

CITY OF GRIFFIN
GRIFFIN GOLF COURSE BRIDGE REPLACEMENTS
BID # 24-007

FROM: PARAGON CONSULTING GROUP, INC.
350 AIRPORT ROAD
GRIFFIN, GA 30224

TO: ALL BIDDERS OF RECORD

RE: Addendum No. 2, dated March 5, 2024

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated February 2024.

This Addendum consists of two (2) pages, a revised Bid Form consisting of six (6) pages, a revised Bid Tabulation consisting of four (4) pages, a revised Agreement Between Owner and Contractor consisting of eight (8) pages, a supplemental drawing titled "Foundation Stone Detail" consisting of one (1) page, and a Preliminary Subsurface Exploration and Geotechnical Engineering Evaluation report prepared by Atlas Technical Consultants, LLC consisting of twenty-three (23) pages.

CONTRACT DOCUMENTS AND SPECIFICATIONS

- Add. 1.1 Modification: A revised Bid Form dated March 5, 2024, is attached to this Addendum and becomes a part of the Contract Documents. The number of days to complete the project has been revised in Article 6 – Time of Completion. All Bidders should use the revised Bid Form when submitting a bid.
- Add. 1.2 Modification: A revised Bid Tabulation dated March 5, 2024, is attached to this Addendum and becomes a part of the Contract Documents. All Bidders should use the revised Bid Tabulation when submitting a bid.
- Add. 1.3 Modification: The line item '#3 STONE FOR FOUNDATION BASE' has been modified to '#4 STONE FOR FOUNDATION BASE'. This change applies to the Bid Tabulation for both Bridge A and Bridge B.
- Add. 1.4 Modification: The line item 'G.A.B. IN PLACE FOR BACKFILL OF CULVERT' has been modified to 'G.A.B. IN PLACE FOR BACKFILL OF CULVERT & WINGWALLS'. This change applies to the Bid Tabulation for both Bridge A and Bridge B.
- Add. 1.5 Modification: The line item 'FLOW DIVERSION AND FOUNDATION EXCAVATION WATER CONTROL BY CONTRACTOR MEANS' has been added to the Bid

Tabulation with a quantity of 1. This change applies to the Bid Tabulation for both Bridge A and Bridge B.

- Add. 1.6 Modification: The line item 'ROAD BARRIERS' has been modified to 'ROAD BARRICADES FOR TRAFFIC CONTROL'. This change applies to the Bid Tabulation for both Bridge A and Bridge B.
- Add. 1.7 Modification: The line item '36-INCH DIAMETER TREE REMOVAL AND DISPOSAL' has been added to the Bid Tabulation with a quantity of 1. This change applies to the Bid Tabulation for Bridge A.
- Add. 1.8 Modification: The line item '45-INCH DIAMETER TREE REMOVAL AND DISPOSAL' has been added to the Bid Tabulation with a quantity of 1. This change applies to the Bid Tabulation for Bridge B.
- Add 1.9 Modification: A revised Agreement Between Owner and Contractor dated March 5, 2024, is attached to this Addendum, and becomes a part of the Contract Documents. The number of days to complete the project has been revised in Article 3.02 – Days to Achieve Substantial Completion and Final Payment. All Bidders should use the revised Agreement when submitting a bid.
- Add. 1.10 Modification: A supplemental drawing titled 'Foundation Stone Detail' (SD-1) is attached to this Addendum and becomes a part of the Contract Documents.
- Add. 1.11 Modification: A report entitled 'Preliminary Subsurface Exploration and Geotechnical Engineering Evaluation' prepared by Atlas Technical Consultants, LLC is attached to this Addendum and becomes a part of the Contract Documents.

End of Addendum No. 2

BID FORM

Project Identification:

CITY OF GRIFFIN
GRIFFIN GOLF COURSE BRIDGE REPLACEMENTS

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

CITY OF GRIFFIN
100 SOUTH HILL STREET
GRIFFIN, GA 30223

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for ninety (90) days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

2.02 The bid tabulation consists of unit prices for completion of Project and shall include all necessary material, plus cost for delivery, installation, insurance, overhead, profit and applicable taxes.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied all Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

- C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."
- E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; (3) Bidder's safety precautions and programs; and (4) Bidder's submittal requirements.
- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

ARTICLE 4 – BIDDER’S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

\$ _____ (TOTAL CONSTRUCTION amount shown on Bid Tabulation – Bid Tabulations A and B combined)

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete within 154 calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 184 calendar days after the date when the Contract Times commence to run.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security in the form of Bid Bond, Certified Check, Cashier’s Check or Cash;
 - 1. Bidders who submit Bid Security in the form of a Certified check, Cashier’s Check, or Cash are bound by the “Terms of Bid Bond” as if submitted on the attached “Bid Bond” form.
 - B. GA Contractor License No.: _____
 - C. Required Bidder Qualification Statement with Supporting Data

ARTICLE 8 – DEFINED TERMS

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

9.01 This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____
Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest _____

Date of Qualification to do business in _____ is ___/___/___

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Primary Contact Person _____

Secondary Contact Person _____

Bidder's Business Address _____

Phone No. _____ Fax No. _____

E-mail _____

SUBMITTED on _____, 20____.

GA Contractor License No. _____.

**CITY OF GRIFFIN
GRIFFIN GOLF COURSE BRIDGE REPLACEMENTS
BID TABULATION**

Item	Description	Unit	Quantity	Unit Price	Item Total
BRIDGE A					
GENERAL					
1.	PAYMENT & PERFORMANCE BONDS	LS	1		
2.	GENERAL CONDITIONS	LS	1		
3.	CONSTRUCTION STAKING BY REGISTERED SURVEYOR	LS	1		
4.	AS-BUILT SURVEY BY REGISTERED SURVEYOR	LS	1		
<i>General Subtotal =</i>					
DEMOLITION/REMOVAL					
5.	COMPLETE DEMOLITION OF EXISTING CONCRETE BRIDGE INCLUDING OFFSITE DISPOSAL	LS	1		
6.	SAW CUT ASPHALT (VARIOUS DEPTHS)	LF	130		
7.	REMOVAL OF ASPHALT PAVING COMPLETE INCLUDING OFFSITE DISPOSAL (VARIOUS THICKNESSES)	SY	163		
8.	REMOVAL OF DEBRIS AND CONCRETE IN STREAM	LS	1		
9.	REMOVAL OF EXISTING GATES & POSTS	LS	1		
10.	REMOVAL & DISPOSAL OF CONCRETE POURED WALL SECTION (VERTICAL SAW CUT INCLUDED)	LS	1		
11.	REMOVAL & DISPOSAL OF STACKED CONCRETE WALL SECTION	LS	1		
<i>Demolition/Removal Subtotal =</i>					
NEW STRUCTURE - CONTECH ALUMINUM BOX CULVERT #51					
12.	ALUMINUM BOX CULVERT ASSEMBLY & INSTALLATION INCLUDING ALUMINUM WING WALLS COMPLETE	LS	1		
13.	ALUMINUM BOX CULVERT FOUNDATION SYSTEM COMPLETE PER PLANS	LS	1		
14.	PREPARATION FOR INSTALLATION OF CONTECH STRUCTURE, WING WALL EMBEDMENT & TIE BACKS	LS	1		
15.	#4 STONE FOR FOUNDATION BASE	TN	35		
16.	G.A.B. IN PLACE FOR BACKFILL OF CULVERT & WINGWALLS	TN	416		
17.	ASPHALT PAVING (6 : 2 : 1 1/2) SECTION)	SY	163		
18.	GRADING COMPLETE (TOPSOIL & FINE GRADING)	LS	1		
<i>New Struction - Contech Aluminum Box Culvert #51 Subtotal =</i>					
ASPHALT PAVING & CONCRETE FLATWORK					
19.	8" REINFORCED CONCRETE BRIDGE SLAB INCLUDING REINFORCING PER DETAIL	SF	540		
20.	32" TALL CONCRETE BARRIER	LF	56		
21.	CONCRETE CURB AT BASE OF BARRIER ON BRIDGE	LF	56		
22.	CONCRETE AT CART PATH - 5" THICK	SF	245		
<i>Paving & Concrete Flatwork Subtotal =</i>					
EROSION CONTROL & DIVERSION					
23.	TYPE 'C' SILT FENCE INLCUDING MAINTENANCE & REMOVAL	LF	525		
24.	SAND BAGS FOR FLOW DIVERSION, INCLUDING MAINTENANCE & REMOVAL	LF	140		
25.	FLOW DIVERSION & FOUNDATION EXCAVATION WATER CONTROL BY CONTRACTOR MEANS	LS	1		
26.	HAY BALES, INCLUDING MAINTENANCE & REMOVAL	LF	100		
27.	BERMUDA SOD	SF	550		
28.	STRAW/COCONUT MATTING	SF	600		
29.	GABION EROSION SYSTEM - SCOURLOK	LF	44		
30.	REINFORCED SLOPE STABILIZATION - ARMORMAX	SY	42		

Item	Description	Unit	Quantity	Unit Price	Item Total
30.	TEMPORARY GRASSING, INCLUDING MULCH	SF	650		
31.	PERMANENT GRASSING, INCLUDING MULCH	SF	2,000		
32.	TYPE III RIP RAP	TN	50		
33.	CONCRETE WASHOUT PER PLANS	EA	2		
Erosion Control & Diversion Subtotal =					
MISCELLANEOUS					
34.	ONE WAY SIGNS INCLUDING INSTALLATION	EA	3		
35.	SINGLE SWING GATE - 18' LONG	EA	1		
36.	BARRIER REFLECTORS - SHUR-TITE 3" WHITE	EA	14		
37.	4-INCH WHITE STRIPING (PARKING SPACES) THERMOPLASTIC	LF	34		
38.	ROAD BARRICADES FOR TRAFFIC CONTROL	LF	146		
39.	ORANGE BARRIER FENCE - 4' HIGH	LF	130		
39.	WING WALL TO EXISTING CONCRETE WALL DETAIL	LS	1		
40.	WING WALL TO EXISTING STACKED CONCRETE WALL DETAIL	LS	1		
41.	36-INCH DIAMETER TREE REMOVAL AND DISPOSAL	LS	1		
Miscellaneous Subtotal =					
TOTAL CONSTRUCTION					

**CITY OF GRIFFIN
GRIFFIN GOLF COURSE BRIDGE REPLACEMENTS
BID TABULATION**

Item	Description	Unit	Quantity	Unit Price	Item Total
BRIDGE B					
GENERAL					
1.	PAYMENT & PERFORMANCE BONDS	LS	1		
2.	GENERAL CONDITIONS	LS	1		
3.	CONSTRUCTION STAKING BY REGSITERED SURVEYOR	LS	1		
4.	AS-BUILT SURVEY BY REGISTERED SURVEYOR	LS	1		
<i>General Subtotal =</i>					
DEMOLITION/REMOVAL					
5.	COMPLETE DEMOLITION OF EXISTING CONCRETE BRIDGE INCLUDING OFFSITE DISPOSAL	LS	1		
6.	SAW CUT ASPHALT (VARIOUS DEPTHS)	LF	79		
7.	REMOVAL OF ASHPALT PAVING COMPLETE INCLUDING OFFSITE DISPOSAL (VARIOUS THICKNESSES)	SY	162		
8.	REMOVAL OF DEBRIS AND CONCRETE IN STREAM	LS	1		
9.	REMOVAL OF EXISTING GATE & POSTS	LS	1		
10.	REMOVAL OF CONCRETE FLUME NOTED ON DEMO PLAN	LS	1		
<i>Demolition/Removal Subtotal =</i>					
NEW STRUCTURE - CONTECH ALUMINUM BOX CULVERT #52					
11.	ALUMINUM BOX CULVERT ASSEMBLY & INSTALLATION INCLUDING ALUMINUM WING WALLS COMPLETE	LS	1		
12.	ALUMINUM BOX CULVERT FOUNDATION SYSTEM COMPLETE PER PLANS	LS	1		
13.	PREPARATION FOR INSTALLATION OF CONTECH STRUCTURE, WING WALL EMBEDMENT & TIE BACKS	LS	1		
14.	#4 STONE FOR FOUNDATION BASE	TN	35		
15.	G.A.B. IN PLACE FOR BACKFILL OF CULVERT & WINGWALLS	TN	485		
16.	ASPHALT PAVING (6 : 2 : 1 1/2) SECTION)	SY	162		
17.	G.D.O.T. STANDARD W-BEAM GUARD RAIL & SUPPORTS WITH REFLECTORS COMPLETE	LF	139		
18.	GRADING COMPLETE (TOPSOIL, FINE GRADING, & REPLACEMENT OF EXISTING FILL EXCAVATED)	LS	1		
<i>New Structure - Contech Aluminum Box Culvert #52 Subtotal =</i>					
PAVING & CONCRETE FLATWORK					
19.	8" REINFORCED CONCRETE BRIDGE SLAB INCLUDING REINFORCING PER DETAIL	SF	540		
20.	32" TALL CONCRETE BARRIER	LF	56		
21.	CONCRETE CURB AT BASE OF BARRIER ON BRIDGE	LF	56		
22.	CONCRETE FLUME	LS	1		
<i>Paving & Concrete Flatwork Subtotal =</i>					
STORM DRAINAGE					
23.	18" CLASS III RCP	LF	14		
24.	4' DIAMETER MANHOLE	VF	7		
25.	4' FLAT LID WITH SQUARE OPENING	EA	1		
26.	4X4 RAISED LID WITH PEDESTALS	EA	1		
30.	CONCRETE FILL AT GABION	EA	1		
31.	CONCRETE HEADWALL	EA	1		
<i>Storm Drainage Subtotal =</i>					

Item	Description	Unit	Quantity	Unit Price	Item Total
EROSION CONTROL					
32.	TYPE 'C' SILT FENCE INCLUDING MAINTENANCE & REMOVAL	LF	640		
33.	SAND BAGS FOR FLOW DIVERSION, INCLUDING MAINTENANCE & REMOVAL	LF	140		
34.	FLOW DIVERSION & FOUNDATION EXCAVATION WATER CONTROL BY CONTRACTOR MEANS	LS	1		
35.	HAY BALES, INCLUDING MAINTENANCE & REMOVAL	LF	100		
36.	BERMUDA SOD	SF	600		
37.	STRAW/COCONUT MATTING	SF	1,000		
38.	GABION EROSION SYSTEM - SCOURLOK	LF	100		
39.	REINFORCED SLOPE STABILIZATION - ARMORMAX	SY	56		
40.	TEMPORARY GRASSING, INCLUDING MULCH	SF	500		
41.	ROAD BARRICADES FOR TRAFFIC CONTROL	SF	2,000		
42.	TYPE III RIP RAP	TN	50		
43.	CONCRETE WASHOUT PER PLANS	EA	2		
Erosion Control Subtotal =					
MISCELLANEOUS					
44.	STOP SIGN WITH POST COMPLETE	EA	1		
45.	ONE WAY SIGNS INCLUDING INSTALLATION	EA	2		
46.	12-INCH WHITE STOP BAR - 12' IN LENGTH	EA	1		
47.	DOUBLE SWING GATE - 10' LONG	EA	2		
48.	BARRIER REFLECTORS - SHUR-TITE 3" WHITE	EA	14		
49.	4-INCH WHITE STRIPING (PARKING SPACES) THERMOPLASTIC	LF	40		
50.	CONCRETE DUMPSTER PAD - 10'X10'X8"	LS	1		
51.	ROAD BARRICADES FOR TRAFFIC CONTROL	LF	100		
52.	ORANGE BARRIER FENCE - 4' HIGH	LF	146		
52.	45-INCH DIAMETER TREE REMOVAL AND DISPOSAL	LS	1		
Miscellaneous Subtotal =					
TOTAL CONSTRUCTION					

TOTAL CONSTRUCTION FOR BRIDGE A _____

TOTAL CONSTRUCTION FOR BRIDGE B _____

TOTAL CONSTRUCTION FOR BRIDGE A & BRIDGE B _____

**AGREEMENT
BETWEEN OWNER AND CONTRACTOR**

THIS AGREEMENT is by and between CITY OF GRIFFIN (“Owner”) and
_____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The project consists of the demolition of two single span concrete bridges (Bridge A and Bridge B) and replacing them with Contech aluminum bottomless box culverts. The box culverts will require concrete foundations and will have aluminum wingwalls provided in the Contech package. One bridge will require a new storm box and related 18” storm pipe.

The project will require concrete work related to the bridge slab and barrier walls. A portion of the existing drives and parking lot will require asphalt demolition and replacement.

ARTICLE 2 – THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

**CITY OF GRIFFIN
GRIFFIN GOLF COURSE BRIDGE REPLACEMENTS
BID #24-007**

2.02 The Project has been designed by Paragon Consulting Group, Inc. (Engineer), which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 3 – CONTRACT TIMES

3.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

3.02 *Days to Achieve Substantial Completion and Final Payment*

- A. The Work will be substantially completed within 154 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 184 days after the date when the Contract Times commence to run.

3.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$1,000.00 for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$1,000.00 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 4 – CONTRACT PRICE

4.01 *Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A below:*

- A. For all Work, at the prices stated in Contractor’s Bid, attached hereto as an exhibit.

SUM OF ALL UNIT PRICES AS STATED IN CONTRACTOR’S BID:

(words & figures)

As provided in paragraph 11.03 of the General Conditions estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by Engineer as provided in paragraph 9.08 of the General Conditions. Unit prices have been computed as provided in paragraph 11.03B of the General Conditions.

ARTICLE 5 – PAYMENT PROCEDURES

5.01 Submittal and Processing of Payments

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

5.02 Progress Payments; Retainage

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 10th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
 - a. Ninety-five percent (95%) of Work completed (with the balance being retainage); and
 - b. Ninety-five percent (95%) of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

5.03 Final Payment

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 6 – INTEREST

- 6.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest equal to the Current Market Rate for ninety (90) day certificates of deposit at Wells Fargo Bank of Griffin, Georgia as of the effective date of this Agreement.

ARTICLE 7 – CONTRACTOR’S REPRESENTATIONS

- 7.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
 - B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."
 - E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor’s safety precautions and programs.
 - F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
 - G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
 - H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
 - I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 8 – CONTRACT DOCUMENTS

8.01 *Contents*

- A. The Contract Documents consist of the following:
1. This Agreement (pages AG-1 to AG-8, inclusive).
 2. Contractor’s Bid for Bridge A and Bridge B (pages BF-1 to BF-6, inclusive and Exhibit A).
 3. Payment bond (pages Exhibit B-1 to Exhibit B-3, inclusive).
 4. Performance bond (pages Exhibit C-1 to Exhibit C-3, inclusive).
 5. General Conditions (pages 1 to 65, inclusive).
 6. Supplementary Conditions (pages 1 to 7, inclusive).
 7. Specifications as listed in the table of contents of the Project Manual.
 8. Drawings consisting of twenty (20) sheets with each sheet bearing the following general title:
GRIFFIN GOLF COURSE BRIDGE REPLACEMENTS

Contech drawings consisting of eight (8) sheets with each sheet bearing the following general title: DY044194 Griffin Golf Course Bridge “A”

Contech drawings consisting of eight (8) sheets with each sheet bearing the following general title: DY044198 Griffin Golf Course Bridge “B”
 9. Addenda (numbers _____ to _____, inclusive).
 10. Exhibits to this Agreement (enumerated as follows):
 - a. Other exhibits to this Agreement marked EXHIBIT D, EXHIBIT E and EXHIBIT F.
 11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Work Change Directives.
 - b. Change Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.

- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 9 – MISCELLANEOUS

9.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

9.02 *Assignment of Contract*

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to

- establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

This Agreement will be effective on _____ (which is the Effective Date of the Agreement).

OWNER:

CITY OF GRIFFIN

By: _____

Title: _____

Attest: _____

Title: _____

Address for giving notices:

100 SOUTH HILL STREET

GRIFFIN, GA 30223

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

CONTRACTOR:

By: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

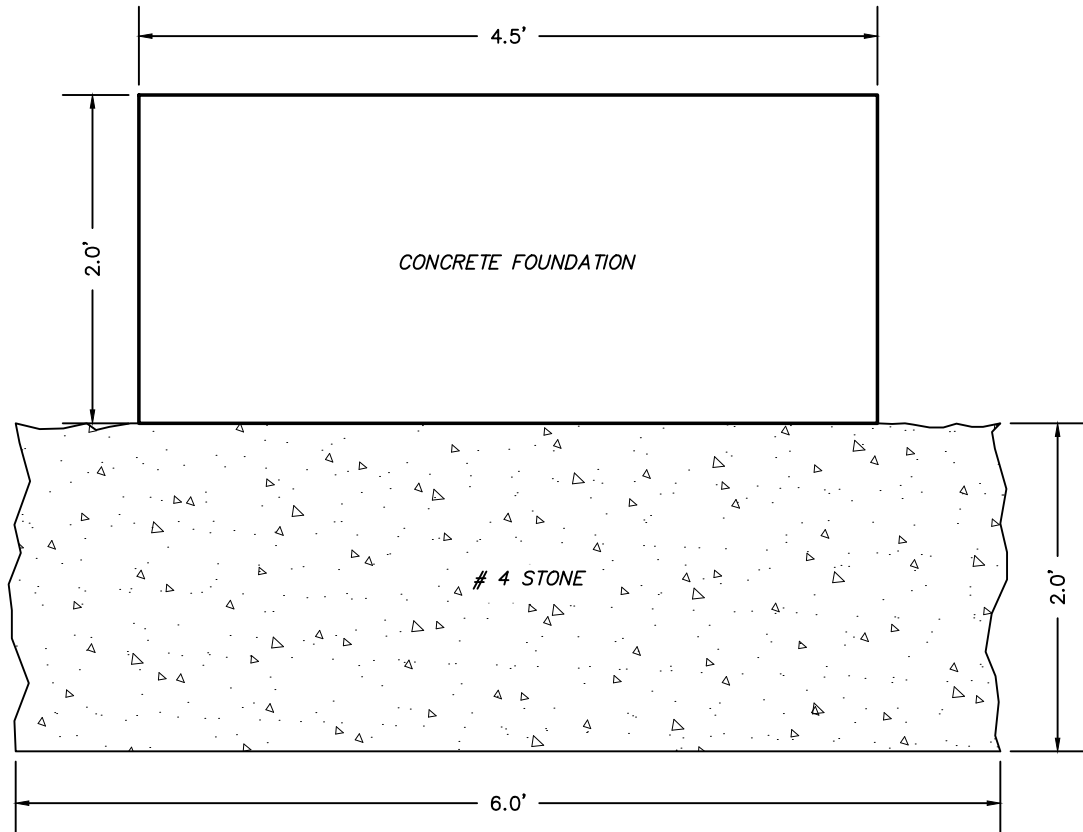
Title: _____

Address for giving notices:

License No.: _____

Agent for service of process:

NOTE: CONCRETE FOUNDATION LENGTH = 18'





ATLAS

PRELIMINARY SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION

Griffin City Golf Course – Two Bridges

Pimento Avenue / Camp Northern Road
Griffin, Spalding County, GA
Atlas Project No. 9242

PREPARED FOR:

Paragon Consulting Group

350 Airport Road
Griffin, GA 30224

PREPARED BY:

Atlas Technical Consultants, LLC

3000 Northfield Place, Suite 1100
Roswell, Georgia 30076

April 26, 2023

April 26, 2023

Paragon Consulting Group

350 Airport Road
Griffin, GA 30224

Attention: Mr. Charles Penny, P.E.

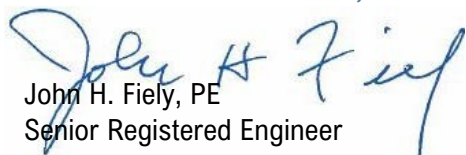
**Subject: Report of Preliminary Subsurface Exploration and
Geotechnical Engineering Evaluation
Griffin City Golf Course - Two Bridges**
Pimento Avenue / Camp Northern Road
Griffin, Spalding County, Georgia

Dear Charles:

Atlas Technical Consultants, LLC (Atlas) is pleased to provide this report of our preliminary subsurface exploration and geotechnical engineering evaluation for the referenced project. The field study and this report were accomplished in general accordance with Atlas Proposal No. 22-15797 dated January 5, 2023.

The following report will present a summary of our pertinent findings and preliminary recommendations followed by our understanding of the proposed construction, methods of exploration employed, site and subsurface conditions encountered, and preliminary conclusions and recommendations regarding the geotechnical aspects of the project. Should you have any question regarding items discussed in this report, please do not hesitate to contact the undersigned.

Sincerely,
Atlas Technical Consultants, LLC



John H. Fiely, PE
Senior Registered Engineer



JHF/ew
Attachments

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APPENDIX

Soil Test Boring Procedures
Correlation with Standard Penetration Test Results
Figure 1: Site and Boring Location Plan
Soil Classification Chart
Soil Boring Records (7)

1.0 SUMMARY

The following is a summary of our pertinent findings and preliminary recommendations. The reader is referred to the remaining text of this report for elaboration on these items.

1. Two arch bottomless culverts are planned to replace existing narrow concrete bridges at the Griffin Golf Course. The property appears generally suitable for the proposed construction, from a geotechnical standpoint. A thick layer of loose to medium dense residual soils was encountered below the anticipated culvert wall foundation levels. We anticipate light capacity piles may be required for culvert support, but this will depend on the anticipated structural loads and configuration of the culverts and the settlement tolerances which have not been provided at this phase.
2. General subsurface conditions encountered at the east bridge consist of an upper 5 to 13 feet of soft to firm fill and alluvium underlain by loose to medium dense residual soils to average depths of about 35 feet where dense soils, partially weathered rock and auger refusal were encountered. At the west bridge, soft fill was encountered to 6 feet underlain by loose residuum to weathered rock at 23 feet and then auger refusal.
4. Soils excavated to reach the culvert sidewall foundations will be wet variable fills. We recommend imported soils be used to backfill the culvert and establish grades. Planned borrow soils should be approved by the geotechnical engineer.
5. This report is preliminary, and the final design should not be based on this report without the approval of the geotechnical engineer.

2.0 PROPOSED CONSTRUCTION

The planned construction will be the replacement of two narrow concrete bridges south of Camp Northern Road (aka Pimento Avenue) at the Griffin City Golf Course. For reference the bridges have the following approximate latitude and longitude.

Bridge Designation	Latitude	Longitude
East Bridge	33° 14.033' N	84° 16.310' W
West Bridge	33° 14.024' N	84° 16.376' W

The bridges will be replaced with bottomless arch culverts. No information on the culvert sizes has been provided so no information on the anticipated structural loads for the culverts can be estimated, and at this time no structural loads have been provided. No grading plans have been prepared so we do not know what grades will be established. We assume the culverts will not have much cover between the arch and roadway since the surrounding area is flat but wall loads of about 10,000 pounds per linear foot or more are assumed.

3.0 METHODS OF EXPLORATION

To evaluate the subsurface conditions, the property was explored by a combination of a visual site reconnaissance and drilling six (6) soil test borings and one (1) offset boring to depths ranging from 5 to 52 feet below the existing grade. The borings were located in the field by measuring distances and estimating



directions from identifiable site features. Therefore, their locations as shown on the Site and Boring Location Plan in the Appendix should be considered approximate.

The borings were advanced by twisting continuous hollow stem auger flights into the ground. At selected intervals, Standard Penetration Resistance Testing (SPT) was performed in general accordance with ASTM Standard D-1586, and soil samples were collected for visual classification. The results of the penetration tests, when properly evaluated, provide an indication of the relative consistency of the soil being sampled, the potential for difficult excavation, and the soil's ability to support loads. A more detailed description of the drilling and sampling process is included in the Appendix of this report.

Soil samples recovered during the drilling process were returned to the office where they were classified in general accordance with the Unified Soil Classification System (USCS). Detailed descriptions of the materials encountered at each boring location, along with a graphical representation of the Standard Penetration Test results, are shown on the Soil Boring Records in the Appendix.

4.0 SITE DESCRIPTION, GEOLOGY AND SUBSURFACE CONDITIONS

4.1 Site Description

The subject site is a part of the Griffin City Golf Course located to the south of Camp Northern Road in Griffin, Spalding County, Georgia. The subsurface exploration focused on the areas surrounding the two existing concrete bridges that facilitate access to the golf facility southwest of the. The north to south running creek exits from a larger pond to the north and separates the golf facility from Camp Northern Road. The existing bridges decks are roughly 10-12 feet above the creek bottom and span about 20 feet. The side slopes of the creek are steep and eroded.

4.2 Geology

The site is located in the Piedmont Physiographic Province of Georgia. The residual soils in the Piedmont are the result of the chemical and physical weathering of the underlying parent rock. The weathering profile usually results in fine grained clayey silts and silty clays near the surface, where weathering is more advanced. With depth, sandy silts and silty sands are found, often containing mica. Below the residual soils, partially weathered rock is often found as a transition above relatively unweathered rock. In local practice, partially weathered rock is arbitrarily defined as residual soils with Standard Penetration Resistances in excess of 100 blows per foot (50 blows per 6 inches), and which can be penetrated by a power auger.

4.3 Subsurface Conditions

4.3.1 Pavement

Borings B-3 and B-7 initially encountered about 2 to 3 inches of asphalt, which was underlain by 2 to 3 inches of base stone.

4.3.2 Previously Placed Fill

Fill soils are those soils that have been placed or reworked in conjunction with past construction activities. Previously placed fill was encountered in all borings either at the surface or underlying basestone to depths of 6 feet below the existing grades. The fill was classified as silty sands (SM) and sandy silts (ML) with Standard Penetration Test (SPT) results ranging from 2 to 7 blows per foot (bpf). Based on the SPT results, the soil represented by these samples would be considered poorly compacted. The fill samples encountered were generally free of organics with the exception of the top sample of boring B-2, which included topsoil.

4.3.3 Alluvium

Alluvium is soil that has been transported and deposited by moving water. Alluvial soils were encountered underlying the previously placed fill in borings B-5 and B-7 to depths of 8 to 13 feet. The alluvium was classified as silty sand (SM) with some gravel and cobbles.

4.3.4 Residuum

Residuum, formed by in-place weathering of the parent rock, was encountered in all borings either underlying previously placed fill or alluvial soils. The residuum was classified as silty sands (SM). Standard Penetration Test results ranged from 3 to 57 blows per foot, with 5 to 15 bpf being typical.

4.3.5 Partially Weathered Rock

Partially weathered rock (PWR) is a transitional material between soil and rock, which retains the relic structure of the rock and has very hard or very dense consistencies. With increasing depth, the subsurface conditions transitioned to partially weathered rock (PWR) in all borings, with the exception of B-7 and B-8. The initial contact with PWR ranged from 23 to 43 feet. The borings that did not detect a reportable thickness of PWR went from soil to apparent rock.

4.3.6 Refusal

Refusal is a designation applied to any material which cannot be further penetrated by the power auger and is normally indicative of a very hard or very dense material, such as boulders or lenses or the upper surface of bedrock.

Refusal to the drilling process was encountered in all borings ranging from depths ranging between 27 and 52 feet below the existing grades. The nature of the refusal material can only be determined by advancing the hole below the refusal depth by using rock coring techniques, which were beyond the scope of this work. We note that the initial attempt to drill at boring B-6 encountered refusal at 5 feet on debris or a boulder in the fill.



4.3.7 Groundwater

Groundwater was encountered in all six borings at the time of drilling at depths of 7 to 18 feet below the existing grade. For safety purposes the borings were backfilled and patched immediately after termination. Stabilized groundwater levels will be near the level of the existing creek.

The conditions described in the preceding paragraphs, and those shown in the Appendix, have been based on interpolation of the results of the previously described data using generally accepted principles and practices of geotechnical engineering. However, conditions in this geology may vary intermediate of the tested locations, and even more so on previously developed property.

Although individual soil test borings are representative of the subsurface conditions at the precise boring locations on the day drilled, they are not necessarily indicative of the subsurface conditions at other locations or other times. The nature and extent of variation between the borings may not become evident until the course of construction. If such variations are then noted, it will be necessary to reevaluate the recommendations of this report after on-site observation of the conditions.

5.0 PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

The following preliminary conclusions and recommendations are based on the data gathered during this exploration, our understanding of the proposed construction, our experience with similar site and subsurface conditions and generally accepted principles and practices of geotechnical engineering. Should the proposed construction change significantly from that described in this report, we request that we be advised so that we may amend these recommendations accordingly. This report and the preliminary conclusions and recommendations provided herein are provided exclusively for the use of Paragon Consulting Group and are intended solely for the design of the referenced project.

5.1 Preliminary Culvert Foundation Support Recommendations.

Final recommendations for culvert foundation support can be provided when additional information is available on the size and structural loads anticipated for the culvert. For preliminary discussions we anticipate the culvert side wall structural loads will be at least 10,000 pounds per linear foot but these could be much higher. We assume the foundations for the culvert wall will be about two feet below the creek bottom or about 10 +/- feet below the ground surface from where the borings were drilled. At the anticipated culvert foundation depth, the borings encountered very loose alluvium and loose residual soils. The alluvium and very loose residual soils are not recommended for foundation support but at depths of 15 feet in the borings, which we anticipate will be about 5 +/- feet below the culvert foundation bottom, the borings found medium dense residual soil. One foundation alternative that could be considered if the settlement estimates discussed in the following paragraph are tolerable, would be to undercut the culvert foundation subgrades to the medium dense residual soils at about 15 feet below the ground level at the borings and backfill to foundation levels with crushed stone. This undercutting would require creek diversion and extensive temporary dewatering. We anticipate the groundwater will be at the creek level and will require that it be temporarily lowered with well points or wells to about 3 feet below the anticipated depth of undercut. The sidewalls of this undercut will be very loose and not stable without a flat layback. On the creek side this layback may cause the creek bottom to collapse. We do not know if this temporary destruction of the creek bottom will be allowed. Any crushed stone placed in the undercut will need to be completely wrapped in a non-woven geotextile filter fabric. The undercut

width should be widened one foot for every two feet of undercut depth. The resulting subgrade after undercutting and stone placement can support bearing pressures of 3000 psf with the anticipated settlement discussed below.

The undercutting will not remove all compressible soils and the culvert foundation will experience settlement due to consolidation of the underlying residual soils that are not undercut. The magnitude of the settlement depends on the actual anticipated culvert wall loads which have not been provided. Our preliminary settlement estimates for the culvert with a side wall line load of 10,000 pounds per linear foot, is 1 to 1½ inches. If the actual wall load is 20,000 pounds per linear foot, a settlement of 2½ to 3 inches is possible. The culvert designer will need to determine what magnitude of settlement is acceptable. We anticipate the values estimated for the 10,000 plf wall load may be at the upper limits of the designer's settlement tolerance, but the estimate of 2½ to 3 inches for a 20,000 plf load will not be tolerable. Our foundation settlement estimates have not considered loading due to any embankment construction away from the culvert. We assume that the grades over the culvert will not change appreciably from the approach to the existing bridges but that should be determined once a grading plan is finalized.

If the foundation settlement estimates are not within tolerance, or if the problems associated with the undercutting of foundation subgrade below the creek is not desired or feasible, the culvert can be supported on a deep foundation.

A moderate capacity foundation such as helical piers appears feasible. The conditions at the east bridge are more favorable for helical piles because a zone of dense soil was encountered above rock where the helical pier can likely obtain capacity by embedment of the helical in the dense soil. At the west bridge the conditions are less favorable because the subsurface transitions from loose soil to apparent rock very quickly and helical piers may spin once the hard layer is found. These helical may not indicate an acceptable capacity based on installation torque and the designer may require additional load testing to confirm capacity. Helical piers should be designed by an engineer experienced with these systems, typically working for the installation contractor. We recommend performance of a single load test to verify the capacity and deflection.

More robust piles such as driven H-piles or pipe piles could also be used. These piles would be driven to practical refusal on the underlying auger refusal materials. The capacity would be based on the strength of the steel section with appropriate design method reductions. An auger cast pile extended to refusal which would be near the soil test boring auger refusal could also be considered for support.

Final recommendations can be provided once the actual culvert loads are provided, and the culvert designer can provide a limit on tolerable settlement. If a deep foundation is required due to anticipated settlement or a preference not to perform the necessary dewatering and excavation for undercutting, the culvert designer typical has a preferred pile system based on required capacity, and availability of the pile and installer. Once that information is known we can provide additional design recommendations if needed.

5.2 Site Preparation

Site preparation for the culvert will be mostly excavation and foundation preparation. Where new pavements are constructed, we recommend any topsoil and existing asphalt be removed and wasted. Any underlying base stone can be stockpiled for reused. Where the subgrades for areas of new pavement are like the soils encountered in the borings, we anticipate that stabilization will be required to allow fill placement or new pavement construction.

All areas to receive fill should be evaluated prior to fill placement. The approval process should include proofrolling the subgrade with a fully loaded tandem axle dump truck (20 tons) during a period of dry weather and under the observation of the geotechnical engineer. Any areas which "pump" or "rut" excessively under the weight of the proofrolling vehicle should be further evaluated and may require undercutting or other remediation. Stabilization will likely require undercutting and placement of a few feet of stabilization stone or soil cement. Once grading and development plans beyond the culvert is known we can provide additional recommendations.

5.3 Earthwork

Structural fill should be free of organic material, have a plasticity index (PI) less than 20 and contain rock sizes no larger than 4 inches. Excavation to access and install the culvert foundations will encounter variable fill and alluvium that will be wet. We do not anticipate that these soils will be suitable for reuse as fill without extensive drying. Any fill that is imported to the site should be evaluated by the geotechnical engineer. Typically, a select granular fill is required near the culvert plates which will be specified by the culvert supplier.

Unless different compaction criteria is provided by the culvert supplier, all structural fill should be compacted to at least 95 percent of the soil's standard Proctor maximum dry density, as determined by ASTM Standard D-698. The upper foot of fill which will support pavements or slabs should be compacted to at least 98 percent of the soil's standard Proctor maximum dry density for improved support.

Density testing should be performed by a soils technician to determine the degree of compaction and verify compliance with the project specifications. Areas which do not meet the compaction specifications should be recompacted to achieve compliance.

5.4 Groundwater Control

Groundwater is anticipated to be at the creek level. Dewatering will be required for foundation installation. Extensive dewatering will be required if undercutting to allow spread footing support of the culvert is planned. A dewatering contractor with significant experience in design and implementation of this type of dewatering system should be brought into the planning. The temporary dewatering system should be installed prior to excavation and must function continuously until the undercut is completed and backfilled with crushed stone. The dewatering system must lower groundwater at least 3 feet below the deepest undercut. If the system fails or is not effective the underlying soils can become quick and lose their ability to support loads. Should this occur, deeper undercutting may be required which often requires deepening of the dewatering system. In some instances, failure of the dewatering system compromises the soil to the extent that a deep foundation is required.

5.5 Permanent Slopes

Permanent slopes associated with the final design should be constructed no steeper than 2H:1V where they are built with structural fill. Flatter configuration will be required where they are constructed of less compact fills. Foundations should be set back at least 10 feet from the top of slopes; a minimum 5-foot setback is considered sufficient for pavement areas. These recommendations are based on our experience with similar



conditions and no detailed slope stability analyses have been performed. All finished slopes should be suitably protected from erosion.

6.0 QUALIFICATIONS OF RECOMMENDATIONS

This evaluation of the geotechnical aspects of the proposed design and construction has been based on our understanding of the project and the data obtained during this study. The general subsurface conditions used in our evaluation were based on interpolation of the subsurface data between the borings. Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions will differ between boring locations, that conditions are not as anticipated by the designers, or that the construction process has modified the soil conditions. Therefore, experienced soil engineers and technicians should evaluate earthwork and foundation construction to verify that the conditions anticipated in design actually exist. Otherwise, we assume no responsibility for construction compliance with the design concepts, specifications, or recommendations.

The recommendations contained in this report have been developed on the basis of the previously described subsurface conditions. Even after completion of a subsurface study, the nature and extent of variation between borings may not become evident until the course of construction. If such variations then become evident, it will be necessary to reevaluate the recommendations of this report after on-site observations of the conditions.

The project is in a preliminary phase and no culvert plans, concept plans or grading plans have been provided. Once the design evolves additional evaluation and recommendations will be required since the recommendations in this report are preliminary.

These professional services have been performed, the findings derived, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all warranties either expressed or implied. This company is not responsible for the conclusions, opinions or recommendations of others based on this data.

APPENDIX

SOIL TEST BORING PROCEDURES (ASTM D-1586)

The soil test borings were advanced by twisting continuous auger flights into the ground. At selected intervals, soil samples were obtained by driving a standard 1.4-inch I.D., 2.0 inch O.D., split tube sampler into the ground. The sampler was initially seated six inches to penetrate any loose cuttings created in the boring process. The sampler is then driven an additional 12 inches by blows of a 140 pound "hammer" falling 30 inches. The number of blows required to drive the sampler the final foot is designated the Standard Penetration Resistance.

The samples recovered were sealed in glass jars and were transported to the office where they were classified by an engineer in general accordance with the Unified Soil Classification System (USCS).

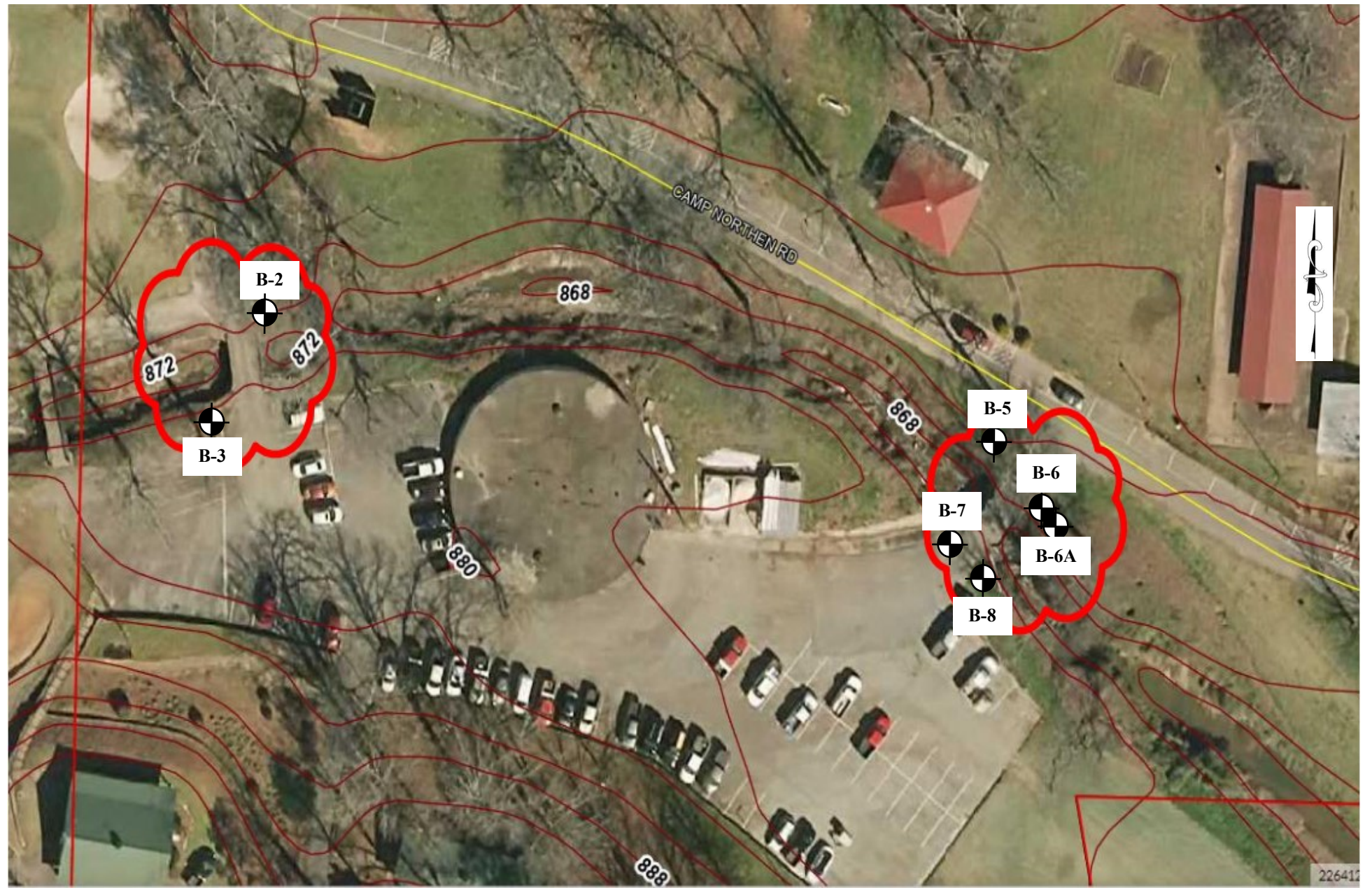
**CORRELATION OF STANDARD PENETRATION RESISTANCE WITH
RELATIVE COMPACTNESS AND CONSISTENCY**

Sand and Gravel

Standard Penetration Resistance Blows / Foot	Relative Compactness
0 - 4	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
Over 50	Very Dense

Silt and Clay

Standard Penetration Resistance Blows / Foot	Relative Compactness
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Firm
9 - 15	Stiff
16 - 30	Very Stiff
31 - 50	Hard
Over 50	Very Hard



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LEGEND

 SOIL TEST BORING LOCATIONS

FIGURE 1: SITE AND BORING LOCATION PLAN




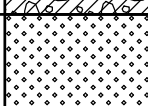
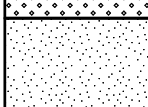
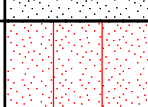
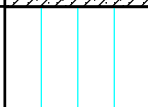
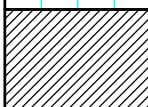
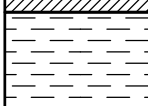
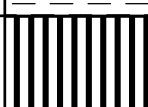
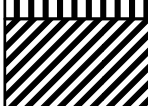
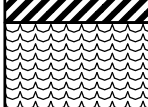
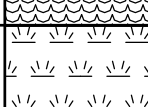
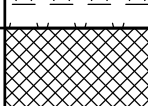
GRIFFIN CITY GOLF COURSE - BRIDGES
CAMP NORTHERN ROAD
GRIFFIN, GEORGIA

ATLAS
3000 NORTHFIELD PLACE, SUITE 1100
ROSWELL, GA 30076

DRAWN BY: RR
APPROVED BY: JF
PROJECT NO.: 9242
DATE: 4/17/2023
SCALE: NTS

NOTES:

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS (LITTLE OR NO FINES)	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS (LITTLE OR NO FINES)	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	(LITTLE OR NO FINES)		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
		(LITTLE OR NO FINES)		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		(LITTLE OR NO FINES)		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	(LITTLE OR NO FINES)		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
		(LITTLE OR NO FINES)		CH	INORGANIC CLAYS OF HIGH PLASTICITY
		(LITTLE OR NO FINES)		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
ALLUVIUM				PT	ALLUVIUM, PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS
FILL				FILL	MATERIAL PLACED BY MAN

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

DEPTH (FT)	DESCRIPTION	ELEV.	BLOW COUNTS	PENETRATION (BLOWS PER FOOT)							N VALUE	
				10	20	30	40	60	80	100		
	FILL: Very loose orange brown silty medium to fine SAND (SM), topsoil		2-1-1									2
5	Loose black silty medium to fine SAND (SM), cobbles, wet		1-2-4									6
	RESIDUUM: Very loose orange brown silty medium to fine SAND (SM), slightly micaceous, wet		1-1-2									3
10	Loose black tan silty medium to fine SAND (SM), highly micaceous, wet		2-2-3									5
15			4-4-6									10
20	Medium dense multi-colored silty medium to fine SAND (SM), rock fragments, wet		5-7-14									21
25	PARTIALLY WEATHERED ROCK: Sampled as very dense gray white black silty medium to fine SAND (SM)		10-23-50/0"									50/0"
	Auger refusal at 27 feet											
30												
35												
40												

SOIL BORING RECORD

BORING NUMBER	B-2
DATE DRILLED	4/5/2023
PROJECT NUMBER	9242
PAGE	1 of 1

- Groundwater level at time of boring
- Groundwater level - 24 hrs
- Caved depth - 24 hrs
- Standard penetration test
- Undisturbed sample

DEPTH (FT)	DESCRIPTION	ELEV.	BLOW COUNTS	PENETRATION (BLOWS PER FOOT)							N VALUE	
				10	20	30	40	60	80	100		
	ASPHALT: 3 inches G.A.B.: 2 inches FILL: Very loose orange brown silty medium to fine SAND (SM)		1-1-1									2
5	Loose multi-colored silty medium to fine SAND (SM), rock fragments		3-5-2									7
	RESIDUUM: Very loose to loose orange yellow brown silty medium to fine SAND (SM), slightly micaceous, wet		2-2-2									4
10			2-2-3									5
15			7-7-5									12
20	Loose orange tan silty medium to fine SAND (SM), micaceous, rock fragments, wet		2-4-5									9
25	PARTIALLY WEATHERED ROCK: Sampled as very dense orange brown silty medium to fine SAND (SM)		5-22-50/1"									50/1"
30	Auger refusal at 28 feet											
35												
40												

SOIL BORING RECORD

BORING NUMBER	B-3
DATE DRILLED	4/5/2023
PROJECT NUMBER	9242
PAGE	1 of 1

- Groundwater level at time of boring
- Groundwater level - 24 hrs
- Caved depth - 24 hrs
- Standard penetration test
- Undisturbed sample



Griffin City Golf Course

DEPTH (FT)	DESCRIPTION	ELEV.	BLOW COUNTS	PENETRATION (BLOWS PER FOOT)							N VALUE														
				10	20	30	40	60	80	100															
	FILL: Firm orange red medium to fine sandy SILT (ML), wet																								
			2-2-4																						6
5			3-3-3																						6
	ALLUVIUM: Loose gray black silty medium to fine SAND (SM), wet		3-2-4																						6
	RESIDUUM: Loose multi-colored silty medium to fine SAND (SM), highly micaceous, wet		1-2-3																						5
10																									
	Loose to medium dense red tan silty medium to fine SAND (SM), micaceous, wet		4-5-8																						13
15																									
			2-2-3																						5
20																									
	Medium dense to dense multi-colored silty medium to fine SAND (SM), highly micaceous		5-5-7																						12
25																									
			12-16-21																						37
30																									
			5-6-7																						13
35																									
			15-18-24																						42
40																									

SOIL BORING RECORD

BORING NUMBER	B-5
DATE DRILLED	4/4/2023
PROJECT NUMBER	9242
PAGE	1 of 2

- Groundwater level at time of boring
- Groundwater level - 24 hrs
- Caved depth - 24 hrs
- Standard penetration test
- Undisturbed sample

DEPTH (FT)	DESCRIPTION	ELEV.	BLOW COUNTS	PENETRATION (BLOWS PER FOOT)							N VALUE	
				10	20	30	40	60	80	100		
	Medium dense to dense multi-colored silty medium to fine SAND (SM), highly micaceous <i>(continued)</i>											
45	PARTIALLY WEATHERED ROCK LENS: Sampled as very dense multi-colored silty medium to fine SAND (SM), highly micaceous		27-32-50/1"									>> 50/1"
50	RESIDUUM: Very dense multi-colored silty medium to fine SAND (SM)		20-23-34									57
55	Auger refusal at 52 feet											
60												
65												
70												
75												
80												

SOIL BORING RECORD

BORING NUMBER	B-5
DATE DRILLED	4/4/2023
PROJECT NUMBER	9242
PAGE	2 of 2

Groundwater level at time of boring
 Groundwater level - 24 hrs

Caved depth - 24 hrs
 Standard penetration test
 Undisturbed sample



Griffin City Golf Course

DEPTH (FT)	DESCRIPTION	ELEV.	BLOW COUNTS	PENETRATION (BLOWS PER FOOT)							N VALUE	
				10	20	30	40	60	80	100		
5	Straight auger at 5 feet											
10	Auger refusal at 5 feet											
15												
20												
25												
30												
35												
40												

REMARKS: No groundwater encountered at time of boring.

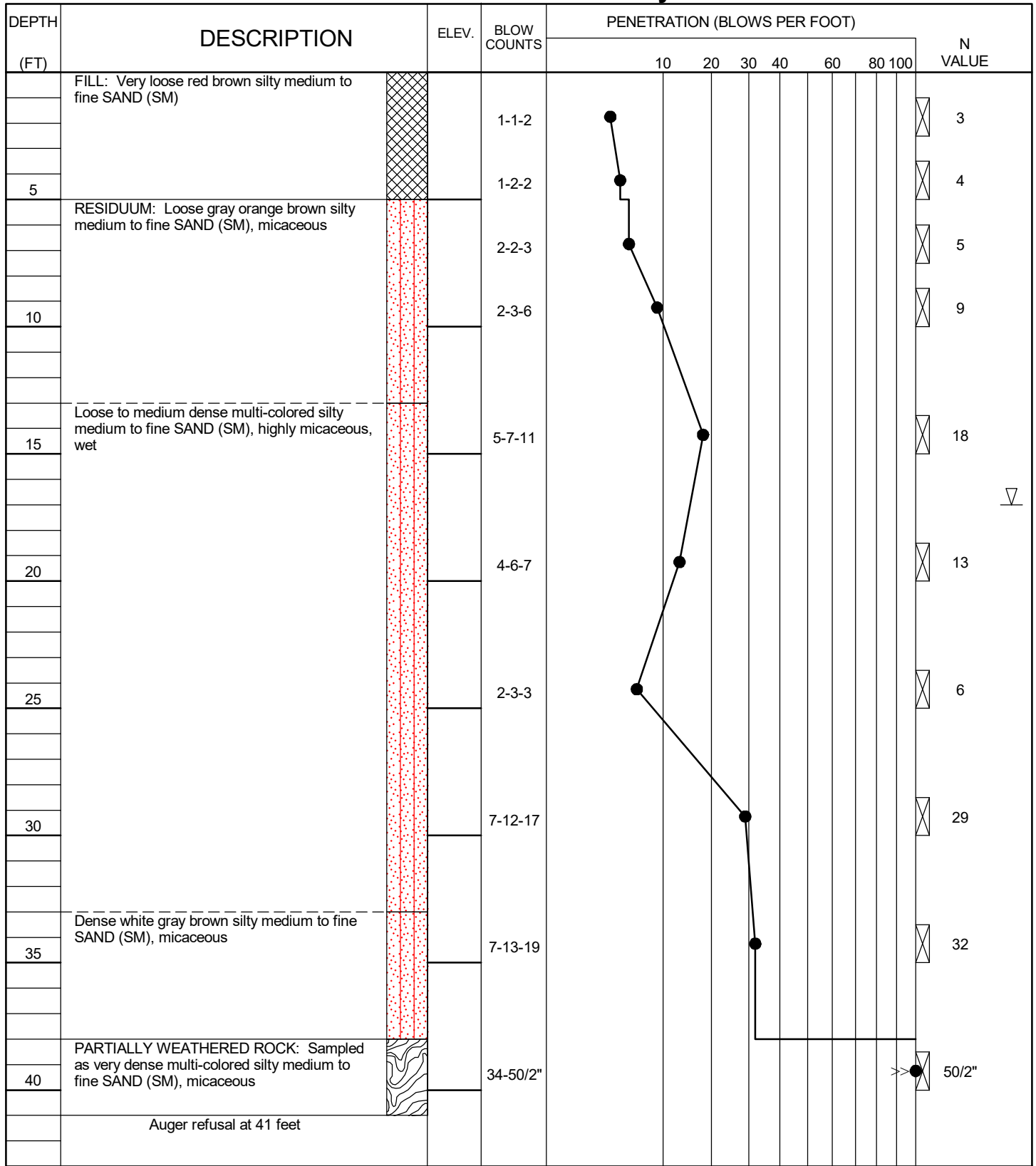
SOIL BORING RECORD

BORING NUMBER	B-6
DATE DRILLED	4/4/2023
PROJECT NUMBER	9242
PAGE	1 of 1

∇ Groundwater level at time of boring
 ▼ Groundwater level - 24 hrs

Ⓒ Caved depth - 24 hrs
 □ Standard penetration test
 ■ Undisturbed sample

Griffin City Golf Course



SOIL BORING RECORD

BORING NUMBER	B-6A
DATE DRILLED	4/4/2023
PROJECT NUMBER	9242
PAGE	1 of 1

- Groundwater level at time of boring
- Groundwater level - 24 hrs
- Caved depth - 24 hrs
- Standard penetration test
- Undisturbed sample

DEPTH (FT)	DESCRIPTION	ELEV.	BLOW COUNTS	PENETRATION (BLOWS PER FOOT)							N VALUE	
				10	20	30	40	60	80	100		
0	ASPHALT: 2 inches G.A.B.: 3 inches FILL: Very loose brown gray black silty medium to fine SAND (SM)											
5			1-1-2									3
			1-2-2									4
10	ALLUVIUM: Very loose multi-colored silty medium to fine SAND (SM), cobbles from 6 to 8 feet, wet		WOH-1-2									3
			WOH- WOH-1									1
15	RESIDUUM: Medium dense to dense multi-colored silty medium to fine SAND (SM)		6-8-8									16
20			11-17-23									40
25			4-9-12									21
30			8-13-19									32
32	Auger refusal at 32 feet											
35												
40												

SOIL BORING RECORD

BORING NUMBER	B-7
DATE DRILLED	4/5/2023
PROJECT NUMBER	9242
PAGE	1 of 1

▽ Groundwater level at time of boring
 ▼ Groundwater level - 24 hrs

Ⓢ Caved depth - 24 hrs
 ⊠ Standard penetration test
 ■ Undisturbed sample

DEPTH (FT)	DESCRIPTION	ELEV.	BLOW COUNTS	PENETRATION (BLOWS PER FOOT)							N VALUE	
				10	20	30	40	60	80	100		
	FILL: Soft orange brown medium to fine sandy SILT (ML), wet		2-1-2									3
5			1-1-2									3
	RESIDUUM: Loose to medium dense brown gray black silty medium to fine SAND (SM), highly micaceous, wet		2-3-3									6
10			2-2-3									5
15			6-8-11									19
20			3-5-8									13
25	Dense red white brown silty medium to fine SAND (SM)		8-13-18									31
30	Medium dense brown orange silty medium to fine SAND (SM), highly micaceous		9-9-13									22
35			11-12-17									29
40			7-9-15									24
	Auger refusal at 42 feet											

SOIL BORING RECORD

BORING NUMBER	B-8
DATE DRILLED	4/4/2023
PROJECT NUMBER	9242
PAGE	1 of 1

- Groundwater level at time of boring
- Groundwater level - 24 hrs
- Caved depth - 24 hrs
- Standard penetration test
- Undisturbed sample