



Purchasing Department
140 Stonewall Avenue West, Ste 204
Fayetteville, GA 30214
Phone: 770-305-5420
www.fayettecountyga.gov

August 6, 2025

Subject: Invitation to Bid #26015-B Darren Drive Culvert Replacement

Gentlemen/Ladies:

Fayette County, Georgia invites you to submit a bid for the above listed solicitation in accordance with the information and specifications contained herein.

Questions concerning this invitation to bid should be addressed to Sherry White in writing via email to swhite@fayettecountyga.gov or fax to (770) 305-5208. Questions will be accepted until 3:00p.m., Wednesday, August 20, 2025.

Purchasing Department office hours are Monday through Friday 8:00 a.m. to 5:00 p.m. The office telephone number is (770) 305-5420.

Please return your response to the following address:

Fayette County Purchasing Department
140 Stonewall Avenue West, Suite 204
Fayetteville, Georgia 30214

Bid Number: 26015-B
Bid Name: Darren Drive Culvert Replacement

Your envelope *must* be sealed, and should show your company's name and address.

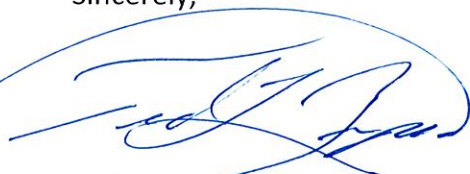
Bids will be received at the above address until 3:00p.m., Tuesday, August 26, 2025, in the Purchasing Department, Suite 204. Bids will be opened at that time.

Bids must be signed to be considered. Late bids cannot be considered. Faxed bids or emailed bids cannot be considered.

If you download this invitation to bid from the county's web site, it will be your responsibility to check the web site for any addenda that might be issued for this solicitation. The county cannot be responsible for a vendor not receiving information provided in any addendum.

Thank you for participating in the solicitation process.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ted L. Burgess", is written over a large, light blue oval shape.

Ted L. Burgess
Chief Procurement Officer

TLB/sw

SPECIFICATIONS

DARREN DRIVE CULVERT REPLACEMENT

Fayette County, GA

Fayette County Project Number: 19SBJ

Invitation to Bid: #26015-B

Prepared By:

Fayette County Environmental Management

140 Stonewall Ave. West, Suite 203

Fayetteville, GA 30214

INDEX

COVER PAGE	
INDEX	2
CHECKLIST OF DOCUMENTS TO RETURN	3
INTRODUCTION	4
GENERAL TERM AND CONDITIONS	5 – 10
PROJECT SPECIFIC TERMS AND CONDITIONS	11 - 16
BID PRICE SHEET	17
CONTRACTOR AFFIDAVIT UNDER O.C.G.A. § 13-10-91(B)(L)	18
COMPANY INFORMATION FORM	19
CONTRACTOR EXPERIENCE FORM	20
GDOT PREQUALIFICATION TABLE	21 – 22
EXCEPTIONS FORM	23
DARREN DRIVE PROJECT PLAN SET	Exhibit A
BRIDGE FOUNDATION INVESTIGATION (BFI) REPORT	Exhibit B

Checklist of Required Documents

*(Be Sure to Return This Checklist and
the Required Documents in the order listed below)*

ITB #26015-B: Darren Drive Culvert Replacement

Company information – on the form provided _____

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1) _____

Bid Price Sheet* _____

Bid Bond* _____

Contractor Experience, on the form provided _____

GDOT Prequalification Table and Documentation _____

Exceptions to Specifications, if any – on the form provided _____

Addenda signed if any are issued _____

***FAILURE TO INCLUDE THIS ITEM WILL RESULT IN DISQUALIFICATION**

COMPANY NAME: _____

INTRODUCTION

ITB #26015-B: Darren Drive Culvert Replacement

Fayette County is soliciting Bids from Georgia Department of Transportation (GDOT) prequalified Contractors experienced with installation of drainage structures. The project location is near 130 Darren Drive in Fayette County.

The project consists of removing the existing deteriorating triple 96-inch corrugated metal pipes conveying a creek below Darren Drive and replacing with triple 9' x 9' and triple 9' x 5' concrete box culverts. This project also consists of but is not limited to utility coordination and/or relocation, grading, and asphalt paving.

Fayette County has acquired all necessary easements for the work outside of the existing Right-of-Way and will provide construction oversight for the project.

GENERAL TERMS AND CONDITIONS
ITB #26015-B: Darren Drive Culvert Replacement

1. Definitions:

- a. **Bidder:** A company or individual who submits a bid in response to this Invitation to Bid.
- b. **Successful Bidder:** The company or individual that is awarded a contract.
- c. **Contractor:** The Successful Bidder, upon execution of the contract.
- d. **County:** Fayette County, Georgia.

- 2. Bid is Offer to Contract:** Each bid constitutes an offer to become legally bound to a contract with the County, incorporating the Invitation to Bid and the bidder's bid. The binding offer includes compliance with all terms, conditions, special conditions, specifications, and requirements stated in the Invitation to Bid, except to the extent that a bidder takes written exception to such provisions, and the County agrees to the exception. All such terms, conditions, special conditions, specifications, and requirements will form the basis of the contract. The bidder should take care to answer all questions and provide all requested information, and to note any exceptions in the bid submission. Failure to observe any of the instructions or conditions in this Invitation to Bid may result in rejection of the bid.
- 3. Binding Offer:** To allow sufficient time for a contract to be awarded, each bid shall constitute a firm offer that is binding for 60 days from the date of the bid opening to the date of the award.
- 4. Bidder's Questions:** As appropriate, the County will post answers to questions and/or other information concerning the Invitation to Bid in the form of an addendum on the County's website at www.fayettecountyga.gov. It is the responsibility of the prospective bidder to check the website for any addenda issued for this Invitation to Bid.
- 5. References:** Include with your bid a list of three (3) jobs that your company has done that are of the same or similar nature to the work described in this Invitation to Bid on the form provided. Include all information as requested on the form.
- 6. Bid Submission:** Submit your bid, along with any addenda issued by the County, in a *sealed* opaque envelope. Mail or deliver one (1) original bid, signed in ink by a company official authorized to make a legal and binding offer, and one (1) copy on a flash drive, to:

Fayette County Government
Purchasing Department
140 Stonewall Avenue West, Suite 204
Fayetteville, GA 30214

Bid Number: #26015-B

Bid Name: *Darren Drive Culvert Replacement*

Also show your company name on the envelope. You may submit sealed bids in person, by U.S. mail, or by a commercial carrier. Do not submit bids by facsimile, e-mail, or other electronic means. Once submitted, all bids become the property of Fayette County.

7. **Bid Preparation Costs:** The bidder shall bear all costs associated with preparing the bid.
8. **Late Bids:** Bids not received in the Purchasing Department by the time and date of the scheduled bid opening will not be considered.
9. **More than One Bid:** Do not submit alternate bids or options, unless requested or authorized by the County in the Invitation to Bid. If a responder submits more than one bid without being requested or authorized to do so, the County may disqualify the bids from that responder, at the County's option.
10. **Bid Corrections or Withdrawals:** The bidder may correct a mistake, or withdraw a bid, before the bid opening by sending written notification to the Director of Purchasing. Bids may be withdrawn after the bid opening only with written authorization from the Director of Purchasing.
11. **Defects or Irregularities in Bids:** The County reserves the right to waive any defect or irregularity in any bid received. In case of a discrepancy between unit prices and extended prices, the unit price will govern unless the facts or other considerations indicate another basis for correction of the discrepancy.
12. **Prices Held Firm:** Prices bid shall be firm for the period of the contract, unless otherwise specified in the contract. All prices bid for commodities, supplies, equipment, or other products shall be quoted FOB Destination, Fayette County or job site.
13. **Bidder Substitutions:** Bidders offering substitutions or deviations from specifications stated in the Invitation to Bid sheet provided, or on a separate sheet to be submitted with the bid. The absence of such list shall indicate that the bidder has taken no exception to the specifications. The evaluation of bids and the determination as to equality and acceptability of products or services offered shall at the discretion of the County.
14. **Non-Collusion:** By responding to this Invitation to Bid, the bidder represents that the bid is not made in connection with any competing bidder, supplier, or service provider submitting a separate response to this Invitation to Bid and is in all respects fair and without collusion or fraud.
15. **Bid Evaluation:** Award will be made to the lowest responsive, responsible bidder, taking into consideration payment terms, vendor qualifications and experience, quality, references, any exceptions listed, and/or other factors deemed relevant in making the award. The County may make such investigation as it deems necessary to determine the ability of the bidder to perform, and the bidder shall furnish to the County all information and data for this purpose as the County may request. The County reserves

the right to reject any bid item, any bid, or all bids, and to re-advertise for bids.

- 16. Unbalanced Bid:** If the County determines that the apparent low bid is materially unbalanced, the County retains the right to deem the apparent low bid non-responsive, and to reject said bid and award to the next-lowest bidder whose bid is not materially unbalanced, or to reject any and all bids and re-advertise the project.
- 17. Payment Terms and Discounts:** The County's standard payment terms are Net 30. Any deviation from standard payment terms must be specified in the resulting contract, and both parties must agree on such deviation. Cash discounts offered will be a consideration in awarding the bid, but only if they give the County at least 15 days from receipt of invoice to pay. For taking discounts, time will be computed from the date of invoice acceptance by the County, or the date a correct invoice is received, whichever is the later date. Payment is deemed made, for the purpose of earning the discount, on the date of the check.
- 18. Method of Payment:** The county shall pay the contractor for the actual quantities of materials furnished and used in completing the work of the contract, at the unit prices set forth in the contract. Total compensation under the contract shall not exceed the not-to-exceed amount stipulated in the contract document, unless an increase is authorized in writing by an executed change order or other written contract modification.
- 19. Trade Secrets – Confidentiality:** If any person or entity submits a bid or proposal that contains trade secrets, an affidavit shall be included with the bid or proposal. The affidavit shall declare the specific included information which constitutes trade secrets. Any trade secrets must be either (1) placed in a separate envelope, clearly identified, and marked as such, or (2) at a minimum, marked in the affidavit or an attached document explaining exactly where such information is, and otherwise marked, highlighted, or made plainly visible. See O.C.G.A. § 50-18-72 (A)(34).
- 20. Trade Secrets – Internal Use:** In submitting a bid, the bidder agrees that the County may reveal any trade secret materials contained in the bid to all County staff and officials involved in the selection process, and to any outside consultant or other third parties who may assist in the selection process. The bidder agrees to hold harmless the County and each of its officers, employees, and agents from all costs, damages, and expenses incurred in connection with refusing to disclose any material which the bidder has designated as a trade secret.
- 21. Ethics – Disclosure of Relationships:** Before a proposed contract in excess of \$10,000.00 is recommended for award to the Board of Commissioners or the County Administrator, or before the County renews, extends, or otherwise modifies a contract after it has been awarded, the Contractor must disclose certain relationships with any County Commissioner or County Official, or their spouse, mother, father, grandparent, brother, sister, son or daughter related by blood, adoption, or marriage (including in-laws). A relationship that must be reported exists if any of these individuals is a director, officer,

partner, or employee, or has a substantial financial interest the business, as described in Fayette County Ordinance Chapter 2, Article IV, Division 3 (Code of Ethics).

If such relationship exists between your company and any individual mentioned above, relevant information must be presented in the form of a written letter to the Director of Purchasing. You must include the letter with any bid, proposal, or price quote you submit to the Purchasing Department.

In the event that a Contractor fails to comply with this requirement, the County will take action as appropriate to the situation, which may include actions up to and including rejection of the bid or offer, cancellation of the contract in question, or debarment or suspension from award of a County contract for a period of up to three years.

22. Contract Execution & Notice to Proceed: After the Board of Commissioners makes an award, all required documents are received by the County, and the contract is fully executed with signature of both parties, the County will issue a written Notice to Proceed. The County shall not be liable for payment of any work done or any costs incurred by any bidder prior to the County issuing the Notice to Proceed.

23. Unavailability of Funds: This contract will terminate immediately and absolutely at such time as appropriated and otherwise unobligated funds are no longer available to satisfy the obligations of the County under the contract.

24. Insurance: The Successful Bidder shall procure and maintain the following insurance, to be in effect throughout the term of the contract, in at least the amounts and limits as follows:

- a. **General Liability Insurance:** \$1,000,000 combined single limit per occurrence, including bodily and personal injury, destruction of property, and contractual liability.
- b. **Automobile Liability Insurance:** \$1,000,000 combined single limit each occurrence, including bodily injury and property damage liability.
- c. **Worker's Compensation & Employer's Liability Insurance:** Workers Compensation as required by Georgia statute.

Before a contract with the Successful Bidder is executed, the Successful Bidder shall provide Certificates of Insurance for all required coverage. The Successful Bidder can provide the Certificate of Insurance after award of the contract but must be provided prior to execution of the contract document by both parties. The certificate shall list an additional insured as follows:

Fayette County, Georgia
140 Stonewall Avenue West
Fayetteville, GA 30214

- 25. Bid Bond:** Bidder shall include a bid bond with your bid, equal to five percent (5%) of the total amount bid. Bid bonds shall be provided by a surety which appears on the U.S. Treasury's list of approved bond sureties (Circular 570).
- 26. Performance and Payment Bonds:** Prior to execution of a contract, the Successful Bidder shall submit performance and payment bonds each equal to 100 percent of the contract value, provided by a surety which appears on the U.S. Treasury's list of approved bond sureties (Circular 570).
- 27. Unauthorized Performance:** The County will not compensate the Contractor for work performed unless the work is authorized under the contract, as initially executed, or as amended.
- 28. Assignment of Contract:** Assignment of any contract resulting from this Invitation to Bid will not be authorized, except with express written authorization from the County.
- 29. Indemnification:** The Contractor shall indemnify and save the County and all its officers, agents and employees harmless from all suits, actions, or other claims of any character, name and description brought for or on account of any damages, losses, or expenses to the extent caused by or resulting from the negligence, recklessness, or intentionally wrongful conduct of the Contractor or other persons employed or utilized by the Contractor in the performance of the contract. The Contractor shall pay any judgment with cost which may be obtained against the County growing out of such damages, losses, or expenses.
- 30. Severability:** The invalidity of one or more of the phrases, sentences, clauses, or sections contained in the contract shall not affect the validity of the remaining portion of the contract. If any provision of the contract is held to be unenforceable, then both parties shall be relieved of all obligations arising under such provision to the extent that the provision is unenforceable. In such case, the contract shall be deemed amended to the extent necessary to make it enforceable while preserving its intent.
- 31. Delivery Failures:** If the Contractor fails to deliver contracted goods or services within the time specified in the contract or fails to replace rejected items in a timely manner, the County shall have authority to make open-market purchases of comparable goods or services. The County shall have the right to invoice the Contractor for any excess expenses incurred or deduct such amount from monies owed the Contractor. Such purchases shall be deducted from contracted quantities.
- 32. Substitution of Contracted Items:** The Contractor shall be obligated to deliver products awarded in this contract in accordance with terms and conditions specified herein. If the Contractor is unable to deliver the products under the contract, it shall be the Contractor's responsibility to obtain prior approval of the ordering agency to deliver an acceptable substitute at the same price quoted in the Contractor's original bid. In the event the Contractor consistently needs to substitute or refuses to substitute products,

the County reserves the right to terminate the contract or invoke the "Delivery Failures" clause stated herein.

33. Inspection and Acceptance of Deliveries: The County reserves the right to inspect all goods and products delivered. The County will decide whether to accept or reject items delivered. The inspection shall be conclusive except with respect to latent defects, fraud, or such gross mistakes as shall amount to fraud. Final inspection resulting in acceptance or rejection of the products will be made as soon as practicable, but failure to inspect shall not be construed as a waiver by the County to claim reimbursement or

damages for such products which are later found to be in non-conformance with specifications. Should public necessity demand it, the County reserves the right to use or consume articles delivered which are substandard in quality, subject to an adjustment in price to be determined by the Purchasing Director.

34. Termination for Cause: The County may terminate the contract for cause by sending written notice to the Contractor of the Contractor's default in the performance of any term of this agreement. As appropriate, the County will compensate the Contractor for completed performance, and for any partially completed performance as determined by the County to be adequately performed. Termination shall be without prejudice to any of the County's rights or remedies by law.

35. Termination for Convenience: The County may terminate the contract for its convenience at any time with 10 days' written notice to the Contractor. In the event of termination for convenience, the County will pay the Contractor for services performed. The County will compensate partially completed performance based upon a signed statement of completion submitted by the Contractor, which shall itemize each element of performance completed.

36. Force Majeure: Neither party shall be deemed to be in breach of the contract to the extent that performance of its obligations is delayed, restricted, or prevented by reason of any act of God, natural disaster, act of government, or any other act or condition beyond the reasonable control of the party in question.

37. Governing Law: This agreement shall be governed in accordance with the laws of the State of Georgia. The parties agree to submit to the jurisdiction in Georgia, and further agree that any cause of action arising under this agreement shall be required to be brought in the appropriate venue in Fayette County, Georgia.

PROJECT SPECIFIC TERMS AND CONDITIONS

ITB #26015-B: Darren Drive Culvert Replacement

- A. Reference and Incorporation of GDOT Specifications** - Unless noted otherwise in this Invitation to Bid (ITB), the Georgia Department of Transportation's Standard Specifications Construction of Transportation Systems, most recent edition is incorporated by reference into the project specifications and contract documents. All work shall be performed in accordance with the GDOT specifications, and all pay items shall be measured and evaluated in accordance with the specifications. They shall supersede all other specifications unless more stringent requirements are listed.

It is the responsibility of the Contractor to be familiar with these specifications before bidding and to adhere to them during construction. Fayette County is owner of the project and shall serve as the administrator of the Contract in lieu of "The Department.". Copies of the documents can be obtained from the GDOT website.

- B. Schedule** – The project shall commence within Twenty (20) Calendar Days of the Contractor receiving the Notice to Proceed (NTP) and shall be substantially complete within One Hundred Eighty-Five (185) Calendar Days of the Contractor receiving the NTP from Fayette County. The project shall reach final completion within **Two Hundred Fifteen (215) Calendar Days** of the Contractor receiving the NTP from Fayette County. Contract time is measured on a Calendar Day basis and includes all Sundays, County holidays, and non-workdays.
- C. County Holidays** – The Contractor shall not work on a County Holiday unless written approval is provided by Fayette County at least three days prior to the Holiday. The County Holiday Schedule is available on the County's website: https://fayettecountyga.gov/information/county_holidays.htm
- D. Work Hours** – Unless pre-approved otherwise by Fayette County all work shall be performed Monday thru Friday and between the hours of 8:00 AM and 5:00 PM.
- E. OSHA** – Adhere to the Occupational Safety and Health Administration's (OSHA) excavation standards, *29 Code of Federal Regulations (CFR) Part 1926, Subpart P* for excavation and trenching operations.
- F. Toilet Facilities** - Provide toilet facilities that meet local sanitary codes. Provide consumable and non-consumable goods (toilet paper, paper towels, hand soap) for the life of the project.
- G. Contractor Staging** – No staging area is provided by Fayette County for the project beyond the existing right-of-way and acquired easements for the project. Contractor staging shall not interfere with traffic on County roads.
- H. Prequalification of Bidders** – The Prime Contractor shall be GDOT prequalified in Work Class 500 or 513 and provide at least two (2) successfully completed projects of similar scope and size within

the past five (5) years. Fayette County reserves the right to consider a contractor's past performance when determining if a bid is responsive and responsible.

- I. **Contractor Supervision and Work Coordination** – The Contractor shall supervise and direct the work. He / She shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, including traffic control. The Contractor shall employ and maintain onsite a qualified supervisor or superintendent who will be designated in writing by the Contractor as the Contractor's site representative. The supervisor shall have full authority to act on behalf of the Contractor and all communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall always be present on the site as required to perform adequate supervision and coordination of the work.
- J. **Workmanship Guarantee** – The Contractor shall warranty and guarantee all materials supplied, equipment furnished, and work performed to be free from defects (resulting from faulty materials supplied or workmanship) for a period of twelve (12) months from the date of Substantial Completion.

The Owner shall give notice of observed defects with reasonable promptness and the Contractor shall have Forty-Five (45) Calendar Days to address the issue(s). If the Contractor fails to make such repairs, adjustments, or other work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. If different guarantees or warranties are required in the technical specifications for specific items, then the more stringent (i.e., longer) apply.

- K. **As-Built Survey** - The Contractor shall provide an as-built survey. The survey shall be stamped by a third-party Registered Land Surveyor (RLS) licensed in the state of Georgia and include, at a minimum, the following information:

1. Permanent Easements as shown on the Easement Exhibit;
2. Up- and down-gradient invert elevations;
3. Culvert dimensions, length, and slope;
4. Headwalls;
5. Extent and elevation of Rip Rap; and
6. Paving limits;

In addition to the above, the Contractor shall meet and satisfy all applicable GDOT specifications for the installation of concrete structures and storm pipe. In the event of a conflict the more stringent standard shall apply.

- L. **Special Allowance** – Due to the nature of the project and the potential for unforeseen conditions, it is possible that some additional work or modification to the scope may be required. A **\$95,000** Allowance is to be included in the Base Bid, to be used to cover Claims (Section 105.13) or Extra Work (Section 109.05) with prior written approval from Fayette County. The procedures for submitting such requests are documented in the referenced Sections. If approved, the amount of the Claim or Extra Work will be deducted from the Allowance. Requests greater than the amount

available in the Allowance category will require approval from the Fayette County Board of Commissioners.

- M. Section 102.04 Interpretation of Bids** - The quantities of work to be performed and materials to be furnished to complete the construction of The Work as shown on the Plans and contained in the Proposal are approximate and are to be used for comparing Bids. The County does not guarantee that the quantities indicated on the Plans or given in the Proposal will be the actual construction quantities. Payment to the Contractor will be made only for the actual quantities of work performed in accordance with the Plans and Specifications.
- N. Section 102.05 Examination of Plans, Specifications, Special Provisions, and Site of the Work** - The Bidder is expected to examine carefully the site of the proposed work, the Proposal, Plans, Specifications, Supplemental Specifications, Special Provisions, and Contract forms before submitting a Proposal.
- O. Section 103 Award and Execution of Contract** – This section of the GDOT Specifications shall not apply for this ITB.
- P. Section 104 Scope of Work** - The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the Plans, Specifications, and terms of the Contract.
- Q. Section 105.06 Cooperation with Utilities** – The County will notify all utility companies or other parties affected of Award of the Contract and will assist the Contractor in arranging for all necessary adjustment or relocation within or adjacent to the limits of construction. It shall be the Contractor's responsibility to plan with each utility owner a schedule of operations which will clearly set forth at which stage of the Contractor's operations the utility owner will be required to perform adjustment and relocation work.

Before beginning any mechanized boring, trenching, or digging the contractor shall call Georgia 811 at least 72-hours in advance excluding weekends and holidays. Calls made after 4:30pm count as the next day.

- R. Section 106 Control of Materials** – The materials used in the work shall meet all quality requirements of the contract. All materials shall be inspected, sampled, and tested by the County's third-party Quality Control Technician before incorporation into the Work. Sampling and testing shall be performed in accordance with GDOT's Sampling, Testing and Inspection Manual. Quality control tests shall be furnished to the County and may be used as acceptance tests at the discretion of the County or Engineer.
- S. Section 108.03 Prosecution and Progress** - The Contractor shall furnish the County, for approval, a progress schedule following the receipt of the Notice to Proceed and prior to the pre-construction conference. The Contractor shall provide a revised progress schedule at the end of each month showing the proposal plan to prosecute the balance of the work. No payments will

be made to the Contractor while delinquent in the submission of a progress schedule or a revised progress schedule.

T. Section 108.07.E Extension of Contract Time - If the normal progress of the work is delayed for reasons beyond his control, the Contractor shall, within 15 days after the start of such delay, file a written request to the County for an extension of time setting forth therein the reasons and providing complete documentation for the delay which he believes will justify the granting of his request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time.

U. Section 108.08 Failure or Delay in Completing Work on Time - Time is an essential element of the Contract, and any delay in the prosecution of The Work may inconvenience the public, obstruct traffic, or interfere with business. In addition to the aforementioned inconveniences, any delay in completion of The Work will always increase the cost of engineering. For this reason, it is important that The Work be pressed vigorously to completion. Should the Contractor or, in case of default, the Surety fail to complete the Work within the time stipulated in the Contract or within such extra time that may be allowed, charges shall be assessed against any money due or that may become due the Contractor in accordance with the following schedule:

Contract Amount		Daily Charges
For More Than	To and Including	Calendar Day or Completion Date
\$---	\$50,000	\$950
\$50,000	\$250,000	\$960
\$250,000	\$500,000	\$1,240
\$500,000	\$2,500,000	\$1,660
\$2,500,000	\$5,000,000	\$2,700
\$5,000,000	\$10,000,000	\$3,400

These fixed liquidated damages are not established as a penalty but are calculated and agreed upon in advance by the County and the Contractor due the uncertainty and impossibility of making a determination as to the actual and consequential damages which are incurred by the County and the general public as a result of the failure on the part of the Contractor to complete The Work on time.

In addition to the above, the Contractor shall meet and satisfy all applicable GDOT specifications as written in Section 108 Prosecution and Progress. In the event of a conflict the more stringent shall apply.

V. Section 109.07 Partial Payment – At the end of each month the Contractor shall submit a pay application to the Engineer and County for review. The total value of items complete in place will be verified by the County and certified for payment. No payments will be made to the

Contractor while delinquent in the submission of a progress schedule or a revised progress schedule.

W. Section 150 Traffic Control - The Contractor shall prepare and submit a Temporary Traffic Control Plan for review and approval by Fayette County at least Seven (7) Calendar Days prior to mobilization. The Plan shall include information on lane closures, traffic phasing, onsite detour(s), access to private property, etc. At least one 12-foot travel lane shall remain open for traffic and allow access to homes at all times. All signs and pavement markings shall be in accordance with GDOT and the MUTCD.

X. Section 161 Control of Soil Erosion and Sedimentation - This Work includes using best management practices (BMPs) as required in the current edition of the Georgia Soil and Water Conservation Commission Manual for Erosion and Sediment Control in Georgia.

Y. Section 207 Excavation and Backfill for Minor Structures – This work includes excavating, backfilling, or disposing of materials required to install a bridge culvert, box culvert, pipe, arch culvert, headwall and retaining wall according to the specifications, the plans, and the Engineer. Assume the responsibility for the cost of installing necessary sheeting and bracing. Sheeting and bracing will not be paid for separately.

Obtain backfill materials that meet the Specifications from GDOT approved sources. It can be assumed that the excavated material may not be suitable for re-use. Dispose of surplus and unsuitable materials as directed by the Engineer. Backfill with Type II material in layers of no more than 6 in (150 mm) loose to the proper subgrade elevation. This Item will not be paid for separately except as provided in Subsection 207.4.B

Z. Section 500 Concrete Structures - This work consists of manufacturing and using Portland cement concrete to construct structures. Submit all concrete mix designs, detailed formwork plans, and fabricator's shop and erection drawings to the Engineer for review. This Work will be paid for at the Contract Price per cubic yard (meter), each complete in place and accepted. Payment is full compensation for all things, including incidentals, and direct and indirect costs, to complete the Work.

AA. Section 513 Precast Reinforced Concrete Box Culverts, Barrel Sections, and End Sections - This work consists of constructing, transporting, joining, and finishing precast box culvert installations according to plan details and these specifications. Submit to the Engineer a certificate from the manufacturer of the precast boxes and precast ends stating that all of the precast box sections and all of the precast end components manufactured in this plant for the use of the County contain at least the minimum requirements of reinforcement steel specified herein. Payment for Precast Reinforced Concrete Box Culvert Barrel Sections and End Sections will be based on the cast-in-place alternate and will include conversions when using the precast design. Cast-in-place concrete will be paid for under Section 500 and reinforcing steel will be paid for under Section 511.

BB. Section 700 Grassing - Furnish and install sod, in kind, and as shown on the plans. Furnish and install permanent grassing in all other disturbed areas according to Subsection 700.3.05.H and as shown on the plans. On slopes steeper than 3:1, sod should be anchored with pins or other approved methods.

BID PRICE SHEET

ITB #26015-B: Darren Drive Culvert Replacement

PAY ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
150-1000	TRAFFIC CONTROL	1.00	LS		
163-0232	TEMPORARY GRASSING	0.23	AC		
163-0240	MULCH	0.35	TN		
163-1930	CONSTRUCT AND REMOVE COMPOST FILTER SOCK, 18 IN	79.00	LF		
171-0030	TEMPOARY SILT FENCE, TP C	836.00	LF		
201-1500	CLEARING & GRUBBING	1.00	LS		
207-0203	FOUND BK FILL MATL, TYPE II	87.00	CY		
210-0100	GRADING COMPLETE	1.00	LS		
310-1101	GR AGGR BASE CRS, INCL MATL	94.51	TN		
402-3103	RECYCLED ASPH CONC 9.5 MM SUPERPAVE, TYPE II, GP 2 ONLY, INCL BITUM MATL & H LIME	25.92	TN		
402-3190	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	34.56	TN		
413-0750	TACK COAT	30.80	GL		
432-0206	MILL ASPH CONC PVMT, 1 1/2 IN DEPTH	215.00	SY		
500-3002	CLASS AA CONCRETE	555.80	CY		
511-1000	BAR REINF STEEL	43,148.38	LB		
603-2036	STN DUMPED RIP RAP, TP 1, 36 IN	195.00	SY		
603-2182	STN DUMPED RIP RAP, TP 3, 24 IN	45.00	SY		
603-7000	PLASTIC FILTER FABRIC	47.00	SY		
611-5505	RESET OBJECT MARKER	4.00	EA		
611-5551	RESET "SHOAL CREEK" SIGN	2.00	EA		
636-2070	GALV STEEL POSTS, TP 7	76.00	LF		
700-6910	PERMANENT GRASSING	0.07	AC		
700-7000	AGRICULTURAL LIME	0.05	TN		
700-8000	FERTILIZER MIXED GRADE	0.14	TN		
700-8100	FERTILIZER NITROGEN CONTENT	5.75	LB		
700-9300	SOD, BERMUDA	514.00	SY		
702-7501	TREE PROTECTION BARRIER, TYPE 1	419.00	LF		
716-2000	EROSION CONTROL MATS, SLOPES	125.00	SY		
999-0000	CONSTRUCTION ALLOWANCE	1.00	LS	\$ 95,000.00	\$ 95,000.00
DARREN DRIVE TOTAL BASE BID				\$	\$ -

COMPANY NAME _____

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(I)

The undersigned contractor ("Contractor") executes this Affidavit to comply with O.C.G.A § 13-10-91 related to any contract to which Contractor is a party that is subject to O.C.G.A. § 13-10-91 and hereby verifies its compliance with O.C.G.A. § 13-10-91, attesting as follows:

- a) The Contractor has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program;
- b) The Contractor will continue to use the federal work authorization program throughout the contract period, including any renewal or extension thereof;
- c) The Contractor will notify the public employer in the event the Contractor ceases to utilize the federal work authorization program during the contract period, including renewals or extensions thereof;
- d) The Contractor understands that ceasing to utilize the federal work authorization program constitutes a material breach of Contract;
- e) The Contractor will contract for the performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the Contractor with the information required by O.C.G.A. § 13-10-91(a), (b), and (c);
- f) The Contractor acknowledges and agrees that this Affidavit shall be incorporated into any contract(s) subject to the provisions of O.C.G.A. § 13-10-91 for the project listed below to which Contractor is a party after the date hereof without further action or consent by Contractor; and
- g) Contractor acknowledges its responsibility to submit copies of any affidavits, drivers' licenses, and identification cards required pursuant to O.C.G.A. § 13-10-91 to the public employer within five business days of receipt.

Federal Work Authorization User Identification Number

Date of Authorization

Name of Contractor

26015-B: Darren Drive Culvert Replacement
Name of Project

Fayette County, Georgia

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, _____, 2024 in _____ (city), _____ (state).

Signature of Authorized Officer or Agent

Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME

ON THIS THE _____ DAY OF _____, 2024.

NOTARY PUBLIC

My Commission Expires: _____

COMPANY INFORMATION

ITB #26015-B: Darren Drive Culvert Replacement

A. COMPANY

Company Name: _____

Physical Address: _____

Mailing Address (if different): _____

Website (if applicable): _____

B. AUTHORIZED REPRESENTATIVE

Signature: _____

Printed or Typed Name: _____

Title: _____

E-mail Address: _____

Phone Number: _____ Fax Number: _____

C. PROJECT CONTACT PERSON

Name: _____

Title: _____

Phone Number: _____

E-mail Address: _____

CONTRACTOR EXPERIENCE FORM
ITB #26015-B: Darren Drive Culvert Replacement

Projects of similar size and scope to the nature of the work described in this Invitation to Bid are required.

Project 1

Project Name	
Project Location	
Owner Name	
Owner Telephone & Email	
Date of Award	
Date of Completion	
Contract Amount (\$)	
Project Description	

Project 2

Project Name	
Project Location	
Owner Name	
Owner Telephone & Email	
Date of Award	
Date of Completion	
Contract Amount (\$)	
Project Description	

CONTRACTOR EXPERIENCE FORM - continued
ITB #26015-B: Darren Drive Culvert Replacement

Project 3

Project Name	
Project Location	
Owner Name	
Owner Telephone & Email	
Date of Award	
Date of Completion	
Contract Amount (\$)	
Project Description	

COMPANY NAME _____

GEORGIA DEPARTMENT OF TRANSPORTATION (GDOT)

CONTRACTORS AND SUBCONTRACTORS

PREQUALIFICATION TABLE

ITB #26015-B: Darren Drive Culvert Replacement

The Prime Contractor shall be GDOT prequalified in Work Class 500 or 513 and provide at least two (2) successfully completed projects of similar scope and size within the past five (5) years. Fayette County reserves the right to consider a contractor's past performance when determining if a bid is responsive and responsible.

WORK CLASS	DESCRIPTION	PRIME CONTRACTOR GDOT VENDOR ID
500	Concrete Structures	
513	Precast Reinforced Concrete Box Culverts, Barrel Sections, and End Sections	

List below the subcontractors, as known at the time of bid, and their work class qualification or registration, if applicable.

WORK CLASS	NAME OF SUBCONTRACTOR	SUBCONTRACTOR GDOT VENDOR ID

Prior to issuing the Notice to Proceed, the Prime Contractor shall provide to Fayette County, for review and approval, the subcontractors to be used on the project.

EXCEPTIONS TO SPECIFICATIONS

ITB #26015-B: Darren Drive Culvert Replacement

Please list below any exceptions or clarifications to the specifications. Explain any exceptions in full.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

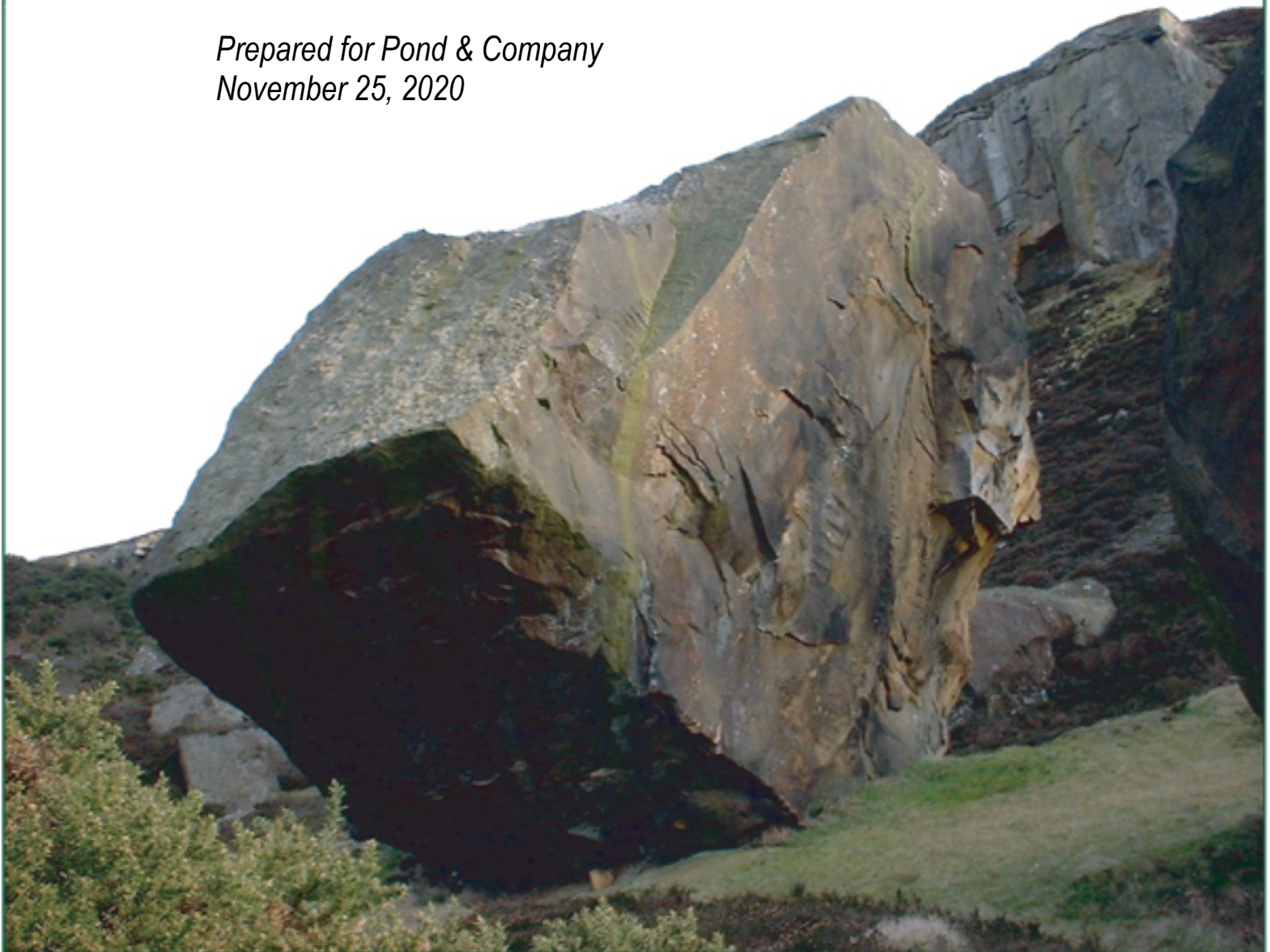
COMPANY NAME _____



Report of Subsurface Exploration
and Geotechnical Engineering Evaluation

**Darren Drive Over Shoal Creek
Fayette County Project Number 19SBJ
Fayette County, Georgia
Geo-Hydro Project Number 200811.20**

*Prepared for Pond & Company
November 25, 2020*



November 25, 2020

EXPLORATORY PROCEDURES

The subsurface exploration consisted of two soil test borings located as close as possible to the proposed end bents as conditions at the site allowed. Because of the location of the existing culvert pipes, an intermediate boring was not included in our exploration. The approximate boring locations are shown on Figure 2 in the Appendix. The borings were located in the field by Geo-Hydro by measuring angles and distances from existing site features. The ground surface elevations shown on the test boring records were interpolated from the topographic site plan provided to us, and have been rounded to the nearest foot. The topographic and elevation data shown hereon was obtained from a *Topographic Survey* plan by GeoSurvey, Inc., dated February 19, 2019, which is presented in sheet V-001 of the civil construction plans by POND (90% Design Submittal) dated August 2019. The topographic and elevation data is not certified as correct by this engineer. Users of this data do so at their own risk. In general, boring locations and elevations should be considered approximate.

Standard penetration testing, as provided for in ASTM D1586, was performed at select depth intervals in the soil test borings. Soil samples obtained from the drilling operation were examined and classified in general accordance with ASTM D2488 (Visual-Manual Procedure for Description of Soils). Soil classifications include the use of the Unified Soil Classification System described in ASTM D2487 (Classification of Soils for Engineering Purposes). The soil classifications also include our evaluation of the geologic origin of the soils. Evaluations of geologic origin are based on our experience and interpretation and may be subject to some degree of error.

Descriptions of the soils encountered, groundwater conditions, standard penetration resistances, and other pertinent information are provided in the test boring records included in the Appendix.

REGIONAL GEOLOGY

The project site is located in the Southern Piedmont Geologic Province of Georgia. Soils in this area have been formed by the in-place weathering of the underlying crystalline rock, which accounts for their classification as “residual” soils. Residual soils near the ground surface that have experienced advanced weathering frequently consist of red brown clayey silt (ML) or silty clay (CL). The thickness of this surficial clayey zone may range up to roughly 6 feet. For various reasons, such as erosion or local variation of mineralization, the upper clayey zone is not always present.

With increased depth, the soil becomes less weathered, coarser grained, and the structural character of the underlying parent rock becomes more evident. These residual soils are typically classified as sandy micaceous silt (ML) or silty micaceous sand (SM). With a further increase in depth, the soils eventually become quite hard and take on an increasing resemblance to the underlying parent rock. When these materials have a standard penetration resistance of 100 blows per foot or greater, they are referred to as partially weathered rock. The transition from soil to partially weathered rock is usually a gradual one, and may occur at a wide range of depths. Lenses or layers of partially weathered rock are not unusual in the soil profile.

Partially weathered rock represents the zone of transition between the soil and the indurated metamorphic rocks from which the soils are derived. The subsurface profile is, in fact, a history of the weathering process that the crystalline rock has undergone. The degree of weathering is most advanced at the ground surface, where fine-grained soil may be present. Conversely, the weathering process is in its early stages immediately above the surface of relatively sound rock, where partially weathered rock may be found. The thickness of the zone of partially weathered rock and the depth to the rock surface have both been found to vary considerably over relatively short distances. The depth to the rock surface may frequently range from the ground surface to 80 feet or more. The thickness of partially weathered rock, which overlies the rock surface, may vary from only a few inches to as much as 40 feet or more.

Stream valleys and areas adjacent to rivers and streams may contain alluvial (water-deposited) soils, depending on ground surface topography, stream flow characteristics, and other factors. By nature, alluvial soils can be highly variable depending upon the energy regime at the time of deposition. Coarse materials silt and clay are deposited in low energy environments. Alluvial soils may also contain significant organic materials, and are frequently encountered in a loose, saturated condition. In many cases, fine-grained alluvial soils will be highly compressible and have relatively low shear strength.

Overall geologic conditions at the project site have been modified by previous construction activities.

SOIL TEST BORING SUMMARY

Starting at the ground surface, both borings encountered approximately 6 inches of asphalt underlain by approximately 2 inches of graded aggregate base. Although measurements necessary for detailed quantity estimation were not performed for this report, we suggest an average surface material thickness of 10 inches for budgeting purposes.

Beneath the surface materials, both borings encountered fill materials extending to a depth of about 12 feet. The fill materials were classified as clayey sand with standard penetration resistances ranging from 2 to 9 blows per foot.

Beneath the fill materials, both borings encountered alluvial (water-deposited) soils extending to depths of about 17 to 18 feet. The alluvial soils were classified as sandy clay. Standard penetration resistances of 3 and 5 blows per foot were recorded in the alluvial soils.

Beneath the alluvial soils, boring B-1 encountered residual soils classified as silty sand with a standard penetration resistance value of 40 blows per foot.

Borings B-1 and B-2 encountered partially weathered rock at depths of about 23 and 17 feet, respectively. Partially weathered rock is locally defined as residual material having a standard penetration resistance of 100 blows per foot or greater.

Conditions causing auger refusal were encountered in borings B-1 and B-2 at depths of 31 and 18 feet, respectively. Auger refusal is the condition that prevents further advancement of the boring using

conventional soil drilling techniques. The material causing auger refusal may consist of a boulder, a lens or layer of rock, the upper surface of relatively massive rock, or other hard material.

At the time of drilling, groundwater was encountered in borings B-1 and B-2 at depths of 12 and 8 feet, respectively. The borings were backfilled with soil cuttings after the groundwater check and patched with asphalt. It should be noted that groundwater levels will fluctuate depending on yearly and seasonal rainfall variations, the creek level, and other factors, and may rise in the future.

Soil Test Boring Summary

Boring	Approximate Ground Elevation (feet)	Groundwater at Time of Drilling		Bottom of Fill		Bottom of Alluvium		Auger Refusal	
		Depth	Approx.	Depth	Approx.	Depth	Approx.	Depth	Approx.
		(feet)	Elevation	(feet)	Elevation	(feet)	Elevation	(feet)	Elevation
B-1	771	12	759	12	759	18	753	31	740
B-2	770	8	762	12	758	17	753	18	752

Depths and Elevations in this Summary Table are Approximate

NE: Not Encountered

PWR: Partially Weathered Rock

EVALUATIONS AND RECOMMENDATIONS

The following evaluations and recommendations are based on the information available on the proposed construction, the data obtained from the test borings, and our experience with soils and subsurface conditions similar to those encountered at this site. Because the test borings represent a very small statistical sampling of subsurface conditions, it is possible that conditions different from those indicated by the test borings could be encountered during construction that are substantially different from those indicated by the test borings. In these instances, adjustments to the design and construction may be necessary.

Geotechnical Considerations

The following geotechnical characteristics of the site should be considered for planning and design:

- Based on the subsurface conditions encountered, we recommend supporting the bridge bents using driven steel piles.
- Based on the results of the subsurface exploration, allowable compressive pile capacities of 140 kips and 192 kips can be achieved by installing driven steel H piles (HP 12x53 and HP 14x73, respectively).
- Based on the results of the test borings, we do not expect pre-drilling to be necessary for pile installation. We recommend maximum tip elevations ranging from 752 to 742 for driven piles depending on the bent. The driven H Pile discussion in the *Foundation Design* section of this report contains a table outlining tip elevations for each bent.

The following sections provide recommendations regarding these issues and other geotechnical aspects of the project.

Existing Fill Materials

Fill materials were encountered in both borings extending to a depth of about 12 feet. The fill materials are likely the result of the construction of the roadway embankment. Alluvial soils were encountered in boring B-1 and B-2 immediately beneath the fill and extending to depths of about 18 and 17 feet, respectively. There are several important facts that should be considered regarding existing fill materials and the limitations of subsurface exploration.

- The quality of existing fill materials can be highly variable, and test borings are often not able to detect all of the zones or layers of poor quality fill materials.
- Layers of poor quality fill materials that are less than about 2.5 to 5 feet thick may often remain undetected by soil test borings due to the discrete-interval sampling method used in this exploration.
- The interface between existing fill materials and the original ground surface may include a layer of organic material that was not properly stripped off during the original grading. Depending on its relationship to bearing surfaces, an organic layer might adversely affect support of structures or

hardscapes supported at grade. If such organic layers are encountered during construction, it may be necessary to “chase out” the organic layer by excavating the layer along with overlying soils.

- Subsurface exploration is simply not capable of disclosing all conditions that may require remediation.

Structural Fill

It is likely that new structural fill will be needed on each side of the bridge. Materials selected for use as structural fill should be free of organic debris, waste construction debris, and other deleterious materials. The material should not contain rocks having a diameter over 4 inches. It is our opinion that the following soils represented by their USCS group symbols will typically be suitable for use as structural fill and are usually found in the Piedmont Physiographic Province: (SM), (ML), and (CL). The following soil types are typically suitable but are not typically abundant: (SW), (SP), (SC), (SP-SM), and (SP-SC). The following soil types are considered unsuitable: (MH), (CH), (OL), (OH), and (Pt).

Laboratory Proctor compaction tests and classification tests should be performed on representative samples obtained from the proposed borrow material to provide data necessary to determine acceptability and for quality control. The moisture content of suitable borrow soils should generally be no more than 3 percentage points below or above optimum at the time of compaction. Tighter moisture limits may be necessary with certain soils.

Exposed slopes will require preparation prior to placement of new fill materials. We recommend that fill slope areas be benched prior to placement of new fill. Benching the existing slopes serves two purposes: first, it eliminates the potential weak plane which would exist along the boundary between the new fill and the existing slope; second, it provides a horizontal surface for the construction equipment to properly compact the structural fill material. We recommend that the width of the bench be at least 5 feet wider than the width of the construction equipment used. Section 208.3.05 of the *Georgia DOT Standard Specifications for Construction of Transportation Systems (2013)* provides a suitable guideline for benching which should be followed for this project.

Suitable fill material should be placed in thin lifts. Lift thickness depends on the type of compaction equipment, but a maximum loose-lift thickness of 8 inches is generally recommended. The soil should be compacted by a self-propelled sheepsfoot roller. Within small excavations such as in utility trenches, around manholes, above foundations, or behind retaining walls, we recommend the use of “wacker packers” or “Rammax” compactors to achieve the specified compaction. Loose lift thicknesses of 4 to 6 inches are recommended in small area fills.

We recommend that structural fill be compacted to at least 95 percent of the standard Proctor maximum dry density (ASTM D698). The upper 12 inches of pavement subgrades should be compacted in accordance with Georgia DOT requirements to at least 100 percent of the standard Proctor maximum dry density. Additionally, the maximum dry density of structural fill should be no less than 90 pcf. Geo-Hydro should perform density tests during fill placement.

Earth Slopes

Temporary construction slopes should be designed in strict compliance with OSHA regulations. The exploratory borings indicate that most soils at the site are Type C as defined in 29 CFR 1926 Subpart P. This dictates that temporary construction slopes be no steeper than 1.5H:1V for excavation depths of 20 feet or less. Temporary construction slopes should be closely observed on a daily basis by the contractor's "competent person" for signs of mass movement: tension cracks near the crest, bulging at the toe of the slope, etc. The responsibility for excavation safety and stability of construction slopes should lie solely with the contractor.

We recommend that extreme caution be observed in trench excavations. Several cases of loss of life due to trench collapses in Georgia point out the lack of attention given to excavation safety on some projects. We recommend that applicable local and federal regulations regarding temporary slopes, and shoring and bracing of trench excavations be closely followed.

Formal analysis of slope stability was beyond the scope of work for this project. Based on our experience, permanent cut or fill slopes should be no steeper than 2H:1V to maintain long term stability and to provide ease of maintenance. The crest or toe of cut or fill slopes should be no closer than 10 feet to any foundation. The crest or toe should be no closer than 5 feet to the edge of any pavements. Erosion protection of slopes during construction and during establishment of vegetation should be considered an essential part of construction.

Earth Pressure

Three earth pressure conditions are generally considered for retaining wall design: "at rest", "active", and "passive" stress conditions. Retaining walls which are rigidly restrained at the top and will be essentially unable to rotate under the action of earth pressure should be designed for "at rest" conditions. Retaining walls which can move outward at the top as much as 0.5 percent of the wall height (such as free-standing walls) should be designed for "active" conditions. For the evaluation of the resistance of soil to lateral loads the "passive" earth pressure must be calculated. It should be noted that full development of passive pressure requires deflections toward the soil mass on the order of 1.0 percent to 4.0 percent of total wall height.

Earth pressure may be evaluated using the following equation:

$$p_h = K (D_w Z + q_s) + W_w(Z-d)$$

where: p_h = horizontal earth pressure at any depth below the ground surface (Z).

W_w = unit weight of water

Z = depth to any point below the ground surface

d = depth to groundwater surface

D_w = wet unit weight of the soil backfill (depending on borrow sources). The wet unit weight of most residual soils may be expected to range from approximately 115 to 125 pcf. Below the groundwater level, D_w must be the buoyant weight.

q_s = uniform surcharge load (add equivalent uniform surcharge to account for construction equipment loads)

K = earth pressure coefficient as follows:

<u>Earth Pressure Condition</u>	<u>Coefficient</u>
At Rest (K_o)	0.53
Active (K_a)	0.36
Passive (K_p)	2.8

The groundwater term, $W_w(Z-d)$, should be used if no drainage system is incorporated behind retaining walls. If a drainage system is included which will not allow the development of any water pressure behind the wall, then the groundwater term may be omitted. The development of excessive water pressure is a common cause of retaining wall failures. Drainage systems should be carefully designed to ensure that long term permanent drainage is accomplished.

The above design recommendations are based on the following assumptions:

- Horizontal backfill
- 95 percent standard Proctor compactive effort on backfill (ASTM D698)
- No safety factor is included

For convenience, equivalent fluid densities are frequently used for the calculation of lateral earth pressures. For “at rest” stress conditions, an equivalent fluid density of 66 pcf may be used. For the “active” state of stress an equivalent fluid density of 45 pcf may be used. These equivalent fluid densities are based on the assumptions that drainage behind the retaining wall will allow *no* development of hydrostatic pressure; that native sandy silts or silty sands will be used as backfill; that the backfill soils will be compacted to at least 95 percent of standard Proctor maximum dry density; that backfill will be horizontal; and that no surcharge loads will be applied.

For analysis of sliding resistance of the base of a retaining wall, the coefficient of friction may be taken as 0.4 for the soils at the project site. This is an ultimate value and an adequate factor of safety should be used in design. The force which resists base sliding is calculated by multiplying the normal force on the base by the coefficient of friction. Full development of the frictional force could require deflection of the base of roughly 0.1 to 0.3 inches.

Groundwater

Groundwater was encountered in borings B-1 and B-2 at depths of 12 and 8 feet, respectively. However, it should be anticipated that the groundwater will be near that of the creek level. We recommend that the project specifications require the use of dewatering as necessary, and dictate the result of the dewatering operation (performance specification). The contractor may then implement a technique or combination of

techniques appropriate for the actual field conditions encountered. Exhibit “A” as follows provides a minimum guide specification that may be used to develop a dewatering performance specification suitable for this project.

EXHIBIT "A"

Minimum Guide Specification for Dewatering

NOTE: The following specifications are for use as a guide for development of actual specifications. The guide is not intended for direct use as a construction specification without modifications to reflect specific project conditions.

Control of groundwater shall be accomplished in a manner that will preserve the strength of the foundation soils, will not cause instability of the excavation slopes, and will not result in damage to existing structures. Where necessary to these purposes, the water level shall be lowered in advance of excavation, utilizing trenches, sumps, wells, well points or similar methods. The water level, as measured in piezometers, shall be maintained a minimum of 3 feet below the prevailing excavation level. Open pumping from sumps and ditches, if it results in boils, loss of soil fines, softening of the ground or instability of slopes, will not be permitted. Wells and well points shall be installed with suitable screens and filters so that continuous pumping of soil fines does not occur. The discharge shall be arranged to facilitate collection of samples by the Engineer.

Adapted from Construction Dewatering - A Guide to Theory and Practice, John Wiley and Sons.

Foundation Design

It is our opinion that the planned bridge abutments can be supported using customary driven steel H piles. Based on the results of the soil test borings, compressive load capacities of 192 kips and 140 kips will be suitable for HP 14x73 and HP 12x53 driven piles. Driving resistance after minimum tip elevations are achieved will be based on the hammer used and the established driving criteria. We recommend the following minimum tip elevations for the piles.

Bent	Minimum Tip Elevation
1 - North (STA 10+20)	742
2 - Intermediate (STA 9+80)	748
3 - South (STA 9+56)	752

Pilot holes should be drilled for H-piles as needed if hard driving or relatively shallow weathered rock and mass rock are encountered. This work should be done at the direction of the Engineer if the minimum tip

elevation cannot be achieved. Pilot holes, if required, must have a diameter of at least 24 inches. Pilot holes must be filled with concrete to the top of weathered rock after the piles are adequately seated into the rock.

Pile points (APF HARD-BITE™ Point 77600-B or equivalent) are recommended for the project to facilitate adequate penetration into very dense materials.

The axial load capacity is based on driving the piles to the specified refusal criteria with an appropriately sized hammer. The driving criteria will be developed based on the hammer used. Pile capacity should be evaluated in the field using PDA testing (Pile Driving Analyzer) in accordance with ASTM D4945. Allowable unit stresses in the piles should not be exceeded under construction or service conditions. Alternatively, pile capacity can be evaluated using the FHWA Modified Gates Formula.

It is possible that welding of pile sections will be required. The welds should be full-penetration butt welds. The contractor should submit appropriate welder qualifications before pile installation begins. The project structural engineer should specify requirements for visual inspection and non-destructive testing of welds. Alternatively, a pre-manufactured splicer such as the *HP-30000 Champion Splicer* by Associated Pile & Fitting may be used.

Pile installation should be monitored on a full-time basis by Geo-Hydro. Geo-Hydro will monitor pile lengths, compliance with project specifications, penetration rates, tip elevations, and other details of pile installation.

Foundation Scour Protection

To reduce the risk of foundations being undermined due to scour, scour protection will be required. As a minimum, scour protection should consist of properly placed rip-rap or stone gabions. For this project, we suggest lining the creek bank for a distance of 10 feet upstream and downstream of each bridge abutment using Type 1 rip rap as defined by Georgia DOT (section 805.2.01 of *GDOT Standard Specifications Construction of Transportation Systems* 2013 edition) and underlain by a non-woven, needle-punched filter fabric (Class I – AASHTO M288).

Seismic Design

Based on the results of the test borings and following the calculation procedure in the 2018 International Building Code (Chapter 20, ASCE 7-16), the *Site Class* for the site is D. The mapped and design spectral response accelerations are as follows: $S_s=0.155$, $S_1=0.080$, $S_{DS}=0.166$, $S_{D1}=0.128$.

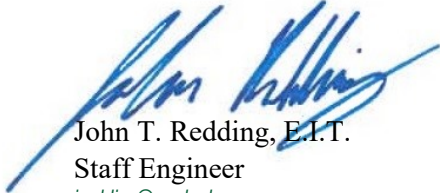
Based on the information obtained from the soil test borings, it is our opinion that the potential for liquefaction of the residual soils at the site due to earthquake activity is relatively low.

* * * * *

We appreciate the opportunity to serve as your geotechnical consultant for this project, and are prepared to provide any additional services you may require. If you have any questions concerning this report or any of our services, please call us.

Sincerely,

GEO-HYDRO ENGINEERS, INC.



John T. Redding, E.I.T.
Staff Engineer
jredding@geohydro.com



Luis E. Babler, P.E.
Chief Engineer
luis@geohydro.com

JTR/LEB/200811.20 Darren Drive Over Shoal Creek BFI Summary jtr

APPENDIX

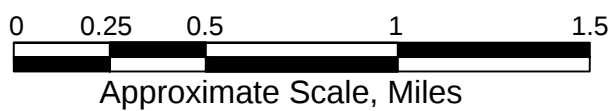
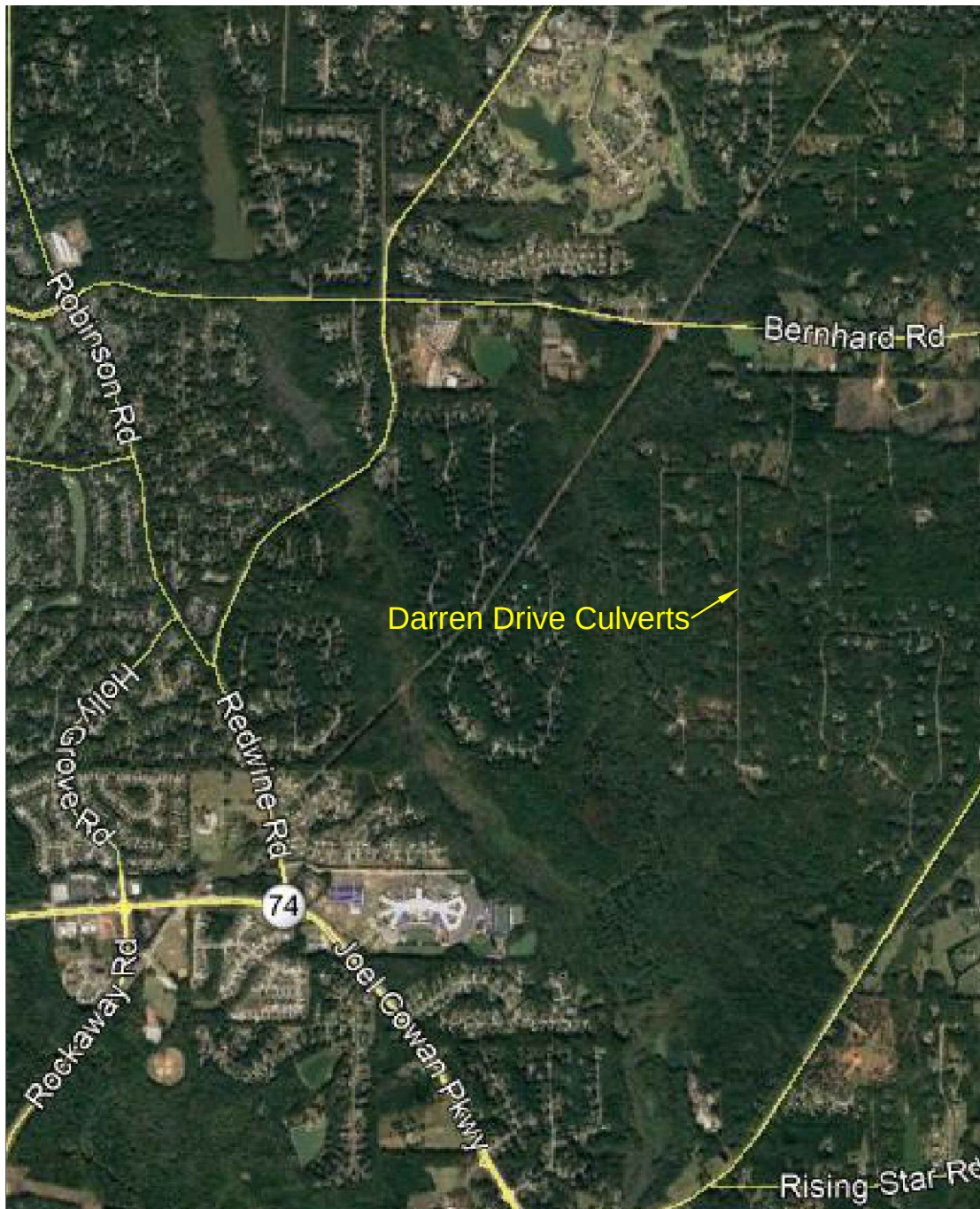
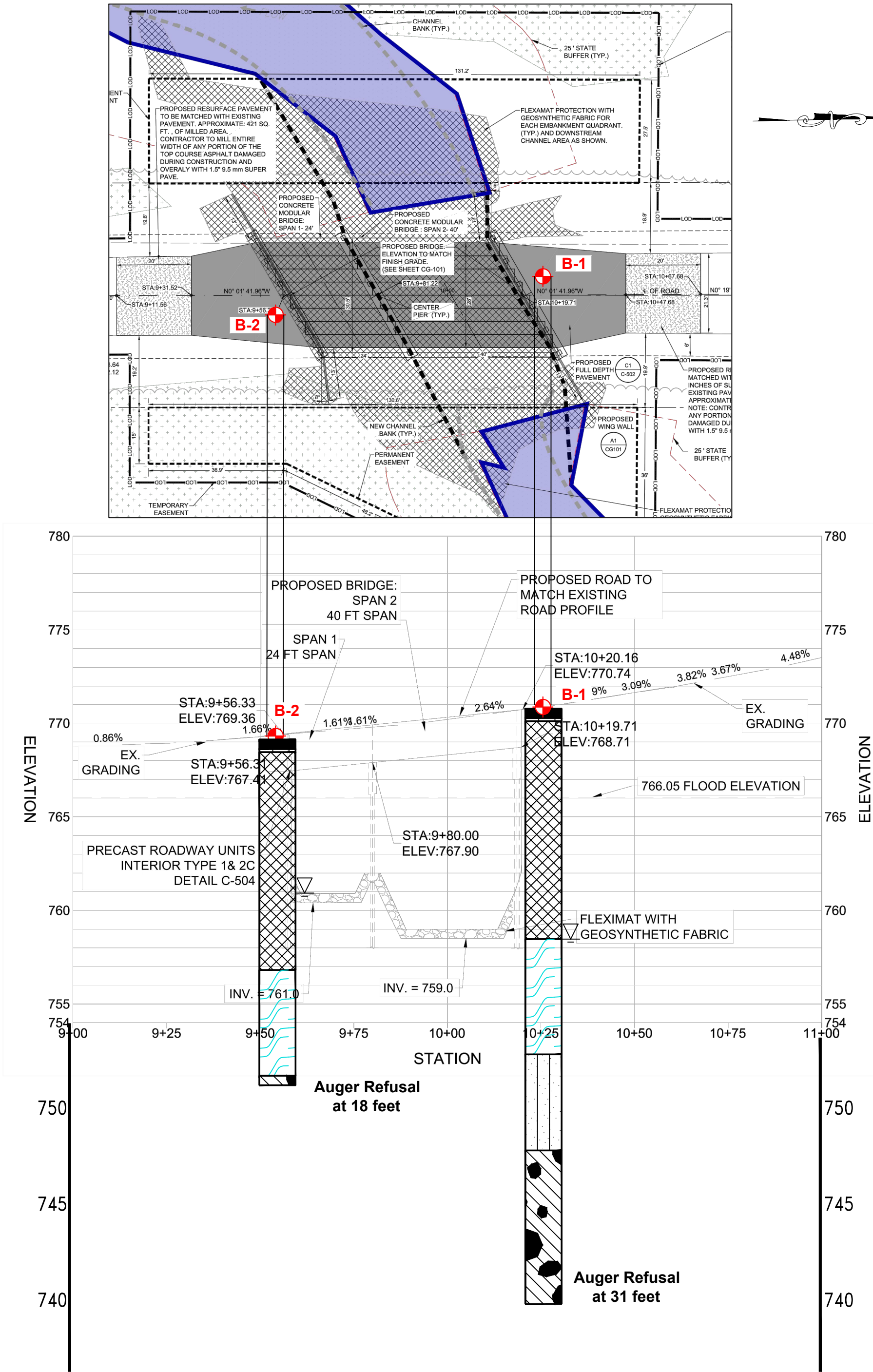


Figure 1: Site Location Plan

Darren Drive Over Shoal Creek BFI
Fayette County, Georgia
Geo-Hydro Project Number 200811.20



LEGEND: Soil Test Boring

Figure 2: Boring Location Plan

Darren Drive Over Shoal Creek BFI
Fayette County, Georgia
Geo-Hydro Project Number 200811.20

Symbols and Nomenclature

Symbols

█	Thin-walled tube (TWT) sample recovered
▢	Thin-walled tube (TWT) sample not recovered
●	Standard penetration resistance (ASTM D1586)
50/2"	Number of blows (50) to drive the split-spoon a number of inches (2)
65%	Percentage of rock core recovered
RQD	Rock quality designation - % of recovered core sample which is 4 or more inches long
GW	Groundwater
▼	Water level at least 24 hours after drilling
▽	Water level one hour or less after drilling
ALLUV	Alluvium
TOP	Topsoil
PM	Pavement Materials
CONC	Concrete
FILL	Fill Material
RES	Residual Soil
PWR	Partially Weathered Rock
SPT	Standard Penetration Testing

Penetration Resistance Results

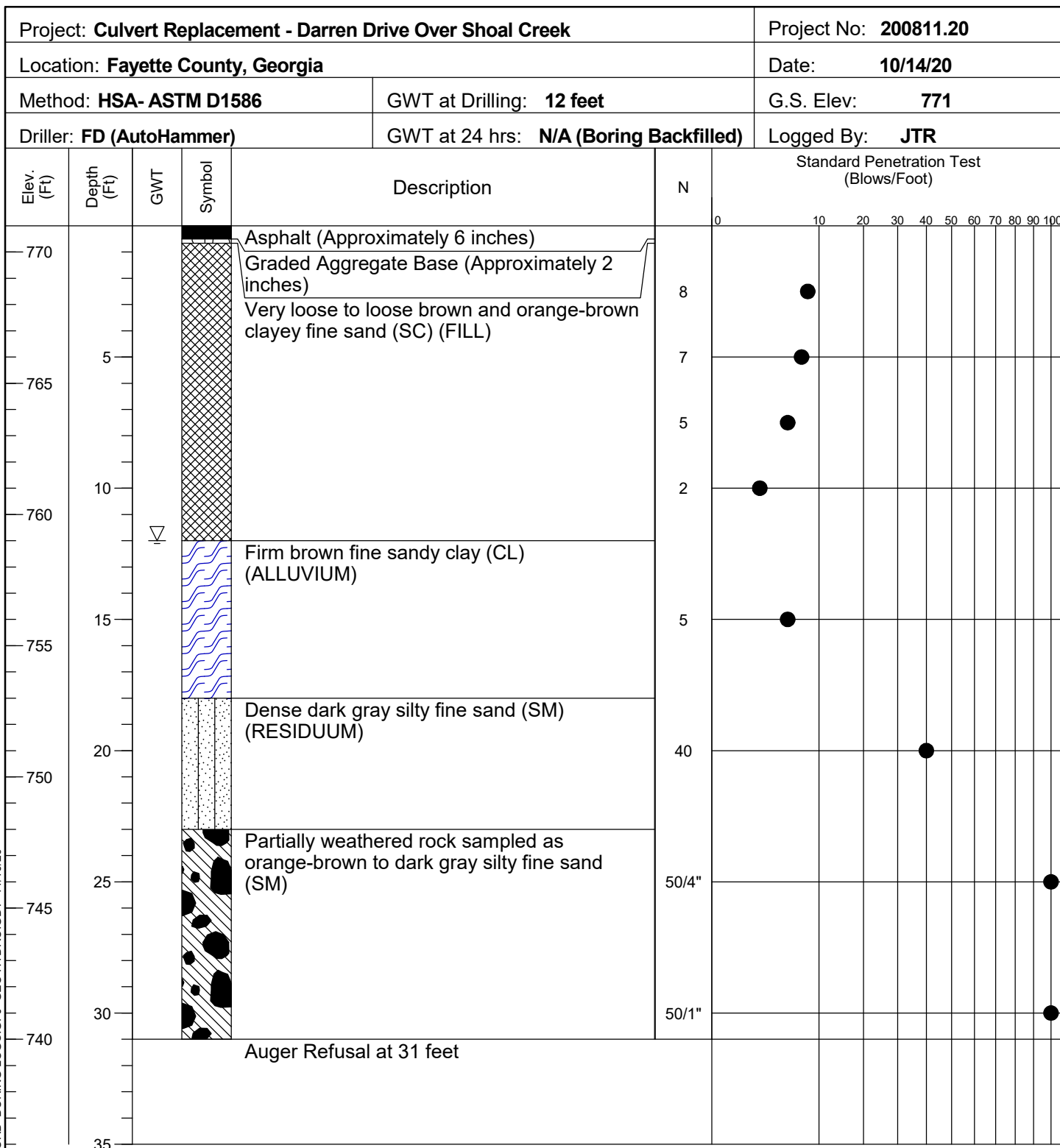
	Number of Blows, N	Approximate Relative Density
Sands	0-4	very loose
	5-10	loose
	11-20	firm
	21-30	very firm
	31-50	dense
	Over 50	very dense
	Number of Blows, N	Approximate Consistency
Silts and Clays	0-1	very soft
	2-4	soft
	5-8	firm
	9-15	stiff
	16-30	very stiff
	31-50	hard
	Over 50	very hard

Drilling Procedures

Soil sampling and standard penetration testing performed in accordance with ASTM D 1586. The standard penetration resistance is the number of blows of a 140-pound hammer falling 30 inches to drive a 2-inch O.D., 1.4-inch I.D. split-spoon sampler one foot. Rock coring is performed in accordance with ASTM D 2113. Thin-walled tube sampling is performed in accordance with ASTM D 1587.

B-1

Test Boring Record



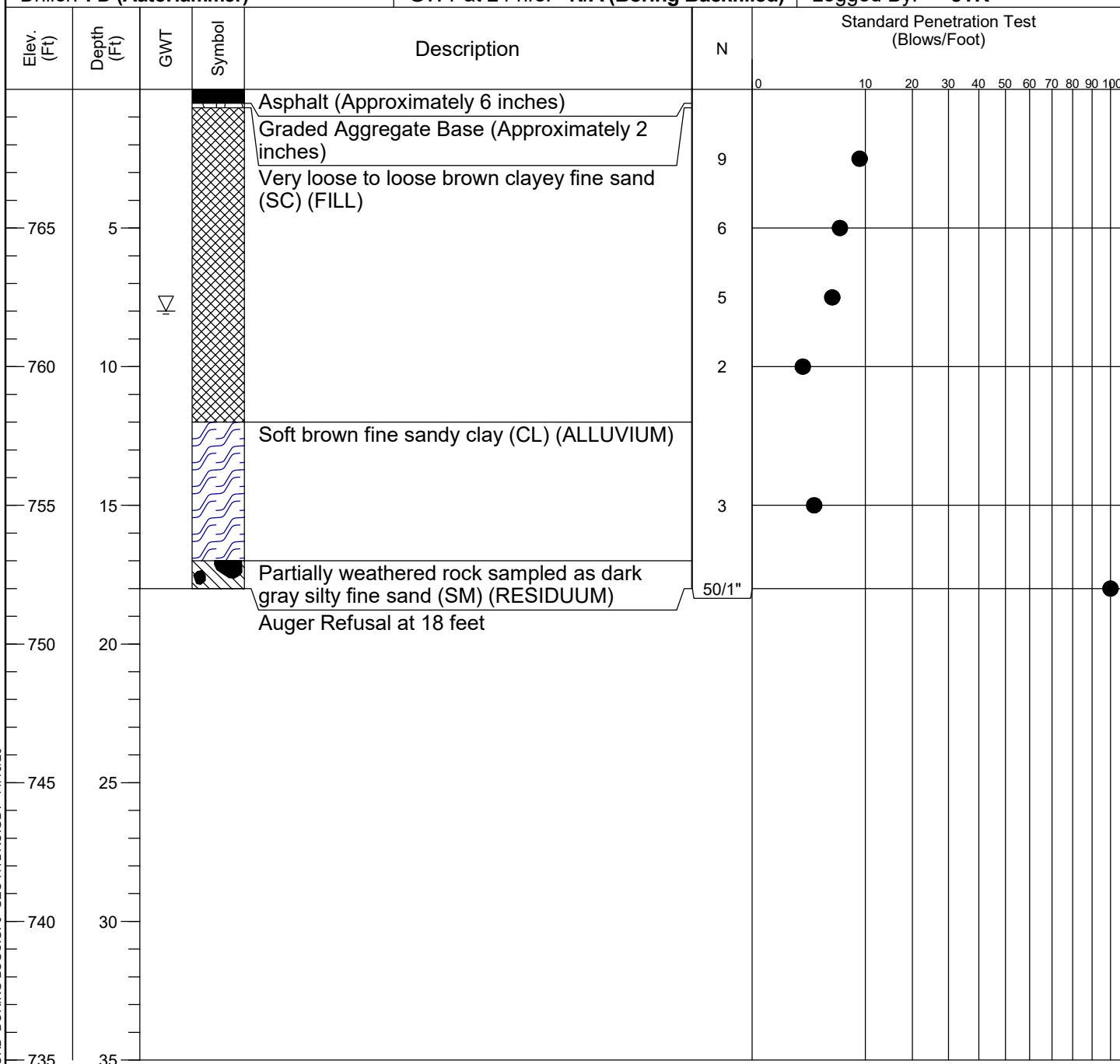
Remarks: Approximate STA 10+25

B-2

Test Boring Record



Project: Culvert Replacement - Darren Drive Over Shoal Creek			Project No: 200811.20		
Location: Fayette County, Georgia			Date: 10/14/20		
Method: HSA- ASTM D1586		GWT at Drilling: 8 feet		G.S. Elev: 770	
Driller: FD (AutoHammer)		GWT at 24 hrs: N/A (Boring Backfilled)		Logged By: JTR	



Remarks: Approximate STA 9+55