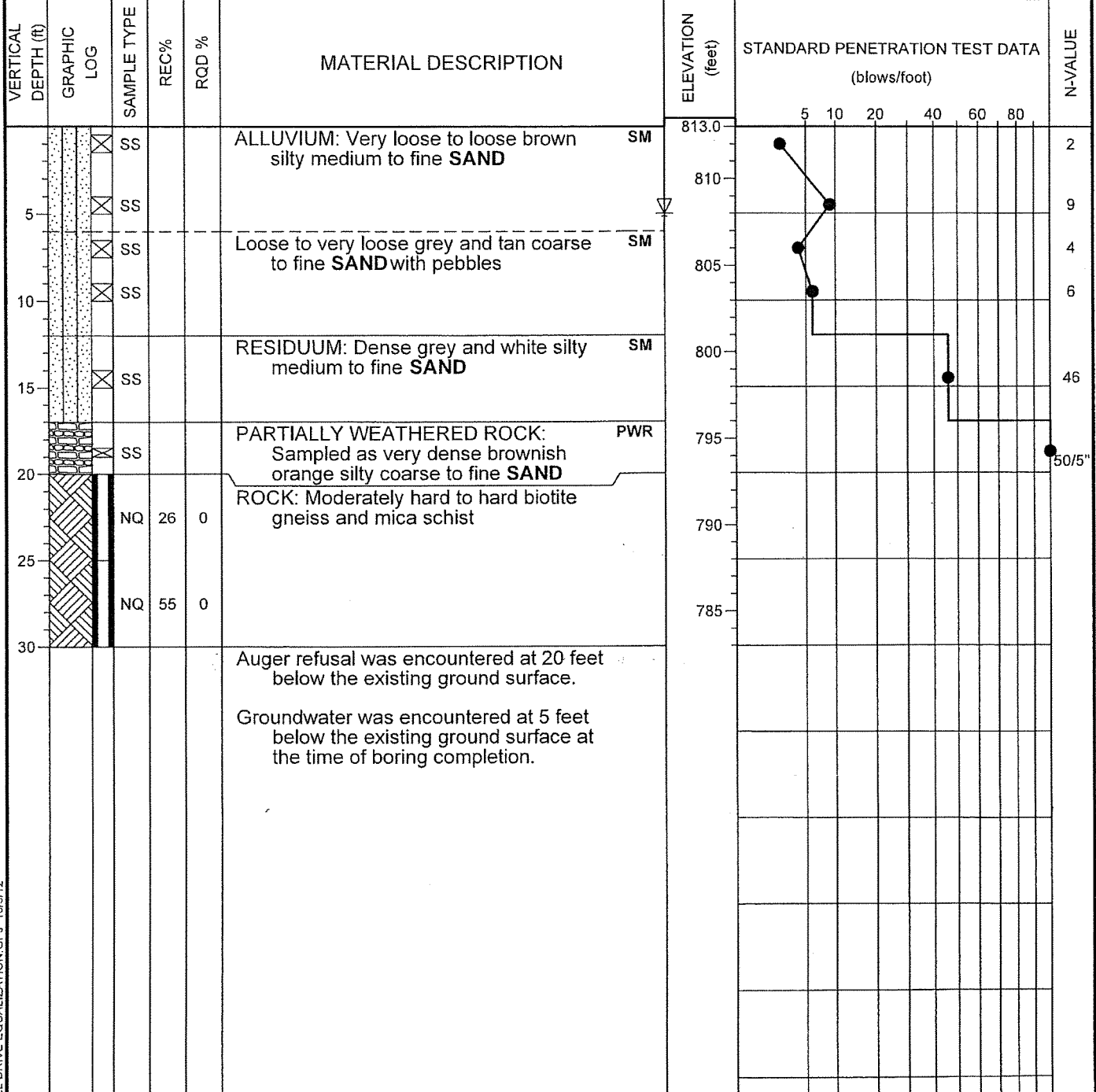
SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-18</div>
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Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-19</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>813.00</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>1</b>	Samples: <b>6</b>	Overburden (ft): <b>20</b>	Rock (ft): <b>10</b>
Logged By: <b>DP</b>		Date Drilled: <b>2/21/12</b>	
Total Depth (ft): <b>30.0</b>			

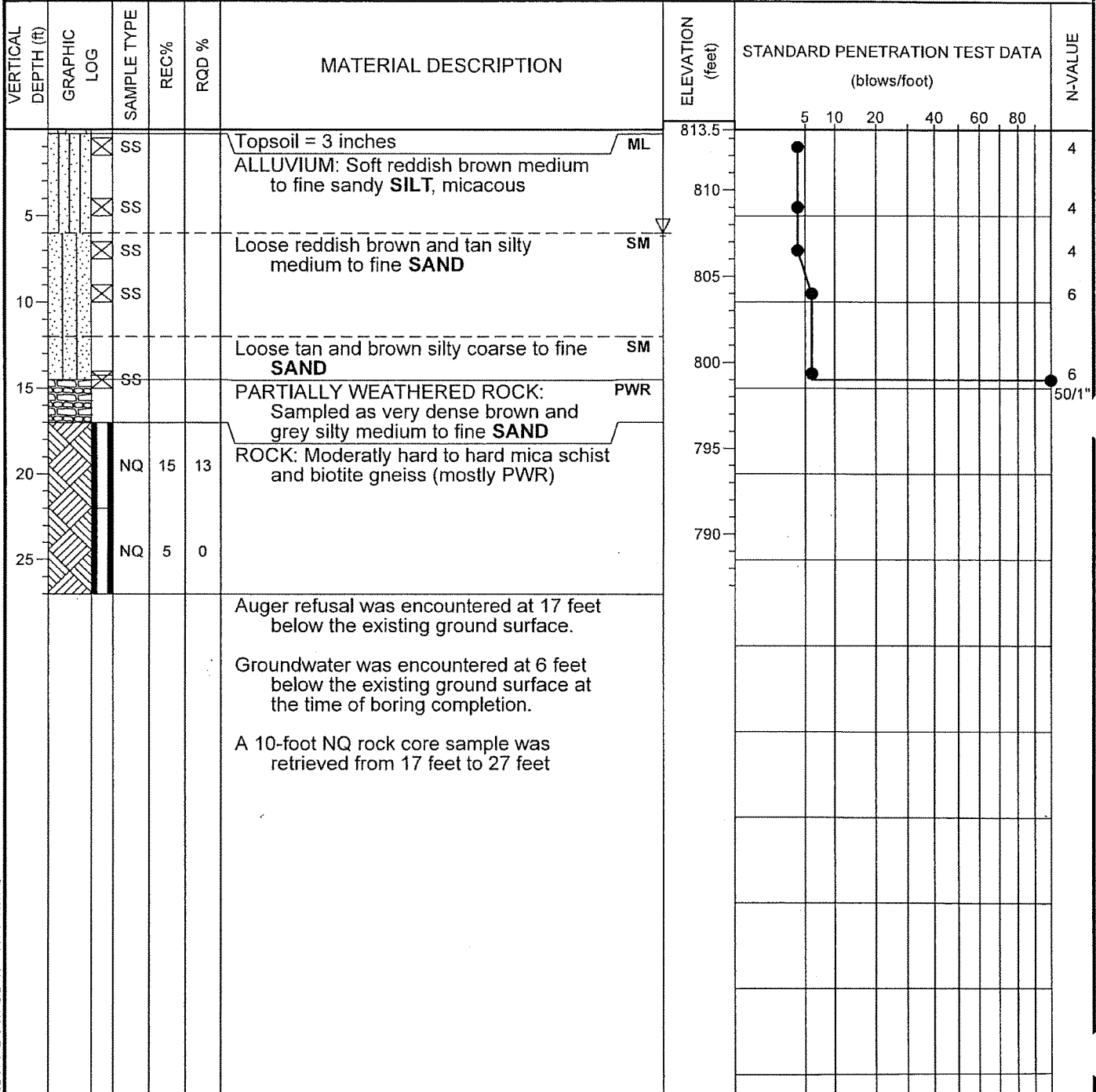


SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-19</div>
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Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-20</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: <b>--</b>	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>813.50</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>1</b>	Samples: <b>5</b>	Overburden (ft): <b>17</b>	Rock (ft): <b>10</b>
Logged By: <b>DP</b>		Total Depth (ft): <b>27.0</b>	
		Date Drilled: <b>2/21/12</b>	



Auger refusal was encountered at 17 feet below the existing ground surface.

Groundwater was encountered at 6 feet below the existing ground surface at the time of boring completion.

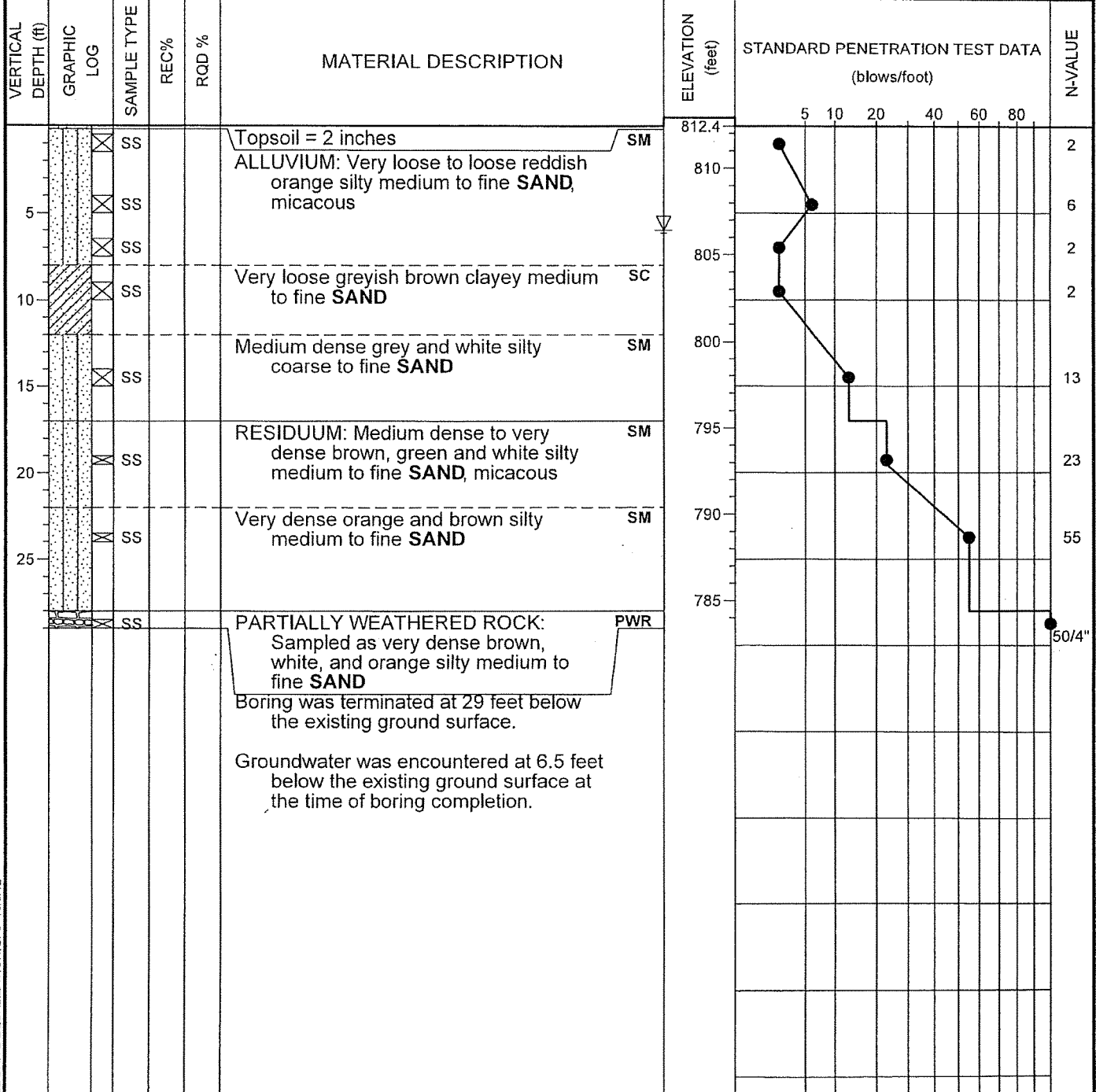
A 10-foot NQ rock core sample was retrieved from 17 feet to 27 feet

SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-size: 1.2em; font-weight: bold;">B-20</div>
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Project: <b>Liddell Drive Equalization Project</b>				<b>HOLE No. B-21</b>	
Location: <b>Fulton County, Georgia</b>				Sheet 1 of 1	
Project Number: <b>71.3801</b>				Location: <b>See Figure 2</b>	
Azimuth: --		Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>812.40</b>	Station: <b>N/A</b>	
Drilling Equipment: <b>CME 45</b>			Drilling Method: <b>HSA Manual Hammer</b>		
Core Boxes: <b>N/A</b>		Samples: <b>8</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>	Total Depth (ft): <b>29.0</b>
Logged By: <b>DP</b>			Date Drilled: <b>2/21/12</b>		



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <p style="text-align: center; font-weight: bold; font-size: 1.2em;">B-21</p>
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Project: **Liddell Drive Equalization Project** HOLE No. **B-22**  
 Location: **Fulton County, Georgia** Sheet 1 of 1  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **811.50** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **N/A** Samples: **5** Overburden (ft): **N/A** Rock (ft): **N/A** Total Depth (ft): **17.5**

Logged By: **DP** Date Drilled: **2/15/12**

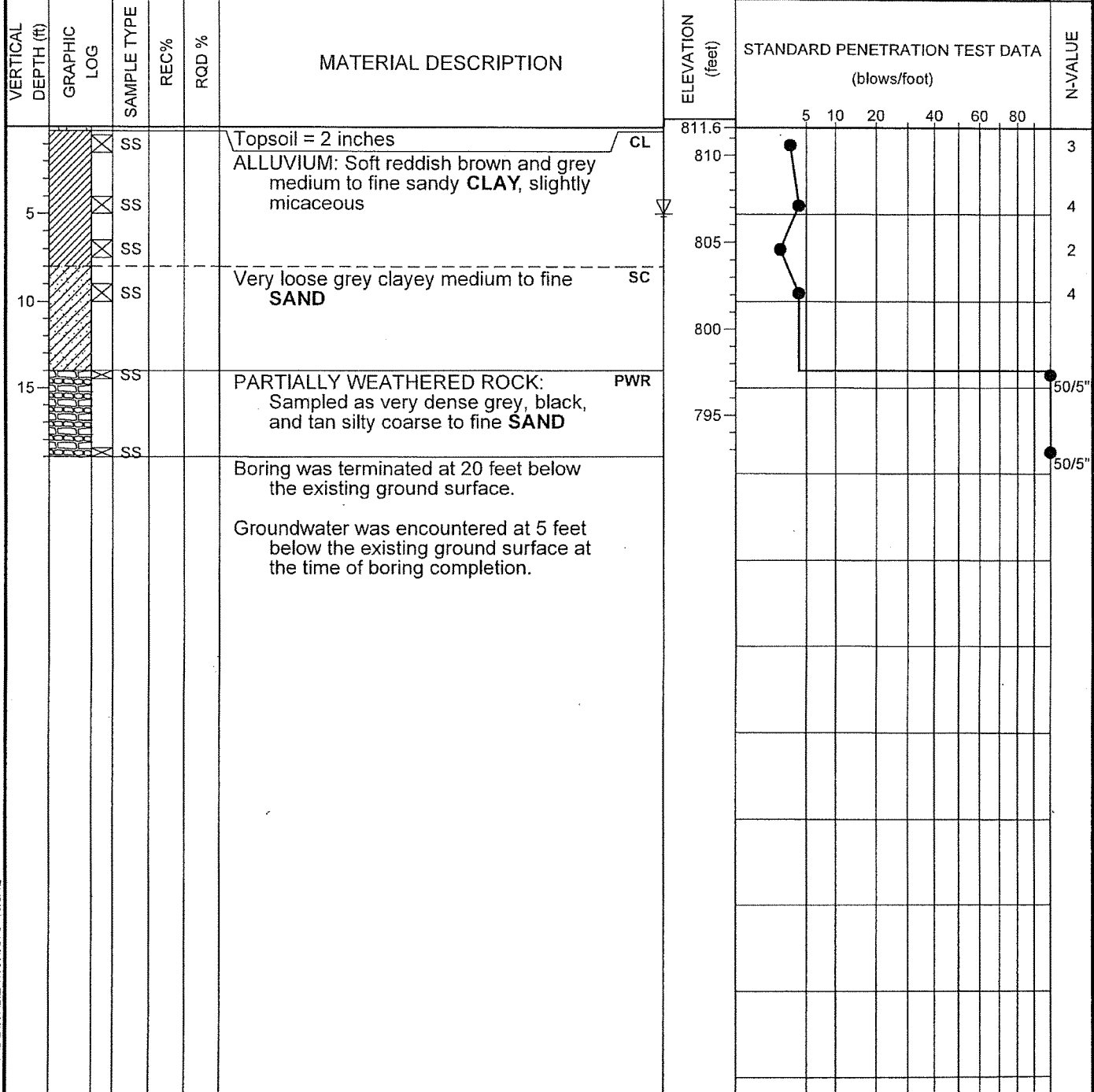
VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
0 - 3	[Cross-hatched pattern]	SS			Topsoil = 3 inches <span style="float: right;">FILL</span>	811.5	5	4
3 - 17.5	[Dotted pattern]	SS			FILL: Soft medium to fine sandy SILT, slightly micaceous <span style="float: right;">SM</span> ALLUVIUM: Very loose grey silty coarse to fine SAND	810	10	2
		SS				805	15	3
		SS				800	20	4
15 - 17.5		SS			RESIDUUM: Dense grey, black, and white silty coarse to fine SAND with rock fragments <span style="float: right;">SM</span>	795	30	33
					Auger refusal was encountered at 17.5 feet below the existing ground surface.			
					Groundwater was encountered at 6 feet below the existing ground surface at the time of boring completion.			

SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-22</div>
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Project: <b>Liddell Drive Equalization Project</b>				<b>HOLE No. B-23</b>	
Location: <b>Fulton County, Georgia</b>				Sheet 1 of 1	
Project Number: <b>71.3801</b>				Location: <b>See Figure 2</b>	
Azimuth: --		Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>811.60</b>	Station: <b>N/A</b>	
Drilling Equipment: <b>CME 45</b>			Drilling Method: <b>HSA Manual Hammer</b>		
Core Boxes: <b>N/A</b>		Samples: <b>6</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>	Total Depth (ft): <b>19.0</b>
Logged By: <b>DP</b>			Date Drilled: <b>2/15/12</b>		



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>HSA - Hollow Stem Auger</b> <b>RW - Rotary Wash</b> <b>CFA - Continuous Flight Augers</b> <b>RC - Rock Core</b> <b>DC - Driving Casing</b>	Hole No. <b>B-23</b>
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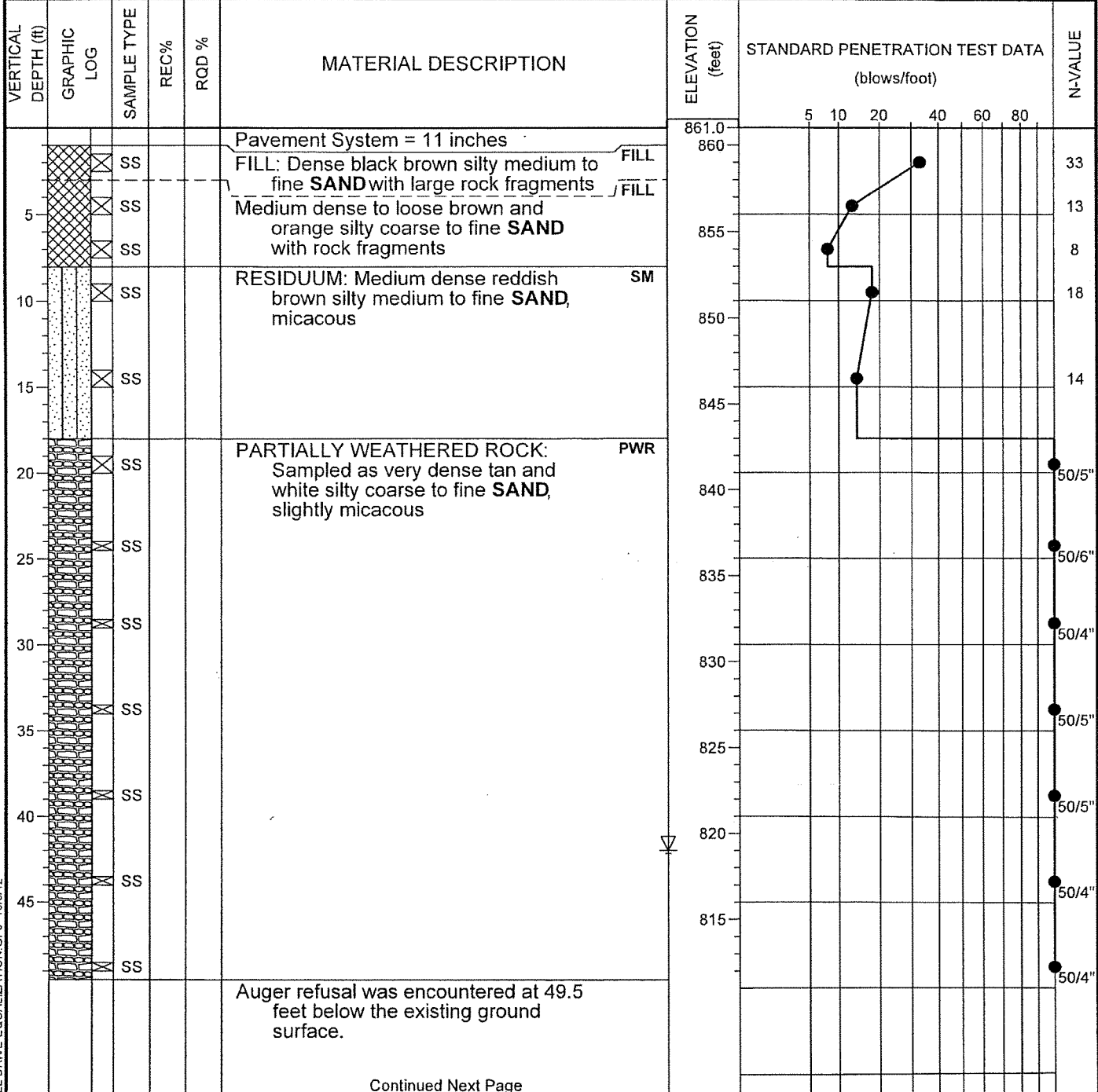
Project: **Liddell Drive Equalization Project** HOLE No. **B-24**  
 Location: **Fulton County, Georgia** Sheet 1 of 2  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **861.00** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **N/A** Samples: **12** Overburden (ft): **N/A** Rock (ft): **N/A** Total Depth (ft): **49.5**

Logged By: **DP** Date Drilled: **2/23/12**



Continued Next Page

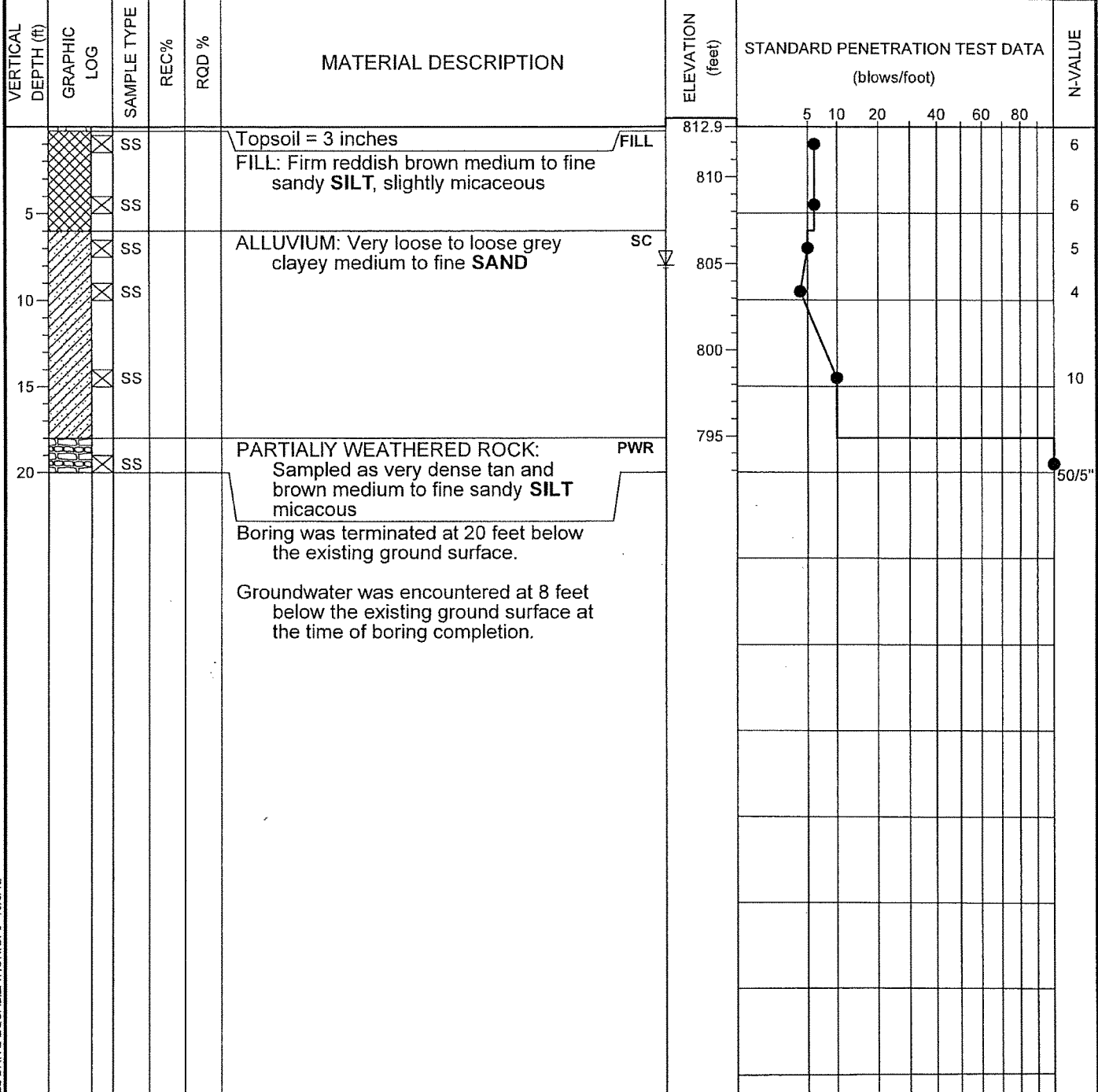
<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-size: 1.2em; font-weight: bold;">B-24</div>
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SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12





Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-25</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>812.90</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>6</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
Logged By: <b>DP</b>		Date Drilled: <b>2/22/12</b>	
Total Depth (ft): <b>20.0</b>			



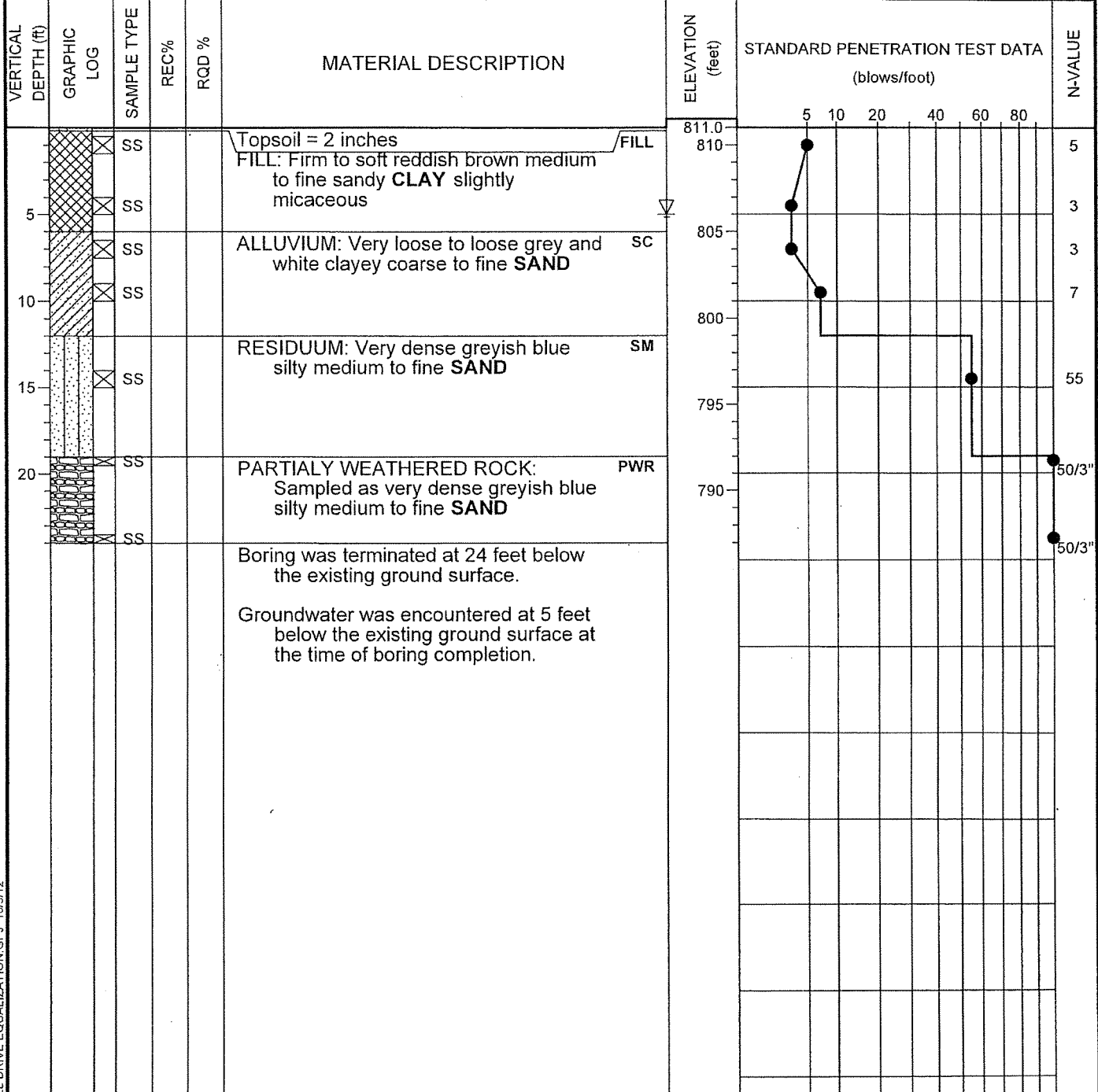
SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <b>B-25</b>
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Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-26</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: <b>--</b>	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>811.00</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>7</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
Logged By: <b>DP</b>		Total Depth (ft): <b>24.0</b>	
		Date Drilled: <b>3/1/12</b>	



SP1N LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-26</div>
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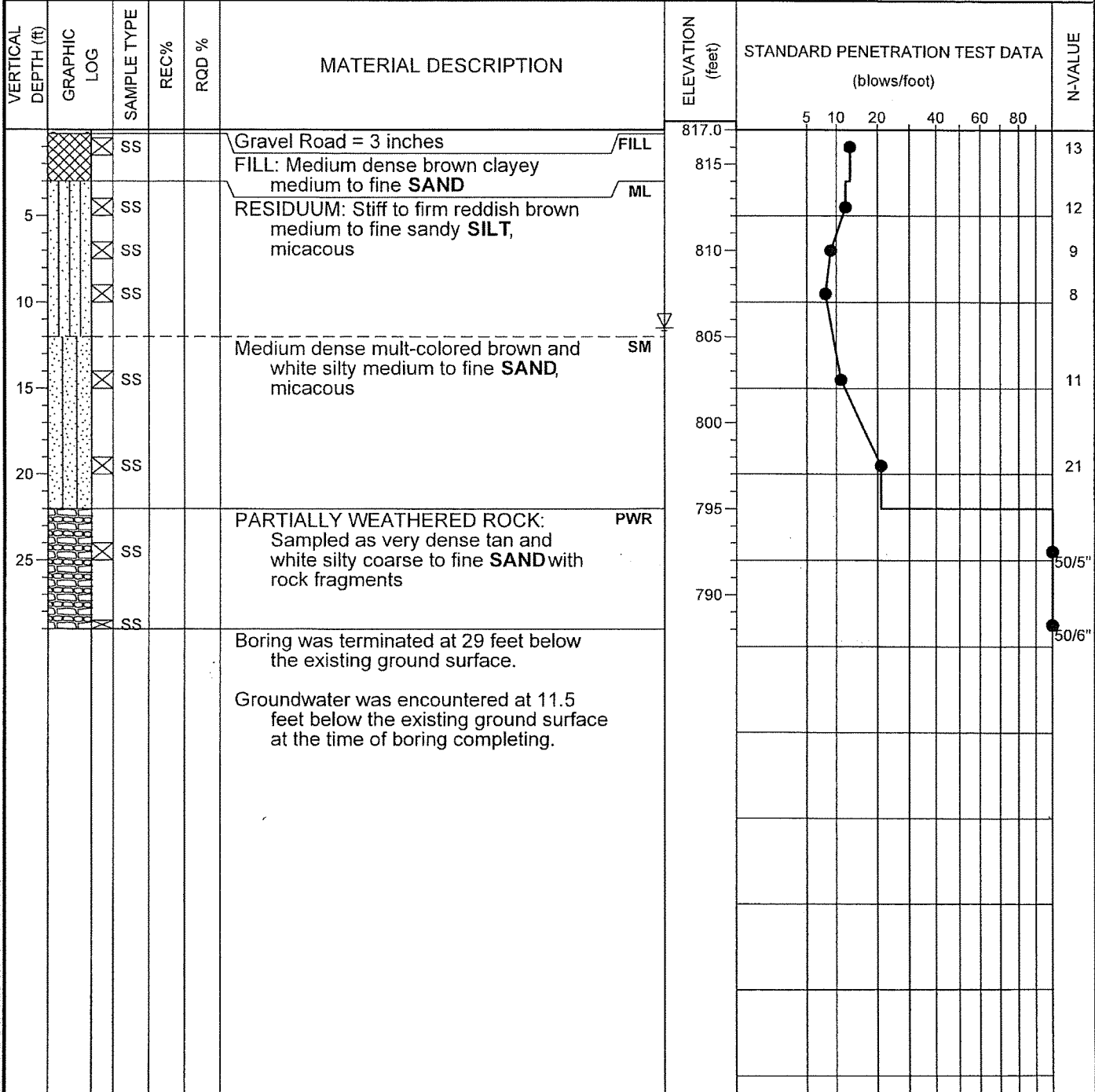
Project: **Liddell Drive Equalization Project** HOLE No. **B-27**  
 Location: **Fulton County, Georgia** Sheet 1 of 1  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **817.00** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **N/A** Samples: **8** Overburden (ft): **N/A** Rock (ft): **N/A** Total Depth (ft): **29.0**

Logged By: **DP** Date Drilled: **3/1/12**

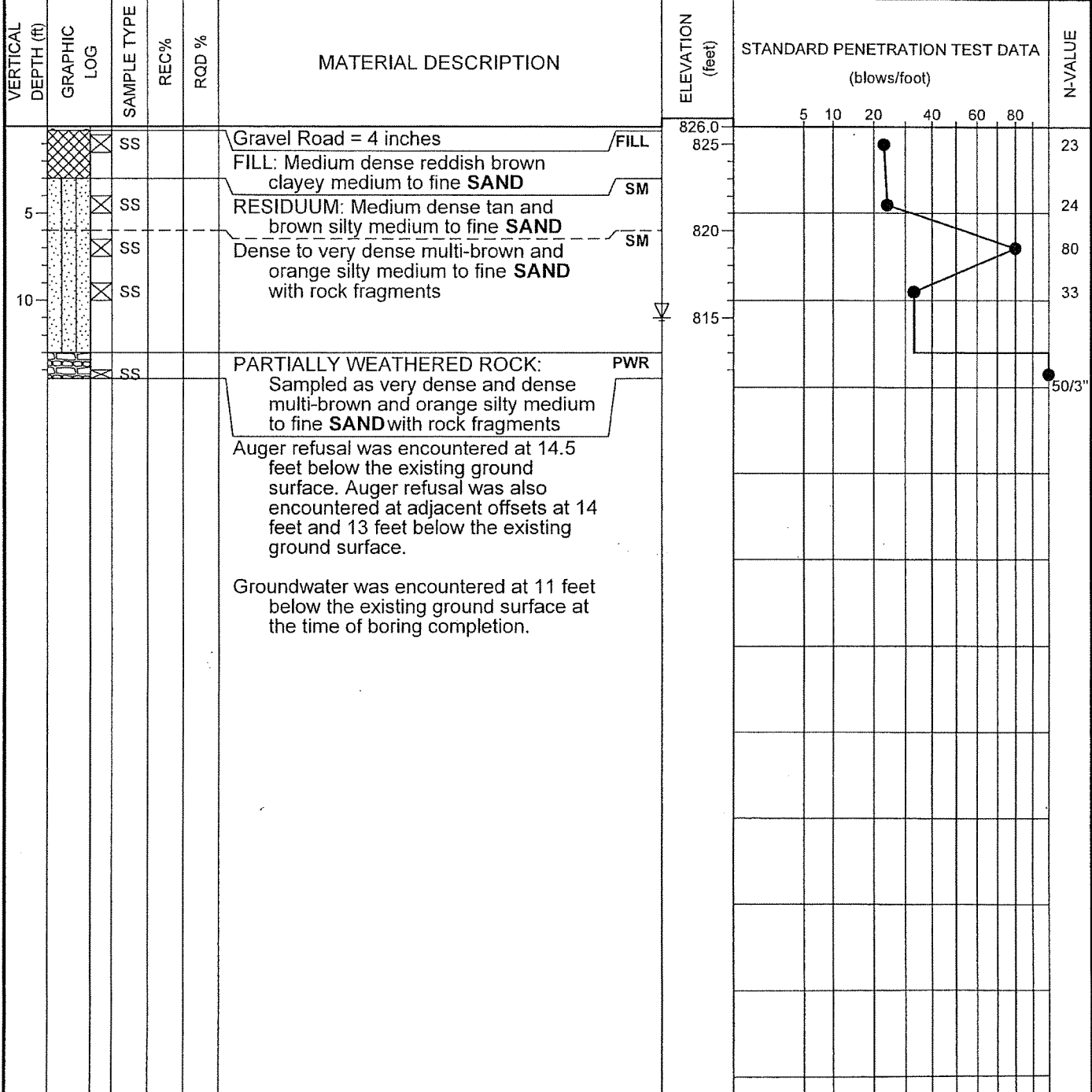


SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-27</div>
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Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-28</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>826.00</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>5</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
		Total Depth (ft): <b>14.5</b>	
Logged By: <b>DP</b>		Date Drilled: <b>3/1/12</b>	



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: right; font-weight: bold; font-size: 1.2em;">B-28</div>
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Project: **Liddell Drive Equalization Project**  
 Location: **Fulton County, Georgia**  
 Project Number: **71.3801**

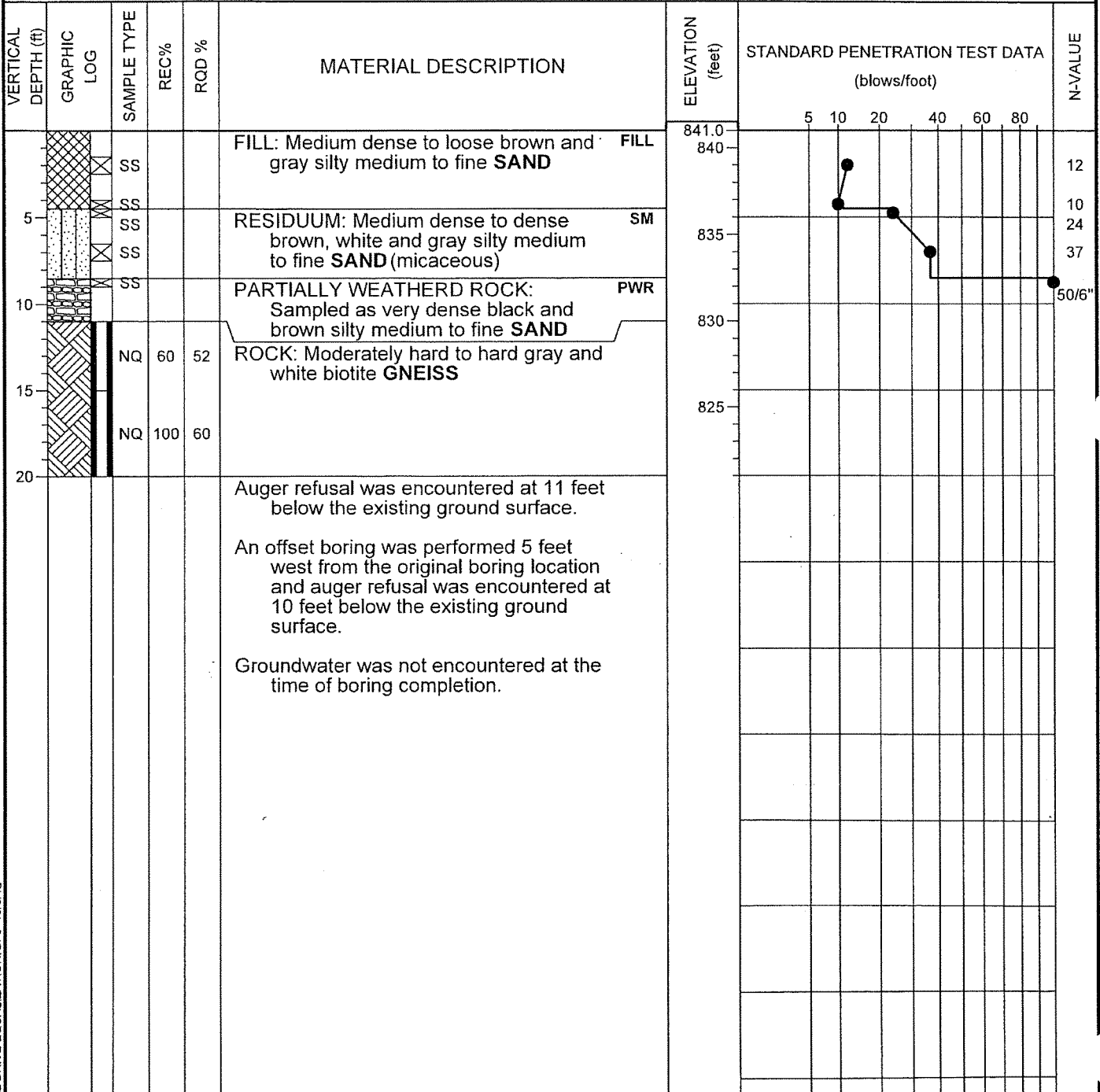
**HOLE No. B-29**  
 Sheet 1 of 1  
 Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **841.00** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **1** Samples: **4** Overburden (ft): **11** Rock (ft): **9** Total Depth (ft): **20.0**

Logged By: **PL** Date Drilled: **5/2/12**

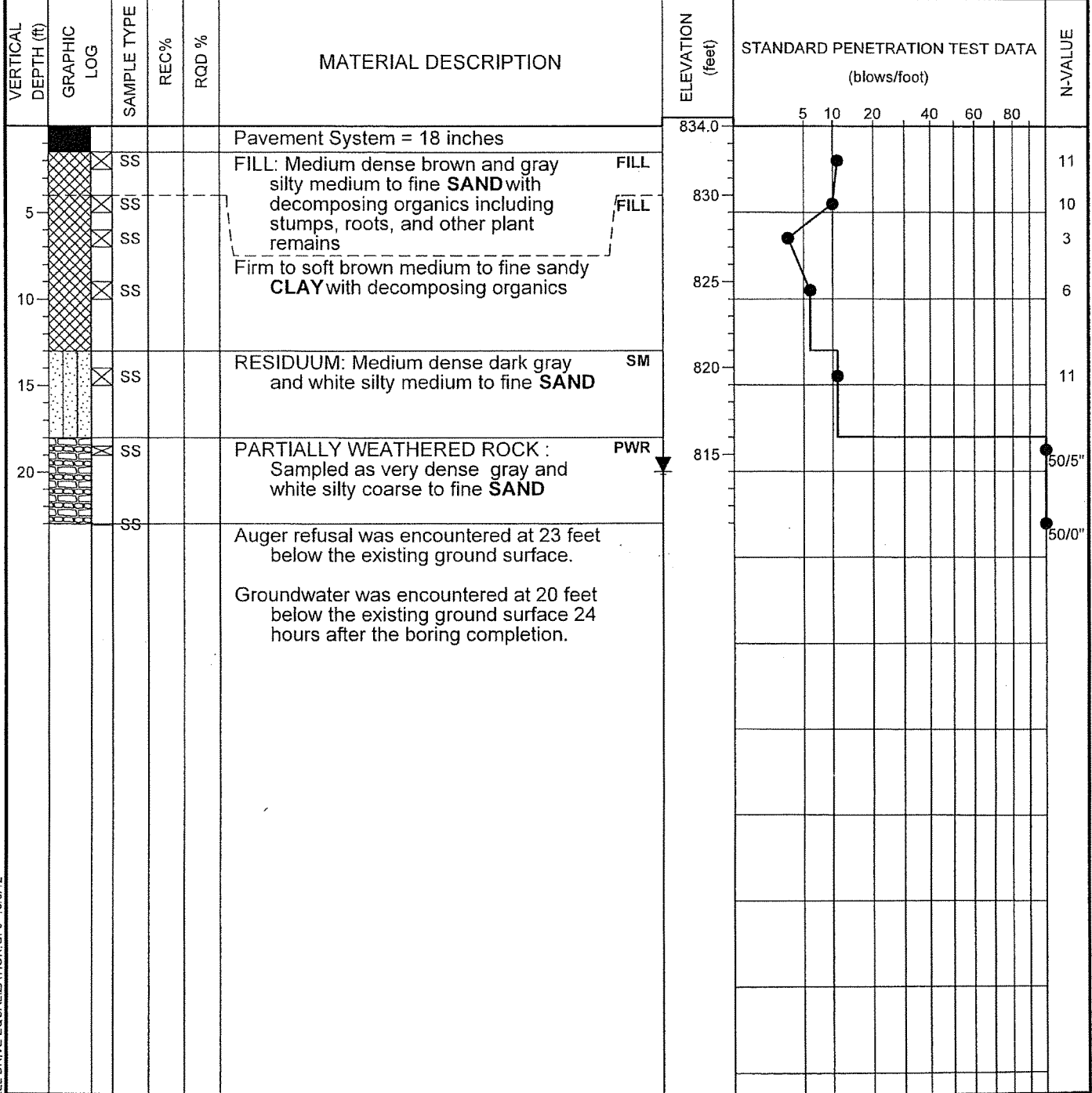


SP1TN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"		<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube		<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing		RW - Rotary Wash RC - Rock Core		Hole No. <b>B-29</b>
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Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-30</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --    Angle from Horizontal: <b>90</b>		Surface Elevation (ft): <b>834.00</b> Station: <b>N/A</b>	
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>		Samples: <b>7</b>	
Overburden (ft): <b>N/A</b>		Rock (ft): <b>N/A</b>	
Total Depth (ft): <b>23.0</b>			
Logged By: <b>PL</b>		Date Drilled: <b>5/1/12</b>	

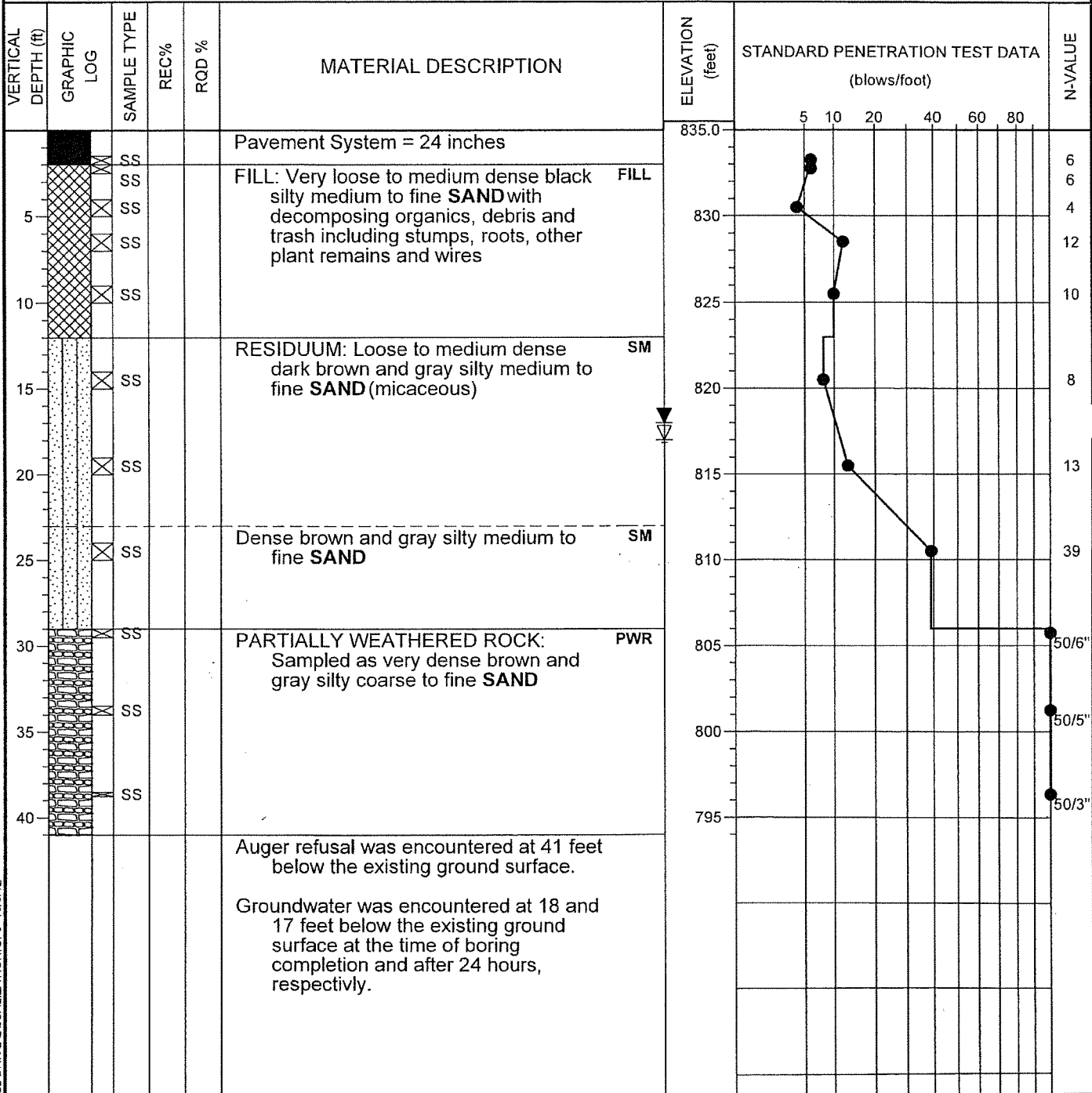


SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>DRILLING METHOD</b> RW - Rotary Wash RC - Rock Core	Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-30</div>
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Project: <b>Liddell Drive Equalization Project</b>				<b>HOLE No. B-31</b>	
Location: <b>Fulton County, Georgia</b>				Sheet 1 of 1	
Project Number: <b>71.3801</b>				Location: <b>See Figure 2</b>	
Azimuth: --		Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>835.00</b>	Station: <b>N/A</b>	
Drilling Equipment: <b>CME 45</b>			Drilling Method: <b>HSA Manual Hammer</b>		
Core Boxes: <b>N/A</b>	Samples: <b>10</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>	Total Depth (ft): <b>41.0</b>	
Logged By: <b>PL</b>			Date Drilled: <b>5/1/12</b>		



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-31</div>
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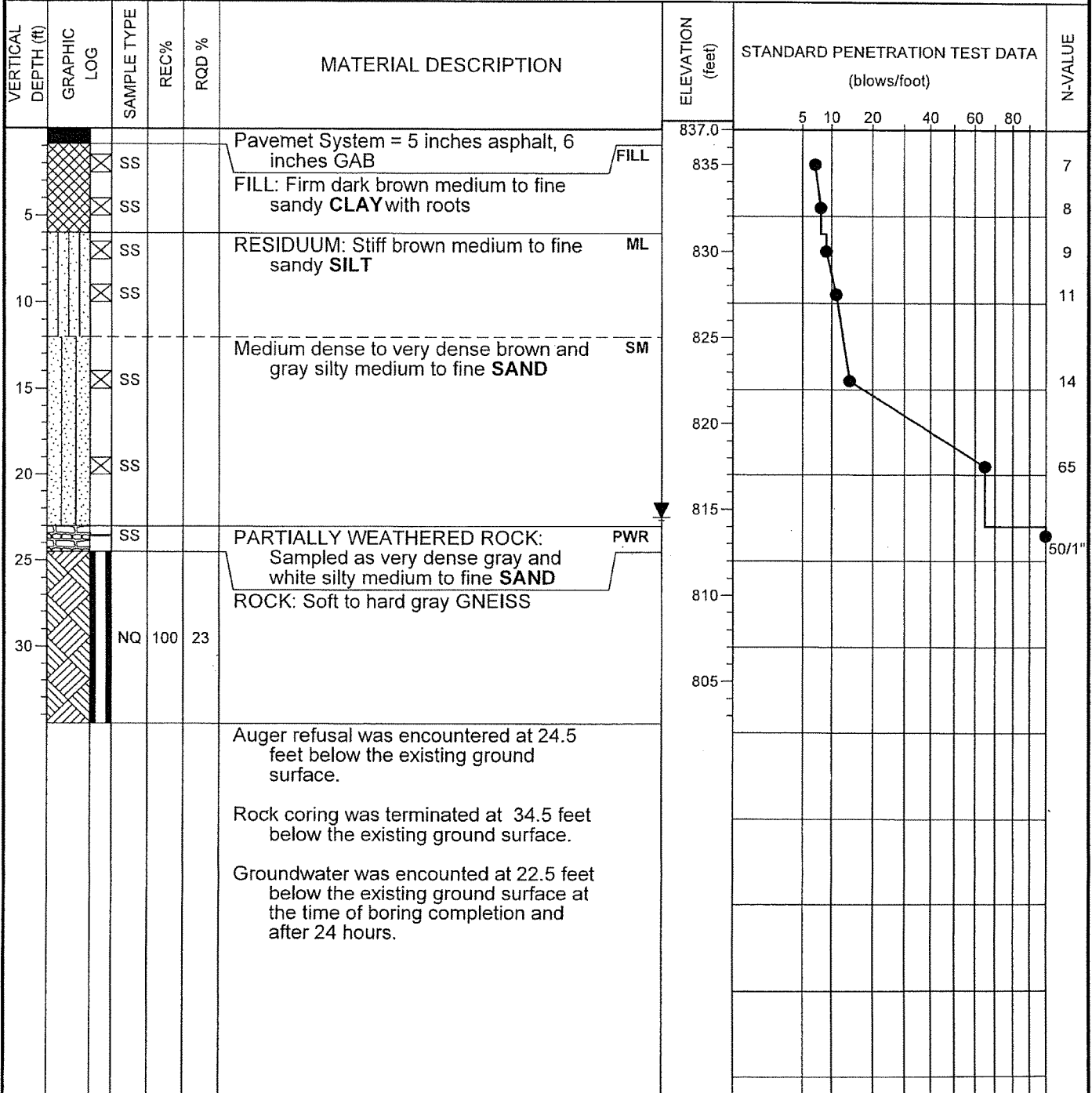
Project: **Liddell Drive Equalization Project** HOLE No. **B-32**  
 Location: **Fulton County, Georgia** Sheet 1 of 1  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **837.00** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **1** Samples: **7** Overburden (ft): **24.5** Rock (ft): **10** Total Depth (ft): **34.5**

Logged By: **PL** Date Drilled: **7/23/12**



SPTN, LIDDELL DRIVE EQUALIZATION.GPJ, 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-32</div>
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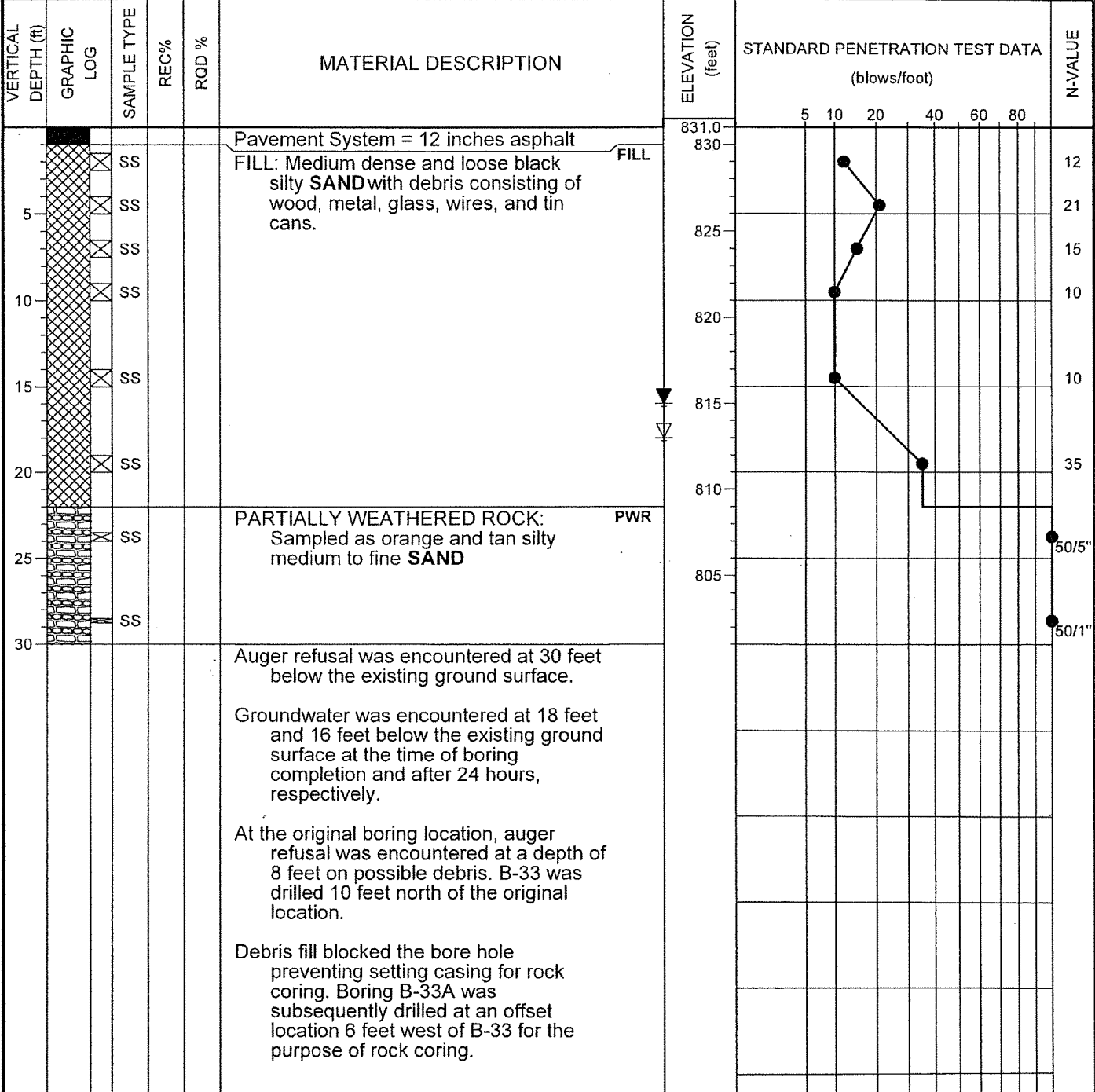
Project: **Liddell Drive Equalization Project** HOLE No. **B-33**  
 Location: **Fulton County, Georgia** Sheet 1 of 1  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **831.00** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **N/A** Samples: **8** Overburden (ft): **N/A** Rock (ft): **N/A** Total Depth (ft): **30.0**

Logged By: **DP** Date Drilled: **7/24/12**



Auger refusal was encountered at 30 feet below the existing ground surface.

Groundwater was encountered at 18 feet and 16 feet below the existing ground surface at the time of boring completion and after 24 hours, respectively.

At the original boring location, auger refusal was encountered at a depth of 8 feet on possible debris. B-33 was drilled 10 feet north of the original location.

Debris fill blocked the bore hole preventing setting casing for rock coring. Boring B-33A was subsequently drilled at an offset location 6 feet west of B-33 for the purpose of rock coring.

SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <div style="text-align: center; font-size: 1.2em; font-weight: bold;">B-33</div>
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Project: <b>Liddell Drive Equalization Project</b>	<b>HOLE No. B-33A</b>
Location: <b>Fulton County, Georgia</b>	Sheet 1 of 1
Project Number: <b>71.3801</b>	Location: <b>See Figure 2</b>

Azimuth:	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>831.00</b>	Station: <b>N/A</b>
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Drilling Equipment: <b>CME 45</b>	Drilling Method: <b>HSA Manual Hammer</b>
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Core Boxes: <b>1</b>	Samples: <b>0</b>	Overburden (ft): <b>24</b>	Rock (ft): <b>10</b>	Total Depth (ft): <b>34.0</b>
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Logged By: <b>DP</b>	Date Drilled: <b>7/24/12</b>
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VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)						N-VALUE
							5	10	20	40	60	80	
0 - 5					Pavement System = 12 inches asphalt FILL: Black silty <b>SAND</b> with debris consisting of wood, metal, glass, wires, and tin cans.	831.0							
5 - 20						830							
20 - 24					PARTIALLY WEATHERED ROCK: Sampled as orange and tan silty medium to fine <b>SAND</b>	825							
24 - 25					ROCK: Soft to hard gray <b>GNEISS</b>	820							
25 - 30		NQ	70	28		815							
30 - 34					Auger refusal was encountered at 24 feet below the existing ground surface.  Rock coring was terminated at 34 feet below the existing ground surface.  This boring was drilled 6 feet west of B-33 for the purpose of rock coring. Rock coring could not be performed at B-33 because casing could not be installed due to debris fill blocking the bore hole.	810							
						805							
						800							

SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-33A</div>
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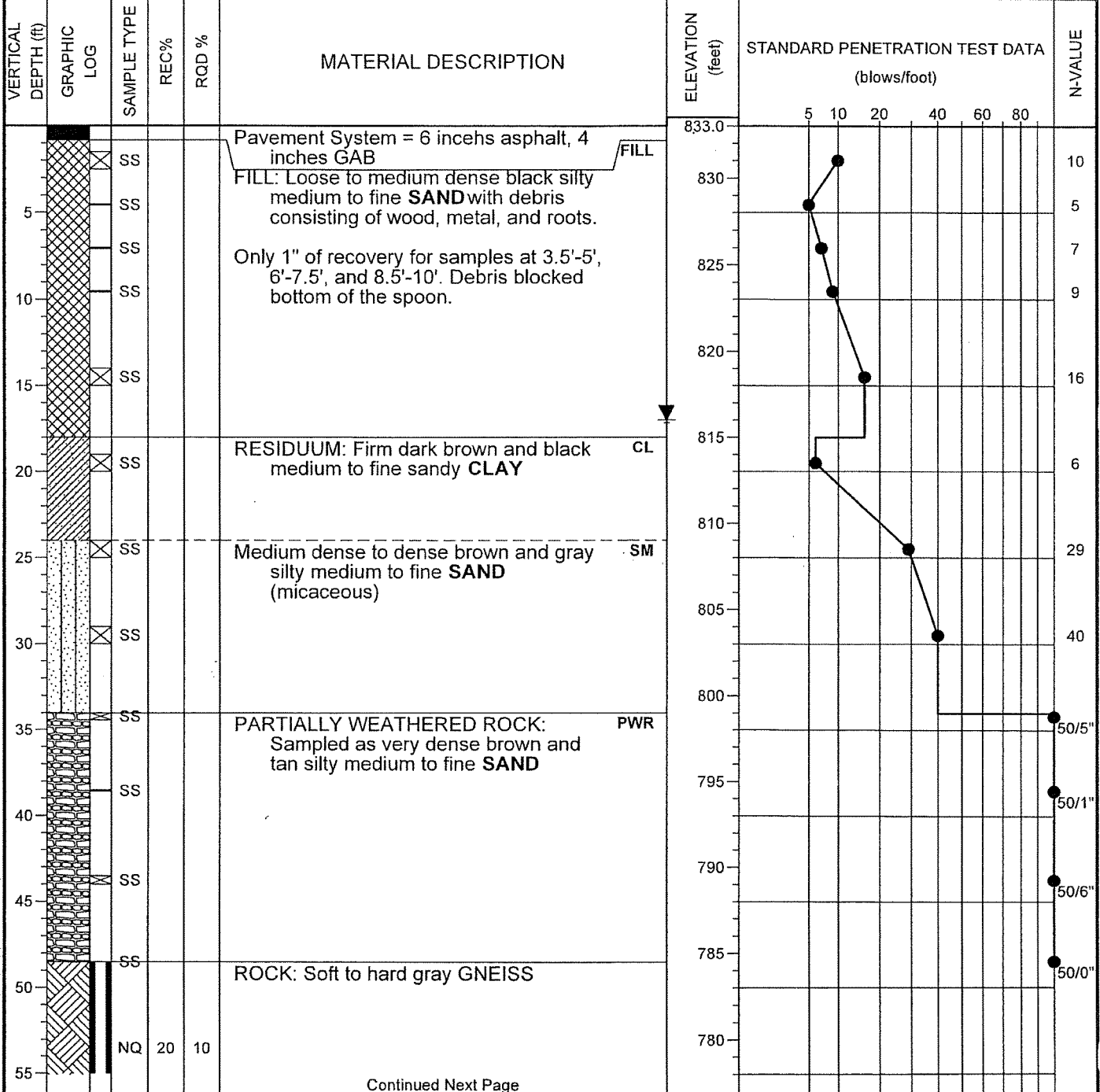
Project: **Liddell Drive Equalization Project** HOLE No. **B-34**  
 Location: **Fulton County, Georgia** Sheet 1 of 2  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **833.00** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **1** Samples: **12** Overburden (ft): **48.5** Rock (ft): **15** Total Depth (ft): **63.5**

Logged By: **PL** Date Drilled: **7/20/12**



Continued Next Page

SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>SAMPLER TYPE</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>DRILLING METHOD</b> RW - Rotary Wash RC - Rock Core	Hole No. <b>B-34</b>
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Project: **Liddell Drive Equalization Project**  
 Location: **Fulton County, Georgia**  
 Project Number: **71.3801**

**HOLE No. B-34**  
 Sheet 2 of 2

Location: **See Figure 2**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	ROD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)						N-VALUE
							5	10	20	40	60	80	
60		NQ	93	67	ROCK: Hard to very hard gray GNEISS	775							
					Auger refusal was encountered at 48.5 feet below the existing ground surface.	770							
					Rock coring was terminated at 63.5 feet below the existing ground surface.								
					Groundwater was encountered at 17 feet below the existing ground surface 24 hours after boring completion								

SPTN\_LIDDELL\_DRIVE\_EQUALIZATION.GPJ 10/9/12

**SAMPLER TYPE**  
 SS - Split Spoon  
 ST - Shelby Tube  
 NQ - Rock Core, 1-7/8"  
 NX - Rock Core, 2-1/8"  
 CU - Cuttings  
 CT - Continuous Tube

**DRILLING METHOD**  
 HSA - Hollow Stem Auger  
 CFA - Continuous Flight Augers  
 DC - Driving Casing  
 RW - Rotary Wash  
 RC - Rock Core

Hole No.  
**B-34**

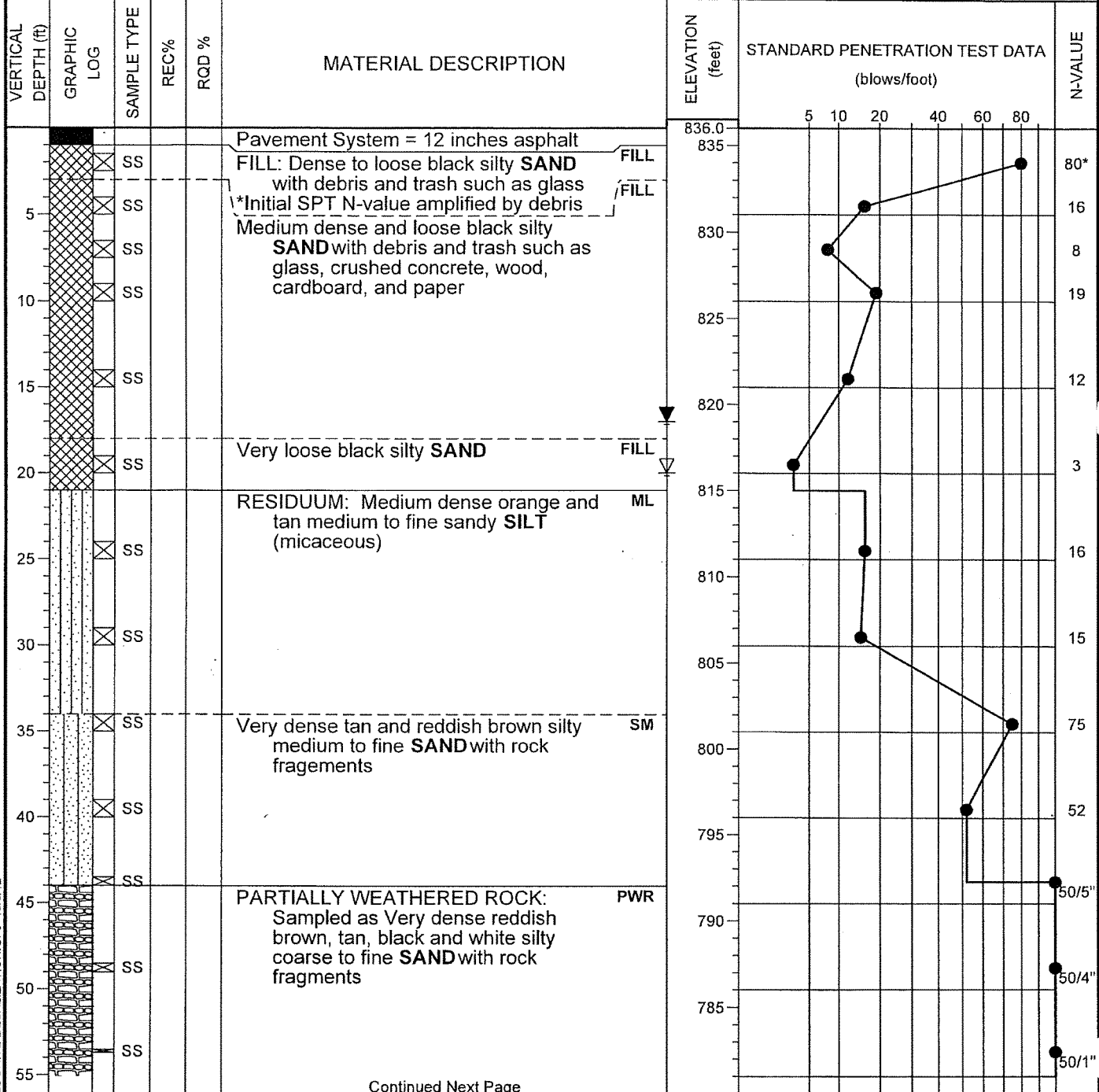
Project: <b>Liddell Drive Equalization Project</b>						HOLE No. <b>B-35</b>			
Location: <b>Fulton County, Georgia</b>						Sheet 1 of 2			
Project Number: <b>71.3801</b>						Location: <b>See Figure 2</b>			
Azimuth: --		Angle from Horizontal: <b>90</b>		Surface Elevation (ft): <b>837.00</b>		Station: <b>N/A</b>			
Drilling Equipment: <b>CME 45</b>				Drilling Method: <b>HSA Manual Hammer</b>					
Core Boxes: <b>1</b>		Samples: <b>10</b>		Overburden (ft): <b>39.5</b>		Rock (ft): <b>10</b>			
Total Depth (ft): <b>49.5</b>									
Logged By: <b>DP</b>				Date Drilled: <b>7/25/12</b>					
VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE	
0					Pavement System = 6 inches asphalt, 6 inches GAB	837.0			
5		SS			FILL: Medium dense to very loose black silty medium to fine SAND with debris consisting of wood, metal, and glass	835	23		
10		SS			Firm brown and gray medium to fine sandy CLAY with debris consisting of plant fibers	830	5		
15		SS			RESIDUUM: Medium dense brown and orange silty medium to fine SAND (micaceous)	825	3		
20		SS				820	6		
25		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown and orange silty medium to fine SAND	815	12		
30		SS				810	14		
35		SS				805	50/6"		
40		SS			ROCK: Medium to very hard gray GNEISS	800	50/5"		
45		NQ	97	41		795	50/5"		
49.5					Auger refusal was encountered at 39.5 feet below the existing ground surface.	790	50/1"		
Continued Next Page									
SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"				DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing				Hole No. <b>B-35</b>	

SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12





Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-36</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 2	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth:	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>836.00</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>	Drilling Method: <b>HSA Manual Hammer</b>		
Core Boxes: <b>1</b>	Samples: <b>14</b>	Overburden (ft): <b>59</b>	Rock (ft): <b>10</b>
Logged By: <b>DP</b>		Date Drilled: <b>7/25/12</b>	
Total Depth (ft): <b>69.0</b>			



Continued Next Page

SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"		<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing		Hole No. <b>B-36</b>	
NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube		RW - Rotary Wash RC - Rock Core			



Project: **Liddell Drive Equalization Project**  
 Location: **Fulton County, Georgia**  
 Project Number: **71.3801**

**HOLE No. B-36**  
 Sheet 2 of 2  
 Location: **See Figure 2**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION  (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)						N-VALUE	
							5	10	20	40	60	80		
60		SS			ROCK: Moderatley hard to hard GNEISS	780								
		NQ	50	0		775								50/1"
65		NQ	100	72		770								
<p>Auger refusal was encountered at 59 feet below the existing ground surface.</p> <p>Rock coring was terminated at 69 feet below the existing ground surface.</p> <p>Groundwater was encountered at 20 feet and 17 feet below the existing ground surface at the time of boring completion and after 24 hrs, respectively.</p> <p>Shallow Auger refusal was encountered on the debris fill at the original boring location and one offset location within 10 feet of B-36 at depths of 8 and 12 feet below the existing ground surface.</p>														

SPTN, LIDDELL DRIVE EQUALIZATION.GPJ, 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>Hole No.</b> <p style="text-align: center; font-size: 1.2em;"><b>B-36</b></p>
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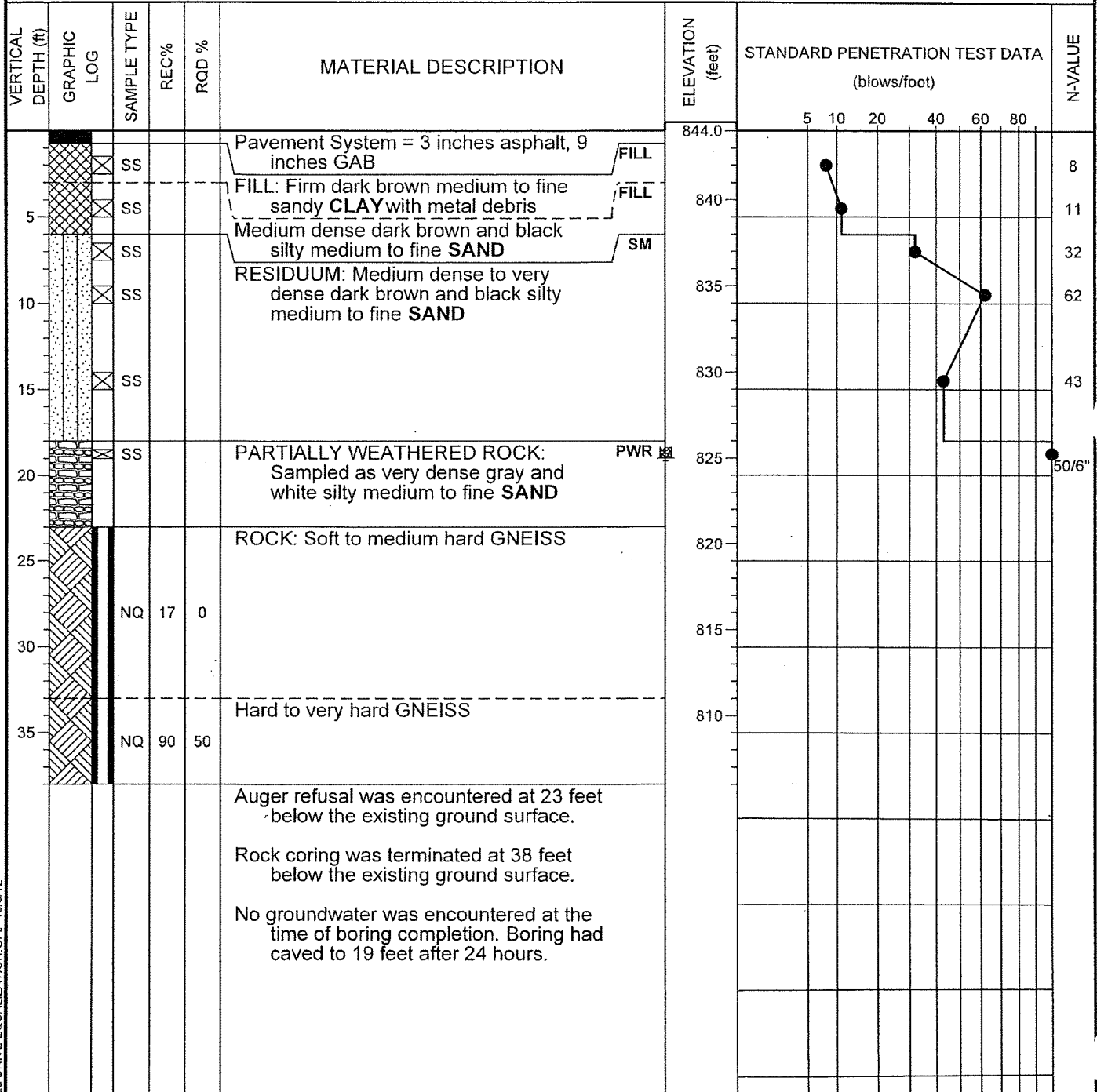
Project: **Liddell Drive Equalization Project** HOLE No. **B-37**  
 Location: **Fulton County, Georgia** Sheet 1 of 1  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **844.00** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **1** Samples: **6** Overburden (ft): **23** Rock (ft): **15** Total Depth (ft): **38.0**

Logged By: **PL** Date Drilled: **7/23/12**



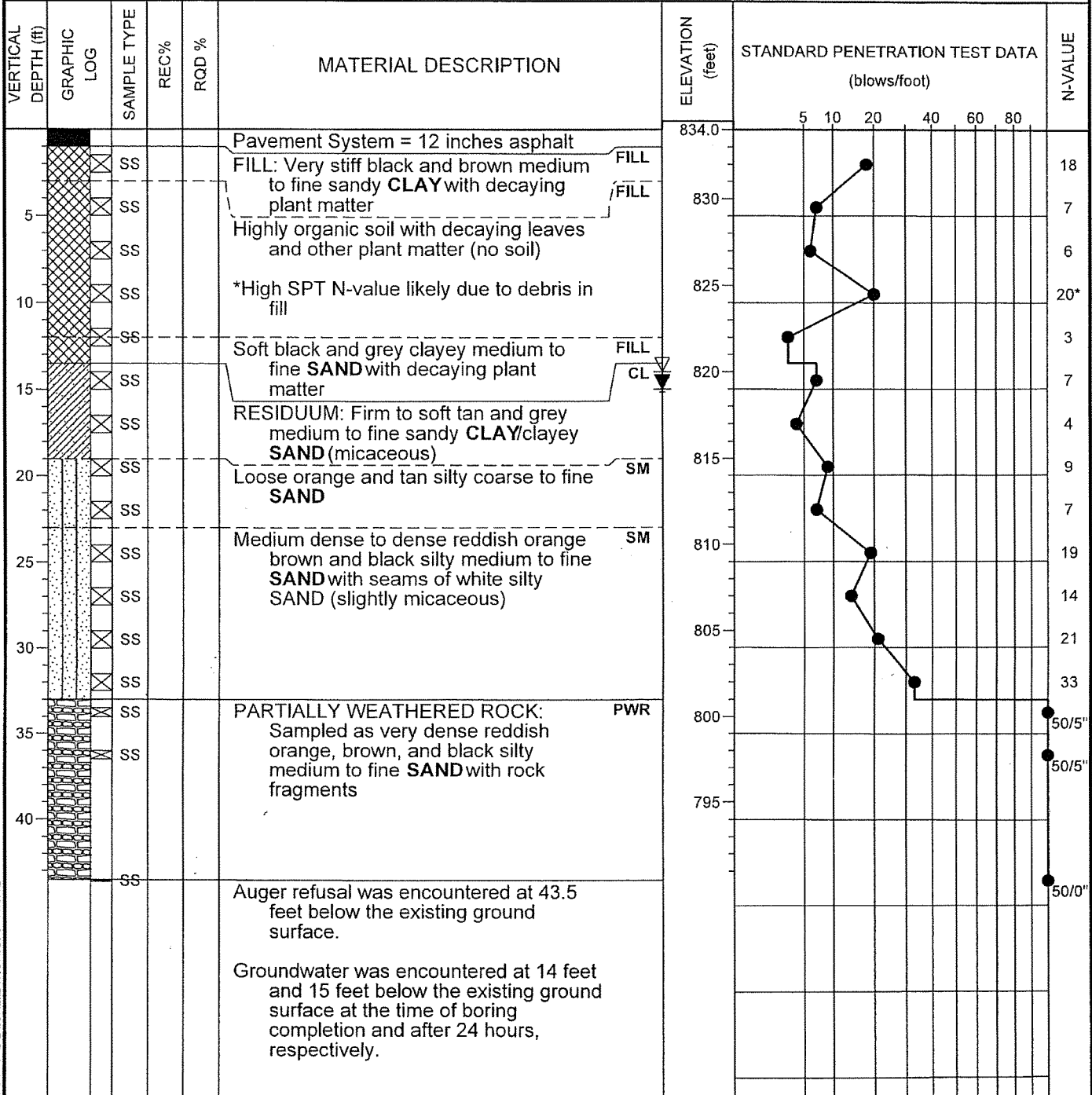
SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <h2 style="text-align: center;">B-37</h2>
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Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-38</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>834.00</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>N/A</b>	Samples: <b>16</b>	Overburden (ft): <b>N/A</b>	Rock (ft): <b>N/A</b>
Logged By: <b>DP</b>		Date Drilled: <b>7/27/12</b>	
Total Depth (ft): <b>43.5</b>			



SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube RW - Rotary Wash RC - Rock Core Hole No. <b>B-38</b>
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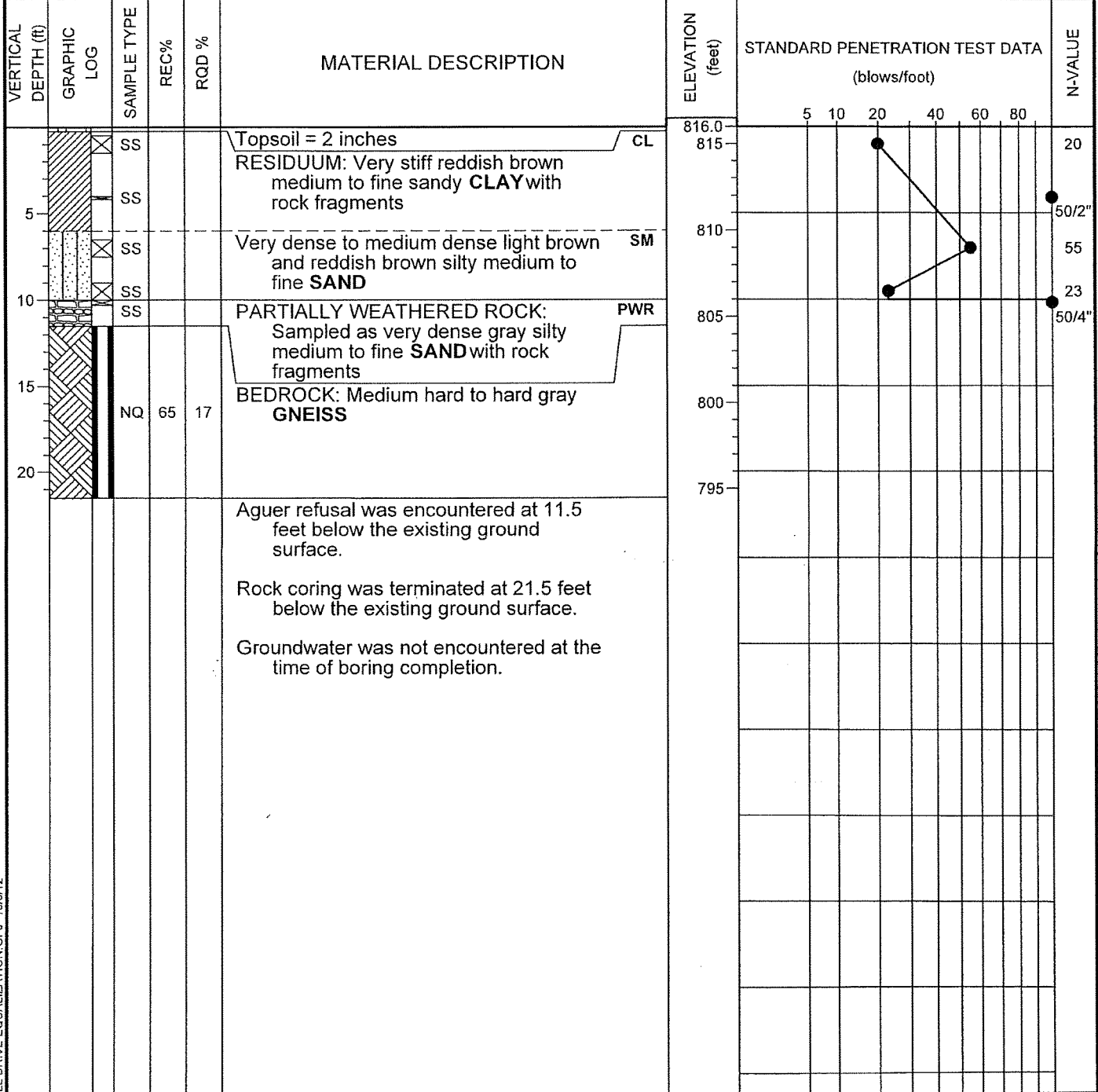
Project: **Liddell Drive Equalization Project** HOLE No. **B-39**  
 Location: **Fulton County, Georgia** Sheet 1 of 1  
 Project Number: **71.3801** Location: **See Figure 2**

Azimuth: -- Angle from Horizontal: **90** Surface Elevation (ft): **816.00** Station: **N/A**

Drilling Equipment: **CME 45** Drilling Method: **HSA Manual Hammer**

Core Boxes: **1** Samples: **5** Overburden (ft): **11.5** Rock (ft): **10** Total Depth (ft): **21.5**

Logged By: **PL** Date Drilled: **10/3/12**

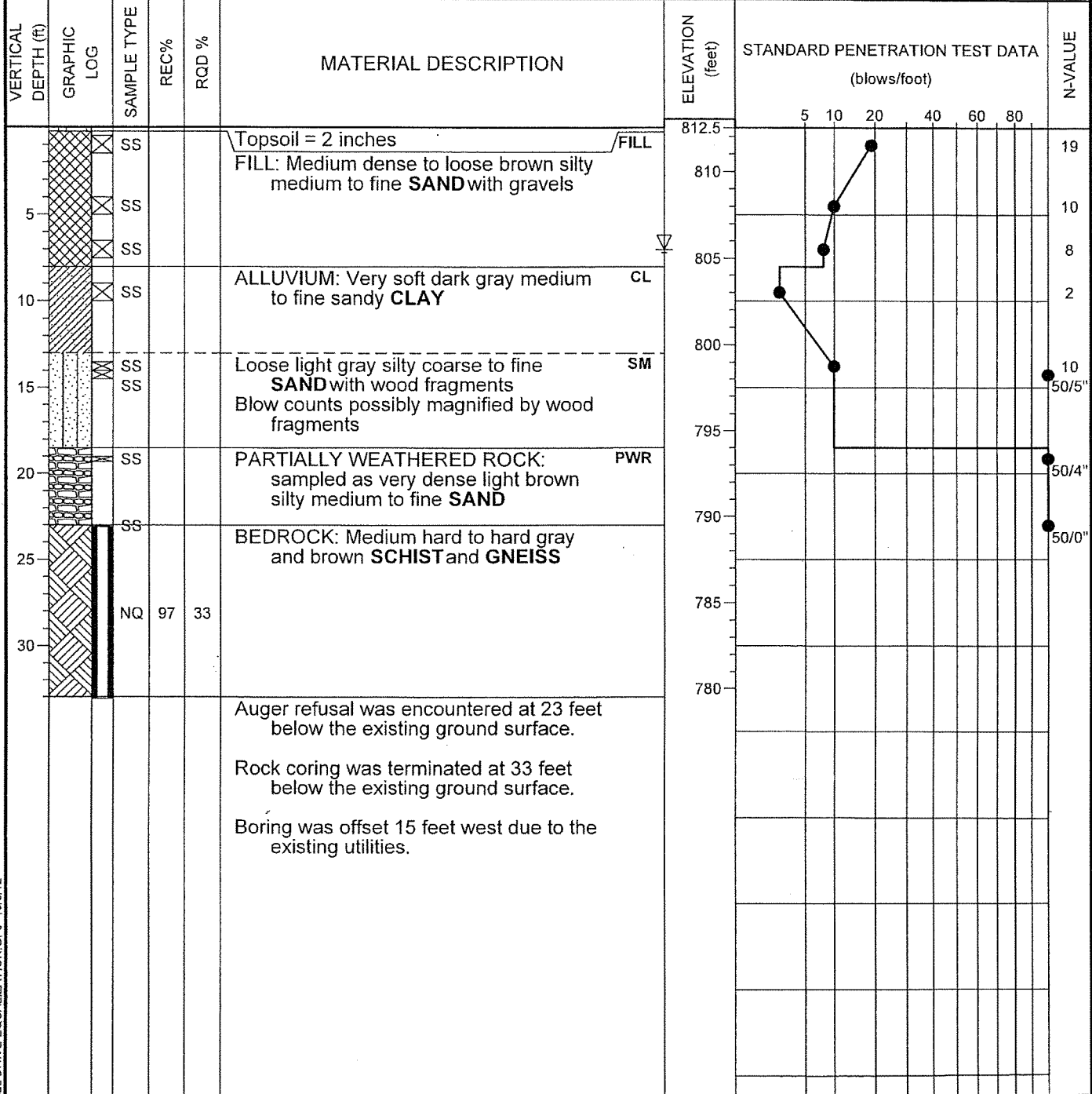


SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>SAMPLER TYPE</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	<b>DRILLING METHOD</b> HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	<b>DRILLING METHOD</b> RW - Rotary Wash RC - Rock Core	Hole No. <b>B-39</b>
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Project: <b>Liddell Drive Equalization Project</b>		<b>HOLE No. B-40</b>	
Location: <b>Fulton County, Georgia</b>		Sheet 1 of 1	
Project Number: <b>71.3801</b>		Location: <b>See Figure 2</b>	
Azimuth: --	Angle from Horizontal: <b>90</b>	Surface Elevation (ft): <b>812.50</b>	Station: <b>N/A</b>
Drilling Equipment: <b>CME 45</b>		Drilling Method: <b>HSA Manual Hammer</b>	
Core Boxes: <b>1</b>	Samples: <b>7</b>	Overburden (ft): <b>23</b>	Rock (ft): <b>10</b>
		Total Depth (ft): <b>33.0</b>	
Logged By: <b>PL</b>		Date Drilled: <b>10/4/12</b>	

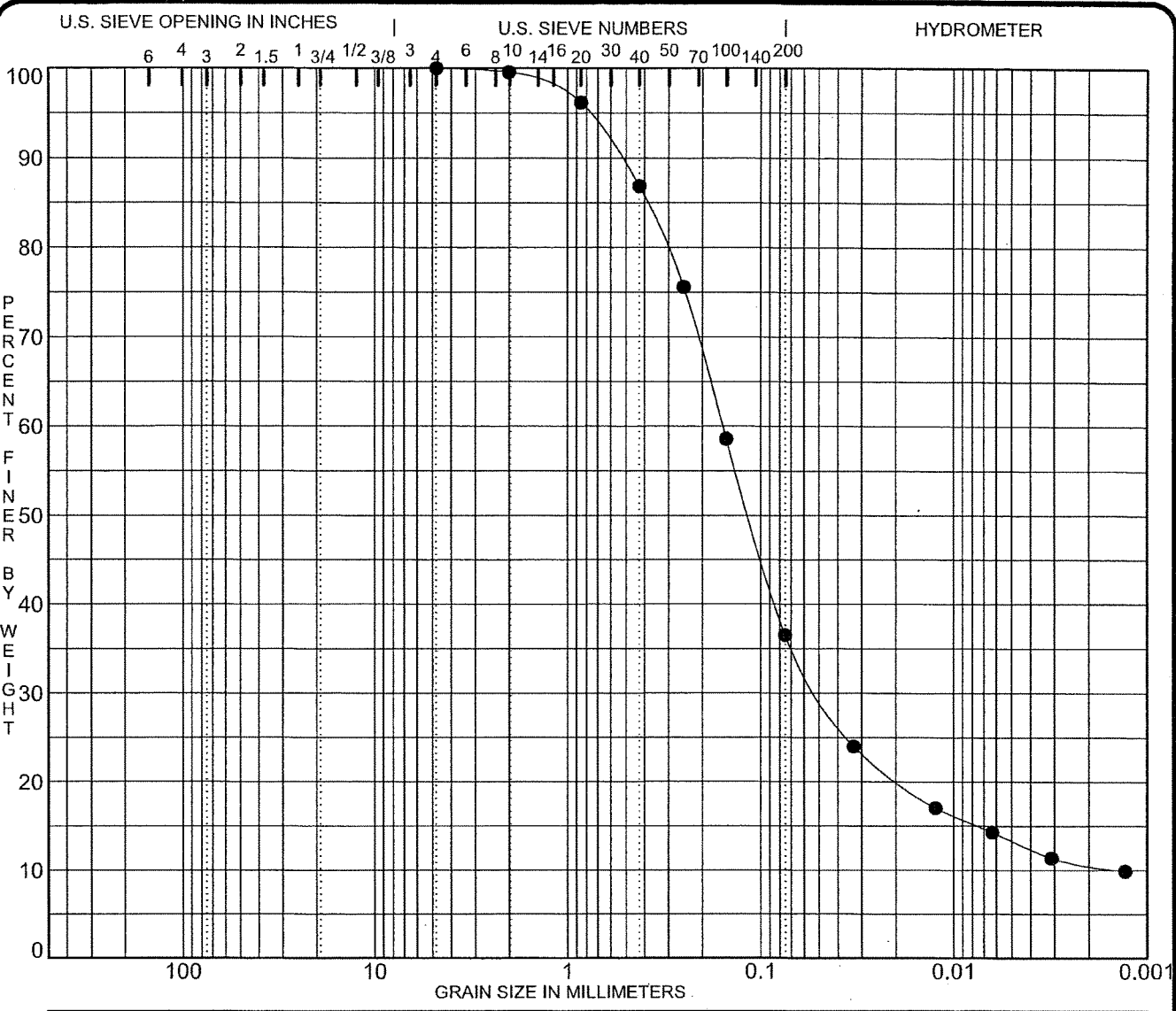


SPTN LIDDELL DRIVE EQUALIZATION.GPJ 10/9/12

<b>SAMPLER TYPE</b> SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	<b>DRILLING METHOD</b> NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <b>B-40</b>
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## APPENDIX II





COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

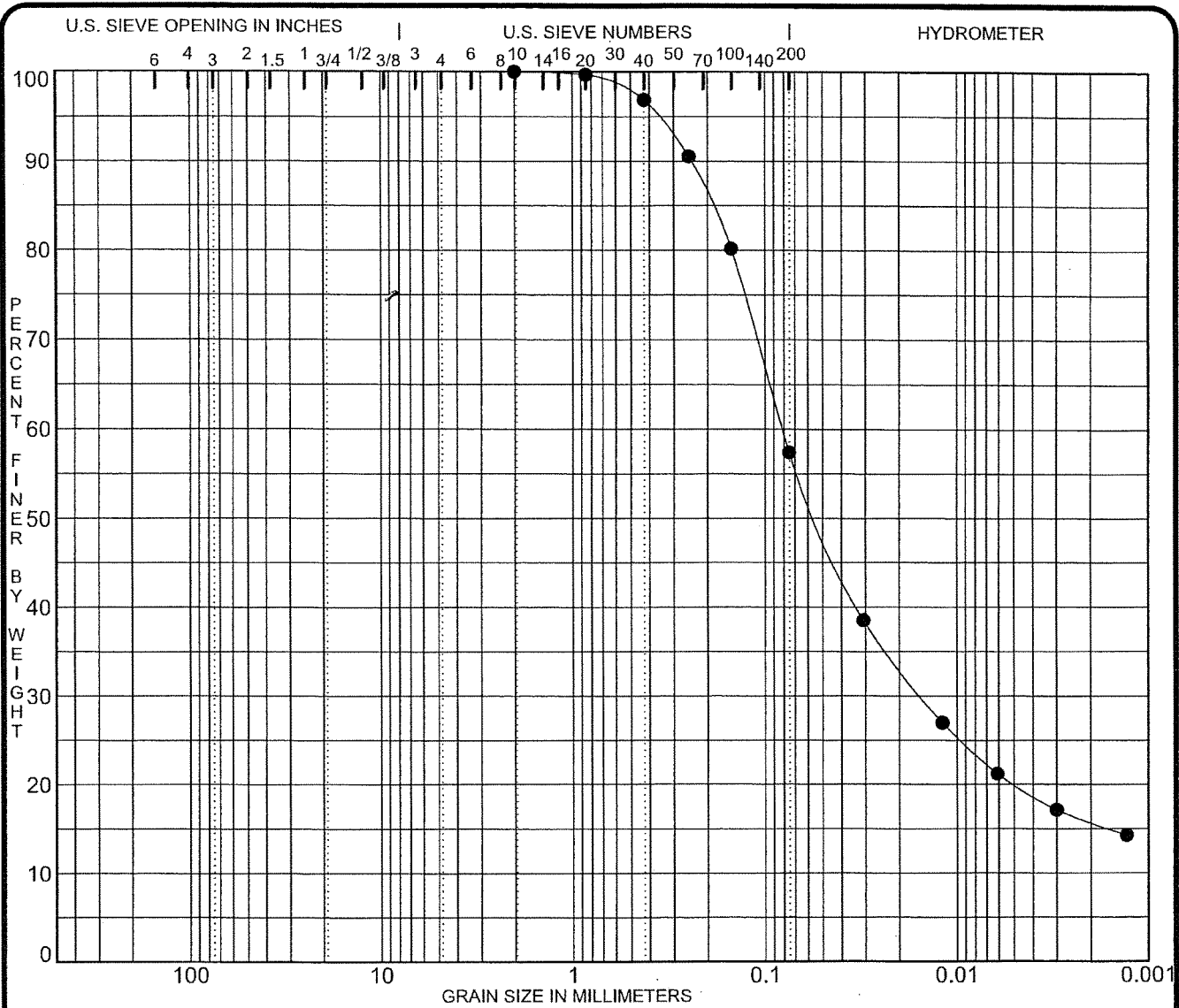
Specimen Identification	Soil Description	MC%	LL	PL	PI	Cc	Cu
● B-11 (18.5-20 ft)	Brown silty medium to fine SAND (micaceous) (SM)	23.8	31	26	5	11.00	113.1

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-11 (18.5-20 ft)	4.75	0.16	0.049	0.0014	0.0	63.5	25.9	10.6

PROJECT Liddell Drive Equalization Project JOB NO. 71.3801  
Fulton County, Georgia DATE 4/24/12



**GRAIN SIZE DISTRIBUTION**



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Soil Description	MC%	LL	PL	PI	Cc	Cu
● B-15A (3.5-5 ft)	Brown fine sandy SILT (micaceous) (ML)	36.3	37	29	8		

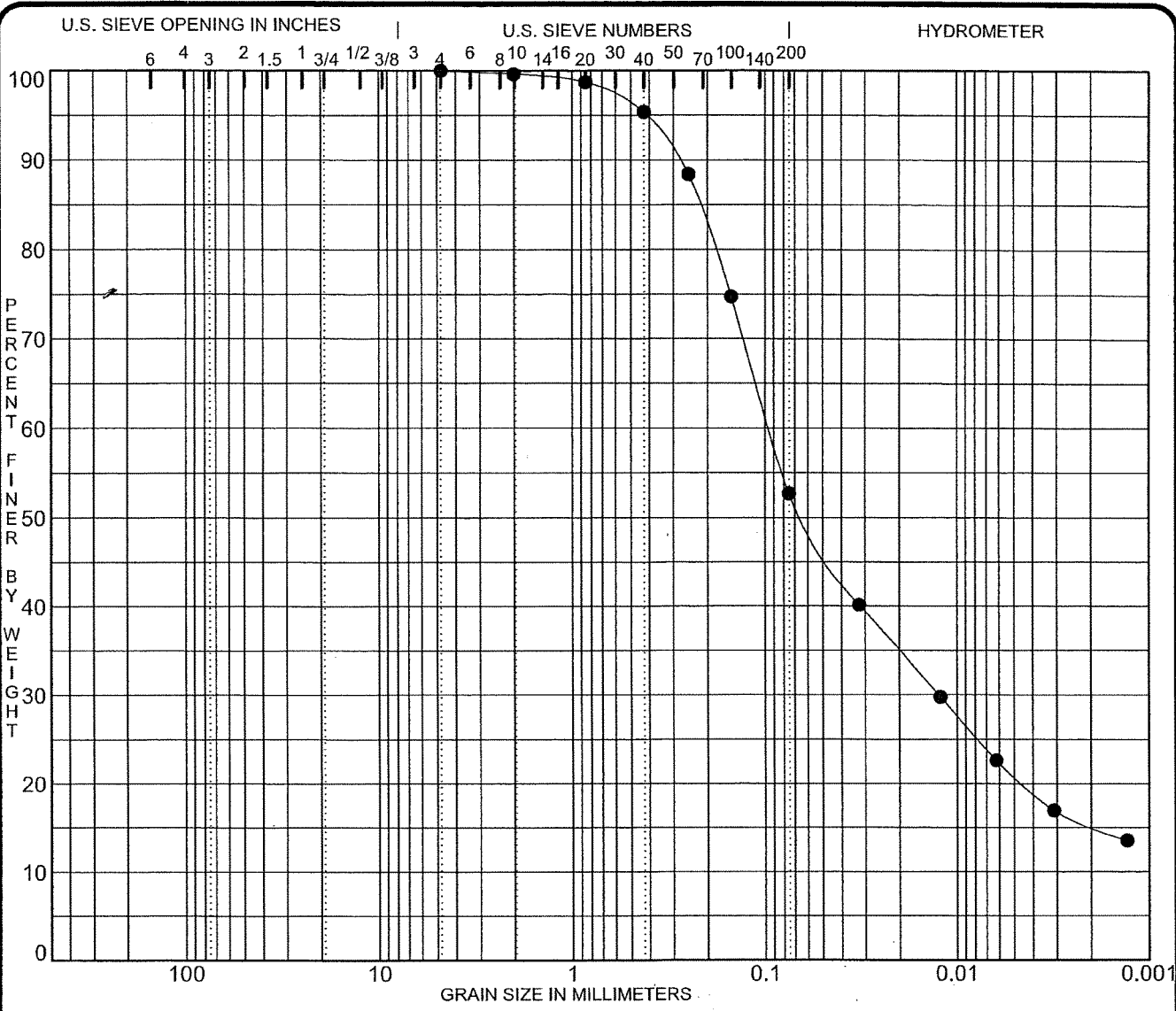
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-15A (3.5-5 ft)	2.00	0.08	0.015		0.0	42.6	41.7	15.8

PROJECT **Liddell Drive Equalization Project**  
**Fulton County, Georgia**

JOB NO. **71.3801**  
DATE **4/24/12**



**GRAIN SIZE DISTRIBUTION**



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Soil Description	MC%	LL	PL	PI	Cc	Cu
● B-16 (3.5-5 ft)	Brown fine sandy SILT (micaceous) (ML)	49.4	49	32	17		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-16 (3.5-5 ft)	4.75	0.09	0.012		0.0	47.3	37.5	15.2

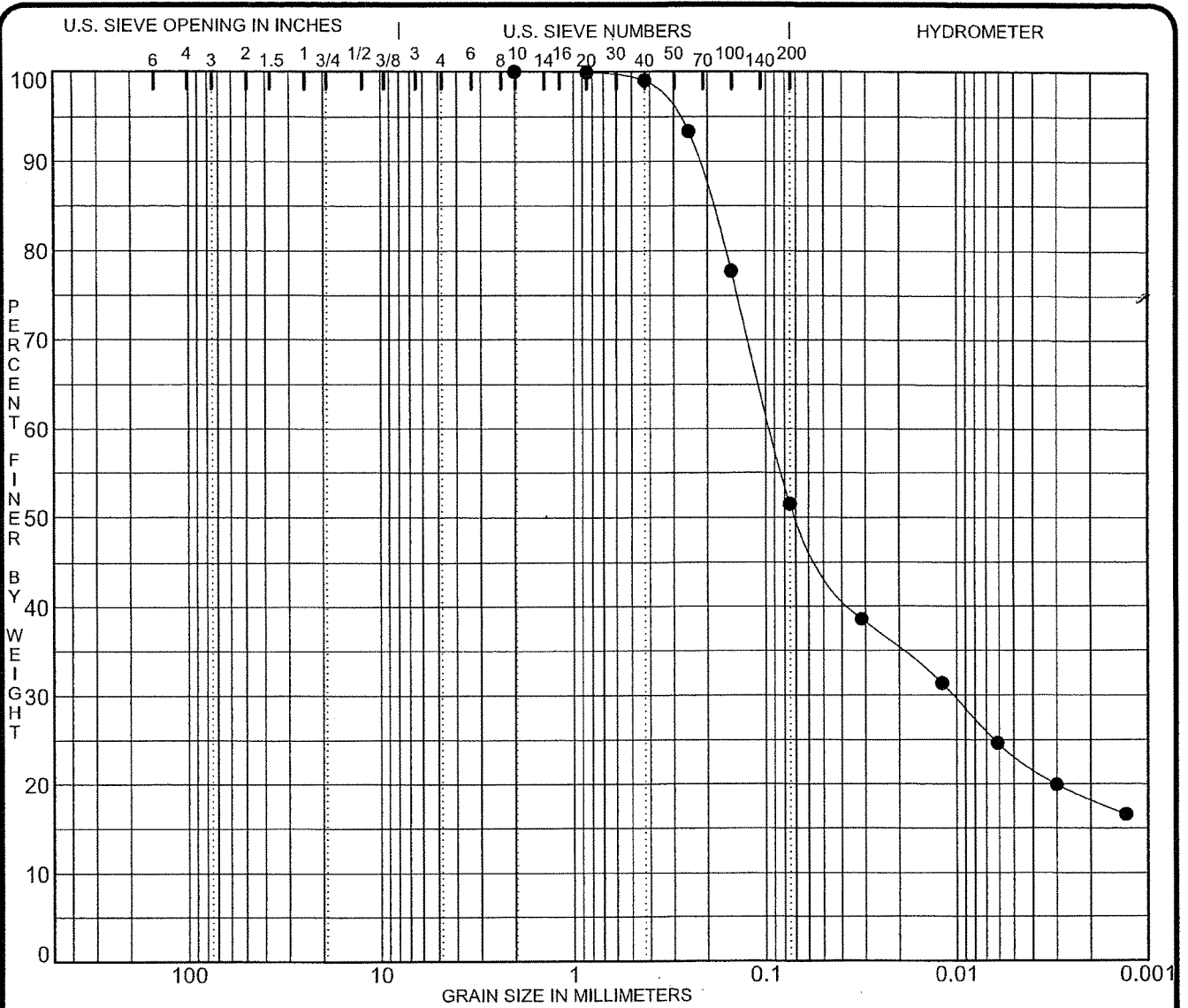
PROJECT **Liddell Drive Equalization Project**  
**Fulton County, Georgia**

JOB NO. **71.3801**  
 DATE **4/24/12**



**GRAIN SIZE DISTRIBUTION**





COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Soil Description	MC%	LL	PL	PI	Cc	Cu
● B-17 (8.5-10 ft)	Gray fine sandy lean CLAY (micaceous) (CL)	25.5	25	17	8		

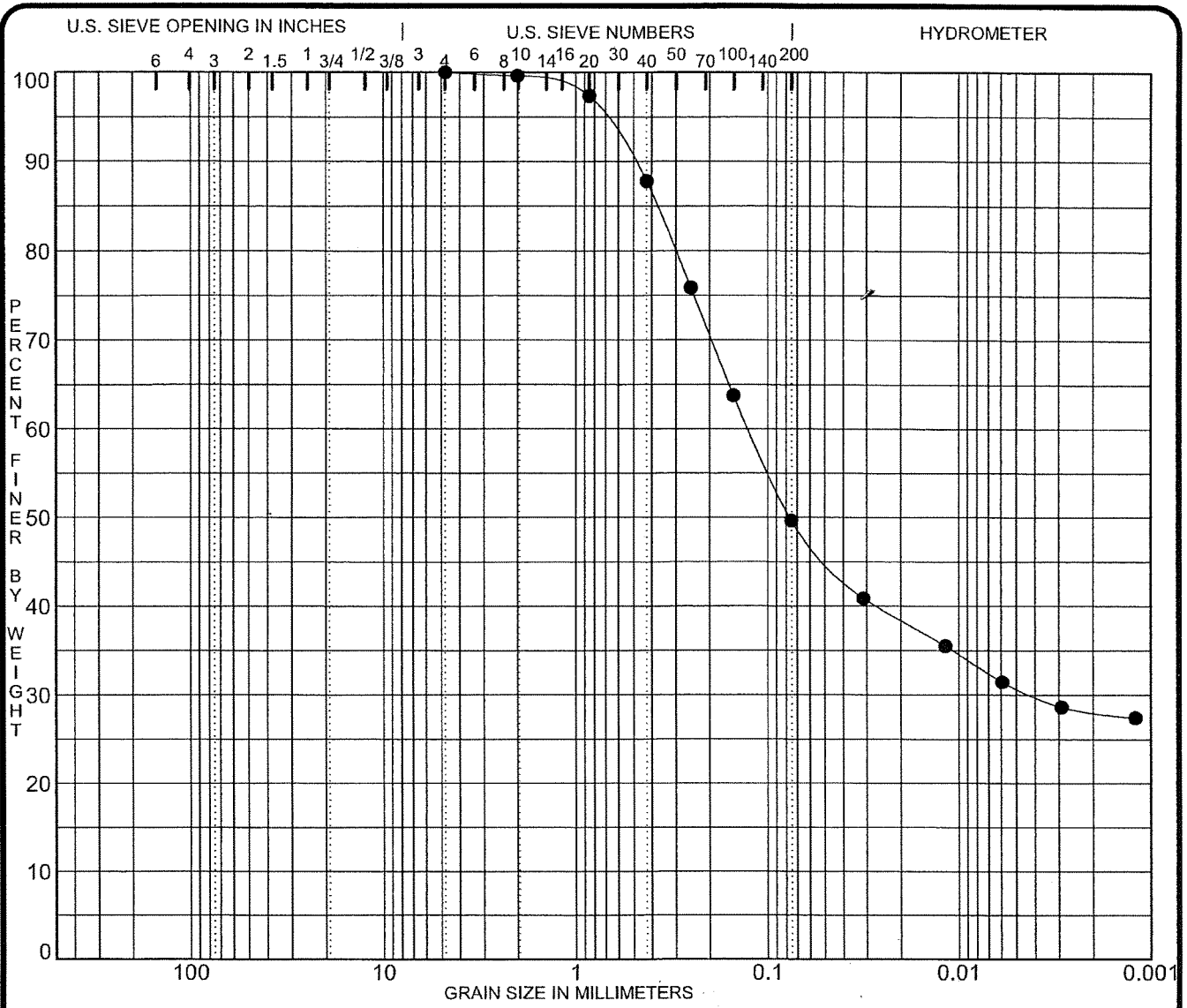
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-17 (8.5-10 ft)	2.00	0.09	0.010		0.0	48.5	33.2	18.3

PROJECT **Liddell Drive Equalization Project**  
**Fulton County, Georgia**

JOB NO. **71.3801**  
 DATE **4/24/12**



**GRAIN SIZE DISTRIBUTION**



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

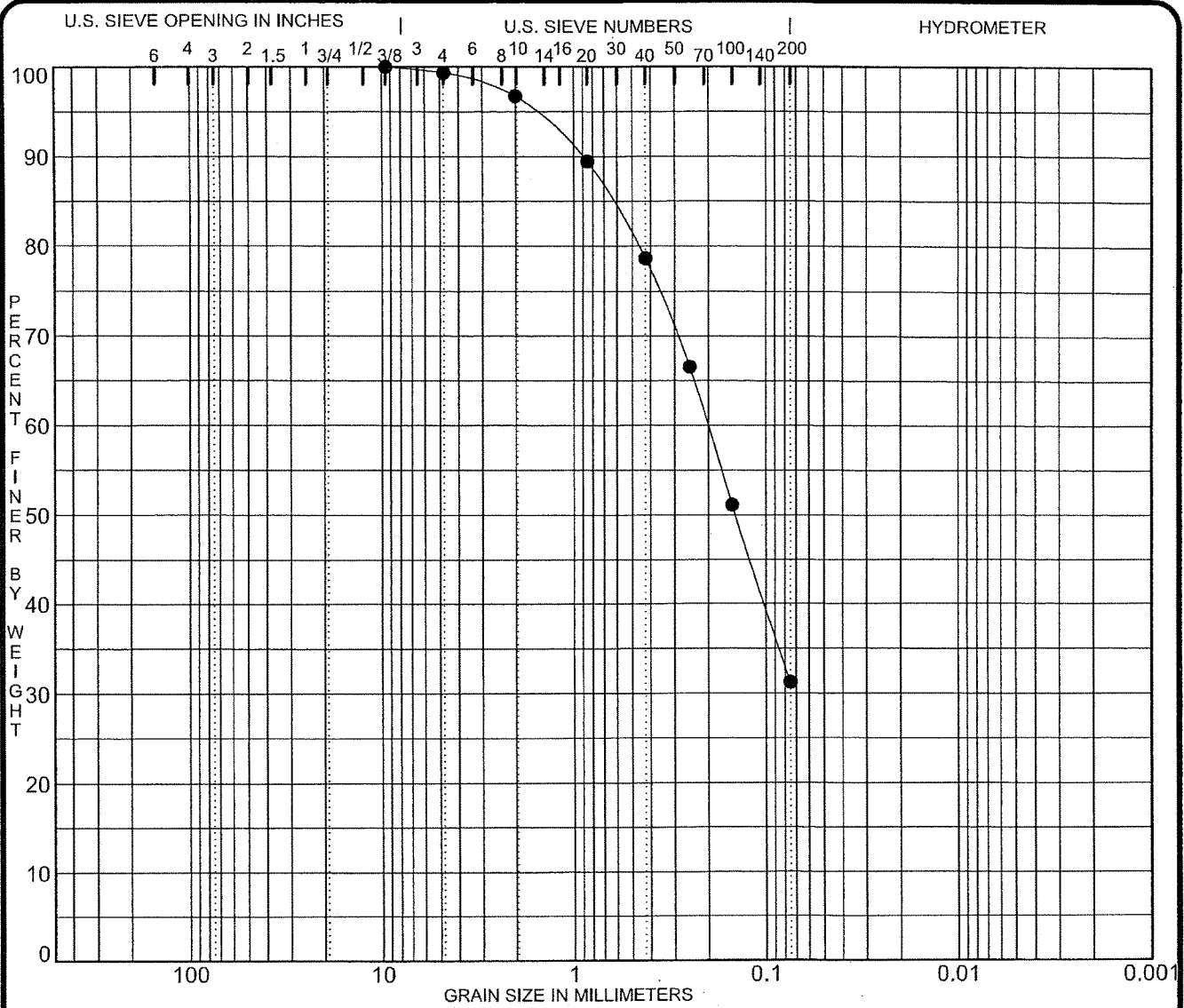
Specimen Identification	Soil Description	MC%	LL	PL	PI	Cc	Cu
● B-13B (13-15 ft)	Brown clayey medium to fine SAND (micaceous) (SC)	22.6	28	16	12		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-13B (13-15 ft)	4.75	0.12	0.004		0.0	50.3	21.5	28.1

PROJECT **Liddell Drive Equalization Project** JOB NO. **71.3801**  
**Fulton County, Georgia** DATE **4/24/12**



**GRAIN SIZE DISTRIBUTION**

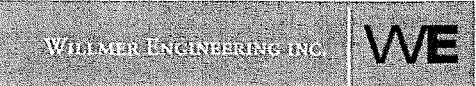


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Soil Description	MC%	LL	PL	PI	Cc	Cu
● B-4 (25-26.5 ft)	Brown silty medium to fine SAND (micaceous)	42.8					

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-4 (25-26.5 ft)	9.50	0.20			0.7	68.1		31.3

PROJECT Liddell Drive Equalization Project JOB NO. 71.3801  
Fulton County, Georgia DATE 4/24/12



**GRAIN SIZE DISTRIBUTION**



Job No. 71.3801 Date 3/8/12

Project Liddell Drive Equalization Project  
Fulton County, Georgia

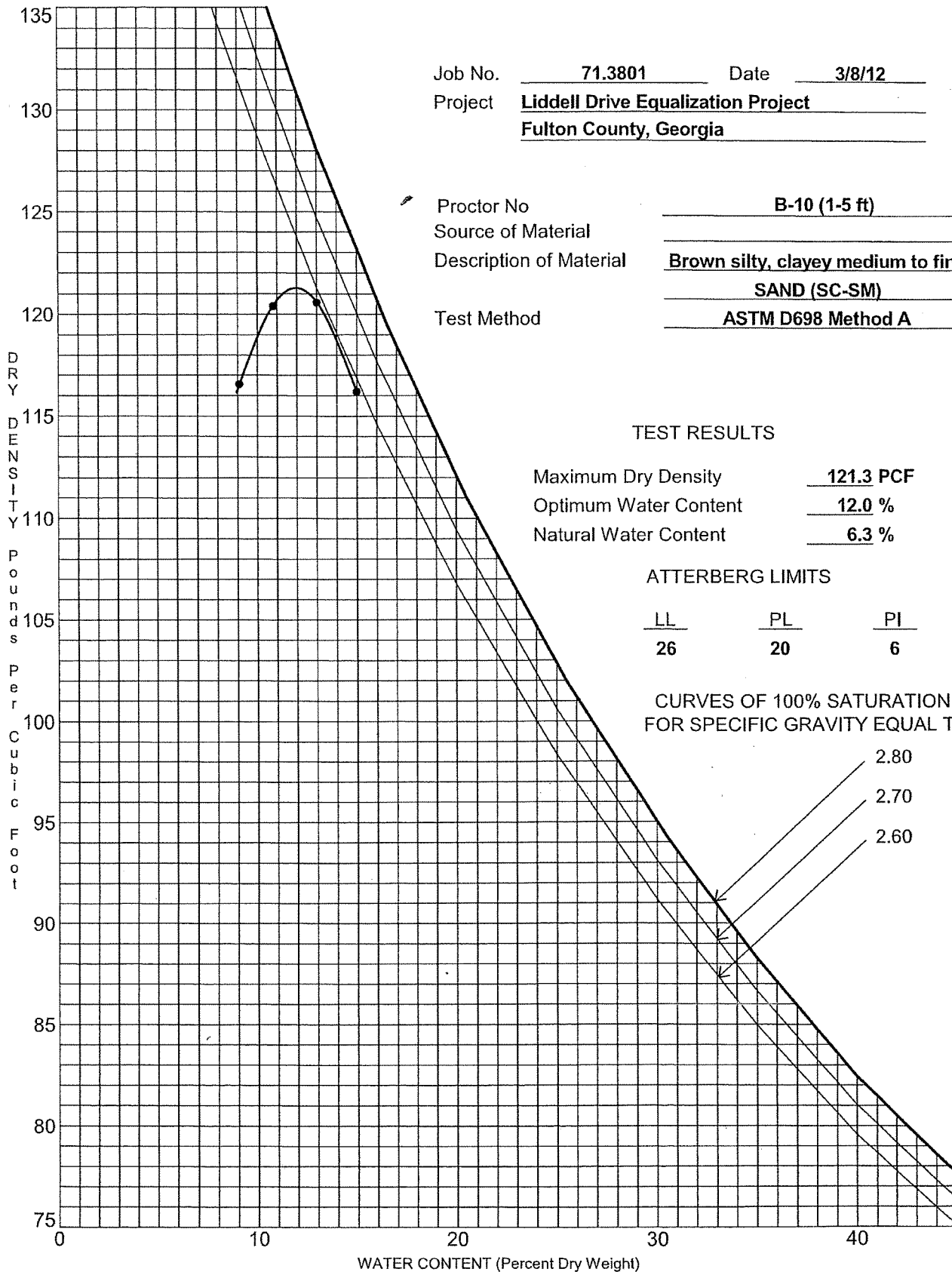
Proctor No B-10 (1-5 ft)

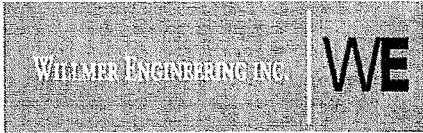
Source of Material \_\_\_\_\_

Description of Material Brown silty, clayey medium to fine

SAND (SC-SM)

Test Method ASTM D698 Method A



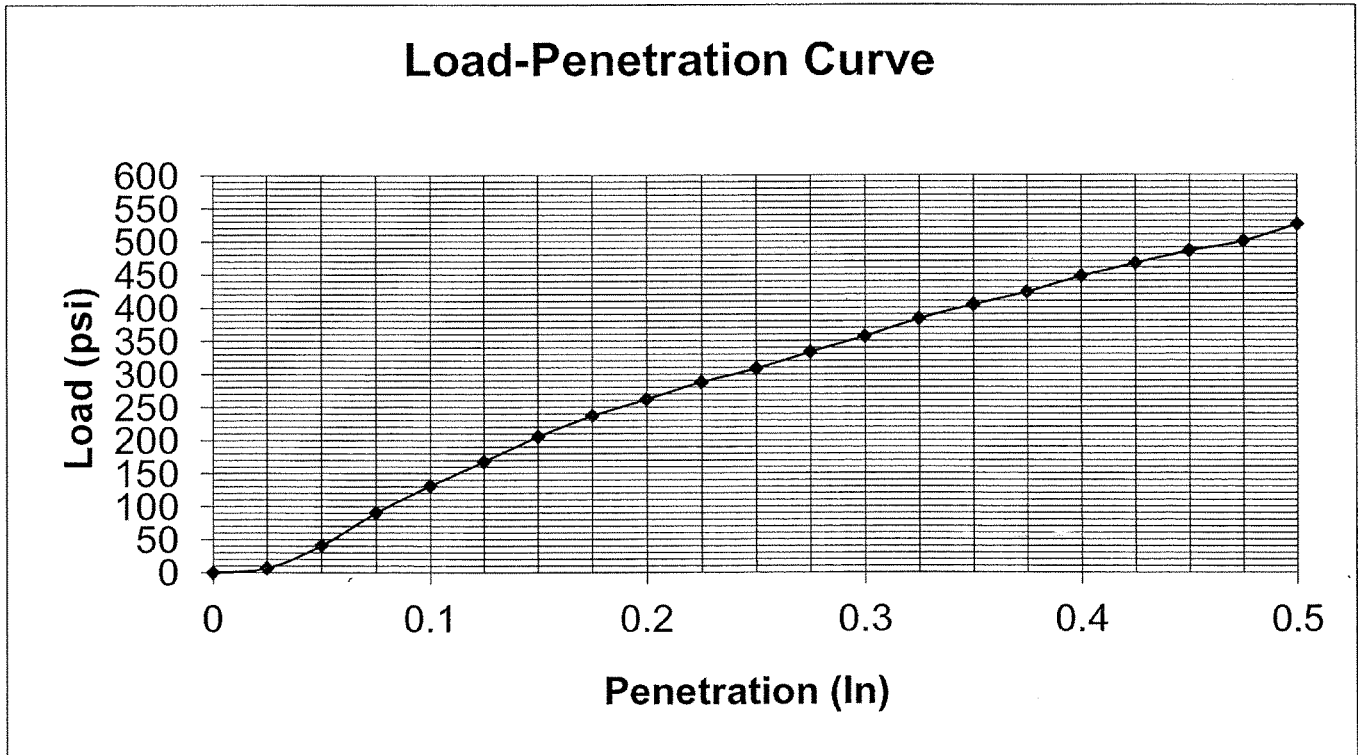


**California Bearing Ratio  
Test Report  
ASTM D1883-99**

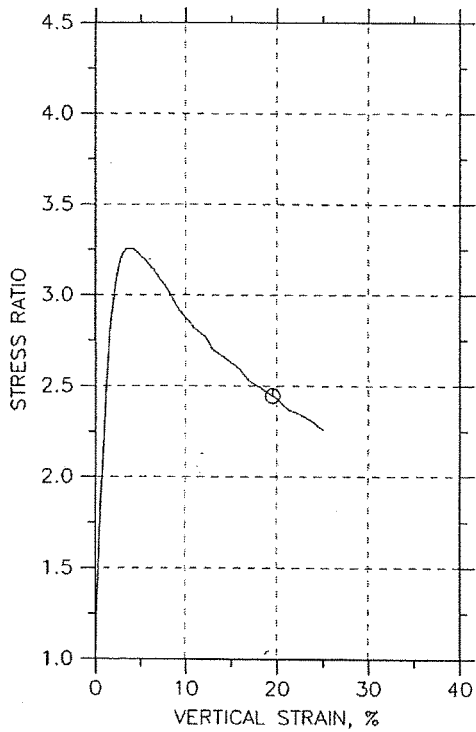
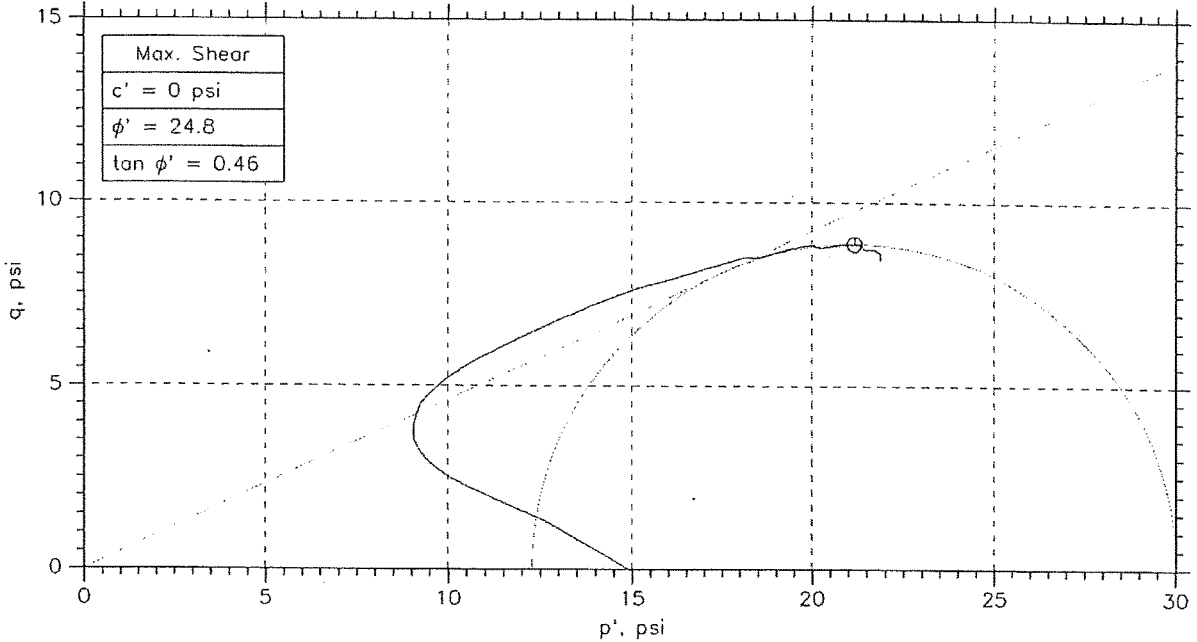
<b>Project</b>	Liddell Drive Equalization Project	<b>Project Number</b>	71.3801	<b>Date</b>	4/24/2012
<b>Lab Number</b>	6998	<b>SAMPLE NO.</b>	B-10	<b>Elevation/Depth</b>	1'-5'
<b>Proctor Procedure</b>	ASTM D698 Method A	<b>Maximum Dry Density (pcf)</b>	121.3	<b>Optimum Water Content (%)</b>	12.0
<b>Compacted Wet Density (pcf)</b>	135.8	<b>Compacted Dry Density (pcf)</b>	121.4	<b>Soaked Dry Density (pcf)</b>	122.5
<b>Soil Description</b>	Brown silty, clayey medium to fine SAND (SC-SM)	<b>Compacted Water Content (%)</b>		<b>Soaked Water Content (%)</b>	
		<b>Before Compaction</b>	11.94	<b>Top 1"</b>	14.63
		<b>After Compaction</b>	11.94	<b>Average</b>	13.84
<b>CBR Condition</b>	Soaked	<b>Surcharge Weight</b>	25 Lbs	<b>Swell (in.)</b>	0.004
<b>Index Properties</b>	<b>Percent Fines</b>	40.8	<b>G<sub>s</sub></b>	N/A	<b>Reviewed</b> DP
	<b>LL</b>	26	<b>PI</b>	6	

<b>CBR Value</b>	(.1) 16.7, (.2) 19.1
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COMPACTION		
	Required	Achieved
Dry Density	100%	100%
Moisture	opt	opt



## CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



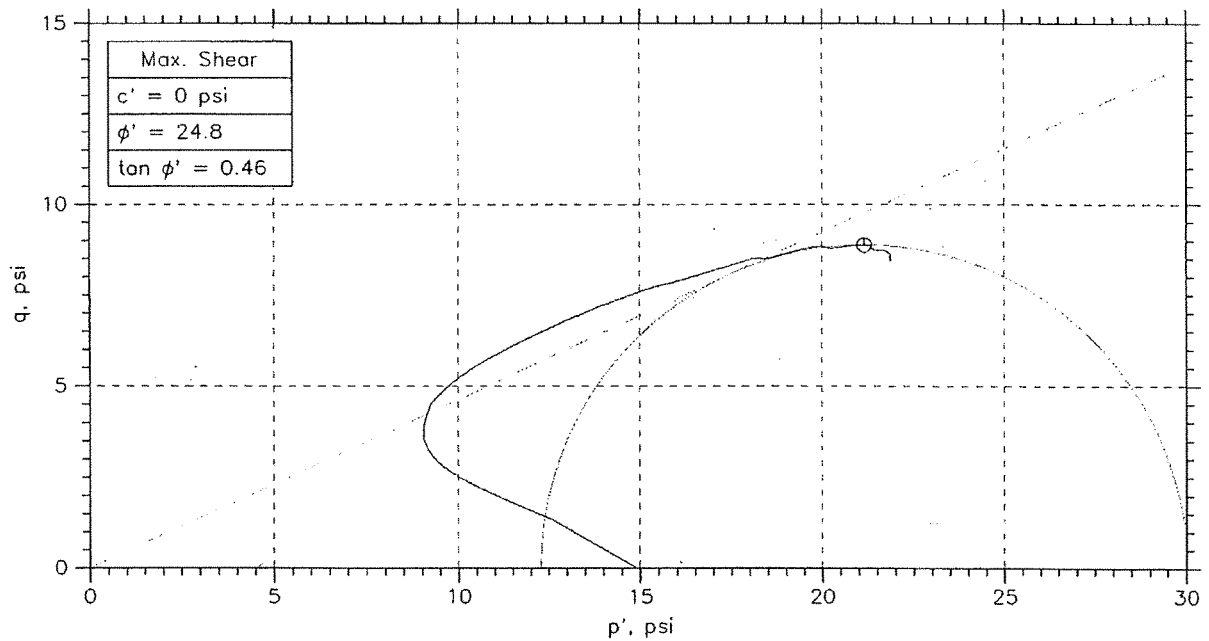
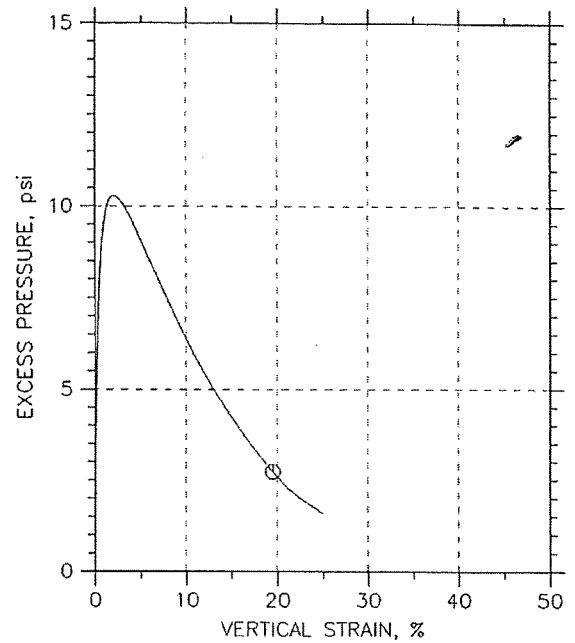
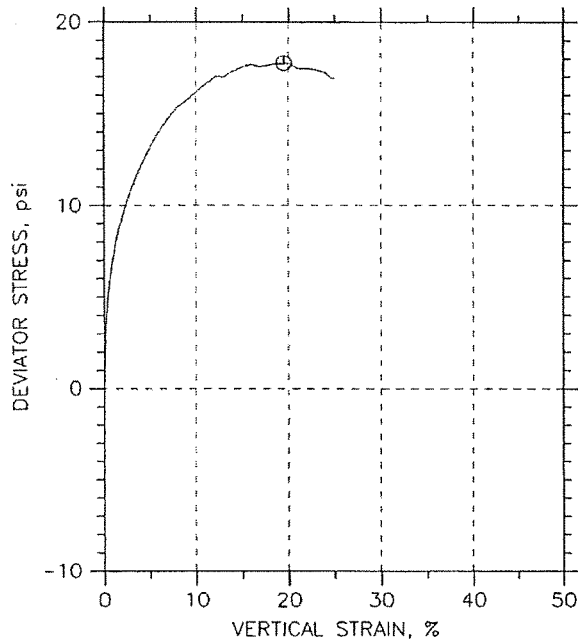
Symbol	⊙			
Sample No.	B-4			
Test No.	7036			
Depth	25'-26.5'			
Initial	Diameter, in	2.827		
	Height, in	5.101		
	Water Content, %	42.8		
	Dry Density, pcf	79.5		
	Saturation, %	104.9		
Before Shear	Water Content, %	40.9		
	Dry Density, pcf	79.44		
	Saturation*, %	100.0		
	Void Ratio	1.08		
Back Press., psi	76.			
Ver. Eff. Cons. Stress, psi	14.93			
Shear Strength, psi	8.874			
Strain at Failure, %	19.5			
Strain Rate, %/min	0.08			
B-Value	0.95			
Estimated Specific Gravity	2.65			
Liquid Limit	---			
Plastic Limit	---			

<b>WE</b>	Project: Liddell Drive Equalization				
	Location: Fulton County, Georgia				
	Project No.: 71.3801				
	Boring No.: B-4				
	Sample Type: Shelby Tube				
	Description: Brown silty fine SAND (micaceous)				
	Remarks: ASTM D4767				

Phase calculations based on start and end of test.

\* Saturation is set to 100% for phase calculations.

# CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Project: Liddell Drive Equalization	Location: Fulton County, Georgia	Project No.: 71.3801
Boring No.: B-4	Tested By: K.Shah	Checked By: DP
Sample No.: B-4	Test Date: 3-29-2012	Depth: 25'-26.5'
Test No.: 7036	Sample Type: Shelby Tube	Elevation: 810.5'-812'
Description: Brown silty fine SAND (micaceous)		
Remarks: ASTM D4767		



October 30, 2012

VIA E-MAIL

Atlanta Services Group  
c/o Don Fry, PE  
Engineering Design Technologies, Inc.  
1705 Enterprise Way  
Suite 200  
Marietta, GA 30067

**SUBJECT: Addendum No. 1**  
**Subsurface Exploration and Geotechnical Engineering Evaluation**  
**Liddell Drive Equalization Project**  
Atlanta, Fulton County, Georgia  
Willmer Project No. 71.3801

Dear Mr. Fry:

Willmer Engineering Inc. (Willmer) is pleased to provide this Addendum No. 1 to our revised report of subsurface exploration and geotechnical engineering evaluation (dated October 9, 2012) for the proposed Liddell Drive Equalization Project in Atlanta, Georgia. This addendum includes the following items: (i) recommendations for retaining wall design parameters, (ii) recommendations for undercut and replacement of soils for retaining wall footing, (iii) estimated settlement along the retaining wall, and (iv) pavement recommendations. This addendum is not a stand-alone document; it should be read in conjunction with our revised report for this project dated October 9, 2012.

## RETAINING WALLS

No borings were performed specifically for Retaining Walls A or B. Borings B-25, B-26, B-27, B-28, and B-39 were drilled from 10 feet to 150 feet away from the proposed retaining walls. Based on subsurface conditions at these boring, we recommend the following:

### Retaining Wall Design Parameters

Based on wall profiles, borrow fill soils will likely be used to backfill between Walls A and B. The borrow source for the site has not been selected yet; therefore, strength properties of the fill to be retained by the walls is not known at this time. It is assumed the borrow material for fill soils will be silty sand. Once a borrow source is selected for this project, laboratory tests should be performed on the borrow material to confirm that the design parameters below are achievable. For silty sand fill soils compacted to at least 95 percent of the Standard Proctor (ASTM D 698) maximum dry density, the following soil design parameters may be used for retaining wall evaluation/design:

- |  |            |
|--|------------|
| • Friction Angle for Backfill                  | 30 degrees |
| • Cohesion Intercept                           | 0 psf      |
| • Active Earth Pressure Coefficient ( $K_a$ )  | 0.33       |
| • At-rest Pressure Coefficient ( $K_0$ )       | 0.5        |
| • Passive Earth Pressure Coefficient ( $K_p$ ) | 3*         |

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- |                                     |          |
|-------------------------------------|----------|
| • Unit Weight of Soil as Placed     | 125 pcf  |
| • Equivalent Active Fluid Pressure  | 42 pcf   |
| • Equivalent Passive Fluid Pressure | 375 pcf* |
| • Equivalent At-rest Fluid Pressure | 63 pcf   |
| • Coefficient of Sliding Friction   | 0.35*    |

\*In the design calculations, the resisting forces computed using the above recommended passive earth pressure coefficient, equivalent passive fluid pressure, and coefficient of sliding friction should be reduced using a safety factor of 1.5.

### **Undercut and Replacement for Retaining Walls**

For Wall A (Station 0+90± to 3+00±) and Wall B (Station 1+75± to end of wall), soft alluvial soils are likely to be encountered below the wall footing. We recommend that the soft alluvial soils below the wall footings be undercut and replaced with engineered fill or compacted graded aggregate base (GAB). Based on Boring B-26 the amount of undercut is expected to be 8± feet. The depth of undercut will vary along the wall alignments. All subsurface soils should be inspected by the project geotechnical engineer to confirm suitable bearing conditions. As recommended in the 'Site and Subgrade Preparation' and 'Engineered Fill' sections of the revised report dated October 9, 2012 report, all fill soils used should be compacted to at least 95 percent of the Standard Proctor maximum dry density. The compaction moisture content should be maintained at Standard Proctor optimum moisture content plus or minus 3 percent. If GAB is used, the GAB should be compacted to 100 percent of the Standard Proctor maximum dry density. It should also be noted that at the time of boring, groundwater was encountered at elevations within 1 foot of the bottom of the wall footing. Hence, dewatering will be required to complete the excavation and backfilling.

### **Settlement of Retaining Walls**

Based on the elevations at the boring locations, wall footings will likely bear in residual soils or in soft alluvial soils. As indicated in the Undercut and Replacement section above, soft alluvial soils below the wall footings should be undercut and replaced with engineered fill or compacted GAB. An allowable bearing pressure of 3,000 psf is recommended for use in the design of retaining wall footings. The width of the spread footings will vary with the height of the wall. For the maximum footing width of 13.9 feet, the settlement under a bearing pressure of 3000 psf is estimated to be less than 1 inch.

### **PAVEMENT DESIGN**

We understand that a pavement section consisting of 3.5 inches of asphaltic concrete underlain by 6 inches of GAB has been proposed by Atlanta Services Group (ASG). The design of a flexible pavement section is based on traffic information provided to us by ASG, and an estimated Soil Support Value of 2.0, for Fulton County, used for the subbase material. The fill soils are assumed to be silty sand and laboratory tests should be performed on the fill material to confirm that the Soil Support Value used in design is achievable. The anticipated traffic volume is approximately two passenger vehicles per week and a loaded single unit truck twice

year design life. Based on the traffic volume provided, a pavement section of 3.5 inches of asphaltic concrete underlain by 6 inches of GAB is adequate.

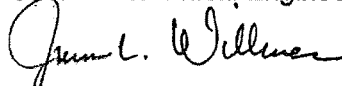
As recommended in the 'Site and Subgrade Preparation' and 'Engineered Fill' sections of the revised report dated October 9, 2012 report, all fill soils used for site grading should be compacted to at least 95 percent of the Standard Proctor maximum dry density, and under roadway/pavement areas, we recommend that the final 12-inches below the pavement be compacted to 98% of the Standard Proctor maximum dry density (ASTM D698). The compaction moisture content should be maintained at Standard Proctor optimum moisture content plus or minus 3 percent. The GAB should be compacted to 100 percent of the Standard Proctor maximum dry density.


We greatly appreciate the opportunity to be of service to you on this project. Please contact us if you have any questions concerning this report or require further assistance.

Sincerely,

**WILLMER ENGINEERING INC.**

  
Daniel C. Pitts, EIT  
Staff Geotechnical Engineer

  
James L. Willmer, PE  
Executive Vice President/Principal Consultant

  
Sujit K. Bhowmik, PhD, PE  
Chief Engineer

The original of this document was signed and sealed by James L. Willmer, PE, Registration No. 10780 on October 30, 2012.

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# REPORT

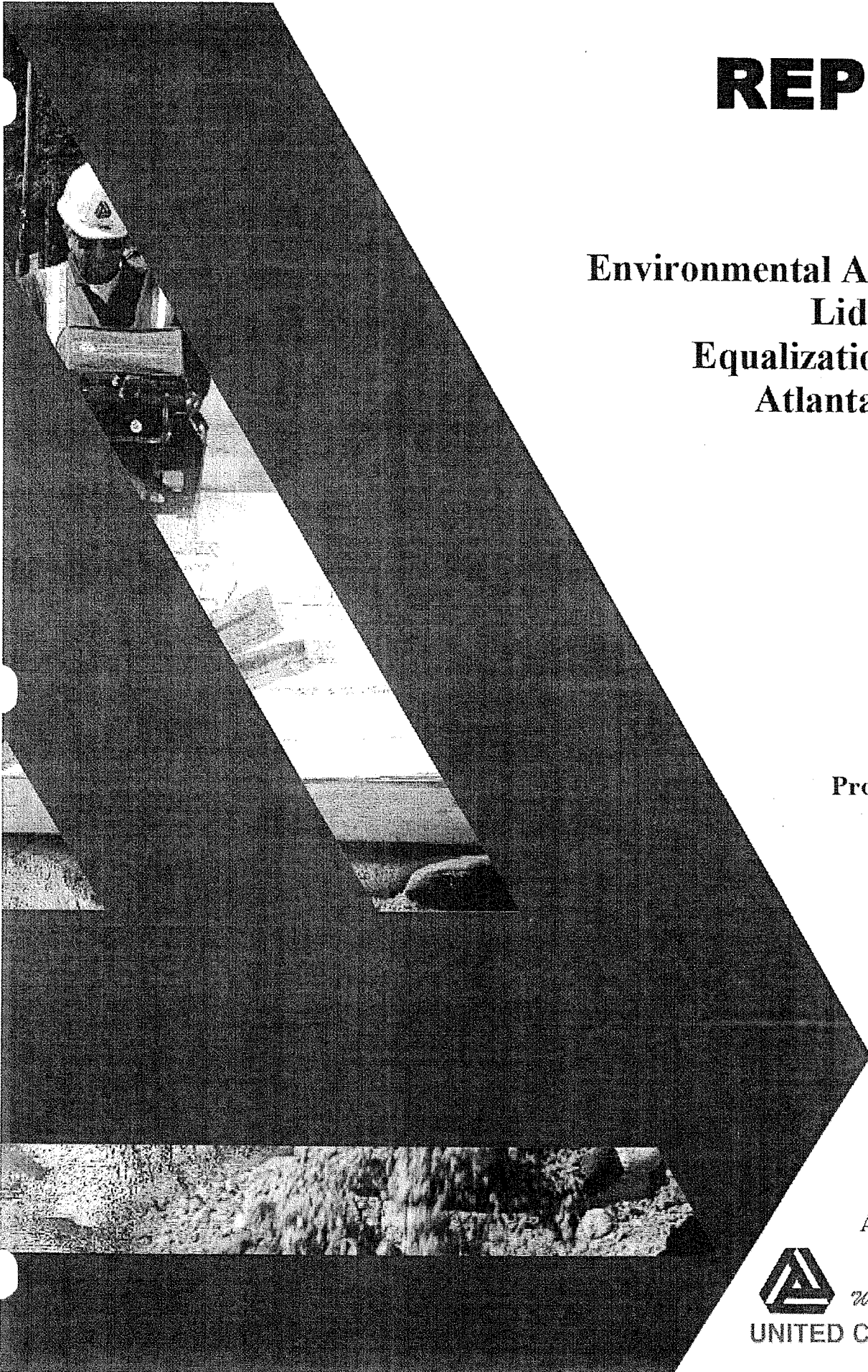
**Phase II  
Environmental Assessment  
Liddell Drive  
Equalization Project  
Atlanta, Georgia**

**Project Number  
2012.3532.01**

**August 31, 2012**



*We're here for you*  
**UNITED CONSULTING**





Liddell Drive Equalization Project  
2012.3532.01

August 31, 2012

Mr. Stephen Lathrop, P.E.  
**Atlanta Services Group-Jacobs**  
6801 Governors Lake Parkway  
Norcross, GA 30071

*Via e-mail: [Stephen.Lathrop@jacobs.com](mailto:Stephen.Lathrop@jacobs.com)*

RE: Report of Phase II Environmental Assessment  
**Liddell Drive Equalization Project**  
Atlanta, Georgia  
Project No. 2012.3532.01

Dear Mr. Lathrop:

United Consulting is pleased to submit this report of our Phase II Environmental Assessment for the above-referenced project. We appreciate the opportunity to assist you with this project and look forward to working with you again. Please contact us if you have any questions or if we can be of further assistance.

Sincerely,

**UNITED CONSULTING**

Russell C. Griebel, P.G., C.P.G.  
Associate Environmental Specialist

Scott D. Smelter  
Principal

BNB/RCG/SDS/tl

<http://ucblade10/sites/Geotechenv/7373/2012.3532.01/Environmental Documents/Phase II/2012.3532.01.ea2.doc>



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## EXECUTIVE SUMMARY<sup>1</sup>

United Consulting has completed a Phase II Environmental Assessment (Phase II) on the **Liddell Drive Equalization Project**, in Atlanta, Fulton County, Georgia. The area of this Phase II was limited to the direct areas of a planned equalization tank. There were two areas assessed, Areas A and B, with B being the latest location for the planned tank. This is hereafter referred to in this report as the Project Site. The location and layout of the Project Site is shown on Figures 1 and 2, respectively. The results from this investigation are briefly summarized below. The text of the report should be reviewed for a discussion of these items.

1. Four test pits<sup>2</sup>, designated TP-1 thru TP-4, were excavated on the Project Site in Area A to facilitate soil sampling. One existing groundwater piezometer, designated B-8, was developed/purged and a groundwater sample obtained. Four test pits, designated T-5 thru T-8, were excavated on the Project Site in Area B.
2. The groundwater sample was tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and RCRA metals (total and dissolved metals). Analytical testing did not show the presence of VOC or SVOC constituents above the laboratory detection limits. A low concentration of barium was detected in the sample, which in United Consulting's opinion, is consistent with typical naturally occurring groundwater concentrations.
3. Sixteen soil samples were collected for analytical testing of VOCs, SVOCs, total petroleum hydrocarbons (TPH) diesel and gasoline range (DRO/GRO), lead, and/or RCRA metals. Analytical testing did not show VOC or SVOC constituents above the laboratory detection limits in the soil samples collected from Area A. Generally, low concentrations of TPH were detected in some samples in Area B, in the area of a previous underground storage tank (UST). RCRA metals were detected in the samples. The concentrations of lead in six samples and barium and silver in one sample were at concentrations above its Response and Remediation Program (RRP) Notification Concentration (NC). The lead exceedence were in both Areas A and B. The barium and silver exceedence were in Area B.
4. The lead, barium, and silver detections above their NCs require reporting to the RRP within 30 days of the Project Site owner's knowledge of the release. As contracted, United Consulting is in the process of drafting this required notification document.
5. To assist with disposal characterization, TCLP analysis was performed. Those results indicate that, depending on specific landfill requirements, these tested soils should be acceptable for disposal in a Subtitle D landfill.

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1 This Executive Summary is not intended to be used or relied upon without reference to the entire report and cannot otherwise be properly understood and interpreted. It is provided solely for the convenience of the Client and not as a substitute for the report or review of the report.

2 Test pits have been excavated for this assessment, these are designated either "TP" or "T" throughout this report and are interchangeable designations.

## PURPOSE

United Consulting was retained by **Atlanta Services Group** to perform a Phase II Environmental Assessment of the Project Site. The purpose of this assessment was to assess for impacts to the soil and groundwater in the area of the planned equalization tank, and to confirm or refute previous data collected in this area. Two potential tank locations were assessed, labeled as Areas A and B, with B being the latest planned location of the tank.

## SCOPE OF WORK

The scope of this assessment included the following items as outlined in our July 20, 2012 proposal, which was authorized on via a Task Order (No. 4906004-1) dated July 23, 2012.

1. Advancing five test pits at the Project Site to facilitate the collection of soil samples;
2. Collecting soil samples at various intervals below the existing ground surface from the test pits, and screening the soil samples for organic vapors with a MultiRAE multigas meter;
3. Collecting and submitting two soil samples from each test pit for various analytical testing including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and RCRA metals using EPA testing methods;
4. Collecting and submitting a soil sample for VOCs, SVOC, and RCRA metals analysis via the Toxicity Characteristic Leaching Procedure (TCLP);
5. Collecting and submitting a groundwater sample from an existing piezometer for analytical testing of VOCs, SVOCs, and RCRA metals;
6. Collecting quality control (QC) samples for various laboratory analysis including VOCs, SVOCs, and RCRA metals by EPA methods;
7. Preparing this report to document the results of the subsurface investigation, analytical test results, and to provide United Consulting's professional opinion of the environmental condition of the Project Site.

Due to utilities in the area of one of the planed test pits, only four test pits were conducted.

The above scope was amended to including the following in a revised proposal dated August 10, 2012. This was authorized with via email August 14, 2012.

1. Advancing four test pits at the Project Site to facilitate the collection of soil samples;
2. Collecting soil samples at various intervals below the existing ground surface from the test pits, and screening the soil samples for organic vapors with a MultiRAE multigas meter;
3. Collecting and submitting two soil samples from each test pit for various analytical testing including total petroleum hydrocarbons (TPH) – diesel and gasoline range (TPH-DRO and TPH-GRO), total lead, RCRA metals, and RCRA metals and lead via the Toxicity Characteristic Leaching Procedure (TCLP) using EPA testing methods;
4. Collecting and submitting a composite soil sample for polychlorinated biphenols (PCBs) via the TCLP, and;
5. Collecting quality control (QC) samples for various laboratory analysis including VOCs, PCBs, and RCRA metals by EPA methods.

## BACKGROUND

From previously collected geotechnical data by others, there is up to about 15 feet of fill materials in the two areas of the planned equalization tank. Some of these materials had been documented as being black in color with some “coal like” materials. From a previous Phase I Environmental Assessment, there is a former lead smelting facility near the site, the former Metalico-Evans facility. Also, individuals had verbally indicated that the EPA has conducted lead sampling in the community, possibly associated with this facility. The presence of these collective conditions raised concerns relative to the fill in the area of this tank possibly containing elevated concentrations of regulated constituents. Multiple groundwater piezometers were installed as part of previous geotechnical explorations. The purpose of this assessment was to assess for impacts to the soil and groundwater in the areas of the planned equalization tank, and to confirm or refute previous data collected in this area.

## INVESTIGATION

### Overview

The investigation included advancing four test pits (TP-1 through TP-4) in Area A and four test pits (T-5 through T-8) in Area B on the Project Site. This was to facilitate soil sampling. The test pit locations were identified with Jacobs based on the distribution of previous geotechnical borings in the area. One of the originally planned test pits could not be performed due to the presence of utilities. Existing groundwater piezometer B-8 was developed/purged and sampled.

Soil and groundwater samples were collected for various analytical testing including VOCs, SVOCs, total petroleum hydrocarbons (TPH) – diesel and gasoline range (TPH-DRO and TPH-GRO), and/or RCRA metals. A soil sample was also tested for VOCs, SVOC, and RCRA metals analysis via the TCLP. A composite soil sample, generated from the three soil samples with the highest total lead concentrations, was tested for RCRA metals via the TCLP. One sample was also tested PCBs via the TCLP.

Decontamination was performed and Chain of Custody was maintained, as discussed in the Quality Control section of the report. Sampling at the site was conducted in general accordance with the United States Environmental Protection Agency's (EPA's), current Field Branches Quality System and Technical Procedures (Updated January/February 2008; these procedures are on the internet at EPA's website: <http://www.epa.gov/Region4/sesd/fbqstp/>).

### **Test Pits**

Test pits TP-1 through TP-4 were excavated on the Project Site on July 25, 2012. Test pits T-5 through T-8 were excavated on the Project Site on August 20, 2012. Prior to excavating T-5 through T-8, the asphalt material were saw cut to minimize disturbance during excavation, and to cut through possible grounding wires for the existing radio tower (coordinated with tower owner during site meeting on August 8). The test pits were excavated using a John Deere 310 backhoe with an approximate maximum excavation extent of 10 feet below the ground surface. The test pits were logged and photographed as the excavations progressed. Following the sampling process, all test pits were backfilled with the excavated materials and subsequently capped with asphalt. These were backfilled in small lifts and packed as possible with the backhoe bucket to grade. Photographs of the conditions encountered in each test pit are included in Appendix C.

### **Soil Sampling**

Soils were observed throughout the excavations. Soil samples were collected from the test pits directly from the backhoe bucket. The soils were inspected and visually classified using the visual-manual procedure. At approximately 2 to 4 foot intervals, the soil samples were screened for organic vapors with a MultiRAE gas meter to ascertain the presence of organic vapors in the soil, as described below. Separate portions of the soil samples were used for organic vapor screening and analytical testing, as required by the EPA.

### **Area A**

Generally, at Area A two grab soil samples were collected from each test pit for analytical testing. At each test pit, one soil sample was from the upper 1 foot to represent surficial samples. These were directly below the existing asphalt and associated base materials, with the actual depths varying based on material thickness and soils consistency for sampling. These surface samples were tested for RCRA metals. A second sample was from deeper depths, which ranged from 2.5 to 6 feet, and tested for VOCs, SVOCs, and RCRA metals. The deeper depth sample was selected based on the field conditions observed (i.e. black soils, "coal like" materials, staining, odors, OVM

response). A third sample was collected from TP-4 from a depth of 6 feet and tested for VOCs, SVOCs, and RCRA metals.

A composite soil sample was generated from black materials encountered in each of the four test pits and tested for RCRA metals via the TCLP. A grab VOC and SVOC sample for TCLP analysis was collected from TP-4 from a depth of 2 feet.

Following the receipt of the totals RCRA metals analytical results, a composite soil sample was generated by the laboratory from the three soil samples with the highest total lead concentrations (TP-1 from 2.5 feet, TP-2 from 1 foot, and TP-2 from 6 feet) and tested for RCRA metals via the TCLP.

## **Area B**

Generally, at Area B two grab soil samples were collected from each test pit for analytical testing. T-5 is reportedly in an area of a previous underground storage tank (UST) that was closed and issued a "no further action" letter by the Environmental Protection Division (EPD). A shallow and deep sample was obtained from this test pit, (depths were based on observed conditions) for analytical testing of TPH-DRO, TPH-GRO, total lead, and lead via the TCLP. A T-6 through T-8, one shallow soil sample was from the upper 2 feet, just below the existing asphalt and associated base materials, and tested for RCRA metals. A second sample was from a deeper depth and also tested for RCRA metals. This deeper depth sample was selected based on the field conditions observed (i.e. black soils, "coal like" materials, staining, odors, OVM response). Following the receipt of the analytical testing results, the sample with the greatest metals concentrations (i.e. the greatest lead concentration) was tested for RCRA metals via the TCLP.

A composite soil sample was generated from fill materials encountered in test pits T-5, T-7, and T-8 (designated C-1) and tested for PCBs metals via the TCLP.

The samples were placed in laboratory-supplied containers, packed on ice, and delivered to an independent analytical laboratory for rush or standard turn around analytical testing. The soil samples for VOC analytical testing were obtained by EPA sampling method 5035A.

## **Subsurface Conditions**

Test pits TP-1, TP-2, and TP-4 were advanced to maximum reach depths of about 8.5 to 10 feet. TP-3 was terminated at a depth of about 8 feet, where rock materials were encountered preventing deeper penetration. T-6 encountered an apparent solid slag mass that did not permit excavation deeper than 1.5 feet (soils were not present here for sampling). Fill materials were encountered throughout the entire excavation depths at the test pits. The fill materials encountered ranged from silts, sands, and clays with varying amounts of slag like materials, organics (including leaves, pine straw, branches, plywood, 2x4's), asphalt like materials, and rock. Groundwater was not encountered within the test pits. A more detailed description of the subsurface conditions encountered is provided on the test pit logs included in Appendix A.

### Soil Screening

Select soil samples recovered from the test pits were screened with a MultiRAE to ascertain the presence of organic vapors in the soil. The screening was done by placing each soil sample into a clean plastic bag, sealing it to allow for the collection of organic vapors, and placing the probe of the MultiRAE into the space between the tops of the bags ("headspace"). Measure background conditions at the Project Site were observed to vary at the site from non-detect to about 0.5 ppm. Screening indicated concentrations ranging from 0.4 to 23.4 parts per million (ppm).

At Area A, TP-1 through TP-4, screening indicated concentrations ranging from 0.9 to 11.3 parts per million (ppm). The sample with the greatest OVM result (11.3 ppm) was from TP-1 at a depth of about 10 feet. All other OVM reading varied between 0.9 and 2.4 ppm. These OVM readings are slightly elevated. The soils throughout the test pits had slight odors associated with them. The sample with the greatest OVM reading was comprised of mostly organic materials obtained from the test pit. A soil sample could not be obtained from this depth as there were not sufficient soil materials for sampling.

At Area B, T-5 through T-8, screening indicated concentrations ranging from 0.4 to 23.4 ppm. The test pit with the greatest OVM reading was T-5, where the reported UST was previously located. Petroleum odors were observed in this test pit. The sample with the greatest OVM result (23.4 ppm) was from T-5 at a depth of about 8 feet, where a sample was obtained and tested. The second sample from this test pit was from 2 feet where petroleum odor was evident.

Table 1 summarizes the results of the organic vapor screening. The results are also summarized on the logs in Appendix A.

**TABLE 1: SOIL SCREENING RESULTS**

Depth feet below surface	Test Pit Designation							
	TP-1	TP-2	TP-3	TP-4	T-5	T-6	T-7	T-8
1	1.5	2.2	2.4		14.9		5.1	0.4
2		2.3		2.4				
3	1.7		2.4					
4				2.2				
5		0.9			5.4		3.1	0.8
6	1.4		1.8	2.2				
8	1.8	1.1	1.2	2.3	23.4		2.9	1.3
10	11.3	0.9		2.1				

Notes:  
Results in parts per million (ppm).  
Blank cell means not screened.  
There were no soils encountered at T-6 for screening.  
Background air conditions were non-defect to about 0.5 ppm.

**Groundwater Sampling**

An existing groundwater piezometer, B-8, was sampled. From review of a geotechnical exploration report, this well was a 2 inch diameter well pipe equipped with a 5 foot section of screen. The well pipe was set at 25 feet. A sand pack was installed around the screen section, which was topped with an 8 inch Bentonite seal. We observed this well to be capped prior to our sampling activities. United Consulting developed/purged this well on July 24, 2012. Through this process, about 25 gallons of groundwater was removed from the well. The developed/purged water was placed in a labeled 55-gallon drum for later appropriate disposal. Following this process, with sufficient groundwater, the well was immediately sampled.

The groundwater sample was obtained using a new, disposable, Teflon lined bailer, connected to new dedicated cord. The groundwater sample were placed in appropriate, clean, laboratory supplied container, packed on ice, and delivered to an independent analytical laboratory for rush analytical testing. The groundwater sample collected was submitted for analytical testing of VOCs, SVOCs, and RCRA metals (total and dissolved metals). The groundwater sample was generally clear at the time of sampling.



## QUALITY CONTROL

### Procedures

Quality control procedures included cleaning, sampling and Chain-of-Custody maintenance. Additional quality control samples were obtained associated with the sampling and analysis procedures. Chain of Custody of the samples was maintained.

### Decontamination

New and dedicated equipment was used for the groundwater sample acquisition.

### QC Samples

Various QC samples were used during the sampling and analysis program. This included trip blank samples, three duplicate samples, and two field blank samples. The trip blanks were vials of high performance liquid chromatography (HPLC) water prepared in the laboratory. These samples were transferred with the containers and the soil and/or groundwater samples through the entire trip from the laboratory, to the field, and back to the laboratory. These samples were submitted for VOC analyses. The field blank samples included a SVOC and a PCB container filled with distilled water during the various field sampling processes and tested. The duplicates included a groundwater sample from B-8 for VOC analysis, and RCRA metals soil samples from TP-4 from a depth of about 2.5 feet and from T-7 from a depth of about 8 feet. This was to identify potential external impacts to the soil and/or groundwater samples associated with the laboratory environment and the environment during transport.

### Chain-of-Custody

Chain of Custody was used to maintain control of the samples and the associated containers and tests. Chain of custody forms were developed in the laboratory with the sample containers and custody was passed from individual to individual to maintain control of the materials. As the custody of the samples passed from individuals, this was documented on the Chain of Custody forms. Chain-of-Custody was maintained and documented. The chain of custody forms are reproduced in Appendix B.

## ANALYTICAL TEST RESULTS

### Quality Control Analytical Testing

Three trip blank samples (labeled Trip Blank on laboratory data sheets, one for each analytical report) were used during the drilling, sampling, and sample transportation process for quality

control (QC) assessment. These QC samples were submitted for analytical testing of VOCs by EPA testing method 8260B. No VOC constituents were detected in the trip blank sample.

A duplicate groundwater sample was obtained and tested from B-8 (labeled LD-A on laboratory data sheets) for VOC analysis by EPA testing method 8260B. No VOC constituents were detected in this sample, which was consistent with the other groundwater sample collected at the same time.

A duplicate soil sample was obtained and tested for RCRA metals from TP-4 from a depth of about 2.5 feet (labeled Duplicate on laboratory data sheets) and from T-7 from a depth of about 8 feet (labeled T-7-8A on laboratory data sheets). These were tested by EPA method 6010C. Mercury analysis was by EPA method 7470A. Analytical testing showed the presence of similar concentrations to the original sample from those samples.

The field blank samples included an SVOC container (labeled Field Blank on laboratory data sheets) and a PCB container (labeled B-1 on laboratory data sheets) filled with distilled water during the field sampling processes and tested. SVOC analysis was by EPA method 8270D and PCBs by method 8082A. No SVOC or PCB constituents were detected in the samples.

Based on these results, evidence of potential cross-contamination or laboratory artifacts for the soil/groundwater samples was not present, which provides support for the validity of the analytical testing results for the Project Site. A copy of the laboratory analytical testing data is included in Appendix B.

### **Soil Analytical Testing**

#### **Area A**

Two soil samples were collected for each test pit for analytical testing, except at TP-4 where three samples were collected. The near surface sample at each test pit was tested for RCRA metals by EPA method 6010C. Mercury analysis was by EPA method 7470A. The near surface samples at TP-1 through TP-4 were from depths of about 1 foot. The deeper soil samples were tested for VOCs, SVOCs, and RCRA metals using EPA testing methods 8260B, 8270D, and 6010C, respectively. Mercury analysis was via EPA method 7470A. The deeper samples at TP-1 through TP-4 were from depths of about 2.5, 6, 3, and 2.5 feet, respectively. The third sample from TP-4 was from a depth of about 6 feet. There was some apparent matrix interference in some samples at the site, which resulted in elevated detection limits in those samples. See the case narratives with the analytical testing results in Appendix B. The cause for such is unknown.

No VOC or SVOC constituents were detected above the laboratory detection limits in the soil samples collected from the Project Site.

Barium, chromium, and lead were detected in all the samples. Arsenic was detected in one sample, and mercury was detected in two samples. The concentrations of lead in three samples were at concentrations above their respective Response and Remediation Program (RRP)

Notification Concentrations (NCs). This included the concentrations at TP-1 from a depth of about 2.5 feet and from TP-2 from depths of about 1 and 6 feet. No other concentrations were above their NCs. Analytical testing results are summarized in Table 2.

A composite soil sample (labeled TP1 to TP4 on the laboratory data sheets) was generated from black materials encountered in each of the four test pits and tested for RCRA metals via the TCLP. These composite materials were from depths from about 1 to 2 feet, and included the depths with some of the elevated lead detections. This was by EPA methods 6010C/7470A. Barium was detected at a concentration of 0.941 milligrams per liter (mg/L). Following receipt of the initial testing results, a composite soil sample was generated by the laboratory from the three soil samples with the highest total lead concentrations (TP-1 from 2.5 feet, TP-2 from 1 foot, and TP-2 from 6 feet) and tested for RCRA metals via the TCLP. Barium was detected at a concentration of 1.67 mg/L and lead was detected at a concentration of 1.7 mg/L. These are below the RCRA levels for maximum concentration of contaminants for toxicity characteristic of 100 mg/L for barium and 5 mg/L for lead. A grab VOC and SVOC sample for TCLP analysis was collected from TP-4 from a depth of about 2 feet. This was by EPA testing methods 8260B and 8270D, respectively. No VOC or SVOC constituents were detected above the laboratory detection limits.

#### Area B

Two grab soil samples were collected from each test pit for analytical testing. At T-5 a shallow (about 2 feet) and deep sample (about 8 feet) was obtained for analytical testing of TPH-DRO, TPH-GRO, total lead, and lead via the TCLP. These analyses were by EPA methods 8015C, 8015C, 6010C, and SW1311/6010C, respectively. At T-6 there were no soils for sampling, a solid apparent slag mass was encountered. At T-7 and T-8, one shallow soil sample (about 2 feet) and a deep sample (about 8 feet) was obtained for analytical testing of RCRA metals by EPA method 6010C. Mercury analysis was by EPA method 7471B. Following the receipt of the initial analytical testing results, sample T-8 from about 8 feet, which had the greatest barium, lead, and silver concentrations was tested for RCRA metals via the TCLP. This was by EPA methods SW1311/6010C/7470A. A composite soil sample (designated C-1) was generated from fill materials encountered in each of the three test pits and tested for PCBs metals via the TCLP. This was by EPA method 8082A.

Low concentrations of TPH DRO/GRO and lead were detected in some of the samples from T-5. Barium, chromium, and lead were detected in all the samples from T-7 and T-8. Cadmium, mercury, and silver were detected in three samples. The concentrations of lead in three samples, barium in one sample, and silver in one sample were at concentrations above their respective RRP NCs. This included the concentrations at T-7 from depths of about 2 and 8 feet and from T-8 from a depth of about 8 feet. No other concentrations were above their NCs. Analytical testing results are summarized in Table 2.

Two grab lead samples for TCLP analysis were collected from T-5 from depths of about 2 and 8 feet. Lead was detected in the shallow sample at a concentration of 0.0612 per liter (mg/L), but not in the deeper sample. This lead detection is below the RCRA level for maximum concentration of contaminants for toxicity characteristic of 5 mg/L for lead. Following the receipt of the initial

analytical testing results, sample T-8 from about 8 feet, which had the greatest barium, lead, and silver concentrations was tested for RCRA metals via the TCLP. Barium was detected at a concentration of 1.4 mg/L and lead was detected at a concentration of 0.266 mg/L. These are below the RCRA levels for maximum concentration of contaminants for toxicity characteristic of 100 mg/L for barium and 5 mg/L for lead. A composite soil sample (designated C-1) was generated from fill materials encountered in each of the three test pits and tested for PCBs metals via the TCLP. Leaching concentrations of PCBs were not detected.

A copy of the laboratory analytical test results is included in Appendix B.

TABLE 2: SOIL ANALYTICAL RESULTS SUMMARY

	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Silver	SVOCs	VOCs	TPH-DRO	TPH-GRO
TP-1@1	BRL	75.5	BRL	13.2	154	BRL	BRL	NA	NA	NA	NA
TP-1@2.5	15.9	368	BRL	30.6	982	0.231	BRL	BRL <sup>1</sup>	BRL	NA	NA
TP-2@1	BRL	191	BRL	16.8	455	BRL	BRL	NA	NA	NA	NA
TP-2@6	BRL	122	BRL	15.5	466	0.184	BRL	BRL <sup>1</sup>	BRL	NA	NA
TP-3@1	BRL	105	BRL	36.4	BRL	BRL	BRL	NA	NA	NA	NA
TP-3@3	BRL	93.1	BRL	43.7	BRL	BRL	BRL	BRL	BRL	NA	NA
TP-4@1	BRL	138	BRL	130	101	BRL	BRL	NA	NA	NA	NA
TP-4@2.5	BRL	80.9 (79.0)	BRL	40.2 (47.7)	8.94 (7.47)	BRL	BRL	BRL	BRL	NA	NA
TP-4@6	BRL	85.2	BRL	43.1	8.33	BRL	BRL	BRL	BRL	NA	NA
T-5@2	NA	NA	BRL	NA	24.9	NA	BRL	NA	NA	22	1.1
T-5@8	NA	NA	BRL	NA	17.1	NA	BRL	NA	NA	BRL	1.1
T-7@2	BRL	198	BRL	43.3	735	0.166	4.13	NA	NA	NA	NA
T-7@8	BRL (BRL)	433 (362)	18 (20.4)	44 (38.9)	1630 (1730)	0.801 (1.22)	7.08 (7.95)	NA	NA	NA	NA
T-8@2	BRL	191	2.9	25.4	239	BRL	BRL	NA	NA	NA	NA
T-8@8	BRL	771	5.38	47.1	2040	4.31	11.4	NA	NA	NA	NA
NC	41	500/BG	39	1200	400	17	10/BG	Various	Various	--	--

Notes:

1: Due to apparent matrix interference, sample dilution was required resulting in elevated SVOC detection limits.

Concentrations in (#) are duplicate sample results.

NA is not analyzed.

BRL is below laboratory reporting limit.

-- is not applicable

All results in mg/Kg: milligrams per kilogram.

**Bold** results indicate concentration above the Response and Remediation Program Notification Concentration (NC); BG means the listed NC or background conditions.

TABLE 3: TCLP ANALYTICAL RESULTS SUMMARY

	Composite /Grab Sample	Barium	Lead	SVOCs	VOCS	PCBs
TP-1 to TP-4	C	0.941	BRL	NA	NA	NA
TP-1@2.5/ TP-2@1/ TP-2@6	C	1.67	1.7	NA	NA	NA
TP-4@2	G	NA	NA	BRL	BRL	NA
T-5@2	G	NA	0.0612	NA	NA	NA
T-5@8	G	NA	BRL	NA	NA	NA
T-8@8	G	1.4	0.266	NA	NA	NA
C-1	C	NA	NA	NA	NA	BRL
MTC		100	5	Various	Various	Various

Notes:

NA is not analyzed.  
 BRL is below laboratory reporting limit.  
 All results in mg/L: milligrams per liter.  
 RCRA metals listed were BRL. Sample from T-5 were only tested for lead.  
 MTC is Maximum Concentration of Contaminants for the Toxicity Characteristic from CFR Title 40, Volume 24, Part 261, Section 24

### Groundwater Analytical Testing

A groundwater sample was obtained from piezometer B-8 (labeled LD-B8 on laboratory data sheets) for analytical testing of VOCs, SVOCs, and RCRA metals using EPA testing methods 8260B, 8270D, and 6010C, respectively. Mercury analysis was via EPA method 7470A.

Analytical testing did not show the presence of VOC or SVOC constituents above the laboratory detection limits.

Due to the turbidity of the groundwater samples (they were slightly turbid); the samples for RCRA metals analysis were tested for both total and dissolved (or filtered) RCRA metals. The metal barium was detected in both the total and dissolved tests. No other RCRA metals were detected. The total and dissolved barium concentrations were 0.043 and 0.0347 milligrams per liter (mg/L), respectively. These concentrations are below its Federal drinking water Maximum Contaminant Level of 2 mg/L.

A copy of the laboratory analytical test results is included in Appendix B.

## DATA EVALUATION AND ENVIRONMENTAL ASSESSMENT

From previously collected geotechnical data by others, there is up to about 15 feet of fill materials in the two areas of the planned equalization tank. The fill reportedly varied in consistency, but appeared to obtain "coal like" materials. There were concerns that these materials may be slag or associated materials from a nearby former smelting facility, the former Metalico-Evans facility. We were told that others conducted limited soil and groundwater testing in Area A of this Phase II, which resulted in questionable results. We were not provided with the previous data.

For this assessment, an existing piezometer, B-8, was developed/purged and sampled for VOCs, SVOCs, and RCRA metals (total and dissolved metals). Analytical testing did not show the presence of VOC or SVOC constituents above the laboratory detection limits. A release of VOCs or SVOCs in groundwater has not been detected. Barium was detected in both the total and dissolved tests, at low concentrations. These were below its Federal drinking water Maximum Contaminant Level of 2 mg/L. In United Consulting's opinion, the barium concentrations detected was consistent a typical naturally occurring groundwater concentration for this geographical region and not indicative of a release.

The investigation included advancing four test pits (TP-1 through TP-4) in Area A and four test pits (T-5 through T-8) in Area B. The test pits extended to depths up to about 10 feet. Fill materials of varying consistencies were encountered throughout each test pit, generally including highly organic materials (e.g. decomposed pine straw, wood, etc.). There were black "ash like" materials at TP-1 and TP-2, and "slag like" materials in the upper 2 feet at TP-4. T-5 was located in the area of a previously removed UST. At T-6 there was a solid apparent slag mass

encountered at about 1.5 feet. In Area A, organic vapor screening showed very low concentrations, mostly in the 1 to 2 ppm range. One screened sample had a concentration of 11.3 ppm. This was in an area with a significant amount of organics. There was not sufficient soil at this depth for actual soil sampling. The elevated OVM readings could have been the results of the extensive organic materials. In Area B, screening indicated concentrations ranging from 0.4 to 23.4 ppm. The test pit with the greatest OVM reading was T-5, where the reported UST was previously located. Soils representative of the sample with the greatest OVM result (23.4 ppm) were obtained and tested.

From the eight test pits 16 soil samples were collected for analytical testing of VOCs, SVOCs, RCRA metals, lead, TPH-DRO, and/or TPH-GRO. Two samples were from each test pit, except at TP-4 where a third sample was obtained and tested. Soils were not encountered at T-6 for sampling prior to refusal. One soil sample was from the upper 1 to 2 feet to represent surficial samples. The deeper samples were selected based on the field conditions observed with an attempt to select worst case materials (i.e. black soils, "coal like" materials, staining, odors, OVM response<sup>3</sup>). Analytical testing did not show VOC or SVOC constituents above the laboratory detection limits in the soil samples collected from the Project Site. Generally low concentrations of TPH-DRO and TPH-GRO were detected in some of the samples from T-5, where a UST was previously present. United Consulting understands this UST was properly closed in accordance with the UST regulations. We did not perform a review of such documents.

Some RCRA metals were detected in the soil samples. The concentrations of lead in six samples were at concentrations above its RRP NC. This included samples from both Area A and B. This included the concentrations at TP-1 from a depth of about 2.5 feet, from TP-2 from depths of about 1 and 6 feet, from T-7 from depths of about 2 and 8 feet, and from T-8 at 8 from a depth of about 8 feet. In area A, the black "ash like" materials had the greatest lead detections. The concentrations of barium and silver in one sample from Area B were at concentrations above their RRP NCs. This included the concentrations at T-8 from a depth of about 8 feet. No other concentrations were above their NCs. The lead, barium, and silver detections above their NCs require reporting to the RRP within 30 days of the Project Site owner's knowledge of the release. To assist with disposal characterization, multiple samples were obtained from Areas A and B and tested for various analytical suites via the TCLP. This included samples for VOCs, SVOCs, RCRA metals, lead, and PCBs. Three samples were for RCRA metals TCLP analysis and included a composite sample generated in the field from materials from each of the four test pits TP-1 to TP-4, a composite sample generated in the lab from the three soil samples with the highest total lead concentrations at Area A (from TP-1 and TP-2), and a grab sample that had the greatest barium, lead, and silver concentrations (from T-8 from about 8 feet). Two samples were for lead TCLP analysis and were grab samples from T-5. One sample was for VOC and SVOC TCLP analysis and was a grab sample from TP-2. One sample was for PCB TCLP analysis and was a composite sample generated in the field from materials in test pits T-5, T-7, and T-8. Analysis indicated leaching concentrations of barium and lead only. The concentrations detected were below the RCRA level for maximum concentration of contaminants for toxicity characteristic. Based on

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<sup>3</sup> A sufficient soil volume was not present at the soil sample with the greatest OVM response for analytical testing (TP-3 at 10 feet).



the results, depending on specific landfill requirements, these tested soils should be acceptable for disposal in a Subtitle D landfill.

## CONCLUSIONS

Based on the analysis performed, groundwater impacts indicative of a release have not been detected. Lead concentrations in six soil samples and barium and silver in one soil sample were above their NCs, and therefore require reporting to the RRP within 30 days of the Project Site owner's knowledge of the release. The EPD's RRP notification and evaluation process includes the following steps:

- Reporting of the release on the prescribed forms;
- Evaluation of the potential magnitude of the release;
- Identification of potential receptors;
- Calculation of the risk using the Reportable Quantity Screening Method (RQSM); and
- Determination of the site's status for potential listing and/or remediation.

After the RRP receives their required release notification, the information provided will guide the RRP in determining whether the Project Site will be listed on the Hazardous Site Inventory (HSI). Their determination is dependent upon many factors, which are presented in the release notification document. As contracted, United Consulting is in the process of drafting this required notification document.

To assist with disposal characterization, TCLP analysis was performed. Those results indicate that, depending on specific landfill requirements, these tested soils should be acceptable for disposal in a Subtitle D landfill.

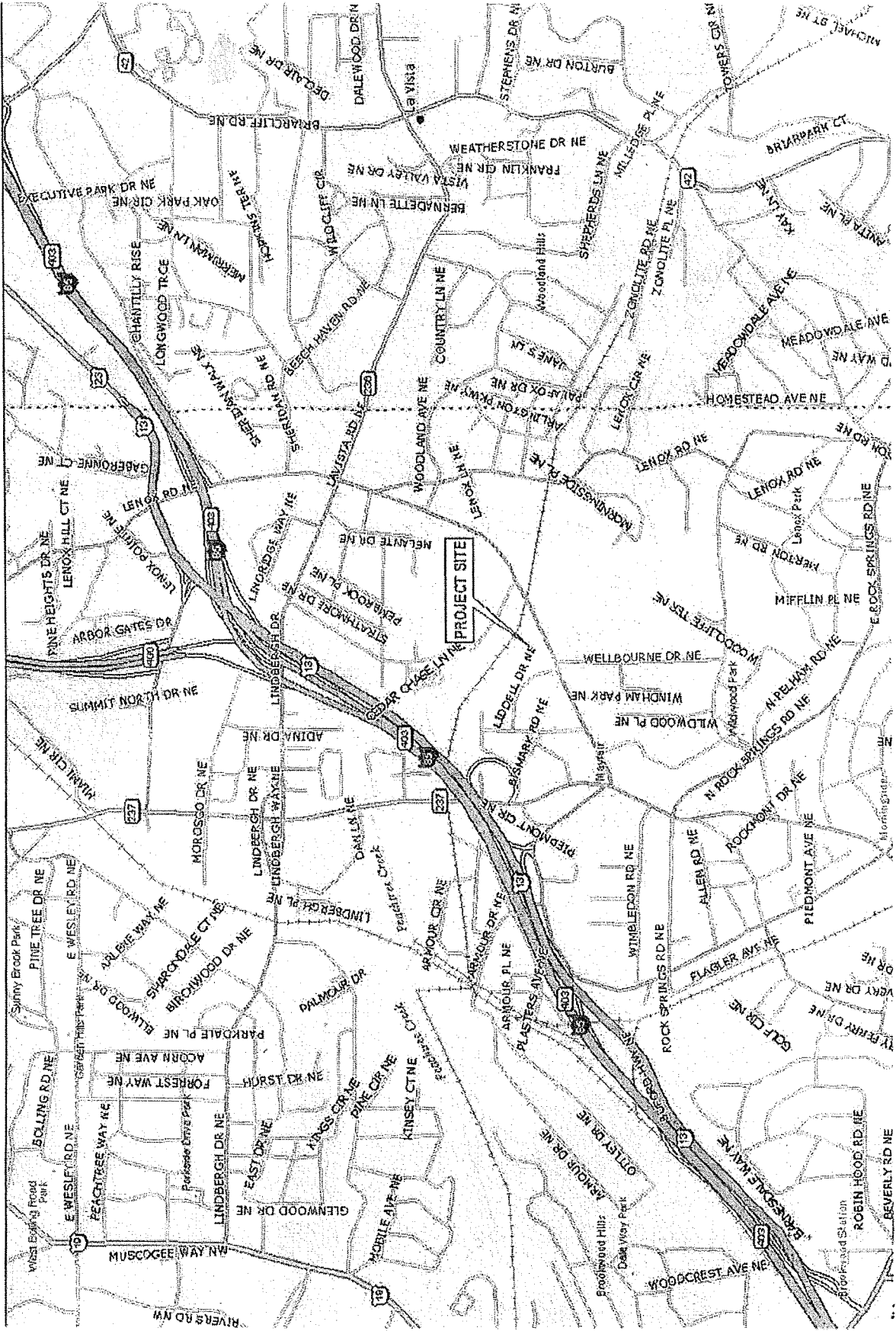
## LIMITATIONS

United Consulting has performed appropriate inquiry for this Phase II Environmental Assessment. The analysis and evaluation presented in this report are based on the results of this investigation. Contamination levels should be expected to vary from the boring locations and with time. In addition, regulatory criteria for reporting and/or remediation have changed over time, and will likely be different in the future.

United Consulting's conclusions, opinions and suggestions have been prepared using generally accepted standards prevailing within the relevant disciplines as practiced within the southeastern United States. The data analysis and recommendations stated herein are professional opinions; no warranty is expressed or implied. United Consulting is not responsible for the conclusions, opinions or recommendations of others. Nothing contained within this report is intended to supersede or replace the judgment of the Client. All decisions relating to the aforementioned project or site are the sole responsibility of said users.

This Phase II Environmental Assessment has been prepared for the named client. Should any other person, partnership, or corporation desire to rely upon this report, it will be necessary for United Consulting to update it for the new user. The right to rely upon this report and the data herein may not be assigned without the express written permission of United Consulting. As a prerequisite for the granting of, such permission, the third-party users, (including, but not limited to, the Client's successors and assigns) must agree to be bound by the terms and conditions of the original agreement between United Consulting and the Client. Further, reliance is dependent on similar uses of the property and the document.

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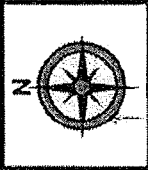


**FIG. 1**

Client:	Jacobs
Site:	Liddell Drive Equalization Project
Title:	Site Location Plan

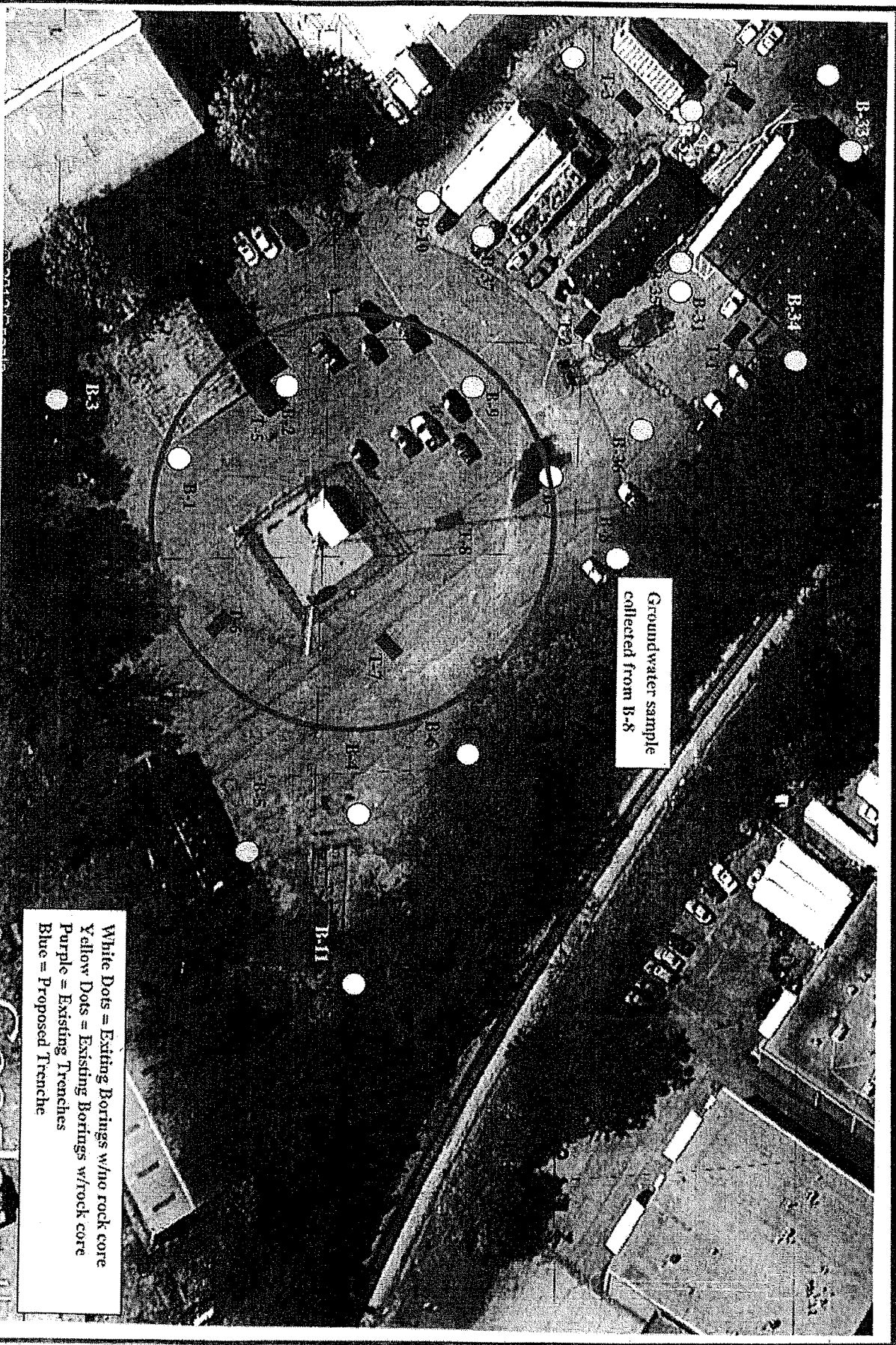
Notes:	
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Scale:	≈ 1" = 2,000'
Prepared:	SHH
Checked:	
Project No.:	2012.3532.01



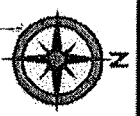
*We're here for you*

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White Dots = Existing Borings w/no rock core  
 Yellow Dots = Existing Borings w/rock core  
 Purple = Existing Trenches  
 Blue = Proposed Trenches

Groundwater sample collected from B-8



Scale:	Not to Scale
Prepared:	SHH
Checked:	
Project No.:	2012.3532.01

Notes:

Client:	Jacobs
Site:	Liddell Drive Equalization Project
Title:	Test Pit/GW Sampling Plan

**FIG. 2**

**APPENDIX A – BORING LOGS**



**UNITED CONSULTING**  
 625 HOLCOMB BRIDGE ROAD  
 NORCROSS, GEORGIA 30071  
 (770)209-0029, FAX (770)582-2800

LOG OF TEST PIT

CONTRACTED WITH: Jacobs TEST PIT NO.: TP-1  
 PROJECT NAME: Liddell Dive Equalization Project JOB NO.: 2012.3532.01 DATE: 7/25/12

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	8" asphalt	0	
	black ash like material, some sand and silt (fill)		ovm=1.5
	large amounts of organic debris (pinestraw, leaves, wood) with small amounts of sand and silt; black (fill)		ovm=1.7
		5	
			ovm=1.4
			ovm=1.8
		10	
	Test Pit Terminated		ovm=11.3
		15	
		20	
		25	
		30	
		35	
		40	



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LOG OF TEST PIT

CONTRACTED WITH: Jacobs

TEST PIT NO.: TP-2

PROJECT NAME: Liddell Dive Equalization Project

JOB NO.: 2012.3532.01

DATE: 7/25/12

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	8" asphalt	0	
	black ash like material,some sand and silt (fill)		ovm=2.2
			ovm=2.3
	large amounts of organic debris (pinestraw, leaves, wood) with some of amounts of sand and silt;black (fill) ;some asphalt like material	5	ovm=0.9
			ovm=1.1
	Test Pit Terminated	10	ovm=0.9
		15	
		20	
		25	
		30	
		35	
		40	



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LOG OF TEST PIT

CONTRACTED WITH: Jacobs

TEST PIT NO.: TP-3

PROJECT NAME: Liddell Dive Equalization Project

JOB NO.: 2012.3532.01

DATE: 7/25/12

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	12" GAB	0	
	Silt, some sands: orange (fill)		ovm=2.4
			ovm=2.4
		5	
			ovm=1.8
	Test Pit Terminated		ovm=1.2
		10	
		15	
		20	
		25	
		30	
		35	
	40		





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**LOG OF TEST PIT**

CONTRACTED WITH: Jacobs

TEST PIT NO.: TP-4

PROJECT NAME: Liddell Dive Equalization Project

JOB NO.: 2012.3532.01

DATE: 7/25/12

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	8" Asphalt	0	
	slag like material; grey (fill)		ovm=2.4
	silt. some sand, trace clay; grey/brown (fill)	5	ovm=2.2
			ovm=2.2
			ovm=2.3
		10	ovm=2.1
	Test Pit Terminated		
		15	
		20	
		25	
		30	
		35	
		40	



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LOG OF TEST PIT

CONTRACTED WITH: JACOBS TEST PIT NO.: T-5  
 PROJECT NAME: LIDDELL DRIVE EQUALIZATION PROJECT JOB NO.: 2012.3532.01 DATE: 8/20/12

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	ASPHALT		
	SAND, SOME CLAY, TRACE SILT, MICA, RED (FILL)	2	OVM = 14.9 PPM
	SAND, SOME SILT, TRACE CLAY, MICA; BROWN (FILL)	4	PETRO ODOR
		6	OVM = 5.4 PPM
		8	OVM = 23.4 PPM
	TEST PIT TERMINATED AT 8.5'	10	
		12	
		14	
		16	



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LOG OF TEST PIT

CONTRACTED WITH: JACOBS

TEST PIT NO.: T-6

PROJECT NAME: LIDDELL DRIVE EQUALIZATION PROJECT

JOB NO.: 2012.3532.01

DATE: 8/20/12

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	ASPHALT		
	SLAG		
	REFUSAL AT 1.5'	2	
		4	
		6	
		8	
		10	
		12	
		14	
		16	



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LOG OF TEST PIT

CONTRACTED WITH: JACOBS

TEST PIT NO.: T-7

PROJECT NAME: LIDDELL DRIVE EQUALIZATION PROJECT

JOB NO.: 2012.3532.01

DATE: 8/20/12

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	8" ASPHALT		
	SAND, SOME SILT, ORGANICS, MICA, DEBRIS, BLACK (FILL)		OVM = 5.1 PPM
	ORGANICS (TREE LIMBS/PINE STRAW) SAND, SOME SILT, DEBRIS; BLACK	2	85% ORGANICS WITH SOME INORGANIC DEBRIS
		4	
			OVM = 3.1 PPM
		6	
		8	OVM = 2.9 PPM
	TEST PIT TERMINATED AT 9'		
		10	
		12	
		14	
		16	



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 NORCROSS, GEORGIA 30071  
 (770)209-0029, FAX (770)582-2800

**LOG OF TEST PIT**

CONTRACTED WITH: JACOBS

TEST PIT NO.: T-8

PROJECT NAME: LIDDELL DRIVE EQUALIZATION PROJECT

JOB NO.: 2012.3532.01

DATE: 8/20/12

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	18" ASPHALT		
	SAND, SOME SILT, ORGANICS, MICA, DEBRIS, BLACK (FILL)	2	OVM = 0.4 PPM
	ORGANICS (TREE LIMBS/PINE STRAW. 2X4s)		85% ORGANICS WITH SOME INORGANIC DEBRIS
	SAND, SOME SILT, DEBRIS; BLACK	4	
		6	OVM = 0.8 PPM DEBRIS INCLUDED PLASTICS AND METALS
		8	OVM = 1.3 PPM
	TEST PIT TERMINATED AT 9'	10	
		12	
		14	
		16	

**APPENDIX B – CHAIN OF CUSTODY/LABORATORY ANALYTICAL  
TESTING DATA**



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

August 30, 2012

Seth Hobson  
United Consulting Group Inc.  
625 Holcomb Bridge Rd  
Norcross GA 30071

TEL: (770) 582-2788  
FAX: (770) 582-2900

RE: Liddell Drive

Dear Seth Hobson:

Order No: 1208F48

Analytical Environmental Services, Inc. received 10 samples on August 20, 2012 2:30 pm for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/12-06/30/13.
- AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/13.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Kathryn Waters  
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC  
 3785 Presidential Parkway, Atlanta GA 30340-3704  
 TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 120FF48

Date: 8-20-12 Page 1 of 1

COMPANY: United Cashiers

ADDRESS: 605 Hobbins Blvd E Rd  
 Norcross, GA

PHONE:

FAX:

SAMPLED BY: *Sarah Holm*

SIGNATURE: *[Signature]*

ANALYSIS REQUESTED  
 TPH-6RO  
 TPH-DRO  
 Total Pb  
 Pb TOP  
 RCRA Metals  
 PCBs  
 PCBs-TCLP  
 VOLs

Visit our website  
[www.aesallanta.com](http://www.aesallanta.com)  
 to check on the status of  
 your results, place bottle  
 orders, etc.

# SAMPLE ID

DATE

TIME

Grab

Composite

Matrix (See codes)

PRESERVATION (See codes)

REMARKS

No # of Containers

#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS
1	T-5-2'	8-20	11:15	X		SO		
2	T-5-8'		11:35	X		SO		
3	T-7-2'		1:10	X		SO		
4	T-7-8'		1:25	X		SO		
5	T-7-8A		1:25	X		SO		
6	T-8-2'		10:25	X		SO		
7	T-8-8'		10:35	X		SO		
8	B-1		1:40	X		W		
9	C-1		1:40	X		SO		
10	TOP BANK					W		
11								
12								
13								
14								

RELINQUISHED BY: *Sarah Holm*

DATE/TIME: 8-20-12 2:30

RECEIVED BY: *[Signature]*

DATE/TIME: 8/20/12 2:30

PROJECT NAME: Liddell Dr

PROJECT # 2012 3332 01

SITE ADDRESS:

SEND REPORT TO:

INVOICE TO: (IF DIFFERENT FROM ABOVE)

QUOTE #:

PO#:

STATE PROGRAM (if any):

Result? Y/N, Pass? Y/N

DATA PACKAGE: I II III IV

RECEIPT

Total # of Containers

Turnaround Time Request

Standard 5 Business Days

2 Business Day Rush

Next Business Day Rush

Same Day Rush (with req)

Other:

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD:

VIA:

INVOICE TO:

STATE PROGRAM (if any):

Result? Y/N, Pass? Y/N

DATA PACKAGE: I II III IV

RECEIPT

Total # of Containers

Turnaround Time Request

Standard 5 Business Days

2 Business Day Rush

Next Business Day Rush

Same Day Rush (with req)

Other:

SAMPLES RECEIVED AFTER 4PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.

SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GV = Groundwater SO = Soil SW = Surface Water W = Water (blanks) DR = Drinking Water (blanks) O = Other (specify) WR = Waste Water  
 PRESERVATIVE CODES: H-1 = Hydrochloric acid + ice I = Ice only N = Nitric acid S-1 = Sulfuric acid + ice SNA-1 = Sodium Borate-Methanol + ice O = Other (specify) NA = None

White Copy - Original, Yellow Copy - Client



**Client:** United Consulting Group Inc.  
**Project:** Liddell Drive  
**Lab ID:** 1208F48

**Case Narrative**

**Sample Receiving Nonconformance:**

Sample information on the Chain of Custody did not match that on the sample bottle labels for samples -001, -006, and -007. Samples were logged in using the information on the CoC. They were matched according to the collection date/time. Sample IDs were left blank on samples -001 and -007. Sample -006 was labeled "T-8".

**Volatiles Organic Compounds Analysis by Method 8260B:**

QC samples 1208E51-021AMS/MSD were extracted and/or analyzed outside holding time of 14 days. Analysis was requested by client after holding time had expired.

**Metals Analysis by Method 6010B:**

Due to sample matrix, samples 1208F48-003A thru -007A required dilution during analysis resulting in elevated reporting limits.

TCLP Metals was requested on sample T-8-8' (1208F48-007A ) with next day results per phone instructions from Seth Hobson on 8/28/12 at 11:47am.

Per phone instructions from the Seth Hobson on 8/28/12 at 5:12 pm the trip blank should be analyzed for VOC.

Analytical Environmental Services, Inc

Date: 30-Aug-12

Client:	United Consulting Group Inc.	Client Sample ID:	T-5-2'
Project Name:	Liddell Drive	Collection Date:	8/20/2012 11:15:00 AM
Lab ID:	1208F48-001	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>ICP METALS, TCLP SW1311/6010C</b>				<b>(SW3010A)</b>				
Lead	0.0612	0.0500		mg/L	165456	1	08/23/2012 15:52	TA
<b>GASOLINE RANGE ORGANICS SW8015C</b>				<b>(SW5035)</b>				
TPH (Gasoline Range Organics)	1.1	0.39		mg/Kg-dry	165528	1	08/23/2012 17:08	JE
Surr: n.a.a-trifluorotoluene	95.5	65.2-152		%REC	165528	1	08/23/2012 17:08	JE
<b>DIESEL RANGE ORGANICS SW3015C</b>				<b>(SW3550C)</b>				
TPH (Diesel Range Organics)	22	7.8		mg/Kg-dry	165531	1	08/23/2012 21:18	SH
Surr: Dioctylphthalate	93.6	47.4-128		%REC	165531	1	08/23/2012 21:18	SH
<b>METALS, TOTAL SW6010C</b>				<b>(SW3050B)</b>				
Lead	24.9	5.52		mg/Kg-dry	165458	1	08/23/2012 17:20	MR
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	14.4	0		wt%	R227703	1	08/24/2012 11:30	AS

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Aug-12

Client: United Consulting Group Inc.	Client Sample ID: T-5-8'
Project Name: Liddell Drive	Collection Date: 8/20/2012 11:35:00 AM
Lab ID: 120SF48-002	Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>ICP METALS, TCLP SW1311/6010C</b>					(SW3010A)			
Lead	BRL	0.0500		mg/L	165456	1	08/23/2012 15:56	TA
<b>GASOLINE RANGE ORGANICS SW8015C</b>					(SW5035)			
TPH (Gasoline Range Organics)	1.1	0.51		mg/Kg-dry	165528	1	08/23/2012 17:36	JE
Surr: a.a.a-trifluorotoluene	91.9	65.2-152		%REC	165528	1	08/23/2012 17:36	JE
<b>DIESEL RANGE ORGANICS SW8015C</b>					(SW3550C)			
TPH (Diesel Range Organics)	BRL	9.7		mg/Kg-dry	165531	1	08/23/2012 20:55	SH
Surr: Diethylphthalate	88.2	47.4-128		%REC	165531	1	08/23/2012 20:55	SH
<b>METALS, TOTAL SW6010C</b>					(SW3050B)			
Lead	17.1	6.82		mg/Kg-dry	165458	1	08/23/2012 17:23	MR
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	30.7	0		wt%	R227703	1	08/24/2012 11:30	AS

Qualifiers: \* Value exceeds maximum contaminant level  
 BRL Below reporting limit  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 B Analyte detected in the associated method blank  
 > Greater than Result value  
 E Estimated (value above quantitation range)  
 S Spike Recovery outside limits due to matrix  
 Narr See case narrative  
 NC Not confirmed  
 < Less than Result value  
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Aug-12

Client:	United Consulting Group Inc.	Client Sample ID:	T-7-2'
Project Name:	Liddell Drive	Collection Date:	8/20/2012 1:10:00 PM
Lab ID:	1208F48-003	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>					<b>(SW7471B)</b>			
Mercury	0.166	0.117		mg/Kg-dry	165447	1	08/22/2012 13:53	LD
<b>METALS, TOTAL SW6010C</b>					<b>(SW3050B)</b>			
Arsenic	BRL	11.7		mg/Kg-dry	165458	2	08/24/2012 12:37	MR
Barium	198	5.87		mg/Kg-dry	165458	1	08/23/2012 16:54	MR
Cadmium	BRL	2.94		mg/Kg-dry	165458	1	08/23/2012 16:54	MR
Chromium	43.3	2.94		mg/Kg-dry	165458	1	08/23/2012 16:54	MR
Lead	735	5.87		mg/Kg-dry	165458	1	08/23/2012 16:54	MR
Selenium	BRL	11.7		mg/Kg-dry	165458	2	08/24/2012 12:37	MR
Silver	4.13	2.94		mg/Kg-dry	165458	1	08/23/2012 16:54	MR
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	15.3	0		wt%	R227703	1	08/24/2012 11:30	AS

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Aug-12

Client:	United Consulting Group Inc.	Client Sample ID:	T-7-8'
Project Name:	Liddell Drive	Collection Date:	8/20/2012 1:25:00 PM
Lab ID:	1208F48-004	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY</b> SW7471B					(SW7471B)			
Mercury	0.801	0.143		mg/Kg-dry	165447	1	08/22/2012 13:56	LD
<b>METALS, TOTAL</b> SW6010C					(SW3050B)			
Arsenic	BRL	14.1		mg/Kg-dry	165458	2	08/24/2012 12:41	MR
Barium	433	7.04		mg/Kg-dry	165458	1	08/23/2012 17:26	MR
Cadmium	18.0	3.52		mg/Kg-dry	165458	1	08/23/2012 17:26	MR
Chromium	44.0	3.52		mg/Kg-dry	165458	1	08/23/2012 17:26	MR
Lead	1630	7.04		mg/Kg-dry	165458	1	08/23/2012 17:26	MR
Selenium	BRL	14.1		mg/Kg-dry	165458	2	08/24/2012 12:41	MR
Silver	7.08	3.52		mg/Kg-dry	165458	1	08/23/2012 17:26	MR
<b>PERCENT MOISTURE</b> D2216								
Percent Moisture	30.8	0		wt%	R227703	1	08/24/2012 11:30	AS

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Aug-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> T-7-8A
<b>Project Name:</b> Liddell Drive	<b>Collection Date:</b> 8/20/2012 1:25:00 PM
<b>Lab ID:</b> 1208F48-005	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY</b> SW7471B					(SW7471B)			
Mercury	1.22	0.138		mg/Kg-dry	165447	1	08/22/2012 13:58	LD
<b>METALS, TOTAL</b> SW6010C					(SW3050B)			
Arsenic	BRL	6.79		mg/Kg-dry	165458	1	08/23/2012 17:29	MR
Barium	362	6.79		mg/Kg-dry	165458	1	08/23/2012 17:29	MR
Cadmium	20.4	3.40		mg/Kg-dry	165458	1	08/23/2012 17:29	MR
Chromium	38.9	3.40		mg/Kg-dry	165458	1	08/23/2012 17:29	MR
Lead	1730	6.79		mg/Kg-dry	165458	1	08/23/2012 17:29	MR
Selenium	BRL	13.6		mg/Kg-dry	165458	2	08/24/2012 12:44	MR
Silver	7.95	3.40		mg/Kg-dry	165458	1	08/23/2012 17:29	MR
<b>PERCENT MOISTURE</b> D2216								
Percent Moisture	28.6	0		wt%	R227703	1	08/24/2012 11:30	AS

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Aug-12

Client:	United Consulting Group Inc.	Client Sample ID:	T-8-2'
Project Name:	Liddell Drive	Collection Date:	8/20/2012 10:25:00 AM
Lab ID:	1208F48-006	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>								
					(SW7471B)			
Mercury	BRL	0.113		mg/Kg-dry	165447	1	08/22/2012 14:05	LD
<b>METALS, TOTAL SW6010C</b>								
					(SW3050B)			
Arsenic	BRL	5.20		mg/Kg-dry	165458	1	08/23/2012 17:32	MR
Barium	191	5.20		mg/Kg-dry	165458	1	08/23/2012 17:32	MR
Cadmium	2.90	2.60		mg/Kg-dry	165458	1	08/23/2012 17:32	MR
Chromium	25.4	2.60		mg/Kg-dry	165458	1	08/23/2012 17:32	MR
Lead	239	5.20		mg/Kg-dry	165458	1	08/23/2012 17:32	MR
Selenium	BRL	10.4		mg/Kg-dry	165458	2	08/24/2012 12:47	MR
Silver	BRL	2.60		mg/Kg-dry	165458	1	08/23/2012 17:32	MR
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	12.1	0		wt%	R227703	1	08/24/2012 11:30	AS

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Aug-12

Client:	United Consulting Group Inc.	Client Sample ID:	T-8-8'
Project Name:	Liddell Drive	Collection Date:	8/20/2012 10:35:00 AM
Lab ID:	1208F48-007	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>					<b>(SW7471B)</b>			
Mercury	4.31	1.47		mg/Kg-dry	165447	10	08/22/2012 15:15	LD
<b>MERCURY, TCLP SW1311/7470A</b>					<b>(SW7470A)</b>			
Mercury	BRL	0.00400		mg/L	165764	1	08/29/2012 13:37	LD
<b>ICP METALS, TCLP SW1311/6010C</b>					<b>(SW3010A)</b>			
Arsenic	BRL	0.250		mg/L	165769	1	08/29/2012 13:36	MR
Barium	1.40	0.500		mg/L	165769	1	08/29/2012 13:36	MR
Cadmium	BRL	0.0250		mg/L	165769	1	08/29/2012 13:36	MR
Chromium	BRL	0.0500		mg/L	165769	1	08/29/2012 13:36	MR
Lead	0.266	0.0500		mg/L	165769	1	08/29/2012 13:36	MR
Selenium	BRL	0.100		mg/L	165769	1	08/29/2012 13:36	MR
Silver	BRL	0.0250		mg/L	165769	1	08/29/2012 13:36	MR
<b>METALS, TOTAL SW6010C</b>					<b>(SW3050B)</b>			
Arsenic	BRL	34.0		mg/Kg-dry	165458	5	08/24/2012 13:27	MR
Barium	771	6.81		mg/Kg-dry	165458	1	08/23/2012 17:35	MR
Cadmium	5.38	3.40		mg/Kg-dry	165458	1	08/23/2012 17:35	MR
Chromium	47.1	3.40		mg/Kg-dry	165458	1	08/23/2012 17:35	MR
Lead	2040	6.81		mg/Kg-dry	165458	1	08/23/2012 17:35	MR
Selenium	BRL	13.6		mg/Kg-dry	165458	2	08/24/2012 13:15	MR
Silver	11.4	3.40		mg/Kg-dry	165458	1	08/23/2012 17:35	MR
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	31.9	0		wt%	R227703	1	08/24/2012 11:30	AS

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit



Analytical Environmental Services, Inc

Date: 30-Aug-12

Client:	United Consulting Group Inc.	Client Sample ID:	B-1
Project Name:	Liddell Drive	Collection Date:	8/20/2012 1:40:00 PM
Lab ID:	1208F48-008	Matrix:	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>POLYCHLORINATED BIPHENYLS</b>		<b>SW8082A</b>			<b>(SW3510C)</b>			
Aroclor 1016	BRL	0.50		ug/L	165583	1	08/27/2012 16:52	SN
Aroclor 1221	BRL	0.50		ug/L	165583	1	08/27/2012 16:52	SN
Aroclor 1232	BRL	0.50		ug/L	165583	1	08/27/2012 16:52	SN
Aroclor 1242	BRL	0.50		ug/L	165583	1	08/27/2012 16:52	SN
Aroclor 1248	BRL	0.50		ug/L	165583	1	08/27/2012 16:52	SN
Aroclor 1254	BRL	0.50		ug/L	165583	1	08/27/2012 16:52	SN
Aroclor 1260	BRL	0.50		ug/L	165583	1	08/27/2012 16:52	SN
Surr: Decachlorobiphenyl	72.1	15.5-128		%REC	165583	1	08/27/2012 16:52	SN
Surr: Tetrachloro-m-xylene	90	17.3-125		%REC	165583	1	08/27/2012 16:52	SN

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Aug-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> C-1
<b>Project Name:</b> Liddell Drive	<b>Collection Date:</b> 8/20/2012 1:40:00 PM
<b>Lab ID:</b> 1208F48-009	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>POLYCHLORINATED BIPHENYLS</b>	<b>SW8082A</b>				<b>(SW3510C)</b>			
Aroclor 1016	BRL	5.0		ug/L	165689	1	08/29/2012 11:37	SN
Aroclor 1221	BRL	5.0		ug/L	165689	1	08/29/2012 11:37	SN
Aroclor 1232	BRL	5.0		ug/L	165689	1	08/29/2012 11:37	SN
Aroclor 1242	BRL	5.0		ug/L	165689	1	08/29/2012 11:37	SN
Aroclor 1248	BRL	5.0		ug/L	165689	1	08/29/2012 11:37	SN
Aroclor 1254	BRL	5.0		ug/L	165689	1	08/29/2012 11:37	SN
Aroclor 1260	BRL	5.0		ug/L	165689	1	08/29/2012 11:37	SN
Surr: Decachlorobiphenyl	72.1	15.5-128		%REC	165689	1	08/29/2012 11:37	SN
Surr: Tetrachloro-m-xylene	78.5	17.3-125		%REC	165689	1	08/29/2012 11:37	SN

Qualifiers: \* Value exceeds maximum contaminant level  
 BRL Below reporting limit  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 B Analyte detected in the associated method blank  
 > Greater than Result value

E Estimated (value above quantitation range)  
 S Spike Recovery outside limits due to matrix  
 Narr See case narrative  
 NC Not confirmed  
 < Less than Result value  
 J Estimated value detected below Reporting Limit



Analytical Environmental Services, Inc

Date: 30-Aug-12

Client:	United Consulting Group Inc.	Client Sample ID:	TRIP BLANK
Project Name:	Liddell Drive	Collection Date:	8/20/2012
Lab ID:	1208F48-010	Matrix:	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5030B)</b>			
Styrene	BRL	5.0		ug/L	165773	1	08/29/2012 04:28	NP
Tetrachloroethene	BRL	5.0		ug/L	165773	1	08/29/2012 04:28	NP
Toluene	BRL	5.0		ug/L	165773	1	08/29/2012 04:28	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	165773	1	08/29/2012 04:28	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	165773	1	08/29/2012 04:28	NP
Trichloroethene	BRL	5.0		ug/L	165773	1	08/29/2012 04:28	NP
Trichlorofluoromethane	BRL	5.0		ug/L	165773	1	08/29/2012 04:28	NP
Vinyl chloride	BRL	2.0		ug/L	165773	1	08/29/2012 04:28	NP
Surr: 4-Bromofluorobenzene	96.5	67.4-123		%REC	165773	1	08/29/2012 04:28	NP
Surr: Dibromofluoromethane	107	75.5-128		%REC	165773	1	08/29/2012 04:28	NP
Surr: Toluene-d8	96.2	70-120		%REC	165773	1	08/29/2012 04:28	NP

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client United

Work Order Number 1208F48

Checklist completed by [Signature] Signature Date 1/20/12

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 3.1 Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by DM

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.

Analytical Environmental Services, Inc

Date: 30-Aug-12

Client: United Consulting Group Inc  
 Project: Liddell Drive  
 Lab Order: 1208F48

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1208F48-001A	T-5-2'	8/20/2012 11:15:00AM	Soil	GASOLINE RANGE ORGANICS		08/22/2012	08/23/2012
1208F48-001B	T-5-2'	8/20/2012 11:15:00AM	Soil	PERCENT MOISTURE			08/24/2012
1208F48-001C	T-5-2'	8/20/2012 11:15:00AM	Soil	DIESEL RANGE ORGANICS		08/23/2012	08/23/2012
1208F48-001D	T-5-2'	8/20/2012 11:15:00AM	Soil	TOTAL METALS BY ICP		08/22/2012	08/23/2012
1208F48-001E	T-5-2'	8/20/2012 11:15:00AM	Soil	ICP METALS, TCLP Leached	08/22/2012	08/23/2012	08/23/2012
1208F48-002A	T-5-8'	8/20/2012 11:35:00AM	Soil	GASOLINE RANGE ORGANICS		08/22/2012	08/23/2012
1208F48-002B	T-5-8'	8/20/2012 11:35:00AM	Soil	PERCENT MOISTURE			08/24/2012
1208F48-002C	T-5-8'	8/20/2012 11:35:00AM	Soil	DIESEL RANGE ORGANICS		08/23/2012	08/23/2012
1208F48-002D	T-5-8'	8/20/2012 11:35:00AM	Soil	TOTAL METALS BY ICP		08/22/2012	08/23/2012
1208F48-002E	T-5-8'	8/20/2012 11:35:00AM	Soil	ICP METALS, TCLP Leached	08/22/2012	08/23/2012	08/23/2012
1208F48-003A	T-7-2'	8/20/2012 1:10:00PM	Soil	TOTAL METALS BY ICP		08/22/2012	08/23/2012
1208F48-003A	T-7-2'	8/20/2012 1:10:00PM	Soil	TOTAL METALS BY ICP		08/22/2012	08/24/2012
1208F48-003A	T-7-2'	8/20/2012 1:10:00PM	Soil	MERCURY		08/22/2012	08/22/2012
1208F48-003A	T-7-2'	8/20/2012 1:10:00PM	Soil	PERCENT MOISTURE			08/24/2012
1208F48-004A	T-7-8'	8/20/2012 1:25:00PM	Soil	TOTAL METALS BY ICP		08/22/2012	08/23/2012
1208F48-004A	T-7-8'	8/20/2012 1:25:00PM	Soil	TOTAL METALS BY ICP		08/22/2012	08/24/2012
1208F48-004A	T-7-8'	8/20/2012 1:25:00PM	Soil	MERCURY		08/22/2012	08/22/2012
1208F48-004A	T-7-8'	8/20/2012 1:25:00PM	Soil	PERCENT MOISTURE			08/24/2012
1208F48-005A	T-7-8A	8/20/2012 1:25:00PM	Soil	TOTAL METALS BY ICP		08/22/2012	08/23/2012
1208F48-005A	T-7-8A	8/20/2012 1:25:00PM	Soil	TOTAL METALS BY ICP		08/22/2012	08/24/2012
1208F48-005A	T-7-8A	8/20/2012 1:25:00PM	Soil	MERCURY		08/22/2012	08/22/2012
1208F48-005A	T-7-8A	8/20/2012 1:25:00PM	Soil	PERCENT MOISTURE			08/24/2012
1208F48-006A	T-8-2'	8/20/2012 10:25:00AM	Soil	TOTAL METALS BY ICP		08/22/2012	08/23/2012
1208F48-006A	T-8-2'	8/20/2012 10:25:00AM	Soil	TOTAL METALS BY ICP		08/22/2012	08/24/2012
1208F48-006A	T-8-2'	8/20/2012 10:25:00AM	Soil	MERCURY		08/22/2012	08/22/2012
1208F48-006A	T-8-2'	8/20/2012 10:25:00AM	Soil	PERCENT MOISTURE			08/24/2012
1208F48-007A	T-8-8'	8/20/2012 10:35:00AM	Soil	MERCURY, TCLP Leached	08/28/2012	08/29/2012	08/29/2012
1208F48-007A	T-8-8'	8/20/2012 10:35:00AM	Soil	ICP METALS, TCLP Leached	08/28/2012	08/29/2012	08/29/2012
1208F48-007A	T-8-8'	8/20/2012 10:35:00AM	Soil	TOTAL METALS BY ICP		08/22/2012	08/23/2012

Analytical Environmental Services, Inc

Date: 30-Aug-12

Client: United Consulting Group Inc.  
 Project: Liddell Drive  
 Lab Order: 1208F48

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1208F48-007A	T-8-8'	8/20/2012 10:35:00AM	Soil	TOTAL METALS BY ICP	08/22/2012	08/22/2012	08/24/2012
1208F48-007A	T-8-8'	8/20/2012 10:35:00AM	Soil	MERCURY	08/22/2012	08/22/2012	08/22/2012
1208F48-007A	T-8-8'	8/20/2012 10:35:00AM	Soil	PERCENT MOISTURE			08/24/2012
1208F48-008A	B-1	8/20/2012 1:40:00PM	Aqueous	POLYCHLORINATED BIPHENYLS	08/24/2012	08/24/2012	08/27/2012
1208F48-009A	C-1	8/20/2012 1:40:00PM	Soil	POLYCHLORINATED BIPHENYLS	08/28/2012	08/28/2012	08/29/2012
1208F48-010A	TRIP BLANK	8/20/2012 12:00:00AM	Aqueous	TCL VOLATILE ORGANICS	08/29/2012	08/29/2012	08/29/2012

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive  
 Workorder: 1208F48

BatchID: 165447

Sample ID: MB-165447	Client ID:	TOTAL MERCURY	SW7471B	Units: mg/Kg	BatchID: 165447	Prep Date: 08/22/2012	Run No: 227519				
Sample Type: MBLK	Test Code:	TOTAL MERCURY	SW7471B			Analysis Date: 08/22/2012	Seq No: 4761690				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	BRL	0.100	0	0	0	0	0	0	0	0	

Sample ID: LCS-165447	Client ID:	TOTAL MERCURY	SW7471B	Units: mg/Kg	BatchID: 165447	Prep Date: 08/22/2012	Run No: 227519				
Sample Type: LCS	Test Code:	TOTAL MERCURY	SW7471B			Analysis Date: 08/22/2012	Seq No: 4761692				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.4212	0.100	0.4	0	105	80	120	0	0	0	

Sample ID: 1208G12-001EMMS	Client ID:	TOTAL MERCURY	SW7471B	Units: mg/Kg-dry	BatchID: 165447	Prep Date: 08/22/2012	Run No: 227519				
Sample Type: MS	Test Code:	TOTAL MERCURY	SW7471B			Analysis Date: 08/22/2012	Seq No: 4761696				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.5251	0.120	0.4792	0	110	70	130	0	0	0	

Sample ID: 1208G12-001EMMSD	Client ID:	TOTAL MERCURY	SW7471B	Units: mg/Kg-dry	BatchID: 165447	Prep Date: 08/22/2012	Run No: 227519				
Sample Type: MSD	Test Code:	TOTAL MERCURY	SW7471B			Analysis Date: 08/22/2012	Seq No: 4761698				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.5193	0.119	0.4773	0	109	70	130	0.5251	1.1	30	

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix

Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix



Analytical Environmental Services, Inc

Date: 31-Aug-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive  
 Workorder: 1208F48

ANALYTICAL QC SUMMARY REPORT

BatchID: 165456

Sample ID: MB-165456	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 08/22/2012	Run No: 227569		
Sample Type: MBLK	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165456	Analysis Date: 08/22/2012	Seq No: 4762842		
Analyte	Result	RPT Limit	SPK value	%REC	SPK Ref Val	%RPD	RPD Limit	Qual
Lead	BRL	0.0500	0	0	0	0	0	0

Sample ID: MB-165456-2	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 08/23/2012	Run No: 227569		
Sample Type: MBLK	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165456	Analysis Date: 08/23/2012	Seq No: 4765223		
Analyte	Result	RPT Limit	SPK value	%REC	SPK Ref Val	%RPD	RPD Limit	Qual
Lead	BRL	0.0500	0	0	0	0	0	0

Sample ID: LCS-165456	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 08/22/2012	Run No: 227569		
Sample Type: LCS	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165456	Analysis Date: 08/22/2012	Seq No: 4762838		
Analyte	Result	RPT Limit	SPK value	%REC	SPK Ref Val	%RPD	RPD Limit	Qual
Lead	4.812	0.0500	5	96.2	0	0	115	0

Sample ID: 1208G00-001CMS	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 08/22/2012	Run No: 227569		
Sample Type: MS	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165456	Analysis Date: 08/22/2012	Seq No: 4762861		
Analyte	Result	RPT Limit	SPK value	%REC	SPK Ref Val	%RPD	RPD Limit	Qual
Lead	4.856	0.0500	5	97	0.008082	0	150	0

Sample ID: 1208G00-001CMSD	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 08/22/2012	Run No: 227569		
Sample Type: MSD	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165456	Analysis Date: 08/22/2012	Seq No: 4762865		
Analyte	Result	RPT Limit	SPK value	%REC	SPK Ref Val	%RPD	RPD Limit	Qual
Lead	4.873	0.0500	5	97.3	0.008082	0	150	30

Qualifiers:	>	Greater than Result value	+	Less than Result value	B	Analyte detected in the associated method blank
	REL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
		Rpt Lim Reporting Limit	S	Spike Recovery outside limits due to matrix		

Analytical Environmental Services, Inc

Date: 31-Aug-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive  
 Workorder: 1208F48

BatchID: 165458

Sample ID: MB-165458	Client ID:	Units: mg/Kg	Prep Date: 08/22/2012	Run No: 227623							
Sample Type: MBLK	Test Code: METALS, TOTAL	BatchID: 165458	Analysis Date: 08/23/2012	Seq No: 4763903							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	BRL	5.00	0	0	0	0	0	0	0	0	
Barium	BRL	5.00	0	0	0	0	0	0	0	0	
Cadmium	BRL	2.50	0	0	0	0	0	0	0	0	
Chromium	BRL	2.50	0	0	0	0	0	0	0	0	
Lead	BRL	5.00	0	0	0	0	0	0	0	0	
Selenium	BRL	5.00	0	0	0	0	0	0	0	0	
Silver	BRL	2.50	0	0	0	0	0	0	0	0	

Sample ID: LCS-165458	Client ID:	Units: mg/Kg	Prep Date: 08/22/2012	Run No: 227623							
Sample Type: LCS	Test Code: METALS, TOTAL	BatchID: 165458	Analysis Date: 08/23/2012	Seq No: 4763900							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	45.38	5.00	50	0.3676	90	80	120	0	0	0	
Barium	49.38	5.00	50	0.1072	98.6	80	120	0	0	0	
Cadmium	48.40	2.50	50	0	96.8	80	120	0	0	0	
Chromium	50.02	2.50	50	0.1274	99.8	80	120	0	0	0	
Lead	46.25	5.00	50	0.3235	91.9	80	120	0	0	0	
Selenium	43.54	5.00	50	0	87.1	80	120	0	0	0	
Silver	4.913	2.50	5	0	98.3	80	120	0	0	0	

Sample ID: 1208F48-003AMS	Client ID: T-7-2'	Units: mg/Kg-dry	Prep Date: 08/22/2012	Run No: 227623							
Sample Type: MS	Test Code: METALS, TOTAL	BatchID: 165458	Analysis Date: 08/23/2012	Seq No: 4763909							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	58.06	5.85	58.54	6.142	88.7	75	125	0	0	0	
Barium	290.5	5.85	58.54	198.5	157	75	125	0	0	0	S
Cadmium	56.79	2.93	58.54	2.100	93.4	75	125	0	0	0	
Chromium	109.7	2.93	58.54	43.27	113	75	125	0	0	0	

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantification range)  
 N Analyte not NEL AC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 31-Aug-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive  
 Workorder: 1208F48

ANALYTICAL QC SUMMARY REPORT

BatchID: 165458

Sample ID: 1208F48-003AMS	Client ID: I-7-2'	Units: mg/Kg-dry	Prep Date: 08/22/2012	Run No: 227623
Sample Type: MS	TestCode: METALS, TOTAL	BatchID: 165458	Analysis Date: 08/23/2012	Seq No: 4763909
	SW6010C			

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	1250	5.85	58.54	735.0	880	75	125	0	0	0	S
Selenium	41.80	5.85	58.54	0	71.4	75	125	0	0	0	S
Silver	8.987	2.93	5.854	4.133	82.9	75	125	0	0	0	

Sample ID: 1208F48-003AMSD	Client ID: I-7-2'	Units: mg/Kg-dry	Prep Date: 08/22/2012	Run No: 227623
Sample Type: MSD	TestCode: METALS, TOTAL	BatchID: 165458	Analysis Date: 08/23/2012	Seq No: 4763911
	SW6010C			

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	57.97	5.88	58.77	6.142	88.2	75	125	58.06	0.161	20	
Barium	227.3	5.88	58.77	198.5	49.1	75	125	290.5	24.4	20	SR
Cadmium	54.20	2.94	58.77	2.100	88.7	75	125	56.79	4.66	20	
Chromium	95.42	2.94	58.77	49.27	88.7	75	125	109.7	13.9	20	
Lead	655.8	5.88	58.77	735.0	-135	75	125	1250	62.4	20	SR
Selenium	36.58	5.88	58.77	0	62.2	75	125	41.80	13.3	20	S
Silver	7.718	2.94	5.877	4.133	61	75	125	8.987	15.2	20	S

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BEL	Below reporting limit		H	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit		N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit		S	Spike Recovery outside limits due to matrix		

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive  
 Workorder: 1208F48

BatchID: 165528

Sample ID: MB-165528	Client ID:	Units: mg/Kg	Prep Date: 08/22/2012	Run No: 227567							
Sample Type: MBLK	TestCode: GASOLINE RANGE ORGANICS	BatchID: 165528	Analysis Date: 08/22/2012	Seq No: 4762822							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

TPH (Gasoline Range Organics)	BRL	0.50	0	0	0	0	0	0	0	0	H
Sur: a.a-a-trifluorotoluene	0.04750	0	0.05	0	95	65.2	152	0	0	0	H

Sample ID: LCS-165528	Client ID:	Units: mg/Kg	Prep Date: 08/22/2012	Run No: 227567							
Sample Type: LCS	TestCode: GASOLINE RANGE ORGANICS	BatchID: 165528	Analysis Date: 08/22/2012	Seq No: 4762811							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

TPH (Gasoline Range Organics)	1.025	0.50	1	0	102	64.6	126	0	0	0	H
Sur: a.a-a-trifluorotoluene	0.05187	0	0.05	0	104	65.2	152	0	0	0	H

Sample ID: 1208E51-021AAMS	Client ID:	Units: mg/Kg-dry	Prep Date: 08/22/2012	Run No: 227567							
Sample Type: MS	TestCode: GASOLINE RANGE ORGANICS	BatchID: 165528	Analysis Date: 08/22/2012	Seq No: 4762814							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

TPH (Gasoline Range Organics)	1.216	0.62	1.233	0	98.6	54.7	130	0	0	0	H
Sur: a.a-a-trifluorotoluene	0.06214	0	0.0616	0	101	65.2	152	0	0	0	H

Sample ID: 1208E51-021AAMS	Client ID:	Units: mg/Kg-dry	Prep Date: 08/22/2012	Run No: 227567							
Sample Type: MSD	TestCode: GASOLINE RANGE ORGANICS	BatchID: 165528	Analysis Date: 08/22/2012	Seq No: 4762818							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

TPH (Gasoline Range Organics)	1.191	0.62	1.233	0	96.6	54.7	130	1.216	2.11	16.1	H
Sur: a.a-a-trifluorotoluene	0.06189	0	0.0616	0	100	65.2	152	0.06214	0	0	H

Qualifiers:	>	Greater than Result value	..	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Analytical Environmental Services, Inc

Date: 31-Aug-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive  
 Workorder: 1208F48

ANALYTICAL QC SUMMARY REPORT

BatchID: 165531

Sample ID: MB-165531	Client ID:	Units: mg/Kg	Prep Date: 08/23/2012	Run No: 227589							
Sample Type: MBLK	TestCode: DIESEL RANGE ORGANICS	BatchID: 165531	Analysis Date: 08/23/2012	Seq No: 4764138							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
TPH (Diesel Range Organics)	BRL	6.7	0	0	0	0	0	0	0	0	0
Surr: Dioctylphthalate	2.323	0	3.3	0	70.4	47.4	128	0	0	0	0

Sample ID: LCS-165531	Client ID:	Units: mg/Kg	Prep Date: 08/23/2012	Run No: 227589							
Sample Type: LCS	TestCode: DIESEL RANGE ORGANICS	BatchID: 165531	Analysis Date: 08/23/2012	Seq No: 4764141							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
TPH (Diesel Range Organics)	20.00	6.7	33.3	0	60.1	51.4	120	0	0	0	0
Surr: Dioctylphthalate	2.292	0	3.33	0	68.8	47.4	128	0	0	0	0

Sample ID: 1208G28-003BMS	Client ID:	Units: mg/Kg-dry	Prep Date: 08/23/2012	Run No: 227589							
Sample Type: MS	TestCode: DIESEL RANGE ORGANICS	BatchID: 165531	Analysis Date: 08/23/2012	Seq No: 4764164							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
TPH (Diesel Range Organics)	31.81	8.6	42.53	2.093	69.9	35.2	118	0	0	0	0
Surr: Dioctylphthalate	3.583	0	4.253	0	84.3	47.4	128	0	0	0	0

Sample ID: 1208G28-003BMSD	Client ID:	Units: mg/Kg-dry	Prep Date: 08/23/2012	Run No: 227589							
Sample Type: MSD	TestCode: DIESEL RANGE ORGANICS	BatchID: 165531	Analysis Date: 08/23/2012	Seq No: 4764168							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
TPH (Diesel Range Organics)	31.73	8.6	42.54	2.093	69.7	35.2	118	31.81	0.263	27.6	0
Surr: Dioctylphthalate	3.531	0	4.254	0	83	47.4	128	3.583	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt.Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 31-Aug-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive  
 Workorder: 1208F48

BatchID: 165583

Sample ID: MB-165583	Client ID:	Units:	Prep Date:	Run No:							
Sample Type: MBLK	TestCode: POLYCHLORINATED BIPHENYLS	ug/L	08/24/2012	227832							
		BatchID: 165583	Analysis Date: 08/27/2012	Seq No: 4768158							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Aroclor 1016	BRL	0.50	0	0	0	0	0	0	0	0	0
Aroclor 1221	BRL	0.50	0	0	0	0	0	0	0	0	0
Aroclor 1232	BRL	0.50	0	0	0	0	0	0	0	0	0
Aroclor 1242	BRL	0.50	0	0	0	0	0	0	0	0	0
Aroclor 1248	BRL	0.50	0	0	0	0	0	0	0	0	0
Aroclor 1254	BRL	0.50	0	0	0	0	0	0	0	0	0
Aroclor 1260	BRL	0.50	0	0	0	0	0	0	0	0	0
Sur: Decachlorobiphenyl	0.4213	0	0.5	0	84.3	15.5	128	0	0	0	0
Sur: Tetrachloro-m-xylene	0.4129	0	0.5	0	82.6	17.3	125	0	0	0	0

Sample ID: LCS-165583	Client ID:	Units:	Prep Date:	Run No:							
Sample Type: LCS	TestCode: POLYCHLORINATED BIPHENYLS	ug/L	08/24/2012	227832							
		BatchID: 165583	Analysis Date: 08/27/2012	Seq No: 4768165							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Aroclor 1016	4.352	0.50	5	0	87	56.3	135	0	0	0	0
Aroclor 1260	4.455	0.50	5	0	89.1	62.6	135	0	0	0	0
Sur: Decachlorobiphenyl	0.4160	0	0.5	0	83.2	15.5	128	0	0	0	0
Sur: Tetrachloro-m-xylene	0.4558	0	0.5	0	91.2	17.3	125	0	0	0	0

Sample ID: 1208G44-002CMS	Client ID:	Units:	Prep Date:	Run No:							
Sample Type: MS	TestCode: POLYCHLORINATED BIPHENYLS	ug/L	08/24/2012	227832							
		BatchID: 165583	Analysis Date: 08/27/2012	Seq No: 4768167							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Aroclor 1016	4.064	0.50	5	0	81.3	33.8	140	0	0	0	0
Aroclor 1260	4.127	0.50	5	0	82.5	33.3	140	0	0	0	0
Sur: Decachlorobiphenyl	0.3496	0	0.5	0	69.9	15.5	128	0	0	0	0
Sur: Tetrachloro-m-xylene	0.3871	0	0.5	0	77.4	17.3	125	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NEL AC certified  
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank  
 H Holding time for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 31-Aug-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive  
 Workorder: 1208F48

ANALYTICAL QC SUMMARY REPORT

BatchID: 165583

Sample ID: 1208G44-002CMSD Client ID: POLYCHLORINATED BIPHENYLS SW8082A  
 Sample Type: MSD TestCode: SW8082A  
 Units: ug/L  
 BatchID: 165583  
 Prep Date: 08/24/2012 Run No: 227832  
 Analysis Date: 08/27/2012 Seq No: 4768170

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aroclor 1016	2.776	0.50	5	0	55.5	33.8	140	4.064	37.7	19.2	R
Aroclor 1260	4.242	0.50	5	0	84.8	33.3	140	4.137	2.74	19.4	
Surr: Decachlorobiphenyl	0.4306	0	0.5	0	86.1	15.5	128	0.3496	0	0	
Surr: Tetrachloro-m-xylene	0.1566	0	0.5	0	31.3	17.3	125	0.3871	0	0	

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 31-Aug-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive  
 Workorder: 1208F48

BatchID: 165689

Sample ID: MB-165689	Client ID:	Units:	Prep Date:	Run No:							
Sample Type: MBLK	TestCode: POLYCHLORINATED BIPHENYLS	ug/L	08/28/2012	227938							
		BatchID: 165689	Analysis Date: 08/29/2012	Seq No: 4770910							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Aroclor 1016	BRL	5.0	0	0	0	0	0	0	0	0	0
Aroclor 1221	BRL	5.0	0	0	0	0	0	0	0	0	0
Aroclor 1232	BRL	5.0	0	0	0	0	0	0	0	0	0
Aroclor 1242	BRL	5.0	0	0	0	0	0	0	0	0	0
Aroclor 1248	BRL	5.0	0	0	0	0	0	0	0	0	0
Aroclor 1254	BRL	5.0	0	0	0	0	0	0	0	0	0
Aroclor 1260	BRL	5.0	0	0	0	0	0	0	0	0	0
Sur: Decachlorobiphenyl	3.725	0	5	0	74.5	15.5	128	0	0	0	0
Sur: Tetrachloro-m-xylene	3.425	0	5	0	68.5	17.3	125	0	0	0	0

Sample ID: LCS-165689	Client ID:	Units:	Prep Date:	Run No:							
Sample Type: LCS	TestCode: POLYCHLORINATED BIPHENYLS	ug/L	08/28/2012	227938							
		BatchID: 165689	Analysis Date: 08/29/2012	Seq No: 4770933							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%RBC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Aroclor 1016	39.88	5.0	50	0	79.8	56.3	135	0	0	0	0
Aroclor 1260	42.54	5.0	50	0	85.1	62.6	135	0	0	0	0
Sur: Decachlorobiphenyl	3.670	0	5	0	73.4	15.5	128	0	0	0	0
Sur: Tetrachloro-m-xylene	3.644	0	5	0	72.9	17.3	125	0	0	0	0

Sample ID: 1208F48-009AAMS	Client ID: C-1	Units:	Prep Date:	Run No:							
Sample Type: MS	TestCode: POLYCHLORINATED BIPHENYLS	ug/L	08/28/2012	227938							
		BatchID: 165689	Analysis Date: 08/29/2012	Seq No: 4771041							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%RBC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Aroclor 1016	45.57	5.0	50	0	91.1	33.8	140	0	0	0	0
Aroclor 1260	42.94	5.0	50	0	85.9	33.3	140	0	0	0	0
Sur: Decachlorobiphenyl	3.806	0	5	0	76.1	15.5	128	0	0	0	0
Sur: Tetrachloro-m-xylene	4.078	0	5	0	81.6	17.3	125	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix



Analytical Environmental Services, Inc

Date: 31-Aug-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive  
 Workorder: 1208F48

BatchID: 165764

Sample ID: MB-165764	Client ID:	Units: mg/L	Prep Date: 08/29/2012	Run No: 227960
Sample Type: MBLK	TestCode: MERCURY, TCLP	BatchID: 165764	Analysis Date: 08/29/2012	Seq No: 4771477
Analyte	Result	%REC	Low Limit	High Limit
Mercury	BRL	0	0	0
	RPT Limit	SPK value	SPK Ref Val	%RPD
	0.00400	0	0	0
				RPD Limit
				Qual

Sample ID: LCS-165764	Client ID:	Units: mg/L	Prep Date: 08/29/2012	Run No: 227960
Sample Type: LCS	TestCode: MERCURY, TCLP	BatchID: 165764	Analysis Date: 08/29/2012	Seq No: 4771478
Analyte	Result	%REC	Low Limit	High Limit
Mercury	0.03978	99.4	80	120
	RPT Limit	SPK value	SPK Ref Val	%RPD
	0.00400	0.04	0	0
				RPD Limit
				Qual

Sample ID: 1208K32-002BMS	Client ID:	Units: mg/L	Prep Date: 08/29/2012	Run No: 227960
Sample Type: MS	TestCode: MERCURY, TCLP	BatchID: 165764	Analysis Date: 08/29/2012	Seq No: 4771482
Analyte	Result	%REC	Low Limit	High Limit
Mercury	0.03925	98.1	80	120
	RPT Limit	SPK value	SPK Ref Val	%RPD
	0.00400	0.04	0	0
				RPD Limit
				Qual

Sample ID: 1208K32-002BMSD	Client ID:	Units: mg/L	Prep Date: 08/29/2012	Run No: 227960
Sample Type: MSD	TestCode: MERCURY, TCLP	BatchID: 165764	Analysis Date: 08/29/2012	Seq No: 4771483
Analyte	Result	%REC	Low Limit	High Limit
Mercury	0.03894	97.4	80	120
	RPT Limit	SPK value	SPK Ref Val	%RPD
	0.00400	0.04	0	0.03925
				0.785
				20

Qualifiers:	>	Greater than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	R	RPD outside limits due to matrix
		Estimated value detected below Reporting Limit		
		Spike Recovery outside limits due to matrix		

**ANALYTICAL QC SUMMARY REPORT**

Client: United Consulting Group Inc.  
 Project Name: Lidden Drive  
 Workorder: 1208F48

BatchID: 165769

Sample ID: MB-165769	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	BatchID: 165769	Prep Date: 08/29/2012	Run No: 227959
Sample Type: MBLK	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165769	Analysis Date: 08/29/2012	Seq No: 4771461	

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	BRL	0.250	0	0	0	0	0	0	0	0	
Barium	BRL	0.500	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.0250	0	0	0	0	0	0	0	0	
Chromium	BRL	0.0500	0	0	0	0	0	0	0	0	
Lead	BRL	0.0500	0	0	0	0	0	0	0	0	
Selenium	BRL	0.100	0	0	0	0	0	0	0	0	
Silver	BRL	0.0250	0	0	0	0	0	0	0	0	

Sample ID: MB-165769-2	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	BatchID: 165769	Prep Date: 08/29/2012	Run No: 227959
Sample Type: MBLK	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165769	Analysis Date: 08/30/2012	Seq No: 4773629	

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	BRL	0.0500	0	0	0	0	0	0	0	0	
Barium	BRL	0.100	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.00500	0	0	0	0	0	0	0	0	
Chromium	BRL	0.0100	0	0	0	0	0	0	0	0	
Lead	BRL	0.0100	0	0	0	0	0	0	0	0	
Selenium	BRL	0.0200	0	0	0	0	0	0	0	0	
Silver	BRL	0.00500	0	0	0	0	0	0	0	0	

Sample ID: LCS-165769	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	BatchID: 165769	Prep Date: 08/29/2012	Run No: 227959
Sample Type: LCS	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165769	Analysis Date: 08/29/2012	Seq No: 4771460	

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	5.544	0.250	5	0	111	85	115	0	0	0	
Barium	5.166	0.500	5	0	103	80	120	0	0	0	
Cadmium	5.317	0.0250	5	0	106	85	115	0	0	0	
Chromium	5.381	0.0500	5	0	108	85	115	0	0	0	

Qualifiers:   
 > Greater than Result value   
 BRL Below reporting limit   
 E Estimated value above quantitation range   
 J Estimated value detected below Reporting Limit   
 N Analyte not NELAC certified   
 RPT Lim Reporting Limit   
 S Spike Recovery outside limits due to matrix   
 B Analyte detected in the associated method blank   
 H Holding times for preparation or analysis exceeded   
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 31-Aug-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive  
 Workorder: 1208F48

ANALYTICAL QC SUMMARY REPORT

BatchID: 165769

Sample ID: LCS-165769	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 08/29/2012	Run No: 227959					
Sample Type: LCS	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165769	Analysis Date: 08/29/2012	Seq No: 4771460					
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Lead	5.197	0.0500	5	0	104	85	115	0	0	0	0
Selenium	5.600	0.100	5	0	112	85	115	0	0	0	0
Silver	0.5264	0.0250	0.5	0	105	85	115	0	0	0	0

Sample ID: 1208J63-003EMS	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 08/29/2012	Run No: 227959					
Sample Type: MS	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165769	Analysis Date: 08/29/2012	Seq No: 4771463					
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	5.461	0.250	5	0	109	50	150	0	0	0	0
Barium	5.222	0.500	5	0.1230	102	50	150	0	0	0	0
Cadmium	5.274	0.0250	5	0	105	50	150	0	0	0	0
Chromium	5.313	0.0500	5	0.02747	106	50	150	0	0	0	0
Lead	5.114	0.0500	5	0	102	50	150	0	0	0	0
Selenium	5.553	0.100	5	0	111	50	150	0	0	0	0
Silver	0.5175	0.0250	0.5	0	104	50	150	0	0	0	0

Sample ID: 1208J63-003EMSD	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 08/29/2012	Run No: 227959					
Sample Type: MSD	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 165769	Analysis Date: 08/29/2012	Seq No: 4771464					
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	5.492	0.250	5	0	110	50	150	5.461	0.573	30	
Barium	5.218	0.500	5	0.1230	102	50	150	5.222	0.091	30	
Cadmium	5.285	0.0250	5	0	106	50	150	5.274	0.208	30	
Chromium	5.324	0.0500	5	0.02747	106	50	150	5.313	0.219	30	
Lead	5.110	0.0500	5	0	102	50	150	5.114	0.064	30	
Selenium	5.595	0.100	5	0	112	50	150	5.553	0.744	30	
Silver	0.5186	0.0250	0.5	0	104	50	150	0.5175	0.2	30	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	REL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Analytical Environmental Services, Inc

Date: 31-Aug-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive  
 Workorder: 120SF48

BatchID: 165773

Sample ID: MB-165773	Client ID:	Units:	Prep Date:	Run No:							
Sample Type: MBLK	Test Code: TCL VOLATILE ORGANICS	ug/L	08/29/2012	227933							
		BatchID: 165773	Analysis Date: 08/29/2012	Seq No: 4770672							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1,2,2-Tetrachloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1,2-Trichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1-Dichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1-Dichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dibromo-3-chloropropane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dibromoethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichloropropane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,3-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,4-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
2-Butanone	BRL	50	0	0	0	0	0	0	0	0	0
2-Hexanone	BRL	10	0	0	0	0	0	0	0	0	0
4-Methyl-2-pentanone	BRL	10	0	0	0	0	0	0	0	0	0
Acetone	BRL	50	0	0	0	0	0	0	0	0	0
Benzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromodichloromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromoform	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromomethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Carbon disulfide	BRL	5.0	0	0	0	0	0	0	0	0	0
Carbon tetrachloride	BRL	5.0	0	0	0	0	0	0	0	0	0
Chlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Chloroethane	BRL	10	0	0	0	0	0	0	0	0	0
Chloroform	BRL	5.0	0	0	0	0	0	0	0	0	0
Chloromethane	BRL	10	0	0	0	0	0	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 E Estimated value detected below Reporting Limit  
 N Analyte not NEL AC certified  
 S Spike Recovery outside limits due to matrix

< Less than Result value  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 31-Aug-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive  
 Workorder: 1208F48

ANALYTICAL QC SUMMARY REPORT

BatchID: 165773

Sample ID: MB-165773	Client ID:	Units: ug/L	Prep Date: 08/29/2012	Run No: 227933							
Sample Type: MBLK	Test Code: TCL VOLATILE ORGANICS SW8260B	BatchID: 165773	Analysis Date: 08/29/2012	Seq No: 4770672							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	Hgh Limit	RPD Ref Val	%RPD	RPD Limit	Qual

cis-1,2-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
cis-1,3-Dichloropropene	BRL	5.0	0	0	0	0	0	0	0	0	0
Cyclohexane	BRL	5.0	0	0	0	0	0	0	0	0	0
Dibromochloromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Dichlorodifluoromethane	BRL	10	0	0	0	0	0	0	0	0	0
Ethylbenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Freon-113	BRL	10	0	0	0	0	0	0	0	0	0
Isopropylbenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
m,p-Xylene	BRL	5.0	0	0	0	0	0	0	0	0	0
Methyl acetate	BRL	5.0	0	0	0	0	0	0	0	0	0
Methyl tert-butyl ether	BRL	5.0	0	0	0	0	0	0	0	0	0
Methylcyclohexane	BRL	5.0	0	0	0	0	0	0	0	0	0
Methylene chloride	BRL	5.0	0	0	0	0	0	0	0	0	0
o-Xylene	BRL	5.0	0	0	0	0	0	0	0	0	0
Styrene	BRL	5.0	0	0	0	0	0	0	0	0	0
Tetrachloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
Toluene	BRL	5.0	0	0	0	0	0	0	0	0	0
trans-1,2-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
trans-1,3-Dichloropropene	BRL	5.0	0	0	0	0	0	0	0	0	0
Trichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
Trichlorofluoromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Vinyl chloride	BRL	2.0	0	0	0	0	0	0	0	0	0
Surr: 4-Bromofluorobenzene	47.81	0	50	0	95.6	67.4	123	0	0	0	0
Surr: Dibromofluoromethane	58.47	0	50	0	117	75.5	128	0	0	0	0
Surr: Toluene-d8	49.48	0	50	0	99	70	120	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 H Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive  
 Workorder: 1208F48

BatchID: 165773

ANALYTICAL QC SUMMARY REPORT

Sample ID: LCS-165773	Client ID:	Units: ug/L	Prep Date: 08/29/2012	Run No: 227933
Sample Type: LCS	Test Code: TCL VOLATILE ORGANICS SW8260B	BatchID: 165773	Analysis Date: 08/29/2012	Seq No: 4770661

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
1,1-Dichloroethene	49.26	5.0	50	0	98.5	60	140	0	0	0	
Benzene	51.08	5.0	50	0	102	70	130	0	0	0	
Chlorobenzene	46.92	5.0	50	0	93.8	70	130	0	0	0	
Toluene	51.47	5.0	50	0	103	70	130	0	0	0	
Trichloroethene	52.26	5.0	50	0	105	70	130	0	0	0	
Sur: 4-Bromofluorobenzene	50.01	0	50	0	100	67.4	123	0	0	0	
Sur: Dibromofluoromethane	52.31	0	50	0	105	75.5	128	0	0	0	
Sur: Toluene-d8	48.96	0	50	0	97.9	70	120	0	0	0	

Sample ID: 1208J49-007AMIS	Client ID:	Units: ug/L	Prep Date: 08/29/2012	Run No: 227933
Sample Type: MS	Test Code: TCL VOLATILE ORGANICS SW8260B	BatchID: 165773	Analysis Date: 08/29/2012	Seq No: 4770663

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
1,1-Dichloroethene	5306	250	2500	3042	90.6	50.1	179	0	0	0	
Benzene	2513	250	2500	0	101	61.2	150	0	0	0	
Chlorobenzene	2180	250	2500	0	87.2	72.1	140	0	0	0	
Toluene	2478	250	2500	0	99.1	58.7	154	0	0	0	
Trichloroethene	8749	250	2500	6113	105	68.3	149	0	0	0	
Sur: 4-Bromofluorobenzene	2594	0	2500	0	104	67.4	123	0	0	0	
Sur: Dibromofluoromethane	2718	0	2500	0	109	75.5	128	0	0	0	
Sur: Toluene-d8	2552	0	2500	0	102	70	120	0	0	0	

Sample ID: 1208J49-007AMIS	Client ID:	Units: ug/L	Prep Date: 08/29/2012	Run No: 227933
Sample Type: MSD	Test Code: TCL VOLATILE ORGANICS SW8260B	BatchID: 165773	Analysis Date: 08/29/2012	Seq No: 4770666

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
1,1-Dichloroethene	5366	250	2500	3042	93	50.1	179	5306	1.12	23.3	
Benzene	2568	250	2500	0	103	61.2	150	2513	2.18	19	

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantization range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 31-Aug-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive  
 Workorder: 1208F48

ANALYTICAL QC SUMMARY REPORT

BatchID: 165773

Sample ID: 1208149-007AMSD	Client ID:	Units: ug/L	Prep Date: 08/29/2012	Run No: 227933							
Sample Type: MSD	Test Code: ICL VOLATILE ORGANICS SW8260B	BatchID: 165773	Analysis Date: 08/29/2012	Seq No: 4770666							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chlorobenzene	2277	250	2500	0	91.1	72.1	140	2180	4.38	21.5	
Toluene	2560	250	2500	0	102	58.7	154	2478	3.26	20	
Trichloroethene	8992	250	2500	6113	115	68.3	149	8749	2.73	17.7	
Surr: 4-Bromofluorobenzene	2599	0	2500	0	104	67.4	123	2594	0	0	
Surr: Dibromofluoromethane	2769	0	2500	0	111	75.5	128	2718	0	0	
Surr: Toluene-d8	2493	0	2500	0	99.7	70	120	2552	0	0	

Qualifiers: > Greater than Result value  
 BRL Below Reporting Limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix



**AES**

**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

August 01, 2012

Britt Bickerstaff  
United Consulting Group Inc.  
625 Holcomb Bridge Rd  
Norcross GA 30071

TEL: (770) 582-2788

FAX: (770) 582-2900

RE: Liddell Drive Equalization

Dear Britt Bickerstaff:

Order No: 1207K20

Analytical Environmental Services, Inc. received 1 samples on July 25, 2012 5:13 pm for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/12-06/30/13.

-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/13.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Kathryn Waters  
Project Manager





ANALYTICAL ENVIRONMENTAL SERVICES, INC  
 3785 Presidential Parkway, Atlanta GA 30340-3704  
 A.E.S. TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 12071-0  
1/25/12

Date: 7/25/12 Page 1 of 1

#	SAMPLE ID	SAMPLING		DATE	TIME	Grab	Composite	Matrix (See codes)	ANALYSIS REQUESTED				REMARKS	No. of Containers
		DATE	TIME						PCRA Meth	VOC's	SVOC's	TC18-PCE		
1	TP-1e1	7/25/12	8:50	X				S	X	X				1
2	TP-1e2	7/25/12	9:35	X				S	X	X				6
3	TP-2e1	7/25/12	10:05	X				S	X	X				1
4	TP-2e2	7/25/12	10:30	X				S	X	X				6
5	TP-3e1	7/25/12	10:55	X				S	X	X				1
6	TP-3e2	7/25/12	11:10	X				S	X	X				6
7	TP-4e1	7/25/12	12:05	X				S	X	X				1
8	TP-4e2	7/25/12	12:30	X				S	X	X				6
9	TP-4e2.5	7/25/12	1:40	X				S	X	X				6
10	Duplicate	7/25/12	1:40	X				S	X	X				6
11	TP-1to4	7/25/12	12:40	X			X	S	X	X				1
12	TP-4e2	7/25/12	11:40	X				S	X	X				1
13	TP Blank	7/25/12						S	X					2
14	FB	7/25/12	4:00					S	X					1

REQUISITION BY: Paul Bullock DATE/TIME: 7/25/12 5:13

RECEIVED BY: Latoye P DATE/TIME: 7/25/12 5:13

PROJECT NAME: Liddell Drive Equulization Proj.

PROJECT #: 2012-3532.01

SITE ADDRESS: Liddell Drive, Atlanta GA

SEND REPORT TO: Bill Bullock

INVOICE TO: Bill Bullock

(IF DIFFERENT FROM ABOVE)

SHIPMENT METHOD: CLIENT VIA: UPS MAIL: CO COURIER: OTHER

QUOTE #: \_\_\_\_\_

STATE PROGRAM (if any): \_\_\_\_\_

E-mail: Y/N; FAX: Y/N

DATA PACKAGE: I II III IV

TURNAROUND TIME REQUEST: 0

STANDARD BUSINESS DAYS: 0

BUSINESS DAY RUSH: 0

NEXT BUSINESS DAY RUSH: 0

SAME DAY RUSH (with req.): 0

OTHER: 0

Total # of Containers: 48

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.

SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air; GW = Groundwater; SE = Sediment; SO = Soil; SW = Surface Water; W = Water (blanks); DW = Drinking Water (blanks); O = Other (specify); WW = Waste Water

PRESERVATIVE CODES: H+1 = Hydrochloric acid + ice; 1 = Ice only; N = Nitric acid; S+1 = Sulfuric acid + ice; SAA+1 = Sodium Bisulfite/Methanol + ice; O = Other (specify); NA = None

White Copy - Original; Yellow Copy - Client

Page 2 of 9

**Client:** United Consulting Group Inc.  
**Project:** Liddell Drive Equalization  
**Lab ID:** 1207K20

**Case Narrative**

Per email request from Russ Greibel on 7/30/12 at 10:24 am samples 1207H10-002C, 1207H10-003A, and 1207H10-004C should be composited into one sample and analyze for TCLP-RCRA Metals. The results for work order 1207K20 are due date is 7/31/12.

Analytical Environmental Services, Inc

Date: 31-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TP-1@2.5/ TP-2@1/ TP-2@6
<b>Project Name:</b> Liddell Drive Equalization	<b>Collection Date:</b> 7/25/2012 10:30:00 AM
<b>Lab ID:</b> 1207K20-001	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>MERCURY, TCLP SW1311/7470A</b>								
					(SW7470A)			
Mercury	BRL	0.00400		mg/L	164432	1	07/31/2012 13:17	MW
<b>ICP METALS, TCLP SW1311/6010C</b>								
					(SW3010A)			
Arsenic	BRL	0.250		mg/L	164522	1	07/31/2012 13:22	MR
Barium	1.67	0.500		mg/L	164522	1	07/31/2012 13:22	MR
Cadmium	BRL	0.0250		mg/L	164522	1	07/31/2012 13:22	MR
Chromium	BRL	0.0500		mg/L	164522	1	07/31/2012 13:22	MR
Lead	1.70	0.0500		mg/L	164522	1	07/31/2012 13:22	MR
Selenium	BRL	0.100		mg/L	164522	1	07/31/2012 13:22	MR
Silver	BRL	0.0250		mg/L	164522	1	07/31/2012 13:22	MR

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

KEN  
7/30/12 12071620

Client United Consulting

Work Order Number 12071620

Checklist completed by [Signature] 07/28/12  
Signature Date

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- Custody seals intact on sample bottles? Yes  No  Not Present
- Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 37 Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Was TAT marked on the COC? Yes  No
- Proceed with Standard TAT as per project history? Yes  No  Not Applicable
- Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No
- Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by AM

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.

**Analytical Environmental Services, Inc**

Date: 1-Aug-12

Client:	United Consulting Group Inc.
Project:	Liddell Drive Equalization
Lab Order:	1207K20

**Dates Report**

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1207K20-001A	TP-1@2.5/ TP-2@1/ TP-2@6	7/25/2012 10:30:00AM	Soil	MERCURY, TCLP Leached	07/30/2012	07/31/2012	07/31/2012
1207K20-001A	TP-1@2.5/ TP-2@1/ TP-2@6	7/25/2012 10:30:00AM	Soil	ICP METALS, TCLP Leached	07/30/2012	07/31/2012	07/31/2012

Analytical Environmental Services, Inc

Date: 1-Aug-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization  
 Workorder: 1207K20

BatchID: 164432

Sample ID: MB-164432	Client ID:	Units:	Prep Date:	Run No:
Sample Type: MBLK	Test Code: MERCURY, TCLP	mg/L	07/30/2012	226009
		BatchID: 164432	Analysis Date: 07/30/2012	Seq No: 4730791
Analyte	Result	RPT Limit	SPK value	SPK RefVal
Mercury	BRL	0.00400	0	0
			%REC	Low Limit
			0	0
				High Limit
				0
				RPD RefVal
				0
				%RPD
				RPD Limit
				Qual

Sample ID: LCS-164432	Client ID:	Units:	Prep Date:	Run No:
Sample Type: LCS	Test Code: MERCURY, TCLP	mg/L	07/30/2012	226009
		BatchID: 164432	Analysis Date: 07/30/2012	Seq No: 4730792
Analyte	Result	RPT Limit	SPK value	SPK RefVal
Mercury	0.03686	0.00400	0.04	0
			%RBC	Low Limit
			92.1	80
				High Limit
				120
				RPD RefVal
				0
				%RPD
				RPD Limit
				Qual

Sample ID: 1207113-001AMMS	Client ID:	Units:	Prep Date:	Run No:
Sample Type: MS	Test Code: MERCURY, TCLP	mg/L	07/30/2012	226009
		BatchID: 164432	Analysis Date: 07/30/2012	Seq No: 4730794
Analyte	Result	RPT Limit	SPK value	SPK RefVal
Mercury	0.03597	0.00400	0.04	0
			%REC	Low Limit
			89.9	80
				High Limit
				120
				RPD RefVal
				0
				%RPD
				RPD Limit
				Qual

Sample ID: 1207113-001AMMS	Client ID:	Units:	Prep Date:	Run No:
Sample Type: MSD	Test Code: MERCURY, TCLP	mg/L	07/30/2012	226009
		BatchID: 164432	Analysis Date: 07/30/2012	Seq No: 4730795
Analyte	Result	RPT Limit	SPK value	SPK RefVal
Mercury	0.03638	0.00400	0.04	0
			%RBC	Low Limit
			90.9	80
				High Limit
				120
				RPD RefVal
				0.03597
				%RPD
				1.12
				RPD Limit
				20
				Qual

Qualifiers: 1 Greater than Result value 4 Less than Result value B Analyte detected in the associated method blank

2 Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded

3 Estimated value detected below Reporting Limit F Analyte not NEL AC certified I RPD outside limits due to matrix

4 Rpt Lim Reporting Limit G Spike Recovery outside limits due to matrix

Analytical Environmental Services, Inc

Date: 1-Aug-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization  
 Workorder: 1207K20

ANALYTICAL QC SUMMARY REPORT

BatchID: 164522

Sample ID: MB-164522	Client ID:	Units: mg/L	Prep Date:	Run No: 226053							
Sample Type: MBLK	Test Code: ICP METALS, TCLP SW1311/6010C	BatchID: 164522	Analysis Date: 07/31/2012	Seq No: 4732048							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	BRL	0.250	0	0	0	0	0	0	0	0	0
Barium	BRL	0.500	0	0	0	0	0	0	0	0	0
Cadmium	BRL	0.0250	0	0	0	0	0	0	0	0	0
Chromium	BRL	0.0500	0	0	0	0	0	0	0	0	0
Lead	BRL	0.0500	0	0	0	0	0	0	0	0	0
Selenium	BRL	0.100	0	0	0	0	0	0	0	0	0
Silver	BRL	0.0250	0	0	0	0	0	0	0	0	0

Sample ID: MB-164522-2	Client ID:	Units: mg/L	Prep Date:	Run No: 226053							
Sample Type: MBLK	Test Code: ICP METALS, TCLP SW1311/6010C	BatchID: 164522	Analysis Date: 07/31/2012	Seq No: 4732050							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	BRL	0.250	0	0	0	0	0	0	0	0	0
Barium	BRL	0.500	0	0	0	0	0	0	0	0	0
Cadmium	BRL	0.0250	0	0	0	0	0	0	0	0	0
Chromium	BRL	0.0500	0	0	0	0	0	0	0	0	0
Lead	BRL	0.0500	0	0	0	0	0	0	0	0	0
Selenium	BRL	0.100	0	0	0	0	0	0	0	0	0
Silver	BRL	0.0250	0	0	0	0	0	0	0	0	0

Sample ID: LCS-164522	Client ID:	Units: mg/L	Prep Date:	Run No: 226053							
Sample Type: LCS	Test Code: ICP METALS, TCLP SW1311/6010C	BatchID: 164522	Analysis Date: 07/31/2012	Seq No: 4732047							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	5.330	0.250	5	0	107	85	115	0	0	0	0
Barium	4.941	0.500	5	0	98.8	80	120	0	0	0	0
Cadmium	5.161	0.0250	5	0	103	85	115	0	0	0	0
Chromium	5.216	0.0500	5	0	104	85	115	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

**ANALYTICAL QC SUMMARY REPORT**

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization  
 Workorder: 1207K20

BatchID: 164522

Sample ID: LCS-164522	Client ID:	Units:	mg/L	Prep Date:	07/31/2012	Run No:	226053				
Sample Type: LCS	Test Code: ICP METALS, TCLP	BatchID:	164522	Analysis Date:	07/31/2012	Seq No:	4732047				
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Lead	4.969	0.0500	5	0	99.4	85	115	0	0	0	0
Selenium	5.408	0.100	5	0	108	85	115	0	0	0	0
Silver	0.5020	0.0250	0.5	0	100	85	115	0	0	0	0

Sample ID: 1207K20-001AAMS	Client ID: TP-1@2.5/TP-2@1/TP-2@6	Units:	mg/L	Prep Date:	07/31/2012	Run No:	226053				
Sample Type: MS	Test Code: ICP METALS, TCLP	BatchID:	164522	Analysis Date:	07/31/2012	Seq No:	4732052				
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	5.344	0.250	5	0	107	50	150	0	0	0	0
Barium	6.619	0.500	5	1.672	98.9	50	150	0	0	0	0
Cadmium	5.130	0.0250	5	0.01258	102	50	150	0	0	0	0
Chromium	5.157	0.0500	5	0	103	50	150	0	0	0	0
Lead	6.700	0.0500	5	1.698	100	50	150	0	0	0	0
Selenium	5.423	0.100	5	0	108	50	150	0	0	0	0
Silver	0.5019	0.0250	0.5	0	100	50	150	0	0	0	0

Sample ID: 1207K20-001AAMS	Client ID: TP-1@2.5/TP-2@1/TP-2@6	Units:	mg/L	Prep Date:	07/31/2012	Run No:	226053				
Sample Type: MSD	Test Code: ICP METALS, TCLP	BatchID:	164522	Analysis Date:	07/31/2012	Seq No:	4732054				
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	5.335	0.250	5	0	107	50	150	5.344	0.168	30	30
Barium	6.619	0.500	5	1.672	98.9	50	150	6.619	0.005	30	30
Cadmium	5.128	0.0250	5	0.01258	102	50	150	5.130	0.045	30	30
Chromium	5.121	0.0500	5	0	102	50	150	5.157	0.684	30	30
Lead	6.698	0.0500	5	1.698	100	50	150	6.700	0.036	30	30
Selenium	5.416	0.100	5	0	108	50	150	5.423	0.121	30	30
Silver	0.4996	0.0250	0.5	0	99.9	50	150	0.5019	0.449	30	30

Qualifiers:	1	Greater than Result value	2	Less than Result value	3	Estimated value above quantitation range)	4	Analyte not NEH A/C certified	5	Spike Recovery outside limits due to matrix	6	Analyte detected in the associated method blank	7	Holding times for preparation or analysis exceeded	8	RPD outside limits due to matrix
BRL	1	Below reporting limit	E	Estimated value above quantitation range)	N	Analyte not NEH A/C certified	R	RPD outside limits due to matrix								
Rpt Lim	1	Reporting Limit	S	Spike Recovery outside limits due to matrix												





**AES**

**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

July 30, 2012

Britt Bickerstaff  
United Consulting Group Inc.  
625 Holcomb Bridge Rd  
Norcross GA 30071

TEL: (770) 582-2788  
FAX: (770) 582-2900

RE: Liddell Drive Equalization Project

Dear Britt Bickerstaff:

Order No: 1207F94

Analytical Environmental Services, Inc. received 3 samples on July 24, 2012 1:40 pm for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/12-06/30/13.
- AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/13.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Kathryn Waters  
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC.  
 3783 Presidential Parkway, Atlanta GA 30340-3704  
 TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 12071994

Date: 7/24/12 Page 1 of 1

COMPANY: <b>United Consulting</b> PHONE: <b>678-410-8474</b> SAMPLED BY: <b>Britt Bickelstae</b>		ADDRESS: <b>625 Holcomb Br. Rd</b> <b>Norcross GA 30071</b> FAX:		ANALYSIS REQUESTED <b>VOC's</b> <b>SUOC's</b> <b>RLRA tot.</b> <b>RLRA diss.</b>				Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.		No # of Containers	
SAMPLE ID <b>LD-B8</b> <b>LD-A</b> <b>Trip Blank</b>		DATE <b>7/24/12 12:50p</b> <b>7/24/12 12:50p</b> <b>7/24/12</b>		TIME <b>12:50p</b> <b>12:50p</b> <b></b>		Grab <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Matrix (See codes) <input type="checkbox"/>		REMARKS			
RECEIVED BY: <b>[Signature]</b> DATE/TIME: <b>7/24/12 1:45</b>		RECEIVED BY: <b>[Signature]</b> DATE/TIME: <b>7/24/12 1:45</b>		PROJECT INFORMATION PROJECT NAME: <b>Liddell Drive Equalization Project</b> PROJECT #: <b>2012-3512.01</b> SITE ADDRESS: <b>Liddell Drive, Atlanta GA</b> SEND REPORT TO: <b>Britt Bickelstae</b> INVOICE TO: <b>[Blank]</b> (IF DIFFERENT FROM ABOVE)				RECEIPT Total # of Containers: <b>10</b> <input type="radio"/> Turnaround Time Request <input type="radio"/> Standard 3 Business Days <input checked="" type="radio"/> 2 Business Day Rush <input type="radio"/> Next Business Day Rush <input type="radio"/> Same Day Rush (auth req.) <input type="radio"/> Other:		STATE PROGRAM (if any): E-mail: Y/N, Fax? Y/N DATA PACKAGE: I II III IV	
SPECIAL INSTRUCTIONS/COMMENTS: SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OR SAMPLES. SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.											

MATRIX CODES: A = Air GIV = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Banks) DW = Drinking Water (Banks) O = Other (specify) W/W = Waste Water  
 PRESERVATIVE CODES: H-1 = Hydrochloric acid + ice I = Ice only N = Nitric acid S-1 = Sulfuric acid + ice S/M-1 = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

**Client:** United Consulting Group Inc.  
**Project:** Liddell Drive Equalization Project  
**Lab ID:** 1207F94

**Case Narrative**

Semi-Volatile Organics Analysis by Method 8270D:

Phenol values for the QC samples 1207D55-016CMS/MSD are "E" qualified indicating estimated values over linear calibration range due to the level of target analyte present in the unspiked sample.

Analytical Environmental Services, Inc

Date: 30-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> LD-B8
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/24/2012 12:50:00 PM
<b>Lab ID:</b> 1207F94-001	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL-SEMI-VOLATILE ORGANICS</b>	<b>SW8270D</b>				<b>(SW3510C)</b>			
1,1'-Biphenyl	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	164270	1	07/25/2012 14:20	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
2,4-Dichlorophenol	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
2,4-Dimethylphenol	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
2,4-Dinitrophenol	BRL	25		ug/L	164270	1	07/25/2012 14:20	YH
2,4-Dinitrotoluene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
2,6-Dinitrotoluene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
2-Chloronaphthalene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
2-Chlorophenol	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
2-Methylnaphthalene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
2-Methylphenol	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
2-Nitroaniline	BRL	25		ug/L	164270	1	07/25/2012 14:20	YH
2-Nitrophenol	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
3,3'-Dichlorobenzidine	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
3-Nitroaniline	BRL	25		ug/L	164270	1	07/25/2012 14:20	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	164270	1	07/25/2012 14:20	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
4-Chloroaniline	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
4-Methylphenol	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
4-Nitroaniline	BRL	25		ug/L	164270	1	07/25/2012 14:20	YH
4-Nitrophenol	BRL	25		ug/L	164270	1	07/25/2012 14:20	YH
Acenaphthene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Acenaphthylene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Acetophenone	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Anthracene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Atrazine	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Benz(a)anthracene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Benzaldehyde	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Benzo(a)pyrene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Benzo(b)fluoranthene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Benzo(g,h,i)perylene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Benzo(k)fluoranthene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Butyl benzyl phthalate	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Caprolactam	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	LD-B8
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/24/2012 12:50:00 PM
Lab ID:	1207F94-001	Matrix:	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>		<b>(SW3510C)</b>						
Carbazole	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Chrysene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Di-n-butyl phthalate	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Di-n-octyl phthalate	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Dibenz(a,h)anthracene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Dibenzofuran	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Diethyl phthalate	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Dimethyl phthalate	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Fluoranthene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Fluorene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Hexachlorobenzene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Hexachlorobutadiene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Hexachlorocyclopentadiene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Hexachloroethane	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Indeno(1,2,3-cd)pyrene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Isophorone	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Naphthalene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Nitrobenzene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Pentachlorophenol	BRL	25		ug/L	164270	1	07/25/2012 14:20	YH
Phenanthrene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Phenol	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Pyrene	BRL	10		ug/L	164270	1	07/25/2012 14:20	YH
Surr: 2,4,6-Tribromophenol	102	47.4-146		%REC	164270	1	07/25/2012 14:20	YH
Surr: 2-Fluorobiphenyl	95.2	51.5-122		%REC	164270	1	07/25/2012 14:20	YH
Surr: 2-Fluorophenol	62.4	28.5-120		%REC	164270	1	07/25/2012 14:20	YH
Surr: 4-Terphenyl-d14	112	47.7-133		%REC	164270	1	07/25/2012 14:20	YH
Surr: Nitrobenzene-d5	82.6	45.7-120		%REC	164270	1	07/25/2012 14:20	YH
Surr: Phenol-d5	43.8	10.9-120		%REC	164270	1	07/25/2012 14:20	YH
<b>TCL VOLATILE ORGANICS SW8260B</b>		<b>(SW5030B)</b>						
1,1,1-Trichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,1-Dichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,1-Dichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,2-Dibromoethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> LD-B8
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/24/2012 12:50:00 PM
<b>Lab ID:</b> 1207F94-001	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5030B)</b>			
1,2-Dichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,2-Dichloropropane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
2-Butanone	BRL	50		ug/L	164240	1	07/24/2012 18:21	NP
2-Hexanone	BRL	10		ug/L	164240	1	07/24/2012 18:21	NP
4-Methyl-2-pentanone	BRL	10		ug/L	164240	1	07/24/2012 18:21	NP
Acetone	BRL	50		ug/L	164240	1	07/24/2012 18:21	NP
Benzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Bromodichloromethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Bromoform	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Bromomethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Carbon disulfide	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Carbon tetrachloride	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Chlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Chloroethane	BRL	10		ug/L	164240	1	07/24/2012 18:21	NP
Chloroform	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Chloromethane	BRL	10		ug/L	164240	1	07/24/2012 18:21	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Cyclohexane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Dibromochloromethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Dichlorodifluoromethane	BRL	10		ug/L	164240	1	07/24/2012 18:21	NP
Ethylbenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Freon-113	BRL	10		ug/L	164240	1	07/24/2012 18:21	NP
Isopropylbenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
m,p-Xylene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Methyl acetate	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Methylcyclohexane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Methylene chloride	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
o-Xylene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Styrene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Tetrachloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Toluene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Trichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Trichlorofluoromethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:21	NP
Vinyl chloride	BRL	2.0		ug/L	164240	1	07/24/2012 18:21	NP
Surr: 4-Bromofluorobenzene	81.1	67.4-123		%REC	164240	1	07/24/2012 18:21	NP

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> LD-B8
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/24/2012 12:50:00 PM
<b>Lab ID:</b> 1207F94-001	<b>Matrix:</b> Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5030B)</b>			
Surr: Dibromofluoromethane	114	75.5-128		%REC	164240	1	07/24/2012 18:21	NP
Surr: Toluene-d8	93.6	70-120		%REC	164240	1	07/24/2012 18:21	NP
<b>METALS, DISSOLVED SW6010C</b>					<b>(SW3005A)</b>			
Arsenic	BRL	0.0500		mg/L	164247	1	07/25/2012 10:22	MR
Barium	0.0347	0.0200		mg/L	164247	1	07/25/2012 10:22	MR
Cadmium	BRL	0.0050		mg/L	164247	1	07/25/2012 10:22	MR
Chromium	BRL	0.0100		mg/L	164247	1	07/25/2012 10:22	MR
Lead	BRL	0.0100		mg/L	164247	1	07/25/2012 10:22	MR
Selenium	BRL	0.0200		mg/L	164247	1	07/25/2012 10:22	MR
Silver	BRL	0.0100		mg/L	164247	1	07/25/2012 10:22	MR
<b>Mercury, Total SW7470A</b>					<b>(SW7470A)</b>			
Mercury	BRL	0.00020		mg/L	164234	1	07/25/2012 13:50	LD
<b>Mercury, Dissolved SW7470A</b>					<b>(SW7470A)</b>			
Mercury	BRL	0.00020		mg/L	164207	1	07/25/2012 12:53	LD
<b>METALS, TOTAL SW6010C</b>					<b>(SW3010A)</b>			
Arsenic	BRL	0.0500		mg/L	164193	1	07/25/2012 13:38	MR
Barium	0.0433	0.0200		mg/L	164193	1	07/25/2012 13:38	MR
Cadmium	BRL	0.0050		mg/L	164193	1	07/25/2012 13:38	MR
Chromium	BRL	0.0100		mg/L	164193	1	07/25/2012 13:38	MR
Lead	BRL	0.0100		mg/L	164193	1	07/25/2012 13:38	MR
Selenium	BRL	0.0200		mg/L	164193	1	07/25/2012 13:38	MR
Silver	BRL	0.0100		mg/L	164193	1	07/25/2012 13:38	MR

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	LD-A
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/24/2012 12:50:00 PM
Lab ID:	1207F94-002	Matrix:	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B					(SW5030B)			
1,1,1-Trichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,1-Dichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,1-Dichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,2-Dibromoethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,2-Dichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,2-Dichloropropane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
2-Butanone	BRL	50		ug/L	164240	1	07/24/2012 18:50	NP
2-Hexanone	BRL	10		ug/L	164240	1	07/24/2012 18:50	NP
4-Methyl-2-pentanone	BRL	10		ug/L	164240	1	07/24/2012 18:50	NP
Acetone	BRL	50		ug/L	164240	1	07/24/2012 18:50	NP
Benzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Bromodichloromethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Bromoform	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Bromomethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Carbon disulfide	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Carbon tetrachloride	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Chlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Chloroethane	BRL	10		ug/L	164240	1	07/24/2012 18:50	NP
Chloroform	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Chloromethane	BRL	10		ug/L	164240	1	07/24/2012 18:50	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Cyclohexane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Dibromochloromethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Dichlorodifluoromethane	BRL	10		ug/L	164240	1	07/24/2012 18:50	NP
Ethylbenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Freon-113	BRL	10		ug/L	164240	1	07/24/2012 18:50	NP
Isopropylbenzene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
m,p-Xylene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Methyl acetate	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Methylcyclohexane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Methylene chloride	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
o-Xylene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit



Analytical Environmental Services, Inc

Date: 30-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	LD-A
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/24/2012 12:50:00 PM
Lab ID:	1207F94-002	Matrix:	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B		(SW5030B)						
Styrene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Tetrachloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Toluene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Trichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Trichlorofluoromethane	BRL	5.0		ug/L	164240	1	07/24/2012 18:50	NP
Vinyl chloride	BRL	2.0		ug/L	164240	1	07/24/2012 18:50	NP
Surr: 4-Bromofluorobenzene	80.3	67.4-123		%REC	164240	1	07/24/2012 18:50	NP
Surr: Dibromofluoromethane	123	75.5-128		%REC	164240	1	07/24/2012 18:50	NP
Surr: Toluene-d8	91.4	70-120		%REC	164240	1	07/24/2012 18:50	NP

Qualifiers: \* Value exceeds maximum contaminant level  
 BRL Below reporting limit  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 B Analyte detected in the associated method blank  
 > Greater than Result value  
 E Estimated (value above quantitation range)  
 S Spike Recovery outside limits due to matrix  
 Narr See case narrative  
 NC Not confirmed  
 < Less than Result value  
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TRIP BLANK
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/24/2012
Lab ID:	1207F94-003	Matrix:	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5030B)</b>			
1,1,1-Trichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,1-Dichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,1-Dichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,2-Dibromoethane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,2-Dichloroethane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,2-Dichloropropane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
2-Butanone	BRL	50		ug/L	164240	1	07/24/2012 17:52	NP
2-Hexanone	BRL	10		ug/L	164240	1	07/24/2012 17:52	NP
4-Methyl-2-pentanone	BRL	10		ug/L	164240	1	07/24/2012 17:52	NP
Acetone	BRL	50		ug/L	164240	1	07/24/2012 17:52	NP
Benzene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Bromodichloromethane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Bromoform	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Bromomethane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Carbon disulfide	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Carbon tetrachloride	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Chlorobenzene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Chloroethane	BRL	10		ug/L	164240	1	07/24/2012 17:52	NP
Chloroform	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Chloromethane	BRL	10		ug/L	164240	1	07/24/2012 17:52	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Cyclohexane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Dibromochloromethane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Dichlorodifluoromethane	BRL	10		ug/L	164240	1	07/24/2012 17:52	NP
Ethylbenzene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Freon-113	BRL	10		ug/L	164240	1	07/24/2012 17:52	NP
Isopropylbenzene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
m,p-Xylene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Methyl acetate	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Methylcyclohexane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Methylene chloride	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
o-Xylene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TRIP BLANK
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/24/2012
<b>Lab ID:</b> 1207F94-003	<b>Matrix:</b> Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>								
					(SW5030B)			
Styrene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Tetrachloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Toluene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Trichloroethene	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Trichlorofluoromethane	BRL	5.0		ug/L	164240	1	07/24/2012 17:52	NP
Vinyl chloride	BRL	2.0		ug/L	164240	1	07/24/2012 17:52	NP
Surr: 4-Bromofluorobenzene	86.1	67.4-123		%REC	164240	1	07/24/2012 17:52	NP
Surr: Dibromofluoromethane	112	75.5-128		%REC	164240	1	07/24/2012 17:52	NP
Surr: Toluene-d8	94	70-120		%REC	164240	1	07/24/2012 17:52	NP

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client: United Consulting Group Inc.  
 Project: Liddell Drive Equalization Project  
 Lab Order: 1207F94

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1207F94-001A	LD-B8	7/24/2012 12:50:00PM	Groundwater	TCL VOLATILE ORGANICS		07/24/2012	07/24/2012
1207F94-001B	LD-B8	7/24/2012 12:50:00PM	Groundwater	TOTAL METALS BY ICP		07/24/2012	07/25/2012
1207F94-001B	LD-B8	7/24/2012 12:50:00PM	Groundwater	TOTAL MERCURY		07/24/2012	07/25/2012
1207F94-001C	LD-B8	7/24/2012 12:50:00PM	Groundwater	DISSOLVED METALS BY ICP		07/24/2012	07/25/2012
1207F94-001C	LD-B8	7/24/2012 12:50:00PM	Groundwater	MERCURY, DISSOLVED		07/24/2012	07/25/2012
1207F94-001D	LD-B8	7/24/2012 12:50:00PM	Groundwater	TCL-SEMIVOLATILE ORGANICS		07/25/2012	07/25/2012
1207F94-002A	LD-A	7/24/2012 12:50:00PM	Groundwater	TCL VOLATILE ORGANICS		07/24/2012	07/24/2012
1207F94-003A	TRIP BLANK	7/24/2012 12:00:00AM	Aqueous	TCL VOLATILE ORGANICS		07/24/2012	07/24/2012

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

ANALYTICAL QC SUMMARY REPORT

BatchID: 164193

Sample ID:	MB-164193	Client ID:	METALS, TOTAL	SW6010C	Units:	mg/L	Prep Date:	07/24/2012	Run No:	225725	
Sample Type:	MBLK	Test Code:	METALS, TOTAL	SW6010C	BatchID:	164193	Analysis Date:	07/25/2012	Seq No:	4724776	
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	BRL	0.0500	0	0	0	0	0	0	0	0	0
Barium	BRL	0.0200	0	0	0	0	0	0	0	0	0
Cadmium	BRL	0.0050	0	0	0	0	0	0	0	0	0
Chromium	BRL	0.0100	0	0	0	0	0	0	0	0	0
Lead	BRL	0.0100	0	0	0	0	0	0	0	0	0
Selenium	BRL	0.0200	0	0	0	0	0	0	0	0	0
Silver	BRL	0.0100	0	0	0	0	0	0	0	0	0

Sample ID:	LCS-164193	Client ID:	METALS, TOTAL	SW6010C	Units:	mg/L	Prep Date:	07/24/2012	Run No:	225725	
Sample Type:	LCS	Test Code:	METALS, TOTAL	SW6010C	BatchID:	164193	Analysis Date:	07/25/2012	Seq No:	4724775	
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	1.104	0.0500	1	0	110	80	120	0	0	0	0
Barium	1.025	0.0200	1	0	103	80	120	0	0	0	0
Cadmium	1.062	0.0050	1	0	106	80	120	0	0	0	0
Chromium	1.067	0.0100	1	0	107	80	120	0	0	0	0
Lead	1.063	0.0100	1	0	106	80	120	0	0	0	0
Selenium	1.126	0.0200	1	0	113	80	120	0	0	0	0
Silver	0.1036	0.0100	0.1	0	104	80	120	0	0	0	0

Sample ID:	1207F94-001BMS	Client ID:	LD-B8	Units:	mg/L	Prep Date:	07/24/2012	Run No:	225725		
Sample Type:	MS	Test Code:	METALS, TOTAL	SW6010C	BatchID:	164193	Analysis Date:	07/25/2012	Seq No:	4724778	
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	1.076	0.0500	1	0	108	75	125	0	0	0	0
Barium	1.003	0.0200	1	0.04332	96	75	125	0	0	0	0
Cadmium	1.013	0.0050	1	0	101	75	125	0	0	0	0
Chromium	1.053	0.0100	1	0.004328	105	75	125	0	0	0	0

Sample ID:	1207F94-001BMS	Client ID:	LD-B8	Units:	mg/L	Prep Date:	07/24/2012	Run No:	225725		
Sample Type:	MS	Test Code:	METALS, TOTAL	SW6010C	BatchID:	164193	Analysis Date:	07/25/2012	Seq No:	4724778	
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	1.076	0.0500	1	0	108	75	125	0	0	0	0
Barium	1.003	0.0200	1	0.04332	96	75	125	0	0	0	0
Cadmium	1.013	0.0050	1	0	101	75	125	0	0	0	0
Chromium	1.053	0.0100	1	0.004328	105	75	125	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantification range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

BatchID: 164193

Sample ID: 1207F94-001BMS  
 Sample Type: MS

Client ID: LD-B8  
 Test Code: METALS, TOTAL

Units: mg/L  
 BatchID: 164193

Prep Date: 07/24/2012  
 Analysis Date: 07/25/2012  
 Run No: 225725  
 Seq No: 4724778

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
Lead	0.9810	0.0100	1	0	98.1	75	125	0	0	0	
Selenium	1.088	0.0200	1	0.006166	108	75	125	0	0	0	
Silver	0.09984	0.0100	0.1	0	99.8	75	125	0	0	0	

Sample ID: 1207F94-001BMSD  
 Sample Type: MSD

Client ID: LD-B8  
 Test Code: METALS, TOTAL

Units: mg/L  
 BatchID: 164193

Prep Date: 07/24/2012  
 Analysis Date: 07/25/2012  
 Run No: 225725  
 Seq No: 4724779

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
Arsenic	1.084	0.0500	1	0	108	75	125	1.076	0.669	20	
Barium	1.008	0.0200	1	0.04332	96.5	75	125	1.003	0.544	20	
Cadmium	1.019	0.0050	1	0	102	75	125	1.013	0.605	20	
Chromium	1.061	0.0100	1	0.004328	106	75	125	1.053	0.783	20	
Lead	0.9862	0.0100	1	0	98.6	75	125	0.9810	0.52	20	
Selenium	1.099	0.0200	1	0.006166	109	75	125	1.088	1.01	20	
Silver	0.1007	0.0100	0.1	0	101	75	125	0.09984	0.825	20	

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 E Estimated value above quantitation range)  
 N Analyte not NELAC certified  
 R RPD outside limits due to matrix  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

**Analytical Environmental Services, Inc**

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

Date: 30-Jul-12

**ANALYTICAL QC SUMMARY REPORT**

Sample ID: MB-164207 Client ID: BatchID: 164207  
 Sample Type: MBLK Test Code: Mercury, Dissolved SW7470A  
 Analyte Result RPT Limit SPK value SPK Ref Val %REC Low Limit High Limit RPD Ref Val %RPD RPD Limit Qual  
 Mercury BRL 0.00020 0 0 0 0 0 0 0 0 0 0 0

Sample ID: LCS-164207 Client ID: BatchID: 164207  
 Sample Type: LCS Test Code: Mercury, Dissolved SW7470A  
 Analyte Result RPT Limit SPK value SPK Ref Val %REC Low Limit High Limit RPD Ref Val %RPD RPD Limit Qual  
 Mercury 0.004701 0.00020 0.005 0 94 85 115 0 0 0 0 0

Sample ID: 1207C21-002DMS Client ID: BatchID: 164207  
 Sample Type: MS Test Code: Mercury, Dissolved SW7470A  
 Analyte Result RPT Limit SPK value SPK Ref Val %REC Low Limit High Limit RPD Ref Val %RPD RPD Limit Qual  
 Mercury 0.004465 0.00020 0.005 0 89.3 70 130 0 0 0 0 0

Sample ID: 1207C21-002DMSD Client ID: BatchID: 164207  
 Sample Type: MSD Test Code: Mercury, Dissolved SW7470A  
 Analyte Result RPT Limit SPK value SPK Ref Val %REC Low Limit High Limit RPD Ref Val %RPD RPD Limit Qual  
 Mercury 0.004448 0.00020 0.005 0 89 70 130 0.004465 0.378 20

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantization range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

BatchID: 164234

Sample ID: MB-164234	Client ID:	Units: mg/L	Prep Date: 07/24/2012	Run No: 225740
Sample Type: MBLK	Test Code: Mercury, Total SW7470A	BatchID: 164234	Analysis Date: 07/25/2012	Seq No: 4725120
Analyte	Result	RPT Limit	SPK value	SPK RefVal
	BRL	0.00020	0	0
		%REC	Low Limit	High Limit
		0	0	0
		RPD RefVal	%RPD	RPD Limit
		0	0	0

Sample ID: LCS-164234	Client ID:	Units: mg/L	Prep Date: 07/24/2012	Run No: 225740
Sample Type: LCS	Test Code: Mercury, Total SW7470A	BatchID: 164234	Analysis Date: 07/25/2012	Seq No: 4725122
Analyte	Result	RPT Limit	SPK value	SPK RefVal
	0.005360	0.00020	0.005	0
		%REC	Low Limit	High Limit
		107	85	115
		RPD RefVal	%RPD	RPD Limit
		0	0	0

Sample ID: 1207C84-003AMMS	Client ID:	Units: mg/L	Prep Date: 07/24/2012	Run No: 225740
Sample Type: MS	Test Code: Mercury, Total SW7470A	BatchID: 164234	Analysis Date: 07/25/2012	Seq No: 4725126
Analyte	Result	RPT Limit	SPK value	SPK RefVal
	0.005358	0.00020	0.005	0
		%REC	Low Limit	High Limit
		107	70	130
		RPD RefVal	%RPD	RPD Limit
		0	0	0

Sample ID: 1207C84-003AMMSD	Client ID:	Units: mg/L	Prep Date: 07/24/2012	Run No: 225740
Sample Type: MSD	Test Code: Mercury, Total SW7470A	BatchID: 164234	Analysis Date: 07/25/2012	Seq No: 4725128
Analyte	Result	RPT Limit	SPK value	SPK RefVal
	0.005362	0.00020	0.005	0
		%REC	Low Limit	High Limit
		107	70	130
		RPD RefVal	%RPD	RPD Limit
		0.005358	0.082	20

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 1 Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

1: Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix



Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddle Drive Equalization Project  
 Workorder: 1207F94

ANALYTICAL QC SUMMARY REPORT

BatchID: 164240

Sample ID: MB-164240	Client ID:	Units: ug/L	Prep Date: 07/24/2012	Run No: 225686							
Sample Type: MBLK	TestCode: ICL VOLATILE ORGANICS SW8260B	BatchID: 164240	Analysis Date: 07/24/2012	Seq No: 4724000							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	HIGH Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1,2,2-Tetrachloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1,2-Trichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1-Dichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dibromo-3-chloropropane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dibromoethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichloropropane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,3-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,4-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
2-Butanone	BRL	5.0	0	0	0	0	0	0	0	0	0
2-Hexanone	BRL	1.0	0	0	0	0	0	0	0	0	0
4-Methyl-2-pentanone	BRL	1.0	0	0	0	0	0	0	0	0	0
Acetone	BRL	5.0	0	0	0	0	0	0	0	0	0
Benzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromodichloromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromoform	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromomethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Carbon disulfide	BRL	5.0	0	0	0	0	0	0	0	0	0
Carbon tetrachloride	BRL	5.0	0	0	0	0	0	0	0	0	0
Chlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Chloroethane	BRL	1.0	0	0	0	0	0	0	0	0	0
Chloroform	BRL	5.0	0	0	0	0	0	0	0	0	0
Chloromethane	BRL	1.0	0	0	0	0	0	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

BatchID: 164240

Sample ID: MB-164240  
 Sample Type: MBIK

Client ID:  
 TestCode: TCL VOLATILE ORGANICS SW8260B

Units: ug/L  
 BatchID: 164240

Prep Date: 07/24/2012  
 Analysis Date: 07/24/2012  
 Run No: 225686  
 Seq No: 4724000

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
cis-1,3-Dichloropropene	BRL	5.0	0	0	0	0	0	0	0	0	0
Cyclohexane	BRL	5.0	0	0	0	0	0	0	0	0	0
Dibromochloromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Dichlorodifluoromethane	BRL	10	0	0	0	0	0	0	0	0	0
Ethylbenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Freon-113	BRL	10	0	0	0	0	0	0	0	0	0
Isopropylbenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
m,p-Xylene	BRL	5.0	0	0	0	0	0	0	0	0	0
Methyl acetate	BRL	5.0	0	0	0	0	0	0	0	0	0
Methyl tert-butyl ether	BRL	5.0	0	0	0	0	0	0	0	0	0
Methylcyclohexane	BRL	5.0	0	0	0	0	0	0	0	0	0
Methylene chloride	BRL	5.0	0	0	0	0	0	0	0	0	0
o-Xylene	BRL	5.0	0	0	0	0	0	0	0	0	0
Styrene	BRL	5.0	0	0	0	0	0	0	0	0	0
Tetrahaloethene	BRL	5.0	0	0	0	0	0	0	0	0	0
Toluene	BRL	5.0	0	0	0	0	0	0	0	0	0
trans-1,2-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
trans-1,3-Dichloropropene	BRL	5.0	0	0	0	0	0	0	0	0	0
Trichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
Trichlorofluoromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Vinyl chloride	BRL	2.0	0	0	0	0	0	0	0	0	0
Stur: 4-Bromofluorobenzene	43.07	0	50	0	86.1	67.4	123	0	0	0	0
Stur: Dichlorofluoromethane	51.77	0	50	0	104	75.5	128	0	0	0	0
Stur: Toluene-d8	44.54	0	50	0	89.1	70	120	0	0	0	0

Qualifiers: > Greater than Result value

BRL Below reporting limit

1 Estimated value detected below Reporting Limit

Rpt Lim Reporting Limit

< Less than Result value

E Estimated (value above quantitation range)

N Analyte not NIELAC certified

S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank

H Holding times for preparation or analysis exceeded

R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

ANALYTICAL QC SUMMARY REPORT

BatchID: 164240

Sample ID:	LCS-164240	Client ID:	ICL VOLATILE ORGANICS	SW8260B	Units:	ug/L	Prep Date:	07/24/2012	Run No:	225686	
Sample Type:	LCS	Test Code:	ICL VOLATILE ORGANICS	SW8260B	BatchID:	164240	Analysis Date:	07/24/2012	Seq No:	4723985	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	60.63	5.0	50	0	121	60	140	0	0	0	0
Benzene	58.26	5.0	50	0	117	70	130	0	0	0	0
Chlorobenzene	49.99	5.0	50	0	100	70	130	0	0	0	0
Toluene	55.55	5.0	50	0	111	70	130	0	0	0	0
Trichloroethene	47.04	5.0	50	0	94.1	70	130	0	0	0	0
Surr: 4-Bromofluorobenzene	54.36	0	50	0	109	67.4	123	0	0	0	0
Surr: Dibromofluoromethane	55.40	0	50	0	111	75.5	128	0	0	0	0
Surr: Toluene-d8	48.80	0	50	0	97.6	70	120	0	0	0	0

Sample ID:	1207E25-018AMS	Client ID:	ICL VOLATILE ORGANICS	SW8260B	Units:	ug/L	Prep Date:	07/24/2012	Run No:	225686	
Sample Type:	MS	Test Code:	ICL VOLATILE ORGANICS	SW8260B	BatchID:	164240	Analysis Date:	07/24/2012	Seq No:	4723989	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	669.1	50	500	17.20	130	50.1	179	0	0	0	0
Benzene	597.4	50	500	0	119	61.2	150	0	0	0	0
Chlorobenzene	513.9	50	500	0	103	72.1	140	0	0	0	0
Toluene	569.2	50	500	0	114	58.7	154	0	0	0	0
Trichloroethene	825.8	50	500	320.2	101	68.3	149	0	0	0	0
Surr: 4-Bromofluorobenzene	556.2	0	500	0	111	67.4	123	0	0	0	0
Surr: Dibromofluoromethane	538.3	0	500	0	108	75.5	128	0	0	0	0
Surr: Toluene-d8	511.9	0	500	0	102	70	120	0	0	0	0

Sample ID:	1207E25-018AMSD	Client ID:	ICL VOLATILE ORGANICS	SW8260B	Units:	ug/L	Prep Date:	07/24/2012	Run No:	225686	
Sample Type:	MSD	Test Code:	ICL VOLATILE ORGANICS	SW8260B	BatchID:	164240	Analysis Date:	07/24/2012	Seq No:	4723993	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	703.7	50	500	17.20	137	50.1	179	669.1	5.04	23.3	
Benzene	588.9	50	500	0	118	61.2	150	597.4	1.43	19	

Qualifiers: > Greater than Result value  
 BRU Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantification range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

BatchID: 164240

Sample ID: 1207E25-018A1MSD	Client ID:	Units: ug/L	Prep Date: 07/24/2012	Run No: 225686							
Sample Type: MSD	TestCode: TCL VOLATILE ORGANICS SW92608	BatchID: 164240	Analysis Date: 07/24/2012	Seq No: 4723993							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Chlorobenzene	512.6	50	500	0	103	72.1	140	513.9	0.253	21.5	
Toluene	553.3	50	500	0	111	58.7	154	569.2	2.83	20	
Trichloroethene	831.3	50	500	320.2	102	68.3	149	825.8	0.664	17.7	
Surr: 4-Bromofluorobenzene	540.9	0	500	0	108	67.4	123	556.2	0	0	
Surr: Dibromofluoromethane	521.4	0	500	0	104	75.5	128	538.3	0	0	
Surr: Toluene-d8	487.0	0	500	0	97.4	70	120	511.9	0	0	

Qualifiers: > Greater than Result value  
 < Less than Result value

- BRL Below reporting limit
- E Estimated (value above quantitation range)
- N Analyte not NELAC certified
- RPD outside limits due to matrix
- RPT Limit Reporting Limit
- S Spike Recovery outside limits due to matrix
- B Analyte detected in the associated method blank
- H Holding times for preparation or analysis exceeded

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

ANALYTICAL QC SUMMARY REPORT

BatchID: 164247

Sample ID: MB-164247	Client ID:	Units: mg/L	Prep Date: 07/24/2012	Run No: 225707
Sample Type: MBLK	TestCode: METALS, DISSOLVED	BatchID: 164247	Analysis Date: 07/25/2012	Seq No: 4724473
	SW6010C			

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	BRL	0.0500	0	0	0	0	0	0	0	0	0
Barium	BRL	0.0200	0	0	0	0	0	0	0	0	0
Cadmium	BRL	0.0050	0	0	0	0	0	0	0	0	0
Chromium	BRL	0.0100	0	0	0	0	0	0	0	0	0
Lead	BRL	0.0100	0	0	0	0	0	0	0	0	0
Selenium	BRL	0.0200	0	0	0	0	0	0	0	0	0
Silver	BRL	0.0100	0	0	0	0	0	0	0	0	0

Sample ID: LCS-164247	Client ID:	Units: mg/L	Prep Date: 07/24/2012	Run No: 225707
Sample Type: LCS	TestCode: METALS, DISSOLVED	BatchID: 164247	Analysis Date: 07/25/2012	Seq No: 4724472
	SW6010C			

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	1.012	0.0500	1	0	101	80	120	0	0	0	0
Barium	0.9777	0.0200	1	0	97.8	80	120	0	0	0	0
Cadmium	1.010	0.0050	1	0	101	80	120	0	0	0	0
Chromium	0.9945	0.0100	1	0	99.5	80	120	0	0	0	0
Lead	1.004	0.0100	1	0	100	80	120	0	0	0	0
Selenium	1.058	0.0200	1	0	106	80	120	0	0	0	0
Silver	0.09779	0.0100	0.1	0	97.8	80	120	0	0	0	0

Sample ID: 1207F94-001CMS	Client ID: LD-B8	Units: mg/L	Prep Date: 07/24/2012	Run No: 225707
Sample Type: MS	TestCode: METALS, DISSOLVED	BatchID: 164247	Analysis Date: 07/25/2012	Seq No: 4724478
	SW6010C			

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	1.002	0.0500	1	0	100	75	125	0	0	0	0
Barium	0.9744	0.0200	1	0.03465	94	75	125	0	0	0	0
Cadmium	0.9685	0.0050	1	0	96.9	75	125	0	0	0	0
Chromium	0.9894	0.0100	1	0	98.9	75	125	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

**ANALYTICAL QC SUMMARY REPORT**

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

BatchID: 164247

Sample ID: 1207F94-001CMS	Client ID: LD-B8	Units: mg/L	Prep Date: 07/24/2012	Run No: 225707
Sample Type: MIS	Test Code: METALS DISSOLVED	BatchID: 164247	Analysis Date: 07/25/2012	Seq No: 4724478

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	0.9363	0.0100	1	0	93.6	75	125	0	0	0	
Selenium	1.054	0.0200	1	0	105	75	125	0	0	0	
Silver	0.09519	0.0100	0.1	0	95.2	75	125	0	0	0	

Sample ID: 1207F94-001CMS	Client ID: LD-B8	Units: mg/L	Prep Date: 07/24/2012	Run No: 225707
Sample Type: MSD	Test Code: METALS DISSOLVED	BatchID: 164247	Analysis Date: 07/25/2012	Seq No: 4724479

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	1.003	0.0500	1	0	100	75	125	1.002	0.122	20	
Barium	0.9687	0.0200	1	0.03465	93.4	75	125	0.9744	0.595	20	
Cadmium	0.9687	0.0050	1	0	96.9	75	125	0.9685	0.023	20	
Chromium	0.9831	0.0100	1	0	98.3	75	125	0.9894	0.634	20	
Lead	0.9357	0.0100	1	0	93.6	75	125	0.9363	0.056	20	
Selenium	1.054	0.0200	1	0	105	75	125	1.054	0.049	20	
Silver	0.09516	0.0100	0.1	0	95.2	75	125	0.09519	0.024	20	

Qualifiers: 2 Greater than Result value  
 3 Below reporting limit  
 4 Estimated value above quantification range)  
 5 Spike Recovery outside limits due to matrix

BRL Below reporting limit  
 1 Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 E Estimated (value above quantification range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

ANALYTICAL QC SUMMARY REPORT

BatchID: 164270

Sample ID: MB-164270	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225734
Sample Type: MBLK	Test Code: ICL-SEMI-VOLATILE ORGANICS	BatchID: 164270	Analysis Date: 07/25/2012	Seq No: 4725015

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1'-Biphenyl	BRL	10	0	0	0	0	0	0	0	0	0
2,4,5-Trichlorophenol	BRL	25	0	0	0	0	0	0	0	0	0
2,4,6-Trichlorophenol	BRL	10	0	0	0	0	0	0	0	0	0
2,4-Dichlorophenol	BRL	10	0	0	0	0	0	0	0	0	0
2,4-Dimethylphenol	BRL	10	0	0	0	0	0	0	0	0	0
2,4-Dinitrophenol	BRL	25	0	0	0	0	0	0	0	0	0
2,4-Dinitrotoluene	BRL	10	0	0	0	0	0	0	0	0	0
2,6-Dinitrotoluene	BRL	10	0	0	0	0	0	0	0	0	0
2-Chloronaphthalene	BRL	10	0	0	0	0	0	0	0	0	0
2-Chlorophenol	BRL	10	0	0	0	0	0	0	0	0	0
2-Methylnaphthalene	BRL	10	0	0	0	0	0	0	0	0	0
2-Methylphenol	BRL	10	0	0	0	0	0	0	0	0	0
2-Nitroaniline	BRL	25	0	0	0	0	0	0	0	0	0
2-Nitrophenol	BRL	10	0	0	0	0	0	0	0	0	0
3,3'-Dichlorobenzidine	BRL	10	0	0	0	0	0	0	0	0	0
3-Nitroaniline	BRL	25	0	0	0	0	0	0	0	0	0
4,6-Dinitro-2-methylphenol	BRL	25	0	0	0	0	0	0	0	0	0
4-Bromophenyl phenyl ether	BRL	10	0	0	0	0	0	0	0	0	0
4-Chloro-3-methylphenol	BRL	10	0	0	0	0	0	0	0	0	0
4-Chloroaniline	BRL	10	0	0	0	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	BRL	10	0	0	0	0	0	0	0	0	0
4-Methylphenol	BRL	10	0	0	0	0	0	0	0	0	0
4-Nitroaniline	BRL	25	0	0	0	0	0	0	0	0	0
4-Nitrophenol	BRL	25	0	0	0	0	0	0	0	0	0
Acenaphthene	BRL	10	0	0	0	0	0	0	0	0	0
Acenaphthylene	BRL	10	0	0	0	0	0	0	0	0	0
Acetophenone	BRL	10	0	0	0	0	0	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantization range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

BatchID: 164270

Sample ID: MB-164270  
 Sample Type: MBLK

Clean ID:  
 Test Code: TCL-SEMIVOLATILE ORGANICS SW8270B

Units: ug/L  
 BatchID: 164270

Prep Date: 07/25/2012  
 Analysis Date: 07/25/2012  
 Run No: 225734  
 Seq No: 4725015

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
Anthracene	BRL	10	0	0	0	0	0	0	0	0	0
Atrazine	BRL	10	0	0	0	0	0	0	0	0	0
Benz(a)anthracene	BRL	10	0	0	0	0	0	0	0	0	0
Benzaldehyde	BRL	10	0	0	0	0	0	0	0	0	0
Benzo(a)pyrene	BRL	10	0	0	0	0	0	0	0	0	0
Benzo(b)fluoranthene	BRL	10	0	0	0	0	0	0	0	0	0
Benzo(g,h,i)perylene	BRL	10	0	0	0	0	0	0	0	0	0
Benzo(k)fluoranthene	BRL	10	0	0	0	0	0	0	0	0	0
Bis(2-chloroethoxy)methane	BRL	10	0	0	0	0	0	0	0	0	0
Bis(2-dichloroethyl)ether	BRL	10	0	0	0	0	0	0	0	0	0
Bis(2-chloroisopropyl)ether	BRL	10	0	0	0	0	0	0	0	0	0
Bis(2-ethylhexyl)phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Butyl benzyl phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Caprolactam	BRL	10	0	0	0	0	0	0	0	0	0
Carbazole	BRL	10	0	0	0	0	0	0	0	0	0
Chrysene	BRL	10	0	0	0	0	0	0	0	0	0
Di-n-butyl phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Di-n-octyl phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Dibenz(a,h)anthracene	BRL	10	0	0	0	0	0	0	0	0	0
Dibenzofuran	BRL	10	0	0	0	0	0	0	0	0	0
Diethyl phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Dimethyl phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Fluoranthene	BRL	10	0	0	0	0	0	0	0	0	0
Fluorene	BRL	10	0	0	0	0	0	0	0	0	0
Hexachlorobenzene	BRL	10	0	0	0	0	0	0	0	0	0
Hexachlorobutadiene	BRL	10	0	0	0	0	0	0	0	0	0
Hexachlorocyclopentadiene	BRL	10	0	0	0	0	0	0	0	0	0

Qualifiers: > Greater than Result value

BRL Below reporting limit

† Estimated value detected below Reporting Limit

Rpt Lim Reporting Limit

< Less than Result value

E Estimated (value above quantitation range)

N Analyte not NELAC certified

S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank

H Holding times for preparation or analysis exceeded

R RPD outside limits due to matrix



Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

ANALYTICAL QC SUMMARY REPORT

BatchID: 164270

Sample ID: MB-164270	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225734							
Sample Type: MBLK	TestCode: ICL-SEMI-VOLATILE ORGANICS SW8270D	BatchID: 164270	Analysis Date: 07/25/2012	Seq No: 4725015							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Hexachloroethane	BRL	10	0	0	0	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	BRL	10	0	0	0	0	0	0	0	0	0
Isophorone	BRL	10	0	0	0	0	0	0	0	0	0
N-Nitrosodi-n-propylamine	BRL	10	0	0	0	0	0	0	0	0	0
N-Nitrosodiphenylamine	BRL	10	0	0	0	0	0	0	0	0	0
Naphthalene	BRL	10	0	0	0	0	0	0	0	0	0
Nitrobenzene	BRL	10	0	0	0	0	0	0	0	0	0
Pentachlorophenol	BRL	25	0	0	0	0	0	0	0	0	0
Phenanthrene	BRL	10	0	0	0	0	0	0	0	0	0
Phenol	BRL	10	0	0	0	0	0	0	0	0	0
Pyrene	BRL	10	0	0	0	0	0	0	0	0	0
Surr: 2,4,6-Tribromophenol	96.77	0	100	0	96.8	47.4	146	0	0	0	0
Surr: 2-Fluorobiphenyl	46.80	0	50	0	93.6	51.5	122	0	0	0	0
Surr: 2-Fluorophenol	67.57	0	100	0	67.6	28.5	120	0	0	0	0
Surr: 4-Terphenyl-d14	58.46	0	50	0	117	47.7	133	0	0	0	0
Surr: Nitrobenzene-d5	39.99	0	50	0	80	45.7	120	0	0	0	0
Surr: Phenol-d5	46.57	0	100	0	46.6	10.9	120	0	0	0	0

Sample ID: LCS-164270	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225809							
Sample Type: LCS	TestCode: ICL-SEMI-VOLATILE ORGANICS SW8270D	BatchID: 164270	Analysis Date: 07/26/2012	Seq No: 4726740							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

2,4-Dinitrotoluene	76.69	10	100	0	76.7	68.2	118	0	0	0	0
2-Chlorophenol	68.43	10	100	0	68.4	67.9	120	0	0	0	0
4-Chloro-3-methylphenol	76.44	10	100	0	76.4	63.1	120	0	0	0	0
4-Nitrophenol	31.71	25	100	0	31.7	21	120	0	0	0	0
Acenaphthene	72.30	10	100	0	72.3	68.6	120	0	0	0	0
N-Nitrosodi-n-propylamine	74.17	10	100	0	74.2	73.6	127	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantification range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

BatchID: 164270

Sample ID: LCS-164270	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225809
Sample Type: LCS	Test Code: TCL-SEMIVOLATILE ORGANICS SW8700	BatchID: 164270	Analysis Date: 07/26/2012	Seq No: 4726740

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Pentachlorophenol	75.30	25	100	0	75.3	55.2	118	0	0	0	
Phenol	37.73	10	100	0	37.7	26.6	120	0	0	0	
Pyrene	82.48	10	100	0	82.5	66.3	131	0	0	0	
Surr: 2,4,6-Tribromophenol	87.90	0	100	0	87.9	47.4	146	0	0	0	
Surr: 2-Fluorobiphenyl	39.36	0	50	0	78.7	51.5	122	0	0	0	
Surr: 2-Fluorophenol	52.53	0	100	0	52.5	28.5	120	0	0	0	
Surr: 4-Terphenyl-d14	50.49	0	50	0	101	47.7	133	0	0	0	
Surr: Nitrobenzene-d5	35.05	0	50	0	70.1	45.7	120	0	0	0	
Surr: Phenol-d5	35.61	0	100	0	35.6	10.9	120	0	0	0	

Sample ID: 1207D55-016CAMS	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225809
Sample Type: MS	Test Code: TCL-SEMIVOLATILE ORGANICS SW8700	BatchID: 164270	Analysis Date: 07/26/2012	Seq No: 4728335

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4-Dinitrotoluene	68.85	50	100	0	68.8	54.4	120	0	0	0	
2-Chlorophenol	74.65	50	100	0	74.6	56.6	120	0	0	0	
4-Chloro-3-methylphenol	BRL	50	100	0	0	49.8	120	0	0	0	S
4-Nitrophenol	BRL	130	100	0	85.8	22	120	0	0	0	
Acenaphthene	401.4	50	100	491.6	-90.1	57.8	120	0	0	0	S
N-Nitrosodi-n-propylamine	BRL	50	100	0	0	60.7	124	0	0	0	S
Benzo[a]anthracene	160.4	130	100	113.8	46.6	37.6	130	0	0	0	
Phenol	2283	50	100	2390	-107	27.9	120	0	0	0	SE
Pyrene	130.3	50	100	86.05	44.2	57.9	118	0	0	0	S
Surr: 2,4,6-Tribromophenol	80.95	0	100	0	81	47.4	146	0	0	0	
Surr: 2-Fluorobiphenyl	35.10	0	50	0	70.2	51.5	122	0	0	0	
Surr: 2-Fluorophenol	55.60	0	100	0	55.6	28.5	120	0	0	0	
Surr: 4-Terphenyl-d14	47.90	0	50	0	95.8	47.7	133	0	0	0	
Surr: Nitrobenzene-d5	35.95	0	50	0	71.9	45.7	120	0	0	0	

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 E Estimated value detected below Reporting Limit  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding time for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207F94

ANALYTICAL QC SUMMARY REPORT

BatchID: 164270

Sample ID: 1207D55-016CMS	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225809							
Sample Type: MS	TestCode: TCL-SEMI-VOLATILE ORGANICS	BatchID: 164270	Analysis Date: 07/26/2012	Seq No: 4728335							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: Phenol-d5	58.45	0	100	0	58.4	10.9	120	0	0	0	0

Sample ID: 1207D55-016CMSD	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225809							
Sample Type: MSD	TestCode: TCL-SEMI-VOLATILE ORGANICS	BatchID: 164270	Analysis Date: 07/26/2012	Seq No: 4728336							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

2,4-Dinitrotoluene	72.30	50	100	0	72.3	54.4	120	68.85	4.89	25.5	
2-Chlorophenol	75.55	50	100	0	75.6	56.6	120	74.65	1.2	26.2	
4-Chloro-3-methylphenol	90.80	50	100	0	90.8	49.8	120	0	200	62.9	R
4-Nitrophenol	BRL	130	100	0	77.9	22	120	85.80	0	31.4	
Acenaphthene	431.8	50	100	491.6	-59.8	57.8	120	401.4	7.27	24.7	S
N-Nitrosodi-n-propylamine	BRL	50	100	0	0	60.7	124	0	0	28.2	S
Pentachlorophenol	166.8	130	100	113.8	53	37.6	130	160.4	3.91	26.6	
Phenol	2394	50	100	2390	3.75	27.9	120	2283	4.76	29.5	SE
Pyrene	137.0	50	100	86.05	51	57.9	118	130.3	5.01	24.4	S
Surr: 2,4,6-Tribromophenol	83.15	0	100	0	83.2	47.4	146	80.95	0	0	
Surr: 2-Fluorobiphenyl	37.90	0	50	0	75.8	51.5	122	35.10	0	0	
Surr: 2-Fluorophenol	57.95	0	100	0	58	28.5	120	55.60	0	0	
Surr: 4-Terphenyl-d14	49.65	0	50	0	99.3	47.7	133	47.90	0	0	
Surr: Nitrobenzene-d5	37.45	0	50	0	74.9	45.7	120	35.95	0	0	
Surr: Phenol-d5	59.50	0	100	0	59.5	10.9	120	58.45	0	0	

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

July 30, 2012

Britt Bickerstaff  
United Consulting Group Inc.  
625 Holcomb Bridge Rd  
Norcross GA 30071

TEL: (770) 582-2788  
FAX: (770) 582-2900

RE: Liddell Drive Equalization Project

Dear Britt Bickerstaff:

Order No: 1207H10

Analytical Environmental Services, Inc. received 14 samples on July 25, 2012 5:13 pm for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/12-06/30/13.
- AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/13.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Kathryn Waters  
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC.  
3785 Presidential Parkway, Atlanta GA 30340-3704  
AES TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 127410

Date: 7/25/12 Page 1 of 1

#	SAMPLE ID	SAMPLED		Composite	Matrix (See codes)	ANALYSIS REQUESTED		REMARKS	No # of Containers
		DATE	TIME			PREPARATION (See codes)	TESTS		
1	TP-1-e1	7/25/12	8:50a	X	S	PCRA Mtb6	PCRA Mtb6		1
2	TP-1-a-2.5	7/25/12	9:35	X	S	VOC's	VOC's		6
3	TP-2-e1	7/25/12	10:05a	X	S	5VOC's	5VOC's		1
4	TP-2-e6	7/25/12	10:30a	X	S	PCRA Mtb6	PCRA Mtb6		6
5	TP-3-e1	7/25/12	10:55a	X	S	PCRA Mtb6	PCRA Mtb6		1
6	TP-3-e3	7/25/12	11:10a	X	S	PCRA Mtb6	PCRA Mtb6		6
7	TP-4-c1	7/25/12	12:05	X	S	PCRA Mtb6	PCRA Mtb6		1
8	TP-4-e6	7/25/12	12:30	X	S	PCRA Mtb6	PCRA Mtb6		6
9	TP-4-e2.5	7/25/12	1:40	X	S	PCRA Mtb6	PCRA Mtb6		6
10	Duplicate	7/25/12	1:40	X	S	PCRA Mtb6	PCRA Mtb6		6
11	TP-1-a-4	7/25/12	1:40	X	S	PCRA Mtb6	PCRA Mtb6		6
12	TP-4-e2	7/25/12	12:40	X	S	PCRA Mtb6	PCRA Mtb6		1
13	Trip Blank	7/25/12	11:40	X	S	PCRA Mtb6	PCRA Mtb6		1
14	FB	7/25/12	4:00		S	PCRA Mtb6	PCRA Mtb6		2
15	FB	7/25/12	4:00		S	PCRA Mtb6	PCRA Mtb6		1

RELINQUISHED BY <u>Dick Bullock</u>	DATE/TIME <u>7/29/12 5:13</u>
RECEIVED BY <u>Latoye P</u>	DATE/TIME <u>7/25/12 5:13</u>

PROJECT NAME <u>Liddell Drive Equalization Proj.</u>	PROJECT INFORMATION
PROJECT # <u>2012-3532.01</u>	
SITE ADDRESS <u>Liddell Drive, Atlanta GA</u>	
SEND REPORT TO <u>Dick Bullock</u>	
INVOICE TO <u>(IF DIFFERENT FROM ABOVE)</u>	
QUOTE #	

SHIPMENT METHOD	OUT	VIA	IN	VIA
		CLIENT	Fedex	UPS
		GROUND	MAIL	COURIER
		OTHER		

SPECIAL INSTRUCTIONS/COMMENTS
SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNS AROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.
SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.
MATRIX CODES: A = Air, GW = Groundwater, SE = Sediment, SO = Soil, SW = Surface Water, W = Water (Blanks), DW = Drinking Water (Blanks), O = Other (specify), WW = Waste Water
PRESERVATIVE CODES: H+I = Hydrochloric acid + Ice, I = Ice only, N = Nitric acid, S+I = Sulfuric acid + Ice, SM+I = Sodium Bisulfate/Methanol + Ice, O = Other (specify), NA = None

STATE PROGRAM (if any)	Y/N	FAX? Y/N
DATA PACKAGE	I	II
RECEIPT	III	IV

TURNAROUND TIME REQUESTS	48
Standard 5 Business Days	
2 Business Day Rush	
Next Business Day Rush	
Same Day Rush (with req)	
Other	
Total # of Containers	48

Client: United Consulting Group Inc.  
Project: Liddell Drive Equalization Project  
Lab ID: 1207H10

Case Narrative

Per phone instructions from Britt Bickerstaff on 7/26/12 at 10:17 am the VOC and SVOC analysis on sample 1207H10-010 (Duplicate) is cancelled.

Volatile Organic Compounds Analysis by Method 8260B:

Percent recovery for the internal standard compound 1,4-Dichlorobenzene-d4 on sample 1207H10-004A was outside control limits biased low due to suspected matrix interference.

Percent recovery for the internal standard compounds Chlorobenzene-d5 and 1,4-Dichlorobenzene-d4 on sample 1207H10-002A was outside control limits biased low due to suspected matrix interference.

Semi-volatile Organics Analysis by Method 8270D:

LCS-164273 recovery for 4-terpehny-d14 was outside control limits biased high. Target analyte was not detected in the analytical samples and data is reportable with high bias.

Due to sample matrix, samples 1207H10-002C, -004C required dilution during analysis resulting in elevated reporting limits.

Metals Analysis by Method 6010B:

Due to sample matrix, sample 1207H10-002C required dilution during analysis resulting in elevated reporting limits.

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-1@1
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 8:50:00 AM
Lab ID:	1207H10-001	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>								
					(SW7471B)			
Mercury	BRL	0.110		mg/Kg-dry	164332	1	07/26/2012 14:38	LD
<b>METALS, TOTAL SW6010C</b>								
					(SW3050B)			
Arsenic	BRL	5.30		mg/Kg-dry	164343	1	07/27/2012 10:50	TA
Barium	75.5	5.30		mg/Kg-dry	164343	1	07/27/2012 10:50	TA
Cadmium	BRL	2.65		mg/Kg-dry	164343	1	07/27/2012 10:50	TA
Chromium	13.2	2.65		mg/Kg-dry	164343	1	07/27/2012 10:50	TA
Lead	154	5.30		mg/Kg-dry	164343	1	07/27/2012 10:50	TA
Selenium	BRL	5.30		mg/Kg-dry	164343	1	07/27/2012 10:50	TA
Silver	BRL	2.65		mg/Kg-dry	164343	1	07/27/2012 10:50	TA
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	10.5	0		wt%	R225921	1	07/27/2012 12:00	AS

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TP-1@2.5
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 9:35:00 AM
<b>Lab ID:</b> 1207H10-002	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>		<b>(SW7471B)</b>						
Mercury	0.231	0.152		ug/Kg-dry	164332	1	07/26/2012 14:40	LD
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>		<b>(SW3550C)</b>						
1,1'-Biphenyl	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2,4,5-Trichlorophenol	BRL	13000		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2,4,6-Trichlorophenol	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2,4-Dichlorophenol	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2,4-Dimethylphenol	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2,4-Dinitrophenol	BRL	13000		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2,4-Dinitrotoluene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2,6-Dinitrotoluene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2-Chloronaphthalene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2-Chlorophenol	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2-Methylnaphthalene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2-Methylphenol	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2-Nitroaniline	BRL	13000		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
2-Nitrophenol	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
3,3'-Dichlorobenzidine	BRL	5100		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
3-Nitroaniline	BRL	13000		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
4,6-Dinitro-2-methylphenol	BRL	13000		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
4-Bromophenyl phenyl ether	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
4-Chloro-3-methylphenol	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
4-Chloroaniline	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
4-Chlorophenyl phenyl ether	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
4-Methylphenol	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
4-Nitroaniline	BRL	13000		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
4-Nitrophenol	BRL	13000		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Acenaphthene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Acenaphthylene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Acetophenone	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Anthracene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Atrazine	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Benz(a)anthracene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Benzaldehyde	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Benzo(a)pyrene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Benzo(b)fluoranthene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Benzo(g,h,i)perylene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Benzo(k)fluoranthene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Bis(2-chloroethoxy)methane	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Bis(2-chloroethyl)ether	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Bis(2-chloroisopropyl)ether	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH

<b>Qualifiers:</b>	• Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
BRL	Below reporting limit	S Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr See case narrative
N	Analyte not NELAC certified	NC Not confirmed
B	Analyte detected in the associated method blank	< Less than Result value
>	Greater than Result value	J Estimated value detected below Reporting Limit



Analytical Environmental Services, Inc

Date: 28-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TP-1@2.5
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 9:35:00 AM
<b>Lab ID:</b> 1207H10-002	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>		<b>(SW3550C)</b>						
Bis(2-ethylhexyl)phthalate	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Butyl benzyl phthalate	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Caprolactam	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Carbazole	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Chrysene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Di-n-butyl phthalate	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Di-n-octyl phthalate	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Dibenz(a,h)anthracene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Dibenzofuran	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Diethyl phthalate	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Dimethyl phthalate	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Fluoranthene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Fluorene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Hexachlorobenzene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Hexachlorobutadiene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Hexachlorocyclopentadiene	BRL	5000		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Hexachloroethane	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Indeno(1,2,3-cd)pyrene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Isophorone	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
N-Nitrosodi-n-propylamine	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
N-Nitrosodiphenylamine	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Naphthalene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Nitrobenzene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Pentachlorophenol	BRL	13000		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Phenanthrene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Phenol	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Pyrene	BRL	2500		ug/Kg-dry	164273	5	07/27/2012 01:17	YH
Surr: 2,4,6-Tribromophenol	76.2	41.1-130		%REC	164273	5	07/27/2012 01:17	YH
Surr: 2-Fluorobiphenyl	82.6	45-120		%REC	164273	5	07/27/2012 01:17	YH
Surr: 2-Fluorophenol	66.2	35-120		%REC	164273	5	07/27/2012 01:17	YH
Surr: 4-Terphenyl-d14	94.5	50.1-123		%REC	164273	5	07/27/2012 01:17	YH
Surr: Nitrobenzene-d5	68.8	37.5-120		%REC	164273	5	07/27/2012 01:17	YH
Surr: Phenol-d5	67.2	39-120		%REC	164273	5	07/27/2012 01:17	YH
<b>TCL VOLATILE ORGANICS SW8260B</b>		<b>(SW5035)</b>						
1,1,1-Trichloroethane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,1,2,2-Tetrachloroethane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,1,2-Trichloroethane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,1-Dichloroethane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,1-Dichloroethene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,2,4-Trichlorobenzene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-1@2.5
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 9:35:00 AM
Lab ID:	1207H10-002	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5035)</b>			
1,2-Dibromo-3-chloropropane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,2-Dibromoethane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,2-Dichlorobenzene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,2-Dichloroethane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,2-Dichloropropane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,3-Dichlorobenzene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
1,4-Dichlorobenzene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
2-Butanone	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
2-Hexanone	BRL	12		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
4-Methyl-2-pentanone	BRL	12		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Acetone	BRL	120		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Benzene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Bromodichloromethane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Bromoform	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Bromomethane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Carbon disulfide	BRL	12		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Carbon tetrachloride	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Chlorobenzene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Chloroethane	BRL	12		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Chloroform	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Chloromethane	BRL	12		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
cis-1,2-Dichloroethene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
cis-1,3-Dichloropropene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Cyclohexane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Dibromochloromethane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Dichlorodifluoromethane	BRL	12		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Ethylbenzene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Freon-113	BRL	12		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Isopropylbenzene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
m,p-Xylene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Methyl acetate	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Methyl tert-butyl ether	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Methylcyclohexane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Methylene chloride	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
o-Xylene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Styrene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Tetrachloroethene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Toluene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
trans-1,2-Dichloroethene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
trans-1,3-Dichloropropene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Trichloroethene	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-1@2.5
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 9:35:00 AM
Lab ID:	1207H10-002	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>		<b>(SW5035)</b>						
Trichlorofluoromethane	BRL	5.8		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Vinyl chloride	BRL	12		ug/Kg-dry	164405	1	07/26/2012 16:09	JE
Surr: 4-Bromofluorobenzene	83.5	56.5-134		%REC	164405	1	07/26/2012 16:09	JE
Surr: Dibromofluoromethane	107	71.8-135		%REC	164405	1	07/26/2012 16:09	JE
Surr: Toluene-d8	92.3	77.1-117		%REC	164405	1	07/26/2012 16:09	JE
<b>METALS, TOTAL SW6010C</b>		<b>(SW3050B)</b>						
Arsenic	15.9	15.1		mg/Kg-dry	164343	2	07/27/2012 15:53	TA
Barium	368	7.53		mg/Kg-dry	164343	1	07/27/2012 10:55	TA
Cadmium	BRL	3.77		mg/Kg-dry	164343	1	07/27/2012 10:55	TA
Chromium	30.6	3.77		mg/Kg-dry	164343	1	07/27/2012 10:55	TA
Lead	982	7.53		mg/Kg-dry	164343	1	07/27/2012 10:55	TA
Selenium	BRL	30.1		mg/Kg-dry	164343	4	07/27/2012 15:50	TA
Silver	BRL	3.77		mg/Kg-dry	164343	1	07/27/2012 10:55	TA
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	34.5	0		wt%	R225921	1	07/27/2012 12:00	AS

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-2@1
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 10:05:00 AM
Lab ID:	1207H10-003	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY</b> SW7471B					(SW7471B)			
Mercury	BRL	0.121		mg/Kg-dry	164332	1	07/26/2012 14:42	LD
<b>METALS, TOTAL</b> SW6010C					(SW3050B)			
Arsenic	BRL	5.63		mg/Kg-dry	164343	1	07/27/2012 10:58	TA
Barium	191	5.63		mg/Kg-dry	164343	1	07/27/2012 10:58	TA
Cadmium	BRL	2.82		mg/Kg-dry	164343	1	07/27/2012 10:58	TA
Chromium	16.8	2.82		mg/Kg-dry	164343	1	07/27/2012 10:58	TA
Lead	455	5.63		mg/Kg-dry	164343	1	07/27/2012 10:58	TA
Selenium	BRL	5.63		mg/Kg-dry	164343	1	07/27/2012 10:58	TA
Silver	BRL	2.82		mg/Kg-dry	164343	1	07/27/2012 10:58	TA
<b>PERCENT MOISTURE</b> D2216								
Percent Moisture	18.6	0		wt%	R225921	1	07/27/2012 12:00	AS

Qualifiers: \* Value exceeds maximum contaminant level  
 BRL Below reporting limit  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 B Analyte detected in the associated method blank  
 > Greater than Result value  
 E Estimated (value above quantitation range)  
 S Spike Recovery outside limits due to matrix  
 Narr See case narrative  
 NC Not confirmed  
 < Less than Result value  
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-2@6
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 10:30:00 AM
Lab ID:	1207H10-004	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>					<b>(SW7471B)</b>			
Mercury	0.184	0.138		ug/Kg-dry	164332	1	07/26/2012 14:45	LD
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>					<b>(SW3550C)</b>			
1,1'-Biphenyl	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2,4,5-Trichlorophenol	BRL	12000		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2,4,6-Trichlorophenol	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2,4-Dichlorophenol	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2,4-Dimethylphenol	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2,4-Dinitrophenol	BRL	12000		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2,4-Dinitrotoluene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2,6-Dinitrotoluene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2-Chloronaphthalene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2-Chlorophenol	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2-Methylnaphthalene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2-Methylphenol	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2-Nitroaniline	BRL	12000		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
2-Nitrophenol	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
3,3'-Dichlorobenzidine	BRL	4600		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
3-Nitroaniline	BRL	12000		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
4,6-Dinitro-2-methylphenol	BRL	12000		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
4-Bromophenyl phenyl ether	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
4-Chloro-3-methylphenol	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
4-Chloroaniline	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
4-Chlorophenyl phenyl ether	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
4-Methylphenol	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
4-Nitroaniline	BRL	12000		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
4-Nitrophenol	BRL	12000		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Acenaphthene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Acenaphthylene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Acetophenone	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Anthracene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Atrazine	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Benz(a)anthracene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Benzaldehyde	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Benzo(a)pyrene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Benzo(b)fluoranthene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Benzo(g,h,i)perylene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Benzo(k)fluoranthene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Bis(2-chloroethoxy)methane	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Bis(2-chloroethyl)ether	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Bis(2-chloroisopropyl)ether	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH

Qualifiers: \* Value exceeds maximum contaminant level  
 BRL Below reporting limit  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 B Analyte detected in the associated method blank  
 > Greater than Result value  
 E Estimated (value above quantitation range)  
 S Spike Recovery outside limits due to matrix  
 Narr See case narrative  
 NC Not confirmed  
 < Less than Result value  
 J Estimated value detected below Reporting Limit

Client:	United Consulting Group Inc.	Client Sample ID:	TP-2@6
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 10:30:00 AM
Lab ID:	1207H10-004	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>					<b>(SW3550C)</b>			
Bis(2-ethylhexyl)phthalate	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Butyl benzyl phthalate	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Caprolactam	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Carbazole	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Chrysene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Di-n-butyl phthalate	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Di-n-octyl phthalate	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Dibenz(a,h)anthracene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Dibenzofuran	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Diethyl phthalate	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Dimethyl phthalate	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Fluoranthene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Fluorene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Hexachlorobenzene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Hexachlorobutadiene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Hexachlorocyclopentadiene	BRL	4600		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Hexachloroethane	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Indeno(1,2,3-cd)pyrene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Isophorone	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
N-Nitrosodi-n-propylamine	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
N-Nitrosodiphenylamine	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Naphthalene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Nitrobenzene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Pentachlorophenol	BRL	12000		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Phenanthrene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Phenol	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Pyrene	BRL	2300		ug/Kg-dry	164273	5	07/27/2012 01:44	YH
Surr: 2,4,6-Tribromophenol	68.7	41.1-130		%REC	164273	5	07/27/2012 01:44	YH
Surr: 2-Fluorobiphenyl	74.8	45-120		%REC	164273	5	07/27/2012 01:44	YH
Surr: 2-Fluorophenol	61.7	35-120		%REC	164273	5	07/27/2012 01:44	YH
Surr: 4-Terphenyl-d14	85.6	50.1-123		%REC	164273	5	07/27/2012 01:44	YH
Surr: Nitrobenzene-d5	66.3	37.5-120		%REC	164273	5	07/27/2012 01:44	YH
Surr: Phenol-d5	59.7	39-120		%REC	164273	5	07/27/2012 01:44	YH
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5035)</b>			
1,1,1-Trichloroethane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,1,2,2-Tetrachloroethane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,1,2-Trichloroethane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,1-Dichloroethane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,1-Dichloroethene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,2,4-Trichlorobenzene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-2@6
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 10:30:00 AM
Lab ID:	1207H10-004	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5035)				
1,2-Dibromo-3-chloropropane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,2-Dibromoethane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,2-Dichlorobenzene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,2-Dichloroethane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,2-Dichloropropane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,3-Dichlorobenzene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
1,4-Dichlorobenzene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
2-Butanone	BRL	55		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
2-Hexanone	BRL	11		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
4-Methyl-2-pentanone	BRL	11		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Acetone	BRL	110		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Benzene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Bromodichloromethane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Bromoform	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Bromomethane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Carbon disulfide	BRL	11		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Carbon tetrachloride	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Chlorobenzene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Chloroethane	BRL	11		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Chloroform	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Chloromethane	BRL	11		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
cis-1,2-Dichloroethene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
cis-1,3-Dichloropropene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Cyclohexane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Dibromochloromethane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Dichlorodifluoromethane	BRL	11		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Ethylbenzene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Freon-113	BRL	11		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Isopropylbenzene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
m,p-Xylene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Methyl acetate	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Methyl tert-butyl ether	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Methylcyclohexane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Methylene chloride	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
o-Xylene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Styrene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Tetrachloroethene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Toluene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
trans-1,2-Dichloroethene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
trans-1,3-Dichloropropene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Trichloroethene	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-2@6
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 10:30:00 AM
Lab ID:	1207H10-004	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5035)</b>			
Trichlorofluoromethane	BRL	5.5		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Vinyl chloride	BRL	11		ug/Kg-dry	164405	1	07/26/2012 18:09	JE
Surr: 4-Bromofluorobenzene	93.4	56.5-134		%REC	164405	1	07/26/2012 18:09	JE
Surr: Dibromofluoromethane	99.1	71.8-135		%REC	164405	1	07/26/2012 18:09	JE
Surr: Toluene-d8	87.4	77.1-117		%REC	164405	1	07/26/2012 18:09	JE
<b>METALS, TOTAL SW6010C</b>					<b>(SW3050B)</b>			
Arsenic	BRL	6.32		mg/Kg-dry	164343	1	07/27/2012 11:01	TA
Barium	122	6.32		mg/Kg-dry	164343	1	07/27/2012 11:01	TA
Cadmium	BRL	3.16		mg/Kg-dry	164343	1	07/27/2012 11:01	TA
Chromium	15.5	3.16		mg/Kg-dry	164343	1	07/27/2012 11:01	TA
Lead	466	6.32		mg/Kg-dry	164343	1	07/27/2012 11:01	TA
Selenium	BRL	6.32		mg/Kg-dry	164343	1	07/27/2012 11:01	TA
Silver	BRL	3.16		mg/Kg-dry	164343	1	07/27/2012 11:01	TA
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	28.0	0		wt%	R225921	1	07/27/2012 12:00	AS

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit



<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TP-3@1
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 10:55:00 AM
<b>Lab ID:</b> 1207H10-005	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>								
				(SW7471B)				
Mercury	BRL	0.113		mg/Kg-dry	164332	1	07/26/2012 14:51	LD
<b>METALS, TOTAL SW6010C</b>								
				(SW3050B)				
Arsenic	BRL	5.39		mg/Kg-dry	164343	1	07/27/2012 13:44	TA
Barium	105	5.39		mg/Kg-dry	164343	1	07/27/2012 11:13	TA
Cadmium	BRL	2.70		mg/Kg-dry	164343	1	07/27/2012 11:13	TA
Chromium	36.4	2.70		mg/Kg-dry	164343	1	07/27/2012 11:13	TA
Lead	BRL	5.39		mg/Kg-dry	164343	1	07/27/2012 11:13	TA
Selenium	BRL	5.39		mg/Kg-dry	164343	1	07/27/2012 11:13	TA
Silver	BRL	2.70		mg/Kg-dry	164343	1	07/27/2012 11:13	TA
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	13.2	0		wt%	R225921	1	07/27/2012 12:00	AS

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-3@3
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 11:10:00 AM
Lab ID:	1207H10-006	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>					<b>(SW7471B)</b>			
Mercury	BRL	0.116		ug/Kg-dry	164332	1	07/26/2012 14:53	LD
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>					<b>(SW3550C)</b>			
1,1'-Biphenyl	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2,4,5-Trichlorophenol	BRL	2000		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2,4,6-Trichlorophenol	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2,4-Dichlorophenol	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2,4-Dimethylphenol	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2,4-Dinitrophenol	BRL	2000		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2,4-Dinitrotoluene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2,6-Dinitrotoluene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2-Chloronaphthalene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2-Chlorophenol	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2-Methylnaphthalene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2-Methylphenol	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2-Nitroaniline	BRL	2000		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
2-Nitrophenol	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
3,3'-Dichlorobenzidine	BRL	780		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
3-Nitroaniline	BRL	2000		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
4,6-Dinitro-2-methylphenol	BRL	2000		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
4-Bromophenyl phenyl ether	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
4-Chloro-3-methylphenol	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
4-Chloronitrobenzene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
4-Chlorophenyl phenyl ether	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
4-Methylphenol	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
4-Nitroaniline	BRL	2000		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
4-Nitrophenol	BRL	2000		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Acenaphthene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Acenaphthylene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Acetophenone	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Anthracene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Atrazine	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Benz(a)anthracene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Benzaldehyde	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Benzo(a)pyrene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Benzo(b)fluoranthene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Benzo(g,h,i)perylene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Benzo(k)fluoranthene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Bis(2-chloroethoxy)methane	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Bis(2-chloroethyl)ether	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Bis(2-chloroisopropyl)ether	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-3@3
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 11:10:00 AM
Lab ID:	1207H10-006	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>		<b>(SW3550C)</b>						
Bis(2-ethylhexyl)phthalate	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Butyl benzyl phthalate	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Caprolactam	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Carbazole	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Chrysene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Di-n-butyl phthalate	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Di-n-octyl phthalate	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Dibenz(a,h)anthracene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Dibenzofuran	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Diethyl phthalate	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Dimethyl phthalate	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Fluoranthene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Fluorene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Hexachlorobenzene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Hexachlorobutadiene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Hexachlorocyclopentadiene	BRL	770		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Hexachloroethane	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Indeno(1,2,3-cd)pyrene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Isophorone	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
N-Nitrosodi-n-propylamine	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
N-Nitrosodiphenylamine	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Naphthalene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Nitrobenzene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Pentachlorophenol	BRL	2000		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Phenanthrene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Phenol	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Pyrene	BRL	390		ug/Kg-dry	164273	1	07/26/2012 22:40	YH
Surr: 2,4,6-Tribromophenol	77.6	41.1-130		%REC	164273	1	07/26/2012 22:40	YH
Surr: 2-Fluorobiphenyl	73.9	45-120		%REC	164273	1	07/26/2012 22:40	YH
Surr: 2-Fluorophenol	60.4	35-120		%REC	164273	1	07/26/2012 22:40	YH
Surr: 4-Terphenyl-d14	93.9	50.1-123		%REC	164273	1	07/26/2012 22:40	YH
Surr: Nitrobenzene-d5	61.7	37.5-120		%REC	164273	1	07/26/2012 22:40	YH
Surr: Phenol-d5	61.3	39-120		%REC	164273	1	07/26/2012 22:40	YH
<b>TCL VOLATILE ORGANICS SW8260B</b>		<b>(SW5035)</b>						
1,1,1-Trichloroethane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,1,2,2-Tetrachloroethane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,1,2-Trichloroethane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,1-Dichloroethane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,1-Dichloroethene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,2,4-Trichlorobenzene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE

Qualifiers: \* Value exceeds maximum contaminant level  
 BRL Below reporting limit  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 B Analyte detected in the associated method blank  
 > Greater than Result value  
 E Estimated (value above quantitation range)  
 S Spike Recovery outside limits due to matrix  
 Narr See case narrative  
 NC Not confirmed  
 < Less than Result value  
 J Estimated value detected below Reporting Limit

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TP-3@3
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 11:10:00 AM
<b>Lab ID:</b> 1207H10-006	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>		<b>(SW5035)</b>						
1,2-Dibromo-3-chloropropane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,2-Dibromoethane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,2-Dichlorobenzene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,2-Dichloroethane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,2-Dichloropropane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,3-Dichlorobenzene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
1,4-Dichlorobenzene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
2-Butanone	BRL	43		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
2-Hexanone	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
4-Methyl-2-pentanone	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Acetone	BRL	87		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Benzene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Bromodichloromethane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Bromoform	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Bromomethane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Carbon disulfide	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Carbon tetrachloride	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Chlorobenzene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Chloroethane	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Chloroform	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Chloromethane	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
cis-1,2-Dichloroethene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
cis-1,3-Dichloropropene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Cyclohexane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Dibromochloromethane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Dichlorodifluoromethane	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Ethylbenzene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Freon-113	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Isopropylbenzene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
m,p-Xylene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Methyl acetate	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Methyl tert-butyl ether	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Methylcyclohexane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Methylene chloride	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
o-Xylene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Styrene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Tetrachloroethene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Toluene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
trans-1,2-Dichloroethene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
trans-1,3-Dichloropropene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Trichloroethene	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client: United Consulting Group Inc.	Client Sample ID: TP-3@3
Project Name: Liddell Drive Equalization Project	Collection Date: 7/25/2012 11:10:00 AM
Lab ID: 1207H10-006	Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5035)</b>			
Trichlorofluoromethane	BRL	4.3		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Vinyl chloride	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 19:25	JE
Surr: 4-Bromofluorobenzene	103	56.5-134		%REC	164405	1	07/26/2012 19:25	JE
Surr: Dibromofluoromethane	98.5	71.8-135		%REC	164405	1	07/26/2012 19:25	JE
Surr: Toluene-d8	95.9	77.1-117		%REC	164405	1	07/26/2012 19:25	JE
<b>METALS, TOTAL SW6010C</b>					<b>(SW3050B)</b>			
Arsenic	BRL	5.85		mg/Kg-dry	164343	1	07/27/2012 13:47	TA
Barium	93.1	5.85		mg/Kg-dry	164343	1	07/27/2012 11:16	TA
Cadmium	BRL	2.92		mg/Kg-dry	164343	1	07/27/2012 11:16	TA
Chromium	43.7	2.92		mg/Kg-dry	164343	1	07/27/2012 11:16	TA
Lead	BRL	5.85		mg/Kg-dry	164343	1	07/27/2012 11:16	TA
Selenium	BRL	5.85		mg/Kg-dry	164343	1	07/27/2012 11:16	TA
Silver	BRL	2.92		mg/Kg-dry	164343	1	07/27/2012 11:16	TA
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	14.6	0		wt%	R225921	1	07/27/2012 12:00	AS

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TP-4@1
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 12:05:00 PM
<b>Lab ID:</b> 1207H10-007	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY</b> SW7471B					(SW7471B)			
Mercury	BRL	0.116		mg/Kg-dry	164332	1	07/26/2012 14:56	LD
<b>METALS, TOTAL</b> SW6010C					(SW3050B)			
Arsenic	BRL	5.65		mg/Kg-dry	164343	1	07/27/2012 11:18	TA
Barium	138	5.65		mg/Kg-dry	164343	1	07/27/2012 11:18	TA
Cadmium	BRL	2.82		mg/Kg-dry	164343	1	07/27/2012 11:18	TA
Chromium	130	2.82		mg/Kg-dry	164343	1	07/27/2012 11:18	TA
Lead	101	5.65		mg/Kg-dry	164343	1	07/27/2012 11:18	TA
Selenium	BRL	5.65		mg/Kg-dry	164343	1	07/27/2012 11:18	TA
Silver	BRL	2.82		mg/Kg-dry	164343	1	07/27/2012 11:18	TA
<b>PERCENT MOISTURE</b> D2216								
Percent Moisture	15.6	0		w1%	R225921	1	07/27/2012 12:00	AS

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-4@6
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 12:30:00 PM
Lab ID:	1207H10-008	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>								
					(SW7471B)			
Mercury	BRL	0.127		mg/Kg-dry	164332	1	07/26/2012 14:58	LD
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>								
					(SW3550C)			
1,1'-Biphenyl	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2,4,5-Trichlorophenol	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2,4,6-Trichlorophenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2,4-Dichlorophenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2,4-Dimethylphenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2,4-Dinitrophenol	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2,4-Dinitrotoluene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2,6-Dinitrotoluene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2-Chloronaphthalene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2-Chlorophenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2-Methylnaphthalene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2-Methylphenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2-Nitroaniline	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
2-Nitrophenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
3,3'-Dichlorobenzidine	BRL	860		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
3-Nitroaniline	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
4,6-Dinitro-2-methylphenol	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
4-Bromophenyl phenyl ether	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
4-Chloro-3-methylphenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
4-Chloroaniline	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
4-Chlorophenyl phenyl ether	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
4-Methylphenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
4-Nitroaniline	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
4-Nitrophenol	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Acenaphthene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Acenaphthylene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Acetophenone	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Anthracene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Atrazine	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Benz(a)anthracene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Benzaldehyde	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Benzo(a)pyrene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Benzo(b)fluoranthene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Benzo(g,h,i)perylene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Benzo(k)fluoranthene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Bis(2-chloroethoxy)methane	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Bis(2-chloroethyl)ether	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Bis(2-chloroisopropyl)ether	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH

Qualifiers: \* Value exceeds maximum contaminant level  
 BRL Below reporting limit  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 B Analyte detected in the associated method blank  
 > Greater than Result value  
 E Estimated (value above quantitation range)  
 S Spike Recovery outside limits due to matrix  
 Narr See case narrative  
 NC Not confirmed  
 < Less than Result value  
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TP-4@6
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 12:30:00 PM
<b>Lab ID:</b> 1207H10-008	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>		<b>(SW3550C)</b>						
Bis(2-ethylhexyl)phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Butyl benzyl phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Caprolactam	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Carbazole	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Chrysene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Di-n-butyl phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Di-n-octyl phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Dibenz(a,h)anthracene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Dibenzofuran	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Diethyl phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Dimethyl phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Fluoranthene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Fluorene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Hexachlorobenzene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Hexachlorobutadiene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Hexachlorocyclopentadiene	BRL	850		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Hexachloroethane	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Indeno(1,2,3-cd)pyrene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Isophorone	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
N-Nitrosodi-n-propylamine	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
N-Nitrosodiphenylamine	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Naphthalene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Nitrobenzene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Pentachlorophenol	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Phenanthrene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Phenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Pyrene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:32	YH
Surr: 2,4,6-Tribromophenol	85	41.1-130		%REC	164273	1	07/26/2012 23:32	YH
Surr: 2-Fluorobiphenyl	78.3	45-120		%REC	164273	1	07/26/2012 23:32	YH
Surr: 2-Fluorophenol	65.9	35-120		%REC	164273	1	07/26/2012 23:32	YH
Surr: 4-Terphenyl-d14	98.1	50.1-123		%REC	164273	1	07/26/2012 23:32	YH
Surr: Nitrobenzene-d5	66.5	37.5-120		%REC	164273	1	07/26/2012 23:32	YH
Surr: Phenol-d5	66.8	39-120		%REC	164273	1	07/26/2012 23:32	YH
<b>TCL VOLATILE ORGANICS SW8260B</b>		<b>(SW5035)</b>						
1,1,1-Trichloroethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,1,2,2-Tetrachloroethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,1,2-Trichloroethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,1-Dichloroethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,1-Dichloroethene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,2,4-Trichlorobenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit



Analytical Environmental Services, Inc

Date: 28-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TP-4@6
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 12:30:00 PM
<b>Lab ID:</b> 1207H10-008	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5035)</b>			
1,2-Dibromo-3-chloropropane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,2-Dibromoethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,2-Dichlorobenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,2-Dichloroethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,2-Dichloropropane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,3-Dichlorobenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
1,4-Dichlorobenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
2-Butanone	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
2-Hexanone	BRL	8.8		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
4-Methyl-2-pentanone	BRL	8.8		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Acetone	BRL	8.8		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Benzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Bromodichloromethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Bromoform	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Bromomethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Carbon disulfide	BRL	8.8		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Carbon tetrachloride	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Chlorobenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Chloroethane	BRL	8.8		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Chloroform	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Chloromethane	BRL	8.8		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
cis-1,2-Dichloroethene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
cis-1,3-Dichloropropene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Cyclohexane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Dibromochloromethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Dichlorodifluoromethane	BRL	8.8		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Ethylbenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Freon-113	BRL	8.8		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Isopropylbenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
m,p-Xylene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Methyl acetate	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Methyl tert-butyl ether	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Methylcyclohexane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Methylene chloride	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
o-Xylene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Styrene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Tetrachloroethene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Toluene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
trans-1,2-Dichloroethene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
trans-1,3-Dichloropropene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Trichloroethene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-4@6
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 12:30:00 PM
Lab ID:	1207H10-008	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>		<b>(SW5035)</b>						
Trichlorofluoromethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Vinyl chloride	BRL	8.8		ug/Kg-dry	164405	1	07/26/2012 19:50	JE
Surr: 4-Bromofluorobenzene	99.2	56.5-134		%REC	164405	1	07/26/2012 19:50	JE
Surr: Dibromofluoromethane	100	71.8-135		%REC	164405	1	07/26/2012 19:50	JE
Surr: Toluene-d8	93.9	77.1-117		%REC	164405	1	07/26/2012 19:50	JE
<b>METALS, TOTAL SW6010C</b>		<b>(SW3050B)</b>						
Arsenic	BRL	6.11		mg/Kg-dry	164343	1	07/27/2012 11:21	TA
Barium	85.2	6.11		mg/Kg-dry	164343	1	07/27/2012 11:21	TA
Cadmium	BRL	3.05		mg/Kg-dry	164343	1	07/27/2012 11:21	TA
Chromium	43.1	3.05		mg/Kg-dry	164343	1	07/27/2012 11:21	TA
Lead	8.33	6.11		mg/Kg-dry	164343	1	07/27/2012 11:21	TA
Selenium	BRL	6.11		mg/Kg-dry	164343	1	07/27/2012 11:21	TA
Silver	BRL	3.05		mg/Kg-dry	164343	1	07/27/2012 11:21	TA
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	22.2	0		wi%	R225921	1	07/27/2012 12:00	AS

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-4@2.5
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 1:40:00 PM
Lab ID:	1207H10-009	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>								
					(SW7471B)			
Mercury	BRL	0.127		mg/Kg-dry	164332	1	07/26/2012 15:00	LD
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>								
					(SW3550C)			
1,1'-Biphenyl	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2,4,5-Trichlorophenol	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2,4,6-Trichlorophenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2,4-Dichlorophenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2,4-Dimethylphenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2,4-Dinitrophenol	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2,4-Dinitrotoluene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2,6-Dinitrotoluene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2-Chloronaphthalene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2-Chlorophenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2-Methylnaphthalene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2-Methylphenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2-Nitroaniline	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
2-Nitrophenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
3,3'-Dichlorobenzidine	BRL	860		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
3-Nitroaniline	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
4,6-Dinitro-2-methylphenol	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
4-Bromophenyl phenyl ether	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
4-Chloro-3-methylphenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
4-Chloroaniline	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
4-Chlorophenyl phenyl ether	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
4-Methylphenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
4-Nitroaniline	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
4-Nitrophenol	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Acenaphthene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Acenaphthylene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Acetophenone	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Anthracene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Atrazine	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Benz(a)anthracene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Benzaldehyde	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Benzo(a)pyrene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Benzo(b)fluoranthene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Benzo(g,h,i)perylene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Benzo(k)fluoranthene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Bis(2-chloroethoxy)methane	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Bis(2-chloroethyl)ether	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Bis(2-chloroisopropyl)ether	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TP-4@2.5
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 1:40:00 PM
<b>Lab ID:</b> 1207H10-009	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>		<b>(SW3550C)</b>						
Bis(2-ethylhexyl)phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Butyl benzyl phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Caprolactam	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Carbazole	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Chrysene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Di-n-butyl phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Di-n-octyl phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Dibenz(a,h)anthracene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Dibenzofuran	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Diethyl phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Dimethyl phthalate	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Fluoranthene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Fluorene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Hexachlorobenzene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Hexachlorobutadiene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Hexachlorocyclopentadiene	BRL	850		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Hexachloroethane	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Indeno(1,2,3-cd)pyrene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Isophorone	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
N-Nitrosodi-n-propylamine	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
N-Nitrosodiphenylamine	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Naphthalene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Nitrobenzene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Pentachlorophenol	BRL	2200		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Phenanthrene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Phenol	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Pyrene	BRL	420		ug/Kg-dry	164273	1	07/26/2012 23:05	YH
Surr: 2,4,6-Tribromophenol	71	41.1-130		%REC	164273	1	07/26/2012 23:05	YH
Surr: 2-Fluorobiphenyl	72.6	45-120		%REC	164273	1	07/26/2012 23:05	YH
Surr: 2-Fluorophenol	61.8	35-120		%REC	164273	1	07/26/2012 23:05	YH
Surr: 4-Terphenyl-d14	90.5	50.1-123		%REC	164273	1	07/26/2012 23:05	YH
Surr: Nitrobenzene-d5	61.1	37.5-120		%REC	164273	1	07/26/2012 23:05	YH
Surr: Phenol-d5	62.3	39-120		%REC	164273	1	07/26/2012 23:05	YH
<b>TCL VOLATILE ORGANICS SW8260B</b>		<b>(SW5035)</b>						
1,1,1-Trichloroethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,1,1,2-Tetrachloroethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,1,2-Trichloroethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,1-Dichloroethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,1-Dichloroethene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,2,4-Trichlorobenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Client:	United Consulting Group Inc.	Client Sample ID:	TP-4@2.5
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 1:40:00 PM
Lab ID:	1207H10-009	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>		<b>(SW5035)</b>						
1,2-Dibromo-3-chloropropane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,2-Dibromoethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,2-Dichlorobenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,2-Dichloroethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,2-Dichloropropane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,3-Dichlorobenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
1,4-Dichlorobenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
2-Butanone	BRL	44		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
2-Hexanone	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
4-Methyl-2-pentanone	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Acetone	BRL	87		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Benzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Bromodichloromethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Bromoform	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Bromomethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Carbon disulfide	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Carbon tetrachloride	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Chlorobenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Chloroethane	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Chloroform	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Chloromethane	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
cis-1,2-Dichloroethene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
cis-1,3-Dichloropropene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Cyclohexane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Dibromochloromethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Dichlorodifluoromethane	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Ethylbenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Freon-113	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Isopropylbenzene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
m,p-Xylene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Methyl acetate	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Methyl tert-butyl ether	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Methylcyclohexane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Methylene chloride	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
o-Xylene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Styrene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Tetrachloroethene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Toluene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
trans-1,2-Dichloroethene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
trans-1,3-Dichloropropene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Trichloroethene	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE

Qualifiers:	* Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
	BRL Below reporting limit	S	Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr	See case narrative
	N Analyte not NELAC certified	NC	Not confirmed
	B Analyte detected in the associated method blank	<	Less than Result value
	> Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TP-4@2.5
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 1:40:00 PM
<b>Lab ID:</b> 1207H10-009	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5035)</b>			
Trichlorofluoromethane	BRL	4.4		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Vinyl chloride	BRL	8.7		ug/Kg-dry	164405	1	07/26/2012 20:16	JE
Surr: 4-Bromofluorobenzene	102	56.5-134		%REC	164405	1	07/26/2012 20:16	JE
Surr: Dibromofluoromethane	101	71.8-135		%REC	164405	1	07/26/2012 20:16	JE
Surr: Toluene-d8	95	77.1-117		%REC	164405	1	07/26/2012 20:16	JE
<b>METALS, TOTAL SW6010C</b>					<b>(SW3050B)</b>			
Arsenic	BRL	6.09		mg/Kg-dry	164343	1	07/27/2012 11:24	TA
Barium	80.9	6.09		mg/Kg-dry	164343	1	07/27/2012 11:24	TA
Cadmium	BRL	3.04		mg/Kg-dry	164343	1	07/27/2012 11:24	TA
Chromium	40.2	3.04		mg/Kg-dry	164343	1	07/27/2012 11:24	TA
Lead	8.94	6.09		mg/Kg-dry	164343	1	07/27/2012 11:24	TA
Selenium	BRL	6.09		mg/Kg-dry	164343	1	07/27/2012 11:24	TA
Silver	BRL	3.04		mg/Kg-dry	164343	1	07/27/2012 11:24	TA
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	22.0	0		wt%	R225921	1	07/27/2012 12:00	AS

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> DUPLICATE
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 1:40:00 PM
<b>Lab ID:</b> 1207H10-010	<b>Matrix:</b> Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TOTAL MERCURY SW7471B</b>								
					(SW7471B)			
Mercury	BRL	0.124		mg/Kg-dry	164332	1	07/26/2012 15:02	LD
<b>METALS, TOTAL SW6010C</b>								
					(SW3050B)			
Arsenic	BRL	6.01		mg/Kg-dry	164343	1	07/27/2012 13:49	TA
Barium	79.0	6.01		mg/Kg-dry	164343	1	07/27/2012 11:27	TA
Cadmium	BRL	3.00		mg/Kg-dry	164343	1	07/27/2012 11:27	TA
Chromium	47.7	3.00		mg/Kg-dry	164343	1	07/27/2012 11:27	TA
Lead	7.47	6.01		mg/Kg-dry	164343	1	07/27/2012 11:27	TA
Selenium	BRL	6.01		mg/Kg-dry	164343	1	07/27/2012 11:27	TA
Silver	BRL	3.00		mg/Kg-dry	164343	1	07/27/2012 11:27	TA
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	20.9	0		wt%	R225921	1	07/27/2012 12:00	AS

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TP-1TO 4
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012 12:40:00 PM
Lab ID:	1207H10-011	Matrix:	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
MERCURY, TCLP SW1311/7470A					(SW7470A)			
Mercury	BRL	0.00400		mg/L	164362	1	07/27/2012 14:00	MW
ICP METALS, TCLP SW1311/6010C					(SW3010A)			
Arsenic	BRL	0.250		mg/L	164346	1	07/27/2012 12:01	MR
Barium	0.941	0.500		mg/L	164346	1	07/27/2012 12:01	MR
Cadmium	BRL	0.0250		mg/L	164346	1	07/27/2012 12:01	MR
Chromium	BRL	0.0500		mg/L	164346	1	07/27/2012 12:01	MR
Lead	BRL	0.0500		mg/L	164346	1	07/27/2012 12:01	MR
Selenium	BRL	0.100		mg/L	164346	1	07/27/2012 12:01	MR
Silver	BRL	0.0250		mg/L	164346	1	07/27/2012 12:01	MR

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit



Analytical Environmental Services, Inc

Date: 28-Jul-12

Client: United Consulting Group Inc.	Client Sample ID: TP-4@2
Project Name: Liddell Drive Equalization Project	Collection Date: 7/25/2012 11:40:00 AM
Lab ID: 1207H10-012	Matrix: Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>VOLATILES, TCLP SW1311/8260B</b>		<b>(SW1311)</b>						
1,1-Dichloroethene	BRL	0.10		mg/L	164411	20	07/27/2012 12:50	DB
1,2-Dichloroethane	BRL	0.10		mg/L	164411	20	07/27/2012 12:50	DB
2-Butanone	BRL	0.20		mg/L	164411	20	07/27/2012 12:50	DB
Benzene	BRL	0.10		mg/L	164411	20	07/27/2012 12:50	DB
Carbon tetrachloride	BRL	0.10		mg/L	164411	20	07/27/2012 12:50	DB
Chlorobenzene	BRL	0.10		mg/L	164411	20	07/27/2012 12:50	DB
Chloroform	BRL	0.10		mg/L	164411	20	07/27/2012 12:50	DB
Tetrachloroethene	BRL	0.10		mg/L	164411	20	07/27/2012 12:50	DB
Trichloroethene	BRL	0.10		mg/L	164411	20	07/27/2012 12:50	DB
Vinyl chloride	BRL	0.040		mg/L	164411	20	07/27/2012 12:50	DB
Surr: 4-Bromofluorobenzene	95.5	64.6-131		%REC	164411	20	07/27/2012 12:50	DB
Surr: Dibromofluoromethane	98.6	70.6-128		%REC	164411	20	07/27/2012 12:50	DB
Surr: Toluene-d8	99	70.5-116		%REC	164411	20	07/27/2012 12:50	DB
<b>SEMIVOLATILES ORGANICS, TCLP SW1311/8270D</b>		<b>(SW3510C)</b>						
1,4-Dichlorobenzene	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
2,4,5-Trichlorophenol	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
2,4,6-Trichlorophenol	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
2,4-Dinitrotoluene	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
Hexachlorobenzene	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
Hexachlorobutadiene	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
Hexachloroethane	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
m,p-Cresol	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
Nitrobenzene	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
o-Cresol	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
Pentachlorophenol	BRL	0.50		mg/L	164271	1	07/27/2012 12:29	YH
Pyridine	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
Cresols, Total	BRL	0.10		mg/L	164271	1	07/27/2012 12:29	YH
Surr: 2,4,6-Tribromophenol	82	48.3-142		%REC	164271	1	07/27/2012 12:29	YH
Surr: 2-Fluorobiphenyl	83.9	52.2-126		%REC	164271	1	07/27/2012 12:29	YH
Surr: 2-Fluorophenol	75.1	42.4-125		%REC	164271	1	07/27/2012 12:29	YH
Surr: 4-Terphenyl-d14	98.7	47-140		%REC	164271	1	07/27/2012 12:29	YH
Surr: Nitrobenzene-d5	76.9	47.3-129		%REC	164271	1	07/27/2012 12:29	YH
Surr: Phenol-d5	70.1	40.3-124		%REC	164271	1	07/27/2012 12:29	YH

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> TRIP BLANK
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012
<b>Lab ID:</b> 1207H10-013	<b>Matrix:</b> Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5030B)</b>			
1,1,1-Trichloroethane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,1-Dichloroethane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,1-Dichloroethene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,2-Dibromoethane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,2-Dichlorobenzene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,2-Dichloroethane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,2-Dichloropropane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,3-Dichlorobenzene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
1,4-Dichlorobenzene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
2-Butanone	BRL	50		ug/L	164385	1	07/26/2012 22:00	AR
2-Hexanone	BRL	10		ug/L	164385	1	07/26/2012 22:00	AR
4-Methyl-2-pentanone	BRL	10		ug/L	164385	1	07/26/2012 22:00	AR
Acetone	BRL	50		ug/L	164385	1	07/26/2012 22:00	AR
Benzene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Bromodichloromethane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Bromoform	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Bromomethane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Carbon disulfide	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Carbon tetrachloride	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Chlorobenzene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Chloroethane	BRL	10		ug/L	164385	1	07/26/2012 22:00	AR
Chloroform	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Chloromethane	BRL	10		ug/L	164385	1	07/26/2012 22:00	AR
cis-1,2-Dichloroethene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
cis-1,3-Dichloropropene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Cyclohexane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Dibromochloromethane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Dichlorodifluoromethane	BRL	10		ug/L	164385	1	07/26/2012 22:00	AR
Ethylbenzene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Freon-113	BRL	10		ug/L	164385	1	07/26/2012 22:00	AR
Isopropylbenzene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
m,p-Xylene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Methyl acetate	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Methyl tert-butyl ether	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Methylcyclohexane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Methylene chloride	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
o-Xylene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client:	United Consulting Group Inc.	Client Sample ID:	TRIP BLANK
Project Name:	Liddell Drive Equalization Project	Collection Date:	7/25/2012
Lab ID:	1207H10-013	Matrix:	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					<b>(SW5030B)</b>			
Styrene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Tetrachloroethene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Toluene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
trans-1,2-Dichloroethene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
trans-1,3-Dichloropropene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Trichloroethene	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Trichlorofluoromethane	BRL	5.0		ug/L	164385	1	07/26/2012 22:00	AR
Vinyl chloride	BRL	2.0		ug/L	164385	1	07/26/2012 22:00	AR
Surr: 4-Bromofluorobenzene	99	67.4-123		%REC	164385	1	07/26/2012 22:00	AR
Surr: Dibromofluoromethane	103	75.5-128		%REC	164385	1	07/26/2012 22:00	AR
Surr: Toluene-d8	94.2	70-120		%REC	164385	1	07/26/2012 22:00	AR

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
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Analytical Environmental Services, Inc

Date: 28-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> FIELD BLANK
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 4:00:00 PM
<b>Lab ID:</b> 1207H10-014	<b>Matrix:</b> Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>					<b>(SW3510C)</b>			
1,1'-Biphenyl	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	164270	1	07/27/2012 12:03	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
2,4-Dichlorophenol	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
2,4-Dimethylphenol	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
2,4-Dinitrophenol	BRL	25		ug/L	164270	1	07/27/2012 12:03	YH
2,4-Dinitrotoluene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
2,6-Dinitrotoluene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
2-Chloronaphthalene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
2-Chlorophenol	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
2-Methylnaphthalene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
2-Methylphenol	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
2-Nitroaniline	BRL	25		ug/L	164270	1	07/27/2012 12:03	YH
2-Nitrophenol	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
3,3'-Dichlorobenzidine	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
3-Nitroaniline	BRL	25		ug/L	164270	1	07/27/2012 12:03	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	164270	1	07/27/2012 12:03	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
4-Chloroaniline	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
4-Methylphenol	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
4-Nitroaniline	BRL	25		ug/L	164270	1	07/27/2012 12:03	YH
4-Nitrophenol	BRL	25		ug/L	164270	1	07/27/2012 12:03	YH
Acenaphthene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Acenaphthylene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Acetophenone	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Anthracene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Atrazine	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Benz(a)anthracene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Benzaldehyde	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Benzo(a)pyrene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Benzo(b)fluoranthene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Benzo(g,h,i)perylene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Benzo(k)fluoranthene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Butyl benzyl phthalate	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Caprolactam	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH

<b>Qualifiers:</b>	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
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	B Analyte detected in the associated method blank	< Less than Result value
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Analytical Environmental Services, Inc

Date: 28-Jul-12

<b>Client:</b> United Consulting Group Inc.	<b>Client Sample ID:</b> FIELD BLANK
<b>Project Name:</b> Liddell Drive Equalization Project	<b>Collection Date:</b> 7/25/2012 4:00:00 PM
<b>Lab ID:</b> 1207H10-014	<b>Matrix:</b> Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL-SEMIVOLATILE ORGANICS SW8270D</b>					<b>(SW3510C)</b>			
Carbazole	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Chrysene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Di-n-butyl phthalate	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Di-n-octyl phthalate	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Dibenz(a,h)anthracene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Dibenzofuran	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Diethyl phthalate	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Dimethyl phthalate	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Fluoranthene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Fluorene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Hexachlorobenzene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Hexachlorobutadiene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Hexachlorocyclopentadiene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Hexachloroethane	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Indeno(1,2,3-cd)pyrene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Isophorone	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Naphthalene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Nitrobenzene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Pentachlorophenol	BRL	25		ug/L	164270	1	07/27/2012 12:03	YH
Phenanthrene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Phenol	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Pyrene	BRL	10		ug/L	164270	1	07/27/2012 12:03	YH
Surr: 2,4,6-Tribromophenol	66.1	47.4-146		%REC	164270	1	07/27/2012 12:03	YH
Surr: 2-Fluorobiphenyl	81.1	51.5-122		%REC	164270	1	07/27/2012 12:03	YH
Surr: 2-Fluorophenol	65.5	28.5-120		%REC	164270	1	07/27/2012 12:03	YH
Surr: 4-Terphenyl-d14	98.9	47.7-133		%REC	164270	1	07/27/2012 12:03	YH
Surr: Nitrobenzene-d5	72.8	45.7-120		%REC	164270	1	07/27/2012 12:03	YH
Surr: Phenol-d5	52.8	10.9-120		%REC	164270	1	07/27/2012 12:03	YH

Qualifiers: \* Value exceeds maximum contaminant level  
 BRL Below reporting limit  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 B Analyte detected in the associated method blank  
 > Greater than Result value  
 E Estimated (value above quantitation range)  
 S Spike Recovery outside limits due to matrix  
 Narr See case narrative  
 NC Not confirmed  
 < Less than Result value  
 J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Unified Consulting Work Order Number 1207H60

Checklist completed by [Signature] Date 07/25/12

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping container/cooler in good condition? Yes  No  Not Present   
Custody seals intact on shipping container/cooler? Yes  No  Not Present   
Custody seals intact on sample bottles? Yes  No  Not Present   
Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 37 Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No   
Chain of custody signed when relinquished and received? Yes  No   
Chain of custody agrees with sample labels? Yes  No   
Samples in proper container/bottle? Yes  No   
Sample containers intact? Yes  No   
Sufficient sample volume for indicated test? Yes  No   
All samples received within holding time? Yes  No   
Was TAT marked on the COC? Yes  No   
Proceed with Standard TAT as per project history? Yes  No  Not Applicable   
Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No   
Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by [Signature]

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.

**Analytical Environmental Services, Inc**

Date: 28-Jul-12

Client: United Consulting Group Inc.  
 Project: Liddell Drive Equalization Project  
 Lab Order: 1207H10

**Dates Report**

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1207H10-001A	TP-1@1	7/25/2012 8:50:00AM	Soil	TOTAL METALS BY ICP	07/26/2012	07/26/2012	07/27/2012
1207H10-001A	TP-1@1	7/25/2012 8:50:00AM	Soil	MERCURY	07/26/2012	07/26/2012	07/27/2012
1207H10-001A	TP-1@1	7/25/2012 8:50:00AM	Soil	PERCENT MOISTURE	07/26/2012	07/26/2012	07/27/2012
1207H10-002A	TP-1@2.5	7/25/2012 9:35:00AM	Soil	TCL VOLATILE ORGANICS	07/26/2012	07/26/2012	07/27/2012
1207H10-002B	TP-1@2.5	7/25/2012 9:35:00AM	Soil	PERCENT MOISTURE	07/26/2012	07/26/2012	07/27/2012
1207H10-002C	TP-1@2.5	7/25/2012 9:35:00AM	Soil	TOTAL METALS BY ICP	07/26/2012	07/26/2012	07/27/2012
1207H10-002C	TP-1@2.5	7/25/2012 9:35:00AM	Soil	MERCURY	07/26/2012	07/26/2012	07/27/2012
1207H10-002C	TP-1@2.5	7/25/2012 9:35:00AM	Soil	TCL-SEMIVOLATILE ORGANICS	07/26/2012	07/26/2012	07/27/2012
1207H10-003A	TP-2@1	7/25/2012 10:05:00AM	Soil	TOTAL METALS BY ICP	07/26/2012	07/26/2012	07/27/2012
1207H10-003A	TP-2@1	7/25/2012 10:05:00AM	Soil	MERCURY	07/26/2012	07/26/2012	07/27/2012
1207H10-003A	TP-2@1	7/25/2012 10:05:00AM	Soil	PERCENT MOISTURE	07/26/2012	07/26/2012	07/27/2012
1207H10-004A	TP-2@6	7/25/2012 10:30:00AM	Soil	TCL VOLATILE ORGANICS	07/26/2012	07/26/2012	07/27/2012
1207H10-004B	TP-2@6	7/25/2012 10:30:00AM	Soil	PERCENT MOISTURE	07/26/2012	07/26/2012	07/27/2012
1207H10-004C	TP-2@6	7/25/2012 10:30:00AM	Soil	TOTAL METALS BY ICP	07/26/2012	07/26/2012	07/27/2012
1207H10-004C	TP-2@6	7/25/2012 10:30:00AM	Soil	MERCURY	07/26/2012	07/26/2012	07/27/2012
1207H10-004C	TP-2@6	7/25/2012 10:30:00AM	Soil	TCL-SEMIVOLATILE ORGANICS	07/26/2012	07/26/2012	07/27/2012
1207H10-005A	TP-3@1	7/25/2012 10:55:00AM	Soil	TOTAL METALS BY ICP	07/26/2012	07/26/2012	07/27/2012
1207H10-005A	TP-3@1	7/25/2012 10:55:00AM	Soil	MERCURY	07/26/2012	07/26/2012	07/27/2012
1207H10-005A	TP-3@1	7/25/2012 10:55:00AM	Soil	PERCENT MOISTURE	07/26/2012	07/26/2012	07/27/2012
1207H10-006A	TP-3@3	7/25/2012 11:10:00AM	Soil	TCL VOLATILE ORGANICS	07/26/2012	07/26/2012	07/27/2012
1207H10-006B	TP-3@3	7/25/2012 11:10:00AM	Soil	PERCENT MOISTURE	07/26/2012	07/26/2012	07/27/2012
1207H10-006C	TP-3@3	7/25/2012 11:10:00AM	Soil	TOTAL METALS BY ICP	07/26/2012	07/26/2012	07/27/2012
1207H10-006C	TP-3@3	7/25/2012 11:10:00AM	Soil	MERCURY	07/26/2012	07/26/2012	07/27/2012
1207H10-006C	TP-3@3	7/25/2012 11:10:00AM	Soil	TCL-SEMIVOLATILE ORGANICS	07/26/2012	07/26/2012	07/27/2012
1207H10-006C	TP-3@3	7/25/2012 11:10:00AM	Soil	Semivolatile Org. Comp. by GC/MS	07/26/2012	07/26/2012	07/27/2012
1207H10-007A	TP-4@1	7/25/2012 12:05:00PM	Soil	TOTAL METALS BY ICP	07/26/2012	07/26/2012	07/27/2012
1207H10-007A	TP-4@1	7/25/2012 12:05:00PM	Soil	MERCURY	07/26/2012	07/26/2012	07/27/2012
1207H10-007A	TP-4@1	7/25/2012 12:05:00PM	Soil	PERCENT MOISTURE	07/26/2012	07/26/2012	07/27/2012
1207H10-008A	TP-4@6	7/25/2012 12:30:00PM	Soil	TCL VOLATILE ORGANICS	07/26/2012	07/26/2012	07/27/2012

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client: United Consulting Group Inc.  
 Project: Liddell Drive Equalization Project  
 Lab Order: 1207H10

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1207H10-008B	TP-4@6	7/25/2012 12:30:00PM	Soil	PERCENT MOISTURE		07/26/2012	07/27/2012
1207H10-008C	TP-4@6	7/25/2012 12:30:00PM	Soil	TOTAL METALS BY ICP		07/26/2012	07/27/2012
1207H10-008C	TP-4@6	7/25/2012 12:30:00PM	Soil	MERCURY		07/26/2012	07/26/2012
1207H10-008C	TP-4@6	7/25/2012 12:30:00PM	Soil	PRIORITY POLLUTANT SEMIVOLATILE ORGA		07/26/2012	07/26/2012
1207H10-008C	TP-4@6	7/25/2012 12:30:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		07/26/2012	07/26/2012
1207H10-008C	TP-4@6	7/25/2012 12:30:00PM	Soil	Semivolatile Org. Comp. by GC/MS		07/26/2012	07/26/2012
1207H10-009A	TP-4@2.5	7/25/2012 1:40:00PM	Soil	TCL VOLATILE ORGANICS		07/26/2012	07/26/2012
1207H10-009B	TP-4@2.5	7/25/2012 1:40:00PM	Soil	PERCENT MOISTURE		07/26/2012	07/27/2012
1207H10-009C	TP-4@2.5	7/25/2012 1:40:00PM	Soil	TOTAL METALS BY ICP		07/26/2012	07/27/2012
1207H10-009C	TP-4@2.5	7/25/2012 1:40:00PM	Soil	MERCURY		07/26/2012	07/26/2012
1207H10-009C	TP-4@2.5	7/25/2012 1:40:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		07/26/2012	07/26/2012
1207H10-009C	TP-4@2.5	7/25/2012 1:40:00PM	Soil	Semivolatile Org. Comp. by GC/MS		07/26/2012	07/26/2012
1207H10-010B	DUPLICATE	7/25/2012 1:40:00PM	Soil	PERCENT MOISTURE		07/26/2012	07/27/2012
1207H10-010C	DUPLICATE	7/25/2012 1:40:00PM	Soil	TOTAL METALS BY ICP		07/26/2012	07/27/2012
1207H10-010C	DUPLICATE	7/25/2012 1:40:00PM	Soil	MERCURY		07/26/2012	07/26/2012
1207H10-011A	TP-1TTO 4	7/25/2012 12:40:00PM	Soil	MERCURY, TCLP Leached		07/26/2012	07/27/2012
1207H10-011A	TP-1TTO 4	7/25/2012 12:40:00PM	Soil	ICP METALS, TCLP Leached		07/26/2012	07/27/2012
1207H10-012A	TP-4@2	7/25/2012 11:40:00AM	Soil	VOLATILES, TCLP Leached		07/24/2012	07/27/2012
1207H10-012B	TP-4@2	7/25/2012 11:40:00AM	Soil	TCLP SEMIVOLATILES ORGANICS		07/26/2012	07/27/2012
1207H10-013A	TRIP BLANK	7/25/2012 12:00:00AM	Aqueous	TCL VOLATILE ORGANICS		07/26/2012	07/26/2012
1207H10-014A	FIELD BLANK	7/25/2012 4:00:00PM	Aqueous	TCL-SEMIVOLATILE ORGANICS		07/26/2012	07/27/2012



Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164270

Sample ID: MB-164270	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225734
Sample Type: MBLK	Test Code: TCL-SEMI-VOLATILE ORGANICS SW8270D	BatchID: 164270	Analysis Date: 07/25/2012	Seq No: 4725015

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1'-Biphenyl	BRL	10	0	0	0	0	0	0	0	0	0
2,4,5-Trichlorophenol	BRL	25	0	0	0	0	0	0	0	0	0
2,4,6-Trichlorophenol	BRL	10	0	0	0	0	0	0	0	0	0
2,4-Dichlorophenol	BRL	10	0	0	0	0	0	0	0	0	0
2,4-Dimethylphenol	BRL	10	0	0	0	0	0	0	0	0	0
2,4-Dinitrophenol	BRL	25	0	0	0	0	0	0	0	0	0
2,4-Dinitrotoluene	BRL	10	0	0	0	0	0	0	0	0	0
2,6-Dinitrotoluene	BRL	10	0	0	0	0	0	0	0	0	0
2-Chloronaphthalene	BRL	10	0	0	0	0	0	0	0	0	0
2-Chlorophenol	BRL	10	0	0	0	0	0	0	0	0	0
2-Methylnaphthalene	BRL	10	0	0	0	0	0	0	0	0	0
2-Methylphenol	BRL	10	0	0	0	0	0	0	0	0	0
2-Nitroaniline	BRL	25	0	0	0	0	0	0	0	0	0
2-Nitrophenol	BRL	10	0	0	0	0	0	0	0	0	0
3,3'-Dichlorobenzidine	BRL	10	0	0	0	0	0	0	0	0	0
3-Nitroaniline	BRL	25	0	0	0	0	0	0	0	0	0
4,6-Dinitro-2-methylphenol	BRL	25	0	0	0	0	0	0	0	0	0
4-Bromophenyl phenyl ether	BRL	10	0	0	0	0	0	0	0	0	0
4-Chloro-3-methylphenol	BRL	10	0	0	0	0	0	0	0	0	0
4-Chloroaniline	BRL	10	0	0	0	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	BRL	10	0	0	0	0	0	0	0	0	0
4-Methylphenol	BRL	10	0	0	0	0	0	0	0	0	0
4-Nitroaniline	BRL	25	0	0	0	0	0	0	0	0	0
4-Nitrophenol	BRL	25	0	0	0	0	0	0	0	0	0
Acenaphthene	BRL	10	0	0	0	0	0	0	0	0	0
Acenaphthylene	BRL	10	0	0	0	0	0	0	0	0	0
Acetophenone	BRL	10	0	0	0	0	0	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 RPT Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantization range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project

Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164270

Sample ID: MB-164270	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225734							
Sample Type: MBILK	Test Code: TCL-SEMI-VOLATILE ORGANICS SW8370D	BatchID: 164270	Analysis Date: 07/25/2012	Seq No: 4725015							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Anthracene	BRL	10	0	0	0	0	0	0	0	0	0
Atrazine	BRL	10	0	0	0	0	0	0	0	0	0
Benz(a)anthracene	BRL	10	0	0	0	0	0	0	0	0	0
Benzaldehyde	BRL	10	0	0	0	0	0	0	0	0	0
Benzo(a)pyrene	BRL	10	0	0	0	0	0	0	0	0	0
Benzo(b)fluoranthene	BRL	10	0	0	0	0	0	0	0	0	0
Benzo(g,h,i)perylene	BRL	10	0	0	0	0	0	0	0	0	0
Benzo(k)fluoranthene	BRL	10	0	0	0	0	0	0	0	0	0
Bis(2-chloroethoxy)methane	BRL	10	0	0	0	0	0	0	0	0	0
Bis(2-chloroethyl) ether	BRL	10	0	0	0	0	0	0	0	0	0
Bis(2-chloroisopropyl) ether	BRL	10	0	0	0	0	0	0	0	0	0
Bis(2-ethylhexyl) phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Butyl benzyl phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Caprolactam	BRL	10	0	0	0	0	0	0	0	0	0
Carbazole	BRL	10	0	0	0	0	0	0	0	0	0
Chrysene	BRL	10	0	0	0	0	0	0	0	0	0
Di-n-butyl phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Di-n-octyl phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Dibenz(a,h)anthracene	BRL	10	0	0	0	0	0	0	0	0	0
Dibenzofuran	BRL	10	0	0	0	0	0	0	0	0	0
Diethyl phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Dimethyl phthalate	BRL	10	0	0	0	0	0	0	0	0	0
Fluoranthene	BRL	10	0	0	0	0	0	0	0	0	0
Fluorene	BRL	10	0	0	0	0	0	0	0	0	0
Hexachlorobenzene	BRL	10	0	0	0	0	0	0	0	0	0
Hexachlorobutadiene	BRL	10	0	0	0	0	0	0	0	0	0
Hexachlorocyclopentadiene	BRL	10	0	0	0	0	0	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rgt Lim Reporting Limit

< Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164270

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Hexachloroethane	BRL	10	0	0	0	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	BRL	10	0	0	0	0	0	0	0	0	0
Isophorone	BRL	10	0	0	0	0	0	0	0	0	0
N-Nitrosodi-n-propylamine	BRL	10	0	0	0	0	0	0	0	0	0
N-Nitrosodiphenylamine	BRL	10	0	0	0	0	0	0	0	0	0
Naphthalene	BRL	10	0	0	0	0	0	0	0	0	0
Nitrobenzene	BRL	10	0	0	0	0	0	0	0	0	0
Pentachlorophenol	BRL	25	0	0	0	0	0	0	0	0	0
Phenanthrene	BRL	10	0	0	0	0	0	0	0	0	0
Phenol	BRL	10	0	0	0	0	0	0	0	0	0
Pyrene	BRL	10	0	0	0	0	0	0	0	0	0
Surr: 2,4,6-Tribromophenol	96.77	0	100	0	96.8	47.4	146	0	0	0	0
Surr: 2-Fluorobiphenyl	46.80	0	50	0	93.6	51.5	122	0	0	0	0
Surr: 2-Fluorophenol	67.57	0	100	0	67.6	28.5	120	0	0	0	0
Surr: 4-Triphenyl-d14	58.46	0	50	0	117	47.7	133	0	0	0	0
Surr: Nitrobenzene-d5	39.99	0	50	0	80	45.7	120	0	0	0	0
Surr: Phenol-d5	46.57	0	100	0	46.6	10.9	120	0	0	0	0

Sample ID: MB-164270 Client ID: ICL-SEMI-VOLATILE ORGANICS SW8270D  
 Sample Type: MBLK Test Code: ICL-SEMI-VOLATILE ORGANICS SW8270D  
 Units: ug/L BatchID: 164270  
 Prep Date: 07/25/2012 Run No: 225734  
 Analysis Date: 07/25/2012 Seq No: 4725015

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4-Dinitrotoluene	76.69	10	100	0	76.7	68.2	118	0	0	0	0
2-Chlorophenol	68.43	10	100	0	68.4	67.9	120	0	0	0	0
4-Chloro-3-methylphenol	76.44	10	100	0	76.4	63.1	120	0	0	0	0
4-Nitrophenol	31.71	25	100	0	31.7	21	120	0	0	0	0
Acenaphthene	72.30	10	100	0	72.3	68.6	120	0	0	0	0
N-Nitrosodi-n-propylamine	74.17	10	100	0	74.2	73.6	127	0	0	0	0

Sample ID: LCS-164270 Client ID: ICL-SEMI-VOLATILE ORGANICS SW8270D  
 Sample Type: LCS Test Code: ICL-SEMI-VOLATILE ORGANICS SW8270D  
 Units: ug/L BatchID: 164270  
 Prep Date: 07/25/2012 Run No: 225809  
 Analysis Date: 07/26/2012 Seq No: 4726740

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4-Dinitrotoluene	76.69	10	100	0	76.7	68.2	118	0	0	0	0
2-Chlorophenol	68.43	10	100	0	68.4	67.9	120	0	0	0	0
4-Chloro-3-methylphenol	76.44	10	100	0	76.4	63.1	120	0	0	0	0
4-Nitrophenol	31.71	25	100	0	31.7	21	120	0	0	0	0
Acenaphthene	72.30	10	100	0	72.3	68.6	120	0	0	0	0
N-Nitrosodi-n-propylamine	74.17	10	100	0	74.2	73.6	127	0	0	0	0

Sample ID: MB-164270 Client ID: ICL-SEMI-VOLATILE ORGANICS SW8270D  
 Sample Type: MBLK Test Code: ICL-SEMI-VOLATILE ORGANICS SW8270D  
 Units: ug/L BatchID: 164270  
 Prep Date: 07/25/2012 Run No: 225734  
 Analysis Date: 07/25/2012 Seq No: 4725015

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddle Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164270

Sample ID: LCS-164270 Client ID: TestCode: TCL-SEMIVOLATILE ORGANICS SW8270D Units: ng/L Prep Date: 07/25/2012 Run No: 225809  
 Sample Type: LCS BatchID: 164270 Analysis Date: 07/26/2012 Seq No: 4726740

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
PentaChlorophenol	75.30	25	100	0	75.3	55.2	118	0	0	0	
Phenol	37.73	10	100	0	37.7	26.6	120	0	0	0	
Pyrene	82.48	10	100	0	82.5	66.3	131	0	0	0	
Surr: 2,4,6-Tribromophenol	87.90	0	100	0	87.9	47.4	146	0	0	0	
Surr: 2-Fluorobiphenyl	39.36	0	50	0	78.7	51.5	122	0	0	0	
Surr: 2-Fluorophenol	52.53	0	100	0	52.5	28.5	120	0	0	0	
Surr: 4-Terphenyl-d14	50.49	0	50	0	101	47.7	133	0	0	0	
Surr: Nitrobenzene-d5	35.05	0	50	0	70.1	45.7	120	0	0	0	
Surr: Phenol-d5	35.61	0	100	0	35.6	10.9	120	0	0	0	

Sample ID: 1207D55-016CAMS Client ID: TestCode: TCL-SEMIVOLATILE ORGANICS SW8270D Units: ng/L Prep Date: 07/25/2012 Run No: 225809  
 Sample Type: MS BatchID: 164270 Analysis Date: 07/26/2012 Seq No: 4728335

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4-Dinitrotoluene	68.85	50	100	0	68.8	54.4	120	0	0	0	
2-Chlorophenol	74.65	50	100	0	74.6	56.6	120	0	0	0	
4-Chloro-3-methylphenol	BRL	50	100	0	0	49.8	120	0	0	0	S
4-Nitrophenol	BRL	130	100	0	85.8	22	120	0	0	0	
Acenaphthene	401.4	50	100	491.6	-90.1	57.8	120	0	0	0	S
N-Nitrosodi-n-propylamine	BRL	50	100	0	0	60.7	124	0	0	0	S
PentaChlorophenol	160.4	130	100	113.8	46.6	37.6	130	0	0	0	SE
Phenol	2283	50	100	2390	-107	27.9	120	0	0	0	SE
Pyrene	130.3	50	100	86.05	44.2	57.9	118	0	0	0	S
Surr: 2,4,6-Tribromophenol	80.95	0	100	0	81	47.4	146	0	0	0	
Surr: 2-Fluorobiphenyl	35.10	0	50	0	70.2	51.5	122	0	0	0	
Surr: 2-Fluorophenol	55.60	0	100	0	55.6	28.5	120	0	0	0	
Surr: 4-Terphenyl-d14	47.90	0	50	0	95.8	47.7	133	0	0	0	
Surr: Nitrobenzene-d5	35.95	0	50	0	71.9	45.7	120	0	0	0	

Qualifiers: > Greater than Result value < Less than Result value

ERL Below reporting limit E Estimated (value above quantitation range)

J Estimated value detected below Reporting Limit N Analyte not NELAC certified

Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank H Holding times for preparation or analysis exceeded

R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164270

Sample ID: 1207D55-016CMS	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225809				
Sample Type: MS	TestCode: TCL-SEMI-VOLATILE ORGANICS	BatchID: 164270	Analysis Date: 07/26/2012	Seq No: 4728335				
Analyte	Result	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Surr: Phenol-d5	58.45	0	100	0	58.4	10.9	120	0	0	0
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Sample ID: 1207D55-016CMSD	Client ID:	Units: ug/L	Prep Date: 07/25/2012	Run No: 225809				
Sample Type: MSD	TestCode: TCL-SEMI-VOLATILE ORGANICS	BatchID: 164270	Analysis Date: 07/26/2012	Seq No: 4728336				
Analyte	Result	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

2,4-Dinitrotoluene	72.30	50	100	0	72.3	54.4	120	68.85	4.89	25.5
2-Chlorophenol	75.55	50	100	0	75.6	56.6	120	74.65	1.2	26.2
4-Chloro-3-methylphenol	90.80	50	100	0	90.8	49.8	120	0	200	62.9 R
4-Nitrophenol	BRL	130	100	0	77.9	22	120	85.80	0	31.4
Acenaphthene	431.8	50	100	491.6	-59.8	57.8	120	401.4	7.27	24.7 S
N-Nitrosodi-n-propylamine	BRL	50	100	0	0	60.7	124	0	0	28.2 S
Pentachlorophenol	166.8	130	100	113.8	53	37.6	130	160.4	3.91	26.6
Phenol	2394	50	100	2390	3.75	27.9	120	2283	4.76	29.5 SE
Pyrene	137.0	50	100	86.05	51	57.9	118	130.3	5.01	24.4 S
Surr: 2,4,6-Tribromophenol	83.15	0	100	0	83.2	47.4	146	80.95	0	0
Surr: 2-Fluorobiphenyl	37.90	0	50	0	75.8	51.5	122	35.10	0	0
Surr: 2-Fluorophenol	57.95	0	100	0	58	28.5	120	55.60	0	0
Surr: 4-Terphenyl-d14	49.65	0	50	0	99.3	47.7	133	47.90	0	0
Surr: Nitrobenzene-d5	37.45	0	50	0	74.9	45.7	120	35.95	0	0
Surr: Phenol-d5	59.50	0	100	0	59.5	10.9	120	58.45	0	0

Qualifiers:	>	Greater than Result value	+	Less than Result value	B	Analyte detected in the associated method blank
BEL	<	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	<	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	<	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Analytical Environmental Services, Inc

Date: 30-Jul-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164271

Sample ID: MB-164271	Client ID:	Units: mg/L	Prep Date: 07/26/2012	Run No: 225869
Sample Type: MBLK	TestCode: SEMIVOLATILES ORGANICS, TCLP	BatchID: 164271	Analysis Date: 07/26/2012	Seq No: 4728071

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	BRL	0.10	0	0	0	0	0	0	0	0	0
2,4,5-Trichlorophenol	BRL	0.10	0	0	0	0	0	0	0	0	0
2,4,6-Trichlorophenol	BRL	0.10	0	0	0	0	0	0	0	0	0
2,4-Dinitrotoluene	BRL	0.10	0	0	0	0	0	0	0	0	0
Cresols, Total	BRL	0.10	0	0	0	0	0	0	0	0	0
Hexachlorobenzene	BRL	0.10	0	0	0	0	0	0	0	0	0
Hexachlorobutadiene	BRL	0.10	0	0	0	0	0	0	0	0	0
Hexachloroethane	BRL	0.10	0	0	0	0	0	0	0	0	0
m,p-Cresol	BRL	0.10	0	0	0	0	0	0	0	0	0
Nitrobenzene	BRL	0.10	0	0	0	0	0	0	0	0	0
o-Cresol	BRL	0.10	0	0	0	0	0	0	0	0	0
Perachlorophenol	BRL	0.50	0	0	0	0	0	0	0	0	0
Pyridine	BRL	0.10	0	0	0	0	0	0	0	0	0
Surr: 2,4,6-Tribromophenol	0.9266	0	1	0	92.7	48.3	142	0	0	0	0
Surr: 2-Fluorobiphenyl	0.4805	0	0.5	0	96.1	52.2	126	0	0	0	0
Surr: 2-Fluorophenol	0.8474	0	1	0	84.7	42.4	125	0	0	0	0
Surr: 4-Tenphenyl-d14	0.5590	0	0.5	0	112	47	140	0	0	0	0
Surr: Nitrobenzene-d5	0.4306	0	0.5	0	86.1	47.3	129	0	0	0	0
Surr: Phenol-d5	0.8203	0	1	0	82	40.3	124	0	0	0	0

Sample ID: LCS-164271	Client ID:	Units: mg/L	Prep Date: 07/26/2012	Run No: 225869
Sample Type: LCS	TestCode: SEMIVOLATILES ORGANICS, TCLP	BatchID: 164271	Analysis Date: 07/26/2012	Seq No: 4728073

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	0.8453	0.10	1	0	84.5	66.8	120	0	0	0	0
2,4,5-Trichlorophenol	0.7705	0.10	1	0	77	70.6	126	0	0	0	0
2,4,6-Trichlorophenol	0.9020	0.10	1	0	90.2	77.9	121	0	0	0	0
2,4-Dinitrotoluene	0.8898	0.10	1	0	89	72.6	116	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 1 Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 H Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164271

Sample ID: LCS-164271	Client ID:	Units: mg/L	Prep Date: 07/26/2012	Run No: 225869
Sample Type: LCS	Test Code: SEMIVOLATILES ORGANICS, TCLP	BatchID: 164271	Analysis Date: 07/26/2012	Seq No: 4728073

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cresols, Total	2.365	0.10	3	0	78.8	74.9	116	0	0	0	0
Hexachlorobenzene	0.9804	0.10	1	0	98	82.2	122	0	0	0	0
Hexachlorobutadiene	0.9732	0.10	1	0	97.3	55.8	116	0	0	0	0
Hexachloroethane	0.8211	0.10	1	0	82.1	60.1	116	0	0	0	0
m,p-Cresol	1.527	0.10	2	0	76.3	74.4	116	0	0	0	0
Nitrobenzene	0.8691	0.10	1	0	86.9	71.1	122	0	0	0	0
o-Cresol	0.8381	0.10	1	0	83.8	75	116	0	0	0	0
Pentachlorophenol	0.6445	0.50	1	0	64.4	52.9	123	0	0	0	0
Pyridine	0.1544	0.10	1	0	15.4	10	120	0	0	0	0
Surr: 2,4,6-Tribromophenol	0.9776	0	1	0	97.8	48.3	142	0	0	0	0
Surr: 2-Fluorobiphenyl	0.4731	0	0.5	0	94.6	52.2	126	0	0	0	0
Surr: 2-Fluorophenol	0.8207	0	1	0	82.1	42.4	125	0	0	0	0
Surr: 4-Terphenyl-d14	0.5598	0	0.5	0	112	47	140	0	0	0	0
Surr: Nitrobenzene-d5	0.4224	0	0.5	0	84.5	47.3	129	0	0	0	0
Surr: Phenol-d5	0.8088	0	1	0	80.9	40.3	124	0	0	0	0

Sample ID: 1207C63-011CMS	Client ID:	Units: mg/L	Prep Date: 07/26/2012	Run No: 225869
Sample Type: MS	Test Code: SEMIVOLATILES ORGANICS, TCLP	BatchID: 164271	Analysis Date: 07/26/2012	Seq No: 4728076

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	0.8629	0.10	1	0	86.3	51.3	120	0	0	0	0
2,4,5-Trichlorophenol	0.7160	0.10	1	0	71.6	61.4	123	0	0	0	0
2,4,6-Trichlorophenol	0.9227	0.10	1	0	92.3	63.1	123	0	0	0	0
2,4-Dinitrotoluene	0.8835	0.10	1	0	88.4	50.1	124	0	0	0	0
Cresols, Total	2.395	0.10	3	0	79.8	62.2	114	0	0	0	0
Hexachlorobenzene	1.008	0.10	1	0	101	56.5	127	0	0	0	0
Hexachlorobutadiene	0.9963	0.10	1	0	99.6	46	112	0	0	0	0
Hexachloroethane	0.8334	0.10	1	0	83.3	45.6	114	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164271

Sample ID: 1207C63-011CAMS	Client ID:	Units: mg/L	Prep Date: 07/26/2012	Run No: 225869							
Sample Type: MS	Test Code: SEMI VOLATILES ORGANICS, TCIP	BatchID: 164271	Analysis Date: 07/26/2012	Seq No: 4728076							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

m,p-Cresol	1.543	0.10	2	0	77.2	61.9	115	0	0	0	
Nitrobenzene	0.8876	0.10	1	0	88.8	56.8	121	0	0	0	
o-Cresol	0.8515	0.10	1	0	85.2	58.7	117	0	0	0	
Penachlorophenol	BRL	0.50	1	0	37.9	42.9	129	0	0	0	S
Pyridine	0.1073	0.10	1	0	10.7	10	120	0	0	0	
Surr: 2,4,6-Tribromophenol	0.9812	0	1	0	98.1	48.3	142	0	0	0	
Surr: 2-Fluorobiphenyl	0.4900	0	0.5	0	98	52.2	126	0	0	0	
Surr: 2-Fluorophenol	0.8506	0	1	0	85.1	42.4	125	0	0	0	
Surr: 4-Terphenyl-d14	0.5687	0	0.5	0	114	47	140	0	0	0	
Surr: Nitrobenzene-d5	0.4266	0	0.5	0	85.3	47.3	129	0	0	0	
Surr: Phenol-d5	0.8155	0	1	0	81.6	40.3	124	0	0	0	

Qualifiers: > Greater than Result value  
 < Less than Result value

- BRL Below reporting limit
- E Estimated (value above quantitation range)
- N Analyte not NEI A/C certified
- S Spike Recovery outside limits due to matrix
- B Analyte detected in the associated method blank
- H Holding times for preparation or analysis exceeded
- R RPD outside limits due to matrix



Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164273

Sample ID: MB-164273	Client ID:	Units: ug/Kg	Prep Date: 07/26/2012	Run No: 225870							
Sample Type: MBLK	TestCode: ICL-SEMIVOLATILE ORGANICS SW3270D	BatchID: 164273	Analysis Date: 07/26/2012	Seq No: 4728092							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1'-Biphenyl	BRL	330	0	0	0	0	0	0	0	0	0
2,4,5-Trichlorophenol	BRL	1700	0	0	0	0	0	0	0	0	0
2,4,6-Trichlorophenol	BRL	330	0	0	0	0	0	0	0	0	0
2,4-Dichlorophenol	BRL	330	0	0	0	0	0	0	0	0	0
2,4-Dimethylphenol	BRL	330	0	0	0	0	0	0	0	0	0
2,4-Dinitrophenol	BRL	1700	0	0	0	0	0	0	0	0	0
2,4-Dinitrotoluene	BRL	330	0	0	0	0	0	0	0	0	0
2,6-Dinitrotoluene	BRL	330	0	0	0	0	0	0	0	0	0
2-Chloronaphthalene	BRL	330	0	0	0	0	0	0	0	0	0
2-Chlorophenol	BRL	330	0	0	0	0	0	0	0	0	0
2-Methylnaphthalene	BRL	330	0	0	0	0	0	0	0	0	0
2-Methylphenol	BRL	330	0	0	0	0	0	0	0	0	0
2-Nitroaniline	BRL	1700	0	0	0	0	0	0	0	0	0
2-Nitrophenol	BRL	330	0	0	0	0	0	0	0	0	0
3,3'-Dichlorobenzidine	BRL	670	0	0	0	0	0	0	0	0	0
3-Nitroaniline	BRL	1700	0	0	0	0	0	0	0	0	0
4,6-Dinitro-2-methylphenol	BRL	1700	0	0	0	0	0	0	0	0	0
4-Bromophenyl phenyl ether	BRL	330	0	0	0	0	0	0	0	0	0
4-Chloro-3-methylphenol	BRL	330	0	0	0	0	0	0	0	0	0
4-Chloroaniline	BRL	330	0	0	0	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	BRL	330	0	0	0	0	0	0	0	0	0
4-Methylphenol	BRL	330	0	0	0	0	0	0	0	0	0
4-Nitroaniline	BRL	1700	0	0	0	0	0	0	0	0	0
4-Nitrophenol	BRL	1700	0	0	0	0	0	0	0	0	0
Acenaphthene	BRL	330	0	0	0	0	0	0	0	0	0
Acenaphthylene	BRL	330	0	0	0	0	0	0	0	0	0
Acetophenone	BRL	330	0	0	0	0	0	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Egt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NEI/AC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-JUL-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164273

Sample ID: MB-164273	Client ID:	Units:	Prep Date:	Run No:
Sample Type: MBLK	TestCode: TCL-SEMIVOLATILE ORGANICS	ug/Kg	07/26/2012	225870
	SW9270D	BatchID: 164273	Analysis Date: 07/26/2012	Seq No: 4728092

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Anthracene	BRL	330	0	0	0	0	0	0	0	0	0
Atrazine	BRL	330	0	0	0	0	0	0	0	0	0
Benz(a)anthracene	BRL	330	0	0	0	0	0	0	0	0	0
Benzaldehyde	BRL	330	0	0	0	0	0	0	0	0	0
Benzof(a)pyrene	BRL	330	0	0	0	0	0	0	0	0	0
Benzof(b)fluoranthene	BRL	330	0	0	0	0	0	0	0	0	0
Benzof(g,h,i)perylene	BRL	330	0	0	0	0	0	0	0	0	0
Benzof(k)fluoranthene	BRL	330	0	0	0	0	0	0	0	0	0
Bis(2-chloroethoxy)methane	BRL	330	0	0	0	0	0	0	0	0	0
Bis(2-chloroethyl)ether	BRL	330	0	0	0	0	0	0	0	0	0
Bis(2-chloroisopropyl)ether	BRL	330	0	0	0	0	0	0	0	0	0
Bis(2-ethylhexyl)phthalate	BRL	330	0	0	0	0	0	0	0	0	0
Butyl benzyl phthalate	BRL	330	0	0	0	0	0	0	0	0	0
Caprolactam	BRL	330	0	0	0	0	0	0	0	0	0
Carbazole	BRL	330	0	0	0	0	0	0	0	0	0
Chrysene	BRL	330	0	0	0	0	0	0	0	0	0
Di-n-butyl phthalate	BRL	330	0	0	0	0	0	0	0	0	0
Di-n-octyl phthalate	BRL	330	0	0	0	0	0	0	0	0	0
Dibenz(a,h)anthracene	BRL	330	0	0	0	0	0	0	0	0	0
Dibenzofuran	BRL	330	0	0	0	0	0	0	0	0	0
Diethyl phthalate	BRL	330	0	0	0	0	0	0	0	0	0
Dimethyl phthalate	BRL	330	0	0	0	0	0	0	0	0	0
Fluoranthene	BRL	330	0	0	0	0	0	0	0	0	0
Fluorene	BRL	330	0	0	0	0	0	0	0	0	0
Hexachlorobenzene	BRL	330	0	0	0	0	0	0	0	0	0
Hexachlorobutadiene	BRL	330	0	0	0	0	0	0	0	0	0
Hexachlorocyclopentadiene	BRL	660	0	0	0	0	0	0	0	0	0

Qualifiers: 3 Greater than Result value  
 4 Less than Result value  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

1 BRL Below reporting limit  
 2 Estimated value detected below Reporting Limit  
 3 Exp Lim Reporting Limit  
 4 E Analyte not NELAC certified  
 5 Splice Recovery outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164273

Sample ID: MB-164273	Client ID:	Units: ug/Kg	Prep Date: 07/26/2012	Run No: 225870							
Sample Type: MBLK	Test Code: ICL-SEMIVOLATILE ORGANICS SW8270D	BatchID: 164273	Analysis Date: 07/26/2012	Seq No: 4728092							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Hexachloroethane	BRL	330	0	0	0	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	BRL	330	0	0	0	0	0	0	0	0	0
Isophorone	BRL	330	0	0	0	0	0	0	0	0	0
N-Nitrosodi-n-propylamine	BRL	330	0	0	0	0	0	0	0	0	0
N-Nitrosodiphenylamine	BRL	330	0	0	0	0	0	0	0	0	0
Naphthalene	BRL	330	0	0	0	0	0	0	0	0	0
Nitrobenzene	BRL	330	0	0	0	0	0	0	0	0	0
Pentachlorophenol	BRL	1700	0	0	0	0	0	0	0	0	0
Phenanthrene	BRL	330	0	0	0	0	0	0	0	0	0
Phenol	BRL	330	0	0	0	0	0	0	0	0	0
Pyrene	BRL	330	0	0	0	0	0	0	0	0	0
Surr: 2,4,6-Tribromophenol	3144	0	3333	0	94.3	41.1	130	0	0	0	0
Surr: 2-Fluorobiphenyl	1566	0	1667	0	94	45	120	0	0	0	0
Surr: 2-Fluorophenol	2631	0	3333	0	78.9	35	120	0	0	0	0
Surr: 4-Terphenyl-d14	1988	0	1667	0	119	50.1	123	0	0	0	0
Surr: Nitrobenzene-d5	1340	0	1667	0	80.4	37.5	120	0	0	0	0
Surr: Phenol-d5	2647	0	3333	0	79.4	39	120	0	0	0	0

Sample ID: LCS-164273	Client ID:	Units: ug/Kg	Prep Date: 07/26/2012	Run No: 225870							
Sample Type: LCS	Test Code: ICL-SEMIVOLATILE ORGANICS SW8270D	BatchID: 164273	Analysis Date: 07/26/2012	Seq No: 4728093							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

2,4-Dinitrotoluene	3063	330	3333	0	91.9	57.6	120	0	0	0	0
2-Chlorophenol	2750	330	3333	0	81.9	59	120	0	0	0	0
4-Chloro-3-methylphenol	3013	330	3333	0	90.4	55.1	120	0	0	0	0
4-Nitrophenol	1841	1700	3333	0	55.2	40	116	0	0	0	0
Acenaphthene	2953	330	3333	0	88.6	59	120	0	0	0	0
N-Nitrosodi-n-propylamine	2673	330	3333	0	80.2	59.4	120	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantization range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164273

Sample ID: LCS-164273	Client ID:	Units:	ug/Kg	Prep Date:	07/26/2012	Run No:	225870
Sample Type: LCS	TestCode: TCL-SEMIVOLATILE ORGANICS	BatchID:	164273	Analysis Date:	07/26/2012	Seq No:	4728093

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
Pentachlorophenol	2155	1700	3333	0	64.7	44.6	120	0	0	0	
Phenol	2395	330	3333	0	71.9	55.1	120	0	0	0	
Pyrene	3406	330	3333	0	102	62.8	123	0	0	0	
Surr: 2,4,6-Tribromophenol	3689	0	3333	0	111	41.1	130	0	0	0	
Surr: 2-Fluorobiphenyl	1651	0	1667	0	99.1	45	120	0	0	0	
Surr: 2-Fluorophenol	2671	0	3333	0	80.1	35	120	0	0	0	
Surr: 4-Terphenyl-d14	2082	0	1667	0	125	50.1	123	0	0	0	S
Surr: Nitrobenzene-d5	1426	0	1667	0	85.6	37.5	120	0	0	0	
Surr: Phenol-d5	2689	0	3333	0	80.7	39	120	0	0	0	

Sample ID: 1207H10-008CMIS	Client ID: TP-4@6	Units:	ng/Kg-dry	Prep Date:	07/26/2012	Run No:	225870
Sample Type: MS	TestCode: TCL-SEMIVOLATILE ORGANICS	BatchID:	164273	Analysis Date:	07/26/2012	Seq No:	4728100

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
2,4-Dinitrotoluene	3655	420	4282	0	85.4	40.3	120	0	0	0	
2-Chlorophenol	3056	420	4282	0	71.4	44.8	120	0	0	0	
4-Chloro-3-methylphenol	3641	420	4282	0	85	45.1	120	0	0	0	
4-Nitrophenol	2213	2200	4282	0	51.7	30.4	120	0	0	0	
Acenaphthene	3537	420	4282	0	82.6	50.4	120	0	0	0	
N-Nitrosodi-n-propylamine	3079	420	4282	0	71.9	50.8	120	0	0	0	
Peaurchlorophenol	2347	2200	4282	0	54.8	31.1	120	0	0	0	
Phenol	2727	420	4282	0	63.7	43.9	120	0	0	0	
Pyrene	4202	420	4282	0	98.1	47.9	115	0	0	0	
Surr: 2,4,6-Tribromophenol	4480	0	4282	0	105	41.1	130	0	0	0	
Surr: 2-Fluorobiphenyl	1935	0	2141	0	90.4	45	120	0	0	0	
Surr: 2-Fluorophenol	2908	0	4282	0	67.9	35	120	0	0	0	
Surr: 4-Terphenyl-d14	2524	0	2141	0	118	50.1	123	0	0	0	
Surr: Nitrobenzene-d5	1625	0	2141	0	75.9	37.5	120	0	0	0	

Qualifiers:   
 3 Greater than Result value   
 BRL Below reporting limit   
 E Estimated value above quantitation range   
 J Estimated value detected below Reporting Limit   
 N Analyte not NELAC certified   
 RPD outside limits due to matrix   
 S Spike Recovery outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164273

Sample ID: 1207H10-008CMS	Client ID: TP-4@6	Units: ug/Kg-dry	Prep Date: 07/26/2012	Run No: 225870							
Sample Type: MS	TestCode: TCL-SEMIVOLATILE ORGANICS	BatchID: 164273	Analysis Date: 07/26/2012	Seq No: 4728100							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Surr: Phenol-d5	3035	0	4282	0	70.9	39	120	0	0	0	0
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Sample ID: 1207H10-008CMSD	Client ID: TP-4@6	Units: ug/Kg-dry	Prep Date: 07/26/2012	Run No: 225870							
Sample Type: MSD	TestCode: TCL-SEMIVOLATILE ORGANICS	BatchID: 164273	Analysis Date: 07/27/2012	Seq No: 4728101							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

2,4-Dinitrotoluene	3758	420	4282	0	87.8	40.3	120	3655	2.8	20.9	
2-Chlorophenol	3102	420	4282	0	72.5	44.8	120	3056	1.52	21.7	
4-Chloro-3-methylphenol	3738	420	4282	0	87.3	45.1	120	3641	2.65	23	
4-Nitrophenol	2357	2200	4282	0	55	30.4	120	2213	6.3	24.1	
Acenaphthene	3609	420	4282	0	84.3	50.4	120	3537	2.01	21.3	
N-Nitrosodi-n-propylamine	3209	420	4282	0	75	50.8	120	3079	4.15	20.4	R
Pentachlorophenol	3013	2200	4282	0	70.4	31.1	120	2347	24.8	20.6	
Phenol	2777	420	4282	0	64.9	43.9	120	2727	1.8	21	
Pyrene	4178	420	4282	0	97.6	47.9	115	4202	0.572	18.9	
Surr: 2,4,6-Tribromophenol	4672	0	4282	0	109	41.1	130	4480	0	0	
Surr: 2-Fluorobiphenyl	2061	0	2141	0	96.3	45	120	1935	0	0	
Surr: 2-Fluorophenol	3105	0	4282	0	72.5	35	120	2908	0	0	
Surr: 4-Terphenyl-d14	2618	0	2141	0	122	50.1	123	2524	0	0	
Surr: Nitrobenzene-d5	1709	0	2141	0	79.8	37.5	120	1625	0	0	
Surr: Phenol-d5	3191	0	4282	0	74.5	39	120	3035	0	0	

Qualifiers:	>	Greater than Result value	Less than Result value	Analyte detected in the associated method blank
BRL	<	Below reporting limit	Estimated (value above quantitation range)	Holding times for preparation or analysis exceeded
J	~	Estimated value detected below Reporting Limit	Analyte not NELAC certified	RPD outside limits due to matrix
Rpt Lim	~	Reporting Limit	Spike Recovery outside limits due to matrix	

Analytical Environmental Services, Inc

Date: 30-Jul-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164332

Sample ID: MR-164332	Client ID:	TOTAL MERCURY	SW7471B	Units: mg/Kg	Prep Date: 07/26/2012	Run No: 225825					
Sample Type: MBLK	Test Code:	TOTAL MERCURY	SW7471B	BatchID: 164332	Analysis Date: 07/26/2012	Seq No: 4726941					
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Mercury	BRL	0.100	0	0	0	0	0	0	0	0	
Sample ID: LCS-164332	Client ID:	TOTAL MERCURY	SW7471B	Units: mg/Kg	Prep Date: 07/26/2012	Run No: 225825					
Sample Type: LCS	Test Code:	TOTAL MERCURY	SW7471B	BatchID: 164332	Analysis Date: 07/26/2012	Seq No: 4726942					
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Mercury	0.4048	0.100	0.4	0	101	80	120	0	0	0	
Sample ID: 1207H08-025AAMS	Client ID:	TOTAL MERCURY	SW7471B	Units: mg/Kg-dry	Prep Date: 07/26/2012	Run No: 225825					
Sample Type: MS	Test Code:	TOTAL MERCURY	SW7471B	BatchID: 164332	Analysis Date: 07/26/2012	Seq No: 4726944					
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Mercury	0.5463	0.120	0.4807	0.05120	103	70	130	0	0	0	
Sample ID: 1207H08-025AAMS	Client ID:	TOTAL MERCURY	SW7471B	Units: mg/Kg-dry	Prep Date: 07/26/2012	Run No: 225825					
Sample Type: MSD	Test Code:	TOTAL MERCURY	SW7471B	BatchID: 164332	Analysis Date: 07/26/2012	Seq No: 4726945					
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Mercury	0.5517	0.120	0.4807	0.05120	104	70	130	0.5463	0.974	30	
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Qualifiers:	>	Greater than Result value	:	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	1	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
		Rpt Lim Reporting Limit	S	Spike Recovery outside limits due to matrix		

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164343

Sample ID: MB-164343	Client ID:	Units: mg/Kg	Prep Date: 07/26/2012	Run No: 225865							
Sample Type: MBLK	TestCode: METALS, TOTAL	BatchID: 164343	Analysis Date: 07/27/2012	Seq No: 4728011							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	BRL	5.00	0	0	0	0	0	0	0	0	0
Barium	BRL	5.00	0	0	0	0	0	0	0	0	0
Cadmium	BRL	2.50	0	0	0	0	0	0	0	0	0
Chromium	BRL	2.50	0	0	0	0	0	0	0	0	0
Lead	BRL	5.00	0	0	0	0	0	0	0	0	0
Selenium	BRL	5.00	0	0	0	0	0	0	0	0	0
Silver	BRL	2.50	0	0	0	0	0	0	0	0	0

Sample ID: LCS-164343	Client ID:	Units: mg/Kg	Prep Date: 07/26/2012	Run No: 225865							
Sample Type: LCS	TestCode: METALS, TOTAL	BatchID: 164343	Analysis Date: 07/27/2012	Seq No: 4728010							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	44.49	5.00	50	0.2119	88.6	80	120	0	0	0	0
Barium	51.07	5.00	50	0.1650	102	80	120	0	0	0	0
Cadmium	48.39	2.50	50	0	96.8	80	120	0	0	0	0
Chromium	49.43	2.50	50	0.1080	98.7	80	120	0	0	0	0
Lead	46.43	5.00	50	0.2373	92.4	80	120	0	0	0	0
Selenium	43.22	5.00	50	0	86.4	80	120	0	0	0	0
Silver	4.775	2.50	5	0	95.5	80	120	0	0	0	0

Sample ID: 1207H13-011AMS	Client ID:	Units: mg/Kg-dry	Prep Date: 07/26/2012	Run No: 225865							
Sample Type: MS	TestCode: METALS, TOTAL	BatchID: 164343	Analysis Date: 07/27/2012	Seq No: 4728013							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	28.15	4.95	49.47	0	56.9	75	125	0	0	0	S
Barium	88.49	4.95	49.47	65.33	46.8	75	125	0	0	0	S
Cadmium	38.27	2.47	49.47	0.1829	77	75	125	0	0	0	0
Chromium	90.79	2.47	49.47	52.60	77.2	75	125	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantification range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164343

Sample ID: 1207H13-011AAMS	Client ID:	METALS, TOTAL	SW6010C	Units: mg/Kg-dry	BatchID: 164343	Prep Date: 07/26/2012	Run No: 225865				
Sample Type: MS	Test Code:	METALS, TOTAL	SW6010C			Analysis Date: 07/27/2012	Seq No: 4728013				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%RBC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	573.6	4.95	49.47	780.5	-418	75	125	0	0	0	S
Silver	BRL	2.47	4.947	0	0	75	125	0	0	0	S

Sample ID: 1207H13-011AAMS	Client ID:	METALS, TOTAL	SW6010C	Units: mg/Kg-dry	BatchID: 164343	Prep Date: 07/26/2012	Run No: 225865				
Sample Type: MS	Test Code:	METALS, TOTAL	SW6010C			Analysis Date: 07/27/2012	Seq No: 4728650				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%RBC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Selenium	BRL	24.7	49.47	0	17.5	75	125	0	0	0	S

Sample ID: 1207H13-011AAMS	Client ID:	METALS, TOTAL	SW6010C	Units: mg/Kg-dry	BatchID: 164343	Prep Date: 07/26/2012	Run No: 225865				
Sample Type: MSD	Test Code:	METALS, TOTAL	SW6010C			Analysis Date: 07/27/2012	Seq No: 4728014				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%RBC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	27.87	4.92	49.24	0	56.6	75	125	28.15	1.01	20	S
Barium	90.44	4.92	49.24	65.33	51	75	125	88.49	2.18	20	S
Cadmium	38.41	2.46	49.24	0.1829	77.6	75	125	38.27	0.352	20	S
Chromium	95.57	2.46	49.24	52.60	87.3	75	125	90.79	5.13	20	S
Lead	671.7	4.92	49.24	780.5	-221	75	125	573.6	15.8	20	S
Silver	BRL	2.46	4.924	0	0	75	125	0	0	20	S

Sample ID: 1207H13-011AAMS	Client ID:	METALS, TOTAL	SW6010C	Units: mg/Kg-dry	BatchID: 164343	Prep Date: 07/26/2012	Run No: 225865				
Sample Type: MSD	Test Code:	METALS, TOTAL	SW6010C			Analysis Date: 07/27/2012	Seq No: 4728651				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%RBC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Selenium	BRL	24.6	49.24	0	20.9	75	125	8.667	0	20	S

Qualifiers:	>	Greater than Result value	u	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spile Recovery outside limits due to matrix		



Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164346

Sample ID: MB-164346	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 07/26/2012	Run No: 225810					
Sample Type: MBLK	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 164346	Analysis Date: 07/26/2012	Seq No: 4726767					
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	BRL	0.250	0	0	0	0	0	0	0	0	0
Barium	BRL	0.500	0	0	0	0	0	0	0	0	0
Cadmium	BRL	0.0250	0	0	0	0	0	0	0	0	0
Chromium	BRL	0.0500	0	0	0	0	0	0	0	0	0
Lead	BRL	0.0500	0	0	0	0	0	0	0	0	0
Selenium	BRL	0.100	0	0	0	0	0	0	0	0	0
Silver	BRL	0.0250	0	0	0	0	0	0	0	0	0

Sample ID: LCS-164346	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 07/26/2012	Run No: 225810					
Sample Type: LCS	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 164346	Analysis Date: 07/26/2012	Seq No: 4726766					
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	5.548	0.250	5	0	111	85	115	0	0	0	0
Barium	5.022	0.500	5	0.01296	100	80	120	0	0	0	0
Cadmium	5.232	0.0250	5	0	105	85	115	0	0	0	0
Chromium	5.342	0.0500	5	0	107	85	115	0	0	0	0
Lead	5.178	0.0500	5	0	104	85	115	0	0	0	0
Selenium	5.557	0.100	5	0.03716	110	85	115	0	0	0	0
Silver	0.5048	0.0250	0.5	0	101	85	115	0	0	0	0

Sample ID: 1207G83-001AMS	Client ID:	ICP METALS, TCLP	SW1311/6010C	Units: mg/L	Prep Date: 07/26/2012	Run No: 225810					
Sample Type: MS	Test Code:	ICP METALS, TCLP	SW1311/6010C	BatchID: 164346	Analysis Date: 07/26/2012	Seq No: 4726769					
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	5.492	0.250	5	0	110	50	150	0	0	0	0
Barium	6.669	0.500	5	1.673	99.9	50	150	0	0	0	0
Cadmium	5.173	0.0250	5	0	103	50	150	0	0	0	0
Chromium	5.229	0.0500	5	0.01066	104	50	150	0	0	0	0

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit		E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit		N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit		S	Spike Recovery outside limits due to matrix		

**ANALYTICAL QC SUMMARY REPORT**

Client: United Consulting Group Inc  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164346

Sample ID: 1207G83-001AAMS	Client ID:	Units: mg/L	Prep Date: 07/26/2012	Run No: 225810							
Sample Type: MS	TestCode: ICP METALS, TCIP	BatchID: 164346	Analysis Date: 07/26/2012	Seq No: 4726769							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Lead	6.513	0.0500	5	1.420	102	50	150	0	0	0	0
Selenium	5.458	0.100	5	0	109	50	150	0	0	0	0
Silver	0.5003	0.0250	0.5	0.003260	99.4	50	150	0	0	0	0

Sample ID: 1207G83-001AAMS	Client ID:	Units: mg/L	Prep Date: 07/26/2012	Run No: 225810							
Sample Type: MSD	TestCode: ICP METALS, TCIP	BatchID: 164346	Analysis Date: 07/26/2012	Seq No: 4726770							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Arsenic	5.549	0.250	5	0	111	50	150	5.492	1.03	30	30
Barium	6.699	0.500	5	1.673	101	50	150	6.669	0.445	30	30
Cadmium	5.218	0.0250	5	0	104	50	150	5.173	0.854	30	30
Chromium	5.303	0.0500	5	0.01066	106	50	150	5.229	1.41	30	30
Lead	6.553	0.0500	5	1.420	103	50	150	6.513	0.609	30	30
Selenium	5.602	0.100	5	0	112	50	150	5.458	2.6	30	30
Silver	0.5059	0.0250	0.5	0.003260	101	50	150	0.5003	1.12	30	30

Qualifiers:	>	Greater than Result value	*	Less than Result value	B	Analyte detected in the associated method blank
	BEL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddle Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164362

Sample ID: MB-164362	Client ID:	Units: mg/L	Prep Date: 07/27/2012	Run No: 225895
Sample Type: MBLK	TestCode: MERCURY, TCLP	BatchID: 164362	Analysis Date: 07/27/2012	Seq No: 4728599
Analyte	Result	%REC	Low Limit	High Limit
Mercury	BRL	0	0	0
	RPT Limit	SPK value	SPK Ref Val	%RPD
	0.00400	0	0	0
	RPT Limit	SPK value	SPK Ref Val	%RPD
	0.00400	0	0	0

Sample ID: LCS-164362	Client ID:	Units: mg/L	Prep Date: 07/27/2012	Run No: 225895
Sample Type: LCS	TestCode: MERCURY, TCLP	BatchID: 164362	Analysis Date: 07/27/2012	Seq No: 4728600
Analyte	Result	%REC	Low Limit	High Limit
Mercury	0.04008	100	80	120
	RPT Limit	SPK value	SPK Ref Val	%RPD
	0.00400	0.04	0	0

Sample ID: 1207H10-011AMS	Client ID: TP-IIO 4	Units: mg/L	Prep Date: 07/27/2012	Run No: 225895
Sample Type: MS	TestCode: MERCURY, TCLP	BatchID: 164362	Analysis Date: 07/27/2012	Seq No: 4728631
Analyte	Result	%REC	Low Limit	High Limit
Mercury	0.03902	97.5	80	120
	RPT Limit	SPK value	SPK Ref Val	%RPD
	0.00400	0.04	0	0

Sample ID: 1207H10-011AMSD	Client ID: TP-IIO 4	Units: mg/L	Prep Date: 07/27/2012	Run No: 225895
Sample Type: MSD	TestCode: MERCURY, TCLP	BatchID: 164362	Analysis Date: 07/27/2012	Seq No: 4728633
Analyte	Result	%REC	Low Limit	High Limit
Mercury	0.03888	97.2	80	120
	RPT Limit	SPK value	SPK Ref Val	%RPD
	0.00400	0.04	0	0.36

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BEL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

**ANALYTICAL QC SUMMARY REPORT**

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164385

Sample ID: MB-164385	Client ID:	Units:	Prep Date:	Run No:
Sample Type: MBLK	Test Code: TCL VOLATILE ORGANICS SW8260B	ug/L	07/26/2012	225859
		BatchID: 164385	Analysis Date: 07/26/2012	Seq No: 4727891

Analyte	Result	RPT Limit	SPK Value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1,2,2-Tetrachloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1,2-Trichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1-Dichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dibromo-3-chloropropane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dibromoethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichloropropane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,3-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,4-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
2-Butanone	BRL	50	0	0	0	0	0	0	0	0	0
2-Hexanone	BRL	10	0	0	0	0	0	0	0	0	0
4-Methyl-2-pentanone	BRL	10	0	0	0	0	0	0	0	0	0
Acetone	BRL	50	0	0	0	0	0	0	0	0	0
Benzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromodichloromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromoform	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromomethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Carbon disulfide	BRL	5.0	0	0	0	0	0	0	0	0	0
Carbon tetrachloride	BRL	5.0	0	0	0	0	0	0	0	0	0
Chlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Chloroethane	BRL	10	0	0	0	0	0	0	0	0	0
Chloroform	BRL	5.0	0	0	0	0	0	0	0	0	0
Chloromethane	BRL	10	0	0	0	0	0	0	0	0	0

Qualifiers: 3 Greater than Result value  
 BRL Below reporting limit  
 1 Estimated value detected below Reporting Limit  
 5 Spike Recovery outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164385

Sample ID: MB-164385	Client ID:	Units: ug/L	Prep Date: 07/26/2012	Run No: 225859							
Sample Type: MBLK	TestCode: ICL VOLATILE ORGANICS SW8260B	BatchID: 164385	Analysis Date: 07/26/2012	Seq No: 4727891							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

cis-1,2-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
cis-1,3-Dichloropropene	BRL	5.0	0	0	0	0	0	0	0	0	0
Cyclohexane	BRL	5.0	0	0	0	0	0	0	0	0	0
Dibromochloromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Dichlorodifluoromethane	BRL	10	0	0	0	0	0	0	0	0	0
Ethylbenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Freon-113	BRL	10	0	0	0	0	0	0	0	0	0
Isopropylbenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
m,p-Xylene	BRL	5.0	0	0	0	0	0	0	0	0	0
Methyl acetate	BRL	5.0	0	0	0	0	0	0	0	0	0
Methyl tert-butyl ether	BRL	5.0	0	0	0	0	0	0	0	0	0
Methylcyclohexane	BRL	5.0	0	0	0	0	0	0	0	0	0
Methylene chloride	BRL	5.0	0	0	0	0	0	0	0	0	0
o-Xylene	BRL	5.0	0	0	0	0	0	0	0	0	0
Styrene	BRL	5.0	0	0	0	0	0	0	0	0	0
Tetrachloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
Toluene	BRL	5.0	0	0	0	0	0	0	0	0	0
trans-1,2-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
trans-1,3-Dichloropropene	BRL	5.0	0	0	0	0	0	0	0	0	0
Trichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
Trichlorofluoromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Vinyl chloride	BRL	2.0	0	0	0	0	0	0	0	0	0
Surr: 4-Bromofluorobenzene	43.31	0	50	0	86.6	67.4	123	0	0	0	0
Surr: Dibromofluoromethane	51.32	0	50	0	103	75.5	128	0	0	0	0
Surr: Toluene-d8	46.38	0	50	0	92.8	70	120	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

\*: Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164385

Sample ID: LCS-164385

Client ID:  
 TestCode: TCL VOLATILE ORGANICS SW9260B

Units: ug/L  
 BatchID: 164385

Prep Date: 07/26/2012 Run No: 225863  
 Analysis Date: 07/27/2012 Seq No: 4729234

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
1,1-Dichloroethene	41.17	5.0	50	0	82.3	60	140	0	0	0	
Benzene	51.90	5.0	50	0	104	70	130	0	0	0	
Chlorobenzene	46.21	5.0	50	0	92.4	70	130	0	0	0	
Toluene	50.64	5.0	50	0	101	70	130	0	0	0	
Trichloroethene	47.13	5.0	50	0	94.3	70	130	0	0	0	
Surr: 4-Bromofluorobenzene	50.96	0	50	0	102	67.4	123	0	0	0	
Surr: Dibromofluoromethane	50.06	0	50	0	100	75.5	128	0	0	0	
Surr: Toluene-d8	51.67	0	50	0	103	70	120	0	0	0	

Sample ID: 1207G23-001AAMS

Client ID:  
 TestCode: TCL VOLATILE ORGANICS SW9260B

Units: ug/L  
 BatchID: 164385

Prep Date: 07/26/2012 Run No: 225859  
 Analysis Date: 07/27/2012 Seq No: 4727811

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
1,1-Dichloroethene	75.16	5.0	50	0	150	50.1	179	0	0	0	
Benzene	73.72	5.0	50	0	147	61.2	150	0	0	0	
Chlorobenzene	62.56	5.0	50	0	125	72.1	140	0	0	0	
Toluene	69.79	5.0	50	0	140	58.7	154	0	0	0	
Trichloroethene	68.17	5.0	50	0	136	68.3	149	0	0	0	
Surr: 4-Bromofluorobenzene	52.79	0	50	0	106	67.4	123	0	0	0	
Surr: Dibromofluoromethane	50.41	0	50	0	101	75.5	128	0	0	0	
Surr: Toluene-d8	48.70	0	50	0	97.4	70	120	0	0	0	

Sample ID: 1207G23-001AAMS

Client ID:  
 TestCode: TCL VOLATILE ORGANICS SW9260B

Units: ug/L  
 BatchID: 164385

Prep Date: 07/26/2012 Run No: 225859  
 Analysis Date: 07/27/2012 Seq No: 4727812

Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
1,1-Dichloroethene	64.13	5.0	50	0	128	50.1	179	75.16	15.8	23.3	
Benzene	71.16	5.0	50	0	142	61.2	150	73.72	3.53	19	

Qualifiers: > Greater than Result value

< Less than Result value

REL Below reporting limit

E Estimated value above quantitation range)

1 Estimated value detected below Reporting Limit

N Analyte not NELAC certified

Rpt Lim Reporting Limit

S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank

H Holding times for preparation or analysis exceeded

R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164385

Sample ID: 1207G23-001AMSD Client ID: ICL VOLATILE ORGANICS SW8260B  
 Sample Type: MSD TestCode: 07/26/2012 Prep Date: 07/27/2012 Run No: 225859  
 BatchID: 164385 Analysis Date: 07/27/2012 Seq No: 4727812

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chlorobenzene	60.54	5.0	50	0	121	72.1	140	62.56	3.28	21.5	
Toluene	69.25	5.0	50	0	138	58.7	154	69.79	0.777	20	
Trichloroethene	68.31	5.0	50	0	137	68.3	149	68.17	0.205	17.7	
Surr: 4-Bromofluorobenzene	51.87	0	50	0	104	67.4	123	52.79	0	0	
Surr: Dibromofluoromethane	48.97	0	50	0	97.9	75.5	128	50.41	0	0	
Surr: Toluene-d8	47.48	0	50	0	95	70	120	48.70	0	0	

Qualifiers: > Greater than Result value  
 < Less than Result value  
 B Analyte detected in the associated method blank  
 BEB Below reporting limit  
 E Estimated (value above quantitation range)  
 H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit  
 N Analyte not NELAC certified  
 R RPD outside limits due to matrix  
 S Spike Recovery outside limits due to matrix  
 Rpt Lim Reporting Limit

**ANALYTICAL QC SUMMARY REPORT**

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164405

Sample ID: MIB-164405	Client ID:	Units: ug/Kg	Prep Date: 07/26/2012	Run No: 225890							
Sample Type: MBLK	Test Code: TCL VOLATILE ORGANICS SW8360B	BatchID: 164405	Analysis Date: 07/26/2012	Seq No: 4728482							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1,2,2-Tetrachloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1,2-Trichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1-Dichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,1-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dibromo-3-chloropropane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dibromoethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichloroethane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,2-Dichloropropane	BRL	5.0	0	0	0	0	0	0	0	0	0
1,3-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
1,4-Dichlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
2-Butanone	BRL	50	0	0	0	0	0	0	0	0	0
2-Hexanone	BRL	10	0	0	0	0	0	0	0	0	0
4-Methyl-2-pentanone	BRL	10	0	0	0	0	0	0	0	0	0
Acetone	BRL	100	0	0	0	0	0	0	0	0	0
Benzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromodichloromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromoform	BRL	5.0	0	0	0	0	0	0	0	0	0
Bromomethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Carbon disulfide	BRL	10	0	0	0	0	0	0	0	0	0
Carbon tetrachloride	BRL	5.0	0	0	0	0	0	0	0	0	0
Chlorobenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Chloroethane	BRL	10	0	0	0	0	0	0	0	0	0
Chloroform	BRL	5.0	0	0	0	0	0	0	0	0	0
Chloromethane	BRL	10	0	0	0	0	0	0	0	0	0

Qualifiers:	>	Greater than Result value	:	Less than Result value	B	Analyte detected in the associated method blank
BRL		Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J		Estimated value detected below Reporting Limit	N	Analyte not (N)ELAC certified	R	RPD outside limits due to matrix
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix		



Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164405

Sample ID: MB-164405	Client ID:	Units: ug/Kg	Prep Date: 07/26/2012	Run No: 225890							
Sample Type: MBLK	Test Code: ICL VOLATILE ORGANICS SW8260B	BatchID: 164405	Analysis Date: 07/26/2012	Seq No: 4728482							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

cis-1,2-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
cis-1,3-Dichloropropene	BRL	5.0	0	0	0	0	0	0	0	0	0
Cyclohexane	BRL	5.0	0	0	0	0	0	0	0	0	0
Dibromochloromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Dichlorodifluoromethane	BRL	10	0	0	0	0	0	0	0	0	0
Ethylbenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
Freon-113	BRL	10	0	0	0	0	0	0	0	0	0
Isopropylbenzene	BRL	5.0	0	0	0	0	0	0	0	0	0
m,p-Xylene	BRL	5.0	0	0	0	0	0	0	0	0	0
Methyl acetate	BRL	5.0	0	0	0	0	0	0	0	0	0
Methyl tert-butyl ether	BRL	5.0	0	0	0	0	0	0	0	0	0
Methylcyclohexane	BRL	5.0	0	0	0	0	0	0	0	0	0
Methylene chloride	BRL	5.0	0	0	0	0	0	0	0	0	0
o-Xylene	BRL	5.0	0	0	0	0	0	0	0	0	0
Styrene	BRL	5.0	0	0	0	0	0	0	0	0	0
Tetrachloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
Toluene	BRL	5.0	0	0	0	0	0	0	0	0	0
trans-1,2-Dichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
trans-1,3-Dichloropropene	BRL	5.0	0	0	0	0	0	0	0	0	0
Trichloroethene	BRL	5.0	0	0	0	0	0	0	0	0	0
Trichlorofluoromethane	BRL	5.0	0	0	0	0	0	0	0	0	0
Vinyl chloride	BRL	10	0	0	0	0	0	0	0	0	0
Surr: 4-Bromofluorobenzene	50.04	0	50	0	100	56.5	134	0	0	0	0
Surr: Dibromofluoromethane	48.26	0	50	0	96.5	71.8	135	0	0	0	0
Surr: Toluene-d8	47.73	0	50	0	95.5	77.1	117	0	0	0	0

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164405

Sample ID: LCS164405	Client ID:	Units: ug/Kg	Prep Date: 07/26/2012	Run No: 225890							
Sample Type: LCS	Test Code: TCL VOLATILE ORGANICS SW8260B	BatchID: 164405	Analysis Date: 07/26/2012	Seq No: 4728483							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethane	63.58	5.0	50	0	127	60	140	0	0	0	0
Benzene	60.52	5.0	50	0	121	70	130	0	0	0	0
Chlorobenzene	58.77	5.0	50	0	118	70	130	0	0	0	0
Toluene	60.75	5.0	50	0	122	70	130	0	0	0	0
Trichloroethane	62.99	5.0	50	0	126	70	130	0	0	0	0
Sur: 4-Bromofluorobenzene	50.00	0	50	0	100	56.5	134	0	0	0	0
Sur: Dibromofluoromethane	48.76	0	50	0	97.5	71.8	135	0	0	0	0
Sur: Toluene-d8	48.50	0	50	0	97	77.1	117	0	0	0	0

Sample ID: 1207H67-007AMIS	Client ID:	Units: ug/Kg	Prep Date: 07/26/2012	Run No: 225890							
Sample Type: MS	Test Code: TCL VOLATILE ORGANICS SW8260B	BatchID: 164405	Analysis Date: 07/26/2012	Seq No: 4728532							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethane	57.53	5.0	50	0	115	51	159	0	0	0	0
Benzene	53.88	5.0	50	0	108	67.6	139	0	0	0	0
Chlorobenzene	49.11	5.0	50	0	98.2	73.6	135	0	0	0	0
Toluene	53.48	5.0	50	0	107	63.5	140	0	0	0	0
Trichloroethane	53.24	5.0	50	0	106	67.6	145	0	0	0	0
Sur: 4-Bromofluorobenzene	50.92	0	50	0	102	56.5	134	0	0	0	0
Sur: Dibromofluoromethane	49.03	0	50	0	98.1	71.8	135	0	0	0	0
Sur: Toluene-d8	49.13	0	50	0	98.3	77.1	117	0	0	0	0

Sample ID: 1207H67-007AMISD	Client ID:	Units: ug/Kg	Prep Date: 07/26/2012	Run No: 225890							
Sample Type: MSD	Test Code: TCL VOLATILE ORGANICS SW8260B	BatchID: 164405	Analysis Date: 07/26/2012	Seq No: 4728534							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethane	55.35	5.0	50	0	111	51	159	57.53	3.86	25.7	
Benzene	51.86	5.0	50	0	104	67.6	139	53.88	3.82	18.5	

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 \* Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding time for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164405

Sample ID: 1207H67-007AMSD	Client ID:	Units: ug/Kg	Prep Date: 07/26/2012	Run No: 225890
Sample Type: MSD	Test Code: ICL VOLATILE ORGANICS SW3360B	BatchID: 164405	Analysis Date: 07/26/2012	Seq No: 4728534

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chlorobenzene	48.53	5.0	50	0	97.1	73.6	135	49.11	1.19	18.5	
Toluene	49.16	5.0	50	0	98.3	63.5	140	53.48	8.42	18.8	
Trichloroethene	52.22	5.0	50	0	104	67.6	145	53.24	1.93	20.7	
Surr: 4-Bromofluorobenzene	52.80	0	50	0	106	56.5	134	50.92	0	0	
Surr: Dibromofluoromethane	49.47	0	50	0	98.9	71.8	135	49.03	0	0	
Surr: Toluene-d8	48.21	0	50	0	96.4	77.1	117	49.13	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
REL	Below reporting limit		E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit		N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit		S	Spike Recovery outside limit due to matrix		

**ANALYTICAL QC SUMMARY REPORT**

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164411

Sample ID: MB-164411	Client ID:	Units: mg/L	Prep Date: 07/27/2012	Run No: 225879
Sample Type: MBLK	Test Code: VOLATILES, TCLP	BatchID: 164411	Analysis Date: 07/27/2012	Seq No: 4728553

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	BRL	0.10	0	0	0	0	0	0	0	0	0
1,2-Dichloroethane	BRL	0.10	0	0	0	0	0	0	0	0	0
2-Butanone	BRL	0.20	0	0	0	0	0	0	0	0	0
Benzene	BRL	0.10	0	0	0	0	0	0	0	0	0
Carbon tetrachloride	BRL	0.10	0	0	0	0	0	0	0	0	0
Chlorobenzene	BRL	0.10	0	0	0	0	0	0	0	0	0
Chloroform	BRL	0.10	0	0	0	0	0	0	0	0	0
Tetrachloroethene	BRL	0.10	0	0	0	0	0	0	0	0	0
Trichloroethene	BRL	0.10	0	0	0	0	0	0	0	0	0
Vinyl chloride	BRL	0.040	0	0	0	0	0	0	0	0	0
Surf: 4-Bromofluorobenzene	0.9552	0	1	0	95.5	64.6	131	0	0	0	0
Surf: Dichlorofluoromethane	0.9946	0	1	0	99.5	70.6	128	0	0	0	0
Surf: Toluene-d8	0.9736	0	1	0	97.4	70.5	116	0	0	0	0

Sample ID: LCS-164411	Client ID:	Units: mg/L	Prep Date: 07/27/2012	Run No: 225879
Sample Type: LCS	Test Code: VOLATILES, TCLP	BatchID: 164411	Analysis Date: 07/27/2012	Seq No: 4728554

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.9314	0.10	1	0	93.1	51.3	142	0	0	0	0
1,2-Dichloroethane	1.086	0.10	1	0	109	65.3	132	0	0	0	0
2-Butanone	1.852	0.20	2	0	92.6	46.4	147	0	0	0	0
Benzene	0.9868	0.10	1	0	98.7	70.2	125	0	0	0	0
Carbon tetrachloride	0.8712	0.10	1	0	87.1	53.1	148	0	0	0	0
Chlorobenzene	0.9860	0.10	1	0	98.6	73.5	121	0	0	0	0
Chloroform	0.9268	0.10	1	0	92.7	66.6	121	0	0	0	0
Tetrachloroethene	1.038	0.10	1	0.01740	102	65.3	137	0	0	0	0
Trichloroethene	0.9530	0.10	1	0	95.3	63.6	129	0	0	0	0
Vinyl chloride	0.8872	0.040	1	0	88.7	47.6	145	0	0	0	0

Qualifiers:   
 2 Greater than Result value   
 3 Below reporting limit   
 7 Estimated value detected below Reporting Limit   
 8 RPD outside limits due to matrix   
 9 Spike Recovery outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

ANALYTICAL QC SUMMARY REPORT

BatchID: 164411

Sample ID: LCS-164411	Client ID:	Units: mg/L	Prep Date: 07/27/2012	Run No: 225879							
Sample Type: LCS	TestCode: VOLATILES, TCLP SW1311/8260B	BatchID: 164411	Analysis Date: 07/27/2012	Seq No: 4728554							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Surr: 4-Bromofluorobenzene	1.041	0	1	0	104	64.6	131	0	0	0	0
Surr: Dibromofluoromethane	1.024	0	1	0	102	70.6	128	0	0	0	0
Surr: Toluene-d8	1.032	0	1	0	103	70.5	116	0	0	0	0

Sample ID: 1207F25-001AMS	Client ID:	Units: mg/L	Prep Date: 07/27/2012	Run No: 225879							
Sample Type: MS	TestCode: VOLATILES, TCLP SW1311/8260B	BatchID: 164411	Analysis Date: 07/27/2012	Seq No: 4728851							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	1.145	0.10	1	0	114	46.9	155	0	0	0	0
1,2-Dichloroethane	1.143	0.10	1	0	114	57.1	136	0	0	0	0
2-Butanone	1.784	0.20	2	0	89.2	36.2	167	0	0	0	0
Benzene	1.142	0.10	1	0	114	65.5	134	0	0	0	0
Carbon tetrachloride	1.042	0.10	1	0	104	51.3	151	0	0	0	0
Chlorobenzene	1.160	0.10	1	0	116	73	124	0	0	0	0
Chloroform	1.062	0.10	1	0	106	61.3	128	0	0	0	0
Tetrachloroethene	1.196	0.10	1	0	120	62.3	146	0	0	0	0
Trichloroethene	1.128	0.10	1	0	113	66.2	140	0	0	0	0
Vinyl chloride	1.096	0.040	1	0	110	35.3	161	0	0	0	0
Surr: 4-Bromofluorobenzene	1.039	0	1	0	104	64.6	131	0	0	0	0
Surr: Dibromofluoromethane	1.023	0	1	0	102	70.6	128	0	0	0	0
Surr: Toluene-d8	1.033	0	1	0	103	70.5	116	0	0	0	0

Sample ID: 1207F25-001ADUP	Client ID:	Units: mg/L	Prep Date: 07/27/2012	Run No: 225879							
Sample Type: DUP	TestCode: VOLATILES, TCLP SW1311/8260B	BatchID: 164411	Analysis Date: 07/27/2012	Seq No: 4728848							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	BRL	0.10	0	0	0	0	0	0	0	0	30
1,2-Dichloroethane	BRL	0.10	0	0	0	0	0	0	0	0	30

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Analytical Environmental Services, Inc

Date: 30-Jul-12

ANALYTICAL QC SUMMARY REPORT

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H10

BatchID: 164411

Sample ID: 1207F25-001ADUP	Client ID:	Units: mg/L	Prep Date: 07/27/2012	Run No: 225879
Sample Type: DUP	TestCode: VOLATILES TCLP	BatchID: 164411	Analysis Date: 07/27/2012	Seq No: 4728848

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2-Butanone	BRL	0.20	0	0	0	0	0	0	0	30	
Benzene	BRL	0.10	0	0	0	0	0	0	0	30	
Carbon tetrachloride	BRL	0.10	0	0	0	0	0	0	0	30	
Chlorobenzene	BRL	0.10	0	0	0	0	0	0	0	30	
Chloroform	BRL	0.10	0	0	0	0	0	0	0	30	
Tetrachloroethene	BRL	0.10	0	0	0	0	0	0	0	30	
Trichloroethene	BRL	0.10	0	0	0	0	0	0	0	30	
Vinyl chloride	BRL	0.040	0	0	0	0	0	0	0	30	
Sur: 4-Bromofluorobenzene		0.9596	0	0	96	64.6	131	0.9422	0	0	
Sur: Dibromofluoromethane		0.9684	0	0	96.8	70.6	128	0.9600	0	0	
Sur: Toluene-d8		0.9688	0	0	96.9	70.5	116	0.9644	0	0	

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

\*: Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank  
 H Holding time for preparation or analysis exceeded  
 R RPD outside limits due to matrix

**APPENDIX C – TEST PIT PHOTOGRAPHS**

Liddell Drive Equalization Project Photographs: 2012.3532.01



Photo # 1: Top 3 feet of soils excavated from TP-1.



Photo # 2: Remaining soils/debris excavated from TP-1.



Liddell Drive Equalization Project Photographs: 2012.3532.01

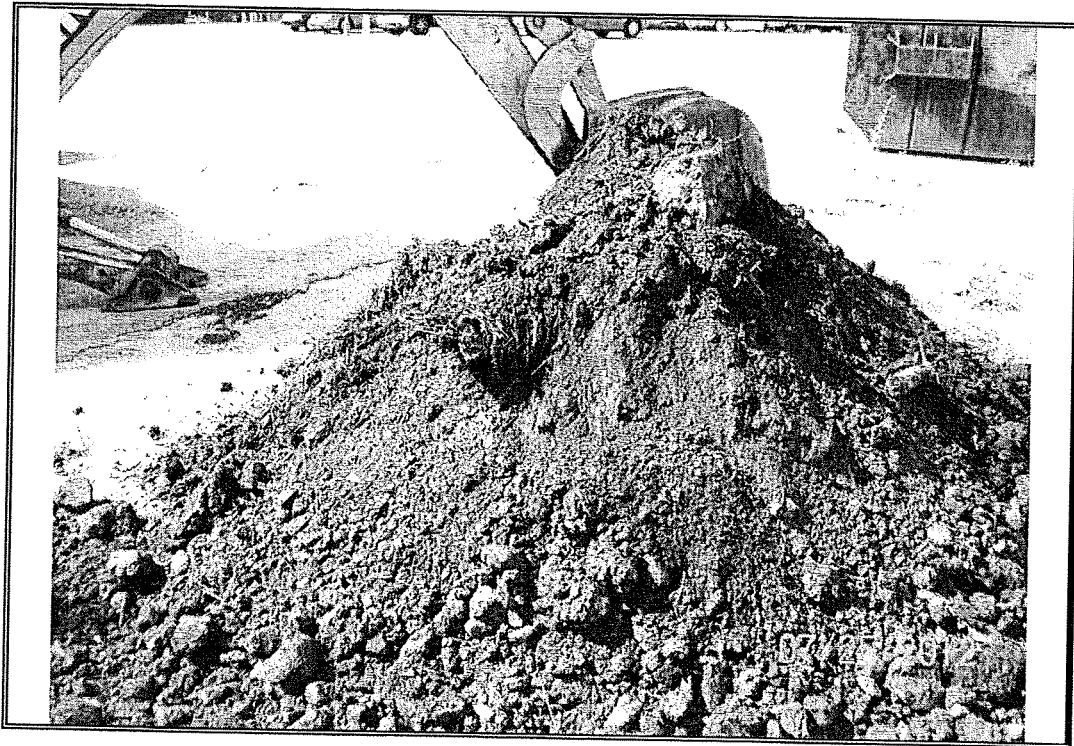


Photo # 3: View of stockpiled soils/debris excavated from TP-2.



Photo # 4: .View of soils excavated from TP-3.

Liddell Drive Equalization Project Photographs: 2012.3532.01

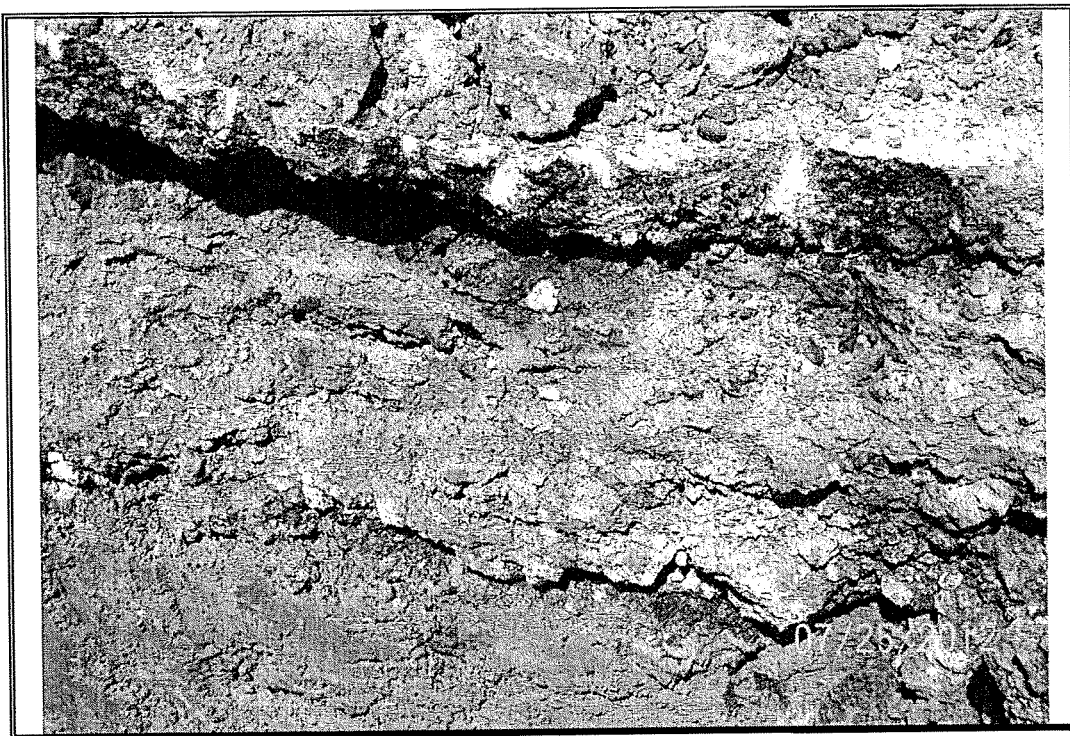


Photo # 5: View of 2 feet of "slag like" material just below the asphalt within TP-4.



Photo # 6: View of "slag like" materials removed from TP-4.

Liddell Drive Equalization Project Photographs: 2012.3532.01

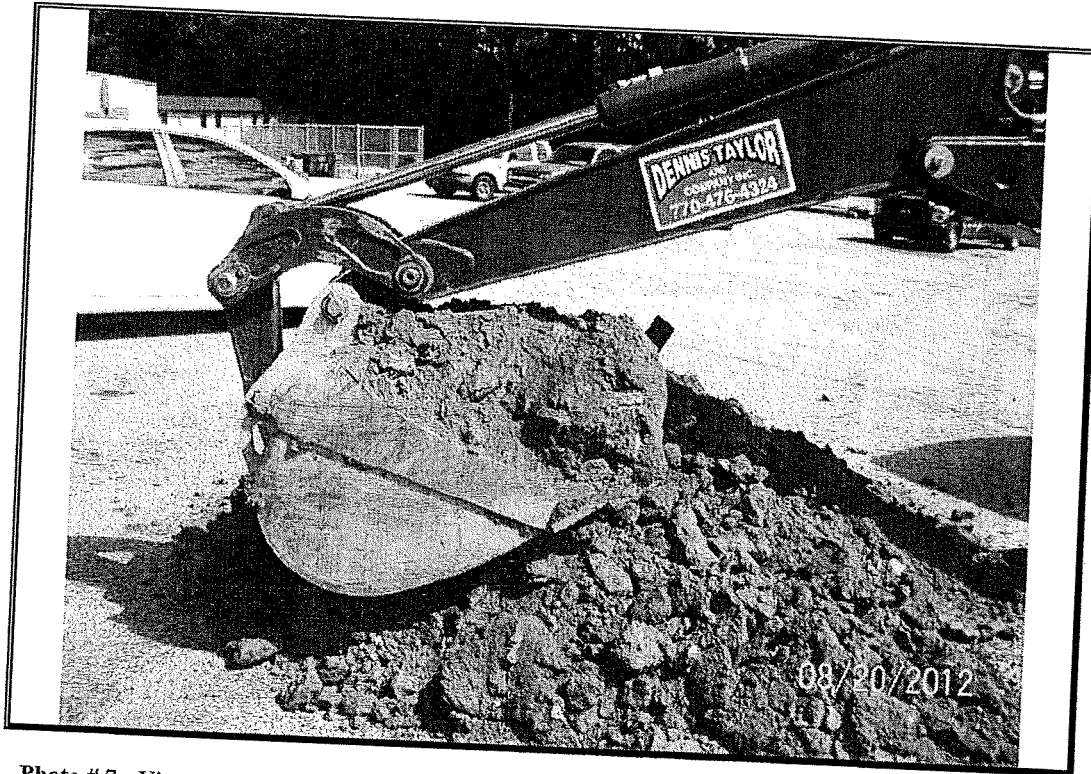


Photo # 7: View of top 2' of soils removed from test pit T-5.

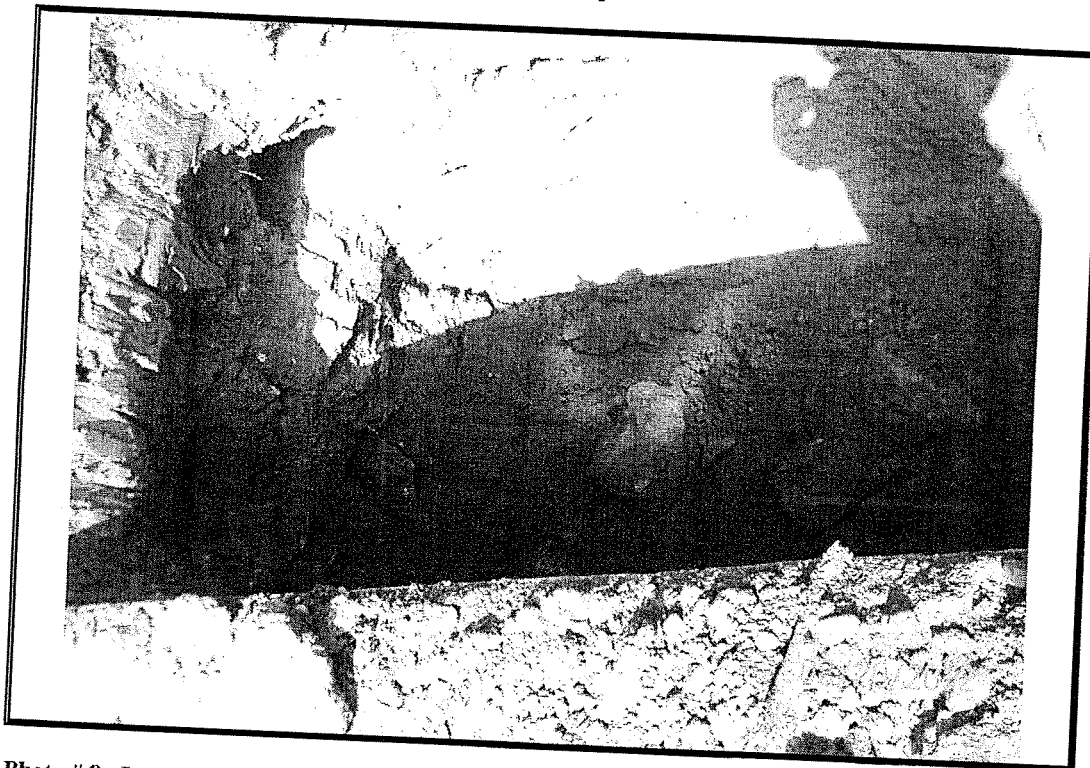


Photo # 8: Internal view of test pit T-5.



Liddell Drive Equalization Project Photographs: 2012.3532.01

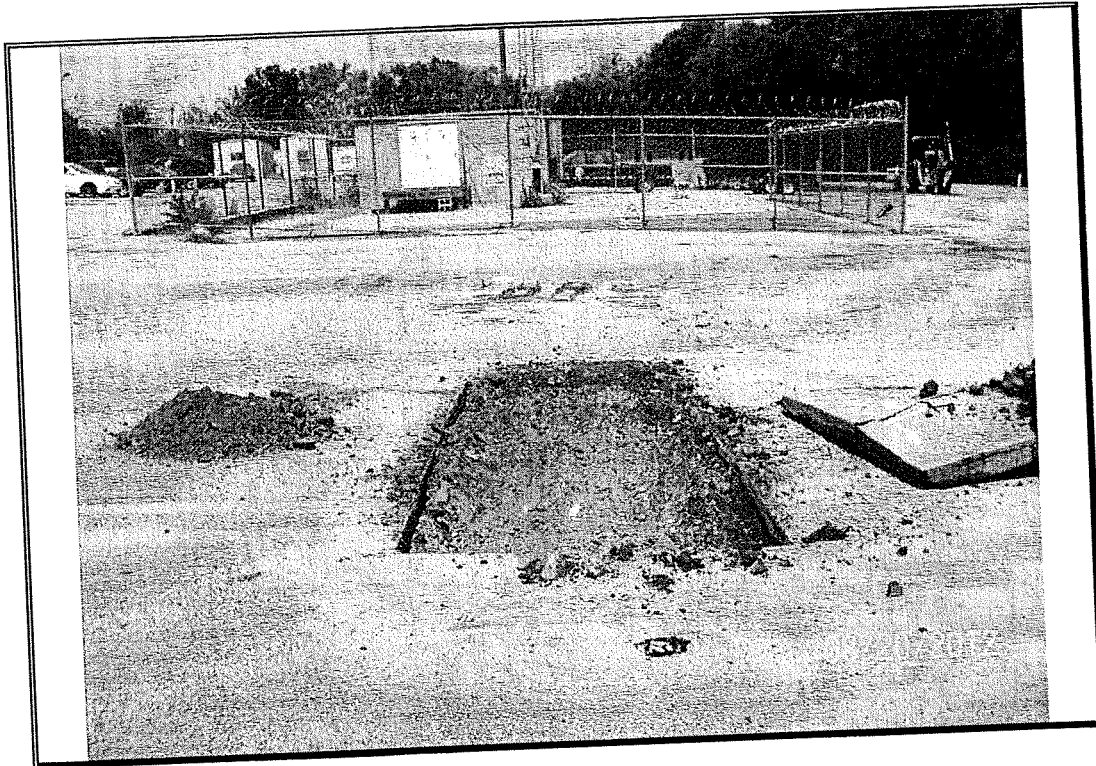


Photo # 9: View of "slag like" material just below the asphalt surface at TP-6.

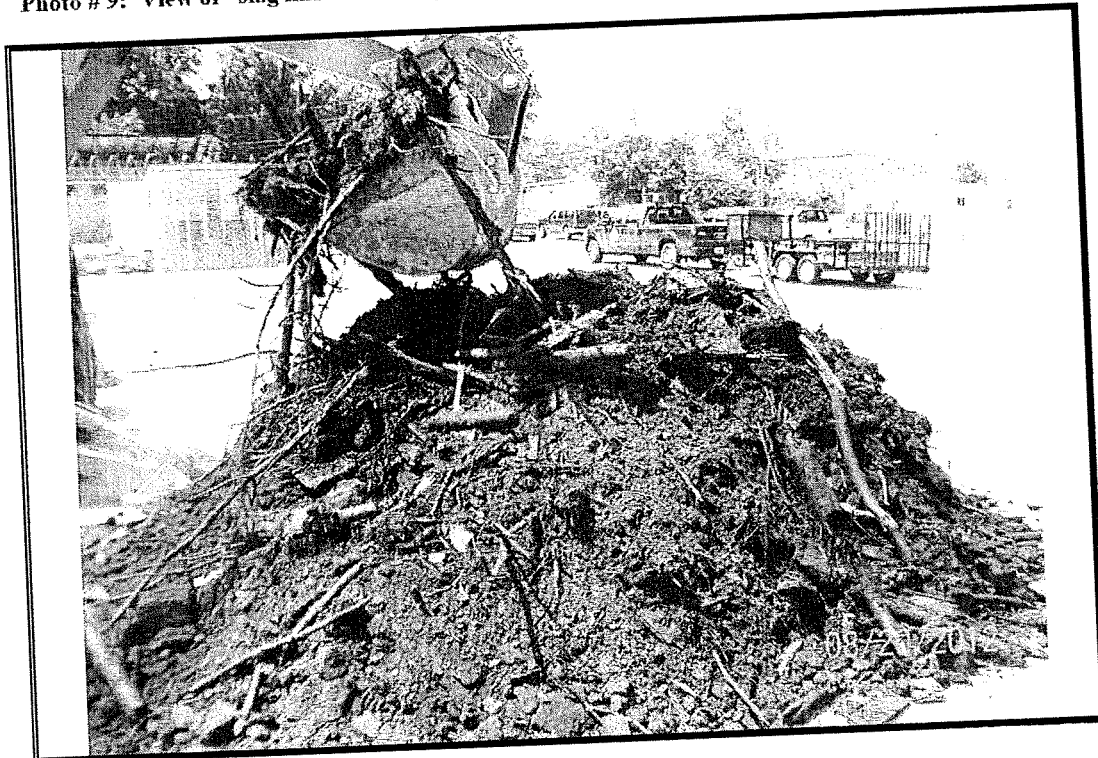


Photo # 10: View of debris removed from test pit TP-7.

Liddell Drive Equalization Project Photographs: 2012.3532.01

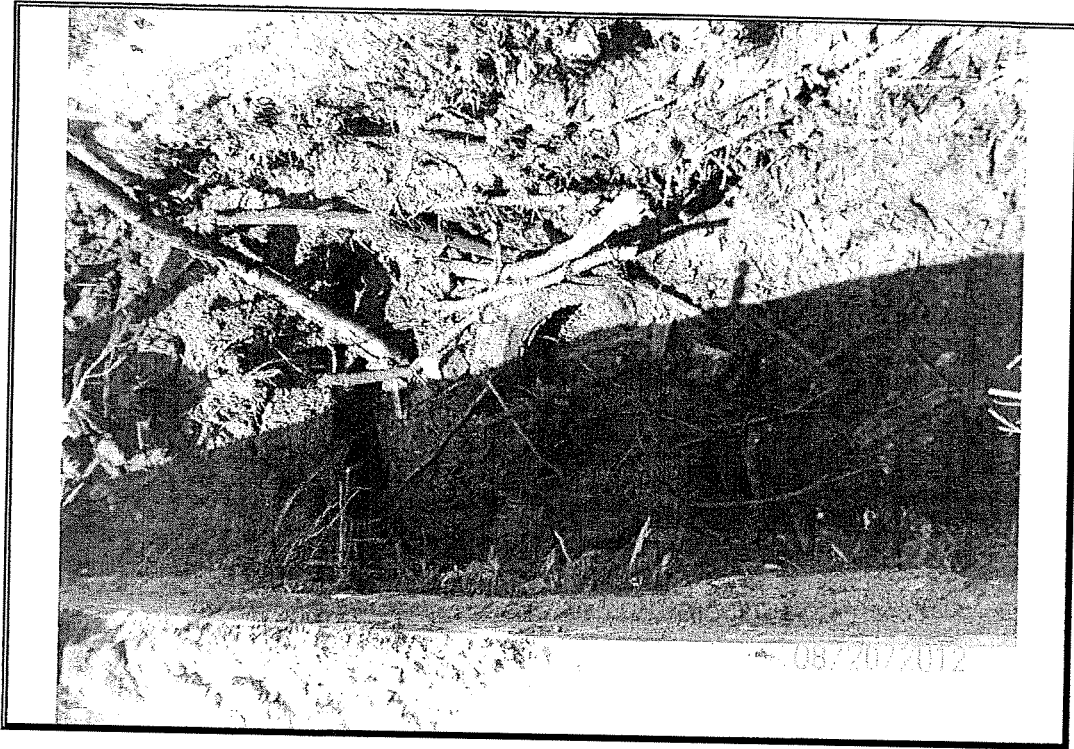


Photo # 11: Internal view of test pit T-7.



Photo # 12: Internal view of test pit T-8.











# REPORT

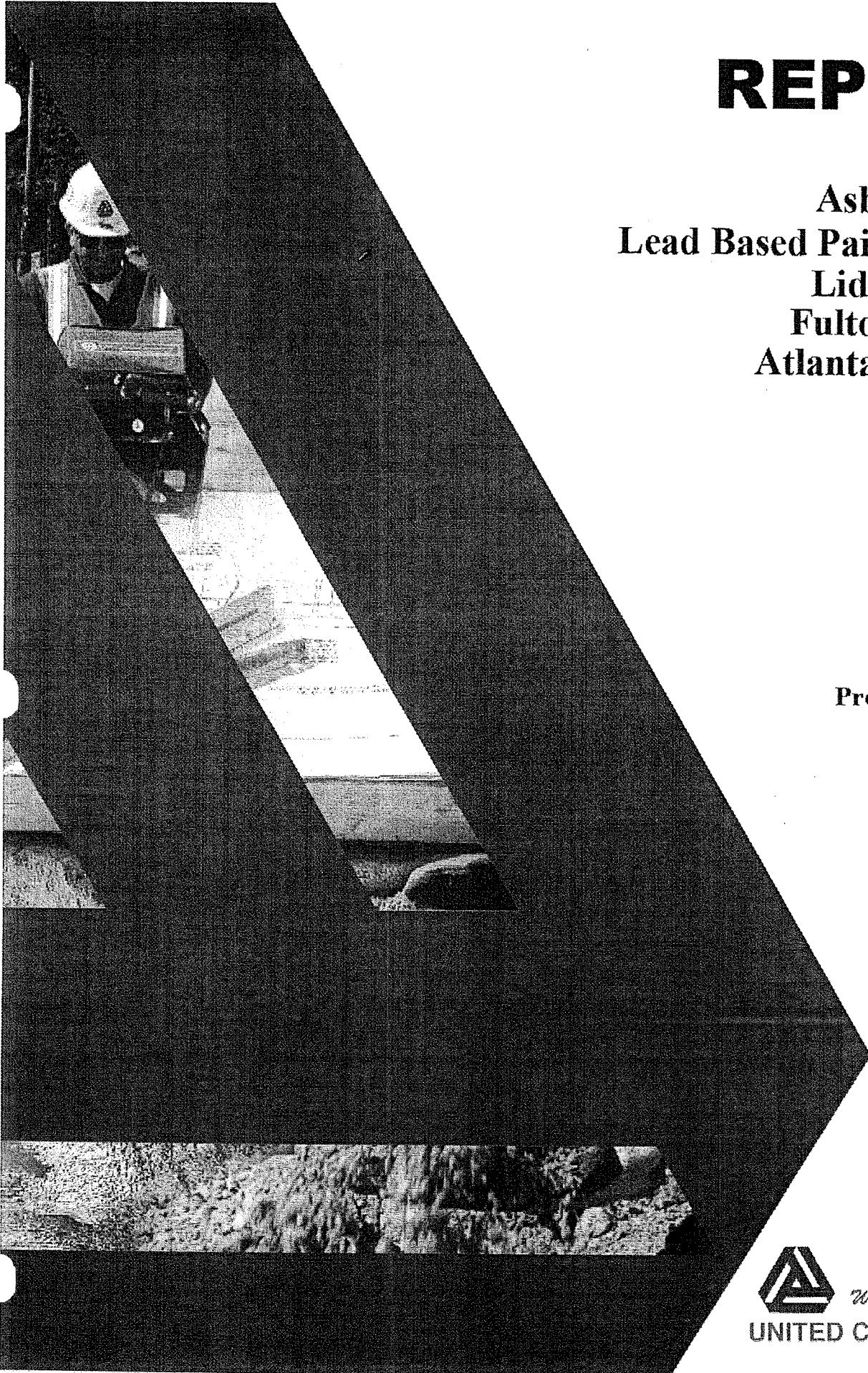
**Asbestos and  
Lead Based Paint Survey  
Liddell Drive  
Fulton County  
Atlanta, Georgia**

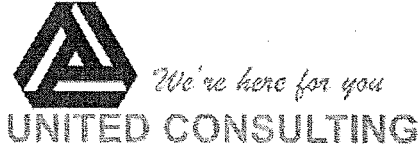
**Project Number  
2012.3532.01**

**Report Date:  
August 2, 2012  
Survey Date:  
July 25, 2012**



*We're here for you*  
**UNITED CONSULTING**





Asbestos and Lead Based Paint Survey  
**Liddell Drive Equalization Project**  
Atlanta, Georgia  
Project No. 2012.3532.01

August 2, 2012

Mr. Stephen Lathrop, P.E.  
**Atlanta Services Group-Jacobs**  
6801 Governors Lake Parkway  
Norcross, GA 30071

*Via e-mail: [Stephen.Lathrop@jacobs.com](mailto:Stephen.Lathrop@jacobs.com)*

RE: Report of Asbestos and Lead Based Paint Survey  
**Liddell Drive Equalization Project**  
Atlanta, Georgia  
Project No. 2012.3532.01

Dear Mr. Lathrop:

United Consulting has completed the Asbestos and Lead Based Paint Survey on the above referenced Project Site. These activities were performed by an accredited asbestos inspector in substantial conformance with industry standards. It was our pleasure to assist you with this project and look forward to assisting you with future projects. Please contact us if you have any questions or if we can be of further assistance.

Sincerely,

**UNITED CONSULTING**

Ian Pilling  
Senior Environmental Specialist

Scott D. Smelter  
Principal

RCG/BB/IGP/SDS/tl

*SharePoint:2012.3532.01*

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## FIGURES

Figure 1      Building Location Plan

## APPENDICES

Appendix A    Photographic Documentation  
Appendix B    Certifications  
Appendix C    Laboratory Results

## EXECUTIVE SUMMARY<sup>1</sup>

United Consulting has completed the Asbestos and Lead Based Paint Survey on the two vacant structures located along Liddell Drive in the area of the Liddell Drive Equalization Project in Atlanta, Fulton County, Georgia (hereinafter referred to in this report as the Project Site). One structure was an apparent former maintenance garage of cinder block construction, and the second was a smaller building of steel frame with sheet metal construction. The results are briefly summarized below. The text of the report should be reviewed for a discussion of the following items:

### I. Limited Lead Based Paint Survey

1. United Consulting performed a lead-based paint survey of the Project Site building to visually identify suspect lead-based paint films on interior and exterior building components. Six representative paint chip samples were collected from one structure and submitted for laboratory testing. Painted surfaces were not observed on the second structure.
2. The painted surfaces identified at the Project Site were in poor condition at the time of United Consulting's survey activities. Three of the six samples were found to contain lead-based paint above the current Department of Housing and Urban Development (HUD) action level of 0.5% lead by weight.
3. Occupational Safety and Health Administration (OSHA) regulations require that workers be protected from exposure to lead via proper engineering controls and appropriate levels of personal protective equipment. Additionally, lead-based painted waste materials must be tested for hazardous characteristics using the Toxicity Characteristic Leaching Procedure (TCLP method), prior to disposal. Solid waste which leaches hazardous concentrations of lead greater than 5.0 parts per million (ppm) by TCLP, must be properly disposed of in an appropriate permitted landfill.

### II. Asbestos Survey

1. Bulk samples of typical suspect asbestos-containing materials such as caulk, mastics, and roofing materials, were collected and submitted to a laboratory for testing using Polarized Light Microscopy (PLM).

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<sup>1</sup> This Executive Summary is not intended to be used or relied upon without reference to the entire report and cannot otherwise be properly understood and interpreted. It is provided solely for the convenience of the Client and not as a substitute for the report or review of the report.

2. Regulated concentrations of asbestos **were identified** in twelve of the twenty five bulk samples collected from the Project Site. The regulated asbestos containing materials identified at the Project Site generally included: interior/exterior window glazing, expansion joint caulk, roof decking, and vent pipe tar/roof penetration mastic. The remaining samples submitted for analytical testing were not found to contain regulated concentrations of asbestos.
3. The National Emissions Standard for Hazardous Air Pollutants (NESHAP) requires the removal of asbestos-containing materials prior to activities, which would disturb them. United Consulting recommends that the asbestos-containing materials be removed prior to demolition, by a qualified asbestos abatement contractor using State of Georgia accredited personnel, in accordance with applicable federal, state and local regulations governing the removal of asbestos-containing material.
4. A Ten-Day Notification must be forwarded to the Georgia Department of Natural Resources - Environmental Protection Division, by the building owner or demolition/renovation contractor, prior to the start of any building demolition/renovation activities.

## INTRODUCTION

United Consulting was retained by **Atlanta Services Group** to perform a Lead Based Paint (LBP) and Asbestos Survey on the Project Site. The scope of this assessment was outlined in our July 20, 2012 proposal, which was authorized via a Task Order (No. 4906004-1) dated July 23, 2012. The purpose of this survey was to collect and test representative samples of common building materials for the presence of LBP and asbestos fibers that may be present in the structures. United Consulting understands that these structures are planned for demolition. Photographs of the Project Site structures are included in Appendix A.

The asbestos bulk sample collection activities were performed by United Consulting representative, Mr. Britt Bickerstaff. He is an accredited Asbestos Inspector in accordance with the Asbestos Hazard Emergency Response Act (AHERA), Inspector Certificate Number 4338. The LBP sample collection activities were performed by United Consulting representative, Mr. Ian Pilling. He is a licensed lead based paint inspector with the State of Georgia, certification number 60 INSO 0712 3443. Their certifications and that of the laboratory used for this investigation are reproduced in Appendix B.

## DESCRIPTION OF FACILITY

The Project Site contained two, single story buildings, used for storage and or maintenance (formerly). They are located to the southeast of the work area for the equalization tank associated with the Liddell Drive Equalization Project. The former maintenance garage structure is about 2,700 square feet and of cinder block construction with an attached overhang/canopy. The storage structure is about 1,300 square feet and consisted of a steel frame with sheet metal paneling siding and roof. Both structures were constructed on concrete slabs. An automobile service bay was located within the interior of the concrete block building. The construction date of these is unknown, but from appearance is likely pre-1970. The roof of the cinder block building consisted of gravel followed by typical roofing materials (tar, shingles, perlite, and decking). There were glass windows on each building. No drywall systems materials or flooring materials were observed in either structure. The locations of the buildings included in this assessment are illustrated on Figure 1.

## I. LEAD BASED PAINT SURVEY

### PURPOSE

The purpose of the Lead-Based Paint Survey was to visually identify suspect lead-based paint films on the interior and exterior building components, and to test the paint films for detectable concentrations of lead by collecting representative paint chip samples from the Project Site. United Consulting performed the survey in substantial conformance to industry standards.

### SCOPE

The lead-based paint survey involved the following protocol:

1. Visually examined accessible interior and exterior building components to identify suspect lead-based paint films;
2. Described each suspect lead-based paint film and noted the components or surfaces to which the paint films were applied;
3. Assessed the condition of the suspect lead-based paint films and noted the condition of the painted surface;
4. Collected six paint chip samples of suspect lead-based paint films from a representative sample of the interior and exterior building components and submitted these samples for analysis utilizing Atomic Absorption Spectrometry (AAS).

### SAMPLE ANALYSIS

#### Procedure

Six (6) paint chip samples were obtained by either chipping or coring the film and substrate materials. Each sample was removed using a clean knife or core, and placed in a new dedicated container. Each container was separately labeled and taken to the laboratory for analytical testing. Each sample was assigned a unique sample number and delivered to an independent laboratory (Analytical Environmental Services, Inc.) for analysis. Chain of Custody was documented and retained on-file. The laboratory results are attached in Appendix C.

## SURVEY RESULTS

### Overview

Three of the six samples collected were found to contain lead concentrations above the current HUD action level of 0.5% lead by weight. Table 1 lists the sample descriptions and laboratory results. Photocopies of the laboratory results are included in Appendix C.

**TABLE 1: LEAD BASED PAINT SAMPLE RESULTS**

SAMPLE NUMBER	CONDITION	LOCATION	COLOR	PERCENT LEAD BY WEIGHT
L-1	Poor	C Bld, floor around pit	Yellow	1.36
L-2	Poor	C Bld, Door	Red	0.110
L-3	Poor	C Bld, exterior walls	White	1.3
L-4	Poor	C Bld, Interior walls	White	0.18
L-5	Poor	C Bld, Support columns for overhang	Reddish	0.0753
L-6	Poor	C Bld, Bumper protectors, Side of the garage bays entrance	Red	15.4
<b>Notes:</b> Results presented in percentage of lead by weight. C Bld = Concrete Block Building				

## ASSESSMENT/RECOMMENDATIONS

A total of six paint chip samples were collected and submitted for laboratory analysis. Three of the samples **were found** to contain lead at concentrations above the current HUD action level of 0.5% lead by weight. Three samples were found to contain lead below the HUD action level. The samples with lead above the HUD action level were from the concrete block building. Painted materials were not observed on the second building with the exception of the factor painted doors which based on appearance were manufactured after 1978 and, therefore, were not tested.

Occupational Safety and Health Administration (OSHA) regulations require that workers be protected from exposure to lead via proper engineering controls and appropriate levels of personal protective equipment as per Title 29 of the Code of Federal Regulations, part 1926.62 (29 CFR 1926.62).



Solid waste which leaches hazardous concentrations of lead greater than 5.0 parts per million (ppm) by TCLP must be properly disposed of in an appropriately permitted hazardous waste landfill.

## II. ASBESTOS SURVEY

### SCOPE

In performing the assessment, United Consulting's representative:

1. Visually examined the accessible areas of the building to identify suspect asbestos-containing materials which could be impacted by the planned demolition activities;
2. Physically examined suspect materials to evaluate whether the materials were friable or non-friable (a friable material is any material that, when dry, may be crumbled, pulverized or reduced to a powder using hand pressure);
3. Described the suspect material and noted the area where the material was located;
4. Assessed the condition of the suspect materials to be sampled as well as their potential for impact during the planned renovation/demolition;
5. Collected 25 bulk samples of suspect materials for testing;
6. Tested bulk samples obtained for detectable concentrations of asbestos using PLM and dispersion oil staining;
7. Prepared this report to document the sampling activities and results of the tests performed.

### BULK SAMPLE COLLECTION

#### Overview

Bulk sampling was performed in substantial conformance with the United States Environmental Protection Agency's (EPA's), "Guidance for Controlling Asbestos-Containing Materials in Buildings" (EPA 560/5-85-024, 1985).

#### Sample Location Selection

Sample locations were randomly chosen in the field, based on the identification of suspect asbestos-containing material (SACM). A distributed sampling plan based on a randomized

sampling scheme was not used for this sampling program. This survey was being conducted to evaluate the property for the presence of asbestos prior to possible building demolition.

Bulk samples were collected from typical suspect materials such as caulk, roofing materials, and other suspect materials. Bulk samples were not collected of non-suspect materials such as carpets, drapes, wood or ceramic tiles.

### **Procedure**

Samples were collected by wetting the material to be sampled, by extracting a representative section of the suspect material and by placing the material in a sample container. Each sample was assigned a unique sample number and delivered to an independent laboratory (Analytical Environmental Services, Inc.) for analysis. Chain of Custody was documented and retained on-file.

## **BULK SAMPLE ANALYSIS**

### **Procedure**

The bulk samples were tested for detectable concentrations of asbestos (greater than one percent asbestos) utilizing Polarized PLM and dispersion staining techniques. The testing method used was the "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" (EPA 600/M4-82020, as amended). Bulk sample testing was performed by Analytical Environmental Services, Inc., a successful participant in the National Voluntary Laboratory Accreditation Program (NVLAP), certificate number 102082-0.

Asbestos identification was achieved by examining the morphology and optical properties of the sampled material. Optical properties include the color under dispersion staining, birefringence, extinction characteristics, and Sign of Elongation. Quantification was obtained by visual estimation. The PLM method may be used for the analysis of samples containing from 0 to 100 percent asbestos. The lower limit of detection is less than 1 percent and the upper detection limit is 100 percent. Results are reported as percent of asbestos by type (e.g. Amosite, Chrysotile, Crocidolite, etc.). Additional information such as other fibrous and non-fibrous components is also reported if noted in the sample.

## **BULK SAMPLE RESULTS**

### **Overview**

United Consulting collected 25 bulk samples of suspect asbestos-containing materials from the Project Site building. The assessment of results discussed below has been compiled by homogenous area and material type (e.g., caulk, roofing materials, etc.). Photocopies of the

laboratory results are included in Appendix C, and a complete list of all the bulk samples collected is provided in Table 2. The materials identified as containing asbestos are described below.

**Asbestos Containing Materials**

Materials identified at the Project Site as containing regulated concentrations of asbestos fibers include:

1. Interior/exterior window glazing and
2. Expansion joint caulk
3. Roof decking
4. Vent pipe tar/roof penetration mastic

**TABLE 2: ASBESTOS BULK SAMPLES**

SAMPLE NUMBER	CONDITION FRIABILITY	LOCATION	MATERIAL	RESULTS
A-1	Poor/Non-Friable	M Bld (int)	Insulation	ND
A-2	Poor/ Non-Friable	M Bld (int)	Insulation Paper	ND
A-3	Poor/ Non-Friable	M Bld (int)	Insulation	ND
A-4	Poor/ Non-Friable	M Bld (int)	Insulation Paper	ND
A-5	Fair / Non-Friable	M Bld (ext)	Window Caulk	ND
A-6	Fair / Friable	M Bld (ext)	Window Caulk	ND
A-7	Poor / Friable	M Bld (ext)	Window Glazing	2% CH
A-8	Poor / Friable	M Bld (ext)	Window Glazing	2% CH
A-9	Fair / Non-Friable	M Bld (ext)	Roof Penetration Mastic	15% CH
A-10	Fair / Non-Friable	C Bld (ext)	Roof Tar	ND
A-11	Fair / Non-Friable	C Bld (ext)	Roof- Layer 1-Tar	ND
A-12	Fair / Non-Friable	C Bld (ext)	Roof- Layer 2-Shingle	ND
A-13	Fair / Non-Friable	C Bld (ext)	Roof- Layer 3-Perlite	ND
A-14	Fair / Non-Friable	C Bld (ext)	Roof-Vent Pipe Tar/Mastic	20% CH
A-15	Fair / Non-Friable	C Bld (ext)	Roof-Vent Pipe Tar/Mastic	20% CH
A-16	Fair / Non-Friable	C Bld (ext)	Roof Rolling/Felt Paer w/ Tar	ND
A-17	Fair / Non-Friable	C Bld (ext)	Roof Felt Paper-Layer 2	ND
A-18	Fair / Non-Friable	C Bld (ext)	Roof Felt Paper-Layer 3	ND

SAMPLE NUMBER	CONDITION FRIABILITY	LOCATION	MATERIAL	RESULTS
A-19	Fair / Non-Friable	C Bld (ext)	Roof Decking	20% CH
A-20	Poor/Friable	C Bld (int)	Window Glazing	2% CH
A-21	Poor/Friable	C Bld (int)	Window Glazing	2% CH
A-22	Fair / Non-Friable	C Bld (int)	Roof Decking	20% CH
A-23	Fair / Non-Friable	C Bld (ext)	Expansion Joint Caulk	15% CH
A-24	Poor/Friable	C Bld (ext)	Window Glazing	2% CH
A-25	Poor/Friable	C Bld (ext)	Window Glazing	2% CH

**Bold** = regulated asbestos containing materials  
 ND= Non-detect; CH=chrysotile  
 M Bld =Metal Building  
 C Bld = Concrete Block Building  
 (ext)= exterior, (int)= interior

### DATA EVALUATION/ASSESSMENT

Regulated concentrations of asbestos were identified in twelve of the bulk samples collected from the Project Site. The regulated asbestos containing materials identified at the Project Site included: window glazing from both buildings (interior and exterior), roof penetration mastic/tar from the roofs of both buildings, roof decking and expansion joint caulk from the concrete block/maintenance building. The remaining samples submitted for analytical testing were not found to contain regulated concentrations of asbestos. The entire roof/ceiling (interior and exterior areas) of the concrete block building was comprised of the roof decking material. Both structures were observed to contain window glazing. The expansion joint caulk on the concrete block building was located in the exterior joint between the roof and concrete blocks, and appeared to be present around the entire circumference of the building.

In the event that inaccessible, suspect ACM are encountered within previously inaccessible building areas (wall cavities, columns, etc.) at the time of demolition, United Consulting should be contacted and proper samples of the suspect materials should be collected and submitted for testing, prior to continuing demolition activities which could disturb these materials and potentially result in an asbestos fiber release.

The National Emissions Standard for Hazardous Air Pollutants (NESHAP) requires the removal of asbestos-containing materials prior to activities, which would disturb them. United Consulting recommends that the asbestos-containing materials be removed, prior to demolition by a qualified asbestos abatement contractor, using State of Georgia accredited personnel, in accordance with applicable federal, state and local regulations governing the removal of asbestos-containing material.

A properly prepared Ten Day Notification must be forwarded to the Georgia Department of Natural Resources - Environmental Protection Division, by the building owner or renovation contractor, prior to the start of any building demolition/renovation activities.

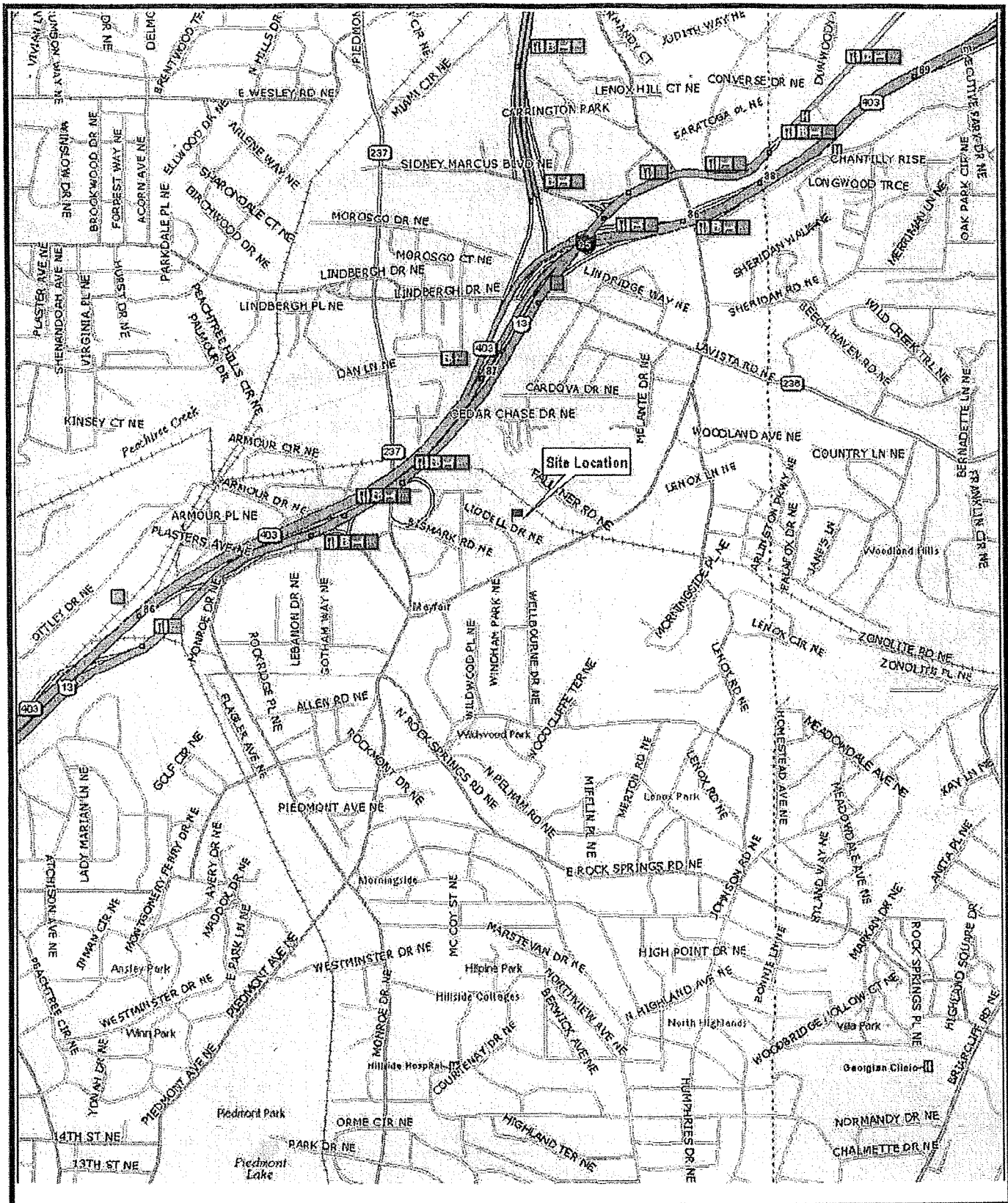
## LIMITATIONS



The conclusions presented in this Asbestos Survey and Lead Based Paint Survey are based on the laboratory results and condition of the materials identified. Asbestos and lead paint concentrations will vary between sample locations, and in un-sampled locations. Our assessment of the lead-based paint at the Project Site is a professional opinion arrived at through the method and procedures accepted by, and standard to, the industry. No other warranty or guarantee is expressed or implied.

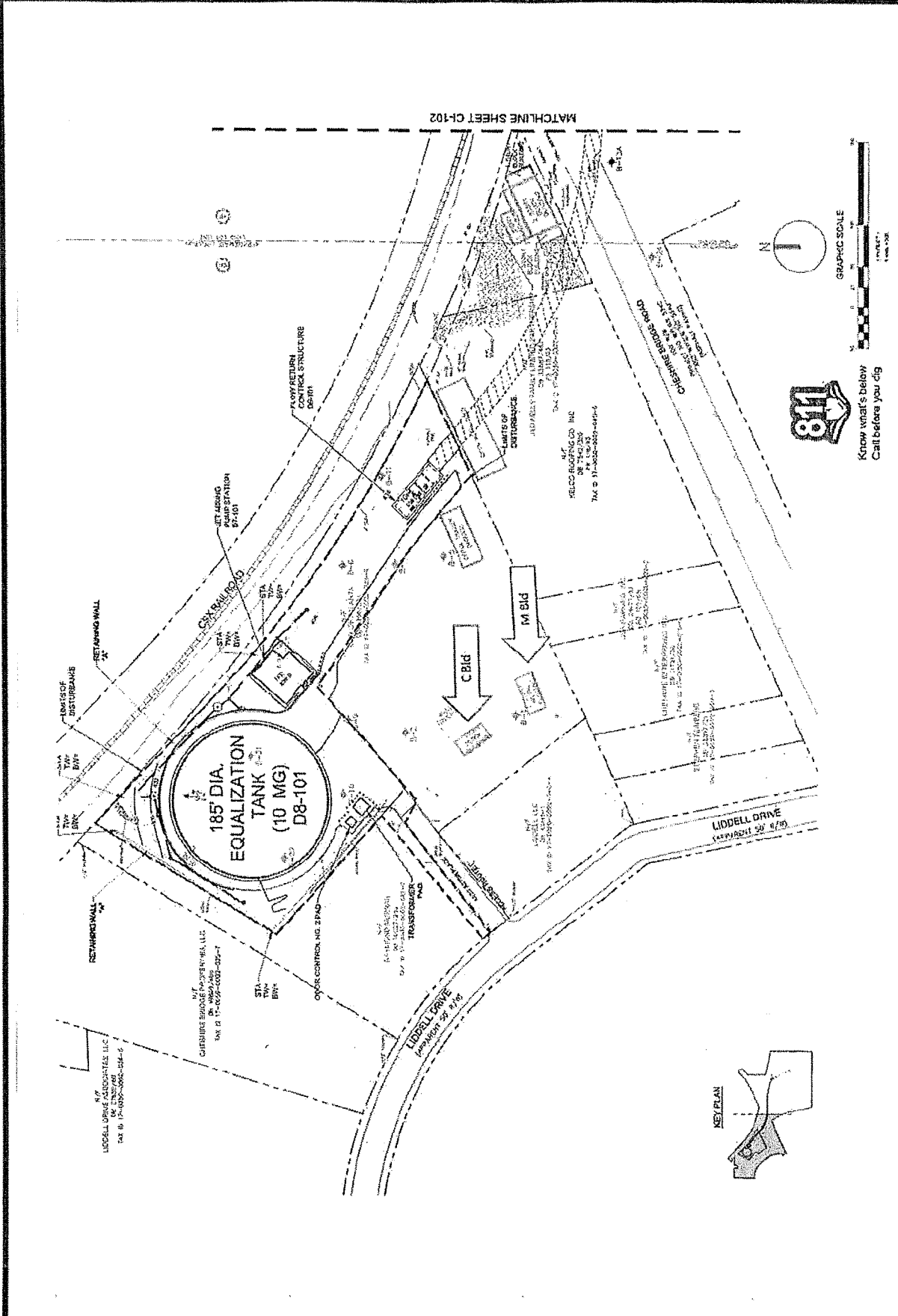
Representative areas of the Project Site were sampled. *Preparation of abatement design bid documents or scopes of work for abatement, may require additional sampling and definition of the extent of the asbestos materials.* United Consulting shall not be held responsible for errors, miscalculations, assumptions, misinterpretations or other problems or liabilities arising from, or associated with, firms or individuals bidding on asbestos abatement work that rely solely, or in part, on this document.



This report has been prepared on behalf of **Jacobs** in conjunction with the **City of Atlanta**. Should any other person, partnership, or corporation desire to rely upon this report, it will be necessary for United Consulting to update the report for the new user.

**UNITED CONSULTING**



 <p><i>We're here for you</i> <b>UNITED CONSULTING</b></p>		Scale: 1"=2,000"	Client: Jacobs	<h1>FIG. 1</h1>
		Prepared: BNB	Site: Liddell Drive Equalization Project	
		Checked: RCG	Title: Site Location Map	
		Project No.: 2012.3532.01		



 <p><i>We're here for you</i> <b>UNITED CONSULTING</b></p>		Scale:	As Shown	Notes:	Client: Jacobs Site: Liddell Drive Equalization Project Title: Site Location Plan
		Prepared:	BNB		
		Checked:			
Project No.:	2012.3532.01				

**FIG. 1a**

**APPENDIX A – PHOTOGRAPHIC DOCUMENTATION**



Liddell Drive Equalization Project Asbestos  
and Lead Based Paint Survey Photographs: 2012.2532.01

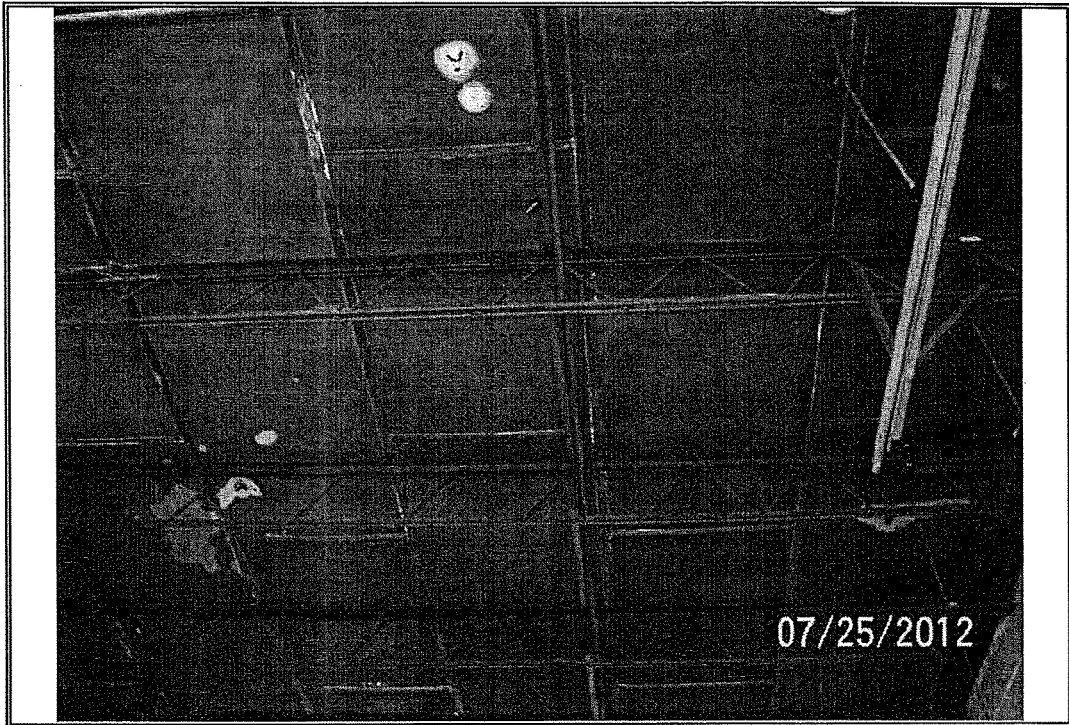


Photo # 1: View of interior roof decking in the C Bld. (20% CH)

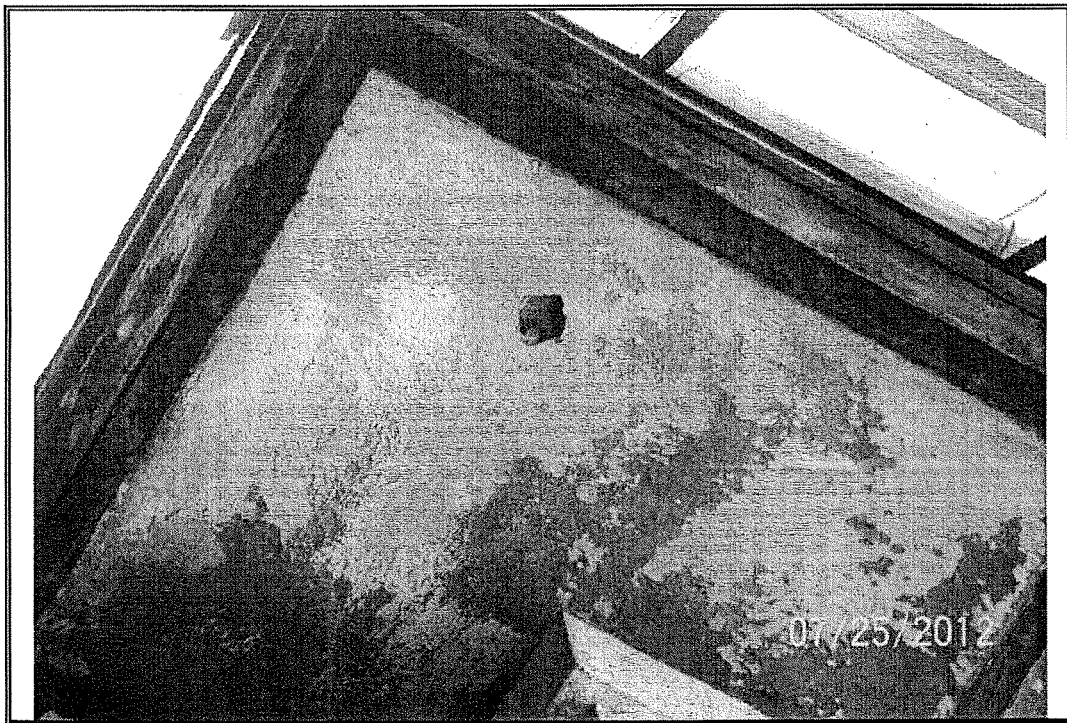


Photo # 2: View of exterior roof decking on C Bld. (20%CH)

Liddell Drive Equalization Project Asbestos  
and Lead Based Paint Survey Photographs: 2012.2532.01



Photo # 3: .View of vent pipe/roof penetration mastic/tar on C Bld. (20 % CH)

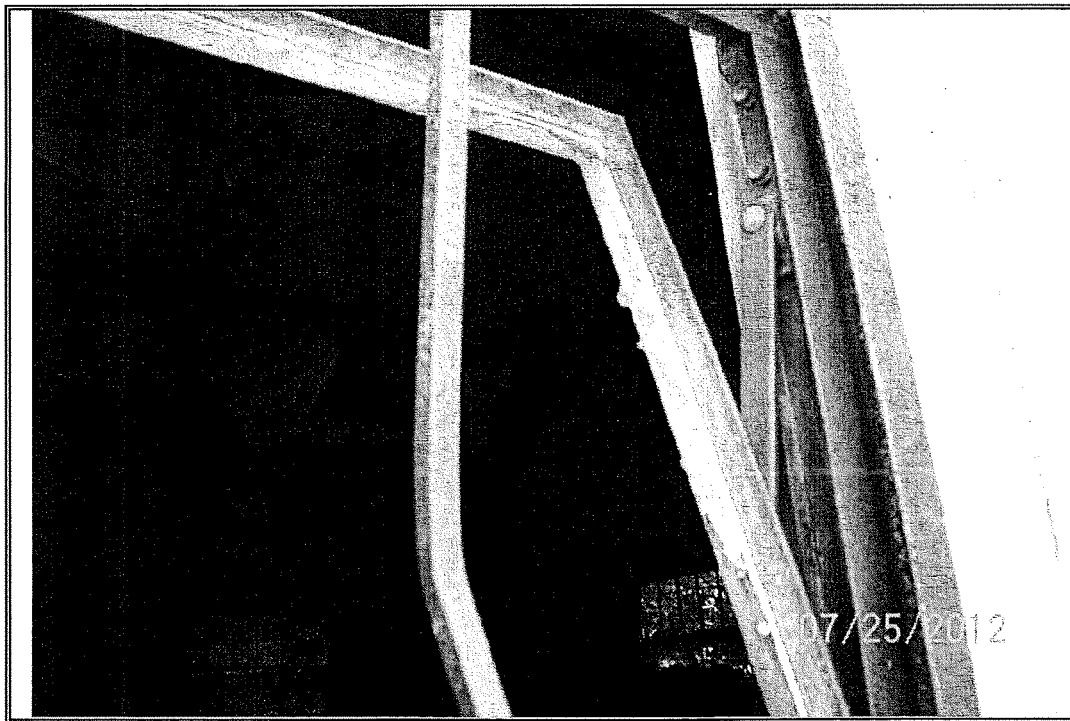


Photo # 4: View of window glazing on M Bldg window. (2% CH).

Liddell Drive Equalization Project Asbestos  
and Lead Based Paint Survey Photographs: 2012.2532.01



Photo # 5: View of insulation in M Bid. (ND)



Photo # 6: View of the yellow paint identified as containing lead at 1.36 %.

Liddell Drive Equalization Project Asbestos  
and Lead Based Paint Survey Photographs: 2012.2532.01



Photo # 7: View of the car bumper (red) and the exterior wall (white) both found to contain lead at 15.4 % and 1.3 %, respectively.

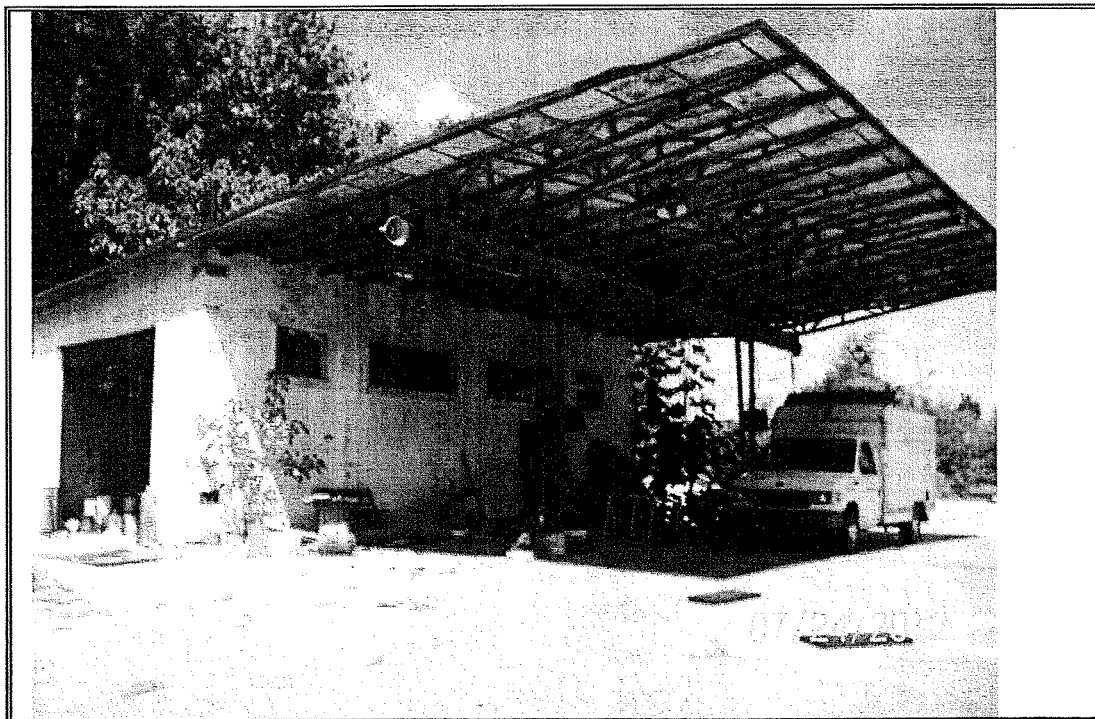


Photo # 8: View of the concrete block building.

**APPENDIX B – CERTIFICATIONS**

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# *The Environmental Institute*

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## *Britt Bickerstaff*

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Social Security Number - XXX-XX-8863  
United Consulting - 625 Holcomb Bridge Road - Norcross, Georgia 30071

*Has completed coursework and satisfactorily passed  
an examination that meets all criteria required for  
EPA/AHERA/ASHARA (TSCA Title II) Approved Accreditation*

### *Asbestos in Buildings: Inspection and Assessment*

August 8-10, 2011

Course Date

4338

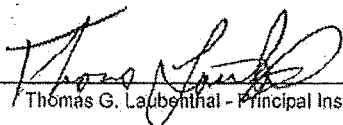
Certificate Number

August 10, 2011

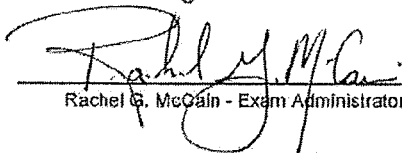
Examination Date

August 9, 2012

Expiration Date

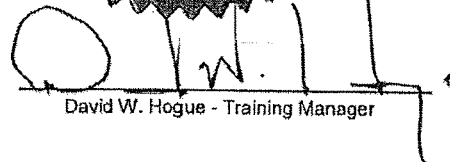


Thomas G. Laubenthal - Principal Instructor



Rachel G. McCain - Exam Administrator





David W. Hogue - Training Manager

(Approved by the ABIH Certification Maintenance Committee for 3 CM points)  
(American Council for Accredited Certification - Re-certification Credit Registration #11021802)  
(Florida Provider Registration Number 0001342 - Course #0004700)  
TEI - 1841 West Oak Parkway, Suite F - Marietta, Georgia 30062 - (770) 427-3600 - [www.tei-atl.com](http://www.tei-atl.com)



# Georgia Environmental Protection Division



## Lead-Based Paint and Asbestos Program



Certification, Accreditation, Licensing Unit

Judson H. Turner, Director

4244 International Parkway, Suite 104

Atlanta, Georgia 30354

### Certification To Conduct Georgia Regulated Lead-Based Paint Activities

Disciplina Certification Type Inspector Only

Certification Number 60 INSO 0712 3443

Issued To: Ian Pilling

Gender	Height	Weight	Date of Birth
Male	5 8	170	3/26/1973

#### Company

United Consulting

#### Address

625 Holcomb Bridge Road

City	State	Zip	Phone
Norcross	Georgia	30071	(770) 209-0029

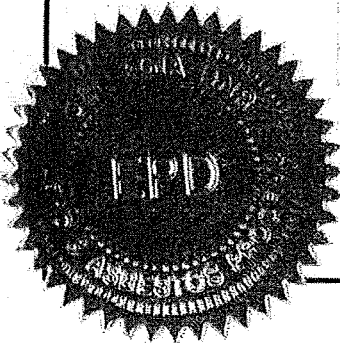
Certification Issue Date	Certification Expiration Date	Last Date Of Training
7/23/2012	7/2/2013	7/2/2012

This certificate confers all authorities granted by Georgia EPD Rules 391-3-24 and allows the above named individual to serve as a(n)

### Inspector Only

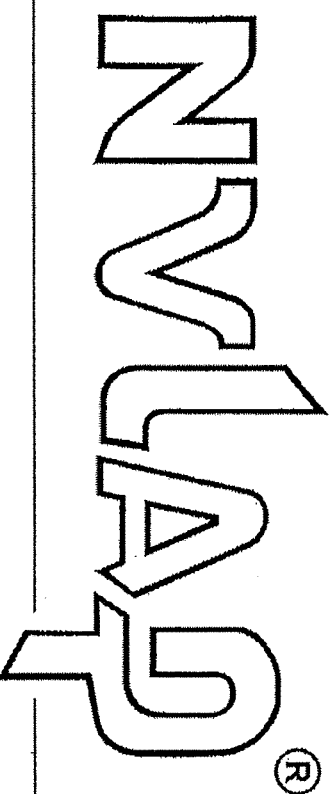
This certificate must be in your possession while conducting activities regulated by Georgia Rules 391-3-24. This certification is only valid for the performance of Georgia regulated lead-based paint activities and when employed by a Georgia Certified Lead-Based Paint Firm. A renewal application must be submitted at least thirty (30) days prior to the expiration date shown, and a refresher training course must be taken before the last date of training.

Issue Date	Expiration Date
7/23/2012	7/2/2013
Georgia Lead Firm License Number	
60 INSO	0712 296



*Mikdy Crum*  
 Mikdy Crum, Program Manager  
 Lead-Based Paint and Asbestos Program  
 (404) 363-7026  
 Issued By Allosie Larkins

United States Department of Commerce  
National Institute of Standards and Technology



---

**Certificate of Accreditation to ISO/IEC 17025:2005**

---

NVLAP LAB CODE: 102082-0

**Analytical Environmental Services, Inc.**  
Atlanta, GA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:

**BULK ASBESTOS FIBER ANALYSIS**

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2011-10-01 through 2012-09-30

Effective dates



For the National Institute of Standards and Technology

*Shelly S. Bucee*





**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005**

Analytical Environmental Services, Inc.  
3785 Presidential Parkway  
Atlanta, GA 30340  
Mr. Mehmet Yildirim  
Phone: 770-457-8177 Fax: 770-457-8188  
E-Mail: [my@aesatlanta.com](mailto:my@aesatlanta.com)  
URL: <http://www.aesatlanta.com>

**BULK ASBESTOS FIBER ANALYSIS (PLM)**

**NVLAP LAB CODE 102082-0**

<i>NVLAP Code</i>	<i>Designation / Description</i>
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

2011-10-01 through 2012-09-30

*Effective dates*

*Sally S. Bruce*  
For the National Institute of Standards and Technology

**APPENDIX C – LABORATORY RESULTS**

**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

3785 Presidential Pkwy., Atlanta, GA 30340-3704  
(770) 457-8177 / Toll Free (800) 972-4889 / Fax (770) 457-8188

1207H17

**CHAIN OF CUSTODY  
BULK ASBESTOS ANALYSIS**

Client Name: United Consulting Phone: (770) 410-8474  
 Address: 625 Holcomb Br Rd Fax: ( )  
 City, State, Zip: Norcross GA 30071 Project Name: Liddell Dr  
 Contact: Britt Bickerstaff Project Number: 202.3532.01  
 Sampler's Name: Britt Bickerstaff Sampling Date: 7/25/12

Sample ID	Sample Location/Description	Analysis Requested	Turnaround Time	Comments	For AES Use Only
1 A-1	M-Bld interior insulation	PLA	Next Day		
2 A-2	M-Bld interior insulation paper				
3 A-3	M-Bld interior insulation				
4 A-4	M-Bld interior insulation paper				
5 A-5	M-Bld exterior window caulk				
6 A-6	M-Bld ext window caulk				
7 A-7	M-Bld <del>ext</del> window glaze				
8 A-8	" "				
9 A-9	M-Bld Roof Penetration mastic				
10 A-10	C-Bld Black tar - Roof				
11 A-11	C-Bld - roof - layer 1 tar				
12 A-12	C-Bld - roof - layer 2 shingle				
13 A-13	C-Bld - roof - layer 3 - perlite				
14 A-14	C-Bld - roof vent pipe tar				
15 A-15	C-Bld - roof vent pipe tar				
16 A-16	C-Bld - roof - roll roofing w/ br				
17 A-17	C-Bld - felt paper - layer 2				
18 A-18	C-Bld - roof - perlite - layer 3				
19 A-19	C-Bld - roof paneling				
20 A-20	C-Bld - int. window glazing				

Relinquished by: Britt Bickerstaff Date/Time: 7/25/12 5:17 p  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**FOR LAB USE ONLY**

Lab Recipient: Lataje P Date/Time: 7/25/12 5:17pm Method of Shipment: Client

**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

3785 Presidential Pkwy., Atlanta, GA 30340-3704  
(770) 457-8177 / Toll Free (800) 972-4889 / Fax (770) 457-8188

**CHAIN OF CUSTODY  
BULK ASBESTOS ANALYSIS**

1207417

Client Name: United Consulting Phone: (678) 410-8477  
 Address: 625 Holcomb Br. Rd Fax: ( )  
 City, State, Zip: Norcross GA 30071 Project Name: Liddell Drive  
 Contact: Britt Bickens Project Number: 2012.3532.01  
 Sampler's Name: Britt Bickens Sampling Date: 7/25/12

	Sample ID	Sample Location/Description	Analysis Requested	Turnaround Time	Comments	For AES Use Only
1	A-21	C Bldg - Int. window glazing	PLM	next day		
2	A-22	C Bldg - Ext - roof panel				
3	A-23	C Bldg - Expansion joint caulking <sup>ext</sup>				
4	A-24	C Bldg - Ext window glazing				
5	A-25	C Bldg - Ext window glazing				
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Relinquished by: [Signature] Date/Time: 7/25/12 5:17 P  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**FOR LAB USE ONLY**

Lab Recipient: Catoye P Date/Time: 7/25/12 5:17pm Method of Shipment: Client



**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**  
**Bulk Sample Summary Report**



Lab ID# 102082-0

27-Jul-12

Client Name: <b>United Consulting Group Inc.</b>	AES Job Number: <b>1207H17</b>
Project Name: <b>Liddell Drive</b>	Project Number: <b>2012.3532.01</b>

Client ID	AES ID	Location	Asbestos Mineral Percentage						Comments
			CH	AM	CR	AN	TR	AC	
A-1 Layer: 1	1207H17-001A	M - Bld Interior Insulation	ND	ND	ND	ND	ND	ND	
A-2 Layer: 1	1207H17-002A	M - Bld Insulation Paper	ND	ND	ND	ND	ND	ND	
A-2 Layer: 2	1207H17-002A	M - Bld Insulation Paper	ND	ND	ND	ND	ND	ND	
A-3 Layer: 1	1207H17-003A	M - Bld Interior Insulation	ND	ND	ND	ND	ND	ND	
A-4 Layer: 1	1207H17-004A	M - Bld Interior Insulation Paper	ND	ND	ND	ND	ND	ND	
A-4 Layer: 2	1207H17-004A	M - Bld Interior Insulation Paper	ND	ND	ND	ND	ND	ND	
A-5 Layer: 1	1207H17-005A	M Bld Exterior Window Caulk	ND	ND	ND	ND	ND	ND	

Note: CH=chrysotile, AM=amosite, CR=crocidolite, AC=actinolite, TR=tremolite, AN=anthophyllite

For comments on the samples, see the individual analysis sheets.

ND = None Detected

PLM is not consistently reliable in detecting small concentrations of asbestos in floor tiles and similar nonfriable materials. Quantitative TEM is currently the only method that can be used to determine the conclusive asbestos content.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory ID 102082-0. All percentages given are by visually estimated volume. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full without the approval of Analytical Environmental Service, Inc. These test results apply only to the samples actually tested.

Microanalyst:

Vira Ruiz

QC Analyst:

Yelena Khanina



**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**  
**Bulk Sample Summary Report**



Lab ID# 102082-0

27-Jul-12

Client Name:	United Consulting Group Inc.	AES Job Number:	1207H17
Project Name:	Liddell Drive	Project Number:	2012.3532.01

Client ID	AES ID	Location	Asbestos Mineral Percentage						Comments
			CH	AM	CR	AN	TR	AC	
A-6 Layer: 1	1207H17-006A	M Bld Ext Window Caulk	ND	ND	ND	ND	ND	ND	
A-7 Layer: 1	1207H17-007A	M Bld Window Glaze	2	ND	ND	ND	ND	ND	
A-8 Layer: 1	1207H17-008A	M Bld Window Glaze	2	ND	ND	ND	ND	ND	
A-9 Layer: 1	1207H17-009A	M Bld Roof Penetration Mastic	15	ND	ND	ND	ND	ND	
A-10 Layer: 1	1207H17-010A	C Bld Black Tar - Roof	ND	ND	ND	ND	ND	ND	
A-10 Layer: 2	1207H17-010A	C Bld Black Tar - Roof	ND	ND	ND	ND	ND	ND	
A-10 Layer: 3	1207H17-010A	C Bld Black Tar - Roof	ND	ND	ND	ND	ND	ND	

Note: CH=chrysotile, AM=amosite, CR=crocidolite, AC=actinolite, TR=tremolite, AN=anthophyllite

For comments on the samples, see the individual analysis sheets.

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Microanalyst:   
 Vira Ruiz

QC Analyst:   
 Yelena Khanina



**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**  
**Bulk Sample Summary Report**



Lab ID# 102082-0

27-Jul-12

Client Name: <b>United Consulting Group Inc.</b>	AES Job Number: <b>1207H17</b>
Project Name: <b>Liddell Drive</b>	Project Number: <b>2012.3532.01</b>

Client ID	AES ID	Location	Asbestos Mineral Percentage						Comments
			CH	AM	CR	AN	TR	AC	
A-11 Layer: 1	1207H17-011A	C Bld - Roof - Layer 1 Tar	ND	ND	ND	ND	ND	ND	
A-11 Layer: 2	1207H17-011A	C Bld - Roof - Layer 1 Tar	ND	ND	ND	ND	ND	ND	
A-12 Layer: 1	1207H17-012A	C Bld - Roof - Layer 2 Shingle	ND	ND	ND	ND	ND	ND	
A-12 Layer: 2	1207H17-012A	C Bld - Roof - Layer 2 Shingle	ND	ND	ND	ND	ND	ND	
A-13 Layer: 1	1207H17-013A	C Bld - Roof - Layer 3 Perlite	ND	ND	ND	ND	ND	ND	
A-14 Layer: 1	1207H17-014A	C Bld - Roof - Vent 1 Pipe Tar	ND	ND	ND	ND	ND	ND	
A-14 Layer: 2	1207H17-014A	C Bld - Roof - Vent 1 Pipe Tar	20	ND	ND	ND	ND	ND	

Note: CH=chrysotile, AM=amosite, CR=crocidolite, AC=actinolite, TR=tremolite, AN=anthophyllite

For comments on the samples, see the individual analysis sheets.

ND= None Detected

PLM is not consistently reliable in detecting small concentrations of asbestos in floor tiles and similar nonfriable materials. Quantitative TEM is currently the only method that can be used to determine the conclusive asbestos content.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory ID 102082-0. All percentages given are by visually estimated volume. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full without the approval of Analytical Environmental Service, Inc. These test results apply only to the samples actually tested.

Microanalyst:

Vira Ruiz

QC Analyst:

Yelena Khanina



**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

**Bulk Sample Summary Report**



Lab ID# 102082-0

27-Jul-12

Client Name: <b>United Consulting Group Inc.</b>	AES Job Number: <b>1207H17</b>
Project Name: <b>Liddell Drive</b>	Project Number: <b>2012.3532.01</b>

Client ID	AES ID	Location	Asbestos Mineral Percentage						Comments
			CH	AM	CR	AN	TR	AC	
A-15 Layer: 1	1207H17-015A	C Bld - Roof - Vent 2 Pipe Tar	20	ND	ND	ND	ND	ND	
A-16 Layer: 1	1207H17-016A	C Bld - Roof - Roll Roofing w / Tar	ND	ND	ND	ND	ND	ND	
A-16 Layer: 2	1207H17-016A	C Bld - Roof - Roll Roofing w / Tar	ND	ND	ND	ND	ND	ND	
A-17 Layer: 1	1207H17-017A	C Bld - Felt Paper - Layer 2	ND	ND	ND	ND	ND	ND	
A-18 Layer: 1	1207H17-018A	C Bld - Felt Paper - Layer3	ND	ND	ND	ND	ND	ND	
A-19 Layer: 1	1207H17-019A	C Bld - Roof Paneling	20	ND	ND	ND	ND	ND	
A-20 Layer: 1	1207H17-020A	C Bld - Int. Window Glazing	2	ND	ND	ND	ND	ND	Paint included as binder

Note: CH=chrysotile, AM=amosite, CR=crocidolite, AC=actinolite, TR=tremolite, AN=anthophyllite

For comments on the samples, see the individual analysis sheets.

ND = None Detected

PLM is not consistently reliable in detecting small concentrations of asbestos in floor tiles and similar nonfriable materials. Quantitative TEM is currently the only method that can be used to determine the conclusive asbestos content.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory ID 102082-0. All percentages given are by visually estimated volume. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full without the approval of Analytical Environmental Service, Inc. These test results apply only to the samples actually tested.

Microanalyst:

Vira Ruiz

QC Analyst:

Yelena Khanina





**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**  
**Bulk Sample Summary Report**



Lab ID# 102082-0

27-Jul-12

Client Name: <b>United Consulting Group Inc.</b>	AES Job Number: <b>1207H17</b>
Project Name: <b>Liddell Drive</b>	Project Number: <b>2012.3532.01</b>

Client ID	AES ID	Location	Asbestos Mineral Percentage						Comments
			CH	AM	CR	AN	TR	AC	
A-21 Layer: 1	1207H17-021A	C Bld - Int. Window Glazing	2	ND	ND	ND	ND	ND	Paint included as binder
A-22 Layer: 1	1207H17-022A	C Bld - Int. Roof Panel	20	ND	ND	ND	ND	ND	
A-23 Layer: 1	1207H17-023A	C Bld - Expansion Joint Caulk Ext	15	ND	ND	ND	ND	ND	Paint included as binder
A-24 Layer: 1	1207H17-024A	C Bld - Ext Window Glazing	15	ND	ND	ND	ND	ND	Paint included as binder
A-25 Layer: 1	1207H17-025A	C Bld - Ext Window Glazing	15	ND	ND	ND	ND	ND	Paint included as binder

Note: CH=chrysotile, AM=amosite, CR=crocidolite, AC=actinolite, TR=tremolite, AN=anthophyllite

For comments on the samples, see the individual analysis sheets.

ND = None Detected

PLM is not consistently reliable in detecting small concentrations of asbestos in floor tiles and similar nonfriable materials. Quantitative TEM is currently the only method that can be used to determine the conclusive asbestos content.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory ID 102082-0. All percentages given are by visually estimated volume. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full without the approval of Analytical Environmental Service, Inc. These test results apply only to the samples actually tested.

Microanalyst:

Vira Ruiz

QC Analyst:

Yelena Khanina



**AES**

**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

July 28, 2012

Ian Pilling  
United Consulting Group Inc.  
625 Holcomb Bridge Rd  
Norcross GA 30071

TEL: (770) 582-2788

FAX: (770) 582-2900

RE: Liddell Drive Equalization Project

Dear Ian Pilling:

Order No: 1207H65

Analytical Environmental Services, Inc. received 6 samples on July 26, 2012 9:10 am for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/12-06/30/13.

-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/13.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Kathryn Waters  
Project Manager



**ANALYTICAL ENVIRONMENTAL SERVICES, INC**  
 3785 Presidential Parkway, Atlanta GA 30340-3704  
**AES** TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

**CHAIN OF CUSTODY**

Work Order: 1207H05

Date: 7/24/12 Page 1 of 1

<b>COMPANY:</b> United Consulting 625 Holcomb Bridge Atlanta, GA 30328 PHONE: (770) 582-2816 FAX: [Signature] SAMPLED BY: Jan Pilling SIGNATURE: [Signature]		<b>ADDRESS:</b> 625 Holcomb Bridge Atlanta, GA 30328					
<b>ANALYSIS REQUESTED</b> Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.		<b>REMARKS</b> [Blank]					
<b>PRESERVATION (See codes)</b> [Blank]		<b>No # of Containers</b> [Blank]					
#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)	REMARKS
1	L-1	7/24/12	11:00			Water	XXXXXX
2	L-2						
3	L-3						
4	L-4						
5	L-5						
6	L-6						
7							
8							
9							
10							
11							
12							
13							
14							

**RELINQUISHED BY:**  
 1: [Signature] 7/24/12 3:55 PM  
 2: [Signature] 7/26/12 9:10 AM  
 3: [Signature] 7/26/12 9:10 AM

**DATE/TIME RECEIVED BY:**  
 1: [Signature] 7/24/12 3:55 PM  
 2: [Signature] 7/26/12 9:10 AM  
 3: [Signature] 7/26/12 9:10 AM

**DATE/TIME**

**SHIPMENT METHOD:**  
 OUT: [ ] VIA: [ ]  
 IN: [ ] VIA: [ ]  
 CLIENT: [ ] FedEx UPS MAIL COURIER  
 GREYHOUND OTHER

**SPECIAL INSTRUCTIONS/COMMENTS:**  
 [Blank]

**PROJECT INFORMATION:**  
 PROJECT NAME: Liedell Ave  
 PROJECT #: 2012.3532.01  
 SITE ADDRESS: [Blank]  
 SEND REPORT TO: Jan Pilling  
 INVOICE TO: [Blank]  
 (IF DIFFERENT FROM ABOVE)  
 QUOTE #: [Blank] PO#: [Blank]

**RECEIPT**  
 Total # of Containers: [Blank]  
 Turnaround Time Request:  
 Standard 5 Business Days  
 2 Business Day Rush  
 Next Business Day Rush  
 Same Day Rush (auth req)  
 Other

STATE PROGRAM (if any):  
 Membership Y/N: [ ] Fax? Y/N [ ]  
 DATA PACKAGE: I II III IV

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.  
 MATRIX CODES: A = Air GW = Groundwater S2 = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WWT = Waste Water  
 PRESERVATIVE CODES: H+1 = Hydrochloric acid + ice I = Ice only N = Nitric acid S+1 = Sulfuric acid + ice SM+1 = Sodium Bisulfate/Methanol + Ice O = Other (specify) NA = None

White Copy - Original, Yellow Copy - Client

Lab Order:	1207H65	<b>TOTAL LEAD IN PAINT (N7082)</b> <b>PAINT</b>
Client:	United Consulting Group Inc.	
Project:	Liddell Drive Equalization Project	
Matrix:	Paint	
Date Received:	7/26/2012 9:10:00 AM	

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1207H65-001A	L-1	1.36	wt%	0.197	20.2		07/24/2012	07/27/2012	MW
1207H65-002A	L-2	0.110	wt%	0.00914	1		07/24/2012	07/27/2012	MW
1207H65-003A	L-3	1.30	wt%	0.150	16.09		07/24/2012	07/27/2012	MW
1207H65-004A	L-4	0.180	wt%	0.00977	1		07/24/2012	07/27/2012	MW
1207H65-005A	L-5	0.0753	wt%	0.00954	1		07/24/2012	07/27/2012	MW
1207H65-006A	L-6	15.4	wt%	0.918	100		07/24/2012	07/27/2012	MW

Qualifiers: BRL - Not Detected at the Reporting Limit

DF - Dilution Factor

B - Analyte detected in the associated Method Blank

Results are blank corrected where applicable

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client United Consulting

Work Order Number 1207465

Checklist completed by Catay P Signature Date 7/26/12

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping containers/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? <sup>CP 7/26/12</sup> Yes  No  ~~(±2)\*~~

Cooler #1 Ambient Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by \_\_\_\_\_

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.

**Analytical Environmental Services, Inc**

Date: 28-Jul-12

Client: United Consulting Group Inc.  
 Project: Liddell Drive Equalization Project  
 Lab Order: 1207H65

**Dates Report**

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1207H65-001A	L-1	7/24/2012 12:00:00AM	Paint	TOTAL LEAD IN PAINT (N7082)		07/26/2012	07/27/2012
1207H65-002A	L-2	7/24/2012 12:00:00AM	Paint	TOTAL LEAD IN PAINT (N7082)		07/26/2012	07/27/2012
1207H65-003A	L-3	7/24/2012 12:00:00AM	Paint	TOTAL LEAD IN PAINT (N7082)		07/26/2012	07/27/2012
1207H65-004A	L-4	7/24/2012 12:00:00AM	Paint	TOTAL LEAD IN PAINT (N7082)		07/26/2012	07/27/2012
1207H65-005A	L-5	7/24/2012 12:00:00AM	Paint	TOTAL LEAD IN PAINT (N7082)		07/26/2012	07/27/2012
1207H65-006A	L-6	7/24/2012 12:00:00AM	Paint	TOTAL LEAD IN PAINT (N7082)		07/26/2012	07/27/2012

Analytical Environmental Services, Inc

Date: 28-Jul-12

Client: United Consulting Group Inc.  
 Project Name: Liddell Drive Equalization Project  
 Workorder: 1207H65

ANALYTICAL QC SUMMARY REPORT

BatchID: 164355

Sample ID: MB-164355	Client ID:	Units: wt%	Prep Date: 07/26/2012	Run No: 225829
Sample Type: MBLK	TestCode: TOTAL LEAD IN PAINT (N7082)	BatchID: 164355	Analysis Date: 07/26/2012	Seq No: 4727105
Analyte	Result	%REC	Low Limit	High Limit
Lead	BRL	0	0	0
			SPK Ref Val	%RPD
			0	0
			RPT Limit	RPD Limit
			0.0100	0

Sample ID: LCS-164355	Client ID:	Units: wt%	Prep Date: 07/26/2012	Run No: 225829
Sample Type: LCS	TestCode: TOTAL LEAD IN PAINT (N7082)	BatchID: 164355	Analysis Date: 07/26/2012	Seq No: 4727108
Analyte	Result	%REC	Low Limit	High Limit
Lead	0.6287	84.7	80	120
			SPK Ref Val	%RPD
			0.001670	0
			RPT Limit	RPD Limit
			0.116	0

Sample ID: 1207H63-002AMS	Client ID:	Units: ppm	Prep Date: 07/26/2012	Run No: 225829
Sample Type: MS	TestCode: TOTAL LEAD IN PAINT (N7082)	BatchID: 164355	Analysis Date: 07/26/2012	Seq No: 4727115
Analyte	Result	%REC	Low Limit	High Limit
Lead	3849	83.5	75	125
			SPK Ref Val	%RPD
			31.53	0
			RPT Limit	RPD Limit
			91.5	0

Sample ID: 1207H63-002AMSD	Client ID:	Units: ppm	Prep Date: 07/26/2012	Run No: 225829
Sample Type: MSD	TestCode: TOTAL LEAD IN PAINT (N7082)	BatchID: 164355	Analysis Date: 07/26/2012	Seq No: 4727118
Analyte	Result	%REC	Low Limit	High Limit
Lead	3984	84.3	75	125
			SPK Ref Val	%RPD
			31.53	3.43
			RPT Limit	RPD Limit
			93.8	25

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

