ADDENDUM NO. 2

City of Fort Oglethorpe Tennis Courts **Date: 5 July 2023**
Invitation to Bid (ITB) #005-23
Derthick Henley & Wilkerson Architects **File: 2212**

The following amendments to the specifications and/or revisions to the drawings shall be a part of the contract documents. Bidders, therefore, shall consider them when preparing cost estimates, and the contractors shall be bound by them.

FRONT END

1. See attached revised Bid Bond Form showing 5% of the bid amount.

SPECIFICATIONS

The following sections are added to the specification:

1. 32 18 23 Tennis Pickleball Court Surfacing
2. 32 31 13 PVC COATED CHAIN LINK FENCES, POSTS, AND GATES

DRAWINGS

Sheet C100 – see narrative description of changes.

Sheet C700 – see narrative description of changes.

NARRATIVE

See attached narrative for Addendum #2

REFERENCE

REPORT OF GEOTECHNICAL EXPLORATION
City of Fort Oglethorpe – Tennis Courts
Gilbert-Stephenson Park
Fort Oglethorpe, Georgia
GEOServices Project No. 41-22615

BID BOND FORM

KNOW ALL MEN BY THESE PRESENTS THAT WE (Contractor) _____

as Principal, hereinafter called the Principal, and (Surety)_____, a corporation duly organized under the laws of the State of _____ as Surety, hereinafter called the Surety, are held, and firmly bound unto

City of Fort Oglethorpe, 500 City Hall Drive Fort Oglethorpe, GA 30742, Mayor Earl Gray

as Obligee, hereinafter called Obligee, in the sum of five (5%) percent of the amount bid.

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for

City of Fort Oglethorpe Tennis Courts, 19 Van Cleve Street, Fort Oglethorpe, Ga 30742

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____day of _____, 202__.

_____
(Principal)

_____ By: _____
(Witness) (Title)

_____
(Surety)

_____ By: _____
(Witness) (Title)

PERFORMANCE BOND FORM

MARCH ADAMS & ASSOCIATES, INC.
P.O. Box 3689 · Chattanooga, TN 37404
Ph: (423) 698-6675
Fax: (423) 698-3638
marchadams@marchadams.com

PROJECT: Tennis Courts– Fort Oglethorpe, GA

PROJECT NO. 21280

Narrative For Addendum #2

PREPARED BY: J Parks

DATE: 7-05-2023

See the following bidder questions and clarifications listed below.

1.) *I see there is a fence around the perimeter of the pickleball courts. Can you confirm that it is 10' high?*
Response: See site plan C100 from addendum 1, with fence heights of 4' and 10'. See addendum 2 revision to add an interior 4' fence.

2.) *Are there interior fences dividing the pickleball courts? There definitely should be but the plan does not show fences. If there are, where are they and how high?*
Response: See site plan C100 from addendum 2, with the addition of an interior 4' fence.

3.) *Also they show a double gate on the perimeter of the pickleball courts. The walkway is only 5' wide?*
Response: The concrete walkway next to the double gate is wider (16').

4.) *Can you confirm the thickness of the asphalt and the stone on the new pickleball courts? It says 10' of reclaimed asphalt?*
Response: See revised pickleball court section, with 6" of base stone, 2" of asphalt topping, then surface coating, per specification 32 18 23.

5.) *For the double tennis court that is to be resurfaced:*
Is this just repairing the cracks and repainting?
Response: See revised C100 with spec to mill and top with 1" asphalt topping and new playing surface coating.

6.) *What are the specs to repair and paint courts?*
Response: See response above, paint per specification 32 18 23.

7.) *The plans show a cross section of stone and asphalt for the tennis courts. Do the tennis courts get new net posts and nets?*
Response: Provide new tennis court nets and posts.

8.) *Tennis Courts: In order to complete the required full depth reclamation and paving work scope at the tennis courts, we will have to remove the existing fence. Should we assume installing new fence per the fence specified at the pickleball courts?*
Response: See response to question 5. We will not use FDR. Contractor shall protect the existing tennis court fence fabric and posts. Fabric can be removed and reinstalled if required for equipment access.

9.) *Pickleball Courts: Cross section 1A/C700 calls for full depth reclamation of existing asphalt for the pickleball courts. With these requiring new construction, what stone base and paving profile will be required?*
Response: See response to question 4.

10.) *Pickleball Courts: Fence design calls for 10' fences with 1-3/4" mesh. Typical pickleball fences are 8' with standard 2" mesh as a pickleball will not lodge in the mesh due to its size. This would provide cost savings for the owner.*
Response: Keep the fence height at 10' and 4'. See revised specification 32 31 13 (2.04) (A) (2) for 2" mesh.

11.) *What are the liquidated damages for the project?*
Response: Damages shall be assessed at $200 per working day.

12.) *Is the grading Sub contractor required to have an Underground Utilities license?*
Response: The contractor installing the lights will need electrical license.

13.) *Does this project require permits? If so, who is responsible for permitting and the associated fees?*
Response: Yes, the owner has applied for land disturbing permit and NOC from GA EPD. Contractor will be required to sign as primary permittee and provided Level 1A erosion control certified personal as required by the state.

14.) *Who is responsible for inspections and materials testing and the associated fees? If the General Contractor is responsible for the testing, please provide all the testing requirements for this project.*
Response: The owner will engage a geotechnical testing company to provide testing for earthwork and asphalt.

15.) *How would the owner want to address soft soil conditions and rocks, if encountered?*
Response: See specification 31 20 00. The project has classified excavation, with unit prices. Contractor shall provide units prices to establish allowances for each based on the quantities listed in the updated bid unit form in addendum 1

16.) *When is the anticipated start date*?
Response: Middle of August

17.) *Will weather days count against the project?*
Response: Contractor shall track days lots for weather, rain fall amounts, and scheduled work that was delayed.

18.) *What's the budget for this project?*
Response: The project is budgeted at $800,000

19.) *Does this project have a Force Majeure clause*?
Response: Requests for additional contract time shall be submitted to the owner for review, with original project schedule, extreme event, and schedule impacts included in the report. Force Majeure will be considered when determining if liquated damages should be enforced.

20.) *What are the working hours? Any restrictions that we should be aware of?*
Response: Note the following city ordinance. *Construction work. The erection (including excavating), demolition, alteration or repair of any building in any residential district or section, the excavation of streets and highways in any residential district or section, other than between the hours of 7:00 a.m. and 6:00 p.m. on weekdays except in cases of urgent necessity, and then only with a permit from the city, which permit may be granted for a period not to exceed 60 days while the emergency continues.*

21.) *Any events or special dates at the park that we should stop our work for?*
Response: Access to the pool shall be maintained while it is open. Pool hours and events are listed at https://fortogov.com/gilbert-stephenson-park/

22.) *Can we work on the weekends?*
Response: See response to question 20 above.

23.) *What are the requirements to safe-up the project site? Do you require the placement of chain-link fences, signages, and barricades?*
Response: See revised specification 31 10 00 addendum 1.

24.) *Are there any vehicular traffic and/or pedestrian control requirements? Are there any signages required?*
Response: Contractor shall work with city to determined traffic control needs on an as needed basis. City can provide temporary signage if required.

25.) *What are the requirements for staging areas/ contractor's laydown area? Are there any designated parking areas for construction personnel? Any designated areas for dumpsters and equipment?*
Response: Contractor shall provide their recommended site logistics sketch for the owner to review.

26.) *Is there any existing irrigation system within the construction areas? If there is, how would you want us to address it?*
Response: The team is not aware of any existing operating irrigation system.

27.) *Do we have to use the services of a private underground utility locator for this project?*
Response: See specification 31 10 00 paragraphs 1.07, 1.08, & 3.04

28). *Is there any activity on the site throughout the contract time involving the County's staff and machinery?*
Response: No.

29.) *Are there any restroom facilities on-site for the construction crew?*
Response: GC shall provide their own facilities, see sheet C505 for requirements to provided portable sanitary units.

30.) *Does this project have a subsurface investigation? If so, is the geotechnical report available*?
Response: Yes. See the attached GEOServices report for reference

31.) *Can Milling materials that were removed from the existing asphalt parking lots be used as backfill materials? We have done this with a similar project in Rockdale County and was approved by the materials testing agency, which represents the County.*
Response: Proposed backfill material shall be tested by the owner's geotechnical engineer. If the milling meet spec, then they can be used.

32.) *Are there interior fences dividing the pickleball courts? If so, what are the specs?*
Response: See revised site plan C100. (4' height, 2" mesh)

33.) *Is the walkway between the pickleball courts 5' wide?*
Response: Yes. See site plan C100.

34.) *Can you please confirm the existing fence scope at the tennis courts that get repaired? The note on drawing C100 indicates "existing fence to be repaired where chain link fencing is bent on north end of courts". See attached photos of the existing conditions. All the fencing around the entire courts is bent. Please confirm we are just re-fencing the north side only.*
Response: Yes. Bid should included repaired fabric on north end of court. If bends can't be satisfactorily repaired, as determined by architect, then new fabric shall be provided. Note mesh for tennis court if replaced shall be 1-3/4"

The following amendments to the specifications and/or revisions to the drawing shall be considered part of the contract, and shall replace documents by the same name.

Section 32 31 13 PVC Coated Chain Link Fences

1. Paragraph 2.04 revised to make proposed fence fabric 2" mesh.

<u>SHEET C100</u>

1. Revised to list separate detail references for tennis and pickleball courts pavement sections
2. A 4' fence has been added between the north and south row of pickleball courts

<u>SHEET C700</u>

1. Revised fence detail to use 2" mesh fabric
2. Revised court paving details.

SECTION 32 18 23

TENNIS PICKLEBALL COURT SURFACING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Asphalt tennis court surface color coating system.

1.2 RELATED REQUIREMENTS

A. Section 32 11 00 – Subgrade and Base Course Preparation

B. Section 32 12 16 – Hot Mix Asphalt Paving

1.3 REFERENCE STANDARDS

A. American Sports Builders Association (ASBA).

B. United States Tennis Association (USTA) Rules of Tennis.

C. ASBA/USA Pickleball Construction Manual

1.4 SUBMITTALS

A. Comply with Section 01 33 00 – Submittal Procedures.

B. Product Data: Submit manufacturer's product data, including surface and crack preparation and application instructions.

C. Samples: Submit manufacturer's color samples of color coating.

D. Test Reports:
   1. Submit independent test results for solar reflectance index.
   2. Submit independent test results for 2000 Hour ASTM G154, accelerated weathering UV test, to demonstrate long-term durability and fade resistance.
   3. Submit independent test results for 2000 Hour, accelerated weathering ASTM G155 Xenon Arc test, to demonstrate long-term fade resistance and quality of pigment.

E. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.

F. Manufacturer's Project References: Submit manufacturer's list of successfully completed asphalt tennis court surface color coating system projects, including project name, location, and date of application.

G. Applicator's Project References: Submit applicator's list of successfully completed asphalt tennis court surface color coating system projects, including project name, location, type and quantity of color coating system applied, and date of application.

H. Warranty Documentation: Submit manufacturer's standard warranty.

I. Authorized Installer Certificate: Submit manufacturer's authorized installer certificate.

1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
   1. Manufacturer regularly engaged, for past 5 years, in manufacture of asphalt tennis court surface color coating systems of similar type to that specified.
   2. United States owned company.
   3. Member: ASBA.
   4. Manufacturer has surfaces that are classified by the ITF's (International Tennis Federation) pace classification program.

B. Applicator's Qualifications:
   1. Applicator regularly engaged, for past 3 years, in application of tennis court surface color coating systems of similar type to that specified.
   2. Employ persons trained for application of tennis court surface color coating systems.
   3. Applicator must be authorized installer of the surfacing brand used.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage and Handling Requirements:
   1. Store and handle materials in accordance with manufacturer's instructions.
   2. Keep materials in manufacturer's original, unopened containers and packaging until application.
   3. Store materials in clean, dry area indoors.
   4. Store materials out of direct sunlight.
   5. Keep materials from freezing.
   6. Protect materials during storage, handling, and application to prevent contamination or damage.
   7. Close containers when not in use.
   8. Retain manufacturer batch codes on each container and application dates, for warranty purposes.

1.7 AMBIENT CONDITIONS

A. Do not apply asphalt tennis court surface color coating system when air or surface temperatures are below 50°F (10°C) during application or within 24 hours after application.

B. Do not apply asphalt tennis court surface color coating system when rain is expected during application or within 24 hours after application.

PART 2 PRODUCTS

2.1 MATERIALS

A. Asphalt Tennis Court Surface Color Coating System: SportMaster Color Coating System.

B. Crack Sealant: SportMaster "Crack Magic".
   1. 100 percent acrylic emulsion elastomeric crack sealant.
   2. Seals cracks up to 1/2 inch wide in asphalt pavement.
   3. Weight per Gallon at 77 Degrees F: 8.8 lbs., plus or minus 0.5 lbs.
   4. Non-Volatile Material: 61 percent, plus or minus 5 percent.
   5. Color: Match Finished Surface Color

C. Crack Filler: SportMaster "Acrylic Crack Patch".
   1. 100 percent acrylic emulsion trowel-grade crack filler.
   2. Fills cracks in asphalt pavement up to 1 inch wide.
   3. Chemical Characteristics, by Weight, Minimum:

a. Acrylic Emulsion: 10.0 percent.
b. Hiding Pigment: 0.2 percent.
c. Mineral Inert Fillers: 78.0 percent.
d. Film Formers, Additives: 1.8 percent.
e. Water: 8.5 percent.

4. Weight per Gallon at 77 Degrees F: 15.2 lbs., plus or minus 1.0 lbs.
5. Non-Volatile Material: 80 percent, plus or minus 5 percent.
6. Color: Match Finished Surface Color

D. Patch Binder: SportMaster “Acrylic Patch Binder”.
1. 100 percent acrylic emulsion liquid binder.
2. Mix on-site with sand and cement.
3. Levels and repairs low spots and depressions up to 3/4 inch deep in asphalt pavement.
4. Fills Cracks in Asphalt up to 1” in width.
5. Weight per Gallon at 77 Degrees F: 8.8 lbs., plus or minus 0.5 lbs.

E. Color Coating: SportMaster “ColorPlus System”.
1. 100 percent acrylic emulsion coating.
2. Mix on-site with silica sand and water.
3. Color coats tennis and multipurpose courts.
4. Weight per Gallon at 77 Degrees F: 9.2 lbs., plus or minus 0.5 lbs.
5. Color: Maroon out of bounds and Green in bounds (submit samples for owner review)

F. Line Markings Primer: SportMaster “Stripe-Rite”.
1. 100 percent acrylic emulsion primer, clear drying.
2. Primes line markings and prevents bleed-under for sharp lines.
3. Chemical Characteristics, by Weight, Nominal:
a. Acrylic Emulsion: 38.0 percent.
b. Hiding Pigment: 0.0 percent.
c. Mineral Inert Fillers: 7.0 percent.
d. Film Formers, Additives: 1.5 percent.
e. Water: 50.0 percent.
4. Weight per Gallon at 77 Degrees F: 8.9 lbs., plus or minus 0.5 lbs.
5. Non-Volatile Material: 29 percent, plus or minus 5 percent.

H. Line Paint: SportMaster “Textured Line Paint”.
1. Pigmented, 100 percent acrylic emulsion line paint.
2. Line marking on asphalt tennis courts.
3. Chemical Characteristics, by Weight, Nominal:
a. Acrylic Emulsion: 25.89 percent.
b. Pigment: 14.90 percent.
c. Mineral Inert Fillers: 13.12 percent.
d. Additives: 4.73 percent.
e. Water: 41.36 percent.
4. Weight per Gallon at 77 Degrees F: 10.65 lbs., plus or minus 0.75 lbs.
5. Non-Volatile Material: 45.17 percent, plus or minus 5 percent.
6. Color: White.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine asphalt tennis court surfaces to receive color coating system.

C. Verify asphalt tennis & pickleball courts meet ASBA construction requirements.

C. Notify Architect of conditions that would adversely affect application or subsequent use.

D. Do not begin surface preparation or application until unacceptable conditions are corrected.

3.2 SURFACE PREPARATION

A. Protection of In-Place Conditions: Protect adjacent surfaces and landscaping from contact with asphalt tennis court surface color coating system.

B. Prepare surfaces in accordance with manufacturer's instructions.

C. Cure new asphalt surfaces a minimum of 14 to 30 days before application of asphalt tennis court surface color coating system.

D. Remove dirt, dust, debris, oil, grease, vegetation, loose materials, and other surface contaminants which could adversely affect application of asphalt tennis court surface color coating system. Pressure wash entire surface.

E. Repair cracks, depressions, and surface defects in accordance with manufacturer's instructions before application of filler course and color coating.

F. Level depressions 1/8 inch and deeper with patch binder in accordance with manufacturer's instructions.

G. Apply 1 or 2 coats of filler course as required by surface roughness and porosity to provide smooth underlayment for application of color coating.

H. Ensure surface repairs are flush and smooth to adjoining surfaces.

3.3 APPLICATION

A. Apply asphalt tennis court surface color coating system in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Mix materials in accordance with manufacturer's instructions.

C. Apply Filler Course and Color Coating with a 50-60 durometer, soft rubber squeegee.

D. Filler Course:
   1. Apply 2 coats on new asphalt or existing acrylic surfaces with extensive cracks or low spot repair.
   2. Apply 1 coat on existing acrylic surfaces with minimal repairs.

E. Color Coating: Apply a minimum of 2 coats of color coating to prepared surfaces in accordance with manufacturer's instructions.

F. Allow material drying times in accordance with manufacturer's instructions before applying other materials or opening completed surface to foot traffic.

3.4 LINE MARKINGS

A. Lay out tennis court and pickle ball line markings in accordance with USTA Rules of Tennis and applicable rules of pickle ball.

B. Apply line markings primer, after masking tape has been laid, to seal voids between masking tape and tennis court surface to prevent bleed-under when line paint is applied.

C. Apply a minimum of 1 coat of line paint in accordance with manufacturer's instructions.

3.5 PROTECTION

A. Allow a minimum of 24 hours curing time before opening courts for play.

B. Protect applied asphalt court surface color coating system to ensure that, except for normal weathering, coating system will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 32 31 13

PVC COATED CHAIN LINK FENCES, POSTS AND GATES

PART 1 - GENERAL

1.01 SCOPE

A. Summary*:* The work covered by this section includes furnishing all labor, materials, and equipment required to install Class 2b Fused and Adhered, Poly Vinyl Chloride (PVC) Coated, Steel Chain Link Fence, including all excavation, concrete, and accessories, as shown on the Drawings or specified herein.

B. General*:* Like items of materials provided hereafter shall be the end products of one manufacturer in order to achieve standardization for appearance, maintenance and replacement.

C. Delivery, Storage and Handling*:* Deliver material to the site in an undamaged condition. Carefully store material off the ground to provide proper protection against oxidation caused by ground moisture.

1.02 SUBMITTALS

A. Shop Drawings: Include complete details of fence and gate construction, fence height, post spacing, dimensions and unit weights of framework and concrete footing details. Actual samples and certificates of compliance may be requested.

B. Product Data*:* Provide manufacturer's catalog cuts with printed specifications. Manufacturer shall provide certification of compliance with material specifications. Actual samples of the material may be requested.

1.03 STANDARDS

A. ASTM B 6 Slab Zinc

B. ASTM F567 Installation of Chain Link Fence

C. ASTM F668 Poly(Vinyl Chloride) (PVC) and Other Organic Polymer-Coated Steel Chain Link Fence Fabric, Class 2b

D. Federal Specification RR-F-191K/1D Fencing, Wire and Post Metal (Chain-Link Fence Fabric), Type IV

E. American Association of State Highway Transportation Officials (AASHTO) M-181 Chain Link Fence, Type IV, Class A

F. ASTM F1043 Strength and Protective Coating on Metal Industrial Chain Link Fence Framework Group I-A and Group I-C Heavy Industrial

G. ASTM F934 Standard Colors for Polymer-Coated Chain Link Fence Materials

H. Federal Specification RR-F-191K/3D Fencing, Wire and Post Metal (Chain-Link Fence Posts, Topsails and Braces), Class 1, Grade A or B

I. American Association of State Highway Transportation Officials (AASHTO) M-181 Chain Link Fence, Grades 1 and 2

PART 2 - PRODUCTS

2.01 FENCE FABRIC

A. The base metal of the chain link fence fabric shall be composed of commercial quality, medium-carbon galvanized (zinc coated) steel wire. The vinyl coating shall be thermally bonded to a thermoset-bonding layer over a galvanized steel wire. Vinyl coating thickness, coating weight, and wire tensile strength conform to Federal specification RR-F-191K/1D, ASTM F668, Class 2b and (AASHTO) M-181, Type IV, Class A, as shown in Table 1. The

wire is PVC coated before weaving, is free and flexible at all joints, and is knuckled at both selvages.

Table 1-PVC Coated Steel Wire Characteristics

Zinc Coated Core Wire Size			PVC Coated Finished Wire Size	PVC Coated Wire Allowable Variance		Core Wire Zinc Coating Weight, Min		PVC Coating Thickness		Breaking Strength, minimum		Tensile Strength, min	
ga	inch	mm	ga	Inch	mm	oz/ft^2	g/m^2	Inch	mm	lbf	N	ksi	MPa
9	0.148	3.76	8	+- 0.005	+-0.13	0.30	92	0.006 to 0.010	0.15 to 0.25	1,290	5,740	75	515

B. Coating: Only plasticized poly(vinyl chloride) (PVC) with a low temperature (-20°C, -4°F) plasticizer and no extenders or extraneous matter other than the necessary stabilizers and pigments, is used. The PVC coating resists attack from prolonged exposure to dilute solutions of most common mineral acids, seawater, and dilute solutions of most salts and alkali. The vinyl coating is thermally bonded to a thermoset-bonding layer over a galvanized steel wire. The wire is PVC coated before weaving and is free and flexible at all joints.

C. Color: Shall Conform to ASTM F934, Black

2.02 FENCE POSTS AND RAILS

A. The base metal of the posts and rails shall be commercial steel conforming to ASTM F1043 Group I-A and I-C, Heavy Industrial Fence, and also conform to Federal specification RR-F-191, Class 1, Grades A and B and ASSHTO M181 Grades 1 and 2. The thickness of the PVC coating shall be a minimum 0.010 to 0.015 in.

B. Coating: Only plasticized poly(vinyl chloride) (PVC) with a low temperature (-20°C, -4°F) plasticizer and no extenders or extraneous matter other than the necessary stabilizers and pigments, is used. The PVC coating resists attack from prolonged exposure to dilute solutions of most common mineral acids, seawater, and dilute solutions of most salts and alkali.

2.03 FITTINGS

A. Fittings and other accessories shall be zinc-coated (galvanized) pressed steel, cast steel or malleable iron, as specified and are coated with matching PVC by the same process as post and rails. PVC coating thickness shall be a minimum 0.006 mils. Painted fittings are not acceptable.

B. Color: Shall Conform to ASTM F934, Black

2.04 FENCE MATERIALS

A. Fabric

Fused and Adhered Poly(Vinyl Chloride)-PVC Coated Steel Chain Link Fence Fabric

1. 9 gauge zinc coated core wire with 8 gauge PVC coated finished wire size
2. 2.00-inch mesh
3. Knuckled at both selvages unless otherwise specified.

B. Posts: Steel pipe, ASTM F1043, capped

1. Line post: 2 1/2 inch O.D.
2. Corner, end, angle, and pull posts: 3 inch O.D., Schedule 40
3. Gate posts, 4 inch O.D. Schedule 40

C. Top rail: 1 5/8 inch O.D., with expansion couplings spaced at not less than 10 feet intervals.

D. Mid rail: 1 5/8 inch O.D., with expansion couplings spaced at not less than 10 feet intervals.

E. Bottom rail: 1 5/8 inch O.D., with expansion couplings spaced at not less than 10 feet intervals.

F. Fittings: pressed steel, cast steel or heavy malleable iron.

2.05 GATE

A. Pedestrian Type: 4 foot minimum, single swing

B. Frames
1. 2 inch O.D. pipe
2. Material: Galvanized steel.
3. Construction: Welded corners or assembled with corner fittings and 3/8-inch steel truss rods.
4. Provide horizontal 2 inch brace rail and 3/8-inch truss rod for gates 5 feet wide or greater.
5. Provide vertical 2 inch brace rail for gates 6 feet wide or wider, spacing not to exceed 5-foot centers.

C. Hinges
1. Standard type.
2. Size to accommodate gate frame and post.

D. Latches
1. Industrial gate latch with drop rod or center stop.
2. See plan for latches at playgrounds

E. Keepers
1. Mechanical keeper for each gate leaf.
2. Secure free end of gate when in full open position.

2.06 CONCRETE

A. Posts shall be placed in masonry wall as shown on the details. Concrete shall be a min. 3000 psi.

PART 3 - EXECUTION

3.01 PREPARATION

A. Verify that final grading in fence location is complete without irregularities, which would interfere with fence installation.

B. Measure and lay out complete fence line.

C. Locate line posts at equal distance spacing, not exceeding 10-foot centers.

D. Use corner posts at positions where fence changes direction more than 10 degrees.

E. Contractor to grout entire length of masonry wall to the top of last block after installation of fence posts, fabric, and net poles.

3.02 INSTALLATION

A. Install Fence, Fence Posts and Gates in accordance with ASTM practice 567.

3.03 ADJUST AND CLEAN

A. Adjust brace rails for rigid installation.

B. Tighten hardware, fasteners and accessories.

C. Level and smooth all disturbed areas.

END OF SECTION

SEVEN SCREENING EVERGREEN TREES
6' HEIGHT MIN.
40 SPACING
PICK SPECIES FROM TABLE 4-E IN UDC.

CONC. EXTRUDED CURB, TYP ONSITE (6 / C700)

N1802989.30
E1970828.11

N1802975.68
E1971097.77

2" CAL. DBH CLASS I SHADE TREES WHERE SHOWN.
USE 3 SPECIES MINIMUM AT LANDSCAPE CONTRACTOR'S OPTION
SUBMIT SPECIES FOR APPROVAL FROM LIST IN SEC 4.7 TABLE 4-C CITY OF FORT. OGLETHORPE UDC

12" DEPRESSION & 12" TAPER OF CONC. EXTRUDED CURB (10 / C700)

PRE-CAST CONC. CURB STOP, TYP. WHERE SHOWN (14 / C700)

STANDARD DUTY ASPHALT PARKING PAVING, WHERE SHADED (15 / C700)

CONCRETE SIDEWALK TYP. ON SITE (2 / C700)

ADA PARKING SIGN & SYMBOL TYP. 2-PLACES (12 / C700)

90° PARKING TYP ONSITE (11 / C700)

ADA PARKING SIGN & SYMBOL TYP. 3-PLACES (12 / C700)

SAWCUT & PAVEMENT TRANSITION (7 / C700)

SIDEWALK DRAIN (9 / C700)

CRACK CONTROL & EXPANSION JOINTS AS SHOWN (7 / C700)

RESURFACE AND RESTRIPE FOR TWO TENNIS COURTS MILL THEN APPLY NEW ASPHALT TOP COAT AND COLOR SYSTEM TO MATCH PICKLEBALL

TENNIS COURT ASPHALT PAVEMENT (1 / C700)

TENNIS COURT NET POST, TYP (3 / C700)

NET ANCHOR, TYP (4 / C700)

EXISTING FENCE TO BE REPAIRED WHERE CHAIN LINK FENCING IS BENT ON NORTH END OF COURTS.

TIE TO EX. SIDEWALK WITH EXPANSION JOINT (7 / C700)

EXISTING POOL AND BUILDING TO REMAIN

LOCATION OF EX. CURB APPROX. AFTER THIS POINT

APPROXIMATE LOCATION OF EX. 8" DIP WATER, CONTRACTOR TO FIELD VERIFY

25 FT STREAM BUFFER TO NOT BE DISTURBED AS MEASURED FROM EDGE OF STREAM

REPAVE WITH LIGHT DUTY ASPHALT TO MATCH EX. ASPHALT ONCE PICKLEBALL COURTS HAVE BEEN CONSTRUCTED AND NO HEAVY MACHINERY IS REQUIRED TO CROSS ASPHALT TRACK AGAIN

CONCRETE SIDEWALK FLUSH WITH ASPHALT PAVEMENT (2 / C700)

N1802549.23
E1970646.93

N1802416.43
E1970639.63

PROPOSED 12 NEW PICKLEBALL COURTS

PICKLEBALL COURT ASPHALT PAVEMENT (1A / C700)

FENCE 1' OFFSET INSIDE OF PAVEMENT (8 / C700)

BEGIN 10' FENCE

10' FENCE

4' FENCE

4' GATE

DOUBLE GATE

CRACK CONTROL & EXPANSION JOINTS AS SHOWN (7 / C700)

COLD MILL 1" AND ADD 1.5" HOT MIX ASPHALT TOPPING OVER EXISTING ASPHALT WHERE [ ] HATCHED

RETAIN EX. CURB (LOCATION APPROX.) IF LOT IS ABLE TO BE CONSTRUCTED WITH SHOWN DIMENSIONS (NO SURVEY IN THIS LOCATION)

TIE PROP. CURB INTO EX. (LOCATION OF EX. CURB APPROX. AS THERE IS NO SURVEY IN THIS LOCATION)

UNABLE TO DETERMINE TERMINUS

SAWCUT & PAVEMENT TRANSITION (7 / C700)

NOTE: RIPRAP ALONG DITCH

LEGEND

- Ex. Curb
- Ex. Centerline
- Ex. Fence
- Ex. Water Line
- Ex. Fire Line
- Ex. Irrigation Line
- Ex. Sanitary Sewer Line
- Ex. Sanitary Sewer Force Main
- Ex. Swale Centerline
- Ex. Ditch Centerline
- Ex. Gas Line
- Ex. Overhead Elect. or Utility Line
- Ex. Underground Electrical
- Ex. Underground Fiber Optics
- Ex. Underground Telephone
- **PROPERTY LINE**
- BUILDING LINE
- EASEMENT LINE
- BUILDING SETBACK LINE
- LANDSCAPE BUFFER LINE
- LOT LINE
- ROW LINE
- CURB
- CENTERLINE
- PROP. FENCE LINE

ABBREVIATIONS:
SSE – NEW PUBLIC SANITARY SEWER EASEMENT (SEE PLAN FOR WIDTH).
DE – NEW DRAINAGE EASEMENT (SEE PLAN FOR WIDTH).
WE – NEW PUBLIC WATER EASEMENT (SEE PLAN FOR WIDTH).
LA BUFFER – NEW LANDSCAPE BUFFER (SEE PLAN FOR WIDTH AND TYPE).
FYSB= FRONT YARD SETBACK/ SYSB =SIDE YARD SETBACK / RYSB=REAR YARD SETBACK
FFE – FINISHED FLOOR ELEVATION
TW – FINISH GRADE AT TOP OF RETAINING WALL
BW –FINISHED GROUND GRADE AT BOTTOM OF RETAINING WALL
SSCO / SSCO — STORM DRAINAGE / SANITARY SEWER CLEAN-OUT
DS — ROOF DOWNSPOUT CONNECTION
SDWL–SINGLE SOLID WHITE LINE, DSYL– DOUBLE SOLID YELLOW LINE
SDWL–SINGLE DASHED WHITE LINE

SITE INFORMATION:

SITE AREA: 13.42 ACRES
SITE IS ZONED: MUNICIPAL PROPERTY (MP)
LAND DISTURBANCE AREA: 3.0± ACRES
TAX MAP PARCEL #: 0003-0-001
STREET ADDRESS: 19 VAN CLEVE ST. FORT OGLETHORPE, GA
SANITARY SEWER AVAILABILITY: NA
POTABLE WATER SUPPLY AVAILABILITY: NA
STORM DRAINAGE: STORM DRAINAGE WILL DISCHARGE INTO AN EXISTING BLACK BRANCH TO THE EAST OF THE PROPERTY.
REGULAR PARKING SPACES: 102 NEW + 40 OVERLAID=142
REGULAR H'CAP SPACES: 4
VAN ACCESSIBLE H'CAP SPACES: 1
TOTAL PARKING PROVIDED: 147 SPACES

FLOODZONE: PORTIONS OF THE PROPERTY ARE LOCATED IN FLOOD ZONE "AE" AS SCALED FROM THE FIRM MAP COMMUNITY–PANEL NUMBER 13047C0009E, MAP REVISED 9/11/2009. BASE FLOOD VARIES 717.7–718.7

PROPERTY OWNER: CITY OF FORT OGLETHORPE

Know what's below. Call before you dig.

LOCATION MAP
N.T.S.

NORTH

MAA CIVIL CONTACT: MICHAEL HUTCHERSON, P.E.
DIRECT LINE: 423-664-1484

30' 0 30' 60'
Scale 1" = 30'

March Adams & Associates Consulting Engineers
310 Dodds Ave.
P.O. Box 3689
Chattanooga, Tennessee 37404
PH: (423)698-6675
MAA #21280

DH&W
ARCHITECTURE INTERIORS PLANNING
1001 Carter Street - Chattanooga - 37402
423 | 266 | 4816 www.dhw-architects.com

New Tennis Courts

Gilbert-Stephenson Park
19 Van Cleve Street
Fort Oglethorpe, GA

Date: 05/09/2023
Drawn: JP
File: 2212

Revisions:
1 ADDENDUM 1 6-21-23
2 ADDENDUM 2 7-05-23

Key Plan

GSWCC QR CODE

Title:
SITE STAKING

Scale:

Sheet No.
C100

GENERAL NOTES:

1. THESE DRAWINGS DO NOT PURPORT TO LOCATE ALL UTILITIES.
2. ALL UTILITY LOCATIONS TO BE FIELD VERIFIED BY PROPER AGENCIES BEFORE BEGINNING CONSTRUCTION. UNDERGROUND UTILITIES ARE NOT FIELD LOCATED NOR ARE ALL PURPORTED TO BE SHOWN. INFORMATION SHOWN SHOULD BE CONSIDERED APPROXIMATE. CONTRACTOR TO CONTACT ALL UTILITY COMPANIES TO HAVE UTILITIES FIELD LOCATED BEFORE EXCAVATION OR DEMOLITION WORK BEGINS.
3. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES WITHIN THE WORKING AREA BEFORE COMMENCING WORK & AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE & PRESERVE ANY & ALL UNDERGROUND UTILITIES.
4. THE CONTRACTOR SHALL COORDINATE LOCATION & INSTALLATION OF ALL UNDERGROUND UTILITIES & APPURTENANCES TO MINIMIZE DISTURBING CURB & GUTTER, PAVING, EXISTING UTILITIES & COMPACTED SUBGRADE.
5. CONTRACTOR SHALL VERIFY EXISTING UTILITY LINE OR EXISTING INFRASTRUCTURE PRIOR TO BEGINNING WORK. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES ON THE DRAWING OR IN THE FIELD BEFORE BEGINNING WORK OR DURING CONSTRUCTION.
6. CONTRACTOR TO COORDINATE ALL WORK WITH OTHER UTILITY INSTALLATIONS NOT COVERED IN THESE PLANS (ELECTRIC, TELEPHONE, GAS, CABLE, ETC.) & ALLOW FOR THEIR OPERATIONS & CONSTRUCTION TO BE PREPARED.
7. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE OWNERS REPRESENTATIVE OR ENGINEER OF ANY DISCREPANCIES OR ERRORS HE DISCOVERS IN THE PLAN.
8. DEVIATION FROM THESE PLANS & NOTES WITHOUT THE PRIOR CONSENT OF THE OWNERS REPRESENTATIVE MAY BE CAUSE FOR THE WORK TO BE UNACCEPTABLE.
9. ALL WORK SHALL COMPLY WITH APPLICABLE STATE, FEDERAL, AND LOCAL CODES, & ALL NECESSARY LICENSES & PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT HIS EXPENSE UNLESS PREVIOUSLY OBTAINED BY THE OWNER/DEVELOPER.
10. FOR ANY WORK IN THE STATE OR CITY RIGHT-OF-WAY, THE CONTRACTOR SHALL:
    A. NOT STORE MATERIAL, EXCESS DIRT OR EQUIPMENT ON THE SHOULDERS OF PAVEMENT; IN THE CASE OF MULTI-LANE HIGHWAYS, IN THE MEDIAN STRIPS. THE PAVEMENT SHALL BE KEPT FREE FROM ANY MUD OR EXCAVATION WASTE FROM TRUCKS OR OTHER EQUIPMENT. ON COMPLETION OF THE WORK, ALL EXCESS MATERIAL SHALL BE REMOVED FROM THE RIGHT-OF-WAY.
    B. PROVIDE ALL NECESSARY & ADEQUATE SAFETY PRECAUTIONS SUCH AS SIGNS, FLAGS, LIGHTS, BARRICADES & FLAG MEN AS REQUIRED BY THE LOCAL AUTHORITIES & IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR & HOLD HARMLESS THE CITY OF FORT OGLETHORPE & THE OWNER FROM ANY CLAIMS FOR DAMAGE DONE TO EXISTING PRIVATE PROPERTY, PUBLIC UTILITIES, OR TO THE TRAVELING PUBLIC.
    C. COMPLETE THE WORK TO THE SATISFACTION OF THE CITY OF FORT OGLETHORPE OR DOT AND OBTAIN A LETTER FROM THE DEPARTMENT STATING THAT THE WORK IS ACCEPTABLE.
    D. POST NECESSARY BONDS AS REQUIRED BY THE CITY AND/OR STATE.
11. ALL WORK & MATERIALS SHALL COMPLY WITH CITY OF FORT OGLETHORPE REGULATIONS & CODES OF GA.H.A. STANDARDS.
12. A MINIMUM CLEARANCE OF TWO FEET SHALL BE MAINTAINED BETWEEN THE FACE OF CURB & ANY PART OF A TRAFFIC SIGNAL OR LIGHT POLE.
13. NECESSARY & SUFFICIENT BARRICADES, LIGHTS, SIGNS & OTHER TRAFFIC CONTROL MEASURES AS MAY BE NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC SHALL BE PROVIDED & MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
14. CONTRACTORS SHOULD NOT BE DOING ANY OPEN BURNING OF CONSTRUCTION MATERIALS OR DEBRIS WITHOUT A PERMIT FROM THE DEPARTMENT OF AIR POLLUTION CONTROL OR LOCAL AUTHORITY. IF A CONTRACTOR DESIRES TO PERFORM OPEN BURNING, HE MUST BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND IS RESPONSIBLE FOR ANY VIOLATION OF THE AIR POLLUTION LAWS.
15. CONTRACTOR SHALL BE RESPONSIBLE DURING CONSTRUCTION FOR THE CONTINUOUS MAINTENANCE OF SEDIMENT & EROSION CONTROL MEASURES AS CALLED FOR ON THE DRAWINGS.
16. EROSION CONTROL MEASURES ARE TO BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION (SEE GRADING & DRAINAGE PLAN AND/OR SEDIMENT & EROSION CONTROL PLAN).
17. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED, REPAIRED AS NEEDED & CLEANED OUT TO REMOVE ALL SILT & DEBRIS.
18. THE CONTRACTOR SHALL REPAIR OR REPLACE IN-KIND ANY DAMAGE THAT OCCURS TO PROPERTY AS RESULT OF HIS WORK.
19. ALL SIDE DITCHES TO BE CLEANED AND/OR REGRADED TO PROVIDE PROPER DRAINAGE.
20. ALL AREAS NOT OTHERWISE SURFACED ARE TO BE SEEDED, LANDSCAPED, MULCHED, WATERED, & MAINTAINED UNTIL ADEQUATE STAND OF GRASS IS OBTAINED.
21. UNLESS OTHERWISE SPECIFIED, ALL SLOPES TO BE COVERED WITH MINIMUM OF 4" OF TOPSOIL.
22. ALL PIPE LENGTHS & DISTANCES BETWEEN STRUCTURES ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE ALONG A HORIZONTAL PLANE.
23. THE CONTRACTOR SHALL PROVIDE ALL THE MATERIALS & APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION OF THE STORM DRAINAGE, SEWER, WATER & UTILITY SYSTEMS. ALL PIPE & FITTINGS SHALL BE INSPECTED BY THE UTILITY DEPARTMENT INSPECTOR PRIOR TO BEING COVERED. THE INSPECTOR MUST ALSO BE PRESENT DURING PRESSURE TESTING & DISINFECTION OF ASTM'S & HIS SIGNATURE OF APPROVAL IS REQUIRED.
24. THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE LOCAL UTILITY AUTHORITIES FOR CONNECTION TO THE EXISTING MAINS & PAY ALL APPLICABLE FEES.
25. UTILITY COORDINATION & COSTS SHALL BE INCLUDED IN THE PROJECT SCHEDULE & IT IS THE EXPLICIT RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT THE PROJECT SCHEDULE INCLUDES THE NECESSARY RELOCATION. THE CONTRACTOR WILL NOT BE PAID ADDITIONALLY FOR THIS COORDINATION. THE CONTRACTOR SHOULD SEEK ASSISTANCE FROM ALL UTILITY COMPANIES TO LOCATE & PROTECT THEIR FACILITIES.
26. CONTRACTOR SHALL OBTAIN ALL PERMITS BEFORE CONSTRUCTION BEGINS.
27. DIMENSIONS ON BUILDINGS ARE FOR GRADING PURPOSES ONLY & ARE NOT TO BE USED TO LAYOUT FOOTINGS, REFER TO THE STRUCTURAL DRAWINGS FOR FOUNDATION INFORMATION.
28. ALL DIMENSIONS SHOWN ARE TO FACE OF CURB OR EDGE OF S/W UNLESS NOTED OTHERWISE.
29. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO BEGINNING CONSTRUCTION.
30. JOINTS OR SCORE MARKS ARE TO BE SHARP & CLEAN WITHOUT SHOWING EDGES OF JOINT TOOL.
31. THE CONTRACTOR SHALL PROVIDE FOR ANY NECESSARY BONDS AS REQUIRED BY GOVERNING AGENCIES.
32. AN AUTO CAD BASE PLAN MAY BE PROVIDED TO THE CONTRACTOR FOR CONSTRUCTION PURPOSES.
33. TEMPORARY BENCHMARKS ARE LOCATED WHERE SHOWN ON SURVEY. MAG NAIL W. WASHER SET ELEV=717.19 AND FIRE HYDRANT TOP BOLT ELEV: 716.61 & WAS SET BY HOPKINS SURVEYING
34. TOPOGRAPHIC & BOUNDARY SURVEY BY HOPKINS SURVEYING & PROVIDED BY THE OWNER.
35. SEE FINAL PLAT BY SURVEYOR FOR LOCATIONS OF ALL NEW SANITARY SEWER & STORM DRAINAGE EASEMENTS, ALL DETENTION AREAS WILL BE A STORM DRAINAGE EASEMENT.

SITE NOTES:

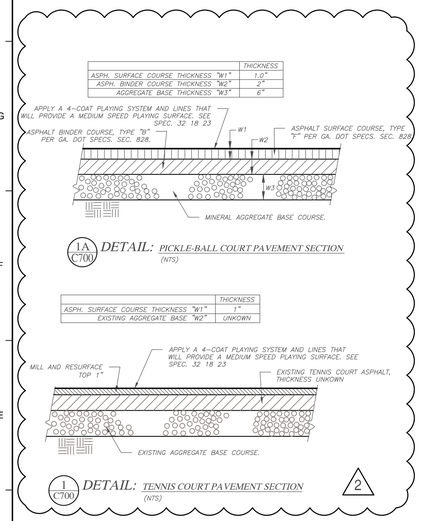
1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE BEGINNING CONSTRUCTION.
2. FOR EXACT BUILDING DIMENSIONS SEE ARCHITECTURAL PLANS.
3. DIMENSIONS ON BUILDINGS ARE FOR GRADING PURPOSES ONLY & ARE NOT TO BE USED TO LAYOUT FOOTINGS, REFER TO THE STRUCTURAL DRAWINGS FOR FOUNDATION INFORMATION.
4. ALL DIMENSIONS SHOWN ARE TO FACE OF CURB, FACE OF SIDEWALK, OR FACE OF BUILDING UNLESS NOTED OTHERWISE.
5. A 1" CURB PAPER SHALL BE FORMED AT ALL PLACES WHERE CURB & GUTTER MEETS AN ADJACENT CONCRETE SIDEWALK OR PARKING AREA WHICH IS 0.5" LOWER THAN THE TOP OF CURB ELEVATION.
6. REFER ALSO TO GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.

DEMOLITION NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING DEMOLITION PERMITS AS WELL AS OTHER ASSOCIATED PERMITS PRIOR TO CONSTRUCTION.
2. DIMENSIONS ON BUILDINGS ARE FOR GRADING PURPOSES ONLY & ARE NOT TO BE USED TO LAYOUT FOOTINGS, REFER TO THE STRUCTURAL/DRAWINGS FOR FOUNDATION INFORMATION.
3. ALL DEMOLITION DIMENSIONS SHOWN ARE APPROXIMATE & SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL SAW-CUT TIE-INS AT EXISTING PAVEMENT OR CONC. AREAS AS NECESSARY TO ENSURE SMOOTH TRANSITIONS. THE CONTRACTOR SHALL SAW-CUT AND TRANSITION TO MEET EXISTING PAVEMENT AS NECESSARY & AS DIRECTED BY THE INSPECTOR TO ENSURE POSITIVE DRAINAGE (TYPICAL AT ALL INTERSECTIONS). INSTALL EXPANSION JOINTS AT ALL CONC. SAW-CUT TIE-INS.
5. ALL EXISTING TREES, VEGETATION & ORGANIC TOPSOIL SHALL BE STRIPPED & REMOVED FROM THE CONSTRUCTION AREA, AS REQUIRED.
6. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED, REMOVED, OR RELOCATED AS REQUIRED. COORDINATE WITH PROPER AUTHORITIES AND/OR UTILITY COMPANIES.
7. REFER ALSO TO GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.

DRAINAGE & GRADING NOTES:

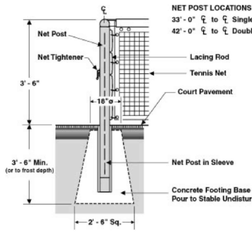
1. CONTRACTOR SHALL OBTAIN ALL PERMITS BEFORE CONSTRUCTION BEGINS.
2. NEW FINISHED CONTOURS SHOWN ARE TOP OF NEW PAVING IN AREAS TO RECEIVE PAVEMENT & TOP OF TOPSOIL IN AREAS TO BE SEEDED.
3. PROPOSED CONTOUR INTERVALS ARE AS LABELED, ALL PROPOSED CONTOURS ARE FINISHED GRADE.
4. CONTRACTOR SHALL NOTIFY & COOPERATE WITH ALL UTILITY COMPANIES OR FIRMS HAVING FACILITIES ON OR ADJACENT TO THE SITE BEFORE DISTURBING, ALTERING, REMOVING, RELOCATING, ADJUSTING OR CONNECTING TO SAID FACILITIES. CONTRACTOR SHALL PAY ALL COSTS IN CONNECTION WITH THE ALTERATION OF OR RELOCATION OF THE FACILITIES. CONTRACTOR SHALL RAISE OR LOWER TOPS OF EXISTING MANHOLES AS REQUIRED TO MATCH FINISHED GRADES.
5. A QUALIFIED SOILS LABORATORY SHALL DETERMINE THE SUITABILITY OF THE EXISTING SUB-GRADE & EXISTING ON SITE MATERIAL PRIOR TO BEGINNING ANY FILLING OPERATION.
6. UNSUITABLE EXCAVATED MATERIALS (SOIL) SHALL BE REDISTRIBUTED AT LOCATIONS APPROVED BY THE ARCHITECT, ALL WASTE RESULTING FROM DEMOLITION, CLEARING & GRUBBING SHALL BE DISPOSED OF OFF SITE BY THE CONTRACTOR AT AN APPROVED LOCATION.
7. BEFORE ANY MACHINE WORK IS DONE, CONTRACTOR SHALL STAKE OUT & MARK THE ITEMS ESTABLISHED BY THE SITE PLAN. CONTROL POINTS SHALL BE PRESERVED AT ALL TIMES DURING THE COURSE OF THE PROJECT. LACK OF PROPER WORKING POINTS AND GRADE STAKES MAY REQUIRE CESSATION OF OPERATIONS UNTIL SUCH POINTS & GRADES HAVE BEEN PLACED TO THE OWNER'S SATISFACTION.
8. COMPACTION OF THE BACK FILL OF ALL TRENCHES SHALL BE COMPACTED TO THE DENSITY OF 95% OF THEORETICAL MAXIMUM DRY DENSITY (ASTM D698). BACK FILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, OR OTHER FOREIGN DEBRIS & SHALL BE PLACED AT OR NEAR OPTIMUM MOISTURE, CORRECTION OF ANY TRENCH SETTLEMENT WITHIN A YEAR FROM THE DATE OF APPROVAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
9. THE CONTRACTOR WILL ENSURE THAT POSITIVE & ADEQUATE DRAINAGE IS MAINTAINED AT ALL TIMES WITHIN THE PROJECT LIMITS. THIS MAY INCLUDE, BUT NOT BE LIMITED TO, REPLACEMENT OR RECONSTRUCTION OF EXISTING DRAINAGE STRUCTURES THAT HAVE BEEN DAMAGED OR REMOVED OR RECONSTRUCTED AS REQUIRED BY THE ENGINEER. EXCEPT FOR THOSE DRAINAGE ITEMS SHOWN AT SPECIFIC LOCATIONS IN & HAVING SPECIFIC PAY ITEMS IN THE DETAILED ESTIMATE OF SEPARATE PAYMENT WILL BE MADE AT ANY COSTS INCURRED TO COMPLY WITH THIS REQUIREMENT.
10. THE CONTRACTOR SHALL PROVIDE ANY EXCAVATION & MATERIAL SAMPLES NECESSARY TO CONDUCT REQUIRED SOIL TESTS, ALL ARRANGEMENTS & SCHEDULING FOR THE TESTING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
11. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY EXISTING GRADES ESPECIALLY WITHIN & ALONG DRAINAGE WAYS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.
12. UNLESS OTHERWISE SPECIFIED, ALL SLOPES TO BE COVERED WITH MINIMUM OF 4" TOPSOIL.
13. MAXIMUM EMBANKMENT SLOPES TO BE AS FOLLOWS: CUT AREA - 3:1; FILL AREAS 3:1 (UNLESS NOTED OTHERWISE).
14. STOCKPILED TOPSOIL IS TO BE SPREAD OVER LAWN AREAS AT COMPLETION OF PROJECT (PROVIDE 4" MINIMUM SPREAD). IT IS THE INTENT OF THIS PROJECT FOR THE CONTRACTOR TO VERIFY & MATCH EXISTING CONDITIONS UNLESS OTHERWISE NOTED.
15. THE CONTRACTOR SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY ITEMS THAT DO NOT EXIST AS SHOWN.
16. STORM DRAIN PIPE TO BE CLASS III REINFORCED CONCRETE CONFORMING TO ASTM C-76, OR CMP, FULLY COATED (16 GAGE MIN.) PER ASTM A44. OR ADS N-12 WITH WATERTIGHT GASKET AS SHOWN ON DRAWINGS.
17. PRE-CAST STRUCTURES MAY BE USED AT THE CONTRACTORS OPTION, ALL CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 P.S.I.
18. CONTRACTOR SHALL BLEND ALL SLOPES WITH THE SURROUNDING ENVIRONMENT.
19. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER FOR ANY FIELD GRADE ADJUSTMENTS NEEDED DUE TO ACTUAL TOPOGRAPHY VARYING FROM THE TOPOGRAPHIC SURVEY
20. REFER ALSO TO GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.



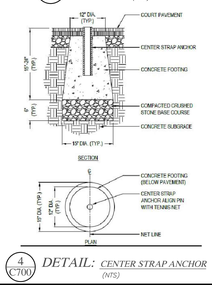
1A / C700 **DETAIL:** *PICKLE-BALL COURT PAVEMENT SECTION* (NTS)

1 / C700 **DETAIL:** *TENNIS COURT PAVEMENT SECTION* (NTS)

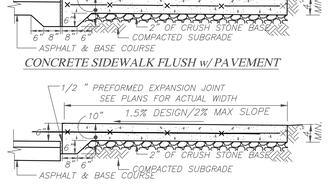
2



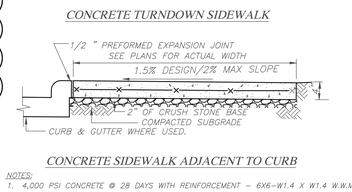
3 / C700 **DETAIL:** *NET POST* (NTS)



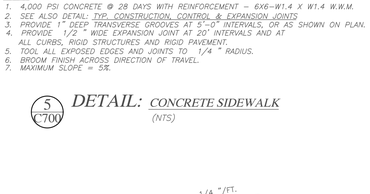
4 / C700 **DETAIL:** *CENTER STRAP ANCHOR* (NTS)



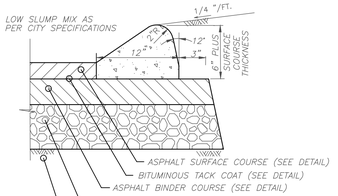
STD. CONCRETE SIDEWALK



CONCRETE SIDEWALK FLUSH w/ PAVEMENT



CONCRETE TURNDOWN SIDEWALK



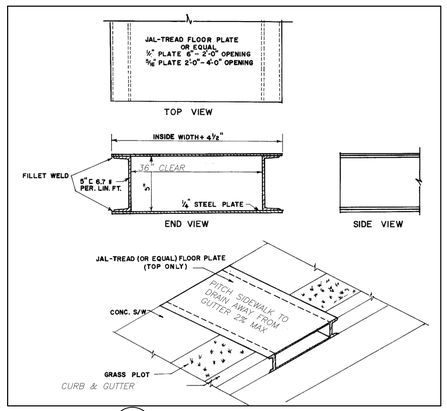
CONCRETE SIDEWALK ADJACENT TO CURB

NOTES:
1. 4,000 PSI CONCRETE @ 28 DAYS WITH REINFORCEMENT – 6x6–W1.4 X W1.4 W.W.M.
2. SEE ALSO DETAIL: *TYP. CONSTRUCTION, CONTROL & EXPANSION JOINTS*
3. PROVIDE 1" DEEP TRANSVERSE GROOVES AT 5'-0" INTERVALS, OR AS SHOWN ON PLAN.
4. PROVIDE 1/2 " WIDE EXPANSION JOINT AT 20' INTERVALS AND AT ALL CURBS, RIGID STRUCTURES AND RIGID PAVEMENT.
5. TOOL ALL EXPOSED EDGES AND JOINTS TO 1/4 " RADIUS.
6. BROOM FINISH ACROSS DIRECTION OF TRAVEL.
7. MAXIMUM SLOPE = 5%.

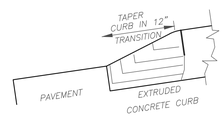
5 / C700 **DETAIL:** *CONCRETE SIDEWALK* (NTS)

NOTE: SEE DETAIL ASPHALT PAVEMENT SECTIONS

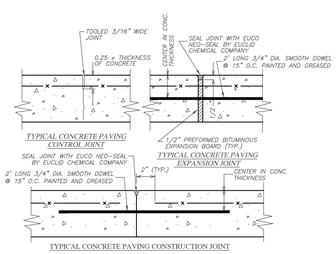
6 / C700 **DETAIL:** *MOUNTABLE EXTRUDED CONCRETE CURB* (NTS)



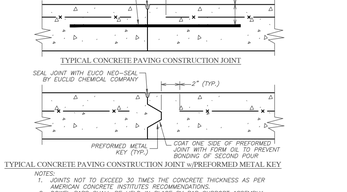
9 / C700 **DETAIL:** *SIDEWALK DRAIN* (NTS)



EXTRUDED CONCRETE CURB TAPER (NTS)

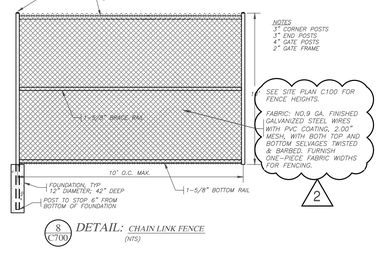


NOTES:
1. JOINTS NOT TO EXCEED 30 TIMES THE CONCRETE THICKNESS AS PER AMERICAN CONCRETE INSTITUTES RECOMMENDATIONS.
2. DOWEL BARS SHALL BE HELD IN PLACE, BY BAR SUPPORT ASSEMBLY, DOWEL CONC. PAVEMENT TO CURB & GUTTER. PROVIDE EXPANSION JOINT WHERE CONC. PAVEMENT AND CURB & GUTTER MEET.

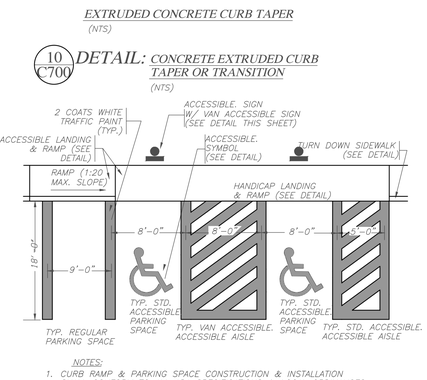


JOINTS NOT TO EXCEED 30 TIMES THE CONCRETE THICKNESS AS PER AMERICAN CONCRETE INSTITUTES RECOMMENDATIONS.

7 / C700 **DETAIL:** *TYP. CONSTRUCTION, CONTROL & EXPANSION JOINTS* (NTS)

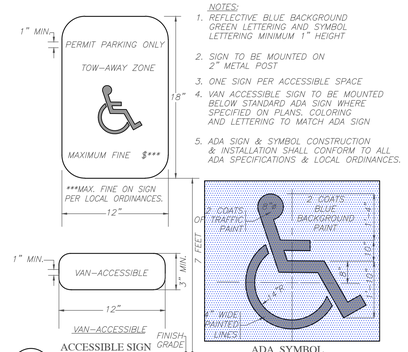


8 / C700 **DETAIL:** *CHAIN LINK FENCE* (NTS)



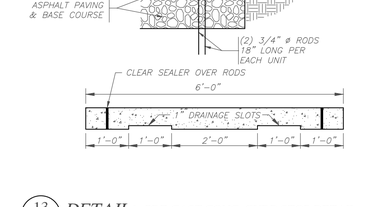
NOTES:
1. CURB RAMP & PARKING SPACE CONSTRUCTION & INSTALLATION SHALL CONFORM TO ALL ADA SPECIFICATIONS & LOCAL ORDINANCES.
2. PAVEMENT STRIPING PER LOCAL DOT STANDARDS AND SPECIFICATIONS.
3. FINISHED GROUND SLOPE AT NEW ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL NOT BE STEEPER THAN 1:50 (2%)

11 / C700 **DETAIL:** *90° PARKING* (NTS)

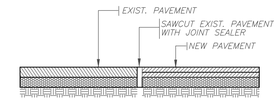


NOTES:
1. REFLECTIVE BLUE BACKGROUND GREEN LETTERING AND SYMBOL LETTERING MINIMUM 1" HEIGHT
2. SIGN TO BE MOUNTED ON 2" METAL POST
3. ONE SIGN PER ACCESSIBLE SPACE
4. VAN ACCESSIBLE SIGN TO BE MOUNTED BELOW STANDARD ADA SIGN WHERE SPECIFIED ON PLANS. COLORING AND LETTERING TO MATCH ADA SIGN
5. ADA SIGN & SYMBOL CONSTRUCTION & INSTALLATION SHALL CONFORM TO ALL ADA SPECIFICATIONS & LOCAL ORDINANCES.

12 / C700 **DETAIL:** *ACCESSIBLE PARKING SIGN & SYMBOL* (NTS)



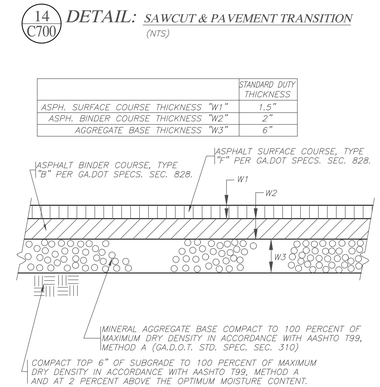
13 / C700 **DETAIL:** *PRE-CAST CONC. CURB STOP DETAIL* (NTS)



NOTE: NEW PAVEMENT TO MATCH ELEVATION OF EXISTING PAVEMENT. SAW CUT EXISTING PAVEMENT AS NECESSARY TO OBTAIN A FULL DEPTH SEAL BETWEEN THE PROPOSED PAVEMENT AND THE EXISTING PAVEMENT.

14 / C700 **DETAIL:** *SAWCUT & PAVEMENT TRANSITION* (NTS)

	STANDARD DUTY THICKNESS
ASPH. SURFACE COURSE THICKNESS "W1"	1.5"
ASPH. BINDER COURSE THICKNESS "W2"	2"
AGGREGATE BASE THICKNESS "W3"	6"



15 / C700 **DETAIL:** *ASPHALT PAVEMENT PARKING SECTIONS* (NTS)

DH&W
ARCHITECTURE INTERIORS PLANNING
1001 Carter Street - Chattanooga - 37402
423 | 266 | 4816 www.dhw-architects.com

New Tennis Courts

Gilbert-Stephenson Park
19 Van Cleve Street
Fort Oglethorpe, GA

Date: 05/09/2023
Drawn: JP
File: 2212

Revisions
: 2 ADDENDUM 2 7-05-23

Key Plan

GSWCC QR CODE

GEORGIA REGISTERED No. PE035304 PROFESSIONAL ENGINEER JOSEPH L. PARK

Level II Design Professional Certification #35390

Title:

Site Notes & Details

Scale:

Sheet No.

C700

March Adams & Associates Consulting Engineers
310 Dodds Ave.
P.O. Box 3689
Chattanooga, Tennessee 37404
PH: (423)698-6675
MAA #21280

GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

September 23, 2022

DH&W Architects
1001 Carter Street
Chattanooga, TN 37402

ATTENTION: Mr. Raymond Boaz, Jr., AIA
rboaz@dhw-architects.com

Subject: **REPORT OF GEOTECHNICAL EXPLORATION**
City of Fort Oglethorpe – Tennis Courts
Gilbert-Stephenson Park
Fort Oglethorpe, Georgia
GEOServices Project No. 41-22615

Dear Mr. Boaz:

We are submitting the results of the geotechnical exploration performed for the subject project. The geotechnical exploration was performed in general accordance with GEOS Proposal No. 14-22370, dated July 5, 2022. The following report presents our findings and recommendations for the proposed park expansion in Fort Oglethorpe, Georgia.

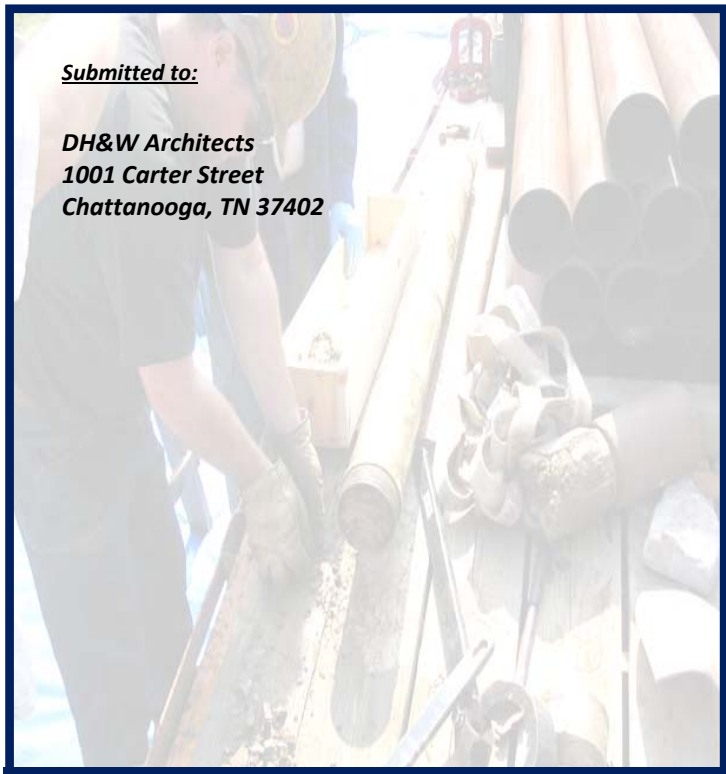
GEOServices sincerely appreciates the opportunity to serve as your geotechnical consultant. Should you have any questions regarding this report, or if we can be of any further assistance, please contact us at your convenience.

Sincerely,
GEOServices, LLC

Jeremy T. Haley, P.E. (TN)
Geotechnical Engineer

GEORGIA REGISTERED No. PE048666 PROFESSIONAL 9-23-22 ENGINEER JACOB E. ERVIN

Jacob E. Ervin, P.E.
Geotechnical Engineer
GA 048666



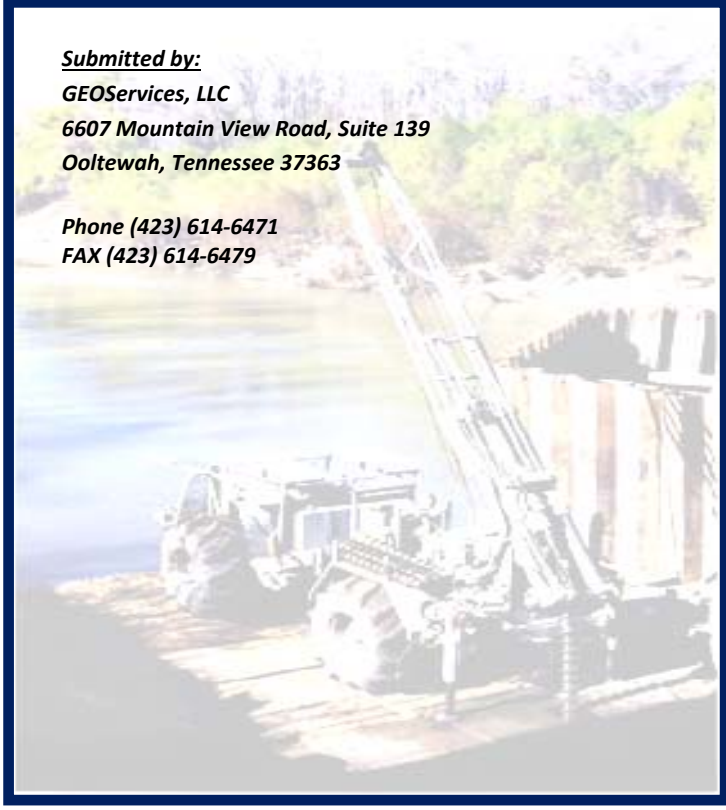
Submitted to:

DH&W Architects
1001 Carter Street
Chattanooga, TN 37402

REPORT OF GEOTECHNICAL EXPLORATION

CITY OF FORT OGLETHORPE – TENNIS COURTS

Gilbert-Stephenson Park
Fort Oglethorpe, Georgia



Submitted by:
GEOServices, LLC
6607 Mountain View Road, Suite 139
Ooltewah, Tennessee 37363

Phone (423) 614-6471
FAX (423) 614-6479

GEOSERVICES, LLC
PROJECT NO. 41-22615

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this geotechnical exploration was to characterize the subsurface conditions for the design and construction of the proposed expansion at the existing Gilbert-Stephenson Park in Fort Oglethorpe, Georgia. This report provides recommendations for general site preparation, excavation and fill requirements, and pavement recommendations for the proposed park expansion.

1.2 PROJECT INFORMATION AND SITE DESCRIPTION

Project information was provided by Mr. Ray Boaz with DH&W Architects. We were also provided with a Conceptual Site Plan prepared by DH&W Architects. The site for the proposed expansion is located at the existing Gilbert-Stephenson Park at 19 Van Cleve Street in Fort Oglethorpe, Georgia. Based on the provided information, we understand that the project will consist of the construction of four new tennis courts, the resurfacing of existing tennis courts, and a new parking area. The area for the new tennis courts currently exists as a relatively level grass covered field in the southern portion of the park. The area for the new parking area currently exists as an asphalt covered parking area, a set of two tennis courts, and the surrounding grass covered areas in the northern portion of the park. No grading information was available at the time of this report; however, based on the existing grades, we anticipate earthwork cuts and fills will be on the order of 3 feet or less in order to establish the proposed grades at the site.

1.3 SCOPE OF STUDY

This geotechnical exploration involved a site reconnaissance, field drilling, laboratory testing, and engineering analysis. The following sections of this report present discussions of the field exploration, site conditions, and conclusions and recommendations. Following the text of this

report, Appendix A presents figures and test boring records. Appendix B presents a summary of laboratory test results.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, subsurface water, or air, on or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

2.0 EXPLORATION AND TESTING PROGRAMS

2.1 FIELD EXPLORATION

The site subsurface conditions were explored with a total of six (6) soil test borings (B-1 through B-6). Three of the borings (B-1 through B-3) were performed within the proposed northern parking area and three of the borings (B-4 through B-6) were performed within the proposed southern tennis court area. The boring locations and depths were selected by GEOServices personnel in conjunction with the Conceptual Site Plan prepared by DH&W Architects. Approximate boring locations are shown on the Boring Location Plan, Figure 3 of Appendix A. The boring locations were located and staked in the field by GEOServices personnel. Drilling was performed on September 16, 2022. The depths reference the ground surface elevations at the site that existed at the time of the exploration. The borings were advanced using 3.25-inch inside diameter hollow stem augers (HSA) with a tracked Geoprobe drill rig. The drill crew worked in general accordance with ASTM D6151 (HSA Drilling). Sampling of overburden soils was accomplished using the standard penetration test procedure (ASTM D1586). The borings were backfilled with soil cuttings prior to leaving the site. Detailed test boring records are presented in Appendix A.

In split–spoon sampling, a standard 2-inch O.D. split-spoon sampler is driven into the bottom of the boring with a 140-pound hammer falling a distance of 30 inches. The number of blows required to advance the sampler the last 12 inches of the standard 18 inches of total penetration is recorded as the Standard Penetration Resistance (N-value). These N-values are indicated on the boring logs at the testing depth and provide an indication of the relative density of granular materials and strength of cohesive materials.

2.2 LABORATORY TEST PROGRAM

Soil samples collected during drilling were transported to our laboratory for visual classification and laboratory testing. The following laboratory testing was performed on select samples to determine various properties of the soil:

- Atterberg Limits (ASTM D4318): Two (2) Atterberg limits tests were performed for this project. These tests help us to confirm our visual classifications according to the Unified Soil Classification System (USCS). The plastic limit and liquid limit represent the moisture content at which a cohesive soil changes from a semi-solid to a plastic state and from a plastic state to liquid state, respectively.
- Natural Moisture Content (ASTM D2216): Moisture content determinations were performed on fifteen (15) samples for this project. The natural moisture content is defined as the ratio of the weight of water present in the soil to the dry weight of soil.

The test results are presented on individual laboratory data sheets and a Soil Data Summary, both enclosed in Appendix B.

3.0 SUBSURFACE CONDITIONS

3.1 GEOLOGIC CONDITIONS

The project site, as most of north Georgia, lies in the Appalachian Valley and Ridge Physiographic Province. The Province is characterized by elongated, northeasterly-trending ridges formed on highly resistant sandstones and shales. Between ridges, broad valleys and rolling hills are formed primarily on less resistant limestones, dolomites and shales.

Published geologic information indicates that the proposed construction area is underlain by limestones of the Chickamauga Group. The Chickamauga Group is comprised mostly of limestone with minor amounts of shale. Weathering of the Chickamauga Group generally produces a medium to high plasticity clay soil with minor amounts of chert gravel.

Since the bedrock formation at the site contains limestone, the site is susceptible to the typical carbonate hazards of irregular weathering, cave and cavern conditions, and overburden sinkholes. Carbonate rock, while appearing very hard and resistant, is soluble in slightly acidic water. This characteristic, plus differential weathering of the bedrock mass, is responsible for the hazards. Of these hazards, the occurrence of sinkholes is potentially the most damaging to overlying soil supported structures. In north Georgia, sinkholes occur primarily due to differential weathering of the bedrock and "flushing" or "raveling" of overburden soils into the cavities in the bedrock. The loss of solids creates a cavity or "dome" in the overburden. Growth of the dome over time or excavation over the dome can create a condition in which rapid, local subsidence or collapse of the roof of the dome occurs.

3.2 SUBSURFACE CONDITIONS

The below subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in Appendix A should be reviewed for specific information at individual boring locations. The depth and

thickness of the subsurface strata indicated on the boring cross-sections were generalized from and interpolated between test locations. The transition between materials will be more or less gradual than indicated and may be abrupt. Information on actual subsurface conditions exists only at the specific boring locations and is relevant to the time the exploration was performed. Variations may occur and should be expected between boring locations. The stratification lines were used for our analytical purposes and, unless specifically stated otherwise, should not be used as the basis for design or construction cost estimates.

3.2.1 Surficial Materials

A surficial layer of asphalt and stone approximately 6 inches in thickness was encountered in one of the six borings (B-1). A surficial layer of topsoil ranging from 3 to 6 inches in thickness was encountered in the remaining five borings (B-2 through B-6). Beneath these surficial layers, existing fill soils and residual soils were encountered to auger refusal depths ranging from 5.6 to 8.3 feet.

3.2.2 Existing Fill

Beneath the surficial topsoil layer in two of the six borings (B-2 and B-3), existing fill soils were encountered to a depth of approximately 2 feet. Fill is generally classified as material that has been transported and placed by man. The fill soils generally consisted of dark brown and gray clays with trace amounts of organics. The N-values of the fill soils ranged from 2 to 6 blows per foot (bpf), indicating a consistency of very soft to firm. The natural moisture contents of the fill soils ranged from 30 to 37 percent.

3.2.3 Residual Soils

Beneath the existing fill soils in two of the borings (B-2 and B-3) and beneath the surficial layers in the remaining four borings (B-1 and B-4 through B-6), residual soils were encountered to auger refusal depths ranging from 5.6 to 8.3 feet. Residual soils are classified as soils which have been formed in place from the weathering of the underlying bedrock. The residual soils generally consisted of brown, light brown, and gray clays with varying amounts of rock fragments. The N-values of the residuum ranged from 4 bpf to 50 blows per one inch of

penetration, indicating a consistency of soft to very hard. The residuum was generally firm in consistency. The natural moisture contents of the residuum ranged from 17 to 28 percent. Atterberg limits testing on two select samples of the residuum revealed liquid limits (LL) of 32 and 35 percent and plasticity indices (PI) of 17 and 18 percent, respectively. These soils are classified as CL (lean clay) in general accordance with the Unified Soil Classification System.

3.2.4 Subsurface Water

Subsurface water was not observed in any of the six borings at the time of drilling. Subsurface water levels may fluctuate due to seasonal changes in precipitation amounts. Additionally, discontinuous zones of perched water may exist within the overburden and/or at the contact with bedrock. The groundwater information presented in this report is the information that was collected at the time of our field activities.

3.2.5 Auger Refusal Conditions

Auger refusal materials were encountered in each of the six borings at depths ranging from 5.6 to 8.3 feet during field exploration. Refusal is a designation applied to any material that cannot be penetrated by the power auger. Auger refusal may indicate dense gravel or cobble layers, boulders, rock ledges or pinnacles, or the top of continuous bedrock. A summary of the auger refusal depths encountered is shown below:

Table 1 – Auger Refusal Summary

Boring No.	Auger Refusal Depth (Feet)
B-1	6.5
B-2	8.3
B-3	6.8
B-4	5.6
B-5	5.8
B-6	7.6

Note: Depths reference the existing ground elevations at the time of the exploration.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 SITE ASSESSMENT

The results of the field exploration indicate that the site is adaptable for the proposed construction, however, there are some challenges associated with the development of this site. These challenges include the existing fill soils, the soft to firm surficial residual soils, the potentially difficult excavations, and the underlying karst geology.

4.1.1 Existing Fill Soils

Existing fill was encountered in two of the six borings (B-2 and B-3) to a depth of approximately 2 feet. We have not been provided with testing records for the fill at the time of this report. Accordingly, there are certain risks associated with construction on these types of fill. The risk primarily consists of excessive and/or non-uniform settlement caused by extensive zones or pockets of soft, loose, or uncompacted material.

The boring data indicates the fill soils generally consisted of dark brown and gray clays with trace amounts of organics. The N-values of the fill soils ranged from 2 to 6 blows per foot (bpf), indicating a consistency of very soft to firm. Typically, an engineered fill would have N-values in excess of 8 to 10 bpf and would be generally free of deleterious material. Based on our observations of the fill, the majority of the fill appears to have been subjected to only limited compactive efforts and does contain deleterious material in the form of organics. At this time, the existing fill soils were only encountered within the proposed northern parking areas around the existing tennis courts. We would recommend that any existing fill that is soft in consistency and/or contains deleterious material be removed and replaced with suitable structural soil fill. Additionally, for the proposed parking lot addition, it may be more advantageous to treat the soil subgrade with a soil cement stabilization process than undercut and replacement.

It has been our experience that existing fill can change abruptly and may contain isolated pockets of unsuitable materials. As such, we recommend that the existing fill soils be subjected

to a detailed proofroll prior to placement of new fill (in fill areas) or at final subgrade elevation (in cut areas) under the supervision of the geotechnical engineer or their qualified representative. Any areas judged to perform unsatisfactorily during the proofroll should be remediated at the engineer's discretion. Remedial measures typically include undercutting and replacement with structural soil fill or dense graded aggregate.

4.1.2 Soft to Firm Surficial Residual Soils

Soft to firm surficial residual soils (N-values ranging from 4 to 8 bpf) were encountered in five of the six borings (B-1 and B-3 through B-6). Depending on when the construction is performed, there is a high probability that the upper residual soils (on the order of approximately 3 to 5 feet) will need to be scarified, dried, and recompacted or undercut prior to placement of new fill over these areas. Additionally, for the tennis court construction, it may be more advantageous to treat the soil subgrade with a soil cement stabilization process in order to create a stable subgrade. There is the potential of encountering softer, saturated soils between the boring locations, depending on the time of year when grading and/or construction occurs.

4.1.3 Potentially Difficult Excavations

Auger refusal materials were encountered in each of the six borings at depths ranging from 5.6 to 8.3 feet. No grading information was available at the time of this report; however, based on the existing grades, we anticipate the refusal materials will be below any potential grading activities at the site. It is possible that these materials may be encountered in utility excavations, especially in any excavations greater than 5 feet. It has been our experience that subsurface rock elevations can vary in short distances. Based on the subsurface auger refusal conditions, these auger refusal materials will likely require difficult excavation techniques such as excavators with rock teeth, hoe-ramming, or blasting.

4.1.4 Karst Geology

A certain degree of risk with respect to sinkhole formation and subsidence should be considered with any site located within geologic areas underlain by potentially soluble rock units. While a rigorous effort to assess the potential for sinkhole formation on this site was beyond the scope of

this evaluation, our borings did not encounter obvious indications of sinkhole development. However, a review of the USGS topographic map of the area did reveal the presence of a single closed depression, which may denote past sinkhole activity, to the southeast of the project site. Based on these findings and our experience with this formation at other sites, we consider that this site has no greater risk for sinkhole activity than other sites in the immediate vicinity of this site.

4.2 SITE PREPARATION

4.2.1 Subgrade

Gravel, topsoil, asphalt, concrete, rock fragments greater than 6 inches, and other debris should be removed from the proposed construction areas. In previously developed areas, it is often common to find buried zones of construction debris. If these materials are encountered, they should be undercut and replaced at the discretion of the geotechnical engineer.

After completion of any stripping operations and any required excavations to reach subgrade level, we recommend that the subgrade be proofrolled with a fully-loaded, tandem-axle dump truck or other pneumatic-tired construction equipment of similar weight. The geotechnical engineer or their qualified representative should observe proofrolling. Areas judged to perform unsatisfactorily should be remediated at the geotechnical engineer's discretion. Typically, remedial options consist of undercutting and replacement with structural soil fill or dense graded aggregate. There is a good likelihood that the upper soils currently covering the site may require some scarifying and drying due to exposure to weather (precipitation and freeze/thaw) for an extended period of time.

4.2.2 Structural Soil Fill

Material considered suitable for use as compacted fill should be clean soil free of organics, trash, and other deleterious material, containing no rock fragments greater than 6 inches in any one dimension. Preferably, borrow material to be used as structural soil fill should have a standard Proctor maximum dry density of 90 pounds per cubic foot (pcf) or greater and a plasticity index (PI)

of 35 percent or less. All material being used as soil fill should be tested and confirmed by the geotechnical engineer to be in accordance with the project requirements before being placed. Based on limited laboratory testing, we anticipate the on-site soils are suitable for use as structural soil fill provided that the existing fill is screened to remove all organics prior to placement as structural soil fill.

Structural fill should be placed in loose, horizontal lifts not exceeding 8 inches in thickness. Each lift should be compacted to at least 95 percent of maximum dry density per the standard Proctor method (ASTM D698) and within the range of minus 2 percent to plus 3 percent of the optimum moisture content. Each lift should be compacted and tested by geotechnical personnel to confirm that the contractor's method is capable of achieving the project requirements before placing any subsequent lifts. Any areas which have become soft or frozen should be removed before additional structural fill is placed.

4.2.3 Compacted Crushed Stone Fill

Compacted crushed stone fill should be Group 1 Aggregates in accordance with Section 815 of the Georgia Department of Transportation specifications. The crushed stone fill should be placed in loose, horizontal lifts not exceeding 10 inches in loose thickness. Each lift should be compacted to at least 98 percent of maximum dry density per the standard Proctor method (ASTM D698). Each lift should be compacted and tested by geotechnical personnel to confirm that the contractor's method is capable of achieving the project requirements before placing any subsequent lifts.

4.3 PAVEMENT DESIGN RECOMMENDATIONS

Our recommendations are based upon the assumption that the subgrade has been properly prepared as described in previous report sections and that any off-site soil borrow to be used to backfill to the final subgrade meets the requirements for structural soil fill.

All paved areas should be constructed with positive drainage to direct water off-site and to minimize surface water seeping into the pavement subgrade. The subgrade should have a

minimum slope of 1 percent. In down grade areas, the basestone should extend through the slope to allow any water entering the basestone a path to exit. For rigid pavements, water-tight seals should also be provided at formed construction and expansion joints.

4.3.1 Tennis Court Pavement Design

We recommend that all tennis court surface construction conform to the recommendations of the *A.S.B.A Guidelines for Tennis Court Construction*. Based on this, we would recommend the following asphalt surface for the proposed tennis courts:

Table 2 – Asphalt Surface Summary

Recommended Thickness (Inches)	
Pavement Materials	**Tennis Court**
Bituminous Asphalt Surface Mix	1.0
Bituminous Asphalt Binder Mix	2.0
Compacted Crushed Aggregate Base	6.0
Total Flexible Pavement Thickness	9.0

The recommended pavement thickness' presented in this report section are considered typical and minimum for the assumed parameters in the general site area. We understand that budgetary considerations sometimes warrant thinner pavement sections than those presented. However, the client, the owner, and the project designers should be aware that thinner pavement sections may result in increased maintenance costs and lower than anticipated pavement life.

Due to the soft to firm surficial residual soils encountered in the proposed construction areas, it may be advantageous to treat the soil subgrade with a soil cement stabilization process in order to create a stable subgrade for the proposed tennis courts. We anticipate that this process will improve the conditions and strength of the soil subgrade, and the basestone section listed above can be reduced to a minimum of 4 inches in thickness. This could help offset the cost of the soil cement stabilization but will still facilitate under court drainage.

A summary of the A.S.B.A recommendations is presented below. It should be noted that this summary only includes the recommendations for the subgrade and pavement thicknesses. For all other items, please refer to the *A.S.B.A Guidelines for Tennis Court Construction.*

The subgrade shall be prepared such that the finished subgrade is 4 to 6 inches above the surrounding ground. The finished subgrade shall not have slopes of less than 0.83 percent and not more than 1 percent. Each court shall slope on a true plane, preferably from side to side to facilitate proper drainage and runoff. The court shall not slope from the center to the sides or from the sides to the center.

Base course materials shall meet the requirements of the geotechnical report and all applicable ASTM standards. The material shall be spread and compacted using equipment and methods which result in a uniform thickness and density. The aggregate base course shall be compacted to a minimum density of 95 percent of the standard Proctor density.

The intermediate pavement course shall consist of a hot mix asphalt with a maximum aggregate size of 3/4 inches in accordance with the state's Department of Transportation. The intermediate pavement course shall be spread and compacted using equipment and methods which result in a uniform thickness and density. The finished intermediate pavement course shall not vary more than ¼ inches in 10 feet when measured in any direction.

The asphaltic surface course shall be a hot mix asphalt with a minimum aggregate size of 1/4 inches and a maximum aggregate size of 3/8 inches in accordance with the state's Department of Transportation. The asphaltic surface course shall have a minimum of 5.5 percent liquid asphalt bitumen and a maximum void content of 7 percent or in accordance with the state's Department of Transportation, whichever is more stringent. The asphaltic surface course shall be spread and compacted using equipment and methods which result in a uniform thickness and density. The finish surface of the court shall not vary more than 1/8 inches in 10 feet when measured in any direction. The asphaltic surface course shall be allowed to cure for a minimum of 14 days prior to application of the playing surface.

4.3.2 Flexible Pavement Design (Parking Lot)

AASHTO flexible pavement design methods have been utilized for pavement recommendations. Our recommendations are based on the assumptions that the subgrade has been properly prepared as described previously. Traffic loading had not been provided at the time this report was prepared; however, we anticipate that the traffic will be mainly cars with occasional delivery trucks. Based on our experience with similar projects with flexible pavement, we recommend the following light duty and medium duty flexible pavement section:

Table 3 – Flexible Pavement Section Summary

Recommended Thickness (Inches)		
Pavement Materials	**Light Duty**	**Medium Duty**
Bituminous Asphalt Surface Mix	1.5	1.5
Bituminous Asphalt Base Mix	2.0	2.5
Compacted Crushed Aggregate Base	6.0	8.0

We recommend a base stone equivalent to a Group 1 Aggregate in accordance with Section 815 of the Georgia Department of Transportation specifications. The bituminous asphalt pavement should be 9.5mm Super Pave as per Section 400 for the surface mix and 19mm Super Pave as per Section 400 for the binder mix. Compaction requirements for the crushed aggregate base and the bituminous asphalt pavement should generally follow Georgia Department of Transportation specifications.

The recommended pavement thickness' presented in this report section are considered typical and minimum for the assumed parameters in the general site area. We understand that budgetary considerations sometimes warrant thinner pavement sections than those presented. However, the client, the owner, and the project designers should be aware that thinner pavement sections may result in increased maintenance costs and lower than anticipated pavement life.

As mentioned with the tennis court construction, due to the soft to firm surficial residual soils and existing fill soils encountered in the proposed construction areas, it may be advantageous

to treat the soil subgrade with a soil cement stabilization process in order to create a stable subgrade for the proposed tennis courts. We anticipate that this process will improve the conditions and strength of the soil subgrade, and the basestone section listed above can be reduced to a minimum of 4 inches in thickness. This could help offset the cost of the soil cement stabilization but will still facilitate under pavement drainage.

4.4 LATERAL EARTH PRESSURES

At this time, we are not aware of any retaining walls; however, we understand that this is a possibility. Therefore, we are providing equivalent fluid pressures for three backfill conditions for cantilever-type walls. These are 1) active earth pressure for granular backfill (clean sand or gravel), 2) at-rest earth pressure for granular backfill, and 3) at-rest earth pressure for fine-grained (silt or clay) backfill.

Condition 1 - The active earth pressure for granular backfill (free draining) will result in an equivalent fluid pressure of 30 pounds per cubic foot (pcf). If the granular backfill is to develop active earth pressure conditions, walls must be flexible and/or free to rotate or translate at the top approximately one inch laterally for every 20 feet of wall height.

Condition 2 - The at-rest earth pressure for granular backfill (free draining) will result in an equivalent fluid pressure of 45 pcf. For retaining walls that will not rotate or translate, such as building walls or other walls rigidly connected to structures, at-rest conditions will develop.

Condition 3 - Walls backfilled with fine-grained material (silt or clay) should be designed using the at-rest earth pressure whether restrained at the top, or not. Fine-grained soils typically creep over time which produces additional lateral stresses to the wall. The equivalent fluid pressure for this case is 70 pcf.

In all cases, forces from any expected surcharge loading including sloping backfill should be added to the equivalent fluid pressures. The walls should be properly drained to remove water or

hydrostatic pressure should be added to the design pressure. Also, all backfill for the walls should be placed in accordance with the structural fill recommendations described hereinafter.

Table 4 – Earth Pressure Summary

Earth Pressure Condition	Backfill Type	Unit Weight (pcf)	Earth Pressure Coefficient
Active (Ka)	Granular	105	0.271
	On-Site Silts and Clays	120	0.390
At-Rest (Ko)	Granular	105	0.426
	On-Site Silts and Clays	120	0.562
Passive (Kp)	Granular	105	3.690
	On-Site Silts and Clays	120	2.561

Note: In each instance the earth pressure coefficients provided are unfactored.

For rigid, cast-in-place concrete walls, a friction factor of 0.35 between foundation concrete and the bearing soils may be used when evaluating friction. If a stone leveling course is utilized beneath the foundation, a friction factor of 0.50 between foundation concrete and the dense graded aggregate base may be used when evaluating friction. Also, an ultimate passive earth pressure resistance of well-compacted soil fill can be utilized to resist sliding (in conjunction with friction). However, to limit deformation when relying on passive strength, we recommend using a minimum safety factor of 3.0 applied to the ultimate passive resistance value. Additionally, this is based on the upper 2 feet of soil being neglected during the calculation of passive resistance.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 EXCAVATIONS

Excavations should be sloped or shored in accordance with local, state, and federal regulations, including OSHA (29 CFR Part 1926) excavation trench safety standards. The contractor is usually solely responsible for site safety. This information is provided only as a service and under no circumstances should GEOServices be assumed to be responsible for construction site safety.

As previously mentioned, auger refusal materials were encountered in each of the six borings at depths ranging from 5.6 to 8.3 feet. No grading information was available at the time of this report; however, based on the existing grades, we anticipate the refusal materials will be below any potential grading activities at the site. It is possible that these materials may be encountered in utility excavations, especially in any excavations greater than 5 feet. It has been our experience that subsurface rock elevations can vary in short distances. Based on the subsurface auger refusal conditions, these auger refusal materials will likely require difficult excavation techniques such as excavators with rock teeth, hoe-ramming, or blasting.

5.2 MOISTURE SENSITIVE SOILS

The fine-grained soils encountered at this site will be sensitive to disturbances caused by construction traffic and changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. Construction traffic patterns should be varied to prevent the degradation of previously stable subgrade. In addition, plastic soils which become wet, may be slow to dry and thus significantly retard the progress of grading and compaction activities. We caution if site grading is performed during the wet weather season, methods such as discing and allowing the material to dry will be required to meet the required compaction recommendations. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather. Climate data for nearby Ringgold, Georgia obtained from Weatherbase indicate in the following

table the average monthly precipitation. The average amount of precipitation does not vary much throughout the year. However, December through March is typically the difficult grading period due to the limited drying conditions that exist.

Table 5 – Average Precipitation Summary

Month	Monthly Precipitation Average (Inches)	Month	Monthly Precipitation Average (Inches)
January	5.0	July	4.1
February	5.0	August	3.1
March	5.4	September	4.2
April	4.0	October	3.2
May	4.0	November	4.3
June	3.4	December	4.7

5.3 DRAINAGE AND SURFACE WATER CONCERNS

To reduce the potential for undercut and construction induced sinkholes, water should not be allowed to collect in the foundation excavations, on floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, subsurface water, or surface runoff. Positive site surface drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slabs. The grades should be sloped away from the building and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the building.

5.4 SINKHOLE CONSIDERATIONS

There is some inherent risk associated with building on any site underlain by carbonate rock. This risk can be reduced but not eliminated by preparing the site as described in this report. At this site, control of surface water during construction and over the project life will be very

important to reduce the potential for sinkhole development. If a sinkhole develops, the appropriate corrective action is dependent on the size and location of the sinkhole. As described herein, GEOServices should be retained to observe site and subgrade preparation activities. If sinkhole conditions are observed, the type of corrective action is most appropriately determined by GEOServices on a case-by-case basis.

6.0 LIMITATIONS

This report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. This report is for our geotechnical work only, and no environmental assessment efforts have been performed. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, express or implied, is made.

The analyses and recommendations submitted herein are based, in part, upon the data obtained from the exploration. The nature and extent of variations between the borings will not become evident until construction. We recommend that GEOServices be retained to observe the project construction in the field. GEOServices cannot accept responsibility for conditions which deviate from those described in this report if not retained to perform construction observation and testing. If variations appear evident, then we will re-evaluate the recommendations of this report. In the event that any changes in the nature, design, or location of the project are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and conclusions modified or verified in writing. Also, if the scope of the project should change significantly from that described herein, these recommendations may have to be re-evaluated.

APPENDIX A

Figures and Test Boring Records

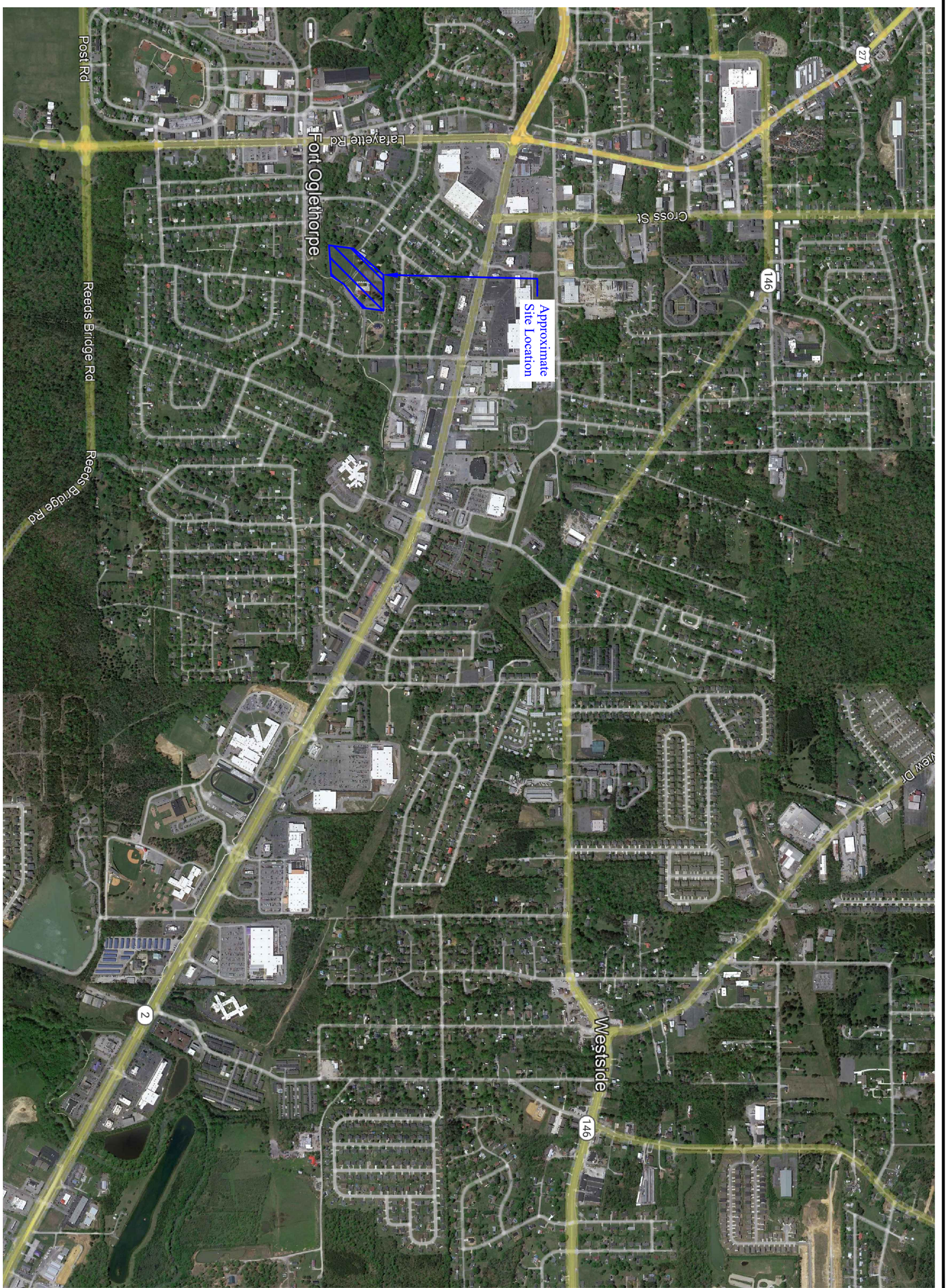


FIGURE 1

GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

DRAWN BY:	EDP
APPROVED BY:	DKK
SCALE:	NTS
JOB NO.:	41-22615
DATE:	09/20/2022

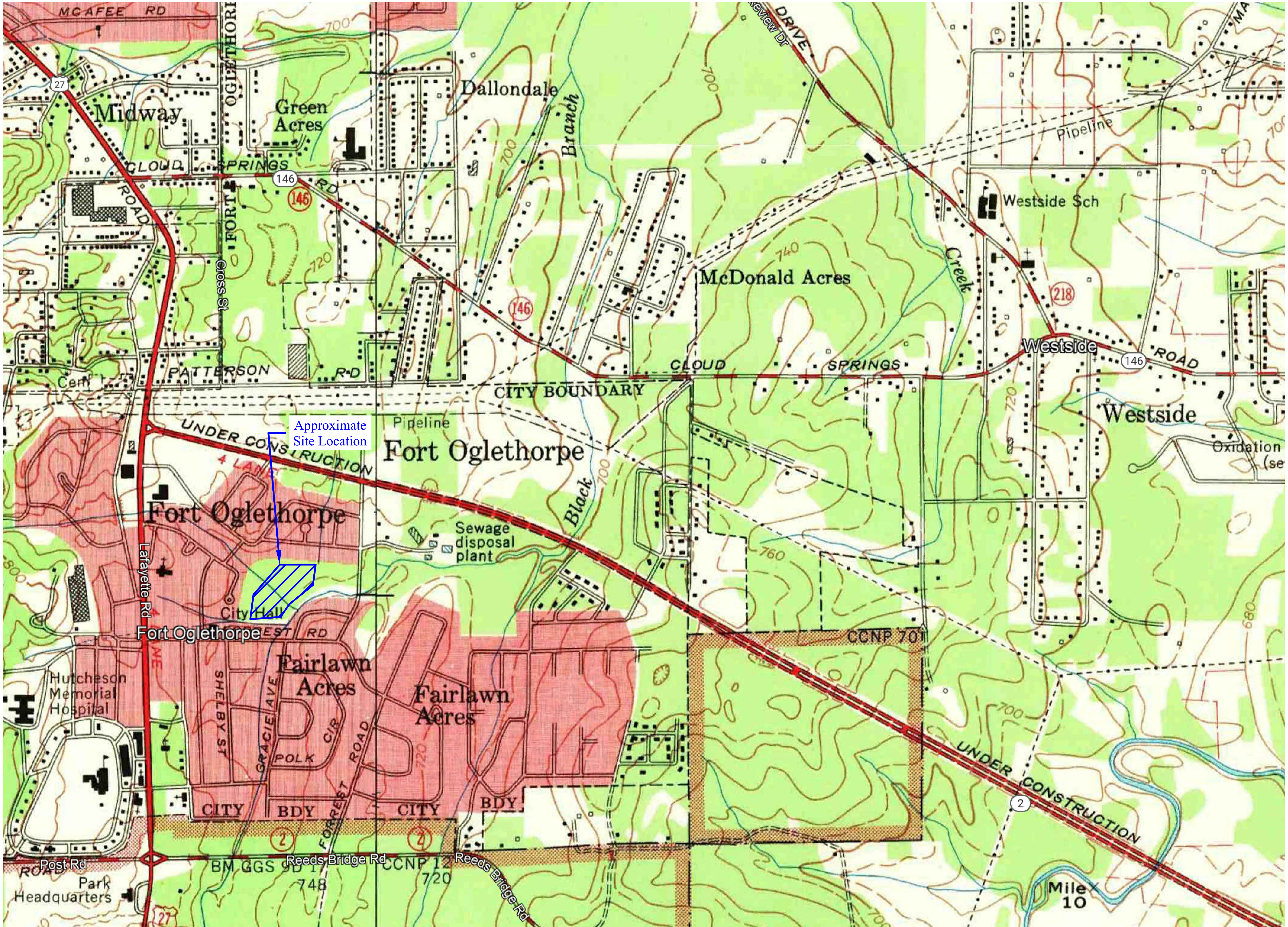
SITE VICINITY MAP

Fort Oglethorpe Tennis Courts

Fort Oglethorpe, Georgia

NOTES:

1.) BASE MAP PROVIDED BY GOOGLE EARTH PRO (10/06/20).



NOTES:
1.) BASE MAP PROVIDED BY USGS TOPOGRAPHIC MAP (1969) - FORT OGLETHORPE QUADRANGLE (GA-TN).
(1969) - EAST RIDGE QUADRANGLE (TN-GA).

USGS TOPOGRAPHIC MAP
Fort Oglethorpe Tennis Courts
Fort Oglethorpe, Georgia

DRAWN BY:	EDP
APPROVED BY:	DKK
SCALE:	NTS
JOB NO.:	41-22615
DATE:	09/20/2022

GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

FIGURE 2

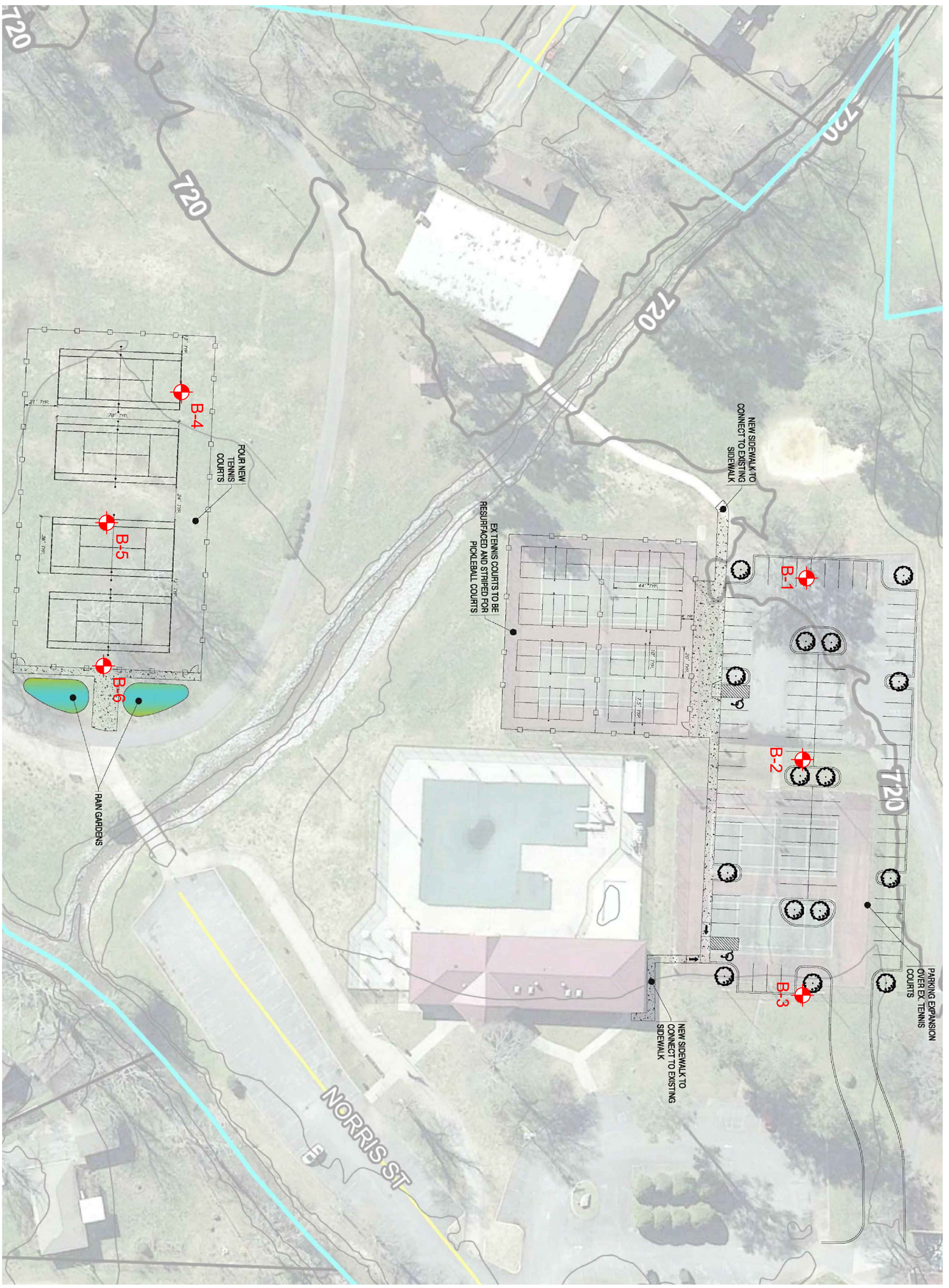


FIGURE 3

GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

DRAWN BY:	EDP
APPROVED BY:	DKK
SCALE:	NTS
JOB NO.:	41-22615
DATE:	09/20/2022

BORING LOCATION PLAN

Fort Oglethorpe Tennis Courts

Fort Oglethorpe, Georgia

NOTES:

1.) BORING LOCATIONS ARE SHOWN IN GENERAL ARRANGMENT ONLY.
2.) DO NOT USE BORING LOCATIONS FOR DETERMINATIONS OF DISTANCES OR QUANTITIES.
3.) BASE MAP PROVIDED BY DH&W ARCHITECTS.

SOIL TEST BORING LOCATION

GENERAL NOTES

FINE AND COARSE GRAINED SOIL PROPERTIES

PARTICLE SIZE

BOULDERS:	GREATER THAN 300 mm
COBBLES:	75 mm to 300 mm
GRAVEL:	4.74 mm to 75 mm
COARSE SAND:	2 mm to 4.74 mm
MEDIUM SAND:	0.425 mm to 2 mm
FINE SAND:	0.075 mm to 0.425 mm
SILTS & CLAYS:	LESS THAN 0.075 mm

COARSE GRAINED SOILS (SANDS & GRAVELS)

N-VALUE	RELATIVE DENSITY
0 - 4	VERY LOOSE
5 - 10	LOOSE
11 - 30	MEDIUM DENSE
31 - 50	DENSE
OVER 50	VERY DENSE

FINE GRAINED SOILS (SILTS & CLAYS)

N-VALUE	CONSISTENCY	Qu, PSF
0 - 2	VERY SOFT	0 - 500
3 - 4	SOFT	500 - 1000
5 - 8	FIRM	1000 - 2000
9 - 15	STIFF	2000 - 4000
16 - 30	VERY STIFF	4000 - 8000
OVER 31	HARD	8000 +

STANDARD PENETRATION TEST (ASTM D1586)

THE STANDARD PENETRATION TEST AS DEFINED BY ASTM D1586 IS A METHOD TO OBTAIN A DISTURBED SOIL SAMPLE FOR EXAMINATION AND TESTING AND TO OBTAIN RELATIVE DENSITY AND CONSISTENCY INFORMATON. THE 1.4 INCH I.D./2.0 INCH O.D. SAMPLER IS DRIVEN 3-SIX INCH INCREMENTS WITH A 140 LB. HAMMER FALLING 30 INCHES. THE BLOW COUNTS REQUIRED TO DRIVE THE SAMPLER THE FINAL 2 INCREMENTS ARE ADDED TOGETHER AND DESIGNATED THE N-VALUE. AT TIMES, THE SAMPLER CAN NOT BE DRIVEN THE FULL 18 INCHES. THE FOLLOWING REPRESENTS OUR INTERPRETATION OF THE STANDARD PENETRATION TEST WITH VARIATIONS.

BLOWS/FOOT (N-VALUE)	DESCRIPTION
25	25 BLOWS DROVE SAMPLER 12" AFTER INITIAL 6" SEATING
75/10"	75 BLOWS DROVE SAMPLER 10" AFTER INITIAL 6" SEATING
50/PR	PENETRATION REFUSAL OF SAMPLER AFTER INITIAL 6" SEATING

SAMPLING SYMBOLS

ST:	UNDISTURBED SAMPLE
SS:	SPLIT SPOON SAMPLE
CORE:	ROCK CORE SAMPLE
AU:	AUGER OR BAG SAMPLE

SOIL PROPERTY SYMBOLS

N:	STANDARD PENETRATION, BPF
M:	MOISTURE CONTENT %
LL:	LIQUID LIMIT %
PI:	PLASTICITY INDEX %
Qp:	POCKET PENETROMETER VALUE, TSF
Qu:	UNCONFINED COMPRESSIVE STRENGTH, TSF
DUW:	DRY UNIT WEIGHT, PCF

ROCK PROPERTIES

ROCK QUALITY DESIGNATION (RQD)

PERCENT	QUALITY
90 TO 100	EXCELLENT
75 TO 90	GOOD
50 TO 75	FAIR
25 TO 50	POOR
0 TO 25	VERY POOR

ROCK HARDNESS

VERY SOFT:	ROCK DISINTEGRATES OR EASILY COMPRESSES TO TOUCH: CAN BE HARD TO VERY HARD SOIL.
SOFT:	ROCK IS COHERANT BUT BREAKS EASILY TO THUMB PRESSURE AT SHARP EDGES AND CRUMBLES WITH FIRM HAND PRESSURE.
MODERATELY HARD:	SMALL PIECES CAN BE BROKEN OFF ALONG SHARP EDGES BY CONSIDERABLE HARD THUMB PRESSURE: CAN BE BROKEN BY LIGHT HAMMER BLOWS.
HARD:	ROCK CAN NOT BE BROKEN BY THUMB PRESSURE, BUT CAN BE BROKEN BY MODERATE HAMMER BLOWS.
VERY HARD:	ROCK CAN BE BROKEN BY HEAVY HAMMER BLOWS.

GEOServices, LLC-Geotechnical and Meterials Engineers

GEOS Universal Engineering Sciences
Geotechnical, Environmental and Materials Engineers

BORING NUMBER B-1

PROJECT NAME City of Fort Oglethorpe - Tennis Courts
GEOServices PROJECT# 41-22615
DATE 9/16/22
PROJECT LOCATION Fort Oglethorpe, Georgia
DRILLING CONTRACTOR Tri-State Drilling
LOGGED BY J. Haley **ON-SITE REP.** ---
DRILLING METHOD Hollow Stem Auger
LATITUDE / LONGITUDE ---
GROUND ELEVATION --- **PROPOSED FFE** ---
NORTHING / EASTING ---
REFUSAL Depth 6.5 ft
TOP OF ROCK Depth 6.5 ft
GROUND WATER LEVELS:
BEGAN CORING ---
AT END OF DRILLING ---
FOOTAGE CORED (LF) ---
AFTER 1 HOUR ---
BOTTOM OF HOLE Depth 6.5 ft
AFTER 24 HOURS ---

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX
0			ASPHALT (2 inches) / GRAVEL (4 inches)						
			LEAN CLAY (CL) with rock fragments - brown and gray; firm to very hard; moist (RESIDUUM)	SS 1		1-3-4 (7)	18	32	17
5				SS 2		2-3-5 (8)	17		
				SS 3		50/1"	25		

Refusal at 6.5 feet.
Bottom of borehole at 6.5 feet.

NOTES:

GEOS Universal Engineering Sciences
Geotechnical, Environmental and Materials Engineers

BORING NUMBER B-2

PROJECT NAME City of Fort Oglethorpe - Tennis Courts
GEOServices PROJECT# 41-22615
DATE 9/16/22
PROJECT LOCATION Fort Oglethorpe, Georgia
DRILLING CONTRACTOR Tri-State Drilling
LOGGED BY J. Haley **ON-SITE REP.** ---
DRILLING METHOD Hollow Stem Auger
LATITUDE / LONGITUDE ---
GROUND ELEVATION --- **PROPOSED FFE** ---
NORTHING / EASTING ---
REFUSAL Depth 8.3 ft
TOP OF ROCK Depth 8.3 ft
GROUND WATER LEVELS:
BEGAN CORING ---
AT END OF DRILLING ---
FOOTAGE CORED (LF) ---
AFTER 1 HOUR ---
BOTTOM OF HOLE Depth 8.3 ft
AFTER 24 HOURS ---

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX
0			TOPSOIL (3 inches)						
			FAT CLAY (CH) with trace organics - dark brown and gray; very soft; moist (FILL)	SS 1		0-0-2 (2)	30		
			LEAN CLAY (CL) with rock fragments - brown, light brown, and gray; stiff to very stiff; moist (RESIDUUM)	SS 2		4-5-9 (14)	18		
5				SS 3		4-6-11 (17)	18		

Refusal at 8.3 feet.
Bottom of borehole at 8.3 feet.

NOTES:

BORING NUMBER B-3

GEOS Universal Engineering Sciences
Geotechnical, Environmental and Materials Engineers

PROJECT NAME City of Fort Oglethorpe - Tennis Courts
GEOServices PROJECT# 41-22615
DATE 9/16/22
PROJECT LOCATION Fort Oglethorpe, Georgia
DRILLING CONTRACTOR Tri-State Drilling
LOGGED BY J. Haley **ON-SITE REP.** ---
DRILLING METHOD Hollow Stem Auger
LATITUDE / LONGITUDE ---
GROUND ELEVATION --- **PROPOSED FFE** ---
NORTHING / EASTING ---
REFUSAL Depth 6.8 ft
TOP OF ROCK Depth 6.8 ft
GROUND WATER LEVELS:
BEGAN CORING ---
AT END OF DRILLING ---
FOOTAGE CORED (LF) ---
AFTER 1 HOUR ---
BOTTOM OF HOLE Depth 6.8 ft
AFTER 24 HOURS ---

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX
0			TOPSOIL (3 inches)						
			FAT CLAY (CH) with trace organics - dark brown and dark gray; firm; moist (FILL)	SS 1		1-2-4 (6)	37		
			LEAN CLAY (CL) with rock fragments - brown and gray; firm to very hard; moist (RESIDUUM)	SS 2		2-3-5 (8)			
5				SS 3		3-50/2"	21		

Refusal at 6.8 feet.
Bottom of borehole at 6.8 feet.

NOTES:

GEOS Universal Engineering Sciences
Geotechnical, Environmental and Materials Engineers

BORING NUMBER B-4

PROJECT NAME City of Fort Oglethorpe - Tennis Courts
GEOServices PROJECT# 41-22615
DATE 9/16/22
PROJECT LOCATION Fort Oglethorpe, Georgia
DRILLING CONTRACTOR Tri-State Drilling
LOGGED BY J. Haley **ON-SITE REP.** ---
DRILLING METHOD Hollow Stem Auger
LATITUDE / LONGITUDE ---
GROUND ELEVATION --- **PROPOSED FFE** ---
NORTHING / EASTING ---
REFUSAL Depth 5.6 ft
TOP OF ROCK Depth 5.6 ft
GROUND WATER LEVELS:
BEGAN CORING ---
AT END OF DRILLING ---
FOOTAGE CORED (LF) ---
AFTER 1 HOUR ---
BOTTOM OF HOLE Depth 5.6 ft
AFTER 24 HOURS ---

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX
0			TOPSOIL (6 inches)						
			LEAN CLAY (CL) with rock fragments - gray and brown; firm; moist (RESIDUUM)	SS 1		2-3-5 (8)	21		
5				SS 2		2-2-3 (5)	28		

Refusal at 5.6 feet.
Bottom of borehole at 5.6 feet.

NOTES:

GEOS Universal Engineering Sciences
Geotechnical, Environmental and Materials Engineers

BORING NUMBER B-5

PROJECT NAME City of Fort Oglethorpe - Tennis Courts
GEOServices PROJECT# 41-22615
DATE 9/16/22
PROJECT LOCATION Fort Oglethorpe, Georgia
DRILLING CONTRACTOR Tri-State Drilling
LOGGED BY J. Haley **ON-SITE REP.** ---
DRILLING METHOD Hollow Stem Auger
LATITUDE / LONGITUDE ---
GROUND ELEVATION --- **PROPOSED FFE** ---
NORTHING / EASTING ---
REFUSAL Depth 5.8 ft
TOP OF ROCK Depth 5.8 ft
GROUND WATER LEVELS:
BEGAN CORING ---
AT END OF DRILLING ---
FOOTAGE CORED (LF) ---
AFTER 1 HOUR ---
BOTTOM OF HOLE Depth 5.8 ft
AFTER 24 HOURS ---

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX
0			TOPSOIL (4 inches)						
			LEAN CLAY (CL) with rock fragments - brown and gray; firm; moist (RESIDUUM)	SS 1		2-3-4 (7)	19	35	18
5				SS 2		1-2-5 (7)	19		

Refusal at 5.8 feet.
Bottom of borehole at 5.8 feet.

NOTES:

BORING NUMBER B-6

Universal Engineering Sciences
Geotechnical, Environmental and Materials Engineers

PROJECT NAME City of Fort Oglethorpe - Tennis Courts
GEOServices PROJECT# 41-22615
DATE 9/16/22
PROJECT LOCATION Fort Oglethorpe, Georgia
DRILLING CONTRACTOR Tri-State Drilling
LOGGED BY J. Haley **ON-SITE REP.** ---
DRILLING METHOD Hollow Stem Auger
LATITUDE / LONGITUDE ---
GROUND ELEVATION --- **PROPOSED FFE** ---
NORTHING / EASTING ---
REFUSAL Depth 7.6 ft
TOP OF ROCK Depth 7.6 ft
GROUND WATER LEVELS:
BEGAN CORING ---
AT END OF DRILLING ---
FOOTAGE CORED (LF) ---
AFTER 1 HOUR ---
BOTTOM OF HOLE Depth 7.6 ft
AFTER 24 HOURS ---

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX
0			TOPSOIL (4 inches)						
			LEAN CLAY (CL) with rock fragments - gray and brown; firm; moist (RESIDUUM)	SS 1		1-2-3 (5)	20		
			LEAN CLAY (CL) with trace rock fragments - brown, light brown, and gray; soft to very hard; moist (RESIDUUM)	2		2-2-2 (4)	21		
5				3		2-3-50/1"	18		

Refusal at 7.6 feet.
Bottom of borehole at 7.6 feet.

NOTES:

APPENDIX B

Soil Laboratory Data

SOIL DATA SUMMARY
City of Fort Oglethorpe Tennis Courts - Fort Oglethorpe, GA
GEOServices Project No. 41-22615
September 21, 2022

Boring Number	Sample Number	Depth (feet)	Natural Moisture Content	Atterberg Limits			Soil Type
				LL	PL	PI	
B-1	1	1.0-2.5	17.7%	32	15	17	CL
	2	3.5-5.0	17.1%				
	3	6.0-7.5	25.4%				
B-2	1	1.0-2.5	29.5%				
	2	3.5-5.0	18.0%				
	3	6.0-7.5	18.4%				
B-3	1	1.0-2.5	37.3%				
	2	3.5-5.0	-				
	3	6.0-7.5	21.1%				
B-4	1	1.0-2.5	20.9%				
	2	3.5-5.0	28.3%				
B-5	1	1.0-2.5	19.0%	35	17	18	CL
	2	3.5-5.0	19.4%				
B-6	1	1.0-2.5	20.1%				
	2	3.5-5.0	21.2%				
	3	6.0-7.5	18.2%				