PROJECT MANUAL

WILDWOOD PARK BRIDGES & BOARDWALKS

Recreation and Parks Department
2000 Cedar Lane
Greenville, NC 27835
252.329.4567

Project Design Team:

Kimley-Horn & Associates, Inc.
421 Fayetteville Street, Suite 600
Raleigh, NC 27614
919.677.2000

FEBRUARY 28, 2022

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Wildwood Park Bridges & Boardwalks

GREENVILLE, NORTH CAROLINA

CONTRACT AND SPECIFICATIONS

CITY OF GREENVILLE, NORTH CAROLINA

MAYOR: P. J. CONNELLY

COUNCIL MEMBERS:
ROSE H. GLOVER
BRIAN MEYERHOEFFER
MONICA DANIELS
WILL BELL
RICK SMILEY
WILL LITCHFIELD

CITY MANAGER: ANN E. WALL

CITY ATTORNEY: EMANUEL D. MCGIRT

CITY CLERK: VALERIE SHIUWEGAR

Project Contact: Mark Nottingham, AICP
mnottingham@greenvillenc.gov

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PART 1, BIDDING REQUIREMENTS

ADVERTISEMENT FOR BIDS

The Greenville Recreation and Parks Department (GRPD) will accept bids for the **Wildwood Park Bridges & Boardwalks** construction project, beginning **March 10, 2022**. SEALED, SINGLEPRIME BIDS from qualified bidders will be received by the City in the offices of Recreation and Parks, 2000 Cedar Ln. Greenville, NC 27858**, at 2:00 pm (Eastern Standard Time) on March 31, 2022, and publicly opened thereafter at 2:01 pm**. Bids shall be marked "SEALED BID", addressed to the attention of Mr. Mark Nottingham, Greenville Recreation and Parks Department, and shall include the Name, Address, and License Number of the bidder, and the type proposal enclosed.

MANDATORY Pre-Bid Meeting and Site Visit will be held onsite on March 9, 2022 at 12.30 PM. The pre-bid meeting will be held at Wildwood Park, 3450 Blue Heron Drive, Greenville, NC 27834. Please enter the park and continue driving to the gravel parking area located adjacent to 3 large, covered pavilions. The meeting will start promptly at 12:30 PM from the middle pavilion. Attendees shall be prepared to walk extensively and over uneven terrain or natural trails in order to visit the entire project area. Proper footwear, such as hiking boots or shoes, are recommended. Please contact Mark Nottingham if alternate accommodations will be needed in order to participate in the site visit.

ALTERNATE MANDATORY Pre-Bid Meeting and Site Visit will be held onsite on March 14, 2022 at 1;00 PM in the event weather or river conditions warrant. The City will post an update by 5:00 PM on March 8, 2022 if necessary, to cancel the original date & meet on the alternate date. Please check the City's "Current Bid Opportunities" webpage (https://www.greenvillenc.gov/government/financial-services/current-bid-opportunities) prior to traveling.

The foregoing description shall not be construed as a complete description of all work required.

Each bidder must show evidence that they are licensed under Chapter 87 of the N.C. General Statutes. Performance and payment bonds are required.

CONTRACT DOCUMENTS

Copies of the CONTRACT DOCUMENTS may be obtained electronically via the City of Greenville Current Bid Opportunities Webpage. For information, contact Mark Nottingham at 252-329-4242 or mnottingham@greenvillenc.gov.

GENERAL DESCRIPTION OF THE WORK

The work includes all labor, equipment, and materials to complete in every detail of the work indicated on the plans and specifications. Specifically, all work incidental thereto Wildwood Park Bridges & Boardwalks as part of the Wildwood Park Observation Tower and Trails Project including, but not limited to, demolition, earthwork, drainage, bridges & boardwalks construction, paving, and stabilization.

MBE/WBE PARTICIPATION

The goal for Minority and / or Women Business Enterprise (M/WBE) participation is MBE 10% and WBE 6%. Each goal must be met separately. Exceeding one goal does not satisfy requirements for the other.

BID, PERFORMANCE & PAYMENT BOND

If applicable, each proposal shall be accompanied by a bid bond executed by a corporate security licensed to do so under North Carolina law, of an amount equal to not less than five percent (5%) of the proposal, or in lieu thereof, a bidder may offer a certified check from a financial institution insured by the Federal Deposit Insurance Corporation (FDIC) as a deposit.

To whom the contract is awarded, a Performance and Payment Bond will be required for one hundred percent (100%) of the contract price.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of sixty (60) days after the bid date.

The City Council of the City of Greenville reserves the right to reject any or all proposals.

SIGNED:

Mark Nottingham, AICP
City of Greenville Recreation and Parks Department
2000 Cedar Lane
Greenville, NC 27835

INSTRUCTIONS TO BIDDERS (PLEASE READ)

1. Bids will be received for Single Prime Contract. All proposals shall be for lump sum. It is the intent of the City to award this bid to the lowest responsive and responsible bidder.

2. Bidders are requested to return bids to the City of Greenville Recreation and Parks Department prior to bid opening. Bids will be opened promptly at the time specified in the Invitation to Bid. Bidders are cautioned to be prompt since No Bids Will Be Accepted after the time designated for the bid opening. The precise time will be monitored by the by the person responsible for opening the bids.

3. All bids submitted must be on the blank proposal forms herein provided and prices given shall be both in writing and figures and the complete form shall be without any lineation, alterations, or erasures. In case of conflicting prices, the written prices shall govern.

4. Bids shall be enclosed in a sealed envelope, directed to the City of Greenville, Recreation and Parks Department, 2000 Cedar Lane, Greenville, North Carolina 27858, and marked with the bidder's North Carolina Contractor's License number. All bids must be marked Bid on the outside of the envelope.

5. Each proposal shall contain the full name and address of each bidder. When firms bid, the name of each member shall be signed and the firm name added, and the execution shall be done as more specifically stated herein under the following section.

6. The omission of prices upon any item for which bids are asked or the tendering of an unbalanced bid will be the cause of the rejection of the bid submitted.

7. No bid shall be considered or accepted by the City unless at the time of its filing, it is accompanied by a deposit of cash, or a cashier's check, or a certified check on some bank or trust company insured by the Federal Deposit Insurance Corporation in an amount equal to not less than five percent (5%) of the bid, if applicable. In lieu of making that deposit, the bidder may file a bid bond executed by a corporate surety licensed under the laws of North Carolina to execute such bonds, conditioned that the surety will upon demand forthwith make payment to the City of Greenville upon the bond if the bidder fails to execute the contract in accordance with the bid bond. This deposit shall be retained by the City if the successful bidder fails to execute the contract within 10 days after the award or fails to give satisfactory bonds or deposit as required herein. The bidder to whom the award of contract is made shall either (a) furnish bonds as required by Article 3 of Chapter 44A of the N.C. General Statutes, using the form supplied by the City; or (b) deposit with the City money, certified check or government securities. The bonds or deposit shall be for the full amount of the contract to secure the faithful performance of the terms of the contract and the payment of all sums due for labor and materials in a manner consistent with Article 3 of Chapter 44A INSTRUCTIONS TO BIDDERS

8. General Contractors are notified that Chapter 87, Article 1, General Statutes of North Carolina will be observed in receiving and awarding general contracts. General contractors submitting bids on this project must have license classification for general contractor.

   NOTE: Under GS 87-1, a contractor that superintends or manages construction of any building, highway, public utility, grading, structure, or improvement shall be deemed a "general contractor" and shall be so licensed. Therefore, a single prime project that involves other trades will require the single prime contractor to hold a proper General Contractors license.

9. Except to the extent allowed by statute, bids shall not be withdrawn, and bids shall remain subject to acceptance by the City for a period of 90 days.

10. Bidders must present satisfactory evidence that they have been regularly engaged in the business of

constructing such work, and that they are fully prepared with the necessary capital, equipment, etc., to begin the work promptly, and complete the same in accordance with specifications.

11. The bids will be evaluated, and the contract awarded in accordance with statutory public contract requirements as supplemented or altered by the Minority and / or Women Business Enterprise (M/WBE) requirements supplied with this bid package. These forms must be filled out and returned with the bid proposal. Any bids submitted without these completed forms shall be deemed as "non-responsive". If there are any questions or problems in filling out these forms, please contact:

    Angelene Brinkley, Interim Financial Services Manager (252) 329-4862

12. The successful bidder is required to commence work within ten (10) written days after written notice from the Project Manager. Termination of work shall also be controlled by the City of Greenville.

13. The contractor will furnish all materials, labor, equipment, supervision, tools, machinery, etc. for complete construction of projects in accordance with plans and specifications of the City of Greenville.

14. The bidder to whom the award is made shall be required to furnish work crews of adequate number, size, and experience to properly perform the work. The interpretation of the number of crews, size, and experience will be determined by the City of Greenville as to their adequacy.

15. It shall be the contractor's responsibility to obtain all necessary and required permits and inspections. These permits shall be presented upon demand.

16. The Contractor will perform, or have performed, all necessary site layout (both lines and grades) for this construction.

17. The Contractor must provide the City of Greenville a safety plan of their organization, prior to approval of the contract

18. The following standard documents shall be used for their intended purposes unless the City of Greenville (Owner) consents to use other forms:

    - Standard Form of Agreement Between Owner and Contractor
    - General Conditions of the Contract for Construction.

19. The contractor(s) to whom the award is made must carry insurance in the amounts and types outlined in the Insurance Requirements section of this document.

20. The insurance herein required shall be with an insurance company authorized to do business in North Carolina and having a BEST rating of A or better.

21. Insurance shall be evidenced by a certificate:

    - Providing notice to the City of not less than 30 days prior to cancellation or reduction of coverage

    - Certificates should be addressed to:
      City of Greenville, North Carolina Attn: Mark Nottingham
      2000 Cedar Ln
      Greenville, NC 27858

Insurance

The Company agrees to purchase at its own expense insurance coverages to satisfy the following minimum requirements. A certificate reflecting the following minimum coverages shall accompany this Agreement:

Workers' Compensation Insurance:

Limits:

Workers Compensation:	Statutory for the State of North Carolina	
Employers Liability:	Bodily Injury by Accident	$1,000,000 each accident
	Bodily Injury by Disease	$1,000,000 policy limit
	Bodily Injury by Disease	$1,000,000 each employee.

No sub-contractor may exclude executive officers. Workers Compensation must include all employees.

Commercial General Liability:

Limits:

Each Occurrence:	$1,000,000
Personal and Advertising Injury	$1,000,000
General Aggregate Limit	$2,000,000
Products and Completed Operations Aggregate	$2,000,000

The aggregate limit must apply per project. The form of coverage must be the ISO CG 00 01 policy as approved by the State of North Carolina Department of Insurance. If a form of coverage other than the CG 00 01 is used it must be approved by the City. Any endorsed exclusions or limitations from the standard policy must be clearly stated in writing and attached to the Certificate of Insurance. Completed Operations coverage must be maintained for the period of the applicable statute of limitations.

The City must be added as an Additional Insured to the Commercial General Liability policy.

Commercial Automobile Liability:

Limits:
$1,000,000 combined single limit.

The City must be added as an Additional Insured on the Commercial Auto Liability policy.

All insurance companies must be admitted to do business in North Carolina and be acceptable to the City. If the insurance company(s) is a permitted surplus lines insurer, the insurance company name, and NAIC number must be submitted to the City's Risk Manager for approval before commencing work. Company shall be required to provide the City no less than thirty (30) days' notice of cancellation, or any material change, to any insurance coverage required by this Agreement.

A Certificate of Insurance (COI) must be issued by an authorized representative of the insurance carrier(s). Certificates of Insurance must have the Insurance Company name and NAIC number clearly identified.

The City's review or acceptance of Certificates of Insurance shall not relieve the Company of any requirement to provide the specific insurance coverages set forth in the Agreement. Nor shall the City's

review or acceptance of Certificates of Insurance constitute a waiver of the specific insurance coverage requirements set forth in the Agreement or acknowledgement that all insurance coverage requirements set forth in the Agreement have been met.

Hold Harmless and Indemnity Agreement:

To the fullest extent permitted by law, Company shall indemnify and hold harmless the City, its employees, agents, and consultants against any liability arising out of or in connection with any of the operations or obligations of Company, including but not limited to any said operations or obligations subcontracted or assigned to a different person or entity from claims, damages, losses, and expenses, including but not limited to attorneys' fees, which is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, caused by acts or omissions of Company or anyone directly or indirectly employed by them or anyone for whose acts the Company may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligation of indemnity which would otherwise exists as to a party or person described in this paragraph.

22. The traditional certificate form will remain as evidence of insurance coverage, but this will no longer suffice to document that the City is an additional insured, even if the certificate so states. In order to comply with the with the additional insured requirements, contractors will need to carry one of two types of additional insured endorsements to the policy:

- **Option 1** - A specific additional insured endorsement to make the City of Greenville, NC an additional insured for the purpose of the contract, or
- **Option 2** - A blanket additional insured endorsement to cover all companies (including the City of Greenville, NC) that require additional insured protection.

If a contractor chooses Option 1, the specific endorsement, the required documentation for City Contracts is:

- A certificate of insurance to document the coverage, plus
- An **original** of the endorsement to effect the additional coverage.

If a contractor chooses Option 2, the blanket endorsement, the required documentation for City Contracts is:

- A certificate of insurance to document the coverage, plus
- Statements by the agent on the certificate of insurance that:
    - The general liability policy includes a blanket additional insured endorsement showing the endorsement form number, and
    - The City is an additional insured.

23. Indemnification.

a) To the maximum extent allowed by law, Contractor shall indemnify and save harmless.

Indemnities from and against all charges that arise in any manner from, in connection with, or out of this contract (including, but not limited to, charges that arise as a result of acts or omissions of Contractor, Indemnities, or any other person, firm or corporation). In performing its duties under this subsection "a", Contractor shall at its sole expense defend Indemnities with legal counsel reasonably acceptable to the City of Greenville ("City").

b) Definitions. As used in subsections "a" above and "c" below – "Charges" means claims, judgments,

costs, damages, losses, demands, liabilities, obligations, fines, penalties, royalties, and expenses (including interest and reasonable attorney's fees assessed as part of any such item); "Contractor" means all parties to this contract other than City; and "Indemnities" means City and its officers, officials, independent contractors, agents, and employees.

c)
Limitation of Contractor's Obligation. If this is in, or is in connection with, a contract relative to the design, planning, construction, alteration, repair or maintenance of a building, structure, highway, road appurtenance or appliance, including moving, demolition and excavating therewith, then subsection "a" above shall not require the Contractor to indemnify or hold harmless the City, its independent contractors, agents, employees, or indemnities against liability for damages arising out of bodily injury to persons or damage to property proximity caused by or resulting from the negligence, in whole or in part, or the City, its independent contractors, agents, employees, or indemnities.

24. The successful bidder is required to commence work within ten (10) written days after written notice from the Project Manager. Termination of work shall also be controlled by the City of Greenville.

25. All work under this contract shall be completed within **seven hundred and thirty (730) days** from the date of the Notice to Proceed.

26. E-VERIFY COMPLIANCE: The Contractor shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. Further, if the Contractor utilizes a Subcontractor, the Contractor shall require the Subcontractor to comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. By submitting a proposal, The Proposer represents that their firm and its Subcontractors are in compliance with the requirements of Article 2 Chapter 64 of the North Carolina General Statutes.

27. IRAN DIVESTMENT ACT: Vendor certifies that: (i) it is not on the Iran Final Divestment List created by the NC State treasurer pursuant to N.C.G.S. 147-86.58; (ii) it will not take any actions causing it to appear on said list during the term of any contract with the City, and (iii) it will not utilize any subcontractor to provide goods and services hereunder that is identified on said list.

28. Any questions regarding the Contract Conditions and Bid Documents should be directed to Mark Nottingham in writing by email to mnottingham@greenvillec.gov .

PROPOSAL FORM (Use this Form Only)

SUBMIT PROPOSALS IN CARE OF:
Recreation and Parks Department City of Greenville
2000 Cedar Lane
Greenville, NC 27858
(252) 329-4242

BIDDER'S FIRM NAME:

DATE: March 31, 2022

PROPOSAL: **Wildwood Park Bridges & Boardwalks**

The Undersigned, as Bidder, hereby declares that only person or persons interested in this proposal as principals or principals is or are named herein and that no other persons than herein mentioned has any interest in this proposal or in the contract to be entered, that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respect fair and in good faith without collusion or fraud.

The bidder further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the place where the work is to be done; that he has examined the specifications for the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids, that he has satisfied himself relative to the work to be performed.

Materials to be furnished shall be in compliance with standard specifications and special provisions. CONTRACTOR'S responsibility shall continue uninterrupted until expiration of the warranty period as stated in the specifications after completion of the work. The owner (City of Greenville) reserves the right to select any or all of the alternates and to increase or decrease the total contract amount utilizing the unit prices supplied by the CONTRACTOR in the bid form.

The Bidder agrees, if his proposal is accepted, to contract with the City of Greenville, 200 West Fifth Street, Greenville, NC 27858, in the form of contract specified, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation, and labor necessary to complete within the time allotted as specified, the General Construction work on the Owner's property, in complete accordance with the Plans, Specifications, and Contract Documents bearing the title **Wildwood Park Bridges & Boardwalks**, with a definite understanding that no money will be allowed for extra work except as set forth in the Contract Documents for the sums as follows.

BID FORM (Use this Form Only)

Wildwood Park Bridges & Boardwalks
City of Greenville, NC

BASE BID ITEMS (REQUIRED)			
Item	Description and Price in Words	Unit	Price in Figures
1	The completion of all work (including incidental work) per the plans and specifications, including but not limited to: General Conditions, Erosion & Sediment Control, Site Preparation, Demolition, Grading & Drainage, Paving, and Bridges & Boardwalk Structures to construct the Wildwood Park Bridges & Boardwalk Project as part of the Wildwood Park - Observation Tower & Trails Project in Greenville, NC for the Lump Sum amount of (dollars & cents).		$
Base Bid	TOTAL BASE BID (ITEMS ABOVE) complete and in place for the total Lump Sum amount of (dollars & cents).	Lump Sum	$

SUPPLEMENTAL UNIT COSTS (REQUIRED)			
These unit costs shall be provided for evaluating construction progress and potential Change Orders (if needed) for additional work. Work associated with these units per the plans and specifications shall be included in the Base Bid above.			
Item	Description and Price in Words	Unit	Price in Figures
SP-050	Heavy Duty Gravel Pavement	Ton	$
SP-051	Heavy Duty Concrete Sidewalk (6")	SY	
SP-052	Typical Concrete Sidewalk (4")	SY	
SP-053	Composite Safety Fence	LF	
SP-059	Timber Boardwalk	XX	XXXXX
SP-058.1	Structure No. 1; L2, STA 10+00 to 12+51	LS	
SP-058.2	Structure No. 1; L2, STA 13+09 to 15+24	LS	
SP-058.3	Structure No. 1; L2, STA 15+24 to 15+64	LS	
SP-058.4	Structure No. 1; L2, STA 15+64 to 16+49	LS	
SP-058.5	Structure No. 1; Y3, Stairs	LS	
SP-058.6	Structure No. 2; L4, STA 10+46 to 11+56	LS	
SP-058.7	Structure No. 2; L4, STA 11+56 to 15+74	LS	

SP-058.8	Structure No. 2; L4, STA 15+74 to 16+84	LS	
SP-058.9	Structure No. 2; Y4, Observation Deck	LS	
SP-060	Pre-Fabricated Pedestrian Bridge	XX	XXXXX
SP-059.1	Structure No. 1; L2, STA 12+51 to 13+09	LS	
SP-059.2	Structure No. 3; Y5, STA 10+00 to 10+80	LS	
SP-074	Temporary Pipe	LF	
SP-075	Temporary Stream Crossing	LS	
SP-076	Tree Protection Fence	LF	
SP-077	Mud Mats	LF	
SP-078	Concrete Washout Structure	EA	

ADD ALTERNATE BID ITEMS			
Item	Description and Price in Words	Unit	Price in Figures
None	NA	NA	NA

A. **ALLOWANCES:** None Included

B. **DECLARATION:**

C. **ADDENDA:** Bidder acknowledges receipt of Addenda as follows:

- Addenda No. _____, Dated: _____
- Addenda No. _____, Dated: _____
- Addenda No. _____, Dated: _____

D. **SUBCONTRACTORS**: Prior to the execution of a contract, the successful bidder hereby agrees to provide City of Greenville with a list of all other subcontractors (name, address, telephone number, contact person, etc.):

E. **SPECIALTY CONTRACTOR / SUPPLIERS:** List the following as a required part of the Bid Form.

Bridge Contractor: _____

Boardwalk Contractor: _____

F. **EXTENDED PROPOSAL**: Bidder agrees that this bid shall be valid and may not be withdrawn for a period of forty- five (45) calendar days after the closing time for receiving bids.

G. **CONTRACT TIME:** The Undersigned further agrees to commence said work upon receipt of the Notice to Proceed issued by the City and to complete the same within **seven hundred and thirty (730) calendar days** after date of the Notice to Proceed.

H. **LIQUIDATED DAMAGES FOR SUBSTANTIAL COMPLETION:** The Undersigned agrees that, from the compensation otherwise to be paid, the Owner may retain the sum of One Thousand and No Dollars ($1,000.00) for each calendar day that the entire Work remains incomplete after thirty (30) calendar days following the date of Substantial Completion issued by the Designer or Owner, which sum is agreed upon as the proper measure of liquidated damages which the Owner will sustain per diem by the failure of the Undersigned to complete the work at the time stipulated in the Contract. This sum is not to be construed in any sense a penalty.

I. **FINAL COMPLETION / FINAL ACCEPTANCE:** The Undersigned agrees to complete all the Work within thirty
(30) calendar days after the date of Substantial Completion.

ALTERNATES

Should any of the alternates as described in the contract documents be accepted, the amount written below shall be the amount to be "added to" the base bid.

REQUIRED FORMS

The following forms have been completed by the CONTRACTOR and are attached hereto. CONTRACTOR to sign. MBE / WBE Form(s):

Refer to the Instructions section found on page 3 of the MBE / WBE Forms in the Project Manual.

BID BOND FOR CITY OF GREENVILLE, NC (Use this Form Only, if Bid is over $500,000)

Refer to the Bid Bond forms found in the Project Manual. ***Use these forms, only if required.***

Respectfully submitted this day of , 2022.

Signature:

Title:

Firm:

Address:

License No. Expiration Date:

BID BOND FOR CITY OF GREENVILLE, NC

Contract name and number or other description of the Contract: WILDWOOD PARK BRIDGES & BOARDWALKS

Name of Bidder:

Name, address, and telephone number of Surety's N. C. Resident Agent:

Telephone number of Surety's home office:

Surety is a corporation organized and existing pursuant to the laws of the State of:

Amount of this bond: check (a) or (b):

(a) (write or type the amount in words and figures) All numbers in this section are in U. S. dollars.

($)

(b) five percent of the amount of the proposal

Bond number:

Date of execution of this bond:

Obligee: CITY OF GREENVILLE, a North Carolina municipal corporation.

* * * * * * * * * * * * * * * * * *

KNOW ALL PERSONS BY THESE PRESENTS, that the Surety executing this bond, which Surety is duly licensed to act as surety in North Carolina, is held and firmly bound unto the City of Greenville, Obligee, in the penal sum of the amount stated above, for the payment of which sum, well and truly to be made, the Surety binds itself and its successors and assigns, jointly and severally, by these presents. Whereas the Bidder is herewith submitting a proposal for the Contract referred to above, and the Bidder desires to file this Bid Bond in lieu of making the cash deposit pursuant to G.S. 143-129; NOW THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is

such, that if the Bidder shall be awarded the contract for which the bond is submitted, and shall, within ten days after the award is made, execute and deliver to the Obligee the contract and give satisfactory surety as required by G.S.

143-129, then this obligation shall be null and void, otherwise to remain in full force and virtue; and if the Bidder fails or refuses to so execute and deliver said contract or give said satisfactory surety, the Surety shall upon demand forthwith pay to the Obligee the full penal sum of this bond. The Surety waives all extensions of time, and notice of extensions of time, for the opening of proposals and for the modification, award, execution, and delivery of the contract. IN WITNESS WHEREOF, the Surety has executed this instrument under its seal as of the date of execution indicated above, pursuant to authority of its governing body.

_____

(name of Surety)

_____

(signature of Surety's attorney in fact)
(Affix Surety's corporate seal)

(Instructions to Surety: If you use a raised corporate seal, press hard enough to make it legible.)

ACKNOWLEDGEMENT OF SURETY'S EXECUTION OF BID BOND

State of _____ County of _____

I, _____, a notary public in and for said county and state, certify that _____ personally appeared before me this day and acknowledged that he or she is Attorney in Fact for _____, the Surety named in the foregoing Bid Bond, in which bond the Obligee is the City of Greenville, and that he or she executed said bond, under the seal of the Surety, on behalf of the Surety.

This the _____ day of _____, 20 _____.

My commission expires: _____ _____

Notary Public

PERFORMANCE BOND AND PAYMENT BOND (Use this Form Only)

Date of Contract:

Contract Name and Number:

Name of Principal (Name of Contractor):

The Principal is organized and existing under the laws of the following State:

Name of Surety:

Name, address, and telephone number of Surety's N. C. Resident Agent:

Amount of Performance Bond (in words and figures):

($)

dollars

Bond number:

Date of Execution of these Bonds:

PERFORMANCE BOND AND PAYMENT BOND FOR CITY OF GREENVILLE, NC

Contracting Body: **CITY OF GREENVILLE, a North Carolina municipal corporation.**
Amount of Payment Bond: **same dollar amount as the dollar amount of the Performance Bond.**

* * * * * * * * * * * * * * * * * * *

KNOW ALL PERSONS BY THESE PRESENTS, That we, the PRINCIPAL AND SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue. As used hereinabove, "modifications" shall include, without limitation, changes (including, without limitation, changes granting extensions of time) and additions to or with respect to the work, scope of work, and specifications. The undertakings, covenants, terms, conditions, and agreements of said contract shall include, without limitation, the Principal's obligations, if any, with respect to damages for delay, to indemnify, and to provide warranties.

* * * * * * * * * * * * * * * * * * *

KNOW ALL PERSONS BY THESE PRESENTS, That we, the PRINCIPAL AND SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the Principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue. As used hereinabove, "modifications" shall include, without limitation, changes (including, without limitation, changes granting extensions of time) and additions to or with respect to the work, scope of work, and specifications.

* * * * * * * * * * * * * * * * * * *

The Performance Bond and the Payment Bond are being combined here only for purposes of convenience in signing and acknowledging, and the obligations of the Principal and of the Surety are the same as if the bonds were on separate documents. Each bond is in the dollar amount stated above, and the amounts of these bonds are not combined. The Surety agrees that both of these bonds are fully binding on it whether or not the Principal executes these bonds. These bonds are given pursuant to Article 3 of Chapter 44A of the N. C. General Statutes.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument (for both the Performance Bond and the Payment Bond) under their several seals on the date of execution indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

_____
(name of Principal)

[Execution by Principal when the Principal is a corporation]

By: _____

Title of officer: _____

(Affix Principal's corporate seal.)

[Execution by Principal when the Principal is a limited liability company]

By: _____

Manager of Principal

[Surety's execution]

_____
(name of Surety)

_____
(signature of attorney in fact)

(Affix Surety's corporate seal.)

*(Instructions to Surety and Principal: I**f you use a raised corporate seal, press hard enough to make it legible**.)*

ACKNOWLEDGEMENT OF CONTRACTOR'S EXECUTION OF CONTRACT AND PERFORMANCE BOND AND PAYMENT BOND

[Acknowledgment when the Contractor (the Principal) is a corporation]

State of _____ County of _____

I, a notary public in and for the aforesaid county and state, certify that

_____

personally appeared before me this day and stated that he or she is (**strike through the inapplicable**:) chairperson/ president/ chief executive officer/ vice-president/ assistant vice-president/ treasurer/ chief financial officer of _____, a corporation, and that by authority duly given and as the act of the corporation, he or she signed the foregoing contract with the City of Greenville and Performance Bond and Payment Bond with respect to the contract and the corporate seal was affixed to said instrument(s).

This the _____ day of _____, 20 _____.

My commission expires: _____ _____

Notary Public

[Acknowledgment when the Contractor (the Principal) is a limited liability company]

State of _____ County of _____

I, _____, a notary public for said county and state, certify that

_____

(1) appeared before me this day, (2) stated that he or she is a manager of _____, a limited liability company, (3) acknowledged that the foregoing contract with the City of Greenville and the Performance Bond and Payment Bond with respect to the contract carry on the company's business in the usual way, and (4) acknowledged the due execution of the contract and the Performance Bond and Payment Bond on behalf of the company.

This the _____ day of _____, 20 _____.

My commission expires: _____ _____

ACKNOWLEDGEMENT OF SURETY'S EXECUTION OF PERFORMANCE BOND AND PAYMENT BOND

State of _____ County of _____

I, _____, a notary public in and for said county and state, certify that _____ personally appeared before me this day and acknowledged that he or she is Attorney in Fact for _____, the Surety named in the foregoing Performance Bond and Payment Bond, in both which bond the contracting body is the City of Greenville, and that he or she executed said bonds, under the seal of the Surety, on behalf of the Surety.

This the _____ day of _____, 20 _____.

My commission expires: _____ _____

Notary Public

CITY OF GREENVILLE / GREENVILLE UTILITIES COMMISSION MINORITY AND WOMEN BUSINESS ENTERPRISE (MWBE) PROGRAM

City of Greenville Construction Guidelines and Affidavits $100,000 and above

These instructions shall be included with each bid solicitation.

CITY OF GREENVILLE / GREENVILLE UTILITIES COMMISSION MINORITY AND WOMEN BUSINESS ENTERPRISE (MWBE) PROGRAM

$100,000 and Construction Guidelines for MWBE Participants

Policy Statement
It is the policy of the City of Greenville and Greenville Utilities Commission to provide minorities and women equal opportunity for participating in all aspects of the City's and Utilities' contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchases, and professional and personal service contracts.

Goals and Good Faith Efforts
Bidders responding to this solicitation shall comply with the MWBE program by making Good Faith Efforts to achieve the following aspiration goals for participation.

	CITY	
	MBE	**WBE**
Construction This goal includes Construction Manager at Risk.	10%	6%

Bidders shall submit MWBE information with their bids on the forms provided. This information will be subject to verification by the City prior to contract award. **As of July 1, 2009, contractors, subcontractors, suppliers, service providers, or MWBE members of joint ventures intended to satisfy City MWBE goals shall be certified by the NC Office of Historically Underutilized Businesses (NC HUB) only.** Firms qualifying as "WBE" for City's Firms qualifying as "MBE" for the City's goals must be certified in one of the other categories (i.e.: Black, Hispanic, Asian American, American Indian, Disabled, or Socially and Economically Disadvantaged). Those firms who are certified as both a "WBE" and "MBE" may only satisfy the "MBE" requirement. **Each goal must be met separately. Exceeding one goal does not satisfy requirements for the other.** A complete database of NC HUB certified firms may be found at http://www.doa.nc.gov/hub/. An internal database of firms who have expressed interest to do business with the City and GUC is available at www.greenvillenc.gov. However, the HUB status of these firms must be verified by the HUB database. The City shall accept NCDOT certified firms on federally funded projects only. Please note: A contractor may utilize any firm desired. However, for participation purposes, all MWBE vendors who wish to do business as a minority or female must be certified by NC HUB.

The Bidder shall make good faith efforts to encourage participation of MWBEs prior to submission of bids in order to be considered as a responsive bidder. Bidders are cautioned that even though their submittal indicates they will meet the MWBE goal, they should document their good faith efforts and be prepared to submit this information, if requested.

The MWBE's listed by the Contractor on the **Identification of Minority/Women Business Participation** which are determined by the City to be certified shall perform the work and supply the materials for which they are listed unless the Contractors receive prior authorization from the City to perform the work with other forces or to obtain materials from other sources. If a contractor is proposing to perform all elements of the work with his own forces, he must be prepared to document evidence satisfactory to the owner of similar government contracts where he has self-performed.

The Contractor shall enter into and supply copies of fully executed subcontracts with each MWBE or supply signed Letter(s) of Intent to the Project Manager after award of contract and prior to Notice to Proceed. Any amendments to subcontracts shall be submitted to the Project Manager prior to execution.

Instructions

The Bidder shall provide with the bid the following documentation:

☐ Identification of Minority/Women Business Participation (if participation is zero, please mark zero—Blank forms will be considered nonresponsive)

☐ Affidavit A (if subcontracting)

OR

☐ Identification of Minority/Women Business Participation
(if participation is zero, please mark zero—Blank forms will be considered nonresponsive)

☐ Affidavit B (if self-performing; will need to provide documentation of similar projects in scope, scale, and cost)

Within 72 hours or 3 business days after notification of being the apparent low bidder who is subcontracting anything must provide the following information:

☐ Affidavit C (if aspirational goals are met or are exceeded)

OR

☐ Affidavit D (if aspirational goals are not met)

☐ After award of contract and prior to issuance of notice to proceed: Letter(s) of Intent or Executed Contracts

****With each pay request, the prime contractors will submit the Proof of Payment Certification, listing payments made to MWBE subcontractors.**

*****If a change is needed in MWBE Participation, submit a Request to Change MWBE Participation Form. Good Faith Efforts to substitute with another MWBE contractor must be demonstrated.**

Minimum Compliance Requirements:

All written statements, affidavits, or intentions made by the Bidder shall become a part of the agreement between the Contractor and the City for performance of contracts. Failure to comply with any of these statements, affidavits or intentions or with the minority business guidelines shall constitute a breach of the contract. A finding by the City that any information submitted (either prior to award of the contract or during the performance of the contract) is inaccurate, false, or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the City whether to terminate the contract for breach or not. In determining whether a contractor has made Good Faith Efforts, the CITY will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts

IDENTIFICATION OF MINORITY / WOMEN BUSINESS PARTICIPATION

_____

(Name of Bidder)

do hereby certify that on this project, we will use the following minority/women business enterprises as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work type	*MWBECategory

*MWBE categories: Black, African American (B), Hispanic, Latino (L), Asian American (A) American Indian (I), Female (F) Socially and Economically Disadvantaged (S) Disabled (D)

If you will not be utilizing MWBE contractors, please certify by entering zero "0"

The total value of MBE business contracting will be ($) _____

The total value of WBE business contracting will be ($) _____

City of Greenville AFFIDAVIT A, Listing of Good Faith Efforts

County of: _____

Affidavit of: _____
(Name of Bidder)

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

❑ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.

❑ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses or providing these documents to them at least 10 days before the bids are due.

❑ **3** – **(15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.

❑ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.

❑ **5** – **(10 pts)** Attended prebid meetings scheduled by the public owner.

❑ **6** – **(20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.

❑ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.

❑ **8** – **(25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.

❑ **9** – **(20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.

❑ **10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority/Women Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143- 128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority/women business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____

Name of Authorized Officer: _____
Signature: _____
Title: _____

SEAL

State of _____ County of _____
Subscribed and sworn to before me this _____ day of _____ 20 ____
Notary Public _____
My commission expires _____

City of Greenville AFFIDAVIT B, Intent to Perform Contract with own Workforce

County of: _____

Affidavit of: _____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the contract.

_____
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____

Name of Authorized Officer: _____

Signature: _____

Title: _____

State of _____ County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

SEAL

City of Greenville AFFIDAVIT C, Portion of the Work to be Performed by MWBE Firms

County of: _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by MWBE businesses as defined in GS143-128.2(g) and the COG/CITY MWBE Plan sec. III is equal to or greater than 16% of the bidders total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of: _____

(Name of Bidder)

I do hereby certify that on the

_____

(Name of Project)

Project ID # _____ Amount of Bid $ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below.

Attach additional sheets if required

Name and Phone Number	*MWBE Category	Work description	Dollar Value

*Minority categories: Black, African American (B), Hispanic or Latino (L), Asian American (A) American Indian (I), Female (F)Socially and Economically Disadvantaged (S) Disabled (D)

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with MWBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____

Name of Authorized Officer: _____
Signature: _____
Title: _____

State of _____ County of _____
Subscribed and sworn to before me this _____ day of _____ 20 ____
Notary Public _____
My commission expires _____

SEAL

City of Greenville AFFIDAVIT D, Good Faith Efforts

County of: _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 16% participation by minority/women business is not achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of: _____

(Name of Bidder)

I do hereby certify that on the

_____

(Name of Project)

Project ID # _____ Amount of Bid $ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below.

Attach additional sheets if required

Name and Phone Number	*MWBE Category	Work description	Dollar Value

*Minority categories: Black, African American (B), Hispanic or Latino (L), Asian American (A) American Indian (I), Female (F) Socially and Economically Disadvantaged (S) Disabled (D)

Examples of documentation required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
B. Copies of quotes or responses received from each firm responding to the solicitation.
C. A telephone log of follow-up calls to each firm sent a solicitation.
D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
F. Copy of pre-bid roster.
G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
H. Letter detailing reasons for rejection of minority business due to lack of qualification.
I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with MWBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____

Name of Authorized Officer: _____
Signature: _____
Title: _____

State of _____ County of _____
Subscribed and sworn to before me this _____ day of _____ 20 ____
Notary Public _____
My commission expires _____

LETTER OF INTENT, MWBE SUBCONTRACTOR PERFORMANCE

Please submit this form or executed subcontracts with MWBE firms after award of contract and prior to issuance of notice to proceed.

PROJECT:

(Project Name)

TO:

(Name of Prime Bidder / Architect)

The undersigned intends to perform work in connection with the above project as a:

_____Minority Business Enterprise _____Women Business Enterprise

The MWBE status of the undersigned is certified the NC Office of Historically Underutilized Businesses (required). _____Yes _____No

The undersigned is prepared to perform the following described work or provide materials or services in connection with the above project at the following dollar amount:

Work/Materials/Service Provided	**Dollar Amount of Contract**	**Projected Start Date**	**Projected End Date**

_____

(Date)

_____

(Address) (Name & Phone No. of MWBE Firm)

_____

(Name & Title of Authorized Representative of MWBE) (Signature of Authorized Representative of MWBE)

REQUEST TO CHANGE MWBE PARTICIPATION

(Submit changes only if notified as apparent lowest bidder, continuing through project completion)

Project: _____

Bidder or Prime Contractor: _____

Name & Title of Authorized Representation: _____

Address: _____ Phone: _____

Email Address: _____

Total Contract Amount (including approved change orders or amendments): $ _____

Name of subcontractor: _____

Good or service provided: _____

Proposed Action:

_____Replace subcontractor
_____Perform work with own forces

For the above actions, you must provide one of the following reasons (Please check applicable reason):

_____The listed MBE/WBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract.

_____The listed MBE/WBE is bankrupt or insolvent.

_____The listed MBE/WBE fails or refuses to perform his/her subcontract or furnish the listed materials.

_____The work performed by the listed subcontractor is unsatisfactory according to industry standards and is not in accordance with the plans and specifications; or the subcontractor is substantially delaying or disrupting the progress of the work.

Name of subcontractor: _____

The MWBE status of the contractor is certified by the NC Office of Historically Underutilized Business (required)
_____ Yes _____ No

Dollar amount of original contract $ _____

Dollar amount of amended contract $ _____

Other Proposed Action:

_____ Increase total dollar amount of work _____ Add additional subcontractor

_____ Decrease total dollar amount of work _____ Other

Please describe reason for requested action:

If adding additional subcontractor:*

The MWBE status of the contractor is certified by the NC Office of Historically Underutilized Business (required)
_____ Yes _____ No

**Please attach Letter of Intent or executed contract document.*

Dollar amount of original contract $ _____

Dollar amount of amended contract $ _____

Interoffice Use Only
Approval: ___ Yes ___ N
Date: _____
Signature: _____

PROOF OF PAYMENT CERTIFICATION
MWBE CONTRACTORS, SUPPLIERS, SERVICE PROVIDERS

Project Name: _____

Pay Application No.: _____
Purchase Order No.: _____

Prime Contractor: _____

Current Contract Amount (including change orders): $ _____

Requested Payment Amount for this Period: $ _____

Is this the final payment? (Y / N) _____

Firm Name	**MWBE Category ***	**Total Amount Paid from this Pay Request**	**Total Contract Amount (including changes)**	**Total Amount Remaining**

*Minority categories: Black, African American (B), Hispanic or Latino (L), Asian American (A) American Indian (I), Female (F) Socially and Economically Disadvantaged (S) Disabled (D)

Date: _____

Certified By: _____

(Name)

_____

(Title)

_____

(Signature)

AGREEMENT (CITY OF GREENVILLE, NC)

THIS AGREEMENT is dated as of the _____ day of _____ in the year 2022 by and between the **City of Greenville, North Carolina** (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR). OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK.

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

The completion of all work (including incidental work) per the plans and specifications, including but not limited to: General Conditions, Erosion & Sediment Control, Site Preparation, Demolition, Grading & Drainage, Paving, and Bridges & Boardwalk Structures to construct the Wildwood Park Bridges & Boardwalk Project.

The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **Wildwood Park Bridges & Boardwalk Project.**

Article 2. DESIGN PROFESSIONAL.

The Project has been designed by **Kimley-Horn & Associates, Inc,** who is hereinafter called DESIGN PROFESSIONAL (aka LANDSCAPE ARCHITECT OR ENGINEER) and who is to act as OWNER'S representative, assume all duties and responsibilities and have the rights and authority assigned to DESIGN PROFESSIONAL in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Once the Notice of Award has been issued, the OWNER may assume all or part of the responsibilities of the DESIGN PROFESSINAL and RESIDENT PROJECT REPRESENTATIVE.

Article 3. CONTRACT TIMES.

3.1 The Work will be completed and ready for final payment in accordance with the Contract Documents within the times specified below:

Total Contract Completion Time: **Seven hundred thirty (730) calendar days** per the Base Bid.

The Contract Times shall commence to run on the day indicated in the Notice to Proceed, said day being the Date of Availability as defined in Article 101-3 of NCDOT Standard Specifications for Roads and Structures. This Notice to Proceed may be given at any time within **60** days of the Effective Date of the Agreement.

3.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and the OWNER will suffer financial loss if the Work is not completed within the times specified in the BID, plus any extensions thereof allowed in accordance with Article 108-10 of the NCDOT Standard Specifications for Roads and Structures. They also recognize the delays, expense and difficulties involved in proving 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 **One Thousand Dollars ($ 1,000.00)** for each day that expires after the time specified in paragraph 3.1.

Article 4. CONTRACT PRICE.

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 4.1 and 4.2 below:

4.1 For all Work other than Unit Price Work, a Lump Sum as shown in the BID.

All specific cash allowances are included in the BID.

plus

4.2 For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in the BID.

As provided in Article 102-5 of the NCDOT Standard Specifications for Roads and Structures estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by DESIGN PROFESSIONAL as provided in Article 109-1 of the NCDOT Standard Specifications for Roads and Structures.

4.3 This contract includes **Wildwood Park Bridges & Boardwalk Project**.

Article 5. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Section 109 of the NCDOT Standard Specifications for Roads and Structures. Applications for Payment will be processed by DESIGN PROFESSIONAL as provided in the Contract Documents.

5.1 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by DESIGN PROFESSIONAL, on or about the 25th day of each month during construction as provided in paragraph 5.1.1. All such payments will be measured by the schedule of values established in accordance with the Contract Documents (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 Contract Documents.

5.1.1. Progress payments will be made, less the aggregate of payments previously made and less such amounts as DESIGN PROFESSIONAL shall determine, or OWNER may withhold, in accordance with Section 109 of NCDOT Standard Specifications for Roads and Structures.

5.2 Final Payment. Upon final completion and acceptance of the Work in accordance with the Contract Documents, OWNER shall pay the remainder of the Contract Price as recommended by DESIGN PROFESSIONAL as provided in Article 109-9 of the NCDOT Standard Specifications for Roads and Structures.

Article 6. INTEREST.

Pursuant to paragraph 143 134.1, General Statutes of North Carolina, the balance due prime Contractors shall be paid in full within 45 days after respective prime contracts have been accepted by Engineer and Owner, or occupied by Owner and used for the purpose for which the project was constructed, whichever occurs first. Provided, however, that whenever Engineer determines that delay in completion of the project in accordance with terms of the Drawings and Specifications is the fault of Contractor, the project may be occupied and used for the purposes for which it was constructed without payment of any interest on amounts withheld past the 45 day limit. No payment shall be delayed because of the failure of another prime Contractor on such project to complete his contract. Should final payment to any prime Contractor beyond the date such contracts have been declared to be completed by Engineer, accepted by Owner, or occupied by Owner and used for the purposes for which the project was constructed, be delayed by more than 45 days, said prime Contractor shall be paid interest, beginning on the 46th day, at the rate of twelve percent per annum on such unpaid balance as may be due. Where a conditional acceptance of a contract exists, and where Owner is retaining a reasonable sum pending correction of such conditions, interest on such reasonable sum shall not apply.

Article 7. CONTRACTOR'S REPRESENTATIONS.

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

7.1 CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in paragraph 8) and the other related data identified in the Bidding Documents including "technical data."

7.2 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, performance or furnishing of the Work.

7.3 CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

7.4 CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which may be available as stated in Article 102-7 of the NCDOT Standard Specifications for Roads and Structures. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

7.5 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.

7.6 CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.

7.7 CONTRACTOR has given DESIGN PROFESSIONAL written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by DESIGN PROFESSIONAL is acceptable to CONTRACTOR, and 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.

The Contract Documents, which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work, consist of the following:

8.1 This Agreement (incorporated herein).

8.2 Exhibits to this Agreement:
a. Certificate of Insurance.
b. Geotechnical Engineering Report dated October 27, 2021).

c. Geotechnical Foundation Recommendations Letter dated February 11, 2022.

8.3 **Performance Bond and Payment Bond for City of Greenville, NC** (incorporated herein).

8.4 Notice to Proceed. (OWNER shall provide following successful execution of this Agreement).

8.5 **Standard Specifications** (referenced herein) and **Project Special Provisions** (incorporated herein).

8.6 Drawings consisting of **fifty-two (52) plan sheets**, inclusive with each sheet bearing the following general title: **Wildwood Park – Observation Tower and Trails.**

8.7 Addenda numbers (N/A) inclusive.

8.8. CONTRACTOR's **Bid Form** (incorporated herein).

8.9 **City of Greenville / Greenville Utilities Commission Minority and Women Business Enterprise (MWBE) Program** forms and documents (incorporated herein) submitted by CONTRACTOR).

8.10. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to Section 104 of the NCDOT Standard Specifications for Roads and Structures.

8.11 NCDOT Standard Specifications for Roads and Structures (2018 edition) (not attached).

The documents listed in paragraphs 8.2 et seq. above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in Section 104 of the NCDOT Standard Specifications for Roads and Structures.

Article 9. MISCELLANEOUS.

9.1. Terms used in this Agreement, which are defined in Article 101-3 of the NCDOT Standard Specifications for Roads and Structures will have the meanings indicated in the Article 101-3 of the NCDOT Standard Specifications for Roads and Structures.

9.2. No assignment by a party hereto of any rights under or interests in the Contract Documents 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.

9.3. OWNER and CONTRACTOR each binds itself, their partner, successors, assigns and legal representatives to the other party hereto, their partner, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

9.4 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.

IN WITNESS WHEREOF, the parties hereto have caused this Contract to be executed in triplicate originals as of the day and year first above written.

CITY OF GREENVILLE

By: _____
Ann E. Wall, City Manager

By: _____

Printed Name: _____

Printed Title: _____

APPROVED AS TO FORM:

By: _____
Emanual D. McGirt, City Attorney

PRE-AUDIT CERTIFICATION

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Byron Hayes, Director of Financial Services

Account Number: _____

Project String: WILDWOOD PARK BRIDGES & BOARDWALKS

CERTIFICATE OF INSURANCE

Attach Certificate of Insurance here.

NOTICE OF AWARD (CITY OF GREENVILLE, NC)

To: _____

From: City of Greenville, North Carolina
Recreation and Parks Department
2000 Cedar Lane
Greenville, NC 27835

PROJECT: Wildwood Park Bridges & Boardwalks

CONTRACT AMOUNT: $ _____

You are hereby notified the City of Greenville, North Carolina (OWNER) has accepted your Bid dated **March 31 2022** for the above described project. The Project name must be cited on all Invoices and/or Payment Request.

You are required to execute the formal contract with the OWNER and to furnish all required documents listed in the PROJECT MANUAL and AGREEMENT within **ten (10) calendar days** from the date of delivery of this Notice to you.

If you fail to execute said contract and to furnish any required Bonds and Certificates within **ten (10) calendar days** from the delivery of this Notice, the OWNER will be entitled to consider all your rights arising out of their acceptance of your Bid as abandoned and to award the work covered by the contract to another contractor, to re-advertise the Project, or otherwise dispose thereof as the OWNER sees fit.

You are required to acknowledge and return to the OWNER a copy of this Notice of Award.

This the _____ day of _____, 2022.

OWNER: City of Greenville, North Carolina

BY:
Mark Nottingham, AICP
Recreation & Parks Department Project Manager

ACCEPTANCE OF NOTICE
Receipt of the above NOTICE OF AWARD is hereby acknowledged.

BY: _____

Signature: _____

Title: _____

Company: _____

This the _____ day of _____, 2022.

GENERAL CONDITIONS

See NCDOT Standard Specifications for Roads and Structures dated January 2018.

PART 2 – STANDARDS & SPECIAL PROVISIONS

STANDARD NOTES

A. **NCDOT Standard Specifications.** The 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures, herein referred to as the 'Standard Specifications', and the 2018 Roadway Standard Drawings, shall apply to all portions of this project except as may be modified by this document.

B. **Bidder Prequalification.** Bidders are required to be prequalified with NCDOT for their specific discipline. Contractors wishing to become prequalified may obtain information through the NCDOT website at:
https://connect.ncdot.gov/business/Pages/default.aspx

C. **Traffic Control.** The requirements of the Manual on Uniform Traffic Control Devices (MUTCD) – FHWA, as amended by the NCDOT Supplement to MUTCD, shall apply. Traffic Control, both vehicular and pedestrian, shall be maintained throughout the project as required by these specifications as modified by the project plans or special provisions.

D. **City Noise Ordinance**. The Contractor shall review the City's Noise Ordinance which applies to construction operations. Construction operations are allowed from **7:00 a.m. to 9:00 p.m. on weekdays** and **8:00 a.m. to 9:00 p.m. on weekends** for which building permits have been issued or construction operations not requiring permits; providing all equipment is operated in accord with the manufacturer's specifications and with all standard equipment manufacturers' mufflers and noise-reducing equipment in use and in proper operating condition.

(http://www.greenvillenc.gov/home/showdocument?id=6176)

Holidays and holiday weekends shall include New Year's, Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. The Contractor shall schedule his work so that lane closures will not be required during these periods, unless otherwise directed by the City of Greenville Project Manager.

CHANGES TO THE NCDOT 2018 STANDARD SPECIFICATIONS:

(01/02/18)

1. *Article 102-1 Invitation to Bid, page 1-9,* delete this section in its entirety.
2. *Subarticle 102-8(B) Electronic Bids, page 1-15,* delete this section in its entirety.
3. *Subarticle 102-9(C)2 Electronic Bids, page 1-17,* delete this section in its entirety.
4. *Article 102-10 Bid Bond or Bid Deposit, page 1-17,* line 38, "60" days shall be modified to "90" days.
5. *Subarticle 102-10 Bid Bond or Bid Deposit, page 1-18,* delete lines 16-27.
6. *Subarticle 102-11 Delivery of Bids, pages 1-18-19,* delete lines 31-32.
7. *Subarticle 102-12(A) Paper Bid, page 1-18*, line 37, the reference to "Contract Officer" shall be changed to "CITY or duly authorized agent".
8. *Subarticle 102-12(B) Electronic Bid, pages 1-18 and 19,* delete this section in its entirety.
9. *Subarticle 102-13(B)2 Electronic Bids, page 1-19,* delete this section in its entirety.
10. *Subarticle 103-2(B) Electronic Bids, page 1-22,* delete this section in its entirety.
11. *Subarticle 103-3(A) Criteria for Withdrawal of Bid, page 1-22,* modify the reference *"G.S.136-28.1" to "G.S.143-129.1"*. On page 1-23, in that same subarticle under (5), line 11, modify "State Contract Officer" to "CITY or duly authorized agent".
12. *Article 103-7 Contract Bonds, page 1-30,* line 5, modify "14" calendar days to "10" calendar days per *G.S.143-129*.
13. *Article 103-9, Failure to Furnish Contract Bonds, page 1-30,* line 15, modify "14" calendar days to "10" calendar days per *G.S.143-129.*
14. *Article 105-9 Construction Stakes, Lines and Grades, page 1-48,* delete this section in its entirety and substitute the following: "The Municipality will <u>not</u> set the stakes, lines or grades for this project."
15. *Article 108-2, Progress Schedule, page 1-68,* add the following requirement as subarticle (D) on page 1-69: "The municipality may add additional requirements as noted in the bid proposal".
16. *Article 108-3, Preconstruction Conference, page 1-69, line 20,* change "Division Engineer" to "CITY or duly authorized agent".
17. *Article 108-4, Construction Conferences, page 1-69,* line 28, change "Resident Engineer" to "CITY or duly authorized agent".
18. *Article 109-8, Fuel Price Adjustments, page 1-87,* delete this article in its entirety and substitute the following: "Fuel Price Adjustments will <u>not</u> apply to this project."
19. *Article-620-4, Measurement and Payment, page 6-33,* delete lines 38 through line 20 on page 6-34 and substitute the following: "Asphalt Price Adjustments will <u>not</u> apply to this project."

PROJECT SPECIAL PROVISIONS
GENERAL

SP-001 CONTRACT TIME & LIQUIDATED DAMAGES

(8-15-00) (Rev. 12-18-07) 108 SP1 G07 A

The date of availability for this contract is anticipated to be June 1, 2022 subject to **the issued date of the Notice to Proceed** by the City of Greenville, except that work in jurisdictional waters and wetlands shall not begin until a meeting between the DOT, Regulatory Agencies, and the Contractor is held as stipulated in the permits contained elsewhere in this proposal. This delay in availability has been considered in determining the contract time for this project.

The completion date for this contract is **May 31, 2024 based on a contract time of seven hundred and thirty (730) calendar days.**

Except where otherwise provided by the contract, observation periods required by the contract will not be a part of the work to be completed by the completion date and/or intermediate contract times stated in the contract. The acceptable completion of the observation periods that extend beyond the final completion date shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **One Thousand Dollars ($1000.00)** per calendar day.

These liquidated damages will not be cumulative with any liquidated damages which may become chargeable under Intermediate Contract Time Number 1.

SP-002 INTERMEDIATE CONTRACT TIME NUMBER 1 & LIQUIDATED DAMAGES

(2-20-07) (Rev. 6-18-13) 108 SP1 G14 H

The Contractor shall complete the work required of **Area 2, The Beach**, inclusive of L2 Timber Boardwalks, Y3 Stairs, Y3 Sidewalk, L2 Bridge, and associated sitework necessary to access the Area as shown in the plans within **three hundred (300) calendar days**.

The date of availability for this intermediate contract time is anticipated to be **June 1, 2022.**

The completion date for this intermediate contract time is **March 31, 2023.**

The liquidated damages for this intermediate contract time are **One-Thousand Dollars ($1000.00)** per calendar day.

SP-003 INTERMEDIATE CONTRACT TIME NUMBER 2 & LIQUIDATED DAMAGES

(7-1-95) (Rev. 2-21-12) 108 SP1 G13 A

Except for that work required under the Project Special Provisions entitled *Anti-slip Coating*, included elsewhere in this proposal, the Contractor will be required to complete all work included in this contract and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is **anticipated to be 3 to 4 months following the installation of boardwalk decking to allow for lumber to accept coating.**

The completion date for this intermediate contract time is **May 31, 2024**.

The liquidated damages for this intermediate contract time are **One-Thousand Dollars ($1000.00)** per calendar day.

The Contractor will be responsible for and shall make corrections of all damages to the completed boardwalk caused by application of the Anti-slip Coating, whether occurring prior to or after placing traffic through the project.

SP-004 INTERMEDIATE CONTRACT TIME NUMBER 3 & LIQUIDATED DAMAGES

(2-20-07) (Rev. 6-18-13) 108 SP1 G14 H

The Contractor shall complete the work required of **Area 3, The Connection** as shown in the plans.

The date of availability for this intermediate contract time is anticipated to be **September 1, 2022.**

The completion date for this intermediate contract time is **December 1, 2022**.

The liquidated damages for this intermediate contract time are **One-Thousand Dollars ($1000.00)** per calendar day.

SP-005 WEATHER DELAYS

2/28/22 SP (Kimley-Horn and Associates, Inc.)

Weather Delay shall be determined as having precipitation (rain, snow, or ice) in excess of one-tenth inch (0.10") liquid measure; temperatures which do not rise above that required for scheduled construction activity that day; or sustained wind in excess of twenty-five (25) MPH.

Weather delays shall be considered for extension of the contract time, but not monetary damages.
Contractor shall maintain daily weather logs and submit upon request, or as part of each pay request. Log shall include type of weather delay, precipitation amount, temperature, and wind speed

Average Rainfall Days & Rainfall Amounts; Greenville, NC provided for Contractor's information only and should not be solely relied upon for planning or scheduling purposes by the Contractor.

January, 10.6 days, 1.97"

February; 11.1 days, 2.64"

March; 13.8 days, 2.32"

April; 13.8 days, 2.52"

May; 16.7 days, 3.19"

June; 17.1 days, 3.39"

July; 19.6 days, 3.46"

August; 18.7 days, 3.82"

September; 14.6 days, 3.43"

October; 9.4 days, 2.17"

November; 9.4 days, 2.4"

December; 10.8 days, 2.64"

SP-006 PERMANENT VEGETATION ESTABLISHMENT

(2-16-12) (Rev. 10-15-13) 104 SP1 G16

Establish a permanent stand of the vegetation mixture shown in the contract. During the period between initial

vegetation planting and final project acceptance, perform all work necessary to establish permanent vegetation on all erodible areas within the project limits, as well as, in borrow and waste pits. This work shall include erosion control device maintenance and installation, repair seeding and mulching, supplemental seeding and mulching, mowing, and fertilizer topdressing, as directed. All work shall be performed in accordance with the applicable section of the *2018 Standard Specifications*. All work required for initial vegetation planting shall be performed as a part of the work necessary for the completion and acceptance of the Intermediate Contract Time (ICT). Between the time of ICT and Final Project acceptance, or otherwise referred to as the vegetation establishment period, the Contractor will be responsible for preparing the required National Pollutant Discharge Elimination System (NPDES) inspection records.

Once the Engineer has determined that the permanent vegetation establishment requirement has been achieved at an 80% vegetation density (the amount of established vegetation per given area to stabilize the soil) and no erodible areas exist within the project limits, the Contractor will be notified to remove the remaining erosion control devices that are no longer needed.

The Contractor will be responsible for, and shall correct any areas disturbed by operations performed in permanent vegetation establishment and the removal of temporary erosion control measures, whether occurring prior to or after placing traffic on the project.

All work and materials necessary for the installation of **Response for Erosion Control, Seeding and Mulching; Repair Seeding; Supplemental Seeding; Mowing; Fertilizer Topdressing; Silt Excavation; and Stone for Erosion Control** shall be included in the Base Bid. No additional compensation to the Contractor shall be allowed for maintenance and removal of temporary erosion measures. Additional work required or directed by the Engineer or City of Greenville Project Manager shall be paid in accordance with Articles 104-7 or 104-3 of the *2018 Standard Specifications*.

SP-007 USE OF UNMANNED AIRCRAFT SYSTEMS (UAS)

(8-20-19) SP01 G092

The Contractor shall adhere to all Federal, State and Local regulations and guidelines for the use of Unmanned Aircraft Systems (UAS). This includes but is not limited to US 14 CFR Part 107 *Small UAS Rule*, NC GS 15A-300.2 *Regulation of launch and recovery sites*, NC GS 63-95 *Training required for the operation of unmanned aircraft systems*, NC GS 63-96 *Permit required for commercial operation of unmanned aircraft system,* and NCDOT UAS Policy. The required operator certifications include possessing a current Federal Aviation Administration (FAA) Remote Pilot Certificate, a NC UAS Operator Permit as well as operating a UAS registered with the FAA.

Prior to beginning operations, the Contractor shall complete the NCDOT UAS – Flight Operation Approval Form and submit it to the Engineer for approval. All UAS operations shall be approved by the Engineer prior to beginning the operations.

All contractors or subcontractors operating UAS shall have UAS specific general liability insurance to cover all operations under this contract.

The use of UAS is at the Contractor's discretion. No measurement or payment will be made for the use of UAS. In the event that the Department directs the Contractor to utilize UAS, payment will be in accordance with Article 104-7 Extra Work.

SP-008 SUBSURFACE INFORMATION

(7-1-95) 450 SP1 G112 C

Subsurface information is available on the greenway and structure portions of this project.

SP-009 MAINTENANCE OF THE PROJECT

(11-20-07) (Rev. 1-17-12) 104-10 SP1 G125

Revise the *2018 Standard Specifications* as follows:

Page 1-39, Article 104-10 Maintenance of the Project, line 25, add the following after the first sentence of the first paragraph:

All guardrail/guiderail within the project limits shall be included in this maintenance.

Page 1-39, Article 104-10 Maintenance of the Project, line 30, add the following as the last sentence of the first paragraph:

The Contractor shall perform weekly inspections of guardrail and guiderail and shall report damages to the Engineer on the same day of the weekly inspection. *Where damaged guardrail or guiderail is repaired or replaced as a result of maintaining the project in* accordance with this article, such repair or replacement shall be performed within 7 consecutive calendar days of such inspection report.

Page 1-39, Article 104-10 Maintenance of the Project, lines 42-44, replace the last sentence of the last paragraph with the following:

The Contractor will not be directly compensated for any maintenance operations necessary, except for maintenance of guardrail/guiderail, as this work will be considered incidental to the work covered by the various contract items. The provisions of Article 104-7, Extra Work, and Article 104-8, Compensation and Record Keeping will apply to authorized maintenance of guardrail/guiderail. Performance of weekly inspections of guardrail/guiderail, and the damage reports required as described above, will be considered to be an incidental part of the work being paid for by the various contract items.

SP-010 COOPERATION BETWEEN CONTRACTORS

(7-1-95) 105-7 SP1 G133

The Contractor's attention is directed to Article 105-7 of the *2018 Standard Specifications*.

Adjoining Projects:

- Wildwood Park Mountain Bike Trails and Skills Park

The Contractor on this project shall cooperate with the Contractor working within or adjacent to the limits of this project to the extent that the work can be carried out to the best advantage of all concerned.

SP-011 TWELVE MONTH GUARANTEE

(10-7-13) 108 SP1 G146

(A) The Contractor shall guarantee materials and workmanship against latent and patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve months following the date of final acceptance of the work for maintenance and shall replace such defective materials and workmanship without cost to **City of Greenville**. The Contractor will not be responsible for damage due to faulty design, normal wear and tear, for negligence on the part of **City of Greenville**, and/or for use in excess of the design.

(B) Where items of equipment or material carry a manufacturer's guarantee for any period in excess of twelve months, then the manufacturer's guarantee shall apply for that particular piece of equipment or material. **City of Greenville**'s first remedy shall be through the manufacturer although the Contractor is responsible for invoking

the warranted repair work with the manufacturer. The Contractor's responsibility shall be limited to the term of the manufacturer's guarantee. **City of Greenville** would be afforded the same warranty as provided by the Manufacturer.

This guarantee provision shall be invoked only for major components of work in which the Contractor would be wholly responsible for under the terms of the contract. Examples would include pavement structures, bridge components, and sign structures. This provision will not be used as a mechanism to force the Contractor to return to the project to make repairs or perform additional work that **City of Greenville** would normally compensate the Contractor for. In addition, routine maintenance activities (i.e. mowing grass, debris removal, ruts in earth shoulders,) are not parts of this guarantee.

Appropriate provisions of the payment and/or performance bonds shall cover this guarantee for the project.

SP-012 EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION

(1-16-07) (Rev 12-15-20) 105-16, 225-2, 16 SP1 G180

General

Schedule and conduct construction activities in a manner that will minimize soil erosion and the resulting sedimentation and turbidity of surface waters. Comply with the requirements herein regardless of whether or not a National Pollution discharge Elimination System (NPDES) permit for the work is required.

Establish a chain of responsibility for operations and subcontractors' operations to ensure that the *Erosion and Sediment Control/Stormwater Pollution Prevention Plan* is implemented and maintained over the life of the contract.

(A) *Certified Supervisor* - Provide a certified Erosion and Sediment Control/Stormwater Supervisor to manage the Contractor and subcontractor operations, ensure compliance with Federal, State and Local ordinances and regulations, and manage the Quality Control Program.

(B) *Certified Foreman* - Provide a certified, trained foreman for each construction operation that increases the potential for soil erosion or the possible sedimentation and turbidity of surface waters.

(C) *Certified Installer* - Provide a certified installer to install or direct the installation for erosion or sediment/stormwater control practices.

(D) *Certified Designer* - Provide a certified designer for the design of the erosion and sediment control/stormwater component of reclamation plans and, if applicable, for the design of the project erosion and sediment control/stormwater plan.

Roles and Responsibilities

(A) *Certified Erosion and Sediment Control/Stormwater Supervisor* - The Certified Supervisor shall be Level II and responsible for ensuring the erosion and sediment control/stormwater plan is adequately implemented and maintained on the project and for conducting the quality control program. The Certified Supervisor shall be on the project within 24 hours notice from initial exposure of an erodible surface to the project's final acceptance. Perform the following duties:

(1) Manage Operations - Coordinate and schedule the work of subcontractors so that erosion and sediment control/stormwater measures are fully executed for each operation and in a timely manner over the duration of the contract.

(a) Oversee the work of subcontractors so that appropriate erosion and sediment control/stormwater preventive measures are conformed to at each stage of the work.

(b) Prepare the required National Pollutant Discharge Elimination System (NPDES) Inspection Record and submit to the Engineer.
(c) Attend all weekly or monthly construction meetings to discuss the findings of the NPDES inspection and other related issues.
(d) Implement the erosion and sediment control/stormwater site plans requested.
(e) Provide any needed erosion and sediment control/stormwater practices for the Contractor's temporary work not shown on the plans, such as, but not limited to work platforms, temporary construction, pumping operations, plant and storage yards, and cofferdams.
(f) Acquire applicable permits and comply with requirements for borrow pits, dewatering, and any temporary work conducted by the Contractor in jurisdictional areas.
(g) Conduct all erosion and sediment control/stormwater work in a timely and workmanlike manner.
(h) Fully perform and install erosion and sediment control/stormwater work prior to any suspension of the work.
(i) Coordinate with Department, Federal, State and Local Regulatory agencies on resolution of erosion and sediment control/stormwater issues due to the Contractor's operations.
(j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces or any location where sediment leaves the Right-of-Way.
(k) Have available a set of erosion and sediment control/stormwater plans that are initialed and include the installation date of Best Management Practices. These practices shall include temporary and permanent groundcover and be properly updated to reflect necessary plan and field changes for use and review by Department personnel as well as regulatory agencies.

(2) Requirements set forth under the NPDES Permit - The Department's NPDES Stormwater permit (NCS000250) outlines certain objectives and management measures pertaining to construction activities. The permit references *NCG010000, General Permit to Discharge Stormwater* under the NPDES, and states that the Department shall incorporate the applicable requirements into its delegated Erosion and Sediment Control Program for construction activities disturbing one or more acres of land. The Department further incorporates these requirements on all contracted bridge and culvert work at jurisdictional waters, regardless of size. Some of the requirements are, but are not limited to:

(a) Control project site waste to prevent contamination of surface or ground waters of the state, i.e. from equipment operation/maintenance, construction materials, concrete washout, chemicals, litter, fuels, lubricants, coolants, hydraulic fluids, any other petroleum products, and sanitary waste.
(b) Inspect erosion and sediment control/stormwater devices and stormwater discharge outfalls at least once every 7 calendar days and within 24 hours after a rainfall event equal to or greater than 1.0 inch that occurs within a 24 hour period. Additional monitoring may be required at the discretion of Division of Water Resources personnel if the receiving stream is 303(d) listed for turbidity and the project has had documented problems managing turbidity.
(c) Maintain an onsite rain gauge or use the Department's Multi-Sensor Precipitation Estimate website to maintain a daily record of rainfall amounts and dates.
(d) Maintain erosion and sediment control/stormwater inspection records for review by Department and Regulatory personnel upon request.
(e) Implement approved reclamation plans on all borrow pits, waste sites and staging areas.
(f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.
(g) Provide secondary containment for bulk storage of liquid materials.
(h) Provide training for employees concerning general erosion and sediment control/stormwater awareness, the Department's NPDES Stormwater Permit NCS000250

requirements, and the applicable requirements of the *General Permit, NCG010000*.

(i) Report violations of the NPDES permit to the Engineer immediately who will notify the Division of Water Quality Regional Office within 24 hours of becoming aware of the violation.

(3) Quality Control Program - Maintain a quality control program to control erosion, prevent sedimentation and follow provisions/conditions of permits. The quality control program shall:

(a) Follow permit requirements related to the Contractor and subcontractors' construction activities.
(b) Ensure that all operators and subcontractors on site have the proper erosion and sediment control/stormwater certification.
(c) Notify the Engineer when the required certified erosion and sediment control/stormwater personnel are not available on the job site when needed.
(d) Conduct the inspections required by the NPDES permit.
(e) Take corrective actions in the proper timeframe as required by the NPDES permit for problem areas identified during the NPDES inspections.
(f) Incorporate erosion control into the work in a timely manner and stabilize disturbed areas with mulch/seed or vegetative cover on a section-by-section basis.
(g) Use flocculants approved by state regulatory authorities where appropriate and where required for turbidity and sedimentation reduction.
(h) Ensure proper installation and maintenance of temporary erosion and sediment control devices.
(i) Remove temporary erosion or sediment control devices when they are no longer necessary as agreed upon by the Engineer.
(j) The Contractor's quality control and inspection procedures shall be subject to review by the Engineer. Maintain NPDES inspection records and make records available at all times for verification by the Engineer.

(B) *Certified Foreman* - At least one Certified Foreman shall be onsite for each type of work listed herein during the respective construction activities to control erosion, prevent sedimentation and follow permit provisions:

(1) Foreman in charge of grading activities
(2) Foreman in charge of bridge or culvert construction over jurisdictional areas
(3) Foreman in charge of utility activities

The Contractor may request to use the same person as the Level II Supervisor and Level II Foreman. This person shall be onsite whenever construction activities as described above are taking place. This request shall be approved by the Engineer prior to work beginning.

The Contractor may request to name a single Level II Foreman to oversee multiple construction activities on small bridge or culvert replacement projects. This request shall be approved by the Engineer prior to work beginning.

(C) *Certified Installers* - Provide at least one onsite, Level I Certified Installer for each of the following erosion and sediment control/stormwater crew:

(1) Seeding and Mulching
(2) Temporary Seeding
(3) Temporary Mulching
(4) Sodding
(5) Silt fence or other perimeter erosion/sediment control device installations
(6) Erosion control blanket installation

(7) Hydraulic tackifier installation
(8) Turbidity curtain installation
(9) Rock ditch check/sediment dam installation
(10) Ditch liner/matting installation
(11) Inlet protection
(12) Riprap placement
(13) Stormwater BMP installations (such as but not limited to level spreaders, retention/detention devices)
(14) Pipe installations within jurisdictional areas

If a Level I *Certified Installer* is not onsite, the Contractor may substitute a Level II Foreman for a Level I Installer, provided the Level II Foreman is not tasked to another crew requiring Level II Foreman oversight.

(D) *Certified Designer* - Include the certification number of the Level III Certified Designer on the erosion and sediment control/stormwater component of all reclamation plans and if applicable, the certification number of the Level III Certified Designer on the design of the project erosion and sediment control/stormwater plan.

Preconstruction Meeting

Furnish the names of the *Certified Erosion and Sediment Control/Stormwater Supervisor, Certified Foremen, Certified Installers* and *Certified Designer* and notify the Engineer of changes in certified personnel over the life of the contract within 2 days of change.

Ethical Responsibility

Any company performing work for the North Carolina Department of Transportation has the ethical responsibility to fully disclose any reprimand or dismissal of an employee resulting from improper testing or falsification of records.

Revocation or Suspension of Certification

Upon recommendation of the Chief Engineer to the certification entity, certification for *Supervisor, Certified Foremen, Certified Installers* and *Certified Designer* may be revoked or suspended with the issuance of an *Immediate Corrective Action (ICA), Notice of Violation (NOV),* or C*ease and Desist Order* for erosion and sediment control/stormwater related issues.

The Chief Engineer may recommend suspension or permanent revocation of certification due to the following:

(A) Failure to adequately perform the duties as defined within this certification provision.
(B) Issuance of an ICA, NOV, or Cease and Desist Order.
(C) Failure to fully perform environmental commitments as detailed within the permit conditions and specifications.
(D) Demonstration of erroneous documentation or reporting techniques.
(E) Cheating or copying another candidate's work on an examination.
(F) Intentional falsification of records.
(G) Directing a subordinate under direct or indirect supervision to perform any of the above actions.
(H) Dismissal from a company for any of the above reasons.
(I) Suspension or revocation of one's certification by another entity.

Suspension or revocation of a certification will be sent by certified mail to the certificant and the Corporate Head of the company that employs the certificant.

A certificant has the right to appeal any adverse action which results in suspension or permanent revocation of certification by responding, in writing, to the Chief Engineer within 10 calendar days after receiving notice of the proposed adverse action.

Chief Engineer
1536 Mail Service Center
Raleigh, NC 27699-1536

Failure to appeal within 10 calendar days will result in the proposed adverse action becoming effective on the date specified on the certified notice. Failure to appeal within the time specified will result in a waiver of all future appeal rights regarding the adverse action taken. The certificant will not be allowed to perform duties associated with the certification during the appeal process.

The Chief Engineer will hear the appeal and make a decision within 7 days of hearing the appeal. Decision of the Chief Engineer will be final and will be made in writing to the certificant.

If a certification is temporarily suspended, the certificant shall pass any applicable written examination and any proficiency examination, at the conclusion of the specified suspension period, prior to having the certification reinstated.

Measurement and Payment

Certified Erosion and Sediment Control/Stormwater Supervisor, Certified Foremen, Certified Installers and *Certified Designer* will be incidental to the project for which no direct compensation will be made.

SP-013 MATERIALS SAMPLING AND TESTING

7/19/21 SP (Kimley-Horn and Associates, Inc.)

The City has selected a firm to perform all materials sampling and testing with a recognized and approved testing laboratory. The expense of such tests shall be borne by the City unless otherwise specified. No direct payment will be made for coordination of these tests as such costs will be considered incidental to other work being paid for by the various items in the contract. The Contractor shall schedule and coordinate each test. The City shall have the option to reject requests for testing due to the Contractor's inadequate preparation of material or other reasonable causes determined by the City as necessary for the delay of testing. The Contractor shall notify the City 48 hours ahead of time of the scheduled test and shall supply all material to the independent company for tests. The independent company will provide test results to the City. **Any cost resulting from the City requiring re-compaction or re-testing of a previously compacted and tested fill shall be borne by the Contractor.**

SP-014 SURVEYING AND LAYOUT

7/22/21 SP (Kimley-Horn and Associates, Inc.)

Surveying and Layout for the construction of this project shall be the responsibility of the Contractor. All work under this Contract shall be constructed in accordance with Section 801 of the *2018 Standard Specifications* and with the lines and grades shown on the Contract Drawings or as directed by the Engineer. The Contractor shall be responsible for all the field horizontal layout and vertical control of the improvements to be constructed under this Contract including connection to new and existing facilities and other items necessary for completion of the Contract.

The Engineer will furnish the Contractor Contract Drawings showing the location of the proposed improvements and appurtenances to be constructed under this Contract. The contract drawings will also identify the location and elevation of project control benchmarks to be used for field project control. The Contractor shall be responsible for all other ground control.

All elevations refer to the assumed project datum. Elevation of existing ground, structures, and appurtenances are believed to be reasonably correct but are not guaranteed to be absolute and therefore are presented only as an approximation. Any error or apparent discrepancy in the data shown or omissions of data required for accurately accomplishing the stake-out survey shall be referred immediately to the Engineer for interpretation or correction.

The Contractor shall furnish all personnel, materials, and equipment necessary for the layout work required for work under this Contract. The Contractor shall be solely responsible for all locations, dimensions, and levels, and shall field verify all elevations and dimensions. No data other than the information contained in the Contract Drawings and Specifications, and written orders of the Engineer shall justify departure from the dimensions or levels required by the Contract Drawings.

The Contractor's layout work shall be done by a competent NC Registered Professional Land Surveyor, registered to practice in North Carolina and capable of interpreting the survey data furnished and control points established on the ground for the purpose of laying out his work both horizontally and vertically. The surveyor shall use the existing survey information to replace existing items being removed and replaced in kind. The Contractor shall furnish the Engineer with the name and qualifications of the proposed Professional Land Surveyor, prior to commencing work.

Contractor shall establish all base lines for the location of the principal component parts of the work together with a suitable number of bench marks adjacent to the work. Based upon the information provided by the Contract Drawings, the Contractor shall develop and make all detail surveys necessary for construction including slope stakes for all working points, lines, and elevations.

Contractor shall have the responsibility to carefully preserve the bench marks, reference points and stakes; and in the case of destruction thereof by the Contractor or resulting from his negligence, the Contractor shall be charged with the expense and damage resulting there from and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points, and stakes.

Existing or new control points, property markers, and monuments that will be or are destroyed during the normal causes of construction shall be reestablished by the Contractor; and all reference ties recorded therefore shall be furnished to the Engineer. All computations necessary to establish the exact position of the work shall be made and preserved by the Contractor.

The Engineer may check all or any portion of the layout work, at any time during construction. The Contractor shall afford all necessary assistance to the Engineer in carrying out such checks. Any necessary corrections to the work shall be immediately made by the Contractor. Such checking by the Engineer shall not relieve the Contractor of any responsibilities for the accuracy of completeness of his work.

SP-015 TAXES & LICENSES

6/1/15 SP (Kimley-Horn and Associates, Inc.)

The Contractor will pay all sales, consumer, use and other similar taxes required by the law of the place where the project is performed. The Contractor shall provide along with each pay request a detailed list of all sales taxes paid along with a copy of all invoices, on forms approved by the City, for all materials incorporated into this project and all consumable materials used in the construction of the project. The Contractor shall maintain on file for up to three (3) years a copy of all invoices and the list of sales tax paid on this project.

SP-016 SAFETY OBLIGATIONS

3/16/16 SP (City of Greenville)

Workplace safety applies to all employers as a matter of law and is enforced through OSHA, The Occupational Safety and Health Administration. The contract between the City of Greenville and any contractor shall identify project manager, supervisor and the safety and environmental officer (or representative) responsible for health,

safety and environmental compliance.

Contractors and subcontractors must perform their duties in a manner that will not endanger the safety and health of its employees, City of Greenville employees and the public as they work.

The Contractor shall meet with the City of Greenville Project Managerto discuss contract safety issues in detail. The contractor must comply with all federal, state, and local safety and environmental regulations, laws, standards, etc. as it is related to the work being performed. The Contractor must make known the safety provisions of the contract to its employees and subcontractors. The Contractor's safety and environmental officer or safety representative must ensure all employees and subcontractors are trained adequately on the applicable regulations and further enforce all applicable regulations.

SP-017 WORK HOURS

6/1/15 SP (Kimley-Horn and Associates, Inc.)

The City standard work hours are Monday thru Friday 8:00 AM to 5:00 PM. No work shall occur outside of the City of Greenville's standard work hours or during the weekend without written approval from the City of Greenville Project Manager.

If the Contractor requests work hours to commence on weekends, holidays, or exceed the standard 40 hour work week, the Contractor will be responsible for additional costs associated with CEI services. An hourly rate of $200/hour/person (minimum of 4 hour) will be incurred by the Contractor and deducted from Contractor payment.

SP-018 MAINTAINING ACCESS

7/19/21 SP (Kimley-Horn and Associates, Inc.)

Limitation of Operations

The Contractor shall control his operations and the operations of his subcontractors and all suppliers so as to provide for the free and unobstructed movement of traffic.

When the work requires the Contractor to conduct his operations in an area, which disrupts the public access, the work shall be coordinated with the City of Greenville Project Manager at least 48 hours prior to commencement of such work.

The Contractor shall not close an area until so authorized by the City of Greenville Project Manager and until the necessary temporary sign(s) is in place.

SP-019 STORAGE OF MATERIALS

2/20/19 SP (Kimley-Horn and Associates, Inc.)

In addition to *Section 106-5* of the *January 2018 North Carolina Department of Transportation Standards and Specifications for Roadways and Structures* the following shall also apply:

Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. This does not apply to excavated and/or waste material from the project that shall be regulated by reclamation plans development and approval. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the City a copy of the property owner's permission.

The Contractor shall restore the storage area to its original condition upon completion of the Project or at completion of using the private property. Such restorations shall be at no cost to the City. Prior to final payment being made, the Contractor shall submit a copy of the release from the private property owner of the storage area utilized for the Project.

SP-020 USE OF PREMISES

6/1/15 SP (Kimley-Horn and Associates, Inc.)

The Contractor shall confine his equipment, storage of materials, and construction operations to the contract limits as shown on the Drawings or if no contract limits are shown, to the right-of-way shown and as prescribed by ordinances or permits or as may be directed by the City of Greenville and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.

The Contractor shall comply with all reasonable instructions of the City of Greenville and the ordinances and codes of the City of Greenville, regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

SP-021 ENVIRONMENTAL

09/09/15 SP (Kimley-Horn and Associates, Inc.)

Construction equipment operated on the project site shall be maintained to prevent fuel, oil, and lubricant spills. Refueling, repairs, and lubrication will be performed only at the approved staging areas. Should leaks or ruptures occur during operations, the operators will immediately remove the equipment to the staging area and proceed with repairs. The Engineer will direct operators to remove equipment whenever a leak is observed or suspected and may require the Contractor to remove continually faulty equipment from the project site.

SP-022 ABNORMAL WEATHER CONDITIONS

12/14/21 SP (Kimley-Horn and Associates, Inc.)

The Project Areas are located within the Tar River floodway and subject to flooding from river level fluctuation. This condition will require the Contractor to plan work, including delivery and staging or materials accordingly. In the event flooding conditions or abnormal weather conditional preclude work in any of the Project Areas, the Contractor may submit a request to the Engineer for extension the completion date or Contract Time. It will be incumbent on the Contractor to document efforts to schedule around seasonal precipitation data, providing adequate manpower and equipment to diligently avoid impacts from these conditions. If Engineer determines that the controlling operation was delayed because of circumstances beyond the control of and without the fault or negligence of the Contractor, he will extend the completion date or intermediate completion date, unless otherwise precluded by other provisions of the Contract.

NCDOT Standard Specifications Section 108-10 will be used if the Contractor requests a contract extension due to adverse weather impacts.

SP-023 WATER SUPPLY

5/25/15 SP (Kimley-Horn and Associates, Inc.)

The Contractor will be responsible for providing a water source suitable for construction of the project. If water source does not provide safe drinking water or potable water for workers, alternate drinking water such as bottled water shall be provided for workers. No separate payment will be made for this work, and all associated costs will be considered incidental to other items in the contract.

SP-024 SANITARY FACILITIES

5/25/15 SP (Kimley-Horn and Associates, Inc.)

The Contractor will furnish, install, and maintain ample sanitary facilities for workers. Facilities shall be secured, enclosed temporary toilets with handwashing stations adequate for workers present during construction and conveniently located throughout the project. No separate payment will be made for this work, and all associated costs will be considered incidental to other items in the contract.

SP-025 CLEAN-UP

5/25/15 SP (Kimley-Horn and Associates, Inc.)

The Contractor will remove all rubbish or waste materials, temporary structures, and surplus materials from the project site and legally dispose as required by the local municipality. No separate payment will be made for this work, and all associated costs will be considered incidental to other items in the contract.

SP-026 BID EVALUATION

12/14/21 SP (Kimley-Horn and Associates, Inc.)

It is the intent of these Contract Documents to award a construction contract to the lowest responsible, responsive bidder if the Total Base Bid is within the available funds:

SP-027 AWARD OF CONTRACT

7/22/21 SP (Kimley-Horn and Associates, Inc.)

In addition to *Section 103* of the *NCDOT 2018 Standard Specifications*, during the bid evaluation process the City will factor in the Contractor's Work Experience and Professional Qualifications provided with the bid submittal.

SP-028 EXECUTION OF CONTRACT

6/1/15 SP (City of Greenville)

In addition to *Section 103-7, 103-8 and 103-9 of the NCDOT 2018 Standard Specifications*, when the Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within fifteen days thereafter Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to the Owner with the required Bonds. Within ten days thereafter Owner shall deliver one fully signed counterpart to Contractor. Each counterpart is to be accompanied by a complete set of the Drawings with appropriate identification.

SP-029 NOTICE TO PROCEED

09/08/15 SP (Kimley-Horn and Associates, Inc.)

The City will issue a Notice to Proceed (NTP) to the Contractor upon award and execution of the contract. The Contractor shall not perform any Work prior to the date on which the NTP commences. The City reserves the right to issue an Administrative Notice to Proceed authorizing the Contractor to place orders for products requiring long lead times, or to obtain certain permits prior to beginning any Work. If an Administrative Notice to Proceed is issued, the Contractor shall not perform any Work prior to the date on which the Notice to Proceed commences.

SP-030 PRE-CONSTRUCTION CONFERENCE

06/13/17 SP (Kimley-Horn and Associates, Inc.)

A pre-construction conference will be scheduled as soon as practical after award of the Contract. The Contractor shall attend the pre-construction conference with the prospective project superintendent, any anticipated major subcontractors, and major suppliers. The utility representatives should also be invited to the pre-construction conference. The Contractor shall also provide at least two (2) local telephone numbers that may be used to contact the Contractor or the Contractor's authorized representative in the event of an emergency after normal business hours.

The pre-construction conference may be held virtually at the City's discretion. Should the City prefer a virtual pre-construction conference, the Contractor will be notified and provided with further instruction accordingly.

SP-031 CONSTRUCTION PROGRESS SCHEDULE AND PROGRESS MEETINGS

5/25/15 SP (Kimley-Horn and Associates, Inc.)

The Contractor will develop and maintain a detailed construction schedule including all significant construction items and milestones. Schedule shall be updated and presented at progress meetings. Progress Meetings shall be scheduled and hosted by the Contractor on a regular basis, but no less than monthly, either onsite or in the City of Greenville's offices as determined by the City. No separate payment will be made for this work, and all associated costs will be considered incidental to other items in the contract.

SP-032 SUBMITTALS AND SHOP DRAWINGS

7/30/19 SP (Kimley-Horn and Associates, Inc.)

Unless otherwise specified herein, the Contractor shall submit shop drawings for construction materials for acceptance by the Engineer, prior to use of any material on the project site. Submittals shall be made for, but not limited to, the following items: asphalt, concrete, storm drainage, public utility, and structure products. The Contractor shall submit electronic copy of shop drawings for each material to be reviewed by the Engineer. The electronic submittal will be made through an online construction management software. The Engineer shall have ten (10) calendar days to complete the review. If necessary, the shop drawing will be submitted to NCDOT for their review as well. Upon review, notification will be provided to the City and the Contractor of acceptance, corrections needed, or rejection of the materials. No separate payment will be made for this work, and all associated costs will be considered incidental to other items in the contract.

SP-033 REQUEST FOR INFORMATION (RFI) PROCEDURES

5/25/15 SP (Kimley-Horn and Associates, Inc.)

All requests for information need to be sent to the Engineer in writing. The RFI will need to be an electronic submittal in Adobe PDF format. Contractor shall provide & maintain project management software approved by the City of Greenville Project Manager. The Engineer will respond within ten (10) calendar days.

SP-034 CONSTRUCTION PHOTOGRAPHS AND VIDEO RECORDING

09/09/15 SP (Kimley-Horn and Associates, Inc.)

Description

A. The Contractor shall employ a competent photographer to take construction record photographs and audio/video record all construction areas within the project area prior to, during the course of, and after the Work.

B. Furnish all labor, materials and equipment and furnish color audio video recording of the project site as specified herein.

C. Furnish to the Owner an electronic copy of a continuous color audio video recording along the entire project limits. The recording shall be taken prior to any construction activity. In addition, at certain locations, the Engineer/Owner reserves the right to request preconstruction photography or video recording after clearing operations have been performed but prior to commencement of any construction activities.

D. The Owner reserves the right to reject the audio video recording because of poor quality, unintelligible audio or uncontrolled pan or zoom. Any recording rejected by the Owner shall be rerecorded at no cost to the Owner. Under no circumstances shall construction begin until the Owner has received and accepted the audio video recordings.

E. The recording shall be performed by a qualified, established audio video recording firm knowledgeable in construction practices and experienced in the implementation of established inspection procedures.

Photography Required

A. Ground views shall be provided of the culvert project corridor before any work begins.

B. The Contractor shall take ten photographs of the project work for each Application for Payment. Provide

photographs taken on cutoff date for each scheduled Application for Payment.

C. Views and quantities required:

1. At each specified time, ground view photographs projected from a minimum of ten different views, as directed and approved by the Engineer.

2. Provide one electronic copy of each view.

3. Photographer shall agree to furnish prints to Owner and the Engineer at commercial rates applicable to time of purchase. Photographer shall also agree to participate as required in any litigation requiring the photographer as an expert witness.

Preconstruction Audio/Video USB Flash Drives

A. USB Flash Drive recordings shall be made not more than 60 days prior to construction and 60 days after Substantial Completion. No construction shall begin prior to review and approval of the recordings covering the construction area by the Engineer. The Engineer shall have the authority to reject all or any portion of a recording not conforming to specifications and require that it be redone at no additional charge. The Contractor shall reschedule unacceptable coverage within five days after being notified. The Engineer shall designate those areas, if any, to be omitted from or added to the audio/video coverage. All original recordings and written records shall become the property of Owner.

B. The Contractor shall engage the services of a professional videographer. The color audio/video recordings shall be prepared by a responsible commercial firm known to be skilled and regularly engaged in the business of construction color audio/video recording documentation. The videographer shall furnish to the Engineer a list of all equipment to be used for the audio/video recording, (i.e., manufacturer's name, model number, specifications, and other pertinent information). Additional information to be furnished by the videographer shall include the names and addresses of two references that the videographer has performed color audio/video recording for projects of a similar nature including one within the last twelve months.

Methods

Technique

A. Factual presentation

B. Correct exposure and focus

1. High resolution and sharpness
2. Maximum depth-of-field
3. Minimum distortion

Views Required

A. Photograph from location to adequately illustrate condition of construction and state of progress.

1. Consult with the Engineer at each period of photography for instructions concerning views required.

Audiovisual Recording

A. The recordings shall contain coverage of all surface features within the construction zone of influence. These features shall include, but not be limited to, all roadways, pavement, retention ponds, railroad tracks, curbs, driveways, sidewalks, culverts, headwalls, retaining walls, landscaping, trees, visible utilities, fences, structures, and buildings. Of particular concern shall be the condition of existing vegetation, terrain, and structures and the existence or nonexistence of any faults, fractures, or defects. Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

B. Accompanying each video recording shall be a corresponding and simultaneously recorded audio recording. This audio recording, exclusively containing the commentary of the camera operator, shall assist in viewer orientation and in any needed identification, differentiation, clarification, or objective description of the features being shown in the video portion of the recording. The audio recording shall also be free from any conversation between the camera operator and any other production technicians.

C. USB Flash Drive Indexing

1. USB Flash Drive Identification: All USB Flash Drives shall be permanently labeled and shall be properly identified by USB Flash Drive number, Owner's name, date of recording, location and standing limit of USB Flash Drive and project name and number.

2. USB Flash Drive Log: Each USB Flash Drive shall have a log of that USB Flash Drive's contents. The log shall describe the various segments of coverage contained on that USB Flash Drive in terms of the names of the streets or easements, coverage beginning and end, directions of coverage, video unit counter numbers, engineering stationing numbers when possible, and the date of the recording. Video logs shall provided electronically.

D. Visibility: All recording shall be performed during times of good visibility; no recording shall be done during periods of significant precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subject and to produce sharp, bright video recordings of those subjects.

E. The average rate of travel during a particular segment of coverage shall be directly proportional to the number, size, and value of the surface features within that construction area's zone of influence.

F. Camera Operation

1. Camera Height and Stability: When conventional wheeled vehicles are used as conveyances for the recording system, the vertical distance between the camera lens and the ground shall not exceed 10 feet. The camera shall be firmly mounted such that transport of the camera during the recording process will not cause an unsteady picture.

2. Camera Control: Camera pan, tilt, zoom-in and zoom-out rates shall be sufficiently controlled such that recorded objects shall be clearly viewed during video playback. In addition, all other camera and recording system controls, such as lens focus and aperture, video level, pedestal, chroma, white balance and electrical focus shall be properly controlled or adjusted to maximize picture quality.

3. Viewer Orientation Techniques: The audio and video portions of the recording shall maintain viewer orientation. To this end, overall establishing views of all visible house and business addresses shall be utilized. In areas where the proposed construction location will not be readily apparent to the video viewer, highly visible yellow flags shall be placed, by the Contractor, in such a fashion as to clearly indicate the proposed center line of construction.

Submittals

Photographs

A. Photographs should be provided via clearly labeled USB Flash Drives. Photograph files and folders stored on USB Flash Drives shall be neatly organized and follow a clear file naming convention to be agreed upon between the Contractor and the Owner.

Audio/Video Recording

A. The total audio/video system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project. The video portion of the recording shall

produce bright, sharp, clear pictures with accurate colors and shall be free from distortion or any other form of picture imperfection. All video recordings shall be electronic means, display on the screen the time of day, the month, day and year of the recording. This time and date information must be continuously and simultaneously generated with the actual recording. The audio portion of the recording shall produce the commentary of the camera operator with proper clarity and be free from distortion.

B. USB Flash Drives

USB Flash Drives shall be new and thus shall not have been previously used for any purpose. Two USB Flash Drives (one original and one copy) including electronic logs shall be provided upon acceptance of recordings.

Payment

There will be no separate measurement or payment for this work, and all associated costs will be considered incidental to other items in the contract.

SP-035 FIRE DEPARTMENT COORDINATION

09/09/15 SP (Kimley-Horn and Associates, Inc.)

The Contractor shall maintain emergency fire equipment access to all fire hydrants within the project area at all times. Notify the City for Greenville Fire Department, 252-329-4390 seventy-two (72) hours prior to work being performed within 200 feet of any fire hydrant.

SP-036 QUANTITY TICKETS

09/09/15 SP (Kimley-Horn and Associates, Inc.)

All quantity tickets for items not measurable in place shall be submitted in duplicate to the Project Inspector within seventy-two (72) hours after receipt of the material on the job. Each ticket shall indicate the date, contractor, job location and name, type of material, quantity of material, truck number and signature of the Contractor or his authorized representative.

No tickets will be accepted after seventy-two (72) hours have elapsed between the time of delivery and the submittal of tickets to the Project Inspector.

SP-037 AS-BUILT AND RECORD DRAWING

12/09/15 SP (Kimley-Horn and Associates, Inc.)

The Contractor shall be fully responsible for performing all work and collection of all necessary data to provide the City of Greenville Record Drawings in accordance with City of Greenville Standard Drawing C30.01 and C30.02 and as described in this provision. Record drawings of water and sanitary sewer improvements shall be prepared in accordance with Greenville Utilities Commission's standards and requirements.

The Record Drawings are not intended to document the final quantities but are intended to show approved revisions to the contract design as stated below. The Contractor is responsible for the As-Built Drawings and the Engineer of Record will complete the final Record Drawing. The As-Built Drawing, including the project survey shall be completed by a registered professional land surveyor or a licensed professional engineer in the State of North Carolina. Identification and location of site improvements shall conform to the recommended standards of the North Carolina Licensing Board for Professional Engineers and Land Surveyors. All work performed by the designated PLS or PE, shall be accompanied by the seal and signature of the PLS or PE.

The As-Built Drawing shall consist of a full size set of blue/black line prints and digital CADD/Microstation files with approved field changes delineated in red ink. All redline revisions shall be located properly on the drawing and shall be true to scale. The Contractor shall supply two (2) copies of the signed As-Built Drawing in paper

format and the electronic digital file to the Engineer of Record for review. The Contractor will need to provide any clarification or additional information as deemed necessary by the Engineer to meet the City's requirements.

The As-Built Drawing shall be submitted to the Engineer of Record within thirty (30) calendar days following the date of the City final acceptance of the project.

The following identifies the requirements, information, and format for submitting Record Drawings to the City of Greenville Engineering Department for review and approval. Record Drawings shall be submitted for any street and city storm drainage infrastructure proposed for maintenance by the City of Greenville. Record Drawings shall be submitted and approved prior to scheduling of the pre-final street acceptance inspection.

All Record Drawings shall include, but not necessarily be limited to, the following:

1. Streets
    a. Horizontal alignment of the centerline (changes to be noted)
    b. Centerline final surface elevation"
        i. Intersections – crossing of street centerlines
        ii. Points of vertical inflection (pvi) – street centerline at point of inflection
        iii. Radius points of cul-de-sacs
        iv. Radius points for "hammerheads"
        v. End of pavement construction (street centerline)
    c. Width (verification with approved plans)
    d. Top of curb elevations for relocated curb
2. Sidewalks and Curb Ramps (verification with approved plans)
    a. Width
    b. Length
    c. Thickness
    d. Material
    e. Location
3. Stormwater Pipes
    a. Size
    b. Shape
    c. Material
    d. Length
    e. Slope
4. Sanitary Sewer Pipes
    a. Size
    b. Shape
    c. Material
    d. Length
    e. Slope
5. Water Lines
    a. Size
    b. Shape
    c. Material
    d. Length
    e. Slope
    f. Valve Locations
    g. Valve/Junction Depth
6. Structures (Junction Box, Drop Inlets, Catch Basins, Interference Boxes, Outlet Structures)
    a. Rim/hood elevation
    b. All pipe invert elevations
    c. Material
    d. Construction type (pre-cast, masonry block, or cast-in-place)
    e. Interior bottom elevation of structure

    f. Cover (lid/grate) dimensions
    g. Weirs
        i. Type
        ii. Invert elevation
        iii. Top of weir elevation
        iv. Length
7. Level Spreaders/Flow Diffusers
    a. Length
    b. Material
    c. Depth
    d. Width
8. Flared End Sections
    a. Material
    b. Invert
    c. Size
    d. Outlet/Inlet Protection
        i. Dimensions
        ii. Tonnage
9. BMP
    a. Wetland
        i. Topo
        ii. Outlet structure (refer to Structures requirements listed above)
        iii. Outlet pipe (refer to Stormwater Pipe requirements listed above)
    b. Permeable Pavement
        i. Footprint
    c. RSC
        i. Topo
    d. Bioretention Area
        i. Topo
        ii. Outlet Structures (refer to Structures requirements listed above)
        iii. Underdrain depths and junction locations
10. Sanitary Sewer Manhole Structures
    a. Rim/hood elevation
    b. All pipe invert elevations
    c. Material
    d. Construction type (pre-cast, masonry block, or cast-in-place)
    e. Interior bottom elevation of structure
    f. Cover (lid/grate) dimensions

The submittal process for the review and approval of Record Drawings is as follows:

1. Submittal of Record Drawings
    a. Submit two (2) copies of either a contractor's "red-lined" mark-ups of approved construction drawings or an electronic submission of approved construction drawings with changes to the above "clouded" based on a contractor's "red-lined" mark-ups to the Engineer of Record.
        i. Only changes from the approved construction drawings need to be presented
        ii. The "red-lined" information will have a single line placed through it with the revision information or measurement placed next to it.
        iii. If an electronic drawing is submitted in place of the contractor's red-line drawings, then a single line will be drawing through the errant information. The correct information will be placed next to the errant information and a "cloud" will surround both.
    b. Upon receipt of As-Built Drawings, the Engineer of Record shall review the As-Built Drawings to determine and establish if any construction deviations will impact positive storm drainage flow throughout the system or place the system out of compliance with the City of Greenville requirements. The Contractor will be responsible for providing any clarification or additional

information as deemed necessary by the Engineer to confirm the construction of the street(s) and storm drainage infrastructure is completed in substantial accordance with the approved plans and specifications.

i. If there is not positive drainage throughout the storm drainage system or if the system is not in compliance with the approved construction drawings or the City of Greenville requirements, the engineer and City will work with the Contractor to determine a viable solution(s). The Contractor will need to provide a stormwater system that provides positive drainage.

ii. The benchmark(s) and datum used for measurements of the As-Built Drawings shall be conveyed and easily interpreted on the submitted drawings and shall be the same as used for the design of the original approved construction drawings and for construction.

1. If the referenced benchmark(s) used for design and construction and shown on the approved construction drawings have been compromised, new benchmark(s) must be reestablished to an accuracy on the site from published NGS monuments in accordance with the Standard of Practice for Land Surveyors in North Carolina, N.C.A.C Title 21, Chapter 56, Section 1600, and by either conventional survey methods or Global Positioning System survey methods (21 NCAC 56 1607).

2. Upon approval of the As-Built Drawings, the Engineer of Record shall submit to the City Engineering Division:
   a. One (1) signed and sealed copy of Record Drawings.
   b. An electronic copy of the drawing in PDF format with the following certification:

"I, _____, as a duly registered Professional Engineer in the State of North Carolina, hereby certify that construction of the street(s) and storm drainage infrastructure as presented on these Record Drawings has been completed in substantial accordance with the approved plans and specifications and that the information pertaining to said infrastructure provided by _____ and prepared under the supervision of _____ is correct to the best of my knowledge and belief."

   c. An electronic drawing in a version of AutoCAD "DWG" format compatible with the City of Greenville's current system.
   d. The Engineer's & Owners Certification Completion forms (Std. details No. C31.01 & C31.02, respectively).

Measurement and Payment

All work and materials necessary for As-built Survey and Record Drawings shall be included in the Base Bid.

SP-038 DRUG FREE WORKPLACE

6/1/15 SP (Kimley-Horn and Associates, Inc.)

The Contractor is to provide and maintain a drug free workplace, including certification, in accordance with the Federal Drug Free Workplace Act of 1988 (40 CFR Part 32).

SP-039 PROJECT SITE ACCESS

09/09/15 SP (Kimley-Horn and Associates, Inc.)

Approved access points to the project site are designated on the plan sheets. Damage to any existing access public or private roads, sidewalks, curbs, or any other improvements shall be repaired to a condition that is at least as good as or better than the road condition before start of construction, as directed by the Engineer. To document the existing condition of roads PRIOR to any equipment entering the property, the Contractor shall take photographs of those areas that will be used to access the project. The Contractor shall provide the Engineer with copies of these photographs within one week of the commencement of construction activities. Any damage to existing parking lots, roadways, sidewalk, curb and gutter, fences or other private property outside of project construction

limits will be considered incidental to the project and will be replaced by the Contractor at no cost to the City

SP-040 WORK EXPERIENCE AND PROFESSIONAL QUALIFICATIONS

09/09/15 SP (Kimley-Horn and Associates, Inc.)

During the bid evaluation process, the work experience, quality of workmanship, and professional qualifications of contractors and, where relevant, subcontractors expected to do specialized type of work, will be considered of extreme importance and weighed heavily.

As part of the bid submission and evaluation process, the City will require bidders to demonstrate experience and proficiency in the following specialty areas:

1. Timber Boardwalks
2. Pre-fabricated Pedestrian Bridges

To illustrate experience and proficiency Contractors will need to provide relevant supplemental information and data for each specialty area, including, but not limited to the following:

1. Documentation of at least three (3) successfully completed projects of similar scope performed as prime contractor and/or by the intended subcontractor within the last five (5) years.
2. The name of the foreman or supervisor (that will be expected to remain on site at all times per the terms of the Contract), including a description of his or her relevant prior work experience.
3. The names and supporting materials showing the experience of any subcontractors anticipated to be used on the project.
4. A list of the type and amount of heavy and other commercial equipment that will be used during the construction process.
5. The name and professional credentials of the planting sub-contractor, if one is intended to be used. (For Stream Restoration Only)

The bidder must submit the information on the provided sheets located in the Forms Section at the time of bid submittal. It is anticipated that the successful bidder will be required to have relevant work experience consisting of at least three (3) projects preferably within the last five (5) years for each specialty; provided, the City may weigh and vary, in its reasonable discretion, such experiential and professional standards and requirements, to the end that an award will be recommended to the lowest responsible bidder with demonstrated quality and experience in similar project work.

STANDARD SPECIAL PROVISIONS
GREENWAY & DRAINAGE

SP-041 TRAIL ALIGNMENT REVIEW

2/28/22 SP (Kimley-Horn and Associates, Inc.)

Tree removal along -L4- alignment will not be permitted without prior approval from the City of Greenville Project Manager. Following construction stakeout of the trail alignment at fifty-foot (50'-0") intervals, the Contractor shall schedule a field meeting with Engineer and City staff to review alignment, access routes, tree protection, pruning or trimming required, and all related work procedures necessary for construction of the timber boardwalk. A minimum of ten (10) calendar days notice shall be provided by Contractor for field meeting date. No additional compensation will be allowed for costs associated with this review or minor alignment adjustments determined during the review for the benefit of preserving existing specimen trees as long as the overall length of timber boardwalk does not increase.

SP-042 CLEARING AND GRUBBING - METHOD II

(9-17-02) (Rev.8-18-15) 200 SP2 R02A

Perform clearing on this project to the limits established by Method "II" shown on Standard Drawing No. 200.02 of the *2018 Roadway Standard Drawings*. Conventional clearing methods may be used except where permit drawings or conditions have been included in the proposal which require certain areas to be cleared by hand methods.

SP-043 BURNING RESTRICTIONS

(7-1-95) 200, 210, 215 SP2 R05

Open burning is not permitted on any portion of the City of Greenville's property or the project site. Do not burn the clearing, grubbing or demolition debris designated for disposal and generated from the project at locations within the project limits, off the project limits or at any waste or borrow sites in this county. Dispose of the clearing, grubbing and demolition debris by means other than burning, according to state or local rules and regulations.

SP-044 SHOULDER AND FILL SLOPE MATERIAL

(5-21-02) 235, 560 SP2 R45 A

Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 560 and Section 235 of the *2018 Standard Specifications*. Where the material has been obtained from an authorized stockpile or from a borrow source. All work will be considered incidental to various grading operations and included in the Base Bid.

SP-045 FINAL SURFACE TESTING NOT REQUIRED

(5-18-04) (Rev. 5-15-12) 610 SP6 R45

Final surface testing is not required on this project.

SP-046 AUTOMATED MACHINE GUIDANCE

(1-2-11) 801 SP8 R01

Description

This Special Provision contains requirements to be followed if the Contractor elects to use Global Positioning System (GPS) machine control grading and shall be used in conjunction with Section 801 of the *Standard*

Specifications. The use of this technology is referenced as Automated Machine Guidance (AMG).

All equipment using AMG shall be able to generate end results that meet the *Standard Specifications*. Perform test sections for each type of work to be completed with AMG to demonstrate that the system has the capability to achieve acceptable results. If acceptable results cannot be achieved, conform to the requirements for conventional stakeout.

The Contractor shall be responsible for all errors resulting from the use of AMG and shall correct deficiencies to the satisfaction of the Engineer at no cost to the Department.

Submittals

If the Contractor elects to use AMG, a Digital Terrain Model (DTM) of the design surface and all intermediate surfaces shall be developed and submitted to the Engineer for review.

At least 90 days prior to beginning grading operations, the Contractor shall submit to the Engineer an AMG work plan to include, but not limited to, proposed equipment, control software manufacturer and version, types of work to be completed using AMG, project site calibration report, repetitive calibration methods for construction equipment and rover units to be used for the duration of the project, and local GPS base station to be used for broadcasting differential correction data to rover units (this may include the NC Network RTK). All surveys must be tied to existing project control as established by NCDOT.

Inspection

The Engineer will perform quality assurance checks of all work associated with AMG. If it is determined that work is not being performed in a manner that will assure accurate results, the Engineer may require corrective action at no cost to the Department.

The Contractor shall provide the Engineer with one GPS rover unit for use during the duration of the contract. The rover will be loaded with the same model that is used with the AMG and have the same capability as rover units used by the Contractor. The rover will be kept in the possession of the Engineer and will be returned to the Contractor upon completion of the contract. Any maintenance or repairs required for the rover will be the responsibility of the Contractor. Formal training of at least 8 hours shall be provided to the Engineer by the Contractor on the use of the proposed AMG system.

Subgrade and Base Controls

If the Contractor elects to use AMG for fine grading and placement of base or other roadway materials, the GPS shall be supplemented with a laser or robotic total station. Include details of the proposed system in the AMG work plan. In addition, the following requirements apply for the use of AMG for subgrade and base construction.

Provide control points at intervals along the project not to exceed 1,000 feet. The horizontal position of these points shall be determined by static GPS sessions or by traverse connection from the original base line control points. The elevation of these control points shall be established using differential leveling from project benchmarks, forming closed loops where practical. A copy of all new control point information shall be provided to the Engineer prior to construction activities.

Provide control points and conventional survey grade stakes at 500 foot intervals and at critical points such as, but not limited to, PCs, PTs, superelevation transition points, and other critical points as requested by the Engineer.

Provide hubs at the top of the finished subgrade at all hinge points on the cross section at 500-foot intervals. These hubs shall be established using conventional survey methods for use by the Engineer to check the accuracy of construction.

Measurement and Payment

No direct payment will be made for work required to utilize this provision. All work will be considered incidental to various grading operations and included in the Base Bid.

SP-047 PORTLAND CEMENT CONCRETE PRODUCTION AND DELIVERY

(9-15-20) 1000, 1014, 1024 SP10 R01

Revise the *2018 Standard Specifications* as follows:

Page 10-6, Table 1000-1, REQUIREMENTS FOR CONCRETE, replace with the following:

TABLE 1000-1
REQUIREMENTS FOR CONCRETE

Class of Concrete	Min. Compressive Strength at 28 days	Maximum Water-Cement Ratio				Consistency Maximum Slump		Cement Content			
		Air-Entrained Concrete		Non-Air-Entrained Concrete		Vibrated	Non-Vibrated	Vibrated		Non-Vibrated	
		Rounded Aggregate	Angular Aggregate	Rounded Aggregate	Angular Aggregate			Min.	Max.	Min.	Max.
Units	*psi*					*inch*	*inch*	*lb/cy*	*lb/cy*	*lb/cy*	*lb/cy*
AA	4500	0.381	0.426	---	---	3.5[A]	---	639	715	---	---
AA Slip Form	4500	0.381	0.426	---	---	1.5	---	639	715	---	---
Drilled Pier	4500	---	---	0.450	0.450	---	5 – 7 dry 7 - 9 wet	---	---	640	800
A	3000	0.488	0.532	0.550	0.594	3.5 [A]	4.0	564	---	602	---
B	2500	0.488	0.567	0.559	0.630	1.5 machine placed 2.5 [A] hand placed	4.0	508	---	545	---
Sand Light-weight	4500	---	0.420	---	---	4.0 [A]	---	715	---	---	---
Latex Modified	3000 (at 7 days)	0.400	0.400	---	---	6.0	---	658	---	---	---
Flowable Fill excavatable	150 max. (at 56 days)	as needed	as needed	as needed	as needed	---	Flowable	---	---	40	100
Flowable Fill non-excavatable	125	as needed	as needed	as needed	as needed	---	Flowable	---	---	100	as needed
Pavement	4500 Design, field 650 flexural,	0.559	0.559	---	---	1.5 slip form 3.0 hand placed	---	526	---	---	---

	design only										
Precast	See Table 1077-1	as needed	as needed	---	---	6.0	as needed	as needed	as needed	as needed	as needed
Prestressed	per contract	See Table 1078-1	See Table 1078-1	---	---	8.0	---	564	as needed	---	---

A. The slump may be increased to 6 inches, provided the increase in slump is achieved by adding a chemical admixture conforming to Section 1024-3. In no case shall the water-cement ratio on the approved design be exceeded. Concrete exhibiting segregation and/or excessive bleeding will be rejected. Utilizing an Admixture to modify slump does not relinquish the contractor's responsibility to ensure the final product quality and overall configuration meets design specifications. Caution should be taken when placing these modified mixes on steep grades to prevent unintended changes to the set slope.

SP-048 MATERIALS FOR PORTLAND CEMENT CONCRETE

(9-15-20) 1000, 1024 SP10 R24

Revise the *2018 Standard Specifications* as follows:

Page 10-52, Article 1024-4, WATER, lines 3-6, delete and replace with the following:

Test water from wells at all locations. Test public water supplies from all out of state locations and in the following counties: Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrell and Washington unless the Engineer waives the testing requirements.

Page 10-52, Table 1024-2, PHYSICAL PROPERTIES OF WATER, replace with the following:

TABLE 1024-2
PHYSICAL PROPERTIES OF WATER

Property	Requirement	Test Method
Compression Strength, minimum percent of control at 3 and 7 days	90%	ASTM C1602
Time of set, deviation from control	From 1:00 hr. earlier to 1:30 hr. later	ASTM C1602
pH	4.5 to 8.5	ASTM D1293 *
Chloride Ion Content, Max.	250 ppm	ASTM D512 *
Total Solids Content (Residue), Max.	1,000 ppm	SM 2540B *
Resistivity, Min.	0.500 kohm-cm	ASTM D1125 *

*Denotes an alternate method is acceptable. Test method used shall be referenced in the test report.

SP-049 WORK ZONE INSTALLER

(7-20-21) 1101, 1150 SP11 R04

Provide the service of at least one qualified work zone installer during the setup, installation, and removal of temporary traffic control within the highway right of way. The qualified work zone installer shall serve as crew leader and shall be on site and directing the installation and removal of temporary traffic control. If multiple temporary traffic control installations or removals are occurring simultaneously, then each shall have a qualified work zone installer.

The work zone installer shall be qualified by an NCDOT approved training agency in the safe and competent set up of temporary traffic control. For a complete listing of approved training agencies, see the Work Zone Safety Training webpage.

A work zone supervisor, in accordance with Article 1101-13 of the *Standard Specifications*, may fulfill the role of the work zone installer during the setup, installation, and removal of temporary traffic control within the highway right of way provided they are on site and directing the installation and removal of temporary traffic control.

All other individuals participating in the setup, installation, and removal of temporary traffic control within the highway right of way shall be certified as a qualified flagger in accordance with Article 1150-3 of the *Standard Specifications*, even if flagging is not being performed as part of the traffic control.

Provide the name and contact information of all qualified work zone installers to the Engineer prior to or at the preconstruction conference. Additionally, provide a qualification statement that all other individuals participating in the setup, installation, and removal of temporary traffic control are qualified flaggers that have been properly trained through an NCDOT approved
training agency.

SP-050 DEWATERING

3/15/16 SP (KIMLEY-HORN AND ASSOCIATES)

Description

Dewatering shall include all work necessary to prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

Submittals

The Contractor will be required to submit a dewatering plan, designed by a North Carolina professional engineer, and any necessary permits to be reviewed in compliance with the plans and approved by the City of Greenville Project Manager. The sealed dewatering plan shall detail the approach for capture, control and discharge of surface and groundwater resulting from dewatering (approval of the plan by the Engineer shall not alleviate the contractor's responsibilities for the dewatering system). The sealed dewatering plan shall, at a minimum, follow this specification.

During construction, the Contractor shall be required to submit to the on-site inspector or authorized agent a weekly inspection report, prepared and completed by the dewatering system design engineer, documenting that the system is properly installed, functioning and is providing a dewatered condition at the bottom of the trench excavation per the sealed dewatering plan to construct all items in the "dry."

Construction Methods

a) Water in trenches: When ground water is encountered, the Contractor shall remove the water that accumulates in the trenches or pits, which would affect the construction of the lines or their appurtenances, by pumping, bailing, well- pointing, or other approved dewatering method and shall perform all work necessary to keep the trenches or pits entirely clear from water while bedding is being placed, the pipe (or culvert) is being laid, masonry units are being placed, and structures are either being set or constructed. All water removed from the trench shall be conveyed in a proper manner to a suitable point of discharge and shall comply with applicable erosion and sediment control laws. Pipe/culvert laying and pipe jointing shall be made in the "dry"
b) No pipe shall be constructed in water and water shall not be allowed to drain through the pipe. The open end of the pipe shall be kept closed with a tight fitting plug to prevent washing of any foreign matter into the line.

c) No structure shall be constructed in water and water shall not be allowed to flow over or rise upon any concrete masonry structure until the work has been accepted.
d) The Contractor shall dispose of water from the trenches in such a manner to cause no injury to public health, public or private property, work completed or in progress, street surfaces, or which may cause any interference with the use of the streets. Water, if odorless and stable, may be discharged into an existing storm drain, channel, or street gutter in a manner approved by the City Engineer. When required by the City Engineer, a means shall be provided for desilting (filtering) the water before discharge. Under no circumstances shall water be discharged to the sanitary sewer.
e) Prevent surface water from ponding on prepared subgrades and from flooding project site and the surrounding area. Reroute surface water runoff away from or around excavated areas.
f) Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
g) Install a dewatering system to keep subgrades dry and convey ground water away from excavations. The cost of shoring, sheeting, well pointing, gravel bedding and other dewatering devices shall be included in the unit price of the pipe. Maintain until dewatering is no longer required.
h) Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation. Include cost of de-watering in proposal for water, sewer, or storm drainage lines. No additional compensation for this item is permitted.
i) Where underground streams or springs are encountered, provide temporary drainage, well pointing, or bailing. Notify City Engineer or duly authorized agent of such conditions.
j) Backfilling shall not take place when the trench contains water in an amount to create soupy conditions.

Measurement and Payment

No separate payment will be made for this work, and all associated costs will be considered incidental to the cost of the structures.

SP-051 HEAVY DUTY GRAVEL PAVEMENT

02/15/22 SP (Kimley-Horn and Associates, Inc.)

Description

The work covered by this section consists of furnishing, stockpiling, placing and maintaining an approved stone to be used at the locations designated in the contract and as directed by the Engineer.

Materials

Refer to the *2018 Standard Specifications.*

Item	Section
Aggregate Base Course	520

Measurement and Payment

All work and materials necessary for the installation of Heavy Duty Gravel Pavement shall be included in the Base Bid. Aggregate Base Course as part of the Heavy Duty Gravel Pavement will be measured by delivery tickets from certified platform scales as provided by the delivery driver. Stockpiled material will not be measured a second time and no further compensation will be provided to the Contractor. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting with Contractor's Application for Payment.

Payment will be at the contract unit price for:

Pay Item	Pay Unit
Aggregate Base Course	Tons

SP-052 HEAVY DUTY CONCRETE SIDEWALK (SIX INCH (6") REINFORCED CONCRETE)

7/21/21 SP (Kimley-Horn and Associates, Inc.)

Description

Reinforced concrete shall be installed in locations specified on plans. Refer to Heavy Duty Concrete Sidewalk Section detail.

Materials

Heavy Duty Concrete Sidewalk Section shall be a minimum thickness of six inches (6"), constructed of Portland Cement Concrete, Class "A", with #4 bars imbedded at 12" on center each way in the concrete. No other concrete material will be allowed. The concrete shall meet a minimum compressive strength of four thousand (4,000) psi at 28 days.

Use high, early strength concrete for all reinforced concrete areas identified. Provide high early strength concrete that meets the requirements of Article 1000-6 of the Standard Specifications.

Measurement and Payment

All work and materials necessary for the installation of Standard Sidewalk shall be included in the Base Bid. Excavation for base materials, reinforcing, placing, finishing, expansion and / or control joints for Standard Sidewalks shall be incidental to other work and shall be included in the Base Bid. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting with Contractor's Application for Payment.

The Engineer shall require any concrete that fails to meet the required compressive strength for Class "A" concrete after twenty-eight (28) days to be removed from any portion of a multi-use path or sidewalk and be replaced at the contractor's expense.

Payment will be made under:

Pay Item	**Unit**
Heavy Duty Concrete Sidewalk (6" Reinforced Concrete Sidewalk).....	Square Yards

SP-053 TYPICAL CONCRETE SIDEWALK (FOUR INCH (4") CONCRETE WITH WELDED WIRE FABRIC)

7/21/21 SP (Kimley-Horn and Associates, Inc.)

Description

The typical sidewalk concrete section shall be installed in locations specified on plans. Refer to Typical Sidewalk Section in plans for sidewalk detail.

Materials

Sidewalk shall be a minimum thickness of four inches (4"), constructed of Portland Cement Concrete, Class "A", with a welded wire mesh, 6" x 6" - W2.9 x W2.9, or stronger mesh, embedded in the concrete. No other concrete material will be allowed. The concrete shall meet a minimum compressive strength of four thousand (4,000) psi at 28 days.

Use high, early strength concrete for all reinforced concrete areas identified. Provide high early strength concrete that meets the requirements of Article 1000-6 of the Standard Specifications.

Measurement and Payment

All work and materials necessary for the installation of Typical Sidewalk shall be included in the Base Bid. Excavation for base materials, reinforcing, placing, finishing, expansion and / or control joints for Standard Sidewalks shall be incidental to other work and shall be included in the Base Bid. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting with Contractor's Application for Payment.

The Engineer shall require any concrete that fails to meet the required compressive strength for Class "A" concrete after twenty-eight (28) days to be removed from any portion of a sidewalk and be replaced at the contractor's expense.

Payment will be made under:

Pay Item	**Unit**
Typical Concrete Sidewalk (4" Concrete Sidewalk with Welded Wire Fabric)	Square Yards

SP-054 COMPOSITE SAFETY FENCE

7/21/21 SP (Kimley-Horn and Associates, Inc.)

Description

This work shall consist of erecting a pedestrian railing at the locations shown in the Plans. Refer to the Connection Composite Safety Fence Detail for details.

Materials

Fence materials provided shall be four-foot (4'-0") tall Composite Safety Fence Rail with Solid Wood insert. Fence basis of design shall be four (4) rail with four-inch (4") square posts The fence shall be provided in the standard brown color. Color, dimensions, and style of the fence will be considered in the Engineer's decision as to whether a proposed system is an "approved equal."

Concrete fill shall conform to Section 1000 of the Standard Specifications and shall be Class A minimum to anchor fence posts.

Construction Requirements

Embedment of fence posts shall conform to manufacturer recommendations and Plan set, whichever is more conservative.

The Contractor shall be responsible for protecting the fence components from damage during storage, handling, installation, and subsequent construction operations. Damage to fence components shall be grounds for rejection of the work. The Contractor shall clean the installed fencing, prior to final acceptance, in accordance with manufacturer specifications.

Method of Measurement and Basis of Payment

All work and materials necessary for the installation of Composite Safety Fence shall be included in the Base Bid. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting

with Contractor's Application for Payment.

Payment will be made under:

Pay Item	Pay Unit
Composite Fence	Linear Feet

SP-055 REMOVE AND RESET RIP RAP

(5-5-15) SP (Kimley-Horn and Associates, Inc.)

Description

Remove and reset existing rip rap as shown on the plans, or as directed by the Engineer and in accordance with Section 876 of the *2018 Standard Specifications.*

Measurement and Payment

All work and materials necessary for the Removal and Resetting Rip-rap shall be included in the Base Bid. Temporary stockpiling, installation of new geotextile, and anchors shall be incidental to other work and shall be included in the Base Bid. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting with Contractor's Application for Payment.

Payment will be made under:

Pay Item	Unit
Remove and Reset Rip Rap	Square Yard

STANDARD SPECIAL PROVISIONS
STRUCTURES

SP-056 FALSEWORK AND FORMWORK

(02/14/22) SP (Kimley-Horn and Associates, Inc.)

Description

Use this Special Provision as a guide to develop temporary works submittals required by the Standard Specifications or other provisions; no additional submittals are required herein. Such temporary works include, but are not limited to, falsework and formwork.

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term "temporary works" is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

Materials

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

Design Requirements

Working Drawings

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.

If requested by the Engineer, submit with the working drawings manufacturer's catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders.

As an option for the Contractor, overhang falsework hangers may be uniformly spaced, at a maximum of 36 inches, provided the following conditions are met:

Member Type (PCG)	Member Depth, (inches)	Max. Overhang Width, (inches)	Max. Slab Edge Thickness, (inches)	Max. Screed Wheel Weight, (lbs.)	Bracket Min. Vertical Leg Extension, (inches)
II	36	39	14	2000	26
III	45	42	14	2000	35
IV	54	45	14	2000	44
MBT	63	51	12	2000	50
MBT	72	55	12	1700	48

Overhang width is measured from the centerline of the girder to the edge of the deck slab. For Type II, III & IV prestressed concrete girders (PCG), 45-degree cast-in-place half hangers and rods must have a minimum safe working load of 6,000 lbs.

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2 ½" from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

For links slabs, the tops of girders directly beneath the link slab shall be free of overhang falsework attachments or other hardware. Submit calculations and working drawings for overhang falsework in the link slab region.

The overhang bracket provided for the diagonal leg shall have a minimum safe working load of 3,750 lbs. The vertical leg of the bracket shall extend to the point that the heel bears on the girder bottom flange, no closer than 4 inches from the bottom of the member. However, for 72-inch members, the heel of the bracket shall bear on the web, near the bottom flange transition.

Provide adequate overhang falsework and determine the appropriate adjustments for deck geometry, equipment, casting procedures and casting conditions.

If the optional overhang falsework spacing is used, indicate this on the falsework submittal and advise the girder producer of the proposed details. Failure to notify the Engineer of hanger type and hanger spacing on prestressed concrete girder casting drawings may delay the approval of those drawings.

Falsework hangers that support concentrated loads and are installed at the edge of thin top flange concrete girders (such as bulb tee girders) shall be spaced so as not to exceed 75% of the manufacturer's stated safe working load. Use of dual leg hangers (such as Meadow Burke HF-42 and HF-43) are not allowed on concrete girders with thin top flanges. Design the falsework and forms supporting deck slabs and overhangs on girder bridges so that there will be no differential settlement between the girders and the deck forms during placement of deck concrete.

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than ¾".

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize or metalize these devices. Electroplating will not be allowed. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

Design falsework and formwork requiring submittals in accordance with the 1995 AASHTO *Guide Design Specifications for Bridge Temporary Works* except as noted herein.

1. Wind Loads

Table 2.2 of Article 2.2.5.1 is modified to include wind velocities up to 110 mph. In addition, Table 2.2A is included to provide the maximum wind speeds by county in North Carolina.

Table 2.2 - Wind Pressure Values

Height Zone feet above ground	Pressure, lb/ft² for Indicated Wind Velocity, mph				
	70	80	90	100	110
0 to 30	15	20	25	30	35
30 to 50	20	25	30	35	40
50 to 100	25	30	35	40	45
over 100	30	35	40	45	50

2. Time of Removal

The following requirements replace those of Article 3.4.8.2.

Do not remove forms until the concrete has attained strengths required in Article 420-16 of the Standard Specifications and these Special Provisions.

Do not remove forms until the concrete has sufficient strength to prevent damage to the surface.

Table 2.2A - Steady State Maximum Wind Speeds by Counties in North Carolina

COUNTY	25 YR (mph)	COUNTY	25 YR (mph)	COUNTY	25 YR (mph)
Alamance	70	Franklin	70	Pamlico	100
Alexander	70	Gaston	70	Pasquotank	100
Alleghany	70	Gates	90	Pender	100
Anson	70	Graham	80	Perquimans	100
Ashe	70	Granville	70	Person	70
Avery	70	Greene	80	Pitt	90
Beaufort	100	Guilford	70	Polk	80
Bertie	90	Halifax	80	Randolph	70
Bladen	90	Harnett	70	Richmond	70
Brunswick	100	Haywood	80	Robeson	80
Buncombe	80	Henderson	80	Rockingham	70
Burke	70	Hertford	90	Rowan	70
Cabarrus	70	Hoke	70	Rutherford	70
Caldwell	70	Hyde	110	Sampson	90
Camden	100	Iredell	70	Scotland	70
Carteret	110	Jackson	80	Stanley	70
Caswell	70	Johnston	80	Stokes	70
Catawba	70	Jones	100	Surry	70
Cherokee	80	Lee	70	Swain	80
Chatham	70	Lenoir	90	Transylvania	80
Chowan	90	Lincoln	70	Tyrell	100
Clay	80	Macon	80	Union	70
Cleveland	70	Madison	80	Vance	70
Columbus	90	Martin	90	Wake	70
Craven	100	McDowell	70	Warren	70

Cumberland	80	Mecklenburg	70	Washington	100
Currituck	100	Mitchell	70	Watauga	70
Dare	110	Montgomery	70	Wayne	80
Davidson	70	Moore	70	Wilkes	70
Davie	70	Nash	80	Wilson	80
Duplin	90	New Hanover	100	Yadkin	70
Durham	70	Northampton	80	Yancey	70
Edgecombe	80	Onslow	100		
Forsyth	70	Orange	70		

B. Review and Approval

The Engineer is responsible for the review and approval of temporary works' drawings.

Submit the working drawings sufficiently in advance of proposed use to allow for their review, revision (if needed), and approval without delay to the work.

The time period for review of the working drawings does not begin until complete drawings and design calculations, when required, are received by the Engineer.

Do not start construction of any temporary work for which working drawings are required until the drawings have been approved. Such approval does not relieve the Contractor of the responsibility for the accuracy and adequacy of the working drawings.

Construction Requirements

All requirements of Section 420 of the Standard Specifications apply.

Construct temporary works in conformance with the approved working drawings. Ensure that the quality of materials and workmanship employed is consistent with that assumed in the design of the temporary works. Do not weld falsework members to any portion of the permanent structure unless approved. Show any welding to the permanent structure on the approved construction drawings.

Provide tell-tales attached to the forms and extending to the ground, or other means, for accurate measurement of falsework settlement. Make sure that the anticipated compressive settlement and/or deflection of falsework does not exceed 1 inch. For cast-in-place concrete structures, make sure that the calculated deflection of falsework flexural members does not exceed 1/240 of their span regardless of whether or not the deflection is compensated by camber strips.

A. Maintenance and Inspection

Inspect and maintain the temporary work in an acceptable condition throughout the period of its use. Certify that the manufactured devices have been maintained in a condition to allow them to safely carry their rated loads. Clearly mark each piece so that its capacity can be readily determined at the job site.

Perform an in-depth inspection of an applicable portion(s) of the temporary works, in the presence of the Engineer, not more than 24 hours prior to the beginning of each concrete placement. Inspect other temporary works at least once a month to ensure that they are functioning properly. Have a North Carolina Registered Professional Engineer inspect the cofferdams, shoring, sheathing, support of excavation structures, and support systems for load tests prior to loading.

B. Foundations

Determine the safe bearing capacity of the foundation material on which the supports for temporary works rest. If required by the Engineer, conduct load tests to verify proposed bearing capacity values that are marginal or in other high-risk situations.

The use of the foundation support values shown on the contract plans of the permanent structure is permitted if the foundations are on the same level and on the same soil as those of the permanent structure.

Allow for adequate site drainage or soil protection to prevent soil saturation and washout of the soil supporting the temporary works supports.

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

The Engineer reviews and approves the proposed pile and soil bearing capacities.

Removal

Unless otherwise permitted, remove and keep all temporary works upon completion of the work. Do not disturb or otherwise damage the finished work.

Remove temporary works in conformance with the contract documents. Remove them in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight.

Method of Measurement

Unless otherwise specified, temporary works will not be directly measured.

Basis of Payment

All work and materials necessary for the installation of Temporary Works shall be included in the Base Bid.

SP-057 SUBMITTAL OF WORKING DRAWINGS

(01/29/21) SP (Kimley-Horn and Associates, Inc.)

General

Submit working drawings in accordance with Article 105-2 of the Standard Specifications and this provision. For this provision, "submittals" refers to only those listed in this provision. The list of submittals contained herein does not represent a list of required submittals for the project. Submittals are only necessary for those items as required by the contract. Make submittals that are not specifically noted in this provision directly to the Engineer.

If a submittal contains variations from plan details or specifications or significantly affects project cost, field construction or operations, discuss the submittal with and submit all copies to the Engineer. State the reason for the proposed variation in the submittal. To minimize review time, make sure all submittals are complete when initially submitted. Provide a contact name and information with each submittal. Direct any questions regarding submittal requirements to the Engineer.

In order to facilitate in-plant inspection by Engineer, if necessary, and approval of working drawings, provide the

name, address and telephone number of the facility where fabrication will actually be done if different than shown on the title block of the submitted working drawings. This includes, but is not limited to, precast concrete items, pre-stressed concrete items and fabricated steel or aluminum items.

Submittal Copies

Furnish one complete copy of each submittal, including all attachments, to the Engineer.

The first table below covers "Structure Submittals". The Engineer will receive review comments and drawing markups for these submittals. The second table in this section covers "Geotechnical Submittals". The Engineer will receive review comments and drawing markups for these submittals.

Unless otherwise required, submit one set of supporting calculations to the Engineer Provide additional copies of any submittal as directed.

STRUCTURE SUBMITTALS

Submittal	Submittal Required by Structural Engineer?	Submittal Required by Geotechnical Engineer?	Contract Reference Requiring Submittal [1]
Arch Culvert Falsework	Y	N	Plan Note, SN Sheet & "Falsework and Formwork"
Box Culvert Falsework [7]	Y	N	Plan Note, SN Sheet & "Falsework and Formwork"
Cofferdams	Y	Y	Article 410-4
Foam Joint Seals [6]	Y	N	"Foam Joint Seals"
Expansion Joint Seals (hold down plate type with base angle)	Y	N	"Expansion Joint Seals"
Expansion Joint Seals (modular)	Y	N	"Modular Expansion Joint Seals"
Expansion Joint Seals (strip seals)	Y	N	"Strip Seal Expansion Joints"
Falsework & Forms [2] (substructure)	Y	N	Article 420-3 & "Falsework and Formwork"
Falsework & Forms (superstructure)	Y	N	Article 420-3 & "Falsework and Formwork"
Girder Erection over Railroad	Y	N	Railroad Provisions
Maintenance and Protection of Traffic Beneath Proposed Structure	Y	N	"Maintenance and Protection of Traffic Beneath Proposed Structure at Station ___"
Metal Bridge Railing	Y	N	Plan Note
Metal Stay-in-Place Forms	Y	N	Article 420-3
Metalwork for Elastomeric Bearings	Y	N	Article 1072-8

4,5			
Miscellaneous Metalwork [4,5]	Y	N	Article 1072-8
Disc Bearings [4]	Y	N	"Disc Bearings"
Overhead and Digital Message Signs (DMS) (metalwork and foundations)	Y	N	Applicable Provisions
Placement of Equipment on Structures (cranes, etc.)	Y	N	Article 420-20
Prestressed Concrete Box Beam (detensioning sequences) [3]	Y	N	Article 1078-11
Precast Concrete Box Culverts	Y	N	"Optional Precast Reinforced Concrete Box Culvert at Station ___"
Prestressed Concrete Cored Slab (detensioning sequences) [3]	Y	N	Article 1078-11
Prestressed Concrete Deck Panels	Y	N	Article 420-3
Prestressed Concrete Girder (strand elongation and detensioning sequences)	Y	N	Articles 1078-8 and 1078-11
Removal of Existing Structure over Railroad	Y	N	Railroad Provisions
Revised Bridge Deck Plans (adaptation to prestressed deck panels)	Y	N	Article 420-3
Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	Y	N	"Modular Expansion Joint Seals"
Sound Barrier Wall (precast items)	Y	N	Article 1077-2 & "Sound Barrier Wall"
Sound Barrier Wall Steel Fabrication Plans [5]	Y	N	Article 1072-8 & "Sound Barrier Wall"
Structural Steel [4]	Y	N	Article 1072-8
Temporary Detour Structures	Y	Y	Article 400-3 & "Construction, Maintenance and Removal of Temporary Structure at Station ____"
TFE Expansion Bearings [4]	Y	N	Article 1072-8

FOOTNOTES

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Articles refer to the *Standard Specifications.*

2. Submittals for these items are necessary only when required by a note on plans.
3. Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials & Tests Unit.
4. The fabricator may submit these items directly to the Structures Management Unit.
5. The two sets of preliminary submittals required by Article 1072-8 of the *Standard Specifications* are not required for these items.
6. Submittals for Fabrication Drawings are not required. Submittals for Catalogue Cuts of Proposed Material are required. See Section 5.A of the referenced provision.
7. Submittals are necessary only when the top slab thickness is 18" or greater.

GEOTECHNICAL SUBMITTALS

Submittal	Submittals Required by Geotechnical Engineer?	Submittals Required by Structural Engineer?	Contract Reference Requiring Submittal [1]
Drilled Pier Construction Plans [2]	Y	N	Subarticle 411-3(A)
Crosshole Sonic Logging (CSL) Reports [2]	Y	N	Subarticle 411-5(A)(2)
Pile Driving Equipment Data Forms 2,3	Y	N	Subarticle 450-3(D)(2)
Pile Driving Analyzer (PDA) Reports [2]	Y	N	Subarticle 450-3(F)(3)
Retaining Walls [4]	Y; drawings and calculations	Y; drawings	Applicable Provisions
Temporary Shoring [4]	Y; drawings and calculations	Y; drawings	"Temporary Shoring" & "Temporary Soil Nail Walls"

FOOTNOTES

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Sub-articles refer to the *Standard Specifications*.
2. Submit one electronic (Adobe PDF) copy of submittal to the Engineer.
3. The Pile Driving Equipment Data Form is available from:
   https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
   See second page of form for submittal instructions.
4. Electronic copy of submittal is required. See referenced provision.

SP-058 CRANE SAFETY

(06/20/19)

Description

Comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors, sub-contractors, and fully operated rental companies shall comply with the current Occupational Safety and Health Administration (OSHA) regulations.

Submit all items listed below to the Engineer prior to beginning crane operations. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.

Crane Safety Submittal List

A. Competent Person: Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.

B. Riggers: Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.

C. Crane Inspections: Inspection records for all cranes shall be current and readily accessible for review upon request.

D. Certifications: Crane operators shall be certified by the National Commission for the Certification of Crane Operators (NCCCO) or the National Center for Construction Education and Research (NCCER). Other approved nationally accredited programs will be considered upon request. In addition, crane operators shall have a current CDL medical card. Submit a list of crane operator(s) and include current certification for each type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

SP-059 GROUT FOR STRUCTURES

(12/1/17) SP (Kimley-Horn and Associates, Inc.)

Description

This special provision addresses grout for use in pile blockouts, grout pockets, shear keys, dowel holes and recesses for structures. This provision does not apply to grout placed in post-tensioning ducts for bridge beams, girders, decks, end bent caps, or bent caps. Mix and place grout in accordance with the manufacturer's recommendations, the applicable sections of the Standard Specifications and this provision.

Material Requirements

Unless otherwise noted on the plans, use a Type 3 Grout in accordance with Section 1003 of the Standard Specifications.
Initial setting time shall not be less than 10 minutes when tested in accordance with ASTM C266.

Construction loading and traffic loading shall not be allowed until the 3 day compressive strength is achieved.

Sampling and Placement

Place and maintain components in final position until grout placement is complete and accepted. Concrete surfaces to receive grout shall be free of defective concrete, laitance, oil, grease and other foreign matter. Saturate

concrete surfaces with clean water and remove excess water prior to placing grout.

Basis of Payment

No separate payment will be made for "Grout for Structures". The cost of the material, equipment, labor, placement, and any incidentals necessary to complete the work shall be considered incidental to the structure item requiring grout.

SP-060 TIMBER BOARDWALK

(9/16/21) SP (Kimley-Horn and Associates, Inc.)

General

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes timber boardwalk, substructure, foundations, and connection of boardwalk to bridge bents.

B. All materials, construction, and fabrication shall meet the requirements of the plans, this special provision, and the current edition of the North Carolina Department of Transportation (NCDOT) Standard Specifications for Roads and Structures.

1.3 SUBMITTALS

A. Product Data: For each type of product used. Include construction details, material descriptions, and dimensions of individual components for the timber boardwalk, substructure, and foundations.

B. Product Test Reports. For the following:

1. Bolts, nuts, washers, fasteners and connectors including mechanical properties and chemical analysis.

1.4 QUALITY ASSURANCE

A. Contractor Qualifications: A qualified contractor who is approved by NCDOT for such work.

B. Pre-installation Conference: Conduct conference at Project Site prior to commencing construction of timber boardwalk.

C. The contractor shall be responsible for protecting the boardwalk components from damage during storage, handling, installation, and subsequent construction operations. Damage to the boardwalk components shall be ground for rejection of the work.

1.5 COORDINATION

A. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the work.

Products

2.1 MATERIALS

A. All piling, structural framing, decking, nailers, and pedestrian rail components shall be Pressure Treated Grade No. 1 Dense Southern Pine surface dry (S4S) with a moisture content of 19% or less, meeting the requirements of Section 1082 of the NCDOT Standard Specifications, unless noted otherwise.

B. Timber and lumber shall be treated with waterborne preservatives (CCA or ACQ) in accordance with AWPA Standard U1, Commodity Specification A, to the requirements of the following use categories:

1. Piles: UC4C
2. Backwalls, wingwalls, cap beams and stringers: UC4B
3. Decking: UC4A
4. Pedestrian railing components, all other lumber: UC3B

C. All fasteners, connectors and bolts shall be hot-dip galvanized and conform to ASTM A325, with nuts conforming to ASTM A563 and washers conforming to ASTM F436, unless noted otherwise.

D. All bolted connections shall utilize oversize ogee washers installed between the wood and the bolt head and between the wood and the nut.

E. All saw cuts, bolts holes, and other holes shall be treated with appropriate preservative solution prior to installing bolts.

Method of Measurement and Basis of Payment

3.1 METHOD OF MEASUREMENT

A. The quantity for Timber Boardwalk to be paid for shall be measured on a lump sum basis per Structure. No separate measurement will be made.

3.2 BASIS OF PAYMENT

A. The Timber Boardwalk and all related components as described on the plans, in this Special Provision, and referenced NCDOT Standard Specifications and Special Provisions will be paid for at the contract lump sum price for each Structure included in the Base Bid. Such price and payment will be full compensation for all work covered by this Special Provision, the plans, and applicable parts of the NCDOT Standard Specifications and Special Provisions and will include, but not be limited to, furnishing all labor, materials, equipment, delivery, and other incidentals necessary to complete this work.

B. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting with Contractor's Application for Payment.

C. Payment will be made under:

Pay Item **Unit**

- Timber Boardwalk – Structure #1; -L2- STA. 10+00.00 TO 12+51.00 _____Lump Sum
- Timber Boardwalk – Structure #1; -L2- STA. 13+09.00 TO 15+23.91_____Lump Sum

- Timber Boardwalk – Structure #1; -L2- STA. 15+23.91 TO 15+63.91_____Lump Sum
- Timber Boardwalk – Structure #1; -L2- STA. 15+63.91 TO 16+48.75_____Lump Sum
- Timber Boardwalk – Structure #1; Stairs @ -Y3-_____ Lump Sum

- Timber Boardwalk – Structure #2; -L4- STA. 10+45.56 TO 11+55.56 _____Lump Sum
- Timber Boardwalk – Structure #2; -L4- STA. 11+55.56 TO 15+74.18 _____Lump Sum
- Timber Boardwalk – Structure #2; -L4- STA. 15+74.18 TO 16+84.18_____ Lump Sum
- Timber Boardwalk – Structure #2; Observation Deck @ -Y4- _____Lump Sum

SP-061 PRE-FABRICATED PEDESTRIAN BRIDGE

(9/16/21) SP (Kimley-Horn and Associates, Inc.)

General

RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Timber Boardwalk Special Provision

1.1 SUMMARY

A. Section includes prefabricated steel Pratt truss bridge superstructure and substructure.

B. All materials, construction, and fabrication shall meet the requirements of the current edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: The prefabricated steel Pratt truss bridge, anchor bolts and bearing pads shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to current edition of the AASHTO LRFD Guide Specification for the Design of Pedestrian Bridges, North Carolina Department of Transportation Bicycle Facilities Planning and Design Guidelines, North Carolina Department of Transportation Structure Design Manual, North Carolina Department of Transportation Standard Specifications for Roads and Structures, AASHTO LRFD Bridge Design Specifications, at a minimum:

1. Dead Loads: Self-weight of superstructure.
2. Live Loads: Pedestrian load shall not be considered to act concurrently with vehicular load. The dynamic load allowance need not be considered for vehicular load.
   a. Pedestrian Live Load = 90 psf
   b. Vehicular Live Load = AASHTO H-5
3. Railing Loads: Per AASHTO.
4. Wind Loads: Per AASHTO.
5. Water Loads: Per AASHTO.
   a. Stream Velocities:
      1) Structure #1: 4.00 feet/sec
      2) Structure #3: 2.99 feet/sec
6. Temperature: Per AASHTO/NCDOT.

7. Seismic: Per AASHTO.
8. Load Combinations: Per AASHTO.
9. Deflection Limits: Design framing system to withstand service loads without deflections greater than the following:
    a. Main Truss:
        1) Vehicular and/or pedestrian loads = Span/1000.
    b. Floor system members (floor beams and stringers):
        1) Vehicular and/or pedestrian loads = Span/360.
        2) Vehicular and/or pedestrian loads on cantilever arms = Span/375.

10. Vibration Limits: Per AASHTO.

B. Geometry and Component Requirements:

1. Span:
    a. Each structure (Structure 1 and 3) contains a prefabricated steel bridge span or a combination of a timber boardwalk span and a prefabricated steel bridge span as shown in the plans. Each prefabricated steel span shall be a simple-span bridge along the centerline of the proposed alignment. The Contractor is required to provide verification to the Engineer that the substructure and foundations are correctly laid out before placement of the bridge superstructure. For information about the timber boardwalk spans, see plans and timber boardwalk specifications.
2. Width:
    a. The bridge clear path width shall be 10'-0", and shall be measured between the inside faces of safety railing elements.
3. Depth:
    a. The maximum depth of superstructure shall be 1'-2½" and shall be measured from top of deck to bottom of bridge superstructure.
4. Bridge System Type:
    a. The bridge shall be a Pratt truss bridge arched similar to Contech Capstone model as shown in the plans. Interior vertical members may be plumb or perpendicular to the chord faces. Diagonal members shall be welded to the chords and/or verticals as determined by the Bridge Manufacturer.

        1) The bridge shall be designed utilizing floor beams placed between the bottom chords and verticals.
        2) The Bridge Manufacturer shall determine the distance from the top of the deck to the top and bottom truss members based upon structural and/or shipping requirements. However, the maximum superstructure depth noted above shall not be exceeded.
        3) For Structures 1 and 3 the deck shall be a reinforced cast-in-place concrete deck. Immediately after float finishing of concrete, slightly roughen entire surface by brooming with fiber-bristle broom perpendicular to traffic. Coordinate final finish with Engineer before application.
        4) The top of the safety rail system or guardrail elements shall not be less than 54 inches above the deck (measured from the high point of the walking/riding surface). The safety system shall extend the full length of the bridge and shall be connected to the guardrail at each end of the bridge per NCDOT requirements.
5. Member Components:
    a. All members of the vertical trusses (top and bottom chords, verticals, and diagonals) shall be fabricated from square and/or rectangular structural steel tubing, and all their shop connections shall be fully welded. Other structural members and bracing shall be fabricated from structural steel shapes or square

and/or rectangular structural steel tubing. Drain holes and weep holes shall be provided in all connections. Unless the floor fastenings are specifically designed to provide adequate lateral support to the top flange of open shape stringers (W-shapes or channels), a minimum of one stiffener shall be provided in each stringer at every floor beam location. Weep all tubular members as required for drainage.

6. Railings:
   a. The safety railing system shall be placed on the structure to a minimum height of 54 inches above the deck surface (measured from the high point of the walking/riding surface). The bridge manufacturer shall determine the placement of the horizontal and vertical rails such that a 6-inch diameter sphere cannot pass between successive rails for the lower 27 inches of the railing system; above 27 inches, the spacing of the rails shall be such that an 8-inch diameter sphere cannot pass between successive rails. A safety toe rail or curb shall be provided. The safety rail shall be designed to accommodate the required loads per AASHTO.
   b. Metal approach railings shall be provided at each corner of the structure, as shown in the plans. Approach railings shall be 5'-0" long, skewed at 15 degrees, and be 54 inches above the trail surface (measured from the high point of the walking/riding surface).
7. Camber:
   a. The bridge shall have a vertical camber dimension at midspan equal to 100% of the full dead load deflection.
8. Substructure:

   a. Bridge end bents and bents shall be cast-in-place reinforced concrete supported on piles as detailed in the plans.

   b. Piles shall be driven to a minimum tip elevation as indicated on the plans.

   c. Prefabricated steel pedestrian bridge end bent and bent details shall be coordinated with the prefabricated steel pedestrian bridge plans, to be provided by the prefabricated steel pedestrian bridge manufacturer. Notify the Engineer immediately if conflicts are identified. Construction of end bents shall not begin until superstructure shop drawings are approved and all conflicts resolved.

   d. Reinforcement in cap may be shifted to clear anchor bolts.

   e. The top surface of bent and end bents caps, except at bridge seat build-ups, shall be sloped transversely from fill face to back face at a minimum rate of 2%.

   f. End bent backwall shall be placed after bridge has been erected. Top of backwall shall follow bridge deck grade.

   g. The top surface of end bents shall be cured in accordance with NCDOT Standard Specifications, except that the membrane curing compound method shall not be used.

   h. Apply an epoxy protective coating to the top surface of end bents, except under bearings and boardwalk sill plates.

   i. End bent backwall shall be placed prior to application of epoxy protective coating.

9. Elevations:
   a. The bridge abutments shall be constructed at the elevations shown on the plans

and adjusted based on the prefabricated steel pedestrian bridge manufacturer. The elevations shown on the plans are grade point elevations and not top of cap elevations.

1.4 SUBMITTALS

A. Product Data: For each type of product used. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for prefabricated steel Pratt truss bridge, anchor bolts, and bearing.

B. Shop Drawings: For prefabricated steel Pratt truss bridge, include plans, elevations, sections, details, and attachments to other work specific to this project. All pertinent design information such as geometries, member sizes, bridge reactions, splice locations, details, quantities and general notes shall be clearly specified on the drawings. All drawings shall be signed and sealed by a Professional Engineer who is licensed to practice in the State of North Carolina. The bridge designer/fabricator shall be NCDOT-approved for such work.
The Contractor shall submit shop drawings for the prefabricated steel Pratt truss bridge, to the Town. The shop drawings will be reviewed by the Town and the Engineer.

C. Structural Calculations: For prefabricated steel Pratt truss bridge, anchor bolts and bearing pads. The calculations shall include all design information necessary to determine the structural adequacy of the bridge, anchor bolts and bearing pads, and to demonstrate conformance with the current AASHTO code. Complete structural calculations shall be submitted to the Town / Engineer for their review. All calculations shall be signed and sealed by a Professional Engineer who is licensed to practice in the State of North Carolina, and shall include the following, at a minimum:
   1. Design calculations for the individual truss members, floor beams and stringers, and decking.
   2. Checks for the critical connection failure modes for each individual truss member. Special attention shall be given to all welded tube on tube connections.
   3. Design calculations for all bolted splice connections.
   4. Main truss deflection checks, including individual truss member deflection checks.
   5. Design calculations for anchor bolts.
   6. Design calculations for bearings.

D. Erection plans and sequencing signed and sealed by a Professional Engineer licensed in the State of North Carolina. The erection plans and sequencing method shall include location(s) of crane(s) required for erection, as well as procedures for mitigating the amount of fallen debris. No debris will be allowed to collect in the channel of the waterway. All equipment locations and staging shall occur within the right-of-way and easements established in the roadway plans, and shall be indicated on the erection plans.

E. Qualification Data: For qualified fabricator and Professional Engineer.

F. Welding certificates.

G. Mill test reports for structural steel, including chemical and physical properties.

H. Product Test Reports: For the following:
   1. Bolts, nuts and washers including mechanical properties and chemical analysis.

I. Maintenance Data: For prefabricated steel Pratt truss bridge to include in maintenance manuals.

J. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:
   1. AWS D1.5, "Bridge Welding Code".
B. Fabricator Qualifications: A qualified fabricator who participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Categories CBR and B-CMP, and is NCDOT approved for such work.
C. Comply with current edition of the applicable provisions of the following specifications and documents:
   1. AASHTO LRFD Guide Specification for the Design of Pedestrian Bridges.
   2. North Carolina Department of Transportation Bicycle Facilities Planning and Design Guidelines.
   3. North Carolina Department of Transportation Structure Design Manual.
   4. North Carolina Department of Transportation Standard Specifications for Roads and Bridges, and Special Provisions.
   5. AASHTO LRFD Bridge Design Specifications.
   6. RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts."

D. Pre-installation Conference: Conduct conference at Project Site prior to commencing construction of prefabricated steel pedestrian bridge.

1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair finish or replace any part of the steel Pratt truss bridge that fail in materials or workmanship within specified warranty period.

   1. Warranty Period: Ten (10) years from date of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
   1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
B. Weathering steel shall be stored under conditions that will prevent unsightly, uneven weathering and excessive corrosion. If uneven weathering occurs, the contractor shall reclean the steel to the satisfaction of the engineer. If cleaning does not produce satisfactory uniformity in appearance or if in the judgment of the engineer, excessive corrosion or chemical contamination has occurred, the contractor shall replace the material at the contractor's expense. As a minimum, the following conditions shall be avoided and the contractor shall take additional precautions as deemed necessary:

   1. Storage in transit, open cars or trucks for an extended period of time.
   2. Standing water on material in storage or entrapment of moisture.
   3. Contact with chemically treated lumber used for blocking or other types of foreign matter.
   4. Exposure to chlorides or other chemical contamination.

C. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
   1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
   2. Clean and relubricate bolts and nuts that become dry and rusty before use.

1.8 COORDINATION

A. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Steel Structural Tubing: ASTM A 847, weathering steel; AASHTO M 270, Grade 50W.
B. Channels and Angles: ASTM A 588, weathering steel, AASHTO M 270, Grade 50W.
C. Steel Plates, Shapes, and Bars: ASTM A 588, weathering steel, AASHTO M 270, Grade 50W.
D. Anchor Bolts, High Strength Bolts, Nuts and Washers:
   1. Anchor Bolts: ASTM A 449, Type 1 hot dip galvanized, heavy-hex steel structural bolts.
   2. High-Strength Bolts: ASTM A 325 (AASHTO M 164), Type 3 weathering steel, heavy-hex steel structural bolts.
   3. Nuts and Washers: Hot dip galvanized at anchor bolts and weathering steel for all high strength weathering steel bolts.
   4. Bolts, nuts, and washers shall also be in accordance with Section 1072 of the NCDOT Standard Specifications.
E. The minimum corrosion index of the atmospheric corrosion resistant steel, as determined in accordance with ASTM G101, shall be 6.0.
F. Concrete:
   1. End Bents and Bents: Class A concrete, per NCDOT Standard Specifications.
   2. Concrete Deck: Class A concrete, per NCDOT Standard Specifications
   3. Reinforcing Steel: ASTM A 615 (AASHTO M 31), Grade 60.
G. Bearing Pads: Minimum 50 durometer hardness, conforming to NCDOT Standard Specifications and Special Provisions.

2.2 PREFABRICATED STEEL PRATT TRUSS BRIDGE

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Contech Engineer Solutions.
   2. Big R Bridge.
   3. Excel Bridge Company.

B. Manufacturers other than those listed above may be used provided the Designer or Owner evaluates the proposed supplier through a submittal in accordance with the General Conditions. The Contractor must provide the following documentation for any proposed supplier who is not pre-approved:
   1. Product Literature
   2. All documentation to ensure the proposed substitution will be in compliance with these specifications. This shall include:
      a. Representative design calculations.
      b. Representative drawings.
      c. Splicing and erection procedures.
      d. Warranty information.
      e. Inspection and maintenance procedures.
      f. AISC Shop Certification.

2.3 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's 'Code of Standard Practice for Steel Buildings and Bridges".
   1. Mark and match-mark materials for field assembly.
   2. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting: Perform thermal cutting by machine to the greatest extent possible.
   1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.5.

C. Bolt Holes: Cut, drill or punch standard bolt holes perpendicular to metal surfaces.

D. Drain Holes: Weep/drain holes shall be provided in all tubular bridge members, for drainage at their lowest point, unless such members are free-draining, open-ended.

E. Cleaning: After fabrication, weathering steel shall be shop cleaned to a SSPC SP-6 finish.

2.4 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts" for type of bolt and type of joint specified.

B. Weld Connections: Comply with AWS D1.5 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

2.5 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

2.6 INSTALLATION

A. Delivery is made to a location nearest the site which is easily accessible to normal over-the-road tractor/trailer equipment. Contractor is to schedule a pre-installation meeting to discuss the method of erecting the bridge, as well as to verify the location(s) of the crane(s) required for erection. All equipment locations and staging shall occur within the right-of-way and easements established in the roadway plans. Contractor to verify prior to commencing bridge erection.

B. The Fabricator will provide detailed, written instruction in the proper lifting procedures and splicing procedures (if required). The method and sequence of erection shall be the responsibility of the Contractor.

C. No debris will be allowed to collect in the channel of the waterway. Contractor to provide measures to ensure debris is collected from the channel of the waterway as soon as is practical during construction.

PART 3 - METHOD OF MEASUREMENT AND BASIS OF PAYMENT

3.1 METHOD OF MEASUREMENT

A. The quantity for Prefabricated Steel Pedestrian Bridge to be paid for shall be measured on lump sum basis per Structure. No separate measurement will be made.

3.2 BASIS OF PAYMENT

A. The prefabricated steel Pratt truss bridge, substructure and all related components as described on the plans, in this Special Provision, and referenced NCDOT Standard Specifications and Special Provisions will be paid for at the contract lump sum price for each structure included in the Base Bid. Such price and payment will be full compensation for all work covered by this Special Provision, the plans, and applicable parts of the NCDOT Standard Specifications and Special Provisions and will include, but not be limited to, furnishing all engineering, labor, materials, equipment, delivery, and other incidentals necessary to complete this work.

B. Payment will be made under:

1. Prefabricated Steel Pedestrian Bridge:

a. Structure 1 – -L2- STA. 12+51.00 – 13.09.00_____Lump Sum
b. Structure 3 – Y5- STA. 10+00.00 – 10+80.00_____ Lump Sum

SP-062 TIMBER BOARDWALK ANTI-SLIP COATING

(02/18/2022) SP (Kimley-Horn and Associates, Inc.)

Description

This special provision addresses the application of an anti-slip coating or finish on all timber boardwalk decking.. Apply the primer and anti-slip coating in accordance with the manufacturer's recommendations, the applicable sections of the Standard Specifications and this provision.

Material Requirements

Unless otherwise noted on the plans, apply PolySpec Thiokol 100EX primer and a two-part water-borne epoxy coating, AS-175 by American Safety Technologies on all walking surfaces or decking for timber boardwalks.

Sampling and Placement

Coordinate finish color from manufacturer's standard color palette with Owner's Representative and Project Landscape Architect. Contractor shall provide a 36" x 36" mock-up using decking material for review and final approval prior to installation.

Basis of Payment

All work and materials necessary for the installation of the Timber Boardwalk Anti-Slip Coating shall be included in the Base Bid. Cleaning, preparation of the decking, and priming decking shall be incidental to other work and shall be included in the Base Bid.

STANDARD SPECIAL PROVISIONS
EROSION & SEDIMENT CONTROL

SP-063 STABILIZATION REQUIREMENTS

(3-11-16) S-2

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective April 1, 2019 issued by the North Carolina Department of Environmental Quality Division of Water Resources. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

SP-064 SEEDING AND MULCHING

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

All Greenway Areas

March 1 - August 31		**September 1 - February 28**	
50#	Tall Fescue	50#	Tall Fescue
10#	Centipede	10#	Centipede
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Waste and Borrow Locations

March 1 – August 31		**September 1 - February 28**	
75#	Tall Fescue	75#	Tall Fescue
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

Approved Tall Fescue Cultivars

06 Dust	Escalade	Justice	Scorpion
2nd Millennium	Essential	Kalahari	Serengeti

3rd Millennium	Evergreen 2		Shelby
Apache III	Falcon IV	Kitty Hawk 2000	Sheridan
Avenger	Falcon NG	Legitimate	Signia
Barlexas	Falcon V	Lexington	Silver Hawk
Barlexas II	Faith	LSD	Sliverstar
Bar Fa	Fat Cat	Magellan	Shenandoah Elite
Barrera	Festnova	Matador	Sidewinder
Barrington	Fidelity	Millennium SRP	Skyline
Barrobusto	Finelawn Elite	Monet	Solara
Barvado	Finelawn Xpress	Mustang 4	Southern Choice II
Biltmore	Finesse II	Ninja 2	Speedway
Bingo	Firebird	Ol' Glory	Spyder LS
Bizem	Firecracker LS	Olympic Gold	Sunset Gold
Blackwatch	Firenza	Padre	Taccoa
Blade Runner II	Five Point	Patagonia	Tanzania
Bonsai	Focus	Pedigree	Trio
Braveheart	Forte	Picasso	Tahoe II
Bravo	Garrison	Piedmont	Talladega
Bullseye	Gazelle II	Plantation	Tarheel
Cannavaro	Gold Medallion	Proseeds 5301	Terrano
Catalyst	Grande 3	Prospect	Titan ltd
Cayenne	Greenbrooks	Pure Gold	Titanium LS
Cessane Rz	Greenkeeper	Quest	Tracer
Chipper	Gremlin	Raptor II	Traverse SRP
Cochise IV	Greystone	Rebel Exeda	Tulsa Time
Constitution	Guardian 21	Rebel Sentry	Turbo
Corgi	Guardian 41	Rebel IV	Turbo RZ
Corona	Hemi	Regiment II	Tuxedo RZ
Coyote	Honky Tonk	Regenerate	Ultimate
Darlington	Hot Rod	Rendition	Venture
Davinci	Hunter	Rhambler 2 SRP	Umbrella
Desire	Inferno	Rembrandt	Van Gogh
Dominion	Innovator	Reunion	Watchdog
Dynamic	Integrity	Riverside	Wolfpack II
Dynasty	Jaguar 3	RNP	Xtremegreen
Endeavor	Jamboree	Rocket	

On cut and fill slopes 2:1 or steeper Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

All areas seeded and mulched shall be tacked with asphalt. Crimping of straw in lieu of asphalt tack shall not be allowed on this project.

SP-065 CRIMPING STRAW MULCH

Crimping shall be required on this project adjacent to any section of roadway where traffic is to be maintained or allowed during construction. In areas within six feet of the edge of pavement, straw is to be applied and then crimped. After the crimping operation is complete, an additional application of straw shall be applied and immediately tacked with a sufficient amount of undiluted emulsified asphalt.

Straw mulch shall be of sufficient length and quality to withstand the crimping operation.

Crimping equipment including power source shall be subject to the approval of the Engineer providing that maximum spacing of crimper blades shall not exceed 8".

SP-066 TEMPORARY SEEDING

Fertilizer shall be the same analysis as specified for *Seeding and Mulching* and applied at the rate of 400 pounds per acre and seeded at the rate of 50 pounds per acre. Sweet Sudan Grass, German Millet or Browntop Millet shall be used in summer months and Rye Grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

SP-067 FERTILIZER TOPDRESSING

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20- 20 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis and as directed.

Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas shall be 16- 8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

SP-068 SUPPLEMENTAL SEEDING

The kinds of seed and proportions shall be the same as specified for *Seeding and Mulching*, with the exception that no centipede seed will be used in the seed mix for supplemental seeding. The rate of application for supplemental seeding may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

SP-069 MOWING

The minimum mowing height on this project shall be 4 inches.

SP-070 NATIVE GRASS SEEDING AND MULCHING

(East)

Native Grass Seeding and Mulching shall be performed on the disturbed areas of wetlands and riparian areas, and adjacent to Stream Relocation construction within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank or center of depression. The stream bank of the stream relocation shall be seeded

by a method that does not alter the typical cross section of the stream bank. Native Grass Seeding and Mulching shall also be performed in the permanent soil reinforcement mat section of preformed scour holes, and in other areas as directed.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

March 1 - August 31		**September 1 - February 28**	
18#	Creeping Red Fescue	18#	Creeping Red Fescue
6#	Indiangrass	6#	Indiangrass
8#	Little Bluestem	8#	Little Bluestem
4#	Switchgrass	4#	Switchgrass
25#	Browntop Millet	35#	Rye Grain
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Approved Creeping Red Fescue Cultivars:

Aberdeen Boreal Epic Cindy Lou

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Native Grass Seeding and Mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

Measurement and Payment

All work and materials necessary for the installation of Native Seeding and Mulching shall be included in the Base Bid.

SP-071 MINIMIZE REMOVAL OF VEGETATION

The Contractor shall minimize removal of vegetation within project limits to the maximum extent practicable. Vegetation along stream banks and adjacent to other jurisdictional resources outside the construction limits shall only be removed upon approval of Engineer. No additional payment will be made for this minimization work.

SP-072 STOCKPILE AREAS

The Contractor shall install and maintain erosion control devices sufficient to contain sediment around any erodible material stockpile areas as directed.

No additional payment for work and materials necessary in the installation and maintenance of erosion control measures for waste and borrow sources constructed by the Contractor and associated with this Contract. In additional, waste and borrow source areas shall be restored with permanent vegetation as described herein and approved by the Engineer at the Contractor's expense.

SP-073 ACCESS AND HAUL ROADS

This work shall consist of installing temporary gravel roads for construction access and turnarounds for construction traffic in the locations specified on the plans. Refer to the Temporary Gravel Section for Construction Access and Turnarounds Detail for additional details.

At the end of each working day, the Contractor shall install or re-establish temporary diversions or earth berms across access/haul roads to direct runoff into sediment devices. Silt fence sections that are temporarily removed shall be reinstalled across access/haul roads at the end of each working day. Contractor to maintain gravel to prevent mud or sediment from leaving the construction site and may require periodic top dressing with 2" stone. Contractor shall remove temporary gravel access roads and the areas shall be stabilized and restored to pre-construction conditions.

Measurement and Payment

All work and materials necessary for the installation and of Access and Haul Roads shall be included in the Base Bid. Removal of Access and Haul Roads if directed by City of Greenville Project Manager shall be incidental to other work and shall be included in the Base Bid.

SP-074 WASTE AND BORROW SOURCES

The Contractor shall install and maintain erosion control devices sufficient to contain sediment around any erodible material or disturbed areas for waste and borrow sources as directed.

No additional payment for work and materials necessary in the installation and maintenance of erosion control measures for waste and borrow sources constructed by the Contractor and associated with this Contract. In additional, waste and borrow source areas shall be restored with permanent vegetation as described herein and approved by the Engineer at the Contractor's expense.

All offsite Staging Areas, Borrow and Waste sites shall be in accordance with "Borrow and Waste Site Reclamation Procedures for Contracted Projects" located at:

https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/ContractedReclamationProcedures.pdf

All forms and documents referenced in the "Borrow and Waste Site Reclamation Procedures for Contracted Projects" shall be included with the reclamation plans for offsite staging areas, and borrow and waste sites.

SP-075 TEMPORARY PIPE

The work covered by this section consists of furnishing, installing, maintaining and removing any and all temporary pipe used on this project in conjunction with erosion and sediment control measures and culvert construction. The Contractor shall install temporary pipe locations shown on the plans in such a manner approved by the Engineer. The minimum size requirements will be as stated on the Erosion Control plans.

All work and materials necessary for the installation of temporary piping shall be included in the Base Bid. Maintenance and removal of temporary piping shall be incidental to other work and shall be included in the Base Bid. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting with Contractor's Application for Payment.

Payment will be made under:

Pay Item	**Pay Unit**
24" Temporary Pipe (L2, Sta. 11+50)	Linear Feet

SP-076 TEMPORARY STREAM CROSSING

SP (Kimley-Horn and Associates, Inc.)

Temporary Stream Crossings shall be installed at the locations as shown in the plans and other locations as directed by the Engineer. The temporary pipe(s) shall be located in the bottom of the existing drainage channel. The pipe shall be covered with Class B rip rap, earth fill, filter fabric and #57 washed stone, etc. as shown in the construction detail for a Temporary Stream Crossing. Alternately, a bridgemat may be installed as a temporary stream crossing as shown in the construction detail in the plans.

All work and materials necessary for the installation of the temporary stream crossing or bridgemat shall be included in the Base Bid. Removal of the temporary stream crossing and restoring the stream channel to its original cross-section and re-stabilizing all disturbed area shall be incidental to other work and shall be included in the Base Bid. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting with Contractor's Application for Payment.

Payment will be made under:

Pay Item	**Pay Unit**
Temporary Stream Crossing (L2, Sta. 11+50)	Lump Sum

SP-077 TREE PROTECTION FENCE

(08/10/21) SP (Kimley-Horn and Associates, Inc.)

Description

Tree Protection Fence shall consist of the protection of selected trees, shrubs, or other woody plants. Fencing shall encompass the plants or trees to the drip-line. A warning sign shall be attached to the fence stating "Tree Protection" Deviations from this must be approved by the Engineer.

Sections of safety fencing shall be installed within two working days following mobilization operations and prior to clearing. Unless prior approval is received from the Engineer, failure to install the fence as specified herein will result in stoppage of all operations until the necessary safety fence is installed.

Materials

Polyethylene or polypropylene fence shall be a highly visible preconstructed safety fence approved by the Engineer. The fence material shall have an ultraviolet coating and be a minimum of 48" high.

Either wood posts or steel posts may be used. Wood posts shall be hardwood with a wedge or pencil tip at one end, and shall be at least 5 ft. in length with a minimum nominal 2" x 2" cross section. Steel posts shall be at least 5 ft. in length, and have a minimum weight of 0.85 lb/ft of length. Steel posts shall have bright orange rebar caps.

Construction Methods

No additional clearing and grubbing is anticipated for the installation of this fence. The fence shall be erected to conform to the general contour of the ground.

Posts shall be set at a maximum spacing of 10 ft., maintained in a vertical position. Posts shall be installed a minimum of 2 ft. into the ground. Wood posts may be sharpened to a dull point if power driven. Posts damaged by power driving shall be removed and replaced prior to final acceptance. The tops of all wood posts shall be cut at a 30-degree angle. The wood posts may, at the option of the Contractor, be cut at this angle either before or after the posts are erected.

The fence geotextile shall be attached to the wood posts with one 2" galvanized wire staple across each cable or to the steel posts with wire or other acceptable means.

Place construction stakes to establish the location of the tree protection fence in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications*. No direct payment will be made for the staking of the tree protection fence. All stakeouts for tree protection fence shall be considered incidental to the work being paid for as "Construction Surveying", except that where there is no pay item for construction surveying, all tree protection fence stakeout will be performed by state forces.

The Contractor shall be required to maintain the safety fence in a satisfactory condition for the duration of the project as determined by the Engineer.

The Contractor shall be required to maintain alternative stakes and highly visible flagging in a satisfactory condition for the duration of the project as determined by the Engineer.

Do not store construction materials, debris, excavated material, or equipment within the fence line or root zone of existing trees. Do not permit vehicles or foot traffic within the drip line; prevent soil compaction over root systems. All underground utilities and drain lines shall be routed outside of the tree protect6ion zone. If lines must traverse the protection area, they shall be bored under the tree. If temporary haul or access roads must pass over the root area of trees to be retained, a road bed of 6 inches of mulch or gravel shall be created to protect the soil. The road bed material shall be replenished as necessary to maintain a 6-inch depth.

Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any grading, construction, demolition or other work that is expected to encounter tree roots must be monitored by the consulting arborist. Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Should injury to a tree occur during construction, it should be evaluated as soon as possible by the consultant so that the appropriate treatments can be applied.

Plants that die as a result of the Contractor's negligence shall be removed and replaced as directed by the Engineer at the Contractor's expense. The new plant shall be guaranteed for a year, planted in the proper season, and planted with approved arboricultural specifications.

Do not allow fires under or adjacent to remaining trees or other plants.

The Contractor will be required to cooperate with other contractors, utility companies and others needing access to the project site as (approved by the engineer) to complete the work.

Measurement and Payment

All work and materials necessary for the installation of Tree Protection Fencing shall be included in the Base Bid. Removal of the Tree Protection Fence shall be incidental to other work and shall be included in the Base Bid. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting with Contractor's Application for Payment.

Payment will be made under:

Pay Item	**Pay Unit**
Tree Protection Fence	Linear Foot

SP-078 MUD MATS

Description

Mud mats shall be utilized in wetland areas to minimize impacts during bridge and boardwalk construction, and shall meet the requirements as specified herein or approved equal. Shop drawing of mud mats should be submitted prior to installation.

Construction Methods

Several mud mats may be laid with overlap to provide access for bridge and boardwalk construction. A minimum overlap of 6-inches is required, or as recommended by the manufacturer. Mud mats shall be secured in place, as specified by the manufacturer. Mud mats shall be installed as stated in the *Boardwalk, Culvert and/or Bridge Erosion Control Phasing* note shown on the plans and in accordance with the details in the plans.

The mud mats shall be constructed and maintained to the satisfaction of the Engineer until the bridge and/or boardwalks are completed. Proper maintenance shall include, but not be limited to, the periodic replacement of torn or broken fabric mud mat and the proper removal of sediment from the mud mat surface.

The fabric mud mat shall meet the following minimum requirements or an approval equal shall be submitted.

Parameter	Test Procedure	Minimum Value
Grab Tensile Strength	ASTM D4632	800 lbs.
Trapezoidal Tearing Strength	ASTM D4533	600 lbs.
Puncture Resistance	ASTM D4833	300 lbs.
Mullen Burst	ASTM D3786	400 psi
Apparent Opening Size	ASTM D4751	0.212 mm
Constant Head Permittivity	ASTM D4491	20.16 g/m/ft^2
Wide Width Tensile	ASTM D4595	650 lbs./in
Material	Woven Geotextile	100% Polypropylene

Method of Measurement

The quantity of mud mats to be paid for shall be measured per linear foot of mud mat (not stone) along the surface of the ground over which mud mat is installed and accepted. Overlaps will not be included in the measurement and will be considered as incidental to the work.

Basis of Payment

All work and materials necessary for the installation of Mud Mats shall be included in the Base Bid. Shop drawings, hauling, approach stone, maintenance and removal of the Mud Mats and re-stabilizing all disturbed area shall be incidental to other work and shall be included in the Base Bid. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting with Contractor's Application for Payment.

Payment will be made under:

Pay Item	Pay Unit
Mud Mat	Linear Foot

SP-079 CONCRETE WASHOUT STRUCTURE

(12-10-20)

Description

Concrete washout structures are enclosures above or below grade to contain concrete waste water and associated concrete mix from washing out ready-mix trucks, drums, pumps, or other equipment. Concrete washouts must collect and retain all the concrete washout water and solids, so that this material does not migrate to surface waters or into the ground water. These enclosures are not intended for concrete waste not associated with wash out operations.

The concrete washout structure may include constructed devices above or below ground and or commercially available devices designed specifically to capture concrete wash water.

Materials

Item	Section
Temporary Silt Fence	1605

Safety Fence/Tree Protection Fence shall meet the specifications as provided elsewhere in this contract.

Geomembrane basin liner shall meet the following minimum physical properties for low permeability; it shall consist of a polypropylene or polyethylene 10 mil think geomembrane. If the minimum setback dimensions can be achieved the liner is not required. (5 feet above groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

Construction Methods

Build an enclosed earthen berm or excavate to form an enclosure in accordance with the details and as directed.

Install temporary silt fence around the perimeter of the enclosure in accordance with the details and as directed if structure is not located in an area where existing erosion and sedimentation control devices are capable to containing any loss of sediment.

Post a sign with the words “Concrete Washout” in close proximity of the concrete washout area, so it is clearly visible to site personnel. Install safety fence as directed for visibility to construction traffic.

The construction details for the above grade and below grade concrete washout structures can be found on the following web page link:

https://connect.ncdot.gov/resources/roadside/SoilWaterDocuments/ConcreteWashoutStructuredetail.pdf

Alternate details for accommodating concrete washout may be submitted for review and approval.

The alternate details shall include the method used to retain and dispose of the concrete waste water within the project limits and in accordance with the minimum setback requirements. (5 feet above groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

Maintenance and Removal

Maintain the concrete washout structure(s) to provide adequate holding capacity plus a minimum freeboard of 12 inches. Remove and dispose of hardened concrete and return the structure to a functional condition after reaching 75% capacity.

Inspect concrete washout structures for damage and maintain for effectiveness.

Remove the concrete washout structures and sign upon project completion. Grade the earth material to match the existing contours and permanently seed and mulch area.

Measurement and Payment

All work and materials necessary for the installation of Concrete Washout Structures shall be included in the Base Bid. Removal of Concrete Washout Structures, hauling, and disposal fees for concrete waste shall be incidental to other work and included in the Base Bid. The following Pay Item is for reference only and may be used for tracking construction progress and / or reporting with Contractor's Application for Payment.

Payment will be made under:

Pay Item	**Pay Unit**
Concrete Washout Structure	Each

STANDARD SPECIAL PROVISIONS
PERMITS

The Contractor's attention is directed to the following permits, which have been issued or pending issuance to the City of Greenville by the authority granting the permit.

PERMIT	**AUTHORITY GRANTING THE PERMIT**
Water Quality (401)	Division of Environmental Management, DENR State of North Carolina
Water Quality (404)	
Buffer Certification	Division of Environmental Management, DENR State of North Carolina
Erosion Control	Department of Energy, Mineral, and Land Resources, DENR, State of North Carolina

The Contractor shall comply with all applicable permit conditions during construction of this project.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Contractor's attention is also directed to Articles 107-10 and 107-13 of the *2018 Standard Specifications* and the following:

Should the Contractor propose to utilize construction methods (such as temporary structures or fill in waters and/or wetlands for haul roads, work platforms, cofferdams, etc.) not specifically identified in the permit (individual, general, or nationwide) authorizing the project it shall be the Contractor's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Contractor shall also be responsible for initiating the request for the authorization of such construction method by the permitting agency. The request shall be submitted through the Engineer. The Contractor shall not utilize the construction method until it is approved by the permitting agency. The request normally takes approximately 60 days to process; however, no extensions of time or additional compensation will be granted for delays resulting from the Contractor's request for approval of construction methods not specifically identified in the permit.

Where construction moratoriums are contained in a permit condition which restricts the Contractor's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the waters or wetlands provided that activities outside those areas is done in such a manner as to not affect the waters or wetlands.

STANDARD SPECIAL PROVISIONS
ERRATA

(10-16-18) (Rev.2-16-21) Z-4

Revise the *2018 Standard Specifications* as follows:

Division 6

Page 6-7, Article 609-1 DESCRIPTION, line 29, replace article number "609-10" with "609-9".

Division 7

Page 7-27, Article 725-1 MEASUREMENT AND PAYMENT, line 4, replace article number "725-1" with "724-4".

Page 7-28, Article 725-1 MEASUREMENT AND PAYMENT, line 10, replace article number "725-1" with "725-3".

Division 10

Page 10-78, Article 1056-4 GEOTEXTILES, TABLE 1056-1, Permittivity, Type 2, replace "Table 6$^{\mathbf{D}}$" with "Table 7$^{\mathbf{D}}$" and **Permittivity, Type 3$^{\mathbf{B}}$,** replace "Table 7$^{\mathbf{D}}$" with "Table 8$^{\mathbf{D}}$".

Page 10-121, Article 1076-7, REPAIR OF GALVANIZING, line 8, replace article number "1080-9" with "1080-7".

Page 10-162, Article 1080-50 PAINT FOR VERTICAL MARKERS, line 1, replace article number "1080-50" with "1080-10".

Page 10-162, Article 1080-61 EPOXY RESIN FOR REINFORCING STEEL, line 5, replace article number "1080-61" with "1080-11".

Page 10-162, Article 1080-72 ABRASIVE MATERIALS FOR BLAST CLEANING STEEL, line 22, replace article number "1080-72" with "1080-12".

Page 10-163, Article 1080-83 FIELD PERFORMANCE AND SERVICES, line 25, replace article number "1080-83" with "1080-13".

Division 17

Page 17-15, Article 1715-4 MEASUREMENT AND PAYMENT, lines 42-44, replace the second sentence with the following:

An example is an installation of a single 1.25 inch HDPE conduit would be paid as:

Directional Drill (1)(1.25″) Linear Foot

STANDARD SPECIAL PROVISIONS
PLANT AND PEST QUARANTINES

(Imported Fire Ant, Gypsy Moth, Witchweed, Emerald Ash Borer, Guava Root Knot Nematode, And Other Noxious Weeds)

(3-18-03) (Rev. 5-21-19) Z-04a

Within Quarantined Area

This project may be within a county regulated for plant and/or pests. If the project or any part of the Contractor's operations is located within a quarantined area, thoroughly clean all equipment prior to moving out of the quarantined area. Comply with federal/state regulations by obtaining a certificate or limited permit for any regulated article moving from the quarantined area.

Originating in a Quarantined County

Obtain a certificate or limited permit issued by the N.C. Department of Agriculture/United States Department of Agriculture. Have the certificate or limited permit accompany the article when it arrives at the project site.

Contact

Contact the N.C. Department of Agriculture/United States Department of Agriculture at 1-800-206-9333, 919-707-3730, or *https://www.ncagr.gov/plantindustry/Plant/quaran/table2.htm* to determine those specific project sites located in the quarantined area or for any regulated article used on this project originating in a quarantined county.

Regulated Articles Include

1. Soil, sand, gravel, compost, peat, humus, muck, and decomposed manure, separately or with other articles. This includes movement of articles listed above that may be associated with cut/waste, ditch pulling, and shoulder cutting.
2. Plants with roots including grass sod.
3. Plant crowns and roots.
4. Bulbs, corms, rhizomes, and tubers of ornamental plants.
5. Hay, straw, fodder, and plant litter of any kind.
6. Clearing and grubbing debris.
7. Used agricultural cultivating and harvesting equipment.
8. Used earth-moving equipment.
9. Any other products, articles, or means of conveyance, of any character, if determined by an inspector to present a hazard of spreading imported fire ant, gypsy moth, witchweed, emerald ash borer, guava root knot nematode, or other noxious weeds.

FORMS
ADDITON TO STANDARD CITY FORMS

RELEVANT WORK EXPERIENCE, TIMBER BOARDWALKS

RELEVANT WORK EXPERIENCE, PRE-FABRICATED PEDESTRIAN BRIDGES

PROFESSIONAL QUALIFICATIONS

RELEVANT WORK EXPERIENCE, TIMBER BOARDWALKS

Contractor Name: _____

Subcontractor Name (if applicable): _____

TIMBER BOARDWALK CONSTRUCTION

Performed by Contractor or Subcontractor (circle one):

Project: _____

Project Location: _____

Project Owner: _____

Owner's Point of Contact
Name: _____

Email: _____

Phone" _____

Mailing Address _____

Contractor or Subcontractor's role in this project and general description of scope of work as relevant to this Contract.

_____

_____

Original Contract Duration: _____

Final Contract Duration: _____

Provide explanation if different. _____

Describe project conditions and approach to construction of the relevant work.

_____

_____

List type of primary equipment used in construction of the relevant work.

_____

_____

(Copy form as needed to include additional relevant work experience.)

RELEVANT WORK EXPERIENCE, PRE-FAB PED BRIDGE

Contractor Name: _____

Subcontractor Name (if applicable): _____

PRE-FABRICATED PEDESTRIAN BRIDGE CONSTRUCTION

Performed by Contractor or Subcontractor (circle one):

Project: _____

Project Location: _____

Project Owner: _____

Owner's Point of Contact
Name: _____

Email: _____

Phone" _____

Mailing Address _____

Contractor or Subcontractor's role in this project and general description of scope of work as relevant to this Contract.

_____

_____

Original Contract Duration: _____

Final Contract Duration: _____

Provide explanation if different. _____

Describe project conditions and approach to construction of the relevant work.

_____

_____

List type of primary equipment used in construction of the relevant work.

_____

_____

(Copy form as needed to include additional relevant work experience.)
(Provide additional sheets as needed to adequately respond to questions.)

PROFESSIONAL QUALIFICATIONS

Contractor Name: _____

Subcontractor Name (if applicable): _____

Provide the name(s) of the foreman or supervisor (that will be expected to remain onsite during construction activities per the terms of the Contract), including a description of his or her relevant prior work experience on similar projects.

Name of foreman or supervisor: _____

Prior work experience with timber boardwalk construction projects:

Name of foreman or supervisor: _____

Prior work experience with pre-fabricated bridge construction projects:

(Copy form as needed to include additional relevant professional experience.)

APPENDIX

NCDEQ LAND QUALITY SECTION LETTER OF APPROVAL

USACE GENERAL PERMIT (SECTION 404)

NCDEQ DWR 401 WATER QUALITY CERTIFICATION APPROVAL

NCDEQ DWR TAR-PAMLICO RIPARIAN BUFFER IMPACT APPROVAL

NCDOT ENCROACHMENT AGREEMENT

GEOTECHNICAL ENGINEERING REPORT dated October 27, 2021

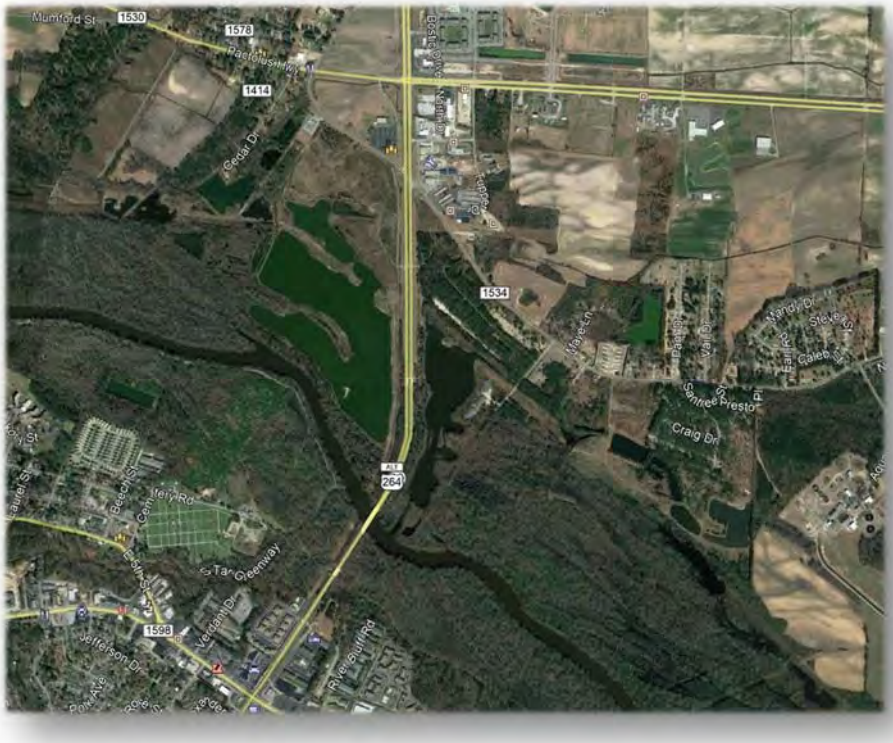
GEOTECHNICAL FOUNDATION RECOMMENDATIONS LETTER dated February 11, 2022

CONSTRUCTION DRAWINGS FOR BID dated February 28, 2022

GEOTECHNICAL REPORT OF SUBSURFACE INVESTIGATION

WILDWOOD PARK ELEVATED WALKWAYS AND TOWER

GREENVILLE, NORTH CAROLINA



PREPARED FOR:
KIMLEY-HORN AND ASSOCIATES
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NORTH CAROLINA 27601

PREPARED BY:
FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
CARY, NORTH CAROLINA 27513
PROJECT NUMBER: G21021.00
OCTOBER 27, 2021

October 27, 2021

Mr. Brandon White, PLA, ASLA
Kimley-Horn and Associates
421 Fayetteville Street, Suite 600
Raleigh, North Carolina 27601

Re: **Geotechnical Report of Subsurface Investigation**
Wildwood Park Elevated Walkways and Tower
Greenville, North Carolina
Falcon Project No.: G210201.00

Dear Brandon:

As authorized, Falcon Engineering, Inc. (Falcon) has completed the subsurface investigation for the above referenced project for Kimley-Horn and Associates (KHA) and the City of Greenville (City). This subsurface investigation was conducted during July 2021. The opinions and observations rendered in this report are based solely on our site reconnaissance, performance of sixteen (16) soil test borings, review of previous investigation performed nearby, engineering evaluation of the data obtained, and generally accepted geotechnical engineering practices and principles. Falcon appreciates the opportunity to have provided geotechnical engineering services to KHA and the City for this project. If you have any questions concerning the contents of this report or need additional information, please do not hesitate to contact our office.

Sincerely,
FALCON ENGINEERING, INC.

W. Scott Hunsberger, PE
Project Engineer / Project Manager

Jeremy R. Hamm, PE
Geotechnical Services Manager

TABLE OF CONTENTS

APPENDIX

SECTION 1: PROJECT INFORMATION

This report presents the field and laboratory test procedures and their results and geotechnical recommendations for the proposed project. Our investigation was performed in general accordance with the scope of services outlined in our proposal F2021-003, dated March 25, 2021.

1.1 PROJECT DESCRIPTION

The project consists of expanding the existing Wildwood Park to include new facilities on both the existing park premises east of Greenville Boulevard, and additional property acquired to the west of Greenville Boulevard. The project will include various walking trails consisting of a mix of boardwalks, prefabricated bridge structures, concrete walks, and soft trail. West of Greenville Boulevard, approximately 600 feet of boardwalk will connect soft trails in the existing River Park North with the new portion of Wildwood Park. An additional 60-foot prefabricated pedestrian bridge will provide a future connection to soft trails in northwestern portion of the park.

A new concrete connector trail will be constructed beneath the existing dual bridges on Greenville Boulevard to provide a pathway connecting the eastern and western portions of Wildwood Park.

East of Greenville Boulevard, approximately 530 feet of elevated structure will provide a continuous pathway around the south of the existing lake, include a 70-foot prefabricated bridge and approximately 530 feet of boardwalk. Additionally, an observation tower will be constructed within the lake with an approximately 40-foot boardwalk approach from the shoreline. Concrete trails will be constructed leading from the parking lot and shelter area to the boardwalk, as well as from the southern boardwalk to a beach area on the Tar River. A total of approximately 1,200 linear feet of concrete trail will be constructed throughout the park.

1.2 SITE DESCRIPTION

The Project area is located north of the Tar River surrounding small lakes on either side of Greenville Boulevard. The project consists of five small areas that will add improvements to Wildwood Park as noted in the project description above. To the west of Greenville Boulevard, the site is undeveloped with tress lining the lake with an existing natural surface trail from River Park North arriving from the west. A wide swamp area divides the River Park North Trail from existing trails around the western lake. To the east of Greenville Boulevard, a primitive trail surrounds the tree lined lake except for the southern portion of the lake. A channel connects the lake waters to another smaller backwater which then leads directly to the Tar River. East of the eastern lake are existing shelters, parking area, and access drive accessible from Blue Heron Drive. We understand the lakes are former borrow pits utilized for nearby roadway construction. The lakes are typically surrounded by a narrow berm, which then drops off to various low-lying areas and channels which are occasionally inundated with water.

1.3 SITE GEOLOGIC DESCRIPTION

North Carolina is divided into three physiographic provinces: the Coastal Plain, the Piedmont and the Blue Ridge. Each province is characterized by types of landforms. The Project Site is located within the Coastal Plain which is characterized by flat land to gently rolling hills and valleys. The Coastal Plain is a wedge of mostly marine sedimentary rocks that gradually

thickens to the east. The Coastal Plain is the largest geologic element in the state, covering about 45 percent of the land area. The most common sediment types are sand and clay, although a significant amount of limestone occurs in the southern part of the Coastal Plain. According to the *Geologic Map of North Carolina, 1985*, the Project Site is located within the Yorktown Formation (Tpy) of the Coastal Plain. The Yorktown Formation is characterized by fossiliferous clay with varying amounts of fine-grained sand of a bluish gray color. Shell material is commonly concentrated in lenses.

As described in Section 1.2 above, the lakes on site are former borrow pits, and manmade berms surround the lake. The berms are assumed to be leftover material or overburden excavated from the lakes.

1.4 TOPOGRAPHICAL DATA

Topographical data of the Site was downloaded from the NOAA Data Access Viewer website: https://coast.noaa.gov/dataviewer/?#/lidar/search/. The downloaded dataset consists of surface elevations measured via LiDAR between 2014 and present day. Surface data was collected at a resolution of 2 points per meter and is considered Quality Level 2 (QL2). The data was used to create a model of the site ground surface to determine ground surface elevations at boring locations. While the data is considered high quality, ground surface elevations produced from the model should be considered approximate. Elevations were verified using drawings with contours provided by KHA.

SECTION 2: PURPOSE AND SCOPE

Falcon has performed a geotechnical subsurface investigation for the proposed project. The purpose of this investigation is to provide a general characterization of existing onsite soils, rock, and groundwater conditions, earthmoving recommendations, fill and backfill recommendations, site excavation considerations, groundwater considerations, foundation recommendations and considerations, lateral earth design parameters, and greenway trail recommendations.

The project was accomplished through completion of the following tasks:

- Site reconnaissance by Falcon's Geotechnical Engineering personnel.
- Performance of nine (9) Standard Penetration Test (SPT) soil borings, three (3) hand auger borings and seven (7) rod soundings.
- Visual-manual classification and stratification of the soil samples according to the American Association of State Highway and Transportation Officials (AASHTO) system;
- Analysis of field and laboratory test data and collected soil samples;
- Preparation of this formal engineering report summarizing the field and laboratory test results and our geotechnical recommendations for design and construction.

SECTION 3: FIELD INVESTIGATION

3.1 SITE RECONNAISSANCE AND PROJECT SET-UP

Boring locations were selected by KHA and their coordinates were obtained using the provided georeferenced CAD files. Boring coordinates were uploaded to a hand-held Trimble GEO7X GPS unit capable of submeter accuracy which was used to identify the boring locations in the field. Falcon geotechnical staff visited the project site to stake out the borings, perform an initial assessment of site access, and make any necessary field offsets of boring locations.

Prior to performing soil test borings, Falcon personnel contacted the North Carolina One-Call Center to request subscriber utilities be located on site. Utilities were either marked in the field or noted to be specifically not in conflict with our marked boring locations prior to the beginning of our field investigation.

As-drilled boring coordinates were collected with the same GPS and compiled on the provided CAD files. Ground elevations at boring locations were interpolated from contour lines obtained from data taken from the NOAA Digital Coast: Data Access Viewer.

3.2 SOIL TEST BORINGS

Between July 13th and 16th, 2021, nine (9) Standard Penetration Test (SPT) soil borings were performed at the site. The SPT borings were advanced to a maximum depth of 67.7 feet below the current ground surface by a drill rig equipped for mud rotary drilling. The drill rigs used during this investigation is a CME 45 truck mounted rig and Diedrich D-25 barge mounted rig. The drill rigs utilized a automatic hammers to obtain SPT N-values and soil samples. SPT borings were performed in general accordance with AASHTO T206 "Penetration Test and Split-Barrel Sampling of Soils". Soil samples were obtained from soil borings at regular intervals using a split-barrel sampler and visually classified in accordance with the American Association of State Highway and Transportation Officials (AASHTO). All soil samples were sealed in moisture proof containers, labeled, and transported to our laboratory for further analysis.

Seven (7) rod soundings were performed along the proposed alignment in areas inaccessible by drill rig. NCDOT Rod Soundings were performed using equipment meeting NCDOT specifications. The equipment consists of 5 foot long sections of ½ inch diameter, smooth steel rods, ¾ inch diameter steel couplers, and an approximately 16 pound slide hammer. The rods are advanced by dropping the slide hammer from a height of approximately 30 inches. The number of hammer drops required to drive the rod one foot is recorded as the increment blow count. Based on NCDOT established correlations to SPT N-values, approximately 148 or more blows per foot of penetration on the rod sounding indicates an SPT N-value of approximately 100 blows per foot, potentially indicating the presence of very hard residual soils, weathered rock, and/or rock. Driving beyond this resistance is difficult and therefore rod soundings are typically terminated upon encountering weathered rock.

At three (3) rod sounding locations, a hand auger boring was also performed to collect soil samples. Hand auger borings were terminated when caving soils prevented further progress.

SECTION 4: LABORATORY TESTING

All soil samples collected from the borings were stored in moisture proof containers and transported to our laboratory. All soil samples were reviewed by our geotechnical staff and were visually-manually classified in accordance with AASHTO M 145 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)" and the American Association of State Highway and Transportation Officials (AASHTO) system. During review of the collected soil samples, staff selected several representative samples for further analysis in Falcon's soils laboratory.

- Three (3) grab samples (S-#) and five (5) split-spoon (SS-#) samples were tested for natural moisture content, Atterberg limits, and mechanical sieve analyses.

Moisture content testing results are shown on the individual Test Boring Logs in Appendix B of this report. Detailed soil laboratory testing results can be found in Appendix C of this report. A summary of soil classification test results is included in the Table below:

TABLE 4.1: LABORATORY INDEX TESTING SUMMARY

SAMPLE ID	BORING ID	DEPTH (FT)	NATURAL MOISTURE CONTENT (%)	PERCENT PASSING			ATTERBERG LIMITS			AASHTO CLASS.
				#10	#40	#200	LL	PL	PI	
S-01	BGS-01	5.5-6.0	33.9	100	96	81.0	45	23	22	A-7-6
S-02	BT-01	2.5-3.0	22.3	100	95	72.0	38	21	17	A-6
S-03	CT-01	4.1-4.5	24.2	99	86	44.6	21	17	4	A-4
SS-01	BGS-06	18.5-20.0	24.0	99	63	7.9	NP	NP	NP	A-3
SS-02	BW-01	18.5-20.0	41.3	100	97	49.7	51	21	30	A-7-6
SS-03	BW-02	13.0-14.5	22.9	97	93	37.2	26	23	3	A-4
SS-04	BW-04	6.0-7.5	25.6	99	88	17.8	NP	NP	NP	A-2-4
SS-05	TB-02	28.5-30.0	21.4	88	64	25.0	26	23	3	A-2-4

SECTION 5: SUBSURFACE CONDITIONS

5.1 SURFACE MATERIALS, SOIL, AND ROCK

Alluvial soils are soils that have been transported and deposited by flowing water. Soil particles in alluvium tend to segregate based on grain size. Usually, larger particles like gravel and sand are located at the bottom of a deposit and finer particles like silt and clay are located at the top of a deposit. Alluvium was identified in all borings performed to approximate depths ranging from 6.0 to 28.0 feet below the existing ground surface. Recovered samples of alluvium were visually-manually classified as A-1-b, A-2-4, A-2-6, A-3, A-4, A-6 and A-7-6 soils. Relative moisture of alluvial samples recovered indicates moist to saturated conditions.

Coastal Plain soils are soils that have been transported and deposited by rivers, streams, estuaries, or the ocean mainly during the Tertiary Period. Coastal plain soils were identified below alluvial soils in nine (9) borings. Recovered samples of coastal plain soils were visually-manually classified as A-2-4, A-2-6, A-3, A-4, A-6, and A-7 soils. Relative moisture of residual samples recovered indicate wet to saturated conditions.

Coastal Plain Sedimentary Rock (CPSR) consisting of cemented sands and limestone was encountered in nine (9) borings. CPSR is defined as a material that yields auger refusal or 1 inch of penetration or less after 100 blows by a split-spoon sampler when subjected to Standard Penetration Testing. CPSR was encountered at an approximate depth ranging from of 15.7 feet to 54.4 feet corresponding to approximate elevations of -10.5 feet to -47.5 feet.

5.2 GROUNDWATER MEASUREMENTS

After each boring was drilled, the boreholes were inspected for the presence of groundwater. Immediate, zero-hour groundwater was observed at all locations at depths ranging from the ground surface to 12 feet below the existing ground surface. Some boreholes were left open for a period of 24 hours to observe a static groundwater level. Groundwater and borehole cave-in depths are shown on the individual Test Boring Logs. No groundwater readings could be obtained from sounding rod locations.

The groundwater table near the Tar River will be heavily influenced by precipitation events and the water level in the river. The groundwater table should be anticipated to be near or slightly above the water surface in the Tar River at the time.

5.3 SUBSURFACE DATA PRESENTATIONS

The Legend to Soil and Rock Classification and Symbols can be used as a reference for symbols, common definitions, or other terminology used in textual/graphical representation of subsurface data. Boring Location Plans were created by depicting as-drilled boring locations on the CAD survey file overlaid onto georeferenced aerial imagery. Subsurface Profiles were created along select sections of the alignment depicting subsurface data with respect to existing grades and proposed grades. Surface and subsurface conditions at each boring were compiled on to individual Test Boring Logs. These documents can all be found in Appendix B of this report.

SECTION 6: GEOTECHNICAL RECOMMENDATIONS AND CONSIDERATIONS

A summary of geotechnical issues with the potential to impact design and construction are provided below. Detailed discussions of each of these issues are provided in the sections that follow.

- **Groundwater and surface water fluctuation** will be significant, and large portions of the project area will may be inundated for significant periods of time. Earthmoving operations performed during winter months or periods of inclement weather may be difficult and time consuming, and boardwalk construction areas may be inaccessible.
- **Existing soils** on site will likely be suitable for use as structural fill/backfill provided they are low plasticity, free of debris, broken up into particle sizes not exceeding 3 inches in the longest dimension, and placed at suitable moisture contents.
- **Prefabricated Bridge Foundations** will likely consist of steel H-piles. Pile lengths will depend on pile load demands.
- **Boardwalk Foundations** will likely consist of 8-inch tip diameter timber piles. Some taller bents will require larger diameter piles, additional and/or battered piles, and additional bracing the stiffen structure against deflections. Timber piles should include steel driving shoes to avoid damage for driving to or into cemented layers in the subsurface.
- **Tower Foundation** layout and load demands are unknown at this time. Depending on load demands, timber or steel piles would be preferred pile options. However, uplift demands may require a drilled foundation, pre-drilling, pile excavation, spudding, and/or heavier (i.e. concrete or concrete-filled steel pipes).

6.1 EARTHMOVING

6.1.1 DEMOLITION, CLEARING, STRIPPING, AND GRUBBING

At the outset of construction, existing topsoil should be completely removed and wasted on site if possible. Excess material should be disposed off-site. Removal of any trees should include the entire root ball, and the resulting depression should then be backfilled with approved fill materials. Larger diameter trees will require more materials to fill the void left from removal.

6.1.2 ENGINEERING BEHAVIOR OF SOILS

After demolition and/or stripping, the on-site soils will be exposed to weather events. Extended periods of rain or intrusion of runoff may damage otherwise suitable site subgrades necessitating repair or remediation. Excessive degradation of fill soils can be mitigated by compacting near-surface lifts at, or wet of, optimum moisture and achieving at least 98 percent compaction.

Earthmoving operations performed during wet, winter months (November to March) will be difficult and time consuming (i.e. expensive). Traditional drying operations will be minimally effective during this time. We suggest the majority of earthmoving operations be performed during drier months.

6.1.3 INSPECTION OF SITE SUBGRADES

After stripping/grubbing activities are complete, all areas designated to receive fill shall be proofrolled using a fully-loaded tandem-axle dump truck. Any unstable areas should be evaluated by one of Falcon's Geotechnical Engineers to determine the type and extent of repairs or stabilization measures which may be necessary.

Once rough-grading is complete and approximate concrete trail subgrades are established, the subgrade areas should be proofrolled using a fully-loaded tandem-axle dump truck. Any soft/unstable areas and/or highly elastic/plastic soils exposed at

subgrade should be evaluated by one of Falcon's Geotechnical Engineers or a representative thereof to determine the type and extent of repairs or stabilization measures which may be necessary.

The outcome of site proofrolling may vary depending on recent precipitation events and time of year. Grading activities conducted during wet periods may damage and disturb prepared subgrades. Site subgrades may be preserved by applying lime and compacting during grading activities, or capping off with ABC stone and applying a slight crown so as to promote drainage.

6.1.4 SUBGRADE STABILIZATION

Following stripping and grubbing of topsoil/rootmat the proposed concrete trail subgrade may require stabilization. While boring data is limited, it appears much of the subgrade is sandy and well above the water table. In this case, existing subgrades may be stabilized adequately by scarifying, moisture conditioning, and compacting in place. In areas where this is not suitable, stabilization can be achieved by undercutting approximately one foot, placing a soil stabilization geotextile, and replacing with NCDOT Class IV Materials (ABC stone). Based on the areas of concrete trail shown, we recommend a quantity of 200 CY of undercut, 600 SY of geotextile, and 400 tons of Class IV material be included in the contract. This approach may also be used to stabilize small areas of soft trail

6.2 FILL SELECTION, PLACEMENT, AND BACKFILL

Fill and backfill operations should be continuously monitored and documented. Soil compaction should be tested in accordance with the sand cone, drive tube, or nuclear density gauge methods performed at a minimum rate of 1 test per lift, per 200 linear feet of trail, per day.

Most of the existing soils onsite will likely be suitable for use as fill or backfill. If imported material is needed, it should consist of NCDOT Class II (any Type), III (any Type), or IV Select Material per NCDOT 2018 Standard Specification. We recommend fill and backfill be placed and compacted to a uniform, maximum dry density as noted in accordance with the following:

TABLE 6.1: FILL AND BACKFILL REQUIREMENTS

LOCATION	COMPACTION REQUIREMENTS	MOISTURE REQUIREMENTS
Structural Fill/Backfill	95% per AASHTO T-99	2% dry to 2% wet
Aggregate Base Course	98% per AASHTO T-180	2% dry to 2% wet

6.3 SITE EXCAVATION

6.3.1 GENERAL EXCAVATION

Normal sized earth moving equipment such as rubber-tire backhoe and small to medium sized, track-mounted hydraulic excavators should be suitable to excavate most subsurface materials above the cemented sand and limestone lenses. However, excavations extending into cemented materials are not anticipated.

6.3.2 EXCAVATION SAFETY

All excavations deeper than 4 feet must conform to applicable sections of the Construction Industry Occupational Safety and Health Administration (OSHA) Standards (29CFR1926). In general, compliance will require either sloping back excavations or the use of trench boxes or temporary shoring systems, or some combination of both. The referenced (OSHA) standard should be reviewed for requirements regarding use of sloping and/or trench boxes. The shoring system(s) should be designed to resist lateral earth stresses from existing soils and any nearby structures, account for any adjacent roadways or other infrastructure, and include any surcharge loading for construction equipment or public traffic. Designs should include an appropriate hydrostatic pressure to account for rises in groundwater levels and/or water infiltrating the retained soils. The selected system should consider this condition and the design should address feasible penetration depth. Subsurface conditions, depth of excavations, and horizontal and vertical space constraints will dictate the design of the shoring system along with other considerations such as local availability of materials and equipment. It is the contractor's responsibility to design and construct stable, temporary excavations as part of their safety procedure in accordance with local, state, and federal safety regulations. Falcon does not assume responsibility for construction safety or the contractor's or other party's compliance with applicable safety or other regulations. In addition to the OSHA standards, the Contractor's excavation safety plans should comply with any encroachment or other landowner agreements.

6.4 GROUNDWATER, DEWATERING, DRAINAGE

6.4.1 GROUNDWATER MECHANICS

Groundwater typically flows in the direction of surface water and should be expected in excavations along any existing site drainage features and in other low-lying areas. Groundwater levels will vary with environmental variations and seasonal conditions, such as the frequency and magnitude of rainfall. Consequently, excavations performed during the drier months of the year may yield more favorable groundwater conditions.

6.4.2 STATIC GROUNDWATER

Immediate and/or static groundwater was encountered in all borings. Ground water will generally be level to slightly above the surface waters in the project area. Shallow groundwater may present issues at construction and dewatering measures should be anticipated. Outside of the typically low-lying/wet areas, near surface soils are mostly sandy and should drain well.

6.4.3 SITE DRAINAGE AND DIVERSION

Site drainage within construction areas should be maintained to direct stormwater runoff away from excavations and construction areas. Surface water can generally be controlled or mitigated by constructing drainage ditches, berms, and/or by grading the site to sheet flow toward natural drainage features and away from excavations. The Contractor should sequence grading operations to provide as much surface drainage as possible away from open excavations or exposed subgrades as possible throughout construction.

6.5 FOUNDATIONS

6.5.1 BOARDWALK FOUNDATIONS

Timber boardwalks are typically supported on driven timber piles. However, portions of the boardwalks on this project have large unsupported lengths. Limiting pile deflections may require additional piles, additional pile bracing, larger diameter piles, battered piles, or even switching to steel piles. Detailed foundation recommendations for the boardwalks will be provided under separate cover based on loads provided by Kimley-Horn.

6.5.2 PREFABRICATED BRIDGE FOUNDATIONS

Prefabricated bridge structures are typically supported on driven steel H-piles with cast-in-place concrete caps. Given the fully supported nature of end bent piles, lengths of the bridge structures and corresponding relatively light loads, HP12x53 piles will likely provide adequate axial and lateral support. Detailed foundation recommendations for the boardwalks will be provided under separate cover based on loads provided by Kimley-Horn.

6.5.3 TOWER FOUNDATIONS

The tower foundation is anticipated to be supported by deep foundations. However, a conceptual foundation layout has not been provided. Given the height of the tower and overturning resistance demands, we anticipate uplift resistance may be necessary. Given the relatively shallow cemented layers encountered at the tower location, we anticipate pile excavation, pre-drilling, spudding to achieve embedment past the cemented layer, and/or the use of a heavy pile such as concrete-filled steel pipe piles may be necessary. Adding dead load to the structure by way of a large cast-in-place concrete cap may also provide adequate uplift resistance. Finally, a drilled foundation such as drilled piers or micro-piles can provide additional uplift resistance. Detailed foundation recommendations for the boardwalks will be provided under separate cover based on loads provided by Kimley-Horn or others.

6.6 CONNECTOR TRAIL RETAINING WALL AND ABUTMENT SLOPE

6.6.1 CONCEPT AND DESIGN CONSIDERATIONS

The connector trail between the east and west portions of the park will pass beneath the existing dual bridge structures on Greenville Boulevard. The trail will cross beneath the bridges at the bottom of the northern abutment slope. The existing slope is dressed with a mixture of concrete and rip-rap slope protection. Beneath the bridges, the ground surface drops into a low depression regularly holds water on the order of up to a few feet deep. Additional rip-rap appears to line much of the bottom of the depression. Ideally, a shallow swale should be graded away from the depression so that it can drain properly, prior to construction of the connector trail. However, if that cannot be considered as part of the project, the trail can be built on an elevated berm by benching in new fill and/or constructing a small retaining wall. Concepts discussed include various gravity style retaining walls, cast-in-place concrete cantilever retaining wall, and a simple embankment with a turn-down slab on the downslope side of the berm. Coordination with NCDOT will likely bring up concerns regarding any potential interference with bridge foundations, abutment slope stability, or maintenance activities. It should be noted that while we do not have sufficient subsurface data to perform an abutment slope stability analysis, adding any weight (structure/fill) beyond the toe of the slope will have a net positive effect on global slope stability. This is based on the mechanics of slope stability

wherein weight extending the toe of the slope and/or adding weight beyond the toe of the existing slope creates additional resisting forces and increases the factor of safety.

Placing fill for the connector trail embankment may require placement of fill within the existing ponded water area. Whether or not the area will be drained by way of a swale, we would recommend at minimum that the existing water be pumped out temporarily. Ideally, a small sump would be excavated at a low point to allow the groundwater to draw down beneath the existing ground surface through much of the area. Alternatively, NCDOT Class III Select Granular Material can be placed in standing water. Generally, placing this material up to 3 feet above surface water will provide adequate separation for compaction of additional fill and/or subgrades.

6.6.1 RETAINING WALL DESIGN PARAMETERS

We recommend retaining walls (excluding end bents) be designed for a net allowable bearing capacity of 2,000 psf supported on new, controlled fill, or improved subgrade. Based on our boring, approximately the upper foot of the ground surface here is soft/wet and not adequate to support the retaining wall foundation. Foundations should bear below this depth, or else this material should be improved by undercutting and replacing, compacting in place, or working rip-rap/surge stone into the subgrade and then adding a leveling pad of ABC stone. A coefficient of sliding friction of 0.35 may be used in design for calculating sliding resistance of concrete footings cast against properly prepared foundation subgrades.

The availability of the allowable bearing pressure is predicated upon Falcon's ability to evaluate, inspect, and/or test all foundation subgrades to verify subsurface conditions prior to placement of concrete and reinforcements. Inspection/evaluation of capacity shallow foundation subgrades should be performed by a Senior Inspector working closely with an Engineer. Offending materials encountered at, and below, footing subgrades will require repair under the direction of Falcon's Geotechnical Engineer or a representative thereof.

Expansion joints should be provided at regular intervals in accordance with ACI guidelines. Foundations in unheated areas should be designed to bear at least 18 inches below finished grades for frost protection. Footings should be designed such that no utility lines, utility line excavation, or any other footings are located within a 1:1 zone of influence of the subject footing edge.

Walls that are free to deflect at the top should be designed for an active earth condition. Passive resistance of soils in front of walls may be considered if they are not subjected to erosion or change in density. We recommend using a factor of safety of 1.5 on the passive condition side to accommodate the necessary movement to mobilize passive resistance. Cantilever or gravity style retaining walls may be designed using the following lateral earth stress parameters:

TABLE 6.2: LATERAL EARTH STRESS PARAMETERS

PARAMETER	STRUCTURAL FILL	SELECT GRANULAR FILL
Saturated Unit Weight (pcf)	120	130
Friction Angle (degrees)	28	32
Active Earth Stress Coefficient	0.36	0.31
Passive Earth Stress Coefficient	2.77	---
Coefficient of Sliding Friction	0.35	0.35
Equivalent At-Rest Fluid Pressure (psf)	65	62
Equivalent Active Fluid Pressure (psf)	45	42
Equivalent Passive Fluid Pressure (psf)	330	---

Note that select granular fill parameters can only be used if the backfill extends behind the wall to a length equal to the height of the wall. These design soil parameters are based on horizontal backfill and no surcharge loading.

6.6.3 DRAINAGE CONSIDERATIONS

All retaining walls and boardwalk abutment walls should be designed with a permanent drainage system to relieve hydrostatic forces. A typical drainage system consists of a drainage course behind the entire wall and a means to provide grade and outfall for draining water. The drainage course typically consists of a 6 to 24-inch-wide layer of washed stone (#78M, #67, or #57 stone), wrapped in filtration geotextile (such as Mirafi 180N or similar), and a perforated pipe located at the bottom of wall. As an alternative, the washed stone and fabric can be substituted for a minimum 18-inch-wide layer of select granular fill meeting the gradation of concrete sand (ASTM C33) and a prefabricated vertical drainage mat placed immediately against the waterproofing membrane. The perforated pipe is still required for this alternative.

SECTION 7: ADDITIONAL SERVICES

This Geotechnical Subsurface Investigation is intended to be a design level report. Therefore, as the project progresses through the remaining design phase, bidding, and construction, we would be pleased to provide a cost proposal to you in order to perform any or all of the following additional tasks:

- Provide detailed foundation recommendations once loads for the boardwalks, bridges, and tower are available.
- Provide review of construction submittals relating to boardwalk bridge and tower foundation construction.
- Provide geotechnical consulting during construction as it relates to foundation installation.
- Review relevant portions of the plans and specifications for compliance with this report.
- Provide Construction Materials Testing (CMT) and Foundation/Retaining Wall inspection services during the construction phase of the project.

SECTION 8: CLOSURE

Recommendations and evaluations provided by Falcon are based on the project description as outlined herein. Modifications of our recommendations and evaluations may be required if there are changes to the proposed project. Recommendations in this report are based on data obtained from our subsurface field exploration and laboratory testing programs. Due to the minimal amount of subsurface data and large spacing between borings, the extent of variations in subsurface conditions may not become evident until construction, although more insight may be provided by additional field testing data.

Our professional services for this project have been performed in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made. Falcon appreciates this opportunity to have provided you with geotechnical engineering services for this project. If you have any questions regarding this report, please contact our office at 919.871.0800.

APPENDIX

SHEET: SITE VICINITY MAP		**INVESTIGATED BY:** JMW	
PROJECT NAME: WILDWOOD PARK ELEVATED WALKWAYS AND TOWER		**DRAWN BY:** WSH	
PROJECT NO.: G210210.00	**HORIZONTAL SCALE** 1" = 500'	**CHECKED BY:** JRH	
PROJECT LOCATION: GREENVILLE, NC	**VERTICAL SCALE**	**DATE:** 2021-10-27	

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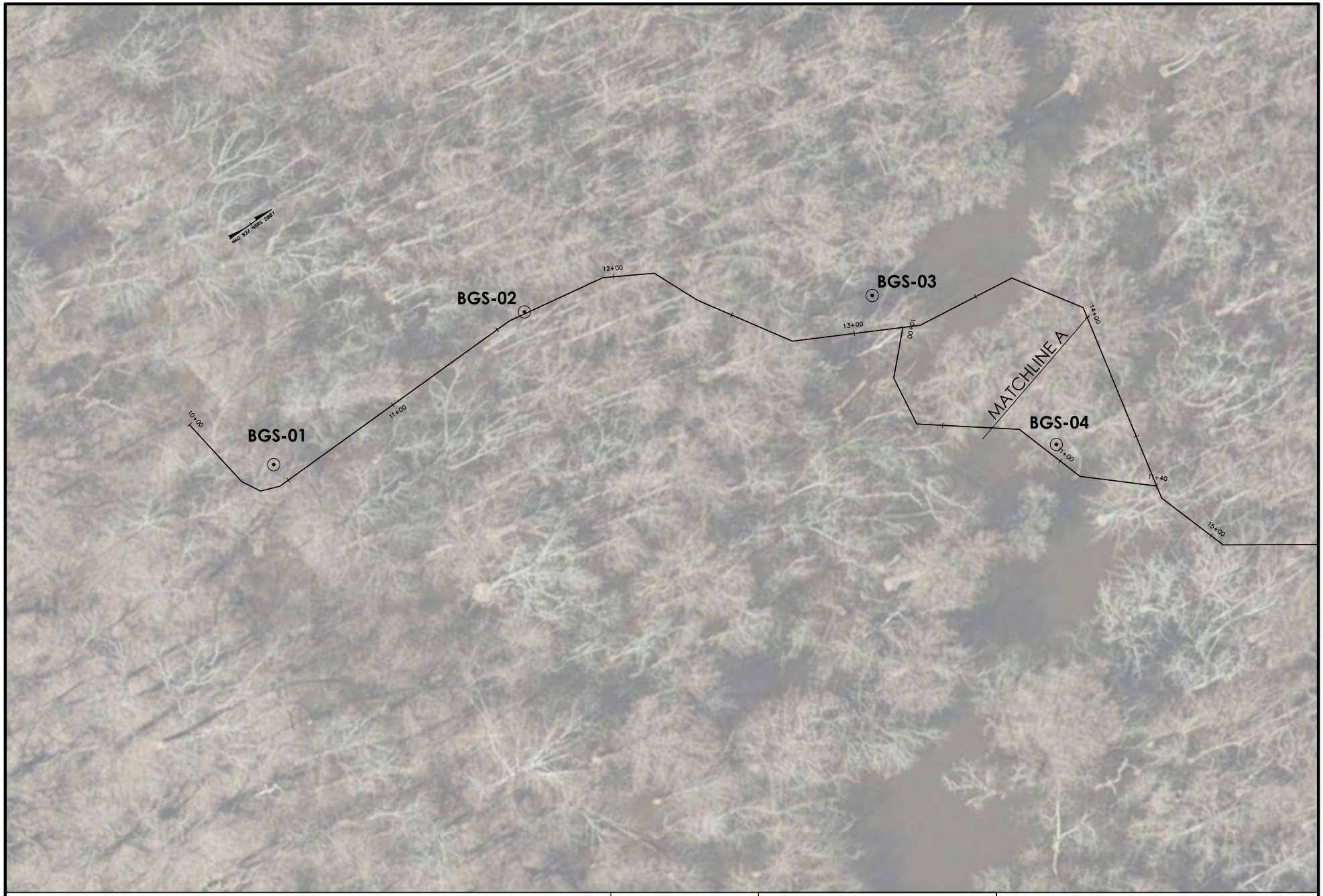
NOTES:
1. Georeferenced aerial imagery obtained from www.NCOneMap.gov.



SHEET: BORING LOCATION PLAN		**INVESTIGATED BY:** JMW	
PROJECT NAME: WILDWOOD PARK ELEVATED WALKWAYS AND TOWER		**DRAWN BY:** WSH	
PROJECT NO.: G210210.00	**HORIZONTAL SCALE** 1"=50'	**CHECKED BY:** JRH	
PROJECT LOCATION: GREENVILLE, NC		**DATE:** 2021-10-27	

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SHEET: BORING LOCATION PLAN			**INVESTIGATED BY:** JMW	FALCON ENGINEERING, INC. 1210 TRINITY ROAD, SUITE 110 CARY, NC 27513 PHONE: 919.871.0800 www.falconengineers.com	NOTES: 1. Georeferenced aerial imagery obtained from www.NCOneMap.gov.
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PROJECT NO.: G210210.00	**HORIZONTAL SCALE**	1"=50'	**CHECKED BY:** JRH		
PROJECT LOCATION: GREENVILLE, NC			**DATE:** 2021-10-27		

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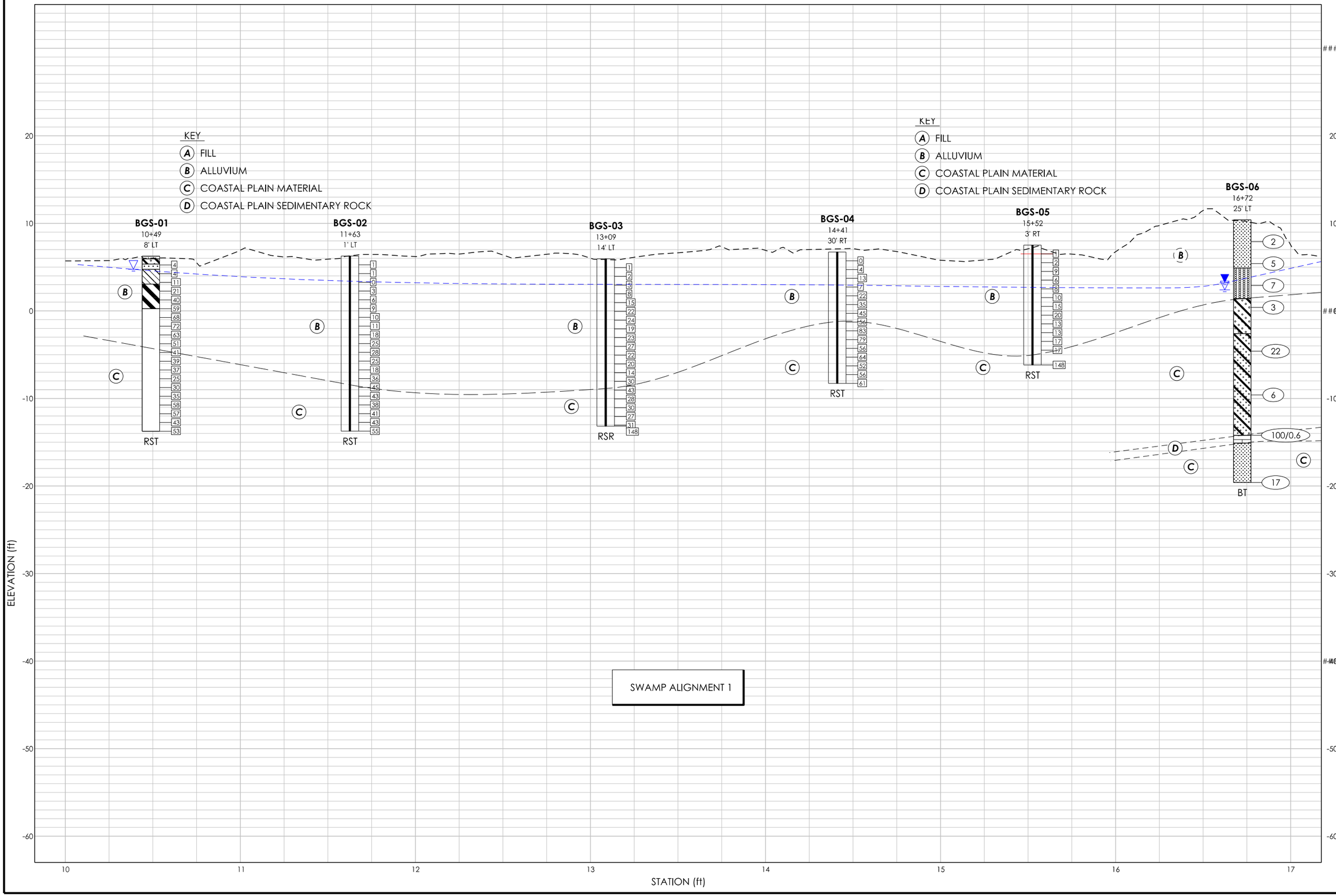

NOTES:
1. 1. Terrain model created from LiDAR data downloaded from https://coast.noaa.gov/dataviewer/#/

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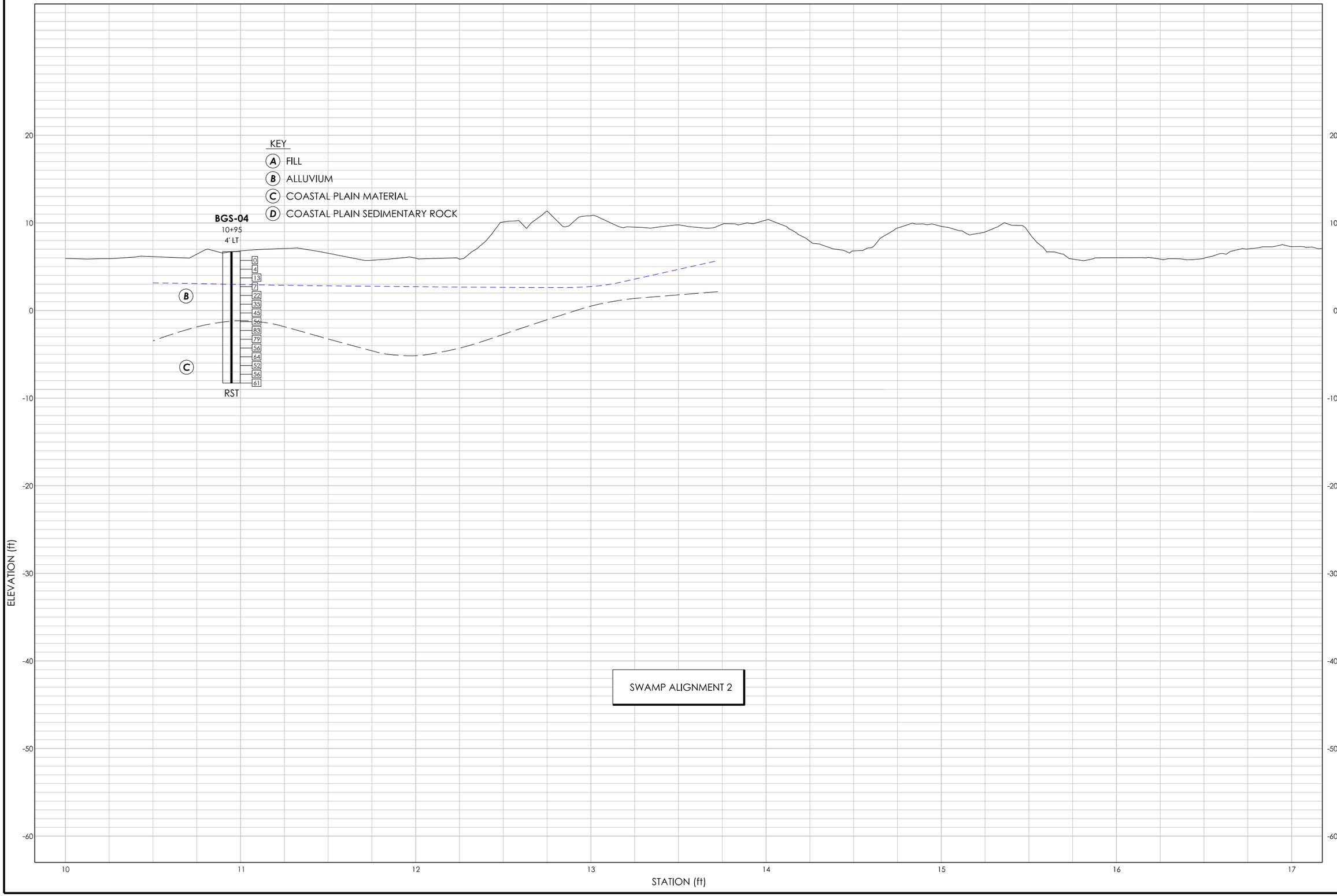
CHECKED BY:	JRH
DATE:	2021-09-30
HORIZONTAL SCALE	1"=50'
VERTICAL SCALE	1"=10'

SHEET: SUBSURFACE PROFILE

PROJECT NAME: WILDWOOD PARK ELEVATED WALKWAYS AND TOWER

PROJECT NO.: G210210.00

PROJECT LOCATION: GREENVILLE, NC



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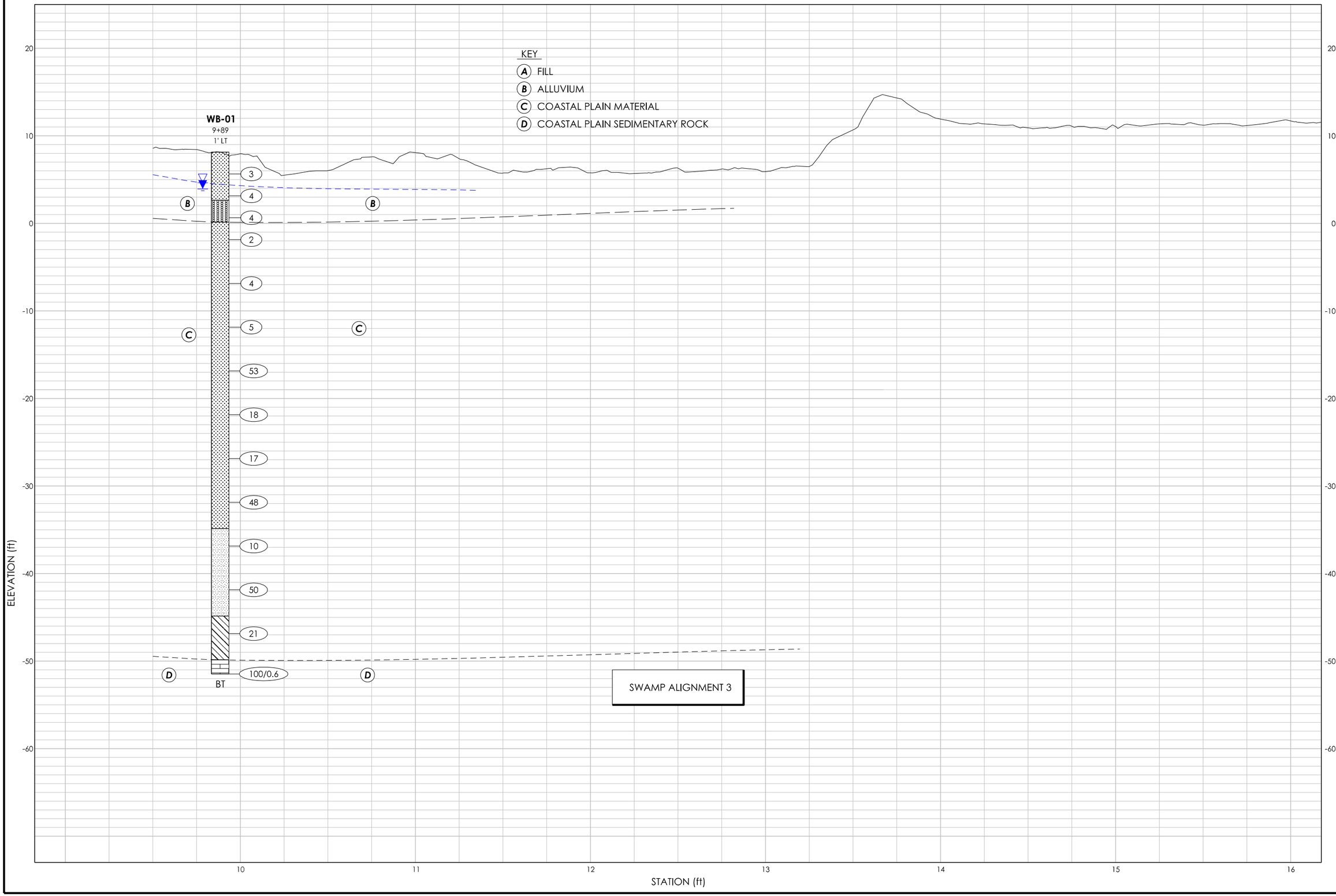

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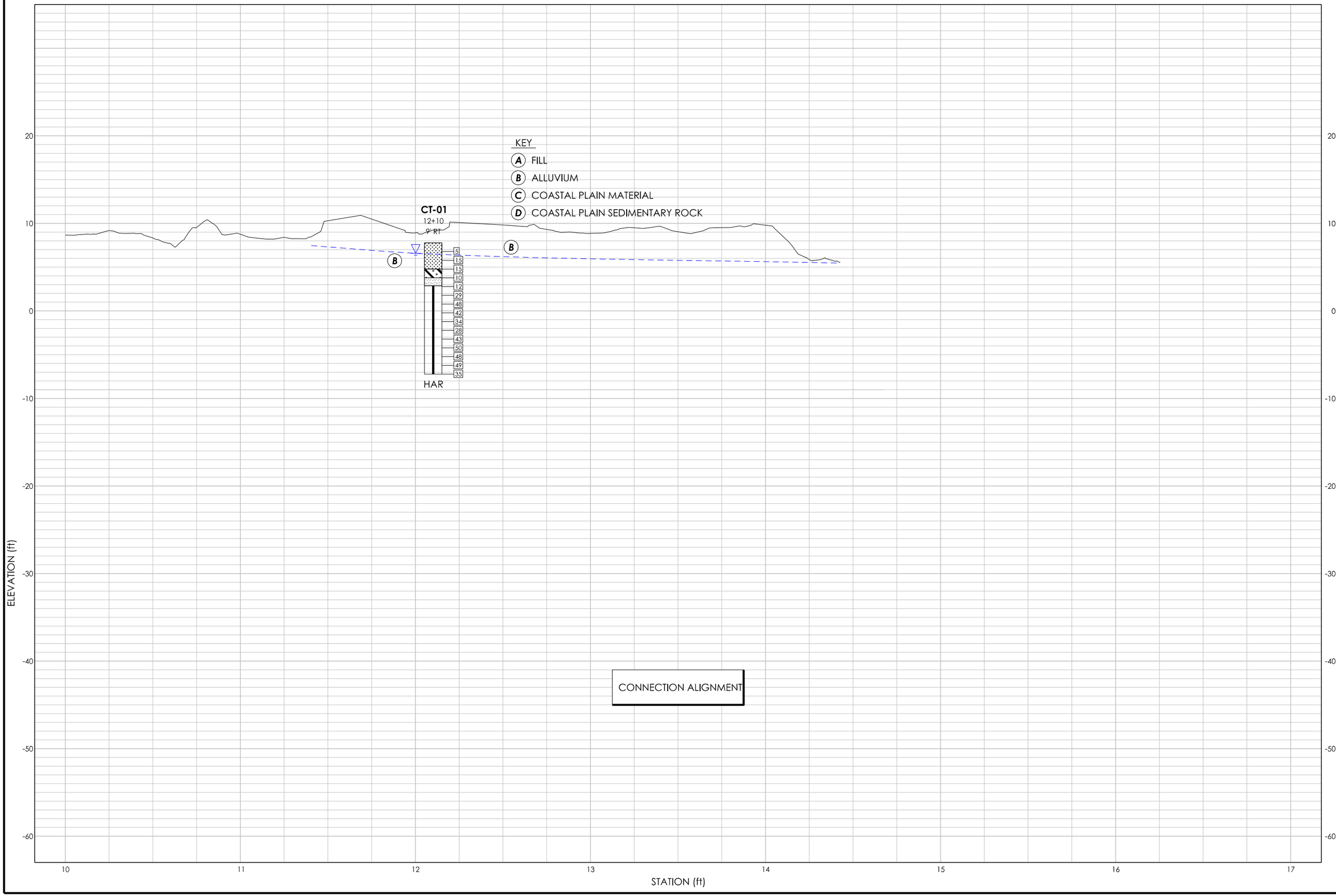

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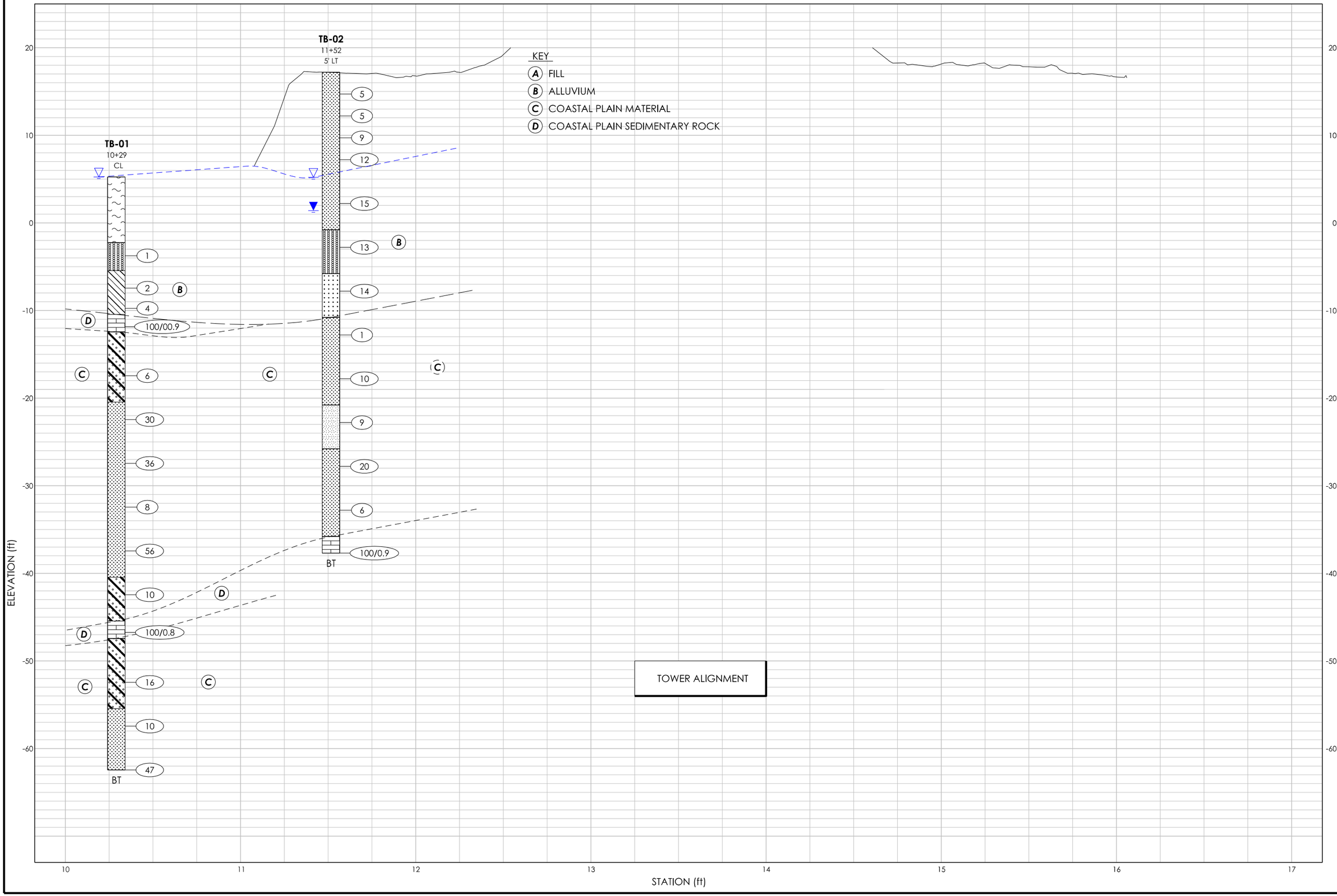

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PROJECT LOCATION: GREENVILLE, NC

KEY

(A) FILL

(B) ALLUVIUM

(C) COASTAL PLAIN MATERIAL

(D) COASTAL PLAIN SEDIMENTARY ROCK

BW-01
10+57
2' LT

BW-02
11+27
33' LT

EB-01
12+45
CL

BW-03
14+90
19' LT

BW-04
16+74
14' LT

BEACH ALIGNMENT 1

BT

SPT REF.

ELEVATION (ft)

STATION (ft)

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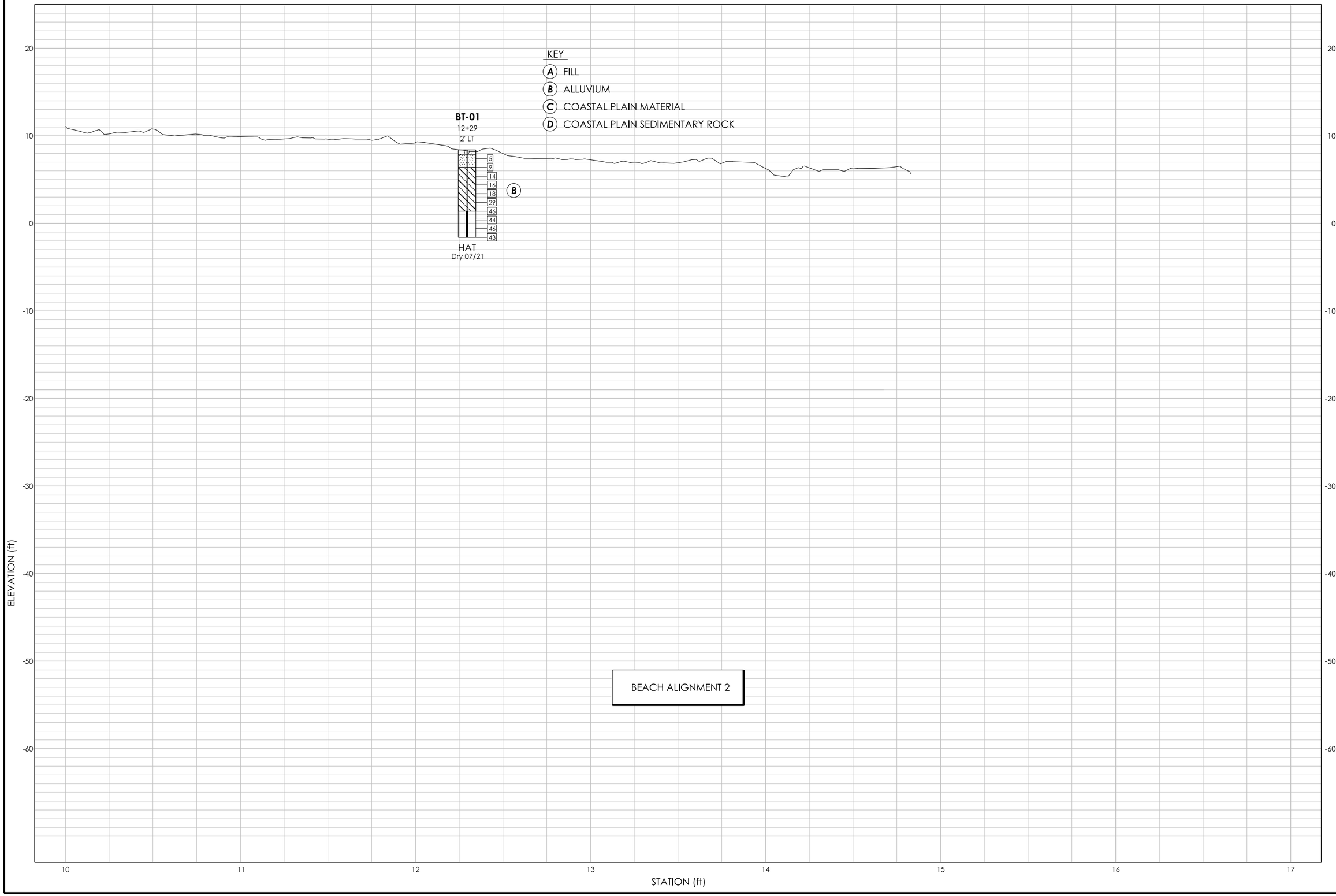

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / N/M
BORING NO. BGS-01	**BORING LOCATION** See Boring Location Plan			**DEPTH**	1.5 /
ELEVATION (ft) 6.3	**NORTHING (ft)** 682787	**DRILL MACHINE** N/A		**DATE**	7/7/2021 /
TOTAL DEPTH (ft) 20.0	**EASTING (ft)** 2493964	**DRILLER** N/A		**SURFACE WATER DEPTH (ft)**	N/A
DATE STARTED 7/7/2021	**DATE COMPLETED** 7/7/2021	**DRILL METHOD** Hand Auger		**HAMMER TYPE**	16 lb Hammer

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	BLOW COUNT 0.5 ft	BLOWS PER FOOT
	0.0	1	3	4
5	1.0	2	2	4
	2.0	4	7	11
	3.0	10	11	21
	4.0	14	26	40
	5.0	28	31	59
0	6.0	33	35	68
	7.0	31	41	72
	8.0	35	27	63
	9.0	25	26	51
	10.0	20	21	41
-5	11.0	19	20	39
	12.0	18	19	37
	13.0	13	12	25
	14.0	15	15	30
	15.0	13	22	35
-10	16.0	27	31	58
	17.0	32	25	57
	18.0	24	19	43
	19.0	26	27	53
-15				
-20				
-25				
-30				

BLOWS PER FOOT scale: 0 15 30 45 60 75 90 105 120 135 150

MOISTURE / LAB NO. DEPTH: 33.9% S-01

LOG

Elev. (ft)	Depth (ft)	SOIL AND ROCK DESCRIPTION
6.3	0.0	
6.0	0.3	**TOPSOIL**
5.4	0.9	3 inches of Topsoil
4.8	1.5	▽
		ALLUVIUM
		Brown, CLAYEY SAND (A-2-6) trace Organics
3.1	3.2	Brown, POORLY-GRADED SAND (A-3)
		Brown, Sandy, PLASTIC CLAY (A-6)
		Gray and Red, PLASTIC CLAY (A-7-6) Mottled
0.3	6.0	
		Hand Auger Terminated at 6.0 ft Below Ground Surface
		Sounding Rod Only - No Samples Taken
-13.7	20.0	
		Rod Sounding Terminated at 20.0 feet Below Current Ground Surface in COASTAL PLAIN FORMATION

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	
BORING NO. BGS-02	**BORING LOCATION** See Boring Location Plan			**DEPTH**	
ELEVATION (ft) 6.3	**NORTHING (ft)** 682901	**DRILL MACHINE** N/A		**DATE**	7/7/2021
TOTAL DEPTH (ft) 20.0	**EASTING (ft)** 2493972	**DRILLER** N/A		**SURFACE WATER DEPTH (ft)**	N/A
DATE STARTED 7/7/2021	**DATE COMPLETED** 7/7/2021	**DRILL METHOD** N/A		**HAMMER TYPE**	16 lb Hammer

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	BLOW COUNT 0.5 ft	BLOWS PER FOOT	MOISTURE	LAB NO. / DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)
				0 15 30 45 60 75 90 105 120 135 150				6.3		0.0
5	0.0	1	0	1					Rod Sounding Only, No Samples Taken. No Groundwater measurement, assumed to be near existing ground surface.	
	1.0	0	1	1						
	2.0	1	0	0						
	3.0	1	2	3						
	4.0	2	4	6						
	5.0	4	5	9						
0	6.0	5	5	10						
	7.0	5	6	11						
	8.0	6	12	18						
	9.0	11	14	25						
	10.0	14	14	28						
-5	11.0	13	12	25						
	12.0	10	8	18						
	13.0	12	24	36						
	14.0	23	22	45						
	15.0	21	22	43						
-10	16.0	18	20	38						
	17.0	19	22	41						
	18.0	19	24	43						
	19.0	28	27	55				-13.7		20.0
-15									Rod Sounding Terminated at 20.0 feet Below Current Ground Surface in COASTAL PLAIN FORMATION	
-20										
-25										
-30										

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	
BORING NO. BGS-03	**BORING LOCATION** See Boring Location Plan			**DEPTH**	
ELEVATION (ft) 5.9	**NORTHING (ft)** 683015	**DRILL MACHINE** N/A		**DATE**	7/7/2021
TOTAL DEPTH (ft) 19.1	**EASTING (ft)** 2494044	**DRILLER** N/A		**SURFACE WATER DEPTH (ft)**	N/A
DATE STARTED 7/7/2021	**DATE COMPLETED** 7/7/2021	**DRILL METHOD** N/A		**HAMMER TYPE**	16 lb Hammer

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	BLOW COUNT 0.5 ft	BLOWS PER FOOT
	0.0	1	0	
5	1.0	1	1	1
	2.0	2	3	2
	3.0	3	5	5
	4.0	6	9	8
	5.0	10	12	15
0	6.0	13	11	22
	7.0	9	10	24
	8.0	9	14	19
	9.0	12	15	23
	10.0	11	11	27
-5	11.0	10	10	22
	12.0	6	8	20
	13.0	11	19	14
	14.0	21	22	30
	15.0	13	15	43
-10	16.0	14	16	28
	17.0	12	15	30
	18.0	14	17	27
	19.0	131/0.1		31
-15				131/0.1
-20				
-25				
-30				

BLOWS PER FOOT scale: 0 15 30 45 60 75 90 105 120 135 150

MOISTURE | LAB NO. | DEPTH | LOG

Elev. (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)
5.9	Rod Sounding Only, No Samples Taken. No Groundwater measurement, assumed to be near existing ground surface.	0.0
-13.2	Rod Sounding Refusal at 19.1 feet Below Current Ground Surface on COASTAL PLAIN SEDIMENTARY ROCK	19.1

03 ROD SOUNDING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	
BORING NO. BGS-04	**BORING LOCATION** See Boring Location Plan			**DEPTH**	
ELEVATION (ft) 6.7	**NORTHING (ft)** 683040	**DRILL MACHINE** N/A		**DATE**	7/7/2021
TOTAL DEPTH (ft) 15.0	**EASTING (ft)** 2494133	**DRILLER** N/A		**SURFACE WATER DEPTH (ft)**	N/A
DATE STARTED 7/7/2021	**DATE COMPLETED** 7/7/2021	**DRILL METHOD** N/A		**HAMMER TYPE**	16 lb Hammer

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	BLOW COUNT 0.5 ft	BLOWS PER FOOT
	0.0	WOH	WOH	0
	1.0	WOH	4	4
	2.0	11	2	13
	3.0	2	5	7
	4.0	7	15	22
	5.0	23	12	35
	6.0	15	30	45
	7.0	30	26	56
	8.0	38	45	83
	9.0	36	43	79
	10.0	41	15	56
	11.0	28	36	64
	12.0	28	24	52
	13.0	31	25	56
	14.0	28	33	61

BLOWS PER FOOT: 0 15 30 45 60 75 90 105 120 135 150

MOISTURE | LAB NO. DEPTH | L O G

Elev. (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)
6.7		0.0
	Rod Sounding Only, No Samples Taken. No Groundwater measurement, assumed to be near existing ground surface.	
-8.3		15.0
	Rod Sounding Terminated at 15.0 feet Below Current Ground Surface in COASTAL PLAIN FORMATION	

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	
BORING NO. BGS-05	**BORING LOCATION** See Boring Location Plan			**DEPTH**	
ELEVATION (ft) 7.5	**NORTHING (ft)** 683100	**DRILL MACHINE** N/A		**DATE**	7/7/2021
TOTAL DEPTH (ft) 13.7	**EASTING (ft)** 2494232	**DRILLER** N/A		**SURFACE WATER DEPTH (ft)**	N/A
DATE STARTED 7/7/2021	**DATE COMPLETED** 7/7/2021	**DRILL METHOD** N/A		**HAMMER TYPE**	16 lb Hammer

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	BLOW COUNT 0.5 ft	BLOWS PER FOOT
	0.0	WOH	1	1
	1.0	0	2	2
	2.0	6	3	9
	3.0	3	3	6
	4.0	3	5	8
	5.0	4	6	10
	6.0	5	10	15
	7.0	13	7	20
	8.0	7	6	13
	9.0	6	7	13
	10.0	8	9	17
	11.0	8	9	17
	13.0	16	132/0.2	148/0.7

BLOWS PER FOOT scale: 0 15 30 45 60 75 90 105 120 135 150

MOISTURE | LAB NO. DEPTH | LOG

Elev. (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)
7.5	Rod Sounding Only, No Samples Taken. No Groundwater measurement, assumed to be near existing ground surface.	0.0
-6.2	Rod Sounding Refusal at 13.7 feet Below Current Ground Surface on COASTAL PLAIN SEDIMENTARY ROCK	13.7

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / ▼
BORING NO. BGS-06	**BORING LOCATION** See Boring Location Plan			**DEPTH**	8.0 / 7.2
ELEVATION (ft) 10.4	**NORTHING (ft)** 683153	**DRILL MACHINE** CME45C 236214		**DATE**	7/16/2021 / 7/20/2021
TOTAL DEPTH (ft) 30.0	**EASTING (ft)** 2494327	**DRILLER** Strickland, TJ	**SURFACE WATER DEPTH (ft)** N/A		
DATE STARTED 7/16/2021	**DATE COMPLETED** 7/16/2021	**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic		

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION GROUNDWATER READINGS	Depth (ft)
									10.4		0.0
10	1.0									**ALLUVIUM** Light Brown, SILTY SAND (A-2-4)	
	3.5	2	1	1	2	Moist					
	6.0	2	2	3	5	Saturated					
5	8.5	3	3	4	7	Saturated			4.9		5.5
	13.5	3	1	2	3	Saturated				Tan, WELL-GRADED SAND (A-1-b) ▼ ▽	
0	18.5	18	11	11	22	Saturated			1.4		9.0
										COASTAL PLAIN FORMATION Dark Gray, Silty, CLAYEY SAND (A-2-6) [Yorktown Formation]	
									-2.6		13.0
-5										Greenish Gray to Dark Gray, POORLY-GRADED SAND (A-3) trace Rock Fragments, [Yorktown Formation]	
	23.5	2	1	5	6	24.0%	SS-01				
-10	28.5	1	6	94/0.1	100/0.6				-14.2		24.6
-15									-15.1	**COASTAL PLAIN SEDIMENTARY ROCK** Limestone [Yorktown Formation]	25.5
		10	9	8	17	Saturated				**COASTAL PLAIN FORMATION** Dark Gray, SILTY SAND (A-2-4) [Yorktown Formation]	
-20									-19.6		30.0
										Boring Terminated at 30.0 feet Below Current Ground Surface in COASTAL PLAIN FORMATION	
-25											

Vertical Scale: 1"=5'

01 TEST BORING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	Dry / FIAD
BORING NO. BT-01	**BORING LOCATION** See Boring Location Plan			**DEPTH**	
ELEVATION (ft) 8.4	**NORTHING (ft)** 680326	**DRILL MACHINE** N/A		**DATE**	7/21/2021
TOTAL DEPTH (ft) 10.0	**EASTING (ft)** 2496924	**DRILLER** N/A		**SURFACE WATER DEPTH (ft)**	N/A
DATE STARTED 7/21/2021	**DATE COMPLETED** 7/21/2021	**DRILL METHOD** Hand Auger		**HAMMER TYPE**	16 lb Hammer

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	BLOW COUNT 0.5 ft	BLOWS PER FOOT	MOISTURE	LAB NO. / DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)
				0 15 30 45 60 75 90 105 120 135 150				8.4		0.0
	0.0	2	3					7.9	**TOPSOIL**	0.5
	1.0			5	Moist				**ALLUVIUM**	
	2.0	4	5	9				6.4	Brownish Brown, Clayey, Sandy, SILT (A-4) trace Organics	2.0
	3.0	7	7	14	22.3%	S-2			Red and Gray, Silty, LEAN CLAY (A-6) trace Organics	
5	4.0	8	8	16						
	5.0	7	11	18						
	6.0	13	16	29	Moist					
	7.0	23	23	46	Wet			1.4	**Cave-in**	7.0
	8.0	22	22	44					Hand Auger Terminated at 7.0 ft Below Ground Surface	
0	9.0	23	23	46					Sounding Rod Only - No Samples Taken	
		22	21	43				-1.6		10.0
									Rod Sounding Terminated at 10.0 feet Below Current Ground Surface in ALLUVIUM	
-5										
-10										
-15										
-20										
-25										
-30										

Vertical Scale: 1"=5'

03 ROD SOUNDING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / Dry
BORING NO. BW-01	**BORING LOCATION** See Boring Location Plan			**DEPTH**	0.0 /
ELEVATION (ft) 5.5	**NORTHING (ft)** 680778	**DRILL MACHINE** CME45C 236214		**DATE**	7/15/2021 / 7/20/2021
TOTAL DEPTH (ft) 29.7	**EASTING (ft)** 2496872	**DRILLER** Strickland, TJ	**SURFACE WATER DEPTH (ft)** N/A		
DATE STARTED 7/15/2021	**DATE COMPLETED** 7/15/2021	**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic		

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
					0 20 40 60 80 100				5.5	▽ 0.0	
5	1.0									**ALLUVIUM** Tan to Dark Brown, Silty, CLAYEY SAND (A-2-6)	
	3.5	2	2	5	7	Moist			2.5		3.0
	6.0	3	4	7	11	Saturated				Tan, WELL-GRADED SAND (A-1-b)	
0	8.5	2	3	3	6	Saturated			-2.5		8.0
	13.5	1	2	4	6	Saturated				**COASTAL PLAIN FORMATION** Dark Gray, Clayey, Sandy, SILT (A-4) [Yorktown Formation]	
-5	18.5	7	8	10	18	Saturated			-12.5	Hard drilling from 17.2 to 18.0	18.0
-10	23.5	3	3	5	8	41.3%	SS-02			Dark Gray, Silty, Sandy, PLASTIC CLAY (A-7-6) [Yorktown Formation]	
-15	28.5	3	6	9	15	Saturated			-17.5		23.0
-20		5	5	95/0.2	100/0.7					Dark Gray, SILTY SAND (A-2-4) with Shell Fragments, [Yorktown Formation]	
-25									-24.0 / -24.2		29.5 / 29.7
-30										**COASTAL PLAIN SEDIMENTARY ROCK** Gray, Limestone [Yorktown Formation]	
										Boring Terminated at 29.7 feet Below Current Ground Surface in COASTAL PLAIN SEDIMENTARY ROCK	

01 TEST BORING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / N/M
BORING NO. BW-02	**BORING LOCATION** See Boring Location Plan			**DEPTH**	0.0 /
ELEVATION (ft) 5.3	**NORTHING (ft)** 680712	**DRILL MACHINE** D-25 0314		**DATE**	7/15/2021 /
TOTAL DEPTH (ft) 64.5	**EASTING (ft)** 2496914	**DRILLER** Strickland, TJ		**SURFACE WATER DEPTH (ft)**	4.5
DATE STARTED 7/14/2021	**DATE COMPLETED** 7/15/2021	**DRILL METHOD** Mud Rotary		**HAMMER TYPE**	Automatic

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION GROUNDWATER READINGS	Depth (ft)
									5.3		▽ 0.0
										WATER	
	4.5								0.8		4.5
0		WOH	WOH	WOH	WOH	Saturated				**ALLUVIUM** Dark Gray, WELL-GRADED SAND (A-1-b) trace Organics	
	8.0	2	1	4	5	Saturated			-2.3	Dark Gray, Silty, CLAYEY SAND (A-2-6)	7.5
-5	10.5	3	4	5	9	Saturated			-5.3	**COASTAL PLAIN FORMATION** Dark Gray, Sandy, SILT (A-4) [Yorktown Formation]	10.5
	13.0	7	9	9	18	22.9%	SS-03				
-10	18.0	6	5	6	11	Wet					
-15	23.0	3	3	6	9	Saturated			-17.3	Dark Gray to Gray, SILTY SAND (A-2-4) with Shell Fragments, [Yorktown Formation]	22.5
-20	28.0	6	7	8	15	Saturated					
-25	33.0	8	11	11	22	Saturated				Hard drilling from 30.0 to 31.5	
-30	38.0	6	8	14	22	Saturated				Hard drilling from 32.0 to 33.0	

Vertical Scale: 1"=5'

01 TEST BORING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / N/M
BORING NO. BW-02	**BORING LOCATION** See Boring Location Plan			**DEPTH**	0.0 /
ELEVATION (ft) 5.3	**NORTHING (ft)** 680712	**DRILL MACHINE** D-25 0314		**DATE**	7/15/2021 /
TOTAL DEPTH (ft) 64.5	**EASTING (ft)** 2496914	**DRILLER** Strickland, TJ		**SURFACE WATER DEPTH (ft)**	4.5
DATE STARTED 7/14/2021	**DATE COMPLETED** 7/15/2021	**DRILL METHOD** Mud Rotary		**HAMMER TYPE**	Automatic

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
										Continued from previous page	
-35	43.0	6	6	9	15	Saturated					
-40	48.0	60/0.0			60/0.0				-42.5	**COASTAL PLAIN SEDIMENTARY ROCK** Limestone [Yorktown Formation] No Recovery	47.7
-45	53.0	26	40	57	97	Saturated			-44.8	**COASTAL PLAIN FORMATION** Dark Gray, SILTY SAND (A-2-4) [Yorktown Formation]	50.0
-50	58.0	4	4	4	8	Saturated			-52.3	Hard Drilling from 57.0 to 57.2	57.5
-55	63.0	3	4	4	8	Saturated			-59.3	Dark Gray, Silty, Sandy, LEAN CLAY (A-6) [Yorktown Formation]	64.5
-60										Boring Terminated at 64.5 feet Below Current Ground Surface in COASTAL PLAIN FORMATION	
-65											
-70											

01 TEST BORING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / N/M
BORING NO. BW-03	**BORING LOCATION** See Boring Location Plan			**DEPTH**	0.0 /
ELEVATION (ft) 5.8	**NORTHING (ft)** 680504	**DRILL MACHINE** D-25 0314		**DATE**	7/14/2021 /
TOTAL DEPTH (ft) 65.0	**EASTING (ft)** 2497115	**DRILLER** Strickland, TJ		**SURFACE WATER DEPTH (ft)**	5.0
DATE STARTED 7/14/2021	**DATE COMPLETED** 7/14/2021	**DRILL METHOD** Mud Rotary		**HAMMER TYPE**	Automatic

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	MOISTURE	LAB NO. DEPTH	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
							5.8	**Water** ▽	0.0
	5.0						0.8		5.0
0		WOH	WOH	1	Wet			**ALLUVIUM** Dark Gray, Silty, Sandy, LEAN CLAY (A-6)	
	8.5						-2.2		8.0
		2	3	4	Saturated			Dark Gray, Silty, PLASTIC CLAY (A-7-6)	
-5	11.0						-4.7		10.5
		3	4	5	Saturated			Dark Gray, Sandy, Clayey, SILT (A-4)	
	13.5						-7.2		13.0
		5	6	12	Saturated			**COASTAL PLAIN FORMATION** Dark Gray, Sandy, Silty, LEAN CLAY (A-6) [Yorktown Formation]	
-10								Hard Drilling from 16.5 to 17.5	
	18.5						-12.2		18.0
		3	4	4	Wet			Dark Gray, Silty, PLASTIC CLAY (A-7-6) [Yorktown Formation]	
-15	23.5						-17.2		23.0
		3	3	4	Saturated			Dark Gray, SILTY SAND (A-2-4) with Shell Fragments, [Yorktown Formation]	
-20	28.5								
		3	5	6	Saturated				
-25	33.5						-27.9		33.7
		100/0.2					-28.9	**COASTAL PLAIN SEDIMENTARY ROCK** Gray, Limestone [Yorktown Formation]	34.7
-30	38.5							**COASTAL PLAIN FORMATION** Gray, SILTY SAND (A-2-4) [Yorktown Formation]	
		5	7	11	Saturated				

BLOWS PER FOOT: 0 20 40 60 80 100

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ N/M
BORING NO. BW-03	**BORING LOCATION** See Boring Location Plan			**DEPTH**	0.0
ELEVATION (ft) 5.8	**NORTHING (ft)** 680504	**DRILL MACHINE** D-25 0314		**DATE**	7/14/2021
TOTAL DEPTH (ft) 65.0	**EASTING (ft)** 2497115	**DRILLER** Strickland, TJ	**SURFACE WATER DEPTH (ft)** 5.0		
DATE STARTED 7/14/2021	**DATE COMPLETED** 7/14/2021	**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic		

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION GROUNDWATER READINGS	Depth (ft)
										Continued from previous page	
-35	43.5	60/0.0			18 → 60/0.0					Hard Drilling from 41.5 to 42.0 Hard Drilling from 42.5 to 42.7	
									-37.7		43.5
									-38.7	**COASTAL PLAIN SEDIMENTARY ROCK** Limestone [Yorktown Formation]	44.5
-40	48.5	11	13	22	35	Saturated				**COASTAL PLAIN FORMATION** Dark Gray, SILTY SAND (A-2-4) [Yorktown Formation] Hard Drilling from 45.5 to 45.7 Very Hard Drilling from 47.4 to 48.4	
-45	53.5	24	23	28	51	Saturated					
-50	58.5	3	3	4	7	Saturated			-52.2	Dark Gray, Sandy, SILT (A-4)	58.0
-55	63.5	4	5	4	9	Saturated			-57.2	Dark Gray, Sandy, Silty, LEAN CLAY (A-6)	63.0
									-59.2		65.0
-60										Boring Terminated at 65.0 feet Below Current Ground Surface in COASTAL PLAIN FORMATION	
-65											
-70											

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / ▼
BORING NO. BW-04	**BORING LOCATION** See Boring Location Plan			**DEPTH**	3.5 / 15.0
ELEVATION (ft) 14.8	**NORTHING (ft)** 680585	**DRILL MACHINE** CME45C 236214		**DATE**	7/15/2021 / 7/20/2021
TOTAL DEPTH (ft) 48.5	**EASTING (ft)** 2497246	**DRILLER** Strickland, TJ	**SURFACE WATER DEPTH (ft)** N/A		
DATE STARTED 7/15/2021	**DATE COMPLETED** 7/15/2021	**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic		

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
					0 20 40 60 80 100				14.8		0.0
	1.0									**ALLUVIUM** Tan and Light Brown, POORLY-GRADED SAND (A-3)	
	3.5	1	2	1	3	Dry				▽	
10	6.0	2	2	2	4	Moist			9.3		5.5
	8.5	2	2	2	4	25.6%	SS-04			Dark Brown, SILTY SAND (A-2-4)	
5		7	6	8	14	Moist			6.8		8.0
	13.5									Light Brown, POORLY-GRADED SAND (A-3)	
0	18.5	5	8	8	16	Wet				▼	
-5	23.5	4	4	6	10	Wet			-8.2		23.0
-10	28.5	3	4	6	10	Saturated				**COASTAL PLAIN FORMATION** Dark Gray, Sandy, LEAN CLAY (A-6) [Yorktown Formation]	
-15	33.5	5	4	13	17	Saturated			-13.2		28.0
										Dark Gray, Silty, CLAYEY SAND (A-2-6) [Yorktown Formation]	
										Hard drilling from 30.5 to 31.3	
-20	38.5	3	3	5	8	Saturated			-18.2		33.0
										Dark Gray, Clayey, Sandy, SILT (A-4) trace Shell Fragments, [Yorktown Formation]	
										Hard Drilling from 36.5 to 36.7	
-25		5	6	9	15	Saturated					

Vertical Scale: 1"=5'

01 TEST BORING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / ▼
BORING NO. BW-04	**BORING LOCATION** See Boring Location Plan			**DEPTH**	3.5 / 15.0
ELEVATION (ft) 14.8	**NORTHING (ft)** 680585	**DRILL MACHINE** CME45C 236214		**DATE**	7/15/2021 / 7/20/2021
TOTAL DEPTH (ft) 48.5	**EASTING (ft)** 2497246	**DRILLER** Strickland, TJ	**SURFACE WATER DEPTH (ft)** N/A		
DATE STARTED 7/15/2021	**DATE COMPLETED** 7/15/2021	**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic		

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
										Continued from previous page	
	43.5	5	6	11	15 17	Saturated			-28.2	Dark Gray, Clayey, SILTY SAND (A-2-4) [Yorktown Formation]	43.0
-30										Hard drilling from 45.8 to 47.3	
	48.5	60/0.0			60/0.0				-32.8		47.6
									-33.7	**COASTAL PLAIN SEDIMENTARY ROCK** Limestone [Yorktown Formation]	48.5
-35										SPT Refusal at 48.5 feet Below Current Ground Surface on COASTAL PLAIN SEDIMENTARY ROCK	
-40											
-45											
-50											
-55											
-60											
-65											

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / FIAD
BORING NO. CT-01	**BORING LOCATION** See Boring Location Plan			**DEPTH**	1.2 /
ELEVATION (ft) 7.8	**NORTHING (ft)** 682360	**DRILL MACHINE** N/A		**DATE**	7/21/2021 /
TOTAL DEPTH (ft) 15.0	**EASTING (ft)** 2496817	**DRILLER** N/A		**SURFACE WATER DEPTH (ft)**	N/A
DATE STARTED 7/21/2021	**DATE COMPLETED** 7/21/2021	**DRILL METHOD** Hand Auger		**HAMMER TYPE**	16 lb Hammer

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	BLOW COUNT 0.5 ft	BLOWS PER FOOT (0 15 30 45 60 75 90 105 120 135 150)	MOISTURE	LAB NO. / DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)
	0.0							7.8		0.0
	1.0	1	4	5	Wet				**ALLUVIUM**	
	2.0	7	8	15					Tan to Brown, SILTY SAND (A-2-4)	
	3.0	9	6	15					Caving Sands 2.0 ▽ Cave-in	
5	4.0	5	5	10	Saturated			4.8		3.0
	5.0	7	5	12				3.8	Gray, Silty, CLAYEY SAND (A-2-6)	4.0
	6.0	9	20	29	24.2%	S-3		2.9	Gray, Sandy, SILT (A-4)	4.9
	7.0	24	24	48					Hand Auger Terminated at 4.9 ft Below Ground Surface	
0	8.0	23	19	42					Sounding Rod Only - No Samples Taken	
	9.0	14	20	34						
	10.0	15	13	28						
	11.0	12	31	43						
	12.0	24	26	50						
-5	13.0	21	27	48						
	14.0	26	23	49						
		19	16	35				-7.2		15.0
									Rod Sounding Terminated at 15.0 feet Below Current Ground Surface in ALLUVIUM	
-10										
-15										
-20										
-25										
-30										

03 ROD SOUNDING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / N/M
BORING NO. EB-01	**BORING LOCATION** See Boring Location Plan			**DEPTH**	0.0 /
ELEVATION (ft) 5.9	**NORTHING (ft)** 680605	**DRILL MACHINE** D-25 0314		**DATE**	7/13/2021 /
TOTAL DEPTH (ft) 45.0	**EASTING (ft)** 2496931	**DRILLER** Strickland, TJ		**SURFACE WATER DEPTH (ft)**	9.0
DATE STARTED 7/13/2021	**DATE COMPLETED** 7/13/2021	**DRILL METHOD** Mud Rotary		**HAMMER TYPE**	Automatic

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
									5.9	▽ WATER	0.0
	9.0	WOH	WOH	WOH		Saturated			-3.1	**ALLUVIUM** Gray, CLAYEY SAND (A-2-6)	9.0
	12.5	6	10	11	21	Saturated			-6.1	Dark Gray, SILTY SAND (A-2-4)	12.0
	15.0	6	6	6	12	Saturated			-8.6	Dark Gray, Clayey, WELL-GRADED SAND (A-1-b)	14.5
	17.5	19	8	10	18	Saturated			-11.1	Hard drilling from 16.5 to 18 / **COASTAL PLAIN FORMATION** Dark Gray, Silty, CLAYEY SAND (A-2-6) [Yorktown Formation]	17.0
	22.5	4	3	4	7	Saturated			-16.1	Dark Gray, SILTY SAND (A-2-4) trace Shell Fragments, [Yorktown Formation]	22.0
	27.5	5	6	7	13	Saturated					
	32.5	12	27	73/0.2	100/0.7				-27.1	**COASTAL PLAIN SEDIMENTARY ROCK** Dark Gray, Cemented Sand [Yorktown Formation]	33.0
	37.5	39	61/0.0		100/0.5				-30.6	Softer layer from 35.5 to 36.5 / Gray, Limestone [Yorktown Formation] Limestone Frags in the screen.	36.5
									-33.6		39.5

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / N/M
BORING NO. EB-01	**BORING LOCATION** See Boring Location Plan			**DEPTH**	0.0 /
ELEVATION (ft) 5.9	**NORTHING (ft)** 680605	**DRILL MACHINE** D-25 0314		**DATE**	7/13/2021 /
TOTAL DEPTH (ft) 45.0	**EASTING (ft)** 2496931	**DRILLER** Strickland, TJ		**SURFACE WATER DEPTH (ft)**	9.0
DATE STARTED 7/13/2021	**DATE COMPLETED** 7/13/2021	**DRILL METHOD** Mud Rotary		**HAMMER TYPE**	Automatic

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
										Continued from previous page	
-35	42.5	5	5	21	26	Saturated			-39.1	**COASTAL PLAIN FORMATION** Gray, SILTY SAND (A-2-4) Running Sands encountered, borehole abandoned.	45.0
-40										Boring Terminated at 45.0 feet Below Current Ground Surface in COASTAL PLAIN FORMATION	
-45											
-50											
-55											
-60											
-65											
-70											

01 TEST BORING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / N/M
BORING NO. TB-01	**BORING LOCATION** See Boring Location Plan			**DEPTH**	0.0 /
ELEVATION (ft) 5.3	**NORTHING (ft)** 681866	**DRILL MACHINE** D-25 0314		**DATE**	7/13/2021 /
TOTAL DEPTH (ft) 67.7	**EASTING (ft)** 2497411	**DRILLER** Strickland, TJ		**SURFACE WATER DEPTH (ft)**	7.5
DATE STARTED 7/13/2021	**DATE COMPLETED** 7/13/2021	**DRILL METHOD** Mud Rotary		**HAMMER TYPE**	Automatic

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION GROUNDWATER READINGS	Depth (ft)
									5.3	▽ WATER	0.0
	7.5	2	0	1	1	Saturated			-2.3	**ALLUVIUM** Brown, WELL-GRADED SAND (A-1-b)	7.5
	11.2	1	1	1	2	Saturated			-5.5	Dark Gray, Sandy, LEAN CLAY (A-6) trace Gravel	10.7
	13.5	2	2	2	4	Saturated			-10.5	**COASTAL PLAIN SEDIMENTARY ROCK** Dark Gray, Cemented Sand [Yorktown Formation]	15.7
	16.2	41	59/0.4		100/00.9				-12.5	**COASTAL PLAIN FORMATION** Dark Gray, CLAYEY SAND (A-2-6) with Shell Fragments, [Yorktown Formation]	17.7
	21.2	3	3	3	6	Saturated					
	26.2	5	8	22	30	Saturated			-20.5	Dark Gray, SILTY SAND (A-2-4)	25.7
	31.2	13	20	16	36	Saturated					
	36.2	3	3	5	8	Saturated					

Vertical Scale: 1"=5'

01 TEST BORING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / N/M
BORING NO. TB-01	**BORING LOCATION** See Boring Location Plan			**DEPTH**	0.0 /
ELEVATION (ft) 5.3	**NORTHING (ft)** 681866	**DRILL MACHINE** D-25 0314		**DATE**	7/13/2021 /
TOTAL DEPTH (ft) 67.7	**EASTING (ft)** 2497411	**DRILLER** Strickland, TJ		**SURFACE WATER DEPTH (ft)**	7.5
DATE STARTED 7/13/2021	**DATE COMPLETED** 7/13/2021	**DRILL METHOD** Mud Rotary		**HAMMER TYPE**	Automatic

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
										Continued from previous page	
-35	41.2	26	35	21	56	Saturated					
-40	46.2	5	4	6	10	Saturated			-40.5	Dark Gray, Silty, CLAYEY SAND (A-2-6)	45.7
-45	51.2	42	58/0.3		100/0.8				-45.5	**COASTAL PLAIN SEDIMENTARY ROCK** Dark Gray, Silty, Cemented Sand [Yorktown Formation]	50.7
									-47.5	**COASTAL PLAIN FORMATION** Dark Gray, CLAYEY SAND (A-2-6) trace Gravel, [Yorktown Formation]	52.7
-50	56.2	8	9	7	16	Saturated					
-55	61.2	4	5	5	10	Saturated			-55.5	Dark Gray, Clayey, SILTY SAND (A-2-4) trace Gravel	60.7
-60	66.2	4	6	41	47	Saturated			-62.5		67.7
										Boring Terminated at 67.7 feet Below Current Ground Surface in COASTAL PLAIN FORMATION	
-65											
-70											

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / ▼
BORING NO. TB-02	**BORING LOCATION** See Boring Location Plan			**DEPTH**	12.0 / 15.8
ELEVATION (ft) 17.2	**NORTHING (ft)** 681884	**DRILL MACHINE** CME45C 236214		**DATE**	7/15/2021 / 7/20/2021
TOTAL DEPTH (ft) 54.9	**EASTING (ft)** 2497531	**DRILLER** Strickland, TJ	**SURFACE WATER DEPTH (ft)** N/A		
DATE STARTED 7/15/2021	**DATE COMPLETED** 7/15/2021	**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic		

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	MOISTURE	LAB NO. DEPTH	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
							17.2		0.0
	1.0							**ALLUVIUM**	
		2	2	3	Dry			Dark Brown, SILTY SAND (A-2-4)	
15	3.5								
		1	3	2	Moist				
	6.0								
10		3	3	6	Moist			Large Tree root at 13.5	
	8.5								
		3	5	7	Moist				
5	13.5								
		5	6	9	Saturated				
0	18.5						-0.8		18.0
		5	7	6	Saturated			Brown, WELL-GRADED SAND (A-1-b)	
-5	23.5						-5.8		23.0
		6	7	7	Saturated			Gray, POORLY-GRADED SAND (A-3)	
-10	28.5						-10.8		28.0
		1	0	1	21.4%	SS-05		**COASTAL PLAIN FORMATION** Dark Gray, SILTY SAND (A-2-4) [Yorktown Formation]	
-15	33.5								
		6	7	3	Saturated				
-20	38.5						-20.8		38.0
		3	3	6	Saturated			Dark Gray, Clayey, Sandy, SILT (A-4) [Yorktown Formation]	

BLOWS PER FOOT: 0 20 40 60 80 100

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Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / ▼
BORING NO. TB-02	**BORING LOCATION** See Boring Location Plan			**DEPTH**	12.0 / 15.8
ELEVATION (ft) 17.2	**NORTHING (ft)** 681884	**DRILL MACHINE** CME45C 236214		**DATE**	7/15/2021 / 7/20/2021
TOTAL DEPTH (ft) 54.9	**EASTING (ft)** 2497531	**DRILLER** Strickland, TJ		**SURFACE WATER DEPTH (ft)**	N/A
DATE STARTED 7/15/2021	**DATE COMPLETED** 7/15/2021	**DRILL METHOD** Mud Rotary		**HAMMER TYPE**	Automatic

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
										Continued from previous page	
-25	43.5	13	11	9	9, 20	Saturated			-25.8	Dark Gray, Clayey, SILTY SAND (A-2-4) [Yorktown Formation]	43.0
-30	48.5	3	3	3	6	Saturated					
-35	53.5	42	52	48/0.4	100/0.9	Moist			-35.8	**COASTAL PLAIN SEDIMENTARY ROCK** Dark Gray, Cemented Sand [Yorktown Formation]	53.0
									-37.7	Boring Terminated at 54.9 feet Below Current Ground Surface in COASTAL PLAIN SEDIMENTARY ROCK	54.9
-40											
-45											
-50											
-55											
-60											

01 TEST BORING LOG G21021.GPJ FALCON FORMAT.GDT 10/27/21

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / ▼
BORING NO. WB-01	**BORING LOCATION** See Boring Location Plan			**DEPTH**	3.5 / 4.2
ELEVATION (ft) 8.1	**NORTHING (ft)** 683321	**DRILL MACHINE** CME45C 236214		**DATE**	7/16/2021 / 7/20/2021
TOTAL DEPTH (ft) 59.6	**EASTING (ft)** 2494526	**DRILLER** Strickland, TJ	**SURFACE WATER DEPTH (ft)** N/A		
DATE STARTED 7/16/2021	**DATE COMPLETED** 7/16/2021	**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic		

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT	MOISTURE	LAB NO. / DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
					0 20 40 60 80 100				8.1		0.0
	1.0									**ALLUVIUM**	
		2	1	2	3	Dry				Brown, SILTY SAND (A-2-4)	
5	3.5	2	2	2	4	Saturated				▽ ▼	
	6.0	1	2	2	4	Saturated			2.6		5.5
0	8.5	2	1	1	2	Saturated			0.1	Tan, WELL-GRADED SAND (A-1-b)	8.0
	13.5	3	2	2	4	Saturated				**COASTAL PLAIN FORMATION** Dark Gray, SILTY SAND (A-2-4) [Yorktown Formation]	
-10	18.5	3	2	3	5	Saturated					
-15	23.5	14	27	26	53	Saturated					
-20	28.5	5	9	9	18	Saturated					
-25	33.5	4	7	10	17	Saturated					
-30	38.5	9	22	26	48	Saturated				w/ trace gravel at 38.5	

Vertical Scale: 1"=5'

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TEST BORING LOG

PROJECT NO. G21021.00	**PROJECT LOCATION** Greenville, NC		**LOGGED BY** Weis, J.	**GROUND WATER**	**0 HOUR** / **STATIC**
PROJECT NAME Wildwood Park Elevated Walkways & Tower				**HOLE**	▽ / ▼
BORING NO. WB-01	**BORING LOCATION** See Boring Location Plan			**DEPTH**	3.5 / 4.2
ELEVATION (ft) 8.1	**NORTHING (ft)** 683321	**DRILL MACHINE** CME45C 236214		**DATE**	7/16/2021 / 7/20/2021
TOTAL DEPTH (ft) 59.6	**EASTING (ft)** 2494526	**DRILLER** Strickland, TJ	**SURFACE WATER DEPTH (ft)** N/A		
DATE STARTED 7/16/2021	**DATE COMPLETED** 7/16/2021	**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic		

ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5 ft	0.5 ft	0.5 ft	BLOWS PER FOOT 0 20 40 60 80 100	MOISTURE	LAB NO. DEPTH	LOG	Elev. (ft)	SOIL AND ROCK DESCRIPTION / GROUNDWATER READINGS	Depth (ft)
										Continued from previous page	
-35	43.5	3	4	6	10	Saturated				Hard drilling from 41.5 to 42.0	
									-34.9		43.0
										Dark Gray, Sandy, SILT (A-4) [Yorktown Formation]	
-40	48.5	7	18	32	50	Saturated					
-45	53.5	9	10	11	21	Saturated			-44.9		53.0
										Dark Gray, Sandy, Silty, LEAN CLAY (A-6) [Yorktown Formation]	
-50	58.5	11	70	30/0.1	100/0.6	Moist			-49.9		58.0
										COASTAL PLAIN SEDIMENTARY ROCK Dark Gray, Cemented Sand [Yorktown Formation]	
									-51.5		59.6
										Boring Terminated at 59.6 feet Below Current Ground Surface in COASTAL PLAIN SEDIMENTARY ROCK	
-55											
-60											
-65											
-70											

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SUMMARY OF SOIL INDEX TESTING

Project Number: G21021.00

Project Name: Wildwood Park Elevated Walkways & Tower

Project Location: Greenville, NC

Sample ID	Boring ID	Depth (ft)	Natural Moisture Content (%)	Percent Passing			Atterberg Limits			Percent Organics	Symbol	
				#10	#40	#200	LL	PL	PI		USCS	AASHTO
S-01	BGS-01	5.5 - 6.0	33.9	100	96	81.0	45	23	22	-	CL	A-7-6
S-02	BT-01	2.5 - 3.0	22.3	100	95	72.0	38	21	17	-	CL	A-6
S-03	CT-01	4.1 - 4.5	24.2	99	86	44.6	21	17	4	-	SC-SM	A-4
SS-01	BGS-06	18.5 - 20.0	24.0	99	63	7.9	NP	NP	NP	-	SP-SM	A-3
SS-02	BW-01	18.5 - 20.0	41.3	100	97	49.7	51	21	30	-	SC	A-7-6
SS-03	BW-02	13.0 - 14.5	22.9	97	93	37.2	26	23	3	-	SM	A-4
SS-04	BW-04	6.0 - 7.5	25.6	99	88	17.8	NP	NP	NP	-	SM	A-2-4
SS-05	TB-02	28.5 - 30.0	21.4	88	64	25.0	26	23	3	-	SM	A-2-4

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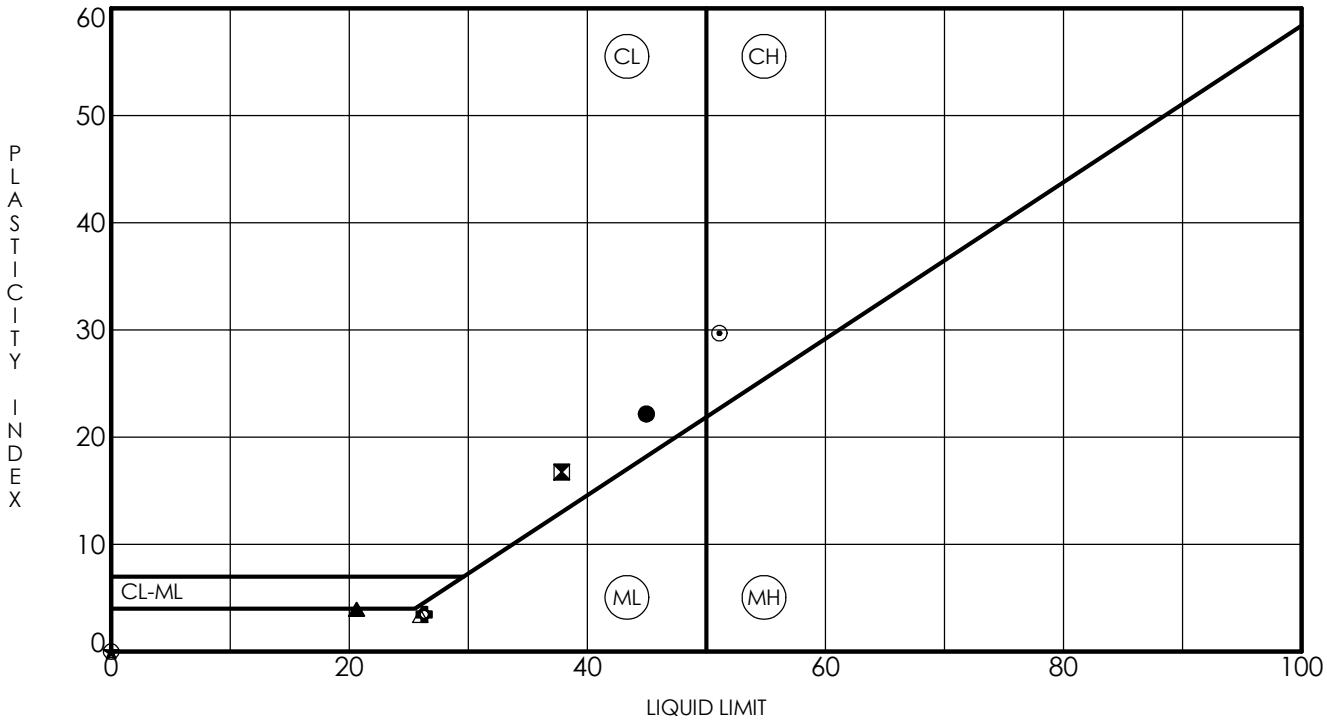
ATTERBERG LIMITS RESULTS



	Sample Identification			LL	PL	PI	Fines	USCS and AASHTO Classification	
●	S-01	BGS-01	5.5 - 6.0	45	23	22	81.0	LEAN CLAY with SAND (CL)	A-7-6
⊠	S-02	BT-01	2.5 - 3.0	38	21	17	72.0	LEAN CLAY with SAND (CL)	A-6
▲	S-03	CT-01	4.1 - 4.5	21	17	4	44.6	SILTY, CLAYEY SAND (SC-SM)	A-4
★	SS-01	BGS-06	18.5 - 20.0	NP	NP	NP	7.9	POORLY GRADED SAND with SILT (SP-SM)	A-3
⊙	SS-02	BW-01	18.5 - 20.0	51	21	30	49.7	CLAYEY SAND (SC)	A-7-6
✿	SS-03	BW-02	13.0 - 14.5	26	23	3	37.2	SILTY SAND (SM)	A-4
○	SS-04	BW-04	6.0 - 7.5	NP	NP	NP	17.8	SILTY SAND (SM)	A-2-4
△	SS-05	TB-02	28.5 - 30.0	26	23	3	25.0	SILTY SAND (SM)	A-2-4

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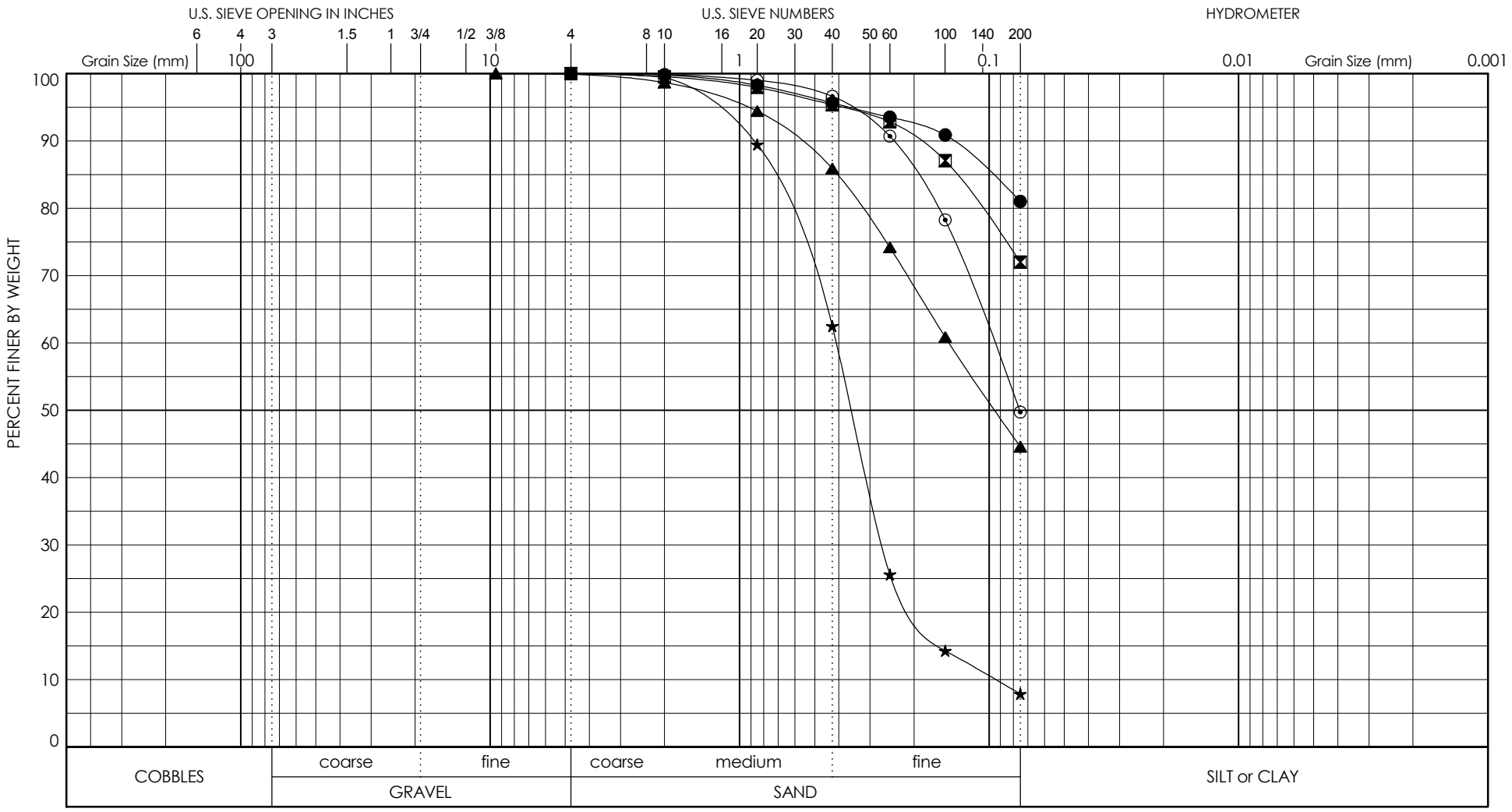
GRAIN SIZE DISTRIBUTION



Sample Identification			NMC	D100	D60	D30	D10	Cc	Cu	%Gravel	%Sand	%Silt	%Clay	LL	PI	USCS and AASHTO Classification	
● S-01	BGS-01	5.5 - 6.0	33.9 %	4.75						0	19	81.0		45	22	LEAN CLAY with SAND (CL)	A-7-6
⊠ S-02	BT-01	2.5 - 3.0	22.3 %	4.75						0	28	72.0		38	17	LEAN CLAY with SAND (CL)	A-6
▲ S-03	CT-01	4.1 - 4.5	24.2 %	9.5	0.145					0	55	44.6		21	4	SILTY, CLAYEY SAND (SC-SM)	A-4
★ SS-01	BGS-06	18.5 - 20.0	24.0 %	4.75	0.41	0.266	0.094	1.83	4.34	0	92	7.9		NP	NP	POORLY GRADED SAND with SILT (SP-SM)	A-3
⊙ SS-02	BW-01	18.5 - 20.0	41.3 %	4.75	0.096					0	50	49.7		51	30	CLAYEY SAND (SC)	A-7-6

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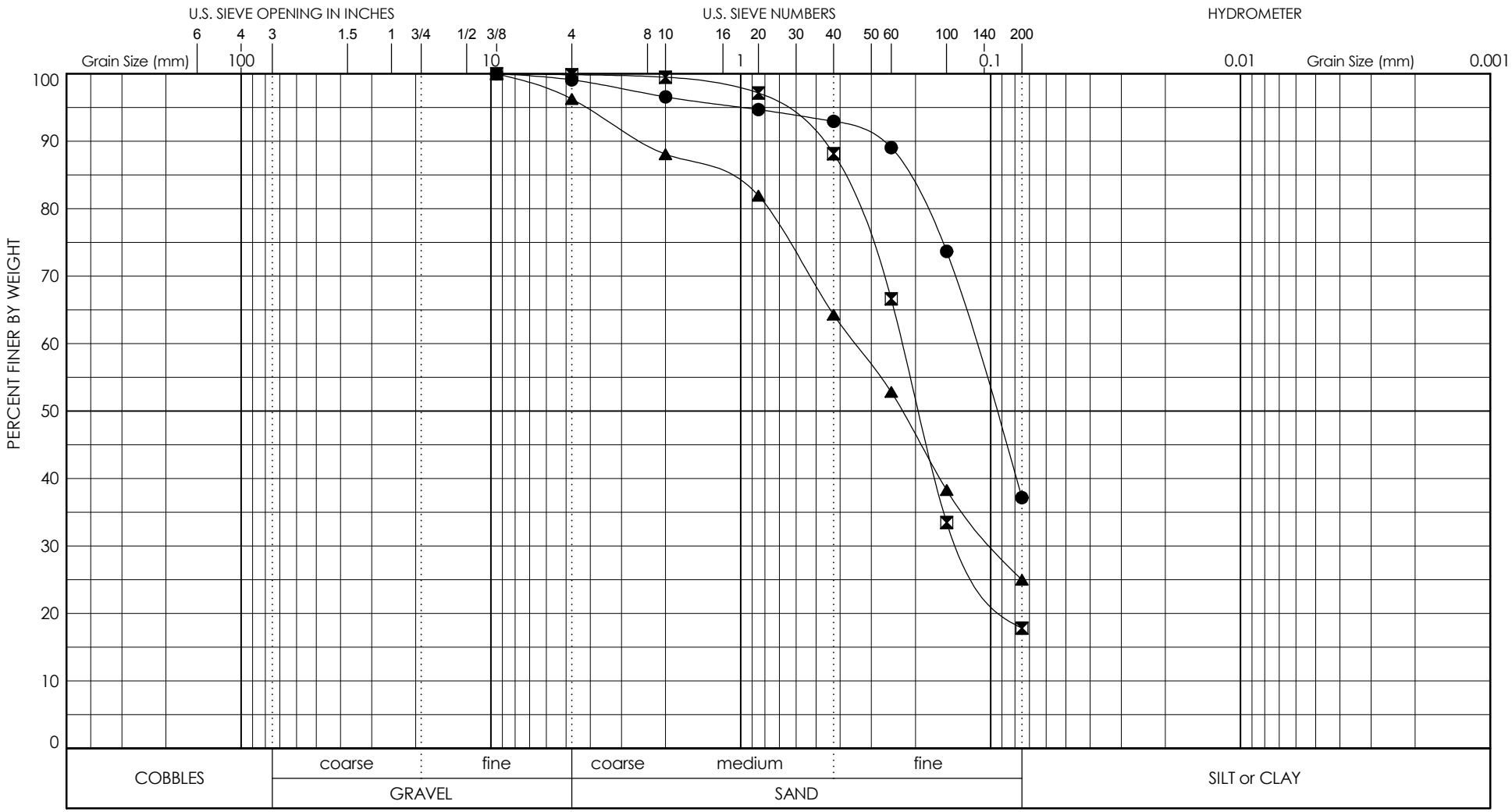

	Sample Identification		NMC	D100	D60	D30	D10	Cc	Cu	%Gravel	%Sand	%Silt	%Clay	LL	PI	USCS and AASHTO Classification	
●	SS-03 BW-02	13.0 - 14.5	22.9 %	9.5	0.116					1	62	37.2		26	3	SILTY SAND (SM)	A-4
⊠	SS-04 BW-04	6.0 - 7.5	25.6 %	9.5	0.226	0.129				0	82	17.8		NP	NP	SILTY SAND (SM)	A-2-4
▲	SS-05 TB-02	28.5 - 30.0	21.4 %	9.5	0.349	0.097				4	71	25.0		26	3	SILTY SAND (SM)	A-2-4

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February 11, 2022

Mitch Magee, PE
Kimley-Horn and Associates, Inc.
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

Re: Foundation Recommendations
Wildwood Park Elevated Walkways and Tower
Greenville, North Carolina
Falcon Project No.: G21021.00

Mitch:

As authorized, Falcon Engineering Inc. (Falcon) has completed the Bridge Foundation Recommendations for the above referenced project. Analyses and recommendations were generally based on current NCDOT LRFD design policy and procedures.

Foundation recommendations, notes on plans, and pay item quantities are presented in the attachments. These recommendations are based on subsurface data obtained by Falcon as presented in the Subsurface Investigation Report submitted under separate cover. Bridge geometry and loading data used in our analyses were based on preliminary plans and structure loads provided by your office.

Falcon appreciates the opportunity to have provided you with geotechnical engineering services. If you have any questions concerning the contents of this report or need additional information, please do not hesitate to contact our office.

Respectfully submitted:
FALCON ENGINEERING, INC.

Stephen C. Crockett, PE
Project Engineer

Jeremy R. Hamm, PE
Geotechnical Services Manager

Enclosure: Foundation Recommendations, Notes on Plans, Pay Item Quantities

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FOUNDATION RECOMMENDATIONS

Prepared by: Falcon Engineering

T.I.P. NO. N/A

COUNTY Pitt (City of Greenville)

STATION Varies

DESCRIPTION City of Greenville Wildwood Park

Elevated Walkways and Observation Tower

	INITIALS	DATE
DESIGN	JRH	1/12/2022
CHECK	SC	2/11/2022
APPROVAL		

2/11/2022

DocuSigned by:
Jeremy R Hamm
462202304BBC46A...

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
039779
ENGINEER
JEREMY R. HAMM

STRUCTURE/BENT CONFIGURATION	FOUNDATION TYPE	FACTORED RESISTANCE	MISCELLANEOUS DETAILS
FOUNDATION TYPE 1: BOARDWALK END BENTS	Cap on 8" Tip Diameter Timber Piles	5 tons/pile	Average Bottom of Cap Elev. = Varies Estimated Length of Pile = 35 feet Number of Vertical Piles = 3 Pile Spacing = 5 feet, 6 inches
FOUNDATION TYPE 2: BOARDWALK SHORT BENTS (UNSUPPORTED LENGTH <6 FT) TYPICAL SPAN	Cap on 8" Tip Diameter Timber Piles	5 tons/pile	Average Bottom of Cap (BOC) Elev. = Varies Estimated Length of Pile = 40 feet Number of Vertical Piles = 2 Point of Fixity = 14 feet below BOC Minimum Pile Embedment = 10 feet Pile Spacing = 8 feet
FOUNDATION TYPE 3: BOARDWALK SHORT BENTS (UNSUPPORTED LENGTH <6 FT) MAXIMUM SPAN	Cap on 8" Tip Diameter Timber Piles	6.5 tons/pile	Average Bottom of Cap (BOC) Elev. = Varies Estimated Length of Pile = 45 feet Number of Vertical Piles = 2 Point of Fixity = 14 feet below BOC Minimum Pile Embedment = 12 feet Pile Spacing = 8 feet
FOUNDATION TYPE 4: BOARDWALK TALL BENTS (UNSUPPORTED LENGTH <15.5 FT) TYPICAL SPAN	Cap on 8" Tip Diameter Timber Piles	5 tons/pile	Average Bottom of Cap (BOC) Elev. = Varies Estimated Length of Pile = 50 feet Number of Vertical Piles = 2 Point of Fixity = 23 feet below Bottom of BOC Minimum Pile Embedment = 10 feet Pile Spacing = 8 feet
FOUNDATION TYPE 5: BOARDWALK TALL BENTS (UNSUPPORTED LENGTH <15.5 FT) MAXIMUM SPAN	Cap on 8" Tip Diameter Timber Piles	6.5 tons/pile	Average Bottom of Cap (BOC) Elev. = Varies Estimated Length of Pile = 55 feet Number of Vertical Piles = 2 Point of Fixity = 23 feet below Bottom of BOC Minimum Pile Embedment = 12 feet Pile Spacing = 8 feet
FOUNDATION TYPE 6: BOARDWALK 4-PILE BENTS	Cap on 8" Tip Diameter Timber Piles	5 tons/pile	Average Bottom of Cap (BOC) Elev. = Varies Estimated Length of Pile = 50 feet Number of Vertical Piles = 4 Point of Fixity = 23 feet below Bottom of BOC Minimum Pile Embedment = 10 feet Pile Spacing = 8 feet
FOUNDATION TYPE 7: PREFABRICATED TRUSS BRIDGE BENTS	Cap on HP 12x53 Steel Piles	30 tons/pile	Average Bottom of Cap Elev. = Varies Estimated Length of Pile = 55 feet Number of Vertical Piles = 2 Point of Fixity = 22 feet below Bottom of BOC Minimum Pile Embedment = 14 feet Pile Spacing = 10 to 12 feet
FOUNDATION TYPE 8: OBSERVATION TOWER COLUMNS	36-inch Diameter Drilled Piers	100 tons/pier	Assumed Top of Pier Elevation = 5 feet +/- Point of Fixity = 33 feet Beneath Top of Pier Minimum Tip Elevation = -41.5 Number of Piers = 4

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TIP # N/A **County** Pitt (City of Greenville)

FOUNDATION RECOMMENDATION NOTES ON PLANS

1. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
2. PILES FOR FOUNDATION TYPES NO. 1, 2, 4, AND 6 ARE DESIGNED FOR A FACTORED RESISTANCE OF 5 TONS PER PILE.
3. DRIVE PILES FOR FOUNDATION TYPES NO. 1, 2, 4, AND 6 TO A REQUIRED DRIVING RESISTANCE OF 8.5 TONS PER PILE.
4. PILES FOR FOUNDATION TYPES NO. 3 AND 5 ARE DESIGNED FOR A FACTORED RESISTANCE OF 6.5 TONS PER PILE.
5. DRIVE PILES FOR FOUNDATION TYPES NO. 3 AND 5 TO A REQUIRED DRIVING RESISTANCE OF 11 TONS PER PILE.
6. PILES FOR FOUNDATION TYPE NO. 7 ARE DESIGNED FOR A FACTORED RESISTANCE OF 30 TONS PER PILE.
7. DRIVE PILES FOR FOUNDATION TYPE NO. 7 TO A REQUIRED DRIVING RESISTANCE OF 50 TONS PER PILE.
8. STEEL PILE POINTS ARE REQUIRED FOR TIMBER PILES FOR FOUNDATION TYPES NO. 2 THROUGH 6.
9. STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES FOR FOUNDATION TYPE NO. 7. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
10. INSTALL PILES FOR FOUNDATION TYPES NO. 2, 4, AND 6 TO A TIP ELEVATION NO HIGHER THAN 10 FEET BELOW EXISTING GROUND SURFACE.
11. INSTALL PILES FOR FOUNDATION TYPES NO. 3 AND 5 TO A TIP ELEVATION NO HIGHER THAN 12 FEET BELOW EXISTING GROUND SURFACE.
12. INSTALL PILES FOR FOUNDATION TYPE NO. 7 TO A TIP ELEVATION NO HIGHER THAN 14 FEET BELOW EXISTING GROUND SURFACE.
13. IF NECESSARY, PREDRILL PILE LOCATIONS FOR FOUNDATION TYPES 2 THROUGH 7 TO AN ELEVATION NO LOWER THAN THE "TIP NO HIGHER THAN" ELEVATIONS IN NOTES 10 THROUGH 12 WITH EQUIPMENT THAT WILL RESULT IN A MAXIMUM PREDRILLING DIAMETER OF 8 INCHES. FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
14. DRILLED PIERS FOR FOUNDATION TYPE NO. 8 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 10 TSF.
15. PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS FOR FOUNDATION TYPE NO. 8. DO NOT EXTEND PERMANENT STEEL CASINGS MORE THAN 5 FEET BELOW MUDLINE WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
16. INSTALL DRILLED PIERS FOR FOUNDATION TYPE NO. 8 TO A TIP ELEVATION NO HIGHER THAN -41.5 FT WITH THE REQUIRED TIP RESISTANCE.
17. SPT MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SPT. FOR SPT TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS. IF SPT IS REQUIRED, THE MINIMUM BLOW COUNT REQUIRED IS 30 BLOWS PER FOOT.
18. CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

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PILE PAY ITEMS

(Revised 8/11/15)

WBS ELEMENT: N/A
DATE: 1/12/2022
TIP NO.: N/A
DESIGNED BY: JRH
COUNTY: Pitt (City of Greenville)
CHECKED BY: -
STATION: Varies

DESCRIPTION: City of Greenville Wildwood Park
Elevated Walkways and Observation Tower

Bent # or End Bent #	PILE PAY ITEM QUANTITIES						
	Steel Pile Points (yes/no)	Pipe Pile Plates (yes/no/maybe)	Predrilling For Piles (linear ft per bent)	Pile Redrives (per bent)	Pile Excavation (per linear ft)		PDA Testing (per each)
					In Soil	Not In Soil	
Foundation Type 1	No			1			
Foundation Type 2	Yes		20	1			
Foundation Type 3	Yes		24	1			
Foundation Type 4	Yes		20	1			
Foundation Type 5	Yes		24	1			
Foundation Type 6	Yes		20	1			
Foundation Type 7	Yes		28	1			
TOTALS					0	0	2

Notes:
Blanks or "no" represent quantity of zero.

If steel pile points are required, calculate quantity of "Steel Pile Points" as equal to the number of steel piles.

If pipe pile plates are or may be required, calculate the quantity of "Pipe Pile Plates" as equal to the number of pipe piles.

If predrilling is required, quantities should be multiplied by the number of bents with each foundation type.

Show quantity of "PDA Testing" on the plans as total only.