ADDENDUM NO. 1:

Date:	December 5, 2016
Project:	Alberta Park
Owner:	The City of Tuscaloosa
Owner's Project Number:	A16-1050
Architect:	Ward Scott Architecture, Inc.

This Addendum forms a part of the Contract Documents and modifies the original Bid Documents dated 9/15/16, as noted below.

Acknowledge receipt of this Addendum in the location provided on the Bid Proposal Form.

1.1 GENERAL

A. The Bid Date for this project has been changed. The New Bid Date, Time, and Location are as follows:
   Thursday, December 15, 2016, 2:00 P.M.
   City of Tuscaloosa City Hall Council Chambers
   2201 University Boulevard, Tuscaloosa, Alabama 35401

B. Funding for this project includes Federal Funding and Davis-Bacon Requirements apply. Refer to wage rates included in front end documents.

C. Refer to attached Pre-Bid Conference Minutes and Sign-In Sheet for responses to questions at Pre-Bid Conference.

D. The following fountain installer names have been provided by the fountain designer. This list is informational only and in no way all-encompassing. It shall not be construed as an endorsement of the installers nor a prequalification list.

Burleson Pool Co.	Hampton Cove, AL	www.burlesonmasterpools.com
Sunbelt Pools of Georgia	Atlanta, GA	www.sunbeltpoolsofgeorgia.com
Waterworks Atlanta, Inc.	Roswell, GA	www.waterworksatl.com

1.2 SPECIFICATIONS

A. Insert the attached geotechnical report in the Project Manual.

1.3 DRAWINGS

A. Replace sheets XF300 XF301, XF330, XX100, and XX101 with the attached revised sheets.

1.4 ATTACHED TO ADDENDUM

A. Pre-bid Conference Agenda and Sign-in Sheet.
B. Geotechnical Report
C. Revised sheets XF300 XF301, XF330, XX100, and XX101.

END OF ADDENDUM

Pre-Bid Conference Check List (Lump Sum Contract)

1.1 GENERAL

A. Welcome (and silence radios/cell phones)
B. Pre-bid conference is mandatory; Sign-in Sheet for communication of addenda
C. Project Location: Alberta Park, 2700 University Boulevard East, Tuscaloosa, Alabama
D. Introduce Owner, Architect, and affiliation of key personnel
E. General Lump Sum Contract project
F. Project funding **carries federal requirements as described in front end documents including Davis-Bacon Wage Rates.**
G. Electronic communication is required; provide primary contact for firm on sign-in sheet or when picking up drawings.

1.2 SUMMARY

A. Primary scope involves construction of Park site improvements, fountain, and pump building.
B. Contract documents (drawings, project manual, addenda via electronic distribution)
C. Sets of plans available at TuscaBlue and at Ward Scott Architecture Office.

1.3 RECEIPT OF BIDS

A. MBE/WBE/DBE Forms 1 and 2 due today. Copies available for completion. Must be turned in before leaving.
B. Sealed proposals will be received by the City of Tuscaloosa, until **2:00 p.m**., legally prevailing time, **Thursday, December 8, 2016,** in the **Council Chambers** of **Tuscaloosa City Hall,** 2201 University Boulevard, Tuscaloosa, AL 35401. Submit one copy proposal form, MBE/DBE/WBE Forms 3 and 4
C. Proposal envelope must have state license number on outside.
D. Must include Estimated Sales Tax amount on form.
E. Acknowledge all Addenda
F. Bid Bond with Power of Attorney or Bid Deposit is required.

1.4 CONTRACTUAL REQUIREMENTS

A. Payment and labor/material bonds will be required
B. This is a tax exempt project, and bidders must **exclude** taxes from their bid. The contractor will be required to obtain a Certificate of Exemption from the Alabama Department of Revenue utilizing ADOR Form STC-EX01. Form included in front end documents.
C. Required permits and licenses by Contractor
    1. Building permit required; no cost associated
    2. City Business License required
D. Builder's Risk Insurance is by Contractor
E. Costs for materials testing are by Owner, Costs of retesting, if required, are by contractor
F. Liquidated damages. Amount: $500 per Day
G. Alternates:
    1. Site Improvements at University Boulevard
H. Present project schedule and required phasing:
    1. Bid Date: December 8, 2016
    2. Completion Date: 120 Days from notice to proceed

1.5 SITE CONDITIONS

A. Access for construction operations; procedures for work around adjacent operations.
B. Construction limits are defined within the Construction Documents – Sheet C1.3
C. Job site offices – As Needed
D. Superintendent required on site at all times when work is being performed
    1. On-site radio or cell phone communications required
E. Security at site is contractor's responsibility
F. Job Safety and Cleanup is contractor's responsibility
G. Parking shall be on the North side of the site along 8th Street East. Parking is not allowed in the East Precinct / Gateway Lot.

1.6 MISCELLANEOUS

A. Services provided by Owner
   1. Coordinate all utility shutdowns with Owner
B. Project comments from Architect
   1. Must turn in all MBE/DBE/WBE forms 1 and 2 today to be allowed to bid.
C. Project comments from Owner

1.7 QUESTIONS FROM BIDDERS

A. Is the geotechnical information available? Will be released by addendum.

WARD SCOTT ARCHITECTURE

2715 7th Street
Tuscaloosa, Alabama 35401
T: 205.345.6110
F: 205.345.6696

SIGN-IN SHEET

DATE: November 30, 2016 TIME: 10:00 A.M. LOCATION: City of Tuscaloosa Narashino Room	PROJECT: Alberta Park Project

Name	Company	Phone No.	Email
Kimberly McMurray	Ward Scott Architecture	205.345.6110	kmcmurray@ward-scott.com
Jordan Morris	Ward Scott Architecture	205.345.6110	jordan@ward-scott.com
Brittany Roper	Ward Scott Architecture	205.345.6110	broper@ward-scott.com
Terry Smith	Smitty's Cleaning	(205)239-5684	Smith.terry568@yahoo.com
JEREMY PIKE	L+D Moore Contractors	462-3168	jeremypike9@gmail.com
Grant Wilson	City		
JUSTIN HULT	HALL-TAYLOR	758-8265	JUSTINHTCC@COMCAST.NET
Shay Eaves	Bill Lunsford Const.	758-3232	ron@billlunsford.com
Carol Drake	City of Tusc	248-5720	cdrake@tuscaloosa.com
Mike Williams	ETS	205-330-7994	MWILLIAMS@energytechsvc.com
Megan Nickles	WAR Construction	205-758-4723	mnickles@warconstruction.com ajackson@warconstruction.com
CHRIS RAINES	KYSER CONSTRUCTION	205-366-3530	ckyser@kyser-construction.com
Mike Powell	Psalms Const.	205-758-4561	psalmsinc.a Yahoo.com
SCOTT ANDERSON	KANDA BLDRS	205 349 3126	SCOTT@KANDABUILDERS.COM
BRIAN WRIGHT	NC Morgan Const	205-553-7720	bwright@ncmorganconstruction.com
Kenneth Coston	Coston General Contra	205-491-1246	KCOSTON@COSTONGC.com
TIM LEWIS	TACA Professional SVC	205-366-3406	TLEWIS@TACApro.com

Chris Casey	COT	248-5386	ccasey@Tuscaloosa.com

GEOTECHNICAL REPORT

Alberta Technology Public Library

Tuscaloosa, Tuscaloosa County, Alabama

submitted to

Ward Scott Architecture

TTL Project No. 100114083

September 22, 2014

TTL

geotechnical · analytical · materials · environmental

3516 Greensboro Avenue (35401) ■ P.O. Drawer 1128 (35403) ■ Tuscaloosa, Alabama ■ Telephone 205.345.0816 ■ Fax 205.345.0992

3516 Greensboro Avenue
Tuscaloosa, AL 35401
205.345.0816
www.ttlusa.com

September 22, 2014

Ward Scott Architecture
Attn: Kimberly McMurray
2715 Seventh Street
Tuscaloosa, AL 35401

RE: ***Geotechnical Report***
Alberta Technology Public Library
Tuscaloosa, Tuscaloosa County, Alabama
TTL Project No. 100114083

Dear Mrs. McMurray:

TTL, Inc. (TTL) has completed the requested geotechnical report for the proposed Alberta Technology Library located in Tuscaloosa, Tuscaloosa County, Alabama. Services performed as part of this exploration included:

1. Visual observation of the proposed site and review of available subsurface data.
2. Sampling and testing of subsurface strata to evaluate the potential foundation and roadway bearing material.
3. Preparation of foundation and earthwork recommendations for the proposed construction.

The scope of this geotechnical exploration did not include environmental assessment of the site.

We at TTL appreciate the opportunity to provide you with geotechnical services for this project. If you need further information or if you require additional geotechnical services, please contact us at 205.345.0816.

Sincerely,

TTL, Inc.

Kasey Mauney, E.I.
Staff Professional

ALABAMA LICENSED PROFESSIONAL NO. 13182 ENGINEER OSCAR M. GAY

Oscar M. Gay, P.E.
Principal Engineer

9/22/2014

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1.0 INTRODUCTION

TTL, Inc. (TTL) is pleased to submit this report presenting the results of our geotechnical exploration for the subject project. The purpose of this report is to provide earthwork and foundation recommendations to support the proposed building. Our scope of services was outlined in TTL Proposal No. P01114084. We have prepared this report, and based our recommendations on the assumptions and available criteria stated in the following paragraph. If any of this information is incorrect or changes as the project moves forward, we should be given the opportunity to review the new information and modify our recommendations, if appropriate.

2.0 PROJECT INFORMATION

This report presents the geotechnical data obtained from a subsurface exploration conducted by TTL at the proposed Alberta Technology Public Library in Tuscaloosa, Alabama. Construction will consist of a single story, 6,000-square foot building located in the Alberta community in Tuscaloosa, Alabama.

Structural loads were not readily available at the time of this proposal, but are expected to be light. It is our understanding that less than 3 feet of cut or fill will be required to reach finished subgrade elevation.

A Site Location Map illustrating the location of the site is provided in Appendix A of this report. The project site layout is illustrated on the Boring Location Schematic in Appendix A.

3.0 EXPLORATION FINDINGS

3.1 Site Conditions

The site is located on University Boulevard East in the existing asphalt parking lot, west of the previous Alberta School Park and east of the newly constructed Police Station. The site is currently used by the Tuscaloosa Police Department East Precinct as an additional parking area.

3.2 Regional Geology

Tuscaloosa is situated near the approximate contact of the Cumberland Plateau section of the Appalachian Plateau and the East Gulf Coastal Plain section of the Gulf Coastal Plain physiographic province. The plateau region in this part of Alabama is identified more specifically as the Black

Warrior Basin, a structural depression covering a 15-county area in northwest Alabama and north-east Mississippi. Rocks in the basin are Pennsylvanian in age and consist of shales, sandstones, conglomerates, and coal seams. Surface weathering of these strata, assigned to the Pottsville Formation, produces residual soils consisting of clays, silts and sands. Depending on site location, the bedrock and residual soils may be covered by marine sediments of the Gulf Coastal Plain. The marine sediments are typically comprised of clays, silts, sands, or gravels. Because of the relatively complex depositional environment, these sediments can be subject to abrupt changes in composition and consistency both vertically and horizontally.

3.3 Subsurface Conditions

On August 29, 2014, four soil auger borings were drilled within the proposed footprint of the Alberta Technology Public Library building as shown on the Boring Location Schematic included in this report. The borings were field-located by TTL personnel using hand-held GPS equipment. The borings were extended to 16 feet in depth below ground surface (bgs).

The borings initially encountered about 4-inches of asphalt underlain by about 12 to 14 feet of firm to very stiff sandy lean clay. Underlying the clay material, the borings encountered firm clayey sand to boring termination depths. Note, Boring No. 083-01 encountered sandy silt material from approximately 3 to 6 feet bgs. In general, the borings indicated native soils capable of providing sufficient bearing capacity for the proposed structure; however, the soils at the footing bearing surfaces should be assessed further during construction to determine if localized undercutting will be necessary.

The boring logs presenting the soil layer descriptions, classifications, types of sampling used, and additional field notes are presented in Appendix B.

3.4 Subsurface Water

The borings were dry-augered to termination depths in an attempt to observe for the presence of subsurface water. Subsurface water was not encountered in the borings at the time of our drilling operations. The boreholes were backfilled with the auger cuttings prior to demobilization from the site.

The absence of free water should not necessarily be construed that the subsurface water level is deeper than the boring depths. The short-term field observations simply do not permit an accurate evaluation of the subsurface water level. Subsurface water levels are influenced by seasonal and

climatic conditions. Perched water may be encountered at higher elevations during periods of inclement weather. The foundation contractor should check the subsurface water conditions just prior to foundation excavation activities. Specific information concerning subsurface water is noted on each boring log presented in Appendix B of this report.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Geotechnical Considerations

Based on the planned construction and subsurface conditions encountered on the site, the following items need to be considered during the design and development of this project:

- Shallow foundations placed on properly compacted structural fill or firm native soils may be designed for a net allowable bearing pressure up to 2,500 psf. It is possible that some localized undercutting may be required to remove soft soils beneath foundations.

These considerations are addressed in the following sections of this report.

4.2 Site Preparation

We recommend the site be stripped of all asphalt, vegetation, topsoil and any other unsuitable materials. Stripping operations should extend at least 10 feet beyond the limits of the proposed construction area where possible.

The stability of the existing subgrade soil exposed after stripping should be assessed by proofrolling. The proofrolling should be performed by having a loaded dump truck slowly progress across the site in a series of overlapping passes. Areas that rut or pump under the proofrolling load should be treated as recommended by TTL personnel present during the proofrolling process.

The top 6 or 8 inches of the in-place subgrade in structural areas should be scarified and compacted to at least 98 percent of the Standard Proctor maximum dry density prior to any fill placement or other construction. The undercut soil should be replaced with structural fill as outlined in Section 4.3 of this report. Material containing organics, topsoil or debris will need to be removed from the construction site to prevent its incorporation into select fill.

It will be important for the contractor to maintain the construction site in a positively drained condition both during and after construction. Water should not be allowed to pond on site. Ponding

water can lead to deterioration of the subgrade surface necessitating over-excavation of the softened soil to reduce the potential for settlement of foundations. Project specifications should clearly detail the contractor's responsibility to notify the designers and the geotechnical engineer if conditions are encountered in the field that would require remedial treatment or which could affect the integrity of the site or the proposed building foundations.

4.3 Structural Fill

4.3.1 Primary Grading Operations

Soil identified to be used as fill should consist of clayey sands, clayey gravels or sandy clays classified as SC, GC or CL, based on the Unified Soil Classification System (USCS), having a plasticity index between 8 and 25. The soil should contain less than 3 percent organics by weight and should be free of large roots and debris.

If site preparation operations are not continuous from start to finish or a long period of inclement weather interrupts site preparation after the site has been proofrolled, the surface receiving fill should be scarified to a depth of 6 inches and re-compacted before placement of the fill is started. Fill material should be placed in horizontal lifts not exceeding 8 inches in loose measure and compacted to the recommended density. No material should be placed on surfaces that are muddy, frozen, or that contain frost.

Compaction may be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers or other equipment suited to the soil being compacted. Materials should be moistened or aerated, as necessary, to provide a moisture content that will facilitate obtaining the recommended compaction. Water content should be maintained between ±3 percent of optimum and the fill material compacted to at least 98 percent of the soil's maximum dry density, as determined by ASTM D 698.

4.3.2 Backfilling of Utility Trenches

Typically the bedding and initial backfill around buried utilities are designed to support and protect the piping. The material above this initial backfill (which we call secondary backfill) also helps protect the piping and to support the overlying slab and/or pavement. Inadequate compaction of this material can lead to excessive settlement of the backfill and premature distress. Therefore, we recommend the following:

- Whenever possible, trench and install utilities prior to other work (such as, before foundations or base placement in driveways).
- Place, moisture-condition and compact the secondary backfill in accordance with the applicable project requirements. For instance, in the building pad area, the secondary backfill should be a compacted washed gravel, flowable fill or the same structural fill under the building floor slab and meet the compaction requirements for structural fill.

In deeper excavations (greater than 5 feet), the use of flowable fill should be considered as backfill. When properly designed, this material can be excavated easily at a later date if required. While the material costs may be higher than other backfill soils, the use of flowable fill is usually quicker, requires no compaction and no testing when used for this purpose. General criteria for flowable fill can be found in ACI 229 R.

Backfilling of utility ditches should meet the minimum compaction recommendations outlined in the Structural Fill section of this report. Utility trenches and temporary excavations should be inclined in accordance with OSHA safety standards. Regardless, it is the responsibility of the contractor to provide a safe excavation, and we assume no responsibility for jobsite safety.

4.4 Foundation Recommendations

At the time of this report, no structural loading information was available; however, we anticipate relatively light loading. If the final design loads exceed 75 kips per column location and 3 kips per linear foot for wall loads, the site preparation and foundation recommendations in this report may not be valid and TTL will need to reevaluate the data to make appropriate recommendations.

If the site is prepared according to the recommendations presented above, the structural loads and floor slab can be supported on a conventional shallow foundation system bearing on firm to stiff native soils or compacted structural fill based on a net allowable bearing pressure of 2,500 psf. In order to protect the near grade foundation soils from changes in moisture, we recommend footings bear at least 24 inches below exterior finished grade. Continuous strip footings and individual column footings should be a minimum of 18 inches wide and 24 inches wide, respectively. Completion of site preparation operations as recommended in this report is essential to achieve the allowable bearing capacity. The configuration of the foundation system, including reinforcement, is the responsibility of the structural consultant.

4.4.1 Shallow Foundation Excavations

After site preparation is complete and the foundation elements have been excavated, TTL's geotechnical engineer or his designated representative should assess the condition of the bearing surfaces. Penetrometer tests should be performed in the shallow foundation excavations and footing trenches prior to the placement of steel and concrete. Localized soft zones, if encountered, should be excavated and the resulting excavation backfilled with compacted structural fill or flowable fill. During construction, care should be taken to avoid having water collect on the site. While foundation excavations are open, protective measures should be instituted to help protect the bearing surface from wet weather. The saturation of clayey or silty soils at the footing bearing level can reduce their strength and load carrying ability. Footing excavations should not be left exposed for long periods of time. If a delay in placement of structural concrete is expected, a 2- to 3-inch lean concrete "mud mat" may be placed in the foundation excavations. Before "mud mat" or structural concrete placement, it is recommended that the exposed soils in the footing bottoms be retamped with an appropriate compactor to densify any loosened material at the bearing level. Extraneous soil or other loose material should be removed from the "mud mat" surface prior to placement of the structural concrete.

4.4.2 Floor Slab Subgrade

The integrity of the subgrade soils across the site may be adversely affected by weather conditions and/or construction traffic if there is a delay in the start of construction after grading operations have been completed. The soils in the building pad area should meet the recommendations provided in this report immediately prior to the construction of the foundations and floor slabs. Floor slabs on grade should be placed on a uniform blanket (minimum of 4 inches) of crushed stone to provide drainage and stability. A modulus of subgrade reaction, k, of 100 pci may be used for design of soil-supported slabs and concrete pavements. The modulus value may be increased to 125 pci and 150 pci with the placement of at least 6 inches and 8 inches, respectively, of compacted stone beneath slabs. These values are based on a 1-foot square bearing area and have not been modified for foundation width or length. We recommend the use of a dense-graded base material for subfloor fill such as ALDOT 8910 stone, ALDOT 825 Type A or equivalent.

The condition of slab subgrade soils should be evaluated for compliance with the material and compaction requirements in the site preparation section of this report prior to placing the aggregate layer. To minimize excessive settlement or cracking, the floor slabs need to be founded on properly

compacted native soils or structural fill. Floor slabs supported by fill material containing organics, debris or soft saturated zones will result in structural damage.

4.5 Site Drainage

The performance of soil-supported slab foundation systems will not only be dependent upon the quality of construction but also upon the stability of the moisture content of the soils beneath the building. We recommend that site drainage be developed so ponding of surface runoff near the structure or on pavements does not occur during or after construction. Accumulations of water near the structure foundations may cause significant moisture variations in the near surface moisture sensitive soils adjacent to the foundations, thus decreasing their strength. These foundation movements, depending on the magnitude of soil deterioration, can lead to significant distress to the structure foundation, floor slab, framing and cosmetic finishes.

When establishing the final grade around the structure, we recommend the following be considered:

- Elevation of the ground surface adjacent to the foundation should be at least 6 inches below the finished floor elevation (FFE).
- The slope of the ground surface away from the structure should be a minimum of 5 percent for a distance of at least 10 feet.
- Gutter downspouts should extend at least 5 feet from the face of the pavilion or tie into a storm water drainage system.

4.6 Landscaping

We realize landscaping is vital to the aesthetics of any project. The owner and design team should be made aware that placing large bushes and trees adjacent to the structure may contribute to future distress of the foundation system. Vegetation placed in landscape beds adjacent to the structure should be limited to plants and shrubs that will not exceed a mature height of about 3 to 4 feet. Large bushes and trees that will generally exceed these heights should be planted at a reasonable distance away from the structure so their canopy or "drip line" does not extend over the structure when the tree reaches maturity. Watering of vegetation should be performed in a timely and controlled manner and prolonged watering should be avoided.

5.0 CONSTRUCTION TESTING AND OBSERVATION

The performance of the foundation system and other ground supported features will be highly dependent upon workmanship during construction and the contractor's compliance with project

specifications. Further, certain aspects of the subsurface will be more exposed by construction than our exploration. This additional information could influence details of the design or could potentially require modification to the specified construction. Accordingly, the design recommendations presented in this report should be considered subject to change until such time as our geotechnical representative can field check the conditions actually exposed by the construction, and these modifications could result in cost and/or time savings to the project. In any case, confidence in the site preparation and foundation construction is improved when observed by representatives of the geotechnical engineer of record. TTL will also be prepared to provide other normally specified construction testing for concrete, structural steel and pavements.

Upon your notice to us that construction is scheduled and observation is required, TTL will submit a proposal for construction observation services following our review of final design documents. Failure to engage the geotechnical engineer of record to provide these important follow-up services jeopardizes continuity of engineering judgment and adds risk to the project. TTL will not be responsible for the independent use and interpretation of data and our recommendations by any other geo-professional employed to observe construction of the project.

Additional geotechnical engineering, testing, and consulting services recommended for this project during the construction phase are summarized below:

1. **SITE PREPARATION:** TTL's geotechnical engineer, in conjunction with the local government inspectors, should determine whether or not a subgrade is suitable for fill placement and make remedial recommendations, if required, to prepare a subgrade for fill placement. Specifically, the engineer or engineering technician should be present on a full-time basis to monitor proofrolling, undercutting and backfilling.

2. **FILL PLACEMENT AND COMPACTION:** TTL's soils engineering technician should observe the filling operations and take sufficient in-place density tests to evaluate whether or not the specified fill compaction is achieved. The technician, in conjunction with TTL's geotechnical engineer, should observe and assess borrow materials used and determine if their existing moisture contents are suitable. As a minimum, we recommend that one compaction test be performed every 1,500 square feet for each vertical lift of soil with a minimum of one test in each area of fill placement. This requirement applies to all areas receiving fill.

3. **FOOTING OBSERVATION (CONVENTIONAL SHALLOW FOUNDATION SYSTEMS):** Field penetrometer tests should be performed by TTL's geotechnical engineer in the footing excavations after final grading operations are complete. Localized soft zones encountered at the footing bottoms should be excavated and the resulting excavation backfilled with compacted soil, fill granular material or flowable fill as recommended by TTL's geotechnical engineer.

6.0 QUALIFICATION OF RECOMMENDATIONS

The recommendations provided are based in part on project information provided to TTL and they only apply to the specific project and site discussed in this report. If the Project Information section in this report contains incorrect information or if additional information is available, you should convey the correct or additional information to TTL and retain us to review the recommendations of this report as an additional service. We can then modify our recommendations if they are inappropriate for the proposed project.

Regardless of the thoroughness of a geotechnical exploration, there is always a possibility that conditions between borings will be different from those specific boring locations and that conditions will not be as anticipated by the designers or contractors. In addition, the construction process may itself alter soil conditions. Therefore, experienced geotechnical personnel should observe and document the construction procedures used and the conditions encountered. Unanticipated conditions and inadequate procedures should be reported to the design team along with timely recommendations to solve the problems created. We recommend that the owner retain TTL to provide this service based upon our familiarity with the project, the subsurface conditions, and the intent of the recommendations and design.

We have prepared this report exclusively for the use of Ward Scott Architecture in accordance with generally accepted soil and foundation engineering practices. All information (written or electronic) from TTL concerning TTL's work is for the sole use and reliance of TTL's Client. TTL intends no other third party beneficiaries (express or implied) and copies of such information received by any third parties are NOT for reliance unless TTL first receives a signed Secondary Client Agreement from the third party.

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

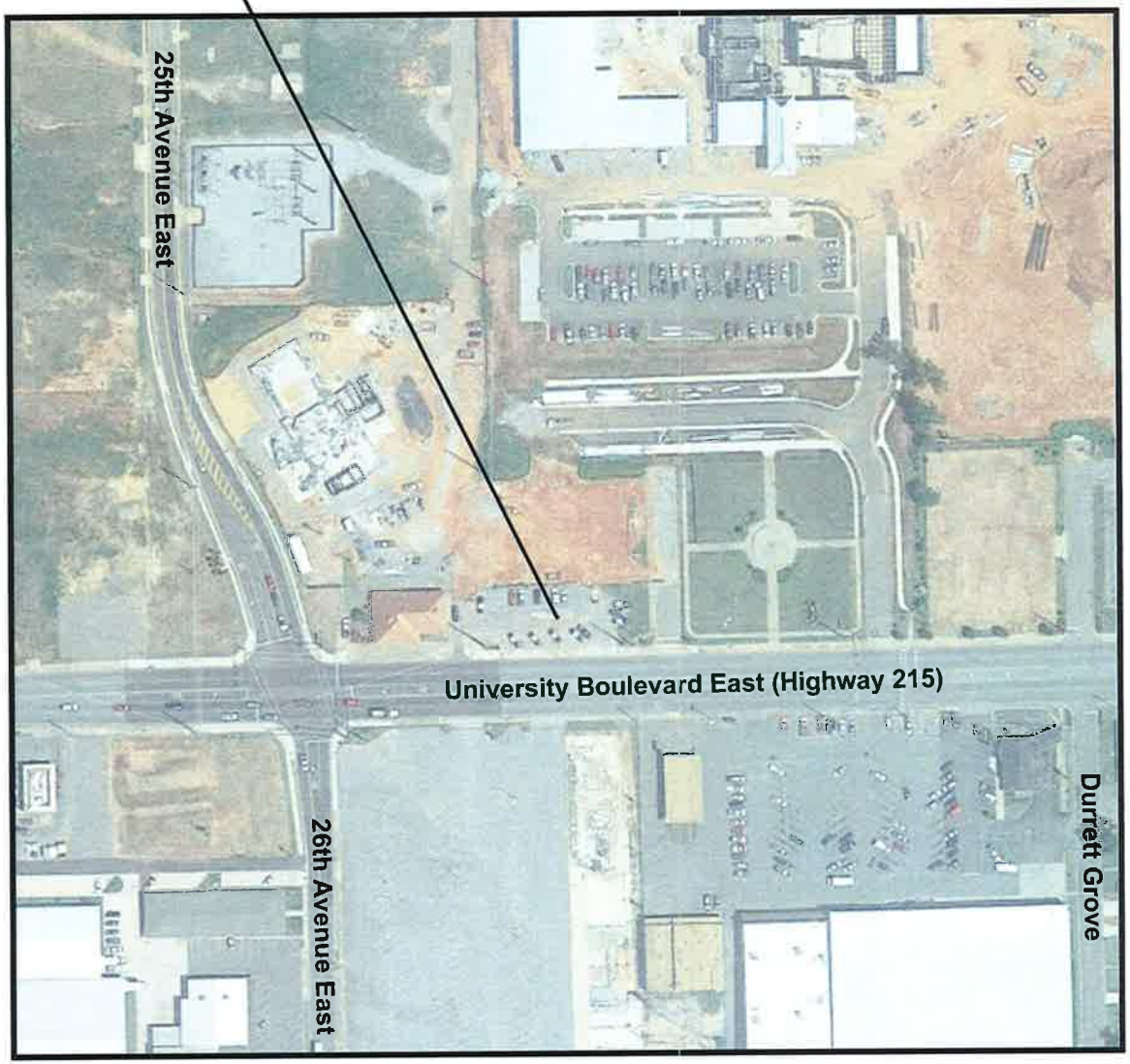
ASFE THE GEOPROFESSIONAL BUSINESS ASSOCIATION

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

IIGER03135.0MRP

Appendix A

Site Location Map
Boring Location Schematic



Source: Google Earth, May 2014

0′ 200′

TTL
3516 Greensboro Avenue ■ Tuscaloosa, Alabama 35401
205.345.0816 ■ Fax 205.345.0992

TTL PROJECT NO: 100114083
PROJECT DATE: 08/25/2014

Site Location Map

Ward Scott Architecture

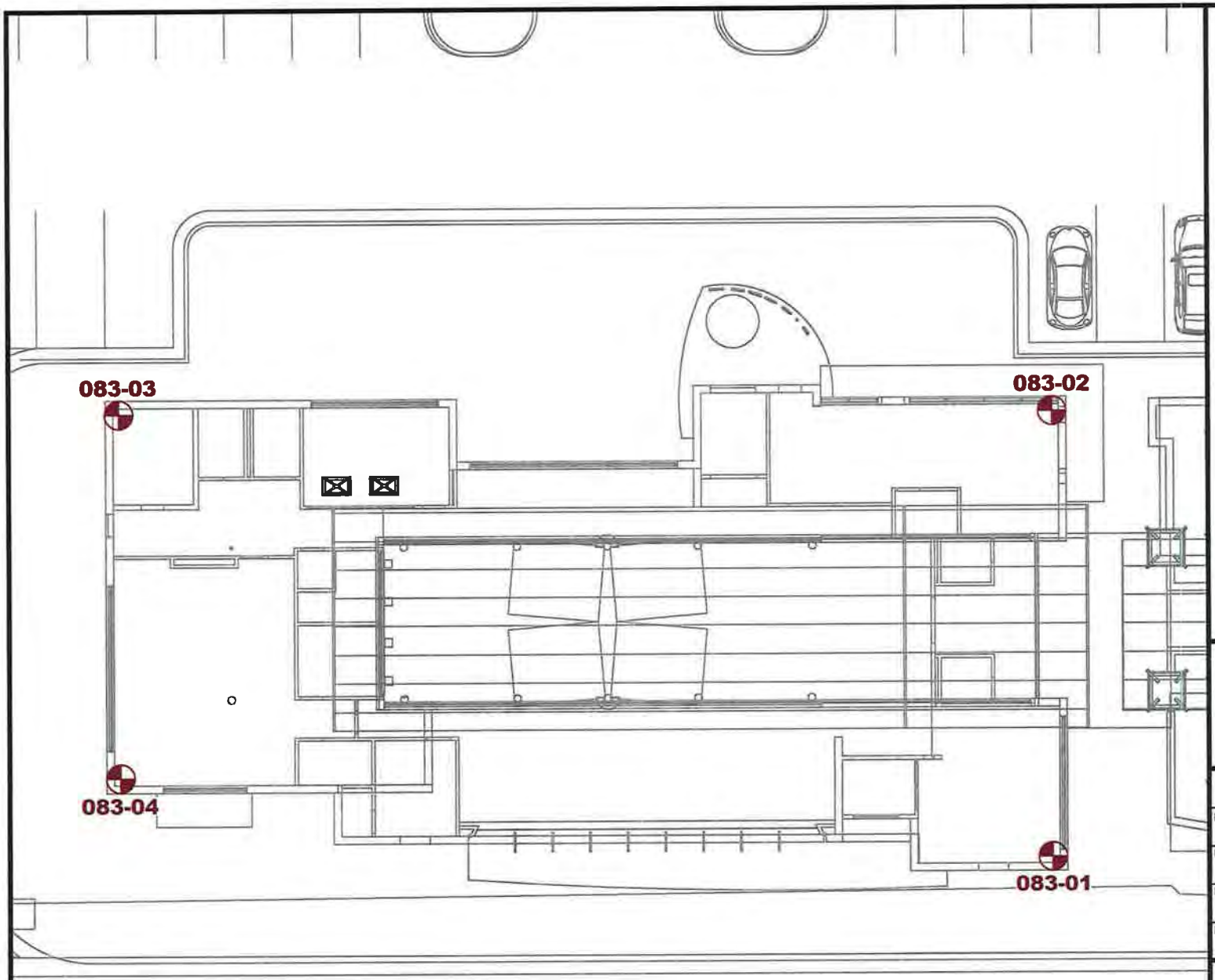
Alberta Technology Public Library

Tuscaloosa, Tuscaloosa County, Alabama

N

1" = 200'
(Approximate)

T:\Projects\2014\100114083 Alberta Technical Library\14-083 LOC.dwg



LEGEND

Boring Location and Identifier 083-04

Boring locations shown on this Boring Location Schematic were established using a sub-meter GPS unit and should be considered approximate. A licensed professional land surveyor should be retained if precise boring locations are required.

0′ 20′

TTL
3516 Greensboro Avenue ■ Tuscaloosa, Alabama 35401
205.345.0816 ■ Fax 205.345.0992

SCALE:	TTL PROJECT NO.:
1" = 20'	100114083

DRAWING PATH: T:\Projects\2014\100114\083 Alberta Technical Library\14-083 BLP.dwg

DATE CREATED:	DATE REVISED:	REVISION NUMBER:
09/03/2014	n/a	n/a

DRAWN BY:	CHECKED BY:
mjc	AKM

MODIFIED FROM DRAWING: Provided by client

Boring Location Schematic

Ward Scott Architecture

Alberta Technology Public Library

Tuscaloosa, Tuscaloosa County, Alabama

Appendix B

Boring Logs

FIELD EXPLORATION PROGRAM

General

Various drill equipment and procedures are used to obtain soil or rock specimens during geotechnical engineering exploration activities. The drill equipment typically consists of fuel-powered machinery that is mounted on a flatbed truck or an all-terrain vehicle. The ground surface conditions at the site generally determine the type of vehicle to use. A hand-powered auger may also be used for shallow borings in areas inaccessible to vehicle-mounted equipment. When assessing soil composition rather than soil strength, test pits may be excavated using standard construction equipment.

Borings can be drilled either dry or wet. The drilling technique depends on the type of subsurface materials (clays, sands, silts, gravels, rock) encountered and whether or not subsurface water is present during the drilling operations. Sometimes a combination of both techniques is implemented.

The dry method can generally be employed when subsurface water or granular soils are not present. The dry method generally consists of advancing the augers without the use of water or drilling fluids. Air can be employed as necessary to remove cuttings from the borehole or cool the drilling bits during some drilling applications. The wet rotary process is generally used when subsurface water, rock or granular soils are present. The wet rotary process utilizes water or drilling fluids to advance the augers, remove cuttings from the borehole, and cool the drilling bits during drilling.

Sampling

Various sampling devices are available to recover soil or rock specimens during the geotechnical exploration program. The type of sampling apparatus to employ depends on the subsurface materials (clays, sands, silts, gravels, rock) encountered and on their consistency or strength. Most commonly used samplers are Shelby tubes, split-spoons or split-barrels, and NQ or HQ core barrels. Depending on the subsurface conditions, sampling apparatus such as the Pitcher barrel, Osterberg sampler, Dennison barrel, or California sampler are sometimes used. The procedures for using and sampling subsurface materials with most of these samplers are described in detail in the most current edition of the American Society for Testing and Materials (ASTM) book titled Annual Book of ASTM Standards. Sampling is generally performed on a 1½-foot continuous interval to a depth of about 6 feet, followed by 2½-foot intervals between the depths of about 10 to 15 feet, on 5-foot intervals to 50 feet and on 10-foot intervals thereafter to the termination depth of the borings. However, sampling intervals may change depending on the project scope and actual subsurface conditions encountered.

If cohesive soils (clays and some silts) are present during drilling, samples are retrieved by using the Shelby tube sampler (ASTM D 1587) or the split-barrel sampler (ASTM D 1586). The Shelby tube is used to recover "virtually" undisturbed soil specimens that can be returned to the laboratory for strength and compressibility testing. The Shelby tube is a 3-inch nominal diameter, thin-walled tube that is advanced hydraulically into the soil by a single stroke of the drill equipment.

The split-barrel sampler is used when performing the Standard Penetration Test (SPT). The recovered sample is considered to be a "disturbed" specimen due to the SPT procedure. The split-barrel is advanced into the soil by driving the sampler with blows from a 140-pound hammer free falling 30 inches. The SPT procedure is performed to evaluate the strength or competency of the material being sampled. This evaluation is based on the material sampled, depth of the sample, and the number of blows required to obtain full penetration of the split-barrel sampler. This blow count or penetration resistance is referred to as the "N" value.

The split-barrel is typically used when cohesionless soils (sands, silts, gravels) are encountered or when good quality cohesive soils cannot be recovered with the Shelby tube sampler. The SPT procedure can be employed when rock or cemented zones are encountered. However, the split-barrel may not penetrate the rock or cemented zone if the layer is extremely hard, thus resulting in no sample recovery.

When hand augering is performed, Dynamic Cone Penetrometer (DCP) testing may be used in lieu of the Standard Penetration Test. DCP testing is typically performed at 1 to 2-foot intervals.

When rock or cemented zones are present, and depending on the type of project and engineering testing required, rock coring may be implemented to recover specimens of the particular layer. Typically an NQ or HQ core barrel (ASTM D 2113) is used.

Logging

During the drilling activities, one of our engineers, geologists or engineering technicians is present to make sure that the appropriate sampling techniques are employed and to extrude or remove all materials from the samplers. The samples are then visually classified by our field representative who records the information on a field boring log. Our field representative may perform pocket penetrometer, hand torvane, or field vane tests on the subsurface materials recovered from the Shelby tube samplers. If the SPT procedure is employed, our field representative will record the N values or blow counts that are germane to that particular field test. If rock coring is utilized, our field representative will calculate the percent recovery and Rock Quality Designation (RQD). The test data for all the field tests will be noted on the appropriate field boring log. Upon completion of the logging activities and field testing of the recovered soil or rock samples, representative portions of the specimens were placed in appropriately wrapped and sealed containers to preserve their natural moisture condition and to minimize disturbance during handling and transporting to our laboratory for additional testing.

When subsurface water is observed during the drilling and sampling operations, drilling will be temporarily delayed so the subsurface water level can be monitored for a period of at least 15 to 30 minutes. Depending on the rise of the subsurface water in the borehole and project requirements, subsurface water measurements may be monitored for periods of 24 hours or more. Generally observation wells or piezometers are installed in the completed boreholes to monitor subsurface water levels for periods longer than 24 hours.

Following completion of drilling, sampling, and subsurface water monitoring, all boreholes will be backfilled with soil cuttings from the completed borings unless special backfilling requirements are requested by the client. If there are not enough soil cuttings available, clean sand will be used to backfill the completed boreholes.

Details concerning the subsurface conditions are provided on each individual boring log presented in this Appendix. The terms and symbols used on each boring log are defined in the Symbol Key Sheet, which is also presented in this Appendix.

General Notes

Boring logs shown on the following sheets shall not be copied or altered.

Groundwater depths shown on the boring logs represent groundwater surfaces encountered on the dates shown. The absence of water surface data on certain borings implies that no groundwater data is available, but does not necessarily mean that groundwater will not be encountered at the locations or within the vertical reaches of these borings.

While the borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, local minor variations in characteristics of the subsurface materials of the region are anticipated and, if encountered, such variations will not be considered as differing materially from the description shown with the logs or profiles.

Soils are classified in accordance with the Unified Soil Classification System, ASTM D 2487 and D 2488 for civil projects, American Association of State Highway and Transportation Officials M 145 for roadway projects and Military Standard 619B, dated 12 June 1968, for military projects.

Standard penetration is shown graphically. The blows per foot are determined by driving a standard split spoon sample (1-3/8" ID, 2" OD) with a 140 pound driving hammer dropping 30 inches (ASTM D1586) unless otherwise noted on the boring logs.

Special Note

Water table (if shown) is an approximation of the water elevation on the date shown. The water elevation may vary and may reach ground surface. Seepage above the water table can be expected at any time. Any conclusions drawn by the Contractor shall be the Contractor's sole responsibility.

DESCRIPTIVE TERMINOLOGY INCLUDED ON BORING LOGS

MOISTURE CONDITIONS

	Fine-Grained Soils	Coarse-Grained Soils
Dry	Seems dry, but contains some moisture	Contains no noticeable moisture
Moist	Moisture below the plastic limit	Contains a noticeable amount of moisture, but no appreciable free water
Very Moist	Moisture above the plastic limit, but below the liquid limit	
Wet	Moisture may approach the liquid limit	Contains free water, but voids are not water-filled
Saturated	Moisture is frequently at or above the liquid limit	Soil voids are water-filled or nearly so

STANDARD PENETRATION RESISTANCE (N)[1]

Sands (Cohesionless Soils)

# of Blows, N	Relative Density
0 - 4	Very Loose
5 - 10	Loose
11 - 30	Firm (Medium)
31 - 50	Dense
Over 50	Very Dense

Silts and Clays (Cohesive Soils)

# of Blows, N	Relative Consistency
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Firm (Medium)
9 - 15	Stiff
16 - 30	Very Stiff
31 - 50	Hard
Over 50	Very Hard

[1] Measured with 2 inch OD, 1-3/8 inch ID sampler driven 1 foot by 140 lb hammer falling 30 inches. See Standard Methods for Penetration Test and Split-Barrel Sampling of Soils, ASTM D 1586.

RELATIVE PROPORTIONS

Term	Range
Trace	Less than 10%
Little	10% - 20%
Some	20% - 30%
With	30% - 40%
And	40% - 50%

STANDARD ABBREVIATIONS

"WOH" = Weight Of Hammer
"WOR" = Weight Of Rod

LEGEND OF SYMBOLS

Soil (USCS Classification)

GW	WELL-GRADED GRAVELS, GRAVEL/SAND MIXTURES, LITTLE OR NO FINES
GP	POORLY-GRADED GRAVELS, GRAVEL/SAND MIXTURES, LITTLE OR NO FINES
GM	SILTY GRAVELS, GRAVEL/SAND/SILT MIXTURES
GC	CLAYEY GRAVELS, GRAVEL/SAND/CLAY MIXTURES
SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
SM	SILTY SANDS, SAND/SILT MIXTURES
SC	CLAYEY SANDS, SAND/CLAY MIXTURES
ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY 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
MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
CH	INORGANIC CLAYS OF HIGH PLASTICITY
OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

Rock

- CHALK
- COAL
- DOLOMITE
- GNEISS
- GRANITE
- LIMESTONE
- QUARTZITE
- SANDSTONE
- SAPROLITE
- SCHIST
- SHALE
- SILTSTONE

Other Materials

- BITUMINOUS CONCRETE
- BOULDERS & COBBLES
- CONCRETE
- CRUSHED STONE
- DEBRIS
- FILL
- TOPSOIL

Samplers

- AUGER CUTTINGS
- BULK SAMPLE
- CONTINUOUS SAMPLER
- DYNAMIC CONE PENETROMETER
- PITCHER SAMPLER or PRESSUREMETER
- ROCK CORE
- SHELBY TUBE
- SPLIT SPOON
- SPLIT SPOON WITH NO RECOVERY

Water Level Symbols

▽	WATER LEVEL AT TIME OF DRILLING
▼	DELAYED WATER LEVEL
	CAVE-IN DEPTH

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Tuscaloosa, Tuscaloosa County, Alabama

LOG OF BORING 083-01

Drilling Co.:	*TTL, Inc.*	TTL Project No.:	*100114083*
Driller:	*J. Hernandez*	Date Drilled:	*8/29/2014*
Logged by:	*K. Mauney*	Boring Depth:	*16 feet*
Equipment:	*CME 45*	Boring Elevation:	*Not Available*
Hammer Type:	*Automatic*	Coordinates:	*N: 1166386 E: 1967562*
Drilling Method:	*Hollow Stem Auger w/SPT Sampling*		

Remarks:
Water not encountered at time of drilling.

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS CLASSIFICATION	MATERIALS DESCRIPTION	SAMPLE DATA: MOISTURE (%)	PPV (tsf)	TYPE	SPT/CORE DATA: 1st 6" / 2nd 6" / 3rd 6" / N-VALUE / RQD / % REC	GRAPHICAL REPRESENTATION OF STANDARD PENETRATION DATA (blows per foot)
				Asphaltic CONCRETE (3")					
			CL	Firm to stiff, moist, reddish-brown sandy lean CLAY	13			18 - 3 - 4 N = 7	
					15			4 - 5 - 7 N = 12	
			ML	Stiff to very stiff, moist, reddish-brown sandy SILT	16			4 - 6 - 8 N = 14	
5					16			7 - 8 - 12 N = 20	
			SC	Firm, moist, reddish-brown clayey SAND	15			7 - 8 - 11 N = 19	
10					15			7 - 9 - 12 N = 21	
					14			8 - 8 - 10 N = 18	
15					12			7 - 8 - 9 N = 17	
				Boring terminated at 16 feet.					

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Tuscaloosa, Tuscaloosa County, Alabama

LOG OF BORING 083-02

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*100114083*
Driller:	*J. Hernandez*	Date Drilled:	*8/29/2014*
Logged by:	*K. Mauney*	Boring Depth:	*16 feet*
Equipment:	*CME 45*	Boring Elevation:	*Not Available*
Hammer Type:	*Automatic*	Coordinates:	*N: 1166444 E: 1967562*
Drilling Method:	*Hollow Stem Auger w/SPT Sampling*		

Remarks:
Water not encountered at time of drilling.

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS CLASSIFICATION	MATERIALS DESCRIPTION	SAMPLE DATA: MOISTURE (%)	PPV (tsf)	TYPE	SPT/CORE DATA: 1st 6" / 2nd 6" / 3rd 6" / N-VALUE / RQD / % REC	GRAPHICAL REPRESENTATION OF STANDARD PENETRATION DATA (blows per foot)
				Asphaltic CONCRETE (4")					
			CL	Stiff, moist, dark reddish-brown sandy lean CLAY with some gravel	13			6 - 5 - 4 N = 9	
				Firm to very stiff, moist, reddish-brown sandy lean CLAY	16			5 - 4 - 2 N = 6	
					18			5 - 5 - 7 N = 12	
5					16			6 - 7 - 9 N = 16	
					16			7 - 9 - 10 N = 19	
10					15			7 - 8 - 12 N = 20	
			SC	Firm, moist, reddish-brown clayey SAND	16			8 - 9 - 12 N = 21	
15					13			9 - 11 - 10 N = 21	
				Boring terminated at 16 feet.					

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Tuscaloosa, Tuscaloosa County, Alabama

LOG OF BORING 083-03

Drilling Co.:	*TTL, Inc.*	TTL Project No.:	*100114083*
Driller:	*J. Hernandez*	Date Drilled:	*8/29/2014*
Logged by:	*K. Mauney*	Boring Depth:	*16 feet*
Equipment:	*CME 45*	Boring Elevation:	*Not Available*
Hammer Type:	*Automatic*	Coordinates:	*N: 1166444 E: 1967439*
Drilling Method:	*Hollow Stem Auger w/SPT Sampling*		

Remarks:
Water not encountered at time of drilling.

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS CLASSIFICATION	MATERIALS DESCRIPTION	SAMPLE DATA: MOISTURE (%)	PPV (tsf)	TYPE	SPT/CORE DATA: 1st 6" / 2nd 6" / 3rd 6" / N-VALUE / RQD / % REC	GRAPHICAL REPRESENTATION OF STANDARD PENETRATION DATA (blows per foot)
				Asphaltic CONCRETE (4")					
			CL	Firm, moist, dark reddish-brown sandy lean CLAY with some gravel	15			21 - 4 - 3 N = 7	
				Stiff to very stiff, moist, reddish-brown sandy lean CLAY	18			4 - 5 - 4 N = 9	
					17			6 - 6 - 7 N = 13	
5					18			6 - 6 - 8 N = 14	
					17			7 - 8 - 11 N = 19	
10					16			6 - 8 - 10 N = 18	
					16			7 - 7 - 10 N = 17	
15			SC	Firm, moist, reddish-brown clayey SAND	16			7 - 9 - 10 N = 19	
				Boring terminated at 16 feet.					

GRAPHICAL REPRESENTATION OF STANDARD PENETRATION DATA (blows per foot): 10 20 30 40 50

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Tuscaloosa, Tuscaloosa County, Alabama

LOG OF BORING 083-04

Drilling Co.:	*TTL, Inc.*	**TTL** Project No.:	*100114083*
Driller:	*J. Hernandez*	Date Drilled:	*8/29/2014*
Logged by:	*K. Mauney*	Boring Depth:	*16 feet*
Equipment:	*CME 45*	Boring Elevation:	*Not Available*
Hammer Type:	*Automatic*	Coordinates:	*N: 1166396 E: 1967439*
Drilling Method:	*Hollow Stem Auger w/SPT Sampling*		

Remarks:
Water not encountered at time of drilling.

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS CLASSIFICATION	MATERIALS DESCRIPTION	SAMPLE DATA: MOISTURE (%)	PPV (tsf)	TYPE	SPT/CORE DATA: 1st 6" / 2nd 6" / 3rd 6" N-VALUE	RQD / % REC	GRAPHICAL REPRESENTATION OF STANDARD PENETRATION DATA (blows per foot)
				Asphaltic CONCRETE (4")						
			CL	Firm, moist, dark brown sandy lean CLAY with gravel	10			27 - 4 - 4 N = 8		
				Firm to very stiff, moist, reddish-brown sandy lean CLAY	17			4 - 3 - 5 N = 8		
					16			4 - 5 - 7 N = 12		
5					16			6 - 6 - 8 N = 14		
					17			8 - 9 - 12 N = 21		
10					16			8 - 8 - 10 N = 18		
			SC	Firm, moist, reddish-brown clayey SAND	16			8 - 8 - 11 N = 19		
15					15			8 - 9 - 12 N = 21		
				Boring terminated at 16 feet.						

GRAPHICAL REPRESENTATION OF STANDARD PENETRATION DATA (blows per foot): 10 20 30 40 50

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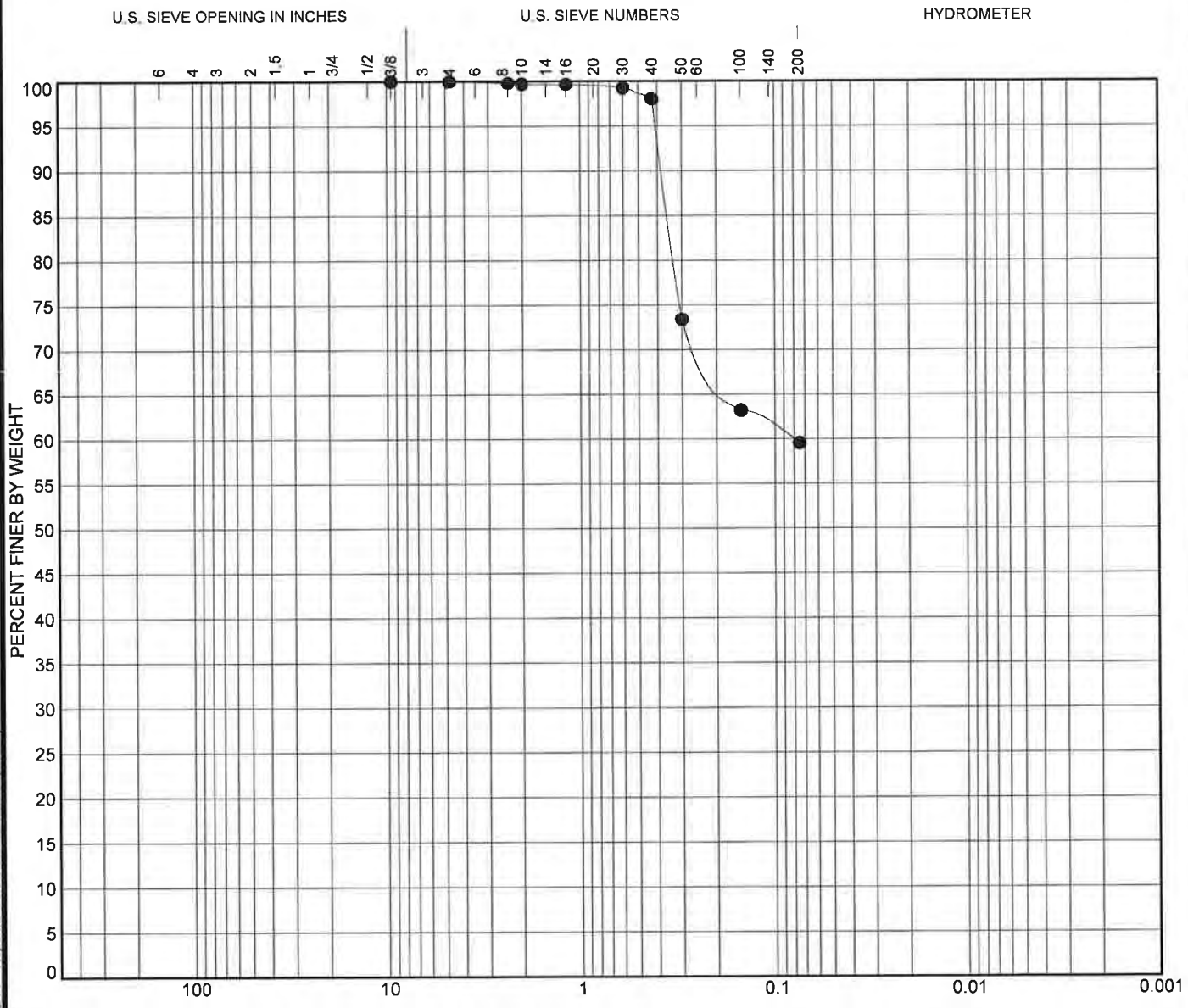
Appendix C

Laboratory Analyses

GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Sample ID	**083-01** **3.0 - 4.5 feet**
Description	**SANDY SILT (ML)**
Sampled by:	**TTL, Inc.**
Sample Location:	**083-01**
Date Sampled:	**8/29/2014**

wc (%)	LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
16	**NP**	**NP**	**NP**			**9.5**	**0.1**			**0.0**	**40.4**	**59.6**	

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SIEVE ANALYSIS RESULTS

Client: Ward Scott Architecture
Project: Alberta Technology Public Library
Location: Tuscaloosa, Tuscaloosa County, Alabama
Project Number: 100114083

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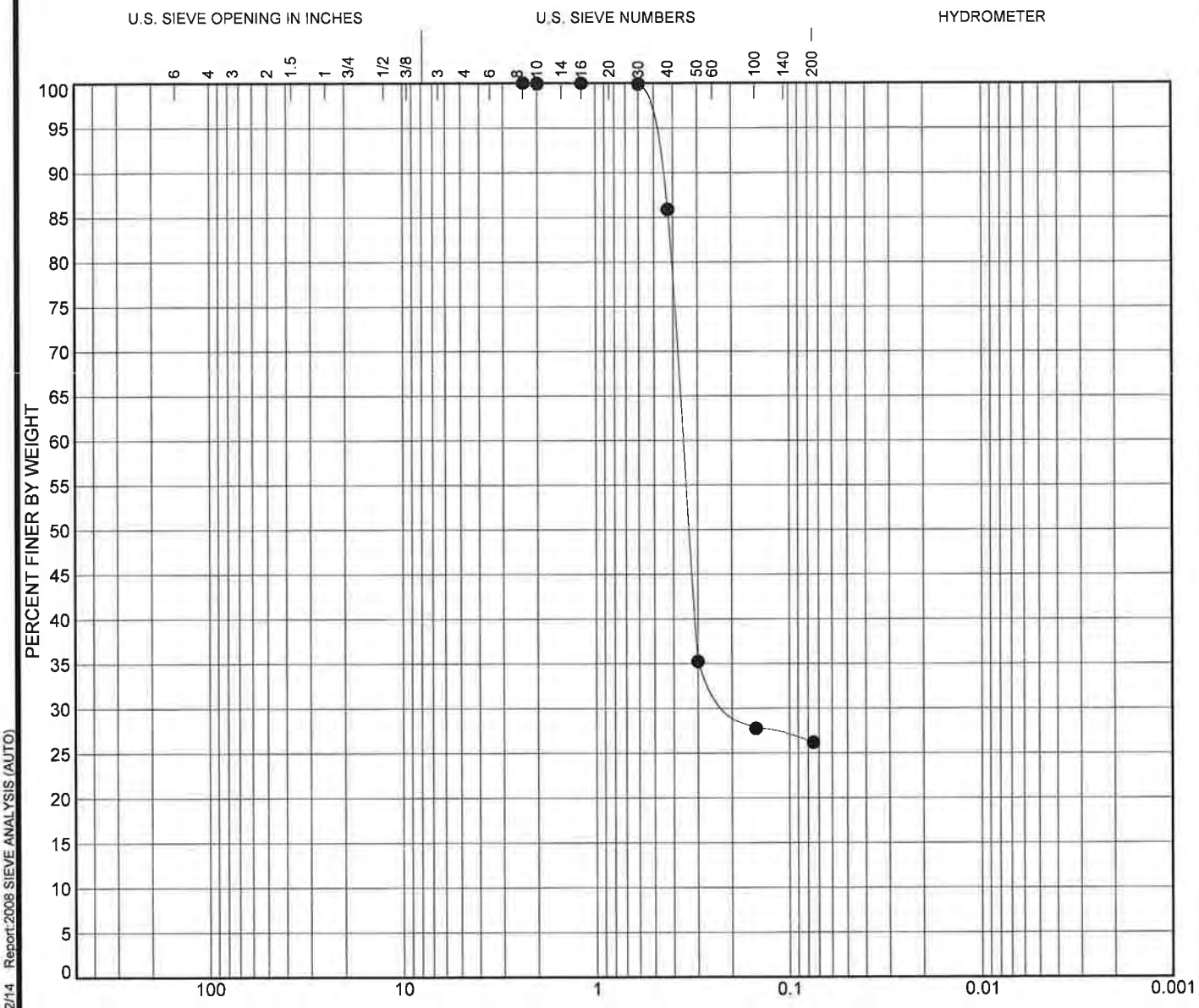
GRAIN SIZE DISTRIBUTION



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Sample ID	**083-04** **14.5 - 16.0 feet**
Description	**CLAYEY SAND (SC)**
Sampled by:	**TTL, Inc.**
Sample Location:	**083-04**
Date Sampled:	**8/29/2014**

wc (%)	LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
15	**29**	**20**	**9**			**2.4**	**0.4**	**0.2**			**73.8**	**26.2**	

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SIEVE ANALYSIS RESULTS

Client: Ward Scott Architecture
Project: Alberta Technology Public Library
Location: Tuscaloosa, Tuscaloosa County, Alabama
Project Number: 100114083

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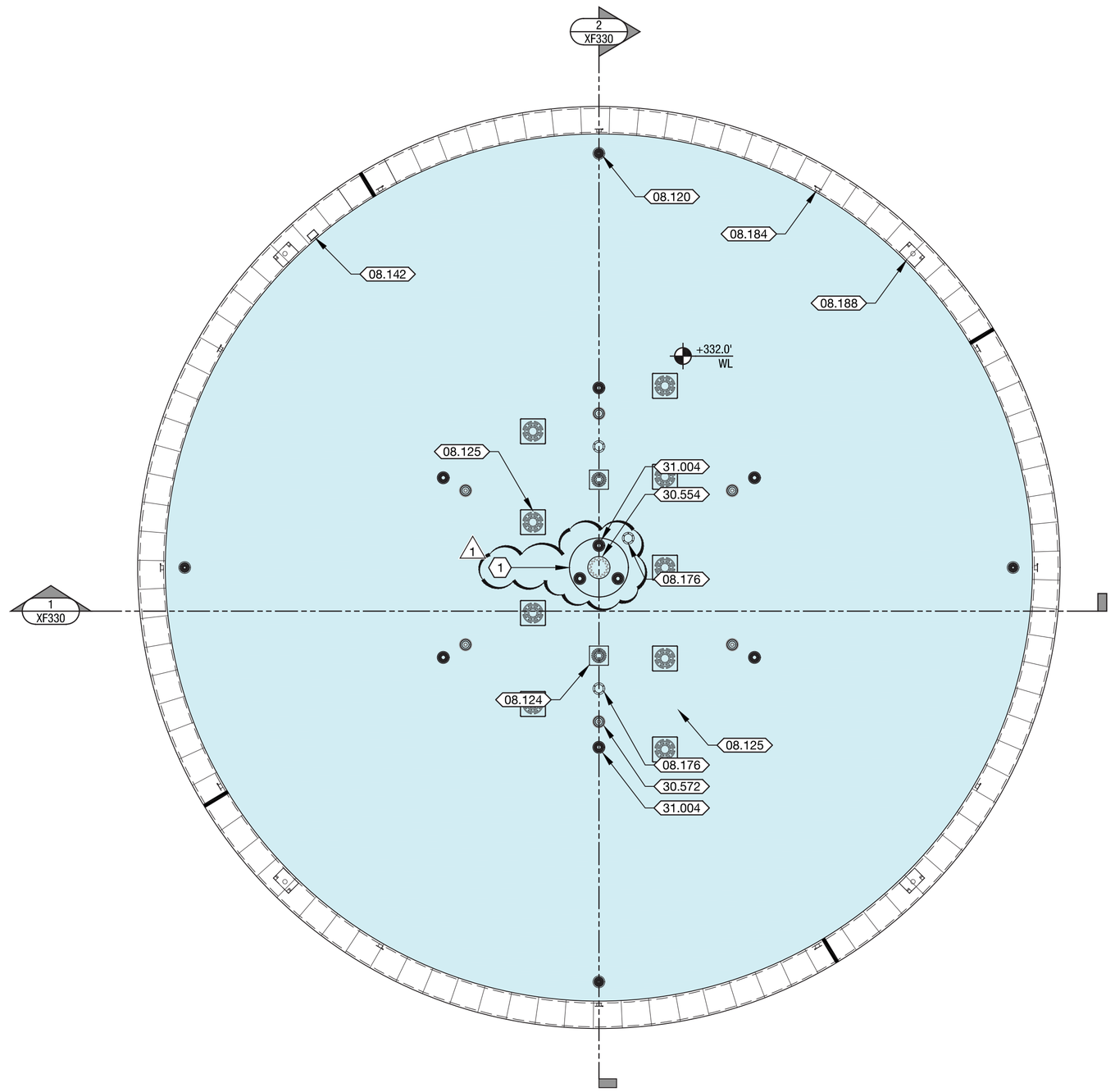
SCHEDULE KEYNOTES

08.124	FLOOR DRAIN
08.125	FLOOR DRAIN
08.142	WATER LEVEL SENSOR
08.188	SKIMMER
08.120	ADJUSTABLE OVERFLOW DRAIN
08.176	JUNCTION BOX
08.184	WALL INLET
30.554	FOAMY COLUMN NOZZLE
30.572	CASCADE JET NOZZLE
31.004	UNDERWATER LED LIGHT

SHEET KEYNOTES

	DESCRIPTION	DETAIL
1	CUSTOM 36" OD SST WAVE BAFFLE MANUFACTURER: WITHWATER INSTALL TOP OF WAVE BAFFLE 2" ABOVE WATER SURFACE	-

1



1 CIRCULAR FOUNTAIN EQUIPMENT ID
1/4" = 1'-0"
PLAN

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CIRCULAR FOUNTAIN EQUIPMENT ID

XF300

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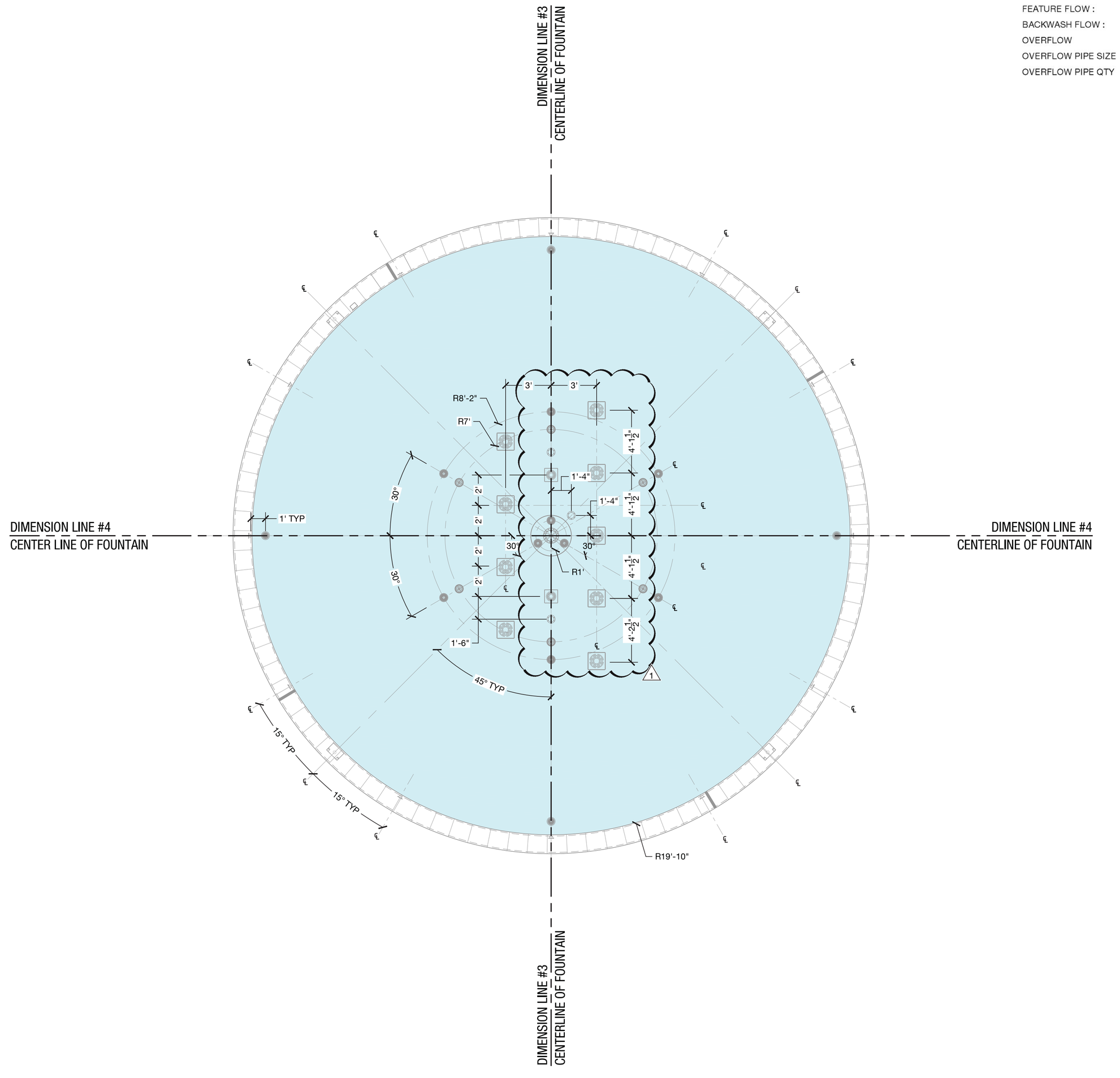
Circular Fountain DATA

AREA (SF) :	1,256.3 SF
PERIMETER :	125.7 FT
VOLUME :	18,794 GALS
TURNOVER :	2.51 HRS
FILTER FLOW :	125 GPM
MIN. DEPTH :	2.00 FT
MAX. DEPTH:	2.00 FT
FEATURE FLOW :	1,420 GPM
BACKWASH FLOW :	0 GPM
OVERFLOW	274 GPM
OVERFLOW PIPE SIZE	6
OVERFLOW PIPE QTY	1



1 CIRCULAR FOUNTAIN DIMENSIONS
1/4" = 1'-0"
PLAN

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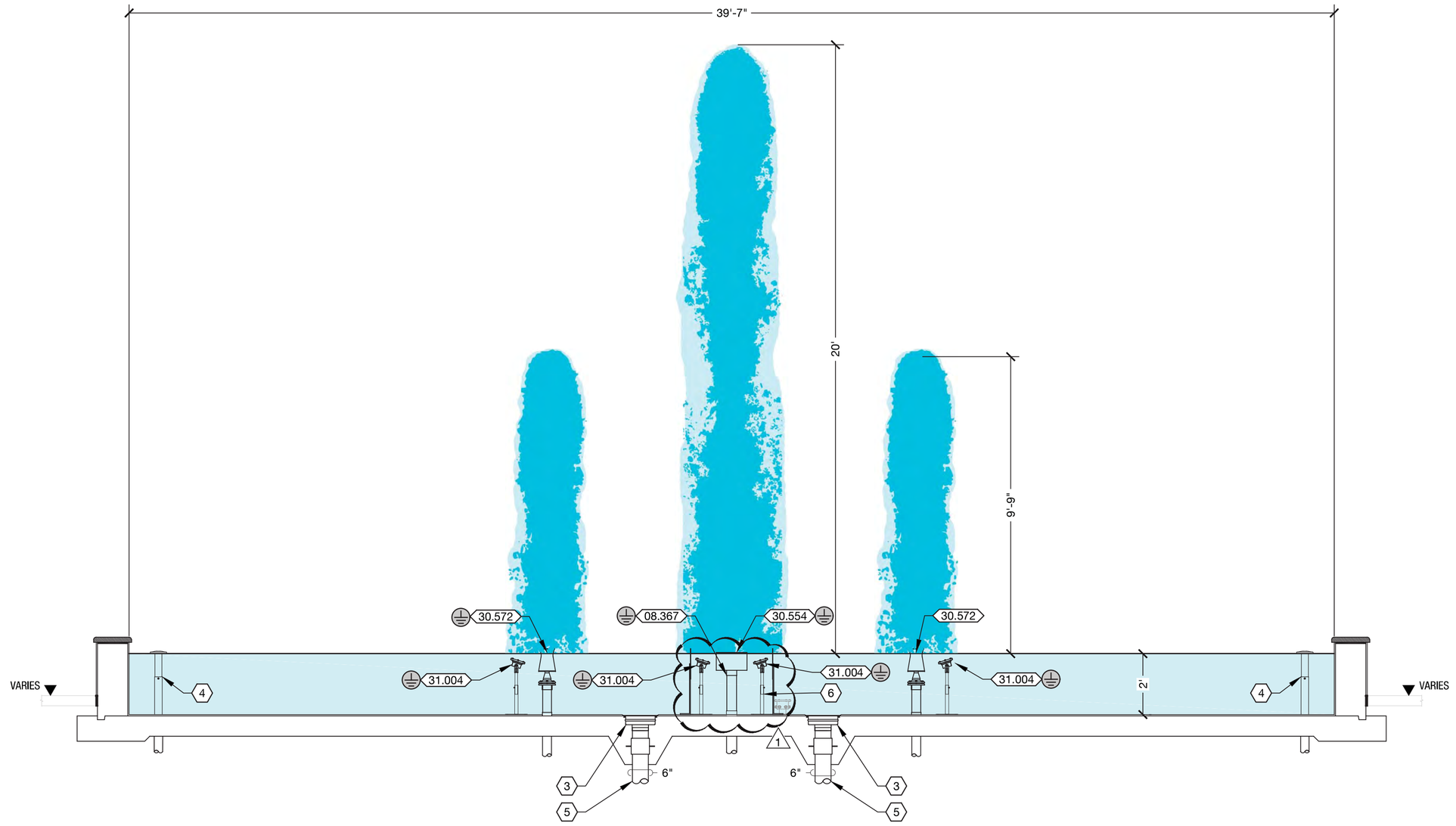
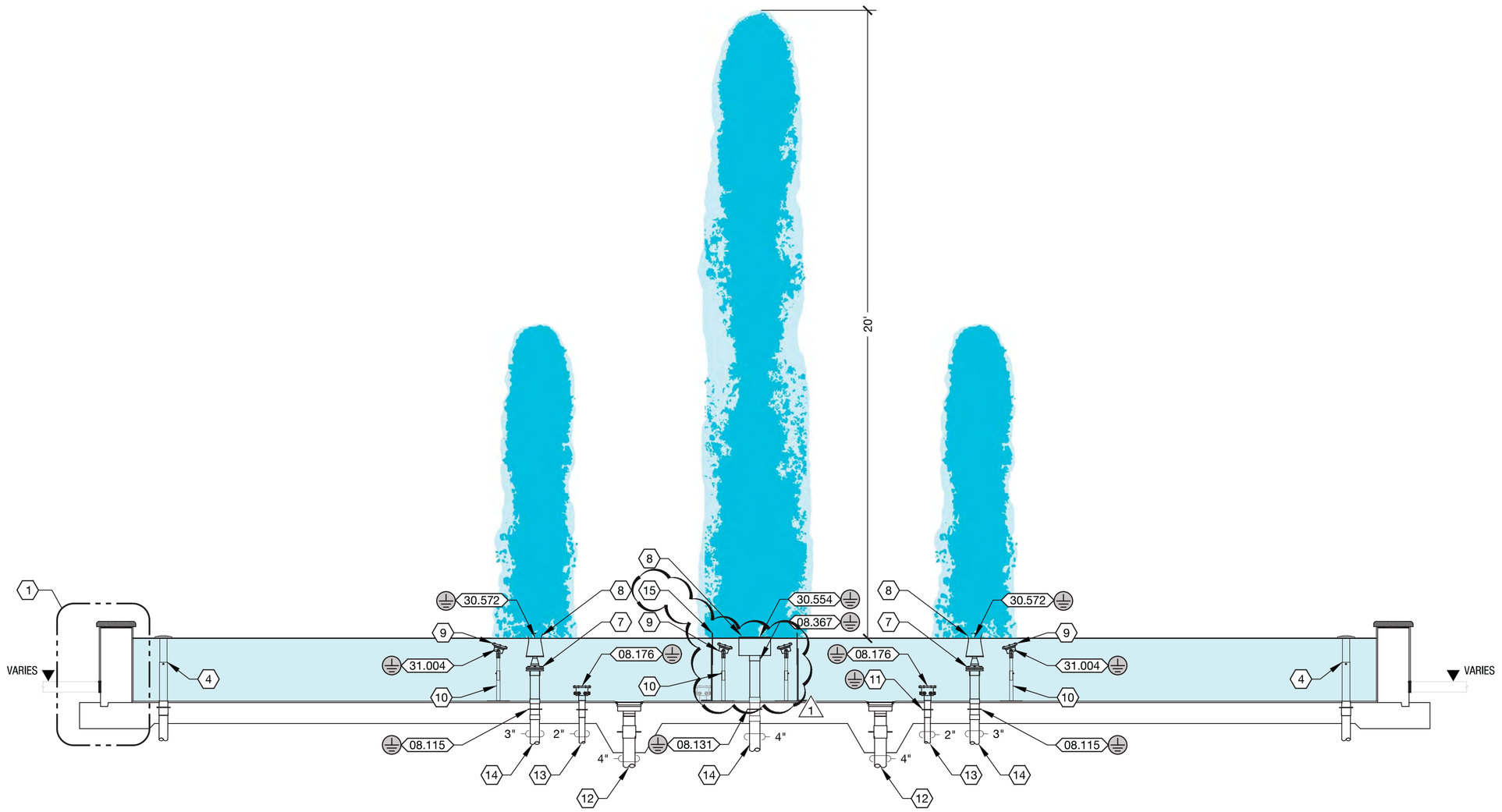
CIRCULAR FOUNTAIN DIMENSIONS

XF301



2 CIRCULAR FOUNTAIN
3/8" = 1'-0"
SECTION



1 CIRCULAR FOUNTAIN
3/8" = 1'-0"
SECTION

GENERAL SHEET NOTES

DECK GRADING VARIES AROUND PERIMETER OF FOUNTAIN. REFER TO CIVIL GRADING PLANS FOR GRADE ELEVATIONS

SCHEDULE KEYNOTES

08.115	3" SST PENETRATION FITTING
08.131	4" SST PENETRATION FITTING
08.176	JUNCTION BOX
08.367	4" SWIVEL CONNECTOR
30.554	FOAMY COLUMN NOZZLE
30.572	CASCADE JET
31.004	UNDERWATER LED LIGHT

SHEET KEYNOTES

	DESCRIPTION	DETAIL
1	TYPICAL WALL STRUCTURE	1 / XF331
2	FLOOR DRAIN ASSEMBLY - FILTER SUCTION	3 / XF331
3	FLOOR DRAIN ASSEMBLY - FEATURE SUCTION	7 / XF331
4	ADJUSTABLE OVERFLOW DRAIN FIELD ADJUST DURING STARTUP	6 / XF331
5	SUCTION PIPE TO FEATURE PUMP	-
6	JUNCTION BOX	-
7	SWIVEL ATTACHMENT FIELD ADJUST FOR TRUE VERTICAL ALIGMENT	-
8	INSTALL TOP OF NOZZLE 50MM ABOVE WATER LEVEL	-
9	INSTALL LED LIGHT FIXTURE 1.5" BELOW WATER LEVEL FIELD AJDJUST ANGLE DURING STARTUP	-
10	ADJUSTABLE TELESCOPIC BASE	-
11	THREADED SLEEVE FITTING	-
12	SUCTION PIPE TO FILTER PUMP	-
13	CONDUIT TO CONTROL PANEL	-
14	FEATURE WATER SUPPLY PIPE TO NOZZLE	-
15	CUSTOM 36" OD SST WAVE BAFFLE MANUFACTURER: WITHWATER INSTALL TOP OF WAVE BAFFLE 2" ABOVE WATER SURFACE	-

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CIRCULAR FOUNTAIN SECTIONS

XF330

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Basin

SCHED #	Description	Manufacturer / Supplier	Model	Circular Fountain QTY
08.115	3" SST Penetration Fitting	WithWater	TY 300	6
08.120	Adjustable Overflow Drain	WithWater	QA 300	4
08.124	Floor Drain	WithWater	ON 140	2
08.125	Floor Drain	WithWater	ON 160	9
08.131	4" SST Penetration Fitting	WithWater	TY 400 (1)	1
08.142	SST Water Level Sensor	WithWater	LA 14	1
08.176	Junction Box	WithWater	JM 206.FT	3
08.184	Directional Eyeball Wall Fitting	WithWater	EB 150 (1)	12
08.188	Widemouth Thru-Wall Pool Skimmer G2"	WithWater	SK200	4

Pumps

SCHED #	Description	Manufacturer / Supplier	Model	Design Flow Rate	Design Flow Head - TDH	Voltage	Electrical Phase	Hertz	Type of Pump	Motor Horse Power	RPM	Impellor Size	Frame Size	Pump Class	Circular Fountain QTY
10.483	Foamy Column Feature Pump	Marlow Pumps	580 - 5x5x9.5	600 gpm	60 ft	208 V	3	60 Hz	Flooded Suction	15 HP	1750	8.75 in	254JP	B	1
10.532	Cascade Jet Feature Pump	Marlow Pumps	580 - 6x6x9.5	850 gpm	50 ft	208 V	3	60 Hz	Flooded Suction	15 HP	1750	8.375 in	254JP	B	1
10.600	Circular Fountain Filter Pump	Pentair Pool Products	34-5299	125 gpm	50 ft	208 V	3	60 Hz	Self Priming	3 HP	3450	-	-	F	1

Strainers

SCHED #	Description	Manufacturer / Supplier	Model	Inlet Size	Discharge Size	Circular Fountain QTY
11.016	SST Hair & Lint Strainer	Neptune Benson	PSV0805EFS	8 in	5 in	1
11.021	SST Hair & Lint Strainer	Neptune Benson	PSV1006EFS	10 in	6 in	1

Filters

SCHED #	Description	Manufacturer / Supplier	Model	Filter Screen Area	Circular Fountain QTY
12.071	Pressure Cartridge Filter	Hayward Pool Products	HCF-7030	700 sq.ft.	1

Tanks and Cabinets

SCHED #	Description	Manufacturer / Supplier	Model	Type of Construction	Max Tank Volume	Ladder Needed	Circular Fountain QTY
13.040	Ultra-Spill Pallet with Drain - P1 Plus (1 Drum)	UltraTech International	9607	Polyethylene	62 GAL	No	2
13.055	Chemical Dilution Tank - 105 Gallon Safe-Tank with 2" Mushroom Vent & Penetration for Ultrasonic Level Sensor	PolyProcessing	105 Assembly	Polyethylene	105 GAL	No	1

Controls - Flow / Pressure

SCHED #	Description	Manufacturer / Supplier	Model	Voltage	Circular Fountain QTY
14.016	Flow Sensor	GF Signet	3-2551-P0-11	24 V	1
14.020	Flow Switch	ITT Industries	FS7-4S	120 V	2
14.056	Transmitter	GF Signet	3-9900-1P	24 VDC	9
14.057	Pressure Sensor	GF Signet	3-2450-3H	24 VDC	7
14.059	Pressure Gauge	Trerice	800LFB-20-02-L-D-050	-	7
14.068	Ultrasonic Level Sensor for Small Tanks	FlowLine - Liquid Intelligence	DL14-01	24 VDC	2
14.069	Display meter	FlowLine - Liquid Intelligence	Li55-1411	24 VDC	2
14.111	1", 2-Way, Internally Piloted, Normally Closed Solenoid Valve	Neptune Benson	13531	110 V	1

Chemical

SCHED #	Description	Manufacturer / Supplier	Model	Circular Fountain QTY
15.001	Chemical Controller	BECS Technology	BECSYS-5	1
15.005	Chemical Feeder Pump	Stenner	45M2	1
15.006	Chemical Feeder Pump	Stenner	45M3	1

Controls - Electrical

SCHED #	Description	Manufacturer / Supplier	Model	Circular Fountain QTY
17.020	VFD - Green Drive - 15HP (208/230V) With NEMA 12 Enclosure	Neptune Benson	NBDT2-1004	2

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EQUIPMENT SCHEDULES

XX100

Valves

SCHED #	Description	Manufacturer / Supplier	Model	Circular Fountain QTY
20.025	3" Flanged Globe Valve	Asahi/America, Inc	Flanged ANSI 3"	AR
20.041	4" Wafer Style Dual Disc Check Valve	Val-Matic	8804W	AR
20.043	6" Wafer Style Dual Disc Check Valve	Val-Matic	8806W	AR
20.044	8" Wafer Style Dual Disc Check Valve	Val-Matic	8808W	AR
20.047	0.5" Ball Valve	Spears Mfg. Company	1829-005	AR
20.048	0.75" Ball Valve	Spears Mfg. Company	1829-007	AR
20.049	1" Ball Valve	Spears Mfg. Company	1829-010	AR
20.051	1.5" Ball Valve	Spears Mfg. Company	1829-015	AR
20.058	0.5" Ball Check Valve	Spears Mfg. Company	4529-005	AR
20.059	0.75" Ball Check Valve	Spears Mfg. Company	4529-007	AR
20.073	6" Butterfly Valve - Gear Operated	Neptune Benson	5190600GOP	AR
20.074	8" Butterfly Valve - Gear Operated	Neptune Benson	5190800GOP	AR
20.075	10" Butterfly Valve - Gear Operated	Neptune Benson	5191000GOP	AR
20.079	2" Butterfly Valve - Lever Operated	Neptune Benson	516020R037	AR
20.080	2.5" Butterfly Valve - Lever Operated	Neptune Benson	516025R037	AR
20.082	4" Butterfly Valve - Lever Operated	Neptune Benson	516040R037	AR
20.084	6" Butterfly Valve - Lever Operated	Neptune Benson	516060R037	AR

Additional Equipment

SCHED #	Description	Manufacturer / Supplier	Model	Circular Fountain QTY
29.008	Emergency Drench Shower 1-1/4" Connection	Bradley	S19-310PVC	1
29.009	Windowed NEMA Enclosure for Level Indicator	FlowLine - Liquid Intelligence	LM92-1001	2
29.012	50' Hose - 0.75"	Grainger	CR075-50MF-G	1
29.014	Chemical Label - Acid	Recreonics, Inc.	53-150	1
29.040	Audio/Visual Alarm - 80 Decibel	Ingram Products	AVPW120CXFTRP	2
29.050	Link Seal Assembly - Century Line Sleeve for 3" pipe penetration (*= specify sleeve length in inches) Requires LS-300 Links (8 per Sleeve)	Pipeline Seal and Insulator, Inc.	CS-5*	1
29.052	Link Seal Assembly - Century Line Sleeve for 6" pipe penetration (*= specify sleeve length in inches) Requires LS-475 Links (10 per Sleeve)	Pipeline Seal and Insulator, Inc.	CS-10-*	1
29.053	Link Seal Assembly - Century Line Sleeve for 8" pipe penetration (*= specify sleeve length in inches) Requires LS-475 Links (12 per Sleeve)	Pipeline Seal and Insulator, Inc.	CS-12-*	1
29.054	Link Seal Assembly - Century Line Sleeve for 10" pipe penetration (*= specify sleeve length in inches) Requires LS-410 Links (15 per Sleeve)	Pipeline Seal and Insulator, Inc.	CS-14-*	1
29.901	Custom Electronic Control Panel including: Power distribution, Light circuits with 2 Zone LED control, Time clocks, Water level sensor control, Single/dual stage Wind control w/ Sensor, 5 pre-programmed LED show displays	WithWater	Custom	1
29.911	NEMA 12 Transmittal Enclosure - 20"x16"x8" (Interior)	Nema Enclosures, Inc.	N20168WP	1
29.912	NEMA 12 Transmittal Enclosure - 20"x24"x8" (Interior)	Nema Enclosures, Inc.	N20248WP	1

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Nozzles

SCHED #	Description	Manufacturer / Supplier	Model	Design Flow Rate	Dynamic Head at Design Flow	Vertical Throw	Horizontal Throw	Spray Spread	Circular Fountain QTY
30.554	Foamy Column	WithWater	KL 400.S	579.59 gpm	39.37 ft	19.69 ft	---	---	1
30.572	Cascade Jet	WithWater	MC 300.S	140.01 gpm	25.92 ft	9.83 ft	---	---	6

1

Lighting

SCHED #	Description	Manufacturer / Supplier	Model	Voltage	Circular Fountain QTY
31.004	Underwater LED Light with Stand	WithWater	UL 700.RGBW.316.TSB.F.AV	12 VDC	9

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